STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

February 17, 2005

US Army Corps of Engineers
Regulatory Branch
6508 Falls of the Neuse Road
Raleigh, NC 27615

ATTENTION: Mr. John Thomas
NCDOT Coordinator

Dear Sir:

SUBJECT: **Application for Nationwide Permit 14, 33, and Riparian Buffer Certification** for the widening of SR 1424 (Hilltop Road) from East of SR 1546 (Guilford College Road) at Chelsea Acres Court to SR 4150 (Adams Farm Parkway) in Guilford County. NCDOT Division 7, Federal Project No. STP-1424 (3), State Project No. 82496401, T.I.P. No.U-3612, $475.00 Debit work order 82496401, WBS Element No. 34960.1.1.

Please find enclosed a copy of the half-size roadway designs plans, Pre-construction Notification, Stormwater Management Plan, EEP Acceptance letter, Randleman Variance Application, and permit drawings for the subject project. The Environmental Assessment for this project was completed in January 2003 and the Finding of No Significant Impact was completed in August 2003. Additional copies are available upon request.

The NCDOT proposes to widen Hilltop Road (SR 1424) from East of Guilford College Road (SR 1546) at Chelsea Acres Court to Adams Farm Parkway (SR 4150). The proposed project will widen the existing two-lane roadway equalaterly to a five lane, with 2-foot 6-inch curb and gutter along both sides of the roadway, a 10-foot berm (14-foot with guardrail), and a 5-foot sidewalk along the south side of Hilltop Road. The improved facility will include a 12-foot wide center turn lane, two 12 foot inside travel lanes, and 14 foot outside travel lanes. The proposed improvement will also replace the existing structural plate pipe arch over a Unnamed Tributary (UT) to Bull Run with a new single barrel 7' x 8' reinforced concrete box culvert (RCBC). A temporary onsite detour alignment to the south and a 8-foot pipe extension for stream conveyance through detour will be used. The total project length is 0.63 miles.

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 CAPITOL BOULEVARD
PARKER LINCOLN BUILDING, SUITE 168
RALEIGH NC 27699

The purpose of this project is to improve the traffic flow and safety along Hilltop Road. Construction of the proposed project will necessitate impacts to jurisdictional waters. This project is located in the Cape Fear River Basin within HUC 03030003. There will be a total of 89 feet of jurisdictional stream channel impacted, 0.06 acres of wetland, and 15,544 square feet of impacts to protected buffers within the Randleman Lake Watershed. Impacts from this project will qualify for permitting under a Nationwide Permit 14. The North Carolina Ecosystem and Enhancement Program (EEP) will provide compensatory mitigation. This project has a let date of October 18, 2005.

NEPA Document Status

An Environmental Assessment (EA) was prepared by the North Carolina Department of Transportation and approved January 10, 2003. A Finding of No Significant Impact (FONSI) was approved on August 25, 2003. In addition, existing and projected conditions in the study area were described including natural systems and wetlands. Alignments were evaluated with respect to costs, social and economic impacts, and environmental consequences. The EA and FONSI have been provided to regulatory review agencies involved in the approval process. Additional copies will be provided upon request.

The subject project is in compliance with 23 CFR Part 771.111(f) which lists the Federal Highway Administration (FHWA) characteristics of independent utility of a project:

(1) The project connects logical termini and is of sufficient length to address environmental matters on a broad scope;

(2) The project is usable and a reasonable expenditure, even if no additional transportation improvements are made in the area;

(3) The project does not restrict consideration of alternatives for other reasonably foreseeable transportation improvements.

Resource Status

Waters of the United States: An unnamed tributary (UT) to Bull Run and associated wetland community are the only water resources within project area. The UT is a perennial stream approximately 7-foot wide at the streambed with 6-foot banks and has a substrate composed of course sand. The wetland associated with the UT is a riverine palustrine broad-leaved deciduous forest.

Jurisdictional Delineations: NCDOT Biologists verified stream status and mitigation requirements with the USACE and NC DWQ on November 17, 2003. Impacts are reported in Table 1.

Table 1. Stream and Wetland Impacts for TIP Project U-3612, Guilford County.

Site	Station	Stream Name	DWQ Index No.	Stream Impacts feet	Wetland Impacts (ac)
1	22+31-L- (RT) to 23+24-L-	UT to Bull Run	17-5-(1)	89	0.06

project will not by itself, spur additional development or contribute to the degradation of downstream water quality (see attached Indirect and Cumulative Effects Report).

Federally Protected Species

Plants and animals with federal classifications of Endangered, Threatened, Proposed Endangered, and Proposed Threatened are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of January 29, 2003 the United States Fish and Wildlife Service (USFWS) lists one federally protected species for Guilford County, the bald eagle (*Haliaeetus leucocephalus*). The federal status of the bald eagle is Threatened and Proposed for Delisting. No habitat was found in the project area and the biological conclusion is No Effect. Since the original Environmental Assessment was prepared no species have been added to or removed from the list.

Cultural Resources

Archaeological and Historic Resources: According to a memo dated March 6, 2001 from the State Historic Preservation Office (SHPO), there are no known properties of historical, architectural, or archaeological significance which would be affected by the project (Appendix C of the EA).

Avoidance, Minimization, and Compensatory Mitigation

The CEO 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. Mitigation of wetland impacts has been defined by the CEQ to include: avoiding impacts, minimizing impacts, rectifying impacts, reducing impacts over time and compensating for impacts (40 CFR 1508.20). Executive Order 11990 (Protection of Wetlands) and Department of Transportation Order 5660.1A (Preservation of the Nations Wetlands), emphasize protection of the functions and values provided by wetlands. These directives require that new construction in wetlands be avoided as much as possible and that all practicable measures were taken to minimize or mitigate impacts to wetlands.

The NCDOT is committed to incorporating all reasonable and practicable design features to avoid and minimize wetland impacts, and to provide full compensatory mitigation of all remaining wetland impacts. Avoidance measures were taken during the planning and EA phases; minimization measures were incorporated as part of the project design.

Avoidance: All jurisdictional areas not directly affected by the project will be protected from unnecessary encroachment.

Minimization: Jurisdictional impacts were minimized to the maximum extent practical. In addition to directly avoiding wetlands and streams, NCDOT is incorporating the following measures to minimize impact to wetlands and surface waters:

1. Use of 2:1 fill slopes in jurisdictional area.

2. Use of grass swales to diffuse water flow and for treatment before it enters the buffer and wetland areas.

3. No staging of construction equipment or storage of construction supplies will be allowed in wetlands or near surface waters.

4. Widening on existing alignment.
5. Placement of sewer line above the culvert beneath roadway fill.

Mitigation: The primary emphasis of the compensatory mitigation is to reestablish a condition that would have existed if the project were not built. As previously stated, mitigation is limited to reasonable expenditures and practicable considerations related to highway operation. Mitigation is generally accomplished through a combination of methods designed to replace wetland functions and values lost as a result of construction of the project. These methods consist of creation of new wetlands from uplands, borrow pits, and other non-wetland areas; restoration of wetlands; and enhancement of existing wetlands. Where such options may not be available, or when existing wetlands and wetland-surface water complexes are considered to be important resources worthy of preservation, consideration is given to preservation as at least one component of a compensatory mitigation proposal.

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 Ecosystem Enhancement Program (EEP), will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for NCDOT projects that are listed in Exhibit 1 of the subject MOA during the EEP transition period which ends on June 30, 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. The offsetting mitigation will derive from an inventory of assets already in existence within the same 8-digit cataloguing unit. An acceptance letter for compensatory mitigation form EEP dated January 4, 2005 is attached. The Department has avoided and minimized impacts to jurisdictional resources to the greatest extent possible as described above. The unavoidable impacts to 89 feet of a jurisdictional stream, 0.06 acres of riverine wetland, and 9,619 ft^2 of Zone 1 and 5,925 ft^2 of Zone 2 buffer impacts will be offset by compensatory mitigation provided by the EEP program.

Regulatory Approvals

Application is hereby made for the Department of Army Section 404 Nationwide 14 for the above-described activities and for the issuance of a Nationwide Permit 33 authorizing use of the temporary pipe extension and dewatering for culvert construction.

We are also hereby requesting a 401 Water Quality Certification, Randleman Buffer Certification and Randleman Buffer Variance from the Division of Water Quality. In compliance with Section 143-215.3D(e) of the NCAC we will provide $475.00 to act as payment for processing the Section 401 permit application previously noted in this application (see Subject line). We are providing seven copies of this application to the North Carolina Department of Environment and Natural Resources, Division of Water Quality, for their review.

A copy of this permit application will be posted on the NCDOT website at: http://www.ncdot.org/planning/pe/naturalunit/Permit.html. If you have any questions or need additional information please call Ms. Deanna Riffey at (919) 715-1409.

Sincerely,

Gregory Thorpe, Ph.D
Environmental Management Director, PDEA

Cc:

W/attachment

Mr. John Hennessy, Division of Water Quality (7 copies)
Mr. Travis Wilson, NCWRC
Mr. Gary Jordan, USFWS
Mr. Greg Perfetti, P.E., Structure Design
Dr. David Chang, P.E., Hydraulics
Mr. J. M. Mills, P.E.
Mr. Mark Staley, Roadside Environmental
Mr. Jerry Parker, DEO

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
Ms. Jennifer Safron, PDEA Project Planning Engineer
Ms. Beth Harmon, EEP
Mr. Carl Goode, PE

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: NW 14 , 33, & Randleman Buffer

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: NCDOT
   Mailing Address: Project Development & Environmental Analysis Branch
   1548 Mail Service Center
   Raleigh, NC 27699-1548

   Telephone Number: (919) 733-3141 Fax Number: (919) 733-9794
   E-mail Address: gthorpe@dot.state.nc.us

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: _____
   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 Hilltop Road (SR 1424) from East of Guilford College Road (SR 1546) at Chelsea Acres Court to Adams Farm Parkway (SR 4150)

2. T.I.P. Project Number or State Project Number (NCDOT Only): U-3612

3. Property Identification Number (Tax PIN): _____

4. Location
   County: Guilford Nearest Town: Jamestown
   Subdivision name (include phase/lot number): _____
   Directions to site (include road numbers, landmarks, etc.): From Raleigh – I-40 West, Exit 213 (Guilford College Road), Right on Hilltop Road

5. Site coordinates, if available (UTM or Lat/Long): 36° 02' 21" N / 79° 54' 38" 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): 0.63 miles (length)

7. Nearest body of water (stream/river/sound/ocean/lake): Unnamed Tributary to Bull Run

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

9. Describe the existing conditions on the site and general land use in the vicinity of the project at the time of this application: SR 1424 is classified as a Major Thoroughfare in the Greensboro Urban Area Thoroughfare Plan and is classified as a Minor Urban Arterial on the North Carolina Statewide Functional Classification System.

10. Describe the overall project in detail, including the type of equipment to be used: (see cover letter)

11. Explain the purpose of the proposed work: Purpose of this project is to improve traffic flow and safety.

IV. Prior Project History

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

N/A

V. Future Project Plans

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

N/A

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

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to wetlands, open water, and stream channels associated with the project. 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.

1. Provide a written description of the proposed impacts: (see cover letter)

2. 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***
Site1	Permanent	0.06	No	5	Riverine

* 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: 0.06 acres

Total area of wetland impact proposed: 0.06 acres

3. 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	Permanent	89 ft	UT to Bull Run	7 ft	Perennial
Site 1	Temporary Fill	0.005	UT to Bull Run	7 ft	Perennial

* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: culverts and associated riprap, 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, riprap, 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.).

Cumulative impacts (linear distance in feet) to all streams on site: 89 feet

4. 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.)
N/A				

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

5. 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.):_____

_____

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

_____

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

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.

(see cover letter)

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.
   Mitigation required – EEP. See cover letter for details.

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

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 Randleman Rules)?

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	9,619	3	N/A
2	5,925	1.5	N/A
Total	15,544		

* 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.

Mitigation is provided by North Carolina Ecological Enhancement Program

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.

N/A

XII. Sewage Disposal (required by DWQ)

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

N/A

XIII. Violations (required by DWQ)

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

Yes ☐ No ☒

Is this an after-the-fact permit application?

Yes ☐ No ☒

XIV. 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).

N/A

2/23/05

Applicant/Agent's Signature **Date**

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

DRAFT VERSION 2
02/26/02

OFFICE USE ONLY: Date Received	Request #

State of North Carolina, Department of Environment and Natural Resources, Division of Water Quality

"General" Major Variance Application Form –

From the Randleman Lake Water Supply Watershed: Protection and Maintenance of Riparian Areas Rule (Randleman Buffer Rule) for PUBLIC ROAD CONSTRUCTION, IMPROVEMENT & MAINTENANCE ACTIVITIES (As approved by the Water Quality Committee of the Environmental Management Commission on February 14, 2002)

NOTE:
To constitute a complete application, all of the information requested in this form must be provided. Incomplete applications will be returned to the applicant. The original and two copies of the completed "General" Variance Application Form and any attachments must be sent to the DWQ 401/Wetlands Certification Unit, 1650 Mail Service Center, Raleigh, NC 27699-1650, (919) 733-1786 and one copy needs to be sent to the Piedmont Triad Regional Water Authority (PTRWA), 2216 W. Meadowview Rd., Wilmington Bldg., Suite 204, Greensboro, NC 27407, (336) 547-8437 to constitute a complete submittal. This form may be photocopied for use as an original.

Part 1: General Information

(Please include attachments if the room provided is insufficient.)

1. Applicant's name (the Division Engineer, project manager, person responsible for project):

2. Print Owner/Signing Official (person legally responsible for the property and its compliance)
   Name: NCDOT
   Title: Project Development and Environmental Analysis
   Street address: 1548 Mail Service Center
   City, State, Zip: Raleigh NC 27699-1548
   Telephone: ( )
   Fax: ( )

3. Contact person who can answer questions about the proposed project:
   Name:
   Telephone: (919) 733-3141
   Fax: (919) 733-9794
   Email:

4. Project Name (Subdivision, facility, or establishment name - consistent with project name on plans, specifications, letters, operation and maintenance agreements, etc.):
   TIP U-3612

5. Project Location:
   Street address:
   City, State, Zip:
   County: Guilford County
   Latitude/longitude:

6. Directions to site from nearest major intersection (Also, attach an 8 ½ x 11 copy of the portion of the USGS topographic map and soil survey indicating the location and boundaries of the site):

   _____
   _____
   _____
   _____

7. Stream to be impacted by the proposed activity:
   Stream name (for unnamed streams label as "UT" to the nearest named stream):

   _____
   Stream classification [as identified within the Schedule of Classifications 15A NCAC 2B .0311 (Cape Fear River Basin)]: _____

8. Which of the following permits/approvals will be required or have been received already for this project?

Required:	Received:	Date received:	Permit Type:
_____	_____	_____	401 Certification/404 Permit
_____	_____	_____	Others (specify) _____

Part 2: Proposed Activity

(Please include attachments if the room provided is insufficient.)

1. Description of proposed activity [Also, please attach a map of sufficient detail (such as construction or site plans) to accurately delineate the boundaries of the land to be utilized in carrying out the activity, the location and dimension of any disturbance in the riparian buffers associated with the activity, and the extent of riparian buffers on the land. **Include the area of buffer impact in ft^2 for each zones.**: *Zone 1 = 9619 ft^2; Zone 2 = 5925 ft^2*
   Widening of SR 1424 (Hilltop Rd.) from East of SR 1546 (Guilford College Rd.) at Chelsea Acres Ct. to SR 4150 (Adams Farm Parkway) in Greensboro. _____
   _____
   _____

2. State reasons why this plan for the proposed activity cannot be practically accomplished, reduced or reconfigured to better minimize or eliminate disturbance to the riparian buffers:
   The proposed widening of existing roadway will require fill over riparian buffers. This fill is minimized by utilizing symmetrical widening, rather than a new location alternative. All other alternatives are impractical in this urban setting. _____
   _____

3. If sheet flow of concentrated runoff cannot be achieved prior to entering the buffers, then please provide information on any on-site stormwater management facilities (e.g., grassed swales, extended detention wetlands, etc.) that will be used to control nutrients and attenuate flow (attach construction details and site locations of these plans):
   Where sheet flow could not be maintained, grassed swales were implemented to treat the discharge before reaching the buffers. The proposed drainage design was presented at the Permit Review meeting (with DWQ in attendance). Beth Barnes of DWQ was in favor of the proposed design and the request for a General Major Variance, since it will prevent erosion in the buffers. See plans for location and design data. _____
   _____

4. How do you intend to provide mitigation if required under Condition No. 7 of the variance? (Attach a Mitigation Plan if you intend to satisfy the mitigation requirement through the restoration of riparian buffers.) EEP

5. Please provide an explanation of the following:
   (1) The practical difficulties or hardships that would result from the strict application of this Rule.
   If proposed ditches are not allowed through the buffers to replace the existing ditches lost due to the road widening, the inevitable reconcentration of flow would result in the formation of eroded gullies through the buffers.

   (2) How these difficulties or hardships result from conditions that are unique to the property involved.
   Sheet flow through the buffers cannot be maintained on this property due to the steepness of the existing topography.

Part 3: Agent Authorization

If you wish to designate submittal authority to another individual or firm so that they may provide information on your behalf, please complete this section:

Designated agent (individual or firm): _____
Mailing address: _____
City, State, Zip: _____
Telephone: _____
Fax: _____
Email: _____

Part 4: Applicant's Certification

I, _____ (print or type name of person listed in Part I, Item 2), certify that the information included on this permit application form is correct, that the project will be constructed in conformance with the approved plans.

Signature: _____
Date: _____
Title: _____

NC Division of Water Quality (DWQ)
401 Wetlands Certification Unit
2321 Crabtree Blvd. (LOCATION)
1650 Mail Service Center (MAILING ADDRESS)
Raleigh, NC 27699-1650
(919) 733-1786

Piedmont Triad Regional Water Authority (PTRWA)
2216 W. Meadowview Rd.
Wilmington Bldg., Suite 204
Greensboro, NC 27407
(336) 547-8437

STORMWATER MANAGEMENT PLAN

Project: U-3612 (34960.1.1) October 21, 2003
Location: Widening of SR 1424 (Hilltop Rd.), Guilford Co.
Hydraulics Project Manager: Jay Twisdale, PE

ROADWAY DESCRIPTION

The project involves the widening of SR 1424 (Hilltop Rd.) from east of SR 1546 (Guilford College Rd.) at Chelsea Acres Court to Adams Farm Pkwy. The overall length of the project is 0.6 mi., and the existing 2-lane, 2-way road is being widened to a 5-lane curb & gutter roadway. There is one major crossing on the project, which is a proposed box culvert.

ENVIRONMENTAL DESCRIPTION

The project is located in the Randleman Lake Water Supply Watershed. There is one stream crossing at a tributary to Bull Run Creek (Sheet 5, Sta. 23+12 –L-), which is classified as WS-IV. Randleman buffer impacts will occur at this stream crossing. There is also one wetland at this crossing which will be impacted by the proposed widening. Under Randleman Rules with "General" Major Variance, this crossing is allowable, no mitigation required (less than 150 L.F. and less than 1/3 Ac.).

BEST MANAGEMENT PRACTICES AND MAJOR STRUCTURES

Best Management Practices (BMPs) and measures used on the project to reduce stormwater impacts are listed below. All stormwater being discharged through the buffers is either diffuse flow or has been treated prior to entering the buffers.

GRASSED SWALES
SITE 1
Sta. 23+65 to Sta. 24+50 –L- Lt.
Sta. 24+50 to Sta. 26+00 –L- Rt.

Additional grassed swales designed but not claimed for credit:
Sta. 23+16 to Sta. 23+65 –L- Lt.
Sta. 23+33 to Sta. 24+10 –L- Rt.

CULVERT
SITE 1
Sta. 23+12 –L-
The existing 7'-6" x 5'-4" structural plate pipe arch with 96" corrugated metal pipe extensions is to be replaced by a 7' x 8' box culvert buried approx. one foot below the stream bed (the existing pipe arch is not buried). The proposed box culvert has been designed so that no stream rechannelization will be required. Normal stream flow and channel characteristics will be maintained.

MISCELLANEOUS
SITE 1
2:1 fill slopes are used through the buffer zones to reduce impacts.

Sta. 22+00 –L- Rt.: The system outlet has been shifted 89' from the sag location (within the buffers) to discharge approx. 70' from the buffer zone. The system outlet is carried in a 40' long ditch before being discharged as diffuse flow across the wetland and buffers.

Ecosystem Enhancement PROGRAM

January 4, 2005

Mr. John T. Thomas, Jr.
US Army Corps of Engineers
Raleigh Regulatory Field Office
6508 Falls of the Neuse Road, Suite 120
Raleigh, North Carolina 27615

Dear Mr. Thomas:

Subject: EEP Mitigation Acceptance Letter:

U-3612, SR 1424 (Hilltop Road) Widening, Guilford County; Cape Fear River Basin (Cataloging Unit 03030003); Central Piedmont Eco-Region

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide mitigation for the 89 feet of unavoidable stream impact (warm) and 0.06 acre of unavoidable riverine wetland impact associated with the above referenced project.

The subject project is not listed in Exhibit 2 of 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 dated July 22, 2003; therefore, the EEP intends to provide compensatory stream and riverine wetland mitigation up to a 2:1 ratio in Cataloging Unit 03030003 of the Cape Fear River Basin.

If you have any questions or need additional information, please contact Ms. Beth Harmon at (919) 715-1929.

Sincerely,

James B. Stanfill for

William D. Gilmore, P.E.
EEP Director

cc: Phil Harris, Office of Natural Environment, NCDOT
John Hennessy, Division of Water Quality, Wetlands/401 Unit
File: U-3612

Ecosystem Enhancement PROGRAM

January 4, 2005

Mr. Gregory J. Thorpe, Ph.D.
Environmental Management Director
Project Development and Environmental Analysis Branch
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, NC 27699-1548

Dear Dr. Thorpe:

Subject: EEP Mitigation Acceptance Letter:

U-3612, SR 1424 (Hilltop Road) Widening, Guilford County

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the riverine wetland and stream mitigation for the subject project. Based on the information supplied by you in a letter dated December 13, 2004, the impacts are located in CU 03030003 of the Cape Fear River Basin in the Central Piedmont (CP) Eco-Region, and are as follows:

Stream Impacts: 89 feet; Riverine Wetland Impacts: 0.06 acre

Also, as indicated in your letter, this project will impact buffers located in CU 03030003 of the Cape Fear River Basin. The total buffer impacts are 9,619 square feet in Zone 1 and 5,925 square feet in Zone 2. Please note, since buffer impacts were not projected in the NCDOT's 7-year Impact Projection Database, EEP was not able to include these cost in the Biennial budget approved at the July 2004 Board of Transportation meeting. The buffer mitigation request and approval will be managed through the EEP's In-Lieu Fee (ILF) Program.

The NCDOT will be responsible to ensure that the appropriate compensation for the buffer mitigation will be provided in the agreed upon method of fund transfer. Upon receipt of the NCDWQ's Buffer Certification, the NCDOT will provide the EEP a copy of the Certification along with a letter verifying the buffer impact/mitigation amounts and requesting a fund transfer to provide the required compensation. The EEP will transfer funds from the MOA Account (Fund 2984) into the ILF Buffer Mitigation Fund (Fund 2982). Since this expense is outside of the approved Biennial budget, the EEP will

request reimbursement for the buffer mitigation on the next quarterly invoice after the transfer has occurred.

The subject project is not listed in Exhibit 2 of the Memorandum of Agreement (MOA) 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 dated July 22, 2003. The EEP is only committed to provide the mitigation needs for projects listed on Exhibit 2 during the first two years of the program; however, the EEP currently has sufficient stream and riverine wetland mitigation assets within this CU and will provide the proper stream and riverine wetland mitigation amount. The EEP intends to provide compensatory stream and riverine wetland mitigation up to a 2:1 ratio in Cataloging Unit 03030007 of the Cape Fear River Basin.

If you have any questions or need additional information, please contact Ms. Beth Harmon at 919-715-1929.

Sincerely,

James B. Stanfill for

William D. Gilmore, P.E.
EEP Director

cc: John T. Thomas, Jr., USACE-Raleigh
John Hennessy, Division of Water Quality, Wetlands/401 Unit
File: U-3612

Indirect & Cumulative Effects
U-3612 Guilford County
Widening of Hilltop Road from Guilford College Road to Adams Farm Parkway.

Since the widening of Hilltop Road is intended to relieve congestion and improve traffic mobility along a short section of an existing road in a developed area, and does not alter traffic patterns, it is not anticipated to create conditions for inducing growth. While the project will improve the level of service, no new connections will be provided. The widening is unlikely to alter the existing land uses or provide new accessibility to adjacent parcels. Thus, a detailed cumulative impacts study would not be needed.

The project is located in the Cape Fear River basin and is also located within the Lower Randleman Lake Watershed (WS-IV) and Water Supply Watershed. The maximum density allowed for new development is 1 dwelling unit per acre with a maximum 12% lot coverage or built upon area.

Randleman Rules:
The entire project area is subject to the Randleman Rules which are a part of the North Carolina Administrative Code (15A NCAC 02B .0250, Randleman Lake Water Supply Watershed: Protection and Maintenance of Riparian Areas.
This code is the managing strategy for maintaining and protecting riparian areas in the Randleman Lake watershed. The Randleman Lake watershed has several buffer regulations including a 50-foot riparian buffer along the water main water body and streams contributing to it, a 100-foot vegetative buffer for new developments along streams utilizing the high density option, and a 200 foot protective buffer encompassing the normal pool level of the lake.

The nearest 303(d) listed stream is the East Fork of the Deep River, which is more than a mile away. The East Fork is listed for turbidity and impaired biological integrity due to urban runoff and industrial permitting.

No river, stream or creek within the vicinity of the project is designated as a Wild and Scenic River, nor are there any floodplains along the project corridor.

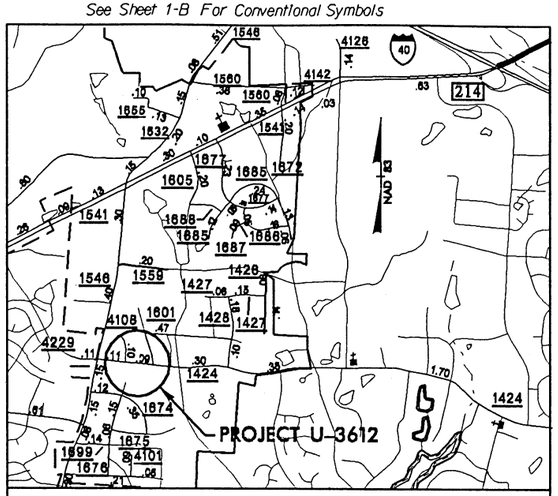
Analysis of Indirect & Cumulative effects:
The combination of the limited nature of the proposed road improvements, a half mile widening project, and the resource protective development restrictions imposed by the Randleman Rules Water Supply protection ordinance (riparian buffers, development density limits and impervious surface restrictions), indicates that the proposed widening project will not by itself, spur additional development or contribute to the degradation of downstream water quality.

09/08/95

TIP PROJECT: U-3612

CONTRACT:

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



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

GUILFORD COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-3612	1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
34960.1.1	STP-1424(3)	PE	

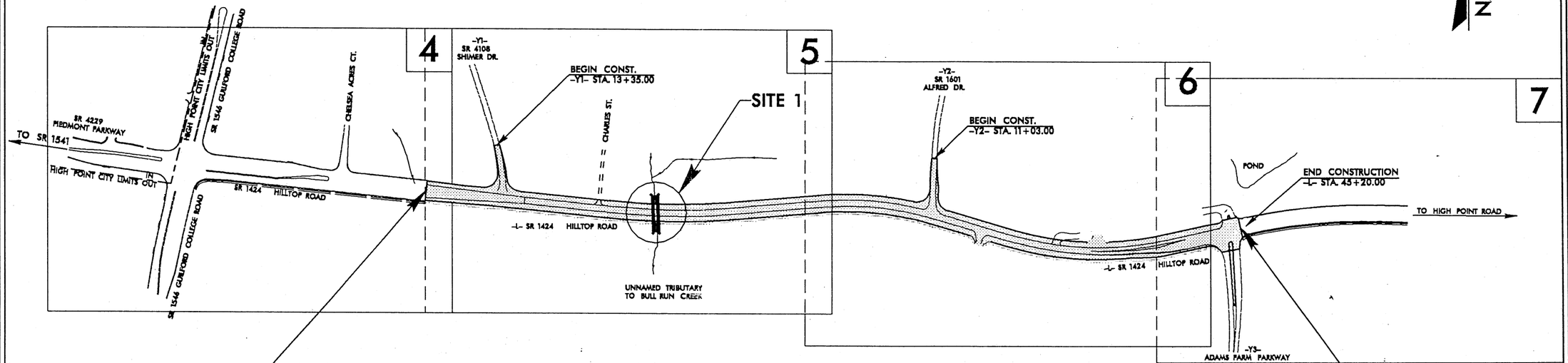
ENGLISH

LOCATION: *GREENSBORO – SR 1424 (HILLTOP ROAD) FROM EAST OF SR 1546 (GUILFORD COLLEGE ROAD) AT CHELSEA ACRES COURT TO ADAMS FARM PARKWAY*

TYPE OF WORK: *GRADING, PAVING, DRAINAGE, CURB & GUTTER, GUARDRAIL, AND CULVERT*

NAD 83

WETLAND PERMIT DRAWINGS



STA. 14+59.32 –L– BEGIN TIP PROJECT U-3612

STA. 45+00.00 –L– END TIP PROJECT U-3612

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.
THIS PROJECT IS NOT WITHIN THE MUNICIPAL BOUNDARIES OF THE CITY OF GREENSBORO OR HIGH POINT.

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

PLANS: 50 25 0 50 100
PROFILE (HORIZONTAL): 50 25 0 50 100
PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

ADT 2005 = 16040
ADT 2025 = 19800
DHV = 10 %
D = 55 %
T = 5 % *
V = 40 MPH

* TTST-1% DUAL-4%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-3612 = 0.576 MI
TOTAL LENGTH OF TIP PROJECT U-3612 = 0.576 MI.

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

2003 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MAY 21, 2004

LETTING DATE: OCTOBER 18, 2005

JAMES A. SPEER, PE
PROJECT ENGINEER

DANNY GARDNER
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER
SIGNATURE: P.E.

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA
STATE DESIGN ENGINEER P.E.

DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION
APPROVED
DIVISION ADMINISTRATOR DATE

20-JUL-2004 12:51
R:\Hydraulics\PERMITS\Wetlands\u3612_wetland_permit_tsh.dgn
temphydrol AT

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-3612	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
Curb Cut for Future Wheelchair Ramp — CCFR
Exist. Guardrail
Prop. Guardrail
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
U/G Telephone Cable Hand Hold — TH
Cable TV Pedestal — C
U/G TV Cable Hand Hold — TVH
U/G Power Cable Hand Hold — PH
Hydrant
Satellite Dish
Exist. Water Valve
Sewer Clean Out
Power Manhole
Telephone Booth
Cellular Telephone Tower
Water Manhole
Light Pole
H-Frame Pole
Power Line Tower
Pole with Base
Gas Valve
Gas Meter
Telephone Manhole
Power Transformer
Sanitary Sewer Manhole
Storm Sewer Manhole
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

Recorded Water Line — W
Designated Water Line (S.U.E.*) — W
Sanitary Sewer — SS
Recorded Sanitary Sewer Force Main — FSS
Designated Sanitary Sewer Force Main(S.U.E.*) — FSS
Recorded Gas Line — G
Designated Gas Line (S.U.E.*) — G
Storm Sewer — S
Recorded Power Line — P
Designated Power Line (S.U.E.*) — P
Recorded Telephone Cable — T
Designated Telephone Cable (S.U.E.*) — T
Recorded U/G Telephone Conduit — TC
Designated U/G Telephone Conduit (S.U.E.*) — TC
Unknown Utility (S.U.E.*) — ?UTL
Recorded Television Cable — TV
Designated Television Cable (S.U.E.*) — TV
Recorded Fiber Optics Cable — FO
Designated Fiber Optics Cable (S.U.E.*) — 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
High Quality Wetland Boundary — HQ WLB
Medium Quality Wetland Boundaries — MQ WLB
Low Quality Wetland Boundaries — LQ 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 — S
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

revised 02/02/00

20-JUL-2004 12:52
N:\Hydraulics\PERMITS\Wetlands\u3612_wetland_permit_tsh.dgn
mmaynard

PROJECT REFERENCE NO.	SHEET NO.
U-3612	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ENGLISH

SITE 1

NOTE: THIS SHEET REFLECTS BOTH PROPOSED AND DETOUR IMPACTS

-L-
PI Sta 23+70.90
Δ = 10° 40' 43.0" (LT)
D = 2° 15' 01.5"
L = 474.52'
T = 237.95'
R = 2,546.00'
SE = 0.02
RO = 74°
-Y1-
PI Sta 13+62.74
Δ = 10° 38' 48.9" (RT)
D = 5° 17' 43.3"
L = 201.06'
T = 100.82'
R = 1,082.00'
SE = SEE PLANS

NAD 83

-Y1- POT Sta. 10+00.00

-Y1- PCSta. 12+61.92

-L- PCSta. 21+32.96

-L- PTSta. 26+07.47

-L- PCSta.

-Y1- PTSta. 14+62.98

-L- POT Sta 17+43.97 =
-Y1- POT Sta 15+35.25

BEGIN CONST. -Y1- STA 13+35.00

BEGIN C&G -L- STA 14+10.00 (30.49' LT)

BEGIN CONCRETE PAVEMENT -L- STA 14+39.32 (39.32' RT)

SWALE GRADE TO DRAIN (GTD) TO DI SEE DETAIL B

NOTE: SWALE MAY BE MODIFIED AS DIRECTED BY THE ENGINEER PROVIDED THE SWALE'S FUNCTION OF CARRYING STORMWATER RUNOFF TO THE DI IS NOT IMPAIRED

SPECIAL "V" DITCH SEE DETAIL A

DETOUR SLOPE STAKE LINE

DETOUR SLOPE STAKE LINE

SHEET FLOW ENTERING WETLANDS
@ 22+50 -L- (RT)
D.A. = 3.1 AC.
Q2 = 7.5 CFS
V2 = 1.2 FPS
Q10 = 9.7 CFS
V10 = 1.4 FPS

DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING IN WETLAND
DENOTES FILL IN SURFACE WATERS
DENOTES TEMPORARY FILL IN SURFACE WATERS

NOTE: MECHANIZED CLEARING LIMITS MEASURED 10' FROM DETOUR SLOPE STAKE LINE

SEE SHEET 8 FOR -L- PROFILE
SEE SHEET 10 FOR -Y1- PROFILE
SEE SHEET C-1 THRU C- FOR CULVERT PLANS

REVISIONS
10/28/04 R/W REVISION (LEAD) REVISED PARCEL 1 FROM STEVE & MICHELLE BEST TO TROY LEE YOST
BROKE OFF PROPERTY OWNER NAME ON PARCELS 9 & 10 FROM JOSEF MEIER TO PAUL I. FROM JOSEF MEIER
REVISED PROPERTY OWNER NAME ON PARCEL 11 FROM ORIE BROYLES TO NANCY BROYLES KLOTZ & HUSBAND, PARCELS 9 & 10 FROM JAMES FOGLEMAN TO JAMES FOGLEMAN, JR. ETAL.
PARCEL 12 PROPERTY OWNER NAME WAS CHANGED FROM JAMES FOGLEMAN TO JAMES FOGLEMAN, JR. ETAL.
PARCEL 13 PROPERTY OWNER NAME WAS CHANGED FROM IDA GRAY WELLS, WIDOW TO IDA GRAY WELLS

PROJECT U-3612
-Y1- 59.32

02-NOV-2004 10:48
R:\Drainage\u3612_hyd_dr-n_082404.dgn
eatkinson

PROJECT REFERENCE NO.	SHEET NO.
U-3612	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ENGLISH

SITE 1

NOTE: THIS SHEET REFLECTS BOTH PROPOSED AND DETOUR IMPACTS

NAD 83

-L-
PI Sta 23+70.90
Δ = 10° 40' 43.0" (LT)
D = 2° 15' 01.5"
L = 474.52'
T = 237.95'
R = 2,546.00'
SE = 0.02
RO = 7.4'
-Y1-
PI Sta 13+62.74
Δ = 10° 38' 48.9" (RT)
D = 5° 17' 43.3"
L = 201.06'
T = 100.82'
R = 1,082.00'
SE = SEE PLANS

-Y1- POT Sta. 10+00.00

-Y1- PCSta. 12+61.92

-L- PCSta. 21+32.96

-L- PTSta. 26+07.47

-Y1-PTSta. 14+62.98

-L- POT Sta 17+48.97 =
-Y1- POT Sta. 15+35.25

-L- PCSta.

SWALE GRADE TO DRAIN (GTD) TO DI SEE DETAIL B

NOTE: SWALE MAY BE MODIFIED AS DIRECTED BY THE ENGINEER PROVIDED THE SWALE'S FUNCTION OF CARRYING STORMWATER RUNOFF TO THE DI IS NOT IMPAIRED

SPECIAL "V" DITCH SEE DETAIL A

DETOUR SLOPE STAKE LINE

DETOUR SLOPE STAKE LINE

SHEET FLOW ENTERING WETLANDS
@ 22+50 -L- (RT)
DA = 3.1 AC.
Q2 = 7.5 CFS
V2 = 1.2 FPS
Q10 = 9.7 CFS
V10 = 1.4 FPS

DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING IN WETLAND
DENOTES FILL IN SURFACE WATERS
DENOTES TEMPORARY FILL IN SURFACE WATERS

NOTE: MECHANIZED CLEARING LIMITS MEASURED 10' FROM DETOUR SLOPE STAKE LINE

* BUILT DURING DETOUR CONST. SEE SHEET 9-A

SEE SHEET 8 FOR -L- PROFILE
SEE SHEET 10 FOR -Y1- PROFILE
SEE SHEET C-1 THRU C- FOR CULVERT PLANS

PROJECT U-3612
-L- STA 14+59.32

10/28/04 R/W REVISION (EAD) REVISED PROPERTY OWNER NAME ON PARCELS 9 & 10 FROM ORIE BROYLES TO NANCY BROYLES KLOTZ & HUSBAND. PARCELS 9 & 10 WERE CONVEYED TO JAMES FOGLEMAN, JR. ET AL BY DEED RECORDED IN BOOK 1424, PAGE 80. PROPERTY OWNER NAME WAS CHANGED FROM JAMES FOGLEMAN TO JAMES FOGLEMAN, JR. ET AL REVISED PROPERTY OWNER NAME FOR PARCEL 11 FROM JOSE MADRIGAL TO ADDIE MAYNARD, WIDOW.

REVISIONS

02-NOV-2004 10:48
R:\Drainage\u3612_hyd.drn.082404.dgn
cathi.nash

8/23/99

0 5	PROJ. REFERENCE NO.	SHEET NO.
	U-3612	X-7

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

WLB

-DET. 14 = 33.68

WLB

850 845 840 835

2:1 0.0200 2:1 0.0200 2:1 2:1 0.0197 0.0198 2:1 2:1

839.56

837.84

2215000

865 860 855 850 845 840 835 830

A A A A

2:1 3:1 3:1 DITCH GRADE ELEV=836.00'

-DET. 13 = 82.94

3:1 0.0200 2:1 0.0200 3:1 2:1 0.0192 0.0192 2:1 3:1 DITCH GRADE ELEV=836.00'

840.49

836.63

2210000

L

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

20-JUL-2004 12:57
R:\Hydraulics\PERMITS\Wetlands\u3612_hyd_xpl_1.dgn
tomphydrol

8/23/99

0 5	PROJ. REFERENCE NO.	SHEET NO.
	U-3612	X-8

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

870 865 860 855 850 845 840 835 830

B

-DET- 15+35.17

2:1 3:1 3:1

DITCH GRADE
ELEV=831.78'

0.0200 0.0200 0.0199 0.0200

2:1 2:1 2:1 2:1 2:1 3:1

839.01 837.83

B

2315000

WLB WLB

-DET- 14+84.42

0.0200 0.0200 0.0200 0.0200

2:1 2:1 2:1 2:1 2:1

839.05 837.57

2310000

L

20-JUL-2004 12:57
R:\Hydraulics\PERMITS\Wetlands\u3612_hyd_xpl_1.dgn
tompkins

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-3612	8
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ENGLISH

-L-

BM #1
N 834214 E 1728088
-BL- STATION 6+10 320' RT
EL= 891.16'
R/R SPIKE SET IN 17" OAK

BEGIN GRADE -L- STA 14+59.32 (U-2913B)
ELEV.= 865.38'

3.45%

SEE SHEETS 4 FOR -L- PLAN VIEW

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 370 CFS
DESIGN FREQUENCY	= 25 YRS
DESIGN HW ELEVATION	= 836.1 FT
BASE DISCHARGE	= 500 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 838.4 FT
OVERTOPPING DISCHARGE	= >700 CFS
OVERTOPPING FREQUENCY	= 500+ YRS
OVERTOPPING ELEVATION	= 844.8 FT

844.50

END GRADE -L- STA 18+20.2 (U-2913B)
DESIGN GRADE -L- STA 18+20.2 (U-3612)
ELEV.= 855.38'

(-)12.56%

(-)37.80%

(-)37.69%

BEG. DITCH GRADE LT
-L- STA 19+80.00
ELEV= 849.30'

END DITCH GRADE LT
-L- STA 20+17.00
ELEV= 847.90'

BEG. DITCH GRADE RT
-L- STA 22+00.00
ELEV= 836.00'

END DITCH GRADE RT
-L- STA 22+81.00
ELEV= 834.70'

1 @ 7' X 8' RCBC
(UPSTREAM FACE)

BEG. DITCH GRADE LT
-L- STA 23+11.00
ELEV= 852.30'

℄ STA. 23+12.30
ELEV= 828.41
1 @ 7' X 8' RCBC
SKEW 83 DEG

(-)32.78%

(-)32.60%

(-)32.59%

(-)36.59%

BEG. DITCH GRADE RT
-L- STA 23+38.00
ELEV= 851.70

7'-6" X 5'-1" STRUCTURAL PLATE PIPE ARCH (℄ INVERT)

END DITCH GRADE LT
-L- STA 24+50.00
ELEV= 841.00'

(-)56.22%

(-)19.00%

END DITCH GRADE RT
-L- STA 24+10.00
ELEV= 832.00

(+)14.92%

(+)19.22%

BEG. DITCH GRADE RT
-L- STA 24+50.00
ELEV= 838.40'

END DITCH GRADE RT
-L- STA 26+00.00
ELEV= 846.80'

DITCH LEGEND

LEFT DITCH - - - - -

RIGHT DITCH --------

SEE SHEETS 5 FOR -L- PLAN VIEW

844.50

20-JUL-2004 12:11
R:\Hydraulics\PERMITS\Wetlands\u3612_rdy_pfl.dgn

5/14/99

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

ENGLISH

250' 200' LT. 150' LT. 100' LT. 50' LT. 0 50' RT. 100' RT. 150' RT. 200' RT. 250'

850' 850'

840' 840'

830' 830'

820' 820'

℄ STA. 23+12.3 -L-
PROP. 1@7'x8' RCBC
FLEV. 843.3
SKEW=83.0°

500 YR. WS EL = 843.1
EV. = 842.8
100 YR. WS EL = 838.4
25 YR. WS EL = 836.1
10 YR. WS EL = 834.1
HIGH WATER = 833.0
AL WATER SURFACE
03) = 830.7

EX. 8' CORRUGATED METAL PIPE (TO BE REMOVED)
EX. 7'-6" x 5'-4" STRUCTURAL PLATE PIPE ARCH (TO BE REMOVED)

02 (NORMAL)
02 (NORMAL)

TB LT
TB RT

EX. INV'S.
830.22
830.08

S = 0.0052 FT/FT

EX. BED

PROP. INV
828.1

EX. INV
829.62

PROP. INV
828.7

EX. INV
830.04

PROP ℄ INV.
828.41

01-JUN-2004 11:28
N:\hydraulics\2004\3612_hyd_cul_rpt.dgn
projects.dgn

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
9	JAMES FOGLEMAN, JR	602 EDWARDIA DR. GREENSBORO, NC 27409

NCDOT

DIVISION OF HIGHWAYS

GUILFORD COUNTY

PROJECT: 34960.1.1 (U-3612)

GREENSBORO

SR 1424 FROM EAST OF SR 1546

TO ADAMS FARM PARKWAY

6/1/04

SHEET OF REV. 11/1/04

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS				SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation In Wetlands (ac)	Mechanized Clearing (Method III) (ac)	Fill In SW (Natural) (ac)	Fill In SW (Pond) (ac)	Temp. Fill In SW (ac)	Existing Channel Impacted (ft)	Natural Stream Design (ft)
1	22+31-L- (RT) TO	ROADWAY EMBANKMENT	0.05	0.00		0.01	0.01		0.005	89	
	23+24 -L-	& CULVERT									
TOTALS:			0.05	0.00	0.00	0.01	0.01	0.00	0.01	89	0

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GUILFORD COUNTY
PROJECT 34960.1.1 U-3612

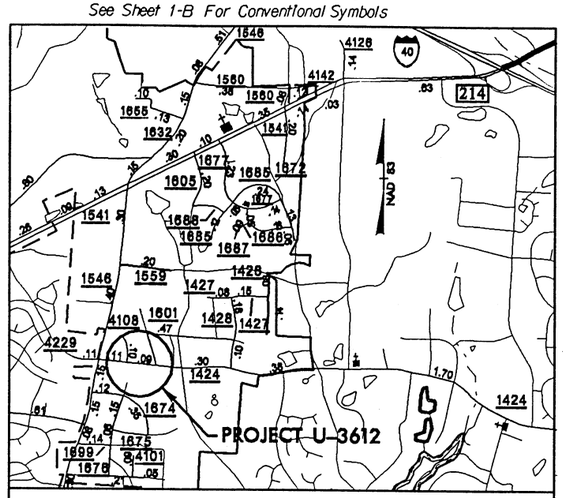
6/2/04

SHEET OF REV. 11/1/04

Form Revised 3/22/01

09/08/95

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



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

GUILFORD COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-3612	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34960.1.1	STP-1424(3)	PE	

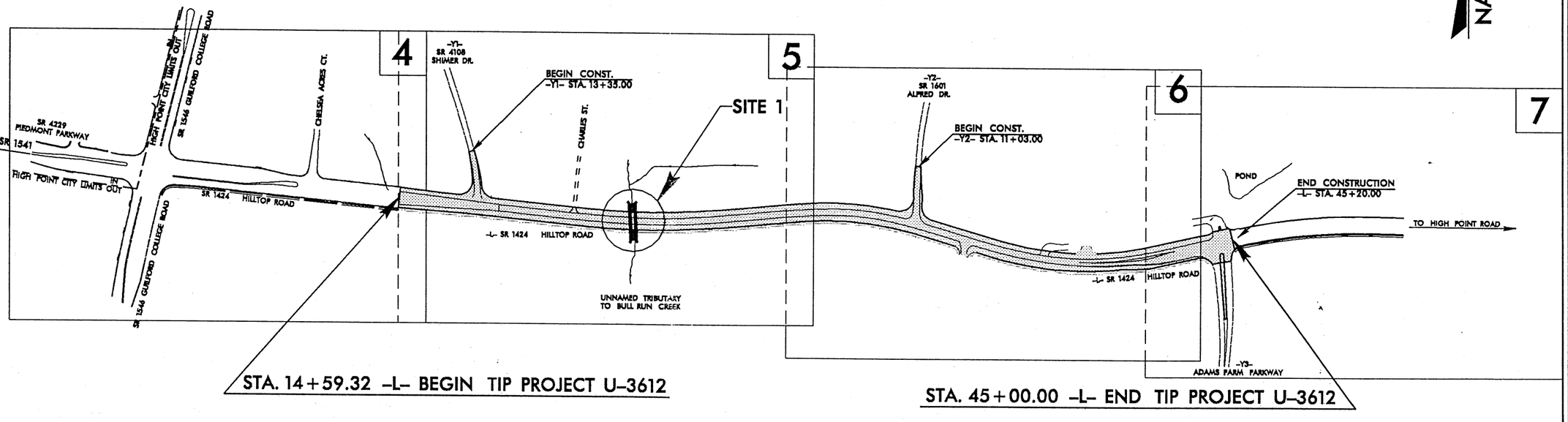
ENGLISH

LOCATION: GREENSBORO – SR 1424 (HILLTOP ROAD) FROM EAST OF SR 1546 (GUILFORD COLLEGE ROAD) AT CHELSEA ACRES COURT TO ADAMS FARM PARKWAY

TYPE OF WORK: GRADING, PAVING, DRAINAGE, CURB & GUTTER, GUARDRAIL, AND CULVERT

BUFFER PERMIT DRAWINGS

NAD 83



CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.
THIS PROJECT IS NOT WITHIN THE MUNICIPAL BOUNDARIES OF THE CITY OF GREENSBORO OR HIGH POINT.

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

TIP PROJECT: U-3612

CONTRACT:

GRAPHIC SCALES

PLANS: 50 25 0 50 100
PROFILE (HORIZONTAL): 50 25 0 50 100
PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

ADT 2005 = 16040
ADT 2025 = 19800
DHV = 10 %
D = 55 %
T = 5 % *
V = 40 MPH

* TTST-1% DUAL-4%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-3612 = 0.576 MI
TOTAL LENGTH OF TIP PROJECT U-3612 = 0.576 MI.

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

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MAY 21, 2004

LETTING DATE: OCTOBER 18, 2005

JAMES A. SPEER, PE
PROJECT ENGINEER

DANNY GARDNER
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER P.E.

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR DATE

20-JUL-2004 11:27
R:\Hydraulics\PERMITS\Buffers\u3612_buffer_permit_tsh.dgn
davidwebb AT

PROJECT REFERENCE NO.	SHEET NO.
U-3612	1-B

5/28/99

*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
- Curb Cut for Future Wheelchair Ramp — CCFR
- Exist. Guardrail
- Prop. Guardrail
- 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 — RZ
- 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
- U/G Telephone Cable Hand Hold — TH
- Cable TV Pedestal — C
- U/G TV Cable Hand Hold — TH
- U/G Power Cable Hand Hold — TH
- Hydrant
- Satellite Dish
- Exist. Water Valve
- Sewer Clean Out
- Power Manhole
- Telephone Booth — T
- Cellular Telephone Tower
- Water Manhole — W
- Light Pole
- H-Frame Pole
- Power Line Tower
- Pole with Base
- Gas Valve
- Gas Meter — G
- Telephone Manhole — T
- Power Transformer
- Sanitary Sewer Manhole — S
- Storm Sewer Manhole — S
- Tank; Water, Gas, Oil — F
- 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 — E.O.I.
- End of Information

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
- High Quality Wetland Boundary — HQ WLB
- Medium Quality Wetland Boundaries — MQ WLB
- Low Quality Wetland Boundaries — LQ 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 — S 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

revised 02/02/00

20-JUL-2004 14:14
R:\Hydraulics\PERMITS\Wetlands\u3612_wetland_permit_tsh.dgn
tshumpress

PROJECT REFERENCE NO.	SHEET NO.
U-3612	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ENGLISH

SITE 1

NAD 83

-L-
PI Sta 23+70.90
Δ = 10° 40' 43.0" (LT)
D = 2° 15' 01.5"
L = 474.52'
T = 237.95'
R = 2,546.00'
SE = 0.02
RO = 7.4°

-Y1-
PI Sta 13+62.74
Δ = 10° 38' 48.9" (RT)
D = 5° 17' 43.3"
L = 201.06'
T = 100.82'
R = 1,082.00'
SE = SEE PLANS

GRASSED SWALE
@ 23+65 -L- (LT)
D.A. = 0.9 AC.
Q2 = 3.2 CFS
V2 = 1.9 FPS
Q10 = 4.1 CFS
V10 = 2.0 FPS
L = 85' prior to entering BZ2
So = 0.029 max. eff. slope

GRASSED SWALE
@ 26+00 -L- (RT)
D.A. = 1.5 AC.
Q2 = 3.0 CFS
V2 = 2.0 FPS
Q10 = 3.9 CFS
V10 = 2.1 FPS
TOTAL L = 150'
So = 0.036 max. eff. slope

-Y1- POT Sta. 10+00.00

-Y1- PCSta. 12+61.92

-L- PCSta. 21+32.96

-L- PTSta. 26+07.47

-L- PCSta.

-Y1- PTSta. 14+62.98

-L- POT Sta. 17+48.97 =
-Y1- POT Sta. 15+38.25

SWALE GRADE TO DRAIN (GTD) TO DI SEE DETAIL B

NOTE: SWALE MAY BE MODIFIED AS DIRECTED BY THE ENGINEER PROVIDED THE SWALE'S FUNCTION OF CARRYING STORMWATER RUNOFF TO THE DI IS NOT IMPAIRED

NOTE: PERMANENT BUFFER IMPACTS NOT SHOWN IN THIS AREA DUE TO THE PRE AND POST CONSTRUCTION LAND USE BEING A PRIVATELY MAINTAINED LAWN.

SPECIAL 'V' DITCH SEE DETAIL A

REMOVE

DO NOT DISTURB

COLLAR AND EXTEND

140' LANE TRANSITION

300' LANE TRANSITION

CLIFTON FIELDS

NANCY BROYLES KLOTZ & HUSBAND

VERNON RHODES

ADDIE MAYNARD, WIDOW

IDA GRAY WELLS

RAOUL TURCO

ROY RIERSON

DANIEL W. & FAYE P. HADEN

RICHARD CATES

JAMES FOGLEMAN, JR. ETAL

NCDOT

PSRM

STEVE S. & MICHELLE BEST

TROY LEE YORK

REVISED PROPERTY OWNER NAME ON PARCEL 9 & 10 FROM JAMES FOGLEMAN, JR. ET AL TO JAMES FOGLEMAN, JR. ET AL

REVISED PROPERTY OWNER NAME ON PARCEL 1 FROM ORIE BROYLES TO NANCY BROYLES KLOTZ HUSBAND, PARCELS 9 & 10 FROM JAMES FOGLEMAN, JR. ET AL TO JAMES FOGLEMAN, JR. ET AL (10/28/04 R/W REVISION (LEAD) - REVISED PARCEL OWNER NAME FROM JOSEF KAYNARD WIDOW TO GLAIMS ADDIE MAYNARD WIDOW.

* BUILT DURING DETOUR CONST. SEE SHEET 5-A

DENOTES BUFFER ZONE 1

DENOTES BUFFER ZONE 2

SEE SHEET 8 FOR -L- PROFILE
SEE SHEET 10 FOR -Y1- PROFILE
SEE SHEET C-1 THRU C- FOR CULVERT PLANS

JECT U-3612
+59.32

22-NOV-2004 15:41
R:\Drainage\U3612_hyd_drn_02404.dgn
dlyons

PROJECT REFERENCE NO.	SHEET NO.
U-3612	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ENGLISH

SITE 1

NAD 83

-L-
PI Sta. 23+70.90
Δ = 10° 40' 43.0" (LT)
D = 2° 15' 01.5"
L = 474.52'
T = 237.95'
R = 2,546.00'
SE = 0.02
RO = 7.4°

-Y1-
PI Sta. 13+62.74
Δ = 10° 38' 48.9" (RT)
D = 5° 17' 43.3"
L = 201.06'
T = 100.82'
R = 1,082.00'
SE = SEE PLANS

GRASSED SWALE
@ 23+65 -L- (LT)
D.A. = 0.9 AC.
Q2 = 3.2 CFS
V2 = 1.9 FPS
Q10 = 4.1 CFS
V10 = 2.0 FPS
L = 85' prior to entering BZ2
So = 0.029 max. eff. slope

-Y1- POT Sta. 10+00.00

-Y1- PCSta. 12+61.92

-L- PCSta. 21+32.96

-L- PTSta. 26+07.47

-L- PCSta.

-Y1-PTSta. 14+62.98

-L- POT Sta. 17+48.97 =
-Y1- POT Sta. 15+35.25

SWALE GRADE TO DRAIN (GTD) TO DI SEE DETAIL B

NOTE: SWALE MAY BE MODIFIED AS DIRECTED BY THE ENGINEER PROVIDED THE SWALE'S FUNCTION OF CARRYING STORMWATER RUNOFF TO THE DI IS NOT IMPAIRED

NOTE: PERMANENT BUFFER IMPACTS NOT SHOWN IN THIS AREA DUE TO THE PRE AND POST CONSTRUCTION LAND USE BEING A PRIVATELY MAINTAINED LAWN

SPECIAL 'V' DITCH SEE DETAIL A

DENOTES ALLOWABLE BUFFER ZONE 1 IMPACTS

DENOTES ALLOWABLE BUFFER ZONE 2 IMPACTS

GRASSED SWALE
@ 26+00 -L- (RT)
D.A. = 1.5 AC.
Q2 = 3.0 CFS
V2 = 2.0 FPS
Q10 = 3.9 CFS
V10 = 2.1 FPS
TOTAL L = 150'
So = 0.036 max. eff. slope

* BUILT DURING DETOUR CONST. SEE SHEET 5-A

SEE SHEET 8 FOR -L- PROFILE
SEE SHEET 10 FOR -Y1- PROFILE
SEE SHEET C-1 THRU C- FOR CULVERT PLANS

MATCH LINE SHEET 6

MATCH LINE SHEET 4

10/28/04 R/W REVISION (LEAD) REVISED PARCEL 9 & 10 WERE OWNED BY MICHELLE BEST AND HUSBAND, PARCELS 9 & 10 WERE OWNED BY MICHELLE BEST AND HUSBAND, PARCEL 11 FROM JOSEPH MAYNARD TO ADDIE MAYNARD, WIDOW.
REVISED PROPERTY OWNER NAME ON PARCEL 8 FROM ORIE BROYLES TO NANCY BROYLES KLOTZ & HUSBAND. PARCEL 11 OWNER NAME WAS CHANGED FROM JAMES FOGLEMAN JR. ET AL TO JAMES FOGLEMAN, JR. ET AL. PARCEL 12 OWNER NAME WAS CHANGED FROM JAMES FOGLEMAN JR. ET AL TO JAMES FOGLEMAN, JR. ET AL. PARCEL 13 OWNER NAME WAS CHANGED FROM JAMES FOGLEMAN JR. ET AL TO IDA GRAY WELLS. PARCEL 14 OWNER NAME WAS CHANGED FROM JAMES FOGLEMAN JR. ET AL TO RAOUL TURCOT. PARCEL 12 OWNER NAME WAS CHANGED FROM ADDIE MAYNARD TO ADDIE MAYNARD, WIDOW.

02-NOV-2004 16:13
R:\Drainage\u3612_hyd_drn_082404.dgn
parkinson

PROJECT U-3612
F 59.32

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-3612	8
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ENGLISH

-L-

BM #1
N 834214 E 1728089
-BL- STATION 6+10 320' RT
EL= 891.16'
R/R SPIKE SET IN 17" OAK

BEGIN GRADE -L- STA 14+59.32 (U-2913B)
ELEV.= 865.58'

SEE SHEETS 4 FOR -L- PLAN VIEW

-L-

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 370 CFS
DESIGN FREQUENCY	= 25 YRS
DESIGN HW ELEVATION	= 836.1 FT.
BASE DISCHARGE	= 500 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 838.4 FT.
OVERTOPPING DISCHARGE	= >700 CFS
OVERTOPPING FREQUENCY	= 500+ YRS
OVERTOPPING ELEVATION	= 844.8 FT.

END GRADE -L- STA 18+20.21 (U-2913B)
BEGIN GRADE -L- STA 18+20.21 (U-3612)
ELEV.= 855.38'

BEG. DITCH GRADE LT
-L- STA 19+80.00
ELEV= 849.30'

END DITCH GRADE LT
-L- STA 20+17.00
ELEV= 847.90'

BEG. DITCH GRADE RT
-L- STA 22+00.00
ELEV= 836.00'

END DITCH GRADE RT
-L- STA 22+41.00
ELEV= 834.90'

1 @ 7' X 8' RCBC
(UPSTREAM FACE)

BEG. DITCH GRADE LT
-L- STA 23+11.00
ELEV= 832.30'

℄ STA. 23+12.30
ELEV= 828.41
1 @ 7' X 8' RCBC
SKEW 83 DEG.

BEG. DITCH GRADE RT
-L- STA 23+28.00
ELEV= 831.70'

FACE OF STRUCTURAL PLATE HEADER (℄ INVERT)

END DITCH GRADE LT
-L- STA 24+50.00
ELEV= 841.00'

BEG. DITCH GRADE RT
-L- STA 24+50.00
ELEV= 838.40'

END DITCH GRADE RT
-L- STA 24+91.00
ELEV= 832.00'

END DITCH GRADE RT
-L- STA 26+00.00
ELEV= 846.80'

DITCH LEGEND
LEFT DITCH
RIGHT DITCH

SEE SHEETS 5 FOR -L- PLAN VIEW

20-JUL-2004 11:28
R:\Hydraulics\PERMITS\Buffers\u3612_rdy_pf1.dgn
pwheeler

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
8	VERNON RHODES	5322 HILLTOP RD. JAMESTOWN, NC 27282
9	JAMES FOGLEMAN, JR	602 EDWARDIA DR. GREENSBORO, NC 27409
11	ADDIE MAYNARD	5312 HILLTOP RD. JAMESTOWN, NC 27282

NCDOT

DIVISION OF HIGHWAYS
GUILFORD COUNTY
PROJECT: 34960.1.1 (U-3612)
GREENSBORO
SR 1424 FROM EAST OF SR 1546
TO ADAMS FARM PARKWAY

6/1/04

SHEET OF REV. 11/1/04

BUFFER IMPACTS SUMMARY

			IMPACT								BUFFER REPLACEMENT	
			TYPE		ALLOWABLE			MITIGABLE				
SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	ROAD CROSSING	PARALLEL IMPACT	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)
1	CULVERT	-L- Sta 23+12+/-	X					9619*	5925*	15544*		
TOTAL:								9619*	5925*	15544*		

* AREAS OF WETLAND IMPACTS WERE SUBTRACTED FROM THE BUFFER QUANTITIES
(682 sq. ft. from Zone 1 & 691 sq. ft. from Zone 2)

N.C. DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GUILFORD COUNTY
PROJECT: 34960.1.1 (U-3612)

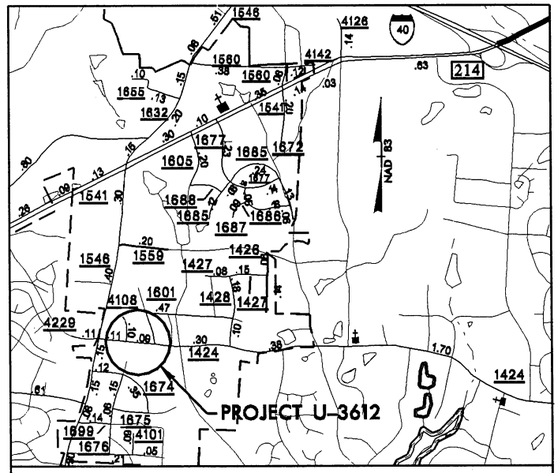
SHEET OF 6/2/2004

05/03/99

TIP PROJECT: U-3612

CONTRACT:

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



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

GUILFORD COUNTY

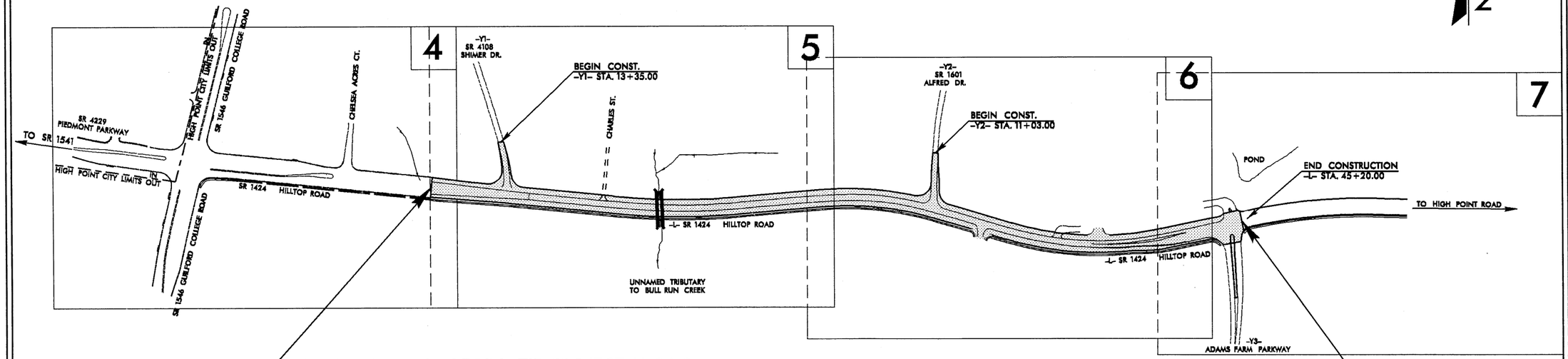
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-3612	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34960.1.1	STP-1424(3)	PE
34960.2.1	STP-1424(3)	R/W & UTILITIES

LOCATION: *GREENSBORO – SR 1424 (HILLTOP ROAD) FROM EAST OF SR 1546 (GUILFORD COLLEGE ROAD) AT CHELSEA ACRES COURT TO ADAMS FARM PARKWAY*

TYPE OF WORK: *GRADING, PAVING, DRAINAGE, CURB & GUTTER, GUARDRAIL, AND CULVERT*

NAD 83



STA. 14+59.32 –L– BEGIN TIP PROJECT U-3612

STA. 45+00.00 –L– END TIP PROJECT U-3612

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.
THIS PROJECT IS NOT WITHIN THE MUNICIPAL BOUNDARIES OF THE CITY OF GREENSBORO OR HIGH POINT.

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 2005 = 16040
ADT 2025 = 19800
DHV = 10 %
D = 55 %
T = 5 % *
V = 40 MPH

* TTST-1% DUAL-4%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-3612 = 0.576 MI
TOTAL LENGTH OF TIP PROJECT U-3612 = 0.576 MI.

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

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MAY 21, 2004

LETTING DATE: OCTOBER 18, 2005

JAMES A. SPEER, PE
PROJECT ENGINEER

DANNY GARDNER
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER
SIGNATURE: P.E.

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA
STATE DESIGN ENGINEER P.E.

DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION
APPROVED
DIVISION ADMINISTRATOR DATE

25-AUG-2004 07:17
K:\Proj\U3612_rdy_tsh.dgn
DWGardner AT RD12399

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-3612	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
Curb Cut for Future Wheelchair Ramp — CCFR
Exist. Guardrail
Prop. Guardrail
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
U/G Telephone Cable Hand Hold — HH
Cable TV Pedestal — C
U/G TV Cable Hand Hold — HH
U/G Power Cable Hand Hold — HH
Hydrant
Satellite Dish
Exist. Water Valve
Sewer Clean Out
Power Manhole
Telephone Booth — P
Cellular Telephone Tower
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 — S
Storm Sewer Manhole
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
High Quality Wetland Boundary — HQ WLB
Medium Quality Wetland Boundaries — MQ WLB
Low Quality Wetland Boundaries — LQ 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 — S
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

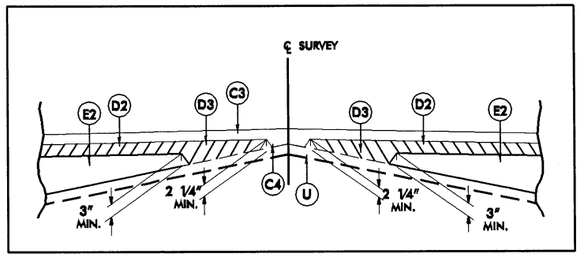
revised 02/02/00

05-AUG-2004 07:47
R:\Projects\3612\Design\Roadway\dgn\U3612_ch.dgn
DWGardner
ATT1 R0212399

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
U-3612	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

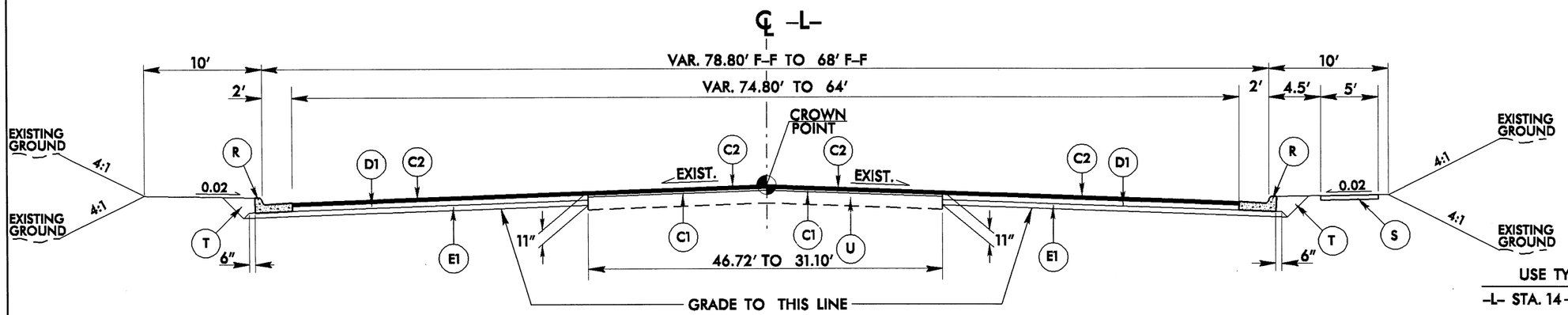


DETAIL SHOWING METHOD OF WEDGING WHERE CENTERLINE ELEV. CONTROLS

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.	J	PROP. 10" AGGREGATE BASE COURSE.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	P	PRIME COAT
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.	R	2'-6" CONCRETE CURB AND GUTTER.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	S	4" CONCRETE SIDEWALK.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, 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.	T	EARTH MATERIAL.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	U	EXISTING PAVEMENT.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, 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.	W	VARIABLE DEPTH ASPHALT PAVEMENT, SEE STANDARD WEDGING DETAILS)

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

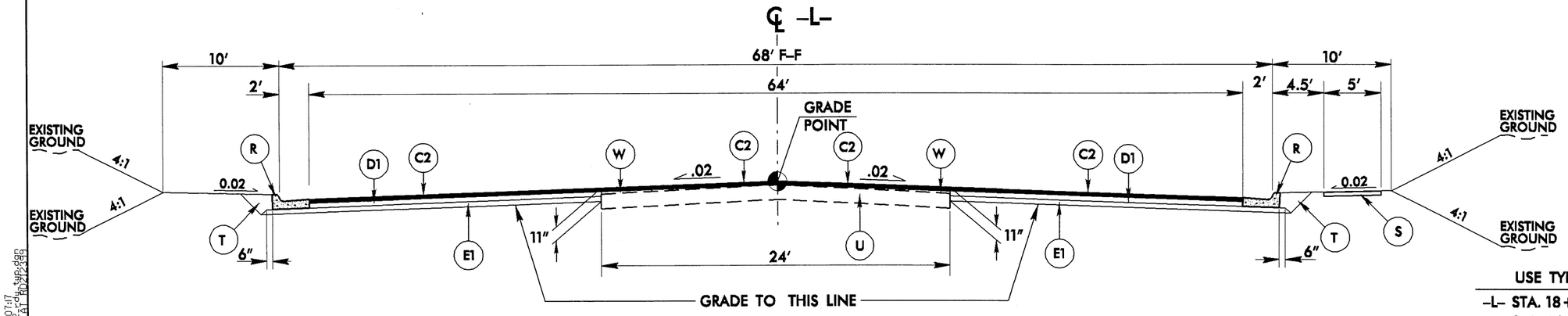


TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1
–L– STA. 14+59.32 TO STA. 17+00.00

NOTE: TRANSITION FROM TYPICAL SECTION NO. 1 TO TYPICAL SECTION NO. 2
–L– STA. 17+00.00 TO –L– STA. 18+20.21

NOTE: THE FINAL LIFT OF SURFACE COURSE THAT WAS NOT PLACED UNDER PROJECT U-2913B WILL BE PLACED UNDER THIS PROJECT AT –L– STA. 14+59.32 TO STA. 18+20.21



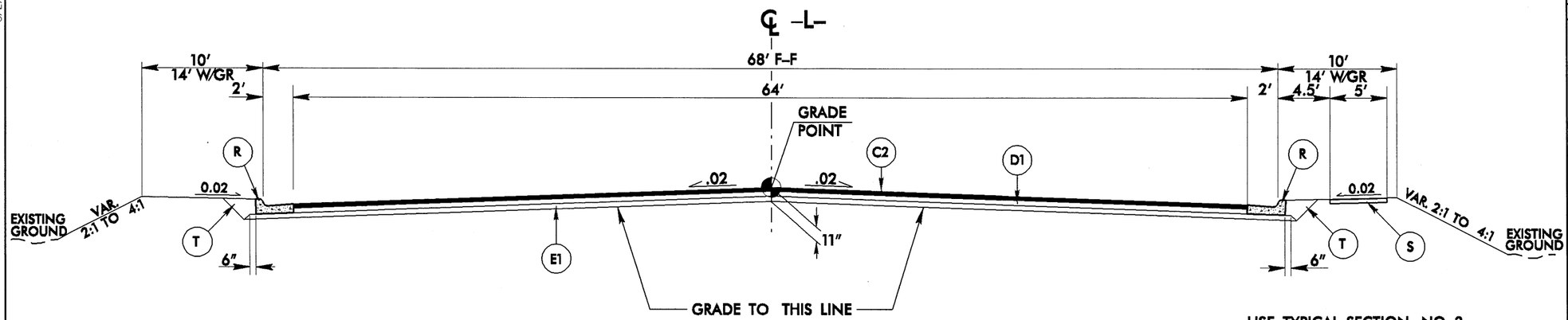
TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2
–L– STA. 18+20.21 TO STA. 21+00.00
–L– STA. 26+00.00 TO STA. 43+80.00

NOTE: TRANSITION FROM TYPICAL SECTION NO. 2 TO EXISTING
–L– STA. 43+80.00 TO –L– STA. 45+00.00

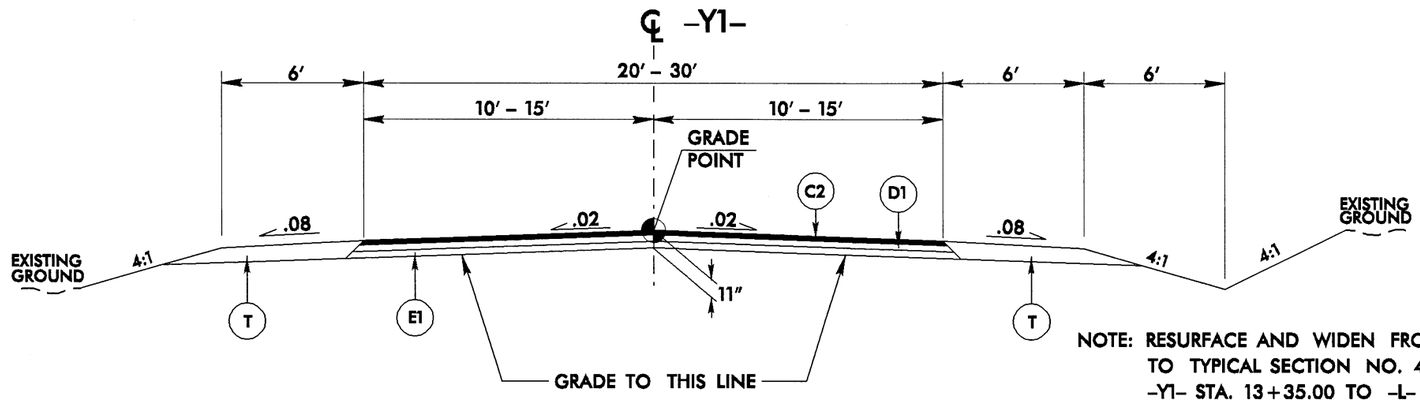
25-AUG-2004 07:47
R:\Proj\U3612\Plan\typ.dgn
DWGardner

6/2/99



TYPICAL SECTION NO. 3

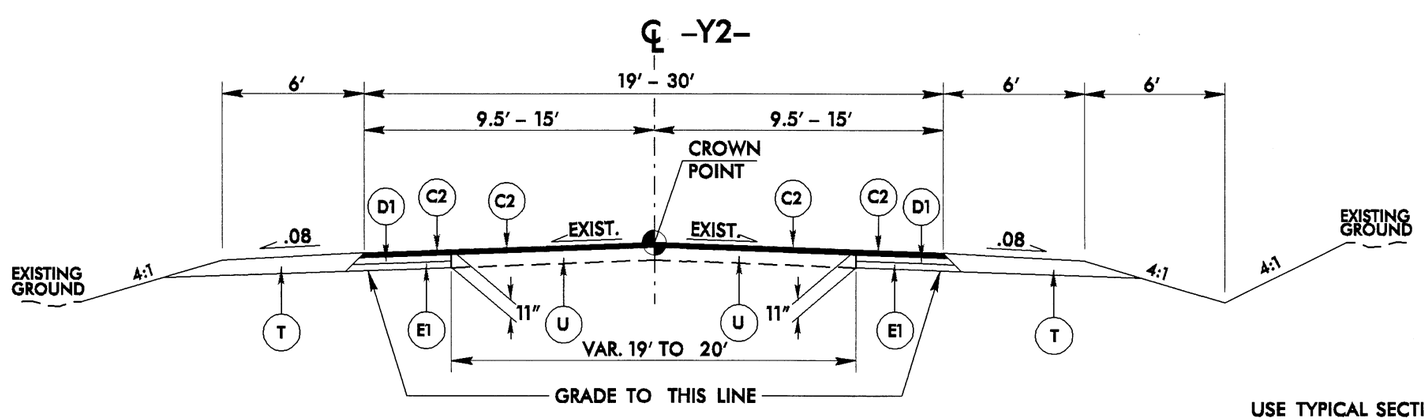
USE TYPICAL SECTION NO. 3
–L– STA. 21+00.00 TO STA. 26+00.00



TYPICAL SECTION NO. 4

NOTE: RESURFACE AND WIDEN FROM EXISTING 20′ WIDTH TO TYPICAL SECTION NO. 4
–Y1– STA. 13+35.00 TO –L– STA. 13+50.00

USE TYPICAL SECTION NO. 4
–Y1– STA. 13+50.00 TO STA. 14+35.00



TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5
–Y2– STA. 11+03.00 TO STA. 12+03.00

PROJECT REFERENCE NO.	SHEET NO.
U-3612	2-A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

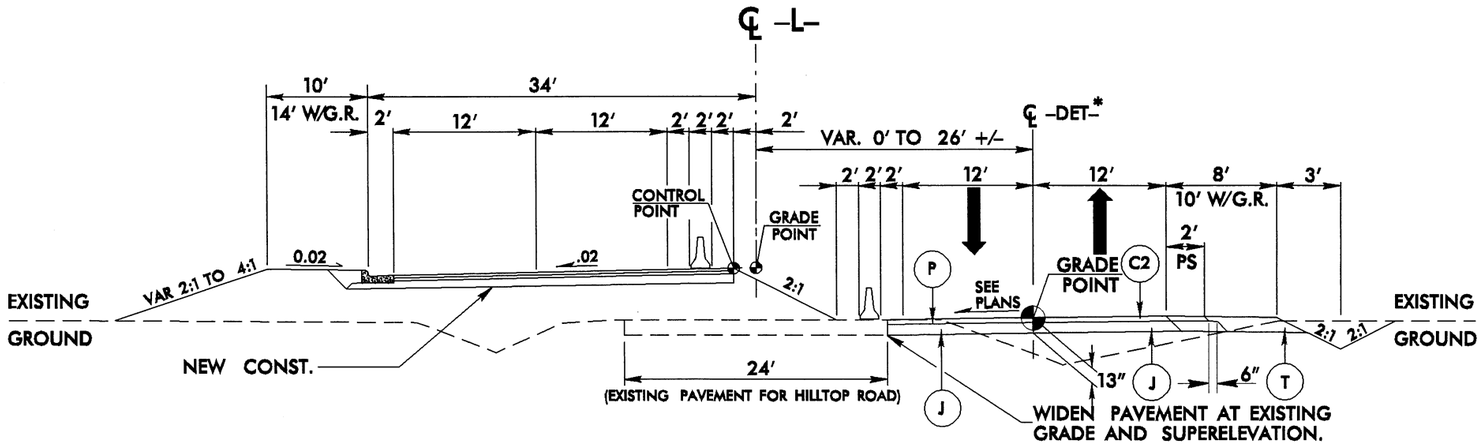
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PAVEMENT SCHEDULE

C1	1½″ S9.5B
C2	3″ S9.5B
C3	VAR. DEPTH S9.5B
D1	4″ I19.0B
D2	VAR. DEPTH I19.0B
E1	4″ B25.0B
E2	VAR. DEPTH B25.0B
J	10″ AGGREGATE BASE COURSE
P	PRIME COAT
R	2′-6″ CONCRETE C & G
S	4″ CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VAR. DEPTH WEDGING

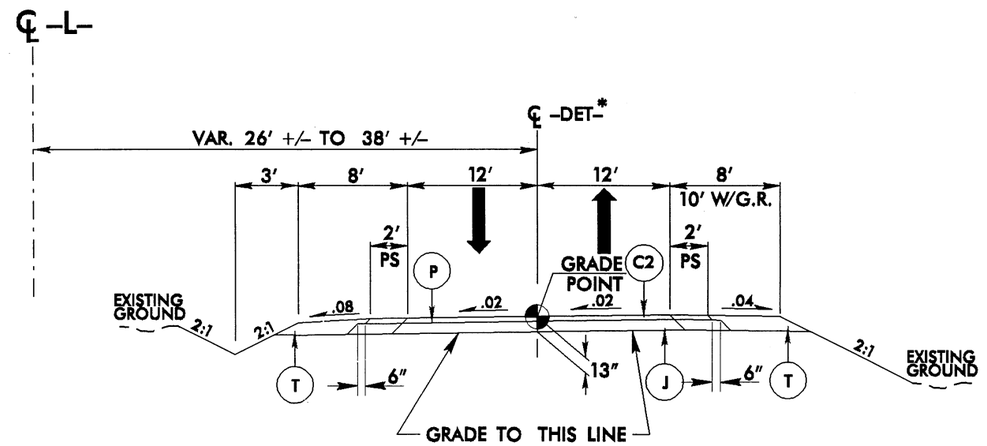
25-AUG-2004 07:18
R:\Sec-U\3612\2-A\u-3612-2a-typ.dgn
DWGardner AT ROADWAY

6/2/99



TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6
–DET– STA. 10+00.00 TO STA. 12+35.00
–DET– STA. 18+10.00 TO STA. 20+62.07



TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7
–DET– STA. 12+35.00 TO STA. 18+10.00

PROPOSED 2–LANE ONSITE DETOUR TYPICAL SECTIONS

* TEMPORARY ONSITE DETOUR FOR HILLTOP ROAD IS REQUIRED TO MAINTAIN TRAFFIC ALONG –L– STA. 18+20.00 TO STA. 28+71.52.

PROJECT REFERENCE NO.	SHEET NO.
U-3612	2-B
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PAVEMENT SCHEDULE

C1	1½″ S9.5B
C2	3″ S9.5B
C3	VAR. DEPTH S9.5B
D1	4″ I19.0B
D2	VAR. DEPTH I19.0B
E1	4″ B25.0B
E2	VAR. DEPTH B25.0B
J	10″ AGGREGATE BASE COURSE
P	PRIME COAT
R	2′-6″ CONCRETE C & G
S	4″ CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VAR. DEPTH WEDGING

25-AUG-2004 07:48
R:\Projects\2003\2-B\u-3612-2-B-typ.dgn
DWGardner AT PROJ2339

PROJECT REFERENCE NO.	SHEET NO.
U-3612	4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

2005 / 2025 ADT

(SR 1546) GUILFORD COLLEGE ROAD
19100 / 29100

(SR 1424) PIEDMONT PARKWAY
12720 / 16800

500 / 500 — 4220 / 3900 — 3680 / 4800 — 3280 / 4400

16040 / 19800 (SR 1424) HILLTOP ROAD

21340 / 33900
(SR 1546) GUILFORD COLLEGE ROAD

NAD 83

REVISIONS

8/17/99

-BYI-1 POT 5+00.00

GUILFORD CROSSING AT JAMES LANDING, LLC
DB 5894 PG 1224
PB 141PG 50

GPS U3612-2 POT 5+00.00 =
PINC 7+77.20

LEMMIE J. MITCHELL
DB 3828 PG 676
PB 57 PG 17

MARGIE BAILEY
DB 2897 PG 278
PB 57 PG 17

DOSHIA FIELDS
DB 4163 PG 547
PB 57 PG 17

J. CARMON ARREDENDO
DB 4872 PG 600
PB 57 PG 17

CHELSEA ACRES

STEVE & MICHELLE BEST
DB 3719 PG 347

VISITACION MADRID
DB 3000 PG 417
PB 57 PG 17

BELVIN G. SMITH
DB 4606 PG 92
PB 86 PG 29

KENNETH W. MOCK
DB 3843 PG 234

DON R. MOORE & VIRGINIA M. MOORE
DB 3418 PG 2051

UNITARIAN UNIVERSALIST CHURCH OF GREENSBORO
DB 4360 PG 1985

NCDOT
DB 4090 PG 1546

BM #1
-BL- STA 6+10.15
320.48 RIGHT
ELEV. 891.16'

-BYI-2 POT 11+20.70

-L- POT Sta. 10+00.00

-BL-1 PINC 11+08.71=
-L- STA. 11+34.97 (14.89 RT)

BEGIN PROJECT U-3612
-L- STA. 14+59.32

BEGIN C&G
-L- STA. 14+59.32
(35.43' LT)

BEGIN C&G
-L- STA. 14+59.32
(39.37' RT)

MATCHLINE -L- STA 15+00.00 SEE SHEET 5

SEE SHEET 8 FOR -L- PROFILE

25-AUG-2004 07:18
R:\Proj\U3612_rdy_esh_04.dgn
dwgardner AT BD212399

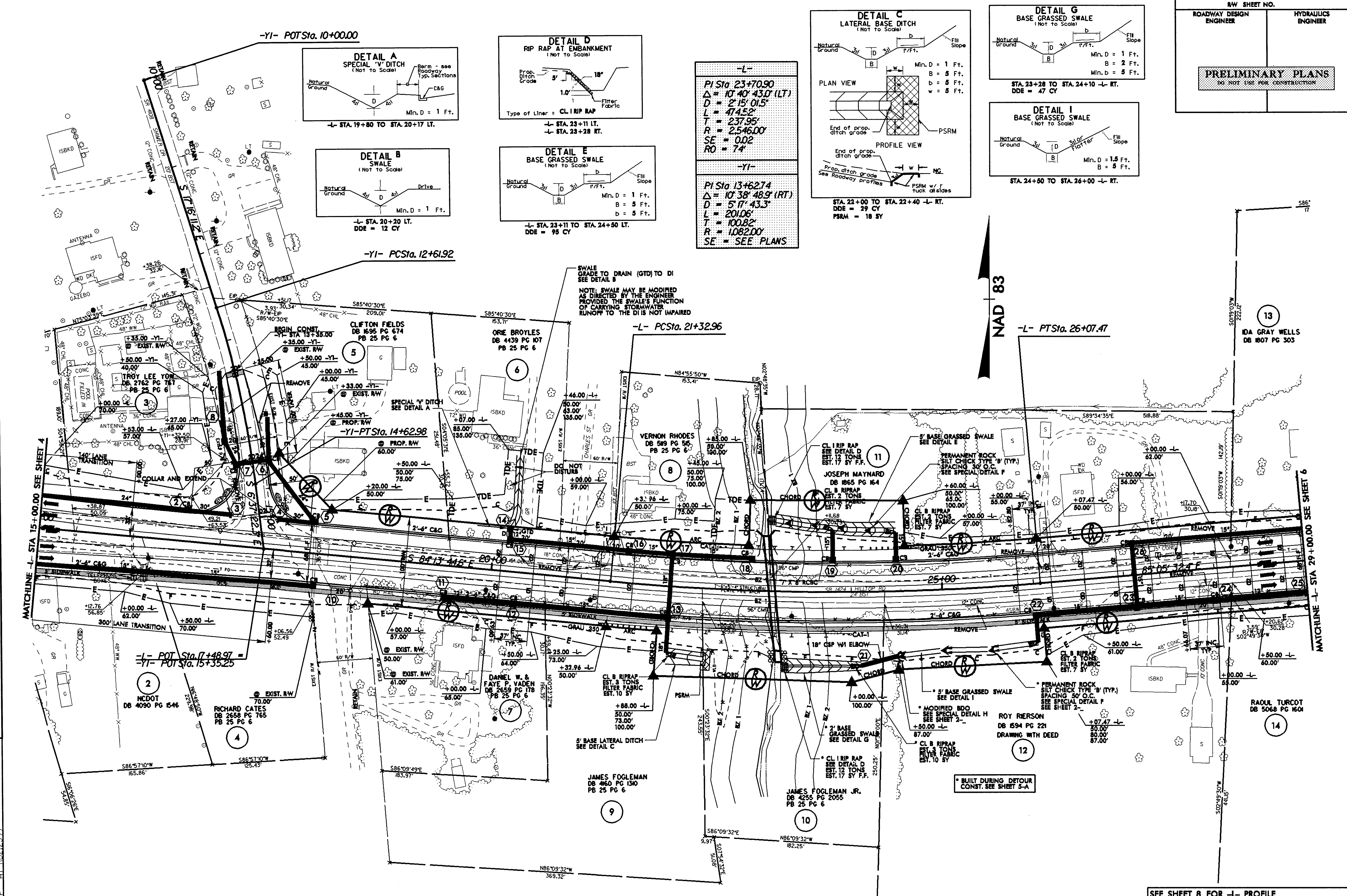
PROJECT REFERENCE NO.	SHEET NO.
U-3612	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

06/03/04 R/W REVISION (DWG) - DELETED TEMPORARY CONSTRUCTION EASEMENT, PERMANENT DRAINAGE EASEMENT, AND REVISED RIGHT OF WAY ON PARCEL 10 (JAMES FOGLEMAN, JR.), DELETED PERMANENT DRAINAGE EASEMENT AND REVISED RIGHT OF WAY ON PARCEL 9 (JAMES FOGLEMAN).

8/17/99



SEE SHEET 8 FOR -L- PROFILE
SEE SHEET 10 FOR -Y1- PROFILE
SEE SHEET C-1 THRU C-_ FOR CULVERT PLANS

25-AUG-2004 07:18
R:\Proj\U3612_rdy_psh_05.dgn
DWGardner AT RD212399

PROJECT REFERENCE NO.	SHEET NO.
U-3612	5-A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DETOUR

V_{DESIGN} = 35 MPH

-L-
PI Sta 23+70.90
Δ = 10° 40' 43.0" (LT)
D = 2° 15' 01.5"
L = 474.52'
T = 237.95'
R = 2,546.00'
SE = 0.02
RO = 7.4

-DET-		
PI Sta 10+69.74	PI Sta 15+43.46	PI Sta 19+95.70
Δ = 9° 57' 51.6" (RT)	Δ = 30° 10' 18.0" (LT)	Δ = 9° 31' 43.4" (RT)
D = 7° 09' 43.5"	D = 3° 49' 11.0"	D = 7° 09' 43.5"
L = 139.13'	L = 789.89'	L = 133.05'
T = 69.74'	T = 404.33'	T = 66.68'
R = 800.00'	R = 1,500.00'	R = 800.00'
SE = EXIST	SE = 0.02	SE = EXIST.
	RO = 42	

NAD 83

REVISIONS

8/17/99

-L- PCSta. 21+32.96

-L- PTSta. 26+07.41

-DET- PCSta. 19+62.19

-BL-2 PINC 17+77.72
-L- STA. 18+03.98 (15.52 RT)

BEGIN CONSTRUCTION
-DET- PCSta. 10+00.00=
-L- POT 18+20.00

-DET- PRCSta. 11+39.13

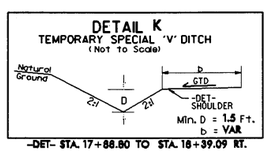
-BL-3 PINC 22+96.74=
-L- STA. 23+21.98 (15.43 RT) =

END CONSTRUCTION
-DET- POTSta. 20+62.07=
-L- POT Sta. 28+71.52

BM #2
-BL- STA 22+62.60
182.25' LEFT
ELEV. 837.61

NOTE: CUT HOLES IN EXISTING 96" CMP TO TIE TEMPORARY 18" CS PIPES

DETAIL K
TEMPORARY SPECIAL 'V' DITCH
(Not to Scale)



-DET- STA. 17+88.80 TO STA. 18+39.09 RT.

SEE SHEET 10 FOR -DET- PROFILE

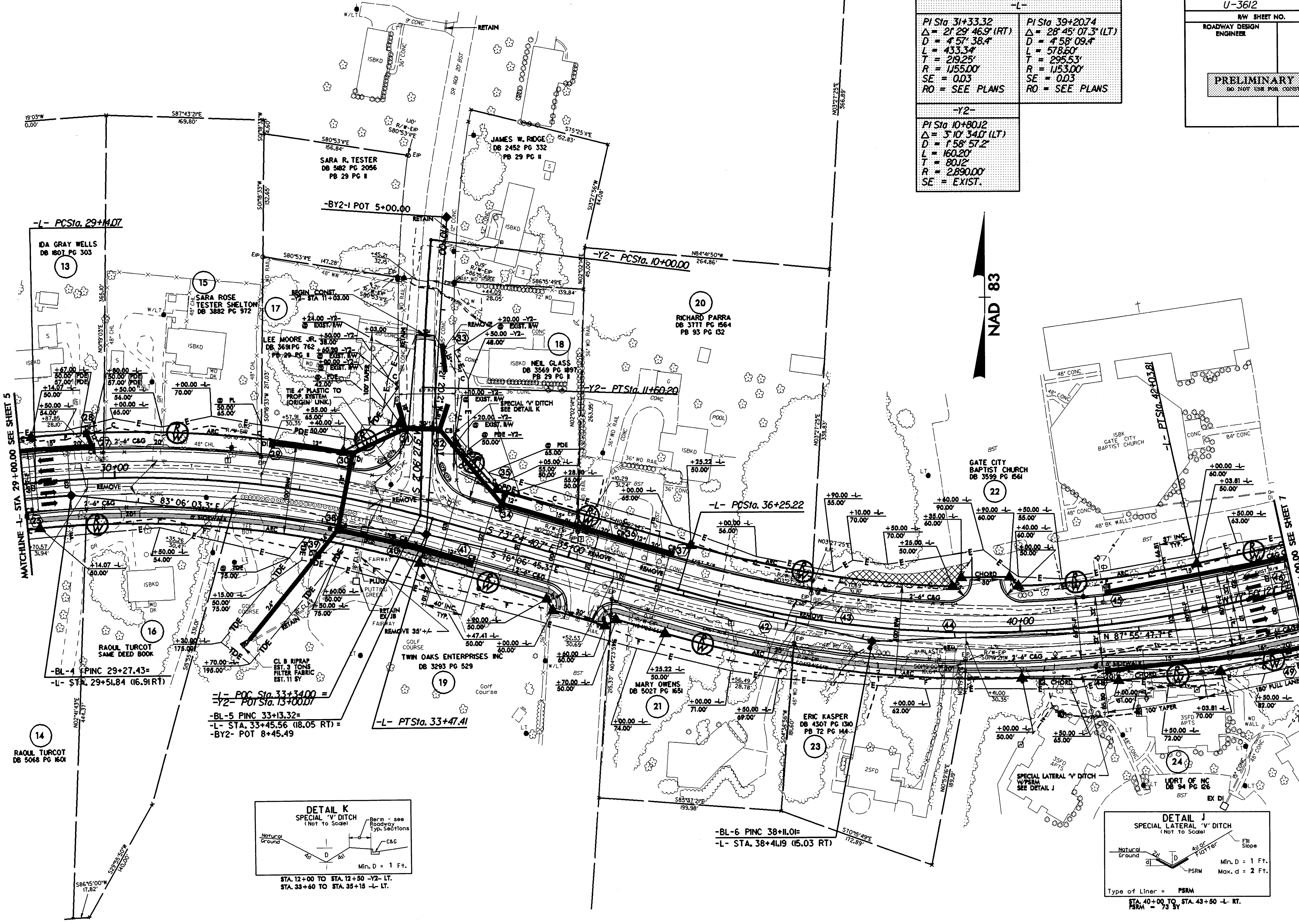
25-AUG-2004 07:19
DWG: C:\Projects\3612\Plan\Sheets\Detour\det_plan_05a.dgn
DWG Order: AT R0212399

PROJECT REFERENCE NO.	SHEET NO.
U-3612	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-	-L-
PI Sta 31+33.32	PI Sta 39+20.74
Δ = 21° 29′ 46.9″ (RT)	Δ = 28° 45′ 07.3″ (LT)
D = 4° 57′ 38.4″	D = 4° 58′ 09.4″
L = 433.34′	L = 578.60′
T = 219.25′	T = 295.53′
R = 1,155.00′	R = 1,153.00′
SE = 0.03	SE = 0.03
RO = SEE PLANS	RO = SEE PLANS

-Y2-
PI Sta 10+80.12
Δ = 3° 10′ 34.0″ (LT)
D = 1° 58′ 57.2″
L = 160.20′
T = 80.12′
R = 2,890.00′
SE = EXIST.



NAD 83
MATCHLINE -L- STA 29+00.00 SEE SHEET 5
MATCHLINE -L- STA 43+00.00 SEE SHEET 7
-L- PCSta. 29+14.07
-BY2-1 POT 5+00.00
-Y2- PCSta. 10+00.00
-Y2- PTSta. 11+60.20
-L- PCSta. 36+25.22
-L- PTSta. 42+03.81
-L- PTSta. 33+47.41
-L- POC Sta. 33+34.00 = -Y2- POT Sta. 13+00.07
-BL-5 PINC 33+13.32= -L- STA. 33+45.56 (18.05 RT) = -BY2- POT 8+45.49
-BL-4 PINC 29+27.43= -L- STA. 29+51.84 (16.91 RT)
-BL-6 PINC 38+11.01= -L- STA. 38+41.19 (15.03 RT)
S 83° 06′ 03.3″ E
S 73° 24′ 40.7″ E
S 76° 06′ 45.3″ E
N 87° 55′ 47.7″ E
IDA GRAY WELLS DB 1807 PG 303
SARA ROSE TESTER SHELTON DB 3882 PG 972
SARA R. TESTER DB 5182 PG 2056 PB 29 PG 11
JAMES W. RIDGE DB 2452 PG 332 PB 29 PG 11
LEE MOORE JR. DB 3691 PG 762 PB 29 PG 11
NEIL GLASS DB 3569 PG 1897 PB 29 PG 11
RICHARD PARRA DB 3717 PG 1564 PB 93 PG 132
GATE CITY BAPTIST CHURCH DB 3599 PG 1561
RAOUL TURCOT SAME DEED BOOK
RAOUL TURCOT DB 5068 PG 1601
TWIN OAKS ENTERPRISES INC DB 3293 PG 529
MARY OWENS DB 5027 PG 1651
ERIC KASPER DB 4307 PG 1310 PB 72 PG 144
UDRT OF NC DB 94 PG 126
BEGIN CONST. -Y2- STA 11+03.00
TIE 4″ PLASTIC TO PROP. SYSTEM (ORIGIN UNK.)
SPECIAL 'V' DITCH SEE DETAIL K
SPECIAL LATERAL 'V' DITCH W/PSRM SEE DETAIL J
CL B RIPRAP EST. 3 TONS FILTER FABRIC EST. 11 SY
DETAIL K
SPECIAL 'V' DITCH (Not to Scale)
Berm - see Roadway Typ. Sections
Natural Ground
C&G
Min. D = 1 Ft.
STA. 12+00 TO STA. 12+50 -Y2- LT.
STA. 33+60 TO STA. 35+15 -L- LT.
DETAIL J
SPECIAL LATERAL 'V' DITCH (Not to Scale)
Natural Ground
Fill Slope
4:1 or Flatter
PSRM
Min. D = 1 Ft.
Max. d = 2 Ft.
Type of Liner = PSRM
STA. 40+00 TO STA. 43+50 -L- RT.
PSRM = 73 SY

REVISIONS

8/17/99

25-AUG-2004 07:19
R:\Pro...\U3612_rdy_psh_06.dgn

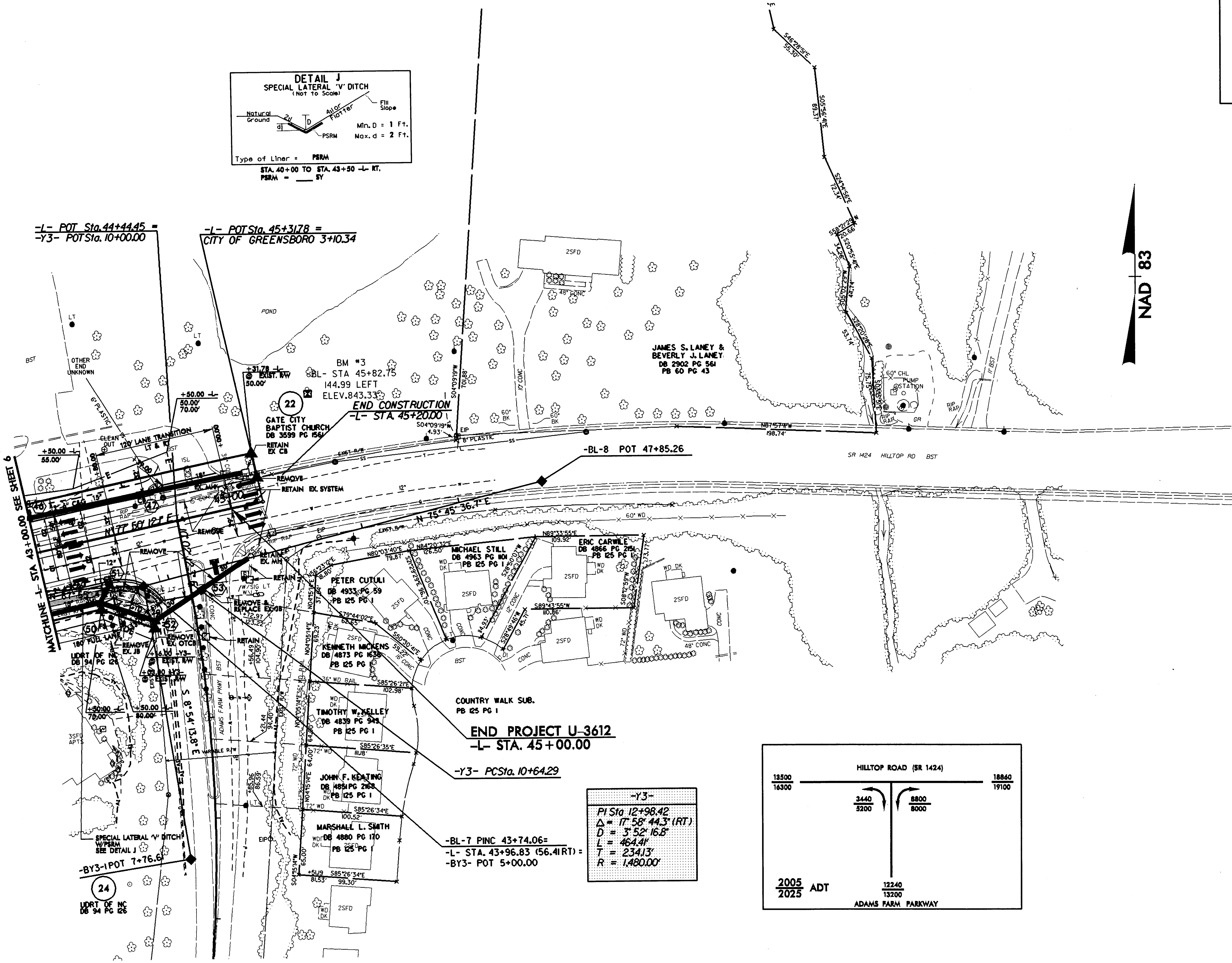
SEE SHEET 9 FOR -L- PROFILE
SEE SHEET 10 FOR -Y2- PROFILE

8/17/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
U-3612	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SEE SHEET 9 FOR -L- PROFILE

25-AUG-2004 07:19
R:\Proj\U3612_rdy_psh_07.dgn
DWGardner AT RD212399

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-3612	8
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-

BM #1
N 834214 E 1728088
-BL- STATION 6+10 320' RT
EL= 891.16'
R/R SPIKE SET IN 17" OAK

BEGIN GRADE -L- STA 14+59.32 (U-2913B)
ELEV.= 865.58'

865.58

SEE SHEETS 4 FOR -L- PLAN VIEW

-L-

BM #2
N 834503 E 1729805
-BL- STATION 22+63 182' LT
EL= 837.61'
R/R SPIKE SET IN 32" GUM

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	=	370 CFS
DESIGN FREQUENCY	=	25 YRS
DESIGN HW ELEVATION	=	836.1 FT
BASE DISCHARGE	=	500 CFS
BASE FREQUENCY	=	100 YRS
BASE HW ELEVATION	=	838.4 FT
OVERTOPPING DISCHARGE	=	>700 CFS
OVERTOPPING FREQUENCY	=	500+ YRS
OVERTOPPING ELEVATION	=	844.8 FT

(U-2913B)
PI = 15+90.55
EL = 861.18'
VC = 197'
K = 176

(U-2913B)
PI = 17+87.39
EL = 856.18'
VC = 66'
K = 640

PI = 19+00.00
EL = 853.42'
VC = 100'
K = 76 (DS>45 MPH)

PI = 23+50.00
EL = 836.41'
VC = 620'
K = 66 (DS>40 MPH)

PI = 27+50.00
EL = 858.90'
VC = 40'
K = 55 (DS>40 MPH)

864.50

866.24

END GRADE -L- STA 18+20.21 (U-2913B)
BEGIN GRADE -L- STA 18+20.21 (U-3612)
ELEV.= 855.38'

(-)2.456%
(-)2.893%
(-)3.780%
(+)3.763%
(-)3.780%
(+)3.250%
(+)0.365%
(+)1.562%
(+)6.225%
(+)14.892%

BEG. DITCH GRADE LT
-L- STA 19+80.00
ELEV= 849.30'

END DITCH GRADE LT
-L- STA 20+77.00
ELEV= 847.90'

BEG. DITCH GRADE RT
-L- STA 22+00.00
ELEV= 836.00'

END DITCH GRADE RT
-L- STA 22+40.00
ELEV= 834.70'

BEG. DITCH GRADE LT
-L- STA 23+41.00
ELEV= 838.30'

℄ STA. 23+12.30
ELEV= 828.41
1 @ 7' x 6' RCBC
SKEW 83 DEG.

BEG. DITCH GRADE RT
-L- STA 23+28.00
ELEV= 837.70'

END DITCH GRADE RT
-L- STA 24+10.00
ELEV= 832.00'

END DITCH GRADE LT
-L- STA 24+50.00
ELEV= 841.00'

BEG. DITCH GRADE RT
-L- STA 24+50.00
ELEV= 838.40'

END DITCH GRADE RT
-L- STA 26+00.00
ELEV= 846.80'

DITCH LEGEND
LEFT DITCH
RIGHT DITCH

SEE SHEETS 5 FOR -L- PLAN VIEW

NOTE: THE FINAL LIFT OF SURFACE COURSE THAT WAS NOT PLACED UNDER PROJECT U-2913B WILL BE PLACED UNDER THIS PROJECT AT -L- STA. 14+59.32 TO STA. 18+20.21

25-AUG-2004 07:20
R:\Proj\U3612_rdy_pl.dgn
DWgardner A1 (D22.33)

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-3612	9
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-

PI = 30+00.00
EL = 871.13'
VC = 200'
K = 45(DS>40 MPH)

PI = 32+00.00
EL = 872.12'
VC = 140'
K = 119(DS>55 MPH)

PI = 33+50.00
EL = 871.10'
VC = 160'
K = 82(DS>45 MPH)

PI = 35+00.00
EL = 873.00'
VC = 80'
K = 98(DS>45 MPH)

PI = 36+25.00
EL = 875.63'
VC = 130'
K = 72(DS>45 MPH)

BM #3
N 834401 E 1732048
-BL- STATION 45+83 145' LT
EL= 843.33'
R/R SPIKE SET IN 27" OAK

PI = 39+03.00
EL = 876.49'
VC = 325'
K = 48 (DS>40 MPH)

PI = 43+00.00
EL = 851.06'
VC = 240'
K = 72 (DS>40 MPH)

BEG. DITCH GRADE LT
-L- STA 33+60.00
ELEV= 872.50'

END DITCH GRADE LT
-L- STA 35+45.00
ELEV= 872.80'

BEG. DITCH GRADE RT
-L- STA 40+00.00
ELEV= 870.50'

PI=34+15.000
ELEV = 871.80

PI=44+00.00
ELEV = 863.20'

PI=40+90.00
ELEV = 864.26'

PI=42+90.00
ELEV = 852.00'

PI=43+40.00
ELEV = 851.00'

852.06

(+)0.8920%
(+)0.4950%
(+)0.4950%
(-)0.6800%
(-)0.2800%
(-)1.2787%
(+)1.2667%
(+)1.0000%
(+)2.1040%
(+)0.3094%
(+)0.3094%
(-)6.4065%
(+)10.0000%
(-)17.3889%
(+)10.0000%
(-)16.3333%

SEE SHEETS 6 FOR -L- PLAN VIEW

-L-

PI = 43+00.00
EL = 851.06'
VC = 240'
K = 72 (DS>40 MPH)

852.06

(-)16.3333%
(-)3.2800%

END DITCH GRADE RT
-L- STA 43+50.00
ELEV= 848.20'

END GRADE -L- STA 44+71.44
ELEV.= 845.80'

DITCH LEGEND
LEFT DITCH — - - — - -
RIGHT DITCH - - - - - - -

SEE SHEETS 7 FOR -L- PLAN VIEW

25-AUG-2004 07:20
R:\Proj\U3612.rdy_prf.dgn
DWGardner At RD212239

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-3612	10
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y1-

BEGIN GRADE -Y1- STA 13+50.00
ELEV = 864.78

PI = 14+65.00
EL = 857.44'
VC = 60'
K = 10 (DS=15 MPH)

(-)4.42000%
(-)1.89231%
(-)2.00012%

PI = 14+00.00
EL = 862.57'
VC = 70'
K = 20 (DS>30 MPH)

END GRADE -Y1- STA 15+02.48
ELEV = 856.69'

-Y2-

BEGIN OVERLAY AND WIDENING -Y2- STA 11+03.00

(-)1.40000%

END OVERLAY AND WIDENING -Y2- STA 12+67.50

BEG. DITCH GRADE LT
-Y2- STA 12+00.00
ELEV= 872.50'

END DITCH GRADE LT
-Y2- STA 12+50.00
ELEV= 872.50'

-Y1-, -Y2-

SEE SHEET 5 FOR -Y1- PLAN VIEW
SEE SHEET 6 FOR -Y2- PLAN VIEW

-DET-

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO. 57

DESIGN FREQUENCY = 5 YRS
DESIGN DISCHARGE = 170 CFS
DESIGN HW ELEVATION = 836.5 FT

PI = 15+25.00
EL = 833.66'
VC = 500'
K = 49 (DS=35 mph)

(-)4.85225%
(-)4.85225%
(+)5.88847%
(+)5.88847%

BEGIN GRADE
-DET- STA 11+36.88=
-L- 19+56.21 (11.68 RT.)
ELEV = 850.16'

84" CSP
STA. 15+00.00
INV. ELEV= 829.68'

BEG. TEMP. DITCH RT
-DET- STA 17+88.80
ELEV = 846.80'

END TEMP. DITCH RT
-DET- STA 18+39.08
ELEV = 849.68'

END GRADE
-DET- STA 19+26.16=
-L- 27+36.27 (11.51 RT.)
ELEV = 857.26'

DITCH LEGEND
LEFT DITCH
RIGHT DITCH

SEE SHEET 5-A FOR -DET- PLAN VIEW

25-AUG-2004 07:22
R:\Proj\u3612_rdy_01.dgn
DWoerner AT ED21339

8/23/99

0 5	PROJ. REFERENCE NO.	SHEET NO.
	U-3612	X-2

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

870
865

866.32

14+50.00

870
865

868.15

14+00.00

870

869.98

13+50.00

875
870

871.81

13+00.00

Approximate quantities only. Unclassified excavation, shoulder borrow, fine grading, clearing and grubbing, breaking of existing pavement and removal of existing pavement will be paid for at the contract lump sum price for "Grading".

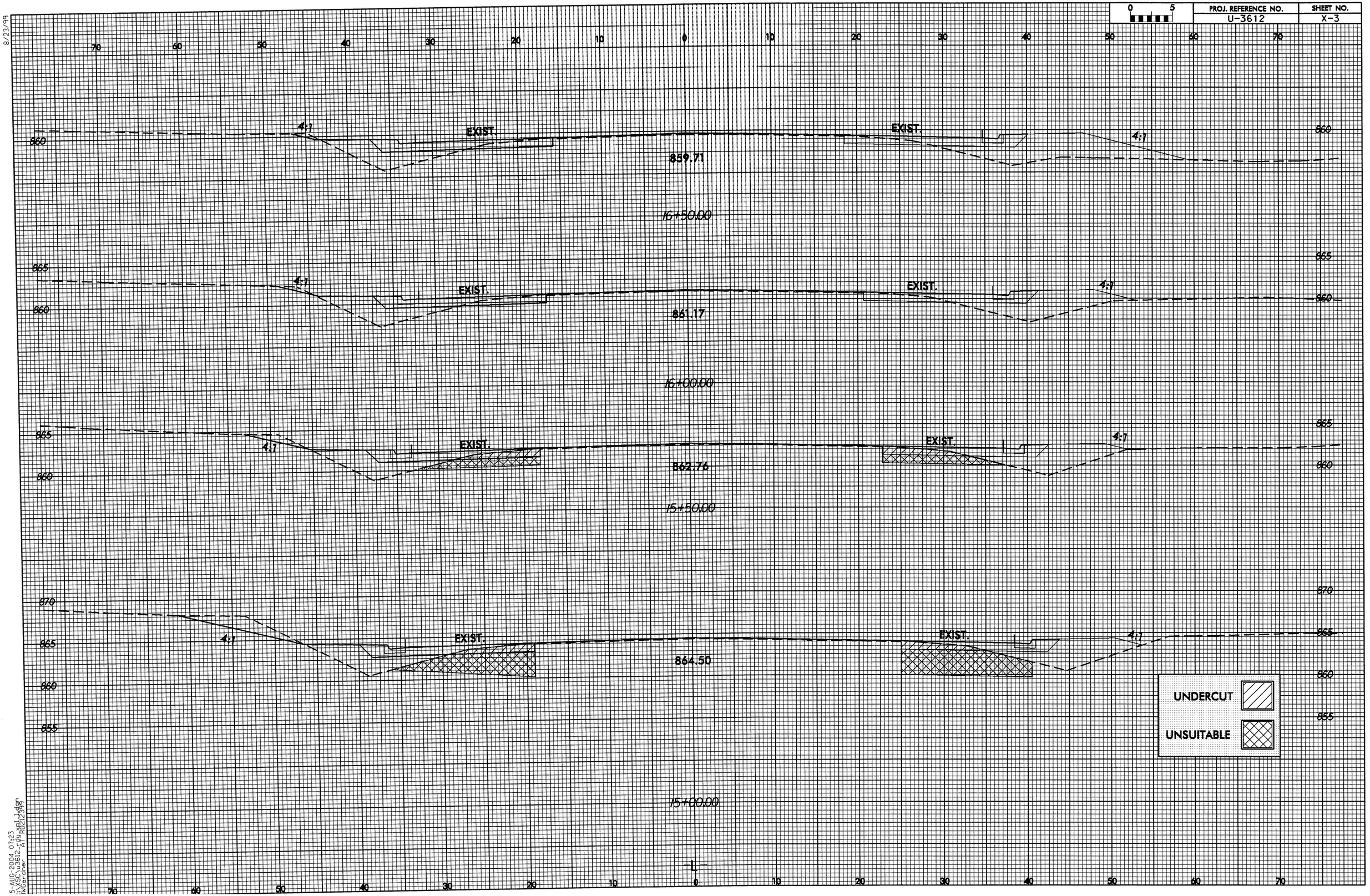
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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

25-AUG-2004 07:23
N:\Projects\U-3612\Roll\U3612_X2.dgn
Workflow: ARMS 02.2.5.0

8/23/99

0 5	PROJ. REFERENCE NO.	SHEET NO.
	U-3612	X-3



5-AUG-2004 07:23
i:\xsc\u3612_rdy.xpl;Judgr
\\Gardner AT RD12\349

8/23/99

0 5	PROJ. REFERENCE NO.	SHEET NO.
	U-3612	X-4

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

-DET- 10+30.01

660
655
650

4:1 0.0200 2:1 853.54 0.0200 0.0020 2:1 4:1

851.53

18+50.00

660
655

5:1 EXIST. 855.88 EXIST. 4:1

18+00.00

660
655

4:1 EXIST. 857.13 EXIST. 4:1

17+50.00

660
655

4:1 EXIST. 858.40 EXIST. 4:1

17+00.00

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

8-AUG-2004 07:24
\XSC\u3612-rdy-xpl.dgn
wGardner
ATRD12399

8/23/99

0 5	PROJ. REFERENCE NO.	SHEET NO.
	U-3612	X-5

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

DET- 11+81.24

855 850 845

4:1 4:1 DITCH GRADE ELEV=848.54' 0.0200 2:1 848.37 0.0200 0.0190 2:1 2:1 3:1 4:1 847.17

20+00.00

DET- 11+30.58

855 850 845

4:1 0.0200 2:1 850.38 0.0040 0.0200 2:1 2:1 4:1 848.62

19+50.00

DET- 10+80.13

860 855 850

4:1 0.0200 2:1 852.18 0.0020 0.0200 3:1 2:1 4:1 850.36

19+00.00

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

5-AUG-2004 07:25
i:\xsc\u3612_rgy_x01_1.dgn
WGardner RD12537

A1

8/23/99

0 5	PROJ. REFERENCE NO.	SHEET NO.
	U-3612	X-6

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

850
845
840

-DET- 13+32.21

4:1 0.0200 2:1 842.18 0.0179 2:1 2:1 839.96 0.0184 0.0184 3:1 2:1 2:1 840.69

21+50.00

850
845
840

-DET- 12+81.89

4:1 0.0200 2:1 844.27 0.0044 2:1 2:1 841.80 0.0167 4:1 2:1 2:1 842.47

21+00.00

855
850
845

-DET- 12+31.66

4:1 0.0200 2:1 846.41 0.0091 0.0091 4:1 2:1

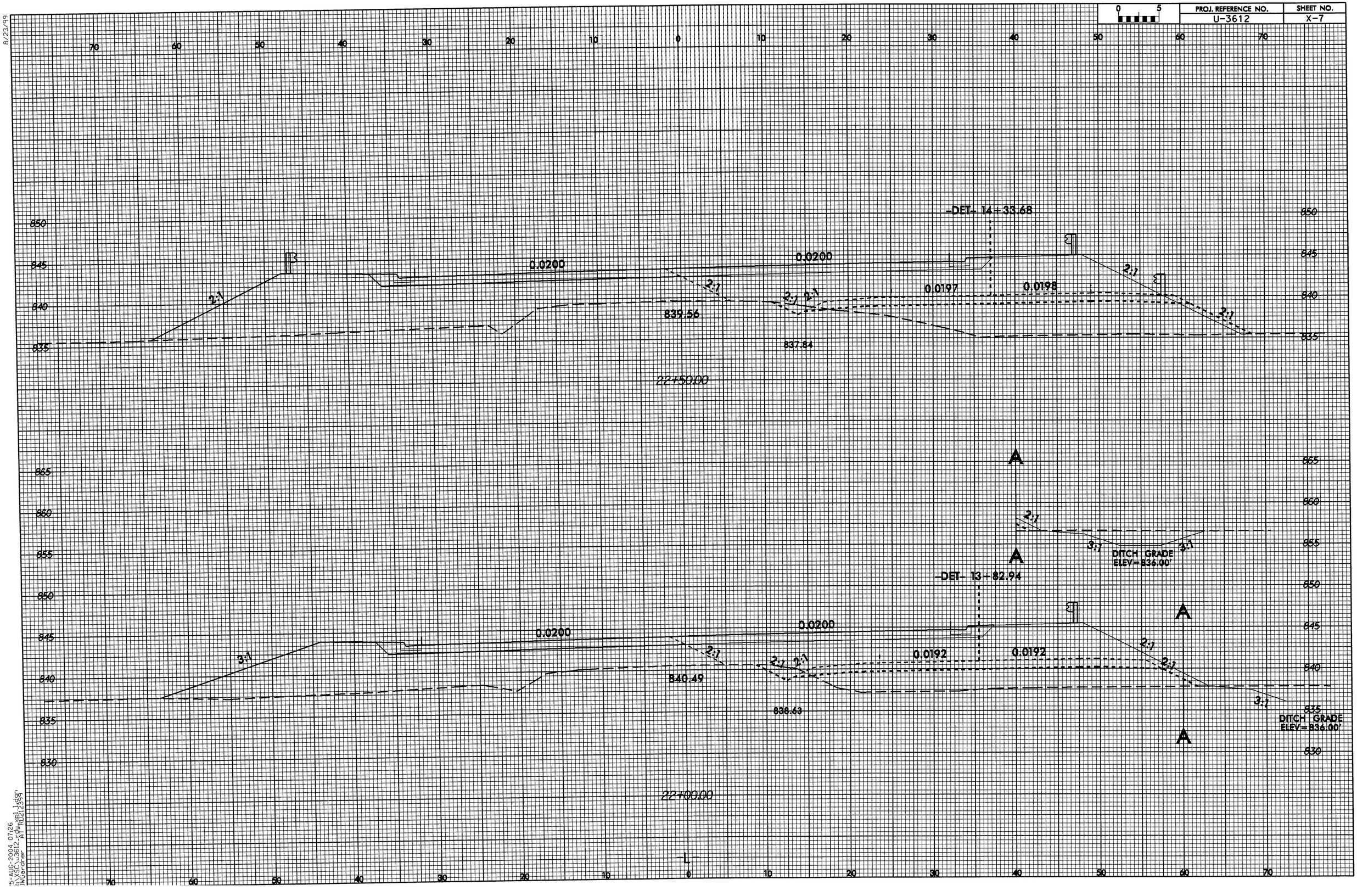
20+50.00

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

3-AUG-2004 07:26
C:\XSC\u3612_rdy_X01.dgn
WGardner
ATM RD12/3/99

8/23/99

0 5	PROJ. REFERENCE NO.	SHEET NO.
	U-3612	X-7



25-AUG-2004 07:26
\\Xsc\u3612-x7.dgn
WCardner

8/23/99

0 5	PROJ. REFERENCE NO.	SHEET NO.
	U-3612	X-8

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

870 865 860 855 850 845 840 835 830

B

2:1

3:1

DITCH GRADE
ELEV=831.78'

-DET- 15+35.17

B

0.0200

2:1

839.01

0.0200

2:1

2:1

0.0199

0.0200

837.83

2:1

3:1

B

23+50.00

-DET- 14+84.42

850 845 840 835

2:1

0.0200

2:1

839.05

0.0200

2:1

2:1

0.0200

0.0200

837.57

2:1

23+00.00

-L-

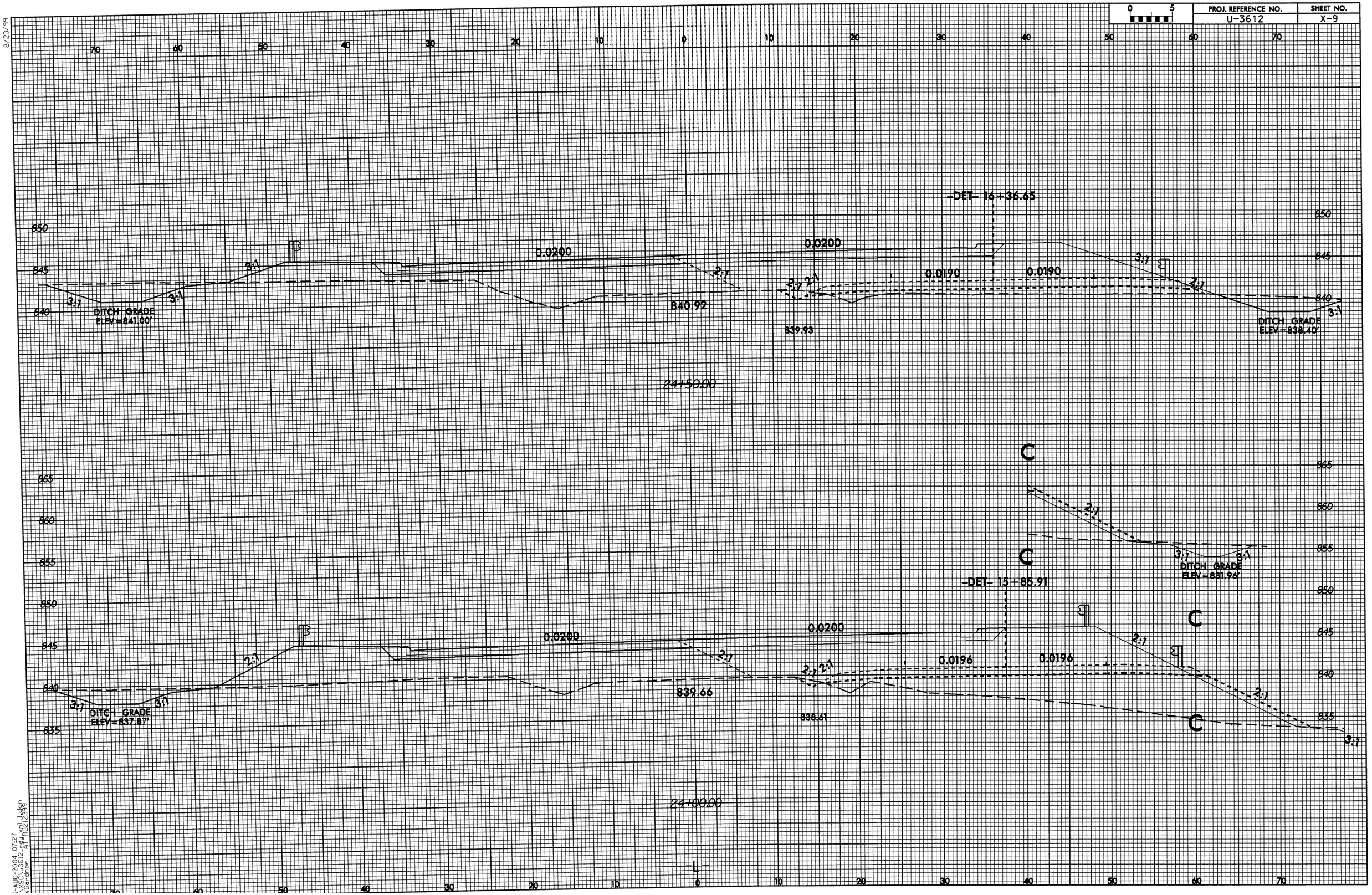
70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

870 865 860 855 850 845 840 835 830

5-AUG-2004 07:25
\\SC\u3612_rdy_xsh_1.dgn
wboardner
ATT1 RD12349

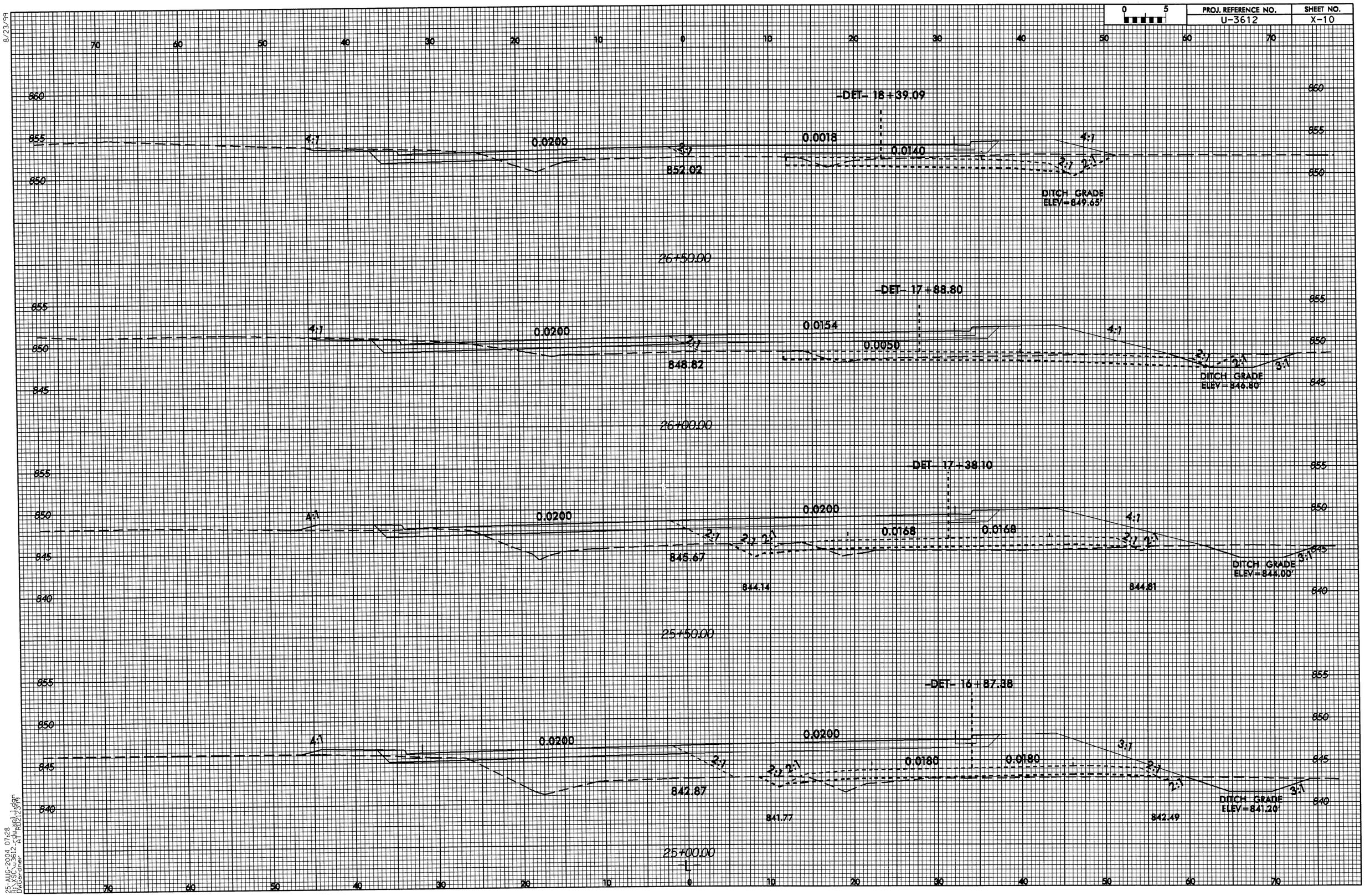
PROJ. REFERENCE NO.	SHEET NO.
U-3612	X-9

8/23/99



8/23/99

0 5	PROJ. REFERENCE NO.	SHEET NO.
	U-3612	X-10



25-AUG-2004 07:28
R:\XSC\u3612-rdy-RDI-1.dgn
DWGSdner A1 RDI2393

0 5	PROJ. REFERENCE NO.	SHEET NO.
	U-3612	X-11

8/23/99

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

870 865 860 855

DET- 20+40.55

4:1 0.0027 2% 863.21 0.0200 0.0200 2% 4:1 861.11 4:1

28+50.00

DET- 19+90.45

4:1 0.0108 2% 860.79 0.0440 0.0200 4:1 858.46

28+00.00

DET- 19+40.08

4:1 0.0200 2% 858.09 0.0200 0.0160 4:1 855.90

27+50.00

DET- 18+89.47

4:1 0.0200 2% 855.09 0.0117 0.0080 4:1 852.98

27+00.00

—L—

8/23/99

0 5	PROJ. REFERENCE NO.	SHEET NO.
	U-3612	X-12

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

875
870

4:1 0.0300 871.16 0.0300 4:1

31+00.00

875
870

4:1 0.0300 870.66 0.0300 4:1

30+50.00

875
870

4:1 0.0300 869.42 0.0300 4:1

30+00.00

870
865

4:1 0.0297 867.62 0.0297 4:1

29+50.00

870
865

4:1 0.0162 865.44 0.0200 4:1

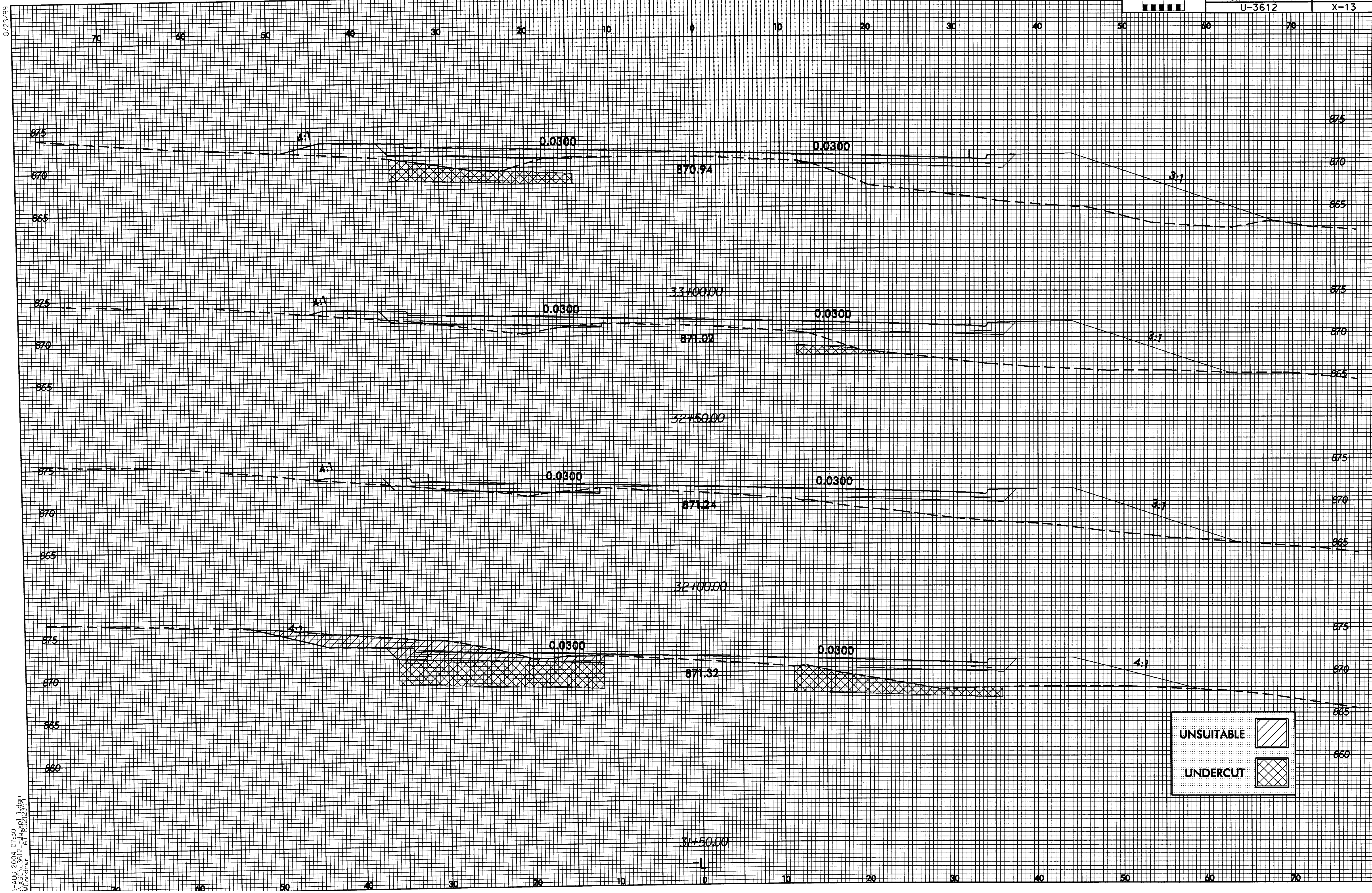
29+00.00

UNSUITABLE

UNDERCUT

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

PROJ. REFERENCE NO.	SHEET NO.
U-3612	X-13



8/23/99

0 5	PROJ. REFERENCE NO.	SHEET NO.
	U-3612	X-14

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

875
870
865

4:1 A:1
DITCH GRADE
ELEV=872.65'

0.0035

872.76

0.0035

3:1

875
870

354+00.00

875
870
865

4:1 A:1
DITCH GRADE
ELEV=872.15'

0.0090

872.00

0.0090

3:1

875
870
865

341+50.00

875
870
865

4:1 A:1
DITCH GRADE
ELEV=871.99'

0.0215

871.54

0.0215

3:1

875
870
865

341+00.00

875
870
865
860
855

A:1

0.0300

871.19

0.0300

3:1

875
870
865
860
855

UNSUITABLE

UNDERCUT

337+50.00

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

05-AUG-2004 07:30
J:\XSC\u3612-rdy.xsl
Woerner
RDY2.tbl

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
U-3612	X-15

0 5

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

875

4:1 0.0300 875.09 0.0300 4:1

37+50.00

4:1 0.0300 875.14 0.0300 4:1

37+00.00

4:1 0.0300 875.11 0.0300 4:1

36+50.00

4:1 0.0285 874.68 0.0285 4:1

875 870

36+00.00

4:1 0.0160 873.63 0.0160 3:1

875 870 865 860

UNSUITABLE

UNDERCUT

35+50.00

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

5-AUG-2004 07:31
i:\xs\u3612_rdy.xpl
wbardner AT RD12.3.99

0 5	PROJ. REFERENCE NO.	SHEET NO.
	U-3612	X-16

8/23/99

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

870

3:1

0.0300

869.11

4:1

2:1

DITCH GRADE
ELEV=870.50'

40+00.00

880

875

870

DRIVEWAY

0.0300

871.50

4:1

0.0300

875

870

39+50.00

875

3:1

0.0300

873.33

4:1

0.0300

875

870

39+00.00

875

3:1

0.0300

874.37

4:1

0.0300

875

38+50.00

875

3:1

0.0300

874.95

4:1

0.0300

875

870

UNSUITABLE

UNDERCUT

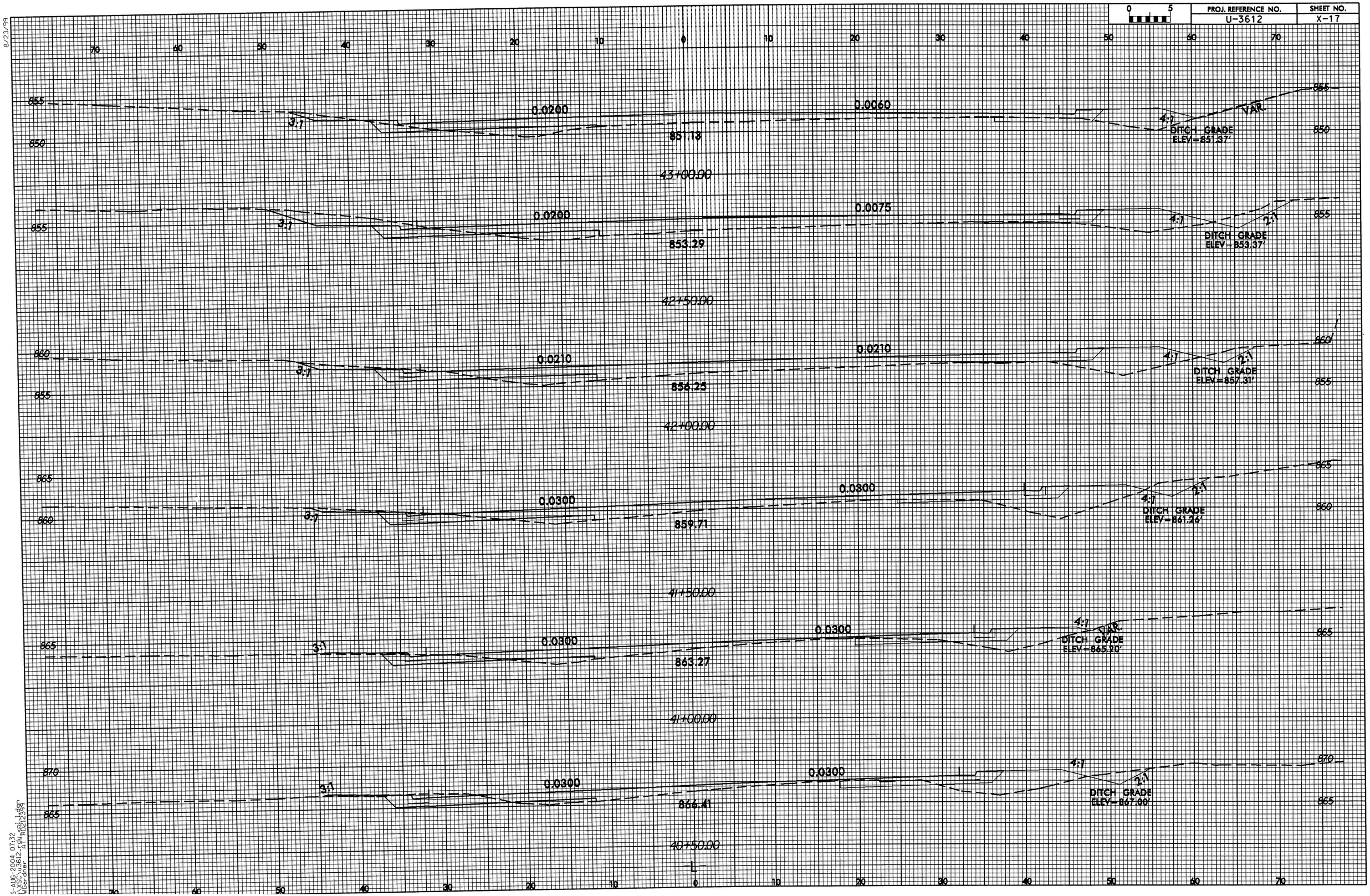
865

38+00.00

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

8/23/99

0 5	PROJ. REFERENCE NO.	SHEET NO.
	U-3612	X-17



5-AUG-2004 07:32
i:\xsc\u3612_rdy_xsl.dgn
WGardner
A1 R0212399

8/23/99

0 5	PROJ. REFERENCE NO.	SHEET NO.
	U-3612	X-18

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

845

844.67

45+00.00

-Y3-

850

0.0235

4:1

845.98

845

0.0235

44+50.00

855

-Y3-

850

0.0217

4:1

847.46

845

0.0217

44+00.00

850

0.0200

4:1

849.29

0.0195

4:1

4:1

DITCH GRADE
ELEV = 848.20'

43+50.00

-L-

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

5-AUG-2004 07:33
X:\SC\u3612\dgn\xsRDJudge
WGardner
RDJ12399

0 5	PROJ. REFERENCE NO.	SHEET NO.
	U-3612	X-19

8/23/99

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

855

856.76

15+00.00

860

4:1 0.0200 0.0200 4:1

859.43

14+50.00

865 860

4:1 4:1 0.0200 0.0200 4:1 4:1

860.03 862.37 860.02

14+00.00

865 860

4:1 4:1 0.0200 0.0200 4:1 4:1

862.60 864.78 862.58

13+50.00

865

866.76

13+00.00

865 860

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

Y1

8/23/99

0 5	PROJ. REFERENCE NO.	SHEET NO.
	U-3612	X-20

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

875

870

4:1

EXIST.

873.28

872.50

12+50.00

875

4:1

EXIST.

875.59

874.50

12+00.00

880

875

4:1

4:1

EXIST.

878.01

875.87

876.02

11+50.00

880

880.20

11+00.00

885

880

881.80

10+50.00

-Y2-

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