

**PRELIMINARY ENGINEERING REPORT**

**U. S. R. 22 AND S. R. 159**

**PICKAWAY-FAIRFIELD CO. LINE TO LANCASTER**

**FAIRFIELD COUNTY**

**PRELIMINARY DESIGN SECTION**

**DIVISION NO.5**

**NEWARK**

P R E L I M I N A R Y   R E P O R T

N O V E M B E R   1 9 6 5

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## INTRODUCTION

U. S. Route 22 is a major east-west route in Ohio having Cincinnati as its western terminus and Steubenville as its eastern terminus. Within the boundaries of Division 5, it comprises a portion of the Federal Aid Primary System and the Ohio Major Thoroughfare System. It links the cities of Lancaster, Zanesville and Cambridge, county seats of Fairfield, Muskingum and Guernsey counties respectively.

### I. PURPOSE AND SCOPE OF THE REPORT

#### A. PURPOSE

The purpose of this report, prepared by the Preliminary Engineering Section, Bureau of Location & Design, Division 5, of the Ohio Department of Highways, is to present the results of engineering studies made to determine the location of U. S. Route 22 from the Pickaway-Fairfield County line to a point 3.6 miles southwest of the Lancaster west corporation line, said point of termination being the proposed intersection of existing U. S. Route 22 and the Proposed Lancaster By-pass (see location map, Plate No. 1 ).

#### B. SCOPE

This Engineering Report has been developed to present the following:

1. The investigation of alternate alignments.
2. The estimated project costs of the alternate alignments studies.
3. The economic evaluation of benefits for the alternate facilities.
4. Recommend design criteria.
5. The recommendation of a specific route location.

### C. BASIC DATA

Aerial photographs of a scale of 1"=800' were supplied by the Aerial Engineering Section of the Ohio Department of Highways. They also supplied topographic maps at a scale of 1"=200' with 5' contour intervals, which were used for study investigations.

Property plats were obtained from tax maps of the vicinity and right of way costs were furnished by the Division 5 Appraisal Section.

The Bureau of Planning Survey supplied traffic assignments for the various alternates.

The geological and soils data were prepared from available published data.

### II. THE AREA

#### A. GENERAL

The corridor study area for the proposed improvement of U. S. Route 22 began at the Pickaway-Fairfield County line, passed through Clear Creek Township, Amanda Township and a portion of Hocking Township, and terminated at a point 3.6 miles southwest of the Lancaster west corporation line; being approximately ten miles long and two miles wide.

#### B. EXISTING ROUTE CHARACTERISTICS

Existing U. S. 22 immediately west of Fairfield County was improved in 1960 by constructing a modern two lane highway on a four lane right of way. The portion in Fairfield County which is being considered for relocation in this report is characterized

by rolling grades, several areas of sharp horizontal curvature and restricted passing sight distance. Two crossings with the Pennsylvania Railroad occur within this area. The area just east of Amanda where S. R. 159 intersects U. S. 22 is an extremely hazardous area and has been the scene of numerous accidents. Complete information concerning the existing facility may be found in graphical form by referring to the road inventory sheet (Plate No. 4 ).

### C. GEOLOGY

The proposed alignment from its beginning to Amanda is located in an area of moderately rolling topography. The soils in this area are glacial till composed of an unsorted mixture of clay, silt, sand and coarser fragments.

Just east of Amanda it crosses a lacustrine lake deposit. Deposits of this type are commonly composed of stratified layers of silt and clay and in places covered by peat. This area exhibits naturally poorly drained soils on nearly level topography.

The eastern portion of the alignment enters an area of hilly topography. The soils in this area are composed of till similar to that at the western end. The fact that the eastern end of the job is located in the area of an end moraine accounts for the hummocky nature of the terrain.

The only area which should cause concern would be the area just east of Amanda. In this area it is quite possible that drainage problems will be encountered. In fact, from the contour maps it is difficult to determine the natural drainage patterns.

### D. LAND USE

The land along the proposed improvement is primarily agricultural since the soils are medium to moderately high in production. As the eastern terminus is approached the land becomes steeper and is less productive. This area is more suited to pasture and forestry.

The area in the immediate vicinity of Amanda is the only built-up area encountered.

## III. TRAFFIC

### A. GENERAL

The traffic diagram indicates that approximately 30% of the non-commercial traffic is local and is generated between the Village of Amanda and destination points either east or west of the Village. This would indicate that the facility should be located as near as possible to the Village and provide easy access thereto.

The traffic diagram also indicates that S. R. 159 traffic will have to be picked up if the facility is to provide maximum traffic service. Consequently, any scheme which is north of the railroad will require a connection to serve S. R. 159 traffic. Otherwise, it will be necessary to maintain existing U. S. 22 east of its intersection with existing S. R. 159 to carry S. R. 159 traffic.

### B. ESTIMATED TRAFFIC

Estimated 1964 ADT volumes were prepared by the Bureau of Planning Survey. An expansion factor of 2.09 was used to obtain 1986 design traffic. Directional Design Hourly Volumes

were obtained assuming peak hour as 15% of the 24 hour volume and 67% of vehicles in the predominate direction, thus DDVH =  $(.15) \times (.67)$  or 10% of 24 hour volume.

#### IV. DESIGN CRITERIA

##### A. GENERAL

The design criteria for this project meets or exceeds the Basic Minimum Design Standards for State Highways of the Ohio Department of Highways dated September 1, 1964. In particular it meets requirements for rural state highways other than freeways.

##### B. TYPICAL SECTIONS

Typical roadway sections are shown on Plate No. 6. The roadway section provides two (2) 24 foot pavements, each having a 44' effective roadway with 4' wide bituminous treated shoulders on the inside and 8' wide bituminous treated shoulders on the outside. The two directional roadways are separated by a 50 foot depressed median.

Typical sections for other State Routes, County, Township and service roads are shown on Plate No. 7. The type of typical used was determined by traffic requirements and in some cases by the necessity to replace in kind.

##### C. HORIZONTAL AND VERTICAL ALIGNMENT

DESIGN SPEED: All schemes for U.S. 22 meet requirements for 70 M.P.H. with the exception of Schemes 'B' and 'B' alternate.

HORIZONTAL ALIGNMENT: The maximum degree of curvature on any scheme is  $3^{\circ} 30'$ . Spirals are provided on all curves over  $1^{\circ} 28'$ .

SUPERELEVATION: The maximum rate of superelevation is 0.083 foot/foot with superelevation required on all curves in excess of  $0^{\circ} 28'$ .

VERTICAL ALIGNMENT: The maximum grade is 4% on Scheme 'B' and 'B' alternate and 3% on all other schemes. For this reason Scheme 'B' and 'B' alternate will not meet 70 M.P.H. design speed requirements.

SIGHT DISTANCE: Passing sight distance is not of concern since a four lane facility is recommended. All schemes will meet the requirement for a minimum stopping sight distance of 600 feet.

##### D. RIGHT OF WAY

It is proposed that the right of way be purchased as limited access with access provided at public roads only via at grade intersections or interchanges.

#### V. LOCATION STUDIES

##### A. GENERAL

Preliminary studies were made on various alignments within the study corridor to investigate the feasibility of locations both north and south of the existing facility. Improvement on the existing alignment was not considered because of the excessive costs involved in buying LA right of way. All of the various alternates along with their costs are shown on Plate No. 5.

##### B. DISCUSSION OF STUDY ALIGNMENTS

###### (1) Scheme A

Scheme 'A' would begin at the Pickaway-Fairfield county

line at its intersection with existing U.S. 22. The proposed line would be a continuation of the tangent from the west which would place the new location south of the existing facility. A transition from 2 lane to 4 lane pavement is accomplished by the use of reversed  $1^{\circ} 28'$  curves and extends from the county line east a distance of  $1500'$ . The proposed alignment continues in a northeasterly direction crossing County Road 41 (Station 50+90), Township Road 155 (Station 110+90) and existing U.S. 22 (Station 138+50). At grade intersections are provided at all these roads. The existing U.S. 22 approach would be 1800' long and would require the installation of a 7 foot pipe. After crossing existing U.S. 22 the proposed alignment would run parallel to the existing road and north of it. An at-grade intersection would be provided at Township Road 165 (Station 173+65). A  $0^{\circ} 45'$  curve to the right would direct scheme 'A' in a due east direction crossing Clear Creek (Station 204+85) with a 42-52.5-42 span structure. Scheme 'A' continues easterly to an at-grade intersection with County Road 16 (Station 249+78) followed by a  $1^{\circ} 28'$  curve to the left and an at-grade intersection with Township Road 159 (Station 288+50), coming parallel to the Pennsylvania Railroad just east of this intersection. From this point on the location parallels the railroad, remaining approximately 125 feet north of the track. At-grade intersections are provided at Township Road 160 (Station 411+65) Township Road 173 (Station 423+90) and Township Road 443 (Station 428+35). A temporary

4.

connection to existing U.S. 22 is provided beginning at Station 492+00. This Station is the beginning of the Lancaster By-pass. The previously mentioned temporary connection is 2000' in length.

(2) Scheme 'B'

Scheme 'B' would be common with Scheme 'A' to Station 76+05. At this point a  $0^{\circ}-28'$  curve to the right would direct Scheme 'B' in a more easterly direction thereby keeping it south of existing U.S. 22. At grade intersections with Township Road 155 (Station 108+75) and County Road 12 (Station 141+40) are provided. Just east of the County Road 12 intersection a  $0^{\circ}-28'$  curve to the right would bring the centerline approximately parallel to the east-west section line. Scheme 'B' would cross the Pennsylvania Railroad at the point where the railroad crosses Clear Creek. The proposed alignment would cross both the creek and railroad with one structure. This structure would have an excessive length due to the skewed crossing. A  $0^{\circ}-15'$  curve to the left would swing the alignment parallel to and one hundred feet south of the east-west section line. An at-grade intersection is provided at County Road 14 (Station 265+50). The proposed alignment would then swing northeast along a  $2^{\circ}-00'$  curve to the left. A split intersection with State Route 159 is provided at stations 310+00 and 315+00. Continuing in a northwesterly direction the alignment intersects County Road 55 (Station 333+20) at-grade and then crosses high ground which requires the use of

a 4% grade, an exception to 70 M. P. H. design speed. Scheme 'B' comes down out of the hill to provide an intersection with Township Road 174 (Station 373+25) and bridge Muddy Prairie Run bridge span 24-30-24. The alignment swings easterly via 3<sup>0</sup>-00' curve and again climbs into high ground requiring the use of 4% grade. Although the alignment in general follows a valley, the rugged topography creates excessive cuts and fills. The alignment meanders through the aforementioned valley, crossing a peak at approximately station 516+00 where County Road 30 is crossed. Due to the rugged terrain, an at-grade connection could not be accomplished at this road and the township road was carried over Scheme 'B' via a structure with spans of 68'-85'-68'. The proposed alignment comes down from the high ground on a 4% grade, bridges the Pennsylvania Railroad at Station 538+00+ with spans of 44-55-44 and connects with the proposed Lancaster By-pass. A temporary connection to existing U. S. 22 would be required and would have a length of approximately 2000 feet. This connection could be constructed to function as a future interchange ramp and thereby save some future construction costs.

A complete study was not made on Scheme 'B' for several reasons, namely:

1. It is 3/4 mile longer than those Schemes which stay north of the railroad.
2. Two railroad crossings are required.

3. Additional structure cost varying from \$727,000 to \$793,000.
4. Additional earthwork of 1,300,000 to 1,400,000 cubic yards.
5. Exception to 70 M. P. H. design speed. When these factors became apparent, it was decided to drop this alternate before completing total construction costs and right of way estimates.

Scheme 'B' does have the advantage of picking up State Route 159 traffic without the necessity of building any additional length of State Route 159. However, this savings does not offset the additional cost.

(3) Scheme 'B' Alt.

Scheme 'B' Alt. would be common with Scheme 'B' up to Station 256+50. At this point a 1<sup>0</sup>-28' curve to the left would direct Scheme 'B' alt. in a northeasterly direction and away from Scheme 'B'. It would cross County Road 14 (Station 264+00) and existing U. S. 22 (Station 294+40) with at-grade connections provided at each location. It continues through open farm land for 3/4 mile until a 1<sup>0</sup>-00' curve to the right directs it in an easterly direction. An at-grade connection with existing U. S. 22 is provided at station 369+00. A bridge over Muddy Prairie Run is provided at station 372+00 with a span of 20-25-20. The alternate would tie back into Scheme 'B' at station 391+32 back = 398+70 ahead and would be common with Scheme 'B' from this point on.

As with Scheme 'B' a complete study was not made of Scheme 'B' Alt. for the following reasons:

1. It is 1/2 to 3/4 miles longer than those Schemes which stay north of the railroad.

2. Two railroad crossings are required.
3. Additional structure costs varying from \$711,000 to \$777,000.
4. Additional earthwork of 1,100,000 to 1,200,000 cubic yards.
5. Exception to 70 M.P.H. design speed.

Further study was dropped when the above facts became evident.

Scheme 'B' Alt. does not pick up State Route 159 traffic as readily as Scheme 'B'. With this alternate it would probably be necessary to build a new connection between existing State Route 159 and Scheme 'B' Alt. or extend State Route 159 easterly on existing U.S. 22 from the existing U.S. 22, S.R. 159 intersection to the intersection of Scheme 'B' Alt. and existing U.S. 22 of station 369+00.

(4) Scheme 'C'

Scheme 'C' is common with Scheme 'B' to Station 146+05. A  $2^{\circ}$ -30' curve to the left swings the alignment in a northerly direction, crossing U.S. 22 at station 196+80 where an at-grade intersection is provided. After crossing existing U.S. 22 the alignment would swing east along a  $3^{\circ}$ -30' curve crossing Clear Creek at station 220+00 with a bridge having spans of 40-50-40. Continuing in an easterly direction the alignment intersects County Road 16 (Station 260+00) and Township Road 159 (Station 303+00) at-grade. Scheme 'C' then swings northeasterly along a  $3^{\circ}$ -00' curve and ties into Scheme 'A' at Station 317+60 back = 307+80 ahead and is common with Scheme 'A' to its ending.

Scheme 'C' was studied in an attempt to alleviate some of the property severance which Scheme 'A' caused in the vicinity of station 195 to 230 and also to provide a connection with existing U.S. 22 which was in closer proximity to the Village of Amanda and thereby provide better service to the residents of that area.

(5) Scheme 'AC'

Scheme 'AC' would be common with Scheme 'A' to station 152+05 and at this point a  $0^{\circ}$ -28' curve to the left would swing the alignment in a northeasterly direction and away from Scheme 'A'. It would cross Township Road 165 at station 174+50 where an at-grade intersection would be provided. After crossing Township Road 165, the proposed alignment would deflect easterly along a  $1^{\circ}$ -28' curve, bridging Clear Creek at station 210+50 with spans of 38'-47.5'-38', tying into Scheme 'C' at station 225+90 back = 235+95 ahead and remaining common with Scheme 'C' from this point ahead. Scheme 'AC' would eliminate property severance as mentioned with Scheme 'C' but would not provide access to existing U.S. 22 as mentioned with Scheme 'C'. It would eliminate some of the excessive reverse curvature which is evident with Scheme 'C'.

(6) Scheme 'BA'

Scheme 'BA' would be common with Scheme 'B' to station 198+20. At this point a  $3^{\circ}$ -00' would direct the alignment in a northeasterly direction crossing existing U.S. 22 at station 237+50 and County Road 16 at station 254+60 and providing at-grade intersections at each. At station 257+35 back = 253+75 ahead, Scheme

'BA' would tie into Scheme 'A' and be common with it to its end.

Scheme 'BA' was studied in an attempt to provide better service for the village of Amanda by providing an access to the new route via existing U.S. 22 in the immediate vicinity of the village. This Scheme has the disadvantage of several reverse curves in rapid succession and gives the appearance of forced alignment.

(7) Revision II

This Scheme is common with Scheme 'B' to station 196+90 at which point a  $1^{\circ}-28'$  curve would deflect the alignment in a northeasterly direction crossing existing U.S. 22 at station 246+35 and County Road 16 at station 252+30. It is proposed to relocate approximately 1000' of existing U.S. 22 along the north side of Scheme 'BA' II and have one intersection only for both existing U.S. 22 and County Road 16, said intersection to be located at station 252+30. After crossing County Road 16 the alignment would deflect slightly to the right along a  $1^{\circ}-00'$  curve, intersecting existing Township Road 159 at station 298+00. An at grade intersection would be constructed at this point if the State Route 159 extension is not built, otherwise access would be provided at the proposed State Route 159 interchange. The proposed alignment would continue until a  $0^{\circ}-28'$  curve to the left would tie it into the Scheme 'A' alignment at station 351+50 back = 353+45 ahead from which point it would be common with Scheme 'A' to its end.

Scheme 'BA' II does away with the sharp reverse curvature exhibited by Scheme 'BA'. The number of curves are the same but they are flatter and further apart, giving a more pleasing appearance. The primary reason for Scheme 'BA' was to get sufficient distance between the railroad and proposed alignment to permit the construction of an interchange with the State Route 159 extension. Even if this extension and interchange are not built, it has the advantage of moving the intersection with Township Road 159 away from the railroad and thus removing the hazard of traffic on Township Road 159 desiring to enter U.S. 22 backing up onto the railroad. Traffic counts indicate that approximately 2400 cars per day would approach proposed U.S. 22 via Township Road 159 from the south.

S.R. 159 Extension

Beginning at a point approximately 1300 feet south of the existing U.S. 22 - S.R. 159 intersection the proposed alignment would swing northwesterly along a  $1^{\circ}-28'$  curve, crossing existing U.S. 22 at station 39+75 with an at-grade intersection provided. This relocation would require the removal of one residence and one commercial establishment on existing S.R. 159. The proposed relocation would bridge the Pennsylvania Railroad (Station 95+90) with spans of 40'-50'-40' and relocated U.S. 22, Scheme 'BA' II (Station 105+50) with spans of 44'-65'-65'-48'. The proposed relocation would then swing north on a  $5^{\circ}-00'$  curve tying into existing Township Road 159. In conjunction with the S.R. 159 extension

a standard diamond type interchange is proposed and also a relocation of that portion of Township Road 159 which exists between the railroad and Scheme 'BA'II. This relocation of Township Road 159 would run south of and parallel to the railroad, intersecting the S. R. 159 extension just south of the bridge over the railroad.

The traffic diagram indicates that those schemes north of the railroad will not serve S. R. 159 traffic unless a direct connection is provided. Without the S. R. 159 extension approximately 1700 V. P. D. will continue to use existing U. S. 22 to go north but if the extension is built this figure drops to 200 V. P. D. If the extension is not built it would require the retention of approximately 5-1/2 miles of existing U. S. 22 on the State Highway system to function as S. R. 159. This would mean maintenance of parallel facilities, a costly obligation.

VI. COSTS

A. GENERAL

Unit cost used in the preparation of estimated construction costs were obtained from "Tabulation of Predetermined Unit Prices, 1963" prepared by the State of Ohio, Department of Highways.

B. COSTS FOR ALTERNATE ALIGNMENTS

Plate No. 22 is a summary tabulation of total project cost for the various alternate alignments studied. Cost for the various sections within each of these alternates may be found on Plate No. 5.

There is very little difference in costs, approximately \$100,000 separating the most expensive from the least expensive.

VII. SUMMARY

A. Length

The length of Scheme 'BA'-Rev. II is 9.68 miles; 0.04 miles shorter than Scheme 'A'; 0.22 miles shorter than Scheme 'C'; 0.03 miles shorter than Scheme 'AC'; and 0.10 miles shorter than Scheme 'BA'.

B. Costs

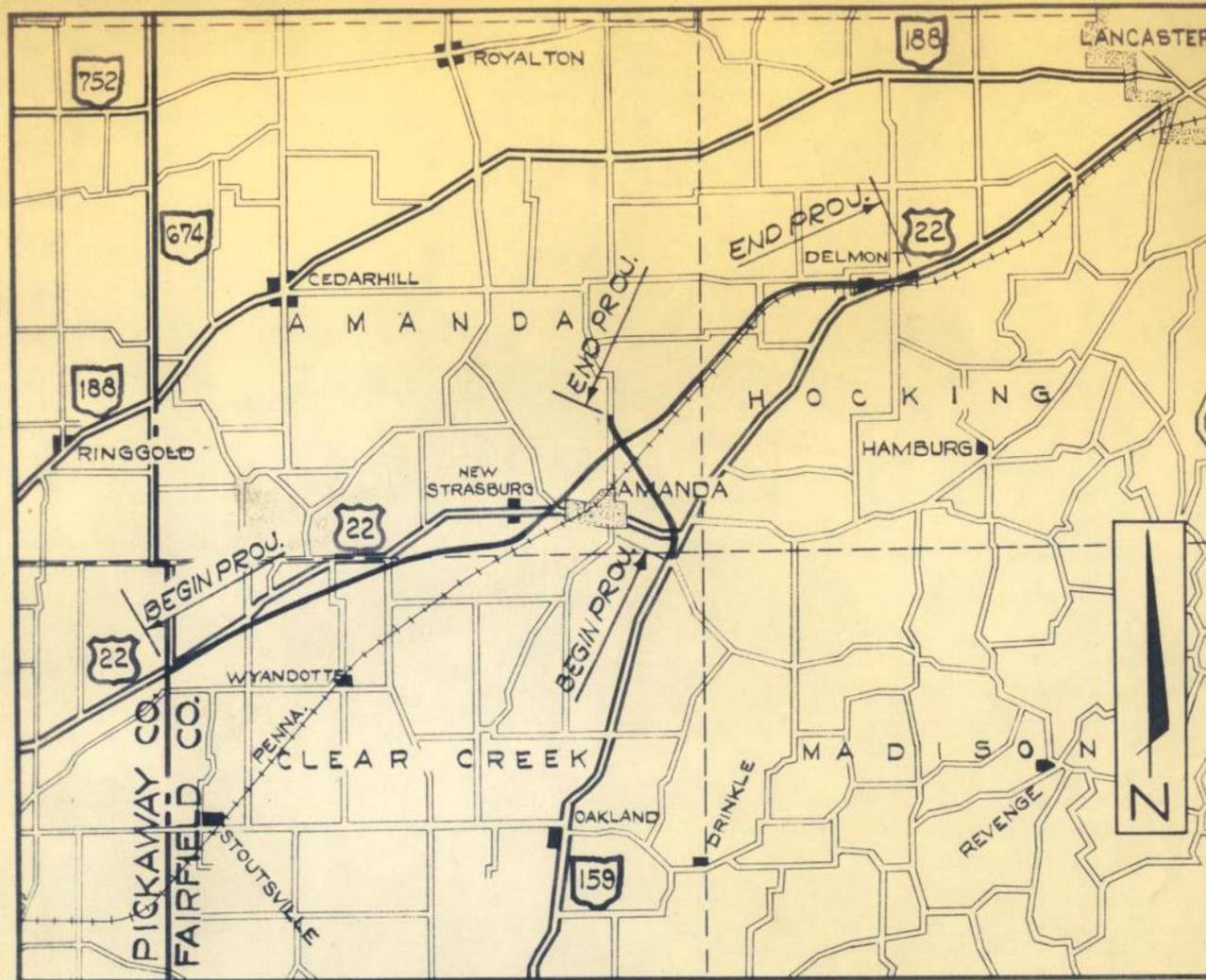
The total project costs for Scheme 'BA'-Rev. II is \$4,758,000. A comparison of costs shows Scheme 'BA'-Rev. II to be \$17,000 less than Scheme 'A'; \$94,000 more than Scheme 'C', \$70,000 more than Scheme 'AC'; and \$12,000 less than Scheme 'BA'.

C. Traffic Service

Traffic service is comparable on all Schemes which stay north of the railroad. In all cases maximum service is provided if State Route 159 traffic can be carried on the proposed facility. Scheme 'BA'-Rev. II provides for a relocation of S. R. 159 while the remaining Schemes would require S. R. 159 traffic to travel over existing U. S. 22. A more economical solution may be available by carrying S. R. 159 traffic over the Amanda village street system and Township Road 159 to a connection with the proposed facility.

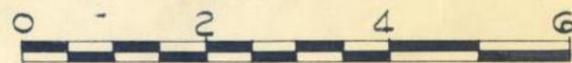
VIII. RECOMMENDATIONS

From an analysis of the information and data studied in the preparation of this report, it is recommended that U. S. 22 between the Pickaway-Fairfield County line and a point 3.6 miles west of Lancaster be constructed on the alignment identified as Scheme 'BA' Revision II. All of the alternates studied are quite similar in length, cost, and traffic service. The advantages of the recommended Scheme are its adaptability to stage construction since only the portion from Amanda east is programmed, and its provisions for a relocation of State Route 159 in order to provide better traffic service.



### LOCATION MAP

Scale in Feet



**FAI~22~0.00**

**FAI~159~6.44**

#### LEGEND

- State Routes
- Other Routes
- Proposed Relocation

LOCATION PLAN OF STUDY AREA

SCALE IN FEET  
0 500 1000 1500

PICKAWAY CO  
FAIRFIELD CO

BEGIN PROJECT  
STA. 0+00

END PROJECT  
STA. 5+00

Note: All three schemes studied  
for construction by Foss Engine

BEGIN TRANSITION  
STA. 4+00

SCHEMES 5 & 6 STUDY

STA. 305+40 U.S.R. 22-S.L.M. 5.78=  
STA. 105+50 S.E. 153-S.L.M. 7.93

REV-II

REV-II

SCHEME B' ACT

SCHEME B

SCHEME A-C

SCHEME C

SCHEME A

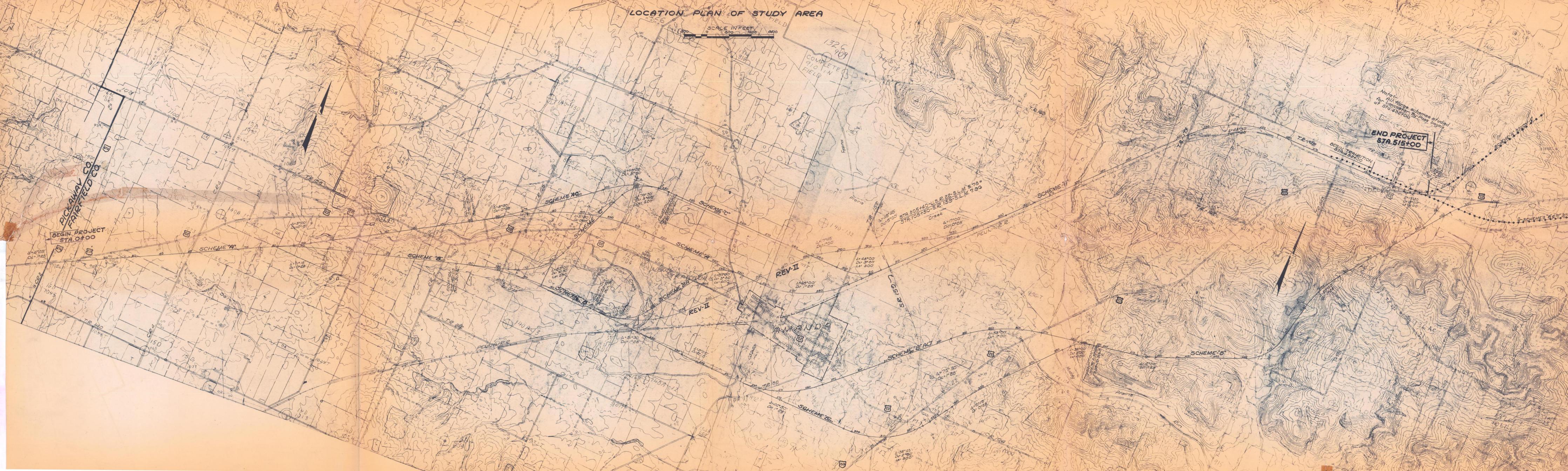
SCHEME A

SCHEME B

SCHEME B

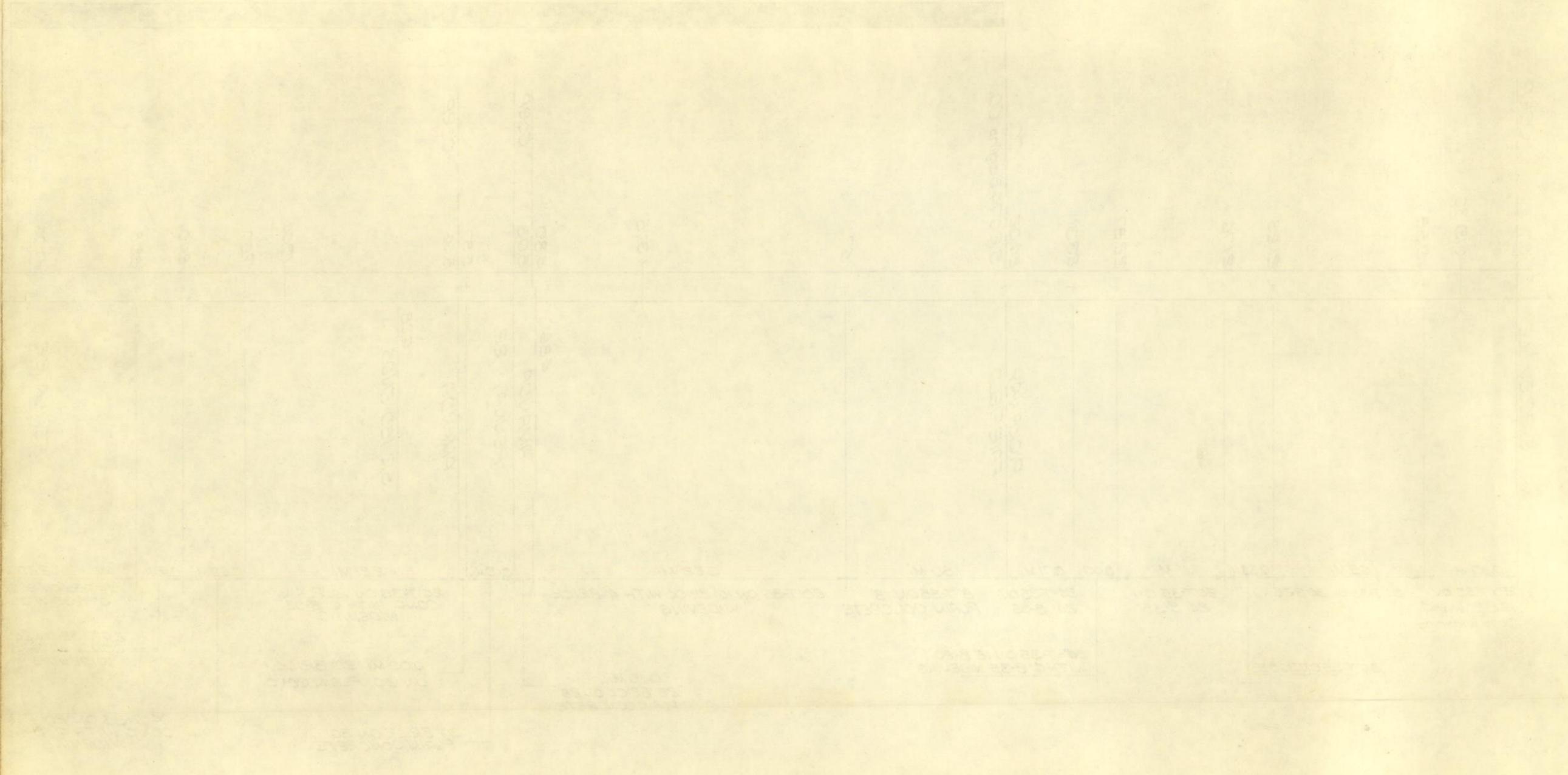
SCHEME B A

SCHEME B



FAI-152-C-00  
FAI-152-C-00

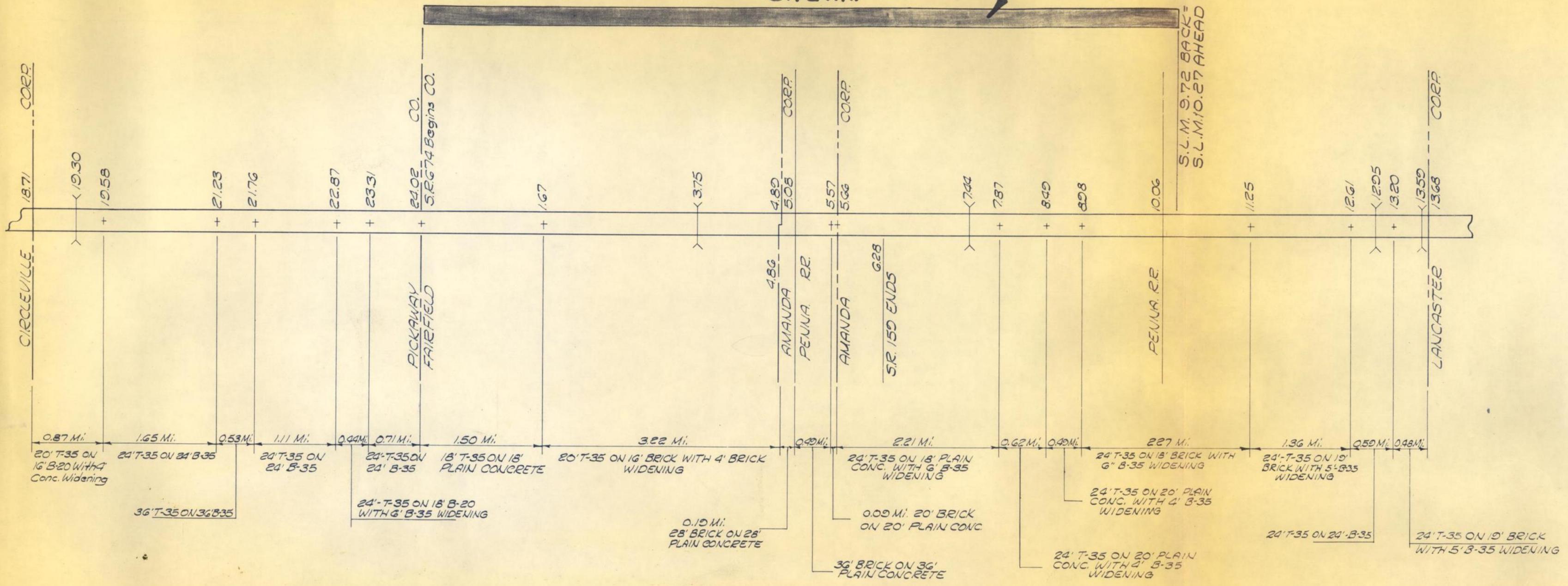
PROPOSED IMPROVEMENT  
9 1/2 MI



STRAIGHT LINE DIAGRAM

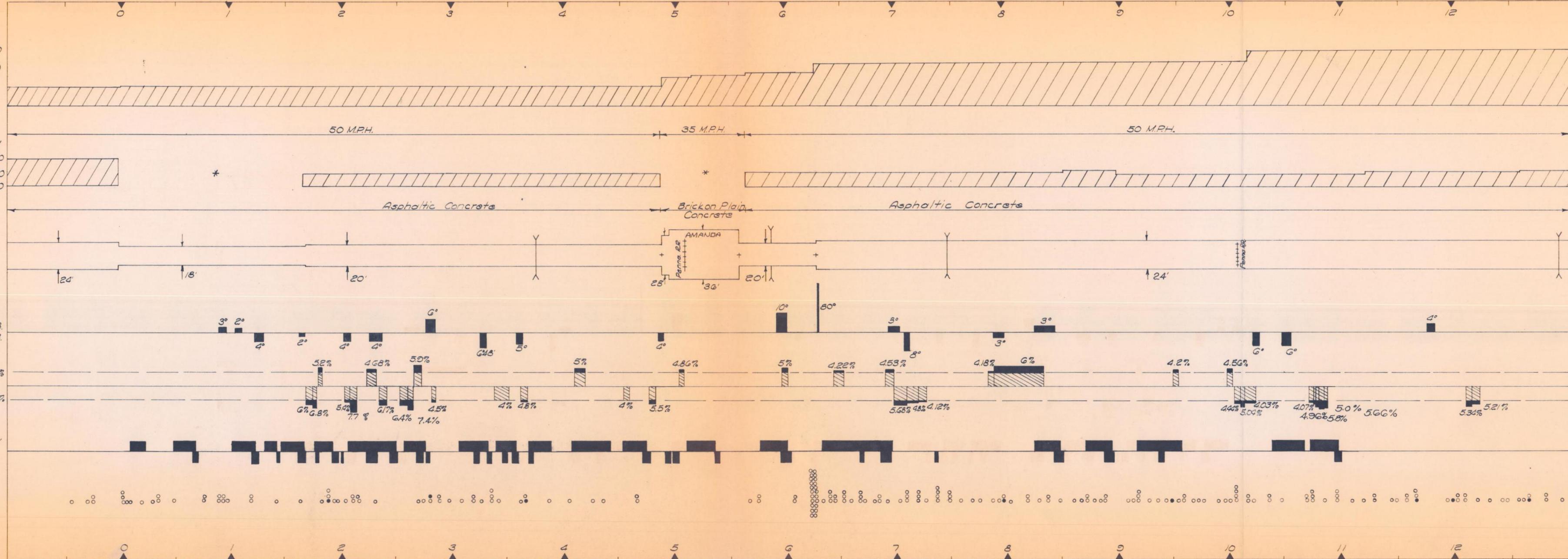
PROPOSED IMPROVEMENT  
9.72 Mi.

FAI.~22~0.00  
FAI.~159~6.44



STRAIGHT LINE DIAGRAM

LOG MILES



ROAD INVENTORY

FAI-22-0.00  
FAI-159-6.44

\* Information Unavailable

LOG MILES

# STUDY ALTERNATES AND COST FOR SECTIONS

SCALE IN FEET  
800 1600 2400



Note:-  
The costs in parentheses applicable to Scheme "A" only. For all other alternates use those costs not in parentheses.



STATE OF OHIO  
**DEPARTMENT OF HIGHWAYS**

Columbus, Ohio 43215

JAMES A. RHODES  
Governor

C. H. MAKEEVER  
Chief Engineer

P. E. MASHETER  
Director

Division #5  
P. O. Box 111  
Newark, Ohio  
November 22, 1965

Office of the Mayor  
Municipal Building  
Amanda, Ohio

Dear Mayor:

We are enclosing a copy of the Preliminary Engineering Report for the relocation of U.S. Route 22 in the vicinity of Amanda.

This we are doing in order to assist the people in the area by making this report available in your locale. This will eliminate the necessity for interested parties to travel to Newark for information concerning this proposed relocation.

The recommended line is shown in plan and profile on plates No. 11 through No. 18 inclusive. Right of way sheets are listed as plates No. 17 through No. 21 inclusive.

One copy of this report is being forwarded to the office of Fairfield County Engineer.

Very truly yours,

James T. Holden  
Division Engineer

A handwritten signature in cursive script, reading "William B. Henderson", written over a horizontal line.

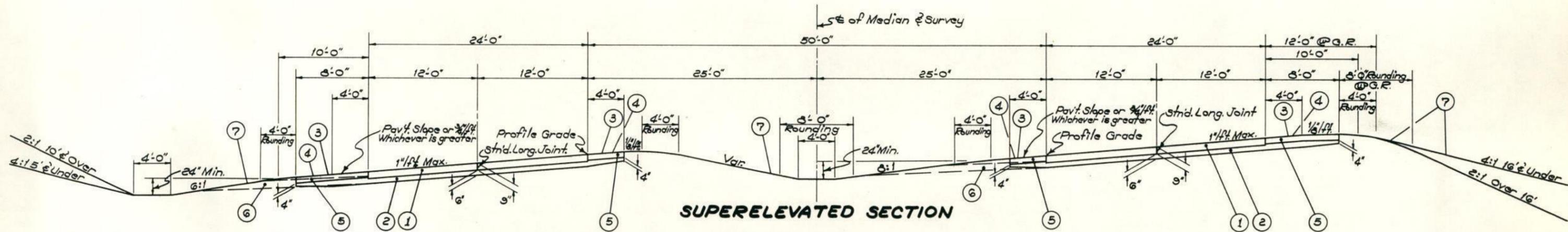
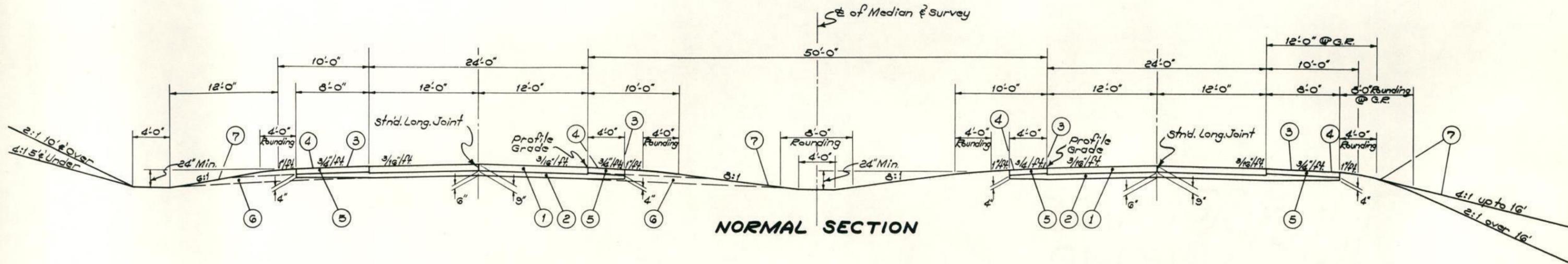
William B. Henderson  
Planning & Design Engineer

WBH:LHB:ml

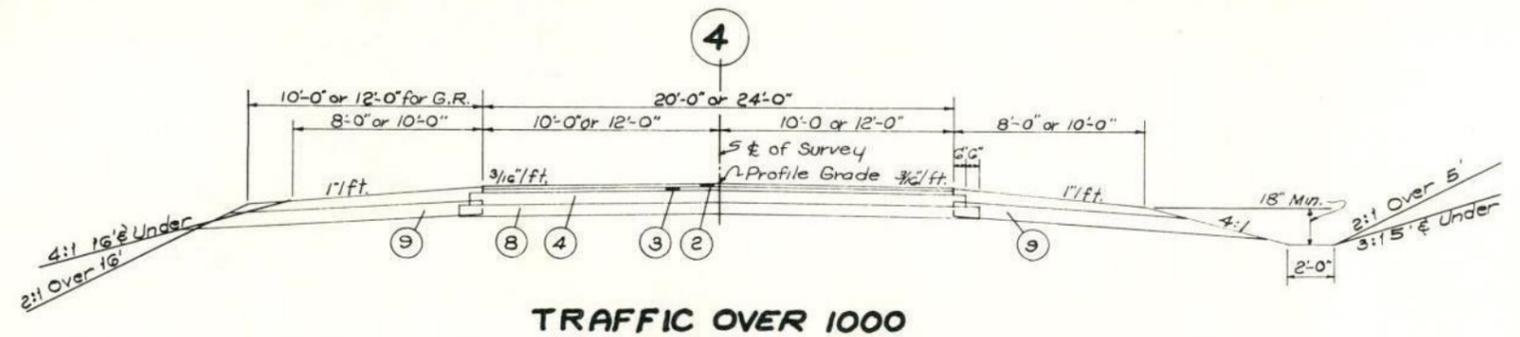
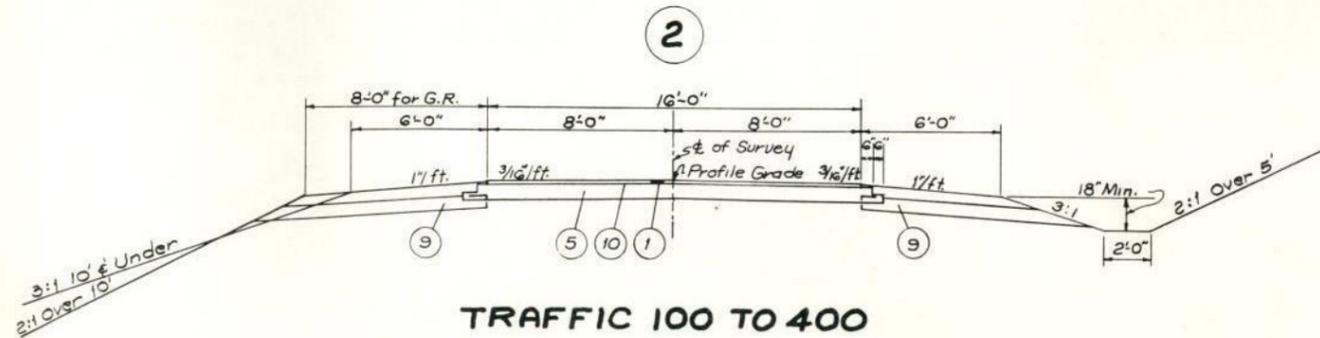
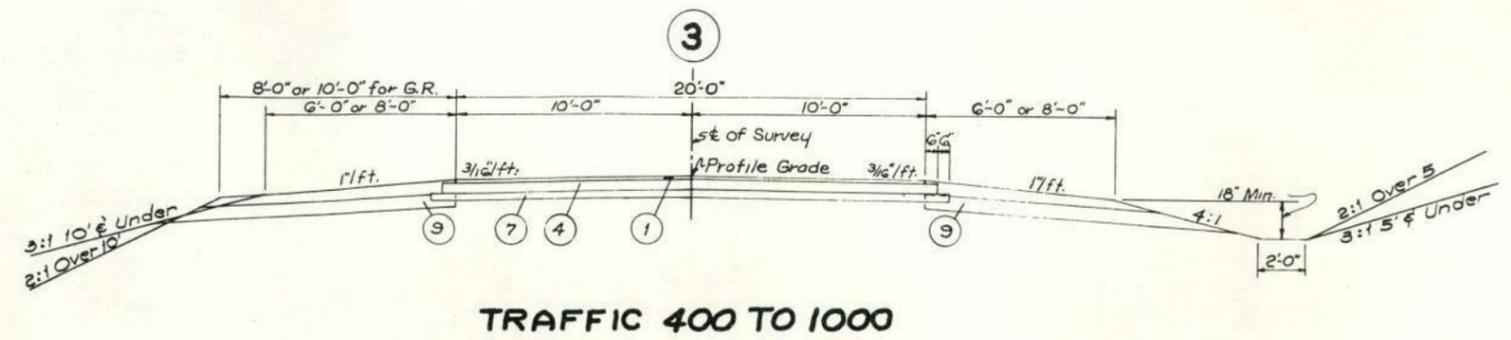
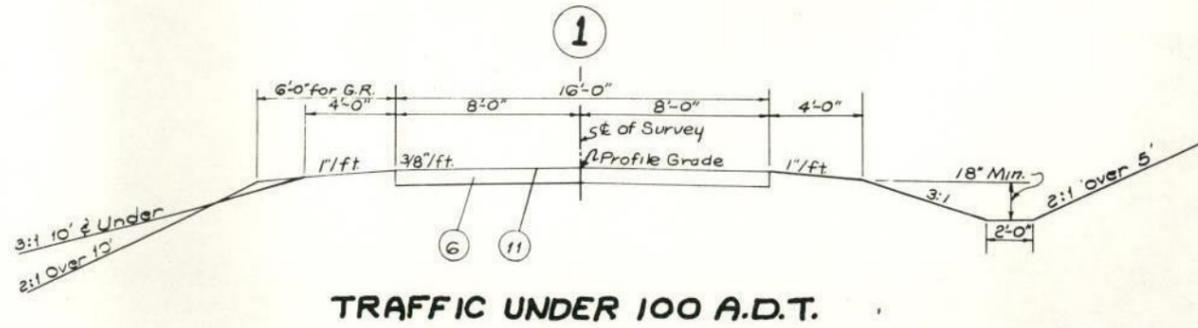
Encl.

# TYPICAL SECTIONS

## TYPE 451 on 310



- |   |     |   |   |     |                      |
|---|-----|---|---|-----|----------------------|
| ① | 451 | 9" Reinforced Portland Cement Concrete Pavement | ⑥ | 605 | Aggregate Drains     |
| ② | 310 | Subbase, Grading "A" or "B", as per plan        | ⑦ | 659 | Seeding and Mulching |
| ③ | 409 | Seal Coat Bituminous Material, as per plan      |   |     |                      |
| ④ | 408 | Bituminous Prime Coat                           |   |     |                      |
| ⑤ | 304 | Aggregate Base                                  |   |     |                      |



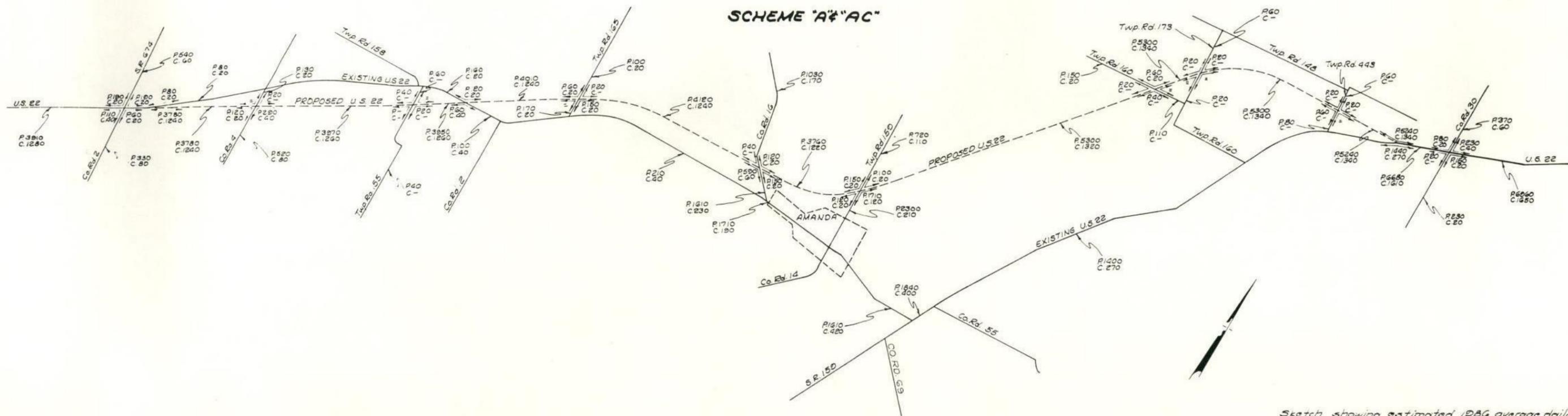
**LOCAL ROADS ON  
RECOMMENDED ALIGNMENT**

ROAD AND LOCATION	Estimated A.D.T.	Exist. Rd'wy. Type	Exist. Width		Type Typical	Remarks
			Pav't.	Rd'wy.		
S.R. 674					1	
C.R. 2					1	
C.R. 4	100~400	T-32	18	24	2	
T.R. 155	0~50	Gravel	12	20	1	
Exist. U.S.-22					4*	*With 24' Pav't.
C.R. 12	100~400	T-31	16	24	2	
T.R. 165	100~400	T-31	12	18	2	
C.R. 16	400~1000	T-32	18	26	3	
C.R. 14	100~400	T-31	12	24	2	
T.R. 159	100~400	T-32	16	24	2	
S.R. 159					4*	*With 20' Pav't.
T.R. 160	50~100	T-32	16	24	2	
T.R. 173	0~50	Gravel	12	18	1	
T.R. 443					1	
C.R. 30	100~400	T-31	14	20	2	
C.R. 55	100~400	T-31	16	22	2	
T.R. 174	0~50	Gravel	10	16	1	

- 1 404 1 1/2" Asphaltic Concrete
- 2 404 1" Asphaltic Concrete
- 3 402 1 1/4" Asphaltic Concrete
- 4 301 5" Bituminous Aggregate Base
- 5 304 8" Aggregate Base
- 6 304 6" Aggregate Base
- 7 310 4" Subbase
- 8 310 6" Subbase
- 9 605 Aggregate Drain
- 10 408 Bituminous Prime Coat applied at the rate of 0.4 Gal. per Sq. Yd.
- 11 409 Seal Coat, Using 0.008 Cu. Yd. of No. 6 Aggregate and 0.25 Gal. Bituminous Material Per Sq. Yd.

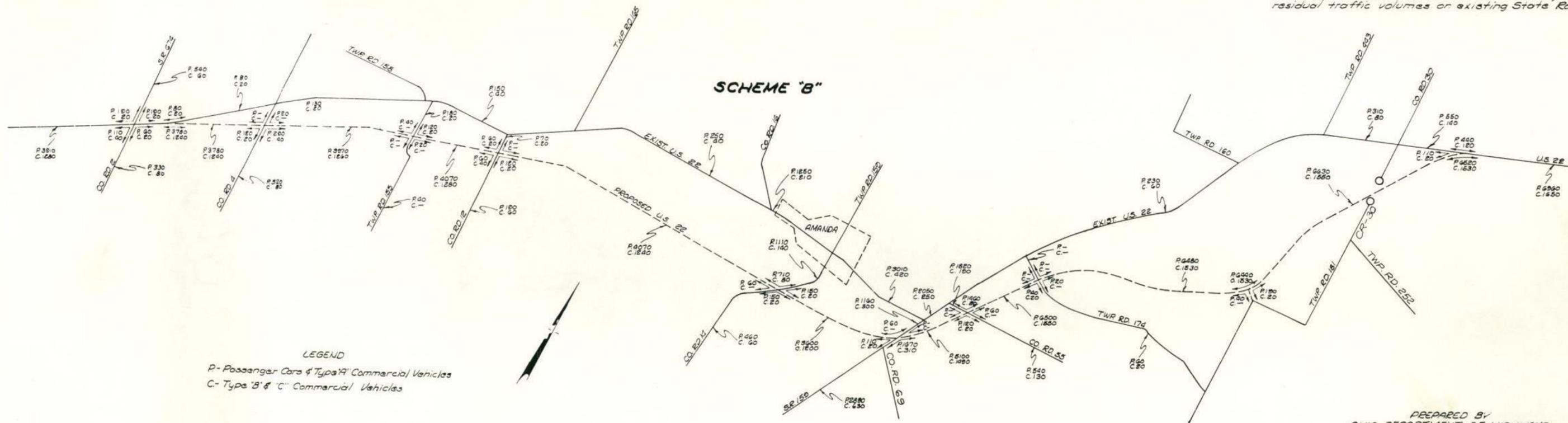
**TYPICAL SECTIONS  
STATE-COUNTY AND  
TOWNSHIP ROADS**

**SCHEME "A" "AC"**



Sketch showing estimated 1986 average daily vehicular movements at intersections on proposed relocation of State Route U.S. 22, from S.R. 674 to existing State Route U.S. 22 Northeast of Amanda, Ohio. Also residual traffic volumes on existing State Route U.S. 22

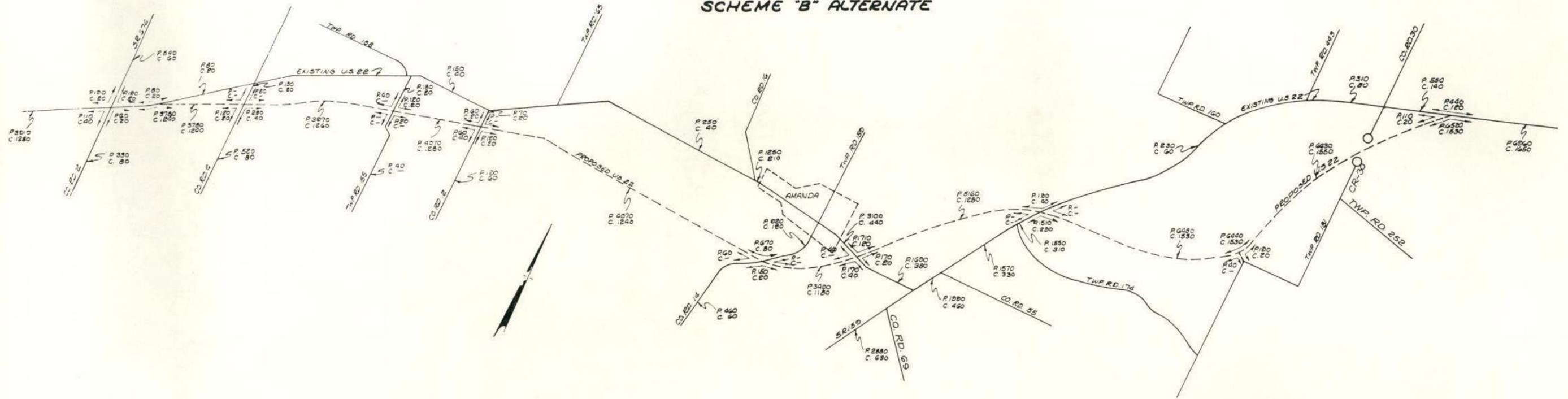
**SCHEME "B"**



**LEGEND**  
 P- Passenger Cars & Type "A" Commercial Vehicles  
 C- Type "B" & "C" Commercial Vehicles

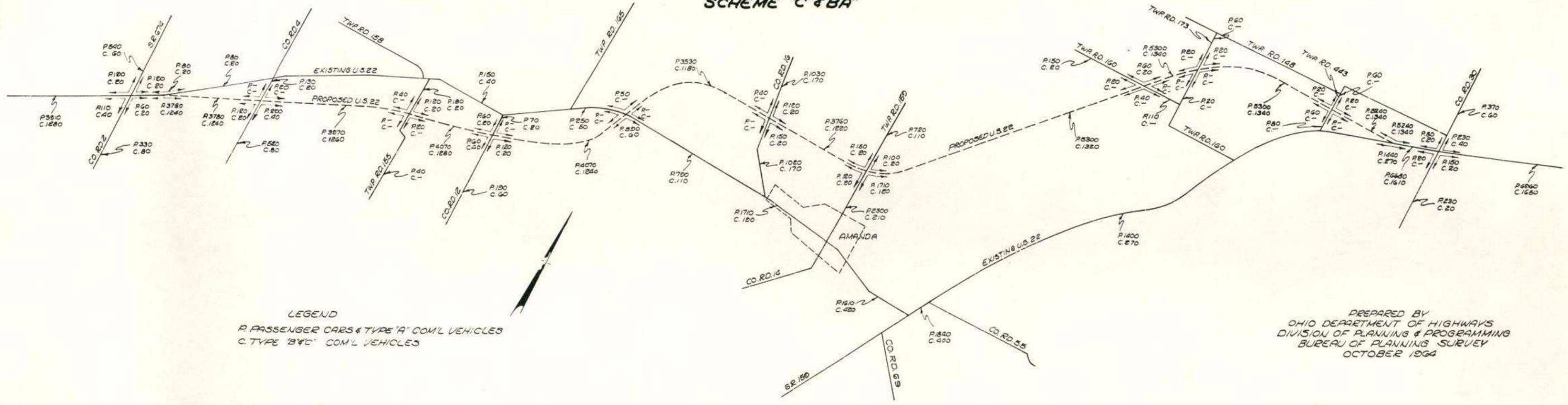
PREPARED BY  
 OHIO DEPARTMENT OF HIGHWAYS  
 DIVISION OF PLANNING & PROGRAMMING  
 BUREAU OF PLANNING SURVEY  
 OCTOBER 1964

**SCHEME "B" ALTERNATE**



Sketch showing estimated 1986 average daily vehicular movements at intersections on proposed relocation of State Route U.S. 22, from SR 674 to existing State Route U.S. 22 northeast of Amanda, Ohio. Also residual traffic volumes on existing State Route U.S. 22

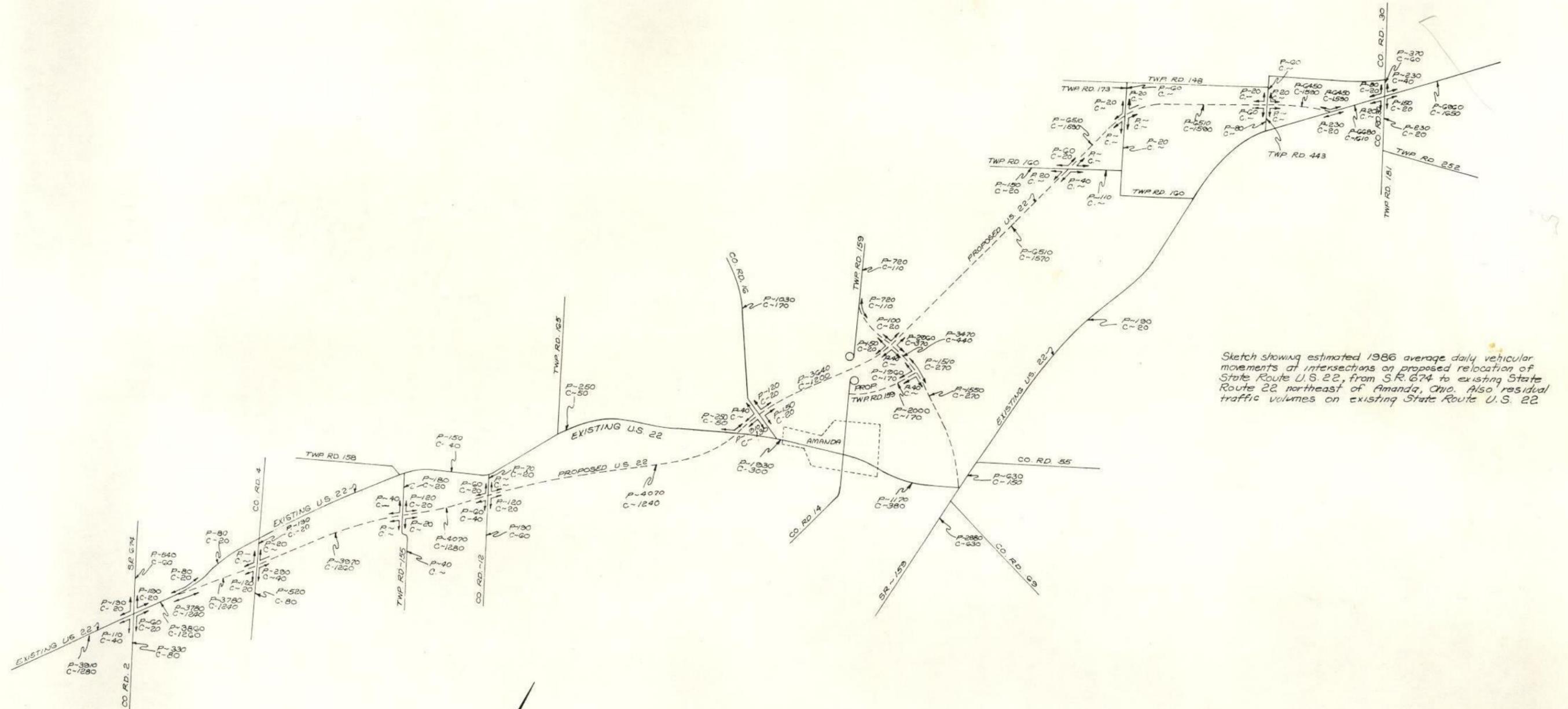
**SCHEME "C" & "BA"**



**LEGEND**  
 P. PASSENGER CARS & TYPE "A" COM'L VEHICLES  
 C. TYPE "B" & "C" COM'L VEHICLES

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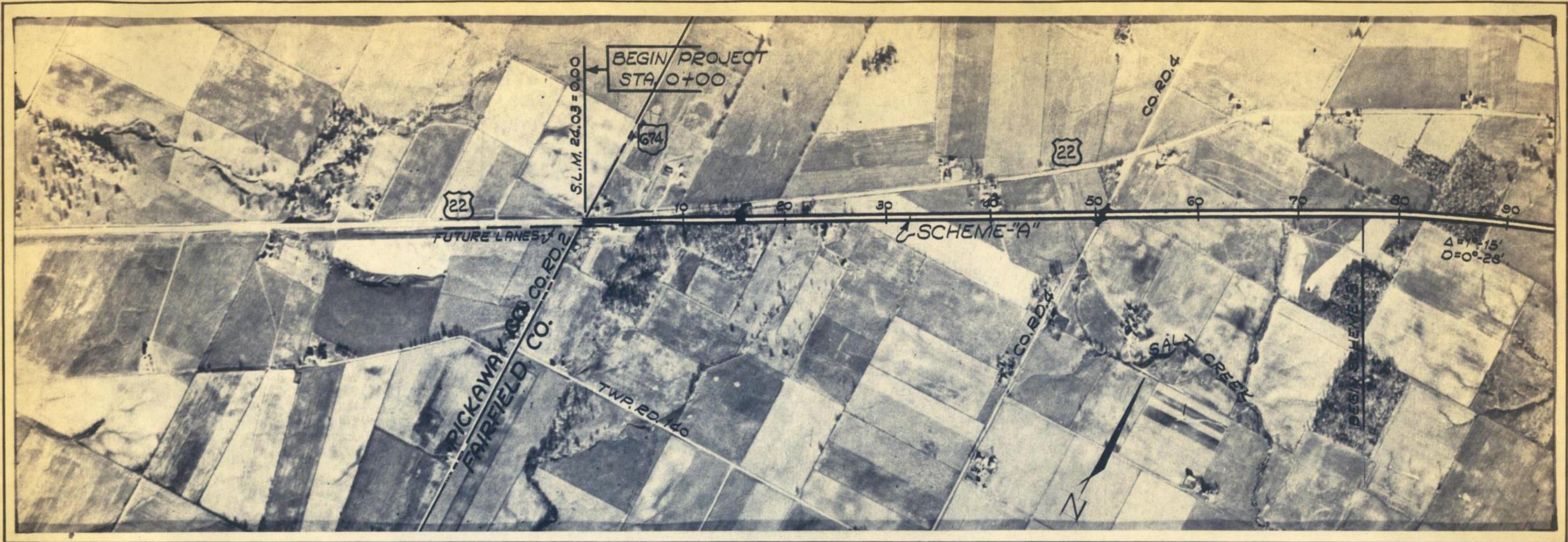
# SCHEME REVISION II



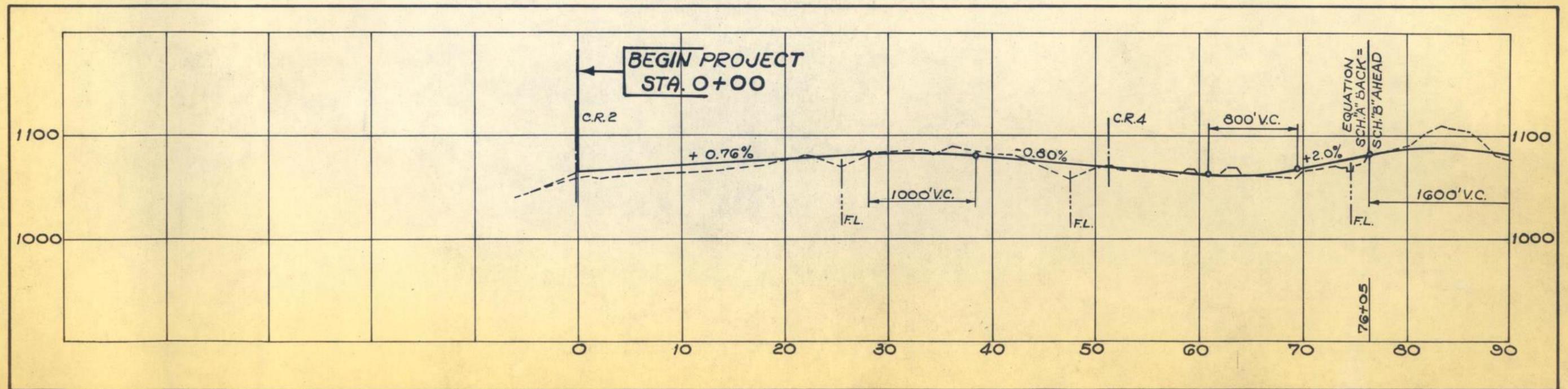
Sketch showing estimated 1986 average daily vehicular movements at intersections on proposed relocation of State Route U.S. 22, from S.R. 674 to existing State Route 22 northeast of Amanda, Ohio. Also residual traffic volumes on existing State Route U.S. 22

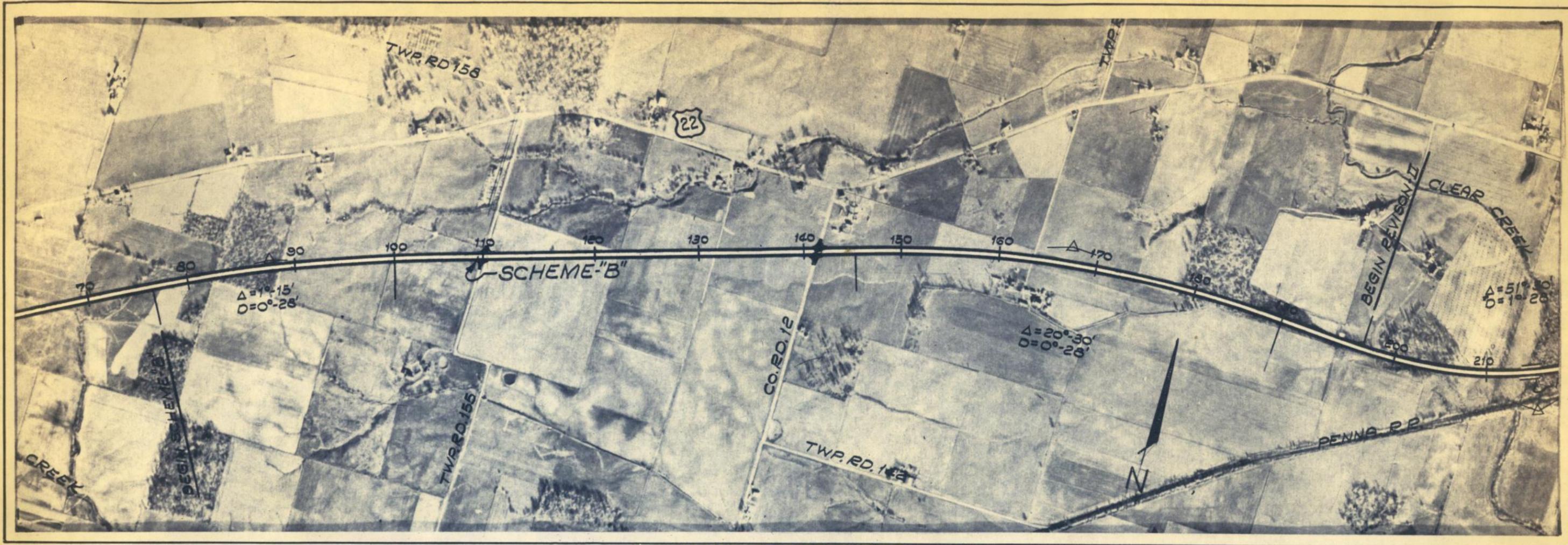
**LEGEND**  
 P. PASSENGER CARS & TYPE "B" COM'L VEHICLES  
 C. TYPE "B" & "C" COM'L VEHICLES

PREPARED BY  
 OHIO DEPARTMENT OF HIGHWAYS  
 DIVISION OF PLANNING & PROGRAMMING  
 BUREAU OF PLANNING SURVEY  
 OCTOBER 1964

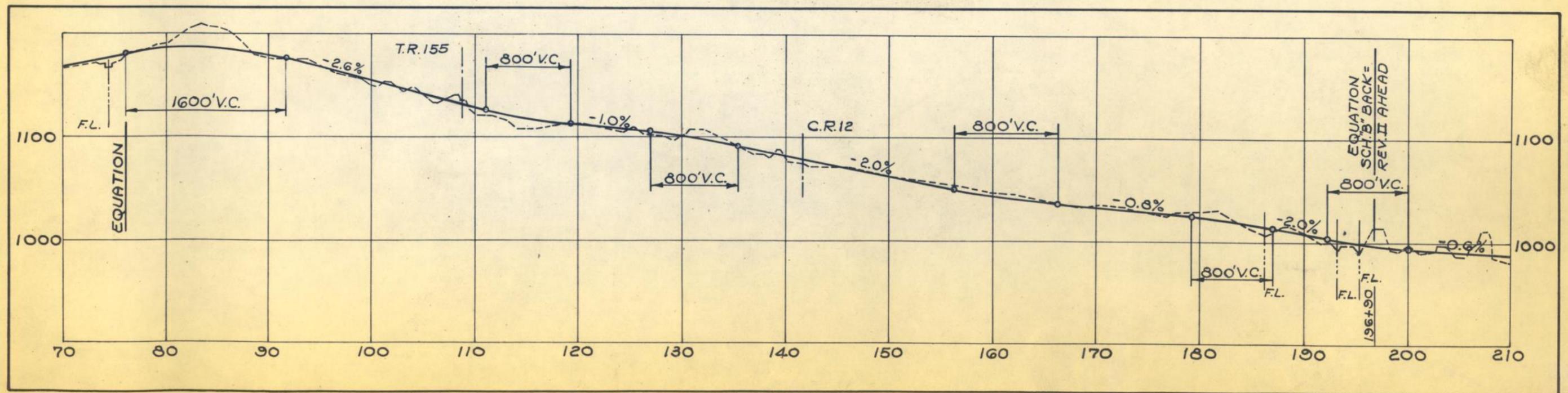


APPROXIMATE SCALE: 1" = 1000'

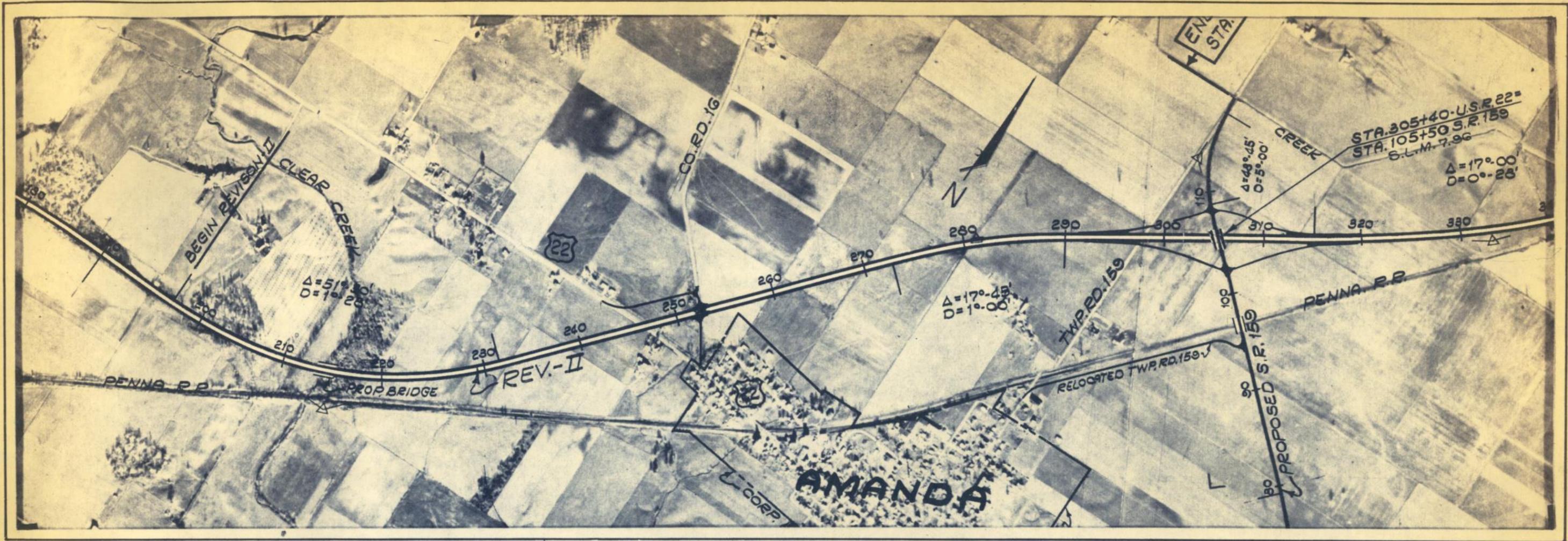




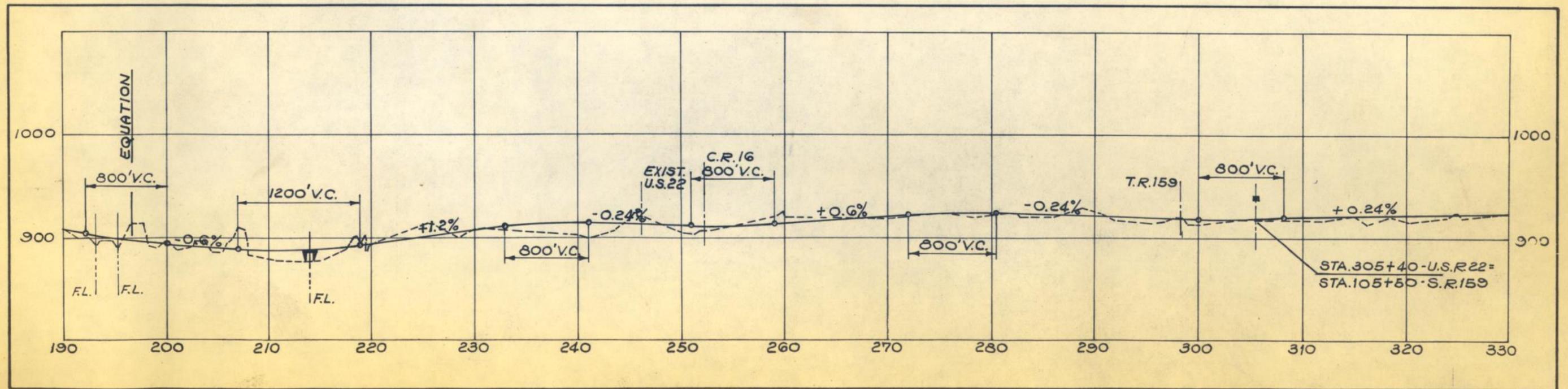
APPROXIMATE SCALE: 1" = 1000'

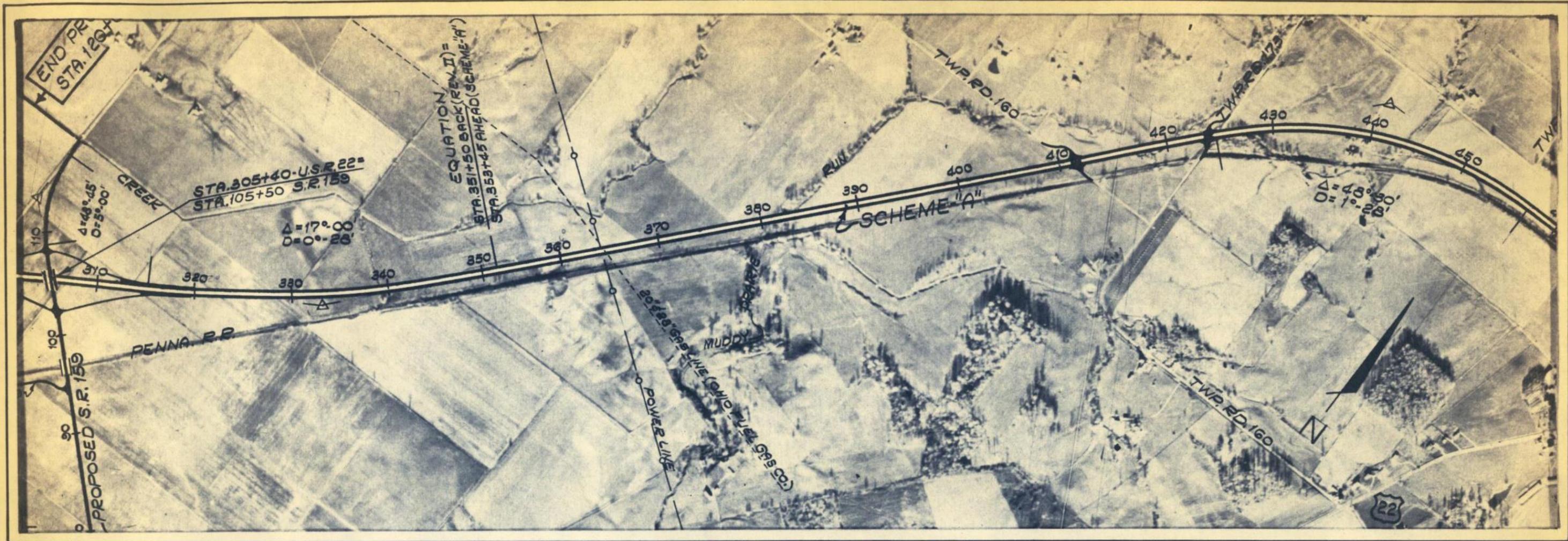


PLAN & PROFILE PLATE 12

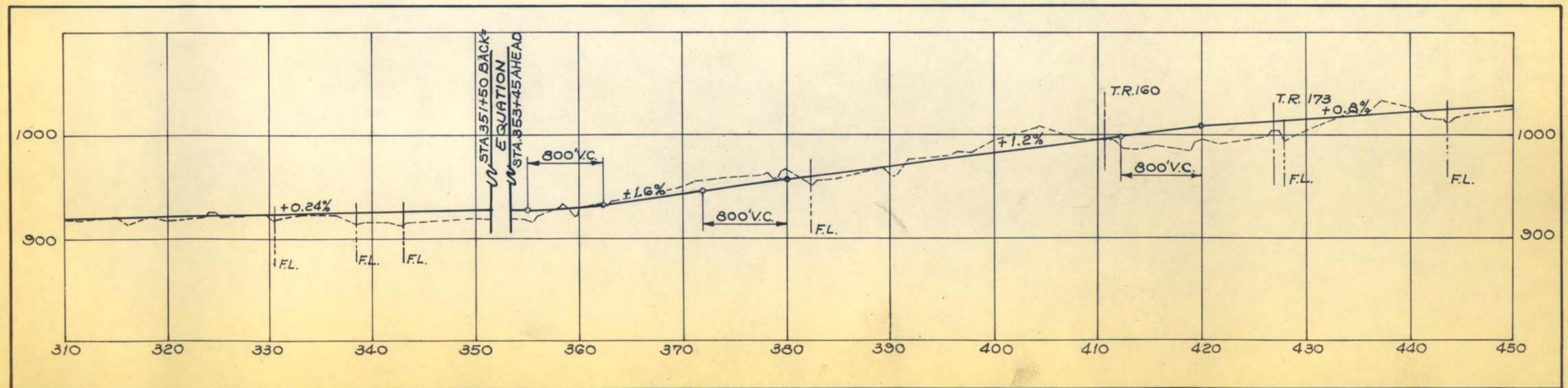


APPROXIMATE SCALE: 1" = 1000'

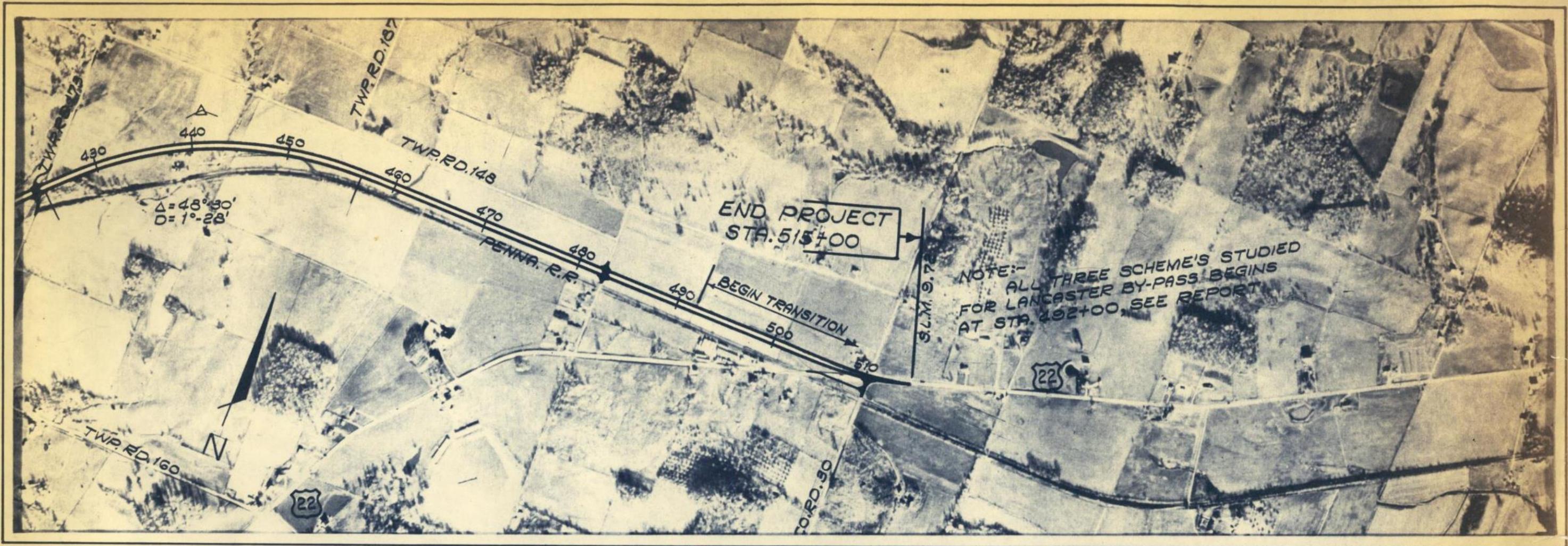




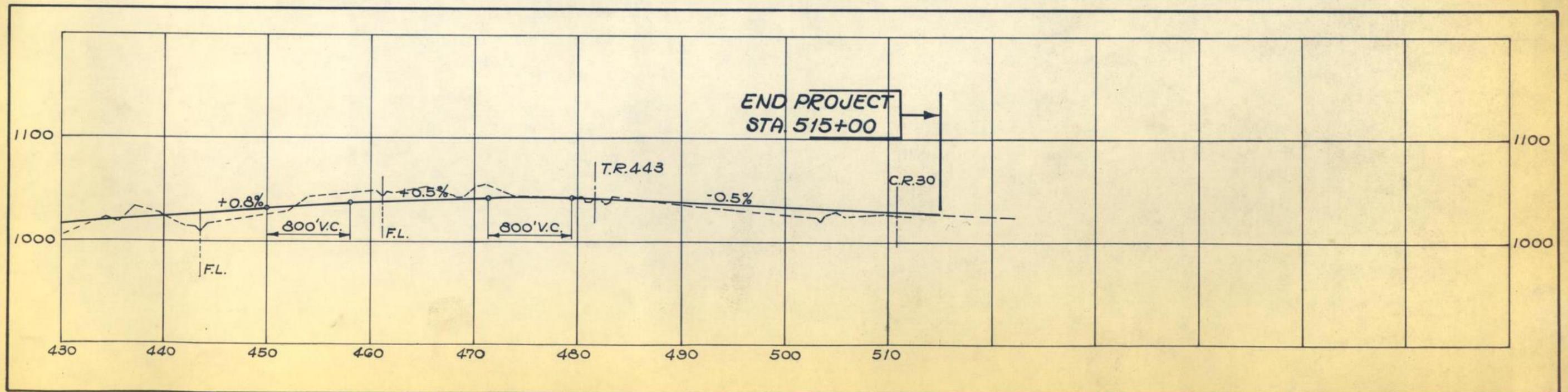
APPROXIMATE SCALE: 1" = 1000'

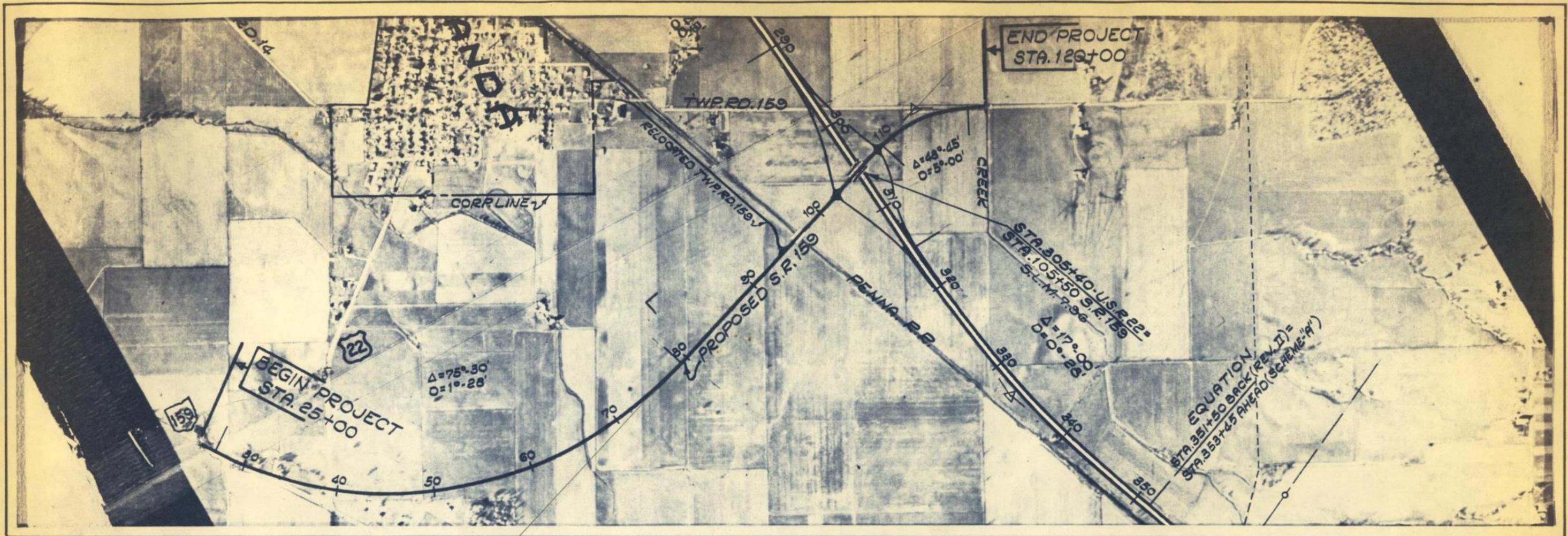


PLAN & PROFILE PLATE 14

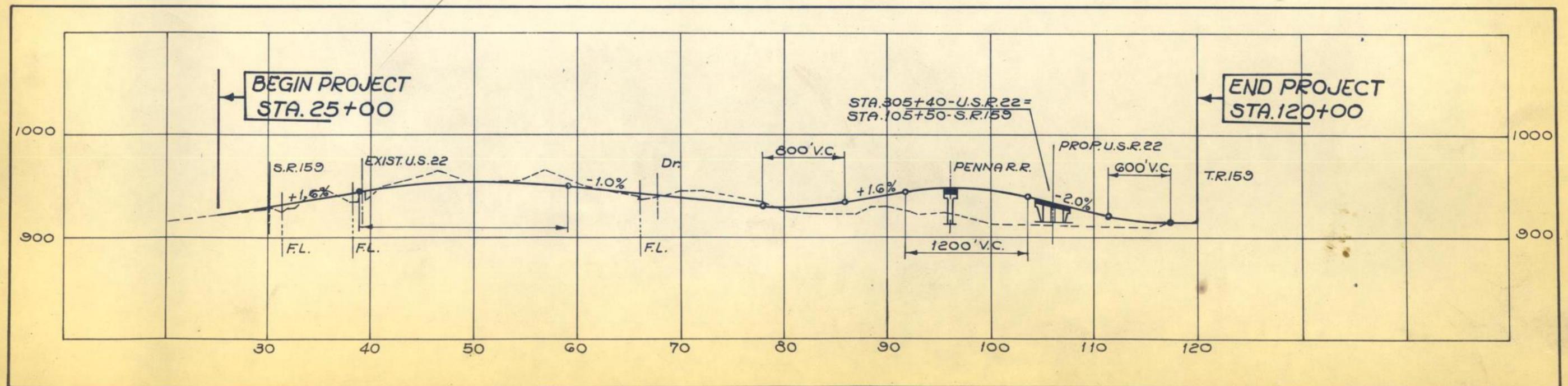


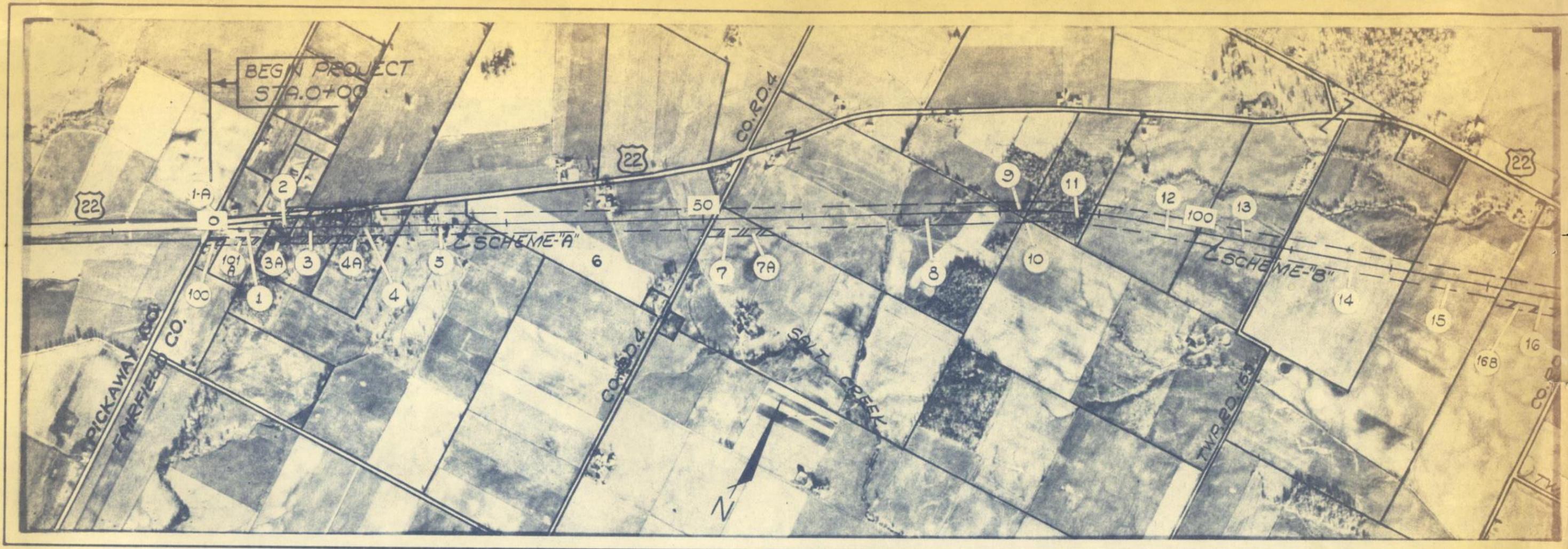
APPROXIMATE SCALE: 1" = 1000'





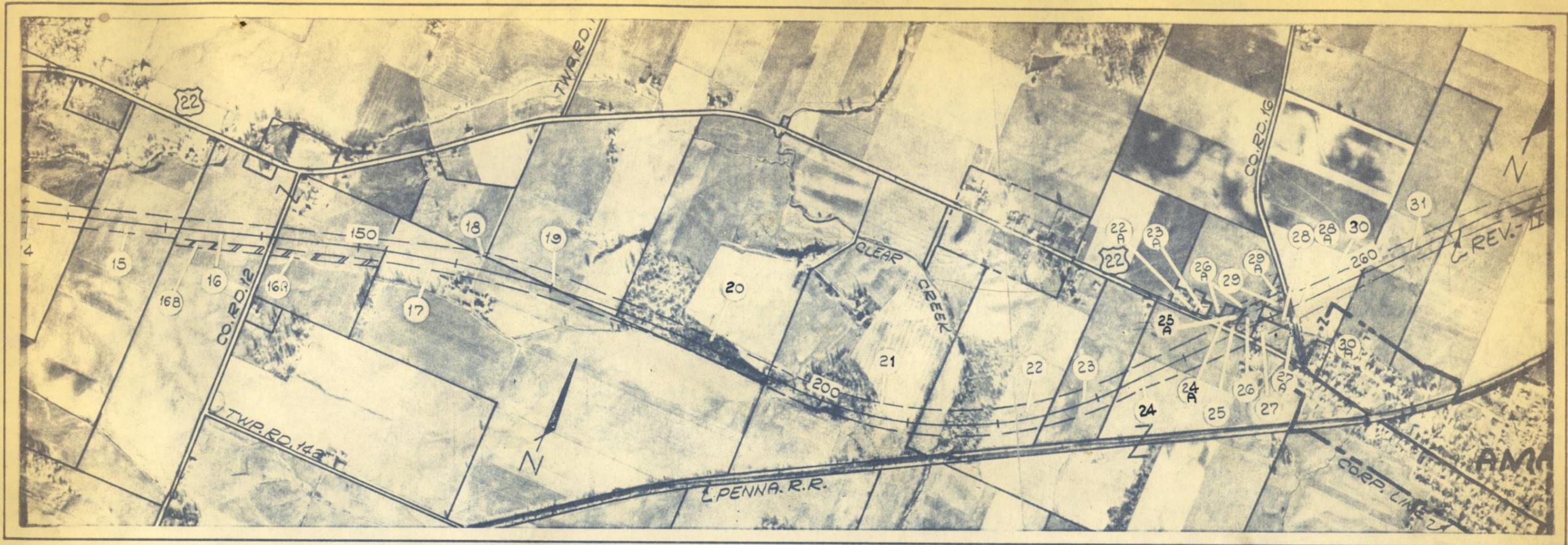
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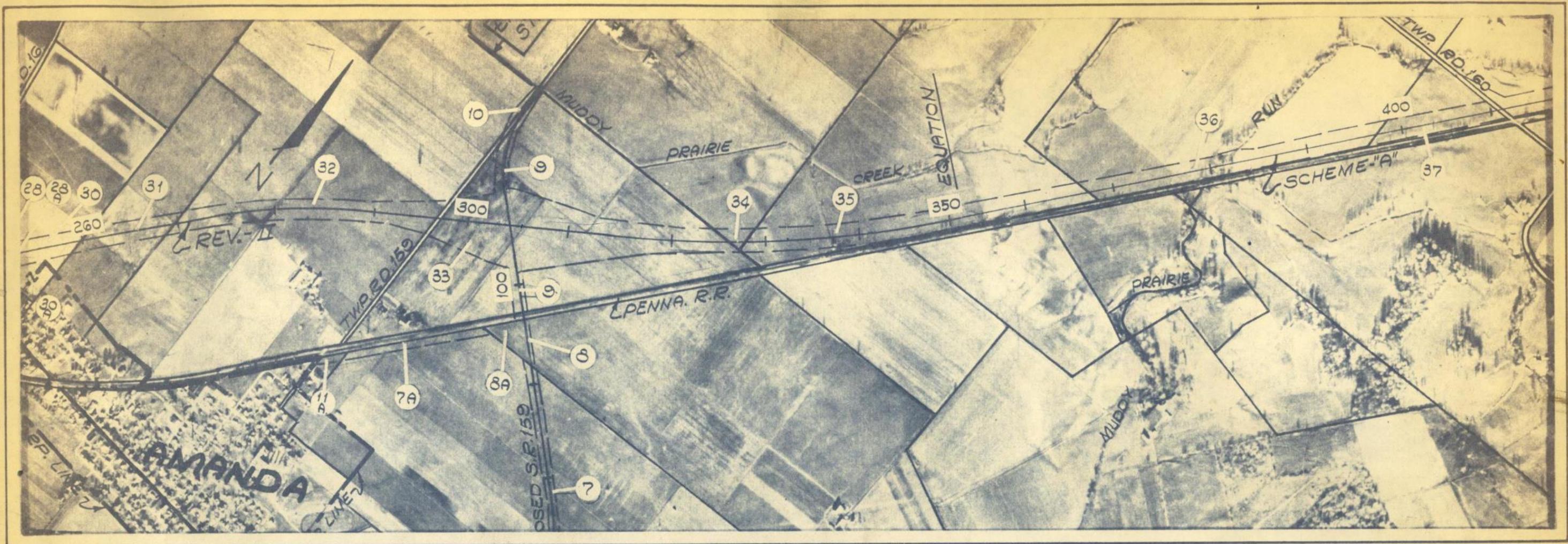
APPROXIMATE SCALE: 1"=1000'

PARCEL NO.	OWNER	ACREAGE				NAME OF UTILITY	TYPE AND SIZE	APPROX. LOCATION	ESTIMATED COST	ADJUST OR REPLACE
		TOTAL	TAKE	RESIDUAL						
				LEFT	RIGHT					
100	UNKNOWN	1.0	.10	0	.90					
1-A	UNKNOWN	4.5	1.14	4.36	0	COLUMBUS & SOUTHERN O.	N/A	2	\$ 200.00	ADJUST
1	F.W. MOUNT	5.13	1.97	0	3.16	GENERAL TELEPHONE CO.	N/A	8	500.00	ADJUST
101-A	F.W. MOUNT	3.16	.58	0	2.60	SOUTH CENTRAL RURAL ELEC.	N/A	20	1500.00	ADJUST
2	STATE OF OHIO	.58	.58	0	0	SOUTH CENTRAL RURAL ELEC.	N/A	50	2000.00	ADJUST
3	P.C.	10.90	2.94	0	7.96	SOUTH CENTRAL RURAL ELEC.	N/A	162 TO 193	15000.00	REPLACE
3-A	P.C.	7.96	.96	0	7.00					
4	C. STOUT	13.03	2.63	.65	9.75					
4-A	C. STOUT	10.40	.66	.65	9.09					
5	GUY STOUT	99.88	3.59	1.29	95.00					
6	J. LA RUE	88.35	11.09	55.71	21.55					
7-A	A. & E. FOSNAUGH	78.80	.64	0	78.16					
7	A. & E. FOSNAUGH	80.00	1.20	0	78.80					
8	M. VANFOSSEN	82.00	12.12	36.38	33.5					
9	T. PRITCHARD	26.13	.68	25.45	0					
10	G. JUSTUS	90.00	.13	0	89.87					
11	D. MILLER	18.00	4.31	13.69	0					
12	A. FOSNAUGH	40.60	5.46	25.74	9.40					
13	M. M. KESKE	42.60	4.04	25.34	13.22					
14	B. & G. JUSTUS	71.25	6.06	35.35	29.84					



APPROXIMATE SCALE: 1"=1000'

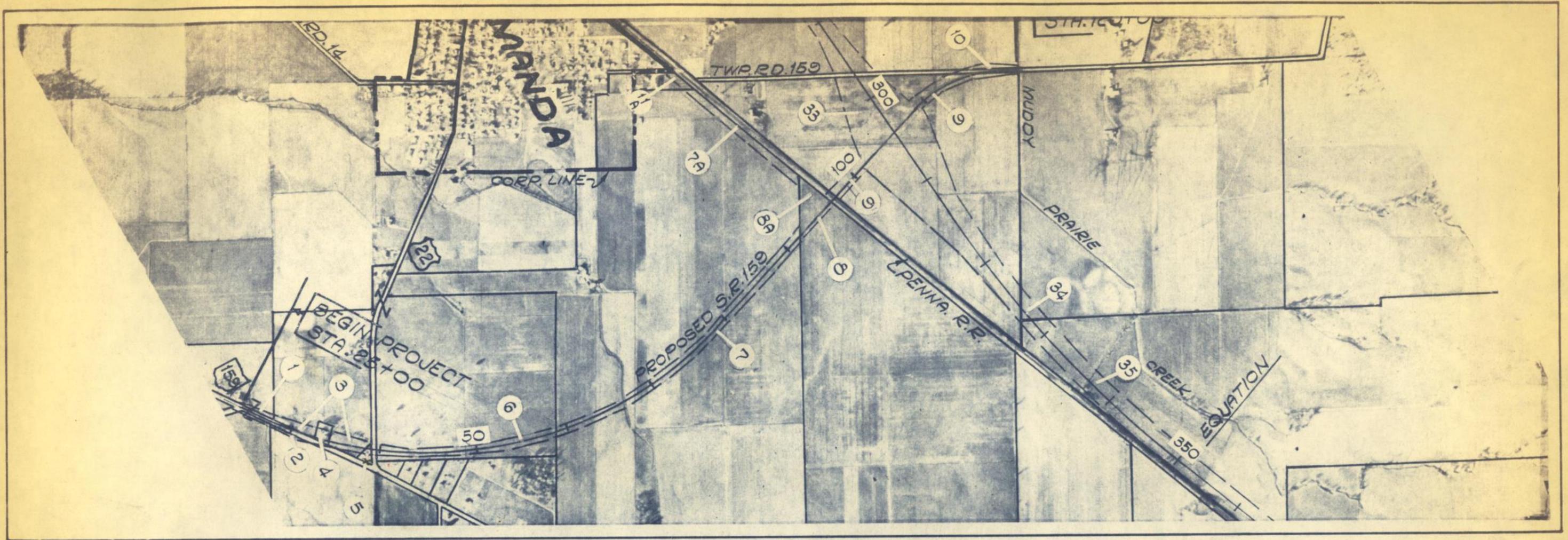
PARCEL NO.	OWNER	ACREAGE				NAME OF UTILITY	TYPE AND SIZE	APPROX. LOCATION	ESTIMATED COST	ADJUST OR REPLACE
		TOTAL	TAKE	RESIDUAL						
				LEFT	RIGHT					
15	R. YOUNG	96.0	4.41	19.92	71.67					
16	C. & D. MILLER	107.63	9.58	22.03	76.08	SOUTH CENTRAL RURAL ELEC.	N/A	162 TO 193	\$15,000.00 REPLACE	
16-A	C. & D. MILLER	98.11	1.28	22.03	74.80			163	1,500.00 ADJUST	
16-B	C. & D. MILLER	96.83	1.20	22.03	73.60	GENERAL TELE. CO. OF OHIO	N/A	163	500.00 ADJUST	
17	S. DAVIS	155.15	7.34	2.02	145.79	SOUTH CENTRAL RURAL ELEC.	N/A	193 TO 210	5,000.00 ADJUST	
18	E. THOMAS	12.85	.03	12.82	0					
19	LLOYD DAVIS	64.57	4.13	60.44	0					
20	ZEARN JOY	93.33	7.71	91.62	0					
21	FRANCIS BOWMAN	103.10	9.18	72.99	20.93					
22	M. FRAUNFELTER	53.39	8.03	40.27	5.09	SOUTH CENTRAL RURAL ELEC.	N/A	247 TO 252	10,000.00 REPLACE	
23	M. GRIFFITH	22.95	4.59	14.32	4.04					
23-A	UNKNOWN	UNKNOWN	.2±	UNKNOWN	0					
24	D. BUTTERBAUGH	105.62	7.25	5.09	93.28					
24-A	UNKNOWN	UNKNOWN	.4±	0	0					
25	UNKNOWN	UNKNOWN	.06	UNKNOWN	0					
25-A	UNKNOWN	UNKNOWN	.3±	0	0					
26	LLOYD DICKSON	98.55	1.0	98.55	0					
26-A	LLOYD DICKSON	98.55	1.47	97.08	0					
27	SCOTT	2.52	.60	0	1.92					
27-A	SCOTT	1.92	.15	0	1.77					



APPROXIMATE SCALE: 1"=1000'

PARCEL NO.	OWNER	ACREAGE				NAME OF UTILITY	TYPE AND SIZE	APPROX. LOCATION	ESTIMATED COST	ADJUST OR REPLACE
		TOTAL	TAKE	RESIDUAL						
				LEFT	RIGHT					
28	W <sup>m</sup> HUMMELL	.97	.80	0	.17	SOUTH CENTRAL RURAL ELEC.	N/A	298	\$2,000.00	ADJUST
28-A	W <sup>m</sup> HUMMELL	.17	0	0	0					
29	L. & J. GRIFFITH	1.83	.67	1.16	0	COLUMBUS & SOUTHERN O.	N/A	365	5,000.00	ADJUST
29-A	L. & J. GRIFFITH	1.16	1.16	0	0					
30	T. M. M <sup>rs</sup> GARVEY	58.26	4.53	50.06	3.67	OHIO FUEL GAS	20"	364	10,000.00	ADJUST
30-A	T. M. M <sup>rs</sup> GARVEY	53.73	.30	49.96	3.47					
31	K. STONEBURNER	37.19	5.07	21.56	10.56	OHIO FUEL GAS	28"	365	9,000.00	ADJUST
32	W <sup>m</sup> W. BETZ	352.93	13.60	249.46	89.87					
33	HARRIET BUSHEE	114.16	14.16	40.53	59.47					
34	ALVIN MILLER	160.00	.46	159.54	0					
35	NOAH CHILDERS	197.91	18.64	176.79	2.48					
36	CARL FOSNAUGH	257.39	15.54	241.85	0					





APPROXIMATE SCALE: 1"=1000'

PARCEL NO.	OWNER	ACREAGE			NAME OF UTILITY	TYPE AND SIZE	APPROX. LOCATION	ESTIMATED COST	ADJUST OR REPLACE	
		TOTAL	TAKE	RESIDUAL						
				LEFT	RIGHT					
1	E. SCHAEFER	55.70	.79	14.50	40.41	SOUTH CENTRAL RURAL ELEC.	N/A	30	\$6,000.00	ADJUST
2	L. GOODMAN	57.16	.18	0	56.98					
3	H. VALENTINE	32.10	1.67	30.25	.18	GENERAL TELE. CO. OF OHIO	N/A	40	2,000.00	ADJUST
4	UNKNOWN	.75	.32	.43	0					
5	UNKNOWN	1.0	.18	0	.82					
6	LELAND F. DILLEY	104.76	4.96	96.04	3.76					
7	H. & M. YOUNG	316.85	10.10	137.96	168.79					
7-A	H. & M. YOUNG	306.75	3.51	134.45	168.79					
8	PEARL KERNS	215.0	1.84	212.06	1.10					
8-A	PEARL KERNS	213.16	1.10	212.06	0					
9	HARRIET BUSHEE	100.00	6.89	37.36	55.75					
10	W. W. BETS	352.93	.37	352.56	0					
11-A	GEO. C. SCHAEFFER	2.79	.69	0	2.10					

# TOTAL COST OF ALTERNATES USING VARIOUS SECTIONS

**SCHEME "A"**  
Length 9.72 Mi.  
Sect. A-1 thru A-6

Roadway	834,000
Pavement	2,125,000
Drainage	362,000
Structures > 20'	180,000
<b>Total Const. Cost</b>	<b>3,501,000</b>
Engr. & Incid. (22%)	770,000
Right of Way (+25%)	451,000
Utilities	53,000
<b>Total Cost</b>	<b>4,775,000</b>

**SCHEME "C"**  
Length 9.90 Mi.  
Sect. A-1, B-1, C-1, C-2, A-5 & A-6

Roadway	753,000
Pavement	2,152,000
Drainage	367,000
Structures > 20'	166,000
<b>Total Const. Cost</b>	<b>3,438,000</b>
Engr. & Incid. (22%)	757,000
Right of Way (+25%)	441,000
Utilities	45,000
<b>Total Cost</b>	<b>4,681,000</b>

**SCHEME "REV. II"**  
Length 9.68 Mi.  
Sect. A-1, B-1, B-2, Rev. II & A-6  
**RECOMMENDED**

Roadway	802,000
Pavement	2,102,000
Drainage	374,000
Structures > 20'	166,000
<b>Total Const. Cost</b>	<b>3,444,000</b>
Engr. & Incid. (22%)	757,000
Right of Way (+25%)	507,000
Utilities	50,000
<b>Total Cost</b>	<b>4,758,000</b>

**SCHEME "AC"**  
Length 9.71 Mi.  
Sect. A-1, A-2, AC, C-2, A-5 & A-6

Roadway	794,000
Pavement	2,127,000
Drainage	367,000
Structures > 20'	154,000
<b>Total Const. Cost</b>	<b>3,442,000</b>
Engr. & Incid. (22%)	757,000
Right of Way (+25%)	436,000
Utilities	53,000
<b>Total Cost</b>	<b>4,688,000</b>

**SCHEME "BA"**  
Length 9.78 Mi.  
Sect. A-1, B-1, B-2, BA, A-4 thru A-6

Roadway	782,000
Pavement	2,134,000
Drainage	363,000
Structures > 20'	220,000
<b>Total Const. Cost</b>	<b>3,499,000</b>
Engr. & Incid. (22%)	770,000
Right of Way (+25%)	439,000
Utilities	62,000
<b>Total Cost</b>	<b>4,770,000</b>

**U.S.~22 & SR~159 INTERCHANGE**

Roadway	135,000
Pavement	113,000
Drainage	13,000
Structures > 20'	146,000
<b>Total Const. Cost</b>	<b>407,000</b>
Engr. & Incid. (22%)	89,000
Right of Way (+25%)	26,000
Utilities	0
<b>Total Cost</b>	<b>522,000</b>

**SR ~159**

Roadway	153,000
Pavement	97,000
Drainage	27,000
Structures > 20'	83,000
<b>Total Const. Cost</b>	<b>360,000</b>
Engr. & Incid. (22%)	79,000
Right of Way (+25%)	59,000
Utilities	10,000
<b>Total Cost</b>	<b>508,000</b>







