STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

July 21, 2004

U.S. Army Corps of Engineers
Raleigh Field Office
6508 Falls of the Neuse Road
Suite 120
Raleigh, NC 27615

Attention: Mr. John Thomas
NCDOT Coordinator

Subject: **Nationwide 23 and 33 Permit Application** for the proposed widening of US 601 in Yadkin County from the Yadkinville South City Limits to the Yadkin/Davie County line; NCDOT Division 11. Federal Project No. STP-601(6), State Project No. 8.1770801; WBS Element 34543.1.1; TIP No. R-3427

Dear Sir:

Please find enclosed copies of the Categorical Exclusion (CE), PCN form, permit drawings, half size plans, Reforestation Detail Sheet and an EEP Request Letter. The NCDOT proposes to widen US 601 to two 12-foot lanes from the Yadkinville South City limits to the Yadkin/Davie County line. The project will include turn lanes at various intersections and the replacement of the 190 foot Bridge No. 30 over South Deep Creek with a new 210 foot 3 span pre-cast concrete girder bridge in the same location. The new bridge will span the creek with no bents in the water.

The total project length will be 5.3 miles. Traffic will remain onsite during construction of the road widening, with a temporary onsite detour bridge located approximately 100 feet west of the existing bridge. This project will impact 10 separate streams for a total of 989.5 linear feet of surface waters and 7 separate wetlands for a total of 0.223 acre of wetlands. There will also be 0.07 acre of temporary impacts to the surface waters due to a causeway constructed for the removal of the existing bridge.

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.NCDOT.ORG

LOCATION:
2728 CAPITAL BLVD
PLB SUITE 168
RALEIGH NC 27604

Improving US 601 and replacing Bridge No. 30 will have a positive effect on the Yadkinville area by increasing the level of safety associated with the highway. No recreational facilities will be involved; no archaeological sites will be impacted; no publicly owned parks, recreational facilities or wildlife or waterfowl refuges of national, state or local significance are in the vicinity of the project. The project will require approximately 1.3 acres of the John H. Hauser historic Farmstead. Impacts to this Farmstead will be minimized, therefore the State Historic Preservation Officer (SHPO) has concurred with the determination no effect in a concurrence form dated March 19, 2002 (See page A-9 of Appendix A in the CE). will be a slight impact to the John H. Hauser Farmstead property

IMPACTS TO WATERS OF THE UNITED STATES

General Description: Waters in the project vicinity are part of the Yadkin-Pee Dee River Basin, (subbasin 030702), Hydrologic Unit # 03040101. Project area waters drain to the east and eventually empty into the Yadkin River. Dry Branch, Harmon Creek and South Deep Creek and tributaries of these surface waters will be directly impacted by the construction of pipes, culverts and a proposed bridge. Please see Table 1 below for the stream classifications of these water bodies.

Table 1. Division of Water Quality Best Usage Classification

Stream	DWQ Index No.	DWQ Classification
Dry Branch	12-102-4	C
Harmon Creek	12-84-2-6	WS-IV
South Deep Creek	12-84-2-(4.5)	WS-III CA

Neither High Quality Waters (HQW), Water Supplies (WS-I: undeveloped watersheds or WS-II: predominately undeveloped watersheds), Outstanding Resource Waters (ORW), nor 303(d) designated waters occur within 1.0 mile (1.6 km) of project study area.

PERMANENT IMPACTS

Streams: There are 989.5 linear feet of permanent impacts to surface waters which are divided among ten jurisdictional stream crossings along the project length. Jurisdictional stream determinations were made by USACE representative (Eric Alsmeyer) on April 17, 2001. See Table 2 below for a summary of the stream crossing sites and proposed impacts from the project construction. The "CE Site No." relates to the description of each water body on page 24 – 26 of the CE. The "Sheet No. of Permit Drawings" refers to the most recent permit drawings submitted with this application. Site 10 (S10) in the CE (South Deep Creek) is not listed in the table since there are no permanent impacts to this creek. A description of each stream location and proposed structure will follow the table.

Table 2. Summary of Permanent Impacts to Surface Waters

Permit Drawings Site No.	CE Stream Site No.	Sheet No. of Permit Drawings	Water Body (Intermittent -I or Perennial - P)	Surface water Impacts	Impacts Requiring Mitigation	Natural Channel Design
				Linear Ft.	Linear Ft.	Linear Ft.
Site 1	S2*	6 of 40	UT1 Dry Branch (P)	50.0	N/A	N/A
Site 2	S1*	8 of 40	Dry Branch (P)	44.0	N/A	N/A
Site 3	S3	11 of 40	UT2 Dry Branch (P)	31.0	N/A	N/A
Site 4	S4	11 of 40	UT3 Dry Branch (P)	26.0	N/A	N/A
Site 5	S5	13 of 40	UT4 Dry Branch (P)	43.0	43.0 **	N/A
Site 6	NA	13 of 40	UT4 Dry Branch (P)	190.0	190.0 **	N/A
			Stream Relocation	N/A	N/A	220.0
Site 8	S6	16 of 40	UT1 Harmon Creek (P)	49.0	N/A	N/A
10A	NA	16 of 40	UT2 Harmon Creek (P)	18.0	N/A	N/A
10B	S7	19 of 40	UT2 Harmon Creek (P)	120.0	N/A	N/A
13	S8	22 of 40	UT3 Harmon Creek (P)	38.0	N/A	N/A
14	S9	24 of 40	Harmon Creek (P)	260.0	260.0	N/A
19	S11	29 of 40	UT South Deep Creek (P)	120.0	N/A	N/A
Totals				**989.5**	**493.0**	**220.0**

* There is a typo on page 24 of the CE. UT Dry Branch and Dry Branch were mistakenly switched.
** Impacts are cumulative since this is the same UT4 to Dry Branch

Sites below are according to most recent Permit Drawings' Permit Impact Summary Sheet (Permit Sheets 39 and 40 of 40 attached). Where pipes or culverts are extended or new structures installed, Best Management Practices for Construction and Maintenance Activities (Section 4.0, pages 22 through 31).

Site 1 – UT1 to Dry Branch: (Permit Sheet 6 of 40) US 601 crosses this UT approximately 300 feet north of the Davie/Yadkin County line. At this site there will be a 36-inch reinforced culvert pipe extension, which will permanently impact 0.007 acre or 50.5 linear feet of surface waters.

Site 2 – Dry Branch: (Permit Sheet 8 of 40) US 601crosses Dry Branch approximately 1,200 feet north of the Davie/Yadkin County Line and 400 feet south of Peachtree Lane. At this site there will be a 6 ft x 6 ft reinforced box culvert extension, which will permanently impact 0.012 acre or 44 linear feet of surface waters.

Site 3 – UT2 to Dry Branch: (Permit Sheet 11 of 40) US 601crosses this stream approximately 100 feet north of Beach Lane. At this site there will be a 24-inch reinforced concrete pipe extension permanently impacting 0.003 acre fill or 31 linear feet of surface waters.

Site 4 – UT3 to Dry Branch: (Permit Sheet 11 of 40) US 601crosses this stream approximately 450 feet north of Site 3. At this site the 3 ft x 4 ft reinforced concrete box culvert will be extended with a 48-inch reinforced concrete pipe and will permanently impact 0.003 acre or 26 linear feet of surface waters.

Site 5 – UT4 to Dry Branch: (Permit Sheet 13 of 40) US 601 crosses this stream approximately 1,650 feet south of SR 1165 (Intersection of Fish Brandon Road). At this site the 3 ft x 4 ft reinforced concrete box culvert will be extended with a 48-inch reinforced concrete pipe, permanently impacting 0.004 acre or 43 linear feet of surface waters.

Site 6 – UT Dry Branch Stream Relocation of UT4 Dry Branch: (Permit Sheet 13 of 40) The proposed widening of NC 601 will impact UT4 to Dry Branch which flows parallel and close to the existing roadway. The channel will be moved east of the road and constructed with natural stream design. The total impact to the main channel will be 190 linear feet or 0.015 acre fill. There will be 220 linear feet of stream relocation and natural stream design for this UT. (See Morphological Measurement Table, Permit Sheet No. 35 of 40.)

Site 8 UT 1 Harmon Creek: (Permit Sheet 16 of 40) US 601 crosses this stream approximately 2,300 feet north of SR 1165 (Intersection of Fish Brandon Road). At this site the 5 ft x 4 ft reinforced concrete box culvert will be extended with a 60-inch reinforced concrete pipe. There will be 0.004 acre fill or 49 linear feet impacts to surface waters at this site.

Site 10A UT 2 Harmon Creek : (Permit Sheet 16 of 40) This creek flows towards the south adjacent to US 601and then east, away from the road. This stream segment is downstream of the segment at site 10B, UT2 Harmon Creek. The UT 2 Harmon Creek does not flow under the road at this site although there is an impact associated with rip/rap placement to stabilize the area. At this site there will be 18 linear feet of permanent impacts to the surface waters.

Site 10B – UT 2 to Harmon Creek. (Permit Sheet 19 of 40) US 601 crosses this stream approximately 1,300 feet north of Site 8. This stream flows from the west and before reaching the highway runs parallel to the highway for approximately 100 feet. At this location the creek will need to be pushed out from the highway and a grassed lined lateral ditch was constructed for 100 feet of stream surface relocation. A natural stream design could not be considered for this location due to the contour of the land. There will be a 24 inch reinforced concrete pipe replacement for the section of this creek that flows under the road. The total permanent impacts at this site will be 0.004 acre fill or 120 linear feet in the surface waters.

Site 13 – UT 3 Harmon Creek: (Permit Sheet 22 of 40) US 601 crosses this stream approximately 1,900 feet north of Site 10B and 1,400 feet south of Peanut Lane. The proposed structure at this site is a 30 inch reinforced concrete pipe extension. There will be 0.002 acre fill or 38 linear feet of permanent impacts to the surface waters.

Site 14 – Harmon Creek: (Permit Sheet 24 of 40) US 601 crosses this stream approximately 300 feet south of Peanut Lane and 2,100 feet south of Lone Hickory Road. Harmon Creek flows east toward the road, under the road and then parallels the road for approximately 140 feet before flowing east again. The creek along the road gives way to a very step embankment which is unsafe for traffic moving along US 601. At this location a lateral ditch

pushed out from the road is proposed for this segment of the creek that parallels the road. In addition there will be a 4 ft x 4 ft reinforced box culvert extended at each end with a 54 inch reinforced concrete pipe. The total impacts at this site will be 0.003 acre fill or 260 linear feet of permanent impacts.

Site 19 – UT South Deep Creek: (Permit Sheet 29 of 40) US 601 crosses this stream approximately 700 feet north of Hoots Road and 1,550 feet south of Walnut Avenue. There are 3 @ 8 ft x 9 ft reinforced concrete box culvert extensions proposed at this location. The impact to surface waters will be 0.014 acre of fill or 120 linear feet.

Wetlands: There are 0.22 acre of permanent impacts to jurisdictional wetlands proposed to occur between seven different sites along the project length. See Table 3 below for a summary of wetland impacts. Cross section sheets for wetland impact sites are included with the permit drawings. Wetland 8 in the CE document is not listed in this table due to no impacts to this wetland.

Table 3. Summary of Permanent Impacts to Wetlands

Permit Drawings Site No.	Sheet No. of Permit Drawings	CE Wetland Site No.	Cowardin Classification *	Riverine (R) or Non-Riverine (NR)	Impact Type **	Total Impact (Acres)	Impacts Requiring Mitigation (Acres)
7	13 of 40	W1	PEM1A	R	M	0.017	N/A
9	16 of 40	W2	PEM1A	NR	F,M	0.015	N/A
11	19 of 40	W3	PFO1A	R	M	0.005	N/A
12	19 of 40	W4	PFO1A	NR	F,M	0.006	N/A
15	26 of 40	W5	PFO1A	NR	F	0.003	N/A
17	26 of 40	W6	PEM1A	NR	E,M	0.006	N/A
18	29 of 40	W7	PSS1A	NR	F,M	0.171	0.171
Total						**0.223**	**0.171**

* - P = Palustrine
EM = Emergent; 1 = Persistent
FO = Forested; 1 = Broad-Leaved Deciduous
SS = Scrub Shrub; 1 = Broad-Leaved Deciduous
A = Temporarily Flooded
** - F = Fill; E = Excavation; M = Mechanized Clearing

Sites below are according to most recent Permit Drawings' Permit Impact Summary Sheet (See Sheets 39 and 40 of 40 attached).

Site 7 Wetland (Permit Sheet 13 of 40) is associated with a perennial stream (Site 5), an unnamed tributary to Dry Branch. This wetland is located approximately 1,650 feet south of the Fish Brandon Road intersection, within the ditchline and powerline right-of-way to the east of Hwy 601. The wetland borders a slender woods line adjacent to an agricultural field. This wetland area is irregularly maintained as part of the power line ROW. Vegetation

includes *Smilax* sp., *Rubus* sp., *Eupatorium* sp., *Ludwigia alternifolia, Juncus effuses,* and species of *Cyperus.* This wetland was mapped in the National Wetland Inventory as palustrine, unconsolidated bottom, permanently flooded. Although mapped as permanently flooded, this wetland seemed to only be temporally flooded by heavy rain events and/or storm surges running through the ditches. At this site the road widening will involve mechanized clearing for a lateral encroachment impacting 0.017 acre of the wetland.

Site 9 Wetland (Permit Sheet 16 of 40) This wetland is located within an irregularly maintained area associated with the lift station on the northern bank of Site 8, east of Hwy 601. Vegetation in this wetland area includes *Salix* sp., *Rubus* sp., *Solidago* sp., *Juncus* sp., and *Microstegium vimineum.* This wetland was mapped in the National Wetland Inventory as palustrine, unconsolidated bottom, permanently flooded. Although mapped as permanently flooded, this wetland seemed to only be temporally flooded by occasional over-bank flooding by S6 and by water that pools in this area after heavy rain events. At this site there will be a lateral encroachment with 0.01 acre of mechanized clearing and 0.005 acre of fill impacted to the wetland.

Site 11 Wetland (Permit Sheet 19 of 40) is associated with a perennial stream (Site 10B), an unnamed tributary to Harmon Creek. This wetland is located within a depressional area within a portion of Mesic Forest Woods to the west of US 601 and is dissected by Site 10B. Vegetation in this wetland area includes *Alnus serrulata, Salix nigra, Acer rubrum, Fraxinus pennsylvancia, Plantanus ocidentalis, Lonicera japonica,* and species of *Smilax.* This wetland was mapped in the National Wetland Inventory as palustrine, unconsolidated bottom, permanently flooded. Although mapped as permanently flooded, this wetland seemed to only be temporally flooded by occasional over bank flooding by the UT Harmon Creek and by water that pools in this area after heavy rain events. At this site the road widening will involve mechanized clearing for a lateral encroachment impacting 0.005 acre of wetland.

Site 12 Wetland (Permit Sheet 19 of 40) is located within a wet depressional area to the west of US 601, approximately 2,400 ft south of Peanut Lane. This wetland is situated in an area that was once wooded and has been harvested within the last few years. Young hardwood saplings and root sprouts, approximatley 5 years old dominate this cutover area. Vegetation in this wetland area includes *Liriodendron tulipifera, Liquidambar styraciflua, Acer rubrum, Smilax* sp., *Rubus* sp., and species of *Carex.* The wetland was mapped in the National Wetland Inventory as palustrine, unconsolidated bottom, permanently flooded. Although mapped as permanently flooded, this wetland seemed to only be temporally flooded by heavy rain events which cause water to pool in this area. At this site there will be lateral encroachment will involve 0.006 acre of mechanized clearing and 0.0002 acre of roadway fill impacts to the wetland.

Site 15 Wetland (Permit Sheet 26 of 40) is located to the west of US 601/Bridge No. 30 on the southern bank of the creek. This wetland is situated in a drainage ditch at the base of the fill slope of the existing road shoulder, beneath the bridge. Vegetation in this wetland area includes *Betula nigra, Liquidambar styacifua, Sambucus canadensis, Lonicera japonica,*

Carex sp., *Boehmeria cylindrica*, and species of *Impatiens*. This wetland was not mapped in the National Wetland Inventory. Temporary standing water in the wetland is a contribution of drainage and over-bank flooding of South Deep Creek. At this site there will be 0.003 acre of wetlands impacted due to the lateral encroachment for the road widening.

Site 17 Wetland (Permit Sheet 26 of 40) is located to the east of US 601/Bridge No. 30 on a floodplain near the northern bank of South Deep Creek. This wetland is situated in a depressional area within the maintained lawn of the WWTP and surrounds a large pile of rip rap and fill dirt. Vegetation in this wetland area includes *Juncus* sp., *Carex* sp., *Polygonum* sp., and *Plantago lanceolata*. The wetland was not mapped in the National Wetland Inventory. This wetland seemed to only be temporally flooded by heavy rain events which causes water to pool in this area. At this site there will be 0.004 acre of excavation from roadway cut and 0.002 acre of mechanized clearing due lateral encroachment in the wetland.

Site 18 Wetland (Permit Sheet 29 of 40) is located within the ditchline to the west of Hwy 601. This wetland is situated in an abandoned field area where early successional plants are dominant. Vegetation in this wetland area includes *Alnus serrulata*, *Salix discolor*, *and Salix nigra* saplings as well as herbeous vegetation including *Lonicera japonica*, *Carex* sp. and species of *Juncus*. This wetland was not mapped in the National Wetland Inventory. Temporary flooding in this wetland is a contribution of drainage and over bank flooding of the creek. At this site the widening of the highway will cause 0.114 acre of fill and 0.057 acre mechanized clearing due to lateral encroachment in the wetland.

TEMPORARY IMPACTS

There will be temporary impacts to 11 stream sites in the project area. Most impacts are due to a temporary drainage easement for a pipe/culvert extension or replacement. Best Management Practices for Construction and Maintenance Activities will be followed for the pipe/culvert extensions and installations (pages 21 through 31 of the referenced manual).

There will be 0.07 acre of fill in the surface water (Site 16 on permit drawings, Sheet 26 of 40) due to rip/rap from a temporary causeway. The causeway will be construction to provide access by construction equipment for the demolition of bridge No. 30.

See Table 3 below for a summary of the temporary impacts.

Table 3. Summary of Temporary Impacts to Streams

Permit Drawing Site No.	Sheet No. of Permit Drawings	Water Body	Structure type	Impacts (ft. or ac.)
1	6 of 40	UT1 Dry Branch	36 " RCP Extension	102 ft.
2	8 of 40	Dry Branch	6'x 6' RCBC Extension	56 ft.
3	11 of 40	UT2 Dry Branch	24" RCP Extension	35 ft.
4	11 of 40	UT3 Dry Branch	3'x4' RCBC Extend with 48" RCP	56 ft.
5	13 of 40	UT4 Dry Branch	3'x4' RCBC Extend with 48"RCP	18 ft.
8	16 of 40	UT1 Harmon Creek	5'x4' RCBC Extend with 60" RCP	59 ft.
10A	16 of 40	UT2 Harmon Creek	Rip Rap in Ditch	5 ft.
10B	19 of 40	UT2 Harmon Creek	24"RCP & Ditch construction	20 ft.
13	22 of 40	UT3 Harmon Creek	30"RCP Extension	35 ft.
14	24 of 40	Harmon Creek	4'x4'RCBC Extend with 54" RCP / Lat. Ditch Construction	17 ft.
16	26 of 40	South Deep Creek	Causeway rip/rap	0.07 ac.
19	29 of 40	UT South Deep Creek	3 @ 8'x9'RCBC Extension	29 ft.

Utility Relocation

There will be no impacts to jurisdictional areas do to utility relocation

Bridge Demolition

There is one existing bridge on this project site. Bridge No. 30 is composed of steel and concrete. The bridge's deck and superstructure are over 40 years old and are in poor condition. There will be a temporary causeway, constructed to the west of the existing bridge The causeway will be constructed to assist in the demolition of bridge No. 30. NCDOT will adhere to the Best Management Practices for Bridge Demolition and Removal during the removal of the existing structure, to prevent debris from falling into Waters of the United States.

Restoration Plan

After the detour bridge has served its purpose, the material used for installation of the bridge will be removed and the area will be restored to original contours and vegetative condition The disturbed area will be restored with tulip poplar, black gum, black cherry and northern red oak. (See sheet 1- Reforestation Detail Sheet.)

The material used for installation of the temporary causeway within the surface waters will be removed after its purpose has been served. The disturbed areas will be restored to their original contours. After the temporary fill is no longer needed, the contractor will use excavating equipment to remove all material within jurisdictional areas. All material will become the property of the contractor. The contractor will be required to submit a reclamation plan for removal and disposal of all material off-site. The project schedule calls for a October 19, 2004 let date with a date of availability November 23, 2004.

ICE Study

An Indirect and Cumulative Effects (ICE) Assessment for Transportation Improvement Program (TIP) project R-3427 in Yadkin County, North Carolina is being finalized and will be submitted to the agencies by July 30, 2004. An ICE Assessment includes project documentation, background information, and a definition of the study area(s). It also includes the identification of regional influences, growth and development trends, current transportation plans, land use plans, environmental regulations and an inventory of notable features.

AVOIDANCE, MINIMIZATION AND MITIGATION

This 5.3 mile road widening will have impacts to the surface waters and wetlands on the project site which will require mitigation. All practicable measures will be taken to minimize or mitigate impacts to surface waters and wetlands. The following provisions are made throughout the project:

Avoidance:

- The new bridge will be built to span South Deep Creek with no bents in the water and no impacts to surface waters.

Minimization:

- There will be hazard spill catch basins near the bridge site and wetland site 17, stations 234 and 238 (See Permit Sheet 26 of 40)
- There will be 2 sills at the inlet end of 2 of the 3 barrels set for site 19 (See Permit Sheet 29 of 40).
- At several sites (Site 1, Site 2, Site 4, Site 5, Site 10B, and at the bridge site, permit sheets 6, 8, 11, 13, 19 and 26 of 40, respectively) grassed lined lateral ditches will be installed along the expanded roadway before reaching the nearest creek crossing. Note: The new bridge will be constructed over South Deep Creek which is classified WS-III, CA. The grassed lined ditches at this site will minimize impacts to the critical area
- Permanent Soil Reinforcement Matting will be installed in lateral ditches and constructed along the highway for Site 2 and Site 14 (Permit Sheets 8 and 24 of 40, respectively).

- A toe protection along the fill at several sites (Site 3, Site 4, Site 8 and Site 17, Permits Sheets 11, 11, 16 and 26 of 40, respectively) will be installed using Permanent Soil Reinforcement matting.
- The fill slopes in the wetlands are 2:1 (See Permit Sheets 18, 21, 32, 33, 34 of 40).
- A Preformed Scour Hole is located at site 13 (See Permit Sheet 22 of 40).
- One fourth of this project is located within a protected area. The northeastern most portion of this protected area contains a watershed designated as a critical water supply watershed. NCDOT will adhere to North Carolina regulations entitled "Design Standards in Sensitive Watersheds" throughout design and construction of the project.

Compensatory Mitigation:

Streams:

- Impacts: There are 10 separate streams that will be impacted from this project construction, totaling 989.5 linear feet of streams. However, only 2 streams have impacts greater than the 150 foot threshold requiring mitigation. An unnamed tributary (4) to Dry Branch will be impacted 233 feet and Harmon Creek will be impacted 260 feet, totaling 493 linear feet of impacts requiring mitigation (see Table 2).
- Onsite Mitigation - Natural Stream Design (NSD): Proposing onsite NSD of 220 feet at a 1:1 mitigation ratio. At site 6, the location of natural stream design, the disturbed area will be restored with black willow and silky dogwood along the immediate stream bank adjacent to the stream. Black willow, green ash, river birch and sycamore will be planted on the top of the bank. (See sheet 2 – Streambank Reforestation Detail Sheet.)
- Offsite Mitigation - the remaining 273 feet (493 ft – 220 ft) of stream impacts will be mitigated through the use of EEP at a mitigation ratio of 2:1.

Wetlands:

Impacts: There are 7 separate wetland impacts totaling 0.233 acres. However only one wetland has an impact greater than 0.1 acre threshold requiring mitigation (see Table 3). This wetland is located at site 18 (see Permit Sheet 29 of 40) and will be impacted 0.171 acre. Offsite Mitigation - NCDOT proposes to mitigate for 0.171 wetland impacts through the use of EEP.

This project will have one stream site that will impact 190 linear feet of stream and one site that will impact 260 linear feet of stream. One wetland site will have 0.171 acre of impacts. Despite the minimization strategies employed for the proposed project, the resulting stream

impacts will be greater that 150 linear feet and the wetland impacts will be greater than 0.1 acre. Therefore these impacts will require mitigation.

Based upon the agreements stipulated in the "Memorandum of Agreement Among the North Carolina Department of Environment and Natural Resources, the North Carolina Department of Transportation, and the U.S. Army Corps of Engineers, Wilmington District (MOA)", it is understood that the North Carolina Department of Environment and Natural Resources Ecological Enhancement Program (EEP), will assume responsibility for satisfying the Section 404 compensatory mitigation requirements for NCDOT projects that are listed in Exhibit 1 of the subject MOA during the Ecological Enhancement Program (EEP) transition period which ends on July 1, 2005.

Since the subject project is listed in *Exhibit 1* the necessary compensatory mitigation to offset unavoidable impacts to waters that are jurisdictional under the federal Clean Water Act will be provided by the EEP (see attached letter to EEP). The offsetting mitigation will derive from an inventory of assets already in existence within the same Ecoregion and the same 8-digit cataloguing unit. We have avoided and minimized the impacts to jurisdictional resources to the greatest extent possible as described above. The remaining unavoidable impacts to 273 linear feet of surface waters and 0.171 acre of jurisdictional wetlands will be offset by compensatory mitigation provided by the EEP program.

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 US Fish and Wildlife Service (USFWS) list no federally-protected species for Yadkin County.

REGULATORY APPROVALS

Section 404 Permit: Based on a conversation with NCDOT and John Thomas on May 19, 2004 an application is hereby made for a Nationwide 23 and 33 for this project. It is anticipated that the temporary causeway will be authorized under Section 404 Nationwide Permit 33. We are therefore requesting the issuance of a Nationwide Permit 33 for the causeway. The remaining aspects of the project are being processed by the Federal Highway Administration as a "Categorical Exclusion" in accordance with 23 CFR 771.115(b). The NCDOT requests that these activities be authorized by a Nationwide Permit 23 (FR number 10, pages 2020-2095; January 15, 2002).

Section 401 Permit: We anticipate 401 General Certification numbers 3403 and 3366 will apply to this project. All general condition of these Water Quality Certifications will be met, therefore, in accordance with 15A NCAC 2H, Section .0500(a) and 15A NCAC 2B.0200 we are providing two copies of this application to the North Carolina Department of Environmental and Natural Resources, Division of Water Quality, for their notification.

Thank you for your time and assistance with this project. Please contact Carla Dagnino at (919) 715-1456 if you have any questions or need any additional information.

Sincerely,

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

w/attachment
- Mr. John Hennessy, Division of Water Quality
- Ms. Marla Chambers, Div 11 NCWRC
- Ms. Marella Buncick, Div. 11USFWS
- Mr. Greg Perfetti, P.E., Structure Design
- Mr. Ron Hancock, P.E., Bridge Construction

w/o attachment
- Mr. David Franklin, USACE, Wilmington
- Mr. Jay Bennett, P.E., Roadway Design
- Mr. Omar Sultan, Programming and TIP
- Mr. Art McMillan, P.E., Highway Design
- Mr. David Chang, P.E., Hydraulics
- Mr. Mark Staley, Roadside Environmental
- Mr. John F. Sullivan, III, FHWA
- Mr. Michael A. Pettyjohn, P.E.,Div. 11
- Mr. Heath Slaughter, Div. 11 DEO
- Ms. Jackie Obediente, PDEA Project Planning Engineer
- Ms. Beth Harmon, EEP

Office Use Only: Form Version May 2002

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

2. Nationwide, Regional or General Permit Number(s) Requested: NW23, NW33.

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 Wetlands Restoration Program (NCWRP) is proposed for mitigation of impacts (verify availability with NCWRP prior to submittal of PCN), 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: 1548 Mail Service Center
   Raleigh, NC 27699-1548
   Telephone Number: (199)-733-3141 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: NA
   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: Widening of US 601 South of Yadkinville

2. T.I.P. Project Number or State Project Number (NCDOT Only): R-3427

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

4. Location
   County: Yadkin Nearest Town: Yadkinville
   Subdivision name (include phase/lot number): N/A
   Directions to site (include road numbers, landmarks, etc.): From Yadkinville – take US 601 south and cross over US 401 and continue for about one mile to where the project starts. Continue South on US 61 for 5.3 miles to reach the end of the project.

5. Site coordinates, if available (UTM or Lat/Long): 36°6.41'N / 80°39.47"W
   (Note – If project is linear, such as a road or utility line, attach a sheet that separately lists the coordinates for each crossing of a distinct waterbody.)

6. Property size (acres): 5.3 mile * 100 feet = 64 acres

7. Nearest body of water (stream/river/sound/ocean/lake): Dry Creek, Harmon Creek and South Deep Creek

8. River Basin: Yadkin River Basin
   (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 project is located in an area that is largely forested or used for agriculture with only small residential communities

10. Describe the overall project in detail, including the type of equipment to be used: The project will consist widening US 601 to 12 foot lanes throughout the project and widening to three lanes in the SR 1001 vicinity. Turn lanes are proposed at several intersections along the route. In addition, Bridge No. 30 ovr South Deep Creek will be replaced, and a temporary onsite detour will be constructed adjacent to Bridge No. 30. The project length is approximately 5.3 miles.

Explain the purpose of the proposed work: Improving US 601 and replacing Bridge No. 30 will have a positive impact on the Yadkinville area by increasing the level of safety with the Highway.

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.

NA

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.

NA

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. The applicant must also provide justification for these impacts in Section VII below. All proposed impacts, permanent and temporary, must be listed herein, and must be clearly identifiable on an accompanying site plan. All wetlands and waters, and all streams (intermittent and perennial) must 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.

Provide a written description of the proposed impacts: There will be permanent impacts to 989.5 linear feet of surface waters and 0.2232 acre of wetlands. Also there will be 0.07 acre of temporary impacts to surface waters due to a causeway constructed for the removal of the existing bridge and 432 feet of temporary impacts due to pipe/culvert extension

1. Individually list wetland impacts below:

Wetland Impact Site Number (indicate on map)	Type of Impact*	Area of Impact (acres)	Located within 100-year Floodplain** (yes/no)	Distance to Nearest Stream (linear feet)	Type of Wetland***
Site 7	Mech. Clearing	0.017	No	0 (Riverine)	Fresh water emergent
Site 9	Mech. Clearing & Fill	0.015	No	25 feet	Fresh water emergent
Site 11	Mech. Clearing	0.005	No	0 (Riverine)	Fresh water forested
Site 12	Mech. Clearing & Fill	0.006	No	500 feet	Fresh water forested
Site 15	Fill	0.003	Yes	5 feet & 20 feet	Fresh water forested
Site 17	Mech. Clearing & Excavation	0.006	Yes	10 feet	Fresh water emergent
Site 18	Mech. Clearing & Fill	0.171	Yes	50 feet	Fresh water scrub shrub

* List each impact separately and identify temporary impacts. 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.

** 100-Year floodplains are identified through the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps (FIRM), or FEMA-approved local floodplain maps. Maps are available through the FEMA Map Service Center at 1-800-358-9616, or online at http://www.fema.gov.

*** List a wetland type that best describes wetland to be impacted (e.g., freshwater/saltwater marsh, forested wetland, beaver pond, Carolina Bay, bog, etc.) Indicate if wetland is isolated (determination of isolation to be made by USACE only).

List the total acreage (estimated) of all existing wetlands on the property: 0.7 acre
Total area of wetland impact proposed: 0.223 acre

2. Individually list all intermittent and perennial stream impacts below:

Stream Impact Site Number (indicate on map)	Type of Impact*	Length of Impact (linear feet)	Stream Name**	Average Width of Stream Before Impact	Perennial or Intermittent? (please specify)
Site 1	Pipe extension	50.5	UT Dry Branch	3 feet	Perennial
Site 2	Culvert extension	44.0	Dry Branch	3-6 feet	Perennial
Site 3	Pipe extension	31.0	UT Dry Branch	3 feet	Perennial
Site 4	Pipe extension	26.0	UT Dry Branch	6 feet	Perennial
Site 5	Pipe extension	43.0	UT Dry Branch	3 feet	Perennial
Site 6	Fill	190.0	UT Dry Branch	3 feet	Perennial
Site 8	Pipe extension	49.0	UT Harmon Creek	5 feet	Perennial
Site 10A	Rip/Rap	18.0	UT Harmon Creek	3 feet	Perennial
Site 10B	Fill & Pipe extension	120.0	UT Harmon Creek	3 feet	Perennial
Site 13	Pipe extension	38.0	UT Harmon Creek	4.5	Perennial
Site 14	Culvert extension	260.0	Harmon Creek	3-6 feet	Perennial
Site 16	Causeway (Temporary)	0.07 acre Fill	South Deep Creek	100 feet (Temporary)	Perennial
Site 19	Culvert extension	120.0	UT South Deep Creek	15 feet	Perennial

* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: culverts and associated rip-rap, dams (separately list impacts due to both structure and flooding), relocation (include linear feet before and after, and net loss/gain), stabilization activities (cement wall, rip-rap, crib wall, 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.

** Stream names can be found on USGS topographic maps. If a stream has no name, list as UT (unnamed tributary) to the nearest downstream named stream into which it flows. USGS maps are available through the USGS at 1-800-358-9616, or online at www.usgs.gov. Several internet sites also allow direct download and printing of USGS maps (e.g., www.topozone.com, www.mapquest.com, etc.).

Summary of Temporary Impacts to Streams

Permit Drawing Site No.	Sheet No. of Permit Drawings	Water Body	Structure type	Impacts (ft. or ac.)
1	6 of 40	UT1 Dry Branch	36 " RCP Extension	102 ft.
2	8 of 40	Dry Branch	6'x 6' RCBC Extension	56 ft.
3	11 of 40	UT2 Dry Branch	24" RCP Extension	35 ft.
4	11 of 40	UT3 Dry Branch	3'x4' RCBC Extend with 48" RCP	56 ft.
5	13 of 40	UT4 Dry Branch	3'x4' RCBC Extend with 48"RCP	18 ft.
8	16 of 40	UT1 Harmon Creek	5'x4' RCBC Extend with 60" RCP	59 ft.
10A	16 of 40	UT2 Harmon Creek	Rip Rap in Ditch	5 ft.
10B	19 of 40	UT2 Harmon Creek	24"RCP & Ditch construction	20 ft.
13	22 of 40	UT3 Harmon Creek	30"RCP Extension	35 ft.
14	24 of 40	Harmon Creek	4'x4'RCBC Extend with 54" RCP / Lat. Ditch Construction	17 ft.
16	26 of 40	South Deep Creek	Causeway rip/rap	0.07 ac.
19	29 of 40	UT South Deep Creek	3 @ 8'x9'RCBC Extension	29 ft.

Cumulative impacts (linear distance in feet) to all streams on site: 989.5 feet (Permanent)

3. Individually list all open water impacts (including lakes, ponds, estuaries, sounds, Atlantic Ocean and any other water of the U.S.) below:

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

* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: fill, excavation, dredging, flooding, drainage, bulkheads, etc.

4. 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.): NA

Proposed use or purpose of pond (e.g., livestock watering, irrigation, aesthetic, trout pond, local stormwater requirement, etc.): NA

Size of watershed draining to pond: NA Expected pond surface area: NA

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.

The new bridge will be built to span the creek with no bents in the water and no impacts to surface waters.

At several sites (Site 1, Site 2, Site 4, Site 5, Site 10B,and at the bridge site) grassed lined lateral ditches will be installed along the expanded roadway before reaching the nearest creek crossing. Note: The new bridge will be constructed over South Deep Creek which is classified WS-III,CA(critical area). The grassed lined ditches at this site will minimize impacts to the critical area

Permanent Soil Reinforcement Matting will be installed in lateral ditches constructed along the highway for Site 14 and Site 2.

A toe protection along the fill at several sites (Site 3, Site 4, Site 8 and Site 17) will be installed using Permanent Soil Reinforcement matting.
At site 6 there will be 220 feet of Natural Channel Design for the stream relocation.

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 March 9, 2000, 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 NCWRP 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.
   The NC DENR Ecological Enhancement Program (EEP), will assume responsibility for satisfying the Section 404 compensatory mitigation requirement for NCDOT projects that are listed in Exhibit 1 of the subject MOA during the EEP transition period which ends on July 1, 2005.

2. Mitigation may also be made by payment into the North Carolina Wetlands Restoration Program (NCWRP). Please note it is the applicant's responsibility to contact the NCWRP at

(919) 733-5208 to determine availability and to request written approval of mitigation prior to submittal of a PCN. For additional information regarding the application process for the NCWRP, check the NCWRP website at http://h2o.enr.state.nc.us/wrp/index.htm. If use of the NCWRP is proposed, please check the appropriate box on page three and provide the following information:

Amount of stream mitigation requested (linear feet): For 493 feet of impacts: (220 onsite by NCDOT); 546 feet offsite by EEP

Amount of buffer mitigation requested (square feet): NA

Amount of Riparian wetland mitigation requested (acres): 0

Amount of Non-riparian wetland mitigation requested (acres): 0.17 ac (0.34 if offsite)

Amount of Coastal wetland mitigation requested (acres): NA

IX. Environmental Documentation (required by DWQ)

Does the project involve an expenditure of public (federal/state) funds or the use of public (federal/state) land?

Yes ☒ No ☐

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 ☐

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.

Will the project impact protected riparian buffers identified within 15A NCAC 2B .0233 (Neuse), 15A NCAC 2B .0259 (Tar-Pamlico), 15A NCAC 2B .0250 (Randleman Rules and Water Supply Buffer Requirements), or other (please identify_____)?

Yes ☐ No ☒ If you answered "yes", provide the following information:

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		1.5	
Total			

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

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

XI. Stormwater (required by DWQ)

Describe impervious acreage (both 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.

NA

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.

NA

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. 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).

NA

7/21/09

Applicant/Agent's Signature **Date**

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

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

July 21, 2004

Mr. William D. Gilmore, P.E.
EEP Transition Manager
Ecosystem Enhancement Program
1652 Mail Service Center
Raleigh, NC 27699-1652

Dear Sir:

Subject: **Request for Mitigation Confirmation** for Widening of US 601from the Yadkinville South City Limits in Yadkin County to the Yadkin/Davie County line; Federal Aid No. STP-601(6), State Project No. 8.1770801; WBS Element 34543.1.1; TIP No. R-3427; NCDOT Division 11

The purpose of this letter is to request that the North Carolina Ecosystem Enhancement Program (EEP) provide confirmation that you are willing to provide compensatory mitigation for the project in accordance with the Memorandum of Agreement (MOA) signed July 22, 2003 by the United States Army Corps of Engineers (USACE), the North Carolina Department of Environment and Natural Resources (DENR), and the North Carolina Department of Transportation (NCDOT).

NCDOT proposes to widen US 601 to two 12-foot lanes throughout the project, and widening to three lanes in the SR 1001 vicinity. Turn lanes are proposed at several intersections along the route. In addition, Bridge No. 30 over South Deep Creek will be replaced, and a temporary onsite detour will be constructed adjacent to Bridge No. 30. The project length is 5.3 miles. Improving US 601 and replacing Bridge No. 30 will have a positive effect on the Yadkinville area by increasing the level of safety associated with the highway.

Impacts to jurisdictional resources have been avoided and minimized to the greatest extent possible as described in the permit application. A copy of the permit application can be found at http://www.ncdot.org/planning/pe/naturalunit/Applications.html. Of the remaining impacts to jurisdictional resources, 0.17 acre of impacts to non-riverine wetlands and 273 linear feet of impacts to streams will be compensated for by mitigation provided by the EEP program.

The project lies in the Western Piedmont Physiographic Province in Yadkin County in the Yadkin River Basin (Hydrologic Catalog Unit 03040101, Subbasin 03-07-02). Jurisdictional impacts and proposed compensatory mitigation are as follows.

Wetland Impacts and Compensatory Mitigation: Wetland impacts requiring mitigation total 0.17 acres to non-riverine wetlands. Compensatory mitigation is proposed to consist of mitigation provided by the EEP for 0.17acre of wetland impacts. See table 1 below for summary of all wetland impacts.

Table 1. Summary of Jurisdictional Impacts to Wetlands

Permit Drawings Site No.	Sheet No. of Permit Drawings	CE Wetland Site No.	Cowardin Classification *	Riverine (R) or Non-Riverine (NR)	Impact Type **	Total Impact (Acres)	Impacts Requiring Mitigation (Acres)
7	13 of 46	W1	PEM1A	R	M	0.017	N/A
9	16 of 46	W2	PEM1A	NR	F,M	0.015	N/A
11	18 of 46	W3	PFO1A	R	M	0.005	N/A
12	18 of 46	W4	PFO1A	NR	F,M	0.006	N/A
15	24 of 46	W5	PFO1A	NR	F	0.003	N/A
17	24 of 46	W6	PEM1A	NR	E,M	0.006	N/A
18	27 of 46	W7	PSS1A	NR	F,M	0.171	0.171
Total						**0.223**	**0.171**

* - P = Palustrine
EM = Emergent; 1 = Persistent
FO = Forested; 1 = Broad-Leaved Deciduous
SS = Scrub Shrub; 1 = Broad-Leaved Deciduous
A = Temporarily Flooded

** - F = Fill; E = Excavation; M = Mechanized Clearing

Stream Impacts and Compensatory Mitigation: Stream impacts requiring mitigation total 493 linear feet of impacts to an unnamed tributary (UT) to Dry Branch and Harmon Creek (both second order perennial streams). The UT Dry Branch has DWQ Index No. 12-102-4 and Harmon Creek has DWQ Index No 12-84-2-6. The following combination of on-site stream relocation and compensatory mitigation is proposed. See table 2 below for summary of all stream impacts.

1. Natural channel design and relocation of 220 linear feet of stream impacted at Site 6 at a mitigation ratio of 1:1.
2. Compensatory mitigation is proposed to consist of mitigation provided by the EEP for the remaining 273 linear feet of stream impacts.

Table 2. Summary of Juisdictional Impacts to Surface Waters

Permit Drawings Site No.	CE Stream Site No.	Sheet No. of Permit Drawings	Water Body (Intermittent -I or Perennial - P)	Surface water Impact (acres or ft)		Impacts Requiring Mitigation	Natural Channel Design
				Acres Fill	Linear Ft.	Linear Ft.	Linear Ft.
Site 1	S2	6 of 46	UT1 Dry Creek (P)	0.007	50.5	N/A	N/A
Site 2	S1	8 of 46	Dry Branch (P)	0.012	44.0	N/A	N/A
Site 3	S3	11 of 46	UT2 Dry Branch (P)	0.003	31.0	N/A	N/A
Site 4	S4	11 of 46	UT3 Dry Branch (P)	0.003	26.0	N/A	N/A
Site 5	S5	13 of 46	UT4 Dry Branch (P)	0.004	43.0	43.0*	N/A
Site 6	NA	13 of 46	UT4 Dry Branch (P)	0.015	190.0	190.0*	220.0
			Stream Relocation	N/A	N/A	N/A	N/A
Site 8	S6	16 of 46	UT1 Harmon Creek (P)	0.004	49.0	N/A	N/A
10A	NA	16 of 46	UT2 Harmon Creek (P)	N/A	18.0	N/A	N/A
10B	S7	18 of 46	UT2 Harmon Creek (P)	0.004	120.0	N/A	N/A
13	S8	20 of 46	UT3 Harmon Creek (P)	0.002	38.0	N/A	N/A
14	S9	22 of 46	Harmon Creek (P)	0.003	260.0	260.0	N/A
19	S11	27 of 46	UT South Deep Creek (P)	0.014	120.0	N/A	N/A
Totals				**0.071**	**989.5**	**493.0**	**220.0**

*Impacts are cumulative since this is the same UT4 Dry Branch.

Please send the letter of confirmation to John Thomas (USACE Coordinator) at the USACE Raleigh Regulatory Field Office 6508 Falls of the Neuse Road, Suite 120, Raleigh, NC 27615-6814. The current project let date is October, 2004.

If you have any questions or need additional information please call Ms. Carla Dagnino at (919) 715-1456.

Sincerely,

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

Mr. John Hennessy, Division of Water Quality
Ms. Marla Chambers, Div. 11 NCWRC
Ms. Marella Buncick, Div. 11 USFWS
Mr. Greg Perfetti, P.E., Structure Design
Mr. David Franklin, USACE, Wilmington
Mr. Jay Bennett, P.E., Roadway Design
Mr. Omar Sultan, Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Mr. David Chang, P.E., Hydraulics
Mr. Mark Staley, Roadside Environmental
Mr. John F. Sullivan, III, FHWA
Mr. Michael A. Pettyjohn, P.E. Div. 11
Mr. Heath Slaughter, Div. 11 DEO
Ms. Jackie Obediente, PDEA Project Planning Engineer

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3427	RF-1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	

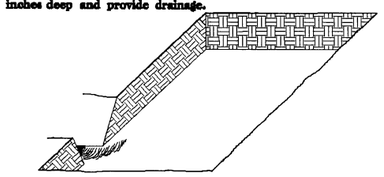
PLANTING DETAILS

SEEDLING / LINER BAREROOT PLANTING DETAIL

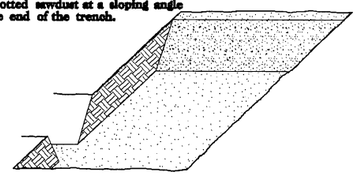
HEALING IN

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

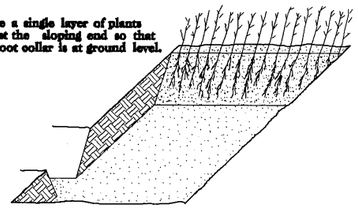
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



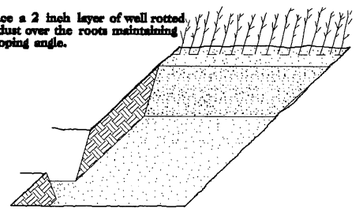
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



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

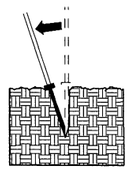


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

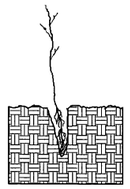


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

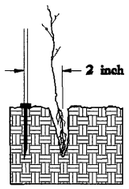
DIBBLE PLANTING METHOD
USING THE KBC PLANTING BAR



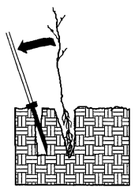
1. Insert planting bar as shown and pull handle toward planter.



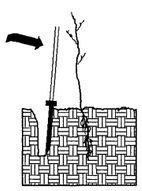
2. Remove planting bar and place seedling at correct depth.



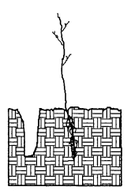
3. Insert planting bar 2 inches toward planter from seedling.



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 inches long, 4 inches wide and 1 inch thick at center.

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

REFORESTATION

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

REFORESTATION

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

25% LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in – 18 in BR
25% NYSSA SYLVATICA	BLACK GUM	12 in – 18 in BR
25% PRUNUS SEROTINA	BLACK CHERRY	12 in – 18 in BR
25% QUERCUS RUBRA	NORTHERN RED OAK	12 in – 18 in BR

REFORESTATION DETAIL SHEET

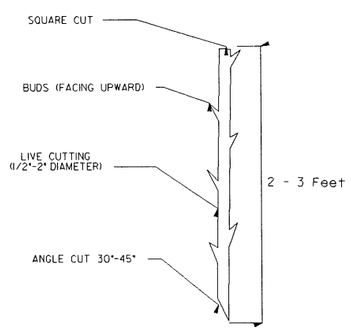
N.C.D.O.T. - ROADSIDE ENVIRONMENTAL UNIT

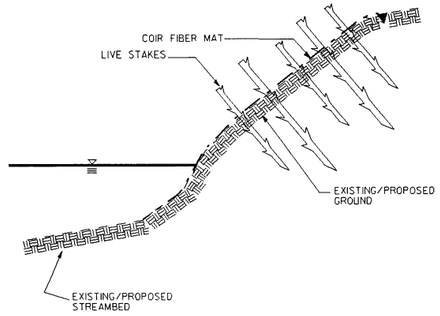
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3427	RF-2	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	

PLANTING DETAILS

LIVE STAKES PLANTING DETAIL

LIVE STAKE

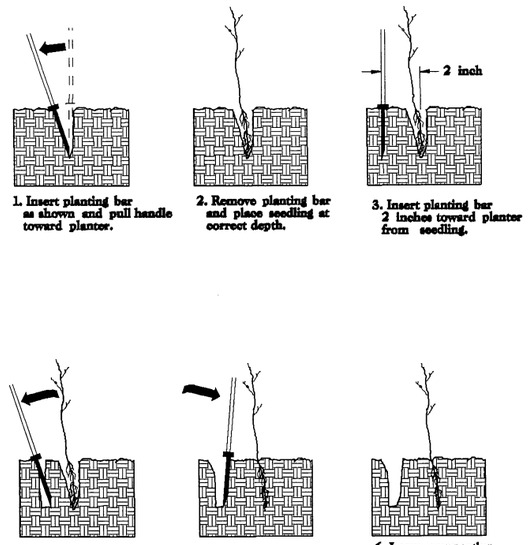




BANK STABILIZATION WITH LIVE STAKES

NOTE:
LIVE STAKES SHALL BE DRIVEN UNTIL APPROXIMATELY 3/4 OF LIVE STAKE IS WITHIN GROUND

BAREROOT PLANTING DETAIL
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 inches 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 inches long, 4 inches wide and 1 inch thick at center.

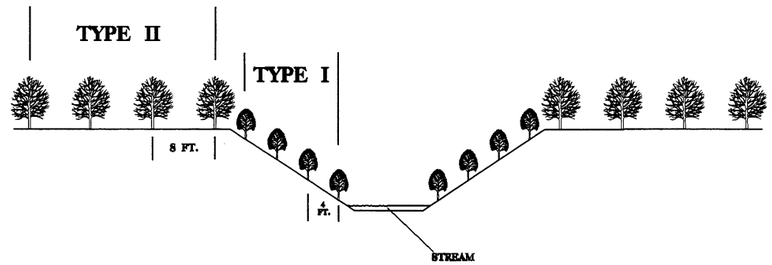
ROOT PRUNING
All seedlings shall be root pruned, if necessary, so that no roots extend more than 10 inches below the root collar.

☐ TYPE 1 STREAMBANK REFORESTATION SHALL BE PLANTED 3 FT. TO 5 FT. ON CENTER, RANDOM SPACING, AVERAGING 4 FT. ON CENTER, APPROXIMATELY 2724 PLANTS PER ACRE.

☐ TYPE 2 STREAMBANK REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.

☐ NOTE: TYPE 1 AND TYPE 2 STREAMBANK REFORESTATION SHALL BE PAID FOR AS "STREAMBANK REFORESTATION"

STREAMBANK REFORESTATION TYPICAL



STREAMBANK REFORESTATION

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

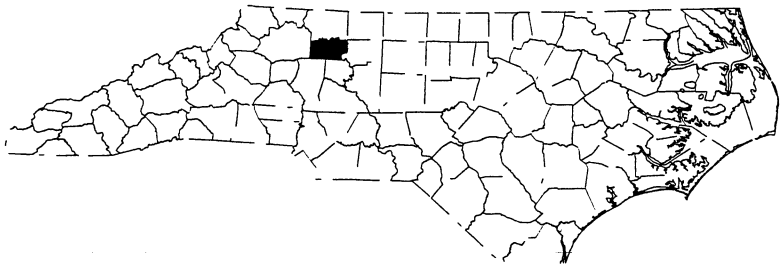
TYPE 1		
50% SALIX NIGRA	BLACK WILLOW	2 ft – 3 ft LIVE STAKES
50% CORNUS AMOMUM	SILKY DOGWOOD	2 ft – 3 ft LIVE STAKES
TYPE 2		
25% SALIX NIGRA	BLACK WILLOW	12 in – 18 in BR
25% FRAXINUS PENNSYLVANICA	GREEN ASH	12 in – 18 in BR
25% BETULA NIGRA	RIVER BIRCH	12 in – 18 in BR
25% PLATANUS OCCIDENTALIS	SYCAMORE	12 in – 18 in BR

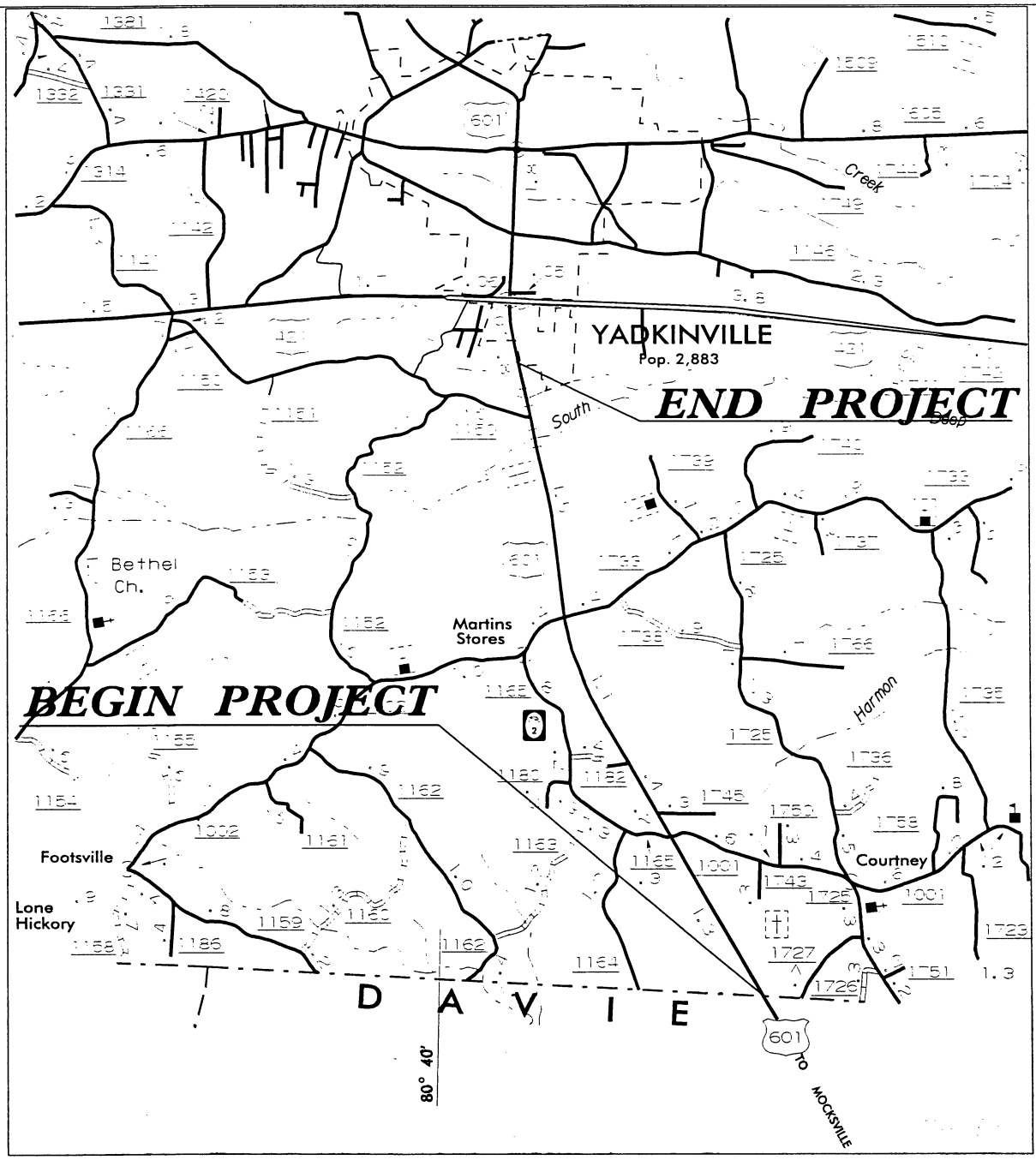
☐ SEE PLAN SHEETS FOR AREAS TO BE PLANTED

STREAMBANK REFORESTATION DETAIL SHEET

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

YADKIN COUNTY
NORTH CAROLINA



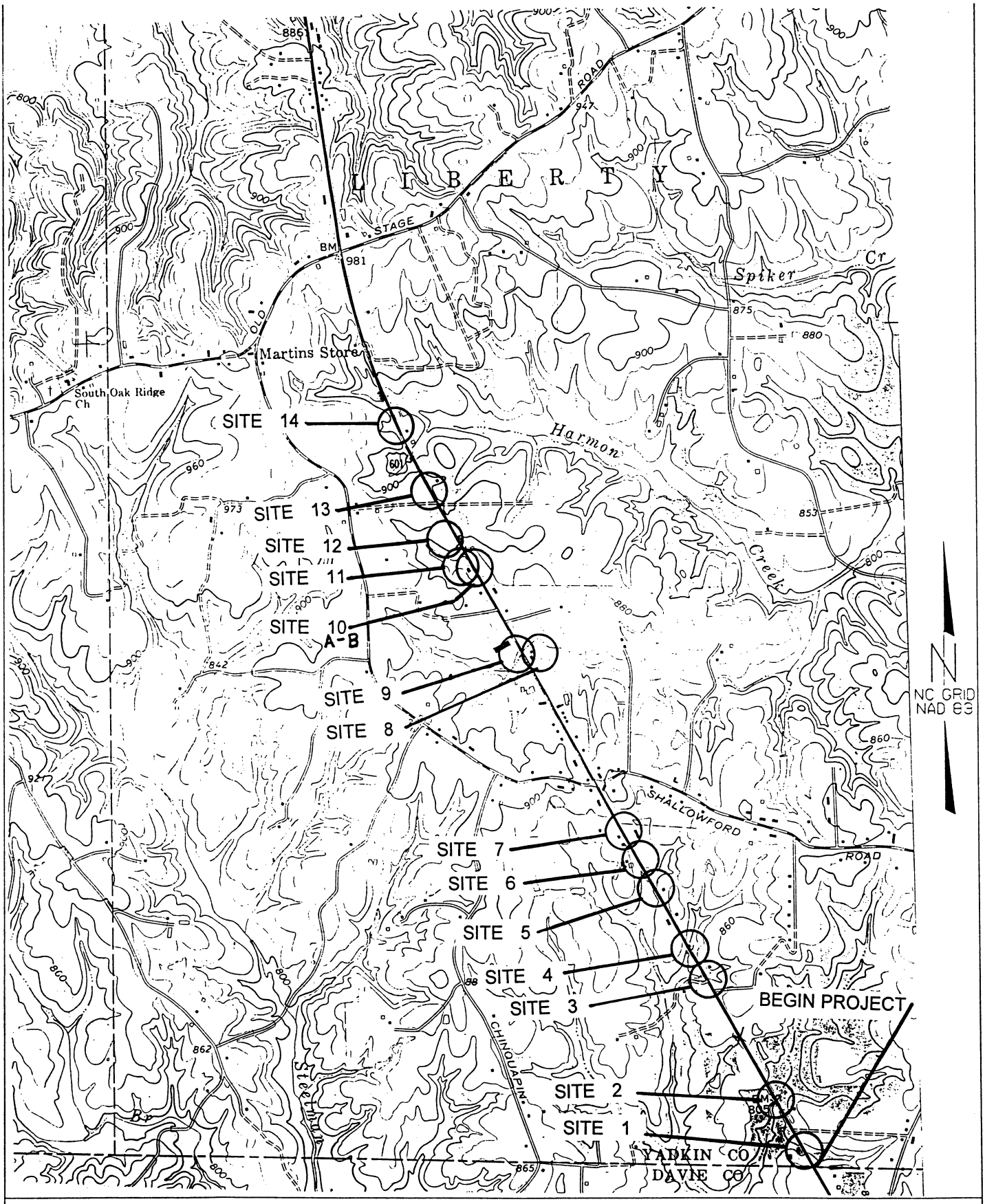


VICINITY MAP

DIVISION OF HIGHWAYS
N. C. DEPT. OF TRANSPORTATION
YADKIN COUNTY

PROJECT: R-3427
IMPROVEMENT OF US 601 FROM THE DAVIE COUNTY LINE TO +//- 0.15 MILE SOUTH OF US 421

SHEET 1 OF 40 8//01//03

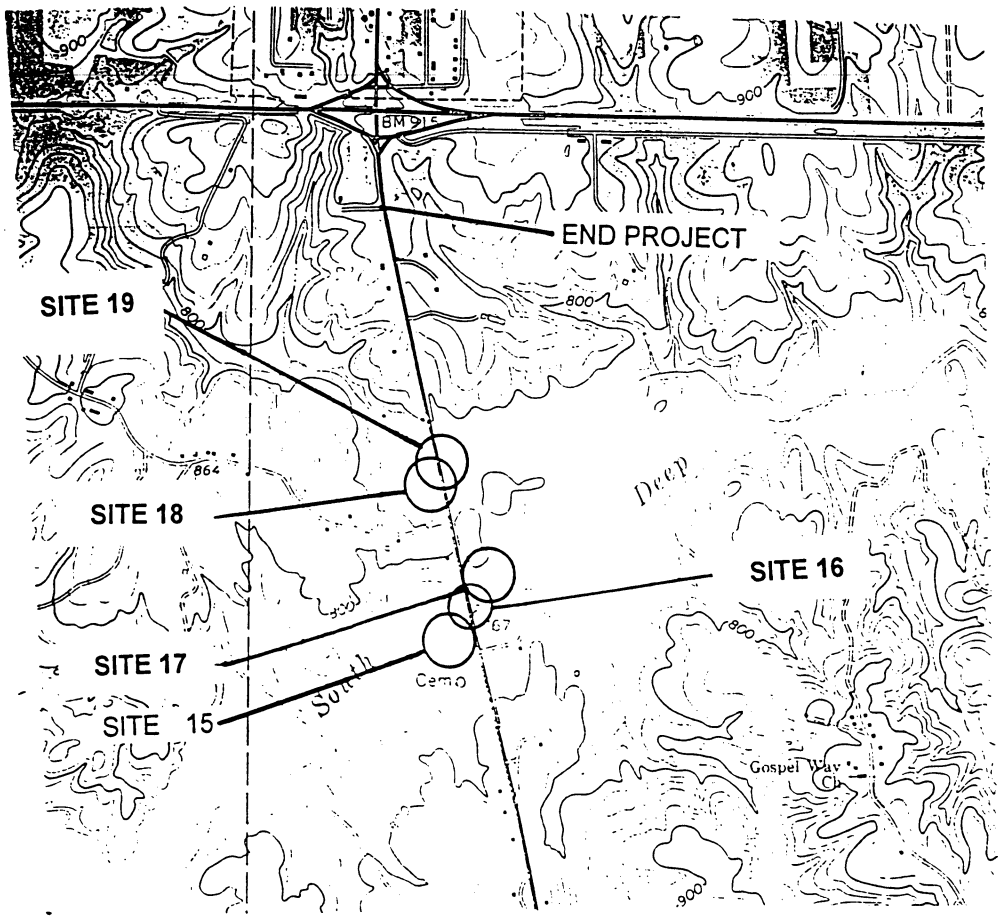


SITE MAPS (SITES 1 - 14)

DIVISION OF HIGHWAYS
N. C. DEPT. OF TRANSPORTATION
YADKIN COUNTY

PROJECT: R-3427
IMPROVEMENT OF US 601 FROM THE DAVIE COUNTY LINE TO +/- 0.15 MILE SOUTH OF US 421

SHEET 2 OF 40 8/01/03



N

NC GRID
NAD 83

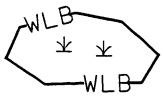
SITE MAPS
(SITES 15 - 18)

DIVISION OF HIGHWAYS
N. C. DEPT. OF TRANSPORTATION
YADKIN COUNTY

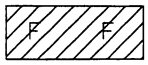
PROJECT: R-3427
IMPROVEMENT OF US 601 FROM
THE DAVIE COUNTY LINE TO +/-
0.15 MILE SOUTH OF US 421

LEGEND

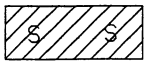
WLB——— WETLAND BOUNDARY



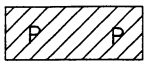
WETLAND



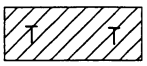
DENOTES FILL IN WETLAND



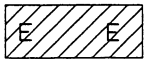
DENOTES FILL IN SURFACE WATER



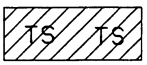
DENOTES FILL IN SURFACE WATER (POND)



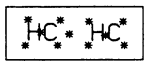
DENOTES TEMPORARY FILL IN WETLAND



DENOTES EXCAVATION IN WETLAND



DENOTES TEMPORARY FILL IN SURFACE WATER



DENOTES MECHANIZED CLEARING

——— ——— FLOW DIRECTION

TB
TOP OF BANK

WE
EDGE OF WATER

C
PROP. LIMIT OF CUT

F
PROP. LIMIT OF FILL

PROP. RIGHT OF WAY

NG
NATURAL GROUND

PL
PROPERTY LINE

—TDE— TEMP. DRAINAGE EASEMENT

—PDE— PERMANENT DRAINAGE EASEMENT

— EAB — EXIST. ENDANGERED ANIMAL BOUNDARY

— EPB — EXIST. ENDANGERED PLANT BOUNDARY

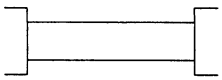
▽
WATER SURFACE

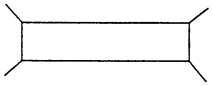

LIVE STAKES


BOULDER

COIR FIBER ROLLS

ADJACENT PROPERTY OWNER OR PARCEL NUMBER


PROPOSED BRIDGE


PROPOSED BOX CULVERT

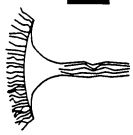

PROPOSED PIPE CULVERT

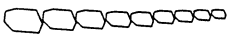
(DASHED LINES DENOTE EXISTNG STRUCTURES)


SINGLE TREE

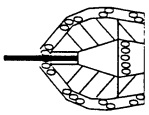
WOODS LINE


DRAINAGE INLET


ROOTWAD


VANE


RIP RAP


RIP RAP ENERGY DISSIPATOR BASIN

BUFFER ZONE

BUFFER ZONE

DIVISION OF HIGHWAYS
N. C. DEPT. OF TRANSPORTATION
YADKIN COUNTY

PROJECT: R-3427

IMPROVEMENT OF US 601 FROM THE DAVIE COUNTY LINE TO +/- 0.15 MILE SOUTH OF US 421

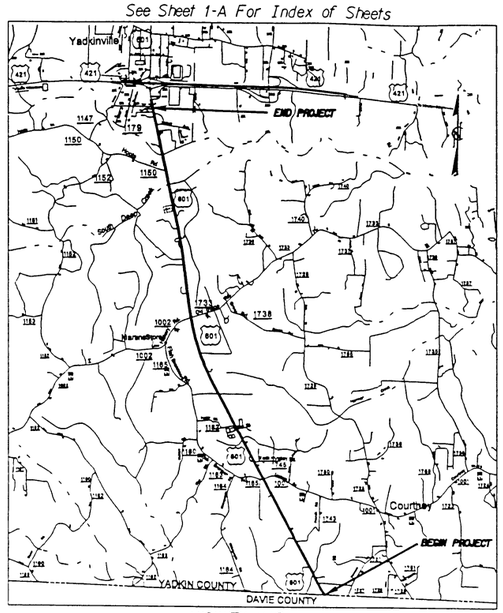
SHEET 4 OF 40 **8/01/03**

9/09/99

TIP PROJECT: R-3427

CONTRACT: C201008

See Sheet 1-A For Index of Sheets



VICINITY MAP
(NO SCALE)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

YADKIN COUNTY

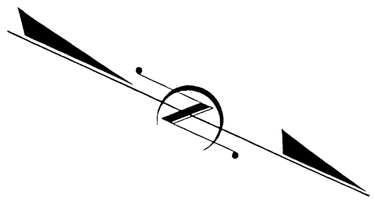
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	8.1770801	5 of 40	

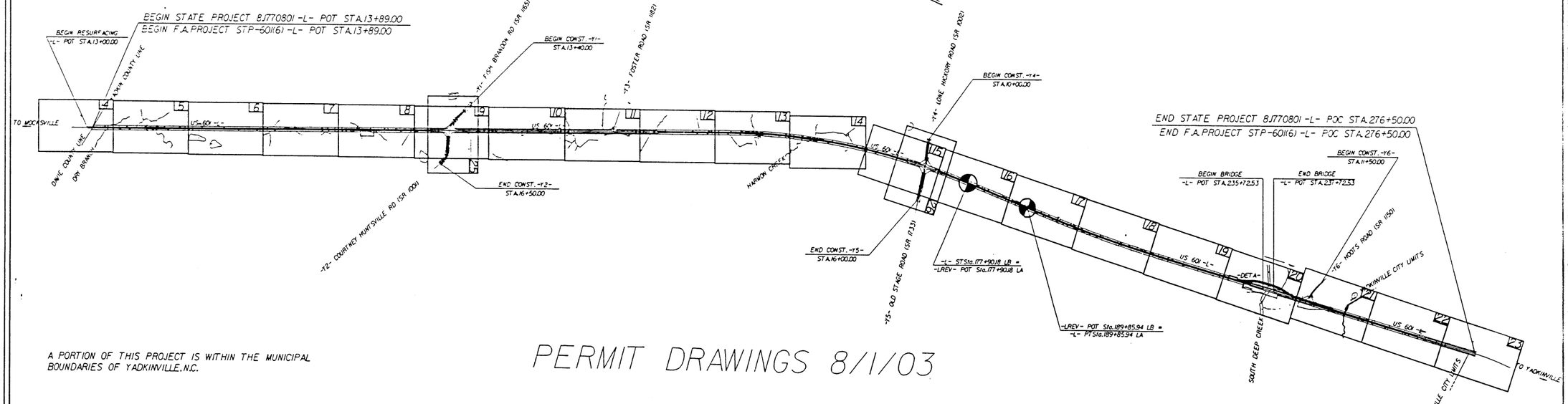
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
6.771006		PE
8.1770801	STP-601(6)	PE
8.1770802		R/W & UTILS

LOCATION: *US 601 FROM THE DAVIE COUNTY LINE NORTH TO +/- 0.15 MILE SOUTH OF US 421 (YADKINVILLE CITY STREET PINE VALLEY ROAD)*

TYPE OF WORK: *WIDENING, GRADING, PAVING, DRAINAGE GUARDRAIL AND STRUCTURES*

METHOD III CLEARING





A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF YADKINVILLE, N.C.

PERMIT DRAWINGS 8/1/03

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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 = 10,784
ADT 2024 = 18,680
DHV = 10 %
D = 50 %
T = 11 % *
V = 55 MPH
* TTST 5 % DUAL 6 %
** DENOTES DESIGN EXCEPTION

PROJECT LENGTH

LENGTH ROADWAY PROJECT 8.1770801 - 4.936 MILES F.A. PROJECT STP-601(6)

LENGTH STRUCTURE PROJECT 6.771006 - 0.038 MILE F.A. PROJECT STP-601(6)

TOTAL LENGTH STATE PROJECT 8.1770801 - 4.974 MILES F.A. PROJECT STP-601(6)

Prepared In the Office of:
DIVISION OF HIGHWAYS
801 Statesville Road, North Wilkesboro, NC 28659

1995 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: FEBRUARY 21, 2003

LETTING DATE: OCTOBER 19, 2004

DIVISION ENGINEER
R. C. McCANN, P.E.
P.E.
SIGNATURE
DATE

HYDRAULICS ENGINEER
DATE

PROJECT ENGINEER
NATHAN K. TURNER, P.E.
DATE

DIVISION OPERATIONS ENGINEER
W.O. ATKINS, P.E.
P.E.
SIGNATURE:
DATE

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Sheet 5 of 40

PLOTTED: 9-JUN-2004 16:21
C:\DOT\R3427\c3427.tsh
dw

7/2/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-3427	6 OF 40
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NC GRID NAD 83

BEGIN RESURFACING -L- STA.13+00.00

BEGIN STATE PROJECT 8J.770801 -L- STA.13+89.00
BEGIN F.A.PROJECT STP-6016(6) -L- STA.13+89.00

SITE 1

N25°56'10"W 179.19'
N26°47'14"W 287.80'
N21°50'59"W 404.55'
N26°50'50"W 210.12'
N66°46'37"W 199.70'
S66°43'53"W 201.22'
S66°42'48"W 45.02'
S66°43'54"W 227.71'
S65°05'51"W 209.94'
S66°43'56"W 209.30'
S66°46'12"W 14.59'
S66°55'17"W 4.51'
S66°46'12"W 14.59'
S86°52'16"E 220.38'
S86°52'16"E 367.70'
S89°30'00"E 253.14'
S86°37'34"E 78.80'
S86°34'05"E 99.42'
S86°34'05"E 78.80'
S07°02'12"E 227.88'
S04°57'54"E 16.30'
S04°58'20"E 85.31'
S00°33'53"E 82.79'
N00°34'21"W 135.29'
N00°26'07"E 23.00'
S84°56'22"E 239.30'
S84°31'35"E 307.38'
N 27° 26' 45" W

JOHN H. PRATT AND WIFE ELAINE Y. PRATT DB 159 PG 326

JIMMY BRADLEY MERRITT AND WIFE CARA LEANNE MERRITT DB 198 PG 253

KATHY B. RATLEDGE DB 207 PG 408 DB 217 PG 409

ROBERT D. CLINE AND WIFE CINDY E. CLINE DB 212 PG 125

BRUCE M. PRATT AND WIFE JUDY F. PRATT DB 117 PG 408

JAMES B. RUTLEDGE AND WIFE HELEN P. RUTLEDGE DB 89 PG 2

TIMOTHY F. RUIZ DB 196 PG 661

WILLIAM C. DODD DB 323 PG 58

JOHN H. PRATT AND WIFE DB 116 PG 551

DORRELL PRATT DB 90 PG 241

WILLIAM ALDEAN ALLEN AND WIFE BONNIE D. ALLEN DB 234 PG 784

HTR
36" CONC
WOODS
IS BRK D
2 S T
S
G
B
MTL S
IS F D
CHICKEN
STONE
IFO & COPPER
CONC HW
12" CONC
15" CONC
12 GR
17 GR
5 GR
IFO CABLE
SAN. SEWER MH
DRIVE
PROPERTY LINE = COUNTY LINE
RETAIN
REMOVE
RETAIN 36" RCP & EXTEND W/36" RCP
TOE PROTECTION CLASS 'B' RIP RAP SEE DETAIL 9A
SPECIAL CUT DITCH GRASS LINED SEE DETAIL 20
SPECIAL CUT DITCH CLASS 'B' RIP RAP SEE DETAIL 21
2' BASE LATERAL DITCH CLASS 'B' RIP RAP SEE DETAIL 7A
LATERAL 'V' DITCH GRASS LINED SEE DETAIL 2
JB w/MH
CL B RIP RAP
INV = 809.34
INV = 812.9
INVDL
NDWL
PDE
IS ELEC
DRAIN 360
U.S. 601
PL 40.00
+50.00 43.00
+00 R/W
+60 69'
+72 R/W
+77 69
+90 R/W
+00 62'
+10 70'
+48 78'
+59.48 61.8'
+05 65'
+72 40'
+29 PL

DETAIL 20
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground
2:1
D
4:1 Flatter
Front Ditch Slope
Min. D = 1.0 Ft.
STA. 15+50 TO 17+00 -L- LT.

DETAIL 9A
TOE PROTECTION
(Not to Scale)
2:1
d1
d = 1.0 Ft.
Fill Slope
Filter Fabric
Type of Liner = CL B RIP RAP
STA. 17+00 TO 17+50 -L- LT.
EST. 28 TONS

DETAIL 7A
LATERAL BASE DITCH
(Not to Scale)
Natural Ground
2:1
d1
D
3:1
LA
Filter Fabric
Fill Slope
b
7'Ft.
Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
B = 2.0 Ft.
b = 5.0 Ft.
* When B is < 5.0'
Type of Liner = CL B RIP RAP
STA. 15+50 TO 16+22 -L- RT.
EST. 40 TONS

DETAIL 2
LATERAL 'V' DITCH
(Not to Scale)
Natural Ground
2:1
D
3:1
Fill Slope
b
7'Ft.
Min. D = 1.0 Ft.
b = 5.0 Ft.
STA. 16+43 TO 17+50 -L- RT.

DETAIL 9
SPECIAL LATERAL 'V' DITCH
(Not to Scale)
Natural Ground
2:1
D
3:1 Flatter
Fill Slope
Min. D = 1.0 Ft.
STA. 17+50 TO 18+00 -L- RT.

DETAIL 21
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground
2:1
d1
D
4:1 Flatter
Front Ditch Slope
Filter Fabric
Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
Type of Liner = CL B RIP RAP
STA. 14+00 TO 15+50 -L- RT.
EST. 82.5 TONS

MATCHLINE ** SEE SHEET 5 **

Sheet 6 of 40

30-JUL-2003 08:01
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Corey

7/2/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-3427	7 OF 46
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NC GRID NAD 83

BEGIN RESURFACING -L- STA.13+00.00

BEGIN STATE PROJECT 8.1770801 -L- STA.13+89.00

BEGIN F.A.PROJECT STP-601(6) -L- STA.13+89.00

SITE 1

POT Sta.10+89.00

JOHN H. PRATT AND WIFE ELAINE Y. PRATT DB 159 PG 326

JIMMY BRADLEY MERRITT DB 198 PG 253

KATIE B. RATLEDGE DB 207 PG 408 DB 217 PG 409

ROBERT D. CLINE AND WIFE CINDY E. CLINE DB 312 PG 125

BRUCE M. PRATT AND WIFE JUDY F. PRATT DB 17 PG 408

JAMES B. RUTLEDGE AND WIFE HELEN P. RUTLEDGE DB 89 PG 2

TIMOTHY F. RUIZ DB 196 PG 661

WILLIAM C. GOOD DB 323 PG 55

DORRELL PRATT DB 96 PG 281

WILLIAM ALDEAN ALLEN AND WIFE BONNIE D. ALLEN DB 234 PG 785

DETAIL 20
SPECIAL CUT DITCH
(Not to Scale)
STA. 15+50 TO 17+00 -L- LT.

DETAIL 9A
TOE PROTECTION
(Not to Scale)
STA. 17+00 TO 17+50 -L- LT.
EST. 28 TONS
Type of Liner = CL B RIP-RAP

DETAIL 7A
LATERAL BASE DITCH
(Not to Scale)
STA. 15+50 TO 16+22 -L- RT.
EST. 40 TONS
Type of Liner = CL B RIP RAP

DETAIL 2
LATERAL "V" DITCH
(Not to Scale)
STA. 16+43 TO 17+80 -L- RT.

DETAIL 3
SPECIAL LATERAL "V" DITCH
(Not to Scale)
STA. 17+50 TO 18+00 -L- RT.

DETAIL 21
SPECIAL CUT DITCH
(Not to Scale)
Type of Liner = CL B RIP-RAP
STA. 14+00 TO 15+50 -L- RT.
EST. 82.5 TONS

SPECIAL CUT DITCH CLASS 'B' RIP RAP SEE DETAIL 21

2' BASE LATERAL DITCH CLASS 'B' RIP RAP SEE DETAIL 7A

LATERAL 'V' DITCH GRASS LINED SEE DETAIL 2

TOE PROTECTION CLASS 'B' RIP RAP SEE DETAIL 9A

SPECIAL CUT DITCH GRASS LINED SEE DETAIL 20

RETAIN 36" RCP & EXTEND W/36" FES

REMOVE

RETAIN

GRASS

WOODS

OBSCURED AREA

CHICKEN

STONE

PROPERTY LINE = COUNTY LINE

MATCHLINE ** SEE SHEET 5 **

Sheet 7 of 40

Sheet 7 of 40.

20-JUL-2003 09:44
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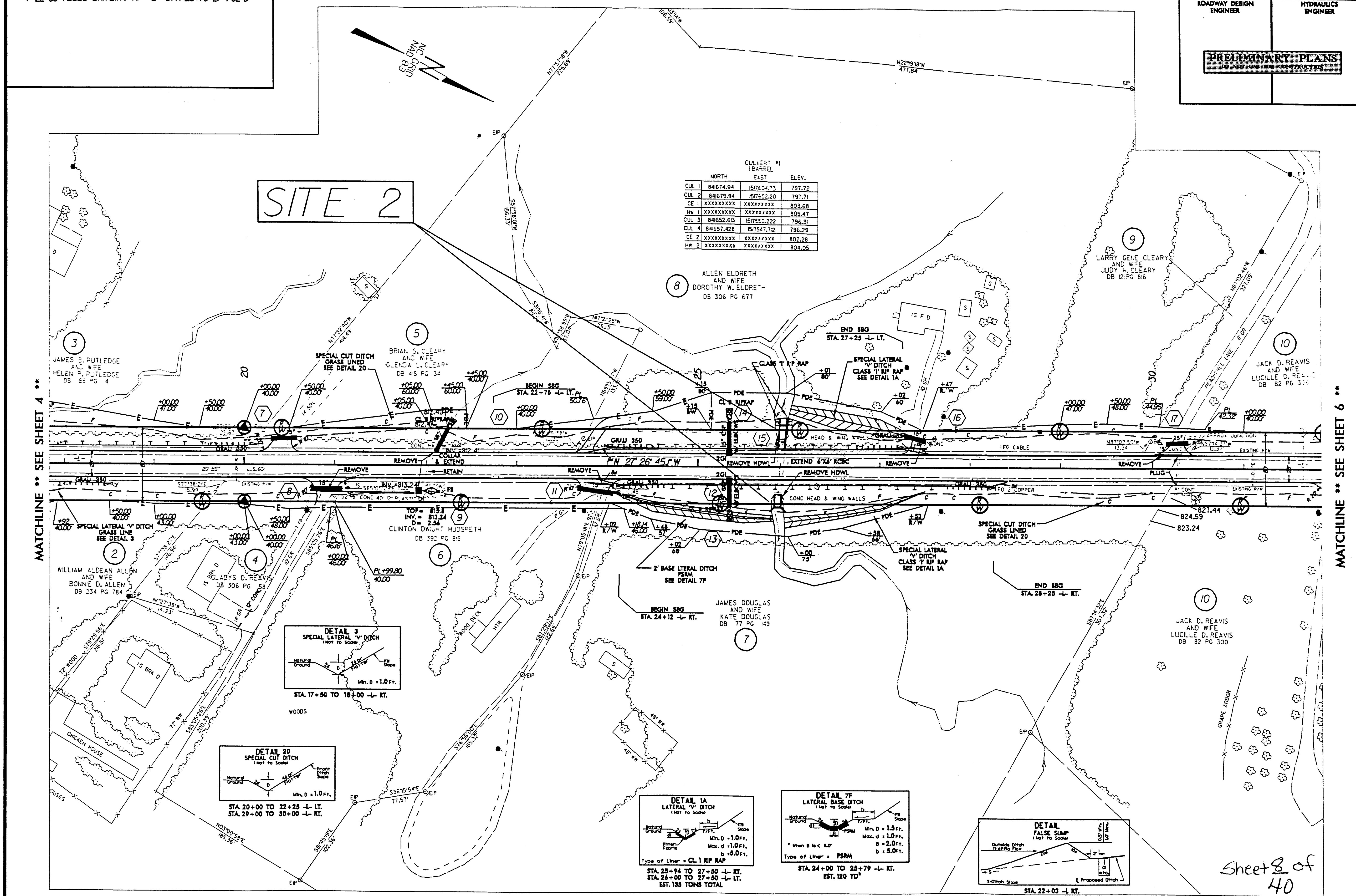
7/2/99

REVISIONS
7-22-03 ADDED DRIVEWAY AT -L- STA 23+78 LT PCL 8

PROJECT REFERENCE NO.	SHEET NO.
R-3427	8 of 46
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



CULVERT #1
1 BARREL

	NORTH	EAST	ELEV.
CUL 1	841674.94	1517604.73	797.72
CUL 2	841679.94	1517603.20	797.71
CE 1	XXXXXXXXX	XXXXXXXXX	803.68
HW 1	XXXXXXXXX	XXXXXXXXX	805.47
CUL 3	841652.613	1517555.222	796.31
CUL 4	841657.428	1517547.712	796.29
CE 2	XXXXXXXXX	XXXXXXXXX	802.28
HW 2	XXXXXXXXX	XXXXXXXXX	804.05

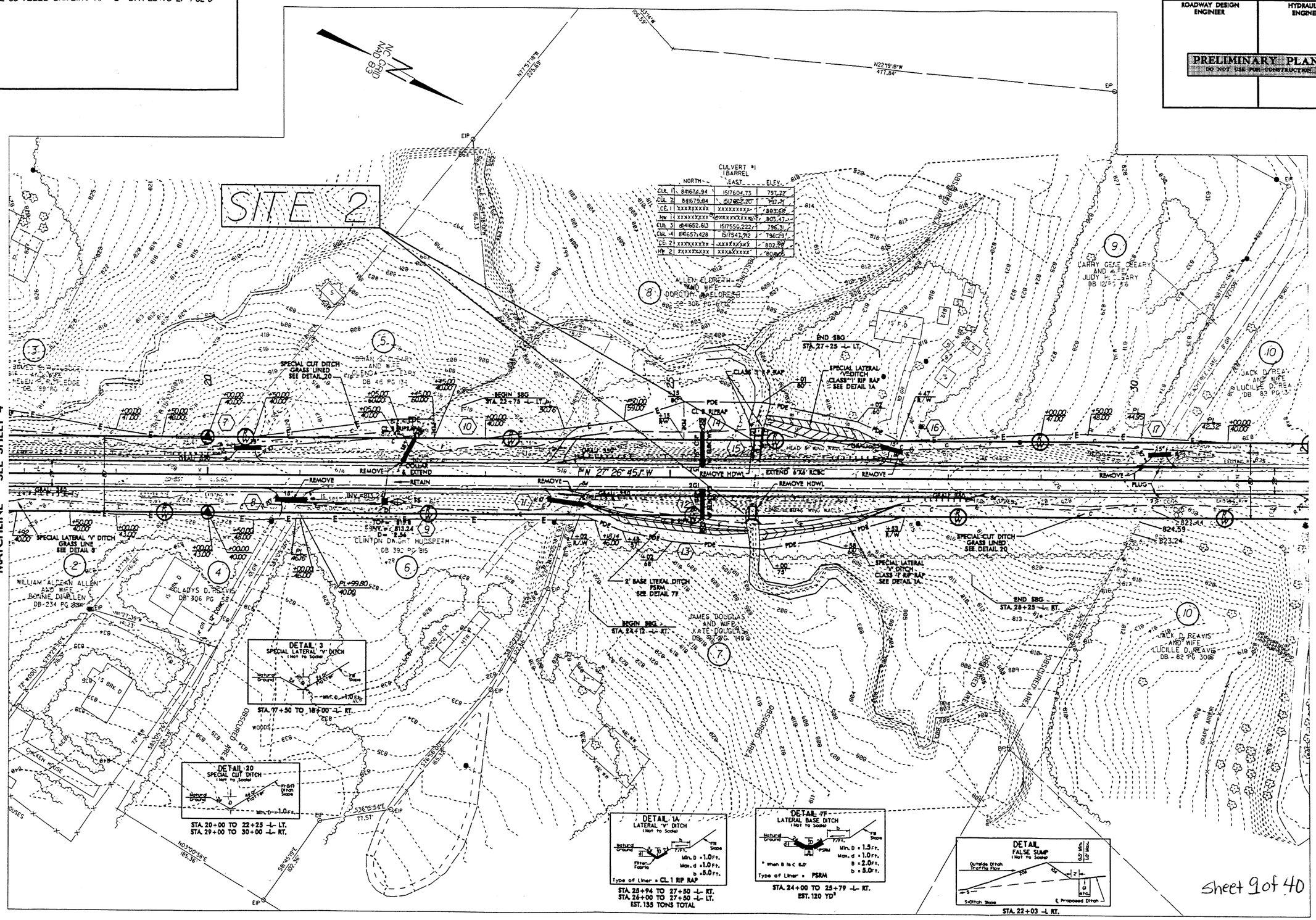
30-JUL-2003 10:20 ...\R3427\PERMITSITEps5r3427.dgn

REVISIONS
7-22-03 ADDED DRIVEWAY AT -L- STA 23+78 LT PCL 8

PROJECT REFERENCE NO.	SHEET NO.
R-3427	9 OF 40
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

7/2/99



Sheet 9 of 40

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5/14/99

PROJECT REFERENCE NO.	SHEET NO. 10 of 40
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

28+00
27+00
26+00
25+00
24+00
23+00

830
820
810
800
790

PI=27+50.00
EL.= 817.85'
VC= 125'

PI=25+50.00
EL.= 813.86'
VC= 125'

PI=24+25.00
EL.= 815.40'
VC= 125'

(+)1.99%
(+)1.99%
(-)1.22%
(-)1.22%
(-)7.55%

RETAIN AND EXTEND 1@6'X6' RCBC
℄ STA. 25+91.4

EX. 6'X6' RCBC

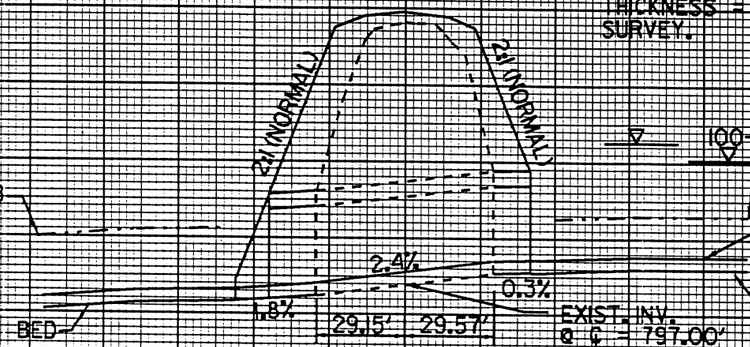
100-YR. W.S.E. = 806.26'
50-YR. W.S.E. = 805.12'

N.G. RT.

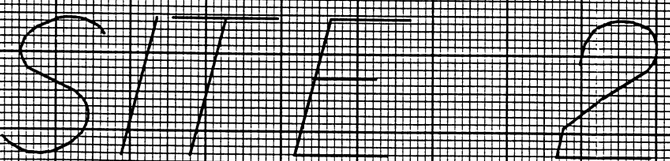
150' RT. 50' RT. 0° 50' RT. 150' RT.

RETAIN AND EXTEND 1@6'x6' RCBC
℄ STA. 25+91.4 -L-
℄ ELEV. = 814.74'
SKEW = 85°

NOTES: BED MATERIAL CONSISTS OF SAND AND SMALL COBBLES. EXISTING TOP SLAB THICKNESS = 10". BED WAS DRY ON DAY OF SURVEY.



CROSS-SECTION VIEW



Sheet 10 of 40

7-AUG-2003 16:27
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REVISIONS
7/1/03 - ADDED PRCL11A STA 46+00 RT

PROJECT REFERENCE NO.	SHEET NO.
R-3427	11 of 40
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

MATCHLINE ** SEE SHEET 6 **

MATCHLINE ** SEE SHEET 8 **

SITE 3

SITE 4

NC GRID NAD 83

CULVERT #2
1 BARREL

	NORTH	EAST	ELEV.
CUL. 1'	843946.61	1516358.62	817.95
CUL. 2'	843949.37	1516357.24	817.98
CE 1'	XXXXXXXXX	XXXXXXXXX	822.02
HW 1'	XXXXXXXXX	XXXXXXXXX	823.60
CUL. 3'	844002.89	1516395.18	815.70
CUL. 4	844006.03	1516393.62	818.77
CE 2'	XXXXXXXXX	XXXXXXXXX	822.72
HW 2'	XXXXXXXXX	XXXXXXXXX	824.32

10 JACK D. REAVIS AND WIFE LUCILLE D. REAVIS DB 82 PG 300

11A WILLIAM B. CHEEK DB 476 PG 191

12 JACK D. REAVIS DB 115 PG 716

13 LARRY DEAN NORRIS AND WIFE YVONNE NORRIS DB 100 PG 570 DB 401 PG 654

14 STEVE B. NORRIS AND WIFE FLORA NORRIS DB 66 PG 345

15 BRENDA FAY CALLAWAY AND HUSBAND DANNY CALLAWAY AND LESA CAROL FULK AND HUSBAND RODNEY FULK DB 390 PG 632

16 CECIL S. WILES DB 70 PG 550

17 LARRY R. WILLIARD AND WIFE ELIZABETH K. WILLIARD DB 292 PG 458

BEGIN SBG STA. 49+92 -L- LT.

END SBG STA. 53+62 -L- LT.

SPECIAL LATERAL 'V' DITCH SEE DETAIL 4

TOE PROTECTION SEE DETAIL 9A

SPECIAL LATERAL 'V' DITCH GRASS LINED SEE DETAIL 3

SPECIAL LATERAL 'V' DITCH CLASS 'B' RIP RAP SEE DETAIL 1

5' X 10' CL B RIP RAP PAD EST 5.5 TONS

CLASS 'I' RIP RAP

15" CSP W/ ELBOWS

EXTEND 3'-X4' RCBC (SEE SPECIAL DETAIL)

REMOVE HW

REMOVE MDWL

TIE TO EXISTING DITCH

TOE PROTECTION PSRM SEE DETAIL 9

SPECIAL LATERAL 'V' DITCH CLASS 'B' RIP RAP SEE DETAIL 4

N 27° 26' 45.5" W

22' EST

WOODS

BRK WALK

15 BRK D

ISFD

36" CONC

36" BLK WALL

GTD EXISTING R/W

DETAIL 9A
TOE PROTECTION
(Not to Scale)

d = 1.0 Ft.

Type of Liner = CL B RIP RAP

STA. 46+50 TO 47+13 -L- RT.
STA. 47+05 TO 47+75 -L- LT.
EST. 95 TONS TOTAL
EST. 75 YD² TOTAL PSRM

DETAIL 1
LATERAL 'V' DITCH
(Not to Scale)

Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
b = 5.0 Ft.

Type of Liner = CL B RIP RAP

STA. 51+00 TO 52+18 -L- RT.
STA. 50+50 TO 51+32 -L- LT.
EST. 95 TONS TOTAL

DETAIL 3
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

Min. D = 1.0 Ft.

STA. 50+00 TO 50+50 -L- LT.

DETAIL 4
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

Min. D = 1.0 Ft.
Max. d = 1.0 Ft.

Type of Liner = CL B RIP RAP

STA. 46+50 TO 47+05 -L- LT.
STA. 52+13 TO 54+00 -L- LT.
STA. 53+50 TO 55+50 -L- RT.
EST. 205 TONS TOTAL

DETAIL 9
TOE PROTECTION
(Not to Scale)

d = Ft.

Type of Liner = PSRM

STA. 52+24 TO 53+00 -L- RT.
EST. 42 YD.³

Sheet 11 of 40

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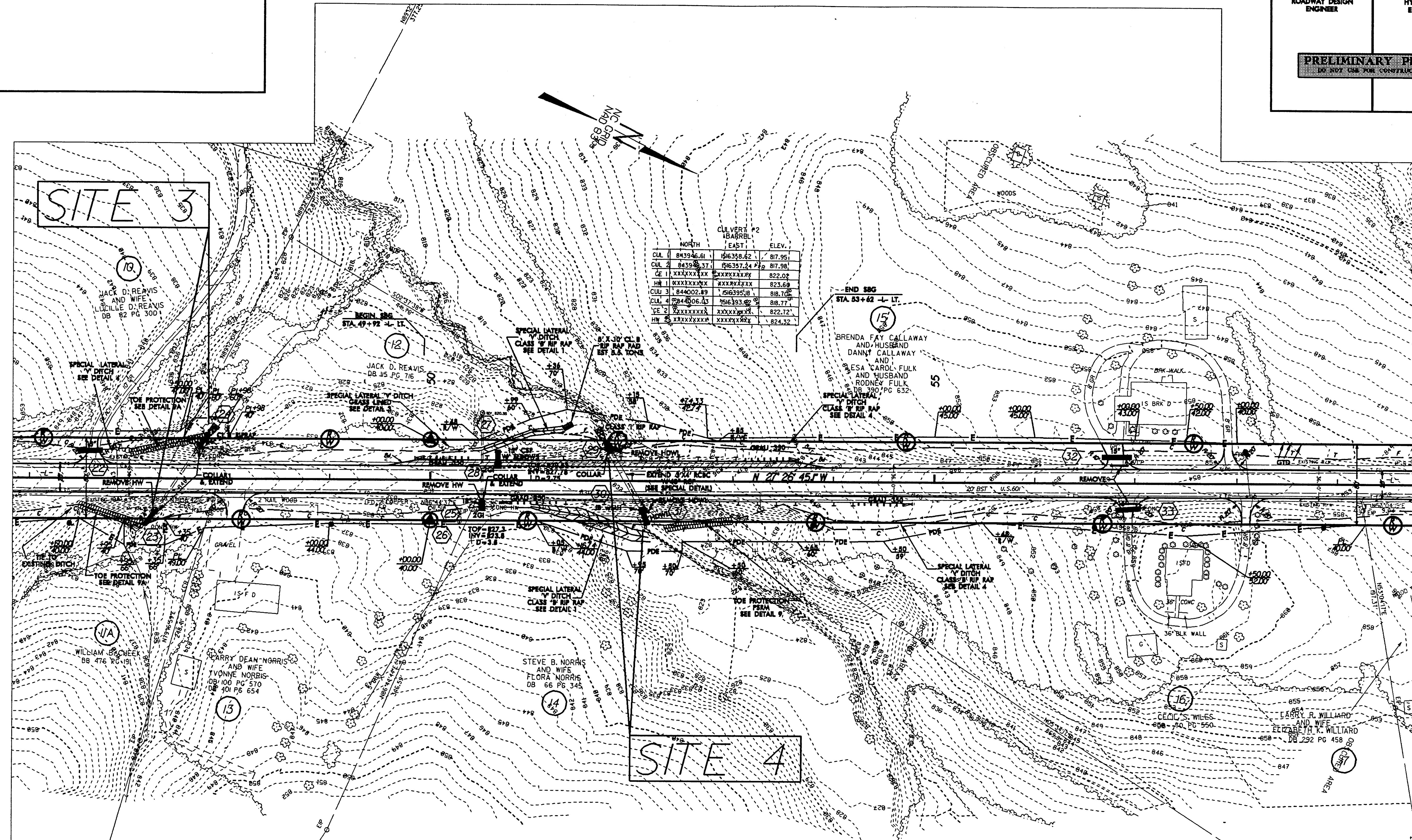
REVISIONS
7/1/03 - ADDED PRCL.11A STA 46+00 RT

7/2/99

PROJECT REFERENCE NO.	SHEET NO.
R-3427	12 of 40
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



	CULVERT #2 1BARREL NORTH	EAST	ELEV.
CUL 1	843946.61	1516358.62	817.95
CUL 2	843949.37	1516357.24	817.98
CE 1	XXXXXXXXX	XXXXXXXXX	822.02
HW 1	XXXXXXXXX	XXXXXXXXX	823.60
CUL 3	844002.89	1516395.18	818.70
CUL 4	844006.03	1516393.82	818.77
CE 2	XXXXXXXXX	XXXXXXXXX	822.72
HW 2	XXXXXXXXX	XXXXXXXXX	824.32

DETAIL 9A TOE PROTECTION (Not to Scale)
d = 1.0 Ft.
Type of Liner = CL. B RIP RAP
STA. 46+50 TO 47+13 -L- RT.
STA. 47+05 TO 47+75 -L- LT.
EST. 95 TONS TOTAL
EST. 75 YD² TOTAL PSRM

DETAIL 1 LATERAL 'V' DITCH (Not to Scale)
Min. D = 1.0 Ft. Max. d = 1.0 Ft. b = 5.0 Ft.
Type of Liner = CL. B RIP RAP
STA. 51+00 TO 52+18 -L- RT.
STA. 50+50 TO 51+32 -L- LT.
EST. 95 TONS TOTAL

DETAIL 3 SPECIAL LATERAL 'V' DITCH (Not to Scale)
Min. D = 1.0 Ft.
STA. 50+00 TO 50+50 -L- LT.

DETAIL 4 SPECIAL LATERAL 'V' DITCH (Not to Scale)
Min. D = 1.0 Ft. Max. d = 1.0 Ft.
Type of Liner = CL. B RIP RAP
STA. 46+50 TO 47+05 -L- LT.
STA. 52+13 TO 54+00 -L- LT.
STA. 53+50 TO 55+50 -L- RT.
EST. 205 TONS TOTAL

DETAIL 9 TOE PROTECTION (Not to Scale)
d = Ft.
Type of Liner = PSRM
STA. 52+24 TO 53+00 -L- RT.
EST. 42 YD²

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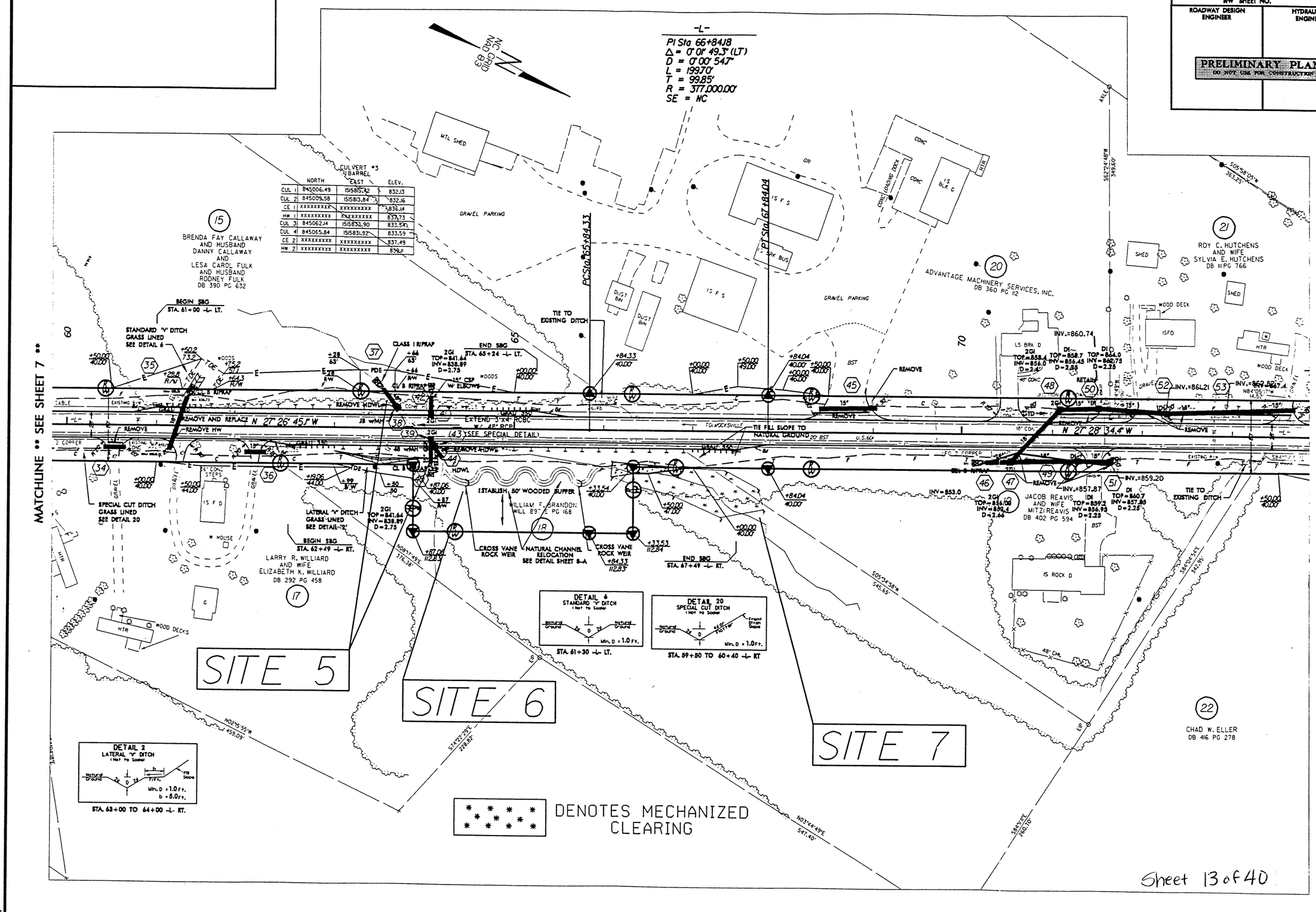
REVISIONS

PROJECT REFERENCE NO.	Sheet 13 of 40
R-3427	
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

7/2/99



Sheet 13 of 40

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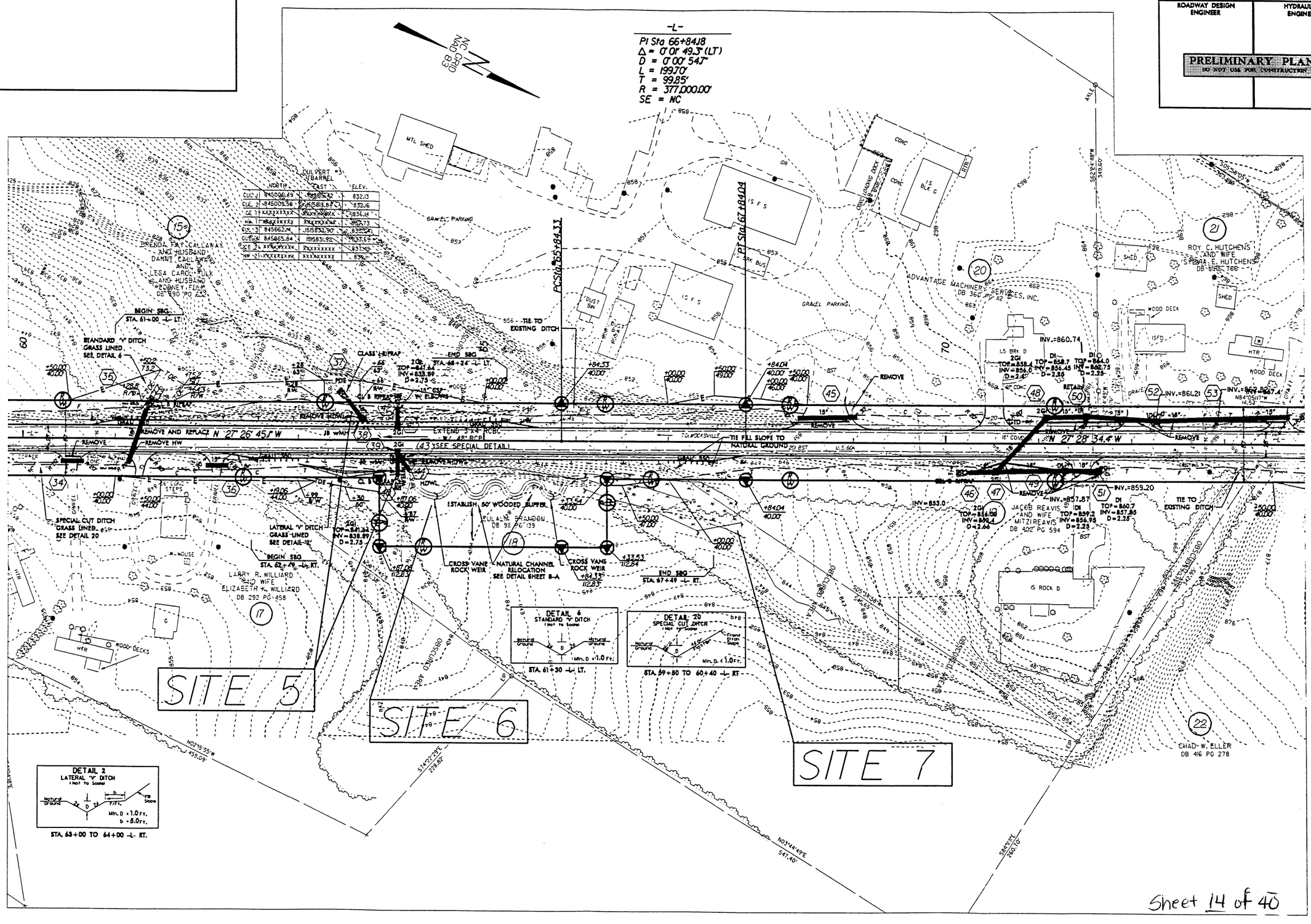
7/2/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-3427	14 of 40
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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REVISIONS

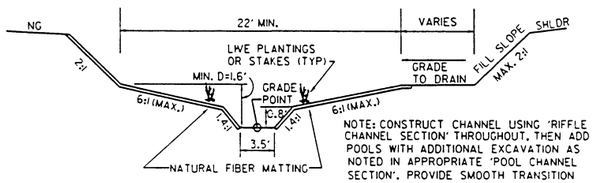
PROJECT REFERENCE NO.	SHEET NO.
R-3427	15 of 40
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

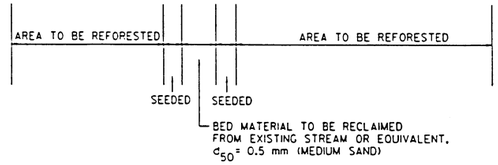
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NATURAL CHANNEL DESIGN DETAILS
SHEET 8-A
STA 64+20 TO STA 66+00 -L- RT.

RIFFLE CHANNEL SECTION (NTS)

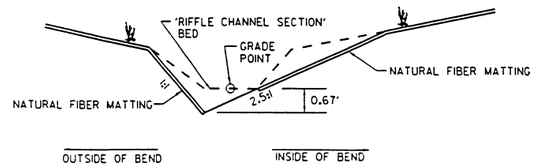


NOTE: CONSTRUCT CHANNEL USING 'RIFFLE CHANNEL SECTION' THROUGHOUT, THEN ADD POOLS WITH ADDITIONAL EXCAVATION AS NOTED IN APPROPRIATE 'POOL CHANNEL SECTION'. PROVIDE SMOOTH TRANSITION BETWEEN 'RIFFLE CHANNEL' AND 'POOL CHANNEL' SECTIONS. SEE STREAM PROFILE FOR POOL LOCATIONS.

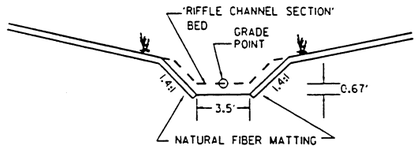


BED MATERIAL TO BE RECLAIMED FROM EXISTING STREAM OR EQUIVALENT.
d_{50} = 0.5 mm (MEDIUM SAND)

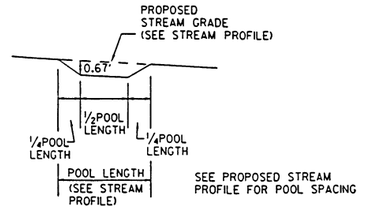
POOL CHANNEL SECTION (IN BEND) (NTS)



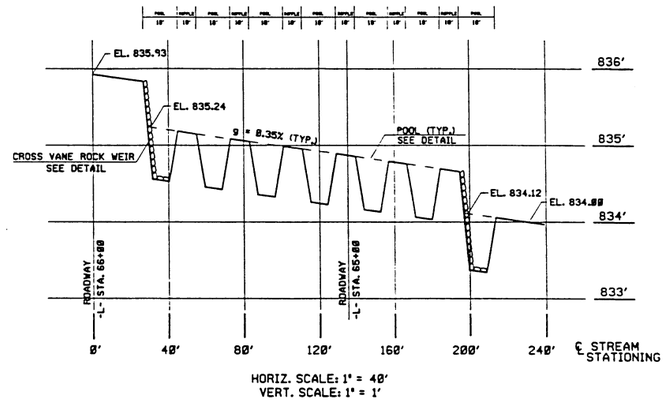
POOL CHANNEL SECTION (IN TANGENT) (NTS)



POOL PROFILE VIEW (NTS)

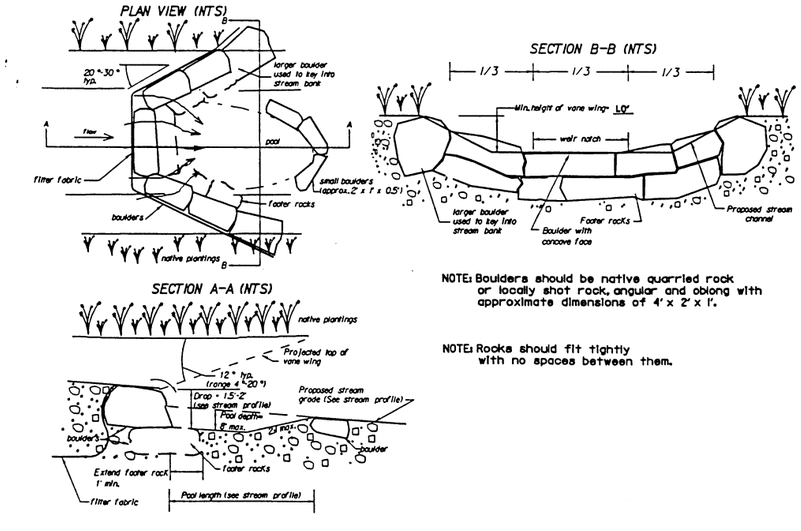


PROPOSED STREAM PROFILE



HORIZ. SCALE: 1" = 40'
VERT. SCALE: 1" = 1'

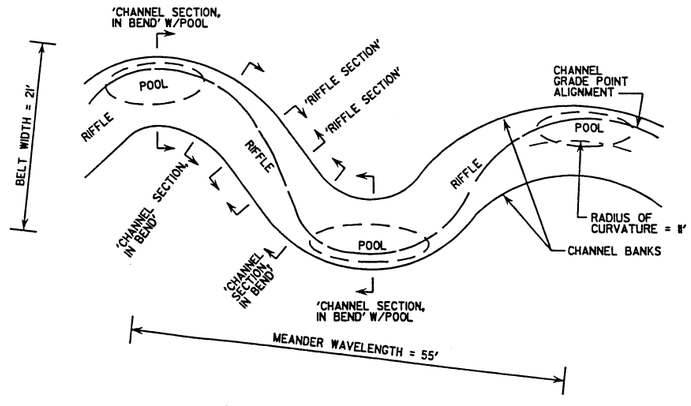
CROSS VANE ROCK WEIR DETAIL (NTS)



NOTE: Boulders should be native quarried rock or locally shot rock, angular and oblong with approximate dimensions of 4' x 2' x 1'.

NOTE: Rocks should fit tightly with no spaces between them.

PROPOSED STREAM PLAN VIEW (NTS)



CHANNEL TO BE GRADED TO MATCH 'RIFFLE CHANNEL SECTION' AND 'POOL CHANNEL SECTION, (IN BEND)' THROUGHOUT, PROVIDING A SMOOTH TRANSITION BETWEEN EACH SECTION. POOLS TO BE CONSTRUCTED BY ADDITIONAL EXCAVATION AS INDICATED IN 'POOL CHANNEL SECTION, (IN BEND)' DETAIL. WHERE POSSIBLE, EACH BEND SHOULD HAVE A POOL LOCATED ON THE OUTSIDE OF THE BEND. ADDITIONAL POOLS SHOULD BE ADDED AS NEEDED TO OBTAIN CORRECT RIFFLE/POOL SPACING.

Sheet 15 of 40

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7/2/99

PROJECT REFERENCE NO.	SHEET NO.
R-3427	16 of 40
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

** SEE SHEET 10 ** MATCHLINE

** SEE SHEET 12 ** MATCHLINE

NAD 83 GRID

SITE 8

SITE 9

SITE 10A

-Y3-
SR 1182 FOSTER ROAD
-Y3-POT Sta. 10+00.00
N 81° 57' 00.9" E
PC Sta. 13+31.41
PI Sta 13+52.67
Δ = 12° 08' 06.5" (LT)
D = 28° 38' 52.4"
L = 42.36'
T = 21.26'
R = 200.00'
PT Sta. 13+73.77
N 69° 48' 54.5" E
-Y3-POT Sta. 14+00.88=
-L-POT Sta. 110+83.00

BRENT A. & PATRICIA MATTHEWS
DB 487 PG 58

HOWELL ASSOCIATES, A NC GENERAL PARNERSHIP
C/O J. H. CRAVER AND SON, INC
DB 324 PG 195

DONNIE E. REAVIS
DB 372 PG 371
DB 213 PG 160

RICHARD A. FLEMMING
DB 290 PG 474

SOUTHERN COMMUNITY BANK & TRUST

KATIE DOUGLAS
WILL BOOK OE PG 084

TEDDY MICHAEL ASHLEY
DB 398 PG 255
DB 361 PG 487

ARNOLD L. ROSE AND WIFE BARBARA P. ROSE
DB 267 PG 274

HIBCO PLASTICS, INC.
DB 104 PG 443

RICHARD A. FLEMMING
DB 445 PG 439

HIBCO PLASTICS, INC.
DB 104 PG 443

DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

DETAIL 1
LATERAL "V" DITCH
(Not to Scale)
STA. 102+00 TO 102+55 -L- LT.
EST. 45 TONS

DETAIL 3A
SPECIAL CUT DITCH
(Not to Scale)
STA. 99+38 TO 102+50 -L- RT.

DETAIL 7B
LATERAL BASE DITCH
(Not to Scale)
STA. 102+50 TO 103+30 -L- RT.
EST. 88 TONS

DETAIL 9
TOE PROTECTION
(Not to Scale)
STA. 102+85 TO 103+50 -L- LT.

DETAIL 3
SPECIAL CUT DITCH
(Not to Scale)
STA. 101+50 TO 102+00 -L- LT.

DETAIL 12
RIP RAP AT EMBANKMENT
(Not to Scale)
STA. 102+55 -L- RT.
STA. 102+85 -L- RT.
STA. 103+30 -L- RT.

DETAIL 20
SPECIAL CUT DITCH
(Not to Scale)
STA. 111+50 TO 112+00 -L- RT.
STA. 13+30 TO 13+60 -Y3- LT.

DETAIL 12A
RIP RAP AT EMBANKMENT
(Not to Scale)
STA. 114+85 -L- RT.

DETAIL 21A
SPECIAL CUT DITCH
(Not to Scale)
STA. 115+07 TO 116+00 -L- LT.
EST. 52 TONS

CULVERT #4

	NORTH	EAST	ELEV.
CUL1	848486.7210	1514001.8400	845.50
CUL2	848491.5820	1513999.2720	845.38
CE1			849.26
HW1			850.75
CUL3	848537.1760	1514034.6310	845.07
CUL4	848541.9000	1514032.1150	844.95
CE2			848.79
HW2			850.43

Sheet 16 of 40

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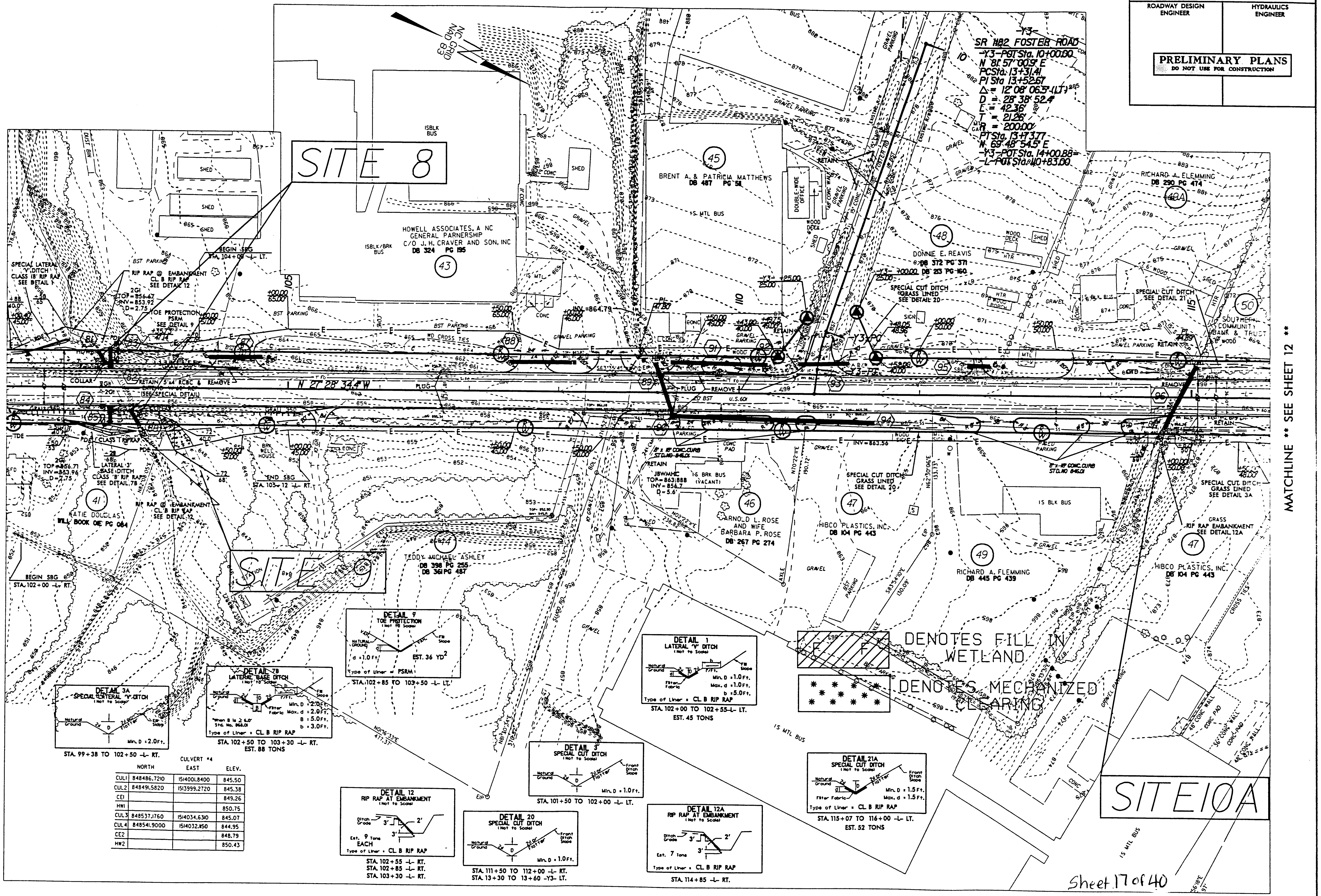
PROJECT REFERENCE NO.	SHEET NO.
R-3427	17 of 40

R/W SHEET NO.

ROADWAY DESIGN ENGINEER — HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



CULVERT #4

	NORTH	EAST	ELEV.
CUL1	848486.7210	1514001.8400	845.50
CUL2	848491.5820	1513999.2720	845.38
CE1			849.26
HW1			850.75
CUL3	848537.1760	1514034.6310	845.07
CUL4	848541.9000	1514032.1150	844.95
CE2			848.79
HW2			850.43

Sheet 17 of 40

7/2/99

16-APR-2004 10:05
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8/23/99

0 5	PROJ. REFERENCE NO.	SHEET NO.
	R3427	X-52

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

865 860 855 850 845

858.228
0.0208
2:1
VAR
855.540
857.894
0.0208
2:1

104+00.00

857.837
0.0208
2:1
857.371
0.0208
2:1
Wetland Boundary
Site 9 Wetland

103+50.00

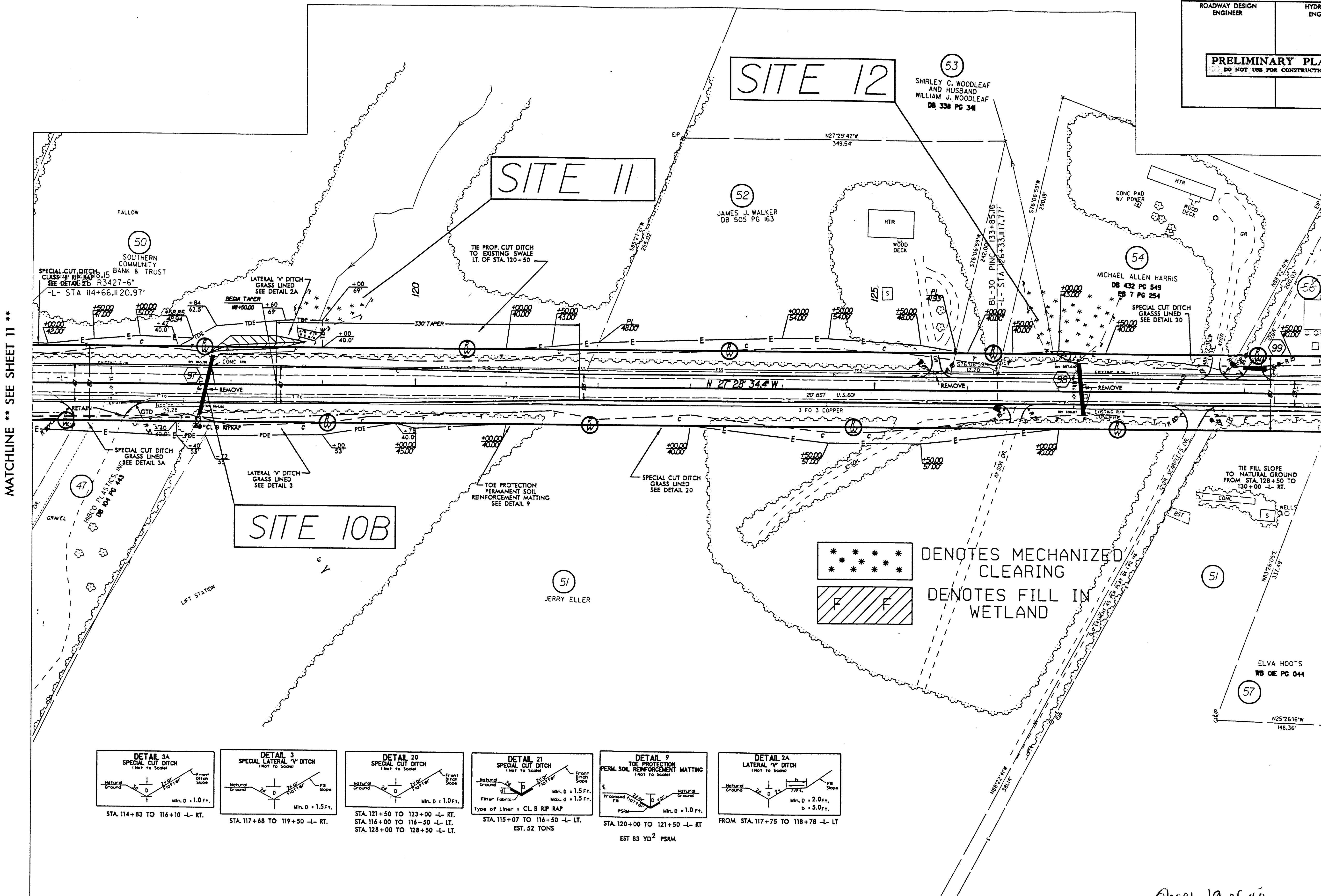
857.687
0.0208
2:1
857.202
0.0208
2:1
3.0
848.60

103+00.00

7/2/99

PROJECT REFERENCE NO.	SHEET NO.
R-3427	19 of 40
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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7/2/99

PROJECT REFERENCE NO.	Sheet 20 of 40
R-3427	
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

MATCHLINE ** SEE SHEET 11 **

MATCHLINE ** SEE SHEET 13 **

SITE 12

SITE 11

SITE 10B

(50) SOUTHERN COMMUNITY BANK & TR

(52) JAMES J. WALKER DB. 505, PG 163

(53) SHIRLEY C. WOODLEAF AND HUSBAND WILLIAM J. WOODLEAF DB 338 PG 341

MICHAEL ALLEN HARRIS DB 432 PG 549 DB 7 PG 264

(47) HIBCO PLASTICS INC DB 854 PG 443

(51) JERRY ELLER

PLVA HOOTS WB 08E PG 044

(57)

SPECIAL CUT DITCH CLASS B RIP RAP SEE DETAIL 2B R3427-6

-L- STA 114+66.11 20.9 Lt

LATERAL 'V' DITCH GRASS LINED SEE DETAIL 2A

TIE PROP. CUT DITCH TO EXISTING SWALE LT. OF STA. 120+50

SPECIAL CUT DITCH GRASS LINED SEE DETAIL 3A

LATERAL 'V' DITCH GRASS LINED SEE DETAIL 3

TOE PROTECTION PERMANENT SOIL REINFORCEMENT MATTING SEE DETAIL 9

SPECIAL CUT DITCH GRASS LINED SEE DETAIL 20

SPECIAL CUT DITCH GRASS LINED SEE DETAIL 20

TIE FILL SLOPE TO NATURAL GROUND FROM STA. 128+50 TO 130+00 -L- RT.

N 2° 28' 34.4" W

N21°29'42"W 349.54'

N25°26'06"W 337.69'

N25°26'06"W 148.36'

N89°22'41"W 381.41'

DENOTES MECHANIZED CLEARING

DENOTES FILL IN WETLAND

DETAIL 3A
SPECIAL CUT DITCH
(Not to Scale)

STA. 114+83 TO 116+10 -L- RT.

DETAIL 3
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

STA. 117+68 TO 119+50 -L- RT.

DETAIL 20
SPECIAL CUT DITCH
(Not to Scale)

STA. 121+50 TO 123+00 -L- RT.
STA. 116+00 TO 116+50 -L- LT.
STA. 128+00 TO 128+50 -L- LT.

DETAIL 21
SPECIAL CUT DITCH
(Not to Scale)

STA. 115+07 TO 116+50 -L- LT.
EST. 52 TONS

DETAIL 9
TOE PROTECTION
PERM. SOIL REINFORCEMENT MATTING
(Not to Scale)

STA. 120+00 TO 121+50 -L- RT
EST 83 YD² PSRM

DETAIL 2A
LATERAL 'V' DITCH
(Not to Scale)

FROM STA. 117+75 TO 118+78 -L- LT

Sheet 20 of 40

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8/23/99

0 5	PROJ. REFERENCE NO.	SHEET NO.
	R3427	X-64

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910 905 900

904.50

4:1 0.0208 0.0208 4:1 2:1

2:1

904.175

900.200

901.894

128+00.00

904.60

2:1 0.0208 0.0208 2:1

904.266

Site 12 wetland

Wetland boundary

127+50.00

904.65

0.0208 0.0208

2:1 2:1

904.326

127+00.00

904.61

DRIVE TIE
NO DITCH

2:1 0.0208 0.0208 4:1 2:1

904.250

901.994

126+50.00

Sheet 21 of 40

18-JUL-2004 15:05
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jaws

7/2/99

REVISIONS
3/3/03 - -L- Sta.143+00 Rt - Changed Prcl No.68 to 67 4/15/06 ADDED PREFORMED SCOURE HOLE & DETAIL STA.137+25 RT

PROJECT REFERENCE NO.	SHEET NO.
R-3427	22 of 40
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

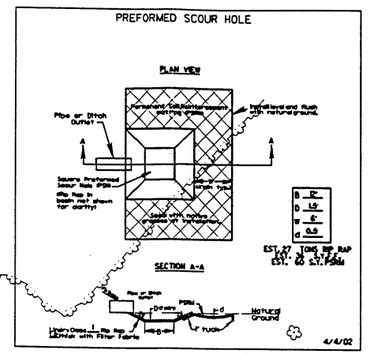
MATCHLINE ** SEE SHEET 12 **

MATCHLINE ** SEE SHEET 14 **

SITE 13

-L-
Pls Sta 133+28.07
θs = 0°59'47.2"
Ls = 400.00'
LT = 266.67'
ST = 133.34'
Pt Sta 154+45.09
Δ = 19°34'26.1" (RT)
D = 0°29'53.6"
L = 3,928.74'
T = 1,983.70'
R = 11,500.00'
SE = NC

PREFORMED SCOUR HOLE



(56) 24"CONC
AP OF KANNVILLE, LLC
DB 430 PG 870
PB 1 PG 146

(57) CARL C. HOOTS AND WIFE ELVA HOOTS
DB 64 PG 437

(58) HUGHES M. REAVIS AND WIFE CYNTHIS H. REAVIS
DB 216 PG 262
PB 1 PG 146

(59) EZRA W. HOOTS AND WIFE DOROTHY HOOTS
DB 278 PG 44
PB 1 PG 146

(60) THOMAS JAMES ABSHER
DB 325 PG 626
DB 239 PG 255
PB 1 PG 146

(61) JAMES J. PROFFITT AND WIFE BARBARA S. PROFFITT
DB 366 PG 139
PB 1 PG 146

(62) CLYDE EDWARD SHORE AND WIFE VIRGINIA M. SHORE
DB 342 PG 609
PB 1 PG 146

(63) DAVID BORDEN AND PAUL BORDEN
DB 393 PG 397

(64) PHILLIP W. PARDUE AND LEESA JILL LAWRENCE
DB 297 PG 87

(65) TIMOTHY GUY MARTIN AND WIFE LINDA MARTIN
DB 313 PG 402

(66) GLORIA A. BEACH
TERESA FAYE BEACH
DANA D. BEACH
DB 368 PG 21

(67) GEORGIA R. WATTS AND HUSBAND E. G. WATTS
DB 107 PG 602

(55) SILAS A. HOOTS AND WIFE MYRTLE HOOTS
DB 82 PG 331
94 E 163

BEGIN SBG STA. 135+49 -L- LT.
END SBG STA. 138+49 -L- LT.
BEGIN SBG STA. 135+49 -L- RT.
END SBG STA. 138+49 -L- RT.

2GI TOP=890.02 INV=887.27 D=2.75

PREFORMED SCOUR HOLE SEE DETAIL

SPECIAL CUT DITCH GRASS LINED SEE DETAIL 20

2' BASE LATERAL DITCH CLASS 'B' RIP RAP SEE DETAIL 7A

LATERAL 'V' DITCH CLASS 'B' RIP RAP SEE DETAIL 1

REMOVE

COLLAR & EXTEND

CL B RIPRAP

DETAIL 20
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground
Front Ditch Slope
Min.D = 1.0 Ft.

STA. 131+50 TO 132+18 -L- LT.
STA. 132+18 TO 133+00 -L- LT.
STA. 131+50 TO 132+80 -L- RT.
STA. 132+50 TO 133+50 -L- RT.

DETAIL 7A
LATERAL BASE DITCH
(Not to Scale)
Natural Ground
Fill Slope
Fabric
Min.D = 1.0 Ft.
Max.d = 1.0 Ft.
b = 5.0 Ft.
* When B is < 6.0'
Type of Liner = CL. B RIP RAP

STA. 136+35 TO 136+90 -L- LT.
STA. 136+35 TO 137+25 -L- RT.
STA. 137+48 TO 138+00 -L- RT.
EST 96 TONS TOTAL

DETAIL 1
LATERAL 'V' DITCH
(Not to Scale)
Natural Ground
Fill Slope
Fabric
Min.D = 1.0 Ft.
Max.d = 1.0 Ft.
b = 5.0 Ft.
Type of Liner = CL. B RIP RAP

STA. 137+00 TO 138+50 -L- LT.
STA. 138+00 TO 139+00 -L- RT.
EST 165 TONS TOTAL

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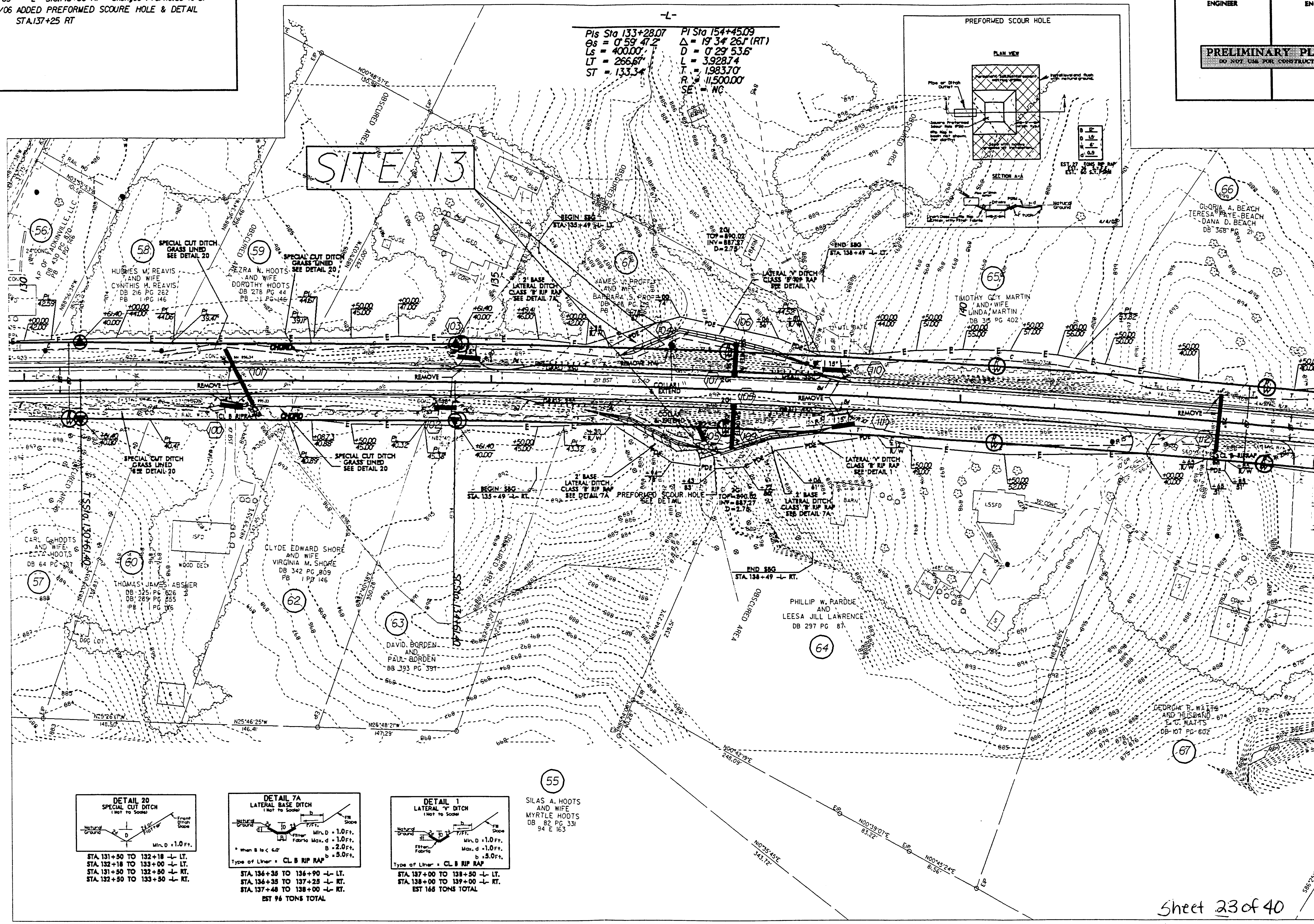
dmw

7/2/99

REVISIONS
3/3/03 - -L- Sta.143+00 Rt - Changed Prcl No.68 to 67
4/15/06 ADDED PREFORMED SCOURE HOLE & DETAIL STA.137+25 RT

PROJECT REFERENCE NO.	SHEET NO.
R-3427	23 of 40
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



Sheet 23 of 40

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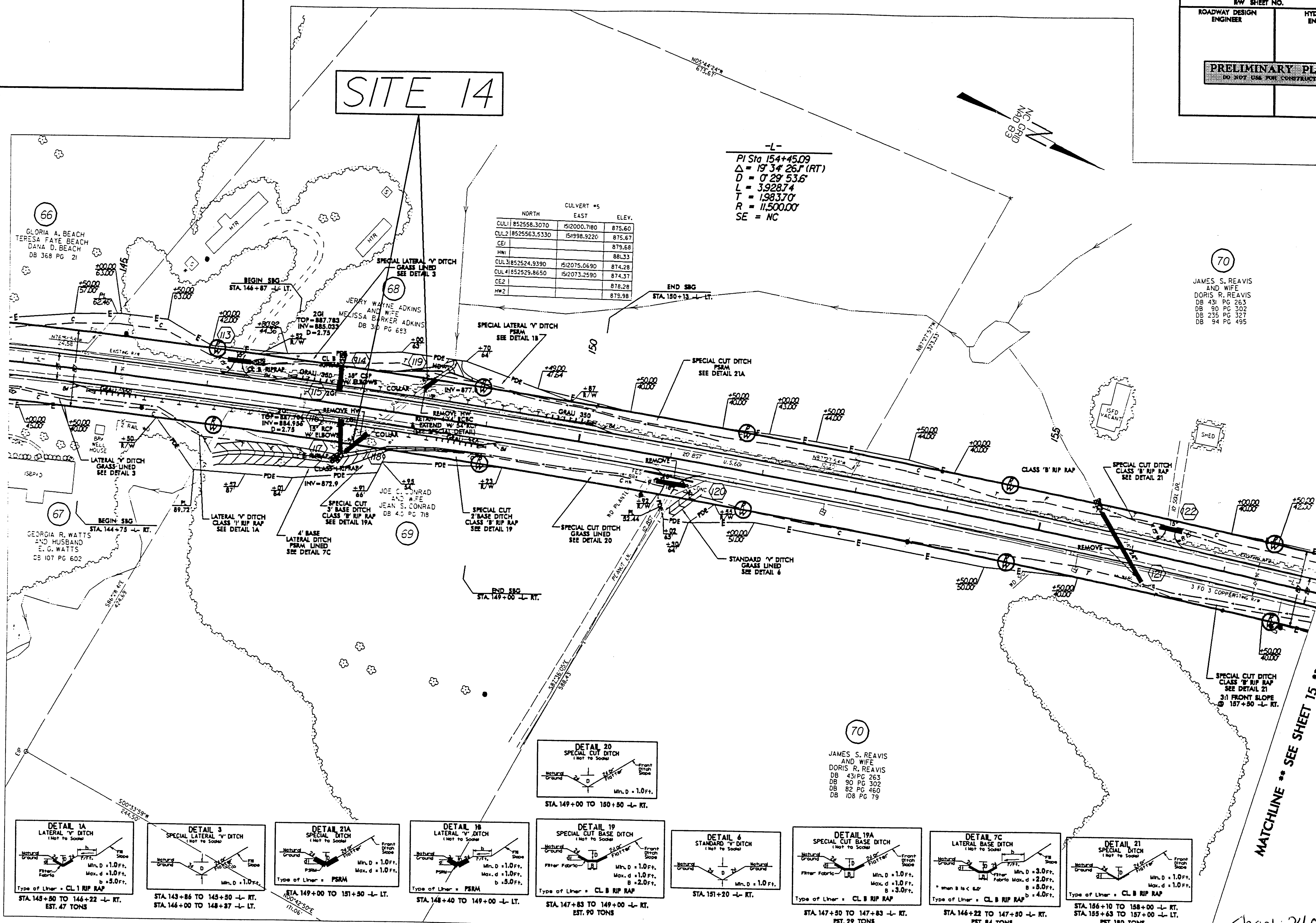
7/2/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-3427	24 of 40
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



CULVERT #5

	NORTH	EAST	ELEV.
CUL1	852558.3070	1512000.7180	875.60
CUL2	8525563.5330	1511998.9220	875.67
CE1			879.68
HW1			881.33
CUL3	852524.9390	1512075.0690	874.28
CUL4	852529.8650	1512073.2590	874.37
CE2			878.28
HW2			879.98

Sheet 24 of 40

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7/2/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-3427	25 of 40
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SITE 14

NC GRID NAD 83

-L-
PI Sta 154+45.09
Δ = 18° 34' 26.5" (RT)
D = 0° 29' 53.6"
L = 3.92874
T = 1.98370
R = 11,500.00
SE = NC

	NORTH	EAST	ELEV.
CUL1	8525558.3070	1512000.7800	875.60
CUL2	8525563.5330	1511998.9220	875.34
CE1			879.68
HW1			881.33
CUL3	8525544.9330	1512075.0690	874.28
CUL4	8525529.6658	1512073.2590	874.37
CE2			
HW2			878.28

66 GLORIA A. BEACH, TERESA FAYE BEACH, DANA D. BEACH, DB 368 PG. 21

67 DECEASED, E.G. WATTS, HUSBAND, E.G. WATTS, DB 101 PG 502

68 JERRY WAYNE MCINNIS AND WIFE BARBARA ANN MCINNIS, DB 3[illegible] PG 693

69 DECEASED

70 JAMES S. REAVIS AND WIFE DORIS R. REAVIS, DB 431 PG 263, DB 90 PG 392, DB 235 PG 327, DB 94 PG 435

70 JAMES S. REAVIS AND WIFE DORIS R. REAVIS, DB 431 PG 263, DB 90 PG 392, DB 82 PG 460, DB 108 PG 79

BEGIN SBG STA. 148+87 -L- LT

END SBG STA. 150+13 -L- LT

BEGIN SBG STA. 144+79 -L- RT.

END SBG STA. 149+00 -L- RT.

SPECIAL LATERAL "V" DITCH GRASS LINED SEE DETAIL 3

SPECIAL LATERAL "V" DITCH PSRM SEE DETAIL 1B

SPECIAL CUT DITCH PSRM SEE DETAIL 21A

SPECIAL CUT DITCH CLASS "B" RIP. RAP SEE DETAIL 21

SPECIAL CUT DITCH CLASS "B" RIP RAP SEE DETAIL 21 3:1 FRONT SLOPE @ 157+80 -L- RT.

LATERAL "V" DITCH CLASS "I" RIP RAP SEE DETAIL 1A

4' BASE LATERAL DITCH PSRM LINED SEE DETAIL 7C

SPECIAL CUT 3' BASE DITCH CLASS "B" RIP RAP SEE DETAIL 19A

SPECIAL CUT 2' BASE DITCH CLASS "B" RIP RAP SEE DETAIL 19

SPECIAL CUT DITCH GRASS LINED SEE DETAIL 20

STANDARD "V" DITCH GRASS LINED SEE DETAIL 6

REMOVE HW

RETAIN & EXTEND W 54" RCP (SEE SPECIAL DETAIL)

CLASS "I" RIP RAP

CLASS "B" RIP RAP

REMOVE

CULVERT #5

CL B RIP RAP

PSRM

PDE

INV = 872.9

INV = 877.1

INV = 881.45

INV = 881.33

INV = 877.1

INV = 874.28

INV = 874.37

INV = 878.28

DETAIL 20
SPECIAL CUT DITCH
(Not to Scale)
STA. 149+00 TO 150+50 -L- RT.

DETAIL 1A
LATERAL "V" DITCH
(Not to Scale)
Type of Liner = CL 1 RIP RAP
STA. 145+50 TO 146+22 -L- RT.
EST. 47 TONS

DETAIL 3
SPECIAL LATERAL "V" DITCH
(Not to Scale)
STA. 143+86 TO 145+50 -L- RT.
STA. 146+00 TO 148+37 -L- LT.

DETAIL 21A
SPECIAL DITCH
(Not to Scale)
Type of Liner = PSRM
STA. 149+00 TO 151+50 -L- LT.

DETAIL 1B
LATERAL "V" DITCH
(Not to Scale)
Type of Liner = PSRM
STA. 148+40 TO 149+00 -L- LT.

DETAIL 19
SPECIAL CUT BASE DITCH
(Not to Scale)
Type of Liner = CL B RIP RAP
STA. 147+83 TO 149+00 -L- RT.
EST. 90 TONS

DETAIL 6
STANDARD "V" DITCH
(Not to Scale)
STA. 151+20 -L- RT.

DETAIL 19A
SPECIAL CUT BASE DITCH
(Not to Scale)
Type of Liner = CL B RIP RAP
STA. 147+50 TO 147+83 -L- RT.
EST. 29 TONS

DETAIL 7C
LATERAL BASE DITCH
(Not to Scale)
Type of Liner = CL B RIP RAP
STA. 146+22 TO 147+50 -L- RT.
EST. 84 TONS

DETAIL 21
SPECIAL DITCH
(Not to Scale)
Type of Liner = CL B RIP RAP
STA. 156+10 TO 158+00 -L- RT.
STA. 155+63 TO 157+00 -L- LT.
EST. 180 TONS

MATCHLINE ** SEE SHEET 13 **

MATCHLINE ** SEE SHEET 15 **

Sheet 25 of 40

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7/2/99

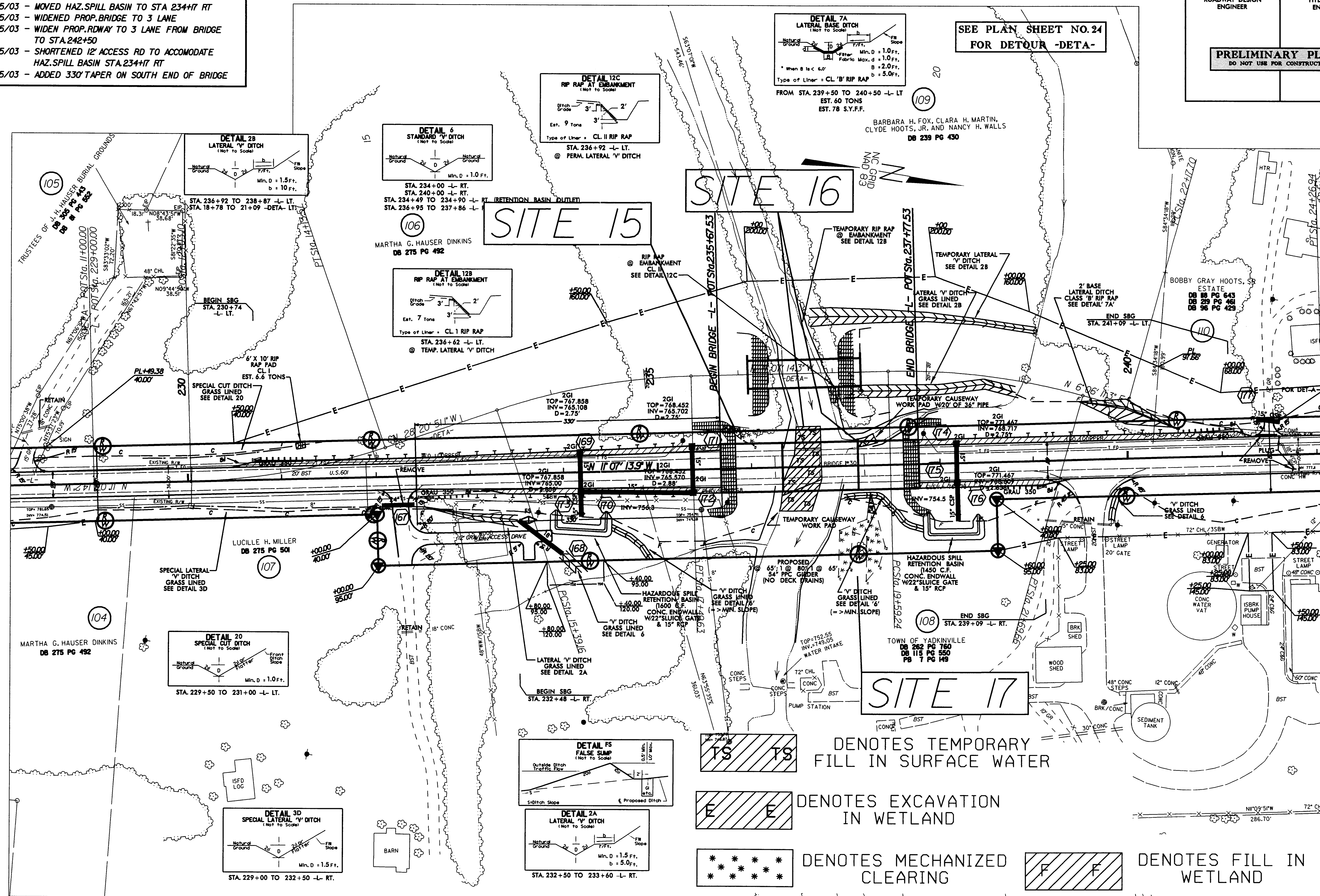
REVISIONS

4/15/03 – MOVED STRUCTURE 173 TO STA.234+17 RT
4/15/03 – MOVED HAZ.SPILL BASIN TO STA 234+17 RT
4/15/03 – WIDENED PROP.BRIDGE TO 3 LANE
4/15/03 – WIDEN PROP.RDWAY TO 3 LANE FROM BRIDGE TO STA.242+50
4/15/03 – SHORTENED 12' ACCESS RD TO ACCOMODATE HAZ.SPILL BASIN STA.234+17 RT
4/15/03 – ADDED 330' TAPER ON SOUTH END OF BRIDGE

PROJECT REFERENCE NO.	SHEET NO.
R-3427	26 of 40
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

MATCHLINE ** SEE SHEET 19 **



MATCHLINE ** SEE SHEET 21 **

Sheet 26 of 40

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7/2/99

REVISIONS
4/15/03 - MOVED STRUCTURE 173 TO STA.234+17 RT
4/15/03 - MOVED HAZ.SPILL BASIN TO STA 234+17 RT
4/15/03 - WIDENED PROP.BRIDGE TO 3 LANE
4/15/03 - WIDEN PROP.RDWAY TO 3 LANE FROM BRIDGE TO STA.242+50
4/15/03 - SHORTENED 12' ACCESS RD TO ACCOMODATE HAZ.SPILL BASIN STA.234+17 RT
4/15/03 - ADDED 330' TAPER ON SOUTH END OF BRIDGE

PROJECT REFERENCE NO.	SHEET NO.
R-3427	27 of 40
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

MATCHLINE ** SEE SHEET 19 **

MATCHLINE ** SEE SHEET 21 **

SEE PLAN SHEET NO. 24 FOR DETOUR -DETA-

SITE 15

SITE 16

SITE 17

DETAIL 28
LATERAL 'V' DITCH
(Not to Scale)

DETAIL 6
STANDARD 'V' DITCH
(Not to Scale)

DETAIL 12C
RIP RAP AT EMBANKMENT
(Not to Scale)

DETAIL 12B
RIP RAP AT EMBANKMENT
(Not to Scale)

DETAIL 7A
LATERAL BASE DITCH
(Not to Scale)

DETAIL 20
SPECIAL CUT DITCH
(Not to Scale)

DETAIL 3D
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

DETAIL 2A
LATERAL 'V' DITCH
(Not to Scale)

DETAIL F5
FALSE SUMP
(Not to Scale)

DENOTES TEMPORARY FILL IN SURFACE WATER

DENOTES EXCAVATION IN WETLAND

DENOTES MECHANIZED CLEARING

DENOTES FILL IN WETLAND

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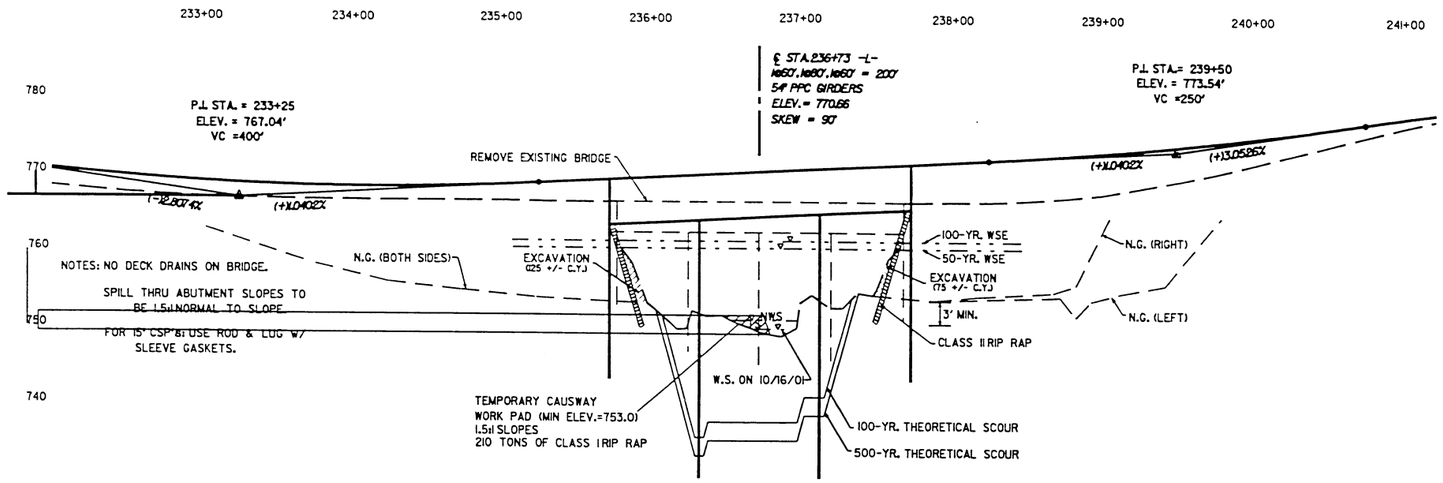
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-3427	28 of 40
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



SITE 16
TEMPORARY CAUSEWAY PROFILE

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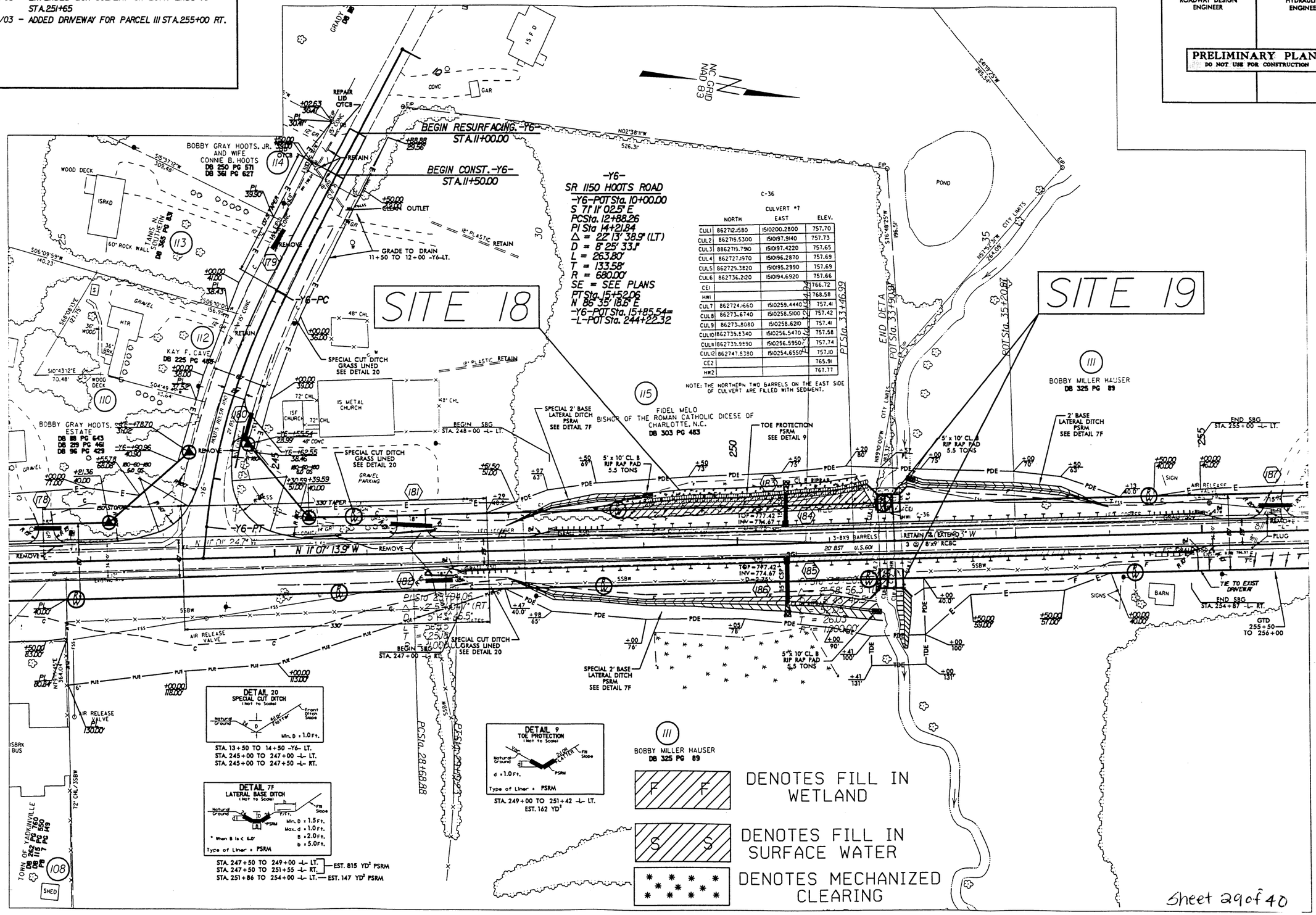
au

7/2/99

REVISIONS
4/15/03 - EXTENDED BOX CULVERT ON BOTH ENDS AT STA. 251+65
7/17/03 - ADDED DRIVEWAY FOR PARCEL 111 STA. 255+00 RT.

PROJECT REFERENCE NO.	SHEET NO.
R-3427	29 of 40
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



Sheet 29 of 40

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jrw

7/2/99

REVISIONS
4/15/03 - EXTENDED BOX CULVERT ON BOTH ENDS AT STA.251+65
7/17/03 - ADDED DRIVEWAY FOR PARCEL 111 STA.255+00 RT.

PROJECT REFERENCE NO.	SHEET NO.
R-3427	30 of 40
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

MATCHLINE ** SEE SHEET 20 **

MATCHLINE ** SEE SHEET 22 **

SITE 18

SITE 19

-Y6-
SR 1150 HOOTS ROAD
-Y6-POT Sta. 10+00.00
S 7° 11' 02.5" E
PC Sta. 12+88.26
PI Sta. 14+21.84
Δ = 22° 13' 38.9" (LT)
D = 8° 25' 33.3"
L = 263.80'
T = 133.58'
R = 680.00'
SE = SEE PLANS
PT Sta. 15+52.06
N 86° 35' 18.5" E
-Y6-POT Sta. 15+85.54=
-L-POT Sta. 244+22.32

BEGIN RESURFACING -Y6- STA. 11+00.00

BEGIN CONST. -Y6- STA. 11+50.00

-Y6-PC

-Y6-PT

CULVERT #7

	NORTH	EAST	ELEV.
CUL1	862712.1580	1510200.2800	757.70
CUL2	862719.5300	1510197.9140	757.73
CUL3	8862719.1196	1510197.4220	757.65
CUL4	862727.1570	1510196.2870	757.69
CUL5	862729.3820	1510195.2990	757.69
CUL6	862736.2120	1510194.6920	757.66
CEI			766.12
HWI			768.88
CUL7	862724.4660	1510259.4440	759.41
CUL8	862731.6740	1510256.5106	757.42
CUL9	862731.8980	1510258.6210	757.41
CUL10	862738.8340	1510256.5470	757.58
CUL11	862739.9890	1510256.5950	757.74
CUL12	862747.8380	1510254.6550	757.10
CE2			765.91
HW2			767.77

NOTE: THE NORTHERN TWO BARRELS ON THE EAST SIDE OF CULVERT ARE FILLED WITH SEDIMENT.

DETAIL 20
SPECIAL CUT DITCH
STA. 13+00 TO 14+50 -Y6- LT.
STA. 245+00 TO 247+00 -L- LT.
STA. 248+00 TO 247+50 -L- RT.

DETAIL 7E
LATERAL BASE DITCH
STA. 247+50 TO 249+00 -L- LT. — EST. 815 YD³ PSRM
STA. 247+50 TO 251+65 -L- RT.
STA. 251+85 TO 254+00 -L- LT. — EST. 149 YD³ PSRM

DETAIL 7
SIDE PROTECTION
STA. 249+00 TO 251+42 -L- LT.
EST. 162 YD³

DENOTES FILL IN WETLAND

DENOTES FILL IN SURFACE WATER

DENOTES MECHANIZED CLEARING

Sheet 30 of 40

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
	31 of 40
ROADWAY DESIGN ENGINEER	H... ENGINEER

100' LT. 0' 100' RT.

℄ STA. 251+65.22 -L-
3 @ 8' x 9' RCBC EXTENSION
W/ 2' SILLS AT INLET END OF BARRELS 2 & 3
℄ GRADE = 778.88
SKEW = 90°

NOTES: BED MATERIAL CONSISTS OF SAND AND SMALL COBBLES.
U/S WSE = 759.1 ON DAY OF SURVEY
EXISTING TOP SLAB IS 10" THICK.
EXISTING INTERIOR WALLS ARE 7" THICK.
TOP OF BANKS ARE VARIABLE AND SHOWN APPROXIMATELY.

780
770
760
750

APPR. 100-YR WSE
APPR. 50-YR WSE
TOP OF BANK (LT.)
TOP OF BANK (RT.)
NWS
BED
0.47%
2:1
2:1
TOP OF BANK (RT.)
TOP OF BANK (LT.)
NWS
BED
29.8'
29.4'
℄ ELEV. = 757.55

PI = 253+42.50
EL = 780.53'
VC = 5000
(-) 1.04%

PROPOSED GRADE
EXIST. GRADE
APPR. 100-YR WSE
APPR. 50-YR WSE
NG LT.
NG RT.
3 @ 8'X9' RCBC W/ 2' SILLS AT INLET END OF BARRELS 2 & 3. (UPSTREAM END SHOWN)

253+00
252+00
251+00
250+00

PI = 250+00.00
EL = 777.15'
VC = 300.00
(+) 2.18%

NG LT.
NG RT.

253
252
251

PASTURE
WOODS
EXIST. R/W
EXIST. 20' DIST. TO CENTERLINE
TO MOCKSVILLE
EXIST. PAVEMENT
U.S. 601
TO MOCKSVILLE
PDE
WIRE FENCE
R/W

3@ 8'X9' BARRELS
W/ 2' SILLS AT INLET END OF BARRELS 2 & 3
CLASS I RIP RAP
20' ONS. +/- (BOTH SIDES)
APPROX. TOP OF BANK
TOE
BARREL #3
BARREL #2
BARREL #1
A
B

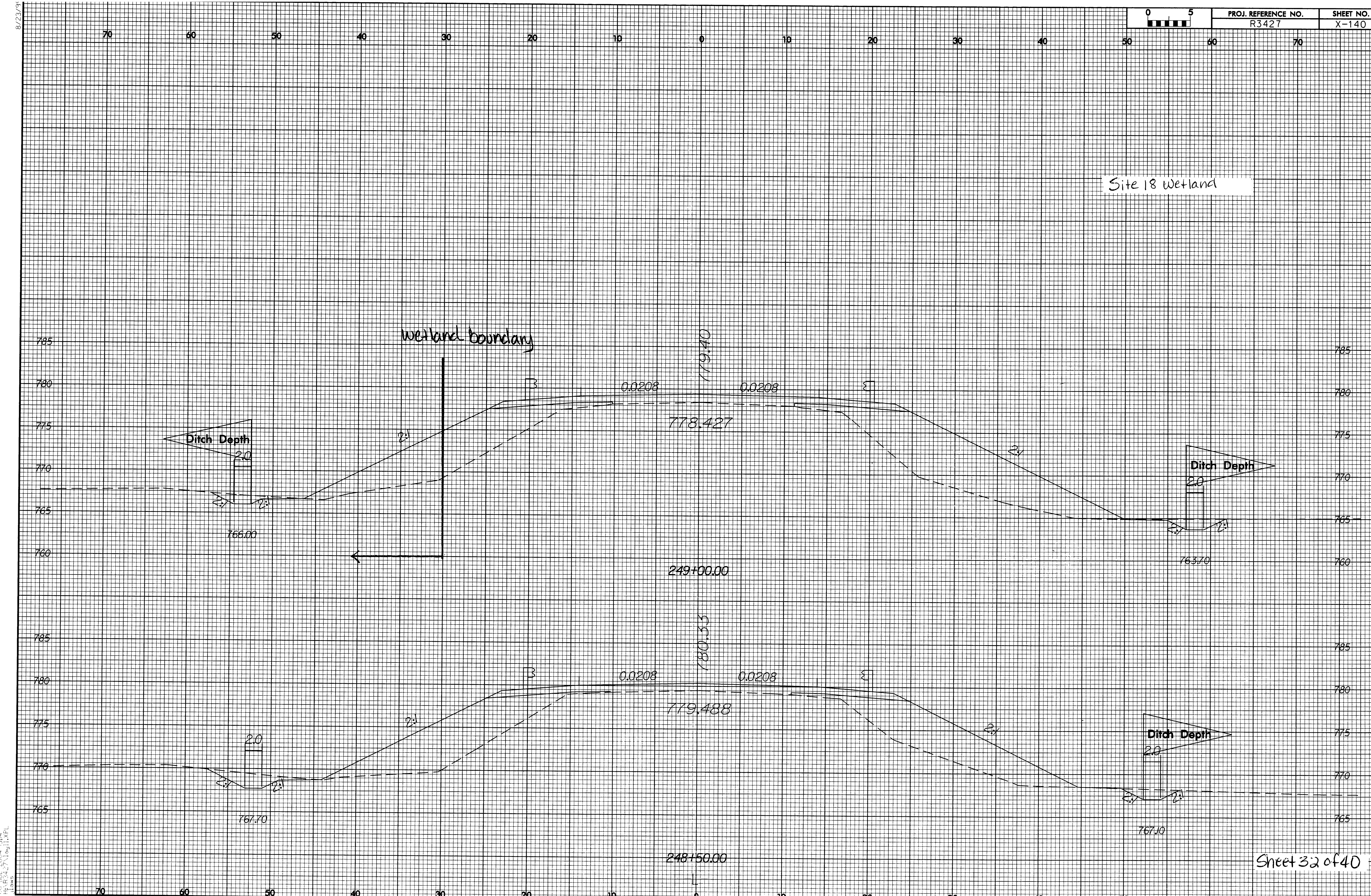
SECTION B-B
TOTAL EXCAVATION = 18 CU. YDS.
NOT TO SCALE

SECTION A-A
TOTAL EXCAVATION = 18 CU. YDS.
NOT TO SCALE

SITE 18

Sheet 31 of 40

07-AUG-2003 13:07
\\Rdu-w2k\projects\roadway\rdwg\rcbc6_6pfl.dgn
dlong


PROJ. REFERENCE NO.
R3427
SHEET NO.
X-140
Site 18 Wetland
Wetland boundary
779.40
0.0208
0.0208
778.427
Ditch Depth
2.0
2:1
766.00
763.70
249+00.00
780.33
779.488
767.70
767.10
248+50.00
Sheet 32 of 40

8/23/99

0 5	PROJ. REFERENCE NO.	SHEET NO.
	R3427	X-141

Site 18 Wetland

wetland boundary

178.33

0.0208

0.0208

777.101

2:1

2:1

2.0

2:1

2:1

761.06

250+00.00

wetland boundary

178.33

0.0208

0.0208

777.599

2:1

2:1

2.0

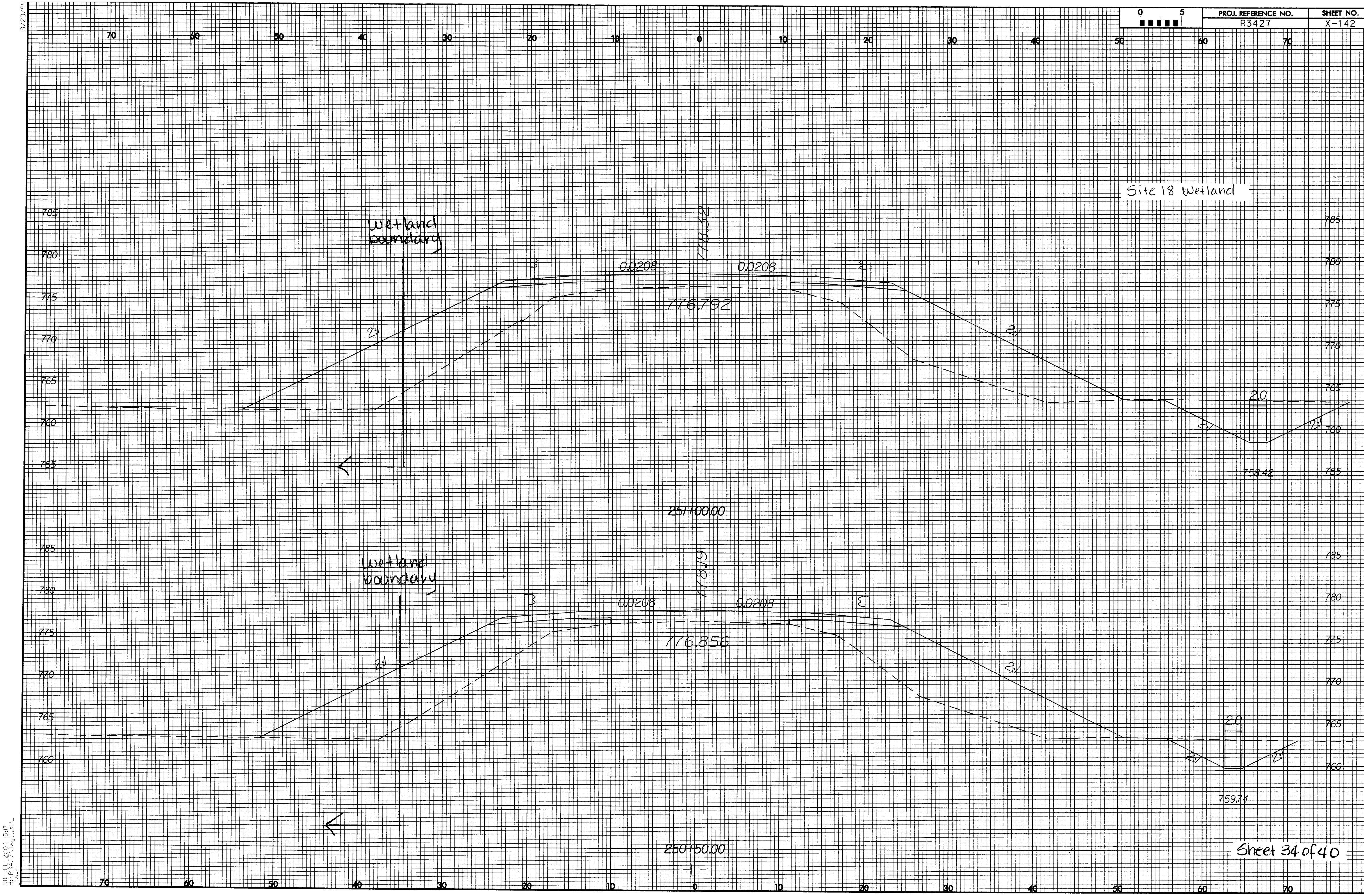
2:1

2:1

762.38

249+50.00

Sheet 33 of 40



PROJ. REFERENCE NO.
R3427
SHEET NO.
X-142
Site 18 Wetland
Wetland boundary
778.32
0.0208
0.0208
776.792
2:1
2:1
2.0
758.42
251+00.00
Wetland boundary
778.19
0.0208
0.0208
776.856
2:1
2:1
2.0
759.74
250+50.00
Sheet 34 of 40

MORPHOLOGICAL MEASUREMENT TABLE

VARIABLES	EXISTING CHANNEL	PROPOSED REACH	USGS STATION	REFERENCE REACH
1) STREAM TYPE	N/A (see below)	C	N/A	C
2) DRAINAGE AREA	21 ACRES	21 ACRES	N/A	16 ACRES
3) BANKFULL WIDTH	N/A	5.7 ft.	N/A	4.8 ft.
4) BANKFULL MEAN DEPTH	N/A	Ø.6 ft.	N/A	Ø.3 ft.
5) WIDTH/DEPTH RATIO	N/A	1Ø	N/A	16
6) BANKFULL CROSS-SECTIONAL AREA	N/A	3.7 s.f.	N/A	1.5 s.f.
7) BANKFULL MEAN VELOCITY	N/A	2.1 fps	N/A	3.7 fps
8) BANKFULL DISCHARGE	N/A	7.5 cfs	N/A	5.7 cfs
9) BANKFULL MAX. DEPTH	N/A	Ø.8 ft.	N/A	Ø.64 ft.
10) WIDTH OF FLOODPRONE AREA	N/A	22 ft.	N/A	2Ø.7 ft.
11) ENTRENCHMENT RATIO	N/A	3.9	N/A	4.3
12) MEANDER LENGTH	N/A	55 ft.	N/A	32 ft.
13) RATIO OF MEANDER LENGTH TO BANKFULL WIDTH	N/A	1Ø	N/A	6.7
14) RADIUS OF CURVATURE	N/A	11 ft.	N/A	1Ø ft.
15) RATIO OF RADIUS OF CURVATURE TO BANKFULL WIDTH	N/A	1.9	N/A	2.1
16) BELT WIDTH	N/A	21 ft.	N/A	12 ft.
17) MEANDER WIDTH RATIO	N/A	3.7	N/A	2.5
18) SINUOSITY	N/A	1.3	N/A	1.2
19) VALLEY SLOPE	N/A	1.1%	N/A	Ø.27%
20) AVERAGE SLOPE	N/A	Ø.35%	N/A	Ø.22%
21) POOL SLOPE	N/A	Ø.35%	N/A	Ø.22%
22) RATIO OF POOL SLOPE TO AVERAGE SLOPE	N/A	1.Ø	N/A	1.Ø
23) MAXUMUM POOL DEPTH	N/A	1.5 ft.	N/A	Ø.9 ft.
24) RATIO OF POOL DEPTH TO AVERAGE BANKFULL DEPTH	N/A	1.8	N/A	2.7
25) POOL WIDTH	N/A	5.1 ft.	N/A	4 ft.
26) RATIO OF POOL WIDTH TO BANKFULL WIDTH	N/A	Ø.9	N/A	Ø.83
27) POOL TO POOL SPACING	N/A	28 ft.	N/A	24 ft.
28) RATIO OF POOL TO POOL SPACING TO BANKFULL WIDTH	N/A	4.9	N/A	5

NOTE: EXISTING CHANNEL IS A ROADSIDE DITCH. NO MORPHOLOGICAL DATA WAS OBTAINED.

NCDOT

DIVISION OF HIGHWAYS

YADKIN COUNTY

PROJECT: 8.1770801 (R-3427)

WIDENING US 601 FROM DAVIE COUNTY LINE TO SOUTHERN YADKINVILLE CITY LIMITS

PROPERTY OWNER

NAME AND ADDRESS

PARCEL NO.	OWNER'S NAME	ADDRESS
1	DORRELL PRATT DB 90 PG 241	2609 COURTNEY HUNTSVILLE RD. YADKINVILLE, NC 27055
2	WILLIAM ALDEAN ALLEN & WIFE BONNIE D. ALLEN DB 234 PG784	3421 BOWMAN RD. YADKINVILLE, NC 27055
3	JAMES B. RUTLEDGE & WIFE HELEN P. RUTLEDGE DB 89 PG 4	1009 US HWY 601 YADKINVILLE, NC 27055
7	WILLIAM E. HUDSPETH II	1040 US HWY 601 YADKINVILLE, NC 27055
8	ALLEN ELDRETH & WIFE DORTHY W. ELDRETH DB 306 PG 677	1417 UNION CROSS CH. RD. YADKINVILLE, NC 27055
11A	WILLIAM B. CHEEK DB 476 PG 191	1169 OLD MOCKSVILLE RD. STATESVILLE, NC 28625
12	JACK D. REAVIS DB 115 PG 716	1116 US HWY 601 SOUTH YADKINVILLE, NC 27055
14	STEVE B. NORRIS & WIFE FLORA NORRIS DB 66 PG 345	1544 COURTNEY HUNTSVILLE RD. YADKINVILLE, NC 27055
15	BRENDA FAY CALLAWAY & DANNY CALLAWAY AND LESA CAROL FULK & RODNEY FULK DB 390 PG 632	1309 US HWY 601 SOUTH YADKINVILLE, NC 27055
18	EULALIA BRANDON DB 98 PG 139	718 MAPLEWOOD LN. STATESVILLE, NC 28625
41	JAMES A. DOUGLAS DB 82 PG 420	1652 US HWY 601 YADKINVILLE, NC 27055

DIVISION OF HIGHWAYS
N. C. DEPT. OF TRANSPORTATION
YADKIN COUNTY

PROJECT: R-3427

IMPROVEMENT OF US 601 FROM
THE DAVIE COUNTY LINE TO +/-
0.15 MILE SOUTH OF US 421

8/01/03

PROPERTY OWNER

NAME AND ADDRESS

PARCEL NO.	OWNER'S NAME	ADDRESS
43	HOWEL ASSOC, A NC GENERAL PARTNERSHIP C/O J.H. CRAVER AND SON, INC. DB 324 PG 195	1709 US HWY 601 YADKINVILLE, NC 27055
44	TEDDY MICHAEL ASHLEY DB 398 PG 255 DB 361 PG 487	2117 US HWY 21 HAMPTONVILLE, NC 27020
47	HIBCO PLASTICS, INC. DB 104 PG 443	PO BOX 157 YADKINVILLE, NC 27055
50	SOUTHERN COMMUNITY BANK & TRUST	532 E MAIN ST. YADKINVILLE, NC 27055
54	MICHAEL ALLEN HARRIS DB 432 PG 549 PB 7 PG 254	PO BOX 1982 YADKINVILLE, NC 27055
61	JAMES J. PROFFITT AND WIFE BARBARA S. PROFFITT DB 246 PG 139 PB 1 PG 146	1933 US HWY 601 YADKINVILLE, NC 27055
68	JERRY WAYNE ADKINS AND WIFE MELISSA BARKER ADKINS DB 310 PG 683	1848 LONE HICKORY RD. YADKINVILLE, NC 27055
69	JOE C. CONRAD AND WIFE JEAN S. CONRAD DB 410 PG 718	1220 PEANUT LN. YADKINVILLE, NC 27055
106	MARTHA G. HAUSER DINKINS DB 275 PG 492	700 E MAIN ST. YADKINVILLE, NC 27055
108	TOWN OF YADKINVILLE DB 262 PG 760 DB 115 PG 550 PB 7 PG 149	2820 US HWY 601 YADKINVILLE, NC 27055
111 & 116	BOBBY MILLER HAUSER DB 325 PG 89	2514 US HWY 601 YADKINVILLE, NC 27055

DIVISION OF HIGHWAYS
N. C. DEPT. OF TRANSPORTATION
YADKIN COUNTY

PROJECT: R-3427

IMPROVEMENT OF US 601 FROM THE DAVIE COUNTY LINE TO +/- 0.15 MILE SOUTH OF US 421

8/01/03

PROPERTY OWNER

NAME AND ADDRESS

PARCEL NO.	OWNER'S NAME	ADDRESS
115	JOHN F. DONOGHUE BISHOP OF THE ROMAN CATHOLIC DICESE OF CHARLOTTE, N.C. DB 303 PG 483	PO BOX 36776 CHARLOTTE, NC 28236

DIVISION OF HIGHWAYS
N. C. DEPT. OF TRANSPORTATION
YADKIN COUNTY

PROJECT: R-3427

IMPROVEMENT OF US 601 FROM THE DAVIE COUNTY LINE TO +/- 0.15 MILE SOUTH OF US 421

8/01/03

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure (Size/Type)	WETLAND IMPACTS				SURFACE WATER IMPACTS				
			Fill in Wetlands (Ac)	Temp. Fill In Wetlands (Ac)	Excavation In Wetlands (Ac)	Mechanized Clearing (Method III) (Ac)	Fill in SW (Natural) (Ac)	Temp Exist Channel Impact (Ft)	Temp Fill In SW (Ac)	Existing Channel Impact (Ft)	Natural Stream Design (Ft)
11	-L- 118+71 LT	LATERAL ENCROACHMENT				0.005					
	-L- 119+00 LT										
12	-L- 126+90 LT	LATERAL ENCROACHMENT (ROADWAY FILL)	0.0002			0.006					
	-L- 127+31 LT										
13	-L- 137+08	30" RCP EXTENSION					0.002	35		38	
14	-L- 148+02	4X4 RCBC EXTEND W/ 54" RCP / LAT. DITCH	CONST.				0.003	17		260	
15	-L- 235+70 LT	LATERAL ENCROACHMENT (ROADWAY FILL)	0.003								
	-L- 236+09 LT										
16	-L- 236+57	TEMPORARY RIP-RAP CAUSEWAY							0.07		
	-L- 237+23										
17	-L- 237+23 RT	LATERAL ENCROACHMENT (ROADWAY CUT)			0.001	0.002					
	-L- 237+31 RT										
18	-L- 248+46 LT	LATERAL ENCROACHMENT (ROADWAY FILL)	0.114			0.057					
	-L- 251+51 LT										
19	-L- 251+65	3@8X9 RCBC EXTENSION					0.014	29		120	
PAGE TOTAL:			0.117	0	0.001	0.07	0.019	81	0.07	418	0
PREVIOUS PAGE TOTAL:			0.005	0	0	0.027	0.052	351	0	571.5	220
PROJECT TOTAL:			0.122	0	0.001	0.097	0.071	432	0.07	989.5	220

NOTES: 1) PROPOSED STRUCTURE TO BE 1@65'; 1@80'; 1@65' 54" PPC GIRDERS
2) TEMPORARY RIP-RAP CAUSEWAY FOR DEMOLITION OF EXISTING BRIDGE

DIVISION OF HIGHWAYS
N. C. DEPT. OF TRANSPORTATION
YADKIN COUNTY
PROJECT: R-3427
IMPROVEMENT OF US 601 FROM THE DAVIE COUNTY LINE TO +/- 0.15 MILE SOUTH OF US 421

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure (Size/Type)	WETLAND IMPACTS				SURFACE WATER IMPACTS				
			Fill in Wetlands (Ac)	Temp. Fill in Wetlands (Ac)	Excavation in Wetlands (Ac)	Mechanized Clearing (Method III) (Ac)	Fill in SW (Natural) (Ac)	Temp Exist Channel Impact (Ft)	Temp Fill in SW (Ac)	Existing Channel Impact (Ft)	Natural Stream Design (Ft)
1	-L- 16+91	36" RCP EXTENSION					0.007	102		50.5	
2	-L- 25+91	6X6 RCBC EXTENSION					0.012	56		44	
3	-L- 47+48	24" RCP EXTENTION					0.003	35		31	
4	-L- 51+95	3X4 RCBC EXTEND W/ 48" RCP					0.003	56		26	
5	-L- 63+91	3X4 RCBC EXTEND W/ 48" RCP					0.004	18		43	
6	-L- 64+20 RT	NATURAL CHANNEL RELOCATION					0.015			190	220
	-L- 66+08 RT										
7	-L- 66+08 RT	LATERAL ENCROACHMENT				0.017					
	-L- 67+00 RT										
8	-L- 103+08	5X4 RCBC EXTEND W/ 60" RCP					0.004	59		49	
9	-L- 103+54 RT	LATERAL ENCROACHMENT (ROADWAY FILL)	0.005			0.01					
	-L- 103+94 RT										
10 A	-L- 114+64 RT	RIP RAP IN DITCH						5		18	
10 B	-L- 117+73	24" RCP & DITCH CONST.					0.004	20		120	
PAGE TOTAL:			0.005			0.027	0.052	351		571.5	220

DIVISION OF HIGHWAYS
N. C. DEPT. OF TRANSPORTATION
YADKIN COUNTY
PROJECT: R-3427
IMPROVEMENT OF US 601 FROM THE DAVIE COUNTY LINE TO +/- 0.15 MILE SOUTH OF US 421

9/09/99

PROJECT: 8.1770801 R-3427

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	8.1770801	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
6.771006		PE
8.1770801	STP-601(6)	PE
8.1770802		R/W & UTILS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

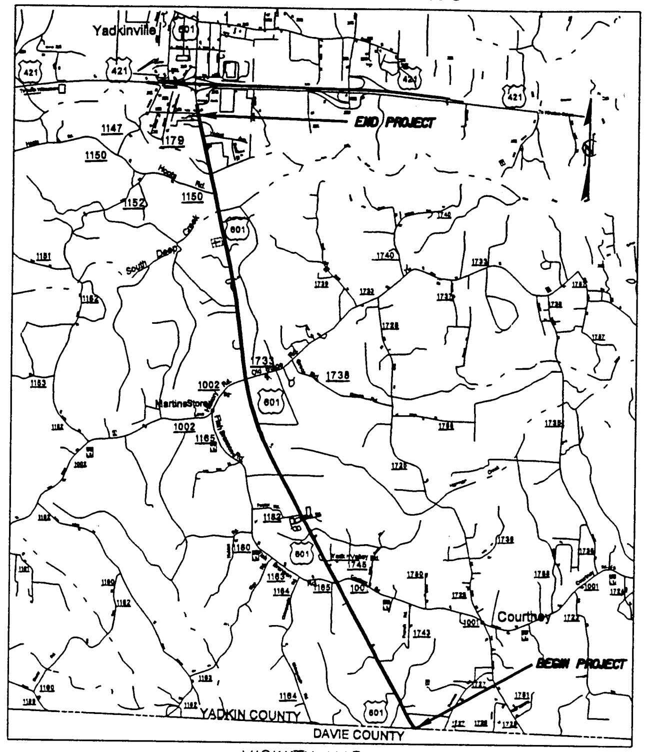
YADKIN

LOCATION: US 601 FROM THE DAVIE COUNTY LINE NORTH TO +/- 0.15 MILE SOUTH OF US 421 (YADKINVILLE CITY STREET PINE VALLEY ROAD)

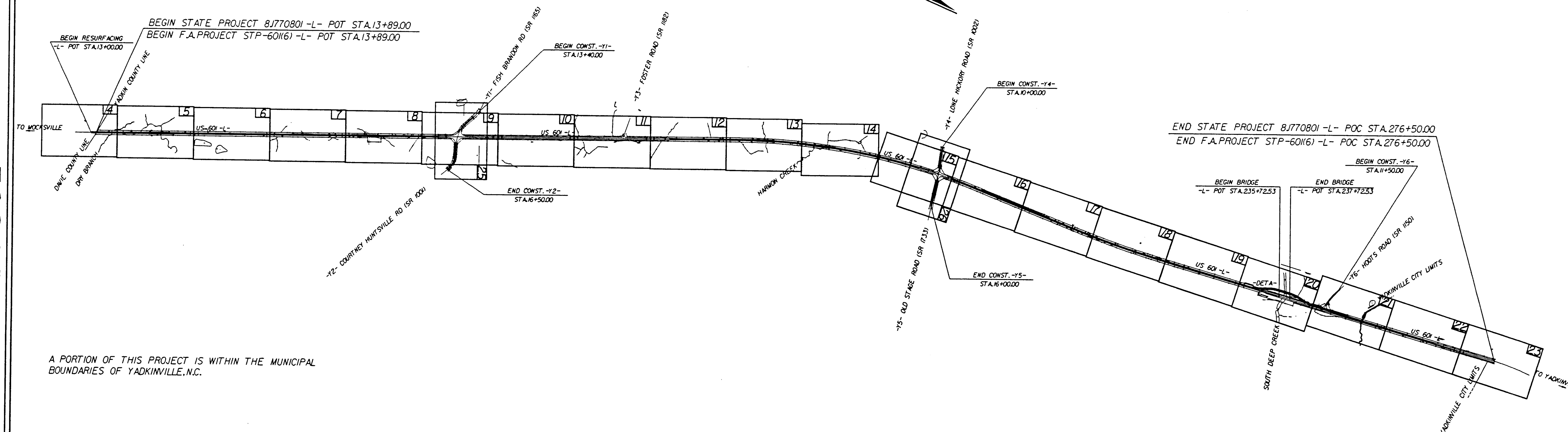
TYPE OF WORK: WIDENING, GRADING, PAVING, DRAINAGE GUARDRAIL AND STRUCTURES

METHOD III CLEARING

See Sheet 1-A For Index of Sheets



VICINITY MAP
(NO SCALE)



A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF YADKINVILLE, N.C.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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 = 10,784
ADT 2024 = 18,680
DHV = 10 %
D = 50 %
T = 11 % *
V = 55 MPH
* TTST 5 % DUAL 6 %
** DENOTES DESIGN EXCEPTION

PROJECT LENGTH

LENGTH ROADWAY PROJECT 8.1770801 - 4.936 MILES F.A. PROJECT STP-601(6)

LENGTH STRUCTURE PROJECT 6.771006 - 0.038 MILE F.A. PROJECT STP-601(6)

TOTAL LENGTH STATE PROJECT 8.1770801 - 4.974 MILES F.A. PROJECT STP-601(6)

Prepared In the Office of:
DIVISION OF HIGHWAYS
801 Statesville Road, North Wilkesboro, NC 28659

1995 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: FEBRUARY 21, 2003

LETTING DATE: OCTOBER 19, 2004

DIVISION ENGINEER
R. C. McCANN, P.E.
P.E.
SIGNATURE
DATE

HYDRAULICS ENGINEER
DATE
P.E.
SIGNATURE:

PROJECT ENGINEER
NATHAN K. TURNER, P.E.
DATE
P.E.
SIGNATURE:

DIVISION OPERATIONS ENGINEER
W.O. ATKINS, P.E.
P.E.
SIGNATURE:
DATE

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR DATE

05-APR-2004 11:11
r3427_tsh
dgoonce AT

PROJECT REFERENCE NO.	SHEET NO.
R-3427	1-B

*S.U.E = SUBSURFACE UTILITY ENGINEER

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL SYMBOLS

ROADS & RELATED ITEMS

- Edge of Pavement
- Curb
- Prop. Slope Stakes Cut — C
- Prop. Slope Stakes Fill — F
- Prop. Woven Wire Fence
- Prop. Chain Link Fence
- Prop. Barbed Wire Fence
- Prop. Wheelchair Ramp — WCR
- Exist. Guardrail
- Prop. Guardrail
- Exist. cable Guiderail
- Prop. Cable Guiderail
- Equality Symbol
- Pavement Removal

RIGHT OF WAY

- Baseline Control Point
- Existing Right of Way Marker
- Exist. Right of Way Line w/Marker
- Prop. Right of Way Line with Proposed R/W Marker (Iron Pin & Cap)
- Prop. Right of Way Line with Proposed (Concrete or Granite) R/W Marker
- Exist. Control of Access Line — CA
- Prop. Control of Access Line — CA
- Exist. Easement Line — E
- Prop. Temp. Construction Easement Line — E
- Prop. Temp. Drainage Easement Line — TDE
- Prop. Perm. Drainage Easement Line — PDE

HYDROLOGY

- Stream or Body of Water
- River Basin Buffer — BZ
- Flow Arrow
- Disappearing Stream
- Spring
- Swamp Marsh
- Shoreline
- Falls, Rapids
- Prop Lateral, Tail, Head Ditches — FLOW

STRUCTURES

MAJOR

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

MINOR

- Head & End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Boxes — CB
- Paved Ditch Gutter

UTILITIES

- Exist. Pole
- Exist. Power Pole
- Prop. Power Pole
- Exist. Telephone Pole
- Prop. Telephone Pole
- Exist. Joint Use Pole
- Prop. Joint Use Pole
- Telephone Pedestal — T
- Cable TV Pedestal — C
- Hydrant
- Satellite Dish
- Exist. Water Valve
- Sewer Clean Out
- Power Manhole — P
- Telephone Booth
- Water Manhole — W
- Light Pole
- H-Frame Pole
- Power Line Tower
- Pole with Base
- Gas Valve
- Gas Meter
- Telephone Manhole — T
- Power Transformer
- Sanitary Sewer Manhole
- Storm Sewer Manhole — S
- Tank; Water, Gas, Oil
- Water Tank With Legs
- Traffic Signal Junction Box — S
- Fiber Optic Splice Box — F
- Television or Radio Tower
- Utility Power Line Connects to Traffic Signal Lines Cut Into the Pavement — TS TS

- Recorded Water Line — W W
- Designated Water Line (S.U.E.*) — W W
- Sanitary Sewer — SS SS
- Recorded Sanitary Sewer Force Main — FSS FSS
- Designated Sanitary Sewer Force Main(S.U.E.*) — FSS FSS
- Recorded Gas Line — G G
- Designated Gas Line (S.U.E.*) — G G
- Storm Sewer — S S
- Recorded Power Line — P P
- Designated Power Line (S.U.E.*) — P P
- Recorded Telephone Cable — T T
- Designated Telephone Cable (S.U.E.*) — T T
- Recorded U/G Telephone Conduit — TC TC
- Designated U/G Telephone Conduit (S.U.E.*) — TC TC
- Unknown Utility (S.U.E.*) — ?UTL ?UTL
- Recorded Television Cable — TV TV
- Designated Television Cable (S.U.E.*) — TV TV
- Recorded Fiber Optics Cable — FO FO
- Designated Fiber Optics Cable (S.U.E.*) — FO FO
- Exist. Water Meter — 0
- U/G Test Hole (S.U.E.*) — ATTUR
- Abandoned According to U/G Record
- End of Information — E.O.I.

BOUNDARIES & PROPERTIES

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Property Line Symbol — PL
- Exist. Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Property Number — 123
- Parcel Number — 6
- Fence Line — WW & ISBW
- Existing Wetland Boundaries — WLB
- Proposed Wetland Boundaries — WLB
- Existing Endangered Animal Boundaries — EAB
- Existing Endangered Plant Boundaries — EPB

BUILDINGS & OTHER CULTURE

- Buildings
- Foundations
- Area Outline
- Gate
- Gas Pump Vent or U/G Tank Cap
- Church
- School
- Park
- Cemetery
- Dam
- Sign
- Well — W
- Small Mine
- Swimming Pool

TOPOGRAPHY

- Loose Surface
- Hard Surface
- Change in Road Surface
- Curb
- Right of Way Symbol — R/W
- Guard Post — GP
- Paved Walk
- Bridge
- Box Culvert or Tunnel
- Ferry
- Culvert
- Footbridge
- Trail, Footpath
- Light House

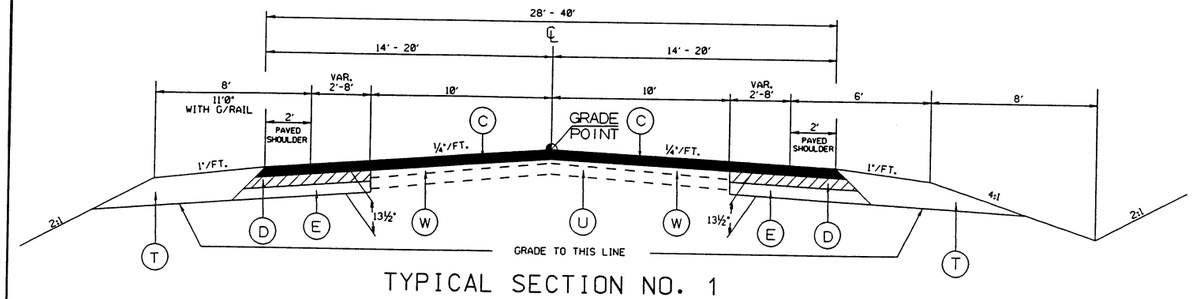
VEGETATION

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

RAILROADS

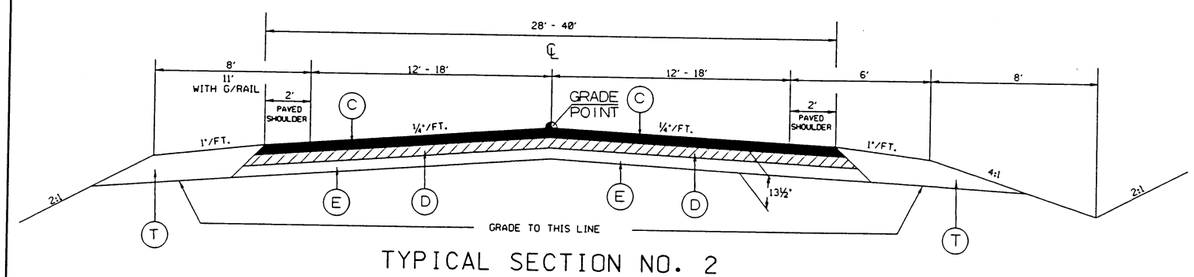
- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH

7/2/99



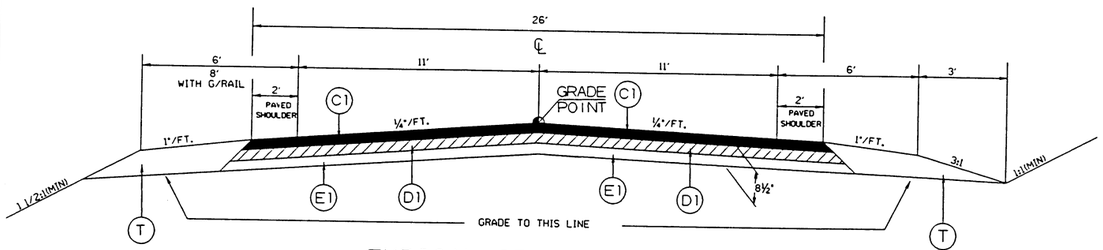
TYPICAL SECTION NO. 1

-L- STA. 13+89.00 TO -L- STA. 73+50.00
-L- STA. 81+50.00 TO -L- STA. 164+50.00
-L- STA. 171+50.00 TO -L- STA. 235+72.53
-L- STA. 237+72.53 TO -L- STA. 241+50.00
-L- STA. 248+00.00 TO -L- STA. 276+50.00



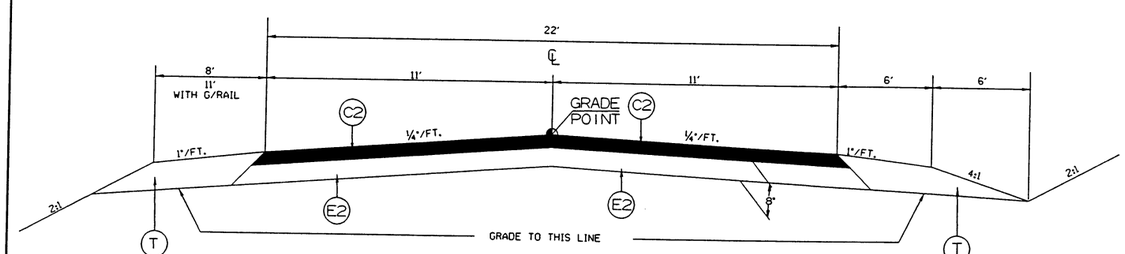
TYPICAL SECTION NO. 2

-L- STA. 73+50.00 TO -L- STA. 81+50.00
-L- STA. 164+50.00 TO -L- STA. 171+50.00
-L- STA. 241+50.00 TO -L- STA. 248+00.00



TYPICAL SECTION NO. 3

USE ON -DETA-



TYPICAL SECTION NO. 4

-Y1- STA. 15+00.00 TO -L- STA. 18+05.92

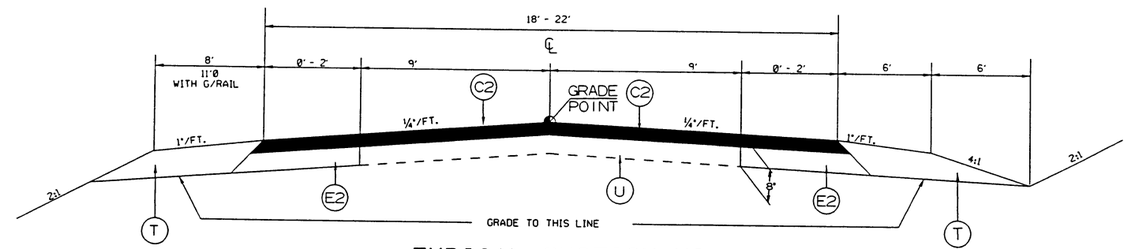
PAVEMENT SCHEDULE	
C	PROP. APPROX. 2½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 140 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C1	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
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.
D	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D1	PROP. APPROX. 2¼" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 256.5 LBS. PER SQ. YD.
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.
E	PROP. APPROX. 7" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
E3	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.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL)

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

PROJECT REFERENCE NO.	SHEET NO.
R-3427	2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

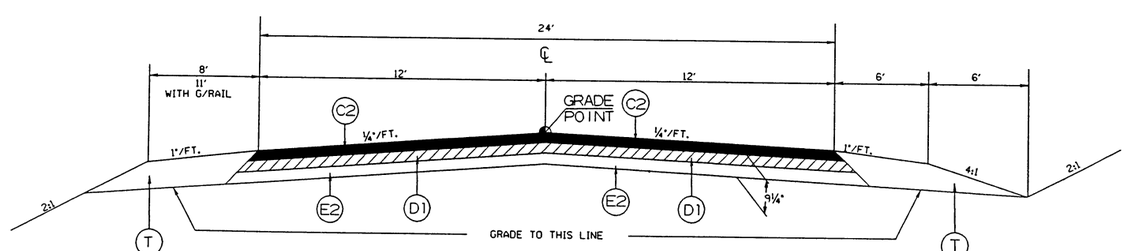
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

** DESIGN EXCEPTION IS REQUIRED FOR SHOULDER & DITCH SECTION



TYPICAL SECTION NO. 5

-Y1- STA. 13+40.00 TO -L- STA. 15+00.00



TYPICAL SECTION NO. 6

-Y2- STA. 10+21.02 TO STA. 15+50.00
-Y4- STA. 11+00.00 TO STA. 14+86.07
-Y5- STA. 10+20.35 TO STA. 14+00.00

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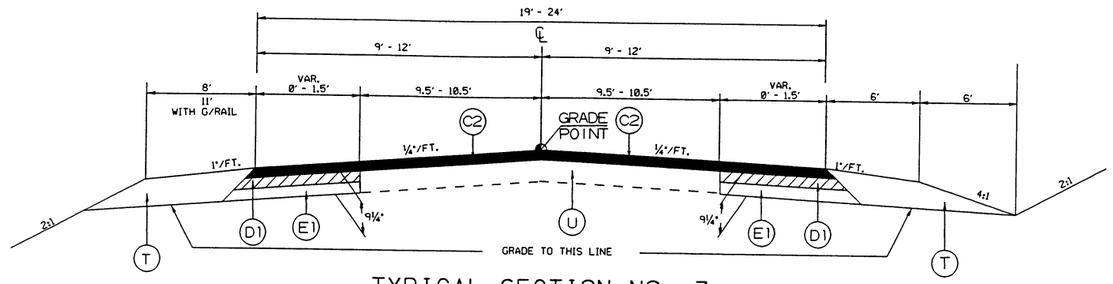
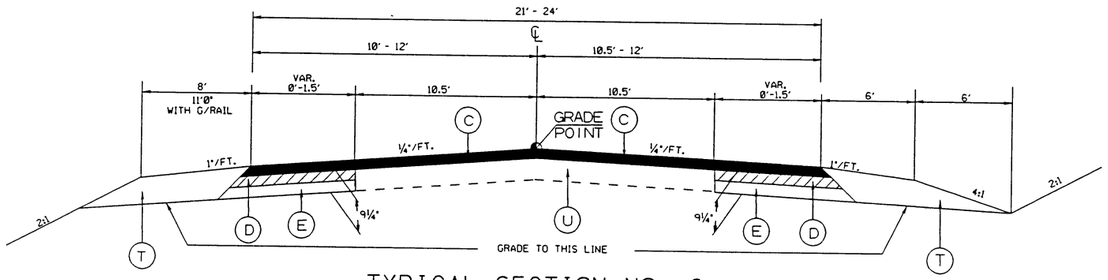


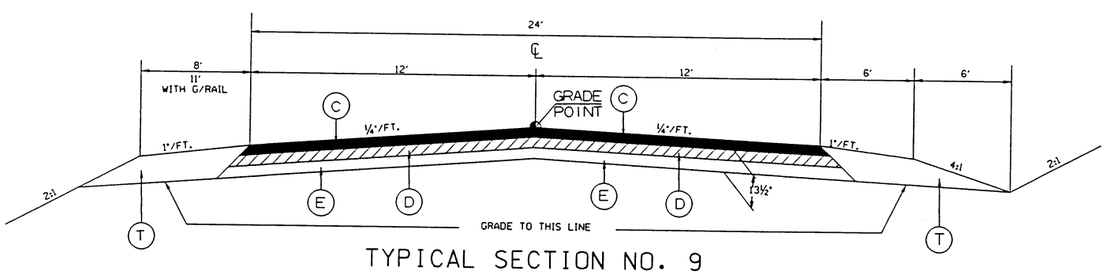
TYPICAL SECTION NO. 7

-Y2- STA. 15+50.00 TO STA. 16+50.00
-Y4- STA. 10+00.00 TO STA. 11+00.00
-Y5- STA. 14+00.00 TO STA. 16+00.00



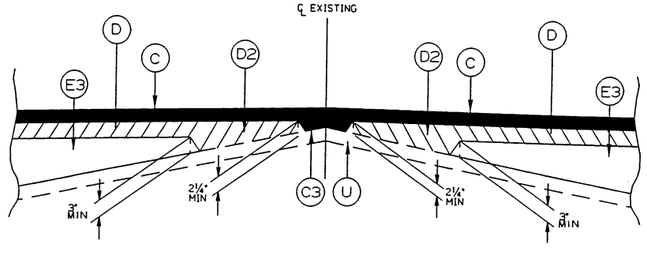
TYPICAL SECTION NO. 8

-Y6- STA. 11+00.00 TO STA. 12+00.00



TYPICAL SECTION NO. 9

-Y6- STA. 12+00.00 TO STA. 15+66.19



DETAIL SHOWING METHOD OF WEDGING

PAVEMENT SCHEDULE

C	PROP. APPROX. 2½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 140 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C1	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
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.
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.
D	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D1	PROP. APPROX. 2¼" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 256.5 LBS. PER SQ. YD.
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.
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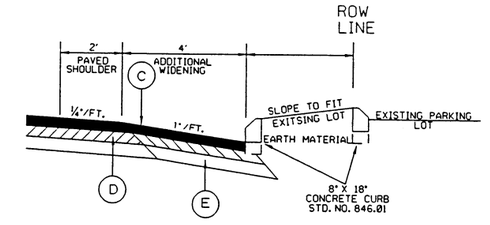
E2	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
E3	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL)

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

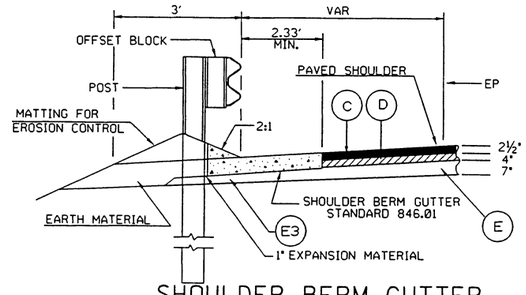
PROJECT REFERENCE NO.	SHEET NO.
R-3427	2 A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

** DESIGN EXCEPTION IS REQUIRED FOR SHOULDER & DITCH SECTION



DRIVEWAY CHANNELIZATION
TYPICAL CROSS SECTIONAL VIEW



SHOULDER BERM GUTTER
TYPICAL CROSS SECTIONAL VIEW

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PROJECT REFERENCE NO.	SHEET NO.
R-3427	3

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF QUANTITIES

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REVISIONS
8/11/03 - PRCL 1-3 NAME CHANGE

PROJECT REFERENCE NO.	SHEET NO.
R-3427	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NC GRID NAD 83

BEGIN RESURFACING -L- STA.13+00.00

BEGIN STATE PROJECT 8.I770801 -L- STA.13+89.00
BEGIN F.A.PROJECT STP-601(6) -L- STA.13+89.00

BEGIN CONSTRUCTION -L- STA. 10+00.00

JOHN H. PRATT AND WIFE ELAINE Y. PRATT DB 159 PG 326

JIMMY BRADLEY MERRITT AND WIFE CARA LEANNE MERRITT DB 198 PG 253

KATHY B. RATLEDGE DB 207 PG 408 DB 217 PG 409

ROBERT D. CLINE AND WIFE CINDY E. CLINE DB 222 PG 125

BRUCE M. PRATT AND WIFE JUDY F. PRATT DB 117 PG 408

HELEN P. RUTLEDGE WILL BOOK 00E PG 278

WILLIAM C. DODD DB 323 PG 58

TIMOTHY F. RUIZ DB 196 PG 661

JOHN H. PRATT AND WIFE ELAINE Y. PRATT DB 170 PG 691

DORRELL PRATT AND VIRGINIA PRATT DB 90 PG 241

WILLIAM ALDEAN ALLEN AND WIFE BONNIE D. ALLEN DB 234 PG 784

BL-21 PINC 13+00.02

BL-22 PINC 11+77.66

-TI-101 ELEV=809.13' -L- STA 15+62.14

-TI-102 ELEV=812.93' -L- STA 16+36.14

-TI-103 ELEV=818.63' -L- STA 15+62.14

-TI-104 ELEV=892.34' -L- STA 16+36.14

BL-6 POT 23+85.2

14+09.26 11.64

13+84.93 18.36

N 27° 25' 15.8" W

N 27° 26' 45" W

N25°56'10"W 179.19'
N26°47'14"W 287.80'
N21°50'59"W 404.55'
N26°50'50"W 210.12'
S66°43'53"W 200.22'
S45°05'51"W 209.54'
S66°46'39"W 199.70'
S66°48'[illegible] 220.38'
S66°42'48"W 45.12'
S66°43'54"W 227.71'
S66°43'56"W 209.30'
S66°55'11"W 11.51'
S66°43'56"W 11.32'
S66°52'11"E 221.58'
S66°42'48"W 12.59'
S86°12'47"E 14.39'
S88°30'43"E 14.16'
S89°10'41"E 251.14'
S25°56'54"E 16.50'
S44°05'E
S85°57'
S86°46'45"E 361.43'
S86°20'[illegible] 143.[illegible]'
S86°23'31"E 307.38'
S84°55'27"E 219.50'
N00°34'21"W 135.29'
N00°26'07"E 23.00'
S07°02'12"E
S07°02'12"E 227.88'

DETAIL 20
SPECIAL CUT DITCH
(Not to Scale)
Min. D = 1.0 Ft.
STA. 15+50 TO 17+00 -L- LT.

DETAIL 9A
TOE PROTECTION
(Not to Scale)
d = 1.0 Ft.
Type of Liner = CL. B RIP RAP
STA. 17+00 TO 17+50 -L- LT.
EST. 28 TONS

DETAIL 7A
LATERAL BASE DITCH
(Not to Scale)
Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
* When B is < 6.0' B = 2.0 Ft.
b = 5.0 Ft.
Type of Liner = CL. B RIP RAP
STA. 15+50 TO 16+22 -L- RT.
EST. 40 TONS

DETAIL 2
LATERAL 'V' DITCH
(Not to Scale)
Min. D = 1.0 Ft.
b = 5.0 Ft.
STA. 16+43 TO 17+50 -L- RT.

DETAIL 3
SPECIAL LATERAL 'V' DITCH
(Not to Scale)
Min. D = 1.0 Ft.
STA. 17+50 TO 18+00 -L- RT.

DETAIL 21
SPECIAL CUT DITCH
(Not to Scale)
Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
Type of Liner = CL. B RIP RAP
STA. 14+00 TO 15+50 -L- RT.
EST. 82.5 TONS

SPECIAL CUT DITCH CLASS 'B' RIP RAP SEE DETAIL 21

2' BASE LATERAL DITCH CLASS 'B' RIP RAP SEE DETAIL 7A

TOE PROTECTION CLASS 'B' RIP RAP SEE DETAIL 9A

SPECIAL CUT DITCH GRASS LINED SEE DETAIL 20

LATERAL 'V' DITCH GRASS LINED SEE DETAIL 2

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "DEEP 2" WITH HARN-NAD 1983/95 STATE PLANE GRID COORDINATES OF NORTHING: 854521.844(ft) EASTING: 1511433.788(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99993819
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "DEEP 2" TO -L- STATION 10+00.00 IS S25°43'42.39"E 15,838.2742 ft.
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NGVD 29

MATCHLINE ** SEE SHEET 5 **

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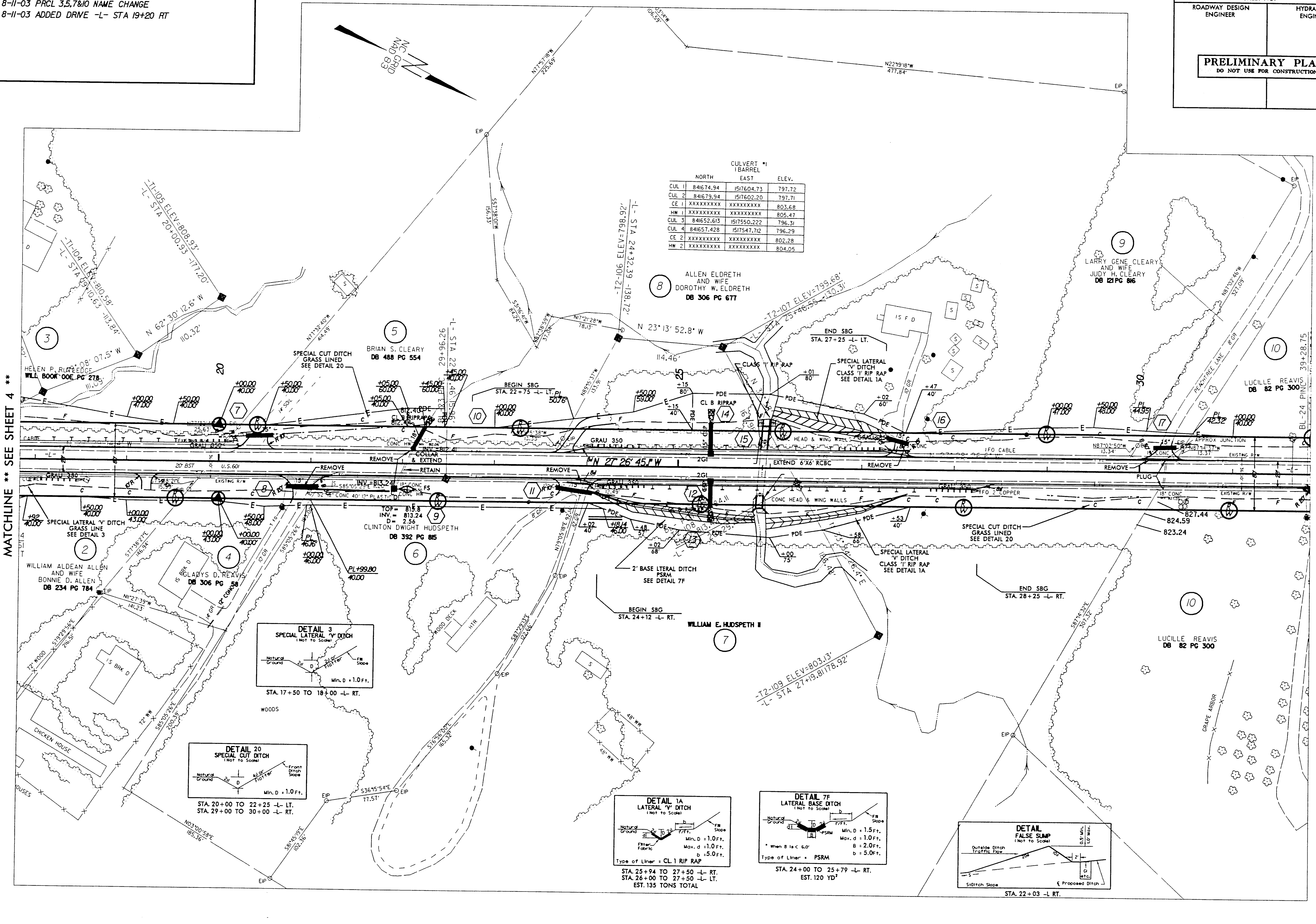
REVISIONS

7-22-03 ADDED DRIVEWAY AT -L- STA 23+78 LT PCL 8
8-11-03 PRCL 3,5,7&10 NAME CHANGE
8-11-03 ADDED DRIVE -L- STA 19+20 RT

PROJECT REFERENCE NO.	SHEET NO.
R-3427	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



CULVERT #1
I BARREL

	NORTH	EAST	ELEV.
CUL 1	841674.94	1517604.73	797.72
CUL 2	841679.94	1517602.20	797.71
CE 1	XXXXXXXXX	XXXXXXXXX	803.68
HW 1	XXXXXXXXX	XXXXXXXXX	805.47
CUL 3	841652.613	1517550.222	796.31
CUL 4	841657.428	1517547.712	796.29
CE 2	XXXXXXXXX	XXXXXXXXX	802.28
HW 2	XXXXXXXXX	XXXXXXXXX	804.05

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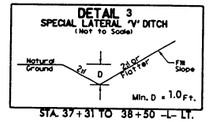
REVISIONS
7/1/03 - ADDED PRCL 11A STA. 45+00 RT
8/11/03 - PRCL 10 - 11 NAME CHANGE

PROJECT REFERENCE NO.	SHEET NO.
R-3427	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

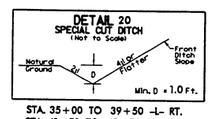
NAD 83

DETAIL 3
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



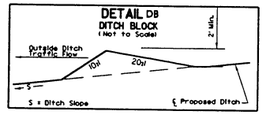
STA. 37+31 TO 38+50 -L- LT.

DETAIL 20
SPECIAL CUT DITCH
(Not to Scale)



STA. 35+00 TO 39+50 -L- RT.
STA. 41+50 TO 42+50 -L- RT. & LT.
STA. 43+00 TO 44+50 -L- LT.
STA. 38+50 TO 39+00 -L- LT

DETAIL DB
DITCH BLOCK
(Not to Scale)



STA. 37+60 -L- RT.

MATCHLINE ** SEE SHEET 5 **

MATCHLINE ** SEE SHEET 7 **

10
LUCILLE REAVIS
DB 82 PG 300

11
MARGARET A. VESTAL
DB 99 PG 14

11A
WILLIAM B. CHEEK
DB 476 PG 151

DRIVE W/A UNDER CONSTRUCTION APPROX. LOCATION

LATERAL 'V' DITCH GRASS LINED SEE DETAIL

CL B RIPRAP

PDE

EXISTING R/W

GTD

5' X 10' CL B RIP RAP EST. 5.5 TONS

SPECIAL CUT DITCH GRASS LINED SEE DETAIL 20

DITCH BLOCK SEE DETAIL DB

COLLAR & EXTEND

REMOVE HW

CONC HW

18" CONC

12" CONC

IFO CABLE

IFO 2 COPPER

20' BST

U.S.601

REMOVE

EXISTING R/W

POND

EARTH DAM

N85°32'22"E 233.08'

N11°32'21"E 174.00'

36" WHITE OAK

5 SBW

10' GR

60" WW

HTR

8" SOIL

S44°04'E 3410.46'

BL-3 'GPS R3427-3' PINC 49+20.20 -L- STA 41+71.40 15.25'

N 27° 26' 45.1" W 15.1'

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REVISIONS
7/1/03 - ADDED PRCL 11A STA 46+00 RT
8/11/03 - PRCL 10,11,12 & 16 NAME CHANGE
8/11/03 - ADDED SEPTIC TANK & LINES PRCL 16

PROJECT REFERENCE NO.	SHEET NO.
R-3427	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

MATCHLINE ** SEE SHEET 6 **

MATCHLINE ** SEE SHEET 8 **

NC GRID NAD 83

CULVERT #2
1 BARREL

	NORTH	EAST	ELEV.
CUL 1	843946.61	1516358.62	817.95
CUL 2	843949.37	1516357.24	817.98
CE 1	XXXXXXXXX	XXXXXXXXX	822.02
HW 1	XXXXXXXXX	XXXXXXXXX	823.60
CUL 3	844002.89	1516395.18	818.70
CUL 4	844006.03	1516393.62	818.77
CE 2	XXXXXXXXX	XXXXXXXXX	822.72
HW 2	XXXXXXXXX	XXXXXXXXX	824.32

-L- STA 48+62.79 -T3-113 ELEV=834.22' 152.21'

POT 60+86.50 -T4-114 ELEV=830.50' 41°31.87' 137.37'

BEGIN SBG STA. 49+92 -L- LT.

END SBG STA. 53+62 -L- LT.

BL-25 PINC 61+08.90 -L- STA 53+60.09 (54)

BL-4 GPS R3427-4* PINC 66+05.12 STA 58+56.31 14.76'

BL-PDT 65+02.62 -T4-118 ELEV=830.82' -L- STA 51+41.97 13.73'

-T4-119 ELEV=822.68' -L- STA 52+94.77 114.24'

LUCILLE REAVIS
DB 82 PG 300

LUCILLE REAVIS
DB 85 PG 716

BRENDA FAY CALLAWAY AND HUSBAND DANNY CALLAWAY AND LESA CAROL FULK AND HUSBAND RODNEY FULK
DB 390 PG 632

WILLIAM B. CHEEK
DB 476 PG 191

LARRY DEAN NORRIS AND WIFE YVONNE NORRIS
DB 100 PG 570
DB 401 PG 654

STEVE B. NORRIS AND WIFE FLORA NORRIS
DB 66 PG 345

MARY LEE WILES
DB 70 PG 550

LARRY R. WILLIARD AND WIFE ELIZABETH K. WILLIARD
DB 292 PG 458

SPECIAL LATERAL 'V' DITCH SEE DETAIL 4

TOE PROTECTION SEE DETAIL 9A

SPECIAL LATERAL 'V' DITCH GRASS LINED SEE DETAIL 3

SPECIAL LATERAL 'V' DITCH CLASS 'B' RIP RAP SEE DETAIL 1

5' X 10' CL. B RIP RAP PAD EST 5.5 TONS

CL. II RIPRAP

CLASS 'I' RIP RAP

15" CSP W/ ELBOWS

REMOVE HDWL

EXTEND 3'X4' RCBC (SEE SPECIAL DETAIL)

COLLAR & EXTEND

TOE PROTECTION PSRM SEE DETAIL 9

SPECIAL LATERAL 'V' DITCH CLASS 'B' RIP RAP SEE DETAIL 4

TAIL LINES

SEPTIC TANK

36" BLK WALL

ISFD

IS BRK D

BRK WALK

WOODS

N 27°17'25.7" W

N 27°26'45" W

DETAIL 9A
TOE PROTECTION
(Not to Scale)

d = 1.0 Ft.

Type of Liner : CL. B RIP RAP

STA. 46+50 TO 47+13 -L- RT.
STA. 47+05 TO 47+75 -L- LT.
EST. 95 TONS TOTAL
EST. 75 YD² TOTAL PSRM

DETAIL 1
LATERAL 'V' DITCH
(Not to Scale)

Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
b = 5.0 Ft.

Type of Liner : CL. B RIP RAP

STA. 51+00 TO 52+18 -L- RT.
STA. 50+50 TO 51+32 -L- LT.
EST. 95 TONS TOTAL

DETAIL 3
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

Min. D = 1.0 Ft.

STA. 50+00 TO 50+50 -L- LT.

DETAIL 4
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

Min. D = 1.0 Ft.
Max. d = 1.0 Ft.

Type of Liner : CL. B RIP RAP

STA. 46+50 TO 47+05 -L- LT.
STA. 52+13 TO 54+00 -L- LT.
STA. 53+50 TO 55+50 -L- RT.
EST. 205 TONS TOTAL

DETAIL 9
TOE PROTECTION
(Not to Scale)

d = Ft.

Type of Liner : PSRM

STA. 52+24 TO 53+00 -L- RT.
EST. 42 YD²

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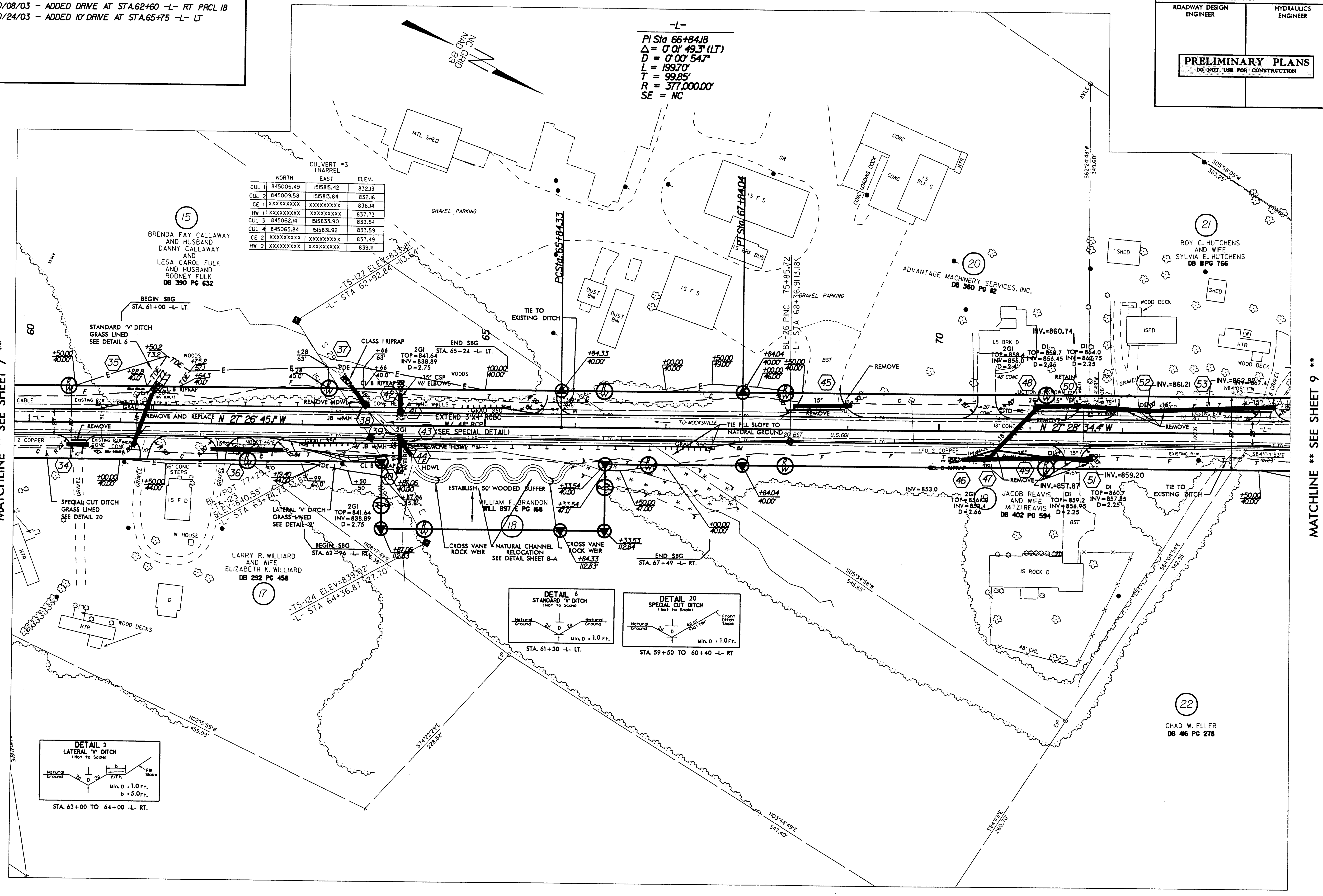
REVISIONS

8/11/03 - PRCL 18 NAME CHANGE
10/08/03 - ADDED DRIVE AT STA.62+60 -L- RT PRCL 18
10/24/03 - ADDED 10' DRIVE AT STA.65+75 -L- LT

PROJECT REFERENCE NO.	SHEET NO.
R-3427	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



CULVERT #3
1 BARREL

	NORTH	EAST	ELEV.
CUL 1	845006.49	1515815.42	832.13
CUL 2	845009.58	1515813.84	832.16
CE 1	XXXXXXXXX	XXXXXXXXX	836.14
HW 1	XXXXXXXXX	XXXXXXXXX	837.73
CUL 3	845062.14	1515833.90	833.54
CUL 4	845065.84	1515831.92	833.59
CE 2	XXXXXXXXX	XXXXXXXXX	837.49
HW 2	XXXXXXXXX	XXXXXXXXX	839.11

DETAIL 6
STANDARD 'V' DITCH
(Not to Scale)
Min. D = 1.0 Ft.
STA. 61+30 -L- LT.

DETAIL 20
SPECIAL CUT DITCH
(Not to Scale)
Min. D = 1.0 Ft.
STA. 59+50 TO 60+40 -L- RT

DETAIL 2
LATERAL 'V' DITCH
(Not to Scale)
Min. D = 1.0 Ft.
b = 5.0 Ft.
STA. 63+00 TO 64+00 -L- RT.

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REVISIONS
4/15/03 - ADDED PARCEL 28A
4/15/03 - CHANGED PROP.OWNER PARCEL 28 TO ROBERT COBLE
5/20/03 - REDUCED DRIVE AT STA 87+00 RT TO 36'
8/11/03 - PRCL 23 & 29 NAME CHANGE
8/11/03 - PARCL 26 ,27 CHANGED TO PRCL 31

PROJECT REFERENCE NO.	SHEET NO.
R-3427	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

MATCHLINE ** SEE SHEET 8 **

MATCHLINE ** SEE SHEET 10 **

NC GRID NAD 83

BEGIN CONST. -Y1- STA. 13+40.09

-L- STA. 79+22.97 BK 20.47' BL-27 PNC 86+71.81

PC Sta. 15+74.67

-Y1- PI Sta. 17+80.16

-Y1- POT Sta. 18+26.94

-L- POT Sta. 80+41.15

PI Sta. 10+79.10
Δ = 14° 22' 15" (LT)
D = 11° 27' 30"
L = 125.41'
T = 63.04'
R = 500.00'
SE = SEE PLANS

PI Sta. 13+75.38
Δ = 6° 53' 11.4"
D = 6° 53' 11.4"
L = 75.00'
LS = 75.00'
LT = 50.04'
ST = 25.03'

PI Sta. 14+91.96
Δ = 32° 47' 38.2" (RT)
D = 18° 21' 50"
L = 178.58'
R = 312.00'
SE = SEE PLANS

PI Sta. 16+03.76
Δ = 6° 53' 11.4"
D = 6° 53' 11.4"
L = 75.00'
LS = 75.00'
LT = 50.04'
ST = 25.03'

PC Sta. 10+96.07

PT Sta. 11+41.48

-Y2- POT Sta. 10+00.00

-Y2- POT Sta. 10+75.07

-Y2- POT Sta. 80+41.15

TS Sta. 13+25.15

SC Sta. 14+00.15

CS Sta. 15+78.72

ST Sta. 16+53.72

END CONST. -Y2- STA. 16+50.00

BEGIN TAPER 75+00.00

330' TAPER

BY2-121 POT 8+23.67
-L- STA 79+84.42 338.25

BY2-121 POT 7+79+22.97

21 ROY C. HUTCHENS AND WIFE SYLVIA E. HUTCHENS DB 11 PG 766

22 CHAD W. ELLER DB 416 PG 278

23 RANDY REAVIS

STANDARD 'V' DITCH GRASS LINED SEE DETAIL '6' DDE= 5 CU. YRD.

25 GERALD REAVIS AND WIFE JANET B. REAVIS DB 94 PG 253

31 MAX B. STEELMAN DB 407 PG 109

32 W.L. REAVIS, JR. DB 102 PG 381

J. LARRY REAVIS AND WIFE BRENDA C. REAVIS DB 16 PG 421

28 CATHERINE EVERHART

29 BETTY R. WILLARD, etal DB 532 PG 501

30 YADKIN VALLEY TELEPHONE MEMBERSHIP CORPORATION DB 104 PG 17 PB 1 PG 76

26A WILBUR S. BAITY DB 58 PG 101

BLANCH MARIE EDWARDS DB 416 PG 821

ISF CHURCH

POND

PUMP STATION

WATER STORAGE TANK

SPECIAL CUT DITCH GRASS LINED SEE DETAIL 20

LATERAL 'V' DITCH GRASS LINED SEE DETAIL 3

TIE TO EXISTING DITCH

DETAIL 3
SPECIAL LATERAL 'V' DITCH
(Not To Scale)
Natural Ground, 2d, D, 4d or 7'-0" Flat Bottom, Fill Slope, Min. D = 1.0 Ft.

STA. 82+55 TO 84+50 -L- RT.
STA. 82+00 TO 83+45 -L- LT.

DETAIL 6
STANDARD 'V' DITCH
(Not To Scale)
Natural Ground, 2d, D, 2d, Natural Ground, Min. D = 1.0 Ft.

STA. 83+83 -L- RT.

DETAIL 20
SPECIAL CUT DITCH
(Not To Scale)
Natural Ground, 2d, D, 4d or 7'-0" Flat Bottom, Front Ditch Slope, Min. D = 1.0 Ft.

STA. 14+55 TO 16+50 -Y2- LT.
STA. 81+50 TO 82+00 -L- LT.
STA. 86+28 TO 87+00 -L-LT.
STA. 87+15 TO 87+70 -L- RT.
STA. 13+50 TO 14+50 -Y2- RT.

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REVISIONS
4/15/03 ADDED RADIUS ON NORTH END OF 36' DRIVE PARCEL 40
4/15/03 SHORTEND 15' PIPE AT -L-STA 96+75 RT
4/15/03 CHANGED TCE AROUND BUILDING CORNER ON LOT 39 -L-STA 95+00 LT
5/20/03 ADDED 36' DRIVE AT STA88+25 RT AND 15'PIPE
8/11/03 - PRCL 28,34,36 &42 NAME CHANGE
8/11/03 - ADDED PRCL 41 A
10/01/03 - ADDED PUE ON PRCL 41A -L- STA 99+35 RT

PROJECT REFERENCE NO.	SHEET NO.
R-3427	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

MATCHLINE ** SEE SHEET 9 **

MATCHLINE ** SEE SHEET 11 **

NC GRID NAD 83

W. L. REAVIS, JR. AND WIFE LUCILLE REAVIS DB 80 PG 103

W.L. REAVIS, JR. DB 102 PG 337

JULIE PHILLIPS et al DB 521 PG 542

NELLIE R. CRANFILL DB 80 PG 104 DB 82 PG 586

LEONARD L. HAYNES, JR. AND WIFE BARBARA C. HAYNES DB 266 PG 827 DB 107 PG 108

WISHON AND CARTER ENTERPRISES, INC. DB 122 PG 252

KATIE DOUGLAS

BRIAN KEITH WILLARD DB 558 PG 56 PB 8 PG 69T

CATHERINE EVERHART

BILLY STILLMAN

BAITY'S TIRE SERVICE INC. DB 92 PG 85 DB 101 PG 440

WILLIAM DOUGLAS GARDNER AND WIFE BOBBIE B. GARDNER

BILLY RAY STEELMAN AND WIFE DOROTHY C. STEELMAN DB 358 PG 793 DB 234 PG 325

BL-28 PINC 97+58.75 -L- STA 90+09.91 17.06'

BL-29 PINC 107+82.34 -L- STA 100+32.48 -28.60'

BEGIN SBG STA. 101+37 -L- LT.

BY3-28 POT 5+00.00 -L- STA 90+09.91 17.06' GRAVEL PARKING

BY3-13I POT 9+89.80 -L- STA 88+07.29 42.00'

N 30° 01' 58.3" W

N 21° 28' 34.4" W

N 86° 57' 36.3" W

SPECIAL CUT DITCH GRASS LINED SEE DETAIL '3A'

SPECIAL CUT DITCH GRASS LINED SEE DETAIL 20

SPECIAL LATERAL 'V' DITCH GRASS LINED SEE DETAIL 3

SPECIAL LATERAL 'V' DITCH GRASS LINED SEE DETAIL 3A

DITCH BLOCK SEE DETAIL DB

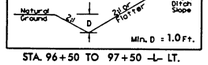
ELIMINATE CUT DITCH

REMOVE

INV = 860.2

INV = 858.4

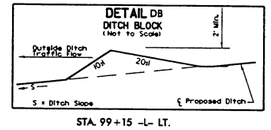
DETAIL 20
SPECIAL CUT DITCH
(Not to Scale)



Min. D = 1.0 Ft.

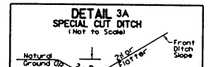
STA. 96+50 TO 97+50 -L- LT.

DETAIL DB
DITCH BLOCK
(Not to Scale)



STA. 99+15 -L- LT.

DETAIL 3A
SPECIAL CUT DITCH
(Not to Scale)

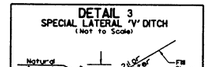


Min. D = 1.0 Ft.

STA. 90+00 TO 95+15 -L- LT.
STA. 90+50 TO 91+50 -L- RT.
STA. 99+38 TO 102+50 -L- RT.

NOTE: USE PARALLEL PIPE END SECTION ON ALL DRIVEWAY PIPES ALONG -L- STD 310.02 (APPROACH END ONLY)

DETAIL 3
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D = 1.0 Ft.

STA. 97+50 TO 99+00 -L- LT.
STA. 97+00 TO 99+38 -L- RT.
STA. 99+15 TO 99+80 -L- LT.

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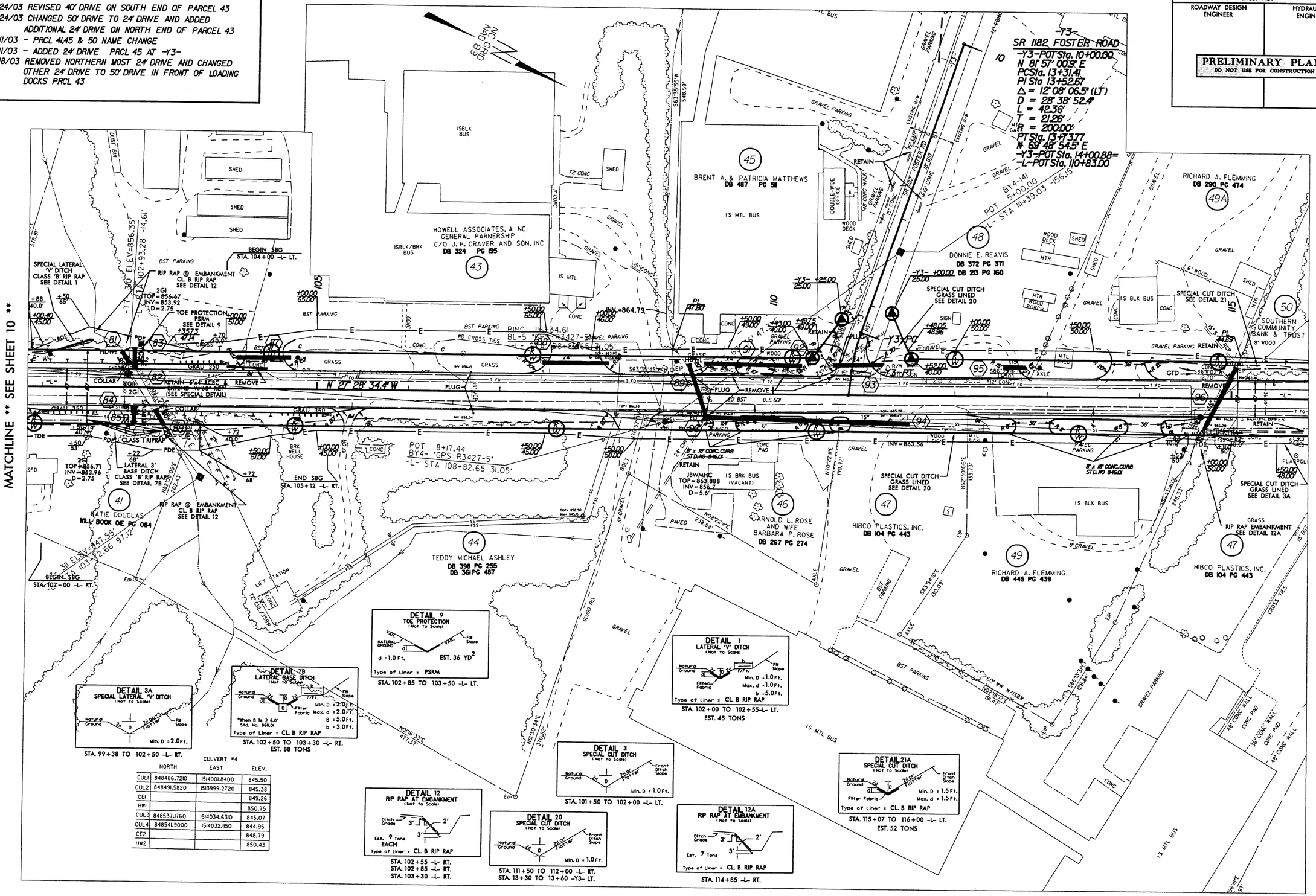
REVISIONS
4/15/03 CORRECTED STRUCTURE NO.82 & 84 MOVED TO SBG.STA.103+00.00
4/24/03 REVISED 40' DRIVE ON SOUTH END OF PARCEL 43
4/24/03 CHANGED 50' DRIVE TO 24' DRIVE AND ADDED ADDITIONAL 24' DRIVE ON NORTH END OF PARCEL 43
8/11/03 - PRCL 41,45 & 50 NAME CHANGE
8/11/03 - ADDED 24' DRIVE PRCL 45 AT -Y3-
11/18/03 REMOVED NORTHERN MOST 24' DRIVE AND CHANGED OTHER 24' DRIVE TO 50' DRIVE IN FRONT OF LOADING DOCKS PRCL 43

PROJECT REFERENCE NO.	SHEET NO.
R-3427	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



CULVERT #4

	NORTH	EAST	ELEV.
CUL1	848486.7210	1514001.8400	845.50
CUL2	848491.5820	1513999.2720	845.38
CEI			849.26
HWI			850.75
CUL3	848537.1760	1514034.6310	845.07
CUL4	848541.9000	1514032.1150	844.95
CE2			848.79
HW2			850.43

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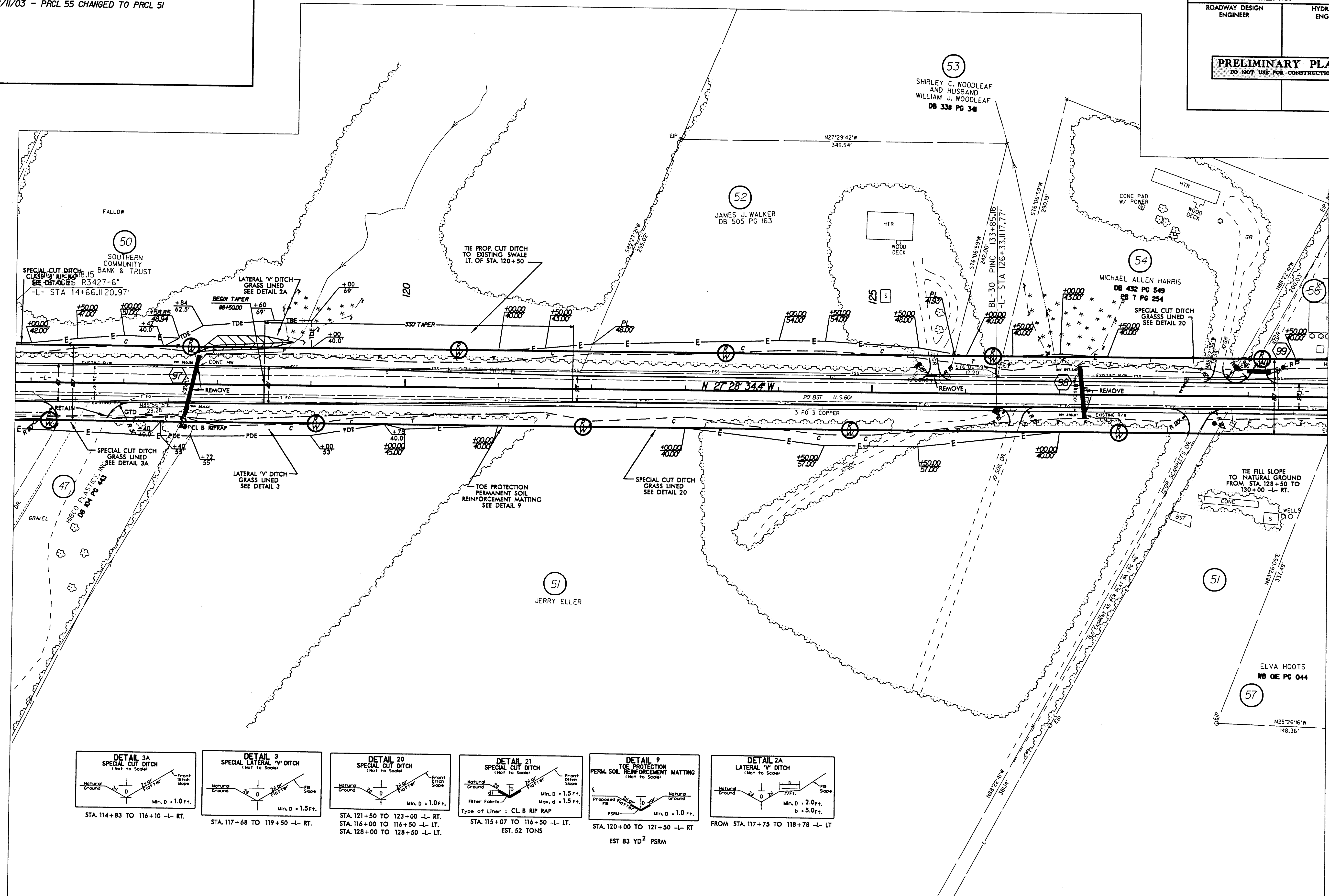
REVISIONS

8/11/03 - PRCL 50,51,52 & 57 NAME CHANGE
8/11/03 - PRCL 55 CHANGED TO PRCL 51

PROJECT REFERENCE NO.	SHEET NO.
R-3427	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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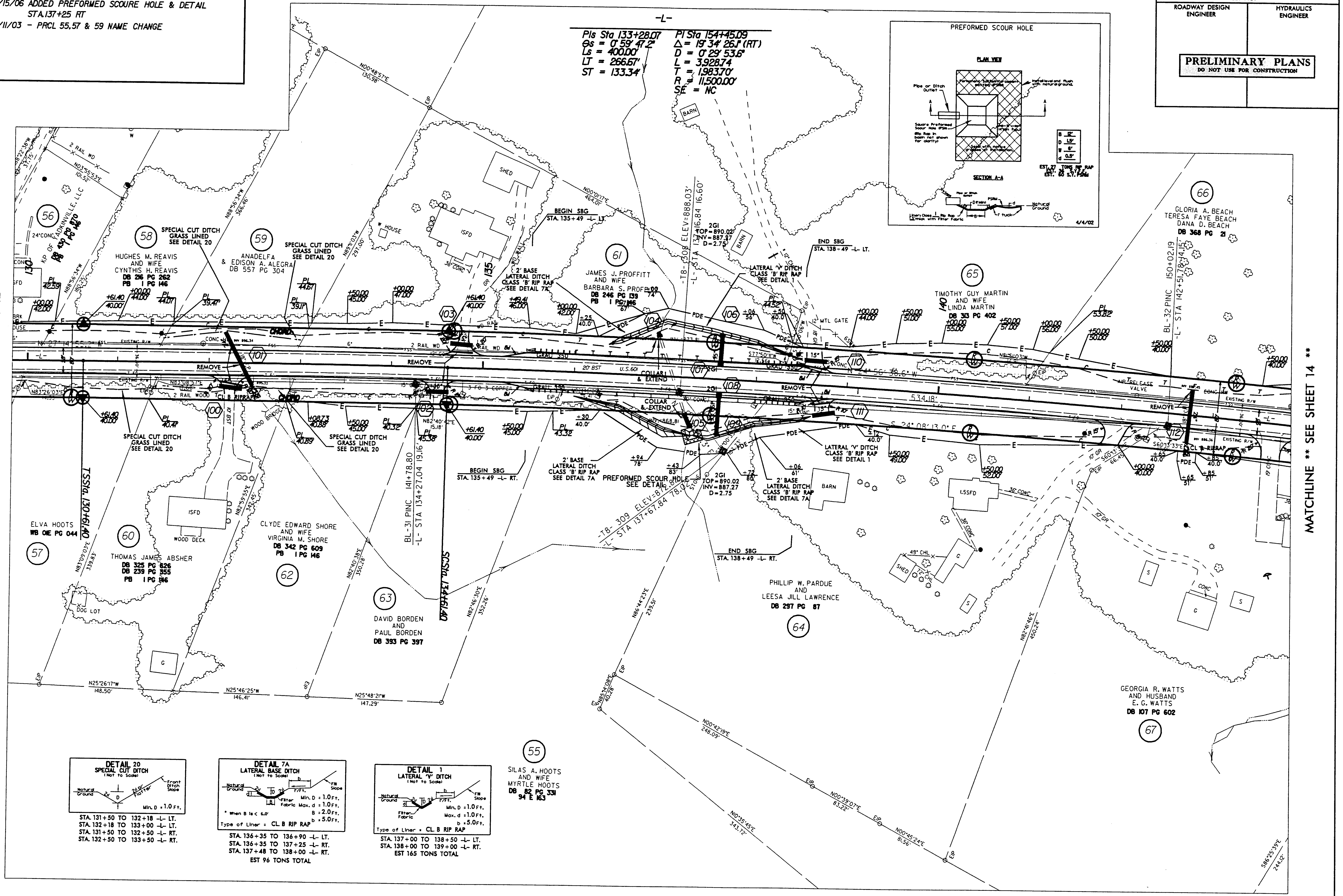
REVISIONS

3/3/03 - -L- Sta.143+00 Rt - Changed Prcl No.68 to 67
4/15/06 ADDED PREFORMED SCOURE HOLE & DETAIL STA.137+25 RT
8/11/03 - PRCL 55,57 & 59 NAME CHANGE

PROJECT REFERENCE NO.	SHEET NO.
R-3427	13
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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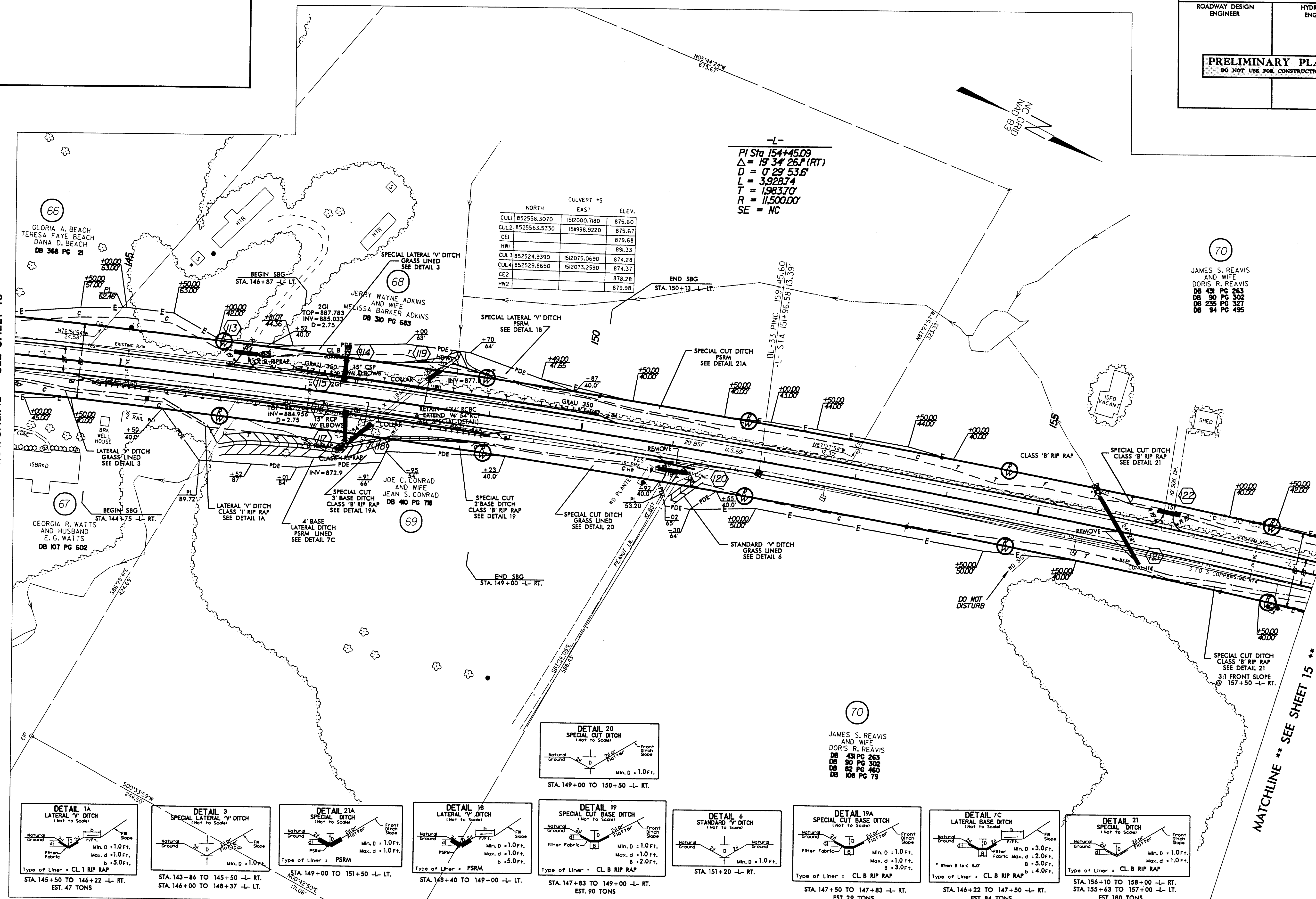
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-3427	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



CULVERT #5

	NORTH	EAST	ELEV.
CUL1	852558.3070	1512000.7180	875.60
CUL2	8525563.5330	1511998.9220	875.67
CE1			879.68
HW1			881.33
CUL3	852524.9390	1512075.0690	874.28
CUL4	852529.8650	1512073.2590	874.37
CE2			878.28
HW2			879.98

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REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-3427	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NC GRID NAD 83

-L-
PI Sta 154+45.09
Δ = 19° 34' 26" (RT)
D = 0° 29' 53.6"
L = 3,928.74
T = 1,983.70'
R = 11,500.00'
SE = NC

SEE SHEET 26 FOR -Y4- & -Y5-

BL-34 PINC 167+17.17
-L- STA 159+69.23 14.35'

BL-50 "DEEP 2"
PINC 176+19.40
-L- STA 168+63.58 -84.19'

BY5-50 "DEEP 2"
POT 9+27.86
-L- STA 168+63.58 -84.19'

-Y4-POT Sta. 159+05.79=
-L-POT Sta. 169+53.74

-Y5-POT Sta. 10+00.00=
-L-POT Sta. 169+49.53

N 70° 00' 25" E

N 71° 25' 55.9" E

N 74° 50' 34.5" E

70
JAMES S. REAVIS
AND WIFE
DORIS R. REAVIS
DB 431 PG 263
DB 90 PG 302
DB 82 PG 460
DB 108 PG 79

71
M. F. REAVIS
AND WIFE
MINNIE V. REAVIS
DB 40 PG 151

72
CLATE WINGLER
AND WIFE
JOSEPHINE WINGLER
DB 334 PG 7
DB 382 PG 345

SPECIAL CUT DITCH GRASS LINED SEE DETAIL 20

LATERAL 'V' DITCH GRASS LINED SEE DETAIL 3

3' BASE LATERAL DITCH CLASS 'B' RIP RAP SEE DETAIL 7D

TIE TO EXISTING SWALE

CLASS B RIPRAP

REMOVE

BEGIN TAPER 154+80.00

150' STORAGE

200' TAPER

20' BST

3 FO 3 COPPER

CORN FIELD

GRAVEL

GTD

WOOD & BLK BARN
WOOD SHED
WOOD SHED
WOOD & BLK SHED
W HOUSE
FEED BIN
FEED BINS
SHED
WELL
BLK WELL HOUSE
BLK W HOUSE
1.5BLKD
ISFD
BLK G
BLK WALL

DETAIL 20
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground, 2d, D, 2:1 Or Flatter, Front Ditch Slope
Min. D = 1.0 Ft.

STA. 160+20 TO 162+00 -L- LT.
STA. 163+90 TO 165+50 -L- RT.
STA. 165+00 TO 166+00 -L- LT.
STA. 170+00 TO 171+00 -L- LT.
STA. 170+00 TO 174+81 -L- RT.
STA. 14+29 TO 16+00 -Y5- RT.

DETAIL 3
SPECIAL LATERAL "V" DITCH
(Not to Scale)
Natural Ground, 2d, D, 2:1 Or Flatter, Fill Slope
Min. D = 1.0 Ft.

STA. 163+70 TO 165+00 -L- LT.

DETAIL 7D
LATERAL BASE DITCH
(Not to Scale)
Natural Ground, 2d, d, D, b, 2:1 Or Flatter, Fill Slope, Riprap, Fabric
Min. D = 1.5 Ft.
Max. d = 1.0 Ft.
B = 5.0 Ft.
b = 3.0 Ft.
* When B is < 6.0'
Type of Liner = CL. B RIP RAP

STA. 171+00 TO 172+28 -L- LT.
EST. 84 TONS

DETAIL 3A
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground, 2d, D, 4:1 Or Flatter, Front Ditch Slope
Min. D = 1.0 Ft.

STA. 10+50 TO 12+00 -Y4- LT.

MATCHLINE ** SEE SHEET 14 **

MATCHLINE ** SEE SHEET 16 **

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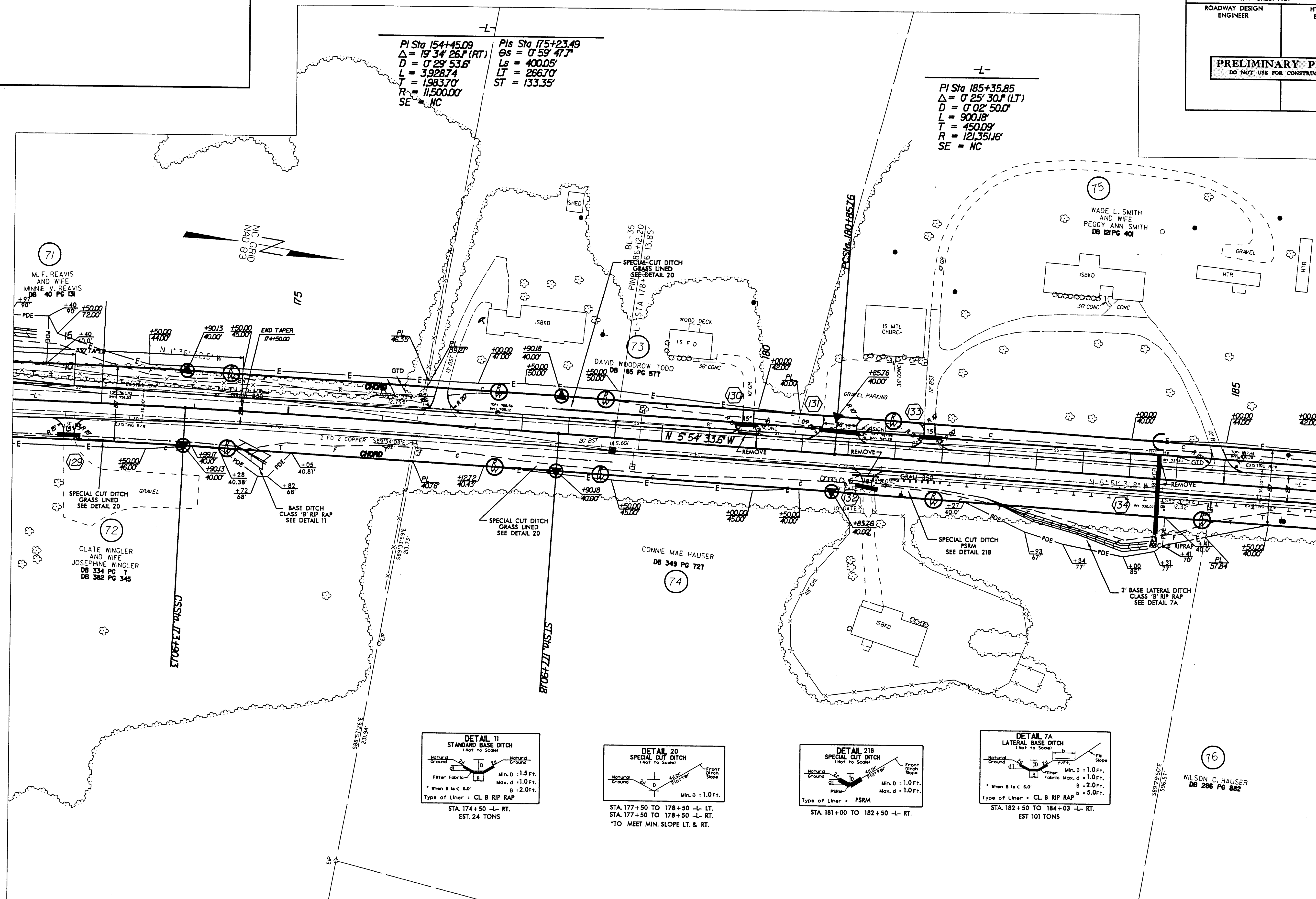
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-3427	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

MATCHLINE ** SEE SHEET 15 **



MATCHLINE ** SEE SHEET 17 **

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REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-3427	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-
PI Sta 185+35.85
Δ = 0° 25' 30.1" (LT)
D = 0° 02' 50.0"
L = 900.18'
T = 450.09'
R = 121,351.16'
SE = NC

-L-
PI Sta 203+71.43
Δ = 4° 02' 08.2" (LT)
D = 0° 16' 22.2"
L = 1,479.13'
T = 739.87'
R = 21,000.00'
SE = NC

NC GRID NAD 83

MATCHLINE ** SEE SHEET 16 **

MATCHLINE ** SEE SHEET 18 **

BL-36 PINC 197+58.22
-L- STA 189+94.88 13.15
BEGIN SBG STA. 186+74 -L- LT.
END SBG STA. 190+74 -L- LT.
PSTA 196+31.56

75 WADE L. SMITH AND WIFE PEGGY ANN SMITH DB 121 PG 401

76 WILSON C. HAUSER DB 286 PG 882

77 DOUGLAS G. MARTIN AND WIFE DEBRA JEAN MARTIN DB 373 PG 166

78 WANDA H. SEIDERS DB 257 PG 529 DB 250 PG 179 DB 368 PG 29

79 MICHAEL E. PLUMMER AND WIFE MARIANNE B. PLUMMER DB 230 PG 707

80 CLARENCE V. HALL DB 334 PG 154

81 ALLEN M. MARTIN AND WIFE MARGIE MARTIN DB 269 PG 502 DB 257 PG 1

82 TOBY A. RICHARDSON, JR. DB 388 PG 308

83 DAVID W. SHOAF AND WIFE SUSAN S. SHOAF DB 38 PG 600

84 LEON F. MARTIN AND WIFE OLENE MARTIN DB 269 PG 503 DB 278 PG 216

85 PATRICK M. FOSTER DB 444 PG 310 PB 4 PG 88

86 DORA H. LONG DB 234 PG 5 PG 412

87 ROBBY W. MATTHEWS AND WIFE DEANNA M. MATTEWS DB 421 PG 254

90 BOBBY M. HAUSER AND WIFE ANN HAUSER DB 82 PG 633

MARIE M. MILLER DB 276 PG 894 DB 373 PG 389 PB 4 PG 88

SPECIAL CUT DITCH GRASS LINED SEE DETAIL 20

2' BASE LATERAL DITCH CLASS 'B' RIP RAP SEE DETAIL 7A

TOE PROTECTION PSRM SEE DETAIL 9

2GI TOP=929.999 INV=927.249 D=2.75

CL B RIPRAP

BORE & JACK

PLUG

INV= 923.44

EXISTING R/W Z FD 2" PIPE

SPECIAL CUT DITCH GRASS LINED SEE DETAIL 20

"V" DITCH PSRM SEE DETAIL 17

PINC 203+47.31
-L- STA 195+83.89 14.99'

POT BY7-171 5+00.00 200.69'

POT BY7-37 7+25.06
-L- STA 195+83.89 14.99'

SPECIAL CUT DITCH GRASS LINED SEE DETAIL 20

"Y" LINE DITCHES TO LINE DITCHES

REMOVE

GTD

DETAIL 7A
LATERAL BASE DITCH
(Not to Scale)
Min. D = 1.5 Ft.
Max. d = 1.0 Ft.
B = 2.0 Ft.
b = 5.0 Ft.
* when B is < 6.0'
Type of Liner = CL. B RIP RAP
STA. 187+50 TO 188+65 -L- LT.
EST. 68 TONS

DETAIL 9
TOE PROTECTION
(Not to Scale)
d = 1.0 Ft.
Type of Liner = PSRM
STA. 187+50 TO 190+00 -L- RT.
STA. 188+65 TO 190+00 -L- LT.

DETAIL 17
STANDARD "V" DITCH
(Not to Scale)
Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
Type of Liner = PSRM
STA. 194+00 TO 194+50 -L- RT.
EST. DDE = 11 CU. YD.
EST. 30YD² PSRM

DETAIL 20
SPECIAL CUT DITCH
(Not to Scale)
Min. D = 1.0 Ft.
STA. 186+50 TO 187+50 -L- LT.
STA. 190+50 TO 191+50 -L- RT.
STA. 192+00 TO 194+00 -L- RT.
STA. 194+00 TO 194+80 -L- LT.
STA. 197+00 TO 198+00 -L- RT.

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REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-3427	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NC GRID NAD 83

-L-
PI Sta 203+71.43
Δ = 4° 02' 08.2" (LT)
D = 0° 16' 22.2"
L = 1,479.13'
T = 739.87'
R = 21,000.00'
SE = NC

-L-
PI Sta 214+70.49
Δ = 1° 04' 23.4" (LT)
D = 0° 17' 11.3"
L = 374.60'
T = 187.31'
R = 20,000.00'
SE = NC

PC Sta. 212+83.18
PT Sta. 211+10.69

MATCHLINE ** SEE SHEET 17 **

MATCHLINE ** SEE SHEET 19 **

CULVERT #6
1 BARREL

	NORTH	EAST	ELEV.
CE 1	XXXXXXXXX	XXXXXXXXX	884.24
HW 1	XXXXXXXXX	XXXXXXXXX	885.80
CE 2	XXXXXXXXX	XXXXXXXXX	884.06
HW 2	XXXXXXXXX	XXXXXXXXX	885.66

NOTE
CATTLE CROSSING
NO BOTTOM FOUND

95 JESSIE HEMRIC, J. WESLEY DZESKEWICZ, KIM H. DZESKEWICZ, BEVERLY D. NEWKIRK, DB 281 PG 679

89 GERALD SHELTON AND WIFE JACKIE C. SHELTON, DB 223 PG 355, PB 5 PG 47

DORA H. LONG, DB 234 PG 5, PB 63 PG 47

91 JESSIE HEMRIC, J. WESLEY DZESKEWICZ, KIM H. DZESKEWICZ, BEVERLY D. NEWKIRK, DB 281 PG 679

92 WANDA HAUSER SEIDERS, DB 281 PG 675

99 BEVERLY DZESKEWICZ, DB 119 PG 863

97 J. WESLEY DZESKEWICZ AND WIFE MONICA H. DZESKEWICZ, DB 108 PG 672

100 FOY HEMRIC, DB 98 PG 147

101 WANDA H. SEIDERS, DB 257 PG 529, DB 281 PG 675

90 BOBBY M. HAUSER AND WIFE ANN HAUSER, DB 82 PG 633

93 EDITH R. HAUSER, DB 89 PG 49

94A MICHAEL KIMMER

94 JERRY KIMMER AND WIFE JUDY KIMMER, DB 433 PG 839, DB 18 PG 196

96 VIVIAN B. BECK, DB 263 PG 716

98 JAMES RASH, DB 116 PG 747

SPECIAL CUT DITCH GRASS LINED SEE DETAIL 20

REMOVE TOP SLAB; INSTALL 18" RCP BACKFILL BOX W/ SUITABLE MATERIALS

SPECIAL LATERAL "V" DITCH SEE DETAIL 3

SPECIAL LATERAL "V" DITCH GRASS LINED SEE DETAIL 3C

SPECIAL 2' BASE CUT DITCH CLASS 'B' RIP RAP SEE DETAIL 19

3' BASE LATERAL DITCH CLASS 'B' RIP RAP SEE DETAIL 7E

BORE & JACK 36" RCP

2GI TOP = 858.93 INV = 855.93 D = 3.0 GRADE TO DRAIN

INV = 847.91

DETAIL 20
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground, 2v, D, 4H:1V Flatter, Front Ditch Slope
Min. D = 1.0 Ft.
STA. 201+00 TO 202+50 -L- RT.

DETAIL 19
SPECIAL CUT BASE DITCH
(Not to Scale)
Natural Ground, d1, D, 4H:1V Flatter, Front Ditch Slope, Filter Fabric, B
Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
B = 2.0 Ft.
Type of Liner = CL. B RIP RAP
STA. 208+50 TO 209+00 -L- RT.
EST. 14 TONS

DETAIL 3C
SPECIAL LATERAL "V" DITCH
(Not to Scale)
Natural Ground, 2v, D, 4H:1V Flatter, Fill Slope
Min. D = 1.0 Ft.
STA. 212+50 TO 213+50 -L- LT.

DETAIL 3
SPECIAL LATERAL "V" DITCH
(Not to Scale)
Natural Ground, 2v, D, 4H:1V Flatter, Fill Slope
Min. D = 1.0 Ft.
STA. 208+50 TO 209+71 -L- LT.

DETAIL 7E
LATERAL BASE DITCH
(Not to Scale)
Natural Ground, d1, D, 3:1, b, Fill Slope, R
Filter Fabric
Min. D = 1.5 Ft.
Max. d = 1.0 Ft.
B = 3.0 Ft.
b = 5.0 Ft.
* When B is < 6.0'
Type of Liner = CL. B RIP RAP
STA. 209+00 TO 210+75 -L- RT.
EST. 117 TONS

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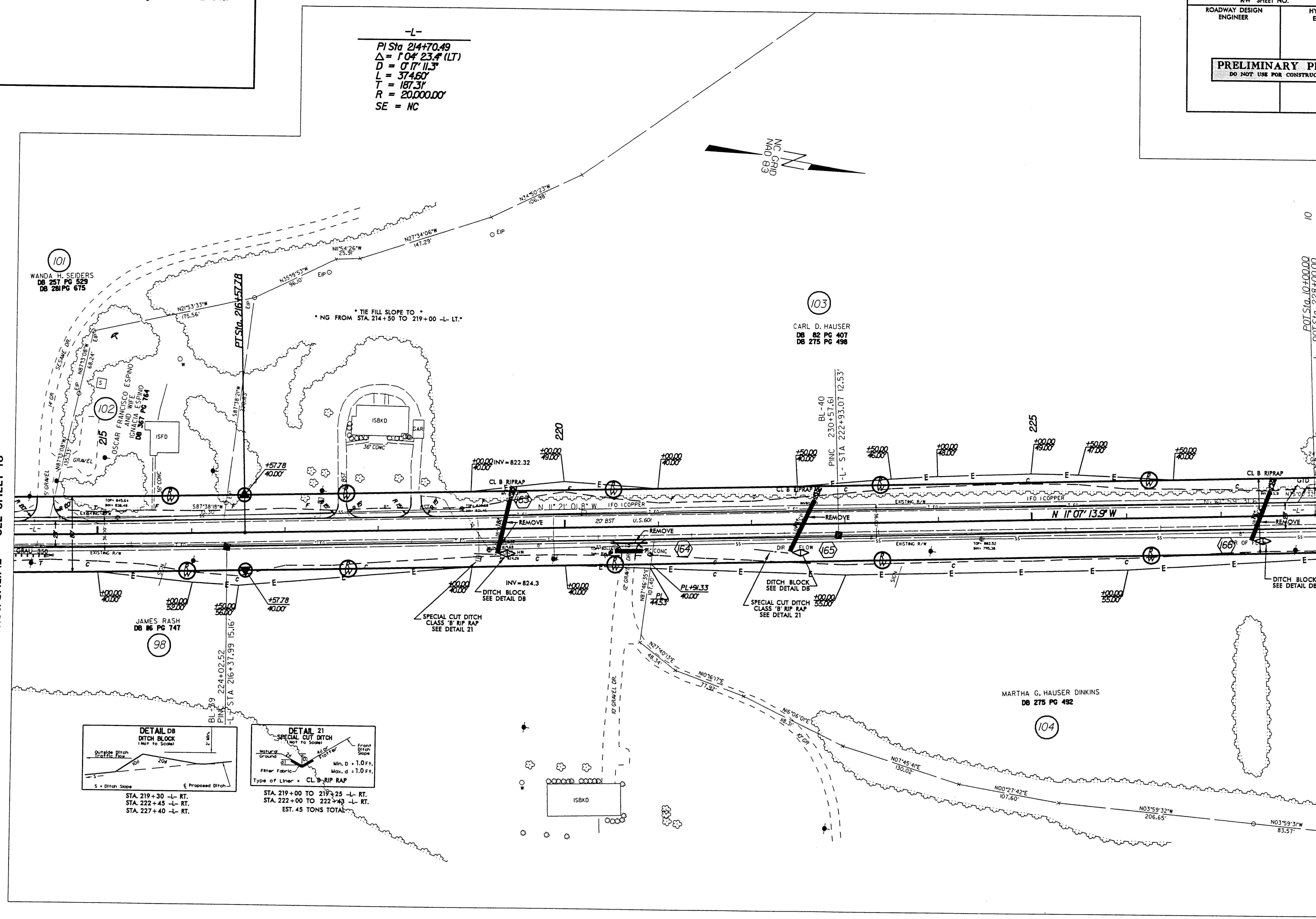
REVISIONS

3/3/03 - -L- Sta.214+20 Lt - Changed Prcl.No.102 to 101

PROJECT REFERENCE NO.	SHEET NO.
R-3427	19
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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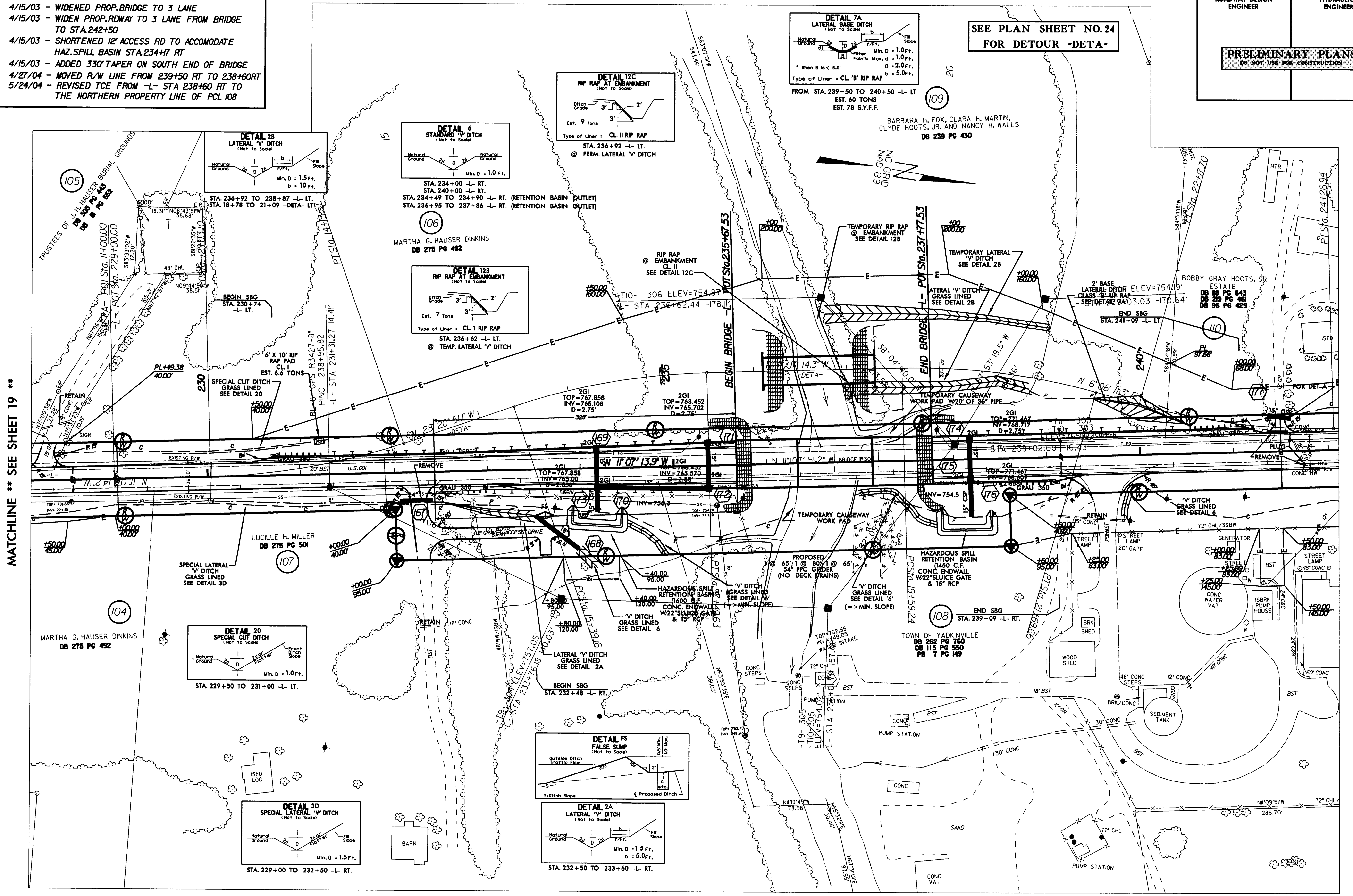
REVISIONS
4/15/03 - MOVED STRUCTURE 173 TO STA.234+17 RT
4/15/03 - MOVED HAZ.SPILL BASIN TO STA 234+17 RT
4/15/03 - WIDENED PROP.BRIDGE TO 3 LANE
4/15/03 - WIDEN PROP.RDWAY TO 3 LANE FROM BRIDGE TO STA.242+50
4/15/03 - SHORTENED 12' ACCESS RD TO ACCOMODATE HAZ.SPILL BASIN STA.234+17 RT
4/15/03 - ADDED 330' TAPER ON SOUTH END OF BRIDGE
4/27/04 - MOVED R/W LINE FROM 239+50 RT TO 238+60RT
5/24/04 - REVISED TCE FROM -L- STA 238+60 RT TO THE NORTHERN PROPERTY LINE OF PCL 108

PROJECT REFERENCE NO.	SHEET NO.
R-3427	20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SEE PLAN SHEET NO. 24
FOR DETOUR -DETA-



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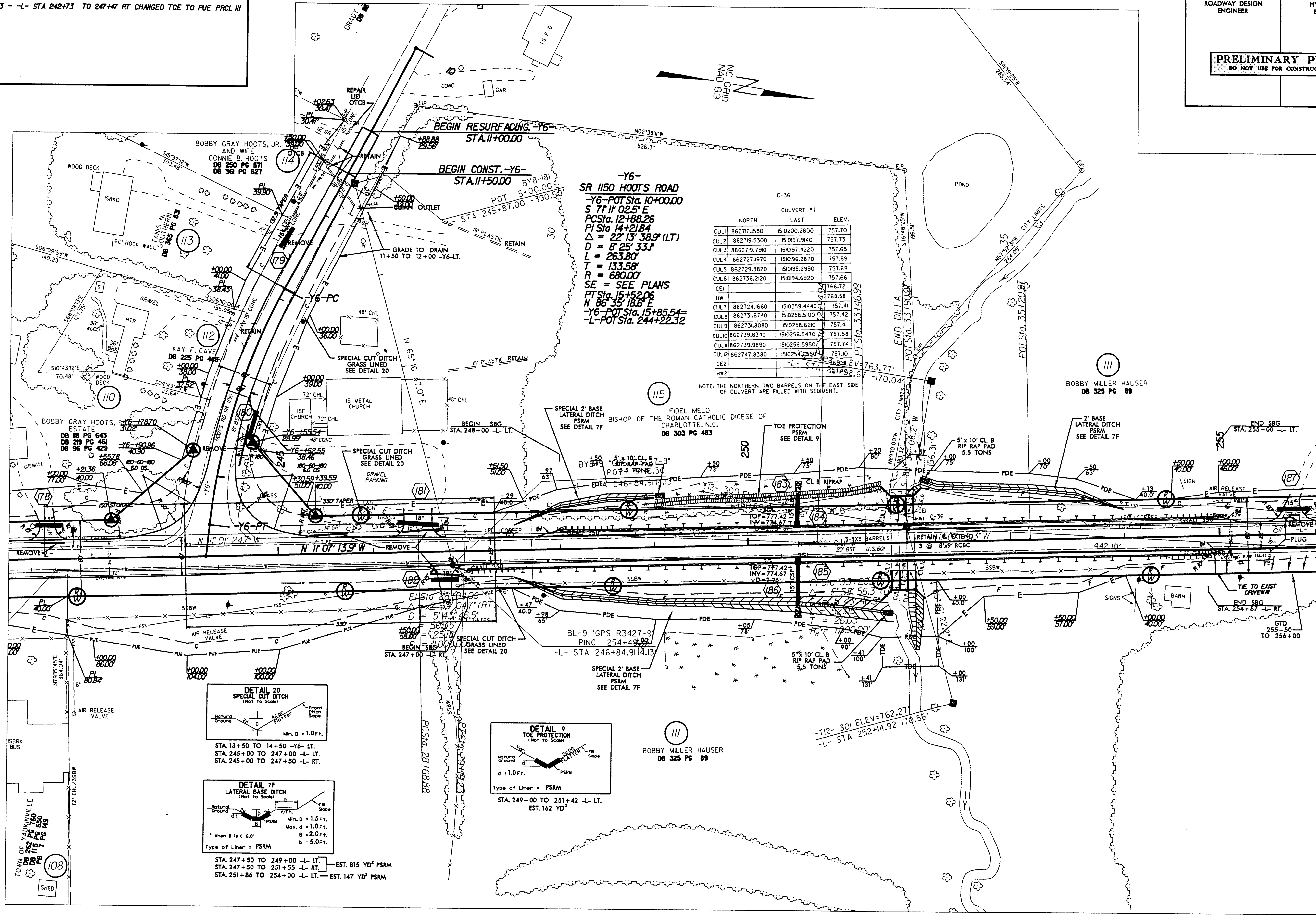
7/2/99

REVISIONS
4/15/03 - EXTENDED BOX CULVERT ON BOTH ENDS AT STA.251+65
7/17/03 - ADDED DRIVEWAY FOR PARCEL III STA.255+00 RT.
10/01/03 - -L- STA 242+73 TO 247+47 RT CHANGED TCE TO PUE PRCL III

PROJECT REFERENCE NO.	SHEET NO.
R-3427	21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

MATCHLINE ** SEE SHEET 20 **



C-36

CULVERT #7

	NORTH	EAST	ELEV.
CUL1	862712.1580	1510200.2800	757.70
CUL2	862719.5300	1510197.9140	757.73
CUL3	8862719.7910	1510197.4220	757.65
CUL4	862727.1970	1510196.2870	757.69
CUL5	862729.3820	1510195.2990	757.69
CUL6	862736.2120	1510194.6920	757.66
CE1			766.72
HW1			768.58
CUL7	862724.1660	1510259.4440	757.41
CUL8	862731.6740	1510258.5100	757.42
CUL9	862731.8080	1510258.6210	757.41
CUL10	862739.8340	1510256.5470	757.58
CUL11	862739.9890	1510256.5950	757.74
CUL12	862747.8380	1510257.6550	757.10
CE2			
HW2			

DETAIL 20 SPECIAL CUT DITCH (Not to Scale)
Min. D = 1.0 Ft.
STA. 13+50 TO 14+50 -Y6- LT.
STA. 245+00 TO 247+00 -L- LT.
STA. 245+00 TO 247+50 -L- RT.

DETAIL 7F LATERAL BASE DITCH (Not to Scale)
Min. D = 1.5 Ft.
Max. d = 1.0 Ft.
B = 2.0 Ft.
b = 5.0 Ft.
* When B is < 6.0'
Type of Liner = PSRM
STA. 247+50 TO 249+00 -L- LT.
STA. 247+50 TO 251+55 -L- RT. — EST. 815 YD² PSRM
STA. 251+86 TO 254+00 -L- LT. — EST. 147 YD² PSRM

DETAIL 9 TOE PROTECTION (Not to Scale)
d = 1.0 Ft.
Type of Liner = PSRM
STA. 249+00 TO 251+42 -L- LT.
EST. 162 YD²

MATCHLINE ** SEE SHEET 22 **

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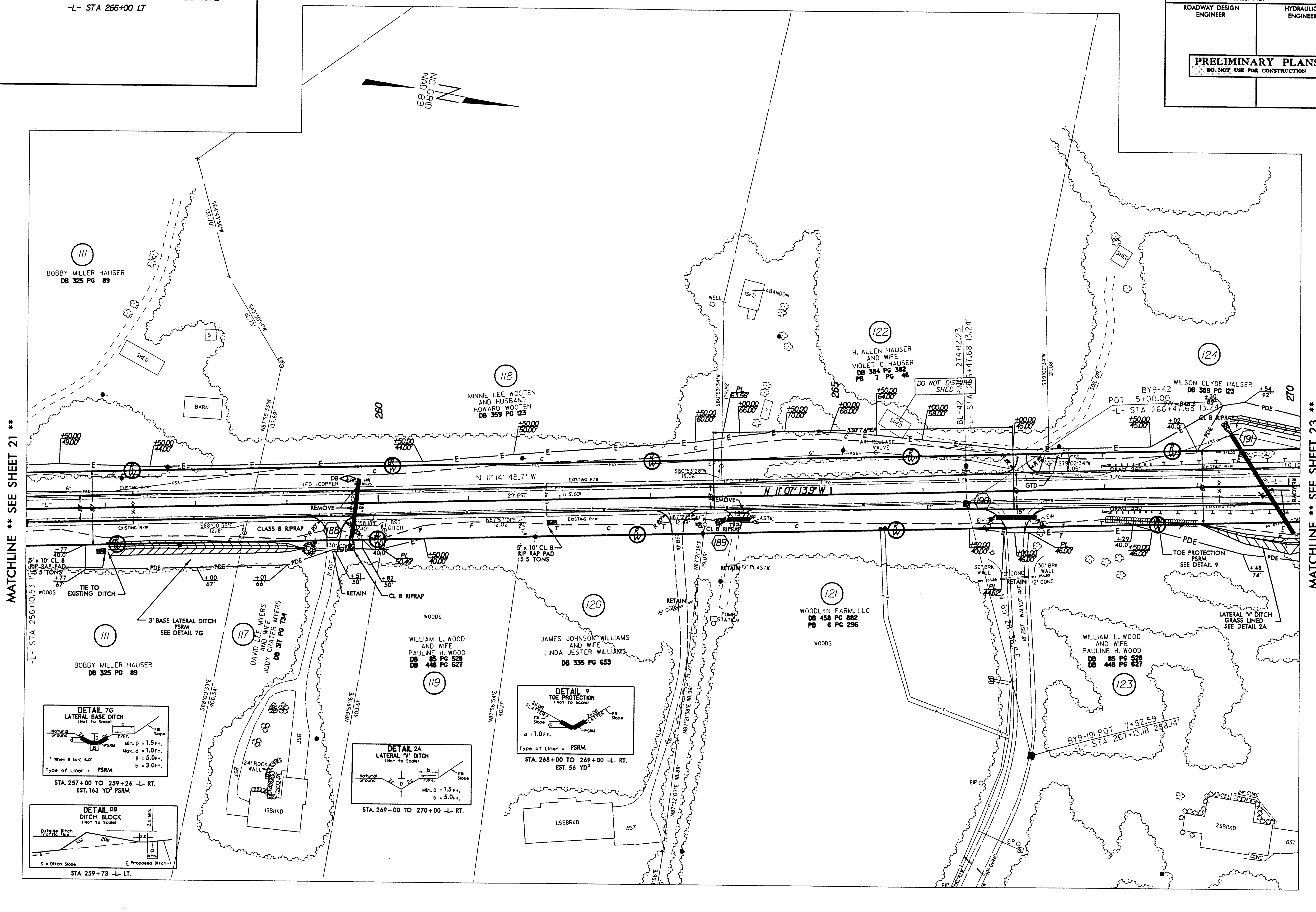
REVISIONS
06-02-2003 - PLACED DO NOT DISTURB SHED NOTE -L- STA 266+00 LT

PROJECT REFERENCE NO.	SHEET NO.
R-3427	22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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7/2/99

REVISIONS
06-03-03 MOVED GRAU 350 BACK 25' AND PLACED DRIVE-WAY CONNECTION ON PRCL 124 AT STA 271+00 LT

PROJECT REFERENCE NO.	SHEET NO.
R-3427	23
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

MATCHLINE ** SEE SHEET 22 **

-L-
PI Sta. 278+81.85
Δ = 7° 07' 12.0" (RT)
D = 1° 16' 23.7"
L = 559.20'
T = 279.96'
R = 4,500.00'
SE = NC

NC GRID NAD 83

END STATE PROJECT 8.1770801 -L- STA 276+50.00
END F.A. PROJECT STP-601(6) -L- STA 276+50.00

POT Sta. 283+26.13

WILSON CLYDE HAUSER
DB 359 PG 123

ULLIE HANES HURLOCKER
widow
DB 75 PG 334

J. K. MILLER AND WIFE MARY LOU MILLER
DB 279 PG 833

NATOUR & NATOUR, INC.
DB 446 PG 48

COLONIAL REALTY LIMITED PARTNERSHIP
DB 431 PG 491

CENTRAL CAROLINA BANK AND TRUST COMPANY
DB 277 PG 789

WILLIAM L. WOOD AND WIFE PAULINE H. WOOD
DB 85 PG 528
DB 448 PG 627

GUS V. JANOS
DB 406 PG 290
DB 442 PG 382

NORTHWEST PRODUCTION CREDIT ASSOCIATION
DB 12 PG 570

COLONIAL DEVELOPMENT COMPANY, LLC
DB 443 PG 124
PB 5 PG 103

PINC 284+71.44 -L- STA 277+07.45 30.69' RT

BY10-21I
POT 5+00.00 -L- STA 276+90.14 -196.54'

BY10-43
POT 7+27.91 -L- STA 277+07.45 30.69'

M 11° 07' 13.9" W

N 4° 00' 02.0" W

N 3° 13' 35.3" W

N 75° 40' 36.2" E

SPECIAL 2' BASE LATERAL DITCH PSRM SEE DETAIL 7F

SPECIAL CUT DITCH GRASS LINED SEE DETAIL 20

SPECIAL CUT DITCH GRASS LINED SEE DETAIL 2D

SPECIAL 2' BASE LATERAL DITCH GRASS LINED SEE DETAIL 5

DETAIL 20
SPECIAL CUT DITCH
(Not to Scale)
Min. D = 1.0 Ft.
STA. 272+00 TO 273+00 -L- RT.
STA. 272+34 TO 273+50 -L- LT.

DETAIL 5
LATERAL BASE DITCH
(Not to Scale)
Min. D = 1.5 Ft.
B = 2.0 Ft.
b = 5.0 Ft.
STA. 270+00 TO 272+00 -L- RT.

DETAIL 7F
LATERAL BASE DITCH
(Not to Scale)
Min. D = 1.5 Ft.
Max. d = 1.0 Ft.
B = 5.0 Ft.
b = 2.0 Ft.
* When B is < 6.0'
Type of Liner = PSRM
STA. 269+35 TO 270+88 -L- LT.
EST. 85 YD²

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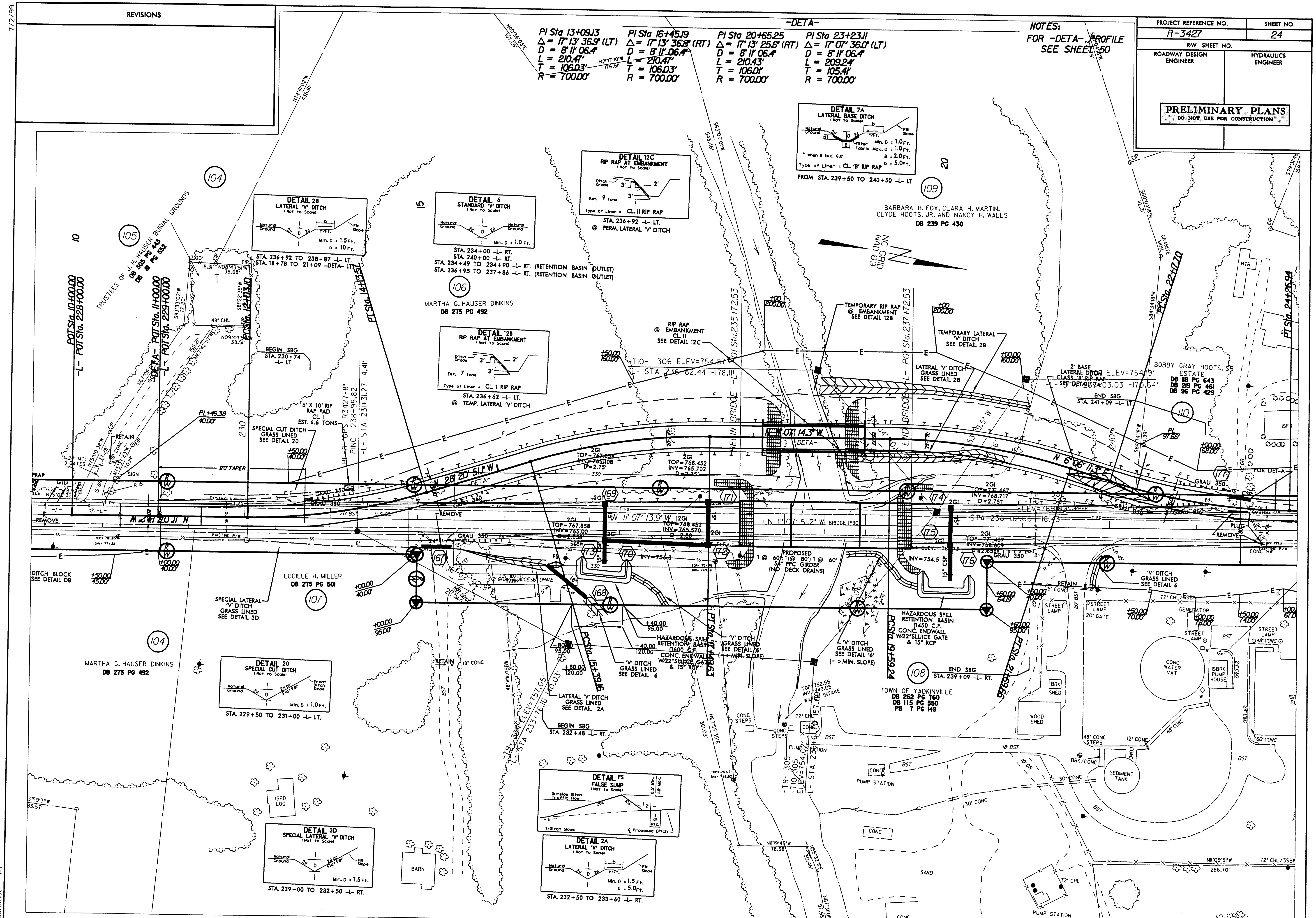
REVISIONS
PROJECT REFERENCE NO.
R-3427
SHEET NO.
24
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
-DETA-
PI Sta 13+09.13
Δ = 17° 13' 36.9" (LT)
D = 8° 11' 06.4"
L = 210.47'
T = 106.03'
R = 700.00'
PI Sta 16+45.19
Δ = 17° 13' 36.8" (RT)
D = 8° 11' 06.4"
L = 210.47'
T = 106.03'
R = 700.00'
PI Sta 20+65.25
Δ = 17° 13' 25.6" (RT)
D = 8° 11' 06.4"
L = 210.43'
T = 106.01'
R = 700.00'
PI Sta 23+23.11
Δ = 17° 07' 36.0" (LT)
D = 8° 11' 06.4"
L = 209.24'
T = 105.41'
R = 700.00'
NOTES:
FOR -DETA- PROFILE SEE SHEET 50
DETAIL 2B LATERAL 'V' DITCH (Not to Scale)
Min. D = 1.5 Ft. b = 10 Ft.
STA. 236+92 TO 238+87 -L- LT.
STA. 18+78 TO 21+09 -DETA- LT.
DETAIL 6 STANDARD 'V' DITCH (Not to Scale)
Min. D = 1.0 Ft.
STA. 234+00 -L- RT.
STA. 240+00 -L- RT.
STA. 234+49 TO 234+90 -L- RT. (RETENTION BASIN OUTLET)
STA. 236+95 TO 237+86 -L- RT. (RETENTION BASIN OUTLET)
DETAIL 12C RIP RAP AT EMBANKMENT (Not to Scale)
Est. 9 Tons
Type of Liner = CL. II RIP RAP
STA. 236+92 -L- LT.
@ PERM. LATERAL 'V' DITCH
DETAIL 7A LATERAL BASE DITCH (Not to Scale)
Min. D = 1.0 Ft. Max. d = 1.0 Ft. B = 2.0 Ft. b = 5.0 Ft.
Type of Liner = CL. 'B' RIP RAP
FROM STA. 239+50 TO 240+50 -L- LT
DETAIL 12B RIP RAP AT EMBANKMENT (Not to Scale)
Est. 7 Tons
Type of Liner = CL. 1 RIP RAP
STA. 236+62 -L- LT.
@ TEMP. LATERAL 'V' DITCH
TRUSTEES OF J. H. HAUSER BURIAL GROUNDS
DB 305 PG 443
DB 81 PG 552
MARTHA G. HAUSER DINKINS
DB 275 PG 492
BARBARA H. FOX, CLARA H. MARTIN, CLYDE HOOTS, JR. AND NANCY H. WALLS
DB 239 PG 430
NC GRID NAD 83
BOBBY GRAY HOOTS, SR. ESTATE
DB 118 PG 643
DB 219 PG 461
DB 96 PG 429
LUCILLE H. MILLER
DB 275 PG 501
TOWN OF YADKINVILLE
DB 262 PG 760
DB 115 PG 550
PB 7 PG 149
POT Sta. 10+00.00
-L- POT Sta. 228+00.00
-DETA- POT Sta. 11+00.00
-L- POT Sta. 229+00.00
PC Sta. 12+13.10
PT Sta. 14+13.57
PC Sta. 15+39.16
PT Sta. 17+49.63
-L- POT Sta. 235+72.53
-L- POT Sta. 237+72.53
PC Sta. 19+59.24
PT Sta. 21+69.66
PC Sta. 22+17.70
PT Sta. 24+26.94
BEGIN BRIDGE
END BRIDGE
N 28° 20' 51.1" W
N 11° 07' 13.9" W
N 11° 07' 51.2" W BRIDGE 1=30
N 6° 06' 11.3" E
BEGIN SBG STA. 230+74 -L- LT.
BEGIN SBG STA. 232+48 -L- RT.
END SBG STA. 241+09 -L- LT.
END SBG STA. 239+09 -L- RT.
6' X 10' RIP RAP PAD CL I EST. 6.6 TONS
SPECIAL CUT DITCH GRASS LINED SEE DETAIL 20
SPECIAL LATERAL 'V' DITCH GRASS LINED SEE DETAIL 3D
DITCH BLOCK SEE DETAIL DB
LATERAL 'V' DITCH GRASS LINED SEE DETAIL 2A
'V' DITCH GRASS LINED SEE DETAIL 6
RIP RAP @ EMBANKMENT CL. II SEE DETAIL 12C
TEMPORARY RIP RAP @ EMBANKMENT SEE DETAIL 12B
TEMPORARY LATERAL 'V' DITCH SEE DETAIL 2B
LATERAL 'V' DITCH GRASS LINED SEE DETAIL 2B
2' BASE LATERAL DITCH CLASS 'B' RIP RAP SEE DETAIL 7A
HAZARDOUS SPILL RETENTION BASIN (1600 C.F. CONC. ENDWALL W/22" SLUICE GATE & 15" RCP
HAZARDOUS SPILL RETENTION BASIN (1450 C.F. CONC. ENDWALL W/22" SLUICE GATE & 15" RCP
PROPOSED 1 @ 60'; 1 @ 80'; 1 @ 60' 54" PPC GIRDER (NO DECK DRAINS)
T10- 306 ELEV=754.87
-L- STA 236+62.44 -178.11'
-L- STA 231+31.27 14.41'
BL-8 GPS R3427-8" PINC 238+95.82
DETAIL 20 SPECIAL CUT DITCH (Not to Scale)
Min. D = 1.0 Ft.
STA. 229+50 TO 231+00 -L- LT.
DETAIL 3D SPECIAL LATERAL 'V' DITCH (Not to Scale)
Min. D = 1.5 Ft.
STA. 229+00 TO 232+50 -L- RT.
DETAIL FS FALSE SUMP (Not to Scale)
DETAIL 2A LATERAL 'V' DITCH (Not to Scale)
Min. D = 1.5 Ft. b = 5.0 Ft.
STA. 232+50 TO 233+60 -L- RT.
CONC WATER VAT
SEDIMENT TANK
ISBRK PUMP HOUSE
WOOD SHED
BRK SHED
PUMP STATION
BARN
ISFD LOG
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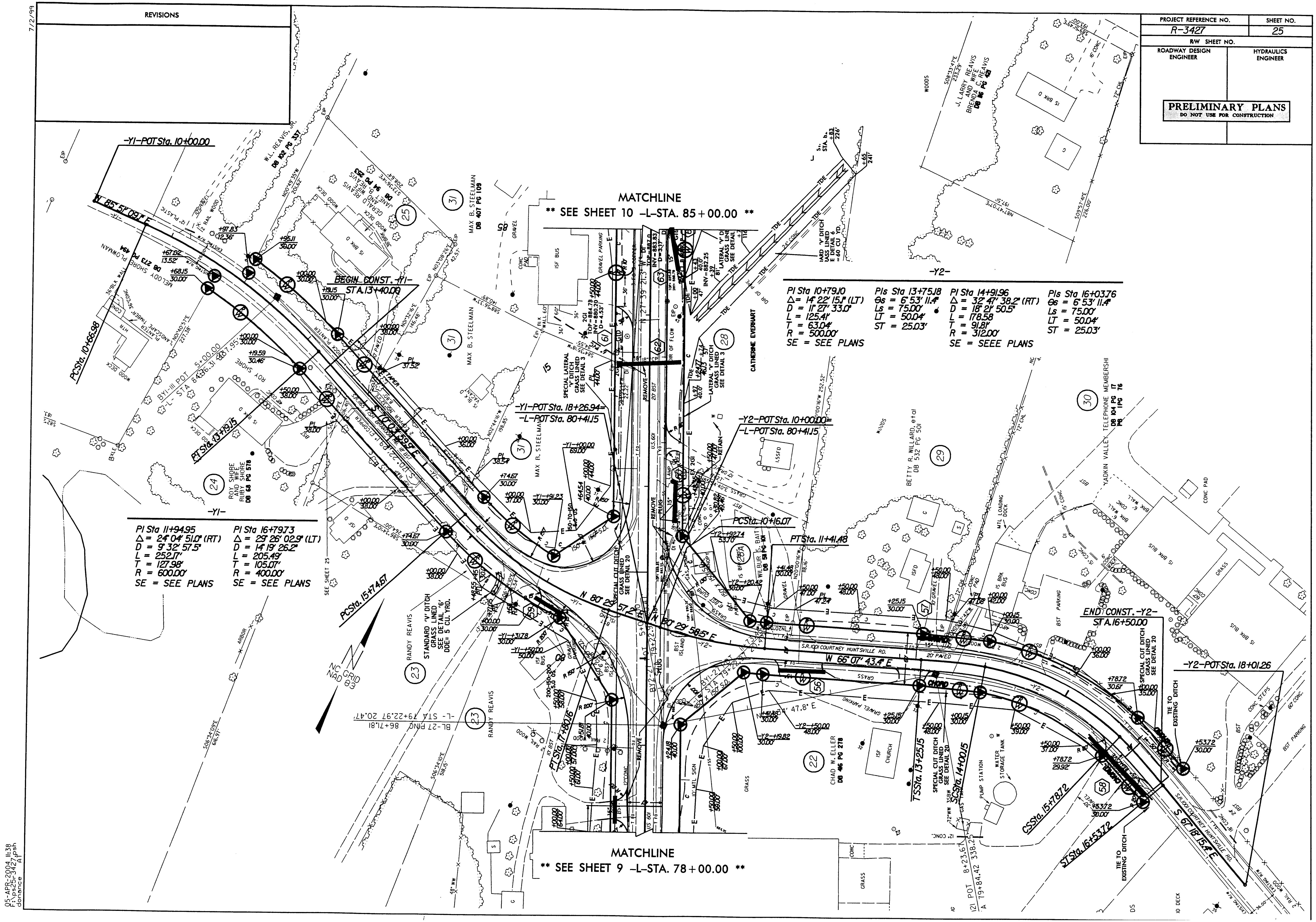

REVISIONS
7/2/99
PROJECT REFERENCE NO.
R-3427
SHEET NO.
25
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
MATCHLINE
** SEE SHEET 10 -L-STA. 85+00.00 **
MATCHLINE
** SEE SHEET 9 -L-STA. 78+00.00 **
-Y1-POT Sta. 10+00.00
BEGIN CONST. -Y1-
STA. 13+40.00
PC Sta. 10+66.98
PT Sta. 13+19.15
PC Sta. 15+74.67
PT Sta. 17+80.16
-Y1-POT Sta. 18+26.94=
-L-POT Sta. 80+41.15
-Y2-POT Sta. 10+00.00=
-L-POT Sta. 80+41.15
PC Sta. 10+16.07
PT Sta. 11+41.48
TS Sta. 13+25.15
SC Sta. 14+00.15
CS Sta. 15+78.72
ST Sta. 16+53.72
END CONST. -Y2-
STA. 16+50.00
-Y2-POT Sta. 18+01.26
-Y1-
PI Sta 11+94.95
Δ = 24° 04' 51.0" (RT)
D = 9° 32' 57.5"
L = 252.17'
T = 127.98'
R = 600.00'
SE = SEE PLANS
PI Sta 16+79.73
Δ = 29° 26' 02.9" (LT)
D = 14° 19' 26.2"
L = 205.49'
T = 105.07'
R = 400.00'
SE = SEE PLANS
-Y2-
PI Sta 10+79.10
Δ = 14° 22' 15.1" (LT)
D = 11° 27' 33.0"
L = 125.41'
T = 63.04'
R = 500.00'
SE = SEE PLANS
PIs Sta 13+75.18
θs = 6° 53' 11.4"
Ls = 75.00'
LT = 50.04'
ST = 25.03'
PI Sta 14+91.96
Δ = 32° 47' 38.2" (RT)
D = 18° 21' 50.5"
L = 178.58
T = 91.81'
R = 312.00'
SE = SEEE PLANS
PIs Sta 16+03.76
θs = 6° 53' 11.4"
Ls = 75.00'
LT = 50.04'
ST = 25.03'
N 85° 51' 09" E
N 80° 29' 58.5" E
W 66° 07' 43.4" E
S 67° 18' 15.4" E
NC GRID NAD 83
MAX B. STEELMAN DB 407 PG 109
W.L. REAVIS, JR. DB 102 PG 337
J. LARRY REAVIS AND WIFE BRENDA C. REAVIS DB 116 PG 423
ROY SHORE AND WIFE RUBY SHORE DB 68 PG 578
RANDY REAVIS
CATHERINE EVERHART
BETTY R. WILLARD, et al DB 532 PG 501
YADKIN VALLEY TELEPHONE MEMBERSHIP DB 104 PG 17
CHAD W. ELLER DB 46 PG 278
WILBUR S. BAITY
SR 1001 COURTNEY HUNTSVILLE RD.
US 601
SPECIAL LATERAL 'V' DITCH GRASS LINED SEE DETAIL 3
SPECIAL CUT DITCH GRASS LINED SEE DETAIL 20
STANDARD 'V' DITCH GRASS LINED SEE DETAIL '6' DDE= 5 CU. YRD.
TIE TO EXISTING DITCH
PUMP STATION
WATER STORAGE TANK
05-APR-2004 11:38

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REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-3427	26
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NC GRID NAD 83

MATCHLINE
** SEE SHEET 16 STA.-L-173+00.00 **

CSSta. 173+90.13

-Y4-POT Sta. 15+05.79=
-L-POT Sta. 169+53.74

-Y5-POT Sta. 10+00.00=
-L-POT Sta. 169+49.93

BEGIN CONST. -Y4-
POT Sta. 10+00.00

END CONST. -Y5-
POT Sta. 16+00.00

SEE PLAN SHEET 26 FOR -Y4- & -Y5-

SR 1002 LONE HICKORY ROAD

SR 1733 OLD STAGE ROAD

N 70° 00' 25" E

N 74° 50' 34" E

N12°23'10"W 463.04'

N12°23'10"W 12.49'

M. F. REAVIS AND WIFE MINNIE V. REAVIS DB 40 PG 61

CLATE WINGLER AND WIFE JOSEPHINE WINGLER DB 334 PG 7 DB 382 PG 345

JAMES S. REAVIS AND WIFE DORIS R. REAVIS DB 431 PG 263 DB 90 PG 302 DB 82 PG 460 DB 168 PG 19

SPECIAL CUT DITCH GRASS LINED SEE DETAIL 20

3' BASE LATERAL DITCH CLASS "B" RIP RAP SEE DETAIL 7D

BASE DITCH CLASS "B" RIP RAP SEE DETAIL 11

TIE TO EXISTING SWALE

60" BLK WALL

CORN FIELD

GRAVEL

GTD

DETAIL 3A
SPECIAL CUT DITCH
NOT TO SCALE

STA. 10+50 TO 12+00 -Y4- LT.

MATCHLINE
** SEE SHEET 15 STA.-L-166+00.00 **

Montagna

US 601
Yadkinville South City Limits to
Davie County Line, Yadkin County
Federal Aid Project No. STP-601(6)
State Project No. 8.1770801
TIP Project No. R-3427

ADMINISTRATIVE ACTION

CATEGORICAL EXCLUSION

U. S. Department of Transportation
Federal Highway Administration

and

N. C. Department of Transportation
Division of Highways

APPROVED:

7-10-02 Date

Project Development and Environmental Analysis Branch, NCDOT

7/9/02 Date

Nicholas L. Graf, P. E.
for Division Administrator, FHWA

US 601
Yadkinville South City Limits to
Davie County Line, Yadkin County
Federal Aid Project No. STP-601(6)
State Project No. 8.1770801
TIP Project No. R-3427

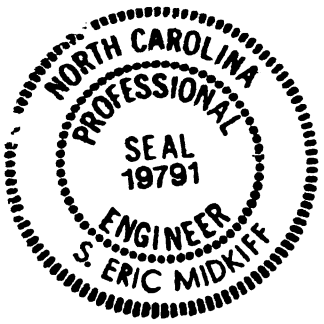
CATEGORICAL EXCLUSION

July 2002

Document Prepared in Project Development and
Environmental Analysis Branch By:

Jackie Obediente 7/3/02
Jackie Obediente
Project Development Engineer

Eric Midkiff 7/3/02
Eric Midkiff, P.E.
Project Development Unit Head



Lubin V. Prevatt 7-10-02
Lubin V. Prevatt, P. E., Assistant Manager
Project Development and Environmental Analysis Branch

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TABLES

FIGURES

APPENDICES

US 601
Yadkinville South City Limits to
Davie County Line, Yadkin County
Federal Aid Project No. STP-601(6)
State Project No. 8.1770801
TIP Project No. R-3427

SUMMARY

1. Description of Action

The North Carolina Department of Transportation Division of Highways proposes to widen US 601 from the Yadkinville South City Limits to the Yadkin/Davie county line. It is also proposed to provide turn lanes at various intersections, and replace Bridge No. 30 over South Deep Creek, in Yadkin County.

The 5.3 mile (8.53 km) project is included in the 2004-2010 Transportation Improvement Program (TIP) with right of way acquisition scheduled for FFY 2002 and construction scheduled for FFY 2004.

The estimated cost is $9,590,000 including $300,000 for right of way acquisition and $9,290,000 for construction. The estimated cost projected by the 2004-2010 Transportation Improvement Program is $8,192,000, including $300,000 for right of way, $7,500,000 for construction, and $392,000 spent in prior years.

2. Summary of Environmental Impacts

Improving US 601 and replacing Bridge No. 30 will have a positive impact on the Yadkinville area by increasing the level of safety associated with the facility. Based on preliminary designs, one business and one residential relocation is anticipated as a result of this project (See Appendix B for relocation report). No recreational facilities will be involved. No archaeological sites will be impacted. One site, the John Hauser Farmstead, is eligible for the National Register of Historic Places, and is located near the project, however, it was determined by the North Carolina State Historic Preservation Office that the project will have no effect on the historic site (See Appendix A, page A-9). No publicly owned parks, recreational facilities or wildlife or waterfowl refuges of national, state, or local significance are in the vicinity of the project. The proposed project will impact 0.072 acres (0.031 hectares) of wetlands. The project's impact on noise and air quality will not be significant.

3. Summary of Environmental Commitments

PROJECT COMMITMENTS
US 601
Yadkinville South City Limits to
Davie County Line, Yadkin County
State Project No. 8.1770801
Federal Aid Project No. STP-601(6)
TIP Project No. R-3427

Commitments Developed Through Project Development and Design

Project Development and Environmental Analysis Branch
Impacts to the John H. Hauser Farmstead, a property eligible for the National Register of Historic Places, will be minimized to the extent possible.

Hydraulics Unit
Because the intake for the City of Yadkinville Water Treatment Plant is approximately 250' from US 601, hazardous spill catch basins will be needed for this project.

Structure Design Unit / Division Construction Engineer / Roadside Environmental
The removal of Bridge No. 30 results in potentially 305 cubic yards of temporary fill. NCDOT will implement Best Management Practices for Bridge Demolition and Removal.

4. Coordination

The following federal, state, and local officials were consulted regarding this project:

* U.S. Army Corps of Engineers
  U.S. Federal Highway Administration
* North Carolina Division of Forest Resources
* North Carolina Wildlife Resources Commission
* North Carolina Division of Water Quality
* North Carolina Department of Cultural Resources
* North Carolina Department of Administration
* North Carolina Department of Environment and Natural Resources
* State Historic Preservation Office
* Northwest Piedmont Council of Governments

A citizen's informational workshop was held on November 30, 1999 to obtain public comment on the project (See Appendix D). Comments on the project that were received from the agencies are noted by an asterisk (*). Those comments are included in Appendix A.

5. Additional Information

Additional information concerning the proposal and assessment can be obtained by contacting the following:

W.D. Gilmore, P.E., Manager
Project Development and Environmental Analysis Branch
N.C. Department of Transportation
1548 Mail Service Center
Raleigh, NC 27699-1548
(919) 733-3141

Nicholas L. Graf, P.E., Division Administrator
Federal Highway Administration
Department of Transportation
310 New Bern Avenue, Suite 410
Raleigh, NC 27601-1442
(919) 856-4346

US 601
Yadkinville South City Limits to
Davie County Line, Yadkin County
State Project No. 8.1770801
Federal Aid Project No. STP-601(6)
TIP Project No. R-3427

I. DESCRIPTION OF PROPOSED ACTION

The North Carolina Department of Transportation Division of Highways proposes to widen US 601 from the Yadkinville South City Limits to the Yadkin/Davie county line. It is also proposed to provide turn lanes at various intersections, and replace Bridge No. 30 over South Deep Creek. NCDOT and FHWA classify this action as a Categorical Exclusion, due to the fact that no adverse environmental impacts are likely to occur as a result of the project's construction.

The proposed improvements consist of widening the facility to 12-foot lanes throughout the project, and widening to three lanes in the SR 1001 (Courtney Huntsville Road) vicinity. Turn lanes are proposed at the intersections of US 601 and SR 1002 (Lone Hickory Road) / SR 1733 (Old Stage Road), US 601/ SR 1001, and at the intersection of US 601 and SR 1150 (Hoots Road). In addition, Bridge No. 30 over South Deep Creek will be replaced, and a temporary onsite detour will be constructed adjacent to Bridge No. 30, west of US 601.

The estimated cost is $9,590,000 including $300,000 for right of way acquisition and $9,290,000 for construction. The estimated cost projected by the 2004-2010 Transportation Improvement Program is $8,192,000, including $300,000 for right of way, $7,500,000 for construction, and $392,000 spent in prior years..

The proposed project is included in the 2004-2010 North Carolina Department of Transportation (NCDOT) Transportation Improvement Program. The project location is shown in Figure 1. No substantial environmental impacts are anticipated. The project is classified as a Federal "Categorical Exclusion".

II. PURPOSE OF PROJECT

A. Need for the Improvements

The purpose of the project is to improve the safety along US 601 from the Davie County line to the City of Yadkinville south city limits. Existing US 601 between the Yadkinville South City limit and the Davie County Line consists of very narrow travel lanes of 10ft (3.1m) and poor vertical alignment. The existing substandard typical section along with relatively high traffic volumes (9,400 vpd) have contributed to a higher than average accent rate along US 601.

1. Accident Analysis

An accident study for US 601 was conducted for the time period from January 1, 1995 to December 31, 1998. A summary of the accident rates (in accidents per 100 million vehicle miles) along with the statewide rates for rural two-lane US routes is shown in Table 1.

Table 1 . Accident Rates (Per 100 Million Vehicle Miles)

Accident Type	Rates along US 601 from the Davie County Line to the City of Yadkinville South City Limits	Average Statewide Rates for Rural 2-Lane United States Routes
All Accidents	272.27	193.93
Fatal	6.72	2.60
Non-Fatal	110.92	88.37
Nighttime	80.67	57.28
Wet Conditions	60.50	40.72

Eighty one total accidents occurred along US 601 during the study period. All the accident rates were above the state average for this type of facility during the study period. The overall accident rate during this period was 272.27 accidents per 100 million vehicle miles (acc/100MVM) compared to the statewide average of 193.93 acc/100MVM for rural two-lane US routes during this period. This results in US 601 having a 40% higher overall accident rate than the statewide average for a two-lane rural US route.

Out of the eighty one total accidents occurring in the studied years, there were two fatal accidents, and 33 non-fatal injury accidents along US 601 within the project limits. Of the 81 accidents along the studied facility, the most frequent (28.4%) were rear end collisions and 16% resulted from collisions caused by running off the road to the right. This is indicative of a two-lane facility operating above its operational design limits. Upgrading the roadway to AASHTO standards, and improving several intersections by adding turn lanes will improve the safety and reduce the accident experience along US 601.

2. Bridge Sufficiency Rating and Load Capacity

According to NCDOT Bridge Maintenance records, the sufficiency rating for Bridge No. 30 is 64 out of a possible 100.0. The bridge was designed for a live load of H-15, which is significantly less than the current design policy of HS-20 live load. Also, the current "Bridge Policy" requires that bridges on the Arterial System that are to remain in place are required to

have a safe load capacity of 10% in excess of that required for the North Carolina Legal Load. Because Bridge No. 30 does not meet this load capacity criteria, it is classified as functionally obsolete, and will be replaced. In order to maintain traffic during the construction of Bridge No. 30 over South Deep Creek, a temporary detour bridge will be constructed approximately 100ft (30.5m) west of Bridge No. 30.

B. Existing Conditions

1. Length of Project

The length of the studied section is approximately 5.0 miles (8.0 km).

2. Route Classification

NCDOT classifies US 601 as a Rural Minor Arterial in the Statewide Functional Classification System.

3. Existing Cross Section

a. Roadway

The existing cross-section of US 601 consists of a two-lane roadway with approximately 10-ft (3.1m) travel lanes and 4-ft (1.2m) grassed shoulders.

b. Bridge

Bridge No. 30 over South Deep Creek is 190ft (57.9m) long with a 24-ft (7.3m) clear roadway width in which two lanes of traffic are carried.

4. Existing Right of Way

The existing right-of-way (ROW) is approximately 36ft (10.9 m).

5. Utilities

The Town of Yadkinville has two water lines along the east side of US 601 from the water treatment plant into Yadkinville. These are 12-inch and 8-inch lines. The Town of Yadkinville has employed a consultant to design and upgrade the water treatment facility located in the northeast quadrant of US 601 and South Deep Creek. This upgrade will include significant improvements to the existing water treatment facility and placement of a 20-inch water line along the west side of US 601. The intake for the treatment plant is located in South Deep Creek approximately 250 ft (76.2m) downstream from the existing bridge.

There is a 4-inch forced main sewer line located primarily along the east side of US 601 from SR 1001 (Courtney Huntsville Road) to Pine Valley Street. There is a pumping station 0.4 miles (0.6km) north of SR 1001 and approximately 150 ft (45.7m) east of US 601.

Yadkin Valley Telephone Membership Corporation has multiple underground and aerial cables along US 601. There is a 2-inch plastic conduit running from SR 1002 south along the east side of US 601 to just north of SR 1182 (Foster Road), crosses under US 601 and continues south along the west side. This conduit contains multiple fiber optic cables. Yadkin Valley's main telephone office and data center is located on SR 1001 just east of US 601. There is a heavy concentration of telephone cables around the intersection of US 601 and SR 1001, particularly in the northeast quadrant. There is also a heavy concentration of telephone services located around the intersection of US 601 and SR 1002 (Lone Hickory Road).

Surry/Yadkin Electric Membership Corporation has aerial service along US 601. The primary pole line is located along the east side of US 601 from the Davie County line to Yadkinville with the exception of about 0.5 miles (0.8km) just north of SR 1001. There are multiple telephone and television cables attached to the power poles.

6. Access Control

There is no control of access along US 601.

7. Speed Limits

The existing speed limit varies from 35mph (56.3km/hr) to 55mph (88.5km/hr).

8. Bridges and Drainage Structures

Bridge No. 30 over South Deep Creek was built in 1937. The bridge consists of a reinforced concrete deck girders with asphalt wearing surface, on reinforced concrete post and web piers. The deck of Bridge No. 30 is 18 feet above the streambed of South Deep Creek. The creek is approximately 1 foot deep at the bridge vicinity. According to NCDOT Bridge Maintenance records, the bridge's sufficiency rating is 64 out of a possible 100. Its status is functionally obsolete and it has an estimated remaining life of 20 years.

There are five major stream crossings involved within the project limits (refer to Figure 6 for site locations): (1) Dry Branch located 0.2 miles north of Yadkin/Davie County Line; (2) Tributary to Harmon Creek, located 0.4 miles north of SR 1001; (3) Harmon Creek, located 0.4 miles south of SR 1733; (4) South Deep Creek, located 1.0 miles south of US 421; and (5) Tributary to South Deep Creek, located 0.9 miles south of US 421. Existing conditions of these stream crossings and drainage structures are summarized in Table 2:

Table 2. Drainage Structures

Site No. & Crossing	Existing Structure	Drainage Area (sq. miles)
1 - Dry Branch	1 @ 6' x 6' RCBC	0.46
2 – Tributary to Harmon Creek	1 @ 5' x 5' RCBC	0.23
3 – Harmon Creek	1 @ 4' x 4' RCBC	0.12
4 - South Deep Creek	190' Bridge	53.3
5 – Tributary to South Deep Creek	3 @ 8' x 9' RCBC	3.62

9. Horizontal and Vertical Curvature

The existing horizontal alignment is adequate. The vertical alignment is substandard in places with poor sight distances resulting from short crest vertical curves.

10. Intersecting Roads

All intersections along US 601 are at grade. The majority of the intersections along US 601 are stop-sign controlled. There are two intersections controlled by a yellow-flashing signal. These intersections are located at the US 601 and SR 1165 (Fish Brandon Road) / SR 1001 (Courtney-Huntsville Road) intersection and the US 601 and SR 1002 (Lone-Hickory Road) / SR 1733 (Old Stage Road) intersection.

11. Project Terminals

The western project terminal is located at the Davie County Line, and the eastern project terminal is located at the Yadkinville South City limit. At both project terminals, US 601 is a two-lane roadway with approximately 10-ft (3.1m) travel lanes and 4-ft (1.2m) grassed shoulders.

12. Schools / School Bus Data

There are no public or private schools located along the corridor. Yadkinville Elementary School is located north of the project area and has eight buses traveling the US 601 corridor twice a day.

13. Railroads

No railroads exist near or along this project.

14. Bicycle, Pedestrian, and Greenway Facilities

Currently there are no County designated bikeways within Yadkin County. However NC Bike Route 2, part of the 700-mile Mountains to Sea trail from Murphy to Manteo, is found along Brandon Road and Courtney Huntsville Road, crossing US 601 at the intersection. There are no pedestrian oriented facilities located along the project corridor.

C. Traffic Volumes and Capacity Analysis

1. Mainline Analysis

A mainline analysis was performed for US 601. Currently, volumes along US 601 range from 4,000 to 9,000 vehicles per day. However, by the 2025 design year, US 601 is expected to carry between 8,600 and 19,200 vehicles per day. Table 3 summarizes the mainline LOS expected along this facility given the current year and design year volumes. Currently, US 601 operates at a LOS C near the southern termini, and a LOS E near the northern termini. This facility would likely operate between a LOS E and LOS F in the design year if no improvements are made. With the proposed project, we can expect a range between LOS D and LOS F along US 601 in the design year. Projected traffic volumes, major turning movements, truck data and design hour data are shown in Figures 3A through 3C.

Table 3. Summary of Mainline LOS

US 601	1999 w/o project	2025 w/o project	2025 with project
Southern Termini	C	E	D
Northern Termini	E	F	F

The purpose of the project is to improve safety along the subject section of US 601. While providing additional through lanes along US 601 north of the SR 1002 (Lone-Hickory Road) / SR 1733 (Old Stage Road) intersection would improve the level of service, widening to multilanes is beyond the scope of this project. In order to improve the level of service of US 601 in the year 2025 from north of the SR 1002 / SR 1733 intersection to the northern project terminal, two through lanes in each direction would need to be provided.

2. Intersection Analysis

A capacity analysis was performed for the major intersections along the project. The results of these analyses are summarized in Table 4. Each of these intersections are presently unsignalized.

Table 4. Summary of Intersection Analysis

Intersection	2000 LOS Without Improvements	2025 LOS Without Improvements	2025 With Improvements
US 601 and Fish-Brandon Road (SR 1165) / Courtney-Huntsville Road (SR 1001)	C	F	*F
US 601 and Lone-Hickory Road (SR 1002) / Old Stage Road (SR 1733)	E	E	D
US 601 and Hoots Road (SR 1150)	C	F	**F

* We can expect this unsignalized intersection to operate at LOS F in the design year with or without the proposed project. At this time, a signal is not recommended at this location, however, this intersection will continue to be monitored for future signal warrants.

**In order to improve the level of service in the year 2025 at the intersection of US 601 and Hoots Road, additional through lanes on northbound and southbound US 601 are necessary. Multilane widening is not considered within the scope of the proposed project.

D. Other Proposed Highway Improvements in the Project Area

TIP Project B-4683 –
This project proposes to replace Bridge No. 20 along SR 1152 over South Deep Creek in Yadkin County. This project is included in the 2004-2010 Transportation Improvement Program (TIP) with right of way acquisition scheduled for FFY 2007 and construction scheduled for FFY 2008.

III. PROPOSED IMPROVEMENTS

A. Length of Project

The length of the proposed project is approximately 5.3 miles (8.53 km) (See Figure 2 for preliminary design plans).

B. Bridges and Drainage Structures

1. Bridge

The existing bridge will be replaced in place, and a temporary detour bridge will be installed approximately 100ft (30.5m) west of the existing bridge. The temporary detour bridge will be used to maintain traffic during construction.

Because the removal of Bridge No. 30 over South Deep Creek will raise sediment concerns, a turbidity curtain is recommended. The superstructure is composed of reinforced concrete spill thru end bents, and reinforced concrete post and web interior bents. The concrete from the deck girders could contribute to the temporary fill resulting from bridge demolition debris. The resulting temporary fill could potentially be approximately 305 cubic yards (233 cubic meters). The dropping of parts or components of structures into any body of water will not be permitted unless there is no other practical method of removal. NCDOT will implement the Best Management Practices for Bridge Demolition and Removal.

2. Culverts

Existing culverts along the project will be retained and extended in accordance with the widening, and existing drainage patterns will be maintained to the extent possible.

C. Cross Section

1. Bridge

The proposed bridge will be 200ft (61m) long and 40ft (12.2m) wide, with 24ft (7.3m) of travelway, 8ft (2.4m) paved shoulders, and will carry two lanes of traffic.

2. Roadway

The roadway will be upgraded to AASHTO standards. The roadway typical section will have a 24ft (7.3m) travelway, with 2ft (0.6m) paved shoulders and 4ft (1.2m) grassed shoulders along each side (see Figure 4).

D. Speed Limit

The recommended design speed is 55mph (88.5km/hr). The posted speed limit is expected to vary from 35mph (56.3km/hr) to 55mph (88.5km/hr).

E. Right of Way

The proposed right of way is approximately 80ft (24.4m) symmetrically along the roadway.

F. Access Control

No control of access is proposed.

G. Intersection Treatment

In order to improve the safety and capacity of US 601, improvements to three intersections along this project are proposed. The improvements are listed below:

- *US 601 and SR 1165 (Fish-Brandon Road) / SR 1001 (Courtney-Huntsville Road) intersection:*
  Improvements to this intersection include providing exclusive turn lanes on the northbound and southbound approaches of US 601.

- *US 601 and SR 1002 (Lone-Hickory Road) / SR 1733 (Old Stage Road):*
  Exclusive left turn lanes for northbound and southbound US 601 are proposed as well as an exclusive right turn lane on southbound US 601.

- *US 601 and SR 1150 (Hoots Road):*
  An exclusive left turn lane is proposed on northbound US 601.

H. Bicycle and Pedestrian Accommodations

This section of roadway does not correspond to a bicycle TIP request, nor is it a designated bicycle route. However, SR 1001, which crosses US 601, is part of a designated bicycle route, NC Bicycling Highway-Mountains to Sea. No accommodations for bicycles are recommended along US 601.

I. Estimated Costs

The estimated cost is $9,590,000 including $300,000 for right of way acquisition and $9,290,000 for construction. The estimated cost projected by the 2004-2010 Transportation Improvement Program is $8,192,000, including $300,000 for right of way, $7,500,000 for construction, and $392,000 spent in prior years.

IV. ALTERNATIVES TO PROPOSED ACTION

A. Improve the Highway Without Using the Adjacent Historic Site

The historic John H. Hauser Farmstead is located adjacent to US 601, approximately one quarter mile south of South Deep Creek. The farmstead comprises land on both sides of US 601. In order to avoid the use of land from this historic property for the proposed improvements, the construction of a retaining wall in the vicinity of the farmstead was investigated. The historic property boundaries are located extremely close to US 601 (property boundaries go to the ditchline along US 601). The construction of a retaining wall in this area, therefore, would pose a safety problem due to its close proximity to the existing travelway. This alternative is not recommended because it would create a safety hazard.

B. Build Roadway on New Location

In order to avoid the use of the historic John H. Hauser farmstead for the proposed project, constructing a facility on new location was investigated. Providing a new location facility would result in substantial cost increases and environmental impacts. Additionally, providing a new location facility around the historic property would not address the safety issues associated with US 601. Therefore this alternative is not recommended.

C. No Build

This alternative would avoid the environmental impacts that are anticipated as a result of the project; however, this alternative does not meet the purpose and need of the project, which is to improve the level of safety associated with the facility, and to address the safety issues associated with Bridge No. 30. Therefore, Bridge No. 30 would ultimately fail, and there would be no positive effect on the safety of the highway. This alternative is not recommended, however, it does serve as a basis for comparison of other alternatives.

V. SOCIAL, ECONOMIC, AND ENVIRONMENTAL EFFECTS

A. Community Profile

1. Geographic and Political Location

Yadkin County is located in the North Carolina Piedmont-Triad region, one of North Carolina's seven designated economic development regions. The principal metropolitan areas within the region are Greensboro, Winston–Salem, and High Point. Yadkin County is bounded by Surry County to the north, Stokes County to the northeast, Forsyth County to the east, Davie and Iredell Counties to the south and Wilkes County to the west. The Yadkin River forms the northern and eastern borders of the County.

2. Project Study Area and Definition

The Impact Assessment Area for the project includes an area within one-half mile of the existing US 601 alignment. This was considered the area of direct influence of the project. For the purposes of the demographics review, census geography to the block group level was used. The block groups selected for this analysis included those block groups which were intersected by the one-half mile buffer surrounding the project. These include block group numbers 0505013, 0505014, 0505015, and 0505023. Figure 5 depicts the Impact Assessment Area as well as the study area used for the demographics review.

3. Race, Ethnicity, and Age

Table 5 summarizes the population information for the demographic study area, Yadkin County, and North Carolina. According to the 2000 census data, 6.8 percent of the population was Hispanic; the County Hispanic population was 6.5 percent. The non-Hispanic Caucasian population for the study area was 90.1 percent, compared with the County non-Hispanic Caucasian population of 89.2 percent. The total minority population in the study area was 9.8 percent of the total population. Countywide, the total minority population was 10.7 percent.

Table 6 summarizes the population by three age groups. Within the study area the largest population group was persons 19 to 64, which comprised 60.4 percent of the population. For Yadkin County, this age group comprised 60.7 percent of the population. Persons over age 65 comprised 16.5 percent of the population within the study area, as compared to 14.2 percent countywide. The median age for the demographic study area was 39.5 years. The median age for Yadkin County was 37.6 years.

Table 5. Population by Race and Hispanic Origin for the Study Area, Yadkin County, and North Carolina (2000 Census data).

	Demographic Study Area		Yadkin County		North Carolina	
	Number	%	Number	%	Number	%
Total Population	5,043	100.0%	36,348	100.0%	8,049,313	100.0%
Total Hispanic	345	6.8%	2,357	6.5%	378,963	4.7%
White	4,702	93.2%	33,638	92.5%	5,804,656	72.1%
Hispanic (White)	155	3.1%	1,192	3.3%	157,501	2.0%
Black	103	2.0%	1,246	3.4%	1,737,545	21.6%
Hispanic (Black)	6	0.1%	27	0.1%	14,244	0.2%
American Indian	5	0.1%	59	0.2%	99,551	1.2%
Hispanic (American Indian)	0	0.0%	4	0.0%	4,218	0.1%
Asian/Pacific Islander	11	0.2%	69	0.2%	117,672	1.5%
Hispanic (Asian/Pacific Islander)		0.0%	3	0.0%	2,091	0.0%
Other	222	4.4%	1,336	3.7%	289,889	3.6%
Hispanic (Other)	184	3.6%	1,131	3.1%	200,909	2.5%
Total Minority[1]	496	9.8%	3,902	10.7%	2,402,158	29.8%

4. Income, Poverty Status and Unemployment

Table 7 summarizes the 1990 census income and poverty data[2]. Within the project area, the median household income was $25,547. Countywide, the median household income was $25,062. The per capita income for the study area was $12,453 and Countywide it was $11,843. In 1990, 10.7 percent of the population within the study area was below the poverty level. Countywide 12.0 percent of the population was below the poverty level.

Table 6. Population by Age Group for the Study Area, Yadkin County, and North Carolina (2000 Census data).

	Demographic Study Area		Yadkin County		North Carolina	
	Number	%	Number	%	Number	%
Total Population – 2000	5,043	100.0%	36,348	100.0%	8,049,313	100.0%
0 to 18	1,167	23.1%	9,138	25.1%	2,073,849	25.8%
19 to 64	3,046	60.4%	22,066	60.7%	5,006,416	62.2%
65 or above	830	16.5%	5,144	14.2%	969,048	12.0%

[1] Total minority is the sum of all persons other than white-non-Hispanic.
[2] 2000 census data are not available for income and poverty status.

Table 7. Income Measures and Persons Living Below Poverty Level for the Study Area, Yadkin County, and North Carolina (1990 Census data).

	Demographic Study Area		Yadkin County		North Carolina	
	Number	%	Number	%	Number	%
Median H.H. Income[3]	$25,547		$25,062		$26,647	
Per Capita Income[2]	$12,453		$11,843		$12,885	
Persons below poverty level[4]	477	10.7%	3,591	12.0%	829,855	13.0%
Persons below 50% of poverty level[3]	99	2.2%	1,234	4.1%	332,966	5.2%

Note: 2000 Census data were used when available. When 2000 data were not available, 1990 Census data were used.

5. Housing Characteristics

Table 8 summarizes the housing data for the project area, Yadkin County, and North Carolina. The 1990 median home value in the study area was $53,021, compared to $53,200 for Yadkin County. The rate of homeownership in the study area was 78.1 percent and 81.2 percent for the county. The median rent for the study area was $305 and $294 for Yadkin County.

Table 8. Housing Characteristics for the Study Area, Yadkin County, and North Carolina (1990 Census data).

	Demographic Study Area	Yadkin County	North Carolina
Median Home Value	$53,021	$53,200	$65,300
Homeownership Rate[5]	78.1%	81.2%	68.0%
Median Rent	$305	$294	$382

Note: 2000 Census data were used when available. When 2000 data were not available, 1990 Census data were used.

6. Business Activity/Employment Centers

Business activity is primarily located north of the project corridor within the Town of Yadkinville and at the recently reconstructed US Highway 421 interchange where there are highway oriented businesses and shopping centers. There is scattered commercial development along the project corridor along with small concentrations of light and heavy industrial businesses.

3Percent based on difference between the demographic study area or county and the same figure for the state.

4 Percent based on persons for whom poverty status is determined.

5 Based on occupied housing units.

7. Public Facilities, Schools, and Institutions

a. Public Facilities

The Yadkin County Water Treatment Plant is located on US 601 north of South Deep Creek. There is an existing sewer line extending from the Yadkinville corporate limits along US 601 south to the Brandon Road-Courtney Huntsville Road intersection. The County has plans to install a water line in the same area. The County government offices are located on East Willow Street, approximately one-half mile north of the project terminus. The County Park and the YMCA are located just outside of the Impact Assessment Area and utilize a connector road to US 601.

b. Schools

There are no public or private schools located along the corridor. Yadkinville Elementary School is located north of the project area and has eight buses traveling the US 601 corridor twice a day.

c. Institutions

There are three churches located along or near the project corridor. The Christian Outreach Center is located north of Lone Hickory Road on US 601. A Roman Catholic church is located at the intersection of Hoots Road and US 601, and a Baptist church is located at US 601 and Main Street. Memorial Hospital is located north of the project area on Main Street west of US 601 in Yadkinville. Healthy Carolinians, a medical clinic, is also located north of the project area on East Main Street in Yadkinville, approximately one block east of US 601.

8. Police, Fire, EMS and Public Services

There are two fire stations located outside of the Impact Assessment Area. The Lone Hickory volunteer fire department is located approximately two miles west of the corridor on Lone Hickory Road. Courtney Volunteer Fire Department is located on Courtney-Huntsville Road approximately 1 mile east of the corridor. Both utilize US 601 for their service calls.

9. Existing and Future Land Uses and Present and Future Zoning

a. Residential

Residential development consists of single family homes scattered along the corridor. Most homes are setback at least 50 feet from US 601. The largest concentration of homes, approximately 50, is located approximately one-half mile north of the US 601/Lone Hickory Road-Stage Road intersection.

b. Commercial

There is limited commercial development along the project corridor consisting of a convenience store, a hardware store and two used auto dealerships. North of the corridor,

there is a major commercial/retail area at the US 421/US 601 interchange consisting of fast-food restaurants, convenience stores and a retail pharmacy.

c. Industrial

There are a number of industrial businesses along the project corridor. Sonoco, GB Truck Sales, 601 Service and Repair, and Steeman Milling are located at the intersection of US 601/Brandon Road-Courtney-Huntsville Road. Chair and Stool Manufacturing, Hibco Plastics, and Diversified Foam are located approximately one-half mile north of the intersection. Martin Marietta and Vulcan Materials have facilities east of the project corridor along Courtney-Huntsville Road. Business setbacks average from 25 to 50 feet from the road. UNIFI is planning a new manufacturing facility south of the project in Davie County.

d. Future Development

Yadkin County currently has an existing sewer line and a proposed water line extending south along US 601 (page 16, Section 7a). With the availability of public water and sewer and the improvement of US 601, the County Planning staff anticipates increased industrial and residential development in the area. Currently there are two large parcels (30 acres or more) along the corridor available for industrial development. Additionally, UNIFI Corporation is planning a major manufacturing facility within the project study area in Davie County, just south of the Yadkin County/Davie County line.

e. Zoning

The corridor is unzoned. Yadkin County has only one area that is zoned which is located northeast of the Impact Assessment Area. The draft Yadkin County Land Use Map recommends the Impact Assessment Area be zoned for industrial, residential and agricultural uses. There are two different types of zoning in the Impact Assessment Area located in Davie County. They are R-20 (residential) and R-A (residential-agricultural).

10. Local/Regional Land Use and/or Development Plans

The County Planning and Zoning Department is currently working on a County Land Use Plan; however, no land use plans are currently in effect. The future land use map defines the corridor as a transitional, ..'a transitional area or lands where local government plans to accommodate moderate to high-density development during the following twenty-year period and where necessary public services will be provided to accommodate that growth'.

The draft *Yadkin County Land Use Plan's* general goals for the Land Use Plan are to:

- *Provide public infrastructure in areas where there are strategic reason to invest public resources, such as to key industrial sites which exhibit potential for success*

- *Strengthen the existing traditional manufacturing industrial base of the County while pursuing opportunities for the expansion of the industrial base in new directions (high tech, distributions centers, tourism, retirement, etc.)*

- *Protect highway corridors from unwise development*
- *Preserve agriculture and family farms, as well as the agricultural heritage of the County*
- *Plan for the orderly conversion of agricultural lands to urban uses*
- *Preserve open space*
- *Maintain rural character*
- *Limit uncontrolled commercial expansion (strip development, etc.)*

11. Community/Neighborhood Description

Yadkin County, North Carolina has a population of over 36,000 people, and has seen continual growth over the last half century. As a result of this growth the qualities that make Yadkin County special in the eyes of its citizens are slowly eroding. The last fifty years have seen much of the country side turn into subdivisions, and a general decline in the County employment base. In addition, most of Yadkin County's workforce leaves the county every day to find jobs in neighboring communities (draft *Yadkin County Land Use Plan*).

The project corridor is primarily rural residential and characterized by low density residential development and minor industrial/manufacturing nodes. With the exception of the US 601/Brandon Road-Courtney-Huntsville Road intersection, the corridor traverses farmland occupied by scattered residential development consisting of single family homes in excess of 20 years old, mobile homes, and mobile home parks. The portion of the corridor surrounding and north of the US 601/Brandon Road-Courtney-Huntsville Road comprises the industrial/ manufacturing nodes.

US 601 is an important north-south connector for west central North Carolina and an important local connector to Interstate 40 to the south. The current traffic volume and safety issues negatively impact the quality of life of the residents who live along the corridor.

B. Project Impact Assessment

1. Consistency With Local/Regional Plans

The proposed widening and bridge construction is consistent with the proposed *Yadkin County Land Use Plan.* The corridor is identified as a transitional area or an area designated as lands where local government plans to accommodate moderate to high-density growth and necessary public services should be provided to accommodate that growth. Improving US 601 should accommodate future growth for this area. (Public facilities, such as water, are already planned for the area.) The project would also improve public infrastructure in a key development area, strengthen the existing traditional manufacturing industrial base, and increase opportunities for recruitment of new industry.

The US 601 improvement may conflict with the County's proposed goals of maintaining open space and rural character if future development is not controlled with progressive land use policies.

2. Economic Development Opportunities

The widening of US 601 and the bridge over South Deep Creek should be an asset to economic development along the corridor. There are many industrial and farming businesses along US 601 and the widening should allow safer travel and better access. The relocation of the UNIFI plant to northern Davie County may have a large economic impact on the US 601 corridor. Truckers and other business people will travel US 601 from US 421 to get to the new site.

Economic development around the US 421/US 601 interchange may increase due to the project. As the economic development spurs more business development there should be a greater need for commercial and retail uses to support the employee relocations that may result from these new businesses. These types of businesses would include dining establishments and retail shopping uses.

3. Transit Considerations

Currently there are no public transit facilities in Yadkin County. According to the County Planning staff, there also are no plans in the near future for transit service to the area.

4. Business, Institutional, and Residential Relocations And Impacts

Additional right of way will be needed to construct the project. A relocation report for the project was prepared (Appendix B). It is anticipated that one business and one residence will be relocated.

For all relocations, it is the policy of the NCDOT to ensure that comparable replacement housing will be available prior to construction of State and Federally assisted projects. Furthermore, the North Carolina Board of Transportation has the following three programs to minimize the inconvenience of relocation:

- Relocation Assistance
- Relocation Moving Payments
- Relocation replacement housing payments or rent

5. Community Stability and Neighborhood Cohesion

Because the residential areas that exist along the corridor are primarily scattered residences with adequate setback, isolation and segregation of communities should not be an issue. The project would provide much needed relief for residents and businesses along the corridor. Many neighborhoods or business districts want to be recognized for their unique character. Identification of the neighborhood approximately one-half mile north of the US 601/Lone Hickory Road-Stage Road intersection can enhance the walking environment and sense of community. This can be accomplished through gateways, traffic calming, welcome signs, flower planters, banners, decorative street lighting, unique street name signs, and other

details. Neighborhood identity treatments rarely provide any direct traffic improvements, but they help develop interest in enhancing the community.

6. Tax Base Changes and Changes In Employment

There is anticipated industrial and residential growth along the US 601 corridor all of which could increase the tax base along the corridor. This anticipated growth for industrial business could expand the employment base in the area.

7. Visual Impacts

The visual impact of this project should be minimal. Although there will be a change in grade at certain points along the corridor, primarily at the intersections and the road will be widened to accommodate a six foot shoulder, existing setbacks should preclude the loss of significant vegetation.

8. Farmland Impacts

There are no prime or unique farmlands located along the project corridor in Yadkin County. According to the Davie County Planner there are some Prime Farmlands located in Davie County in the Impact Assessment Area. The planner stated that the improvements to US 601 would not impact those farmlands.

9. Scenic Rivers and Water Supply Watersheds

No river, stream, or creek within the Impact Assessment Area has been designated as a Wild and Scenic River. A portion the US 601 Impact Assessment Area is within the watershed of South Deep Creek and the water supply reservoir for the Town of Yadkinville is located along the corridor at the South Deep Creek Bridge.

10. Title VI and Environmental Justice

Environmental Justice (EJ) embraces the precept that all people and communities are entitled to equal protection under our environmental, health, employment, housing, transportation and civil rights laws. The three basic principles of EJ are to: (1) Engage low-income and minority populations in the transportation decision-making process; (2) Identify and address "disproportionately high and adverse" impacts of transportation programs, policies, and activities on low income and minority populations; and (3) Evaluate the benefits and burdens upon low income and minority populations of transportation programs, policies and activities.

This assessment has not found evidence or indication of discrimination on the basis of race, color, national origin, age, sex, or disability.

11. Secondary/Cumulative Impacts

Many of the ultimate consequences of road improvement projects are dependent upon a variety of issues and decisions which are not part of the actual road construction process, but have much to do with decisions made by the local government(s) at a later point in time. Many of these issues and decisions relate to such items as local land development regulations, planning and zoning, development demand, local economic development efforts, as well as other factors which are part of a local economy.

The improvement of US 601 could spur economic development along the corridor. Yadkin County as described on page 16, Section 9, has designated the corridor as a transition area (an area of future growth where government services can provide public facilities to the area) and there is general acceptance and anticipation of the future development of the corridor. If left unchecked and uncontrolled, future development could be in conflict with some of the stated goals of the land use plan:

- Protect highway corridors from unwise development
- Preserve agriculture and family farms, as well as the agricultural heritage of the County
- Plan for the orderly conversion of agricultural lands to urban uses
- Preserve open space
- Maintain rural character
- Limit uncontrolled commercial expansion (strip development, etc.)

The county has a draft land use document which if adopted and enforced should serve to guide and direct development and further the aims of those goals. Yadkin County should strive to implement the stated goals of the plan to prevent urban sprawl along the corridor.

Additionally, the county should consider the cumulative effects of development on the South Deep Creek watershed and the water supply reservoir. The inevitable increase in impervious surface area which accompanies development serves to concentrate runoff of heavy metals and other pollutants during intense rain events. Increased development, more specifically the extension of the development south from the existing US 601/US 421 interchange and north of the US 601/Lone Hickory Road-Old Stage Road vicinity, may have a long term detrimental effect on the local water supply.

C. Historic and Cultural Resources

This project is subject to compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, implemented by the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106, codified at 36 CFR Part 800. Section 106 requires that for federally funded, licensed, or permitted projects having an effect on properties listed in or eligible for the National Register of Historic Places, the Advisory Council on Historic Preservation be given the opportunity to comment.

1. Historic Architecture

To comply with Section 106, the area of potential effect (APE) of the project was surveyed by NCDOT and reviewed by the State Historic Preservation Office (SHPO). The site was surveyed on March and April of 2000 by NCDOT staff architectural historians, and determined one property eligible for the National Register of Historic Places. The eligible property is the John H. Hauser Farmstead, located approximately one-quarter mile south of South Deep Creek. Its boundaries include 55.93 acres which the house, outbuildings, orchards, and fields currently occupy, as well as the Hauser family cemetery, located across US 601 from the house. The eligible property is identified in the Historic Property Map in Figure 7.

John H. Hauser Farmstead -

This property has been determined eligible for listing in the National Register of Historic Places. Additional right of way will be required on both sides of the road, with the majority being on the east side of the road. To accommodate for the proposed improvements, it is anticipated that on the east side, a 0.42 ha (1.04 ac) strip of right of way, which is 22 ft (6.7 m) wide and 2,044 ft (623.0 m) long, will be required from the John H. Hauser farmstead, and a 0.11 ha (0.28 ac) strip of right of way will be required on the west side, which is 22 ft (6.7 m) wide and 545 ft (166.1 m) long. The project will require a total of approximately 1.32 ac (0.53 ha) of the farmstead property. Impacts to this historic farmstead will be minimized, as described in Section H of this report. The State Historic Preservation Officer concurred with the determination of no effect in the concurrence form dated March 19, 2002, which is included on page A-9 of Appendix A.

2. Archaeology

The State Historic Preservation Officer (SHPO), in a memorandum dated November 27, 2001, concurred with the archaeological report recommendation that no additional archaeological investigations be undertaken in connection with the project. A copy of the SHPO memorandum is included on page A-9 in Appendix A.

D. Natural Systems

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 Yadkin County (Yadkinville, 1966), Geographical Information Systems (NC Center for Geographical Information & Analysis), U. S. Fish and Wildlife Service (FWS), Natural Resources Conservation Service (NRCS, 1962) soils information for Yadkin County, and NCDOT aerial photographs of the project area.

Water resource information was obtained from the Department of Environment and Natural Resources (DENR, 1998). Information concerning the occurrence of federal and state protected species in the study area was gathered from the FWS list of protected species and federal species of concern.

General field surveys were conducted along the proposed alignment by NCDOT biologists on 21 and 22 March 2001. 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 delineations 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 N.C. Division of Water Quality [(DWQ), formerly known as the Division of Environmental Management (DEM)], "Field Location of Streams, Ditches, and Ponding" (1999).

1. Physical Characteristics

Soil and availability of water directly influence composition and distribution of flora and fauna in any biotic community. Soil and water resources that occur in the study area are discussed below. Soils information was obtained from the NRCS for Yadkin County.

The project lies in the western piedmont physiographic province. Topography within the project region can be described as having broad, gently rolling plains that are dissected by many streams and smaller drainage ways. Elevations within the project area vary slightly ranging between 800-900 feet (243-274 m). The land in this area is largely forested or used for agriculture with only small residential communities.

a. Soils

Two soil associations occur within project boundaries: Cecil-Appling and Mayodan-Wadesboro which are both well-drained, medium textured soils with a fine sandy loam subsoil. The Cecil-Appling association is found throughout the northern half of the project area and the Mayodan-Wadesboro is located throughout the southern half, with a transitional area just south of SR 1002 (Lone Hickory Road).

Soil series to be impacted by the project include Cecil, Mayodan, Wilkes, Appling, Worsham, Congaree, Wadesboro, Louisburg, Mixed Alluvial, and Local Alluvial. These soil series consist of loamy to fine sandy loam surface layers. Of these, the Mixed Allvial Land series is identified as hydric and the Local Alluvial Land is identified as having inclusions of hyrdic soils (NRCS, 1991). These hydric soils are found along South Deep Creek and Harmon Creek as well as along tributaries of these creeks.

Mixed Alluvial Land is poorly drained and is mainly found along small streams that overflow frequently and deposit layers and pockets of soil material varying in texture. The material is black to gray and is 18 to 36 inches deep over gravel.

Local Alluvial Land consists of local alluvial material that has washed from sandy soils on the adjacent uplands. These soils are nearly level to gently sloping and occur in depressions, at the base of slopes and at the head of small streams. The soil material is moderately deep and ranges from 26 to 48 inches in depth. The surface layer is a thick,

gray to grayish-brown sandy loam. It has a weakly defined subsoil that ranges from strong brown to light yellow in color.

b. Water Resources

This section contains information concerning those water resources 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 those impacts.

1. Characteristics of Water Resources

Waters in the project vicinity are part of the Yadkin-Pee Dee River Basin, Hydrologic Unit # 03040101. The Yadkin-Pee Dee River Basin contains 17 sub-basins. Waters within the project area are located in sub-basin 03-07-02. Project area waters drain to the east and eventually empty into the Yadkin River.

Dry Branch, Harmon Creek, and South Deep Creek and tributaries of these surface waters will be directly impacted by the proposed project. Eleven jurisdictional stream crossings (S1-S11) occur along the project length. A description of each stream and its location is provided below.

(S1) - Dry Branch [DWQ Index # (12-102-4)] is a perennial stream. This stream channel is approximately 3 feet (0.9 m) wide and 24 inches (61 cm) deep. During the field investigation, flow was present with a depth of approximately 2-3 inches (5-8 cm). Riffles and pools sequences were present. Algae were observed occurring in pooling areas. The substrate is primarily sand, silt, and cobble. Caddis fly and crane fly larvae were also observed. US 601 crosses this stream approximately 300 feet north of the Davie/Yadkin County Line (Figure 2, Sheet 4).

(S2) - UT 1 to Dry Branch is a perennial stream. This stream channel is approximately 3-6 feet (0.9-1.8 m) wide and 3 feet (0.9 m) deep. During the field investigation, flow was present with a depth of approximately 3-7 inches (8-18 cm). Riffles and pools sequences were present. The substrate is primarily bedrock, sand, silt, and gravel. Midge larvae and waters striders were observed. US 601 crosses this stream approximately 1,200 feet north of the Davie/Yadkin County Line and 400 feet south of Peachtree Lane (Figure 2, Sheet 5).

(S3) - UT 2 to Dry Branch is a perennial stream. This stream channel is approximately 3 feet (0.9 m) wide and 3 feet (0.9 m) deep. During the field investigation, flow was present with a depth of approximately 4 inches (10 cm). Riffles and pools sequences were present. The substrate is primarily sand and silt. Midge larvae and waters striders were observed. US 601 crosses this stream approximately 100 feet north of Beach Lane (Figure 2, Sheet 7).

(S4) - UT 3 to Dry Branch is a perennial stream. This stream channel is approximately 6 feet (1.8 m) wide and 4.5 feet (1.4 m) deep. During the field investigation, flow was present with a depth of approximately 4 inches (10 cm). Riffles and pools sequences were present. The substrate is primarily cobble, sand, silt, and gravel. Freshwater snails, caddis fly larvae, and dragon fly larvae were observed. US 601 crosses this stream approximately 450 feet north of S3 (Figure 2, Sheet 7).

(S5) - UT 4 to Dry Branch is a perennial stream. This stream channel is approximately 3 feet (0.9 m) wide and 2 ft (0.6 m) deep. During the field investigation, flow was present with a depth of approximately 2-4 inches (5-10 cm). Riffles and pools sequences were present. The substrate is primarily gravel, sand, silt, and bed rock. The stream channel contained heavy moss carpeting. Caddis fly larvae, midge larvae, and freshwater snails were observed. US 601 crosses this stream approximately 1,650 feet south of SR 1165 (Intersection of Fish Brandon Road) (Figure 2, Sheet 8).

(S6) - UT 1 to Harmon Creek is a perennial stream. This stream channel is approximately 5 feet (1.5 m) wide and 4.5 ft (1.4 m) deep. During the field investigation, flow was present with a depth of approximately 3 inches (8 cm). Riffles and pools sequences were present. The substrate is primarily sand and silt. Freshwater snails were observed. US 601 crosses this stream approximately 2,300 feet north of SR 1165 (Intersection of Fish Brandon Road) (Figure 2, Sheet 11).

(S7) - UT 2 to Harmon Creek is a perennial stream. This stream channel is approximately 3 feet (0.9 m) wide and 3 feet (0.9 m) deep. During the field investigation, flow was present with a depth of approximately 5 inches (13 cm). Riffles and pools sequences were present. The substrate is primarily cobble, gravel, sand, and silt. Midge larvae and caddis fly larvae were observed. This stream is piped diagonally under the highway for nearly 300 feet. US 601 crosses this stream approximately 1,300 feet north of S6 (Figure 2, Sheet 12).

(S8) - UT 3 to Harmon Creek is a perennial stream. This stream channel is approximately 4.5 feet (1.4 m) wide and 4.5 feet (1.4 m) deep with signs of incision. During the field investigation, flow was present with a depth of 2-5 inches (5-13 cm). Riffles and pools sequences were present. The substrate is primarily gravel, sand, and silt. Black fly larvae, algae, iron bateria, and a heavy leaf litter were all observed occurring in the stream. US 601 crosses this stream approximately 1,900 feet north of S7 and 1,400 feet south of Peanut Lane (Figure 2, Sheet 13).

(S9) - Harmon Creek [DWQ Index # (12-84-2-6)] is a perennial stream. This stream channel is approximately 3-6 feet (0.9-1.8 m) wide and 4 feet (1.2 m) deep. The channel banks are highly eroded to the east of US 601 but are more stable within the wooded area to the west of US 601. During the field investigation, flow was present with a depth of approximately 6 inches (15 cm). Riffles and pools sequences were present. The substrate is primarily cobble, gravel, sand, and silt. Freshwater snails,

crayfish, and caddis fly larvae were observed. US 601 crosses this stream approximately 300 feet south of Peanut Lane and 2,100 feet south of Lone Hickory Road (Figure 2, Sheet 14).

(S10) - South Deep Creek [DWQ Index # (12-84-2-(4.5))] is a perennial stream. This stream channel is approximately 15-20 feet (4.6-6.1 m) wide and 5 - 10 feet (1.5-3.0 m) deep. During the field investigation, there was moderate flow present with a depth of approximately 3 feet (0.9 m). The substrate is primarily sand and silt. No fish speciemens were observed during the site visit. US 601 crosses this stream by Bridge No. 30, approximately 700 feet south of Hoots Road (Figure 2, Sheet 20).

(S11) - UT to South Deep Creek is a perennial stream. This stream channel is approximately 15 feet (4.6 m) wide and 3 feet (0.9 m) deep with signs of eroding banks, which is exacerbated by a livestock crossing within the pasture to the east of US 601. During the field investigation, flow was present with a depth of 1 foot (0.3 m). Riffles and pools sequences were present. The substrate is primarily rocky (rip rap) and silt. Freshwater snails, crayfish, and caddis fly larvae were observed. US 601 crosses this stream approximately 700 feet north of Hoots Road and 1,550 feet south of Walnut Avenue (Figure 2, Sheet 21).

2. Best Usage Classification

Table 9. Division of Water Quality Best Usage Classification

Stream	DWQ Index No.	DWQ Classification
Dry Branch	12-102-4	C
Harmon Creek	12-84-2-6	WS-IV
South Deep Creek	12-84-2-(4.5)	WS-III CA

- unnamed tributaries receive the same classifications as the streams they feed

The **"C"** classification denotes waters suitable for aquatic life propagation and survival, fishing, wildlife, secondary recreation, and agriculture.

The **"WS-IV"** classification denotes waters used as sources of water supply for drinking, culinary, or food processing purposes for those users where a WS-I, II, or III classification is not feasible. WS-IV waters are generally in moderately to highly developed watersheds or Protected Areas.

The **"WS-III"** classification denotes waters used as sources of water supply for drinking, culinary, or food processing purposes for those users where a more protective WS-I or II classification is not feasible. WS-III waters are generally in low to moderately developed watersheds.

The **"CA"** subclassification denotes the land adjacent to a water supply intake where risk associated with pollution is greater than from remaining portions of the watershed. Critical area is defined as land within one-half mile upstream and

draining to a river intake or within one-half mile and draining to the normal pool elevation of water supply reservoirs.

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. One fourth of this project is located within a protected area. A protected area is defined as land within five miles and draining to the normal pool elevation of water supplies, or within ten miles upstream and draining to a river intake. The northeastern most portion of this protected area contains a watershed designated as a critical water supply watershed. This critical area extends upstream, in a wedge shape, approximately one half mile to the west and to the south of the Yadkinville Waste Water Treatment Plant on South Deep Creek.

3. Water Quality

The DWQ has initiated a whole basin approach to water quality management for the 17 river basins within the state. To accomplish this goal the DWQ collects biological, chemical, and physical data that can be used in basinwide assessment and planning. All basins are reassessed every five years. Prior to the implementation of the basinwide approach to water quality management, the Benthic Macroinvertebrate Ambient Network (BMAN, managed by the DWQ) assessed water quality by sampling for benthic macroinvertebrate organisms at fixed monitoring sites throughout the state. Biological monitoring is now performed as part of the basinwide assessment program.

Many benthic macroinvertebrates have stages in their life cycle that can last from six months to a year; therefore, the adverse effects of a toxic spill will not be overcome until the next generation. Different taxa of macroinvertebrates have different tolerances to pollution; therefore, long term changes in water quality conditions can be identified by population shifts from pollution sensitive to pollution tolerant organisms (and vice versa). Overall, the species present, the population diversity and the biomass are reflections of long term water quality conditions.

The Ambient Monitoring System (AMS) is a network of stream, lake, and estuarine water quality monitoring stations strategically located for the collection of physical and chemical water quality data. The type of water quality data or parameters that are collected are determined by the water body's freshwater or saltwater classification and corresponding water quality standards.

There are no BMAN stations within the project vicinity. However, there is an AMS station (Site B48), on South Deep Creek, approximately one mile down stream of the project area at (SR 1710). Benthic macronvertebrates sampling occurs at this station and contributes to the water quality rating. In 1996, at South Deep Creek received a rating of Good.

The National Pollutant Discharge Elimination System (NPDES) is the federally established program for controlling point-source discharges of pollution. The NPDES Unit of North Carolina's Division of Water Quality is responsible for administering the program for the state. Point source dischargers located throughout North Carolina are permitted through the NPDES Program. Any discharger is required to register for a permit. The only permitted discharger within 1 mile (1.6 km) of the project is the Yadkinville Waste Water Treatment Plant (WWTP-NC0079260) which is located on South Deep Creek at US 601.

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 disturbs 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 potentially elevate concentrations of toxic compounds and nutrients. Animal wastes can also be a source of bacterial contamination and elevate biochemical oxygen demand (BOD). The rate and volume of runoff from urbanized areas is greater than agricultural runoff due to the high concentration of impervious surface areas. Urban pollutants include lawn care products, automobile-related pollutants, household wastes, and fecal coliform bacteria. Drainage ditches on poorly drained soils enhances the transportation of stormwater into surface waters (DWQ, 1998).

4. Summary of Anticipated Impacts to Water Resources

Project impacts on topography and soils are expected to be restricted to localized changes in relief. There is only minor potential for changes such as mass soil movements as a result of road widening.

The 11 streams that are crossed by US 601 will be temporarily and locally impacted by this widening project. Construction will impact water resources via culvert and pipe extensions. Construction activities are likely to alter and/or interrupt stream flows and water levels at each of the eleven aquatic sites. Temporary diversions of water flow may raise the water level upstream from the project and lower the water level downstream of the project. Anticipated impacts to project area surface water resources are presented in Table 12.

Surface water impacts were derived using the entire ROW width of 80.0 ft (24.4 m). Project construction may not require the entire ROW; therefore, actual impacts may be somewhat less.

Project construction may result in the following impacts to surface waters:

1. Increased sedimentation and siltation from construction and/or erosion.

2. Changes in light incidence and water clarity due to increased sedimentation and vegetation removal.

3. Alteration of water levels and flows due to interruptions and/or additions to surface and ground water flow from construction.

4. Changes in water temperature due to removal of streamside vegetation.

5. Increased nutrient loading during construction via runoff from exposed areas.

6. Increased concentration of toxic compounds from highway runoff, construction, toxic spills, and increased vehicular use.

The proposed project may increase concentrations of toxic compounds (oil, gas, etc.) from machinery during the construction phase and from increased post-construction traffic volumes. Post construction water quality impacts are generally associated with flushing the roadway surface during storm events, where stormwater runoff eventually reaches surface waters. Compounds normally associated with roadway runoff include: oil and grease, total suspended solids, and heavy metals (Barrett, et. al., 1996). Increased amounts of these compounds can adversely alter the water quality of the water resources.

Because the removal of Bridge No. 30 over South Deep Creek will raise sediment concerns, a turbidity curtain is recommended. The superstructure is composed of reinforced concrete spill thru end bents, and reinforced concrete post and web interior bents. The concrete from the deck girders could contribute to the temporary fill resulting from bridge demolition debris. The resulting temporary fill could potentially be approximately 305 cubic yards (233 cubic inches). The dropping of parts or components of structures into any body of water will not be permitted unless there is no other practical method of removal. NCDOT will implement the Best Management Practices for Bridge Demolition and Removal.

Precautions must be taken to minimize impacts to water resources in the study area. NCDOT's Best Management Practices for the Protection of Surface Waters must be strictly enforced during the construction stage of the project. Guidelines for these BMPs include, but are not limited to: minimizing built upon area and diversion of stormwater away from surface water supply waters as much as possible. Provisions to preclude contamination by toxic substances during the construction interval must also be strictly enforced.

2. Biotic Resources

Biotic resources include aquatic and terrestrial communities. This section describes those communities encountered in the study area as well as the relationships between fauna and flora within these communities. Composition and distribution of biotic communities throughout the project area reflect 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 (*). Spoor evidence equates to observation of the species. Published range distributions and habitat analysis are used in estimating fauna expected to be present within the project area.

a. Terrestrial Plant Communities

Six distinct terrestrial communities are present in the project study area: maintained/disturbed, irregularly maintained, basic mesic forest (piedmont subtype), piedmont/low mountain alluvial forest, agricultural land, and pasture land. Community boundaries within the study area are generally well defined without a significant transition zone between them. Most of the project study area consists of maintained/disturbed community. Many faunal species likely to occur within the study area may exploit all communities for shelter and foraging opportunities.

1. Maintained / Disturbed Community

The maintained/disturbed community includes maintained road shoulders that are present along the entire length of the project. This community exists through landscaped areas surrounding residents and businesses. Residential areas primarily consist of maintained lawns of fescue grass (*Festuca* sp.) and crabgrass (*Digitaria* sp.) with a mixture of scattered horticultural shrubs. Road shoulders are maintained less frequently, receiving only periodic mowing and herbicide applications. Vegetation occurring within highly maintained portions of the road shoulder include low growing species such as fescue, english plantain (*Plantago lanceolata*), henbit (*Lamium amplexicaule*), geranium (*Geranium* sp.), foxtail grass (*Setaria* sp.), wild strawberry (*Fragaria* sp.), evening primrose (*Circaea* sp.), multiflora rose (*Rosa multiflora*), blackberry (*Rubus* sp.), thistle (*Carduus* sp.), clover (*Trifolium* sp.), dandelion (*Taraxacum officinale*), horticultural shrubs (including forsythia, rotadendron, eastern hemlock, azela, and crape mrytle), broom sedge (*Andropogon virginicus*), white pine (*Pinus strobus*), Bradford pear (*Pyrus calleryana*), trumpet vine (*Campsis radicans*), poison ivy (*Toxicodendron radicans*), and kudzu (*Pueraria lobata*).

2. Irregularly Maintained

The irregularly maintained community is found primarily along transitional areas between the maintained disturbed community and the wooded mesic forest areas. Vegetation occurring within this community type includes tulip poplar (*Liriodendron*

tulipifera), oaks (*Quercus* sp.), Virginina pine (*Pinus virginina*), blackgum (*Nyssa sylvatica*), black cherry (*Prunus serotina*), eastern red cedar (*Juniperus virginiana*), princess tree (*Paulownia tomentosa*), Japanese honeysuckle (*Lonicera japonica*), multiflora rose, Muscadine grape (*Vitis rotundifolia*), broom sedge, Queen Anne's lace (*Daucus carota*), kudzu, smooth sumac (*Rhus glabra*), and wild onion (*Allium* sp.).

3. Basic Mesic Forest- Piedmont Subtype

The mesic forest community is found primarily between areas of agricultural land and maintained disturbed areas. Vegetation occurring within this community type includes Virginia pine, American beech (*Fagus grandifolia*), white oak (*Quercus alba*), tulip poplar, hickories (*Carya* sp.), northern red oak (*Quercus rubra*), post oak (*Quercus stellata*), shortleaf pine (*Pinus echinata*), red maple (*Acer rubrum*), dogwood (*Cornus florida*), black cherry, Japanese honeysuckle, strawberry bush (*Euonymus americanus*), crane fly orchid (*Tipularia discolor*), Christmas fern (*Polystichum acrostichoides*), greenbrier (*Smilax* sp.), blackberry, and wild onion.

4. Piedmont / Low Mountain Alluvial Forest

The alluvial forest community type within this project area is found exclusively along the floodplain of South Deep Creek. Vegetation occurring within this community type includes black willow (*Salix nigra*), pussy willow (*Salix discolor*), green ash (*Fraxinus pennsylvanica*), Japanese honeysuckle, river birch (*Betula nigra*), tulip poplar, sycamore (Platanus occidentalis), sweetgum (*Liquidambar styracifua*), and box elder (*Acer negundo*).

5. Agricultural Land

Agricultural fields occur periodically along the length of the project. The primary use of these fields is for either growing corn, soybeans, or hay. Evidence of old furrows was observed during the field investigation, supporting the conclusion that several agricultural areas that used to occur along the project have now been abandoned and are developing into early successional forests.

6. Pasture Land

Areas of pasture land are located within the project limits. At least 5 separate pasture areas, used for grazing livestock such as horses and cattle, will be affected by this project. Vegetation occurring within these areas include bermuda grass (*Cynodon dactylon*), fescue, beard grass (*Erianthus* sp.), goldenrod (*Solidago* sp.), broom sedge, dog fennel (*Eupatorium capillifolium*), asters (*Aster* sp.), blackberry, poke weed (*Phytolacca americana*), and eastern red cedar.

b. Summary of Anticipated Impacts to Terrestrial Plant Communities

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.

Calculated impacts to biotic resources reflects the relative abundance of each community present within the study area. Project construction will result in clearing and degradation of portions of these communities. Table 10 summarizes potential quantitative losses to these biotic communities resulting from project construction. Estimated impacts are derived using the entire proposed ROW of 80.0 ft (24.4 m). Usually, project construction does not require the use of the entire ROW or study area width, therefore, actual impacts may be considerably less.

Table 10. Anticipated Impacts to Terrestrial Plant Communities

Community	Acres (Hectares)
Maintained/ Disturbed Roadside	30.0 (12.1)
Irregularly Maintained Land	1.5 (0.6)
Basic Mesic Forest – Piedmont Subtype	3.3 (1.3)
Piedmont/Low Mountain Alluvial Forest	0.2 (0.1)
Agricultural Land	3.2 (1.3)
Pasture Land	1.2 (0.5)
Totals	**39.4 (15.9)**

c. Wildlife

1. Terrestrial

Many faunal species are highly adaptive and may populate or exploit the entire range of plant communities discussed. Forested tracts and drainageways provide habitat for species requiring a forest community, and also provide shelter and movement corridors for other species of wildlife within the project vicinity.

Wildlife found in these communities is limited and consists primarily of wide-ranging, adaptable species that are well suited to coexistence with human development. Mammals common to disturbed edge areas include eastern cottontail rabbit* (*Sylvilagus floridanus*), raccoon* (*Procyon lotor*), white-tailed deer* (*Odocoileus virginianus*), Virginia oppossum* (*Didelphis virginiana*), mink* (*Mustela vison*), eastern mole* (*Scalopus aquaticus*), beaver* (*Castor canadensis*), and gray squirrel* (*Sciurus carolinensis*). Signs of each of these species were observed during the field investigation.

Avian species observed during the field investigation includes common crow* (*Corvus brachyrhynchos*), northern cardinal* (*Cardinalis cardinalis*), mourning dove* (*Zenaida macroura*), great blue heron* (*Ardea herodias*), turkey vulture*

(*Cathartes aura*), Carolina chickadee* (*Parus carolinensus*), tufted titmouse* (*Parus bicolor*), eastern meadowlark* (*Sturnella magna*), downy woodpecker* (*Picoides pubescens*), eastern bluebird* (*Sialia sialis*), rufous-sided towhee* (*Pipilo erythrophthalmus*), common grackle* (*Quiscalus quisculs*), Carolina wren* (*Thryothorus ludoviciansus*), American robin* (*Turdus migratorius*), ducks* (*Anas* sp.), bluejay* (*Cyanocitta cristata*), Canada goose* (*Branta canadensis*), northern mockingbird* (*Mimus polyglottos*), and redbellied woodpecker* (*Melanerpes carolinus*).

Reptiles that can be expected to utilize the terrestrial communities within the project area include: eastern box turtle (*Terrapene carolina*), black racer (*Coluber constrictor*), eastern garter snake (*Thamnophis sirtalis*), five-lined skink (*Eumeces fasciatus),* and eastern fence lizard (*Sceloporus undulatus*).

The forest communities near surface water provide excellent habitat for amphibians such as Fowler's toad (*Bufo woodhousei*), spring peeper* (*Hyla crucifer*), American toad (*Bufo americanus*), slimy salamander (*Plethodon glutinosus*), leopard frog (*Rana utricularia*), and pickerel frog (*Rana palustris).*

2. Aquatic

Eleven aquatic communities surrounding S1-S11 will be impacted by the proposed project. Due to various sizes of these stream systems, the habitat types and fauna will vary slightly in diversity but would be similar in the general composition of species.

Fauna within the project area depend upon physical characteristics of the water body and overall condition of the water resource. Terrestrial communities adjacent to a water resource also greatly influence aquatic communities. Fauna associated with the aquatic communities include various invertebrate and vertebrate species.

Fish species likely to occur in these sandy-bottomed streams may include redbreast sunfish, green sunfish, bluegill, bluehead chub, redlip shiner, and brown bullhead. Invertebrates likely to be present include: crayfish* (Cambaridae), dragonflies* and damselflies* (Odonata), nymphal and larval stages of caddisflies* (Trichoptera) and stoneflies* (Plecoptera), whirligig beetles* (Gyrinidae), water striders* (*Aquarius* sp.), and various mussels (*Elliptio* spp.).

d. Anticipated Impacts to Wildlife

Plant communities found along the proposed project area serve as nesting and sheltering habitat for various wildlife. Widening US 601 will reduce habitat for faunal species, thereby diminishing faunal numbers. Habitat reduction concentrates wildlife into smaller areas of refuge, thus causing some species to become more susceptible to disease, predation, and starvation. Widening the road will accommodate more traffic, which may have the secondary impacts of more traffic noise, more disturbance to wildlife, and may hinder the movement of wildlife from one side of the road to the other.

Areas modified by construction (but not paved) will become road shoulders and early successional habitat. Animals temporarily displaced by construction activities will repopulate areas suitable for the species, if sufficient habitat is available. This temporary displacement of animals may result in an increase of competition for the remaining resources.

Aquatic communities are sensitive to small changes in their environment. Stream channelization, scouring, siltation, sedimentation, and erosion from construction-related work would effect water quality and biological constituents. Although direct impacts may be temporary, environmental impacts from construction may result in long term or irreversible effects.

In-stream construction alters the stream substrate and will remove streamside vegetation at the site. Disturbances to the substrate will destroy aquatic vegetation and produce siltation, which clogs the gills and/or feeding mechanisms of benthic organisms (sessile filter-feeders and deposit-feeders), fish, and amphibian species. Benthic organisms can also be covered by excessive amounts of sediment. These organisms are slow to recover or repopulate a stream. Turbidity reduces light penetration thus decreasing the growth of aquatic vegetation; it also hinders the ability of sight-feeding organisms to obtain food.

The removal of streamside vegetation and placement of fill material at the construction site alters the terrain. Alterations of the streambank increase the likelihood of erosion and sedimentation. Revegetation stabilizes and holds the soil thus mitigating these processes. Erosion and sedimentation carry soils, toxic compounds and other materials into aquatic communities at the construction site. These processes magnify turbidity and can cause the formation of sandbars at the site and downstream, thereby altering water flow and the growth of vegetation. Streamside alterations also lead to more direct sunlight penetration and to elevations of water temperatures, which may impact many species.

3. 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.

a. Waters of the United States

The U.S. Army Corps of Engineers (USACE) promulgated the definition of "Waters of the United States" under 33 CFR §328.3(a). Waters of the United States include most interstate and intrastate surface waters, tributaries, and wetlands. Areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions are considered "wetlands" under 33 CFR §328.3(b). Wetlands generally include swamps, marshes, bogs, and similar areas. Any action that proposes to place dredged or fill materials into Waters of the United

States falls under the jurisdiction of the USACE, and must follow the statutory provisions under Section 404 of the Clean Water Act (CWA) (33 U.S.C. 1344).

1. Characteristics of Wetlands

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. Eight wetlands are present within the project area.

Wetland 1 (W1) is associated with a perennial stream (S5) an unnamed tributary to Dry Branch. This wetland is located approximately 1,650 feet south of the Fish Brandon Road intersection (Figure 2, Sheet 8), within the ditchline and powerline right-of-way to the east of Hwy 601. W1 borders a slender woods line adjacent to an agricultural field. This wetland was mapped in the National Wetland Inventory as palustrine, unconsolidated bottom, permanently flooded. Although mapped as permanently flooded, this wetland seemed to only be temporally flooded by heavy rain events and/or storm surges running through the ditches. Soils within this wetland have a sandy clay loam texture and soil matrix Munsell color notation of 7.5 YR 4/3, with mottles common. The hydrological indicators for W1 were saturation within the upper 12 inches, inundation, and the FAC-neutral test. This wetland area is irregularly maintained as part of the power line ROW; vegetation includes *Smilax* sp., *Rubus* sp., *Eupatorium* sp., *Ludwigia alternifolia*, *Juncus effusus*, and species of *Cyperus*.

Wetland 2 (W2)is associated with a perennial stream (S6) an unnamed tributary to Harmon Creek. This wetland is located within an irregularly maintained area associated with the lift station on the northern bank of S6 (Figure 2, Sheet 11), east of Hwy 601. This wetland was mapped in the National Wetland Inventory as palustrine, unconsolidated bottom, permanently flooded. Although mapped as permanently flooded, this wetland seemed to only be temporally flooded by occasional over-bank flooding by S6 and by water that pools in this area after heavy rain events. Soils within this wetland have a sandy clay loam texture and soil matrix color notation of 10 YR 5/2, with mottles common. The hydrological indicators for W2 were saturation within upper 12 inches and the FAC-neutral test. Vegetation in this wetland area includes *Salix* sp., *Rubus* sp., *Solidago* sp., *Juncus* sp., and *Microstegium vimineum*.

Wetland 3 (W3) is associated with a perennial stream (S7) which is an unnamed tributary to Harmon Creek. This wetland is located within a depressional area within a portion of Mesic Forest Woods to the west of US 601 and is dissected by S7 (Figure 2, Sheet 12). This wetland was mapped in the National Wetland Inventory as palustrine, unconsolidated bottom, permanently flooded. Although mapped as permanently flooded, this wetland seemed to only be temporally flooded by occasional over bank flooding by S7 and by water that pools in this area after heavy

rain events. Soils within this wetland have a sandy clay loam texture and soil matrix color notation of 10 YR 5/2, with mottles common. The hydrological indicators for W3 were saturation within upper 12 inches, water stained leaves, and the FAC-neutral test. Vegetation in this wetland area includes *Alnus serrulata*, *Salix nigra*, *Acer rubrum*, *Fraxinus pennsylvancia*, *Plantanus occidentalis*, *Lonicera japonica*, and species of *Smilax*.

Wetland 4 (W4) is not associated with a perennial stream. However, this wetland is located within a wet depressional area to the west of US 601, approximately 2,400 ft south of Peanut Lane (Figure 2, Sheet 12). W4 is situated in an area that was once wooded and has been harvested within the last few years. The wetland was mapped in the National Wetland Inventory as palustrine, unconsolidated bottom, permanently flooded. Although mapped as permanently flooded, this wetland seemed to only be temporally flooded by heavy rain events which cause water to pool in this area. Soils within this wetland have a sandy clay loam texture and soil matrix color notation of 10 YR 5/1, with few mottles. The hydrological indicators for W4 were saturation within upper 12 inches and oxidized root channels. Young hardwood saplings and root sprouts, approximately 5 years old, dominate this cutover area. Vegetation in this wetland area includes *Liriodendron tulipifera*, *Liquidambar styraciflua*, *Acer rubrum*, *Smilax* sp., *Rubus* sp., and species of *Carex*.

Wetland 5 (W5) is associated with South Deep Creek (S10) and is located to the west of US 601/Bridge No. 30 on the southern bank of (S10) (Figure 2, Sheet 20). This wetland is situated in a drainage ditch at the base of the fill slope of the existing road shoulder, beneath the bridge. This wetland was not mapped in the National Wetland Inventory. Temporary standing water in this wetland is a contribution of drainage and over-bank flooding of South Deep Creek. Soils within this wetland have a sandy loam texture and soil matrix color notation of 7.5 YR 4/2, with few mottles. The hydrological indicators for W5 were saturation within upper 12 inches, inundation, and the FAC-neutral test. W5 lies within a transitional area between maintained disturbed roadside shoulder and the Alluvial Forest Type found along the banks of South Deep Creek. Vegetation in this wetland area includes *Betula nigra*, *Liquidambar styracifua*, *Sambucus canadensis*, *Lonicera japonica*, *Carex* sp., *Boehmeria cylindrica*, and species of *Impatiens*.

Wetland 6 (W6) is associated with South Deep Creek (S10) and is located to the east of US 601/Bridge No. 30 on floodplain of the northern bank of S10 (Figure 2, Sheet 20). This wetland is situated in a depressional area within the maintained lawn of the WWTP and surrounds a large pile of rip rap and fill dirt. The wetland was not mapped in the National Wetland Inventory. This wetland seemed to only be temporally flooded by heavy rain events which causes water to pool in this area. Soils within this wetland have a sandy loam texture and soil matrix color notation of 10 YR 4/1, with mottles common. The hydrological indicators for W6 were saturation within upper 12 inches, inundation, and the FAC-neutral test. Vegetation in this wetland area includes *Juncus* sp., *Carex* sp., *Polygonum* sp., and *Plantago lanceolata*.

Wetland 7 (W7) is associated with a perennial stream S11, an unnamed tributary to South Deep Creek, and is located within the ditchline to the west of Hwy 601 (Figure 2, Sheet 21). This wetland was not mapped in the National Wetland Inventory. Temporary flooding in W7 is a contribution of drainage and over bank flooding of S11. Soils within this wetland have a sandy loam texture and soil matrix color notation of 10 YR 4/4, with mottles common. The hydrological indicators for W7 were inundation, saturation within upper 12 inches, water stained leaves, and the FAC-neutral test. This wetland is situated in an abandoned field area were early successional plants are dominant. Vegetation in this wetland area includes *Alnus serrulata*, *Salix discolor*, and *Salix nigra* saplings as well as herbeous vegetation including *Lonicera japonica*, *Carex* sp., and species of *Juncus*.

Wetland 8 (W8) is associated with a perennial stream S11, an unnamed tributary to South Deep Creek, and is located within the cow pasture to the east of Hwy 601 (Figure 2, Sheet 21). The wetland was not mapped in the National Wetland Inventory. This wetland seemed to only be temporally flooded by heavy rain events which causes water to pool in this area. Soils within this wetland have a sandy loam texture and soil matrix color notation of 10 YR 4/2, with mottles common/indistinct. The hydrological indicators for W8 were inundation, saturation within upper 12 inches, oxidized root channels, and the FAC-neutral test. Vegetation in this wetland area includes *Carex* sp., *Salix nigra*, *Juncus* sp., *Ludwigia* sp., and species of *Polygonum*.

2. Summary of Anticipated Wetlands and Surface Water Impacts

Estimated linear impacts to wetlands and surface water were derived from a Microstation CADD file of the existing roadway. This file was combined with the Gobial Positioning System (GPS) files containing the wetland boundaries and surface water locations. This CADD file does not include the proposed ROW, therefore an approximate ROW line of 80.0 ft (24.4 m) was drawn in to facilitate calculations. Combining GPS data with the final project design will yield more precise calculations of project impacts. Usually, project construction does not require the entire ROW; therefore, actual impacts may be less than indicated. Tables 11 and 12 summarize estimated wetland and surface water impacts.

Table 11. Estimated Impacts to Wetlands

Wetland	Acres (hectares)
W1	0.002 (0.001)
W2	0.003 (0.001)
W3	<0.001 (<0.001)
W4	0.005 (0.002)
W5	0.009 (0.004)
W6	0.001 (<0.001)
W7	0.050 (0.020)
W8	<0.001 (<0.001)
Totals	**0.072 (0.031)**

Table 12. Estimated Impacts to Surface Waters

Stream	Linear Feet (lm)
S1	18 (6)
S2	20 (6)
S3	20 (6)
S4	22 (7)
S5	20 (6)
S6	40 (12)
S7	113 (34)
S8	<10 (<3)
S9	80 (24)
S10	330 (100)
S11	23 (7)
Totals	**693 (211)**

3. Permits

Impacts to jurisdictional wetlands and surface waters are anticipated. In accordance with provisions of section 404 of the Clean Water Act (33 U.S.C. 1344), a permit will be required from the COE for the discharge of dredged or fill material into "Waters of the United States." Factors that determine applicability of Section 404 Nationwide Permits (NWPs) include: hydrology; juxtaposition with a major resource; and whether the impacts occur as part of the widening of an existing facility or as the result of new location construction. Since all aspects of this project are being processed by the Federal Highway Administration as a programmatic "Categorical Exclusion" in accordance with 23 CFR § 771.115(b), NCDOT shall request that these activities be authorized by a Nationwide Permit 23 (65 FR 12817, 12899; March 9, 2000). A North Carolina Division of Water Quality (DWQ) Section 401 Water

Quality General Certification is required prior to the issuance of the Section 404 permit.

4. Avoidance, Minimization, Mitigation

The USACE 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.

a. 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 USACE, 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.

Impacts to waters have been avoided to the extent possible by use of a restricted cross section and by using all existing pavement for the proposed improvements. However, avoidance of all waters is not possible due to the close proximity of waters to the existing roadbed.

b. 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.

The following measures to minimize impacts to wetlands have been incorporated:

(a) 2:1 sideslopes, the maximum sideslope steepness for roadway facilities, will be used along US 601. Using the maximum sideslope will minimize the amount of right of way required for the project.

(b) The roadway is being widened to 12-foot lanes and 2-ft paved shoulders, which is the minimum standard lane and shoulder width for a 2-lane facility.

(c) Symmetrical widening is being utilized in order to maximize the use of the existing right of way.

c. 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.

b. Protected and Rare 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 U.S. Fish and Wildlife (FWS). Other species may receive additional protection under separate state laws.

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 7 March 2002, the FWS lists no federally-protected species for Yadkin County.

2. Federal Species of Concern and State Listed Species

Federal Species of Concern (FSC) are those plant and animal species which may or may not be listed in the future. There is one FSC listed for Yadkin County as of 7 March 2002. FSC are not afforded federal protection under the Endangered Species Act and are not subject to any of its provisions, including Section 7, until they are formally proposed or listed as Threatened or Endangered. Organisms which are listed

as Endangered, Threatened or Special Concern by the NHP list of Rare Plant and Animal Species 1993 are afforded state protection or are monitored under the State Endangered Species Act and the NC Plant Protection and Conservation Act of 1979. However, the level of protection given to the state listed species does not apply to NCDOT activities. Table 13 provides the FSC listed in Yadkin County and indicates the species state status, and whether or not there is adequate habitat for that species in the project area.

Table 13. Federal Candidate/NC Protected Species in Yadkin County.

Scientific Name	Common Name	State Status[1]	Habitat
Alasmidonta varicosa	Brook Floater	FSC (PE)	Yes

[1]**Proposed Threatened/Endangered (PT/PE)** species are a taxon which has been formally proposed for listing as Threatened/Endangered, but has not yet completed the legally mandated listing process.

A review of the NHP database of Rare Species and Unique Habitats on 29 May 2002 revealed no findings of the Brook Floater (*alasmidonta varicosa)*, in the project area. Surveys for these species and the FSC were not conducted during the site visit, nor were the species observed during the site visit.

E. Geology and Hazardous Materials Evaluation

A field reconnaissance survey was conducted in the vicinity of the project to determine the potential for underground storage tank (UST) and hazardous materials involvement. In addition to a field survey, a file search of appropriate environmental agencies was conducted to identify any known problem sites along the proposed project alignment. The Geotechnical Unit found five UST sites within the project area. Please note that the evaluation mainly covers regulated (commercial) UST's and that there is still the possibility of unregulated UST's (farm tanks or home heating oil tanks) being impacted by the project. These unregulated UST's should be identified by NCDOT Right of Way during initial contacts and our office should be notified of their presence prior to acquisition so that it can be determined if the tanks have leaked.

F. Highway Traffic Noise Analysis and Air Quality Analysis

This project is located in Yadkin County, which has been determined to be in compliance with the National Ambient Air Quality Standards. 40 CFR part 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 is not intended to increase traffic volumes; therefore, 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 NCAC 2D.0520. This evaluation completes the assessment requirements for highway traffic noise if 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.

G. Floodplain Involvement and Hydraulic Concerns

Yadkin County is currently participating in the National Flood Insurance Regular Program. Figure 6 is a copy of the Flood Insurance Rate Map for Yadkin County on which the approximate 100 year flood fringe is shown. Since some drainage outfalls on the proposed project are within a water supply watershed protected critical area, hazardous spill basins will be constructed along the road to keep accidental hazardous spills from flowing into the water supply intake. Erosion and sedimentation will be controlled through the specification, installation, and maintenance of more stringent erosion and sedimentation control methods.

H. Section 4(f) Resources

Section 4(f) of the U.S. Department of Transportation Act of 1966 specifies that publicly owned land from a park, recreation area, or wildlife or waterfowl refuge or land from historic resources of national, state, or local significance may be used for Federal-Aid projects only if:

(1) There is no feasible and prudent alternative to the use of such land.

(2) Such highway program or project includes all possible planning to minimize harm to 4(f) lands resulting from such use.

One Section 4(f) resource is located within the project area. This resource is identified as the John H. Hauser Farmstead.

John H. Hauser Farmstead -

The John H. Hauser Farmstead is located approximately one-quarter mile south of Deep Creek on the east side of US 601. The house was constructed in 1885 by John Henry Hauser (1847-1930). John Henry Hauser was the son of Thelphilus C. Hauser, a planter and Yadkin County politician. John H. Hauser enlisted in the Confederate Army in 1861 (Company B, 21st Regiment). He married Flora A. Transou (1849-1925) of Forsyth County in 1872 and constructed this two-story, three-bay farmhouse in 1885. The house is still owned by the descendants of John H. Hauser.

This property has been determined eligible for listing in the National Register of Historic Places. The John H. Hauser Farmstead boundaries include the entire 55.93 acres (22.6 ha) which the house, outbuildings, orchards, and fields currently occupy, as well as the Hauser family cemetery, located across US 601 from the house. The acreage associated with the farm, tenant houses, and mill operations in the late nineteenth century and first half of the twentieth century have been subdivided and developed with modern construction with the exception of the land within the recommended boundary. The boundary on the west side of US 601 follows a heavily wooded ridge line, which rises approximately 70 feet (21.3 m) in elevation from the roadbed at the northwest corner. Additional right of way will be required on both sides of the road, with the majority being on the east side of the road. To accommodate for the proposed widening, it is anticipated that on the east side, a 0.42 ha (1.04 ac) strip of right of way, which is 22 ft (6.7 m) wide and 2,044 ft (623.0 m) long, will be required from the John H. Hauser farmstead, and a 0.11 ha (0.28 ac) strip of right of way will be required on the west side, which is 22 ft (6.7 m) wide and 545 ft (166.1 m) long. The project will require a total of approximately 1.32 ac (0.53 ha) of the farmstead property. SHPO has concurred that the project will have no effect on the John H. Hauser Farmstead.

Since this project necessitates the use of a minor amount of land from a historic property which is adjacent to the existing roadway, and since the project meets the criteria set forth in the Federal Register (December 23, 1986), a Programmatic Section 4(f) evaluation satisfies the requirements of Section 4(f) of the Department of Transportation Act of 1966 (See Appendix C for Programmatic Section 4(f) Evaluation). The following alternatives, which avoid use of the historic site, have been fully evaluated: (1) do nothing, (2) improve the highway without using the adjacent historic site, and (3) build the roadway on new location without using the historic site. These alternatives were not found to be feasible and prudent. Alternatives to the proposed improvements are discussed in Section IV of the Categorical Exclusion prepared for the project.

All possible planning to minimize harm to the historic property has been performed as an integral part of this project. Measures to minimize harm include the following:

(a) In the vicinity of the historic property, 2:1 sideslopes, the maximum sideslope steepness for roadway facilities, will be used along this section of US 601. Using the maximum sideslope will minimize the amount of right of way required for the project.

(b) The roadway is being widened to 12-foot lanes and 2-ft paved shoulders, which is the minimum standard lane and shoulder width for a 2-lane facility.

(c) Symmetrical widening is being utilized in order to maximize the use of the existing right of way.

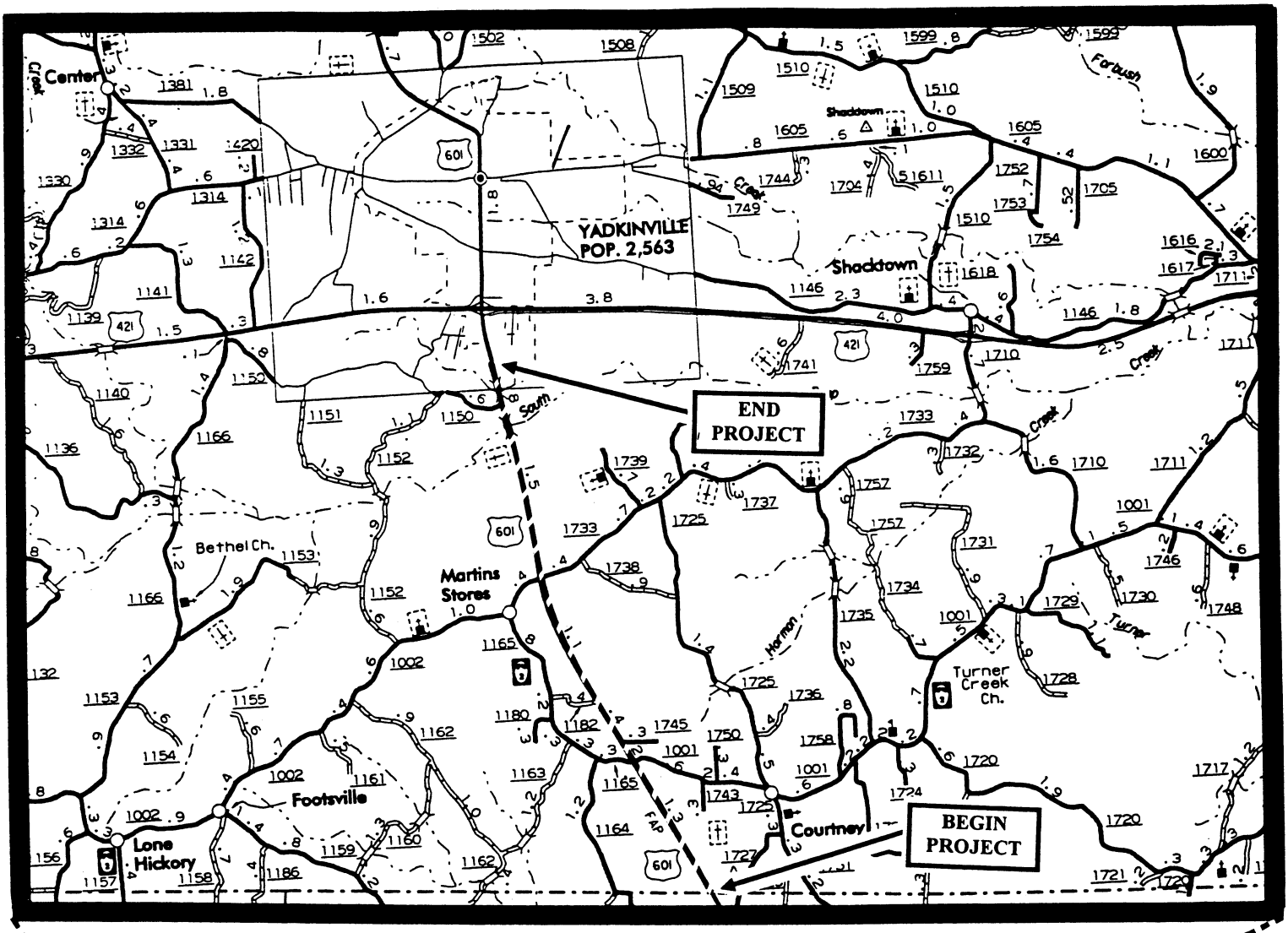
VI. COMMENTS, COORDINATION, AND PUBLIC INVOLVEMENT

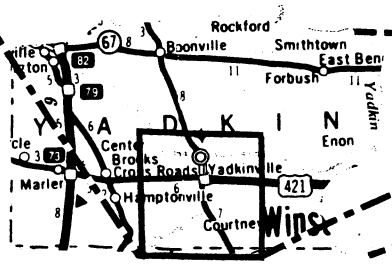
On December 14, 1999, a citizen's informational workshop was held in Yadkin County in the Board Room of the Town Hall in Yadkinville (see Appendix D for a copy of the Notice of a Citizens Informational Workshop). This workshop was held in order to obtain comments and suggestions about the project from the public.

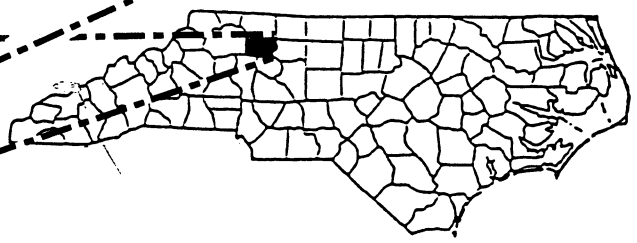
During the workshop, the North Carolina Department of Transportation displayed an aerial photograph of the project area and vicinity maps showing the proposed project. In addition, the NCDOT supplied each participant with an information packet containing general project information, a vicinity map, and a comment sheet. A copy of this packet is included in Appendix D. Each participant had the opportunity to review the aerial photograph and maps, and ask questions or give comments.

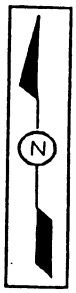
Comments received from those in attendance at the Citizen's Informational Workshop mostly pertained to potential impacts to individual properties along US 601. A local business raised concern regarding how the project may affect their business operations. Overall, the project was seen as a needed improvement, and comments from the public were positive and in favor of this project.

FIGURES









NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLANNING AND ENVIRONMENTAL BRANCH

US 601, Davie County Line
To Yadkinville South City
Limits, Yadkin County
TIP Project No. R-3427

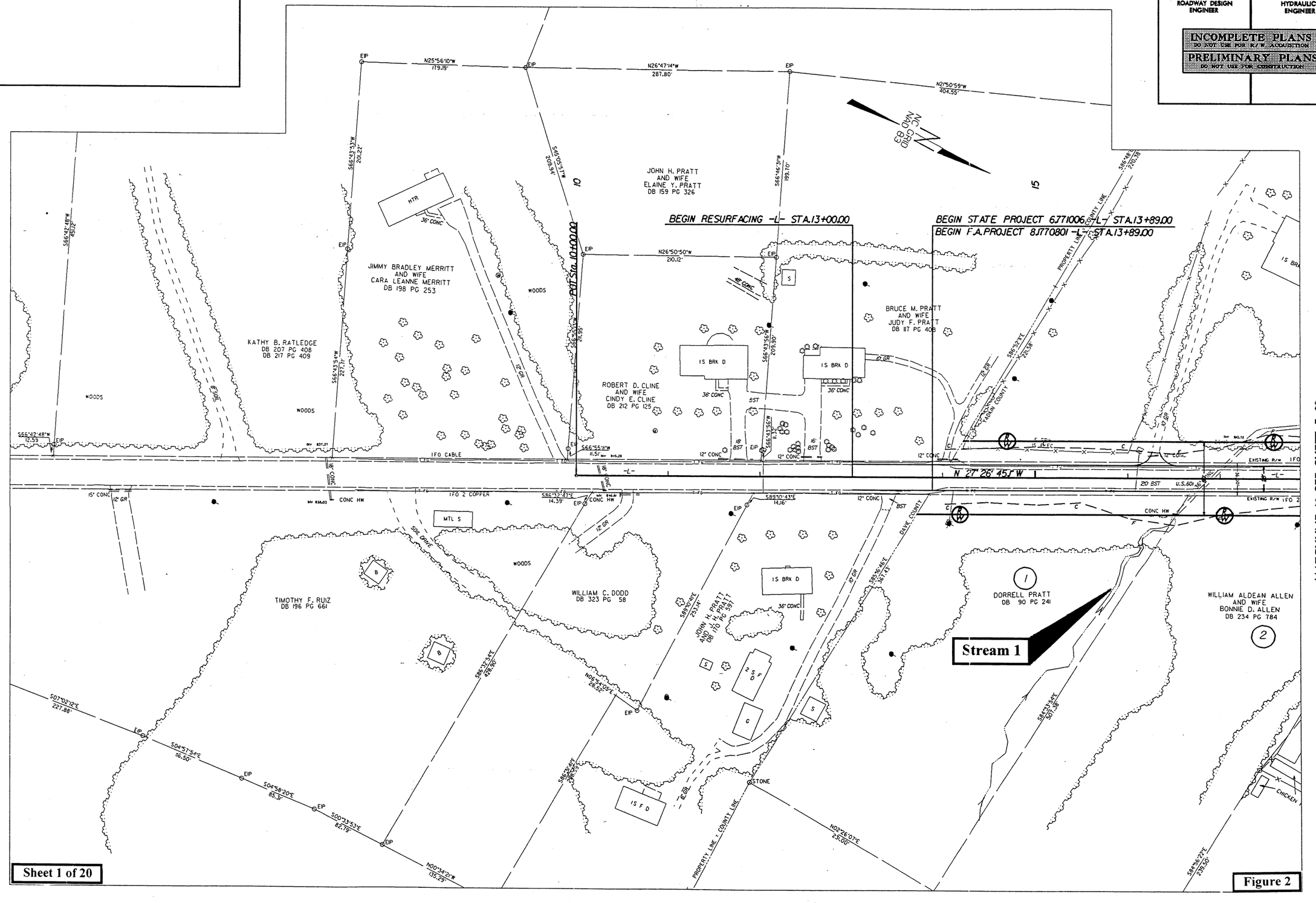
0 0.5 1 1.5 Miles

Figure 1

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-3427	
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



Sheet 1 of 20

Figure 2

27-SEP-2001 13:47
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dgn

7/2/98

7/2/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-3427	
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

** SEE SHEET 4 **

** SEE SHEET 6 **

MATCHLINE

MATCHLINE

NC GRID NAD 83

CULVERT #1
1 BARREL

	NORTH	EAST	ELEV.
CUL 1	841674.94	1517604.73	797.72
CUL 2	841679.94	1517602.20	797.71
CE 1	XXXXXXXXX	XXXXXXXXX	803.68
HW 1	XXXXXXXXX	XXXXXXXXX	805.47
CUL 3	841652.613	1517550.222	796.31
CUL 4	841657.428	1517547.712	796.29
CE 2	XXXXXXXXX	XXXXXXXXX	802.28
HW 2	XXXXXXXXX	XXXXXXXXX	804.05

3 JAMES B. RUTLEDGE AND WIFE HELEN P. RUTLEDGE DB 89 PG 4

5 BRIAN S. CLEARY AND WIFE GLENDA L. CLEARY DB 415 PG 134

8 ALLEN ELDRETH AND WIFE DOROTHY W. ELDRETH DB 306 PG 677

2 DOYLE D. REAVIS 306 PG 58

4

6 CLINTON DWIGHT HUDSPETH DB 392 PG 815

7 JAMES DOUGLAS AND WIFE KATE DOUGLAS DB 77 PG 149

Stream 2

N 27° 26' 45.1" W

N22°09'18"W 477.84'

N77°51'18"W 225.69'

S51°14'W 106.59'

S51°30'40"W 156.53'

N17°32'40"W 66.49'

N17°21'28"W 78.13'

S61°38'55"W 31.08'

N89°35'31"W 133.51'

S77°38'21"E 15.99'

S77°38'21"E 216.84'

S85°05'29"E 11.20'

S85°05'29"E 183.60'

N0°27'39"W 141.23'

S79°29'56"E 216.51'

S85°05'26"E 230.38'

N0°00'58"E 185.36'

S36°15'54"E 77.57'

S16°56'00"E 165.12'

S81°45'19"E 122.36'

N19°05'19"E 92.14'

S81°29'01"E 122.66'

S81°14'32"E 301.32'

N87°02'56"W 327.09'

N87°02'50"W 13.34'

N87°14'17"W 13.37'

Figure 2

27-SEP-2001 13:47
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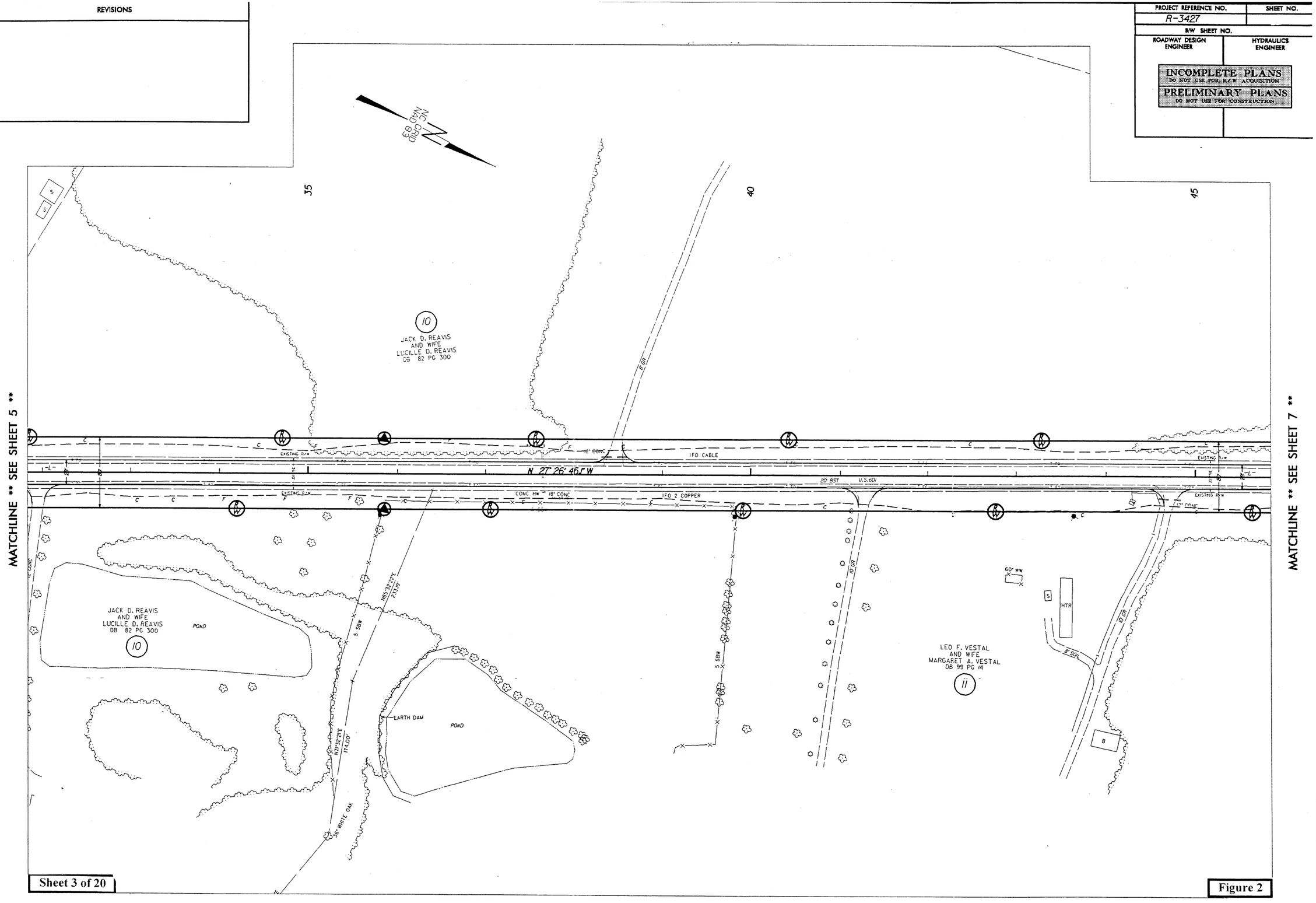
dew

7/2/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-3427	
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



Sheet 3 of 20

Figure 2

27-SEP-2001 13:47
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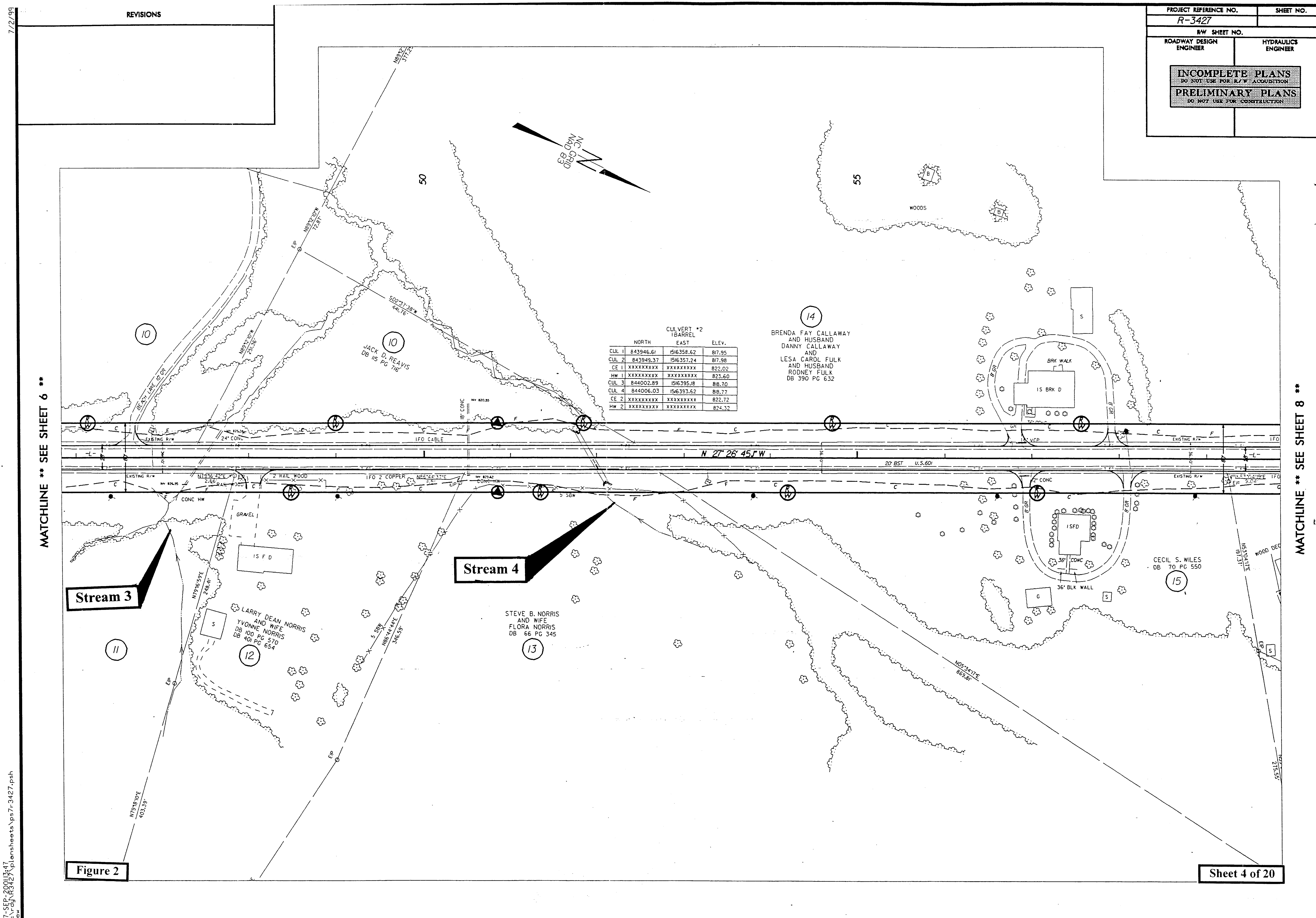
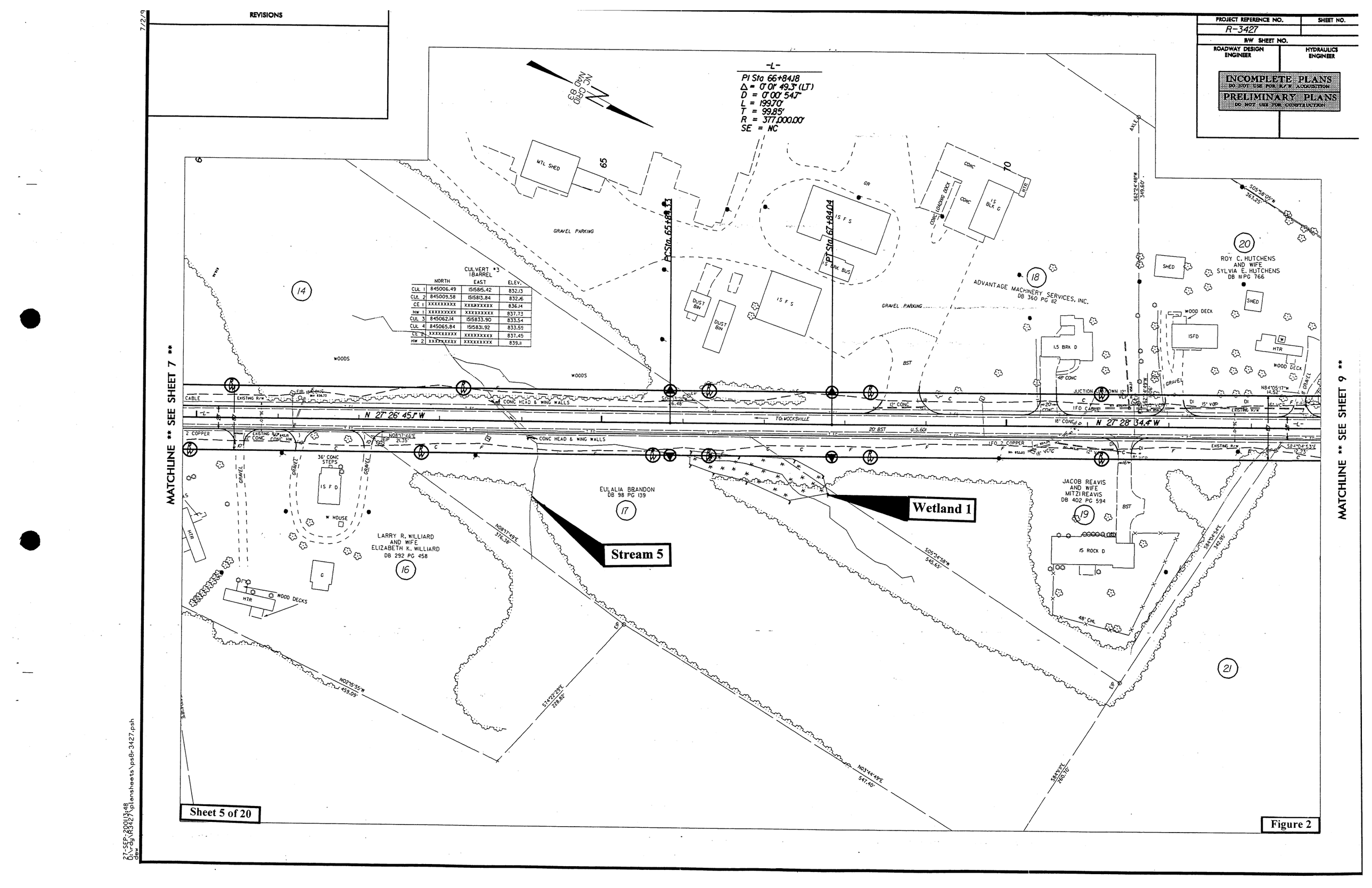
dgn



CULVERT *2
1BARREL

	NORTH	EAST	ELEV.
CUL 1	843946.61	1516358.62	817.95
CUL 2	843949.37	1516357.24	817.98
CE 1	XXXXXXXXX	XXXXXXXXX	822.02
HW 1	XXXXXXXXX	XXXXXXXXX	823.60
CUL 3	844002.89	1516395.18	818.70
CUL 4	844006.03	1516393.62	818.77
CE 2	XXXXXXXXX	XXXXXXXXX	822.72
HW 2	XXXXXXXXX	XXXXXXXXX	824.32

Figure 2


REVISIONS
7/2/9
PROJECT REFERENCE NO.
R-3427
SHEET NO.
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 66+84.18
Δ = 0°01' 49.3" (LT)
D = 0°00' 54.7"
L = 199.70'
T = 99.85'
R = 377,000.00'
SE = NC
NC GRID NAD 83
MATCHLINE ** SEE SHEET 7 **
MATCHLINE ** SEE SHEET 9 **
MTL SHED
GRAVEL PARKING
WOODS
CULVERT #3
1 BARREL
NORTH
EAST
ELEV.
CUL 1 845006.49 1515815.42 832.13
CUL 2 845009.58 1515813.84 832.16
CE 1 XXXXXXXXX XXXXXXXXX 836.14
HW 1 XXXXXXXXX XXXXXXXXX 837.73
CUL 3 845062.14 1515833.90 833.54
CUL 4 845065.84 1515831.92 833.55
CE 2 XXXXXXXXX XXXXXXXXX 837.45
HW 2 XXXXXXXXX XXXXXXXXX 839.11
PCSta 65+88.11
PTSta 67+84.04
I.S F.S
DUST BIN
BRK BUS
CONC LOADING DOCK
I.S BLK G
ADVANTAGE MACHINERY SERVICES, INC.
DB 360 PG 182
ROY C. HUTCHENS
AND WIFE
SYLVIA E. HUTCHENS
DB 1179 PG 766
SHED
WOOD DECK
I.S FD
I.S BRK D
HTR
CABLE
EXISTING R/W
CONC HEAD & WING WALLS
N 27° 26' 45" W
TO MOCKSVILLE
U.S. 601
20' BST
12" CONC
18" CONC
48" CONC
JUNCTION BOX
IFO COPPER
15" VCP
EXISTING R/W
N 27° 28' 34.4" W
2 COPPER
IFO 2 COPPER
N08°17'46"E 21.35'
36" CONC STEPS
I.S F.D
W HOUSE
GRAVEL
LARRY R. WILLIARD
AND WIFE
ELIZABETH K. WILLIARD
DB 292 PG 458
EULALIA BRANDON
DB 98 PG 139
JACOB REAVIS
AND WIFE
MITZI REAVIS
DB 402 PG 594
I.S ROCK D
WOOD DECKS
N08°17'49"E 376.38'
S05°25'58"W 545.65'
N02°15'55"W 459.09'
S74°02'29"E 208.68'
N03°44'49"E 547.40'
S84°04'34"E 340.85'
S84°04'34"E 280.70'
S05°58'05"W 363.25'
S84°24'48"W 349.80'
N84°05'17"W 14.52'
S84°04'34"E 9.23'
Wetland 1
Stream 5
Sheet 5 of 20
Figure 2
27-SEP-2001 13:48
dlevy
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7/2/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-3427	
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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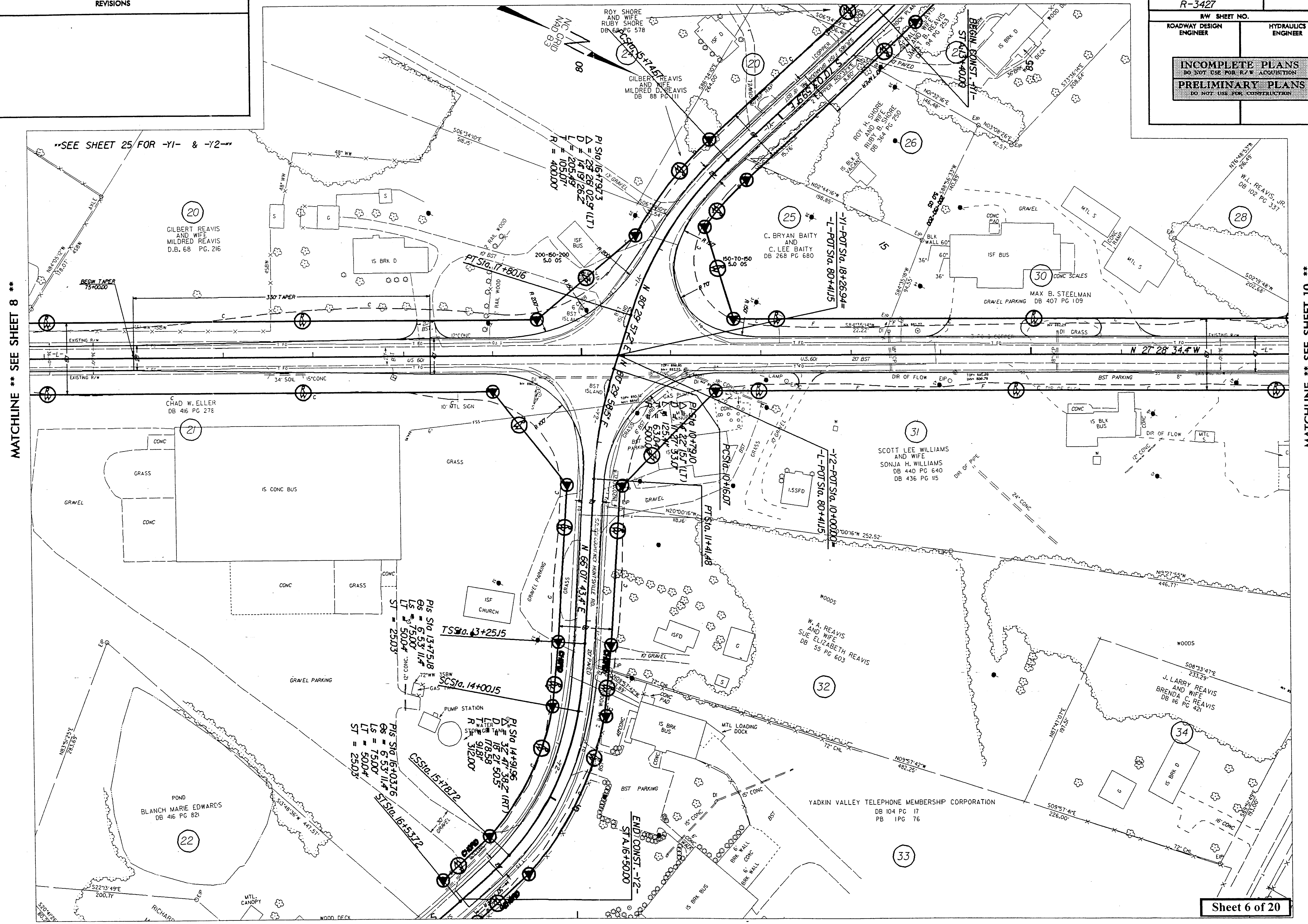
DO NOT USE FOR R/W ACQUISITION

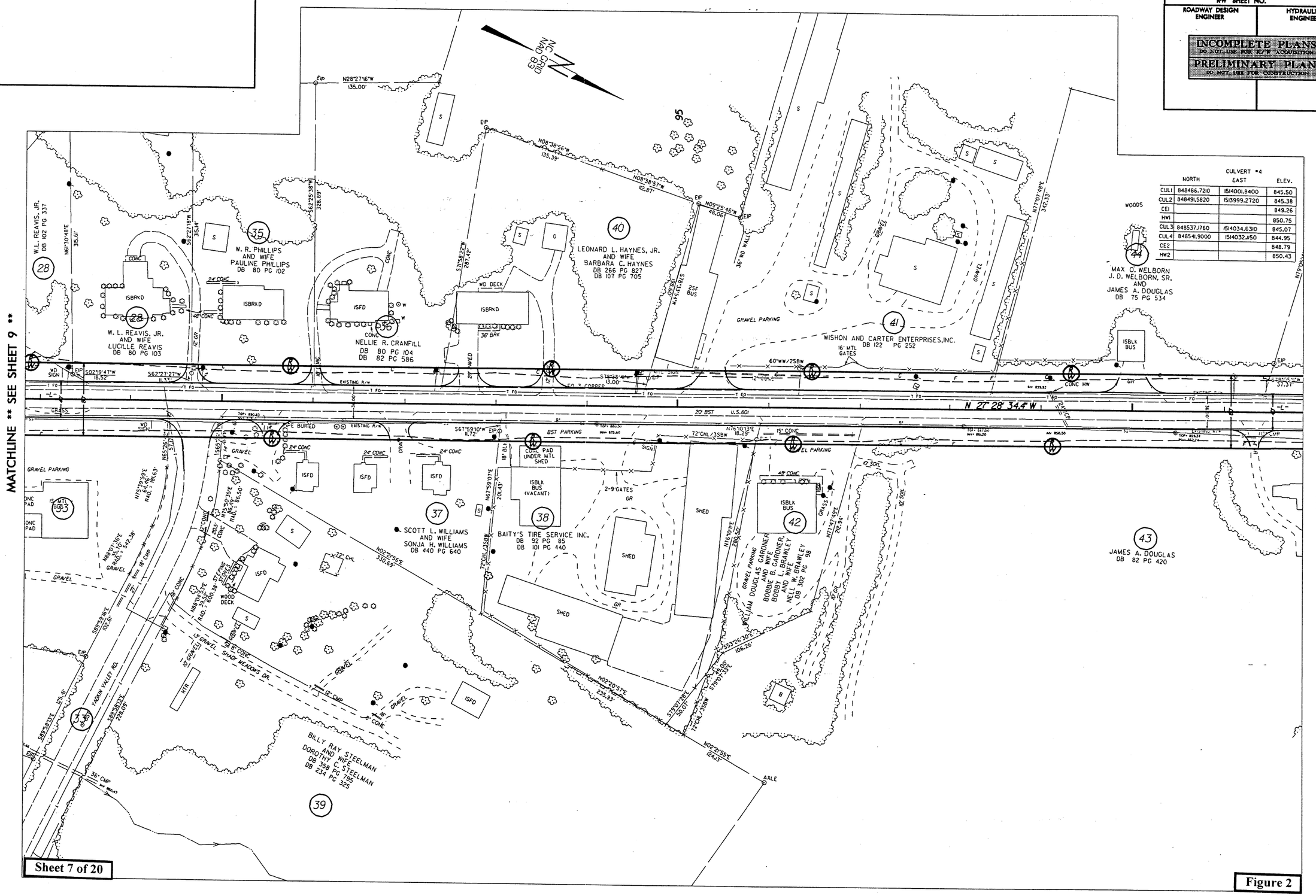
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-3427	
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



Sheet 7 of 20

Figure 2

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7/2/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-3427	
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

MATCHLINE ** SEE SHEET 10 **

MATCHLINE ** SEE SHEET 12 **

NC GRID NAD 83

-Y3-
SR 1182 FOSTER ROAD
-Y3-POT Sta. 10+00.00
N 81° 57' 00.9" E
PC Sta. 13+31.41
PI Sta 13+52.67
Δ = 12° 08' 06.5" (LT)
D = 28° 38' 52.4"
L = 42.36'
T = 21.26'
R = 200.00'
PT Sta. 13+73.77
N 69° 48' 54.5" E
-Y3-POT Sta. 14+00.88 =
-L-POT Sta. 110+83.00

Stream 6

Wetland 2

45 HOWELL ASSOCIATES, A NC GENERAL PARNERSHIP C/O J. H. CRAVER AND SON, INC DB 324 PG 195

46 TEDDY MICHAEL ASHLEY DB 398 PG 255 DB 361 PG 487

47 HIBCO PLASTICS, INC. DB 104 PG 445

48 ARNOLD L. ROSE AND WIFE BARBARA P. ROSE DB 267 PG 274

49 YADKIN COUNTY TOBACCO WAREHOUSE DB 221 PG 935 DB 215 PG 792

50 DONNIE E. REAVIS DB 372 PG 373 DB 213 PG 160

51 RICHARD A. FLEMMING DB 290 PG 474

RICHARD A. FLEMMING DB 445 PG 439

Figure 2

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PROJECT REFERENCE NO.	SHEET NO.
R-3427	

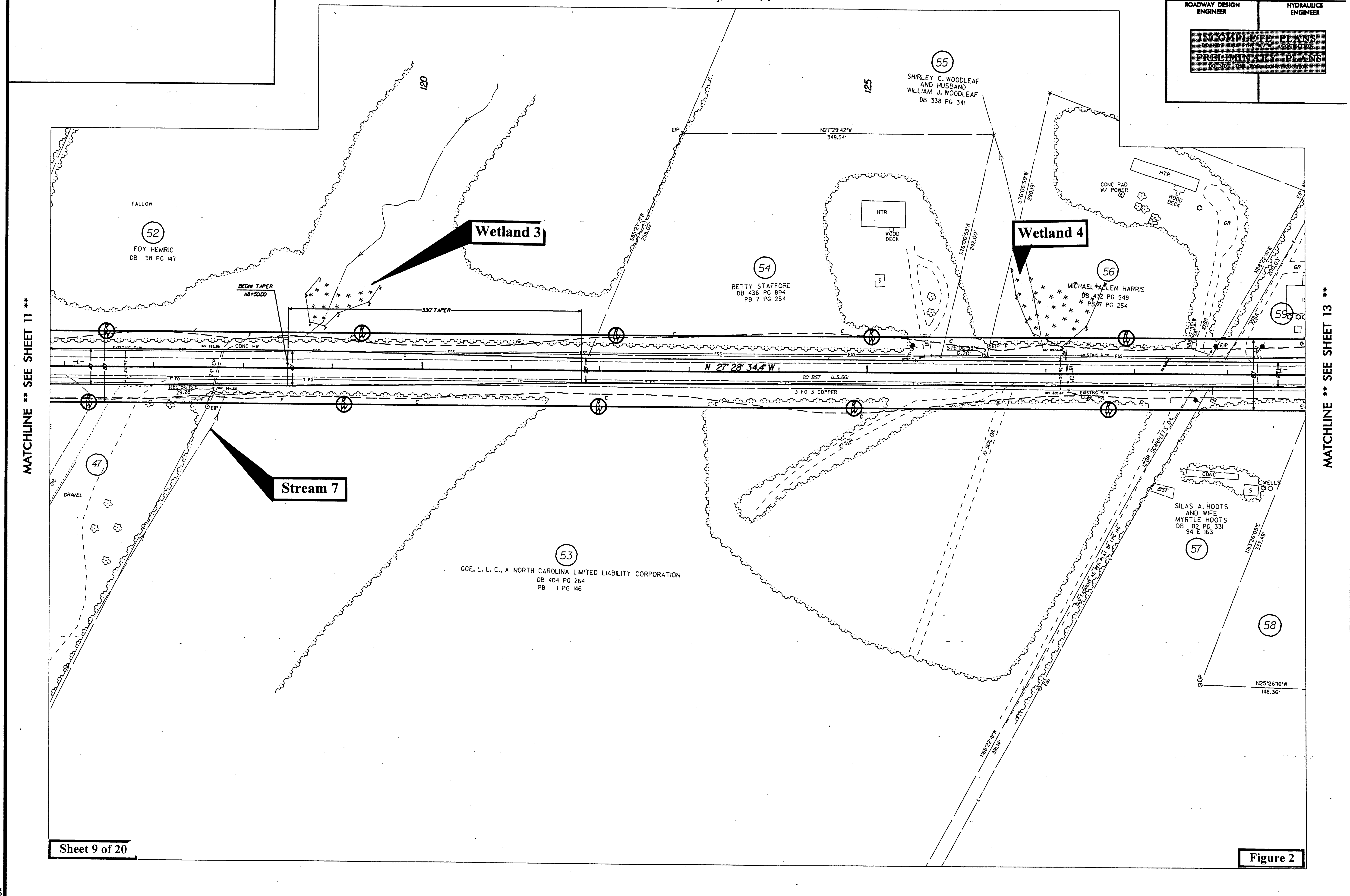
R/W SHEET NO.

ROADWAY DESIGN ENGINEER — HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS



Sheet 9 of 20

Figure 2

27-SEP-2001 13:39
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7/2/9

7/2/9

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-3427	
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

MATCHLINE ** SEE SHEET 12 **

MATCHLINE ** SEE SHEET 14 **

-L-
Pis Sta 133+28.07
es = 0°59'47.2"
Ls = 400.00'
LT = 266.67'
ST = 133.34'

PI Sta 154+45.09
Δ = 19°34'26.1" (RT)
D = 0°29'53.6"
L = 3,928.74'
T = 1,983.70'
R = 11,500.00'

135

140

59 — CLADINVILLE, LLC, DB 430 PG 870, PB 1 PG 146

60 — 24" CONC

61 — HUGHES M. REAVIS AND WIFE CYNTHIS H. REAVIS, DB 216 PG 262, PB 1 PG 146

62 — EZRA W. HOOTS AND WIFE DOROTHY HOOTS, DB 278 PG 44, PB 1 PG 146

66 — JAMES J. PROFFITT AND WIFE BARBARA S. PROFFITT, DB 246 PG 139, PB 1 PG 146

67 — TIMOTHY GUY MARTIN AND WIFE LINDA MARTIN, DB 313 PG 402

70

58 — CARL C. HOOTS AND WIFE ELVA HOOTS, DB 64 PG 437

63 — THOMAS JAMES IBSHER, DB 329 PG 655, DB 239 PG 355, PB 1 PG 146

64 — CLYDE EDWARD SHORE AND WIFE VIRGINIA M. SHORE, DB 342 PG 609, PB 1 PG 146

65 — DAVID BORDEN AND PAUL BORDEN, DB 393 PG 397

Stream 8

68 — PHILLIP W. PARDUE AND LEESA JILL LAWRENCE, DB 297 PG 87

69 — GEORGIA R. WATTS AND HUSBAND E. G. WATTS, DB 107 PG 602

57 — SILAS A. HOOTS AND WIFE MYRTLE HOOTS, DB 82 PG 331, 94 E 163

20' BST U.S.601

Figure 2

Sheet 10 of 20

22-OCT-2001 08:39
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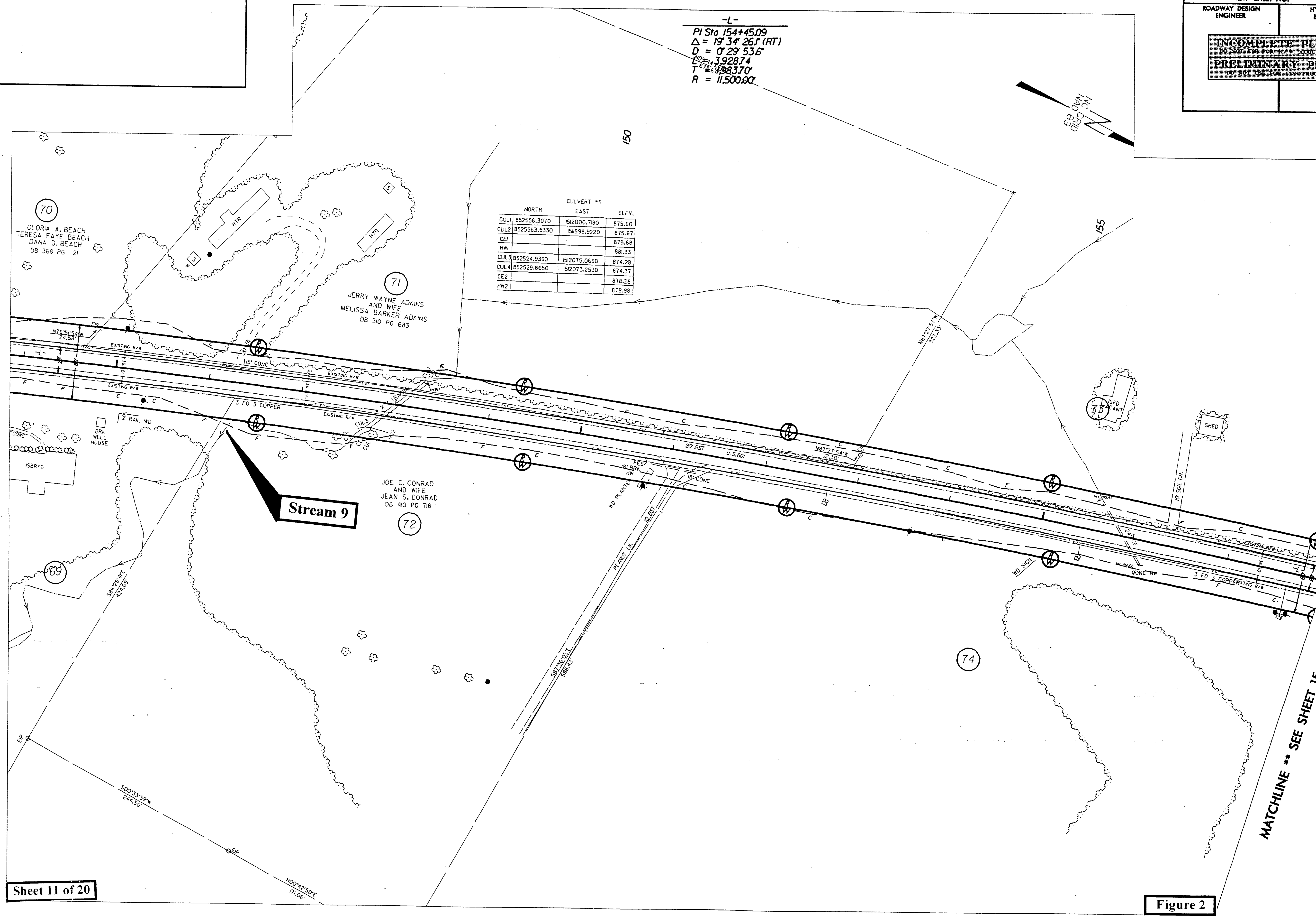
dew



CULVERT #5	NORTH	EAST	ELEV.
CUL1	852558.3070	1512000.7180	875.60
CUL2	8525563.5330	1511998.9220	875.67
CE1			879.68
HW1			881.33
CUL3	852524.9390	1512075.0690	874.28
CUL4	852529.8650	1512073.2590	874.37
CE2			878.28
HW2			879.98

PROJECT REFERENCE NO. R-3427 | SHEET NO.
RW SHEET NO.
ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Sheet 11 of 20

Figure 2

22-OCT-2001 08:40
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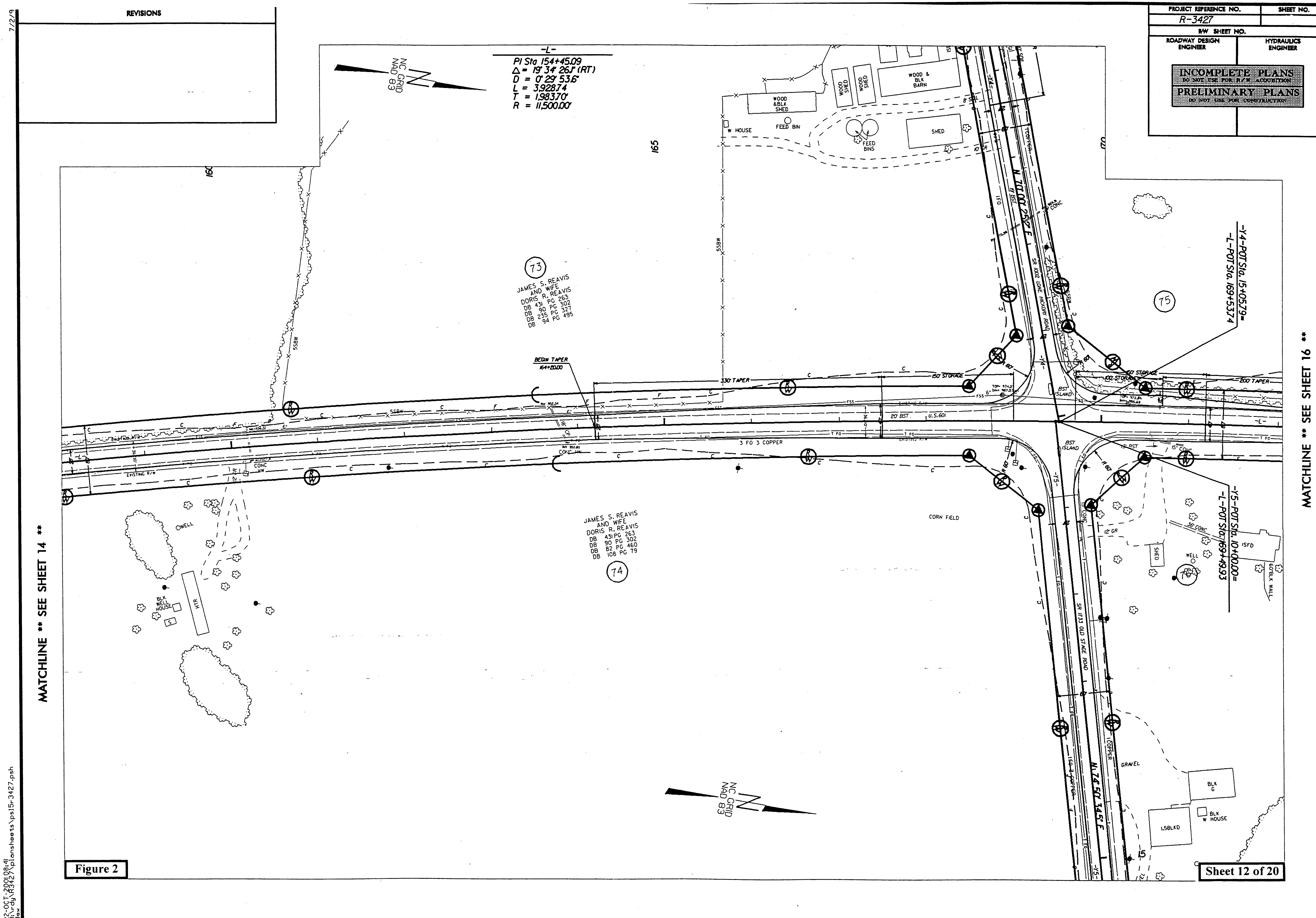
PROJECT REFERENCE NO.	SHEET NO.
R-3427	
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



MATCHLINE ** SEE SHEET 14 **

MATCHLINE ** SEE SHEET 16 **

22-OCT-2001 08:41
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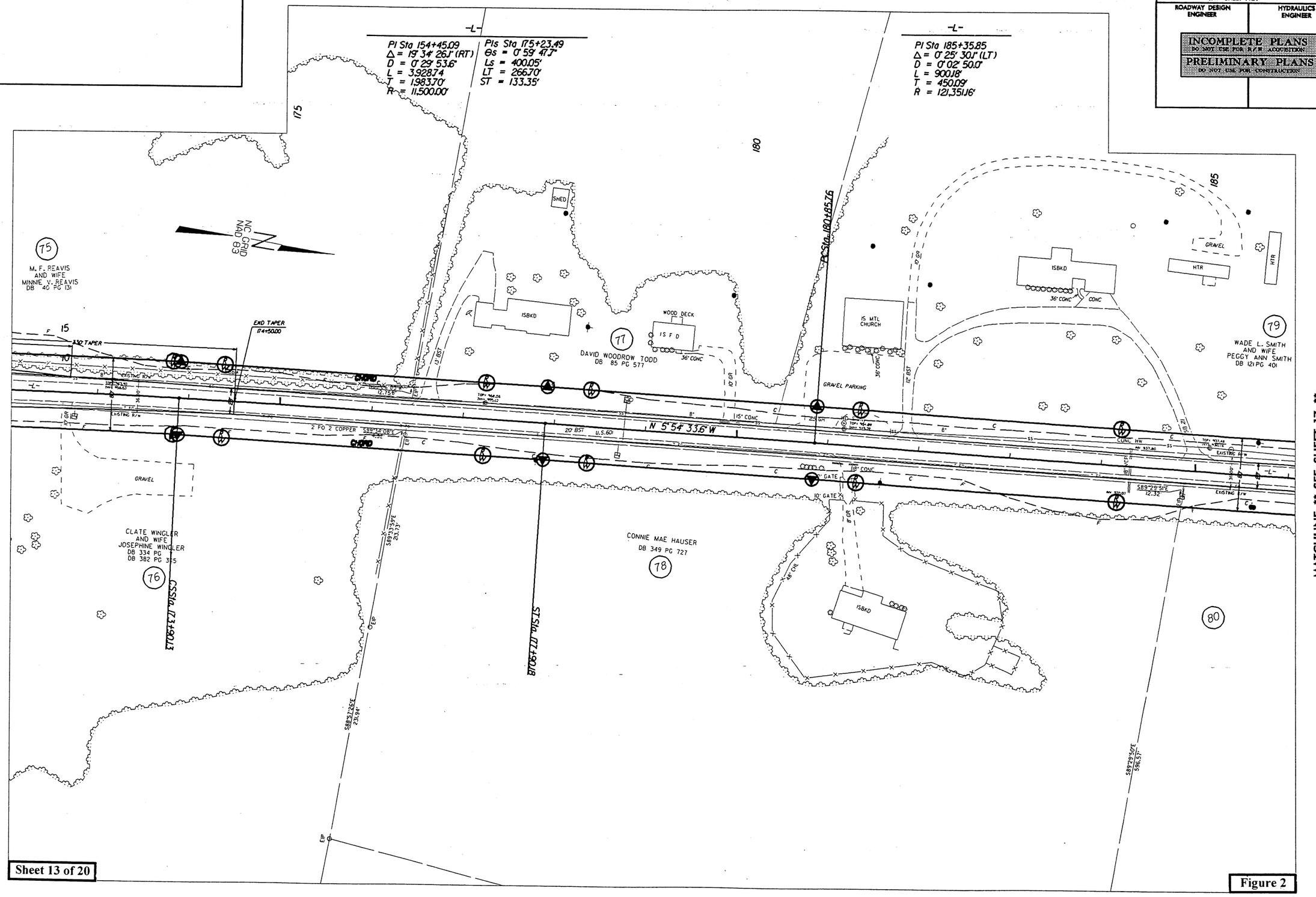
Figure 2

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-3427	
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



Sheet 13 of 20

Figure 2

22-OCT-2019 08:41
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dew

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-3427	
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

7/2/9

-L-
PI Sta 185+35.85
Δ = 0° 25' 30.1" (LT)
D = 0° 02' 50.0"
L = 900.18'
T = 450.09'
R = 121,351.16'

-L-
PI Sta 203+71.43
Δ = 4° 02' 08.2" (LT)
D = 0° 16' 22.2"
L = 1,479.13'
T = 739.67'
R = 21,000.00'

NC GRID NAD 83

MATCHLINE ** SEE SHEET 16 **

MATCHLINE ** SEE SHEET 18 **

Figure 2

Sheet 14 of 20

22-OCT-2010 08:42
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dbw

PROJECT REFERENCE NO.	SHEET NO.
R-3427	
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

REVISIONS

-L-
PI Sta 203+71.43
Δ = 4°02'08.2" (LT)
D = 0°16'22.2"
L = 1,479.13'
T = 739.81'
R = 21,000.00'

-L-
PI Sta 214+70.49
Δ = 1°04'23.4" (LT)
D = 0°17'11.3"
L = 374.60'
T = 187.31'
R = 20,000.00'

NC GRID NAD 83

CULVERT #6
1 BARREL

	NORTH	EAST	ELEV.
CE 1	XXXXXXXXX	XXXXXXXXX	884.24
HW 1	XXXXXXXXX	XXXXXXXXX	885.80
CE 2	XXXXXXXXX	XXXXXXXXX	884.06
HW 2	XXXXXXXXX	XXXXXXXXX	885.66

NOTE
CATTLE CROSSING
NO BOTTOM FOUND

PTSta 211+10.69
PCSta 212+83.18

N 10° 02' 50.5" W

GERALD SHELTON AND WIFE JACKIE C. SHELTON
DB 223 PG 355
PB 5 PG 47

JESSIE HEMRIC
J. WESLEY DZESKEWICZ
KIM H. DZESKEWICZ
BEVERLY D. NEWKIRK
DB 281PG 679

WANDA HAUSER SEIDERS
DB 281PG 675

J. WESLEY DZESKEWICZ AND WIFE MOIRA H. DZESKEWICZ
DB 108 PG 672

BEVERLY DZESKEWICZ
DB 119 PG 863

FOY HEMRIC
DB 98 PG 147

WANDA H. SE
DB 257 PG
DB 281PG

LABON HAUSER AND WIFE JOHNNIE M. HAUSER
DB 81PG 44

EDITH R. HAUSER
DB 89 PG 49

BOBBY M. HAUSER AND WIFE ANN HAUSER
DB 82 PG 633

JERRY KIMMER AND WIFE JUDY KIMMER
DB 433 PG 839
DB 18 PG 196

VIVIAN B. BECK
DB 263 PG 716

MATCHLINE ** SEE SHEET 17 **

MATCHLINE ** SEE SHEET 19 **

Sheet 15 of 20

Figure 2

22-OCT-2001 08:42
dgn: w:\dj\r3427\plansheets\ps18r-3427.psh

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-3427	
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

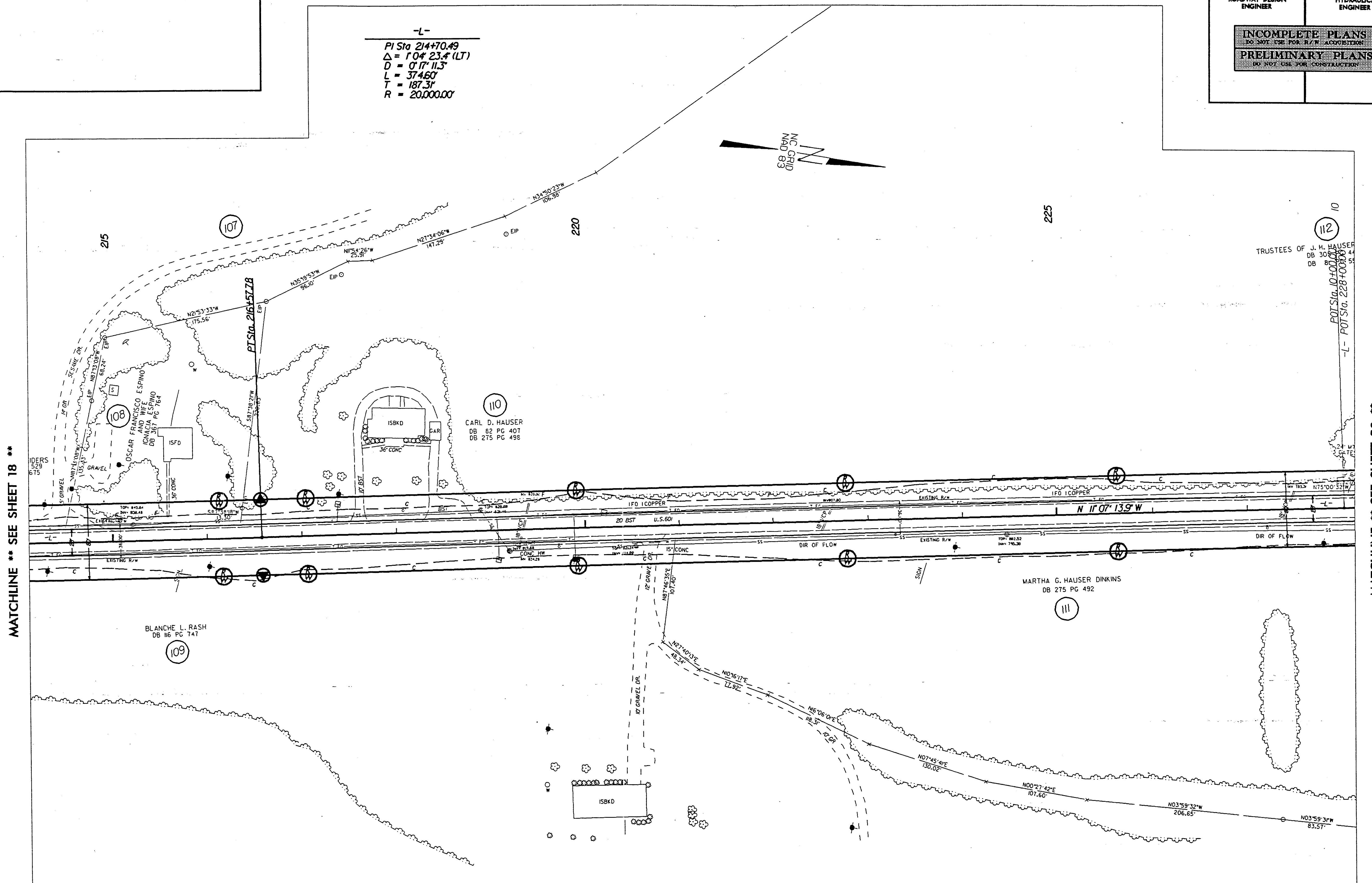

Figure 2

22-OCT-2001 08:43
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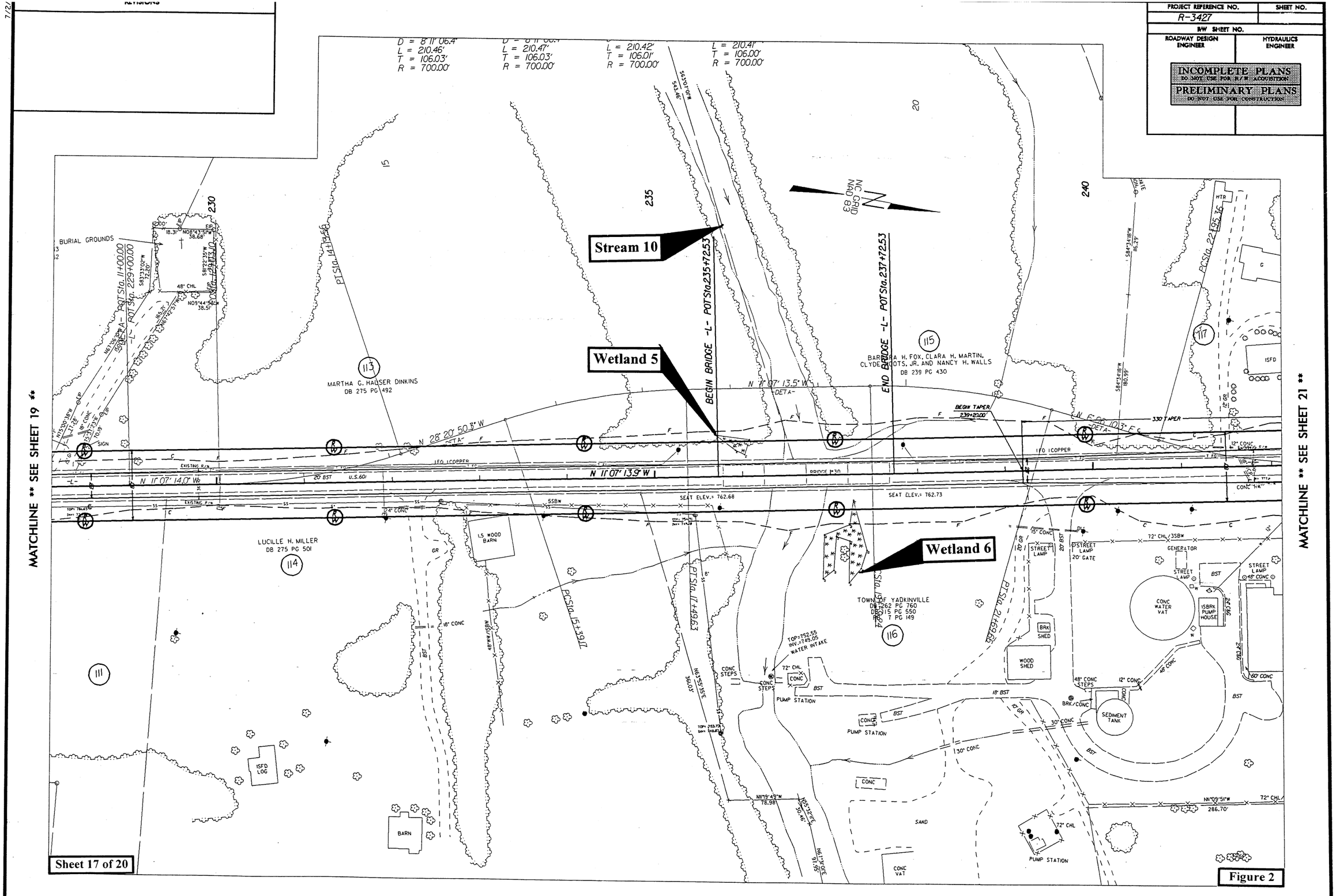

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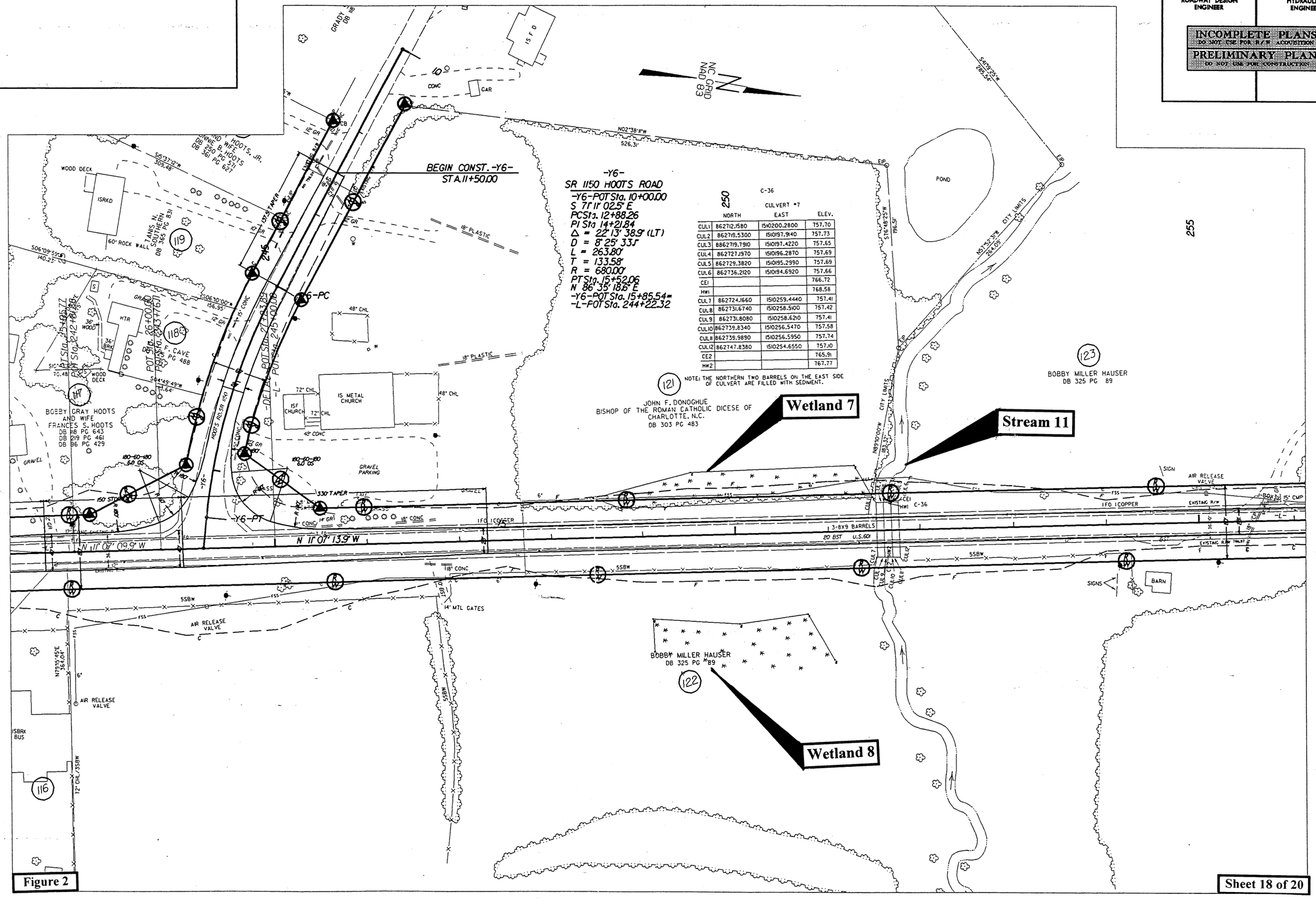
dlw

7/2/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-3427	
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



	NORTH	EAST	ELEV.
CUL1	862712.1580	1510200.2800	757.70
CUL2	862719.5300	1510197.9140	757.73
CUL3	862719.7910	1510197.4220	757.65
CUL4	862727.1970	1510196.2870	757.69
CUL5	862729.3820	1510195.2990	757.69
CUL6	862736.2120	1510194.6920	757.66
CE1			766.72
HW1			768.58
CUL7	862724.1660	1510259.4440	757.41
CUL8	862731.6740	1510258.5100	757.42
CUL9	862731.8080	1510258.6210	757.41
CUL10	862739.8340	1510256.5470	757.58
CUL11	862739.9890	1510256.5950	757.74
CUL12	862747.8380	1510254.6550	757.10
CE2			765.91
HW2			767.77

Figure 2

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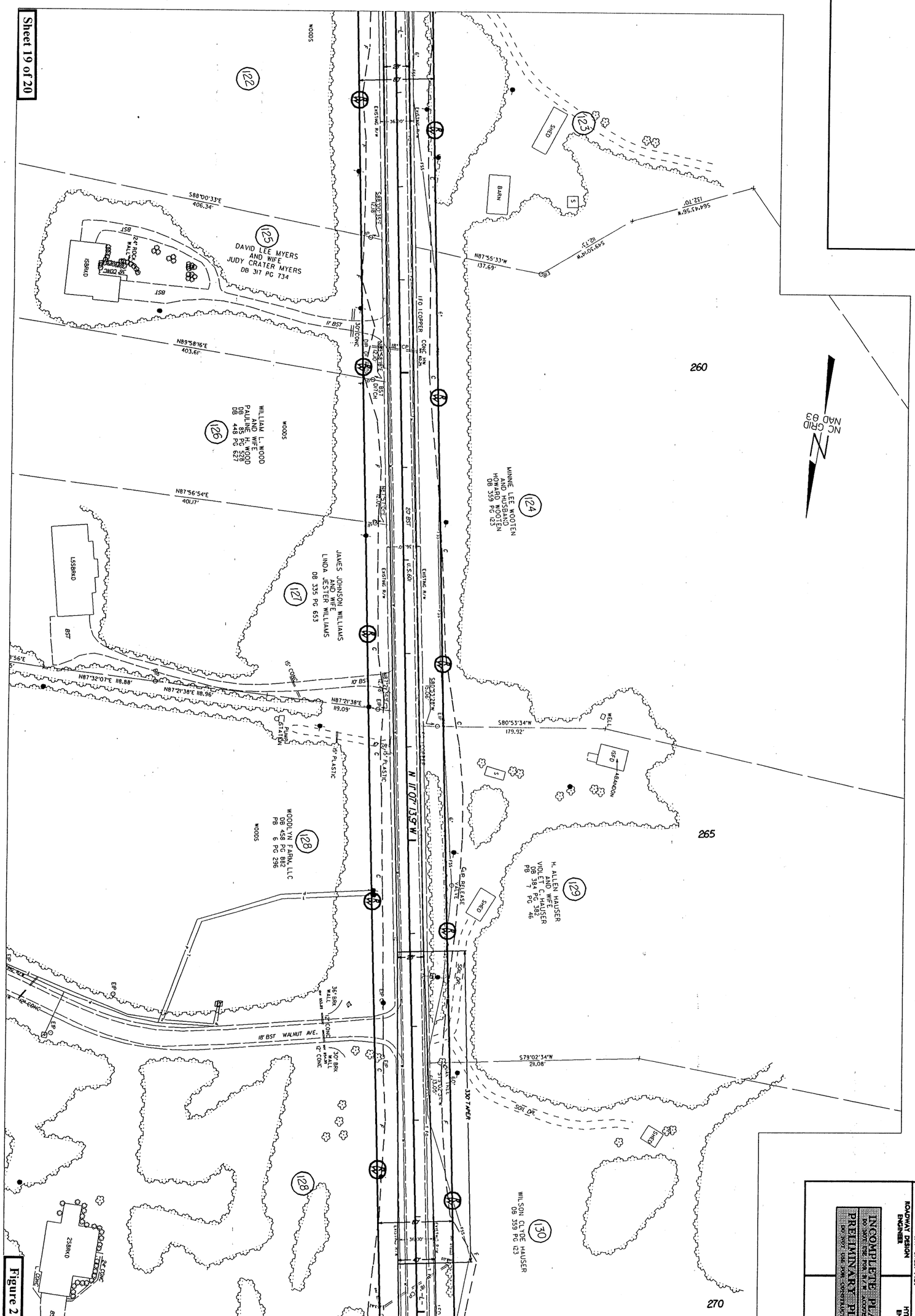
7/27

MATCHLINE ** SEE SHEET 21 **

Sheet 19 of 20



MATCHLINE ** SEE SHEET 23 **

Figure 2

PROJECT REFERENCE NO.	R-3427
SHEET NO.	
ROADWAY DESIGN ENGINEER	
HYDRAULICS ENGINEER	

INCOMPLETE PLANS
PRELIMINARY PLANS
NOT FOR BIDDING OR CONSTRUCTION PURPOSES

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-3427	
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

MATCHLINE ** SEE SHEET 22 **

-L-
PI Sta 278+81.85
Δ = 1° 07' 12.0" (RT)
D = 1° 16' 23.7"
L = 559.20'
T = 279.96'
R = 4,500.00'

END STATE PROJECT 6.771006 -L- STA. 276+50.00
END F.A. PROJECT 8.770801 -L- STA. 276+50.00

POT Sta. 283+26.13

POT Sta. 278+16.09

POT Sta. 272+16.09

NC GRID NAD 83

(130) ISBRK D

(131) WILLIAM L. WOOD AND WIFE PAULINE H. WOOD DB 85 PG 528 DB 448 PG 627

(133) NATOUR & NATOUR, INC. DB 446 PG 46

(134) J. K. MILLER AND WIFE MARY LOU MILLER DB 279 PG 833

(135) NORTHWEST PRODUCTION CREDIT ASSOCIATION DB 112 PG 570

(136) GUS V. JANOS DB 406 PG 290 DB 442 PG 382

(137) COLONIAL REALTY LIMITED PARTNERSHIP DB 431 PG 491

(138) CENTRAL CAROLINA BANK AND TRUST COMPANY DB 277 PG 789

(139) COLONIAL DEVELOPMENT COMPANY, LLC DB 443 PG 124 PB 5 PG 103

U.S. 601

N 11° 07' 13.9" W

N 4° 00' 02.0" W

Figure 2

22-OCT-2001 08:47
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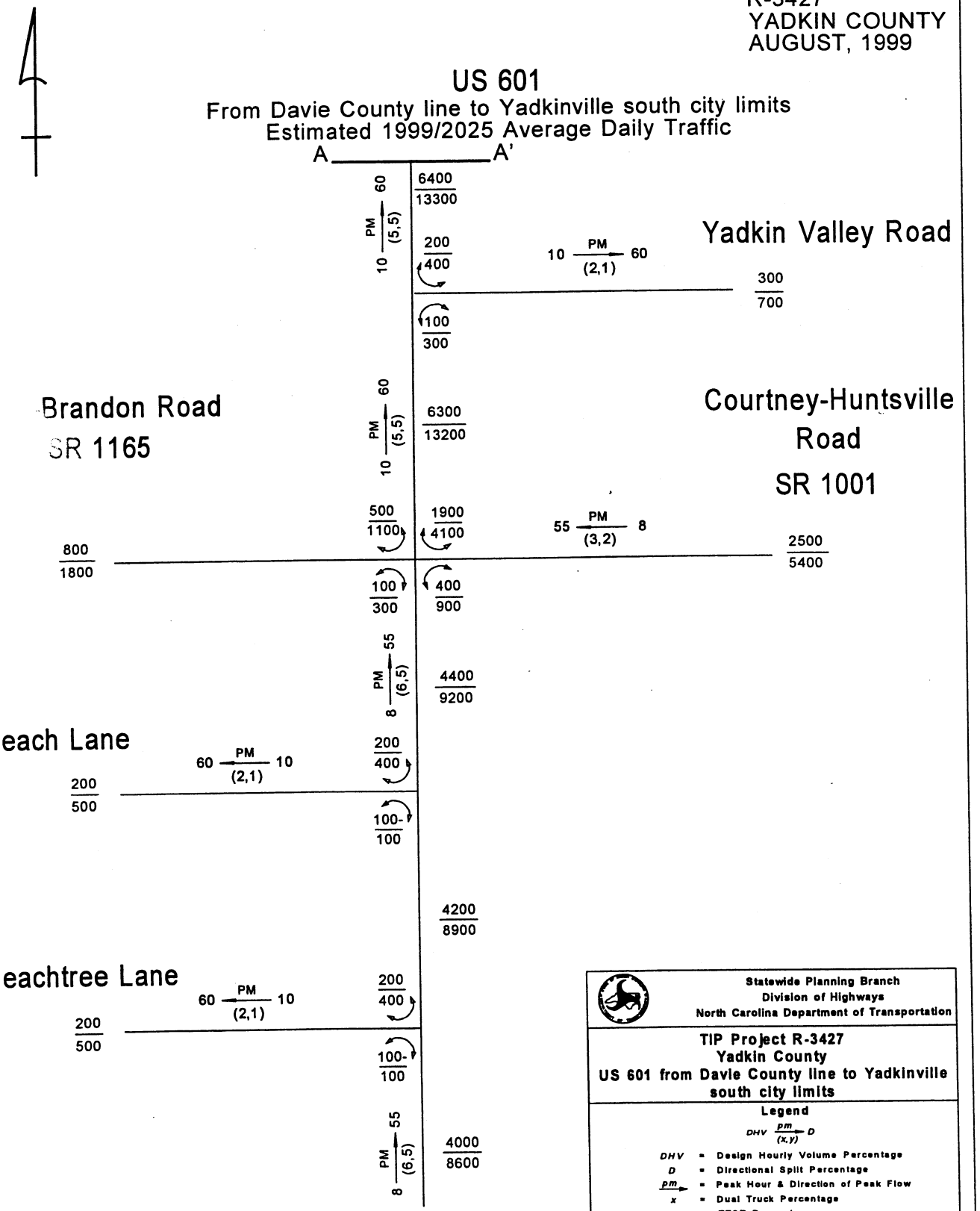
dgw

R-3427
YADKIN COUNTY
AUGUST, 1999

US 601

From Davie County line to Yadkinville south city limits
Estimated 1999/2025 Average Daily Traffic



Statewide Planning Branch
Division of Highways
North Carolina Department of Transportation

TIP Project R-3427
Yadkin County
US 601 from Davie County line to Yadkinville south city limits

Legend

DHV pm (x,y) D

- DHV = Design Hourly Volume Percentage
- D = Directional Split Percentage
- pm = Peak Hour & Direction of Peak Flow
- x = Dual Truck Percentage
- y = TTST Percentage

Note: If DHV and D are not shown, they are the same as the opposing leg.

August, 1999	ACP	Not To Scale	Sheet 1 of 3

Figure 3A

R-3427
YADKIN COUNTY
AUGUST, 1999

US 601

From Davie County line to Yadkinville south city limits
Estimated 1999/2025 Average Daily Traffic

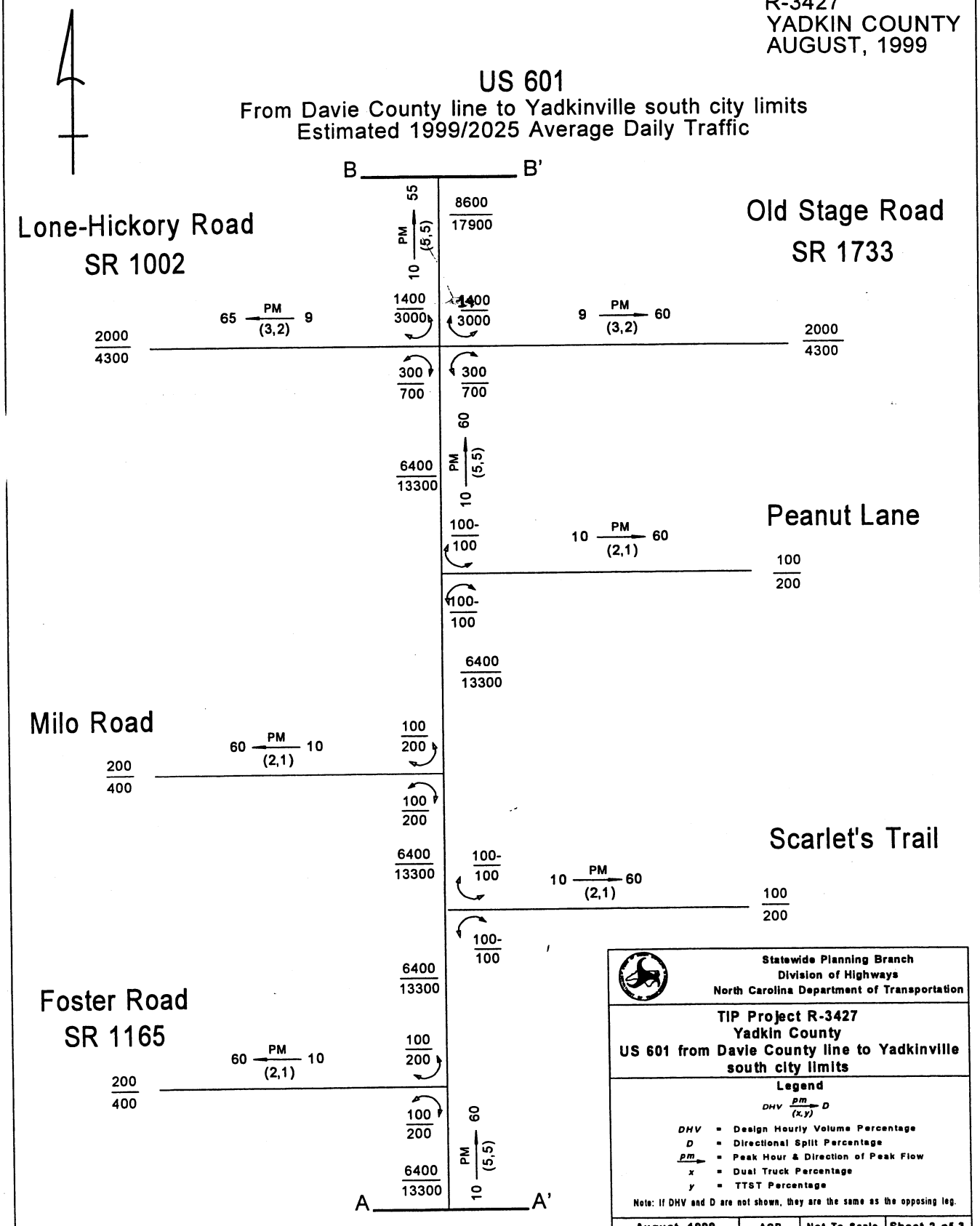
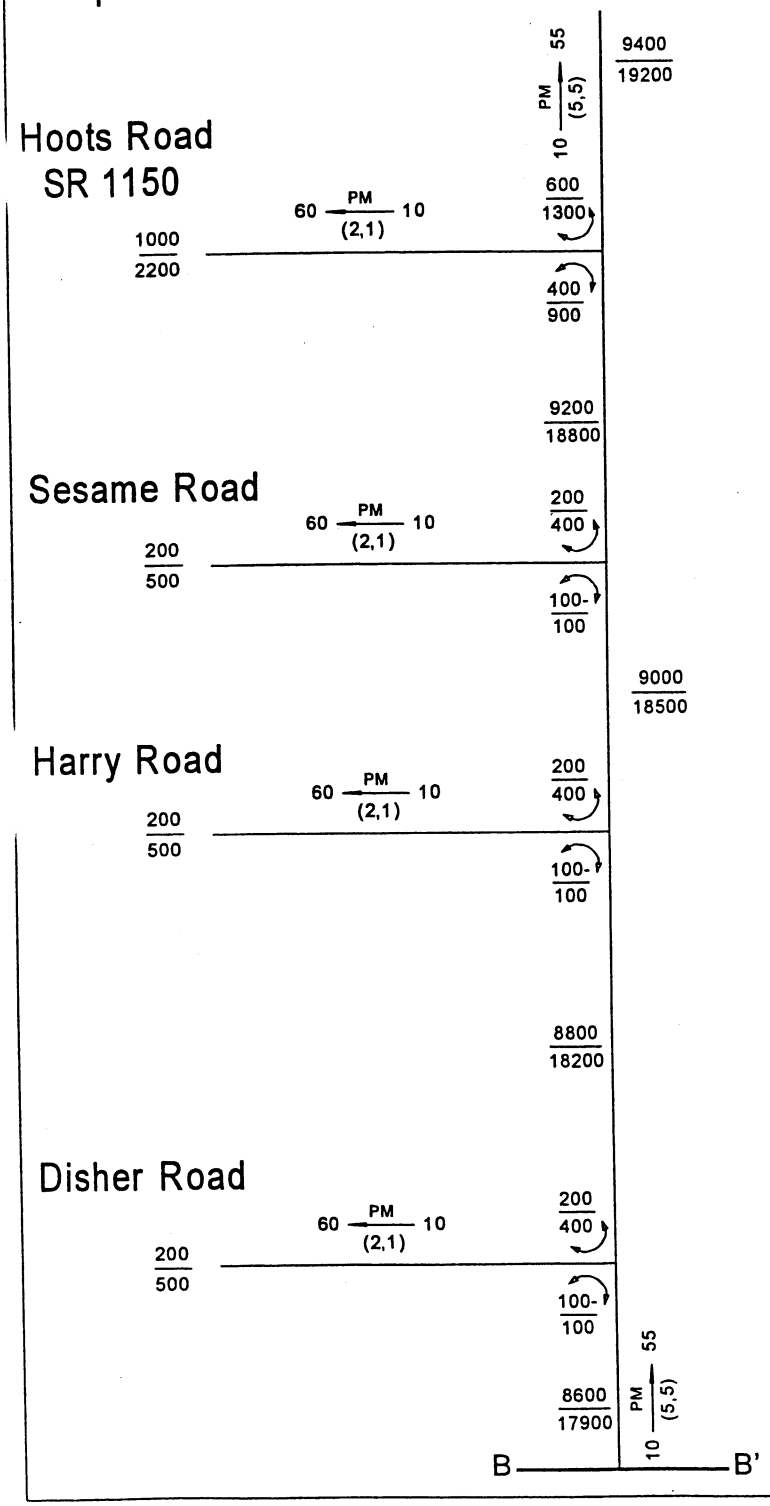


Figure 3B

R-3427
YADKIN COUNTY
AUGUST, 1999

US 601

From Davie County line to Yadkinville south city limits
Estimated 1999/2025 Average Daily Traffic



Statewide Planning Branch
Division of Highways
North Carolina Department of Transportation

TIP Project R-3427
Yadkin County
US 601 from Davie County line to Yadkinville south city limits

Legend

$DHV \frac{pm}{(x,y)} D$

- DHV = Design Hourly Volume Percentage
- D = Directional Split Percentage
- pm = Peak Hour & Direction of Peak Flow
- x = Dual Truck Percentage
- y = TTST Percentage

Note: If DHV and D are not shown, they are the same as the opposing leg.

August, 1999	ACP	Not To Scale	Sheet 3 of 3

Figure 3C

R-3427

PROPOSED TWO-LANE SHOULDER SECTION

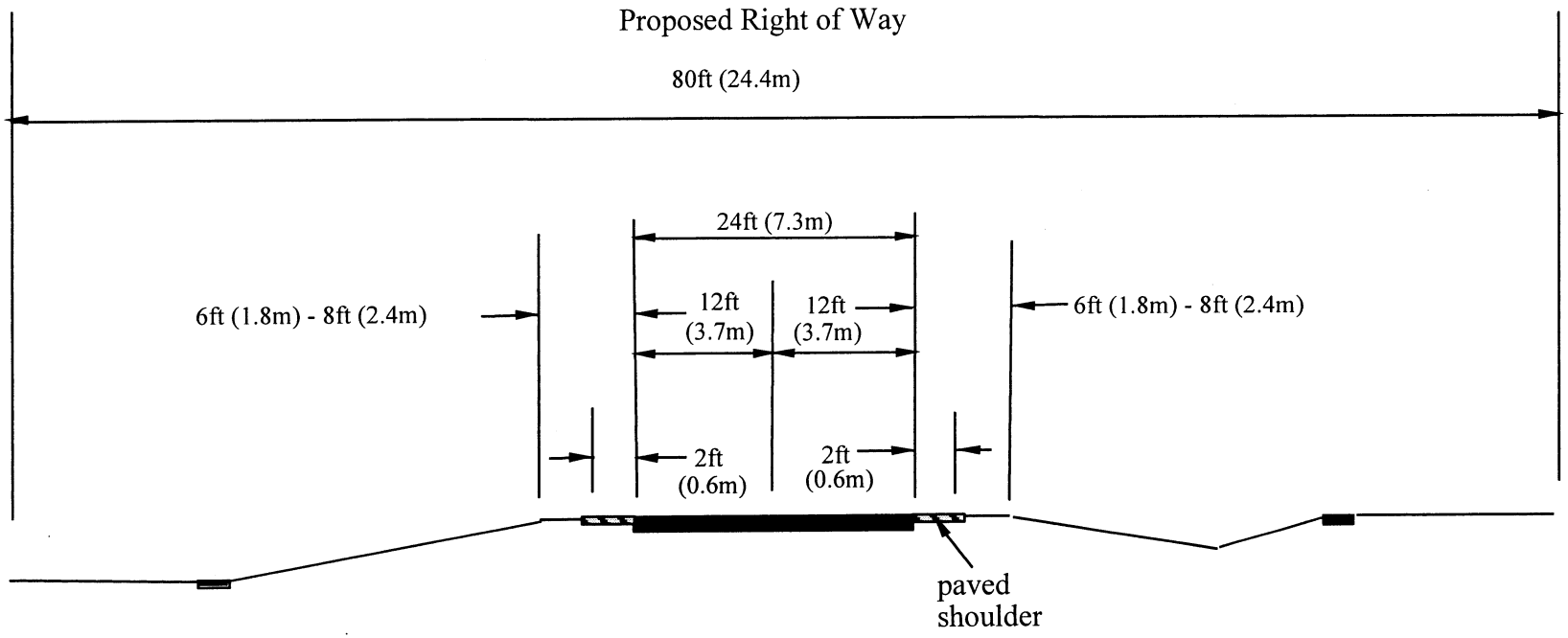
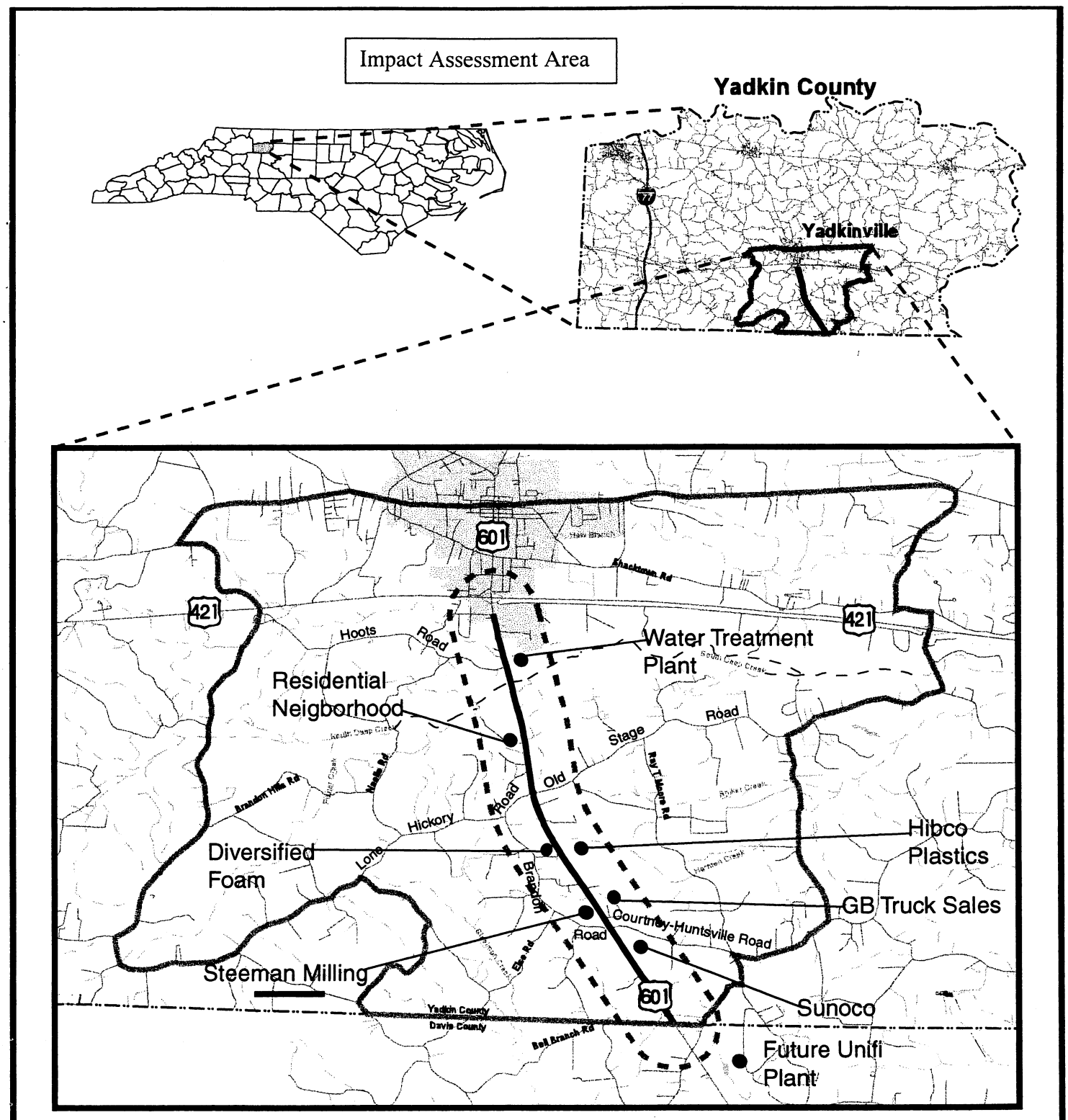


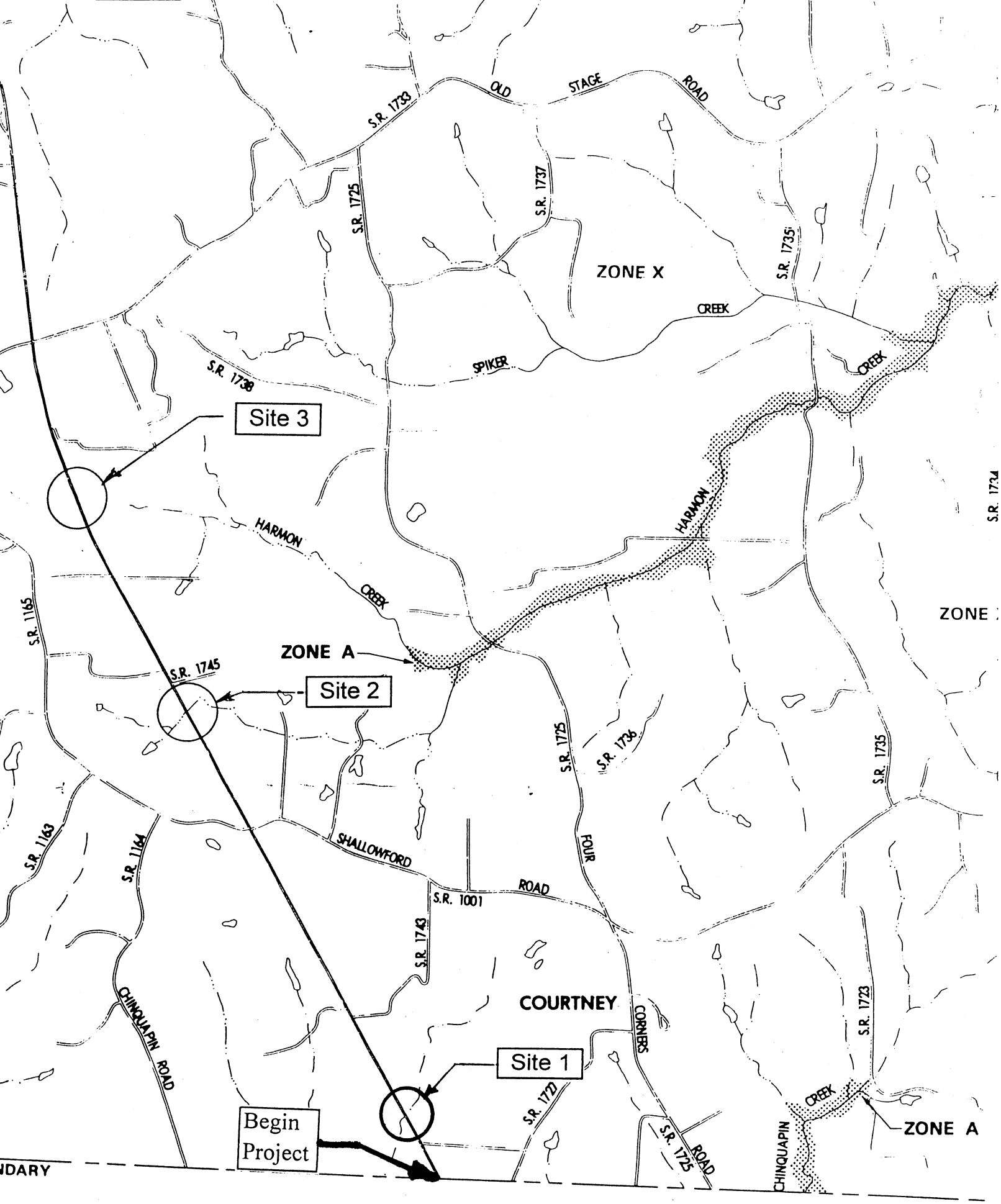
Figure 4



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

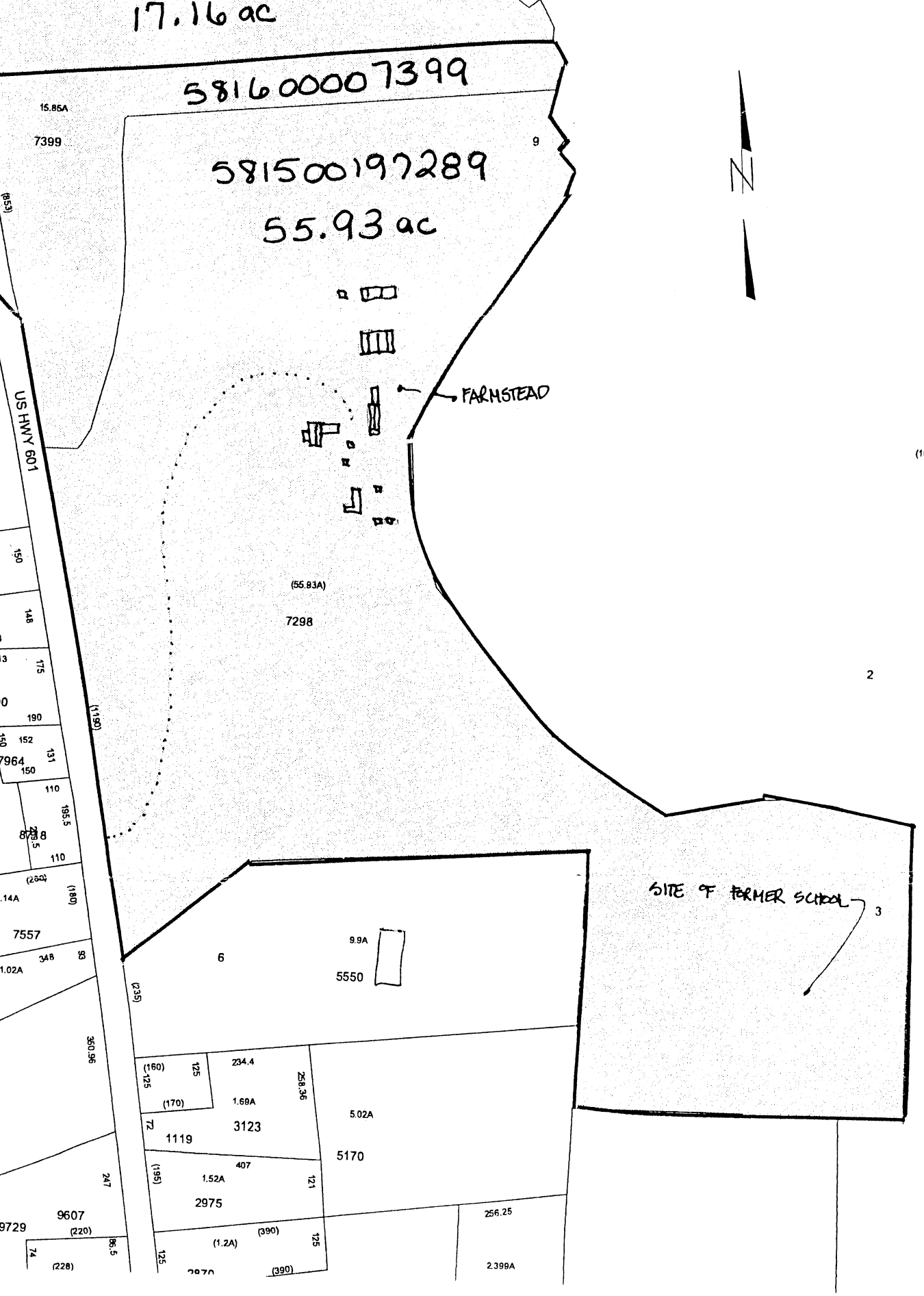
Yadkin County
US 601
from Davie County Line to
Yadkinville South City Limits
T.I.P. Project No. R-3427

Figure 5



Flood Insurance Rate Map

Figure 6



Historic Property Map

Figure 7

APPENDIX A

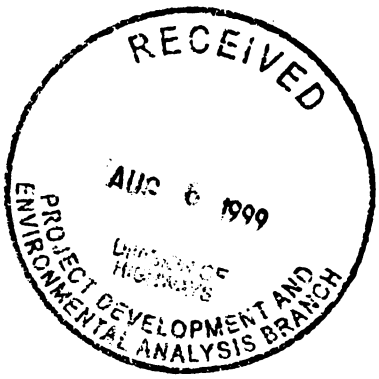
DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
P.O. BOX 1890
WILMINGTON, NORTH CAROLINA 28402-1890

August 5, 1999

IN REPLY REFER TO

Regulatory Division

SUBJECT: Action ID 199921175; TIP No. R-3427



William D. Gilmore, P.E., Manager
Project Development and
Environmental Analysis Branch
North Carolina Department of Transportation
Division of Highways
Post Office Box 25201
Raleigh, North Carolina 27611-5201

Dear Mr. Gilmore:

Reference your July 21, 1999 memorandum requesting comments on the proposed widening of US 601, from the Davie County line to the Yadkinville South City Limits, in Yadkin County, North Carolina (State Project No. 6.771006, TIP No. R-3427).

Prior Department of the Army permit authorization, pursuant to Section 404 of the Clean Water Act of 1977, as amended, will be required for the discharge of excavated or fill material into waters and/or wetlands in conjunction with this project, including the disposal of construction debris. Review of the project indicates that the proposed work will likely involve the discharge of excavated or fill material into waters and wetlands. Affected water bodies include South Deep Creek, below headwaters, and Harmon Creek, Dry Branch, and unnamed tributaries, above headwaters.

When final plans are completed, including the extent and location of any work within waters of the United States and wetlands, our Regulatory Division would appreciate the opportunity to review these plans for a project-specific determination of Department of the Army permit requirements. If there are only minor impacts to waters, including wetlands, the work might be authorized under one or more nationwide or regional

general permits provided avoidance and minimization are adequately addressed.

The Corps of Engineers must assess the impacts of such activities on the aquatic environment prior to issuing Department of the Army permits. Authorization of aquatic fill activities requires that the project be water dependent and/or that no practicable alternatives are available. Our initial review emphasis for North Carolina Department of Transportation (NCDOT) projects will focus on the impacts to waters and/or wetlands. However, if degradation to other aspects of the natural environment (e.g., habitat of endangered species) is considered to be of greater concern, an alternative resulting in greater aquatic losses may be chosen as preferred.

In all cases, and in accordance with the Memorandum of Agreement between the U.S. Environmental Protection Agency and the Corps, the sequencing process of avoidance, minimization, and compensatory mitigation of unavoidable wetland impacts will be satisfied prior to the final permit decision. A Department of the Army permit will not be issued until a final plan for compensatory mitigation is approved. Avoidance, minimization, and compensatory mitigation for stream impacts will be also required. Avoidance and minimization of impacts to jurisdictional waters of the United States can probably be best obtained by considering asymmetrical widening as a practicable alternative. Based on the probable impacts to wetlands and streams, a compensatory mitigation proposal should accompany any application to the Corps for this project.

I am responsible for processing your application and I am available to assist you if you have any questions or comments, at telephone (919) 876-8441, extension 23.

Sincerely,

Eric C. Alsmeyer
Regulatory Project Manager

North Carolina
Department of Administration

James B. Hunt, Jr., Governor

Katie G. Dorsett, Secretary

November 12, 1999

Mr. William Gilmore
N.C. Department of Transportatioin
Project Dev. and Env. Analysis
Transportation Building
Raleigh, NC 27603

Dear Mr. Gilmore:

Re: SCH File # 00-E-4220-0186; Scoping Proposed Improvements to US 601 in Yadkinville, from South of the City Limits to the Davie County Line; TIP #R-3427

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 I

116 West Jones Street Raleigh, North Carolina 27603-8003 Telephone 919-807-2425
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NCDENR

JAMES B. HUNT JR.
GOVERNOR

BILL HOLMAN
SECRETARY

NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES

MEMORANDUM

TO: Chrys Baggett
State Clearinghouse

FROM: Melba McGee
Environmental Review Coordinator

RE: 00E-0186 Scoping US 601 Widening,Yadkinville, Yadkin County

DATE: November 8, 1999

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

RECEIVED
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N.C. STATE CLEARINGHOUSE

NC SCHOOLS FIRST IN AMERICA 2010

1601 MAIL SERVICE CENTER, RALEIGH, NORTH CAROLINA 27699-1601
PHONE 919-733-4984 FAX 919-715-3060 WWW.ENR.STATE.NC.US/ENR/
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North Carolina Wildlife Resources Commission

512 N. Salisbury Street, Raleigh, North Carolina 27604-1188, 919-733-3391
Charles R. Fullwood, Executive Director

MEMORANDUM

TO: Chrys Baggett, Director
State Clearinghouse
Dept. of Administration

FROM: Ron Linville, Habitat Conservation Coordinator
North Carolina Wildlife Resources Commission

DATE: October 20, 1999

SUBJRCY: US 601, Yadkinville, South City Limits to Davie County Line, Yadkin County, State Project 6.771006, TIP Project R-3427

The North Carolina Department of Transportation (NCDOT) proposes to improve US 601 in Yadkin County by widening the existing two lane highway and adding a third lane on a portion of the improved roadway. Several intersection improvements will also occur during this project. Yadkin County is not a trout county so a trout waiver should not be anticipated. In order for biological staff of the North Carolina Wildlife Resources Commission to provide a meaningful review, the environmental document prepared for this project should include the following information:

1) Description of fishery and wildlife resources within the project area, including a listing of federally or state designated threatened, endangered, or special concern animal and plant species. Contact is the Ms. Susan Reece Giles of the North Carolina Natural Heritage Program (919/733-7701) and Mr. Mark Cantrell of the US Fish and Wildlife Service (704/258-3939, ext. 227).

2) Description and classification of waters and/or wetlands affected by the project.

3) Project map identifying wetlands and streams. Identification of wetlands may be accomplished through coordination with the U.S. Army Corps of Engineers. If the Corps is not consulted, the person delineating wetlands should be identified and criteria listed. Project sponsors should indicate whether the Corps has been contacted to determine the need for a 404 Permit under the Clean Water Act. Contact is Mr. Steve Lund at 704/271-4857.

4) Description of project activities that will occur within wetlands and stream channel alterations. Acreages of wetlands impacted and linear feet of stream channels to be relocated, channelized, or culverted by each alternative design should be listed.

5) Descriptions of permanent relocations and structures impacting waters should be specified. (Relocated channel designs should utilize bioengineering techniques. Any culvert modifications or replacements should be placed on grade for smaller streams or buried one foot into the substrate for larger streams whenever possible in a manner which will allow for fish and aquatic life passage on "live" streams during low flow conditions. Multiple culverts or piping should be placed so that a single lower culvert is utilized for base flow while all the culverts carry higher flood stages. Existing floodplains as well as stream pattern, dimension and profile should be maintained upstream and downstream of culverts.)

6) Description of project site and non-wetland vegetative communities.

7) The extent to which the project will result in loss, degradation, or fragmentation of wildlife habitat.

8) Any measures proposed to avoid or reduce impacts of the project or to mitigate for unavoidable habitat losses. A mitigation plan should be prepared and submitted along with the EA for review by permitting agencies.

9) A list of document preparers which shows each individual's professional background and qualifications.

Thank you for the opportunity to review and comment on this project. If you have any questions regarding these comments, please contact me at 336/769-9453.

Cc: Edwin Peters, NCDOT
Steve Lund, USACOE

State of North Carolina
Department of Environment and Natural Resources

Reviewing Office: _____

INTERGOVERNMENTAL REVIEW – PROJECT COMMENTS

Project Number: _____ Due Date: _____

After review of this project it has been determined that the ENR 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 the 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.	Application 180 days before begin activity. On-site inspection. Pre-application 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	Pre-application 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. Pre-application 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		
☑	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 Sect.) At least 30 days before beginning activity. A fee of $30 for the first acre and $20. for each additional acre or part must accompany the plan.		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 ENR. 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 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 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 ENR 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)

WETLANDS AND WATERS COMMENTS

Proceeding with pre-application meetings for acquiring the USACOE 404 permit and the DWQ 401 certification for this project prior to completing the environmental review would be advantageous. Although no permits or certifications can be issued until the environmental document is completed, the 404/401 pre-application process should provide additional insights into the project and avoidance measures. This would likely speed up the 404/401 review process.

The delineation of the wetland/waters impacts accomplished should be verified by the USACOE for both the acres of jurisdictional wetlands and jurisdictional linear footage of waters during this review. It is suggested that during the 404/401 review that site visits be coordinated so that USACOE and DWQ field personnel, water supply and stormwater administrators, and other interested parties can be present.

Bioengineering techniques and stream design criteria should be utilized for stream protection, relocations, and restorations as per fluvial morphology and restoration principles developed by Dave Rosgen, Luna Leopold, et. al.

It will be crucial during construction in or near wetlands and waters (by all parties contributing to this development), that all 404/401 conditions be followed without deviation (should they be issued) as specific conditions will help reduce the cumulative impacts associated with this project. Controlling equipment operators should be a high priority in order to prevent unpermitted impacts, unnecessary wetland losses, and to provide the required preservation or restoration of preexisting conditions and elevations. Restoration of any construction drained areas and revegetation must be accomplished after construction is finished. Floodplain pools should be avoided in order to protect any endangered or special concern species, if any.

NPDES STORMWATER PERMITS COMMENTS

Any construction activity including clearing, grading, and excavation activities resulting in the disturbance of five (5) or more acres of total land are required to obtain a NPDES Stormwater Permit prior to beginning these activities.

Any facility that is defined as having stormwater discharges associated with industrial activity is required to obtain a NPDES Stormwater Permit prior to beginning operation.

State stormwater permits are required for development activities draining to Outstanding Resource Waters or activities within one mile of and draining to High Quality Waters. The NPDES Permit must be obtained prior to development activities.

NCDENR

JAMES B. HUNT JR.
GOVERNOR

WAYNE MCDEVITT
SECRETARY

STANFORD M. ADAMS
DIRECTOR

NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF FOREST RESOURCES
2411 Old US 70 West
Clayton, NC 27520
October 27, 1999

MEMORANDUM

TO: Melba McGee, Office of Legislative Affairs

FROM: Bill Pickens, NC Division Forest Resources

SUBJECT: DOT Scoping for Widening US 601 from the Davie County Line to Yadkinville in Yadkin County

PROJECT #: 00-0186 & TIP # R-3427

The North Carolina Division of Forest Resources has reviewed the referenced scoping document and offers the following comments that should be addressed in the EA concerning impacts to woodlands.

1. The widening of an existing roadway usually has fewer impacts to forest resources than a new location project. Nonetheless, woodlands are likely to impacted. Therefore, the total forest land acreage by type that would be removed or taken out of forest production as a result of the project should be listed. Efforts should be made to align corridors to minimize impacts to following woodlands types listed in the order of priority:

    - Managed, high site index woodland
    - Productive forested woodlands
    - Managed, lower site index woodlands
    - Unique forest ecosystems
    - Unmanaged, fully stocked woodlands
    - Unmanaged, cutover woodlands
    - Urban woodlands

2. The productivity of the forest soils affected by the proposed project as indicated by the soil series.

3. The provisions the contractor will take to utilize the merchantable timber removed during construction. Emphasis should be on selling all wood products. However, if the wood products cannot be sold then efforts should be made to haul off the material or turn it into mulch with a tub grinder. This practice will minimize the need for debris burning, and the risk of escaped fires and smoke management problems to residences, highways, schools, and towns.

P.O. BOX 29581, RALEIGH, NC 27626-0581
PHONE 919-733-2162 FAX 919-715-4350

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4. If woodland burning is needed, the contractor must comply with the laws and regulations of open burning as covered under G.S. 113-60.21 through G.S. 113-60.31. Yadkin County is a non-high hazard county, and G.S. 113-60.24 requiring a regular burning permit would apply.

5. The provisions that the contractor will take to prevent erosion and damage to forestland outside the right-of-way. Trees, particularly the root system, can be permanently damaged by heavy equipment. Efforts should be to avoid skinning of the tree trunk, compacting the soil, adding layers of fill, exposing the root system, or spilling petroleum or other substances.

6. The impact upon any existing greenways in the proposed project area should be addressed.

We appreciate the opportunity to comment on the proposed project, and encourage the impact on our forestland be considered during the planning process.

cc: Warren Boyette

Northwest Piedmont Council of Governments

Matthew L. Dolge
Executive Director

(336) 761-2111
FAX (336) 761-2112

OCT 1999 RECEIVED

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OCT 14
YADKIN COUNTY MANAGER'S OFFICE

Intergovernmental Review Process
400 West Fourth Street, Suite 400
Winston-Salem, NC 27101

REVIEW & COMMENT FORM

The State Clearinghouse sent us the enclosed information about a proposal which could affect your jurisdiction. Please circulate it to the people you believe need to be informed.

If you need more information about the proposal, please contact the applicant directly. You may also contact Ms. Chrys Baggett, Director of State Clearinghouse, (919)733-7232.

If you wish to comment on the proposed action, complete this form and return it to the NWPCOG office by **October 26**. Please use the enclosed window envelope and make sure the return address shows.

We will send your comments to the State Clearinghouse to be included in a recommendation to the proposed funding agency.

State Application Number **00-E-4220-0186 Improvements to 601 in Yadkinville**

Commenter's Name & Title **Mr. Cecil Wood, County Manager**

Representing **Yadkin County** Phone **(336)679-4200**

Mailing Address **Post Office Box 146, Yadkinville, NC 27055**

Cecil E Wood Date signed 10-14-99

Signature

[X] I support this application.

COMMENTS: (You may attach additional sheets)

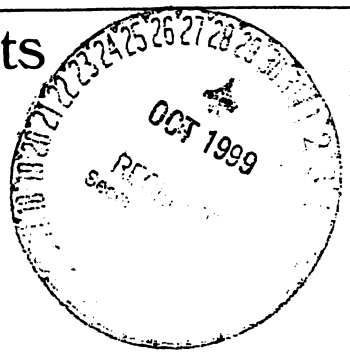
Project is needed, will be of great benefit to the area and traveling public.

Northwest Piedmont
Council of Governments

Matthew L. Dolge
Executive Director

(336) 761-2111
FAX (336) 761-2112

Intergovernmental Review Process
400 West Fourth Street, Suite 400
Winston-Salem, NC 27101



REVIEW & COMMENT FORM

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If you need more information about the proposal, please contact the applicant directly. You may also contact Ms. Chrys Baggett, Director of State Clearinghouse, (919)733-7232.

If you wish to comment on the proposed action, complete this form and return it to the NWPCOG office by **October 26**. Please use the enclosed envelope.

We will send your comments to the State Clearinghouse to be included in a recommendation to the proposed funding agency.

State Application Number **00-E-4220-0186 Improvements to 601 in Yadkinville**
Commenter's Name & Title **Mr. Kenneth Windley, County Manager**
Representing **Davie County** Phone **(336)751-5513**
Mailing Address **123 South Main Street, Mocksville, NC 27028**

Kenneth R. Windley Jr. Date signed 10-14-99
Signature

[ ] I support this application.

COMMENTS: (You may attach additional sheets)
This portion of U.S. 601 is narrow and dangerous. Davie County supports this widening project.

State of North Carolina
Department of Environment
and Natural Resources
Division of Water Quality

James B. Hunt, Jr., Governor
Bill Holman, Secretary
Kerr T. Stevens, Director

Water Supply Watershed
WS II Critical Area
Protected Area

October 11, 1999

MEMORANDUM

To: William D. Gilmore, P.E., Manager, NCDOT, Project Development & Environmental Analysis

From: John E. Hennessy, NC Division of Water Quality JEH

Subject: Scoping comments on the proposed improvements to US 601 from the Davie County Line to the Yadkinville South City Limits in Yadkin County, State Project No. 6.771006, TIP R-3427.

Reference your correspondence dated July 21, 1999 in which you requested comments for the referenced project. Preliminary analysis of the project reveals the potential for multiple impacts to perennial streams and jurisdictional wetlands in the project area. Further investigations at a higher resolution should be undertaken to verify the presence of other streams and/or jurisdictional wetlands in the area. In the event that any jurisdictional areas are identified, the Division of Water Quality requests that NCDOT consider the following environmental issues for the proposed project:

A. Review of the proposed project reveals the potential for impacts to a Water Supply Critical Area (West Fork Deep Run/Oak Hollow Reservoir). Prior to selecting an alternative that impacts the Water Supply Critical Area, the DOT needs to assess and document all other reasonable and feasible alternatives. The NCDWQ cannot permit impacts to valuable drinking water supplies that are otherwise avoidable. Prior to issuance of the 401 Water Quality Certification, the NCDOT will need demonstrate the rationale for the selected alternative and all efforts undertaken to ameliorate impacts.

B. We would like to see a discussion in the document that presents a clear purpose and need to justify the project's existence. Based on the information presented in your report, we assume that the Level-of- Service (LOS) is one of the primary reasons for the project. Therefore, the document should delineate a detailed discussion on the existing Level-of-Service as well as the proposed future Level-of-Service. The discussion for the future Level-of-Service should consider the Level-of-Service with and without the project.

C. The document should provide a detailed and itemized presentation of the proposed impacts to wetlands and streams with corresponding mapping.

D. There should be a discussion on mitigation plans for unavoidable impacts. If mitigation is required, it is preferable to present a conceptual (if not finalized) mitigation plan with the environmental documentation. While the NCDWQ realizes that this may not always be practical, it should be noted that for projects requiring mitigation, appropriate mitigation plans will be required prior to issuance of a 401 Water Quality Certification.

1621 Mail Service Center, Raleigh, North Carolina 27699-1621 Telephone 919-733-5083 FAX 919-715-6048
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E. Review of the project reveals that no Outstanding Resource Waters, High Quality Waters, Body Contact Waters, or Trout Waters will be impacted during the project implementation. However, impacts to waters classified, as Water Supply IV Critical Area will be impacted. The DWQ requests that DOT strictly adhere to North Carolina regulations entitled "Design Standards in Sensitive Watersheds" (15A NCAC 04B .0024) throughout design and construction of the project. This would apply for any area that drains to streams having WS (Water Supply), ORW (Outstanding Resource Water), HQW (High Quality Water), B (Bodv Contact), SA (Shellfish Water) or Tr (Trout Water) classifications.

F. When practical, the DWQ requests that bridges be replaced on the existing location with road closure. If a detour proves necessary, remediation measures in accordance with the NCDWQ requirements for General 401 Certification 2726/Nationwide Permit No. 33 (Temporary Construction, Access and Dewatering) must be followed.

G. The DWQ requests that hazardous spill catch basins be installed at any bridge crossing a stream classified as HQW or WS (Water Supply). The number of catch basins installed should be determined by the design of the bridge, so that runoff would enter said basin(s) rather than flowing directly into the stream.

H. If applicable, DOT should not install the bridge bents in the creek, to the maximum extent practicable.

I. Wetland and stream impacts should be avoided (including sediment and erosion control structures/measures) to the maximum extent practical. If this is not possible, alternatives that minimize wetland impacts should be chosen. Mitigation for unavoidable impacts will be required by DWQ for impacts to wetlands in excess of one acre and/or to streams in excess of 150 linear feet.

J. Borrow/waste areas should not be located in wetlands. It is likely that compensatory mitigation will be required if wetlands are impacted by waste or borrow.

K. DWQ prefers replacement of bridges with bridges. However, if the new structure is to be a culvert, it should be countersunk to allow unimpeded fish and other aquatic organisms passage through the crossing.

L. If foundation test borings are necessary; it should be noted in the document. Geotechnical work is approved under General 401 Certification Number 3027/Nationwide Permit No. 6 for Survey Activities.

M. In accordance with the NCDWQ Wetlands Rules {15A NCAC 2H.0506(b)(6)}, mitigation will be required for impacts of greater than 150 linear feet to any single perennial stream. In the event that mitigation becomes required, the mitigation plan should be designed to replace appropriate lost functions and values. In accordance with the NCDWQ Wetlands Rules {15A NCAC 2H.0506 (h)(3)}, the Wetland Restoration Program may be available for use as stream mitigation.

N. Sediment and erosion control measures should not be placed in wetlands.

O. The 401 Water Quality Certification application will need to specifically address the proposed methods for stormwater management. More specifically, stormwater should not be permitted to discharge directly into the creek. Instead, stormwater should be designed to drain to a properly designed stormwater detention facility/apparatus.

P. While the use of National Wetland Inventory (NWI) maps and soil surveys is a useful office tool, their inherent inaccuracies require that qualified personnel perform onsite wetland delineations prior to permit approval.

Thank you for requesting our input at this time. The DOT is reminded that issuance of a 401 Water Quality Certification requires that appropriate measures be instituted to ensure that water quality standards are met and designated uses are not degraded or lost. If you have any questions or require additional information, please contact John Hennessy at (919) 733-5694.

cc: Eric Alsmeyer, Corps of Engineers
Tom McCartney, USFWS
David Cox, NCWRC
Personal Files
Central Files

C:\ncdot\TIP R-3427\comments\R-3427 scoping comments.doc

Federal Aid # **6.771006** *TIP* # **R-3427** *County*: **Yadkin**

CONCURRENCE FORM FOR ASSESSMENT OF EFFECTS

Project Description: Improvements to US 601 from the Davie County Line to the Yadkinville City Limits

On March 19, 2002, representatives of the

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

Reviewed the subject project and agreed

- [ ] There are no effects on the National Register-listed property/properties located within the project's area of potential effect and listed on the reverse.
- [x] There are no effects on the National Register-eligible property/properties located within the project's area of potential effect and listed on the reverse.
- [ ] There is an effect on the National Register-listed property/properties located within the project's area of potential effect. The property/properties and the effect(s) are listed on the reverse.
- [ ] There is an effect on the National Register-eligible property/properties located within the project's area of potential effect. The property/properties and effect(s) are listed on the reverse.

Signed:

Representative, NCDOT — Date: 3/19/02

FHWA, for the Division Administrator, or other Federal Agency — Date: 3/19/02

Representative, HPO — Date: 3/19/02

State Historic Preservation Officer — Date: 3/19/02

Federal Aid # **STP-1820(2)** *TIP* # **R-3427** *County*: **Yadkin**

Properties within the area of potential effect for which there is no effect. Indicate if property is National Register-listed (NR) or determined eligible (DE).

HAUSER FARM (DE)

Properties within the area of potential effect for which there is an effect. Indicate property status (NR or DE) and describe the effect.

Reason(s) why the effect is not adverse (if applicable).

Initialed: NCDOT EJD FHWA MCD HPO RGS

APPENDIX B

RELOCATION REPORT

North Carolina Department of Transportation
DIVISION RIGHT OF WAY OFFICE

[X] E.I.S. [ ] CORRIDOR [ ] DESIGN

PROJECT:	6.771006	COUNTY	YADKIN	Alternate 1 of 1 Alternate	
I.D. NO.:	R-3427	F.A. PROJECT	STP-601(6)		
DESCRIPTION OF PROJECT:	US 601 FROM THE DAVIE COUNTY LINE TO THE YADKINVILLE SOUTHERN CITY LIMITS				

ESTIMATED DISPLACEES

Type of Displacee	Owner	Tenant	Total	Minority
Residential	1	0	1	0
Businesses	1	0	1	0
Farms	0	0	0	0
Non-Profit	0	0	0	0

INCOME LEVEL

0-15M	15-25M	25-35M	35-50M	50 UP
0	0	0	1	0

VALUE OF DWELLING

Owners		Tenants	
0-20M	0	$ 0-150	0
20-40M	0	150-250	0
40-70M	0	250-400	0
70-100M	1	400-600	0
100 UP	0	600 UP	0
TOTAL	1		

DSS DWELLING AVAILABLE

For Sale		For Rent	
0-20M	0	$ 0-150	0
20-40M	2	150-250	0
40-70M	1	250-400	5
70-100M	10	400-600	7
100 UP	20	600 UP	8
	33		20

ANSWER ALL QUESTIONS

Yes	No	Explain all "YES" answers.
	X	1. Will special relocation services be necessary?
	X	2. Will schools or churches be affect by displacement?
X		3. Will business services still be available after project?
X		4. Will any business be displaced? If so, indicate size, type, estimated number of employees, minorities, etc.
	X	5. Will relocation cause a housing shortage?
		6. Source for available housing (list).
	X	7. Will additional housing programs be needed?
X		8. Should Last Resort Housing be considered?
X		9. Are there large, disabled, elderly, etc. families?
	X	10. Will public housing be needed for project?
X		11. Is public housing available?
X		12. Is it felt there will be adequate DSS housing housing available during relocation period?
	X	13. Will there be a problem of housing within financial means?
X		14. Are suitable business sites available (list source).
		15. Number months estimated to complete RELOCATION? 12

REMARKS (Respond by Number)

3) Similar business services in area of the project are available and are not being affected.
4) Courtney Crossing Service Station – 1SB Business Full Service Station with Convenience Store with 3 Full time employees and 1 Part time employee.
6) Newspaper, Visual Survey, MLS, and Internet.
8) Will be implemented as necessary.
9) It is possible there may be some elderly, large, or disabled families affected on the project.
11) Yadkin County Housing Authority.
12) Yes, as indicated by the available housing list.
14) See item and 6.

Comments: (A) Available housing list was compiled from a Partial list and does not indicate the total available housing in Yadkin County. (B) There is a possibility that there are some Minority residents and business owners. However, a fair estimate from the limited contact and present information cannot be determined until initial contacts with those affected are made.

A. A. Adams — Right of Way Agent — 12-10-2001 — Date

Approved by — Date

Form 15.4 Revised 02/95 d

Original & 1 Copy: State Relocation Agent
2 Copy Area Relocation Office

APPENDIX C

NORTH CAROLINA DIVISION
FINAL NATIONWIDE SECTION 4(f) EVALUATION AND APPROVAL
FOR FEDERALLY-AIDED HIGHWAY PROJECTS WITH MINOR INVOLVEMENTS
WITH HISTORIC SITES

F. A. PROJECT STP-1423(2)

STATE PROJECT 8.7326024

T. I. P. NO. R-3427

Description:

The North Carolina Department of Transportation Division of Highways proposes to widen US 601 from the Yadkin/Davie county line to Yadkinville South City Limits, install a traffic signal and provide turn lanes at the US 601/ SR 1001 intersection, and replace Bridge No. 30 over South Deep Creek, in Onslow County.

		YES	NO
1.	Is the proposed project designed to improve the operational characteristics, safety, and/or physical condition of the existing highway facility on essentially the same alignment?	x	☐
2.	Is the project on new location?	☐	x
3.	Is the historic site adjacent to the existing highway?	x	☐
4.	Does the project require the removal or alteration of historic buildings, structures, or objects?	☐	x
5.	Does the project disturb or remove archaeological resources which are important to preserve in place rather than to recover for archaeological research?	☐	x
6.	a. Is the impact on the Section 4(f) site considered minor (i.e. no effect, no adverse effect)?	x	☐
	b. If the project is determined to have "no adverse effect" on the historic site, does the Advisory Council on	☐	x

Historic Preservation object to the determination of "no adverse effect"?

7.	Has the SHPO agreed, in writing, with the assessment of impacts and the proposed mitigation?	X	☐
8.	Does the project require the preparation of an EIS?	☐	X

ALTERNATIVES CONSIDERED AND FOUND NOT TO BE FEASIBLE AND PRUDENT

The following alternatives were evaluated and found not to be feasible and prudent:

		Yes	No
1.	Do nothing		
	Does the "do nothing" alternative:	X	☐
	(a) correct capacity deficiencies?	☐	X
or	(b) correct existing safety hazards?	☐	X
or	(c) correct deteriorated conditions?	☐	X
and	(d) create a cost or impact of extraordinary measure?	☐	X
2.	Improve the highway without using the adjacent historic site		
	(a) Have minor alignment shifts, changes in standards, use of retaining walls, etc., or traffic management measures been evaluated?	X	☐
	(b) The items in 2(a) would result in: (circle, as appropriate)	X	☐
	(i) substantial adverse environmental impacts		
	or (ii) substantial increased costs		
	or (iii) unique engineering, transportation, maintenance, or safety problems		

or (iv) substantial social, environmental, or economic impacts

or (v) a project which does not meet the need

or (vi) impacts, costs, or problems which are of extraordinary magnitude

		Yes	No
3.	Build an improved facility on new location without using the historic site.	x	☐

(a) An alternate on new location would result in: (circle, as appropriate)

(i) a project which does not solve the existing problems

or (ii) substantial social, environmental, or economic impacts

or (iii) a substantial increase in project cost or engineering difficulties

and (iv) such impacts, costs, or difficulties of truly unusual or unique or extraordinary magnitude

MINIMIZATION OF HARM

		Yes	No
1.	The project includes all possible planning to minimize harm necessary to preserve the historic integrity of the site.	x	☐
2.	Measures to minimize harm have been agreed to, in accordance with 36 CFR Part 800, by the FHWA, the SHPO, and as appropriate, the ACHP.	x	☐

3. Specific measures to minimize harm are described as follows:

(a) In the vicinity of the historic property, 2:1 sideslopes, the maximum sideslope steepness for roadway facilities, will be used along this section of US 601. Using the maximum sideslope will minimize the amount of right of way required for the project.

(b) The roadway is being widened to 12-foot lanes and 2-ft paved shoulders, which is the minimum standard lane and shoulder width for a 2-lane facility.

(c) Symmetrical widening is being utilized in order to maximize the use of the existing right of way.

COORDINATION

The proposed project has been coordinated with the following (attach correspondence):

a. State Historic Preservation Officer — see attachment
b. Advisory Council on Historic Preservation — see attachment

SUMMARY AND APPROVAL

The project meets all criteria included in the programmatic 4(f) evaluation approved on December 23, 1986.

All required alternatives have been evaluated and the findings made are clearly applicable to this project. There are no feasible and prudent alternatives to the use of the historic site.

The project includes all possible planning to minimize harm, and the measures to minimize harm will be incorporated in the project.

All appropriate coordination has been successfully completed with local and state agencies.

Approved:

7-10-02 Lyndi V. Pruett
Date Manager
Project Development and Environmental Analysis Branch, NCDOT

7/9/02 for Thomas D. Roth
Date Division Administrator, FHWA

Description of the Section 4(f) Resource and the Associated Impacts

John H. Hauser Farmstead -

The John H. Hauser Farmstead is located approximately one-quarter mile south of Deep Creek on the east side of US 601. The house was constructed in 1885 by John Henry Hauser (1847-1930). John Henry Hauser was the son of Thelphilus C. Hauser, a planter and Yadkin County politician. John H. Hauser enlisted in the Confederate Army in 1861 (Company B, 21st Regiment). He married Flora A. Transou (1849-1925) of Forsyth County in 1872 and constructed this two-story, three-bay farmhouse in 1885. The house is still owned by the descendants of John H. Hauser.

This property has been determined eligible for listing in the National Register of Historic Places. The John H. Hauser Farmstead boundaries include the entire 55.93 acres (22.6 ha) which the house, outbuildings, orchards, and fields currently occupy, as well as the Hauser family cemetery, located across US 601 from the house. The acreage associated with the farm, tenant houses, and mill operations in the late nineteenth century and first half of the twentieth century have been subdivided and developed with modern construction with the exception of the land within the recommended boundary. The boudary on the west side of US 601 follows a heavily wooded ridge line, which rises approximately 70 feet (21.3 m) in elevation from the roadbed at the northwest corner. Additional right of way will be required on both sides of the road, with the majority being on the east side of the road. To accommodate for the proposed widening, it is anticipated that on the east side, a 0.42 ha (1.04 ac) strip of right of way, which is 22 ft (6.7 m) wide and 2,044 ft (623.0 m) long, will be required from the John H. Hauser farmstead, and a 0.11 ha (0.28 ac) strip of right of way will be required on the west side, which is 22 ft (6.7 m) wide and 545 ft (166.1 m) long. The project will require a total of approximately 1.32 ac (0.53 ha) of the farmstead property. SHPO has concurred that the project will have no effect on the John H. Hauser Farmstead. Impacts to this historic farmstead will be minimized, as described in Section II.N of this report.

Since this project necessitates the use of a minor amount of land from a historic property which is adjacent to the existing roadway, and since the project meets the criteria set forth in the Federal Register (December 23, 1986), a Programmatic Section 4(f) evaluation satisfies the requirements of Section 4(f) of the Department of Transportation Act of 1966. The following alternatives, which avoid use of the historic site, have been fully evaluated: (1) do nothing, (2) improve the highway without using the adjacent historic site, and (3) build the roadway on new location without using the historic site. These alternatives were not found to be feasible and prudent. Alternatives to the proposed improvements are discussed in Section IV. of the Categorical Exclusion prepared for the project.

APPENDIX D

NOTICE OF A CITIZENS INFORMATIONAL WORKSHOP
FOR PROPOSED IMPROVEMENTS
ON US 601 FROM YADKINVILLE SOUTH CITY LIMITS
TO DAVIE COUNTY LINE

Project 6.771006 **R-3427** **Yadkin County**

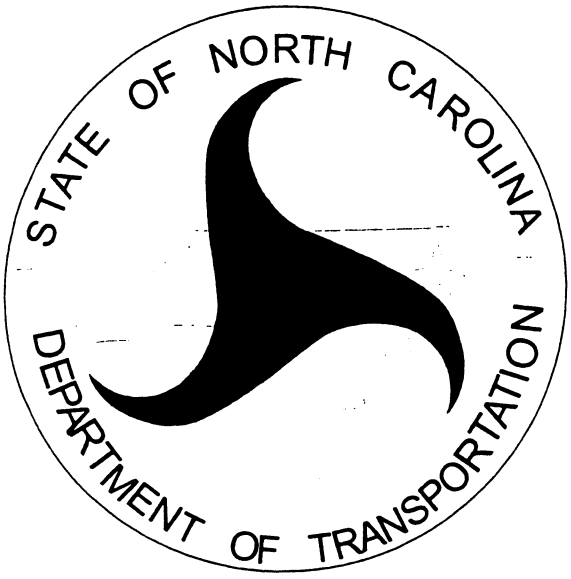
The North Carolina Department of Transportation (NCDOT) will hold a Citizens Informational Workshop on December 14, 1999, between the hours of 4:00 PM and 7:00 PM in the Board Room of the Town Hall located at 213 VanBuren Street in Yadkinville.

The proposed project will widen and improve US 601 and replace Bridge No. 30 over South Deep Creek. Comments from the public will be used in the preparation of the environmental document being developed for this project.

NCDOT representatives will be available at the workshop to answer questions and receive comments relative to the proposed project. Information at the workshop will be general in nature. No detailed designs are available. Interested individuals may attend at their convenience during the above-stated hours. Anyone desiring additional information may contact Mr. Edwin A. Peters, Project Development Engineer, at P. O. Box 25201, Raleigh, NC 27611, or call 919-733-7844, ext. 228.

In order to comply with the Americans with Disabilities Act, NCDOT will provide auxiliary aids and services for disabled persons who wish to attend the workshop. To receive special services, please contact Mr. Peters at the above address or fax 919-733-9794 prior to the date of the workshop.

North Carolina Department of Transportation
Planning and Environmental Branch



US 601 WIDENING FROM THE DAVIE COUNTY LINE TO THE YADKINVILLE SOUTH CITY LIMITS, YADKINVILLE, YADKIN COUNTY
TIP PROJECT NO. R-3427

DECEMBER 14, 1999

Citizens Informational Workshop

CITIZENS INFORMATIONAL WORKSHOP

US 601 WIDENING FROM THE DAVIE COUNTY LINE TO THE YADKINVILLE SOUTH CITY LIMITS, YADKINVILLE, YADKIN COUNTY
TIP PROJECT NO. R-3427

Purpose of the Citizens Informational Workshop

The purpose of the Citizens Informational Workshop is to involve the public in the project planning process. If you have comments or suggestions about the proposed improvements described in this handout, please let a representative of the North Carolina Department of Transportation know. A comment sheet is provided for you to write down your questions or concerns so that we can keep a record of and fully consider your ideas, comments, and suggestions.

The North Carolina Department of Transportation realizes individuals living close to a proposed project want to be informed of the possible effects of the project on their homes and businesses. However, exact information is not available at this stage of the planning process. Additional design work is necessary before the actual right of way limits can be established. More detailed information will be available at a later date.

A comment sheet is included in this handout. Written comments on this project may be left with North Carolina Department of Transportation representatives at the Citizens Informational Workshop or submitted through the mail. If additional information is needed or you would like to submit comments after the Citizens Informational Workshop, please address your requests and comments to:

Mr. William D. Gilmore, P.E., Manager
Program Development and Environmental Analysis Branch
North Carolina Department of Transportation
P.O. Box 25201
Raleigh, North Carolina 27611

Description of the Project

The North Carolina Department of Transportation's 2000-2006 Transportation Improvement Program (TIP) proposes to widen US 601, provide turning lanes and install a traffic signal at SR 1001 (Courtney Huntsville Road). Existing US 601 between the Davie County Line and the Yadkinville South City limit consists of very narrow travel lanes (10') and poor vertical alignment. The purpose of the project is to improve the safety along US 601 from the Davie County line to the City of Yadkinville south city limits.

Project Schedules

The proposed project is scheduled for right of way acquisition in fiscal year (FY) 2001 and for construction in FY 2003. The current cost estimate is $9,500,000, which includes $9,200,000 for construction and $300,000 (TIP) for right of way acquisition.

Current Status

Currently, planning and environmental studies are in progress. A Categorical Exclusion is scheduled to be completed in October 2000. A public hearing will be scheduled following the completion of the Categorical Exclusion. At this public hearing, the public will have an opportunity to review a map showing the proposed design. Factors which may affect the design of this project include engineering criteria and environmental factors such as relocation of homes or businesses, wetlands, historic sites, etc. A form is available from NCDOT representatives if you feel you have or know of a structure which has historical significance. The improvements currently under investigation are described in the next paragraphs.

Proposed Improvements

Proposed improvements include widening US 601 roadway to accommodate 12-foot lanes and possibly three lanes in the SR 1001 (Courtney Huntsville Road) vicinity. In addition, Bridge No. 30 over South Deep Creek will be replaced. Intersection improvements including installation of traffic signals and providing turning lanes at the intersections of US 601/SR 1001 (Courtney Huntsville Road) and US 601/SR 2002 (Lone Hickory Road) are currently being investigated as well.

Anticipated Right of Way Impacts

The existing right of way on US 601 is approximately 60 feet. It is anticipated that approximately 80 feet of right of way will be needed to accommodate the proposed improvements.

NCDOT will use the result of the environmental and engineering studies within the study corridor to develop an alignment which is safe and cost effective and which minimizes impacts to existing development and historic and natural resources.

No final decisions have been made regarding this project. Therefore, the above information and schedule are preliminary and subject to change. As planning for the project continues, we will include all comments and suggestions to the extent possible.

COMMENT SHEET

US 601 Widening from the Davie County Line to Yadkinville south city limits,
Yadkin County
TIP Project No. R-3427

(You do not have to answer all the questions on these sheets, but please take the time to give us your comments and concerns regarding this project. Please continue any responses on the back of this sheet.)

NAME: _____
(Please print)

ADDRESS: _____
(Please print)

COMMENTS, CONCERNS AND/OR QUESTIONS REGARDING PROJECT R-3427:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

(If you need additional space, please continue on the back.)

WE WOULD APPRECIATE YOUR RESPONSES TO THE FOLLOWING QUESTIONS.

WAS THE PROJECT ADEQUATELY EXPLAINED TO YOU? _____ WERE NCDOT REPRESENTATIVES UNDERSTANDABLE AND CLEAR IN THEIR EXPLANATIONS? _____ PLEASE EXPLAIN. _____

WERE DISPLAY MAPS EASY TO READ AND UNDERSTAND? _____ PLEASE EXPLAIN. _____

WERE NCDOT REPRESENTATIVES COURTEOUS AND HELPFUL? _____ PLEASE EXPLAIN. _____

HOW MIGHT WE BETTER PRESENT PROPOSED PROJECTS AND ADDRESS CITIZEN'S CONCERNS IN FUTURE INFORMATIONAL WORKSHOPS?

HOW DID YOU HEAR ABOUT THIS MEETING TODAY? _____

DO YOU FEEL THE MEETING WAS ADEQUATELY PUBLICIZED? _____ PLEASE EXPLAIN. _____

Additional comments can be sent to Mr. William D. Gilmore, P.E., Manager of the Project Development and Environmental Analysis Branch, North Carolina Department of Transportation, P.O. Box 25201, Raleigh, North Carolina 27611.