COUNTY DEPARTMENT AGENDA REQUEST

Department:	Public Works / SPLOST	Presenter(s):	Phil Mallon
Meeting Date:	Thursday, August 12, 2010	Type of Request:	New Business

Wording for the Agenda:

Discussion of staff's recommendation to approve the concept design for SPLOST Project No. B-2, known as the Westbridge Road Horizontal Curve Improvement and Bridge Replacement Project over Morning Creek.

Background/History/Details:

Heath & Lineback Engineers, Inc. were retained by Fayette County to recommend improvements to the sharp curve on Westbridge Road and the existing bridge over Morning Creek. They studied seven alternatives and ultimately recommended Alternative 3. Staff reviewed the concept reports and alternatives and also recommends Alternative 3.

Alternative 3 improves the sharp curve to current design standards and specifies a new bridge located south of the existing structure. The new bridge is needed, in part, to properly align with the improved horizontal curve. Advantages of this alternative include: 1) a design speed of 45 mph; 2) no wetland or state water impacts (other than those associated with the bridge work); 3) a design that accommodates future growth projections; 4) a new bridge satisfying HS20 loading standards; and 5) the design satisfies FEMA no-rise requirements for floodplain management.

The concept-level cost estimate for engineering, right-of-way and construction is $1,968,547. This includes a not-to-exceed fee proposal for completion of final design of $294,722.

A copy of the concept report and cost estimates are provided as back-up to this agenda request.

What action are you seeking from the Board of Commissioners?

Approval of staff's recommendation to utilize concept design Alternative 3 for Westbridge Road, SPLOST Project No. B-2.

If this item requires funding, please describe:

This project will be funded with the Transportation SPLOST 321 Fund, Project No. B-2. Sufficient money is available to cover the concept-level cost estimate for design and construction.

Has this issue come before the Commissioners in the past?	No	If so, when?	
Do you need audio-visual for the presentation?	No	Back-up Material Submitted?	Yes

STAFF USE ONLY

Approved by Finance	Yes	Reviewed by Legal	Yes
Approved by Purchasing	Not Applicable	Approved by County Clerk	Yes
Administrator's Approval	Yes		

Staff Notes:

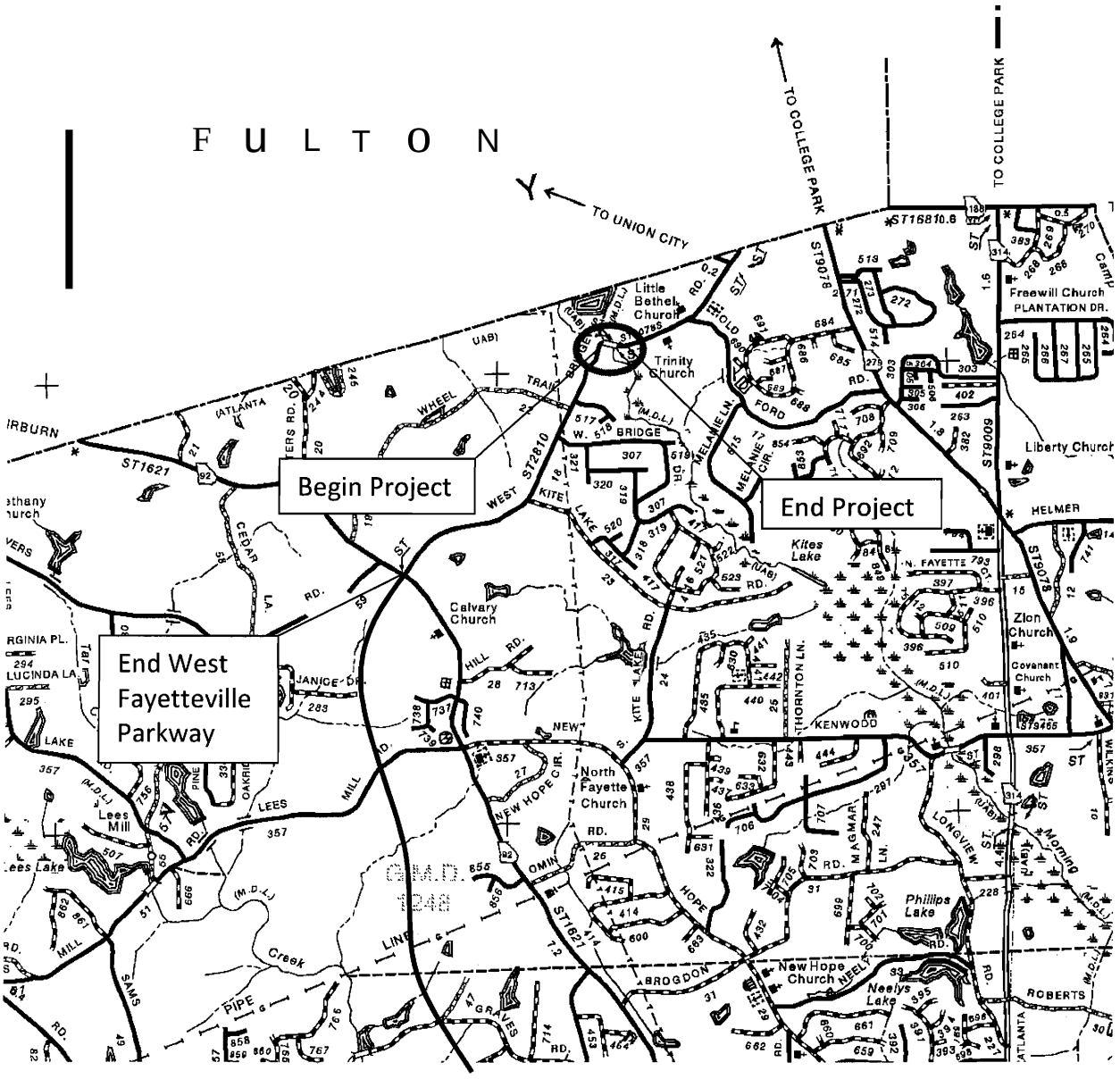
PUBLIC WORKS DEPARTMENT
FAYETTE COUNTY, GA

PROJECT CONCEPT REPORT

Project Number: B-2

County: Fayette

Westbridge Road Improvements at Morning Creek



West Fayetteville Parkway Continues

Location Map

Project Number: B-2

Description: Westbridge Road Improvements at Morning Creek

Need and Purpose:

Westbridge Road is a .3 mile section of a two lane roadway on a generally north south alignment that connects SR 92 to the south and SR 279 to the north. The project is in the vicinity of Morning Creek in Fayette County, Georgia. The West Fayetteville Parkway phase 1 is nearing completion and phase 2 is in final design. The parkway will end at SR 92 at the Westbridge Road intersection. Traffic volumes are expected to increase significantly on Westbridge Road once the bypass is open to traffic. The proposed project is needed to improve the substandard horizontal curve southwest of the bridge to accommodate the increased traffic volume.

Description of the proposed project:

Fayette County Project No. B-2 is a roadway geometry improvement project on Westbridge Road at Morning Creek. There is an existing substandard horizontal curve approaching the Morning Creek Bridge from the southwest. The proposed project will improve the substandard horizontal curve southwest of the bridge. As a result of the improved. horizontal alignment a new bridge'is needed. In addition, the existing bridge has a substandard:width of 23'-9" gutter: to gutter.arid was designed for HiS truck loading. The existing bridge 'was built in 1957 and consists of 7 - 25 foot concrete waffle beam spans, concrete intermediate bents'"and pile end bents. Replacing the existing .bridge will bring it up to current design standards and-in doing so will improve the operation and safety of this road. Utilities' exist along the existing roadway with a water main attached to the south side of the bridge. Morning Creek is a FEMA studied creek.

Federal Oversight: Full Oversight ( ) Exempt ( ) State Funded ( ) Local Funded (X)

Functional Classification: Westbridge Road - Urban Minor Arterial

Traffic (AADT):

Base Year: (2011) 4,200 Design Year: (2031) 18,600

Existing design features:

Westbridge Road

- Typical Section:
  (Roadway typical section) - Two 12'-0" travel lanes in each direction with no shoulders.
  (Bridge typical section) - Roadway width at bridge is 23'-9" gutter to gutter.
- Posted speed 45 mph Minimum radius for curve: 284'
- Maximum super-elevation rate for curve: 7%
- Maximum grade: 4%
- Width of right-of-way: 80 ft. corridor
- Major structures: Westbridge Road bridge over Morning Creek 175'-0" long by 25'-4" wide, Structure ill 113-0028-0, Sufficient Rating 69.32
- Major interchanges or intersections along the project. None

Proposed Design Features:

Westbridge Road

- Proposed typical section(s):
  (Roadway typical section) - Two 12'-0" travel lanes in each direction with 2'-0" paved and 8'-0" grassed shoulders on each side.
- Proposed Design Speed Mainline 45 mph
- Proposed Maximum grade Mainline _5_%
- Proposed Maximum grade allowable _7_0/0
- Proposed Minimum radius of curve 643 ft
- Proposed Minimum radius allowed 643 ft
- Maximum allowable superelevation rate _6_%
- Proposed maximum superelevation rate _6_%
- Right-of-Way:
  - Width: 100'-120'
  - Easements: Temporary (X) Permanent ( ) Utility ( ) Other ( ).
  - Type of access control: Full ( ) Partial ( ) By Permit (X) Other ( ).
  - Number of parcels: 7 Number of displacements: 1
- Structures:
  - Bridge: Westbridge Road over Morning Creek
    (Bridge Typical Section) - Two 12'-0" lanes with 8'-0" shoulders
- Major intersections, interchanges, median openings and signal locations. None
- Design Exceptions to controlling criteria anticipated:

	YES	NO	UNDETERMINED
HORIZONTAL ALIGNMENT:	( )	(X)	( )
LANE WIDTH:	( )	(X)	( )
SHOULDER WIDTH:	( )	(X)	( )
VERTICAL GRADES:	( )	(X)	( )
CROSS SLOPES:	( )	(X)	( )
STOPPING SIGHT DISTANCE:	( )	(X)	( )
SUPERELEVATION RATES:	( )	(X)	( )
VERTICAL ALIGNMENT:	( )	(X)	( )
SPEED DESIGN:	( )	(X)	( )
VERTICAL CLEARANCE:	( )	(X)	( )
BRIDGE WIDTH:	( )	(X)	( )
BRIDGE STRUCTURAL CAPACITY:	( )	(X)	( )
LATERAL OFFSET TO OBSTRUCTION:	( )	(X)	( )

- Environmental concerns:
  A screening was performed on May 14, 2010. A potential archaeological site was located in the southwest quadrant of the project. This site would be impacted by the proposed project. See attached screening report for more information.

- Utility involvements: Gas and Water

Alternates considered:

Alternate # 1 – Minimum Improvement with Existing Bridge
This alternate improves the horizontal curve on the west side of the bridge to satisfy a 35 mph speed design and the existing bridge is retained. This alternate results in minimal right of way impacts and no relocations. See attachnlents for more information.

Alternate # 2A - West Alignment with Existing Bridge
This alternate improves the horizontal curve on the west side of the bridge to satisfy a 45 mph speed design and the existing bridge is retained. This alternate results in significant right of way impacts and one relocation. See attachments for more information.

Alternate # 2B – West Alignment with Widened Existing Bridge
This alternate is the same as alternate 2A except that the existing bridge is widened. It was determined that this is not a viable alternate since the widened bridge lowers the bridge low beam elevation, resulting in the FEMA no-rise requirenlent not being satisfied. See attachments for more information.

Alternate # 2C - West Alignment with New Bridge and On-Site Detour
This alternate is the same as alternate 2A except that the existing bridge is replaced and traffic is maintained on an on-site detour. This alternate has a high construction cost due to the on-site detour. See attachments for more information.

Alternate # 3 – South Alignment with New Bridge **(Proposed Alternate)**
This alternate improves the horizontal curve on the west side of the bridge to satisfy a 45 mph speed design. A new bridge is constructed to the south of the existing bridge. This alternate results in one relocation. See attachments for more information.

Alternate # 4 - Road Closed to Prevent Relocation with New Bridge
This alternate improves the horizontal curve on the west side of the bridge to satisfy a 45 mph speed design. The alignment is set to shift the construction limits away from the residence in the southwest quadrant (property of Rory Beachem) and a new bridge is constructed. In addition, the roadway profile was raised and a wall is constructed to further reduce impacts to the property. Due to the proposed bridge being in the location of the existing bridge and the roadway profile being significantly raised, construction staging would be practically impossible. Therefore, the road would be closed during construction for this alternate. There are no relocations as a result of this alternate. See attachments for more information.

Alternate # 5 - North Alignment with New Bridge
This alternate improves the horizontal curve on the west side of the bridge to satisfy a 45 mph speed design. A new bridge is constructed to the north of the existing bridge. Since the proposed roadway crossing the existing roadway at two locations the proposed profile could not be raised due to staging, resulting in a longer bridge than alternates 3 and 4. A wall is constructed to reduce inlpacts to the residence in the southwest quadrant (property of Rory Beachem). There are no relocations as a result of this alternate. See attachments for more information.

Attachments:

1. Concept Alternate Studies with concept estimates
2. Environnlental Screening Report
3. Typical section
4. Accident summaries
5. Bridge inventory
6. Minutes of Concept meetings

Submitted By: _ Date: _ _ _ _ _ _
Heath and Lineback Engineers

Approve: _ Date: _ _ _ _ _ _
SPLOST Manager - Carlos Christian

Approve: _ Date: _ _ _ _ _ _ _
Public Works Director - Phil Mallon, P.E.

COST TABLE

Alternate	Roadway Geometry Horizontal Curve Description	Profile (Max Grade%)	Earthwork Cost	Pavement	S&M	Traffic M&P	Erosion	Clearing and Grubbing	Detour Bridge and Roadway Cost	Cost to Widen Bridge	Cost for New Bridge	Wall cost	Construction Cost	5% Engineering and Inspection +4% Construction Contingency = 9%(Inflation not Included)	15% Fuel and Liquid Adjustment	Right of Way Cost		Total Cost Including Right of Way
																Cost of Land	Relocation Cost of Structure	
1	Tightly Curved	-5	$79,356	$57,000	$1,619	$20,000	$21,591	$8,197	N/A	N/A	N/A	N/A	$187,763	$16,899	$28,165	$29,510	N/A	$262,336
2A	Curvilinear	-5	$77,622	$182,000	$5,114	$10,000	$68,182	$63,100	N/A	N/A	N/A	N/A	$406,017	$36,542	$60,903	$227,160	$440,000	$1,170,622
2B	Curvilinear	-5	$77,622	$182,000	$5,700	$10,000	$68,182	$63,100	N/A	$308,000	N/A	N/A	$714,604	$64,314	$107,191	$227,160	$440,000	$1,553,269 **
2C	Curvilinear	-5	$79,794	$199,500	$6,150	$10,000	$76,000	$63,400	$219,287	N/A	$661,725	N/A	$1,315,856	$118,427	$197,378	$228,240	$440,000	$2,299,901
3	Gently Curvilinear	-3	$169,290	$139,200	$4,467	$15,000	$59,558	$29,600	N/A	N/A	$661,725	N/A	$1,078,840	$97,096	$161,826	$106,560	$276,000	$1,720,321
4	Gently Curvilinear	-6	$64,446	$119,000	$3,894	N/A	$51,922	$21,408	N/A	N/A	$661,725	$105,000	$1,027,395	$92,466	$154,109	$77,067	N/A	$1,351,037
5	Gently Curvilinear	-5	$172,752	$162,500	$5,128	$15,000	$68,373	$25,100	N/A	N/A	$808,775	$105,000	$1,362,628	$122,636	$204,394	$90,360	N/A	$1,780,018

Note: The total cost of the studied Alternates is for comparison and is not the total cost of the project.

** Alternate 2B was detrmined not to be a viable option since the FEMA no-rise requirement would not be met with a widened bridge.

The widened bridge lowers the low beam elevation due to the cross slope of the deck.

ALTERNATES EVALUATION/RATING MATRIX

Needs and Desires	Alternates							Comment
	1	2A	28	2C	3	4	5	
Fix Inadequate Roadway Geometry/Improve Traffic Operations	1	4	6	8	10	9	10	See Cost Matrix
Life 5pan of Bridge	2	2	2	5	5	5	5	
Environmentally 5ensitive	4	3	3	2	3	3	2	
Cost of Alternative	5	4	3	1	2	3	2	
Relocation/Property Impacts	5	1	1	1	2	4	4	
Constructability	4	5	4	3	3	3	1	
Maintainance and Protection of Traffic	8	10	8	9	10	0	4	
Total Score =	29	29	27	29	35	27	28	Alt 3 Rates the Highest

ENVIRONMENTAL IMPACT MATRIX

Alternate #	# of Properties with Lake Impacts (Impacted Area in sf.)	#of Properties with Potential Historic	# of Properties with Archaeological Impacts	# of Properties with Wetland Impacts (Impacted Area in sf.)
1	N/A	N/A	1	0
2A&2B	2 (23135)	N/A	0	0
2C	2 (23135)	N/A	0	1(400)
3	N/A	N/A	1	0
4	N/A	N/A	1	1 (5300)
5	N/A	N/A	1	1 (21260)

Westbridge Road Improvements over Morning Creek		
Alternate #	***Pros.***	***Cons.***
1	• No impacts to lakes or wetlands • No relocations • Minimum right of way required • Low construction cost • Save the existing Bridge with resulting cost savings • Simplified construction staging	• Design Speed = 35 mph/Sharp curve • Does not accommodate future growth • Potential Archaeological impact (South East) • Save the existing Bridge with substandard width/design • Additional Bridge maintenance cost
2A	• Save the existing Bridge with resulting cost savings • Design Speed 45 MPH • Accomodates future growth due to roadway improvement • Simplified construction staging	• High relocation costs due to one relocation at NW quadrant • Future growth limitations due to existing bridge width/capacity • High right of way costs • Impacts 2 Lakes • Save the existing Bridge with substandard width/design • Additional Bridge maintenance cost
2B	• Save the existing Bridge with resulting cost savings • Design Speed 45 MPH • Accomodates future growth due to roadway and bridge improvement • Widened Bridge providing wider roadway width	• High relocation costs due to one relocation at NW quadrant • High right of way costs • Impacts 2 Lakes • Additional Bridge maintenance cost • Will not satisfy FEMA no-rise requirement
2C	• Design Speed 45 MPH • Accomodates future growth due to roadway and bridge improvement • New/wider Bridge designed for HS20 loading • Will satisfy FEMA no-rise requirement	• High relocation costs due to one relocation at NW quadrant • High right of way costs • High construction cost due to on-site detour • Impacts 2 Lakes and wetlands
3	• No impacts to lakes or wetlands • Design Speed 45 MPH • Accomodates future growth due to roadway and bridge improvement • New/wider Bridge designed for HS20 loading • Will satisfy FEMA no-rise requirement	• Relocation costs due to one relocation at SW quadrant • High construction cost • Potential Archaeological impact (South East)
4	• No impacts to lakes • Design Speed 45 MPH • Accomodates future growth due to roadway and bridge improvement • New/wider Bridge designed for HS20 loading • Will satisfy FEMA no-rise requirement	• Major traffic disruption due to Road closure • High construction cost • Construction cost is increased due to the proposed wall • Potential Archaeological impact (South East) • Wetland Impact (North side of road after bridge)
5	• No impacts to lakes • Design Speed 45 MPH • Accomodates future growth due to roadway and bridge improvement • New/wider Bridge designed for HS20 loading • Will satisfy FEMA no-rise requirement	• High construction cost • Complicated construction staging • Construction cost is increased due to the proposed wall • Potential Archaeological impact (South East) • Wetland Impact (North side of road after bridge) • Longer Bridge due to hydraulics and staging

Westbridge Road Improvements over Morning Creek
Signing and Marking Cost estimate

Alternate #	Length of Project (Mi)	Gost per LM	S&M Cost
1	0.11	$15,000	$1,619
2A	0.34	$15,000	$5,114
2B	0.38	$15,000	$5,700
2C	0.41	$15,000	$6,150
3	0.30	$15,000	**$4,467**
4	0.26	$15,000	$3,894
5	0.34	$15,000	$5,128

Westbridge Road Improvements over Morning Creek
Erosion Cost estimate

Alternate #	Length of Project (Mi)	Cost per LM	Erosion Cost ($)
1	0.11	$200,000	$21,591
2A& 2B	0.34	$200,000	$68,182
2C	0.38	$200,000	$76,000
3	0.30	$200,000	$59,558
4	0.26	$200,000	$51,922
5	0.34	$200,000	$68,373

Westbridge Road Improvements over Morning Creek
Initial Right of Way Cost estimate

A.lternate #	Right of Way Area (AG)	Cost per Acre	RighfofWay cost ($)
1	0.82	$36,000	$29,510
2A&2B	6.31	$36,000	$227,160
2C	6.34	$36,000	$228,240
3	2.96	$36,000	$106,560
4	2.14	$36,000	$77,067
5	2.51	$36,000	$90,360

Price per acre based on tax value for property belonging to Rory Beachen.

Value of land only =$162,460. Value per acre =$162,460/9acres =$18,051/acre

To account for appreciation and a lower than actual tax value $18,051 X 2 =$36,OOO.00/acre

Westbridge Road Improvements over Morning Creek
Wall Cost estimate

Alter;nate #	Wall vol (CY)	Cost per CY	Wall Cost
1	0.00	0	$0
2A&2B&2C	0.00	0	$0
3	0.00	a	$0
4	210.00	500	$105,000
5	210.00	500	$105,000

Note: The total wall area = l,80Ssf

The total volume of concrete required for the wall

= (stem l,805sf x 1.25ft + footing 455ft long x 6ft wide x 1.2Sft deep)j27 = 210 cy

Westbridge Road over Morning Creek Road - Pavement Cost Estimate

	Length (ft)	Width(ft) (2x12'+2x2')	Area (SY)	Type A:Recycied Asphalt Cone 9.5 mm Type II Superpave, Incl Bitum Mati & H Lime (135Ibs/sy) - TN	Type B: Recycled Asphalt Cone 19 mm Superpave , Gp 1 or 2, Inc! Bitum Mati & H Lime (220 Ibs/sy) -TN	Type C: Recycled Asphalt Conc 25 mm Superpave , Gp lor 2, Inc! Bitum Mati & H Lime (330 Ibs/sy) - TN	Type D: Gr Aggr Base Crs 12 in, Inc! Mati - TN	Type A Cost/TN	Type B Cost/TN	TypeC Cost/TN	Type D Cost/TN	***Total cost for each linearfoot of Pavement***
Pavement Quantities Per Linear Foot of Pavement	1	28	3.1	0.210	0.342	0.513	2.100	$57.62	$58.42	$54.72	$14.89	***$91.5***

Use $100.00/LF to account for tack coat

Alternate #	Total Alternate Length(ft)	Total cost of One Foot Long of Pavement	***Total Pavement Cost***
Alternate 1	570	100	***$57,000***
Alternate 2A&2B	1820	100	***$182,000***
Alternate 2C	1995	100	***$199,500***
Alternate 3	1392	100	***$139,200***
Alternate 4	1190	100	***$119,000***
Alternate 5	1625	100	***$162,500***

Westbridge Road Improvements over Morning Creek
Earthwork Cost estimate

Alternate #	Replace the Bridge	Cut (CY)	fill (CY)	Cost per CY	Cost per CY	Tetal Cost
1	NO	13226	0	$6	$6	$79,356
2A & 2B	NO	8613	4324	$6	$6	$77,622
2C	YES	8613	4686	$6	$6	$79,794
3	YES	28215	0	$6	$6	$169,290
4	YES	10741	0	$6	$6	$64,446
5	YES	28792	0	$6	$6	$172,752

Westbridge Road Improvements over Morning Creek
Bridge Cost estimate

Alternate #	Bridge length (ft)	Bridge width (ft)	Bridge Area (ft^2)	Bridge Cost ($ per SF)	Bridge Cost
1	0.00	N/A	N/A	N/A	N/A
2A	0.00	N/A	I\J/A	N/A	N/A
2B Widened Bridge	175.00	16.00	2800	110	$308,000
2C	180.00	43.25	7785	85	$661,725
3	180.00	43.25	7785	85	$661,725
4	180.00	43.25	7785	85	$661,725
5	220.00	43.25	9515	85	$808,775

Note: 1. Alternate 5 bridge needed to be longer than alternates 3 and 4 since the roadway could not be raised to satisfy hydraulic freeboard requirements. Alternate 5 roadway could not be raised due to staging complications that would result since the proposed roadway crossed the existing at two locations.

2. For Alternate 2B the bridge width represents the widened width of the new section of the bridge

Westbridge Road Improvements over Morning Creek
Detour Bridge and Detour Roadway Cost estimate

Cost of Earthwork = ((64 bottom width + 36' top width}/2 x 7 high}/27 x 700 ft long = 9074 cy x 8$/cy = $72,592

Cost of temporary pavement = 700 ft x 60$/LF = $42,000

Cost of temporary bridge = 100' long x 26' wide x 25$/SF = $ 65,000

Cost of erosion control = .133 miles x 200,000$/LM = $26,600

Cost for signing and marking = .133 miles x 15,000$/LM = $1,995

Cost of easement = 40' x 800' = .74 acres x $15,OOO/acre = $11,100

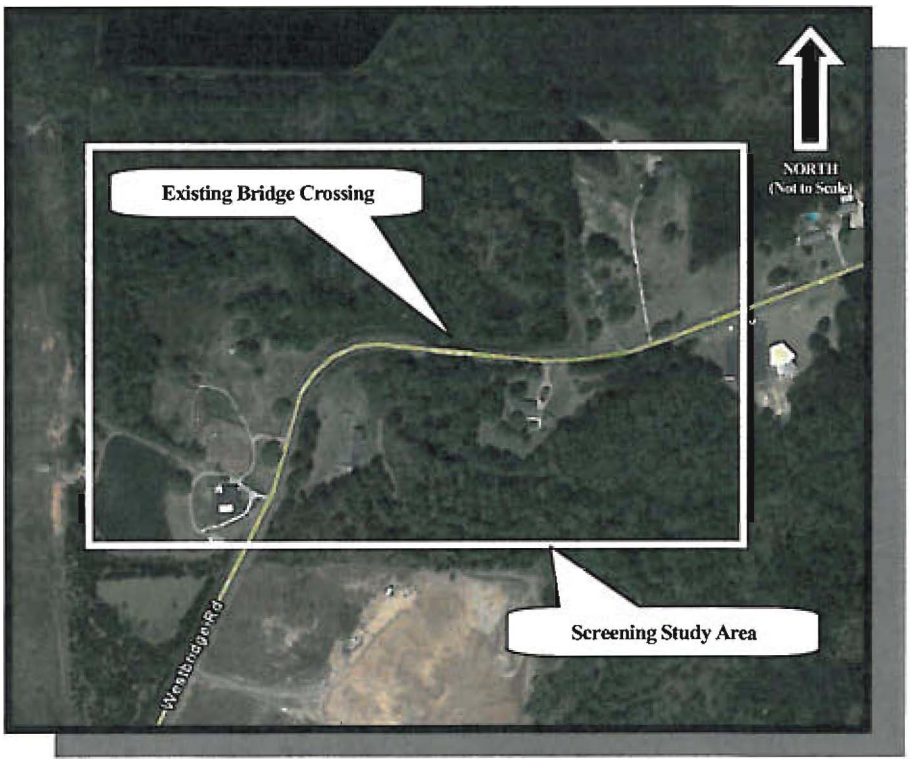
Total Cost of Detour Bridge and Detour Roadway = $219,287

Edwards-Pitman
Environmental, Inc.

Memo

To: Allen Krivsky, P.E., Project Manager
Heath and Lineback
From: Russ Danser, AICP
CC: EPEI File No. HNL 1009
Date: May 14, 2010
Re: Westbridge Road over Morning Creek, Fayette County
Environmental Screening

Edwards-Pitman Environmental, Inc. (EPEI) has completed an environmental screening for the project that would provide improvements to the existing bridge crossing of Morning Creek on Westbridge Road in Fayette County. This memo serves to summarize the fmdings of this screening and is organized by area of concern (land use, historic resource, etc.). While the exact nature of the proposed project's improvements has yet to be fmalized, a general study area has been defined and is presented below.



EPEI staff specialists Russ Danser (NEPA), Leslie Brown (history), Rick Filer (ecology), and Brandon Batt (archaeology) conducted field surveys and research for the screening. Field surveys were conducted in May 2010 and focused on the identification of visible constraints that should be considered during the development of the proposed project concept. The environmental survey included identification of historical and archeological resources, underground storage tank (UST) locations, natural features, and parks and other sensitive land uses (churches, cemeteries, libraries, and schools) that could be viewed from the roadway and which could impact the proposed project. In addition to field reconnaissance, available documentation from the National Register of Historic Places (NRHP), and the Georgia Department of Natural Resources (GADNR) was reviewed to obtain additional information related to historical resources, threatened and endangered species, and hazardous materials.

LAND USES

The area of the proposed project is primarily rural in nature and consists of early to late-twentieth century residential properties and a late-twentieth century church.

HISTORICAL RESOURCES

Existing information on previously identified historic properties was consulted to determine if any are located within the area of potential effects (APE) of the proposed project. The review of existing information on previously identified historic properties revealed that no National Register listed properties, proposed National Register nominations, National Historic Landmarks, or bridges determined eligible for inclusion in the National Register in the updated Georgia Historic Bridge Survey (GHBS) were identified within the proposed project's APE. However, the bridge carrying Westbridge Road over Morning Creek (GDOT Bridge 113-0028-0) is identified in the 2010 Draft GDOT Historic Bridge Inventory Report as not eligible for the National Register.

The review of existing information also revealed that no properties 50 years old or older were identified within the proposed project's APE in the 1990 GADNR Fayette County survey. Two properties 50 years of age or older not identified in the GADNR survey were identified within the proposed project's APE during the historic resources windshield survey.

As a result of these efforts, a total of three properties 50 years old or older were identified within the proposed project's APE during the historic resources field survey. These properties are described in the following table and the locations of these properties are depicted on the figure in Attachment 1.

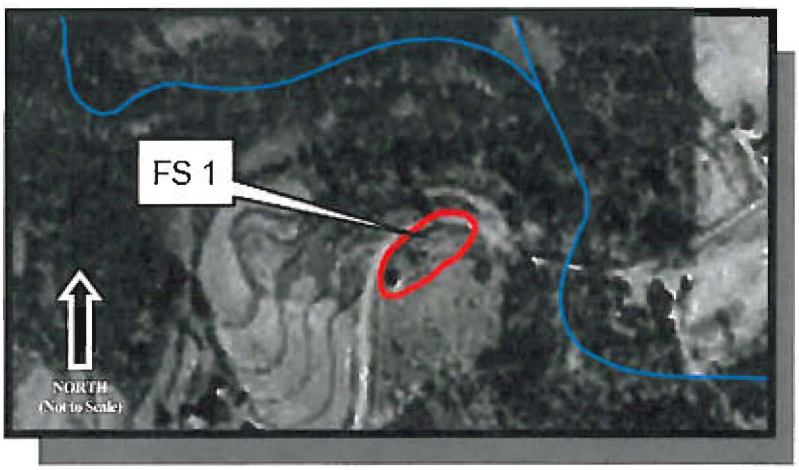
Name of Resource	Date of Construction	Typeandlor Style	Location	National Register Recommendation
Resource 1	1900	No Academic Type/Style	496 Westbridge Road	Potentially Eligible
Resource 2	1960	No Academic Type/Style	438 Westbridge Road	Not Eligible
Resource 3	1957	Waffle Slab Bridge	Westbridge Road	Not Eligible

ARCHAEOLOGICAL RESOURCES

On May 6, 2009, a check of the Georgia Archaeological Site Files was conducted for this project at the University of Georgia in Athens. There are no previously recorded archaeological sites within a one-kilometer radius of the project area.

In addition, shovel testing of the area was conducted on May 13. The project area consists primarily of side slope falling sharply into lowland/floodplain. The entire area was visually inspected, and shovel tests were conducted bothjudgmentally and along transects. A typical soil profile consisted of 0 to 20 centimeters of dark. brown sandy loam underlain by light red clay substrate with gravel mixed, suggesting previous disturbance. Two rubble piles consisting ofbroken concrete and tin roofing material were observed within the proposed APE just west of the bridge, approximately 20 meters south of Westbridge Road. Portions of the project area south of Westbridge Road contained modem refuse piles including tires, car parts, and paint buckets.

As a result of shovel testing, one site (FS 1) was identified within the project area. The site is a historic 20th century artifact scatter located on the south side of Westbridge Road, west of the bridge. A small amount of artifacts were recovered from three shovel tests, including ironstone, aqua glass, and nails. In addition, two small structures were identified on US Department of Agriculture (USDA) historic aerials dated 1942 (see below).



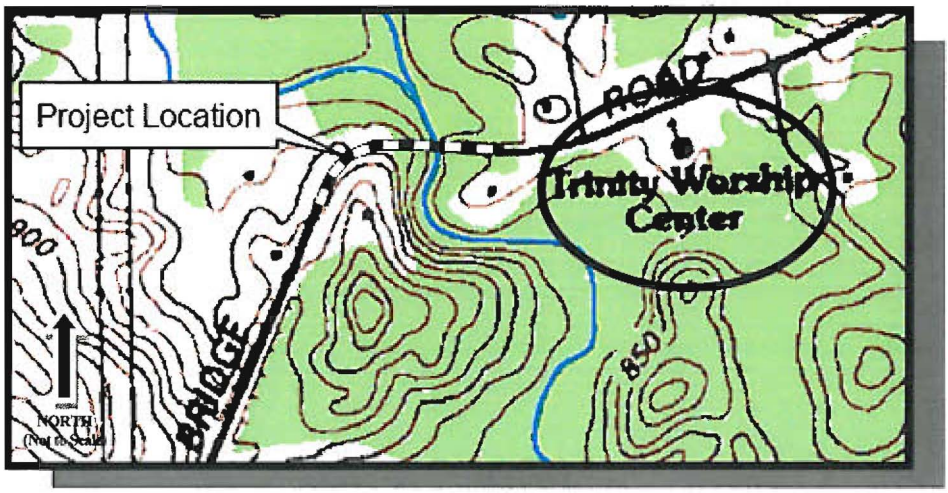
These same two structures appear on a 1971 USDA aerial photograph, but are no longer present on current orthographic maps. These structures would fall in the same area as the shovel test locations, though it is not clear if they are associated with the rubble piles observed approximately 60 meters to the east.

UNDERGROUND STORAGE TANKS AND HAZARDOUS MATERIALS

Field reconnaissance was conducted for the project to identify locations that might contain USTs or other hazardous materials. There are no such parcels located within this study area.

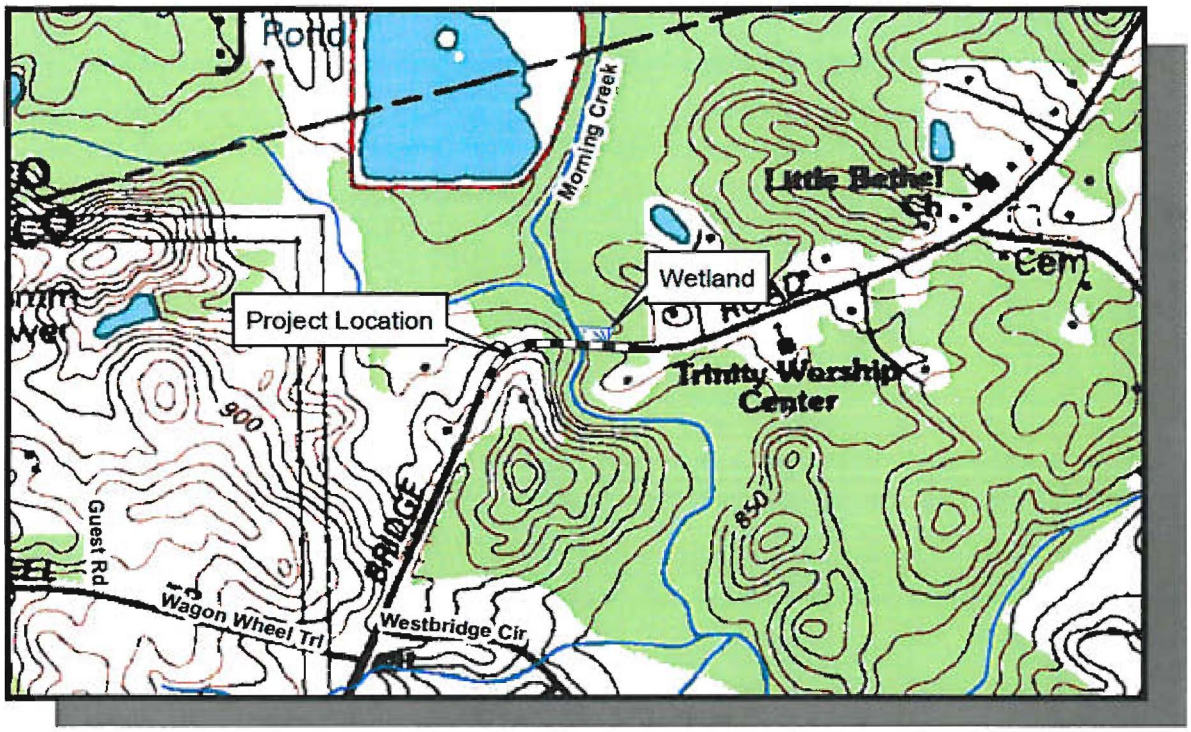
PROJECT SENSITIVE LAND USES

Project sensitive land uses include such things as schools, churches, cemeteries and medical facilities. There is one project sensitive land use located on the eastern edge of the study area. Trinity Worship Center is located on the south side of the roadway, just east of the bridge. The approximate location of the church is indicated on topographic mapping below.



NATURAL FEATURES

Natural feature reconnaissance of the project area was conducted on May 13, 2010. One perennial stream (Morning Creek) and one palustrine forested wetland were located within the study area. A zoom-in detail of the topographic mapping indicating the stream's and wetland's locations is provided on the following page.



Morning Creek is a wann water stream that is a tributary to the Flint River. Morning Creek is a fully functional perennial stream approximately 30 to 35 feet (bankfull width) wide with stable two to four-foot tall banks. Water depth was one to three feet and the wetted width was 30 feet wide at the time of the survey. The stream flowed north to south over a sand substrate. The riparian buffer of Morning Creek is dominated by red maple *(AceI' rubrum),* tulip poplar *(Liriodendron tulipifera),* sweetgum *(Liquidambar styraciflua),* loblolly pine *(Pinus taeda),* river birch *(Betula nigra),* Chinese privet (*Ligustrum sinense),* poison ivy *(Toxicodendron radicans),* and greenbrier *(Smilax* spp.). The riparian buffer is greater than 100 feet wide on each stream bank.

The wetland is a Class 1 bottomland palustrine forested hardwood wetland. This is a seasonally flooded/saturated wetland influenced by a high groundwater table and seasonal overflow from Morning Creek. This site occurred on the north side of Westbridge Road, east of Morning Creek. It is hydrologically connected to Morning Creek. Dominant vegetation includes red maple, sweetgum, tulip poplar, and giant cane *(Arundinaria gigantea).* Wetland hydrology indicators include drift lines, sediment deposits, drainage patterns, water stained leaves, and saturation in the upper 12 inches of the soil profile.

PROTECTED SPECIES

The protected species listed as potentially occurring within Fayette County are:

Gulf moccasinshell	*Medionidus penicillatus*	E,SE
Oval pigtoe	*Pleurobema pyrifomle*	E,SE
Shiny-rayed pocketbook	*Hamiota subangulata*	E,SE
Highscale Shiner	*Notropis hypsilepis*	SE
Bald Eagle*	*Haliaeetus leucocephalus*	ST

E = federally endangered and T = federally threatened.
SE and ST indicate species listed by the State of Georgia as endangered and threatened, respectively.
* Protected underthe Bald and Golden Eagle Protection Act

Morning Creek does provide potential habitat for the gulf moccasinshell, oval pigtoe, shiny-rayed pocketbook, and highscale shiner. All of these species are mown to occur within the Flint River basin and, as previously noted, Morning Creek is located within the Flint River basin. No habitat was observed for the bald eagle.

ATTACHMENT 1
HISTORIC RESOURCE LOCATIONS

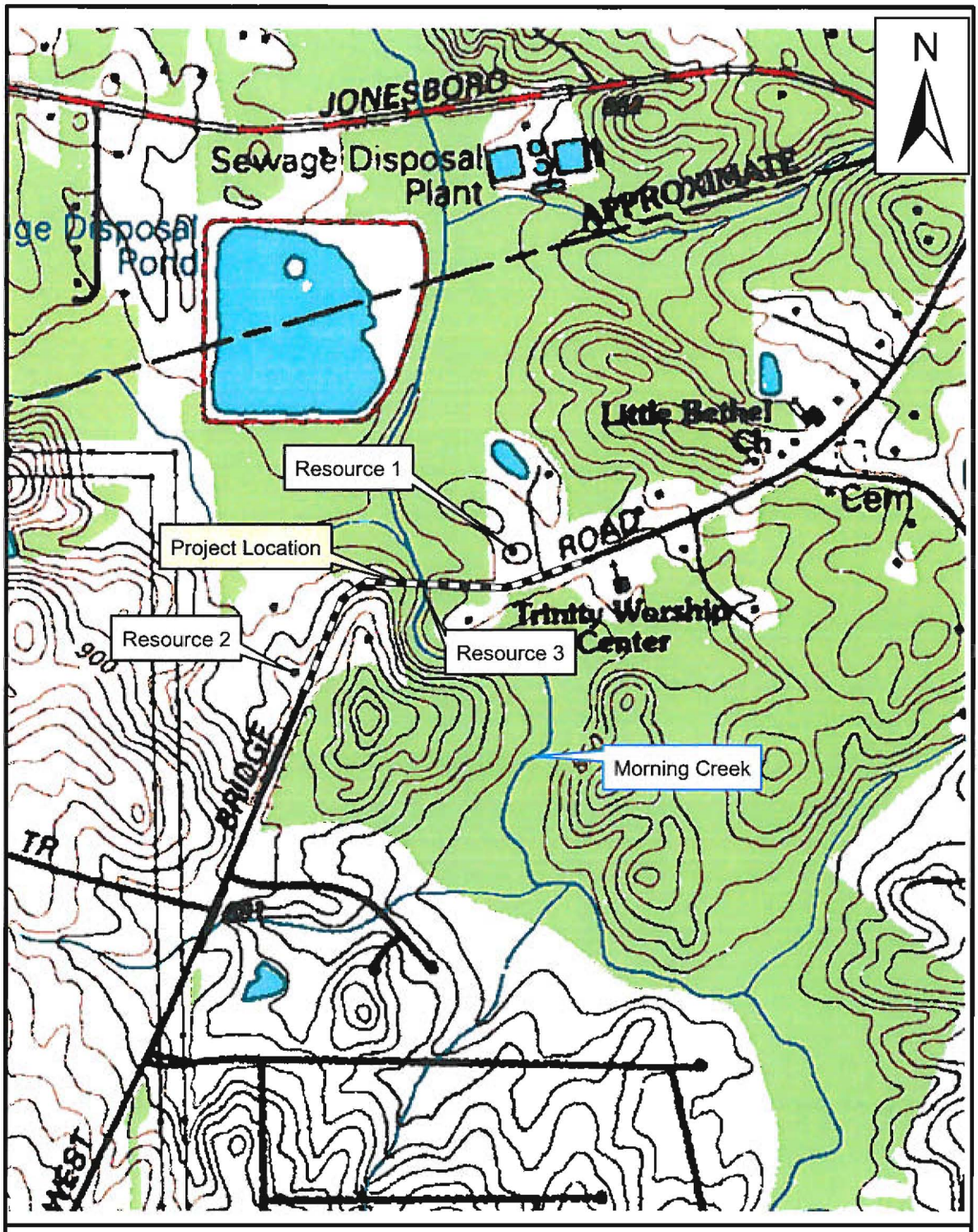
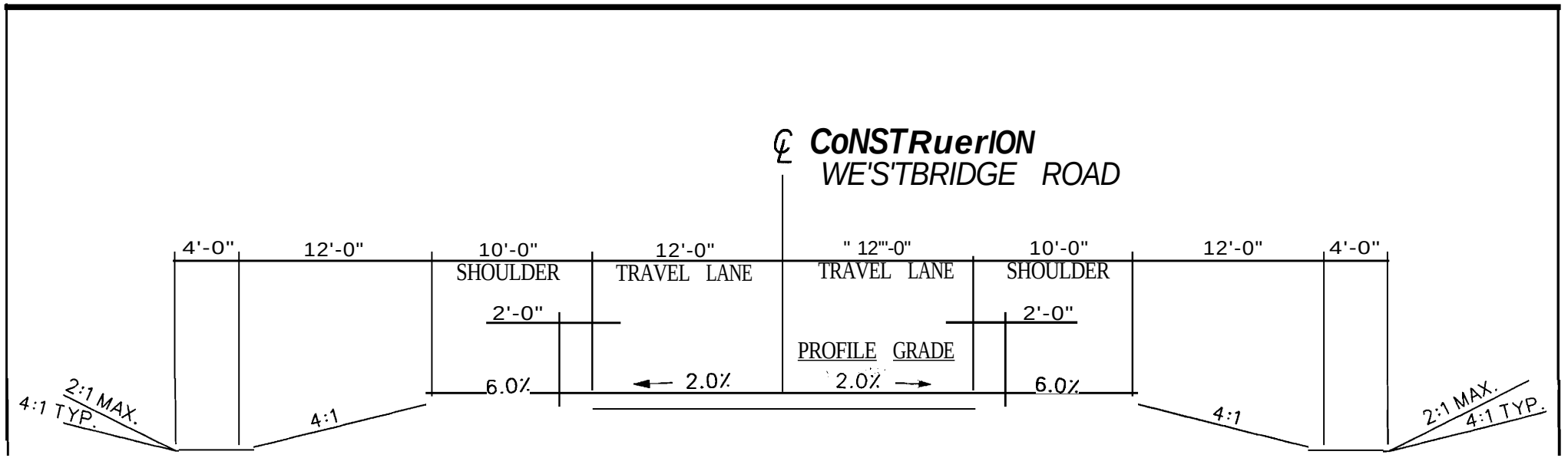


Figure 1
Project Location and Historic Resource Map

Westbridge Road over Morning Creek, Fayette County
Roadway Improvements and Bridge Replacement

Source: Riverdale, GA Quadrangle
USGS 7.5' Series
(Topographic)

0 500 1,000 2,000 Feet



TYPICAL SECTION

WESTBRIDGE RO"AQ **IMPROVEMENT**

BRIDGE INVENTORY DATA LISTING GEORGIA DEPARTMENT OF TRANSPORTATION

Structure ID: 113-0028-0 Fayette SUFF. RATING 69.32

Location & Geography

*	Structure I.D.No:	113-0028-0	
200	Bridge Information	06	
* 6A	Feature Int:	MORNING CREEK	
* 6B	Critical Bridge:	0	
* 7A	Route Number Carried:	CROOO18	
* 7B	Facility Carried:	WEST BRIDGE ROAD	
* 9	Location:	6.5 MI N OF FAYETTEVILLE	
2	DOT District:	3	
207	Year Photo:	2008	
* 91	Inspection Frequency:	24	Date: 06/24/2008
92A	Fract Crit Insp Freq:	00	Date: 02/0111901
92B	Underwater Insp Freq:	00	Date: *02/0111901*
92C	Other Spc. Insp Freq:	00	Date: 02/0111901
* 4	Place Code:	00000	
* 5	Inventory Route *(OfU)*:	1	
	Type:	4	
	Designation:	1	
	Number:	02810	
	Direction:	0	
* 16	Latitude:	33-32.4767	MMS Prefix:
* 17	Longitude	84-29.0463	MMS Suffix: MP: 0.00
98	Border Bridge:	000	% Shared: 00
99	ID Number:	000000000000000	
* 100	STRAHNET:	0	
12	Base Highway Network:	1	
13A	LRS Inventory Route:	1132001800	
13B	Sub Inventory Route:	0	
* 101	Parallel Structure:	N	
* 102	Direction of Traffic	2	
* 264	Road Inventory Mile Post:	000.78	
* 208	Inspection Area:	03	Initials: WBP
	Engineer's Initial:	sgm	

* LocationID. No.: 113-02810F-001.70N

* 104	Highway System:	0	
* 26	Functional Classification:	16	
* 204	Federal Route Type:	,S	No.: 02810
105	Federal Lands Highway:	0	
* 110	Truck Route:	0	
206	School Bus Route:	1	
217	Benchmark Elevation:	'0000.00	
218	Datum:	0	
* 19	Bypass Length:	09	
* 20	Toll:	3.	
* 21	Maintenance:	02	
* 22	Owner:	02	
* 31	Design Load:	2	
37	Historical Significance:	"5	
205	Congressional District:	OJ.	
27	Year Constructed:	1957	
106	Year Reconstructed:	0000	
33	Bridge Median:	0	
34	Skew:	00	
35	Structure Flared:	0	
38	Navigation Control: "	0	
213	Special Steel Design:	0	
267	Type of Paint:	0	
* 42	Type of Service on:		
	Under:	5	
214	Movable Bridge:	0	
203	Type Bridge:,	A-O-O-O	
259	Pile Encasement:	3	
* 43	Structure Type IVlain:	1 01	
45	No. Spans Main:	007	
44	Structure Type Appr:	0 00	
46	No. Spans Appr:	0000	
226	Bridge Curve Horz:	0	Vert: 0
111	Pier Protection:	0	
107	Deck Structure Type:	2	
108	Wearing Surface Type:	1	
	Membrance:	0	
	Protection:	0	

Signs & Attachments

225	Expansion Joint Type:	02	
242	Deck Drains:		
243	Parapet Location:	0	
	Height:		0.00
	Width:		0.00
238	Curb:		1.20
239	Handrail:	2	2
* 240	Median Barrier Rail:	0	
241	Bridge Median Height:		0.00
	Width:		0.00
* 230	Guardrail Loc Dir Rear:	6	
	Fwrd:	6	
	Oppo Dir Rear:	0	
	Fwrd:	0	
244	Approach Slab:	0	
224	Retaining Wall:	0	
233	Posted Speed Limit:	45	
236	Warning Sign:	0	
234	Delineator:	0	
235	Hazard Boards:	0	
237	Utilities Gas:	32	
	Water:	00	
	Electric:	00	
	Telephone:	00	
	Sewer:	00	
247	Lighting Street:	0	
	Naviagtion:	0	
	Aerial:	0	
* 248	County Continuity No.:	00	

BRIDGE INVENTORY DATA LISTING GEORGIADEPARTMENT OF TRANSPORTATION

Structure ID: 113-0028-0 **Fayette** SUFF. RATING 69.32

Programming Data

201 Project No.: PR 346 (2)
202 Plans Available: 4
249 Prop. Proj. No. 0000000000000000
250 Approval Status: 0000
251 P.I. No.: 0000000
252 Contract Date: *02/0111901*
260 Seismic No.: 00000
75 Type Work: 31 1
94 Bridge Imp. Cost: $ 284
95 Roadway Imp. Cost: $ 231
96 Total Imp Cost: $ 599
76 Imp. Length: 001498
97 Imp. Year: 1990
114 Future ADT: 006390 Year: 2027

Hydraulic Data

215 Waterway Data
Highwater Elev.: 0000.0 Year: 1900
Avg. Streambed Elev.: 0000.0 Freq.: 00
Drainage Area: 00000
Area Of Opening: 000000
113 Scour Critical: U
216 Water Depth: 00.7 BI. Height: 16.8
222 Slope Protection: 1
221 Spur Dikes Rear: 0 Fwrd: 0
219 Fender System: 0
220 Dolphin: 0
223 Culvert Cover: 000
Type: 0
No. Barrels: 0
Width: 0.00 Height: 0.00
Length: 0 Apron: O
* 265 *U/W* Insp. Area: 0 Diver: ZZZ

* LocationID. No.: 113-02810F-001.70N

Measurements

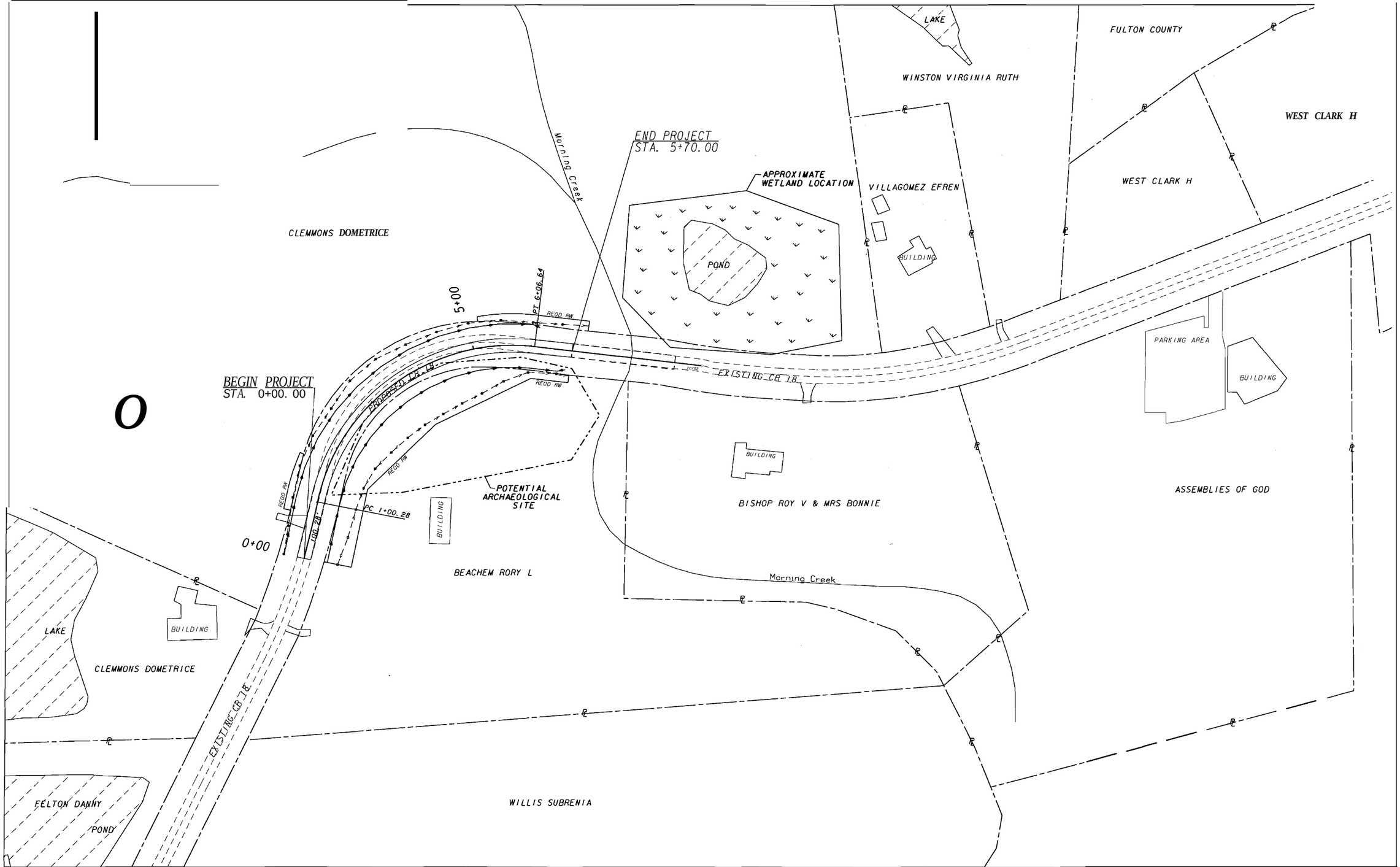
* 29 ADT: 004260 Year: 2007
109 % Trucks: 0
* 28 Lanes On: 02 Under: ,,00
210 No. Tracks On: 00 Under: 00
* 48 Max. Span Length: 0025
* 49 Structure Length: 175
51 BI. Rwdy. Width: 2380
52 Deck Width: 25.30
* 47 Tot. Horz. Cl: 23.80
50 CurblSdewlk Width *0.0010.00*
32 Approach Rdwy Width: 23
* 229 Shoulder Width:
Rear Lt: 5.00 Type: 8 Rt: 5.00
Fwrd Lt: 5.00 Type:, 8 .Rt: 5.00
Pavement Width:
Rear: 23.00 Type: 2
Fwrd: 23.00 Type: 2
Intersection Rear: 0 Fwrd: 0
36 Safety Features BI. Rail: .
Transition:
App. G. Rail:
App. Rail End: 1
53 Minimum C1.Over: .99 ' 99 "
Under: N OO! 00 "
* 228 Min. Vertical Cl
Act. Odm Dir: 99 ' 99 "
Oppo. Dir: 99 ' 99 "
Posted Odm. Dir: OO' 00 "
Oppo. Dir: OO' 00 "
55 Lateral Undercl. Rt: N "0.00
56 Lateral Undercl. Lt: 0.00
* 10 Max Min Vert Cl: 99 ' 99 " Dir: 0
39 Nav Vert Cl: 000 Horz: 0000
116 Nav Vert Cl Closed: 000
245 Deck Thickness Main: .4.50
Deck Thick Approach: 0:00
246 Overlay Thickness: 0.00
212 Year Last Painted: Sup: 0000 Sub: 0000

Ratings

65 Inventory Rating Method: 2
63 Inventory Rating Method: 2
66 Inventory Type: 2 Rating: 27
64 Operating Type: 2 Rating: 40
231 Calculated Loads
H-Modified: 15 0
HS-Modified: 25 0
Type 3: 22 0
Type 3s2: 33 0
Timber: 29 0
Piggyback: 00 0
261 H Inventory Rating: 16
262 H Operating Rating: 23
67 Structural Evaluation: 6
58 Deck Condition: 6
59 Superstructure Condition: 6
* 227 Collision Damage: 0
60A Substructure Condition: 6
60B Scour Condition: 7
60C Underwater Condition: N
71 Waterway Adequacy: 8
61 Channel Protection Cond: 7
68 Deck Geometry: 2
69 UnderClr. Horz/Vert: N
72 Appr. Alignment: 6
62 Culvert: N

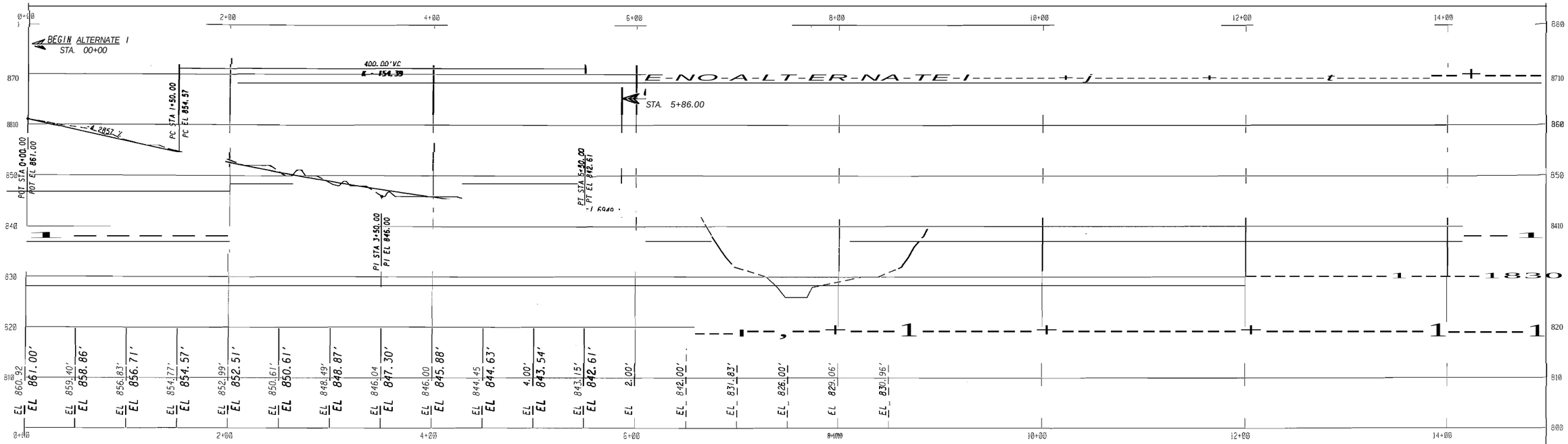
Posting Data

70 Bridge Posting Required: 5
41 Struct Open, Posted, Cl: A
* 103 Temporary Structure: 0
232 Posted Load -Modified: 00
HS-Modified: 00
Type 3: 00
Type3s2: 00
Timber: 00
Piggyback: 00
253 Notification Date *02/01/1901*
253 Fed Notify Date: *02/01/1901* 0

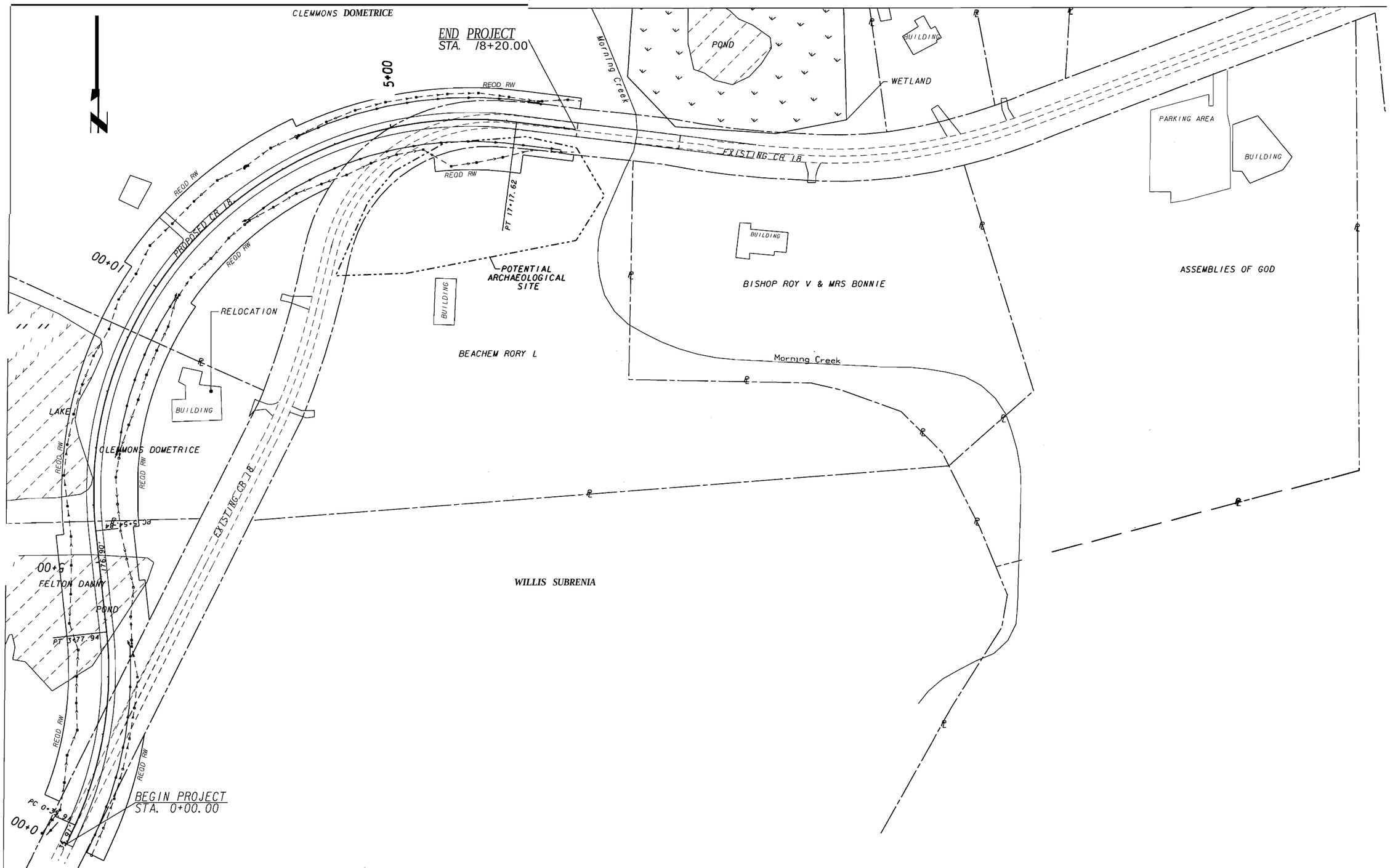


WESTBRIDGE ROAD IMPROVEMENTS
OVER MORNING CREEK
FAYETTE COUNTY
PROJECT NO. : B-2

ALTERNATE I MINIMUM IMPROVEMENT
WITH EXISTING BRIDGE
DESIGN SPEED 35 MPH
PROJECT LENGTH ±570'

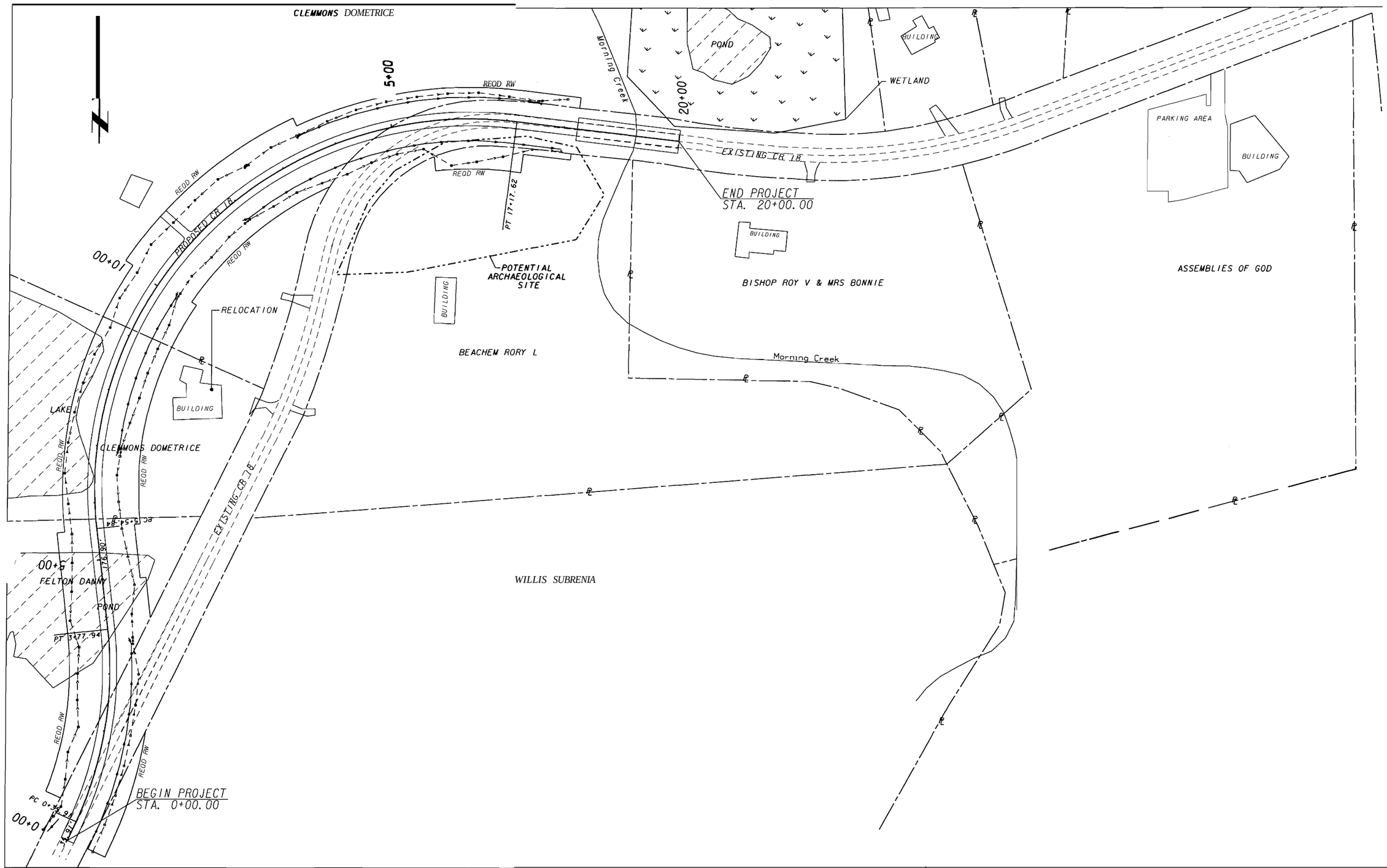


WESTBRIDGE ROAD IMPROVEMENTS OVER MORNING CREEK FAYETTE COUNTY PROJECT NO. B-2	ALTERNATE I - MINIMUM IMPROVEMENT WITH EXISTING BRIDGE DESIGN SPEED 35 MPH PROJECT LENGTH ±570'	



WESTBRIDGE ROAD IMPROVEMENTS
OVER MORNING CREEK
FAYETTE COUNTY
PROJECT NO. : B-2

ALTERNATE 2A WEST ALIGNMENT
WITH EXISTING BRIDGE
DESIGN SPEED 45 MPH
PROJECT LENGTH +1800/

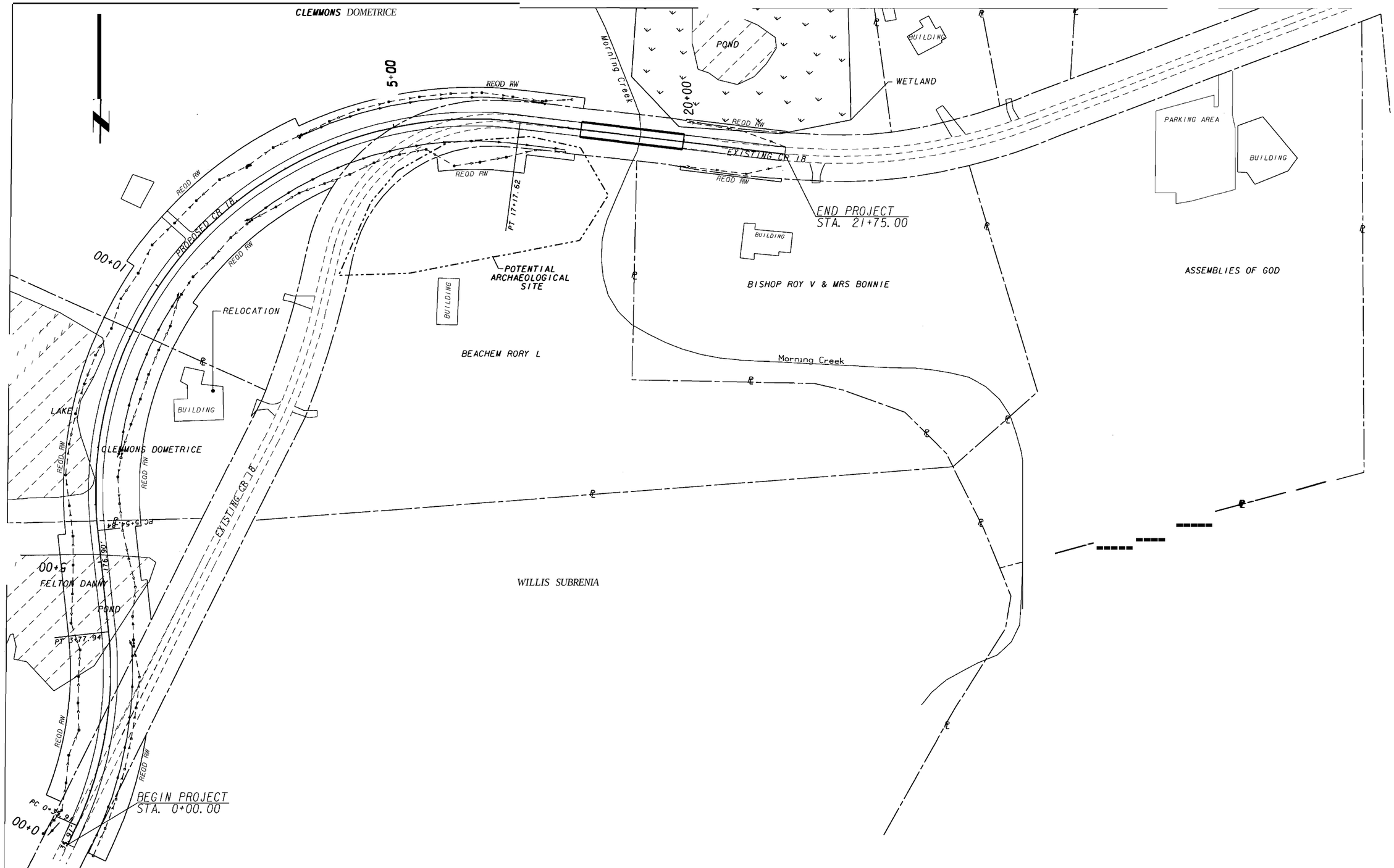


WESTBRIDGE ROAD IMPROVEMENTS
OVER MORNING CREEK

FAYETTE COUNTY

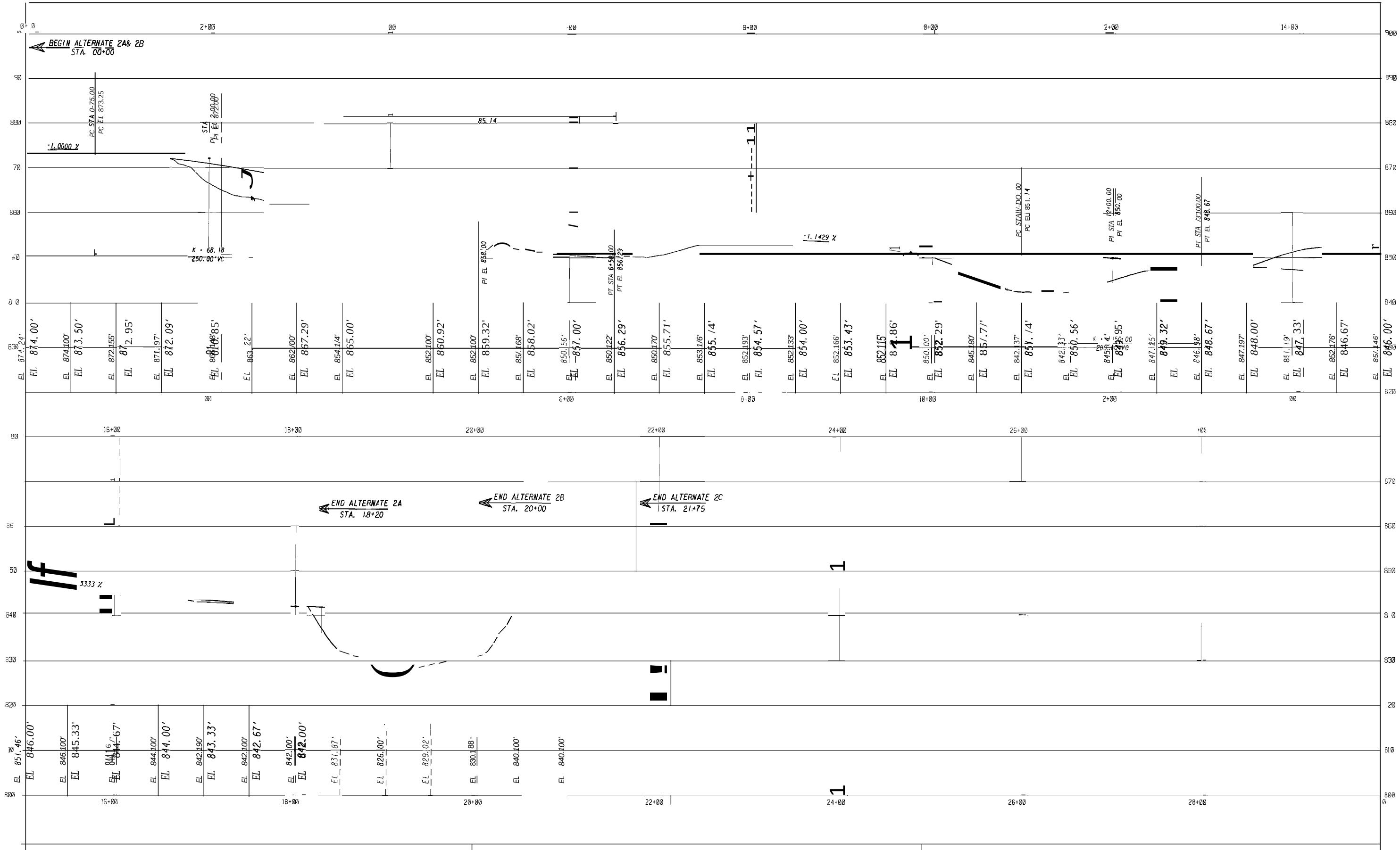
PROJECT NO. : B-2

ALTERNATE 2B WEST ALIGNMENT
WITH WIDENED EXISTING BRIDGE
DESIGN SPEED 45 MPH
PROJECT LENGTH ±2000/



WESTBRIDGE ROAD IMPROVEMENTS
OVER MORNING CREEK
FAYETTE COUNTY
PROJECT NO. : B-2

ALTERNATE 2C WEST ALIGNMENT
WITH NEW BRIDGE AND ON-SITE DETOUR
DESIGN SPEED 45 MPH
PROJECT LENGTH ±2175′

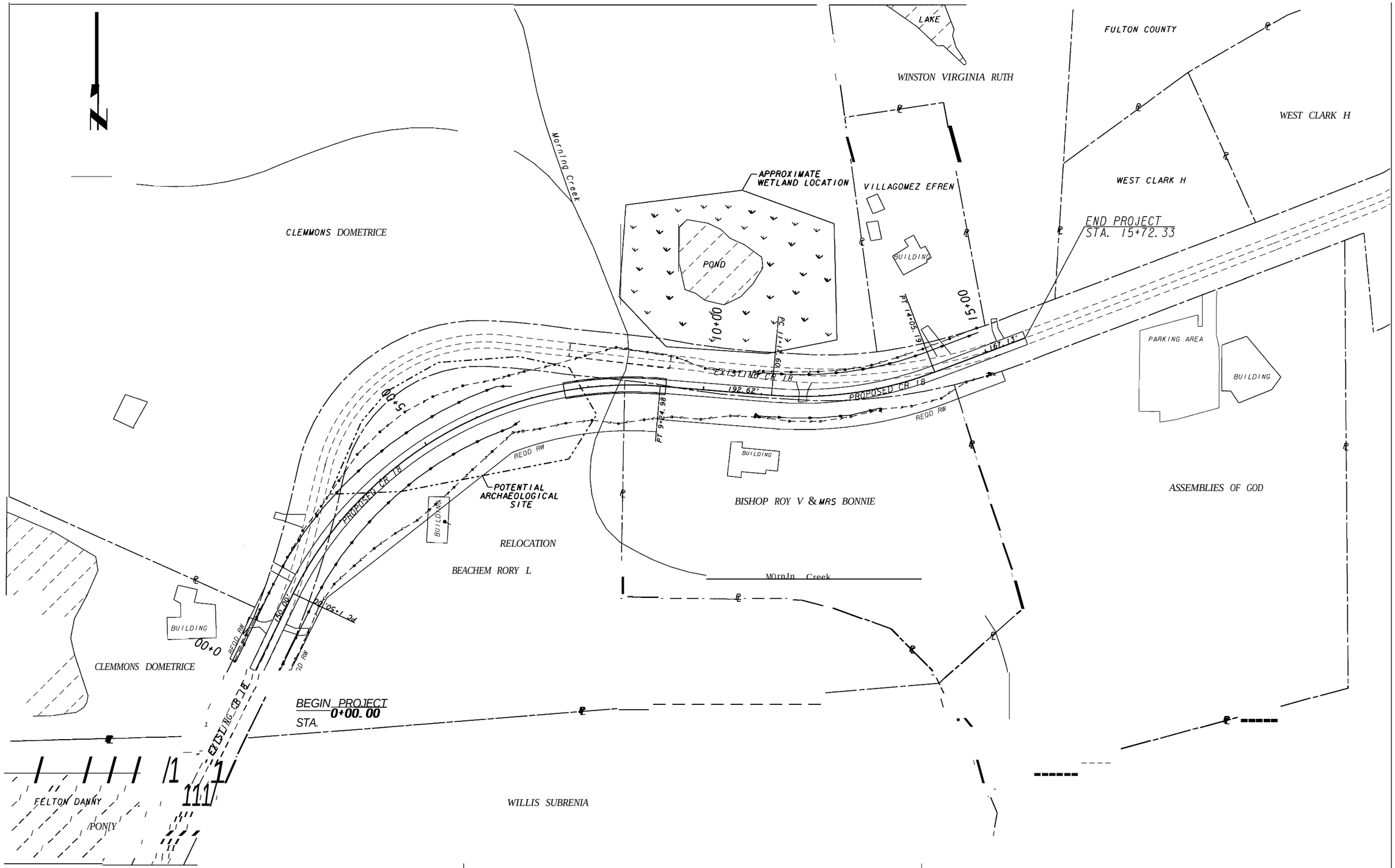


WESTBRIDGE ROAD IMPROVEMENTS
OVER MORNING CREEK

FAYETTE COUNTY

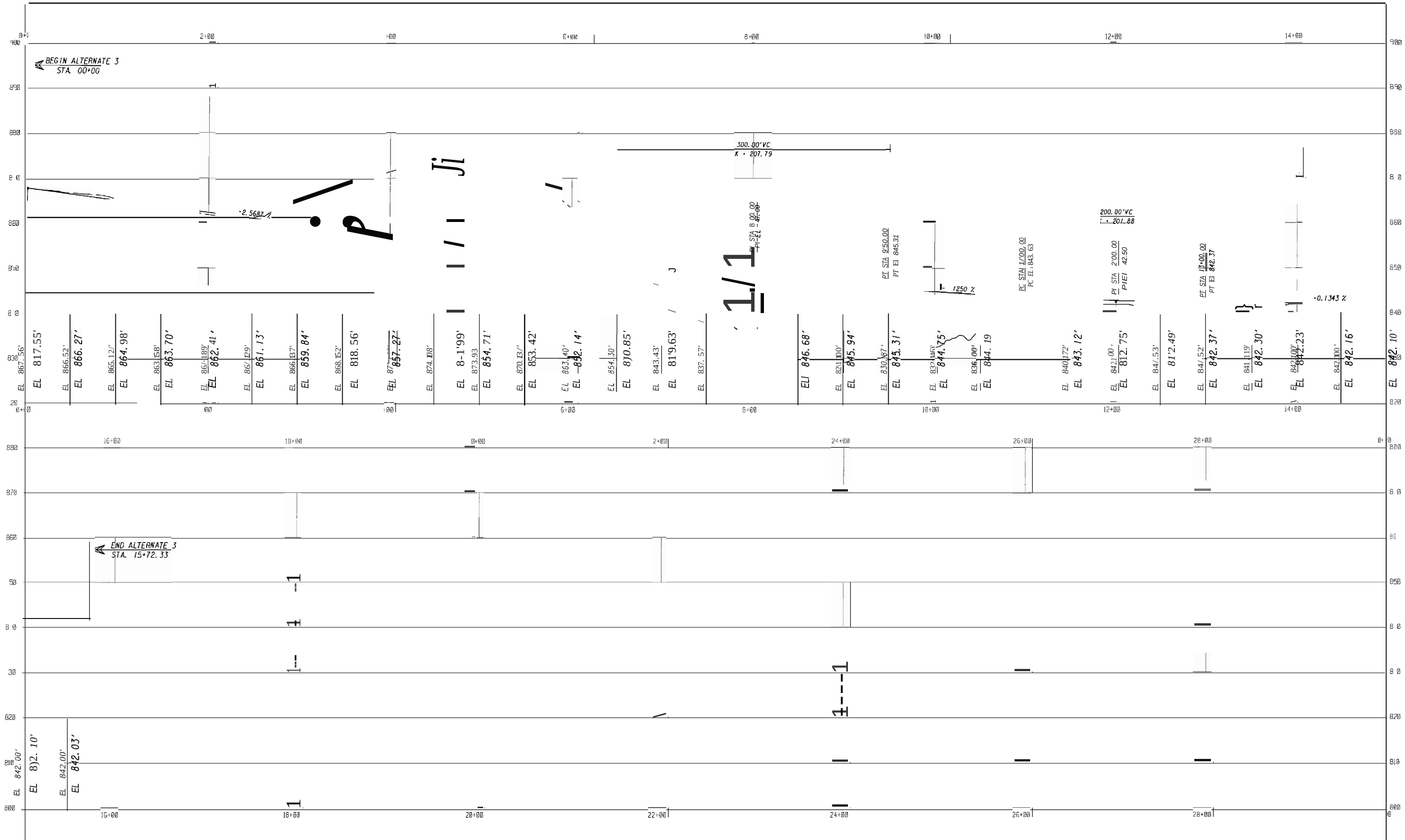
PROJECT NO : B-2

ALTERNATE 2A & 2B & 2C
WEST ALIGNMENT
WITH EXISTING BRIDGE / WIDENED BRIDGE
/ REPLACED BRIDGE AND ON-SITE DETOUR
DESIGN SPEED 45 MPH



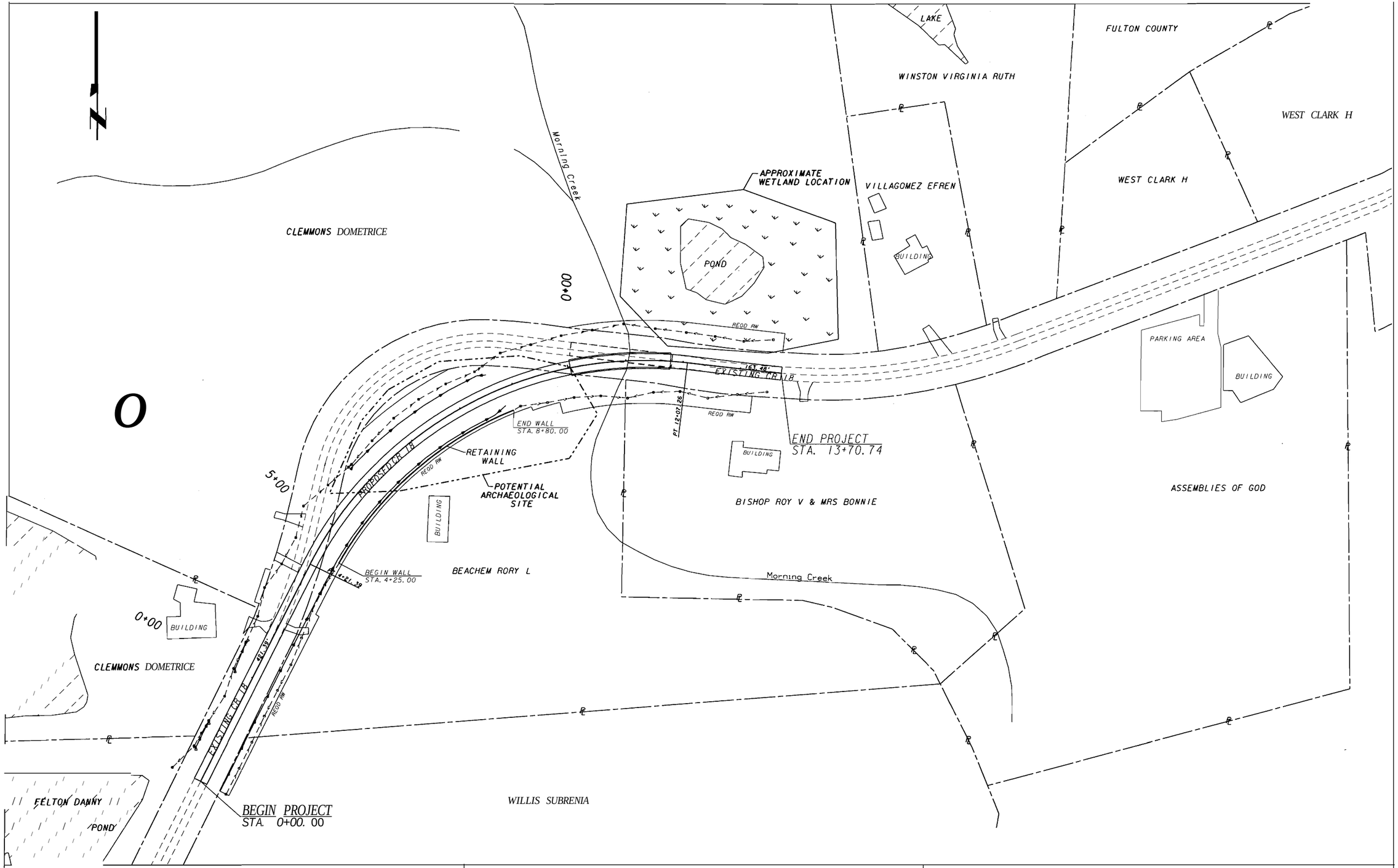
WESTBRIDGE ROAD IMPROVEMENTS
OVER MORNING CREEK
FAYETTE COUNTY
PROJECT NOD: B-2

ALTERNATE 3 SOUTH ALIGNMENT
WITH NEW BRIDGE
DESIGN SPEED 45 MPH
PROJECT LENGTH ±1572'



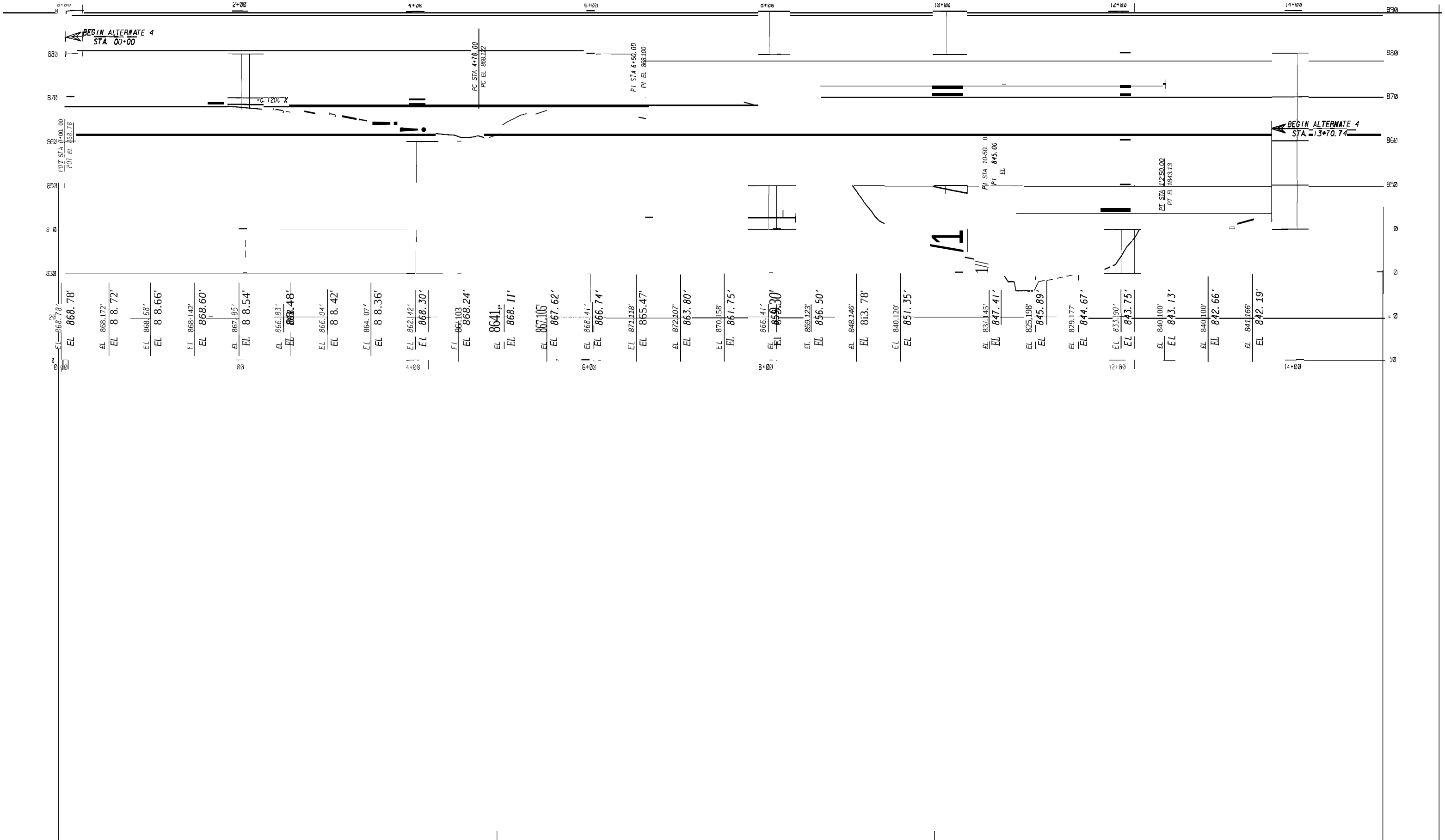
WESTBRIDGE ROAD IMPROVEMENTS
OVER MORNING CREEK
FAYETTE COUNTY
PROJECT NO B-2

ALTERNATE 3 - SOUTH ALIGNMENT
WITH NEW BRIDGE
DESIGN SPEED 45 MPH
PROJECT LENGTH ±1572'



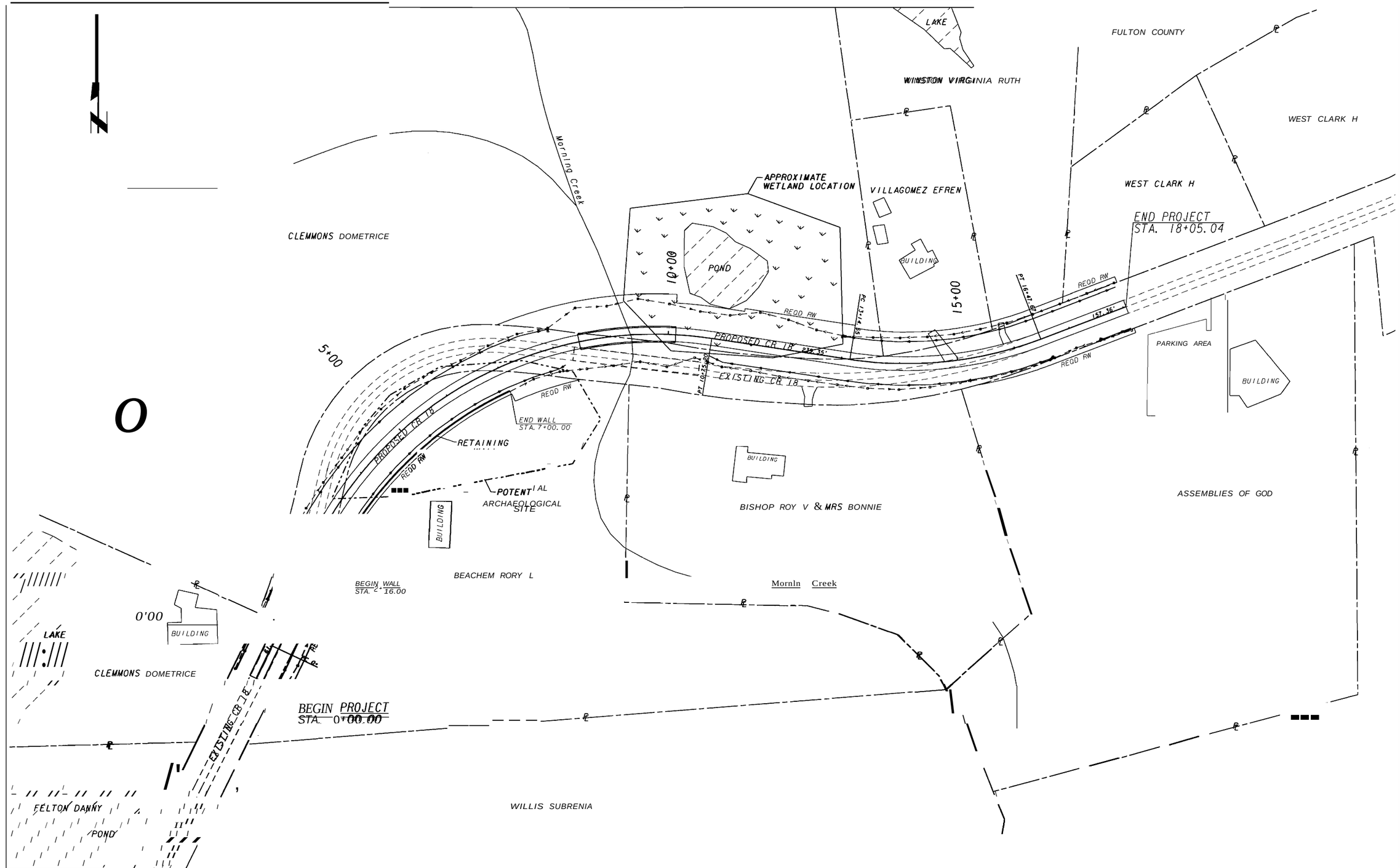
WESTBRIDGE ROAD IMPROVEMENTS
OVER MORNING CREEK
FAYETTE COUNTY
PROJECT NO. : B-2

ALTERNATE 4 ROAD CLOSED
TO PREVENT RELOCATION
WITH NEW BRIDGE
DESIGN SPEED 45 MPH
PROJECT LENGTH +1370/



WESTBRIDGE ROAD IMPROVEMENTS
OVER MORNING CREEK
FAYETTE COUNTY
PROJECT NO. B-2

ALTERNATE 4 ROAD CLOSED
TO PREVENT RELOCATION
WITH NEW BRIDGE
DESIGN SPEED 45 MPH



WESTBRIDGE ROAD IMPROVEMENTS
OVER MORNING CREEK

FAYETTE COUNTY

PROJECT NOo : B-2

ALTERNATE 5 NORTH ALIGNMENT
WITH NEW BRIDGE
DESIGN SPEED 45 MPH
PROJECT LENGTH ±1805/

PROJECT NUMBER: B-2 COUNTY: FAYETTE

PROJECT DESCRIPTION: WESTBRIDGE ROAD BRIDGE REPLACEMENT OVER MORNING CREEK
PROJECT LENGTH: 0.3 MILES
PREPARED BY: HEATH AND LINEBACK ENGINEERS
DATE: 6/30/2010

PROJECT CONCEPT CONSTRUCTION ESTIMATE

1. MAJOR STRUCTURES	
a. -RETAINING WALLS	$0
b. BRIDGE	$661,725
c. BRIDGE DEMOLITION	$50,000
SUBTOTAL 1:	**$711,725**
2A. BASE AND PAVING (MAINLINE)	
a. AGGREGATE BASE, 8" TRAVELWAY & 6" SHLDR(1811 TN)	$27,165
b. ASPHALT PAVING	
1. 12.5mm SUPERPAVE (350 SY)	$21,700
2. 19.0mm SUPERPAVE (385 SY)	$22,715
3. 25mm SUPERPAVE (1155 SY)	$63,525
SUBTOTAL 2A:	**$135,105**
2B. BASE AND PAVING (DRIVEWAYS)	
a. AGGREGATE BASE (140 TN)	$2,100
b. ASPHALT PAVING, 12.5 mm SUPERPAVE (51 SY)	$3,162
c. AGGREGATE SURFACE CRS (105 TN)	$1,785
SUBTOTAL 2B:	**$7,047**
3. LUMP ITEMS	
a. TRAFFIC CONTROL	$15,000
b. CLEARING AND GRUBBING	$30,000
c. EROSION CONTROL	$60,000
d. SIGNING AND STRIPING	$5,000
SUBTOTAL 3:	**$110,000**
4. MISCELLANEOUS	
a. GUARDRAIL	$10,000
b. GUARDRAIL ANCHORS	$5,730
SUBTOTAL 4:	**$15,730**
5. GRADING AND DRAINAGE	
a. EARTHWORK	$170,000
b. MINOR DRAINAGE (6 DRIVEWAY PIPES)	$5,040
c. CLEARING AND GRUBBING	$30,000
SUBTOTAL 5:	**$205,040**

WESTBRIDGE ROAD BRIDGE REPLACEMENT ESTIMATE SUMMARY	
A. RIGHT OF WAY	$106,560
B. RELOCATION	$276,000
C. CONSTRUCTION	
1. MAJOR STRUCTURES	$711,725
2. BASE AND PAVING	$142,152
3. LUMP ITEMS	$110,000
4. MISCELLANEOUS	$15,730
5. GRADING AND DRAINAGE	$205,040
SUBTOTAL CONSTRUCTION COSTS	$1,184,647
5% Engineering and Inspection	$59,232
4% Construction Contingency	$47,386
TOTAL CONSTRUCTION COST	**$1,291,265**
GRAND TOTAL PROJECT COSTS	**$1,673,825**