

GRADE CROSSING ELIMINATION WITH THE BALTIMORE & OHIO R.R. CO. MIDDLETOWN - GERMANTOWN ROAD

S.H. 186 SEC. "D (Part)"

BUTLER COUNTY

MADISON TOWNSHIP
BR. N^o BU-4-243

28

BUTLER COUNTY
S.H. 186 SEC. "D (Pt)"
GRADE SEPARATION

28BLAC11
1-38

Approved October 1st, 1940
[Signatures]
Board of County Commissioners of
Butler County, Ohio

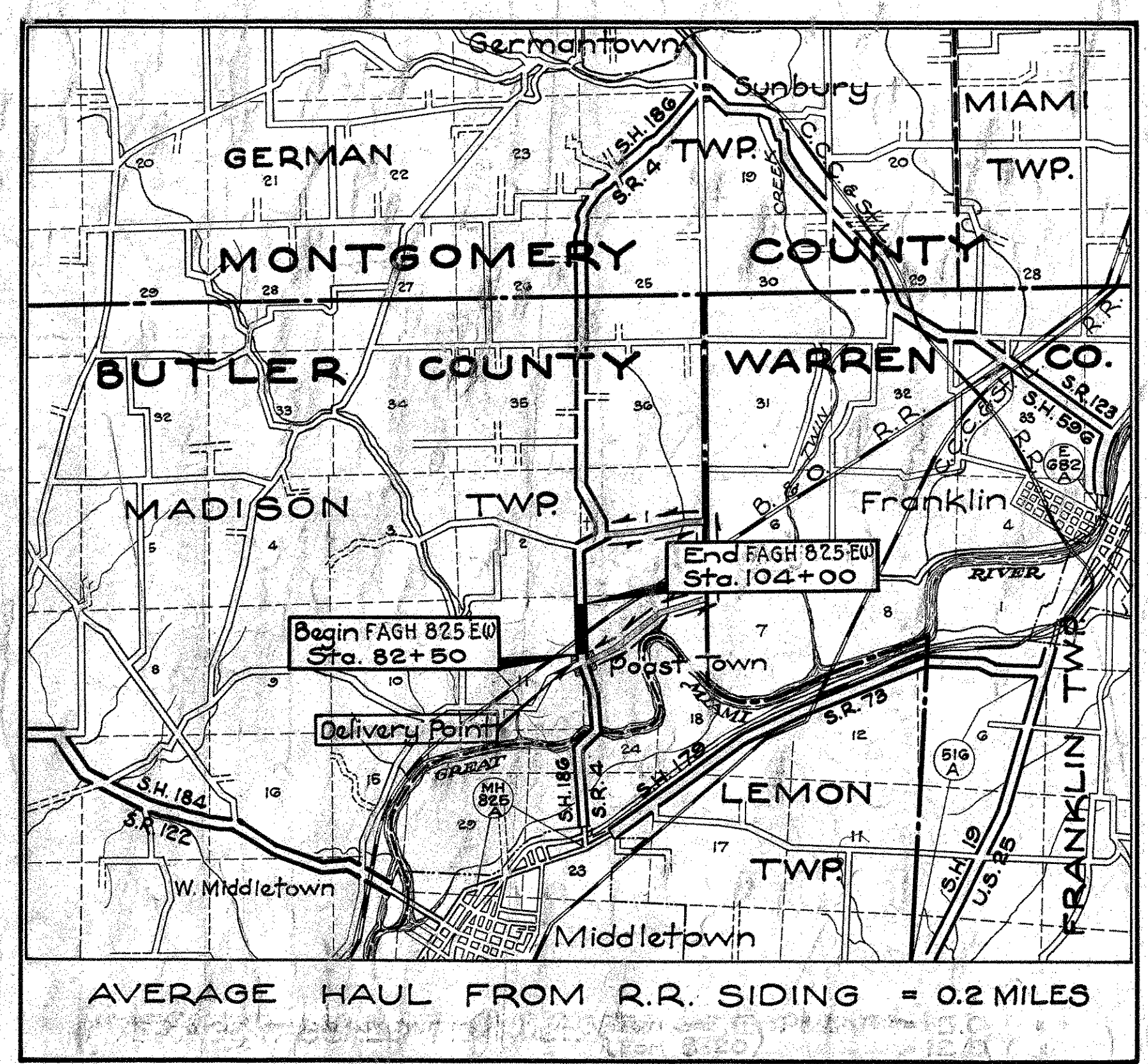
CONVENTIONAL	SIGNS
COUNTY LINE	=====
TOWNSHIP LINE	-----
SECTION LINE	- - - - -
CORPORATION LINE	=====
PROPERTY LINE	=====
FENCE LINE	-----
CENTER LINE	-----
STEAM RAILROAD	-----
POLE LINE	-----
DRAIN PIPE (New)	-----
" (Old)	-----
HEDGE	-----

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LINE DATA

BEGIN FAGH. 825-E(1) STA. 82+50
END " " " 104+00.
GROSS LENGTH FAGH. 825-E(1) = 2150.00 LIN. FT.
ADD FOR EQUATION - STA. 96+01.1 Back = 96+00 Ahead = 1.10 " "
NET LENGTH OF FAGH. 825-E(1) = 2151.10 LIN. FT.
OR 0.407 MILE

APPROACHES
STA. 81+09.48 TO STA. 82+50 = 140.52
" 104+00 " " 106+00 = 200.00
NET LENGTH OF PROJECT = 2491.62 LIN. FT.
OR 0.471 MILE



LOCATION PLAN
SCALE OF MILES

PORTION TO BE IMPROVED
STATE HIGHWAYS
OTHER ROADS
DETOURS

PLAN " = 50'
PROFILE - Hor. " = 50'
" - Vert. " = 5'
CROSS SECTIONS " = 5'

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRWGS.			
E-5 N ^o 1	7-1-40	B-T-71E N ^o 1	10-1939
I-1, 2, 3, 4 & 5	3-1-39	T-70-71E N ^o 1	10-1939
I-8 C.B. N ^o 1-2 & 2-2	11-24-39	B-T-71R	7-11-38
I-9 C.B. N ^o 1-3 & 1-4	11-24-39	G-7.07	10-1939
I-8 C.B. N ^o 3	11-1-39		
I-8 C.B. N ^o 2-3 & 2-4	11-1-39		
I-12	5-6-40		
B-T-50-70-71E N ^o 1	10-1939		

The Standard Specifications of the State of Ohio, Department of Highways, including changes and Supplemental Specifications listed in the proposal shall govern this improvement.

I hereby approve these plans and declare that the making of this improvement will require the closing to traffic of the highway and that detours will be provided as indicated on the plans.

The Right of Way necessary for this improvement will be provided by the State of Ohio.

Approved Parker S. Bookwalter
Date 3-14-40 Acting Resident District Deputy Director

Approved Parker S. Bookwalter
Date 3-14-40 Resident Division Deputy Director

Approved _____
Date _____ Chief Engineer, Bureau of Maintenance

Approved W. S. Kinsman P.E. 2629
Date 8-9-40 Chief Engineer, Bureau of Bridges & R.R. Crossings

Approved Al. Blaque P.E. 25
Date 8-26-40 Chief Engineer, Location & Right of Way

Approved [Signature]
Date 8-28-40 First Asst. Director & Chief Engineers

Approved [Signature]
Date 8-28-40 Director of Highways

Baltimore & Ohio R.R. Co.
Print Approved H.A. Lane
Date 8/21/40 Chief Engineer

SUPPLEMENTAL SPECIFICATIONS	
E-109	
E-305	Rev. 2-15-40
112	Rev. 11-20-39
M-110.11	Rev. 9-16-36
S-103	Rev. 3-22-39
S-107	Rev. 3-22-39
M-110.12	Rev. 7-25-40
M-110.23	Adp. 3-11-40

RECOMMENDED FOR APPROVAL

DISTRICT ENGINEER
PUBLIC ROADS ADMINISTRATION
FEDERAL WORKS AGENCY

APPROVED
CONSTRUCTION BUREAU
JUN 25 1956
COMMISSIONER
PUBLIC ROADS ADMINISTRATION
FEDERAL WORKS AGENCY

FILE No. 313
BUTLER - S.H. 186 SEC. "D (Pt)" Grade Separation
Date of Letting
Contract No.

LONGITUDINAL JOINTS

FED. RD. DIST. NO.	STATE	F. A. G. C. PROJECT	FISCAL YEAR	2-A
10	STATE	F.A.G.H. 825 E(1)	1939	38

BUTLER COUNTY
S.H. 186 SEC. D (PT.)
GRADE SEPARATION

GENERAL— Longitudinal joints shall be used when called for on the typical section, and shall be constructed as shown on this sheet.

Tie bars to be $\frac{5}{8}$ inch round, deformed bars. A satisfactory device shall be used to hold the tie bars in proper position.

The longitudinal joint between adjoining slabs poured in separate operations shall be a key joint with American hook bolts or equal, or billet steel (Sec. M-7.1) tie bars, unless otherwise shown on the plans.

If tie bars are bent, no portion of the bend shall extend into the first slab poured. Immediately prior to placing the second slab, bent tie bars shall be straightened by means of a pipe slipped over the free end of the bar.

Key joints used in part width construction shall be painted with two coats of bituminous material as per Section M-5.4-F-1 before adjoining slabs are poured.

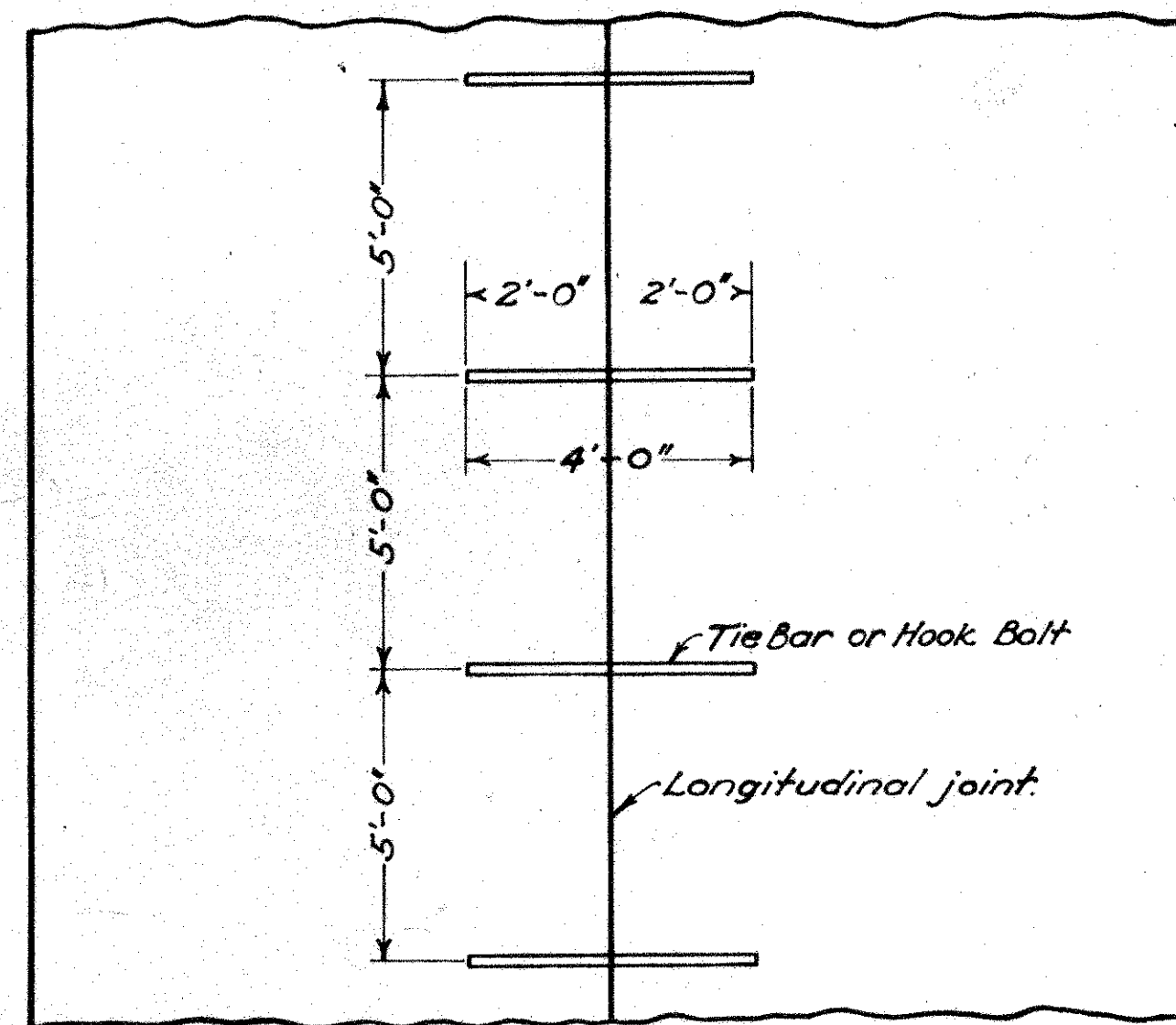
The Metal, Key, and $\frac{1}{8}$ " Premolded Joints shall not be edged.

Special care shall be exercised in edging Impressed and $\frac{3}{8}$ " Premolded Joints, that the width of the opening does not exceed that shown.

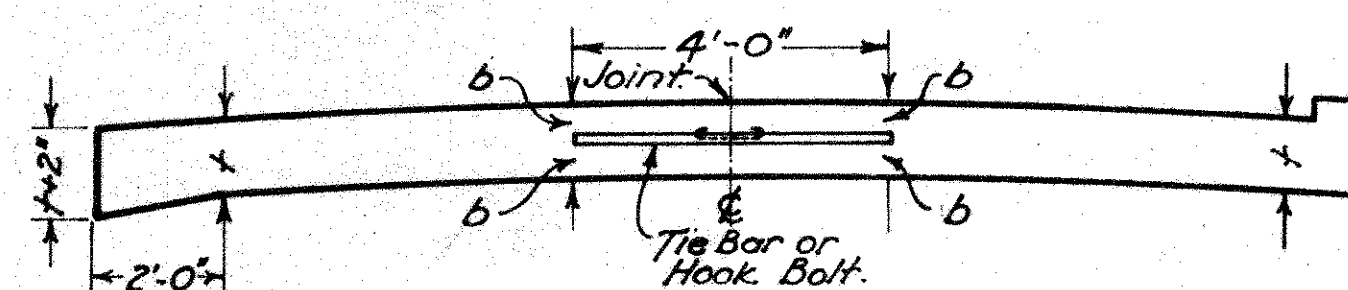
Material for sealing $\frac{3}{8}$ inch premolded joints and for filling impressed joints shall meet the requirements of Section M-5.4-F-1. Immediately before placing liquid bituminous seal or filler an application of kerosene shall be applied to the area of the joint to be in contact with the seal or filler.

Application of kerosene shall be by pressure spray, brush or swab.

The filler shall be handled in such a manner that it will be confined to the joint and in no wise mar the surface.

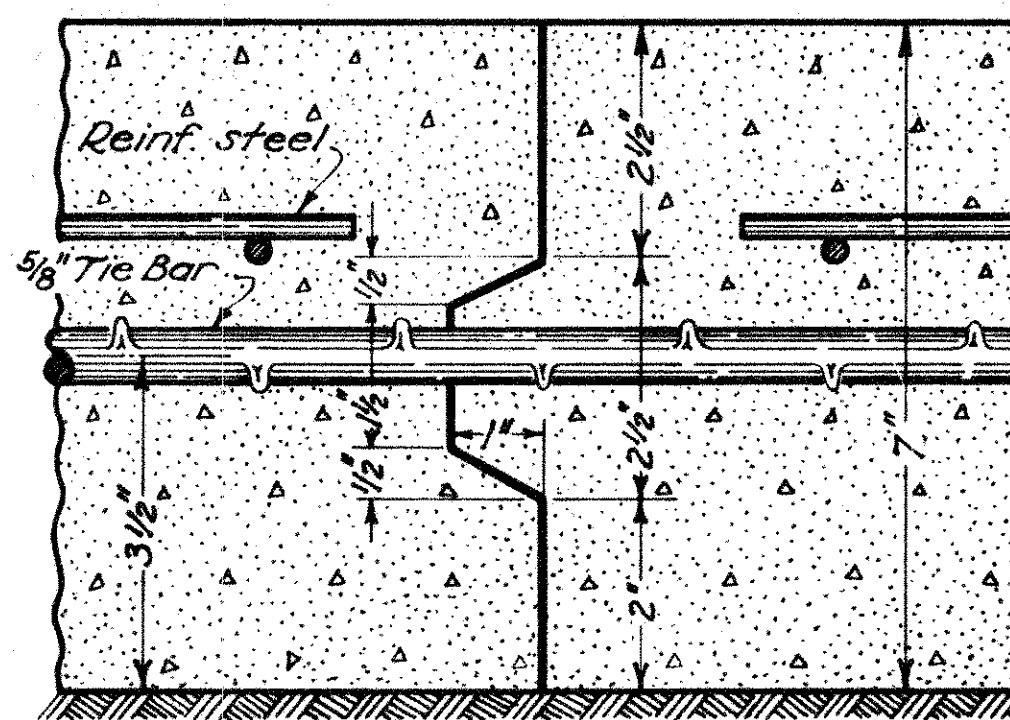


HALF PLAN FOR PAVT. HALF PLAN FOR BASE



HALF SEC. FOR PAVT. HALF SEC. FOR BASE

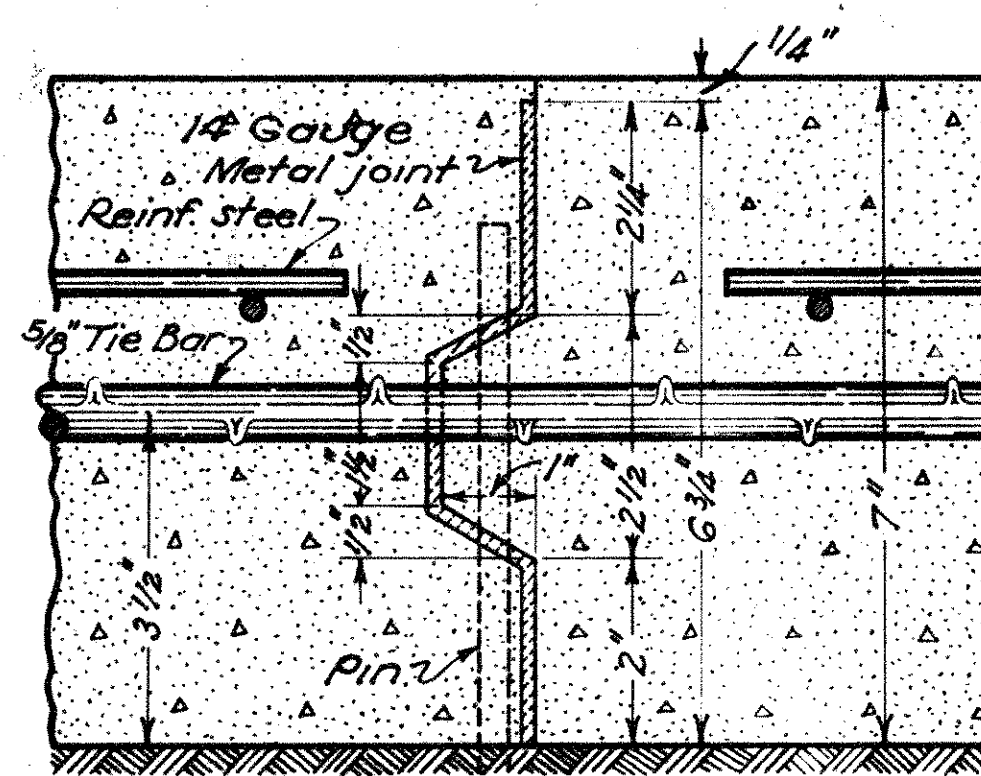
KEY JOINT



DETAIL OF JOINT

NOTE— This joint is designed for 7" slab. When a greater or less thickness is used the joint shall be proportionally designed. Other deformations may be used if approved by the engineer.

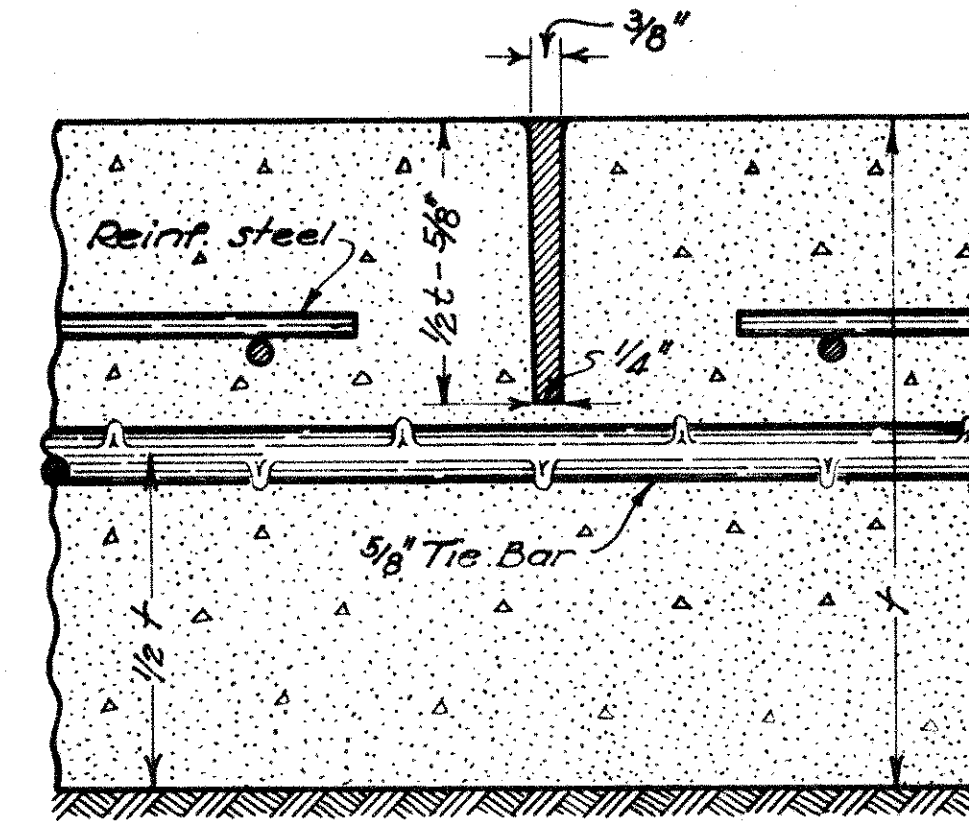
METAL JOINT



DETAIL OF JOINT

NOTE— This joint is designed for 7" slab. When a greater or less thickness is used the joint shall be proportionally designed to extend within $\frac{1}{4}$ " of the surface of the slab. Other deformations may be used if approved by the engineer.

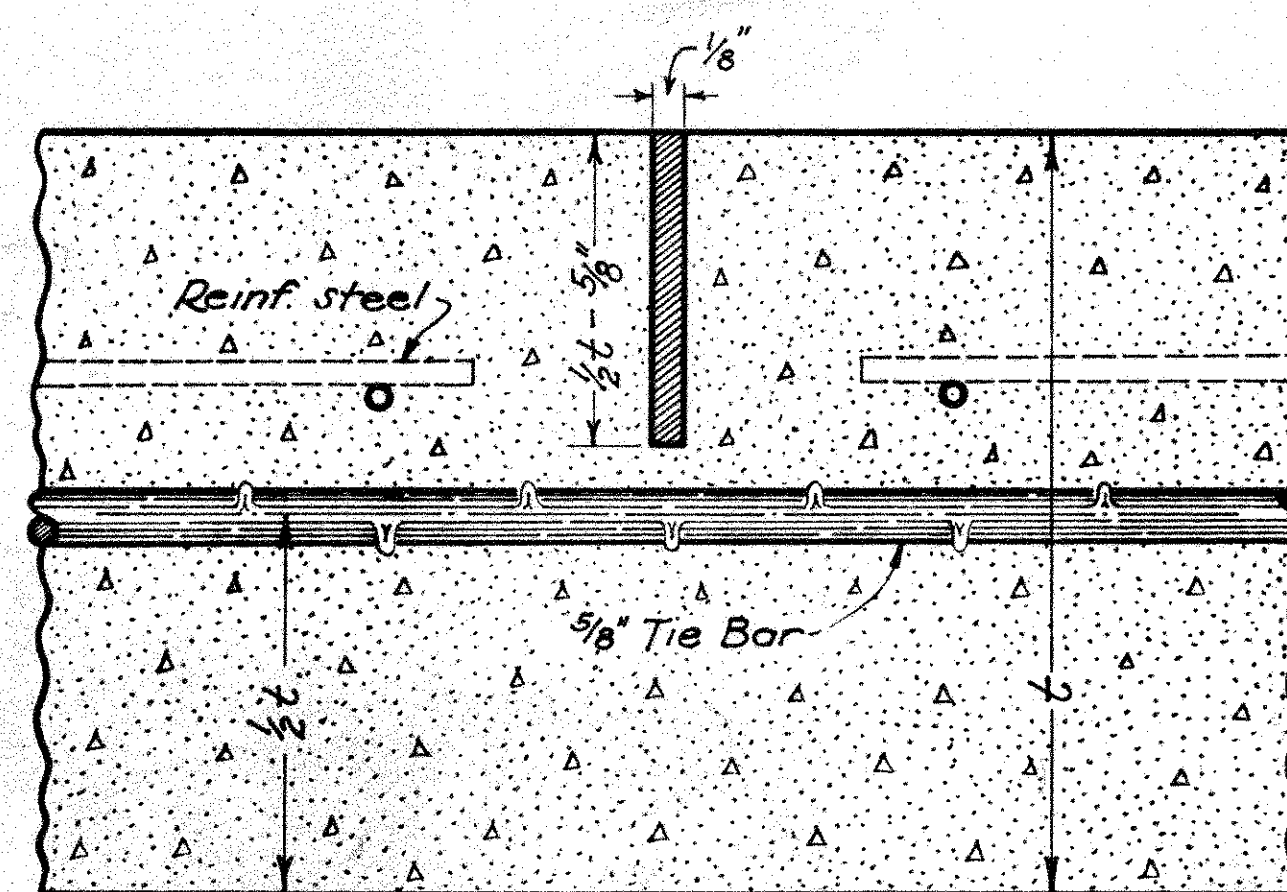
IMPRESSED JOINT



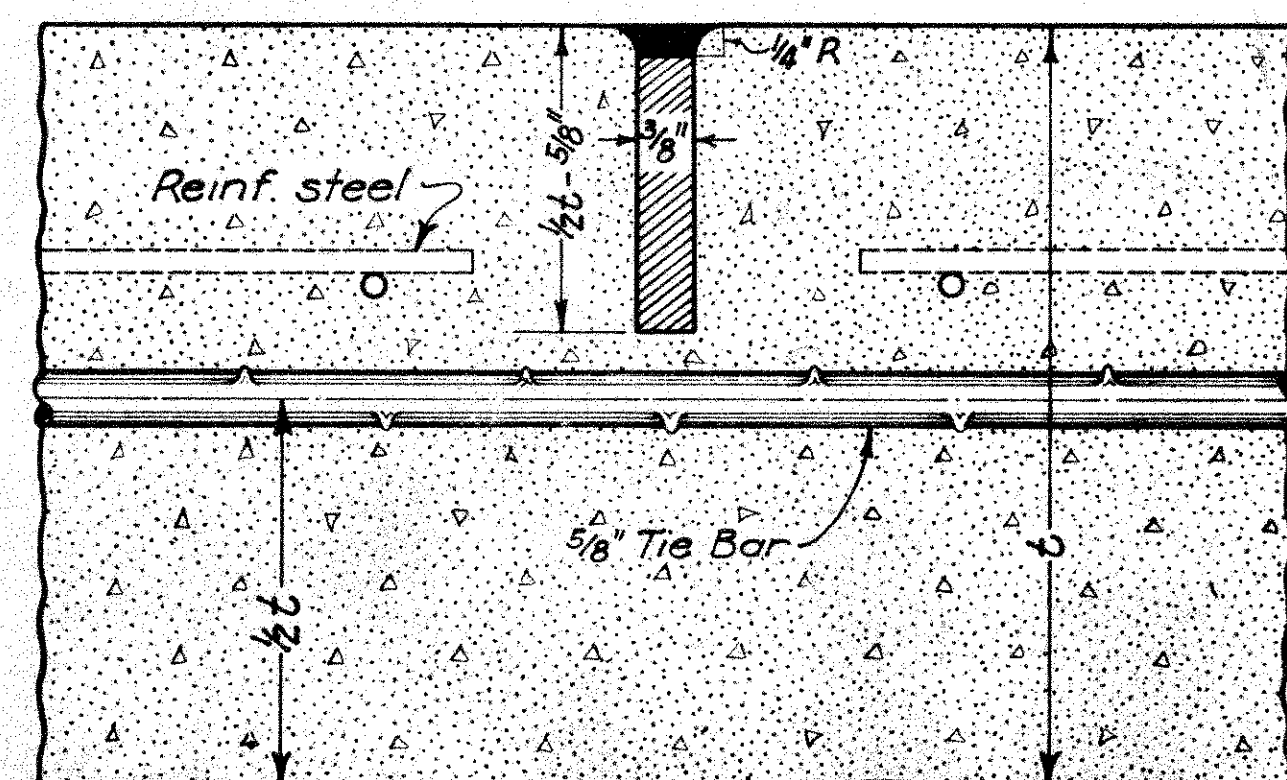
DETAIL OF JOINT

DESCRIPTION— This joint shall be formed by impressing a device or bar into the newly deposited concrete before initial setting. The device or bar shall be removed as soon as the concrete is in such condition as to preclude of distortion or injury to the concrete. The groove thus formed shall be on the center line unless otherwise shown on the plans, and of the dimensions as detailed above. After the joint is formed it must be protected from dirt and foreign matter until the filler is placed.

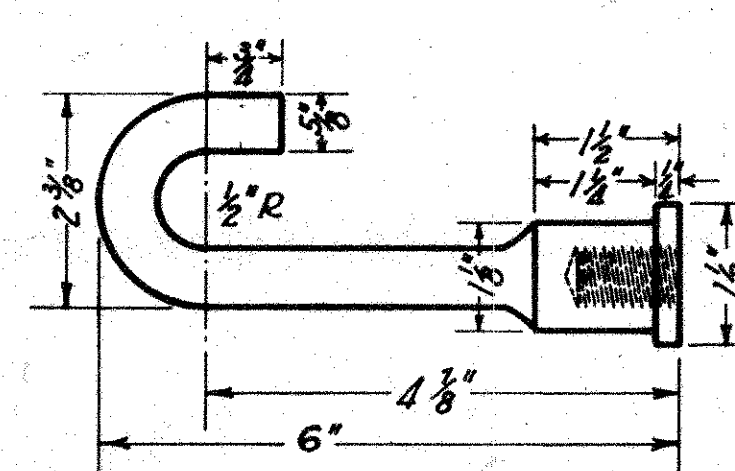
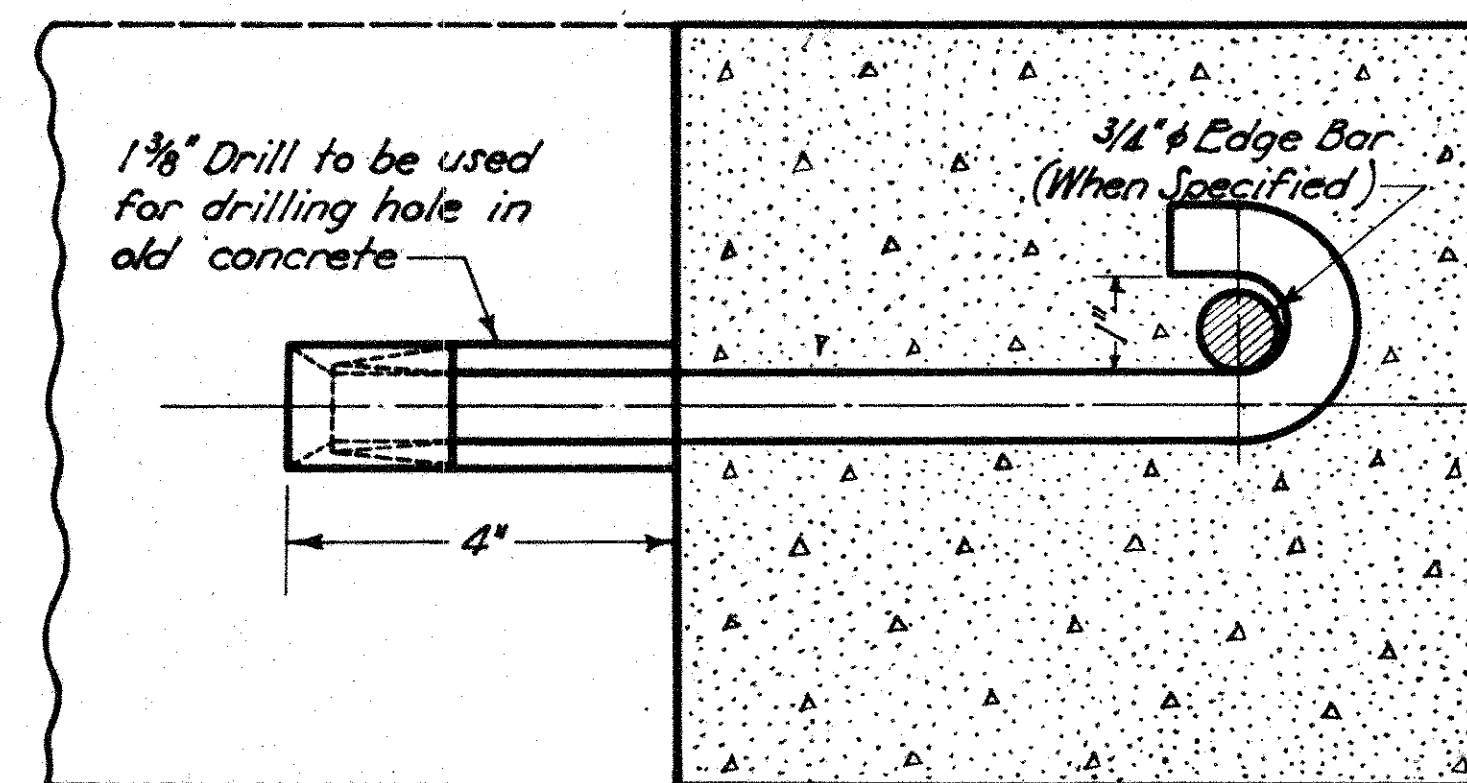
PREMOLDED JOINT



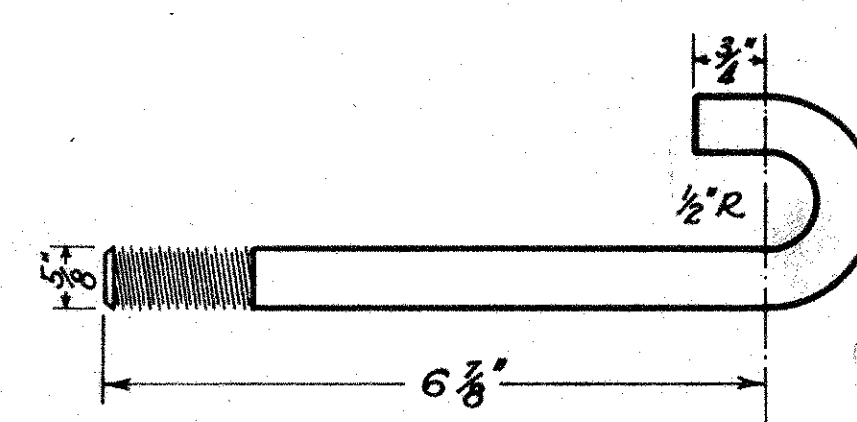
PREMOLDED JOINT



EXPANSION BOLT JOINT



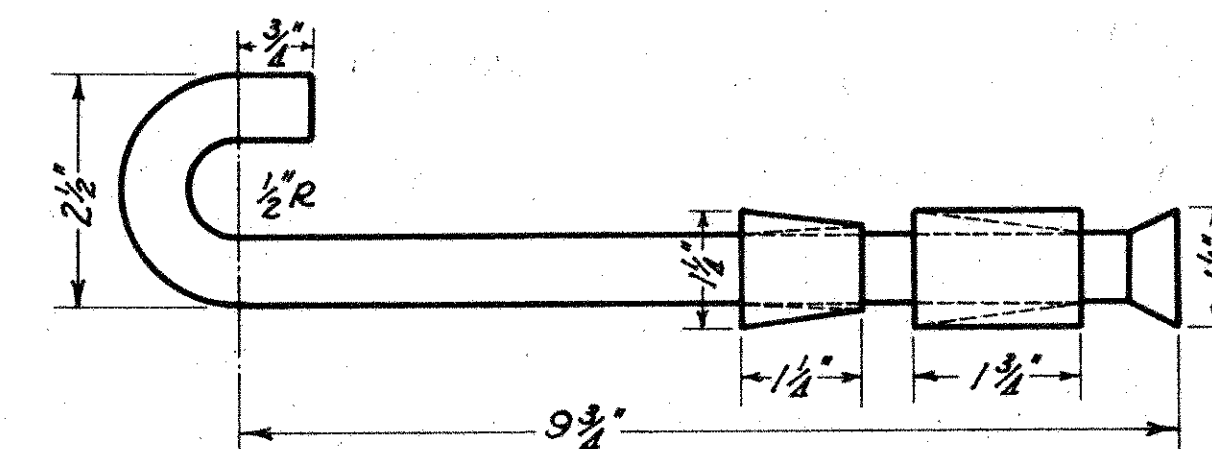
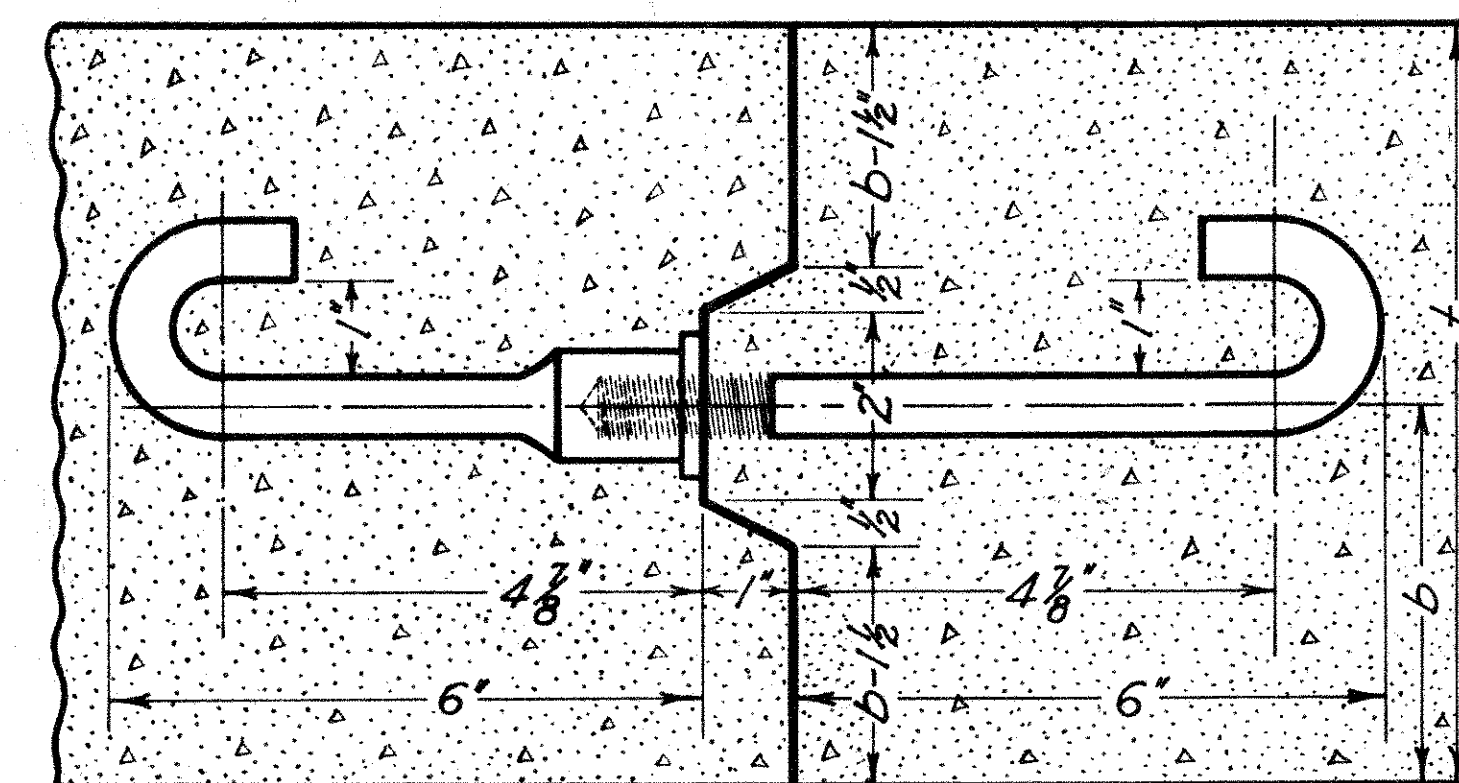
INSERT



J BOLT

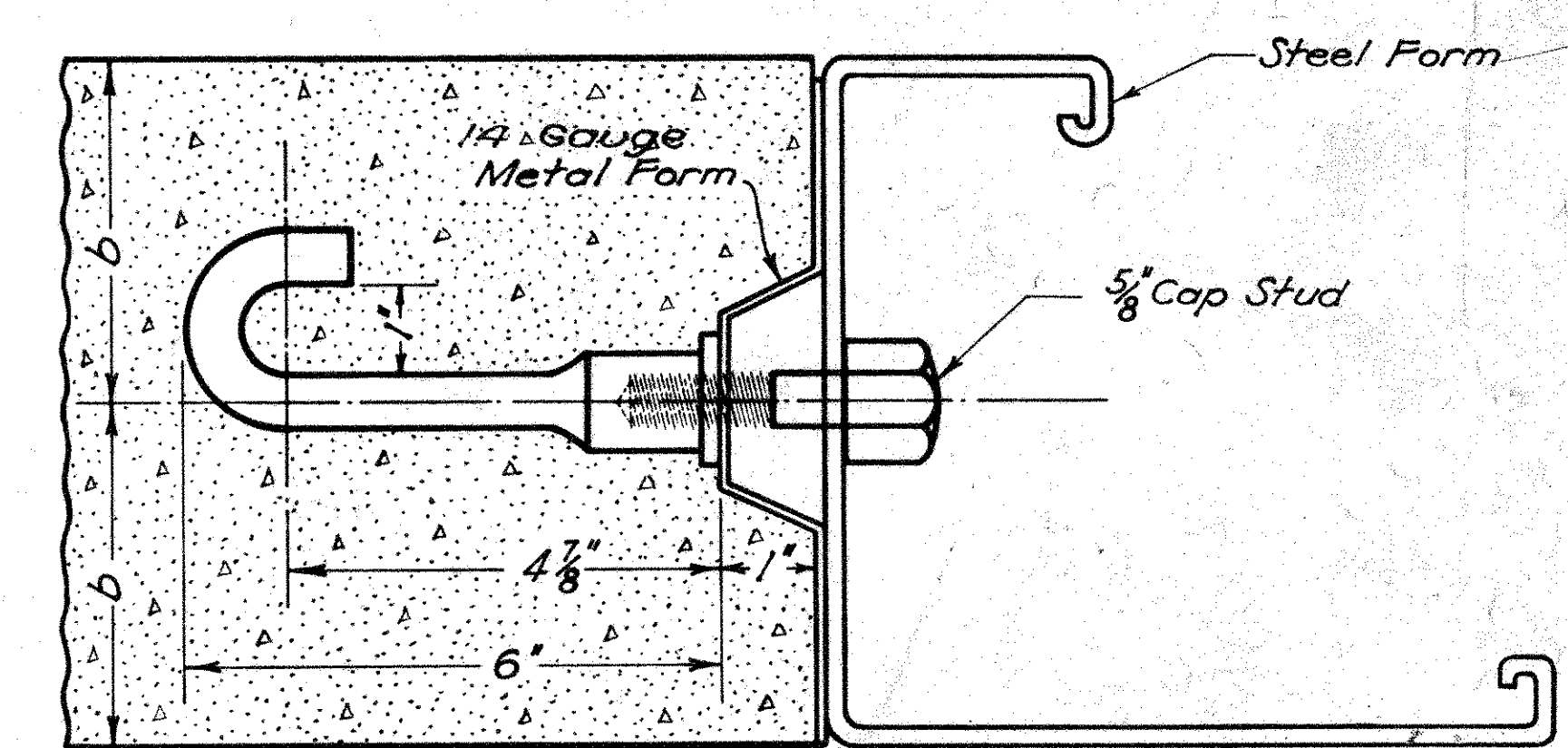
HOOK BOLT DETAIL

HOOK BOLT AND KEY JOINT



EXPANSION BOLT DETAIL

ACCEPTABLE METHOD OF FORMING JOINT



DATE
3-1-39
8-1-40

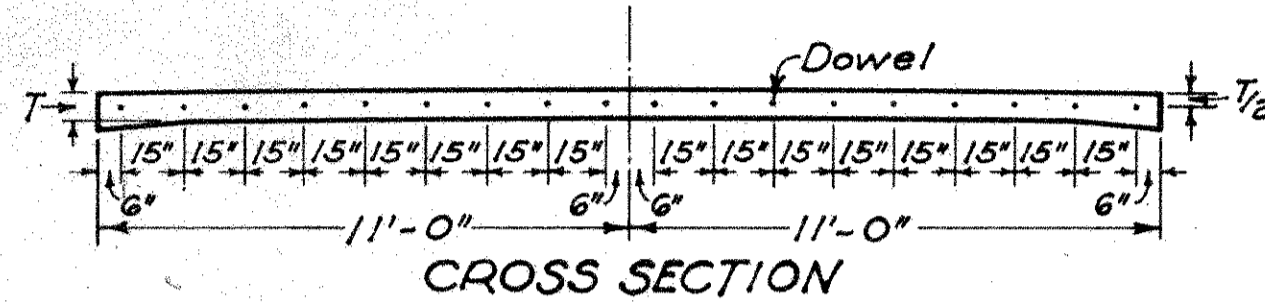
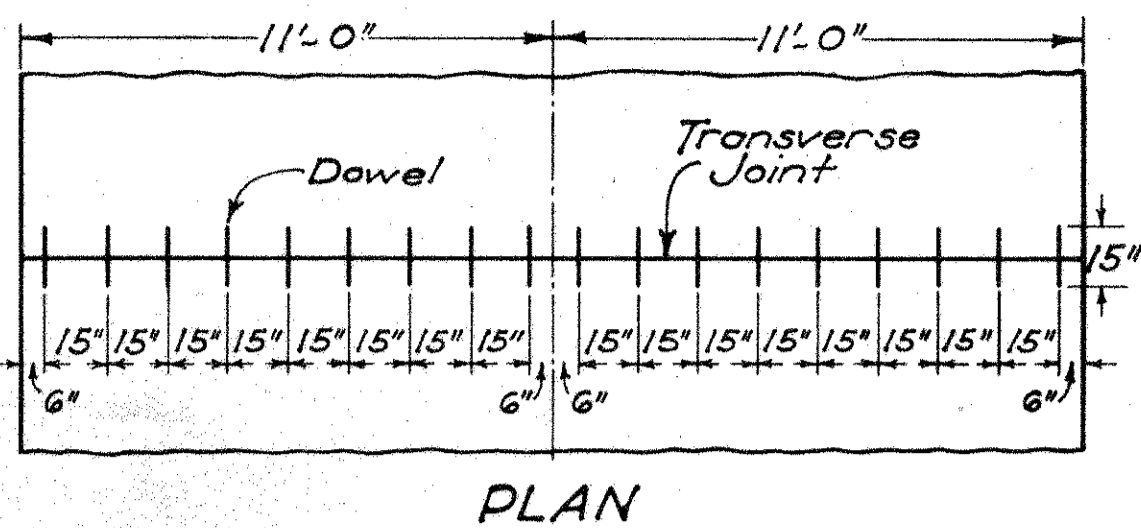
TRANSVERSE JOINTS CONSTRUCTION JOINT

FED. RD. DIST. NO.	STATE	F. A. G. C. PROJECT	FISCAL YEAR
10	OHIO	F.A.G.H. 825E(1)	1939

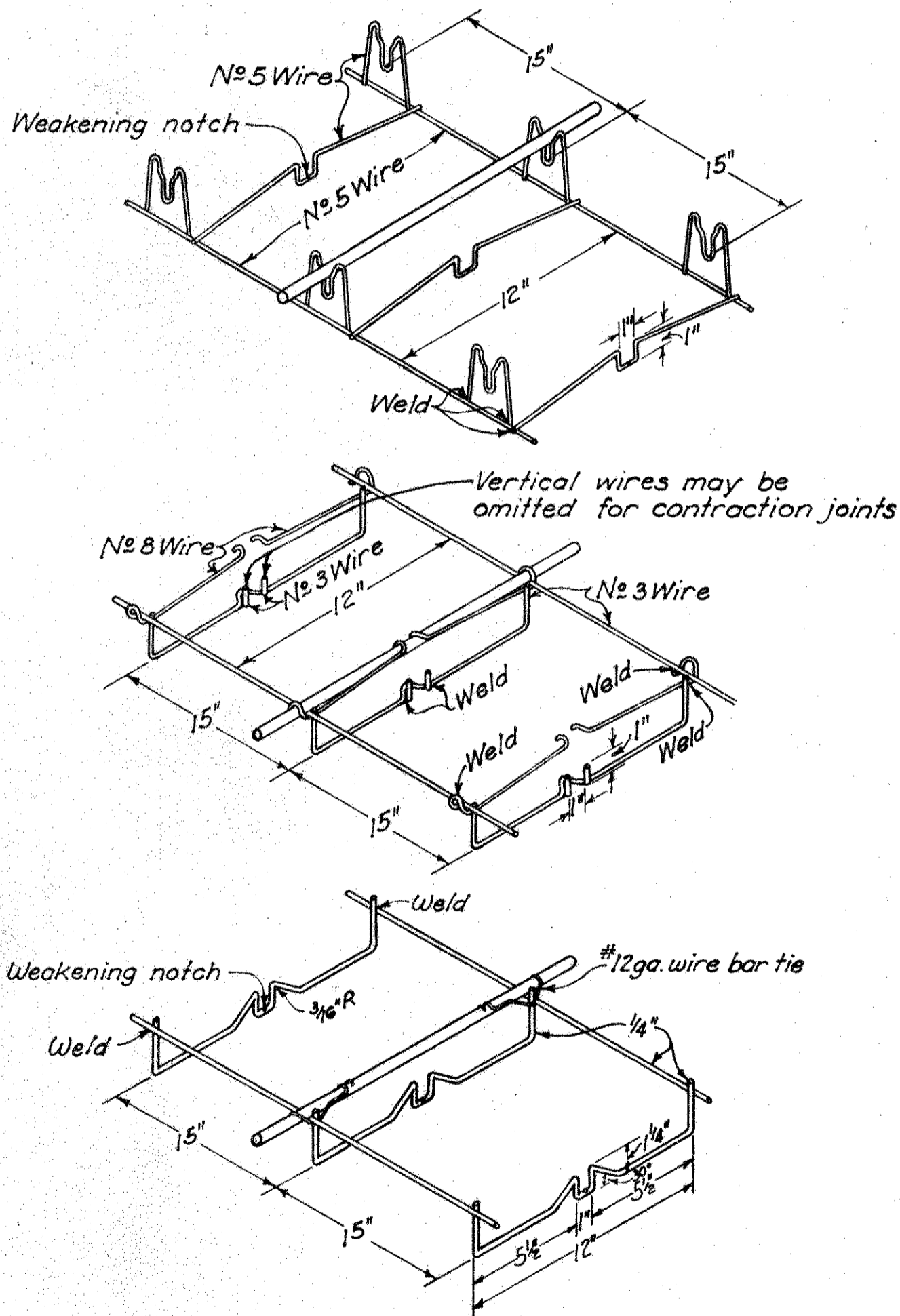
2-8
38

BUTLER COUNTY
S.H. 186 SEC. D (PT.)
GRADE SEPARATION

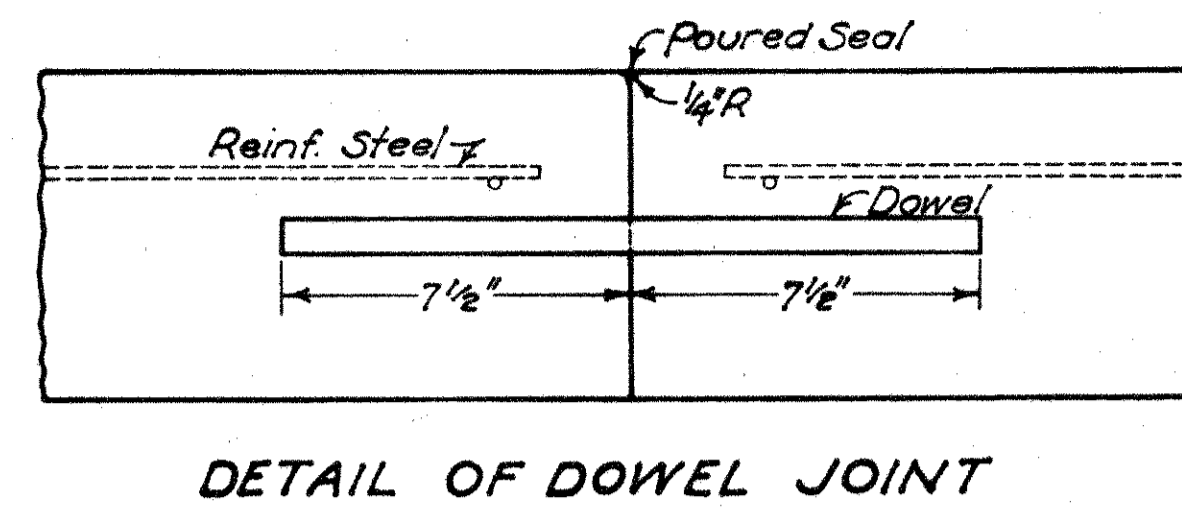
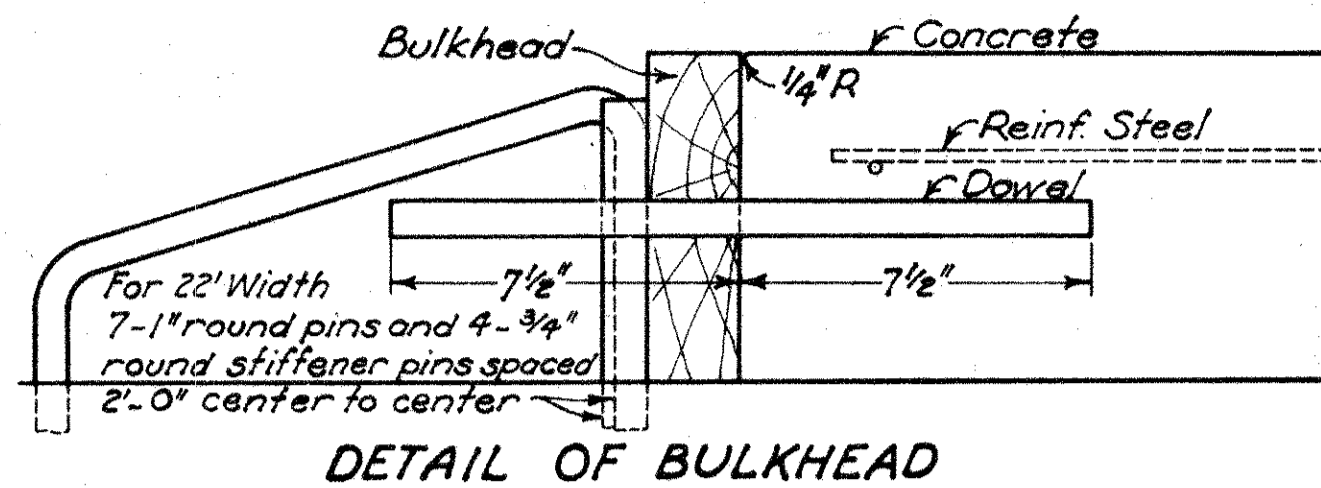
DOWEL SPACING



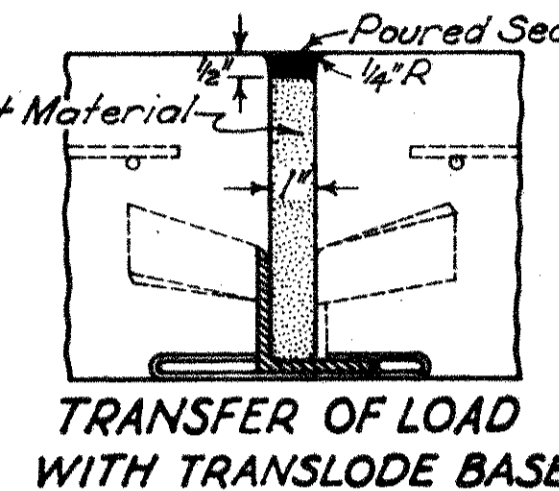
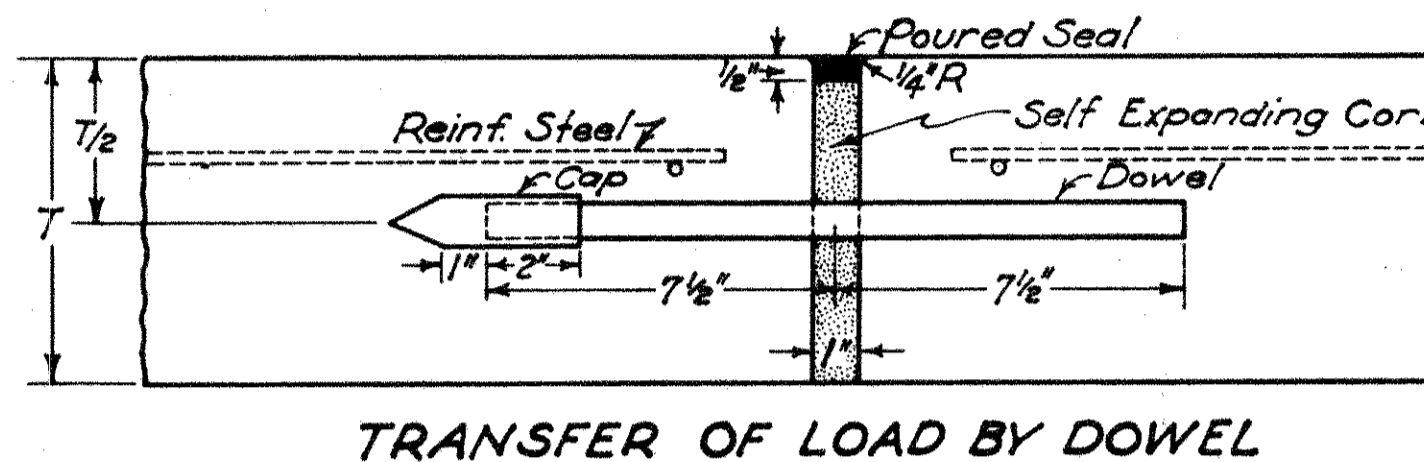
DOWEL SUPPORT UNITS



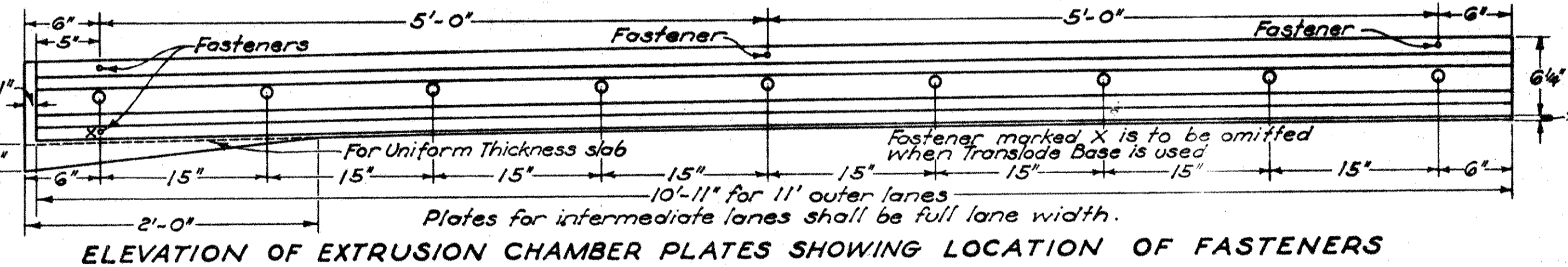
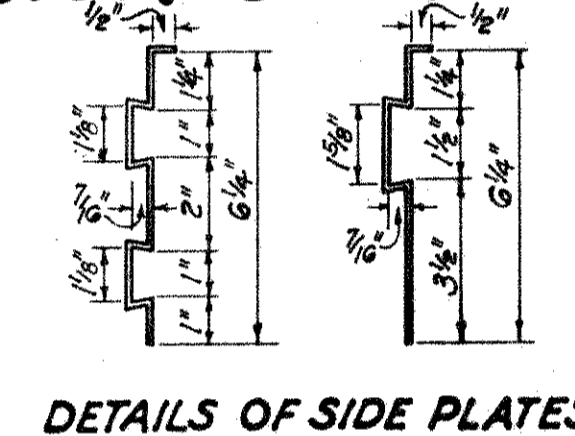
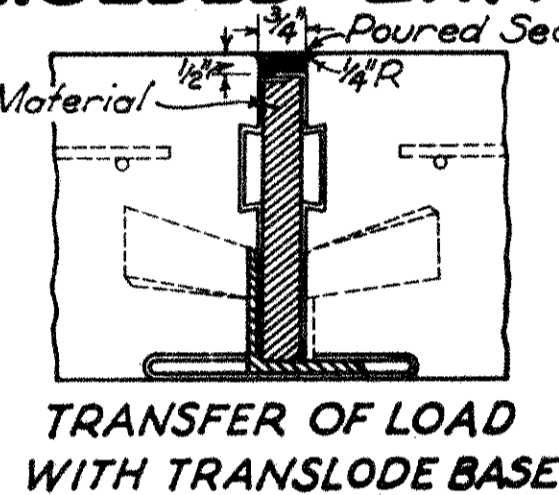
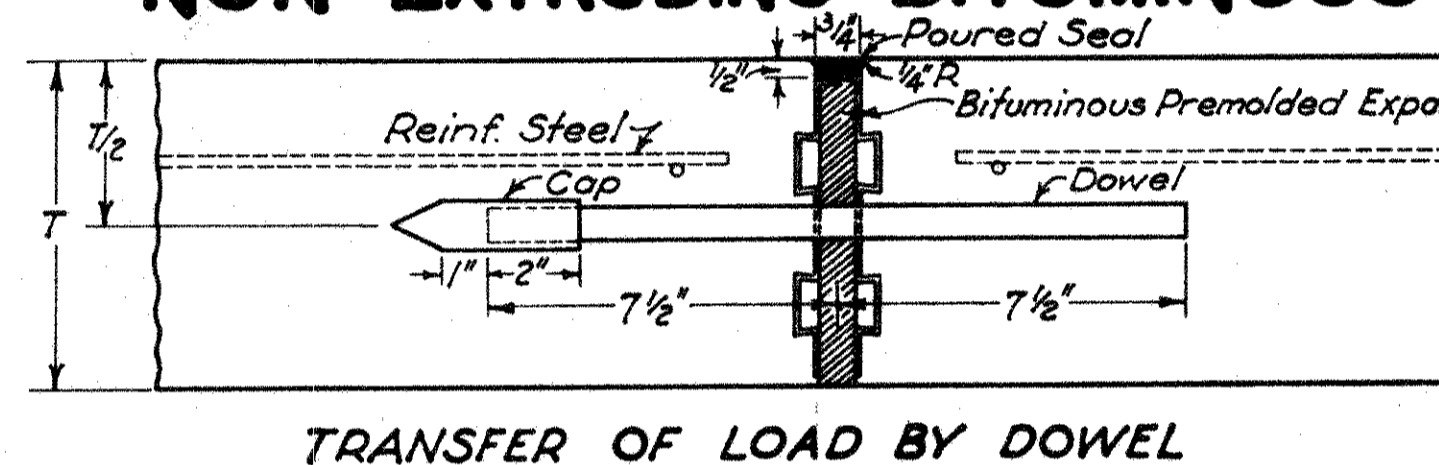
ARRANGEMENT OF TRANSVERSE JOINTS
C = Contraction Joint
E = Expansion Joint



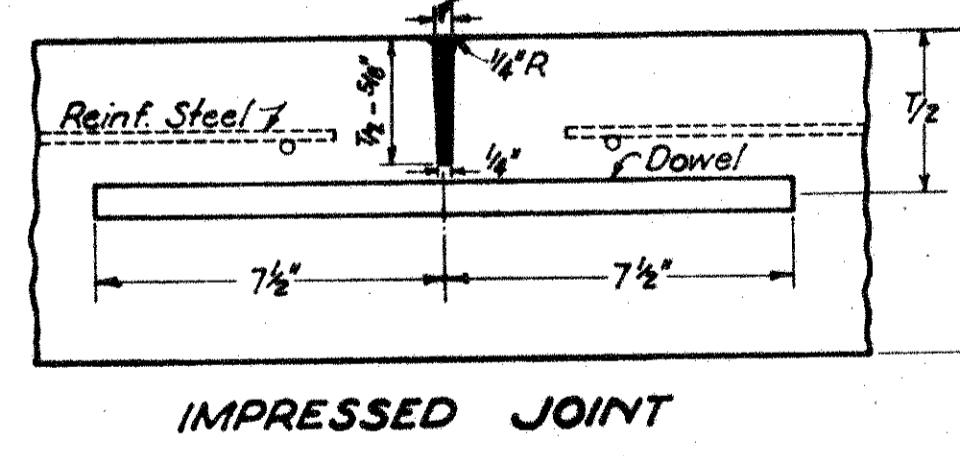
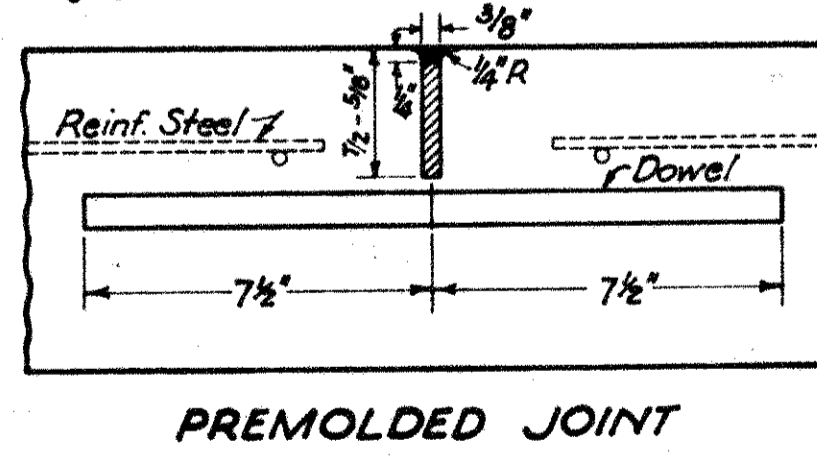
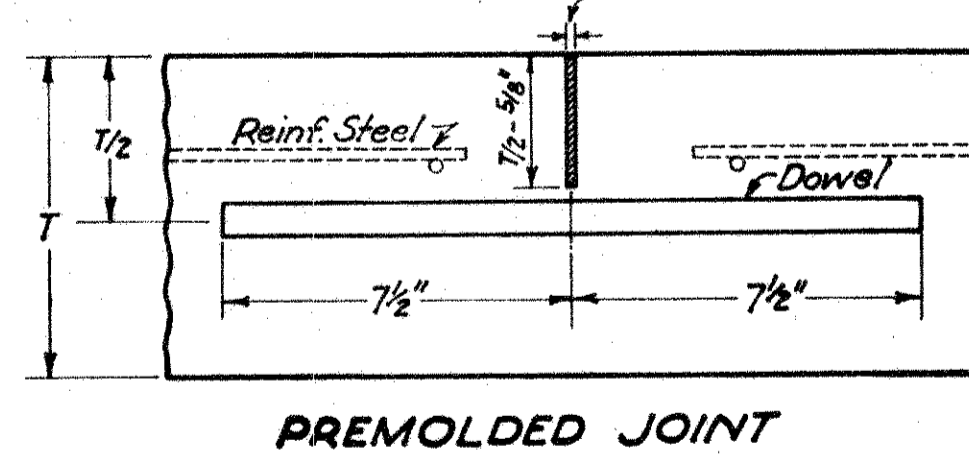
SELF EXPANDING CORK EXPANSION JOINT



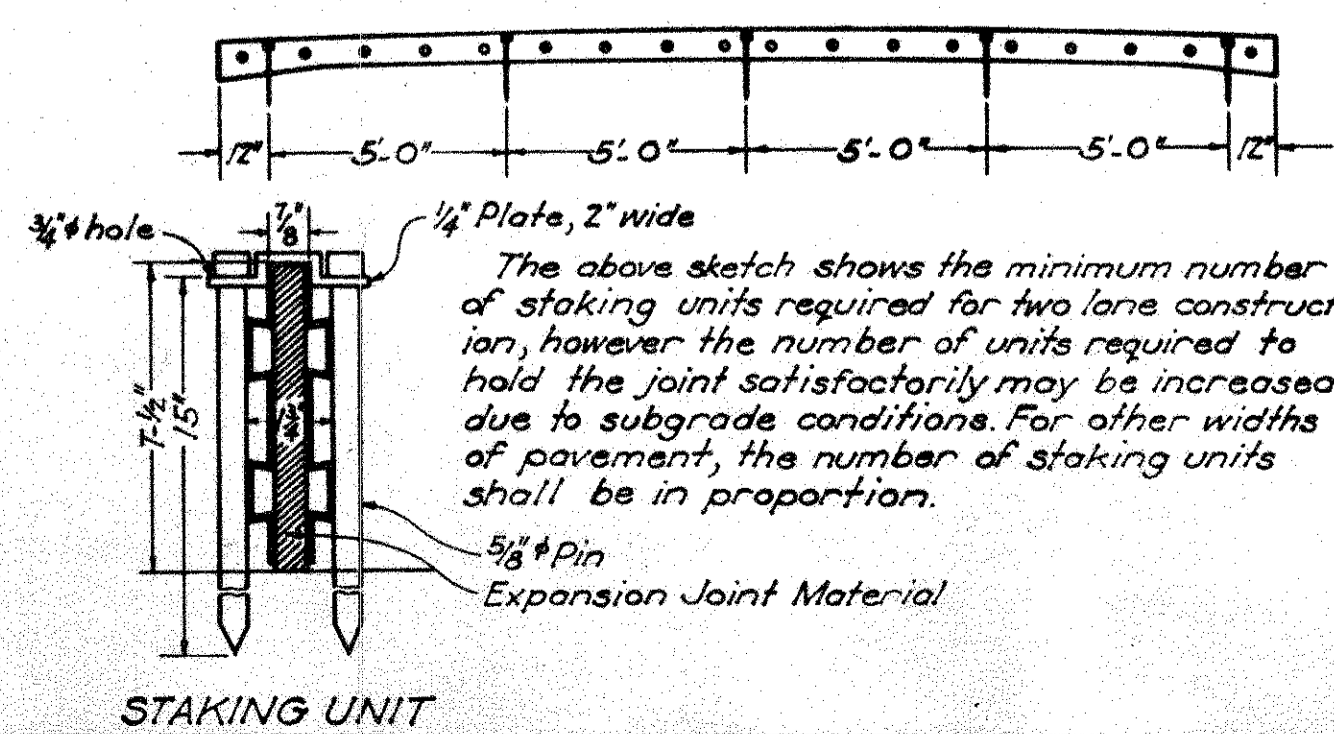
NON-EXTRUDING BITUMINOUS PREMOLDED EXPANSION JOINT



CONTRACTION JOINTS



SUGGESTED METHOD OF STAKING JOINTS



CONTRACTION JOINTS. Contraction joints shown are to be considered as alternates; the type to be used on any project shall be optional with the contractor; and shall be constructed as shown herewith. Contraction joints shall be spaced so that the length of any slab between transverse joints shall not exceed 60 feet. Joint arrangement at intersections shall be as specifically shown on the plans.

PREMOLDED CONTRACTION JOINTS. The filler material shall meet the requirements of Sec. M-10.1 or Sec. M-10.13. The top edge of contraction joint material shall be shaped to fit the surface of the pavement.

IMPRESSED CONTRACTION JOINT. This joint shall be formed by impressing a device or bar into the newly deposited concrete before initial setting. The device or bar shall be removed as soon as the concrete is in such condition as to preclude of distortion or injury to the concrete. The groove thus formed shall be of dimensions detailed. After the joint is formed it must be protected from dirt and foreign matter until the filler is placed.

NOTES

GENERAL. Expansion joints shown are to be considered as alternates; the type to be used on any project shall be optional with the contractor. The type of joint selected by the contractor and all operations and materials for assembling and installing the joints shall be approved by the engineers.

DOWELS. All dowels shall be 3/4" inch round, straight, smooth bars, free from burring and flattening at ends. The entire dowel shall be thoroughly coated before placing in the pavement using either Bit. Mat. Sec. M-5.11SC-2 or heavier, or an oil such as 600W or equal.

Prior to placing, all dowels shall be assembled in a unit which is to remain in place for construction, contraction or expansion joints. The length of the unit shall be not less than the distance between longitudinal joints and sufficient support shall be provided to hold the dowels accurately perpendicular to the joint. Expansion joint material shall be forced over the lower cross wires so as to fit snugly on the subgrade. The design of the dowel support unit may be as shown herewith or may be an approved equal, and it shall be shop assembled. When the lane width varies from 11 feet, the spacing of the dowels shall be 15 inches and the 6" end spaces shall be equally increased or decreased and shall be less than 10 1/2" but not less than 3".

CONSTRUCTION JOINTS. A bulkhead shall be constructed to permit dowels to extend through the joint. Care shall be taken in removing bulkhead and placing adjacent concrete to see that dowels are embedded in the concrete without being bent.

EXPANSION JOINTS. Expansion joints shall be constructed as shown herewith. The spacing of the expansion joints shall not exceed 120 feet. The type and arrangement of expansion joints at intersections shall be as specifically shown on the plan.

Each dowel bar shall be equipped with a neat fitting metal cap on one end. The surface width of expansion joints shall not be greater than the width shown herewith. The bituminous material for the poured seal shall meet the requirements of Section M-5.4 F-1.

The top edge of the extrusion chamber plates, and also the edges of all expansion joint materials shall be shaped to fit the section of the pavement.

Joints in monolithic curbs shall be constructed with the same type of filler material as used in the expansion joints. When premolded material is used in curbs over 3 inches in height, sufficient holes shall be provided in the material to prevent extrusion.

SELF EXPANDING CORK JOINT. The filler material for this joint shall meet the requirements of Supplemental Specification No. M-110.11, and shall be accurately held in place by means of approved steel bulkheads. Dowel holes shall be 5/8 inch in diameter.

NON-EXTRUDING BITUMINOUS PREMOLDED JOINT. The filler material shall meet the requirements of Sec. M-10.1. The extrusion chamber plates shall be constructed of 24 gauge metal rolled to true section. When assembled in the field, a template and protected bench shall be provided for the workmen to insure accuracy in assembling.

Dowel holes shall be punched in the filler material, and shall be 1 1/16 inch round holes to insure tight fitting dowels.

Dowel holes in the side plates shall be 7/8 inch in diameter. In no case shall dowels interfere with the extrusion chambers.

At each edge of the pavement the extrusion chambers shall be bent down to seal the ends of the chambers. The joint shall at all times be protected from heat and other agencies which tend to cause distortion. The assembled joint shall be securely fastened together by 1/8 inch stove bolts or other approved fasteners.

The holes for the fasteners may be made in the plates at the factory; when made in the field, they shall be drilled after the joint is assembled. The stove bolts shall be fastened with thin nuts, speed nuts, or rubber tubing screwed on. In order for this joint to function properly, the plates must be fitted snugly against the filler material and held in position while concrete is being deposited so that no mortar enters between the plate and filler, after which the fasteners must function in such a manner as will permit the plates to move with the concrete slab. The use of clinched nails or any such fasteners as would prevent the movement of the plates will not be permitted. The joint shall then be staked rigidly to the subgrade.

BITUMINOUS SEAL AND FILLER. Material for sealing expansion, contraction and contraction joints and for filling impressed contraction joints shall meet the requirements of Section M-5.4 F-1.

Immediately before placing liquid bituminous seal or filler an application of kerosene shall be applied to the area of the joint to be in contact with the seal or filler. Application of kerosene shall be by pressure spray, brush or swab.

EDGING JOINTS. Special care shall be exercised in edging joints that the width of the opening does not exceed that shown.

TREATMENT OF EXPANSION JOINTS AT LONGITUDINAL JOINTS. A positive method to maintain required alignment shall be used in connecting the expansion joints at longitudinal joints. The expansion material and metal plates shall meet in a vertical joint. Longitudinal keys and keyways, where used, shall be omitted for the thickness of the expansion joint.

DATE

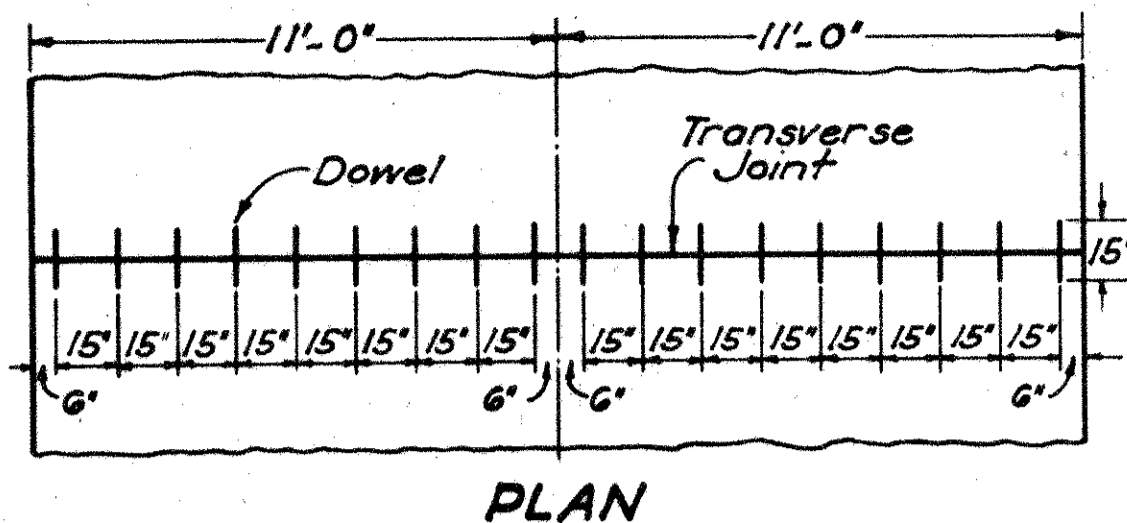
3-1-39
3-28-39
5-4-39
7-20-39
9-18-39
8-1-40

TJ-6

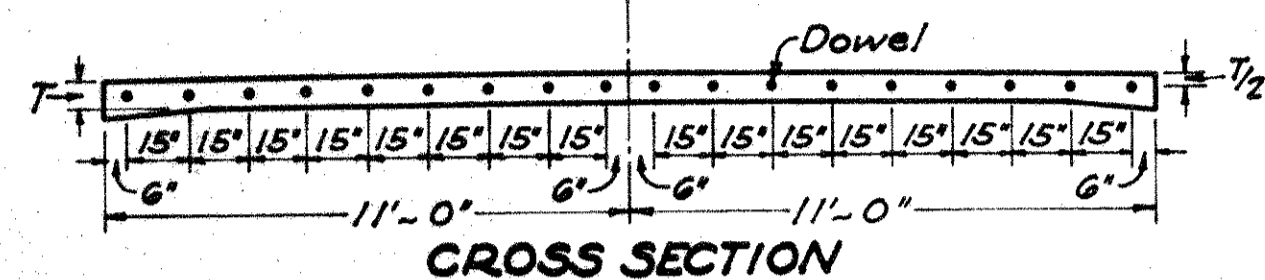
BUTLER COUNTY
S.H. 186 SEC. D(PT.)
GRADE SEPARATION

TRANSVERSE JOINTS CONSTRUCTION JOINT

DOWEL SPACING

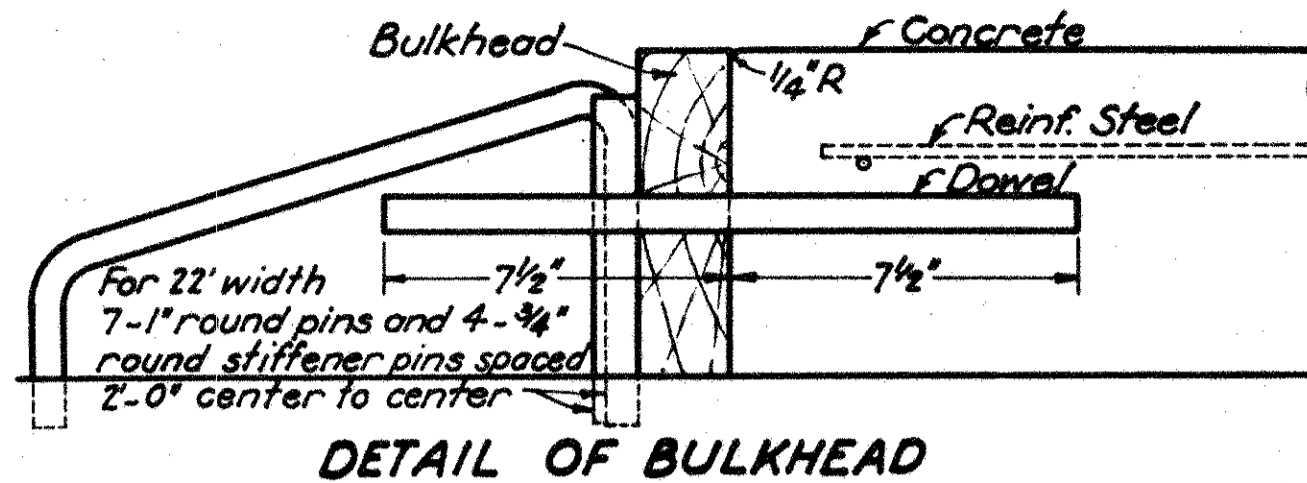
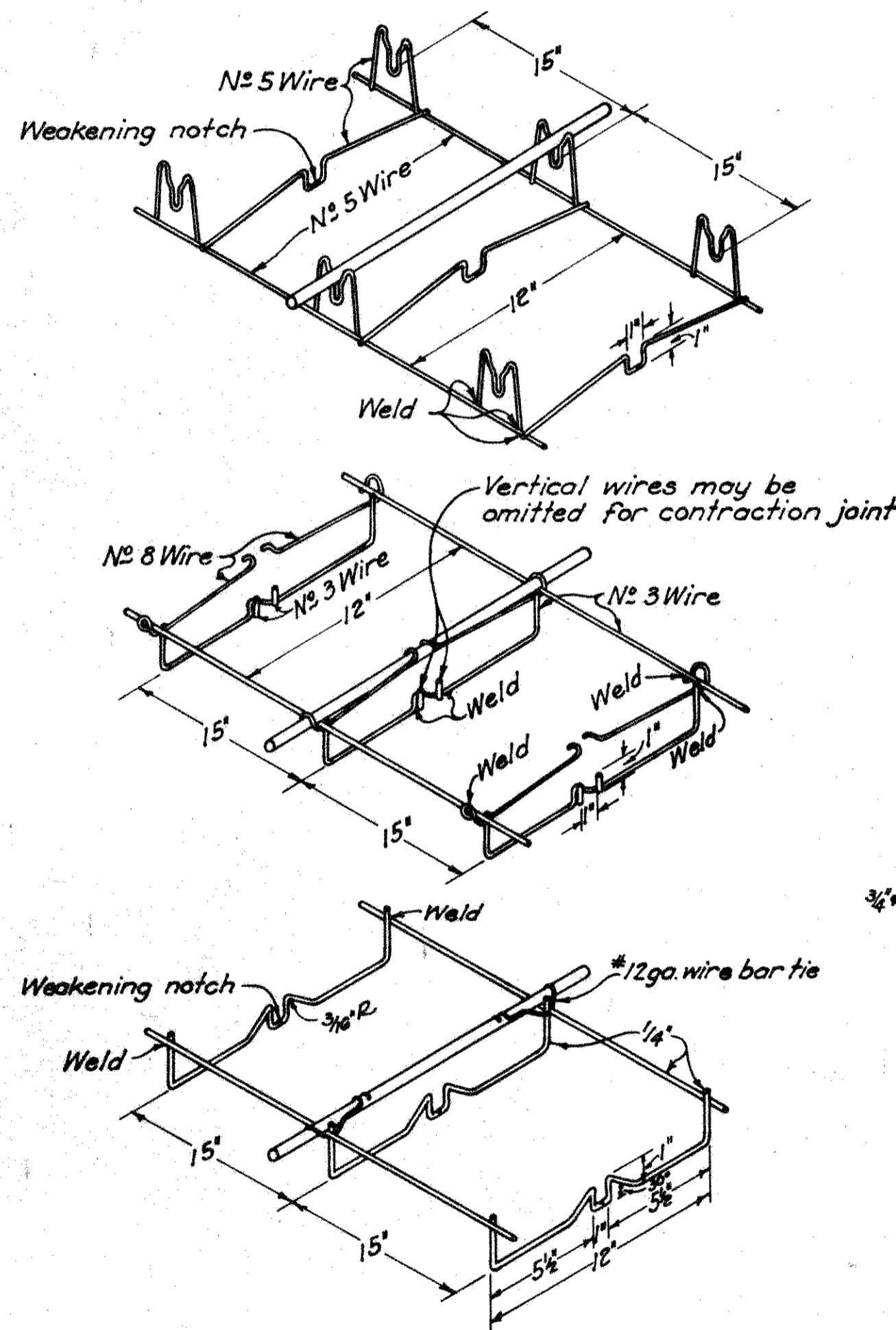


PLAN

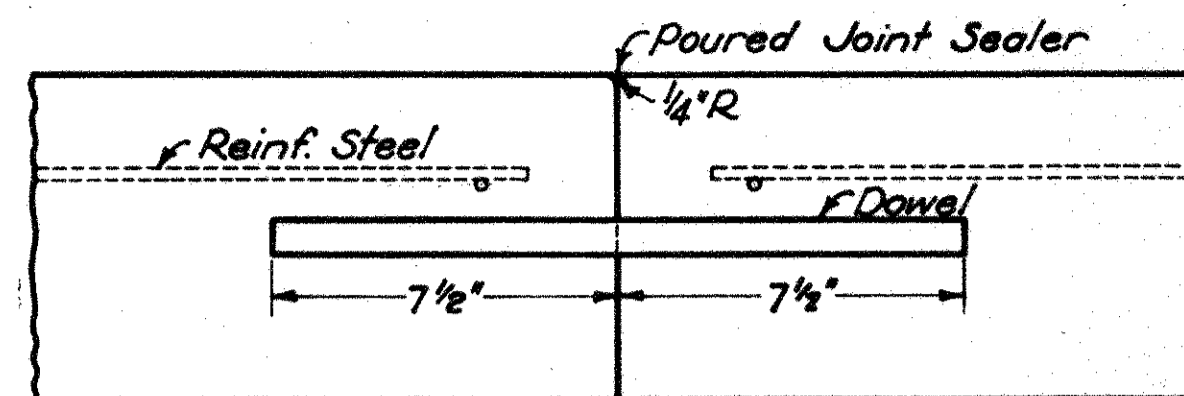


CROSS SECTION

DOWEL SUPPORT UNITS

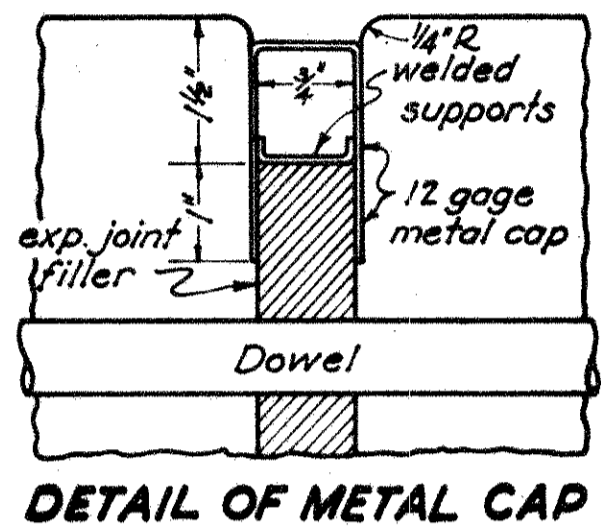


DETAIL OF BULKHEAD

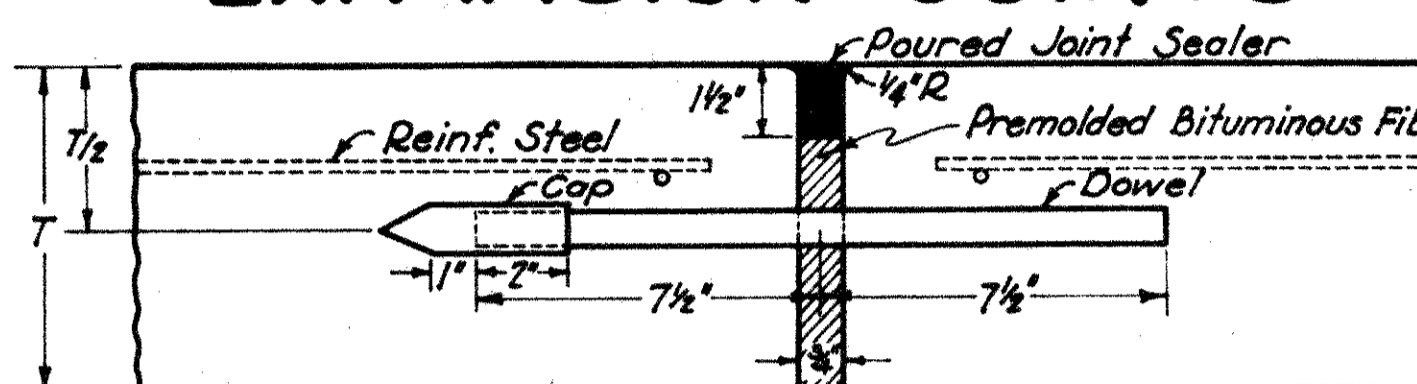


DETAIL OF DOWEL JOINT

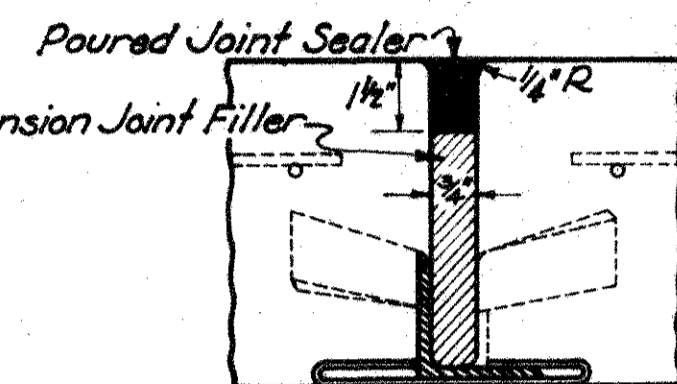
EXPANSION JOINTS



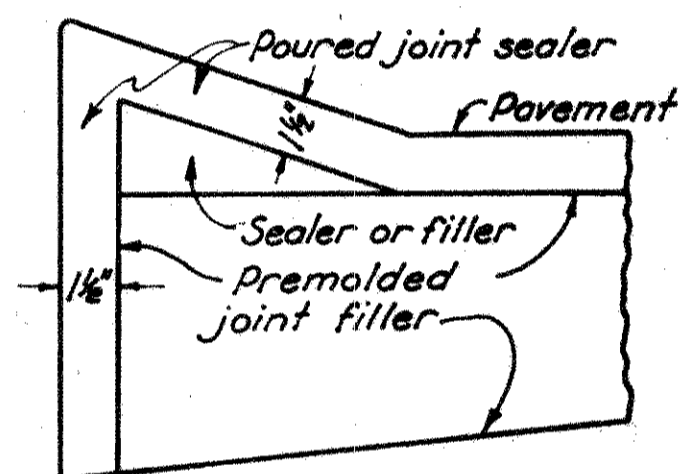
DETAIL OF METAL CAP



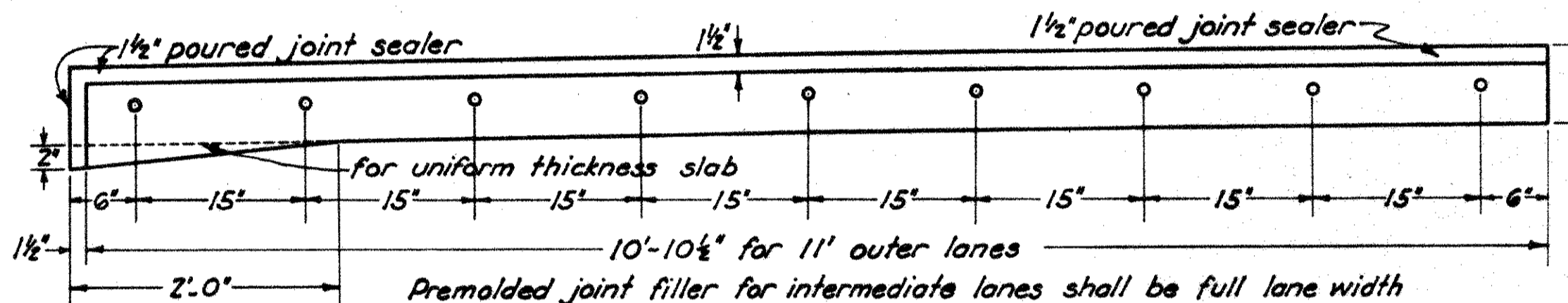
TRANSFER OF LOAD BY DOWEL



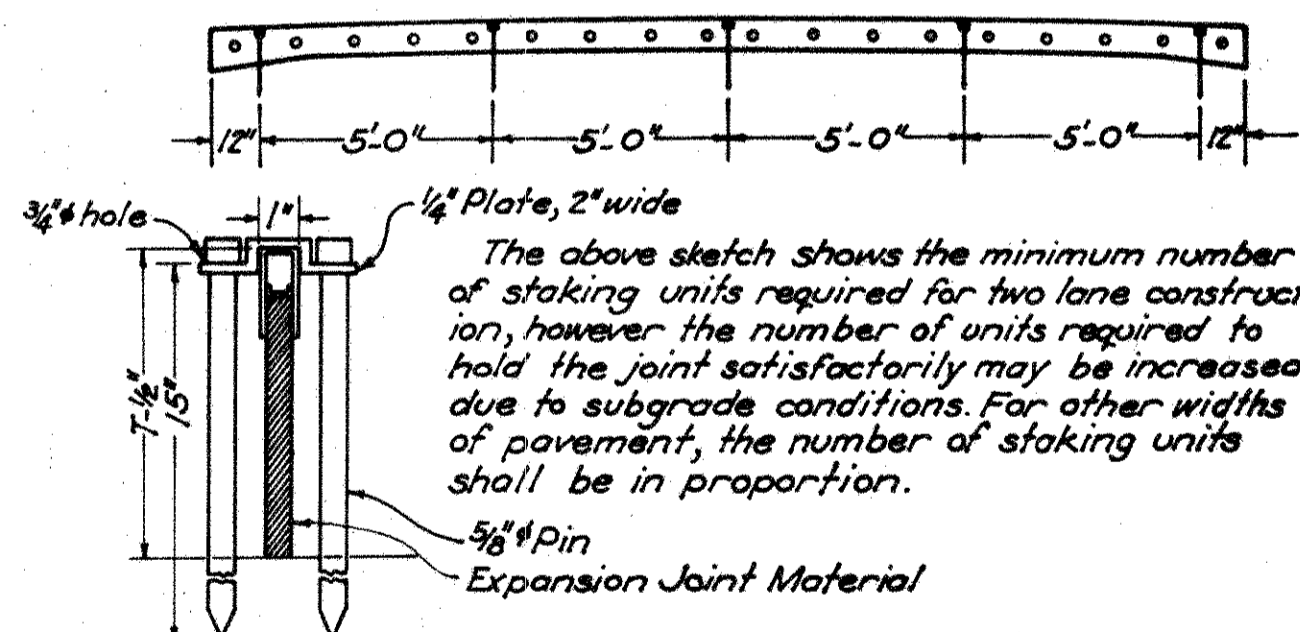
TRANSFER OF LOAD WITH TRANSLocate BASE



CURB SECTION



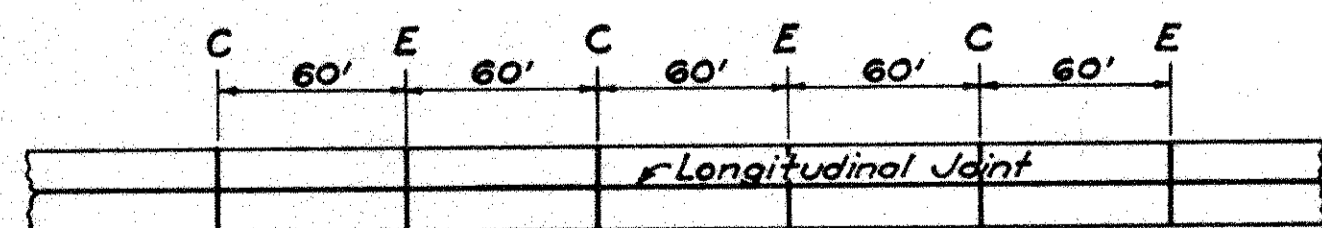
ELEVATION OF PREMOLDED EXPANSION JOINT FILLER SHOWING DOWEL HOLES AND POURED JOINT SEALER



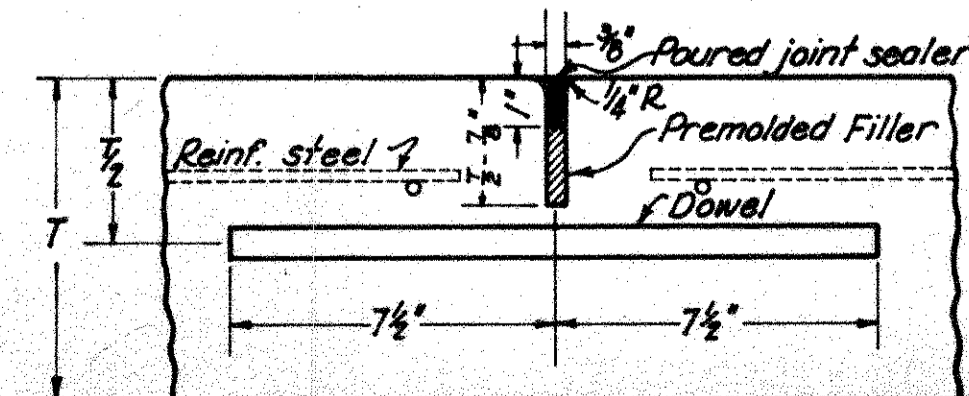
STAKING UNIT

SUGGESTED METHOD OF STAKING JOINTS

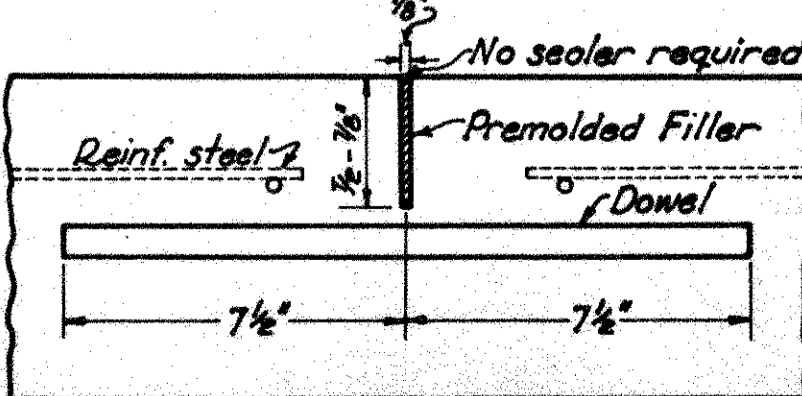
CONTRACTION JOINTS



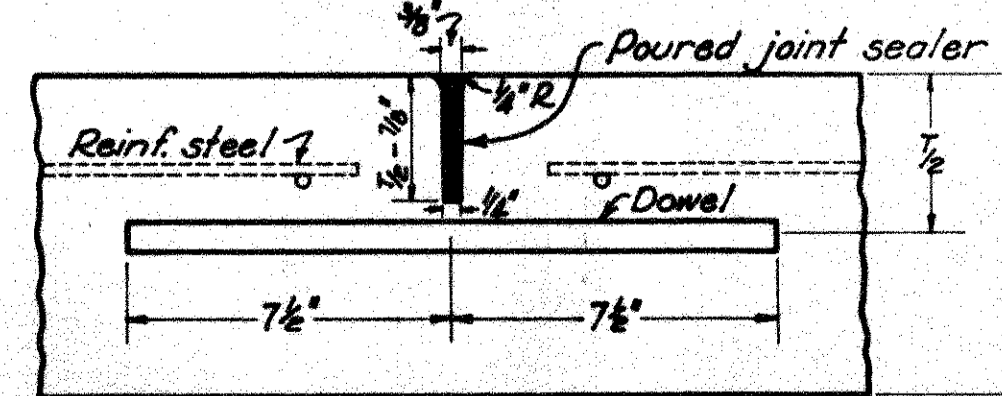
ARRANGEMENT OF TRANSVERSE JOINTS
C = Contraction Joint
E = Expansion Joint



3/8" PREMOLDED JOINT



1/2" PREMOLDED JOINT



IMPRESSED JOINT

GENERAL. Expansion joints shown are to be considered as alternates; the type to be used on any project shall be optional with the contractor. The type of joint selected by the contractor and all operations and materials for assembling and installing the joints shall be approved by the engineers.

DOWELS. All dowels shall be 3/4" inch round, straight, smooth bars, free from burring and flattening at ends. The entire dowel shall be thoroughly coated before placing in the pavement using either Bit. Mat., Sec. M-5.11 SC-2 or heavier, or an oil such as 600W or equal.

Prior to placing, all dowels shall be assembled in a unit which is to remain in place for construction, contraction or expansion joints. The length of unit shall be not less than the distance between longitudinal joints and sufficient support shall be provided to hold the dowels accurately perpendicular to the joint. Expansion joint material shall be forced over the lower cross wires so as to fit snugly on the subgrade. The design of the dowel support unit may be as shown herewith or may be an approved equal, and it shall be shop assembled. When the lane width varies from 11 feet, the spacing of the dowels shall be 15 inches and the 6" end spaces shall be equally increased or decreased and shall be less than 10 1/2" but not less than 3".

CONSTRUCTION JOINTS. A bulkhead shall be constructed to permit dowels to extend through the joint. Care shall be taken in removing bulkhead and placing adjacent concrete to see that dowels are embedded in the concrete without being bent.

EXPANSION JOINTS. Expansion joints shall be constructed as shown herewith. The spacing of the expansion joints shall not exceed 120 feet. The type and arrangement of expansion joints at intersections shall be as specifically shown on the plan.

Each dowel bar shall be equipped with a neat fitting metal cap on one end. The surface width of expansion joints shall not be greater than the width shown herewith. The material for the poured seal shall meet the requirements of Supplemental Specification No. M-110.23.

The edges of all expansion joint filler shall be shaped to fit the section of the pavement leaving a 1/8" space across the top and down the ends of the joint for poured joint sealer.

The 3/8" x 1/2" vertical space for sealing the ends of the joint at each edge of the pavement shall be provided by removable blocks or forms fastened to the premolded filler.

Joints in monolithic curbs shall be constructed with the same type of filler material as used in the expansion joints and sealed to a depth of 1 1/2" with poured joint sealer.

PREMOLDED BITUMINOUS FIBER EXPANSION JOINT FILLER. This material shall meet the requirements of Supplemental Specification No. M-110.12 and shall be accurately held in place by means of approved steel holders. Dowel holes shall be 1/16" in diameter.

POURED JOINT SEALER. Material for sealing expansion, contraction and 3/8" premolded contraction joints and for filling impressed contraction joints shall meet the requirements of Supplemental Specification No. M-110.23.

EDGING JOINTS. Special care shall be exercised in edging joints so that the width of the opening does not exceed that shown.

TREATMENT OF EXPANSION JOINTS AT LONGITUDINAL JOINTS. A positive method to maintain required alignment shall be used in connecting the expansion joints at longitudinal joints. The expansion material shall meet in a vertical joint. Longitudinal keys and keyways, where used, shall be omitted for the thickness of the expansion joint.

CONTRACTION JOINTS. Contraction joints shown are to be considered as alternates; the type to be used on any project shall be optional with the contractor; and shall be constructed as shown herewith. Contraction joints shall be spaced so that the length of any slab between transverse joints shall not exceed 60 feet. Joint arrangement at intersections shall be as specifically shown on the plans.

3/8" PREMOLDED CONTRACTION JOINT. The filler material shall meet the requirements of Sec. M-10.1 or Supplemental Specification No. M-110.12.

IMPRESSED CONTRACTION JOINT. This joint shall be formed by impressing a device or bar into the newly deposited concrete before initial setting. The device or bar shall be removed as soon as the concrete is in such condition as to preclude of distortion or injury to the concrete. The groove thus formed shall be of dimensions detailed. After the joint is formed it must be protected from dirt and foreign matter until the joint sealer is poured.

1/2" PREMOLDED CONTRACTION JOINT. The filler material shall meet the requirements of Sec. M-10.13.

DATE
6-1-40

TRANSVERSE JOINTS

JOINT ASSEMBLY

FED. RD. DIST. NO.	STATE	F. A. G. C. PROJECT	FISCAL YEAR	2-D 38
10	OHIO	F.A.G.H. 825-E(1)	1939	

BUTLER COUNTY
S.H. 186 SEC. D-(PT)
GRADE SEPARATION

NOTES

GENERAL: Expansion joints shown are to be considered as alternates; the type to be used on any project shall be optional with the contractor. The type of joint selected by the contractor and all operations and materials for assembling and installing the joints shall be approved by the engineers.

DOWELS: Prior to placing, the dowels shall be assembled into a unit as shown hereon, which is to remain in place for expansion and contraction joints. The straight end of each dowel shall be neatly fitted with a metal cap as shown hereon. The straight end of each dowel shall be thoroughly coated, before placing in the pavement, with either bituminous material Sec. M-5.11 S.C. 2 or heavier, or 600 W grease or equal. The length of the unit shall be not less than the distance between longitudinal joints and sufficient support shall be provided to hold the dowels accurately perpendicular to the joint. When the lane width varies from 11 feet, the spacing of the dowels shall be 15 inches and the 6" and 3" spaces shall be equally increased or decreased and shall be less than 10 1/2" but not less than 3".

EXPANSION JOINTS: The spacing of the expansion joints shall not exceed 120 feet. The type and arrangement of expansion joints at intersections will be specifically shown on the plan. The base angle of the dowel assembly and the edge of the expansion joint material shall be shaped to fit the section of the pavement joints in monolithic curbs shall be constructed with the same type of pre-molded filler material as used in the expansion joints.

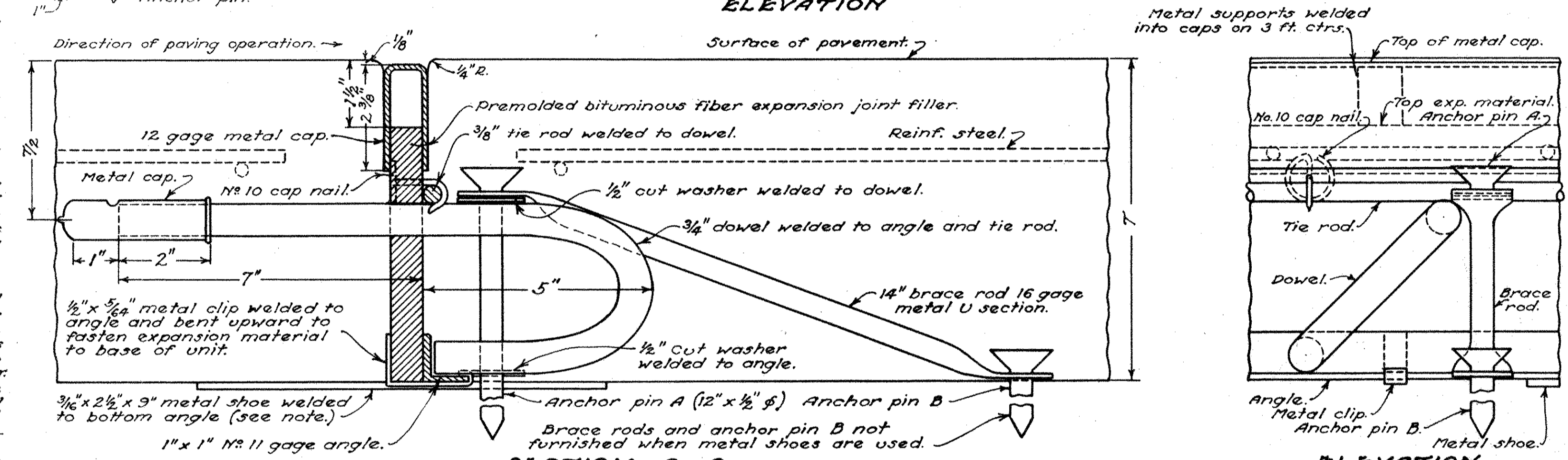
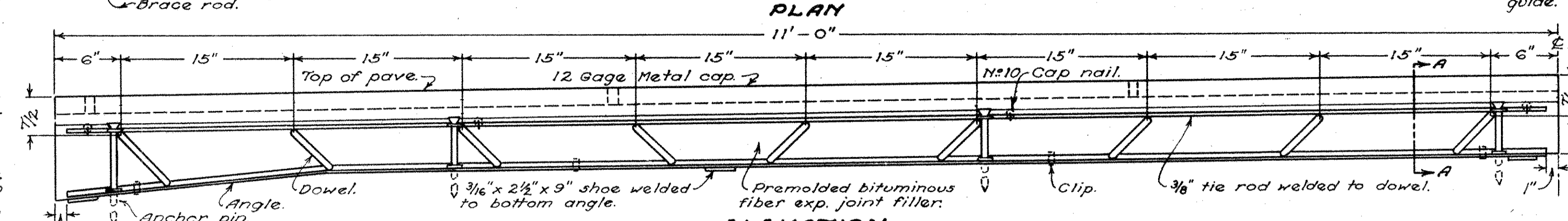
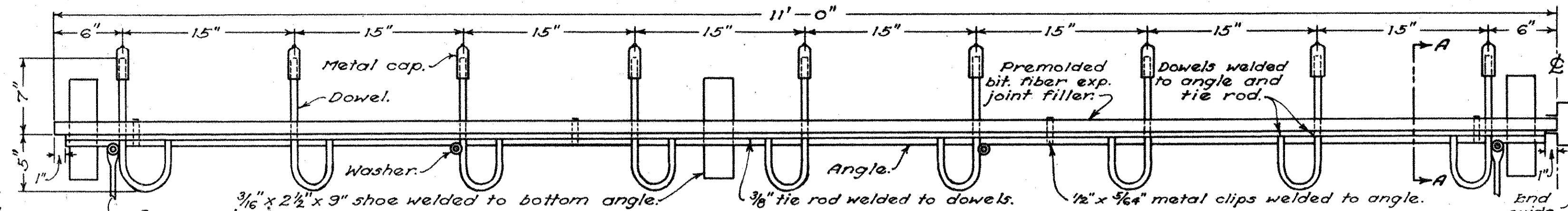
CONTRACTION JOINTS: Contraction joints shown are to be considered as alternates; the type to be used on any project shall be optional with the contractor, and shall be constructed as shown hereon. Contraction joints shall be spaced so that the length of any slab between transverse joints shall not exceed 60 feet. Joint arrangement at intersections shall be as specifically shown on the plans. The filler material for 1/2" PREMOLDED CONTRACTION JOINTS shall meet the requirements of Sec. M-10.13. The filler material for 3/8" PREMOLDED CONTRACTION JOINTS shall meet the requirements of Sec. M-10.11 or Supplemental Specifications No. M-110.12. IMPRESSED CONTRACTION JOINTS shall be formed by impressing a device or bar into the newly deposited concrete before initial setting. The device or bar shall be removed as soon as the concrete is in such condition as to preclude distortion or injury to the concrete. The groove thus formed shall be of dimensions detailed. After the joint is formed it must be protected from dirt and foreign matter until the joint sealer is poured.

CONSTRUCTION JOINTS: At construction joints the assembled dowel unit shall be reversed so that the straight end of the dowel point in the direction of the concrete operation. This is to permit the rigid bulkhead to be slipped over the straight ends of the dowels. If the construction joint is at an expansion joint the pre-molded expansion joint filler shall be placed to hold the concrete and be backed up by the rigid bulkhead. Care shall be taken in removing the bulkhead and placing the adjacent concrete to see that the dowels are embedded in the concrete without being bent.

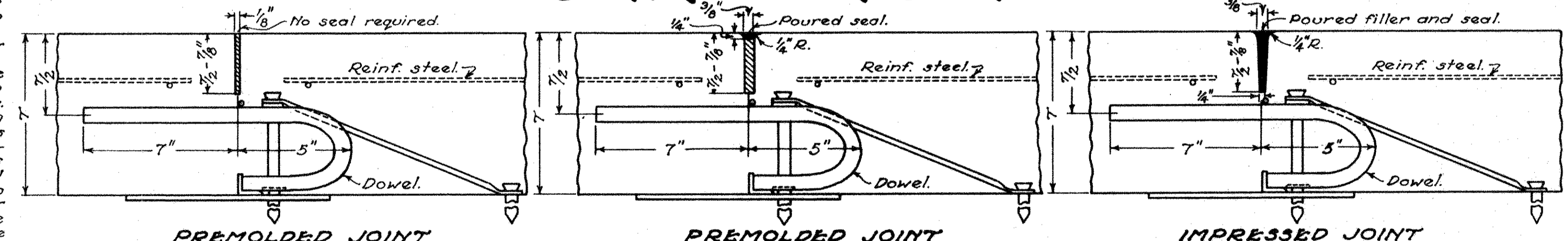
PREMOLDED BITUMINOUS FIBER EXPANSION JOINT FILLER: This joint filler material shall meet the requirements of Supplemental Specifications No. M-110.12. Dowel holes 1/2 inch in diameter shall be accurately punched in the filler material to insure tight fitting dowels. The joint shall at all times be protected from the heat and other agencies which tend to cause distortion. A 12 gage metal cap as shown hereon shall be placed, before concreting, over the upper edge of each joint filler. This metal cap shall be removed immediately after the finishing machine has passed over the joint. A 3/4" x 1 1/2" strip of planed hardwood or metal shall then be fastened to the pre-molded joint filler to form the 1/2" x 1 1/2" space for the poured joint sealer. Any edging or finishing necessary shall be done along this strip which shall not be removed until the concrete has set. An alternate method of placing the strip it may be placed before or with the metal cap so that when the cap is removed the strip will be in place. The filler material shall be securely fastened to the 1 inch by 1 inch angle with metal clips and to the 3/8 inch tie rod with No. 10 cap nails. The dowel unit assembled with the filler material shall then be staked rigidly to the subgrade with anchor pins and brace rods or metal shoes as shown hereon.

NON-EXTRUDING BITUMINOUS PREMOLDED JOINT: The filler material shall meet the requirements of Sec. M-10.1. The extrusion chamber shall be constructed of 24 gage metal rolled to true section. When assembled in the field a template and protected bench shall be provided for the workmen to insure accuracy in assembling. Dowel holes shall be punched in the filler material and shall be 1/8 inch round holes to insure tight fitting dowels. Dowel holes in the side plates shall be 1/8 inch in diameter. In no case shall dowels interfere with the extrusion chambers. At each edge of the pavement the extrusion chambers shall be bent down to seal the ends of the chambers. The joint shall at all times be protected from heat and other agencies which tend to cause distortion. The assembled joint shall be securely fastened together by 1/2 inch stove bolts or other approved fasteners. The holes for the fasteners may be made in the plates at the factory; when made in the field they shall be drilled after the joint is assembled. The stove bolts shall be fastened with thin nuts, speed nuts, or rubber tubing screwed on. In order for this joint to function properly the plates must be fitted snugly against the filler material and held in position while concrete is being deposited so that no mortar enters between the plate and filler, after which the fasteners must function in such a manner as will permit the plates to move with the concrete slab. The use of clinched nails or any such fasteners as would prevent the movement of the plates will not be permitted. The dowel unit assembled with the filler and plates shall then be staked rigidly to the subgrade with anchor pins and brace rods or metal shoes as shown hereon.

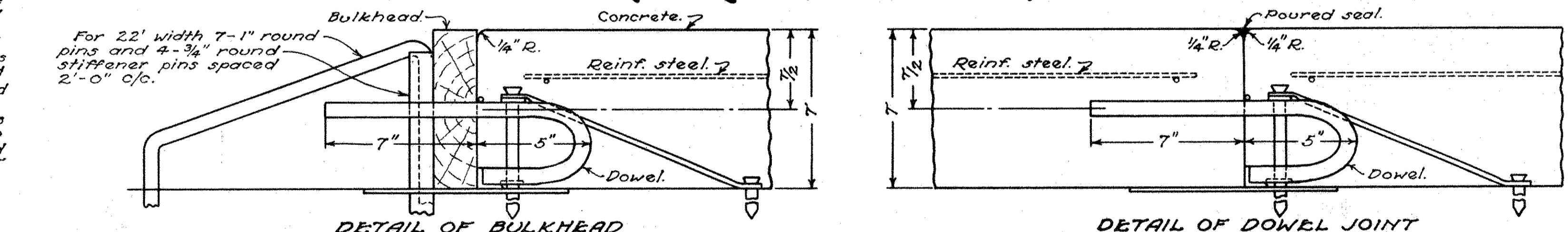
SELF EXPANDING CORK JOINT: The filler material for this joint shall meet the requirements of Supplemental Specification No. M-110.11, and shall be accurately held in place by methods specified for installing PREMOLDED BITUMINOUS FIBER EXPANSION JOINT FILLER.



CONTRACTION JOINTS



CONSTRUCTION JOINT



NOTES

TREATMENT OF EXPANSION JOINTS AT LONGITUDINAL JOINTS: At the junction of longitudinal and transverse joints a positive method shall be used to connect the joints and maintain the vertical and longitudinal alignment of the two joints. Longitudinal keys and keyways where used, shall be omitted for the thickness of the joint.

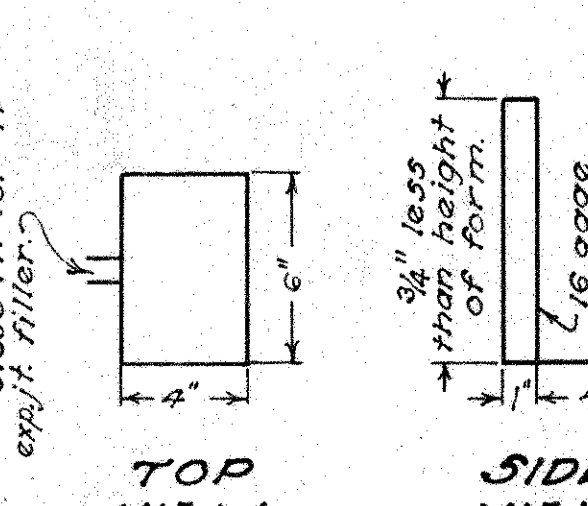
EDGING JOINTS: Special care shall be exercised in edging joints so that the width of the opening does not exceed that shown.

JOINT SEALER: Material for sealing expansion, contraction and construction joints in pavements where Non-Extruding Bituminous Premolded Filler or Self Expanding Cork filler is used shall meet the requirements of Section M-5.4 F-1 for liquid bituminous seal. Immediately before placing liquid bituminous seal an application of kerosene shall be applied by pressure spray, brush or swab to the joint to be in contact with the seal. Material for sealing expansion, contraction and construction joints in pavements where Premolded Bituminous Fiber expansion joint filler is used shall meet the requirements of Supplemental Specification No. M-110.23 for poured joint filler.

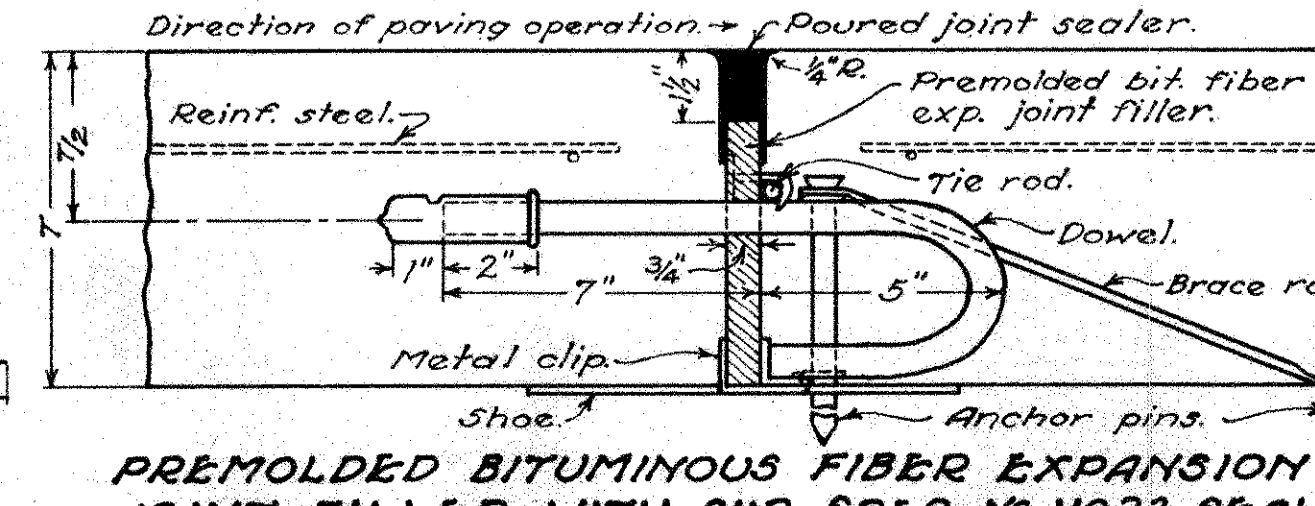
CONSTRUCTION DETAILS: The assembled unit shall be rigidly held in such position as will keep the plane of the dowels parallel to the surface of the pavement and the expansion joint material at right angles to the pavement surface. This shall be accomplished by staking the unit to the subgrade with a sufficient number of anchor pins "A" and by bracing with a sufficient number of brace rods and anchor pins "B". Not less than four "A" pins, two brace rods and "B" pins shall be used for each eleven foot section. Anchor pins 18" long shall be used where necessary to hold the unit in position. The metal shoes may be used in lieu of brace rods where hard shale or rock subgrade is encountered.

The metal cap shall fit closely on the dowel so that when forced on it can not easily be displaced. It shall be crimped to receive only two inches of the dowel and leave one inch space in the end for future movement of the dowel. It shall be made to prevent mortar from entering any part of it when in place on the dowel.

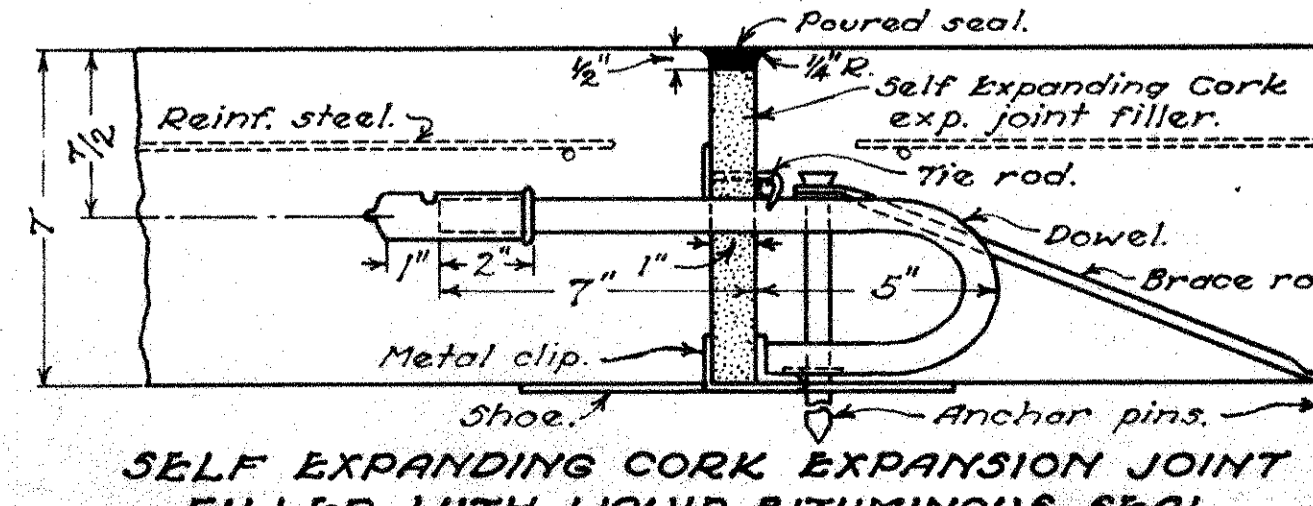
END GUIDE



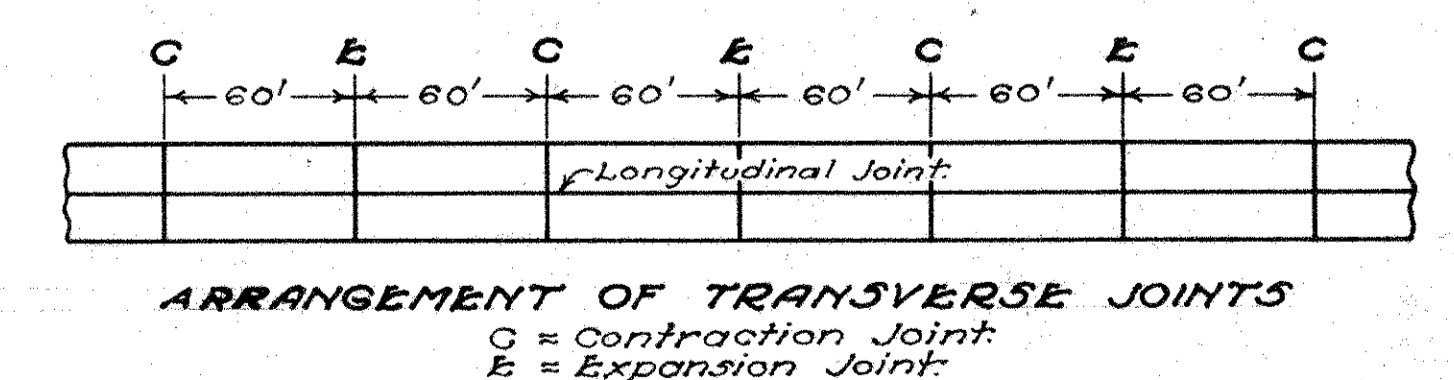
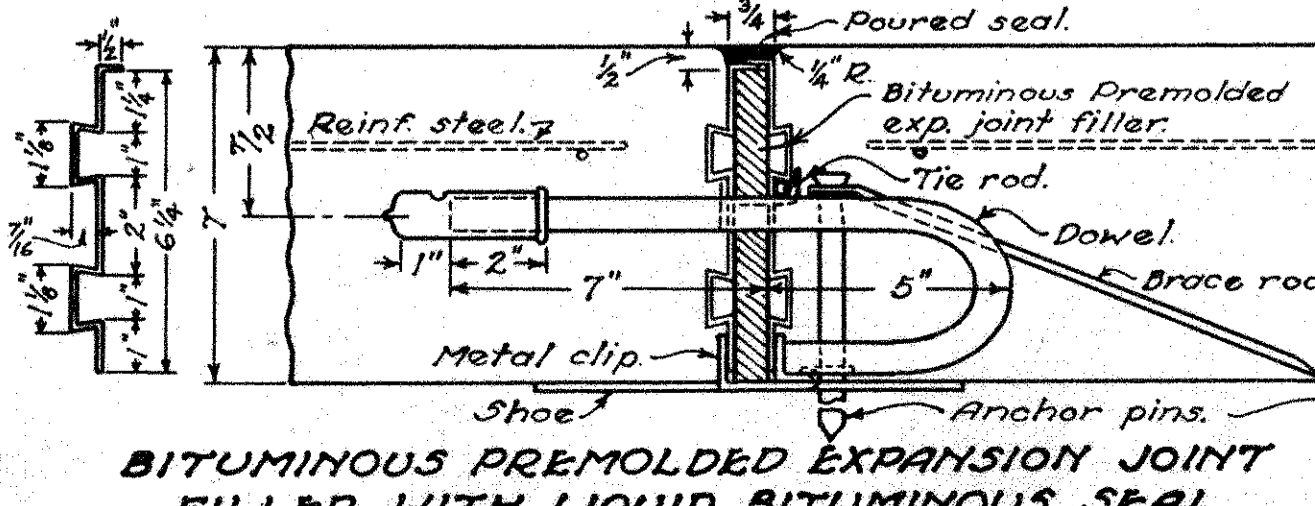
EXPANSION JOINTS



EXPANSION JOINTS



EXPANSION JOINTS



DATE
7-1-40
8-1-40

TJ-9

GENERAL NOTES

FED. RD. DIST. NO.	STATE	F.A.G.C. PROJECT	FISCAL YEAR
10	OHIO	F.A.G.H.825E(1)	1939

3
38

**BUTLER COUNTY
S.H. 186 SEC "D" (PT)
GRADE SEPARATION.**

FIELD OFFICE

The Contractor shall provide a suitable field office for the exclusive use of the Engineers & Inspectors assigned to this project. This office will be of sufficient size, & so arranged, equipped, & lighted that the State Employees will have a convenient place for making the necessary reports, records, etc., & have a safe place for the storage of equipment, plans, & necessary supplies. The Contractor shall have a telephone installed & maintained during the construction of this project. When the work is in progress during cold weather, the office shall be heated to a temperature of at least seventy (70°) degrees Fahrenheit.

UTILITY ADJUSTMENTS

Any & all work required for public or private utilities shall be done by, & at the expense of, their respective owners unless otherwise noted in these plans.

LOCATION & SIZE OF EXISTING PIPE

The location, size & depth of existing pipe is shown as nearly exact as the available information will permit. The State of Ohio will not be responsible for any variations found during construction. Payment for pipe removed will be made according to the listings shown in these plans.

BACKFILLING TRENCHES

The requirements of the Construction & Material Specifications relative to backfilling & compacting trenches in pavement or shoulder areas shall also apply to the backfilling & compacting of trenches not within the pavement or shoulder areas.

SPECIAL METHOD OF REPLACING PIPE IN EMBANKMENT

The Contractor shall excavate the trench to a depth of at least 12 inches below the original ground level. The trench shall be lined with concrete or masonry. The pipe shall be replaced in the trench and the trench shall be backfilled with concrete or masonry. The trench shall be compacted and the surface shall be finished to the original grade.

REMOVAL OF REFUSE OR DEBRIS

Any existing refuse, debris, or other material unsuitable for embankment shall be removed & disposed of by the Contractor, outside the limits of the right of way. The yardage of refuse, debris or other unsuitable material removed & disposed of will be determined by final cross-sections, & the yardage so determined will be paid for at the contract unit price bid for "Roadway Excavation," Item E-1.

TREE REMOVAL

No tree, regardless of size, shall be removed until specifically & conspicuously marked by the Division Landscape Architect. Tree removal shall be in accordance with the Supplemental Specifications.

PAVEMENT PROTECTION

Any mats, deemed necessary by the Engineer for equipment traveling or operating on the new or existing pavement or base, shall be furnished by the Contractor at no additional cost to the State of Ohio. Failure to comply with the Engineer's instructions will be cause for ordering the removal of the equipment from the pavement or base. The mats shall be built of double layers of 2"x10" timber adequately bolted.

PRIVATE DRIVES & EXTRA PAVEMENT

The placing of private drive pavement & extra pavement, both as to location & amount, & the adjustment of grades of private drives will be determined by the Engineer during construction. All driveway pavement shall be marked, as directed by the Engineer, at no additional cost to the State. Joints for private drive pavement shall be of the type & spacing called for by the Engineer.

REPLACEMENTS

The Contractor will be required to replace, at his own expense, any existing pavement, curb & gutter, sidewalks or steps, not listed for replacement, that he may damage during construction.

METHOD OF PLACING TRAFFIC BOUND, ITEM I-17

The cubic yards of traffic bound, Item I-17, specified shall be spread uniformly on the drives immediately after these areas are graded to the satisfaction of the Engineer. A portion of this material shall then be removed to the sides of the drive & there stored in wind-rows, leaving approximately one & one-half inches (1 1/2") of material on the drive areas.

The Contractor shall periodically, when & as directed by the Engineer, level this surfacing material & spread uniformly part or all of the windrowed material on the drive areas. The Contractor shall, immediately before the completion of this contract, level the surfacing material to the satisfaction of the Engineer.

All of the operations noted above are included in the price bid per cubic yard for "Traffic Bound, Item I-17."

CATCH BASINS, MANHOLES & PIPES

The proposed elevations of catch basins, manholes, or pipes shown on these plans may be adjusted by the Engineer during construction.

CONSTRUCTION OF CATCH BASINS

The flow line of all catch basins shall be constructed to meet the elevation of the flow line of the outlet pipe. Sumps shown on the Standard Construction Drawings are to be omitted. Catch basins N-1-3, 2-2 & 2-3 shall be constructed of concrete.

REMOVING & STORING PIPE

Pipe listed for Removing & Storing, Item E-12, shall be neatly piled on the right of way at the disposal of State forces.

REMOVAL OF STEPS & WALKS

The removal & disposal of any portion of existing steps, or sidewalks, that are not being replaced in their present location is classified as "Roadway Excavation."

PIPE REMOVAL

The removal & disposal of any existing pipe (not listed for Removing & Storing, or Removed for Re-use) & any existing headwalls lying within the limits of proposed excavation, of either Items E-1, E-2, or E-3, is classified & paid for as excavation, & shall be removed & disposed of by the Contractor.

B-20 & T-31 AGGREGATES

The tonnage of aggregates for waterbound macadam & bituminous surface treatment is calculated on a basis of 70 Lb. per Cu. Ft. dry rodded. See Sec. B-20.08, Sec. T-31.10 & Sec. M-3 of the Construction & Material Specifications, dated March 1, 1939.

SUBGRADE COMPACTION

The thickness of subgrade to be compacted will be eight (8") inches, loose measurement. The width shall be the width of the proposed pavement plus eighteen (18") inches on each side of the proposed pavement.

FINISHING PAVEMENT

All portland cement concrete pavement, Item T-70, may be finished in accordance with Item T-70.201 of the Construction & Material Specifications.

Reinforced pavement not included between parallel lines eleven (11') feet left & eleven (11') feet right of the center line from Sta. 94+00 To Sta. 98+00 may be finished in accordance with Item T-70.201 of the Construction & Material Specifications.

ESTIMATED SEEDING QUANTITIES

Seeding, Item E-305, is estimated for the entire area between right of way lines exclusive of pavement, sidewalk, or sod areas, but seeding will not be placed on the area between the limits of construction & the right of way line (or any other undisturbed area) unless deemed necessary & ordered by the Division Landscape Architect.

The mixture of seed outlined under Item E-305 shall be deleted. The following mixture shall be used over all areas to be seeded:-

- 60% Kentucky Blue Grass
- 20% Domestic Rye Grass
- 15% Red Top
- 5% White Dutch Clover

FERTILIZING AREAS TO BE SEEDED OR SODDED

All areas to be seeded or sodded in accordance with Item E-305 & Item L-10 respectively shall have Commercial Fertilizer (4-12-4) applied at the rate of twenty (20) Lb. per 1000 Sq. Ft. Payment shall be at the Contract unit price bid per pound for Item L-9, Commercial Fertilizer.

CURING CEMENT MORTAR PLASTER

In all brick work where plastering is required, the following construction & curing method shall apply:- The plastering, where called for on the Std. Construction Drawings, shall be continuous with the laying of brick work. Immediately after the plastering is completed, it shall be covered with two (2) or more thicknesses of damp burlap which is to be maintained, thoroughly saturated, for a period of forty eight (48) hours.

SIDEWALK EXPANSION JOINT

In addition to the expansion joints specified under Item I-13.06 of the Construction & Material Specifications, two (2) thicknesses of 1/4" premolded expansion joint shall be placed between concrete sidewalk & longitudinal curbs. Payment for this additional joint is included in the price bid per square foot for Concrete Sidewalk, Item I-13.

TILE FOR SUBGRADE DRAINAGE

6" drain tile shall be furnished & placed, by the Contractor, in manholes, catch basins & inlets for subgrade drainage where, & as, directed by the Engineer. Payment for same shall be included in the price bid per "Each" for manholes, catch basins & inlets.

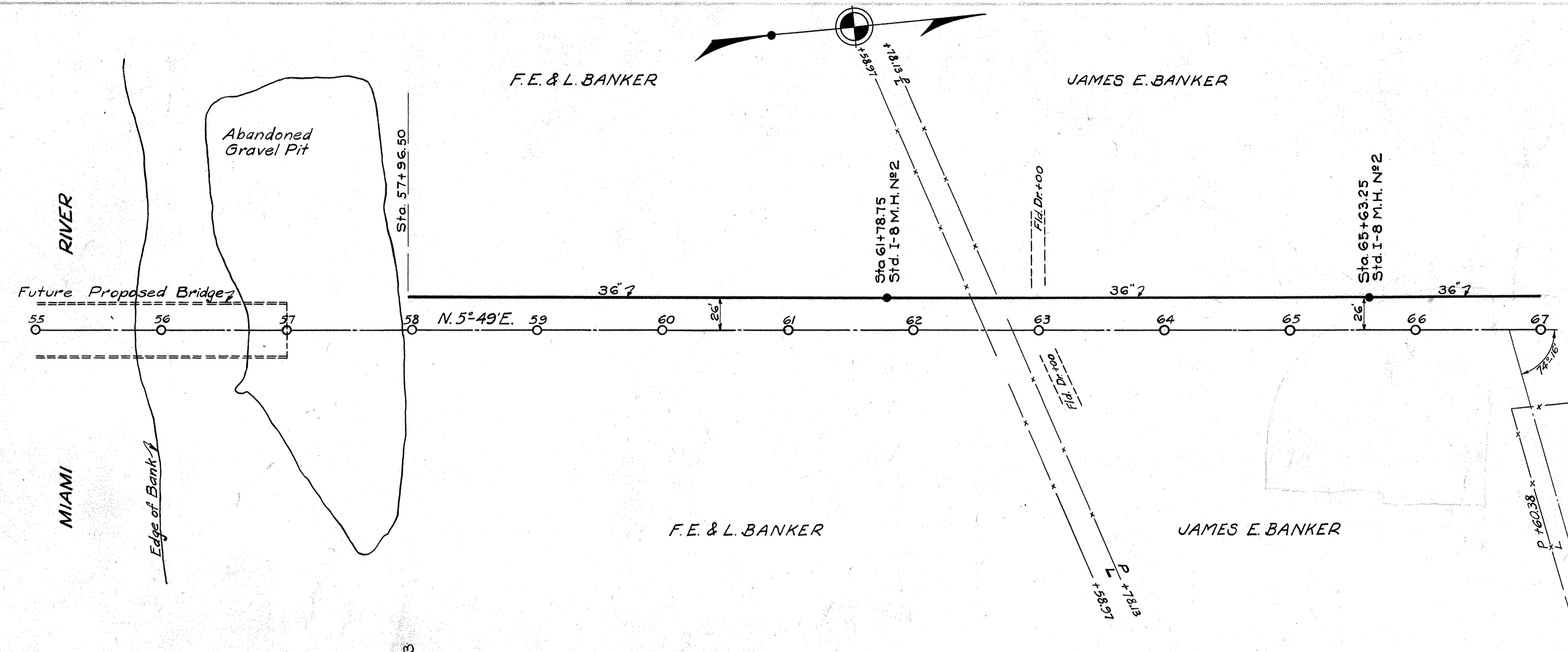
Note: The pavement surface shall not be broomed within 12" of the back of curb.

Written By: J.O.M. Date: 3-12-39
Checked By: R.S.E. Date: 3-12-39

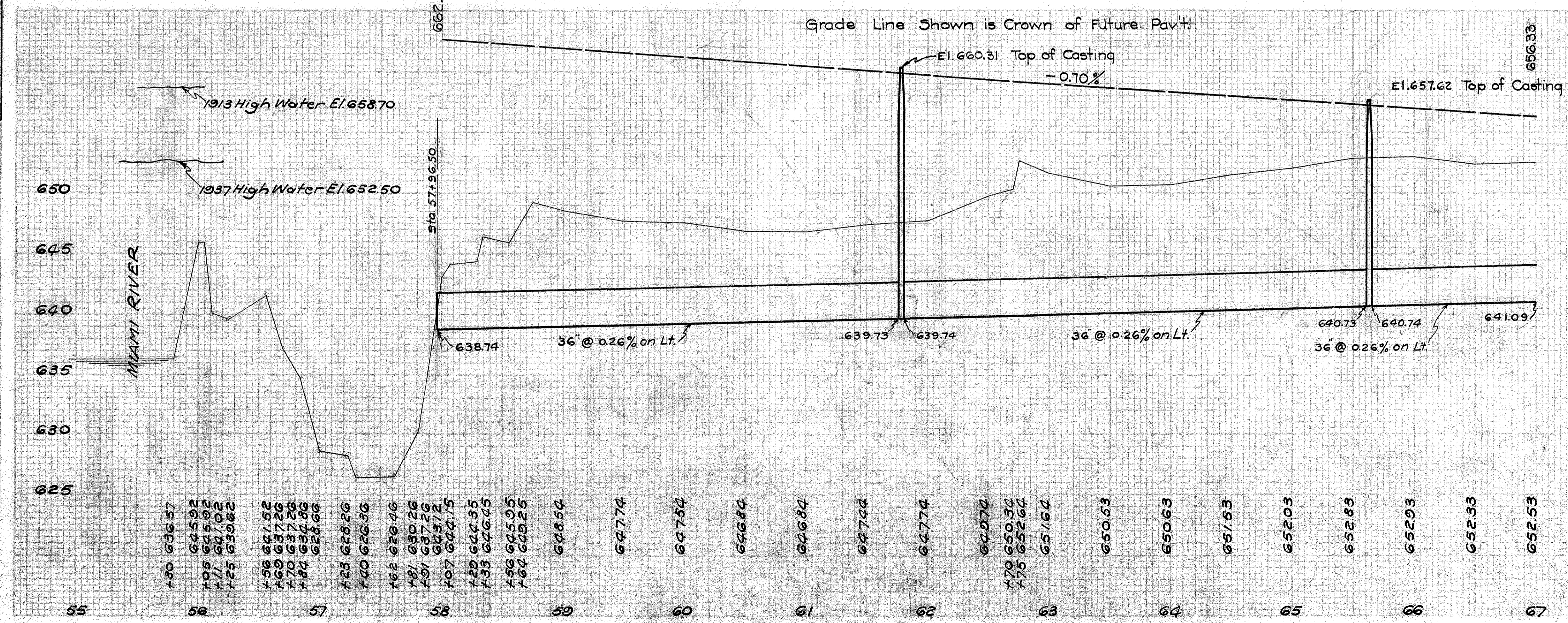
BUTLER COUNTY
S.H. 186 SEC. "D" (PT)
GRADE SEPARATION

NOT PART OF THIS CONTRACT
STORM SEWER

Station	Side	Pipe Item I-2 Lin. Ft. 36"	Manholes Std. Dwg. I-8 M.H. N ^o 2 Each
57+96.50 to 61+76.50	Lt.	380	
61+78.75	Lt.		1
65+63.25	Lt.		1
65+65.50 to 67+00	Lt.	134.5	
Totals		894.5	2

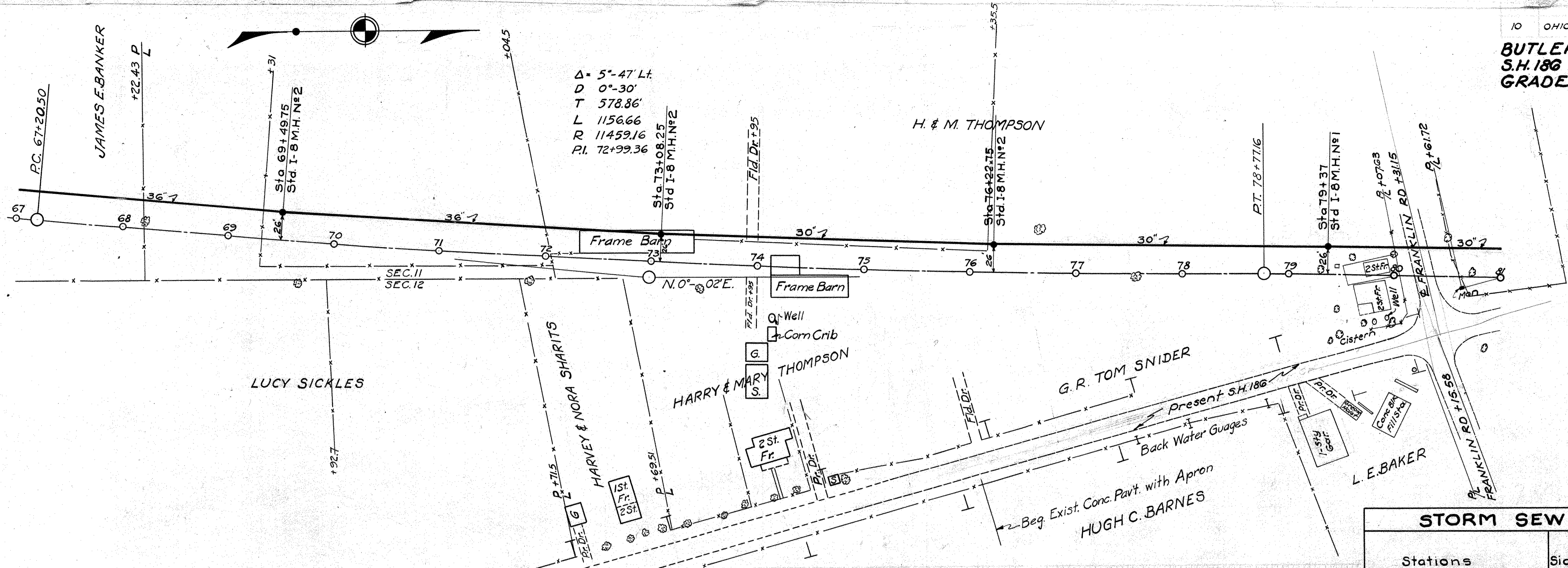


CHECKED
 Drainage
 Box-Cs.
 Balance Points
 M.S. & G.M.
 A.R.T.
 A.R.T.
 M.S. & G.M.

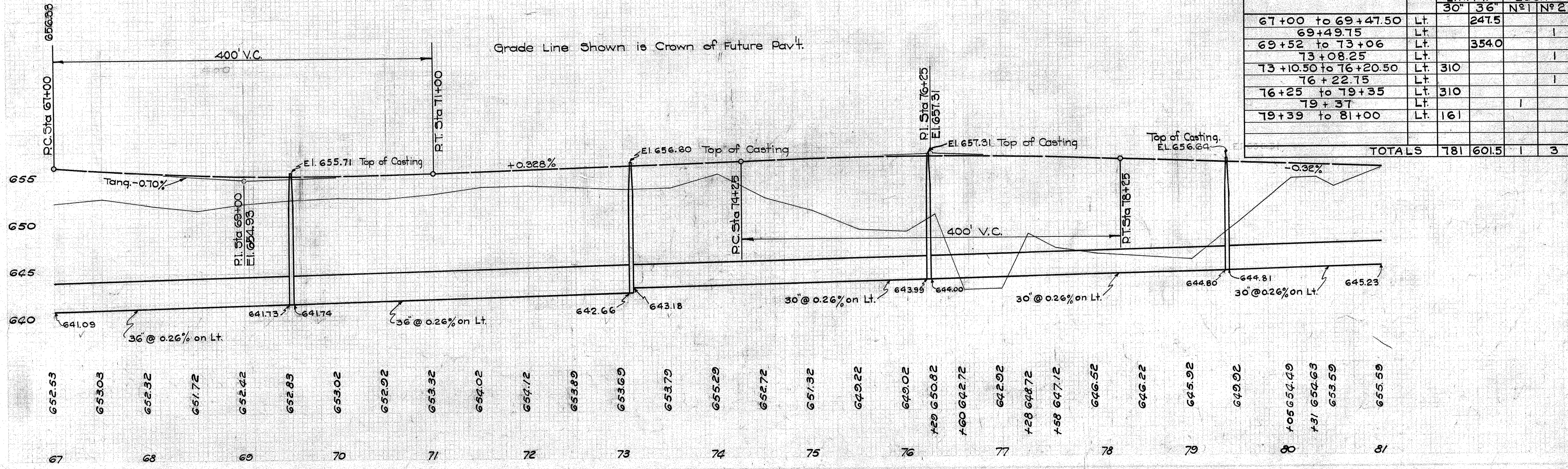


10 OHIO FAGH 825-ED 1939
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GRADE SEPARATION

Δ = 5'-47' Lt.
D = 0'-30'
T = 578.86'
L = 1156.66'
R = 11459.16'
P.I. = 72+99.36



CHECKED
Drainage ART
Boxes ART
Balance Points M.S. & G.M.

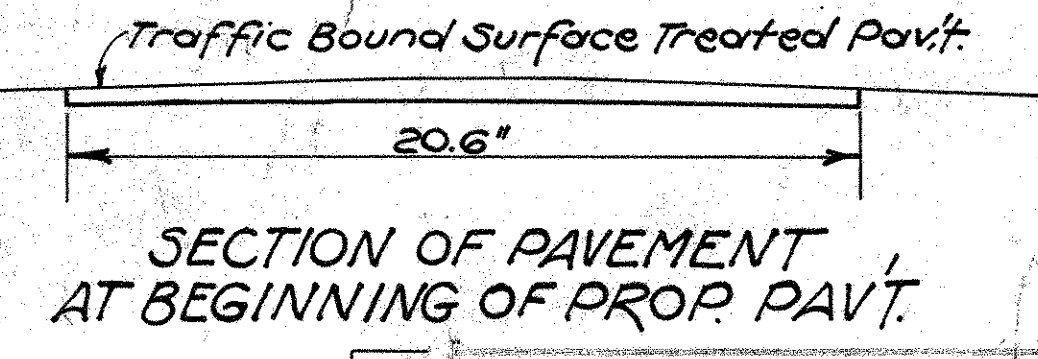


Stations	Pipe Side	Pipe Item I-2		Manholes	
		Lin. Ft.	Each	Std. Dwg. I-8 M.H.	Each
67+00 to 69+47.50	Lt.	247.5			
69+49.75	Lt.				1
69+52 to 73+06	Lt.	354.0			
73+08.25	Lt.				1
73+10.50 to 76+20.50	Lt.	310			
76+22.75	Lt.				1
76+25 to 79+35	Lt.	310			
79+37	Lt.				1
79+39 to 81+00	Lt.	161			
TOTALS		781	601.5	1	3

STA. 67+00 TO STA. 81+00

**BUTLER COUNTY
S.H. 186 SEC. "D" (PD)
GRADE SEPARATION**

PROPOSED UNDERPASS STRUCTURE
 Type: Steel Girder with concrete deck & abutments
 Span: 68'-0" 1/2 Brgr
 Highway Roadway: 40'-0" plus 2'-0" sidewalks.
 Loading: Cooper's E-72
 Skew: 32°10' Rt. Ed. to Highway
 Highway Clearance: 14'-0"
 Two R.R. Tracks.



STATION	Side	PIPE		CATCH BASINS	MANHOLES
		ITEM I-2 Lin. Ft.	ITEM I-5 Each		
STA. 81+00 TO STA. 88+52.5					
81+00 to 83+81.50	Lt.		2735		
81+68	Lt.	8			
81+83	Rt.		50		
82+50	Lt.	12			
83+84	Lt.				
83+84	Rt.		37		
83+86.5 to 85+50.5	Lt.		160		
84+55	Lt.	12			
85+50.5 to 86+14.5	Lt.		64		
86+17	Lt.				
86+17	Rt.		37		
86+19.5 to 88+43.5	Lt.		224		
86+46	Lt.				
86+46	Rt.		37		
88+48.5 to 88+52.5	Lt.		4		
TOTALS		32	292 1/2	160	2735
STA. 88+52.5 TO STA. 93+00					
88+52.5 to 90+60.5	Lt.		72	136	
90+63	Lt.				
90+74.5	Rt.		40		
90+65.5 to 91+05.5	Lt.		40		
91+08	Lt.				
91+08	Rt.		37		
91+0.5 to 93+00.5	Lt.			190	
TOTALS			72	77 3/4	366

STATION	Side	DRIVES AND APPROACHES					Traffic Bound	Remove Ex. Pavt	See Sheet
		5"WB Macadam Base Course	Bitum inous Prime Coat	Bitum inous Surface Treatment	6" Concrete Pavement	4" Concrete Sidewalk			
82+50	Rt.	561.4	561.4	561.4				23	
85+73	Lt.				35.2	88		22.2	
84+01.5	Rt.				34.2	80		20.7	
84+69	Lt.				14.7	88	2		
84+50	Rt.				14.7	88	2		
85+66	Rt.				36.2	128	3	11.6	
85+72	Lt.				29.3	74		11.9	
86+69	Lt.				14.7	88	4		
87+23	Lt.				14.7	88	3		
87+70	Lt.				14.7	88	3		
87+99	Rt.				14.7	88	4		
88+00	Lt.				14.7	88	4		
88+22	Lt.				14.7	88	4		
89+61	Rt.				14.7	88	4		
90+51.3	Rt.				24	144	11		
86+85.4	Rt.				14.7	88	3		
TOTALS		561.4	561.4	561.4	307.9	1994	49	66.4	

Stations	Side	CONC SIDEWALKS & STEPS			See Sh. No.
		4" Conc. Sidewalks Item I-13	Conc. Steps Item I-13	6" Riser 7" Riser 18" Tread 18" Tread	
82+50-93+00	Rt/Lt	84.00			
83+10.92	Rt.	18.5	8		23
83+74.3	Rt.	6	12		24
85+24	Rt.	12		8	24
85+88	Rt.	12		12	24
87+59	Rt.	12		24	24
87+88.8	Rt.	4		15	23
90+57-91+52 (Extra)	Lt.	111			2
90+85-91+80 (Extra)	Lt.	111			2
Sub Total		863.5			
educt For Drives		1394			
Net Total		723.5	56	23	

Stations	Side	ROADWAY DRAINAGE	
		See Sheet	Item I-3
82+50-83+81.5	Rt.	131.5	
83+86.5-85+50	Rt.	163.5	
TOTALS		295.0	

All STORM SEWER SOUTH OF STA. 88+52.5 TO BE CONSTRUCTED BY W.P.A.

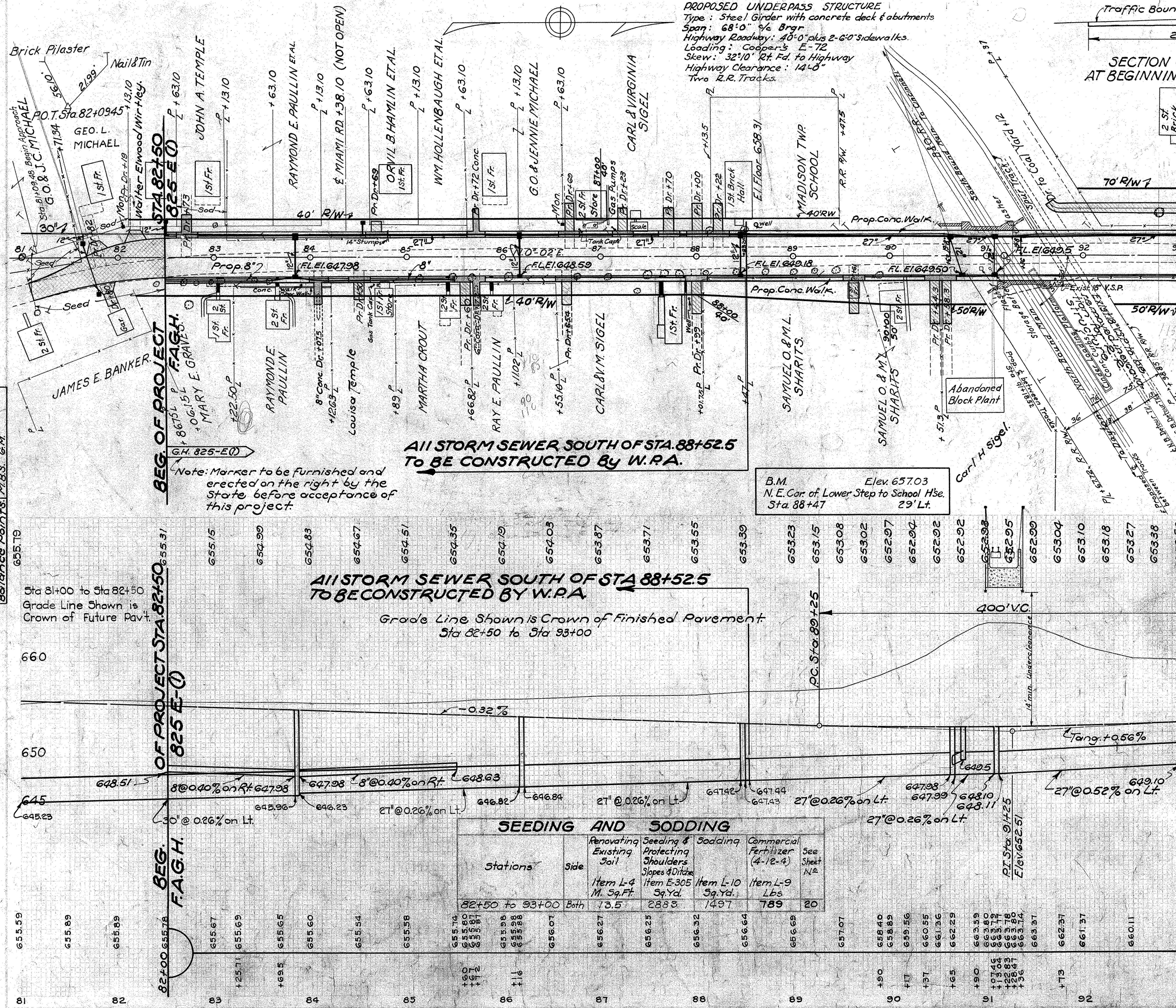
All STORM SEWER SOUTH OF STA. 88+52.5 TO BE CONSTRUCTED BY W.P.A.

Grade Line Shown is Crown of Finished Pavement Sta. 82+50 to Sta. 93+00

SEEDING AND SODDING						
Stations	Side	Renovating Existing Soil Item L-4 M. Sq. Ft.	Seeding & Protecting Shoulders Slopes & Ditches Item E-305 Sq. Yd.	Sodding Item L-10 Sq. Yd.	Commercial Fertilizer (4-12-4) Item L-9 Lbs.	See Sheet No.
82+50 to 93+00	Both	13.5	2833	1497	789	20

CHECKED	ART
Drainage	M.B.S. G.M.
Boxes	M.B.S. G.M.
Balance Points	M.B.S. G.M.

Note: Marker to be furnished and erected on the right by the State before acceptance of this project.



**BUTLER COUNTY
 S.H. 186 SEC. 'D' (PT)
 GRADE SEPARATION**

ROADWAY DRAINAGE

STATION	Side	Bell & Spigot Pipe Open Joints Porous Bkfill ITEM I-3 Lin. Ft.
97+37 to 101+00	Rt	363
TOTAL		363

ADDITION

Equations: 96+01.1 Back = 96+00 Ahead

Add to Project Length: 1.10

DRIVES AND APPROACHES

STATION	Side	5" WB Macadam Base Course ITEM B-20 Sq. Yd.	Bit Coat ITEM T-30 Sq. Yd.	Bit Surface Treatment ITEM T-31 Sq. Yd.	9" x 7" Traffic Concrete ITEM I-71 Sq. Yd.	Remove & Store 40% N ^o 7 60% N ^o 4 ITEM E-12 Cu. Yd.	See Sheet No.
94+00 to 95+00	℄			423.8			7
95+00	Lt.	14.2	14.2	14.2		44	32
TOTAL		14.2	14.2	14.2	423.8	44	32

CONC. SIDEWALKS

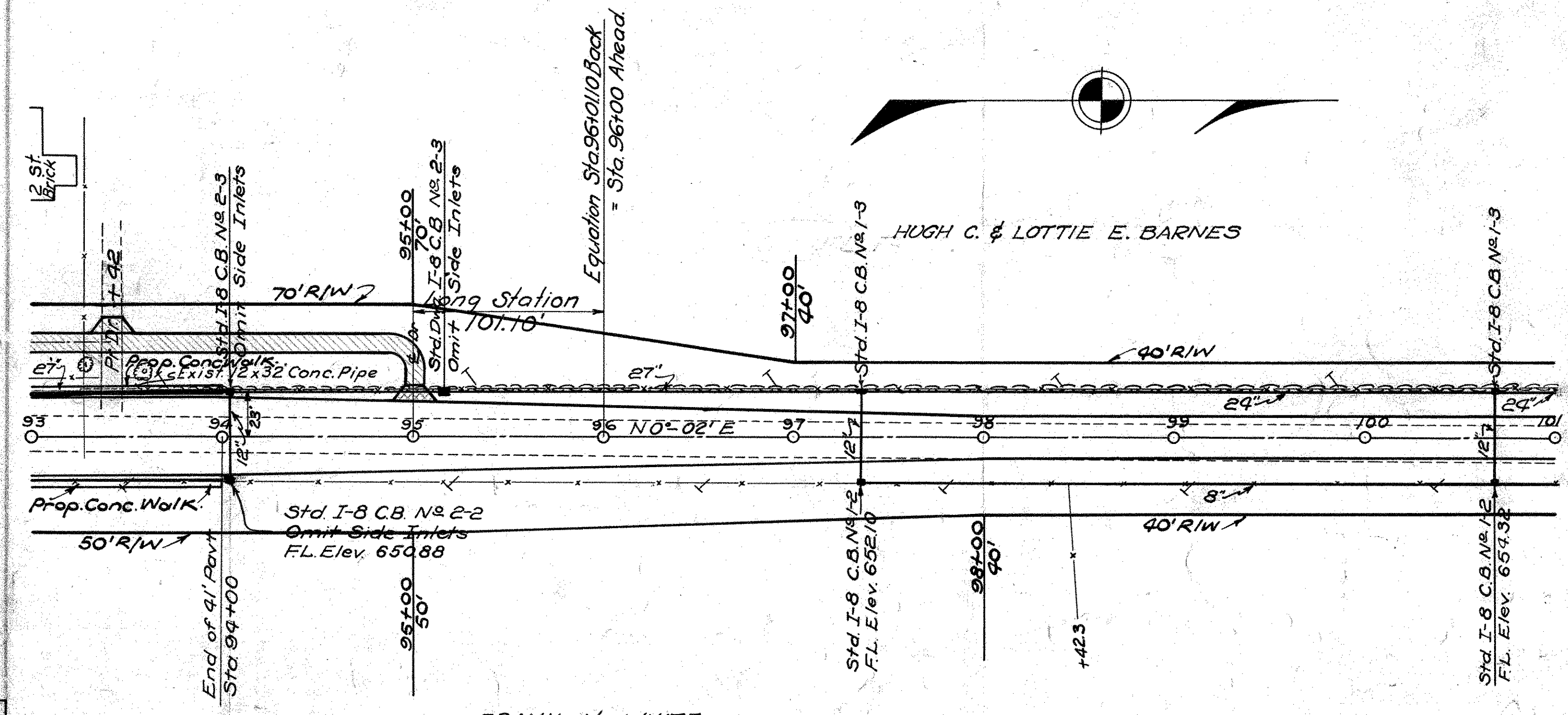
STATION	Side	4" Conc. Sidewalks ITEM I-13 Sq. Ft.
93+00 to 94+00	Both	800
NET TOTAL		800

STORM SEWER

STATION	Side	PIPE Open Joint Porous Bkfill ITEM I-2 Lin. Ft.	PIPE Under Pavt ITEM I-2 Lin. Ft.	CATCH BASINS Std Dwg I-8 CB Each	1-2	1-3	2-3
93+00.5 to 94+02.5	Lt.	102					
94+04	Lt.						1
94+04	Rt.		44		1		
94+05.5 to 95+18.5	Lt.	108					
95+15	Lt.						1
95+16.5 to 97+34.5	Lt.	218					
97+36	Lt.						1
97+36	Rt.		46		1		
97+37.5 to 100+66.5	Lt.	329					
100+68	Lt.						1
100+68	Rt.		46		1		
100+69.5 to 101+00	Lt.	30.5					
TOTALS		359.5	423.8	136	2	1	2

SEEDING AND SODDING

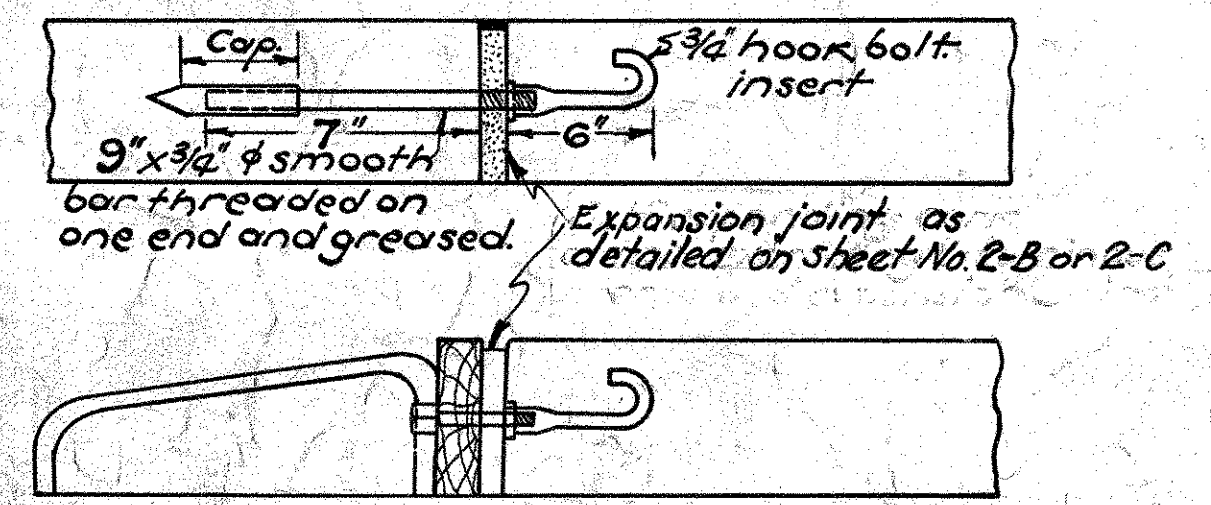
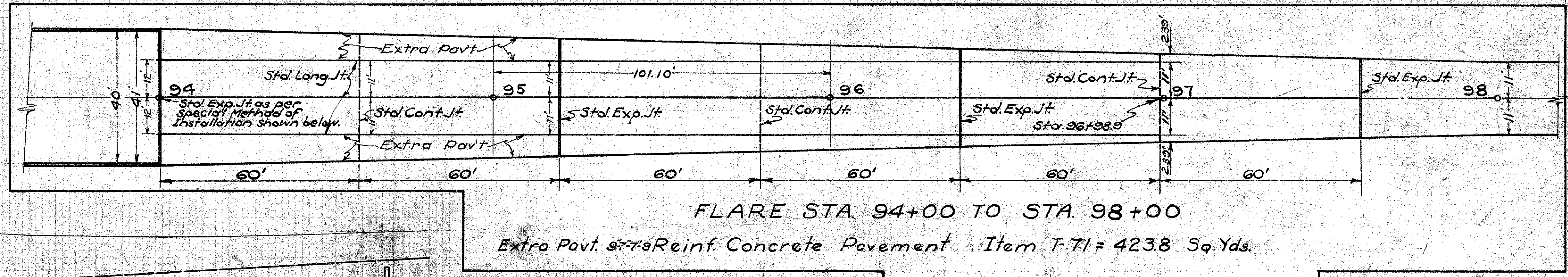
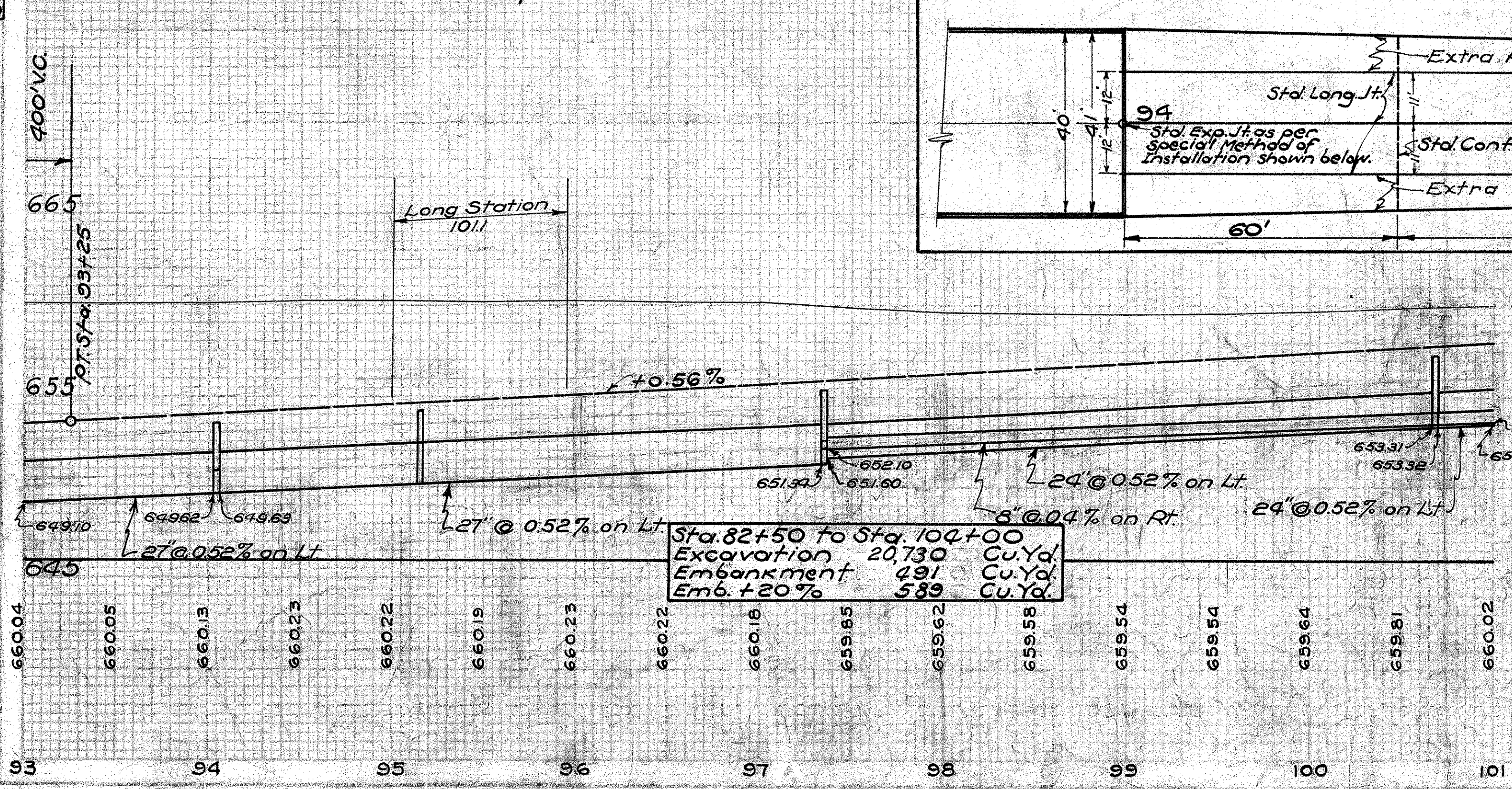
STATIONS	Side	Renovating Existing Soil ITEM L-4 M. Sq. Ft.	Seeding & Protecting Shoulders ITEM E-805 Sq. Yd.	Sodding ITEM L-10 Sq. Yd.	Commercial Fertilizer ITEM L-9 Lbs.
From To					
93+00 101+00	Both	0.4	5529	44	1004



CHECKED
 A.R.T.
 M.B.S. G.M.
 Drainage
 Boxes
 Balance Points

653.50	653.63	653.77	654.05	654.33	654.61	654.89	655.18	655.46	655.74	656.02	656.30	656.58	656.86	657.14	657.42	657.70	657.98
--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------

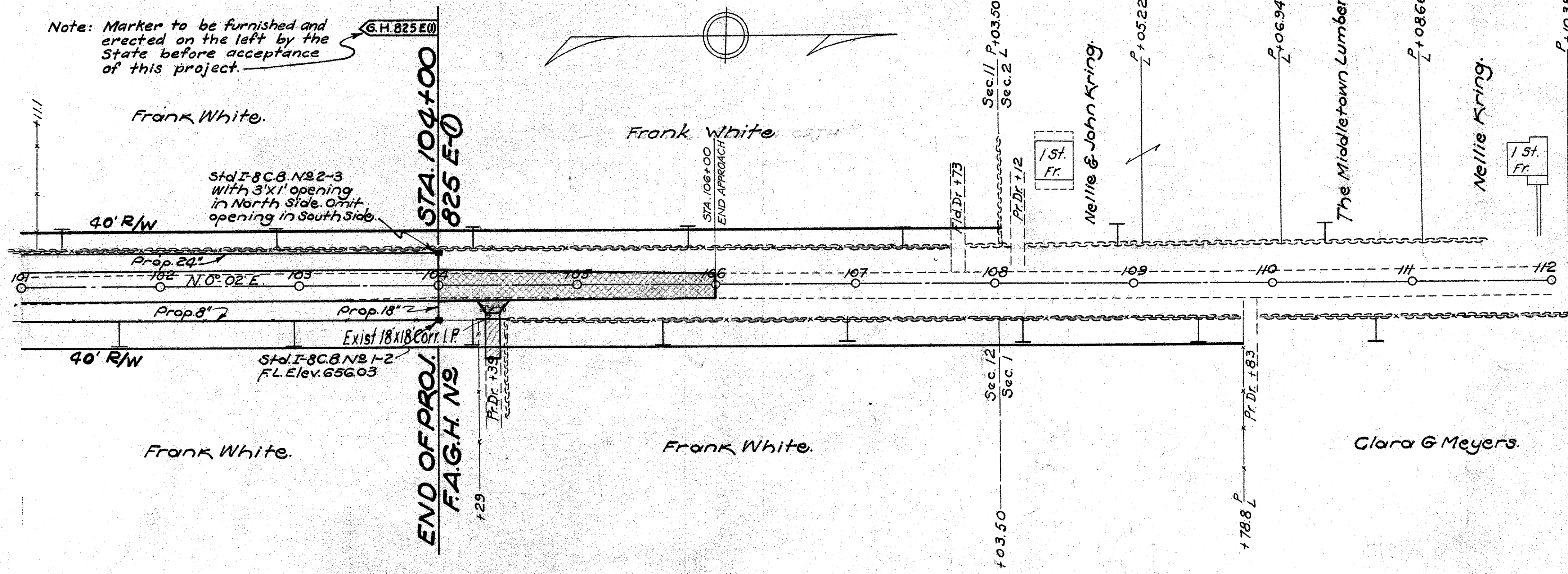
Grade Line Shown is Crown of Finished Pavement



**METHOD OF INSTALLING
 EXPANSION JOINTS BETWEEN
 ADJOINING SLABS POURED IN
 SEPARATE OPERATIONS.**

**BUTLER COUNTY
 S.H. 186 SEC "D" (PT)
 GRADE SEPARATION**

Note: Marker to be furnished and erected on the left by the State before acceptance of this project.



DRIVES AND APPROACHES

STATION	SIDE	5" W.B. Macadam Base Course ITEM B-20 Sq. Yd.	Bitum Prime Coat ITEM T-30 Sq. Yd.	Bitum Surface Treatment ITEM T-31 Sq. Yd.	Traffic Bound 40% N ^o 7 60% N ^o 9 ITEM I-17 Cu. Yd.	18" Pipe for Drives ways ITEM I-1 Lin. Ft.	Remove & Store Ex-st. 18" C.M.P. Item E-12 Lin. Ft.	See Sheet No.
104+00	R	4475	4475	4475	4	24	18	23
TOTAL		4475	4475	4475	4	24	18	

STORM SEWER

Station	Side	Pipe Open Joints Item I-2 Lin. Ft.	Catch Basins Std. Dwg. Item E-2 L ^o C. B. Each.
101+00 to 103+28.5	Lt	2385	
104+00	Lt		1
104+00	Rt	46	1
Totals		2385	1

ROADWAY DRAINAGE

Stations	Side	Bell & Spigot Pipe Open Joints Porous Backfill Item E-3 Lin. Ft.
101+00 to 104+00	Rt	300
Total		300

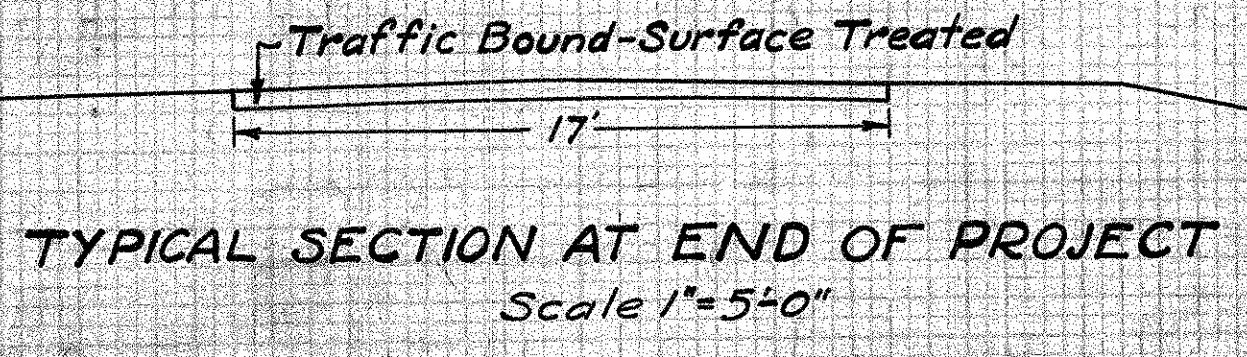
CLASSIFIED SUBGRADE MATERIAL ITEM SS-112

Stations	Cu. Yd.	See Sh. No.
101+00 to 103+00	512	18

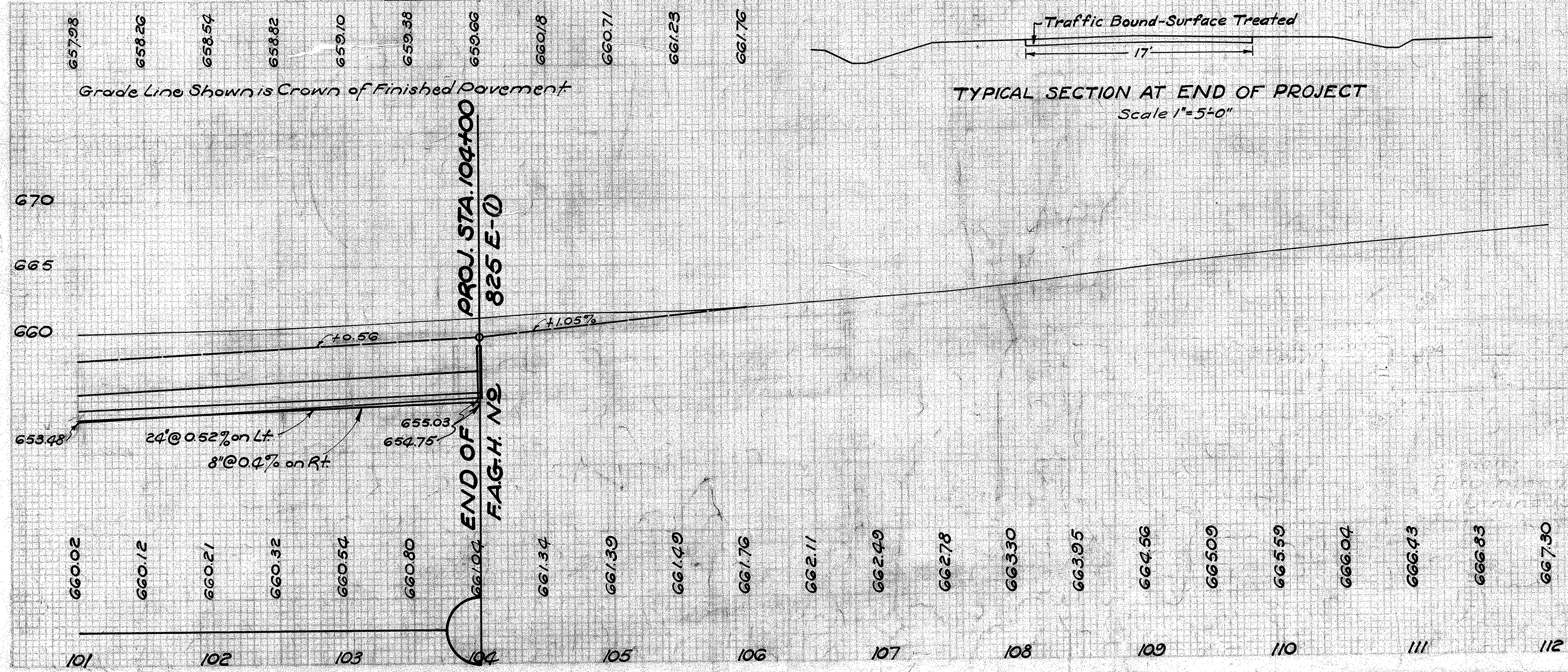
SEEDING AND SODDING

STATIONS	Side	Seeding & Commercial Fertilizer a-12-4 Shoulders Slopes & Ditches ITEM E-305 Sq. Yo.	Commercial Fertilizer L-9 LBS.	See Sheet No.
From 101+00 To 106+00	Both	2631	474	20

B. M. Elev. 662.27
 R.R. Spike in Tele. Pole
 Sta. 104+26 25' Rt.

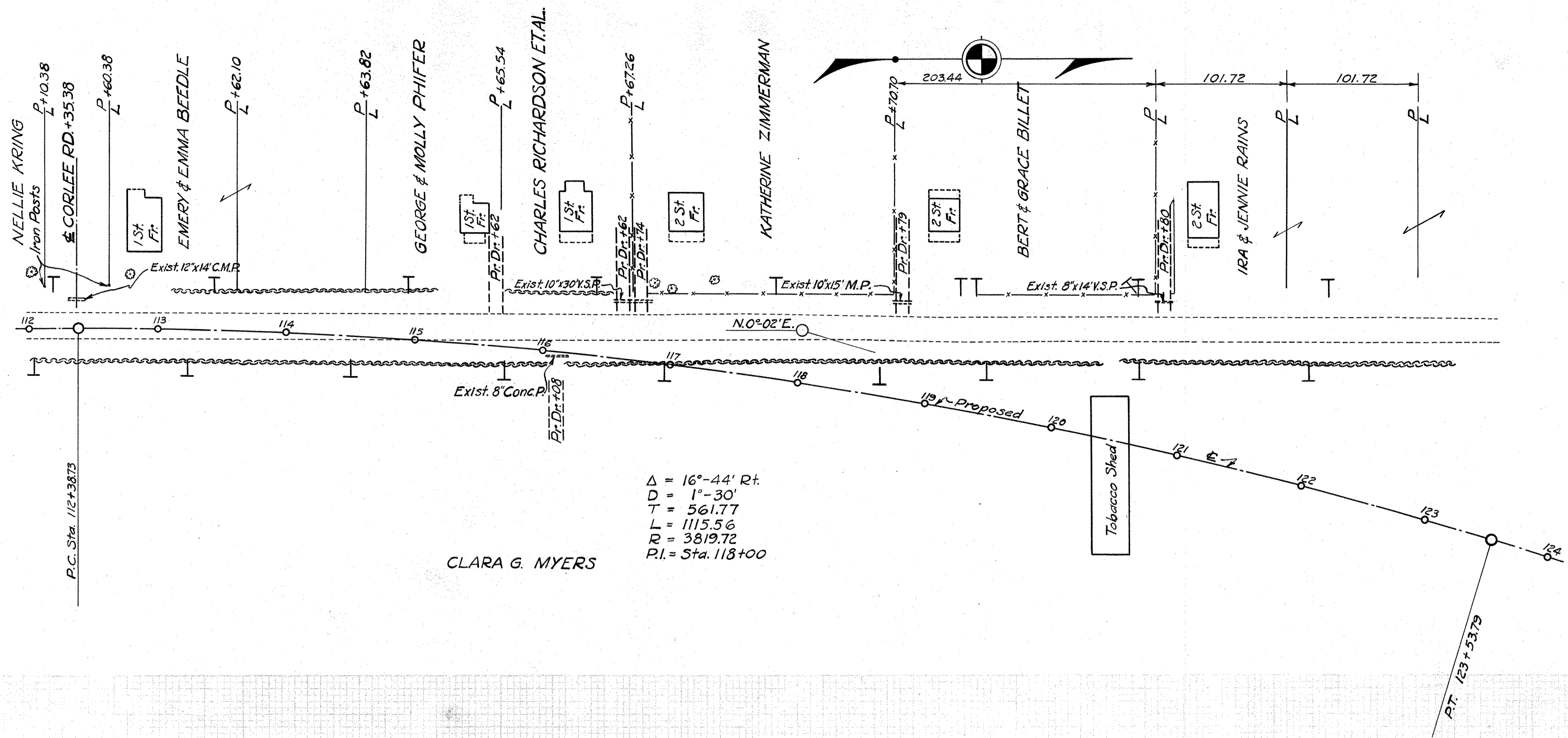


CHECKED
 Drainage A.R.T.
 Boxes A.R.T. M.S.C.S.R.G.M.
 Balance Points M.S.S. G.M.

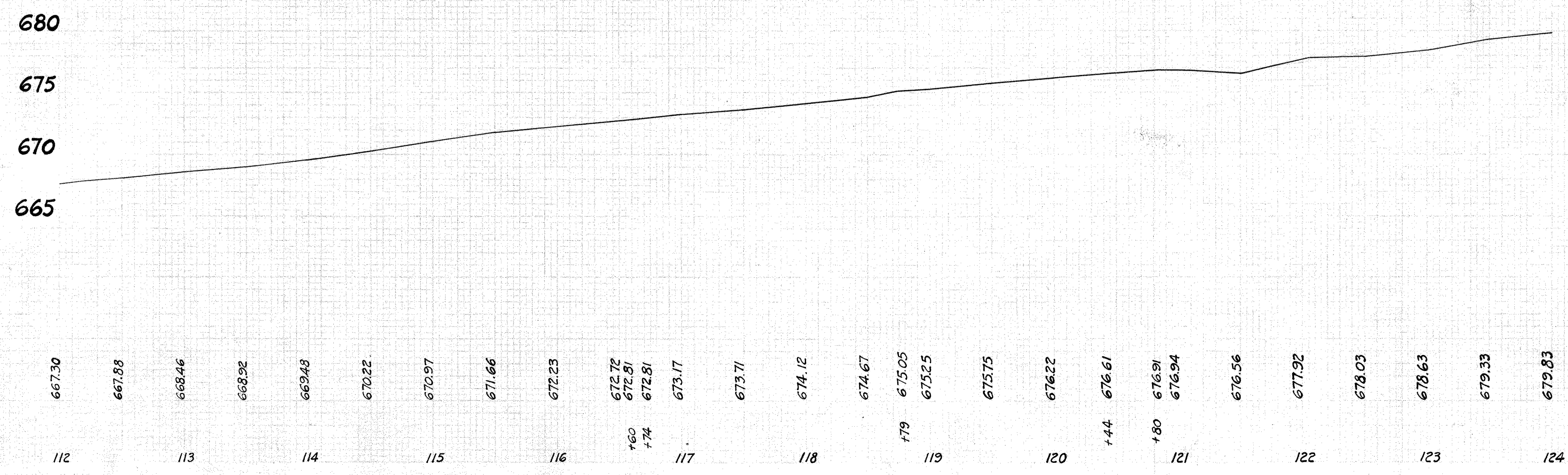


STA. 101+00 TO STA. 112+00

**BUTLER COUNTY
S.H. 186 SEC. "D" (PT.)
GRADE SEPARATION.**



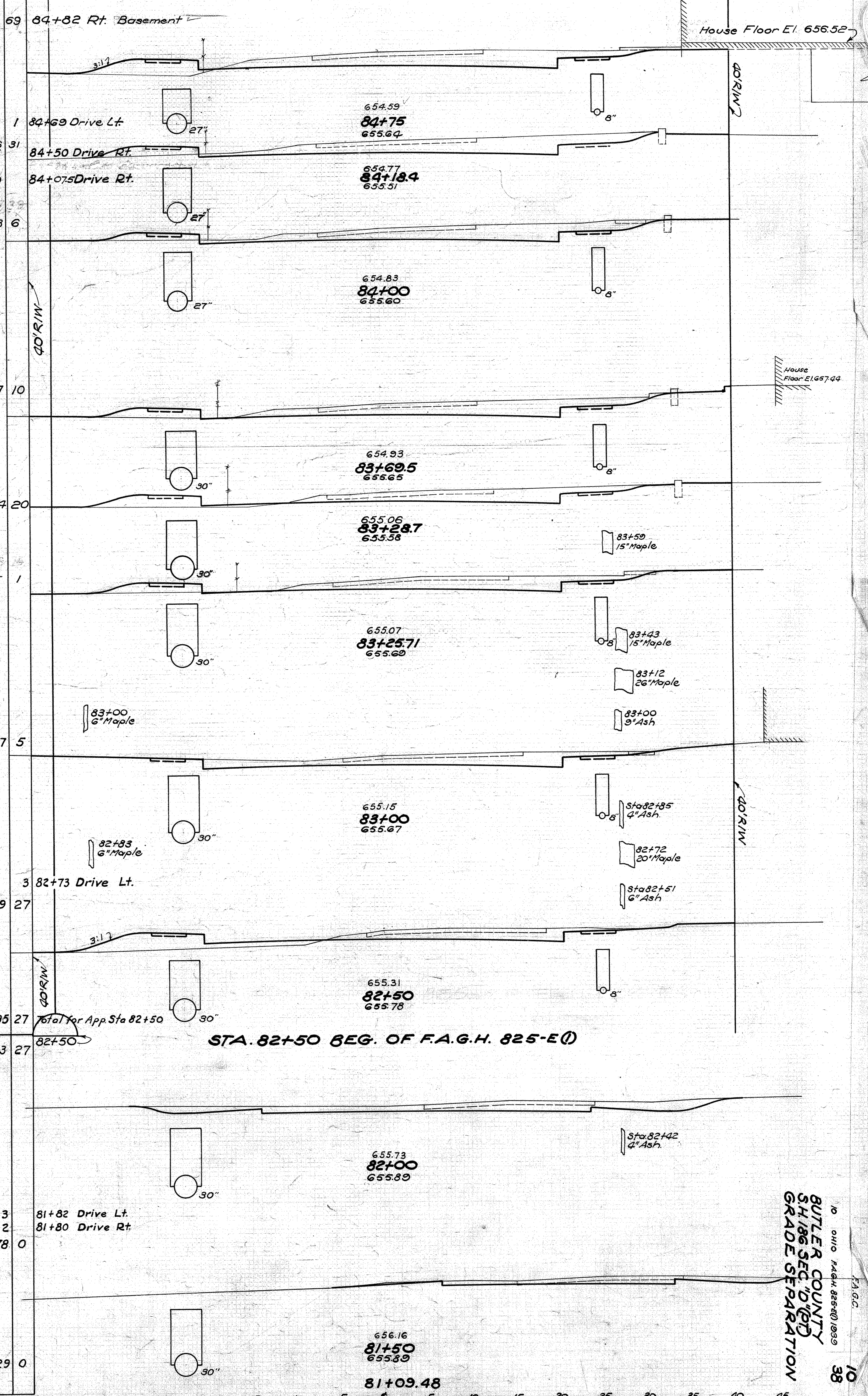
$\Delta = 16^{\circ}-44' \text{ Rt.}$
 $D = 1^{\circ}-30'$
 $T = 561.77$
 $L = 1115.56$
 $R = 3819.72$
 $P.I. = \text{Sta. } 118+00$



Plotted By: A.H.R.
 Templates Plotted: A.R.T.
 Templates Chkd: A.H.R.
 Drainage Chkd: A.R.T.
 Areas: A.H.R.
 Volumes: A.H.R.
 Volumes Chkd: E.L.R.
 Balance Points: M.S.G.M.

50 45 40 35 30 25 20 15 10 5 E 5 10 15 20 25 30 35 40 45 50 55

End Area		Cu. Yd.	
Cut	Fill	Cut	Fill
		69	
		66	20
		64	10
		61	8
		58	10
		40	17
		48	10
		47	5
		51	0
		34	29
		83	27
		56	0
		28	0
		10	0



STA. 81+50 TO STA. 84+75

BUTLER COUNTY
 S.H. 186 SEC. 10 (E)
 GRADE SEPARATION
 F.A.G.
 10 OHIO ROAD 825-E(1) 1989
 38 10

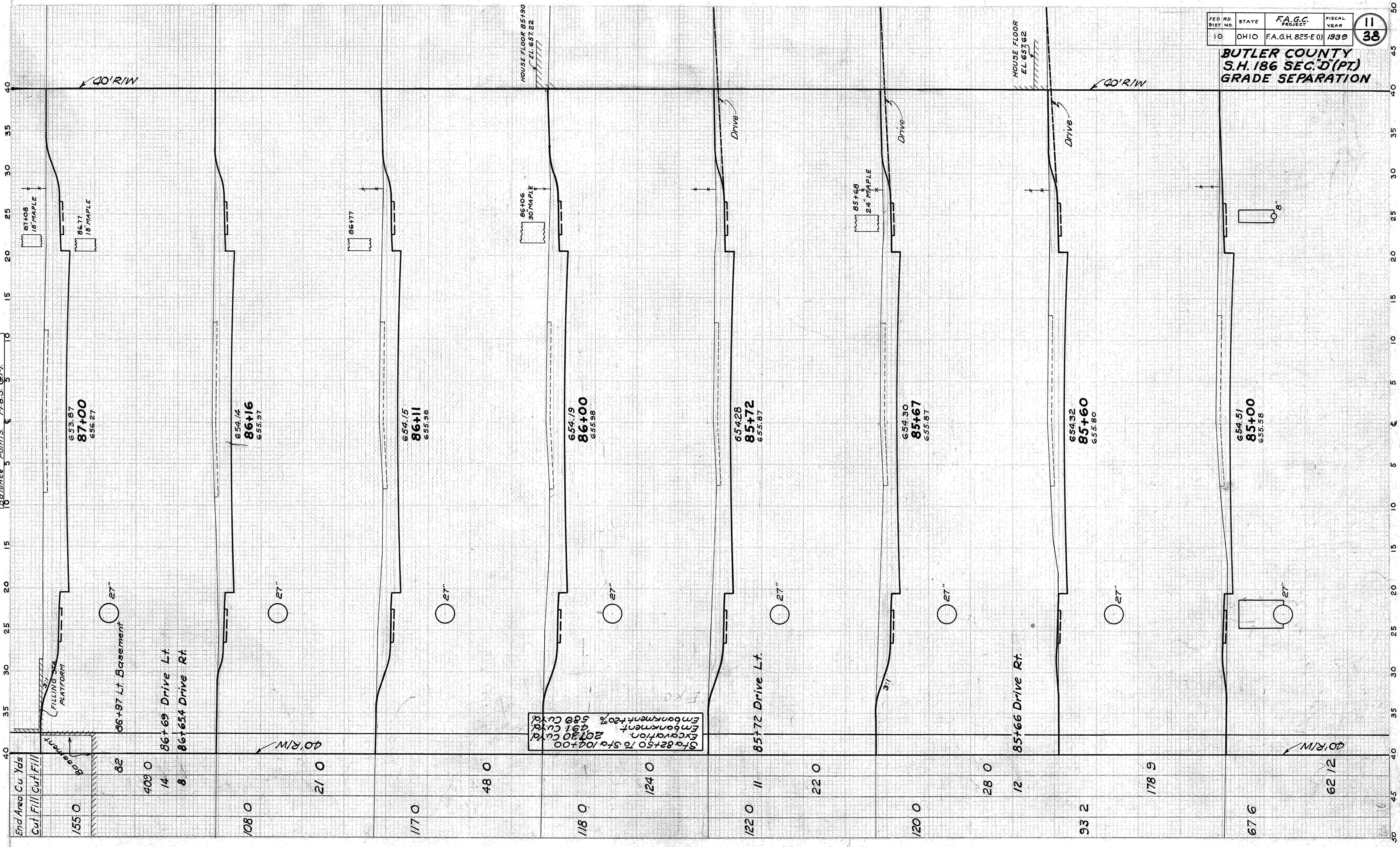
50 45 40 35 30 25 20 15 10 5 E 5 10 15 20 25 30 35 40 45

BUTLER COUNTY
S.H. 186 SEC. D (PT.)
GRADE SEPARATION

Plotted By	E.L.R.
Templates Plotted	A.R.T.
Drawings Chkd.	A.R.T.
Areas By	A.H.R.
Volumes By	A.H.R.
Volume Chkd.	E.L.R.
Balance Points	M.B.S. G.M.

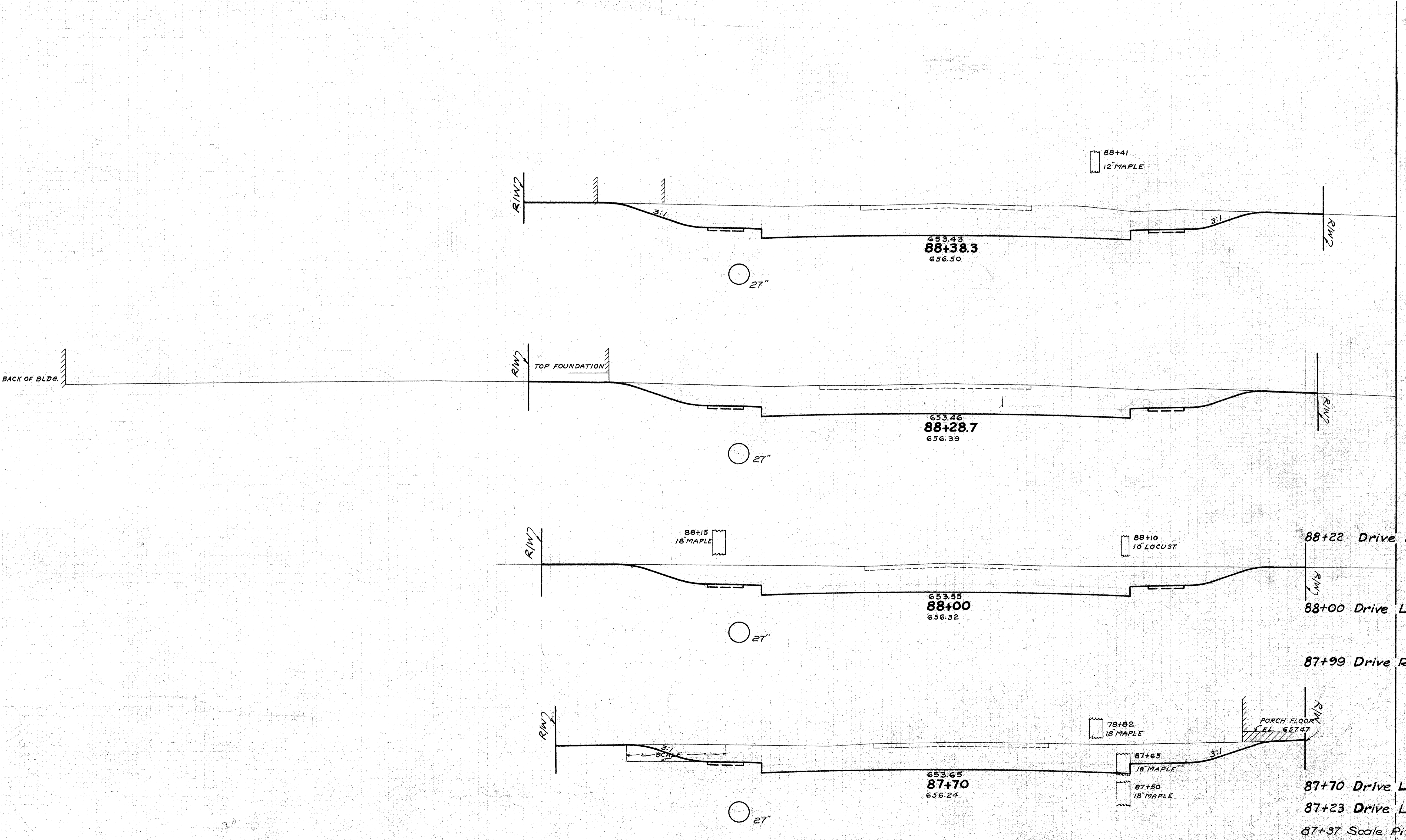
Original	Survey
Notes	Book
Scale	
Date	

End Area Cu Yds	Cut	Fill	Cut/Fill
155 0			
409 0			
14			
8			
108 0			
117 0			
48 0			
118 0			
124 0			
122 0			
22 0			
120 0			
28 0			
12			
93 2			
178 9			
67 6			
62 12			



Excavation
20730 cu yd
Embankment
491 cu yd
Embankment 20%
589 cu yd

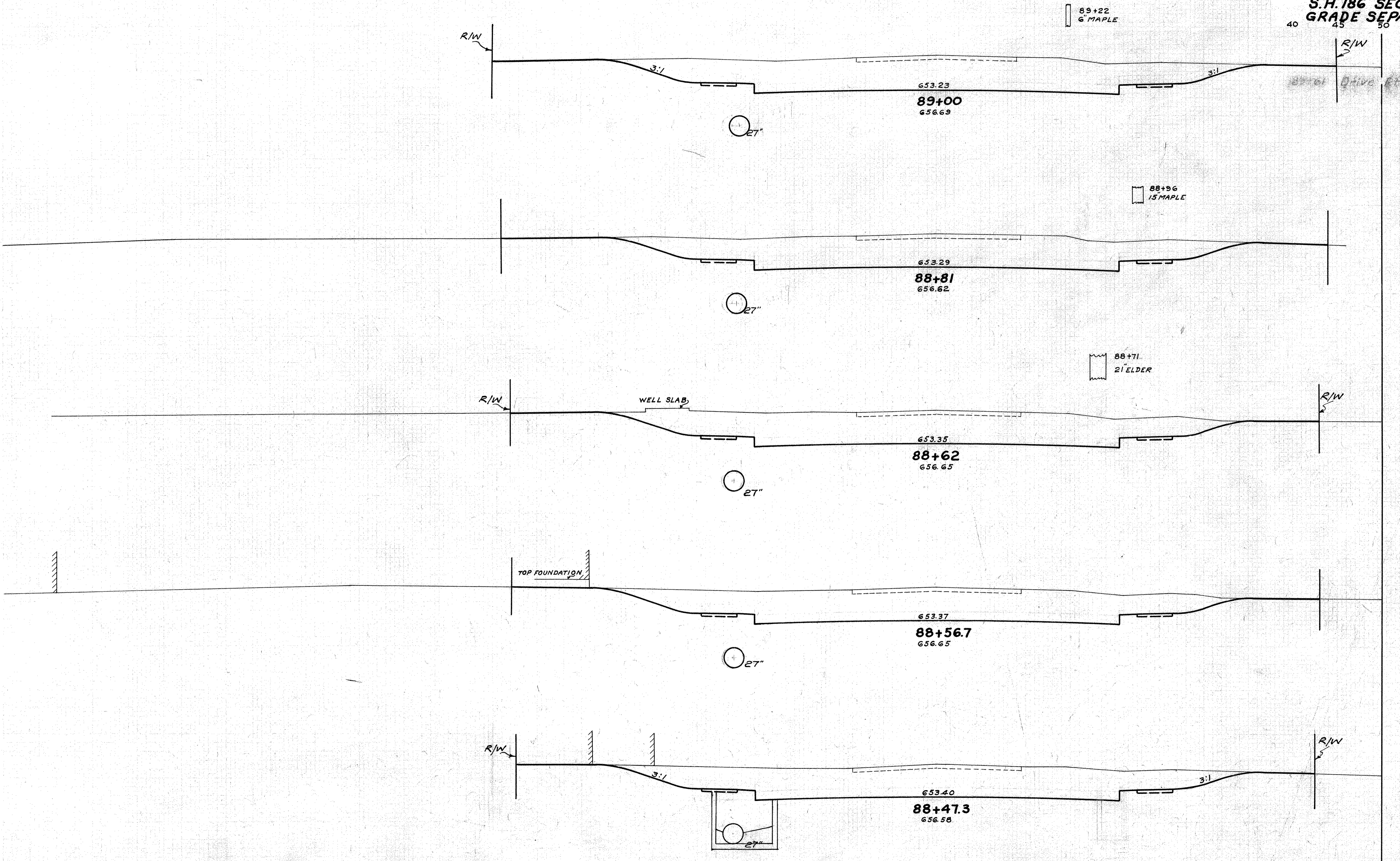
Plotted By F.L.R.
 Templates/Plotted A.R.T.
 Templates/Plotted A.H.R.
 Drainage By A.R.T.
 Areas By A.H.R.
 Volumes By A.H.R.
 Volumes Chkd F.L.R.
 Balance Points M.B.S. G.M.



End Area		Cu Yds.	
Cut	Fill	Cut	Fill
195	0		
		69	0
190	0		
		195	0
		16	
177	0	15	
		20	
		197	0
		177	0
		11	
		430	0
		11	

10 OHIO F.A.G.H. 825-E(1) 1999
BUTLER COUNTY
S.H. 186 SEC. D (PT.)
GRADE SEPARATION

Plotted By	E.L.R.
Templates Plotted	A.R.T.
Templates Ch'kd.	A.H.R.
Drainage By	A.R.T.
Areas By	A.H.R.
Volumes By	A.H.R.
Volumes Ch'kd.	E.L.R.
Balance Points	M.S.G.M.

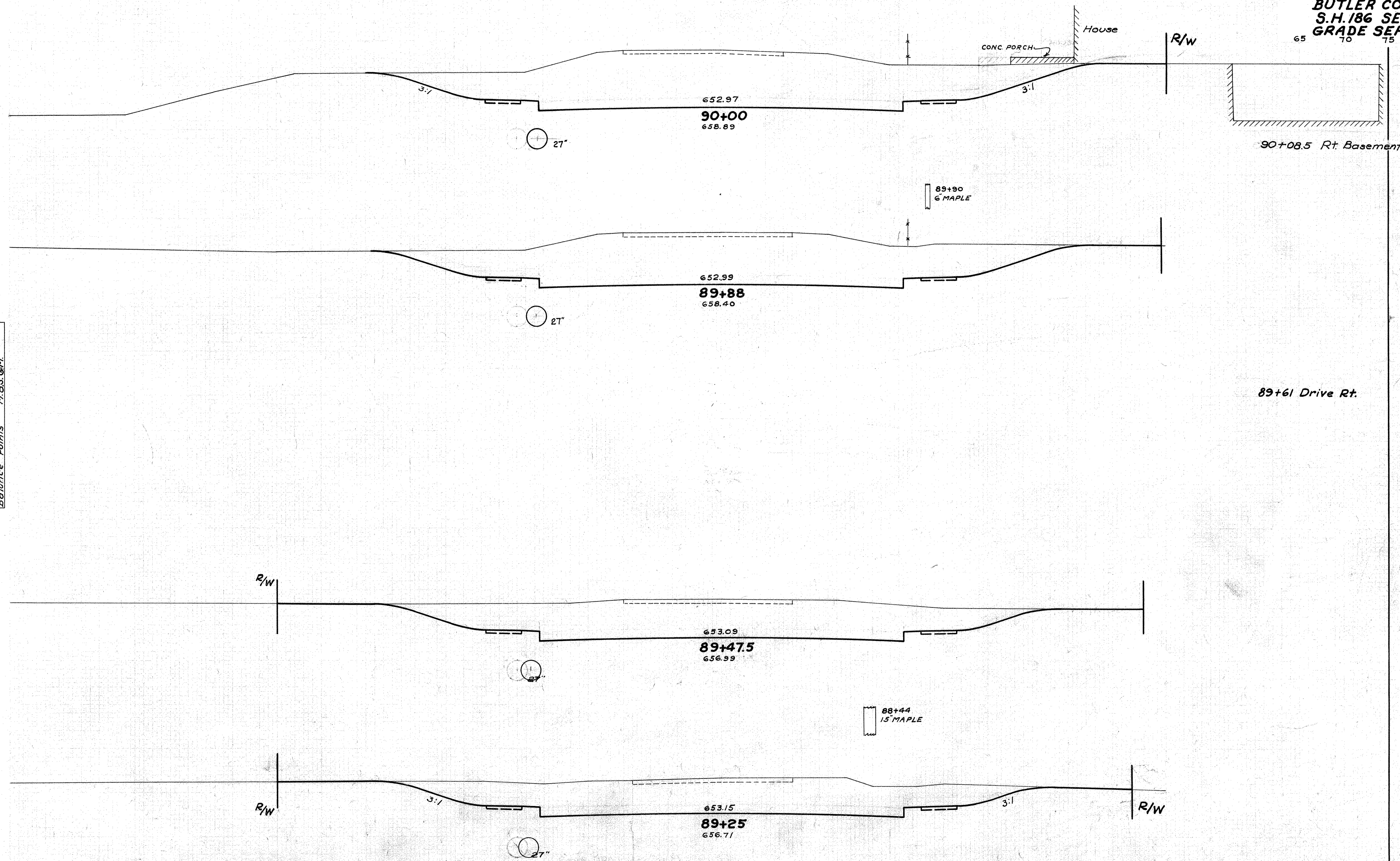


End Area	Cu Yds.	
	Cut	Fill
217 0		23
202 0		147
208 0		144
207 0		41
202 0		71
217 0		66

80 75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60

F.A.G.C. 14
 10 OHIO F.A.G.H.825-E(1) 1939 38
BUTLER COUNTY
S.H. 186 SEC. D (PT.)
GRADE SEPARATION

Plotted By F.L.R.
 Templates Plotted A.R.T.
 Templates Ch'kd. A.H.R.
 Drainage By A.R.T.
 Areas By A.H.R.
 Volumes By A.H.R.
 Volumes Ch'kd. F.L.R.
 Balance Points M.B.S.G.M.



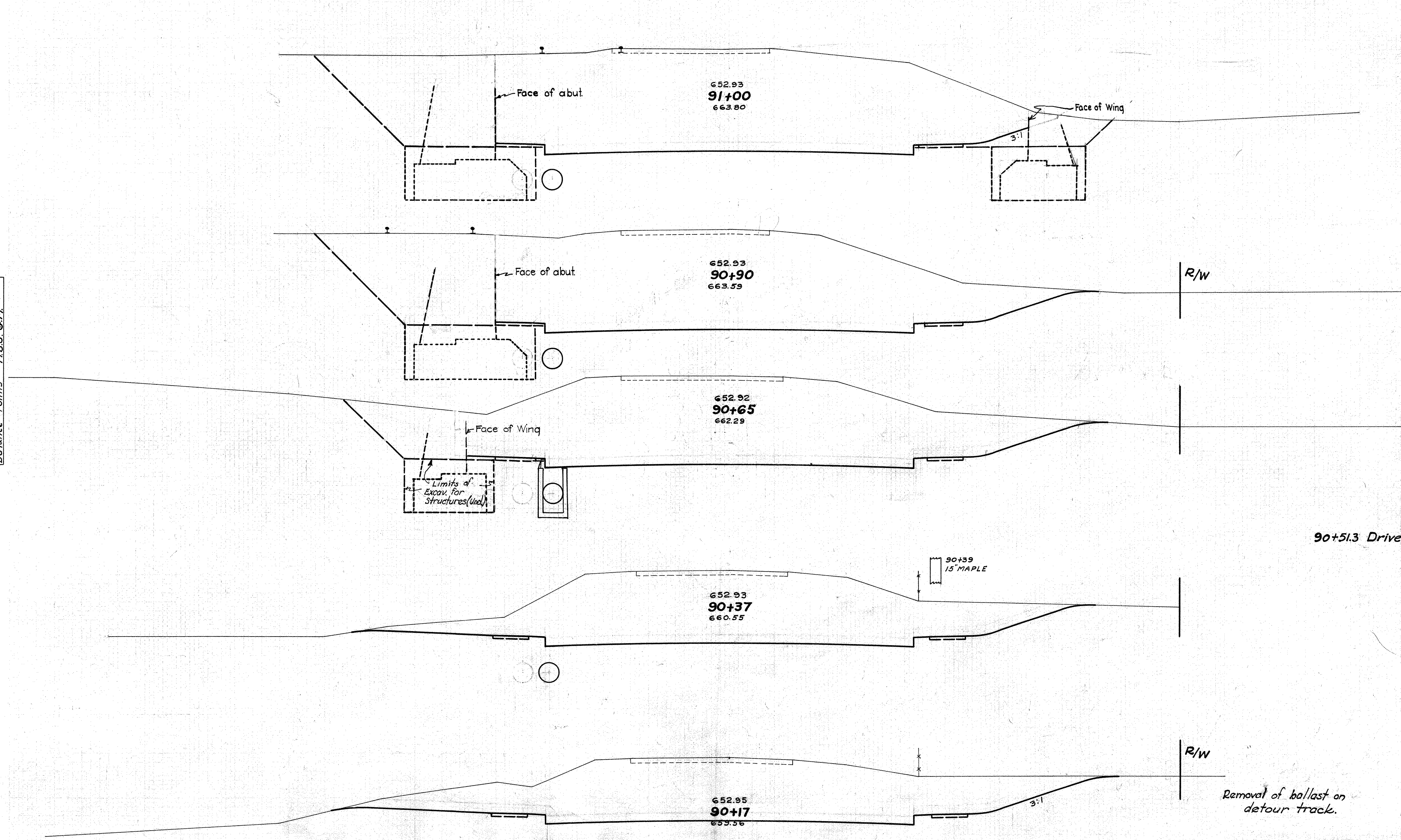
End Area	Cu Yds.
Cut	Fill
362	0
	95
	152
322	0
	20
	424
244	0
	194
222	0
	203

80 75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60

STA 89+25 TO 90+00

Plotted By
 Templates Plotted
 Drainage By
 Areas By
 Volumes By
 Balance Points

F.L.R.
 A.R.T.
 A.H.R.
 A.H.R.
 A.H.R.
 F.L.R.
 M.S.G.M.



End Area		Cu Yds.	
Cut	Fill	Cut	Fill
788	0		
		277	0
708	0		
		592	0
570	0		
		503	0
		80	0
400	0		
		290	0
		100	0
384	0		
		235	0

90+51.3 Drive Rt

Removal of ballast on detour track.

80 75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60

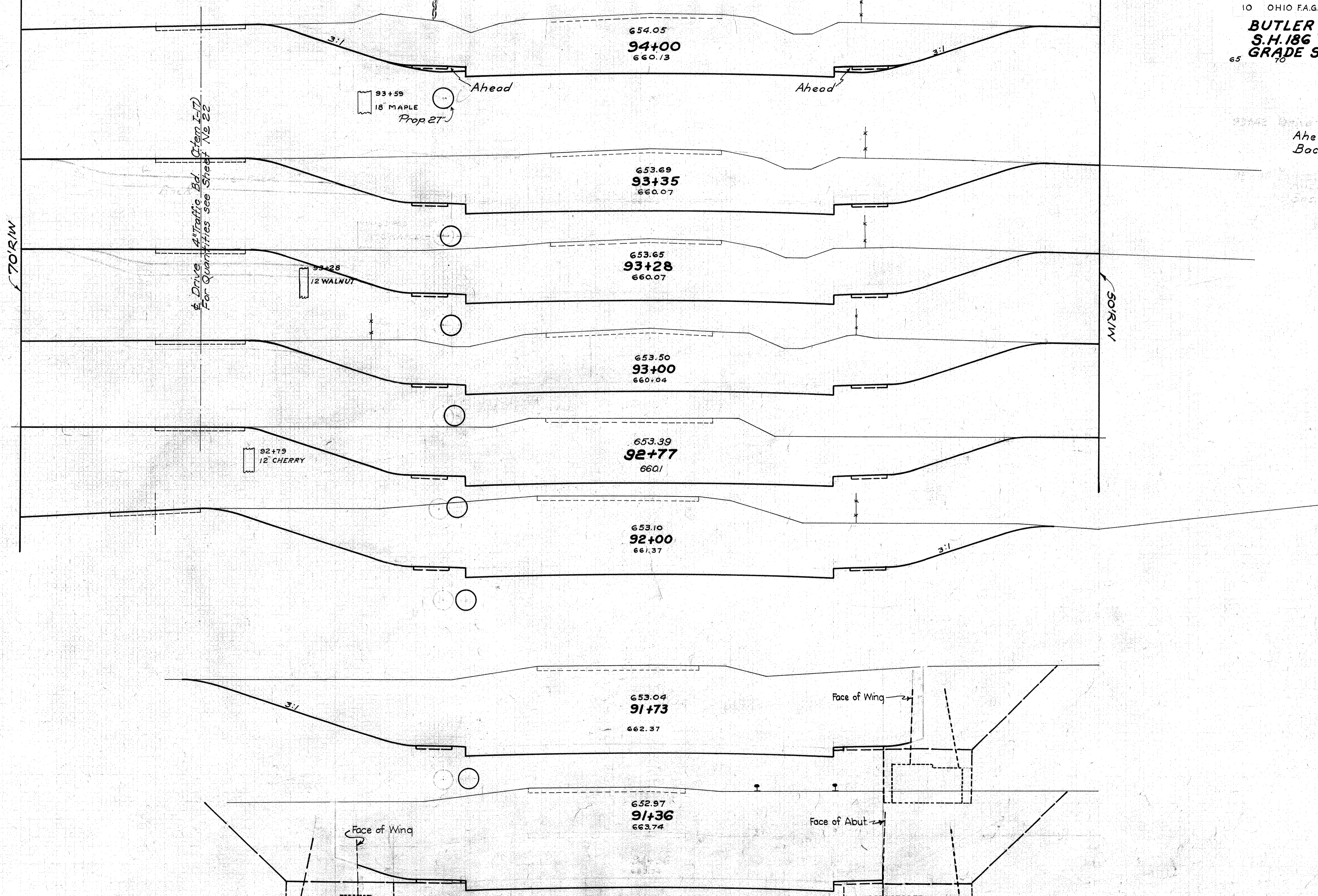
F.A.G.C. 16
 10 OHIO F.A.G.H.825-E(1) 1939 38
BUTLER COUNTY
S.H. 186 SEC. D (PT.)
GRADE SEPARATION

70' R/W

50' R/W

4" Drive, 4" Traffic Bd.
 For Quantities see Sheet No. 22

Plotted By	F.L.R.
Templates Plotted	A.R.T.
Templates Chkd.	A.H.R.
Drainage By	A.R.T.
Areas By	A.H.R.
Volumes By	F.L.R.
Volumes Chkd.	A.H.R.
Balance Points	M.B.S.G.M.

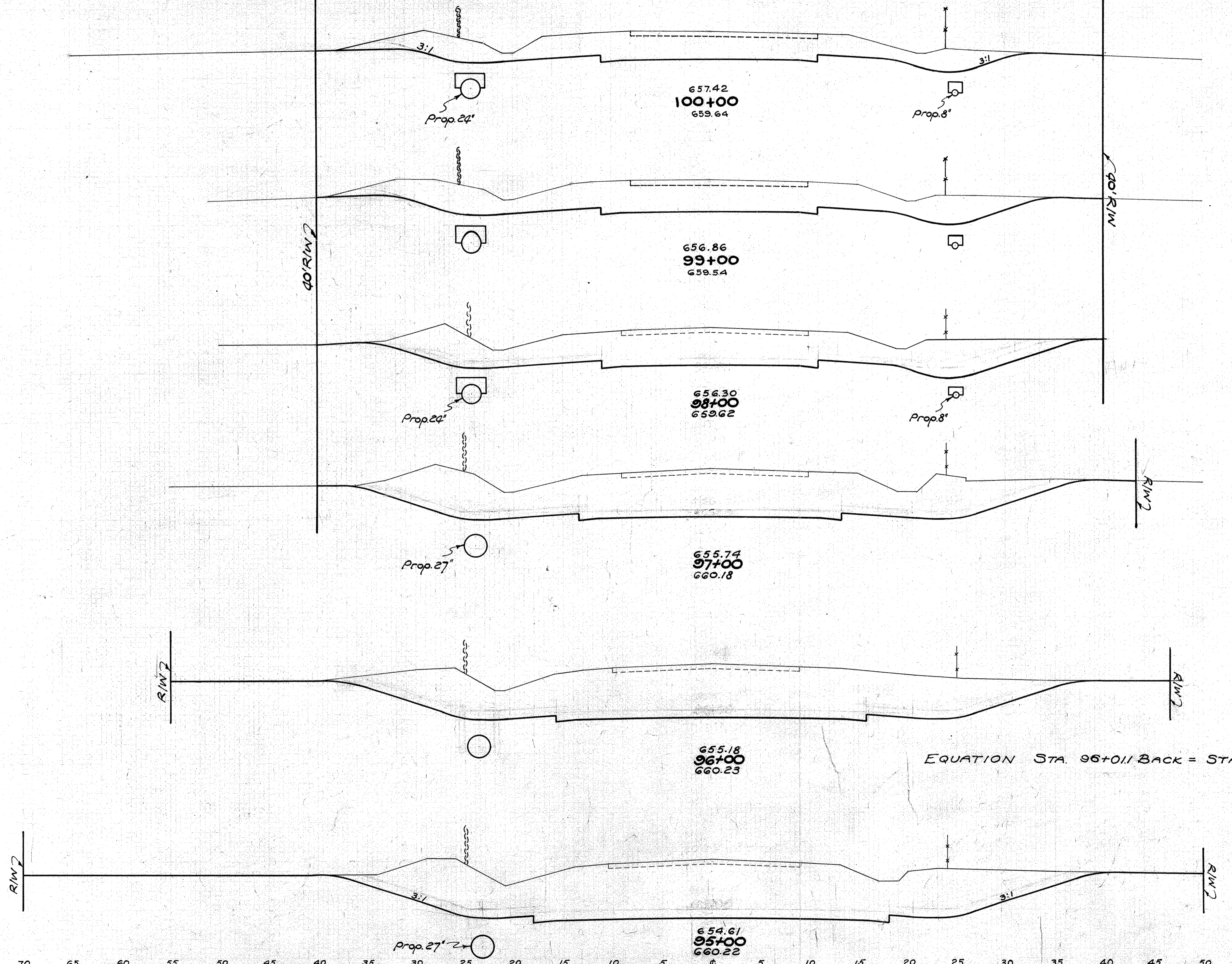


End Area	Cu. Yds.	
	Cut	Fill
406	0	
397	0	
417	0	980
		107
407	0	
		422
407	0	
		352
419	0	174
		1350
528	0	
		627
727	0	
		111
894	0	
		1121

80 75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85

80 75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60

**BUTLER COUNTY
S.H. 186 SEC. D (PT)
GRADE SEPARATION**



End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
143	0		
		591	0
176	0		
		700	0
207	0		
		885	0
271	0		
		1065	0
304	0		
		1206	0
340	0		
		1382	0
		117	

EQUATION STA. 96+01.1 BACK = STA 96+00 AHEAD

Drive Sta 95+00 Lt

STA. 95+00 To 100+00

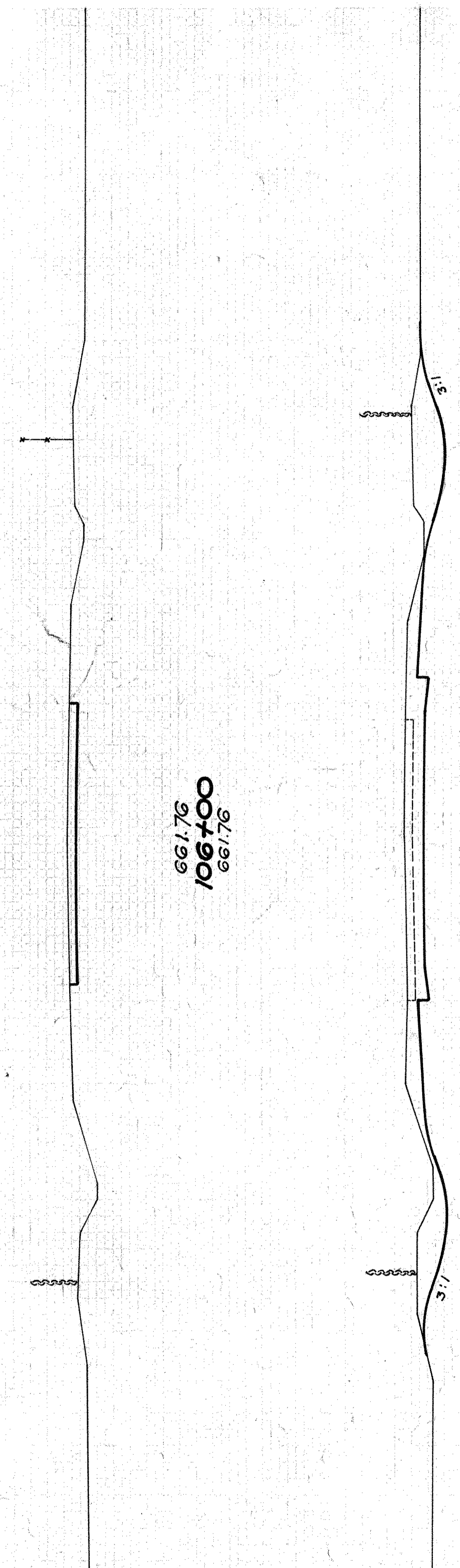
Plotted By F.L.R.
 Templates Plotted A.H.R.
 Templates Chkd. A.H.R.
 Drainage By A.H.R.
 Areas By A.H.R.
 Volumes By A.H.R.
 Volumes Chkd. F.L.R.
 Balance Points M.B.S. G.M.

80 75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60

Plotted By: ART
 Templates Plotted: ART
 Templates Chkd: AHR
 Drainage Chkd: ART
 Areas By: AHR
 Volumes By: AHR
 Volumes Chkd: E.L.R.
 Balance Points: M.B.S.M.B.

55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50

End Area	Cu. Yd.	Cu. Yd.
Cut	Fill	Fill
0	0	130
61	0	0
95	0	289
85	0	427
89	0	0
169	11	0
188	11	661
196	16	711
116	0	480



661.76
106+00
661.76

660.71
105+00
661.39

104+39 Drive Rt.

END OF F.A.G. H. 825 E-W STA. 104+00

659.66
104+00
661.04

104+00
Total for Appr.
Sta. 104+00

659.10
103+00
660.54

Ahead
Back

658.54
102+00
660.21

657.98
101+00
660.02

Ahead
Back

Classified Subgrade Material Item 88-112 End Area Cu Yd.	256
69	256
69	256
69	256
Total	512

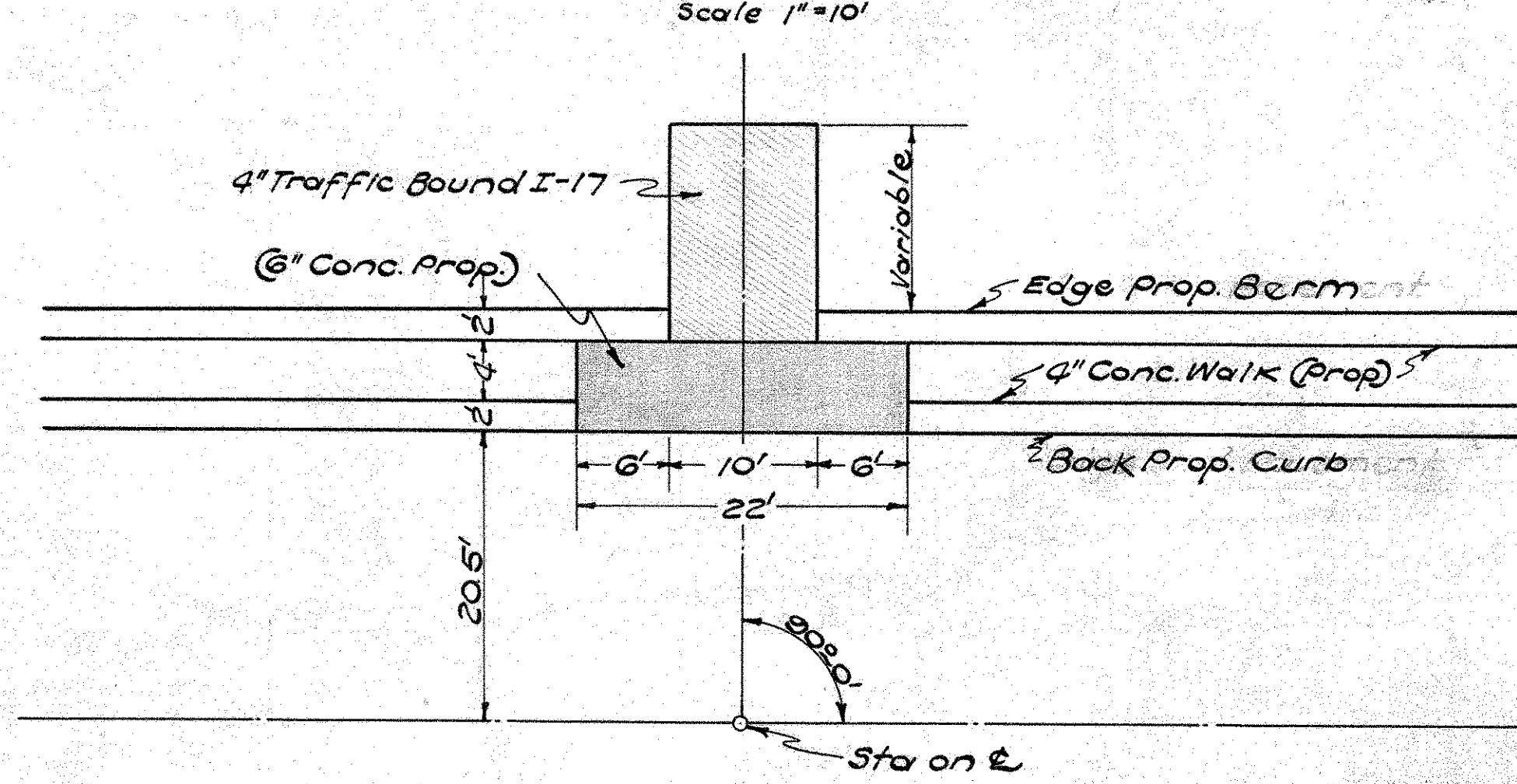
F.A.G.C.
 10 OHIO F.A.G.H. 825 E(1) 1939
 BUTLER COUNTY
 S.H. 186 SEC. 10 (PT)
 GRADE SEPARATION.

18
38

STA. 101+00 To 106+00

BUTLER COUNTY
S.H. 186 SEC. 'D' (PT)
GRADE SEPARATION

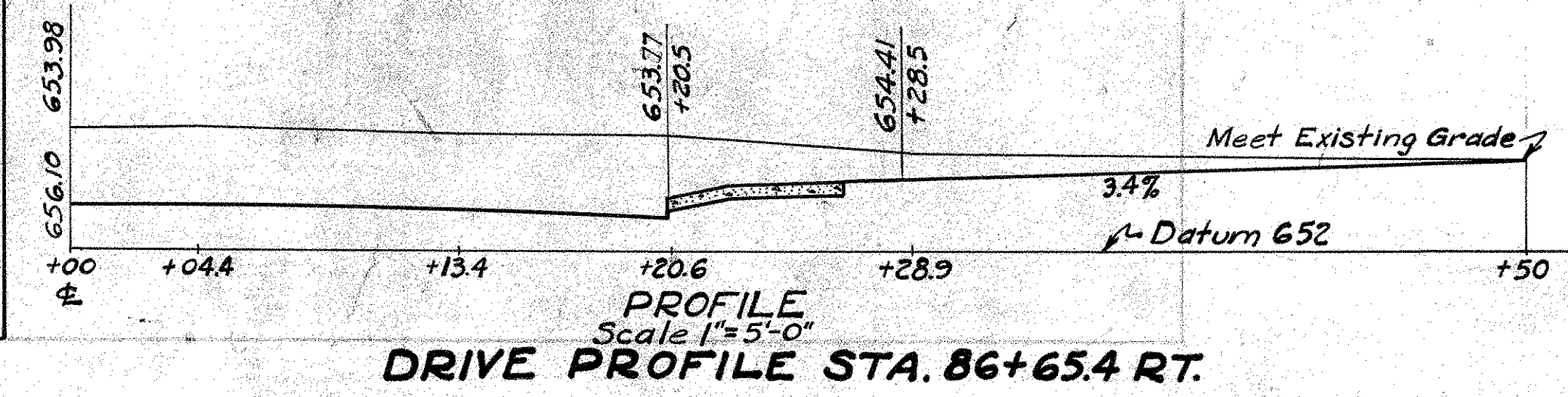
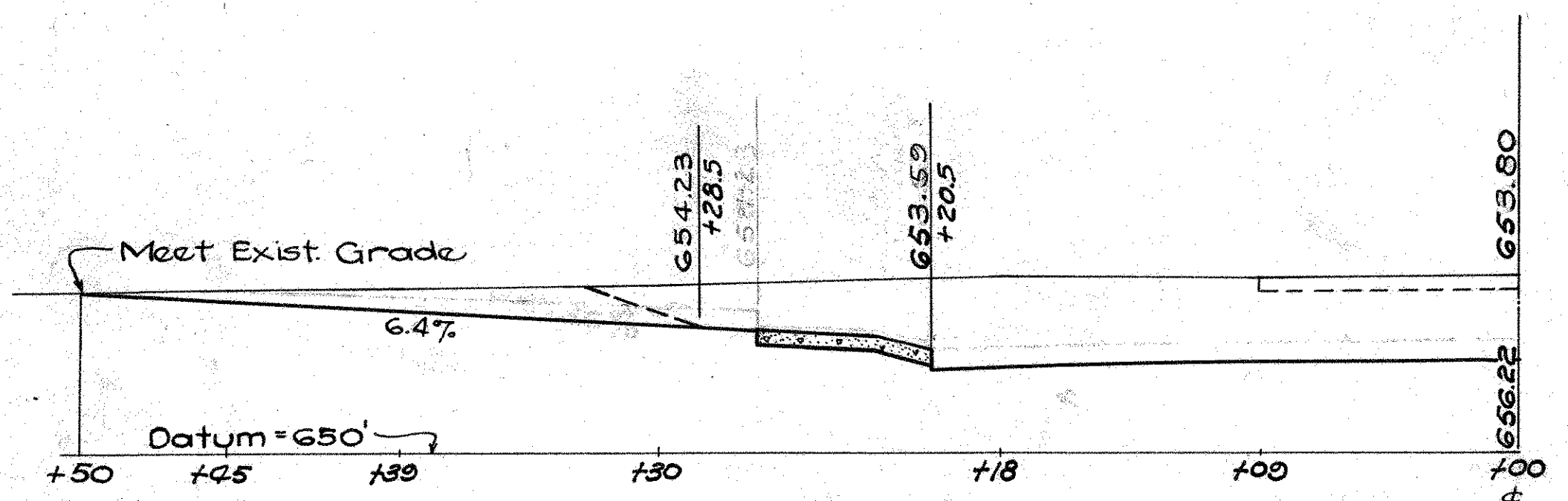
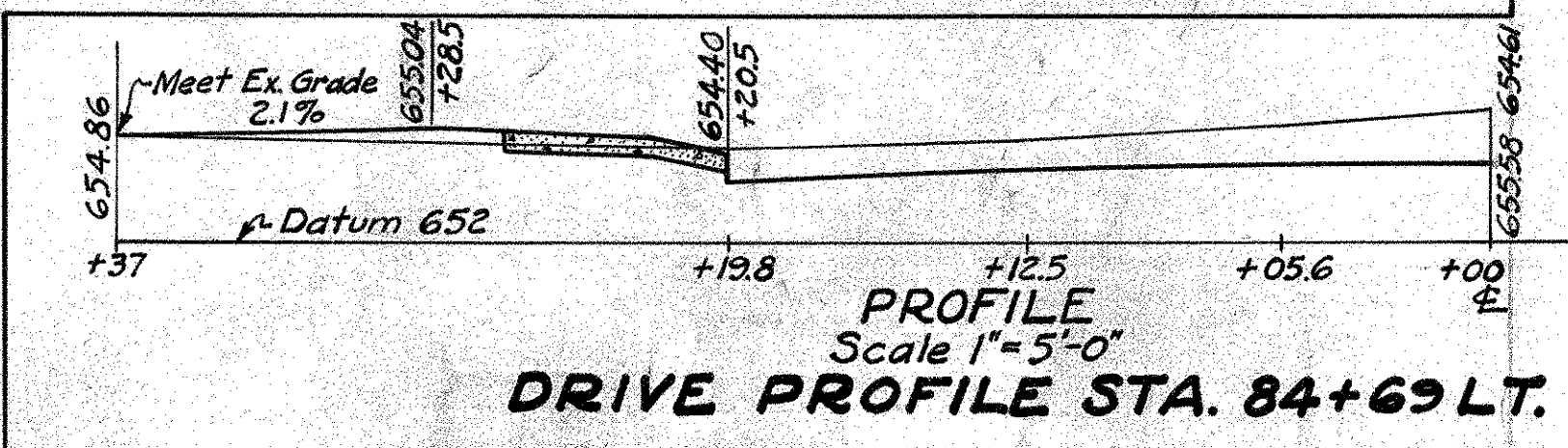
TYPICAL PLAN OF DRIVES



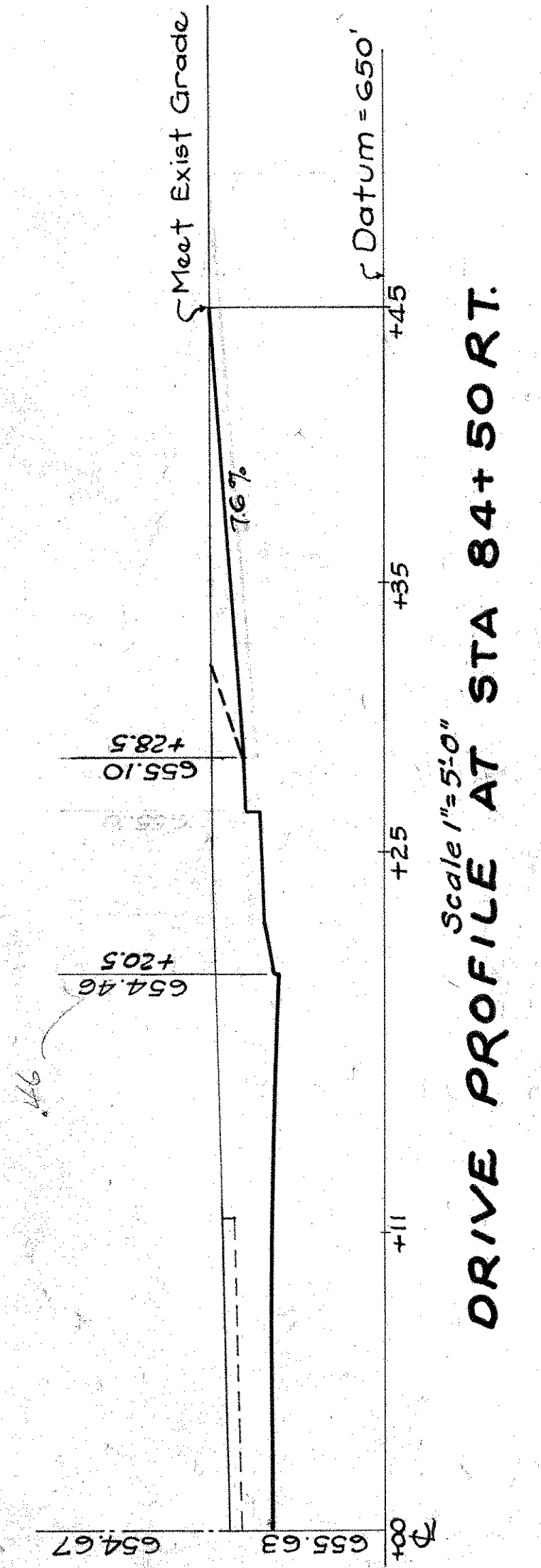
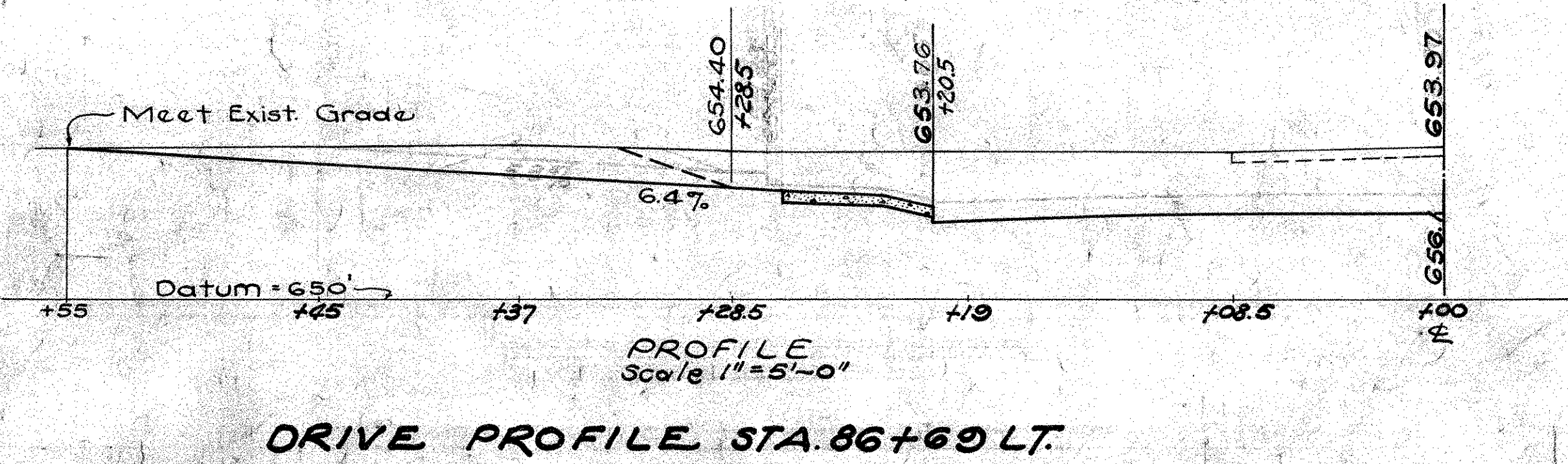
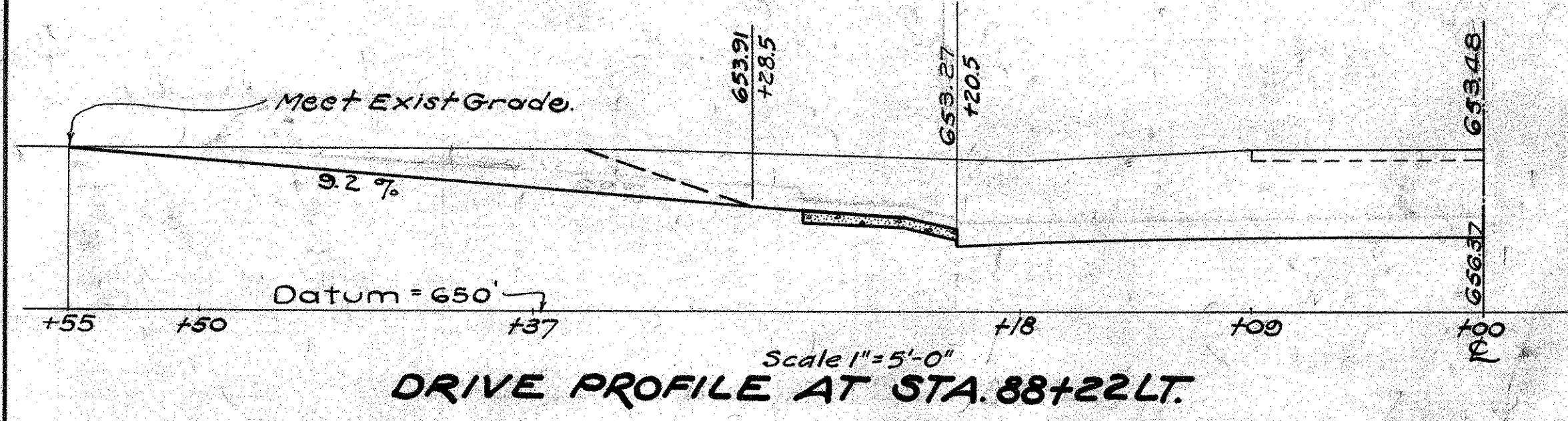
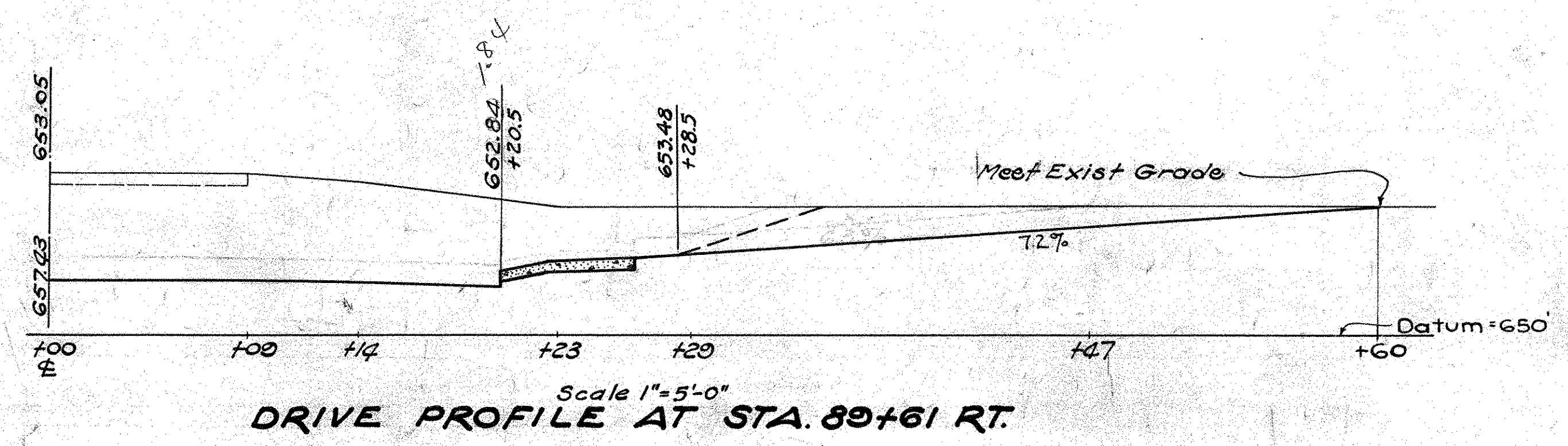
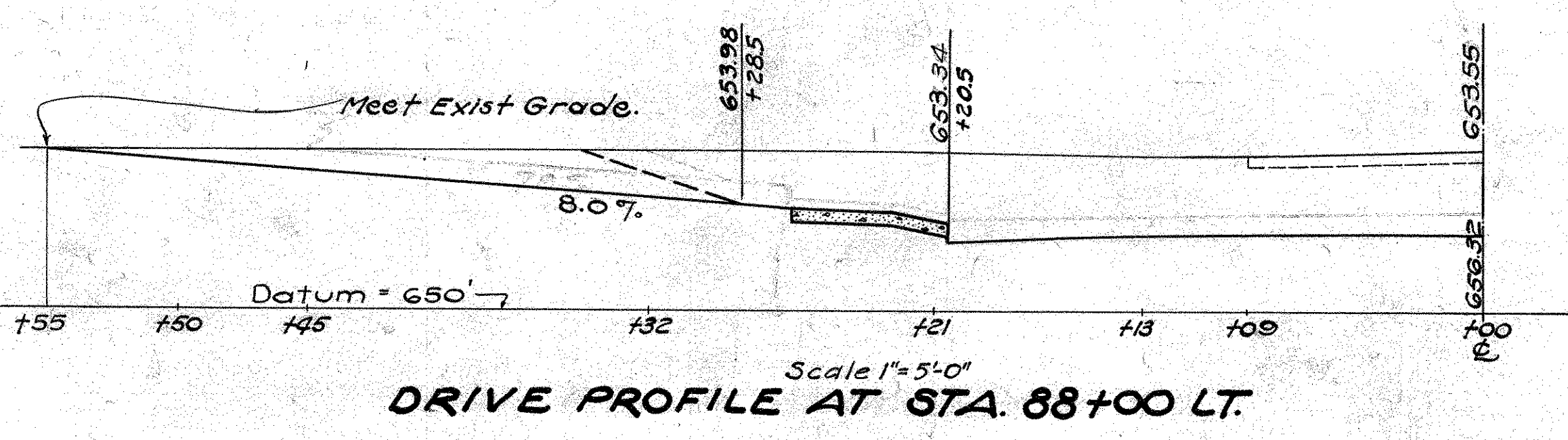
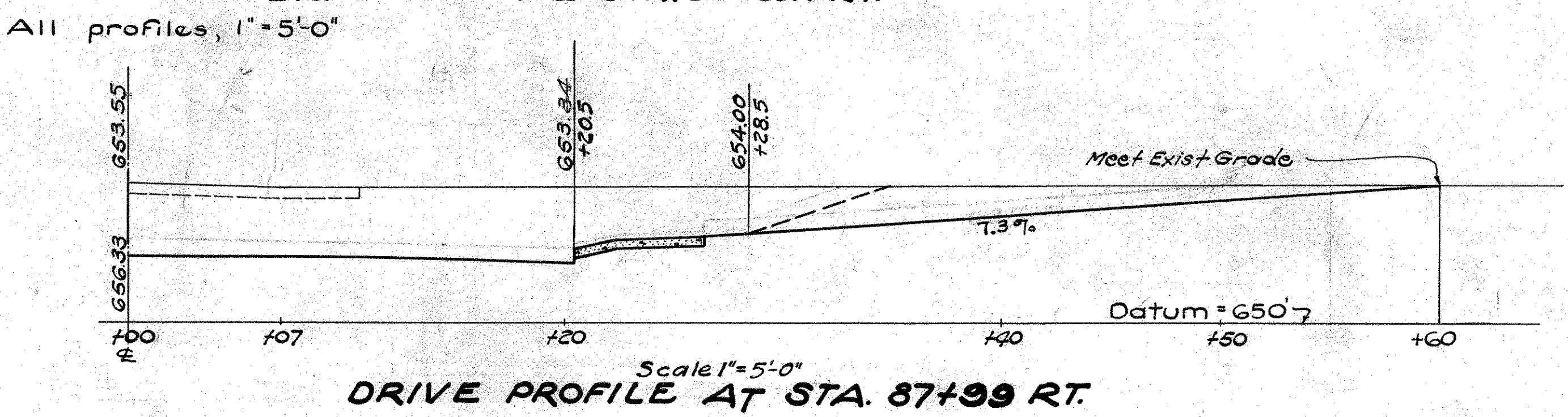
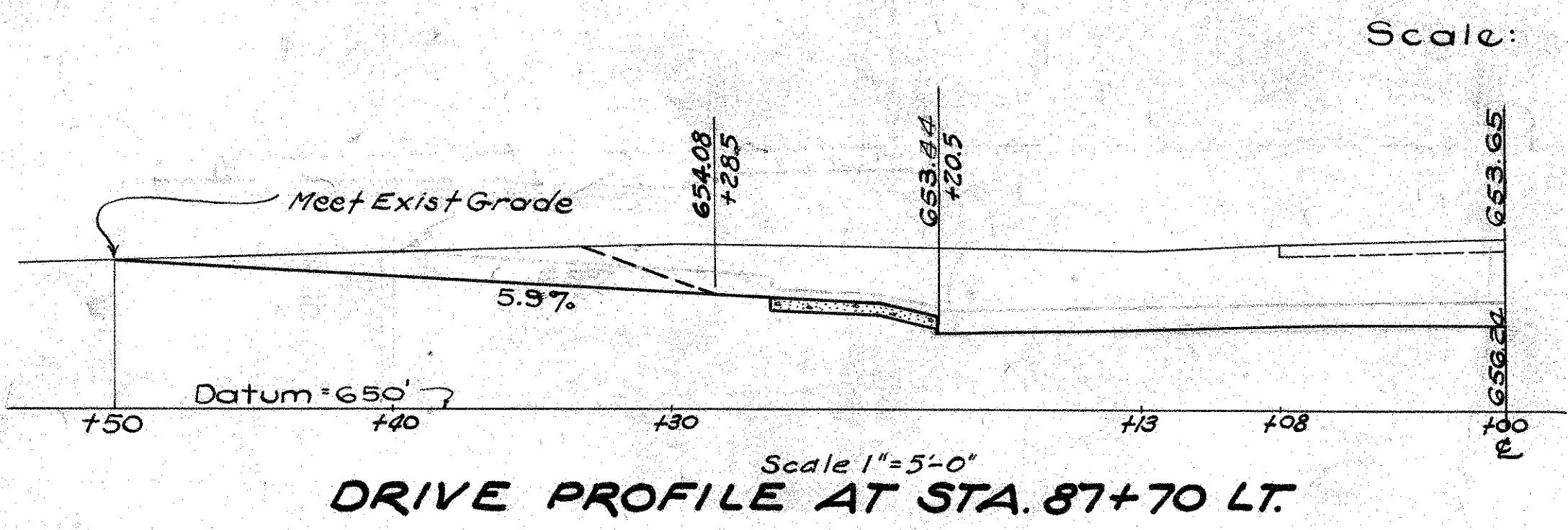
ESTIMATED QUANTITIES

Excavation	30 Cu. Yds
6" Concrete Pav't. (Item T-70)	14.7 Sq. Yds.
4" Conc. Sidewalk. Item I-13 (Deduction)	88.0 Sq. Ft.

Station	Side of Rd.	6" Conc. Pav't. Item T-70		Traffic Bd. Item I-17 (40% No 7 60% No 4)		4" Conc. Side Walk Item I-13 (Deduct)		Excavation	Embankment
		Sq. Yds.	Cu. Yds.	Sq. Ft.	Cu. Yds.	Sq. Ft.	Cu. Yds.		
84+50	RT	14.7	2.0	88	7				
86+69	LT	14.7	4.0	88	14				
87+23	LT	14.7	3.0	88	11				
87+70	LT	14.7	3.0	88	12				
87+99	RT	14.7	4.0	88	20				
88+00	LT	14.7	4.0	88	15				
88+22	LT	14.7	4.0	88	16				
89+61	RT	14.7	4.0	88	20				
84+69	LT	14.7	2.0	88	1				1
86+65.4	RT	14.7	3.0	88	8				



PROFILE DRIVE STA. 87+23 LT.



Drawn by: C.S.R. Date 1-12-40
 Checked by: M.B.S. Date 1-16-40
 Checked by: _____ Date _____

BUTLER COUNTY
S.H. 186 SEC. "D" (PT)
GRADE SEPARATION.

SEEDING AND SODDING

STATIONS	Side	Renovating Existing Soil	Seeding & Protecting Shoulders Slopes & Ditches	Sodding	Commercial Fertilizer
		ITEM L-4 M. Sq. Ft.	ITEM E-305 Sq. Yd.	ITEM L-10 Sq. Yd.	ITEM L-9 Lbs.
81+09.48	81+50	Lt.	28		
81+50	81+60.1	Lt.	14		
81+60.1	82+12.74	Lt.		65	
82+12.74	82+50	Lt.	66		
81+09.48	81+50	Rt.		32	
81+50	82+00	Rt.		68	
82+00	82+50	Rt.		74	
82+50	82+63.03	Lt.	20		
82+63.03	83+18.10	Lt.		61	
83+18.10	84+18.10	Lt.	150		
84+18.10	84+63.10	Lt.	75		
84+63.10	85+18.10	Lt.		60	
85+18.10	85+63.10	Lt.	75		
85+63.10	86+18.25	Lt.		70	
86+18.25	87+00	Lt.	122		
87+00	89+00	Lt.	376		
89+00	89+47.5	Lt.	124		
89+47.5	90+47	Lt.	285		
91+39	93+00	Lt.	646		
82+50	84+18.10	Rt.		240	
84+18.10	84+68	Rt.			
84+68	85+68.88	Rt.	106		
85+68.88	86+55.10	Rt.		106	
86+55.10	88+06.5	Rt.		127	
88+06.5	89+76	Rt.		220	
89+76	90+51.3	Rt.	347		
90+51.3	90+67.72	Rt.	194		
91+39	93+00	Rt.	79		
93+00	90+18	Lt.	196		
90+18	90+68	Lt.		133	
90+68	91+68	Lt.		10	
91+68	92+18	Lt.		17	
92+18	93+00	Rt.		18	

TOTALS * 13.5 2883 1497 789 *
* Existing Soil to be renovated only on proposed soil Areas.
Fertilizer to be placed on Sodded & Seeded Areas. (20#/MSq.Ft.)

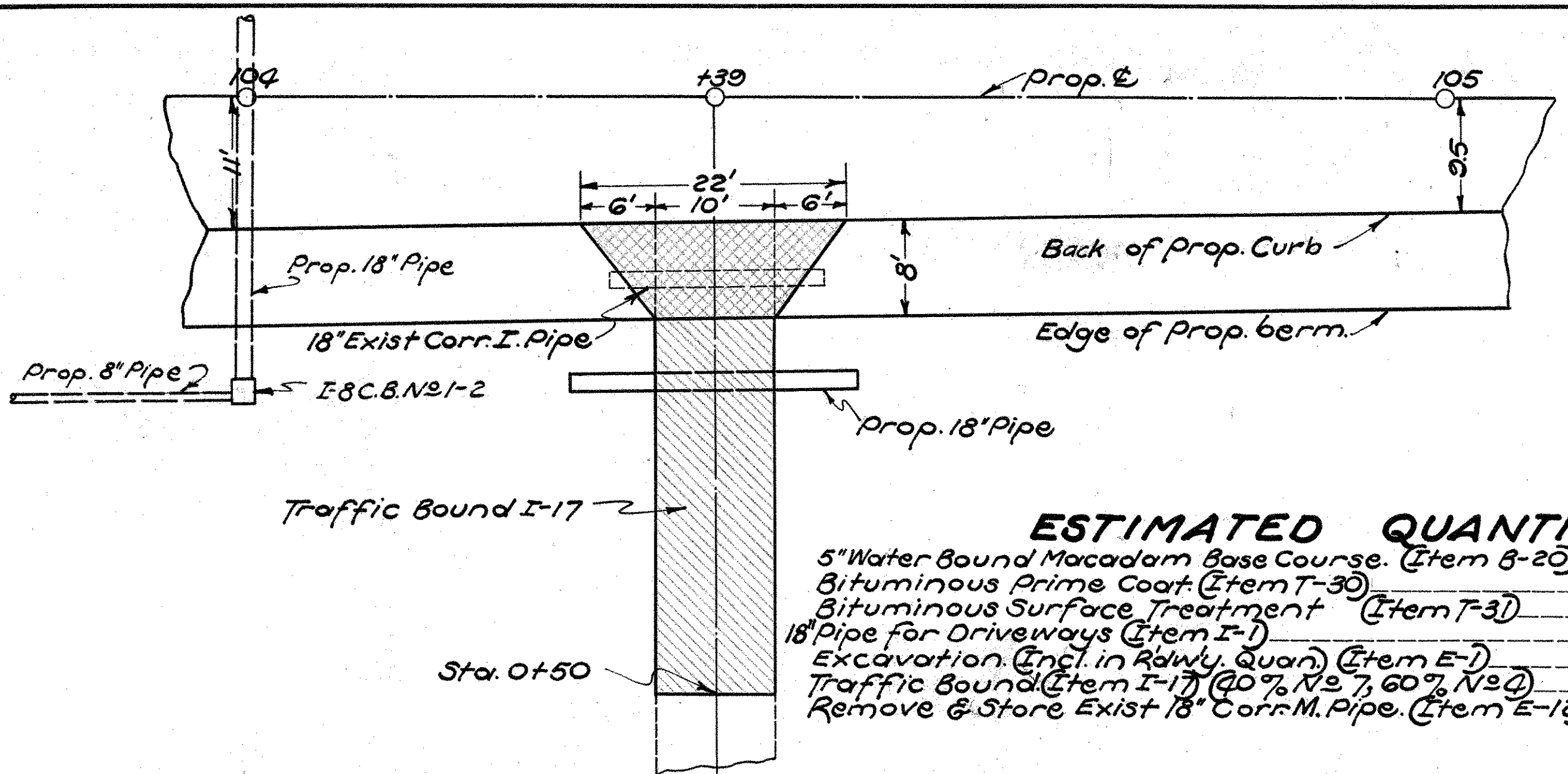
SEEDING AND SODDING

STATIONS	Side	Renovating Existing Soil	Seeding & Protecting Shoulders Slopes & Ditches	Sodding	Commercial Fertilizer
		ITEM L-4 M. Sq. Ft.	ITEM E-305 Sq. Yd.	ITEM L-10 Sq. Yd.	ITEM L-9 Lbs.
93+00	94+00	Rt.	261		
94+00	98+00	Rt.	1300		
98+00	101+00	Rt.	967		
93+00	94+00	Rt.		22	
93+00	94+00	Lt.	586		
94+00	95+00	Lt.	435		
95+00	97+00	Lt.	871		
97+00	98+00	Lt.	309		
98+00	101+00	Lt.	1000		
93+00	94+00	Lt.		22	

TOTALS * 04 5529 44 1004 *

101+00	104+00	Rt.	967		
104+00	105+00	Rt.	192		
105+00	106+00	Rt.	111		
101+00	104+00	Lt.	1000		
104+00	105+00	Lt.	244		
105+00	106+00	Lt.	117		

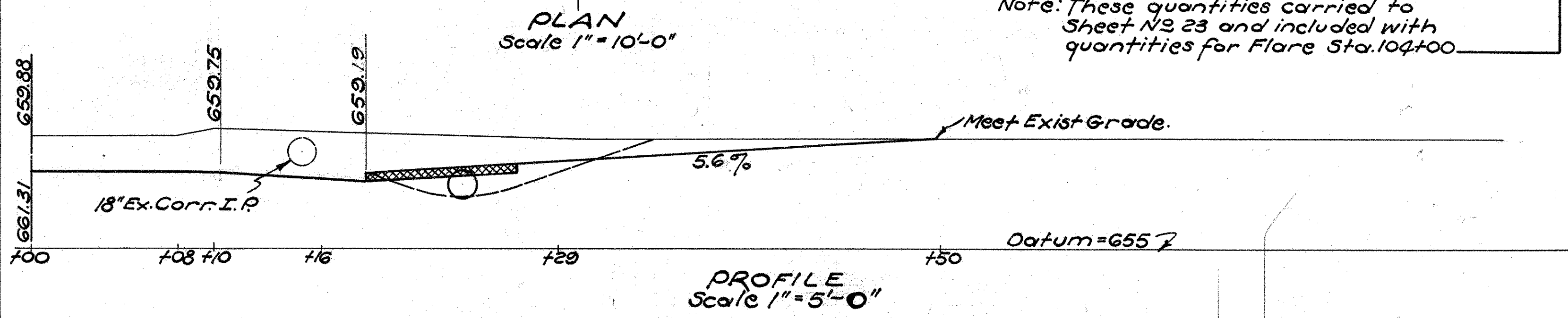
TOTALS 2631 474 *
GRAND TOTALS * 139 11043 1541 2267 *



ESTIMATED QUANTITIES

5" Water Bound Macadam Base Course (Item B-20)	14.2 Sq. Yd.
Bituminous Prime Coat (Item T-30)	14.2 Sq. Yd.
Bituminous Surface Treatment (Item T-31)	14.2 Sq. Yd.
18" Pipe for Driveways (Item I-1)	24 Lin. Ft.
Excavation (Incl. in Rdwy. Quan.) (Item E-1)	8 Cu. Yd.
Traffic Bound (Item I-17) (20% N2, 60% N3)	4 Cu. Yd.
Remove & Store Exist 18" Corr. M. Pipe (Item E-12)	18 Lin. Ft.

Note: These quantities carried to Sheet N2 23 and included with quantities for Flare Sta. 104+00.

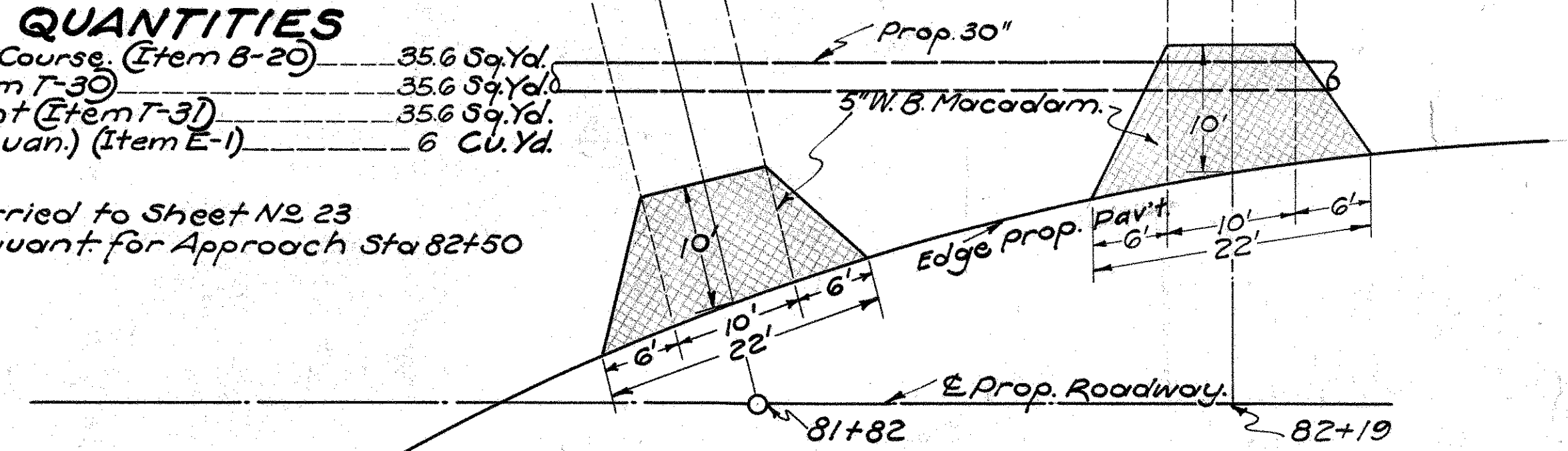


DRIVE STA. 104+39 RT.

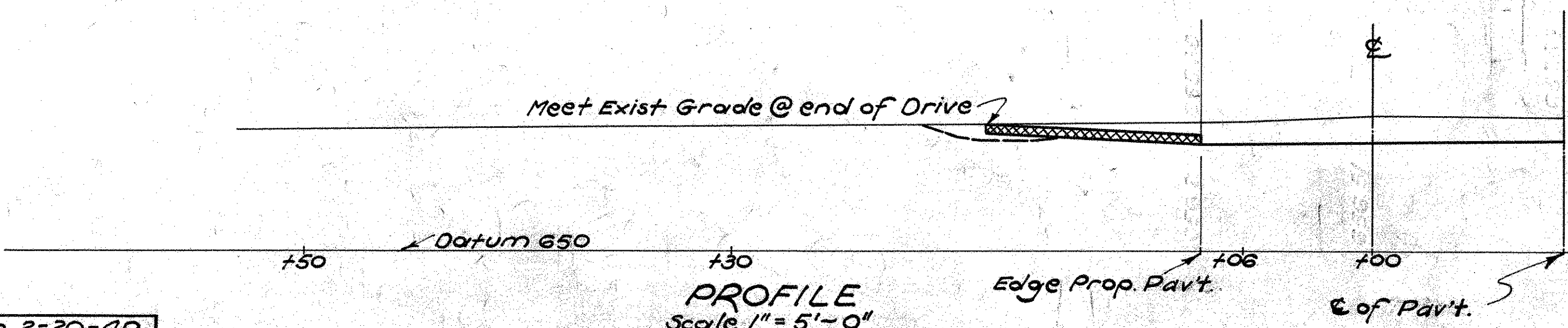
ESTIMATED QUANTITIES

5" Water Bound Macadam Base Course (Item B-20)	35.6 Sq. Yd.
Bituminous Prime Coat (Item T-30)	35.6 Sq. Yd.
Bituminous Surface Treatment (Item T-31)	35.6 Sq. Yd.
Excavation (Incl. in Rdwy. Quan.) (Item E-1)	6 Cu. Yd.

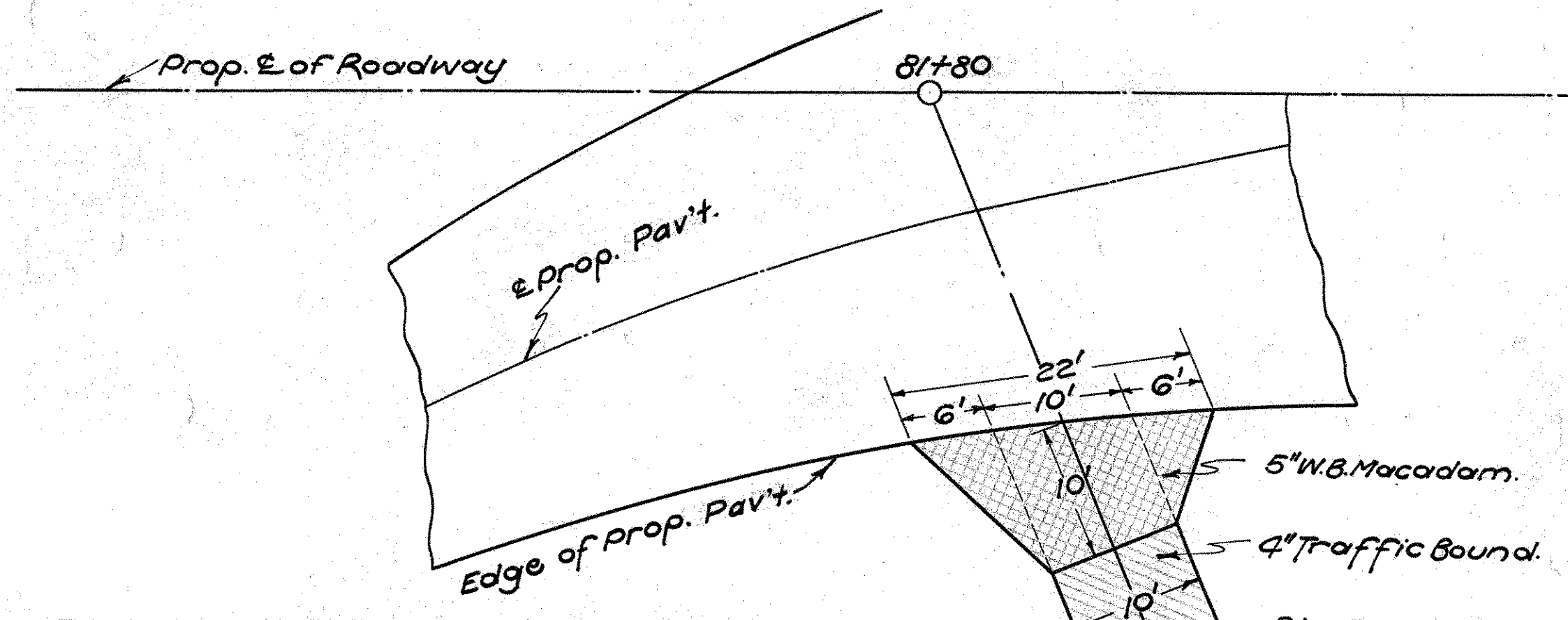
Note: These quantities carried to Sheet N2 23 and included with quant. for Approach Sta. 82+50



PLAN Scale 1" = 10'-0"



DRIVE STA. 81+82 LT. & STA. 82+19 LT.

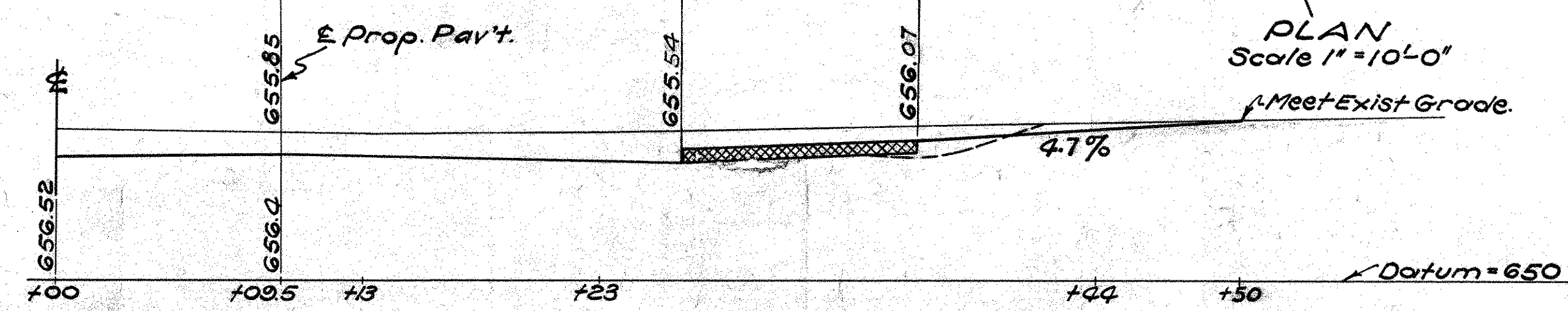


PLAN Scale 1" = 10'-0"

ESTIMATED QUANTITIES

5" Water Bound Macadam Base Course (Item B-20)	17.8 Sq. Yd.
Bituminous Prime Coat (Item T-30)	17.8 Sq. Yd.
Bituminous Surface Treatment (Item T-31)	17.8 Sq. Yd.
Excavation (Incl. in Rdwy. Quan.) (Item E-1)	2.0 Cu. Yd.
Traffic Bound (Item I-17) (20% N2, 60% N3)	2.0 Cu. Yd.

Note: These quantities carried to Sheet N2 23 and included with quantities for Approach Sta. 82+50

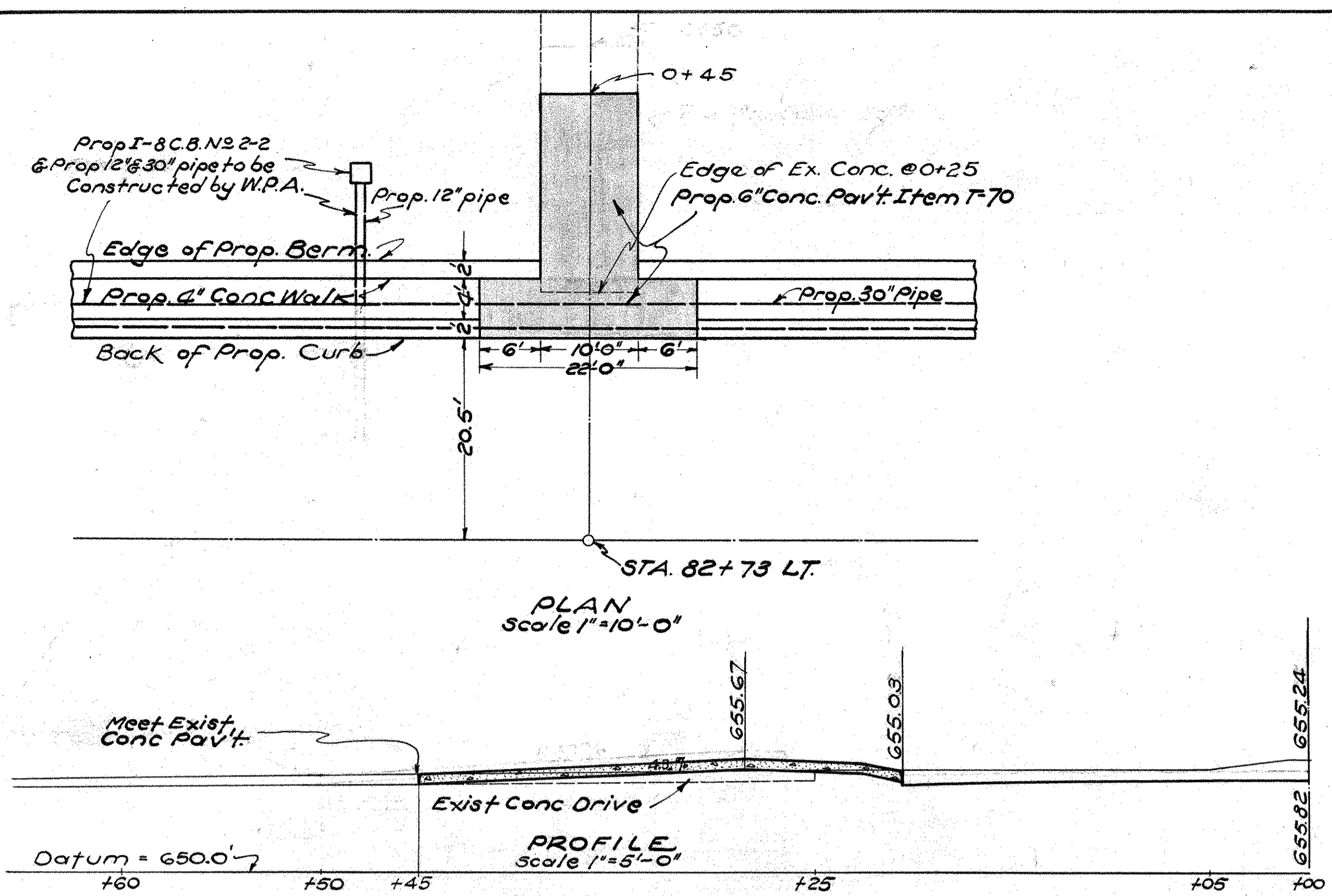


PROFILE Scale 1" = 5'-0"

DRIVE STA. 81+80 RT.

Drawn By C.S.R. Date 2-20-40
Chkd By M.B.S. Date 2-21-40
Chkd By Date

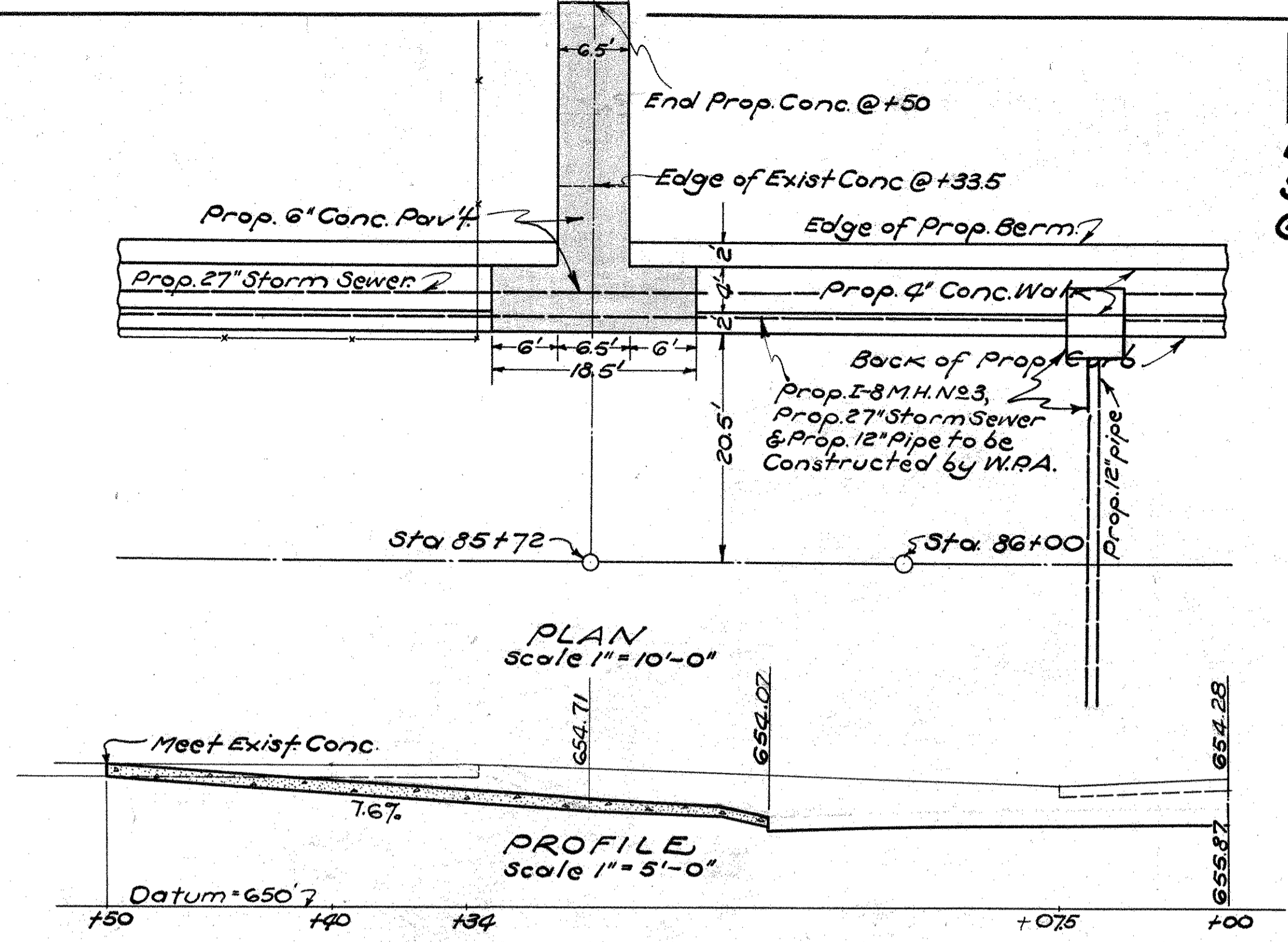
**BUTLER COUNTY
S.H. 186 SEC "D" (PT)
GRADE SEPARATION**



ESTIMATED QUANTITIES
Embankment (Incl. in Rdwy Quant) 3 Cu. Yds.

6" Concrete Pav't (Item T-70)	35.2 Sq. Yds.
Remove Ex. 6" Conc. Pav't (Item E-8)	22.2 Sq. Yds.
4" Conc. Sidewalk (Item I-13) (Reduction)	88.0 Sq. Ft.

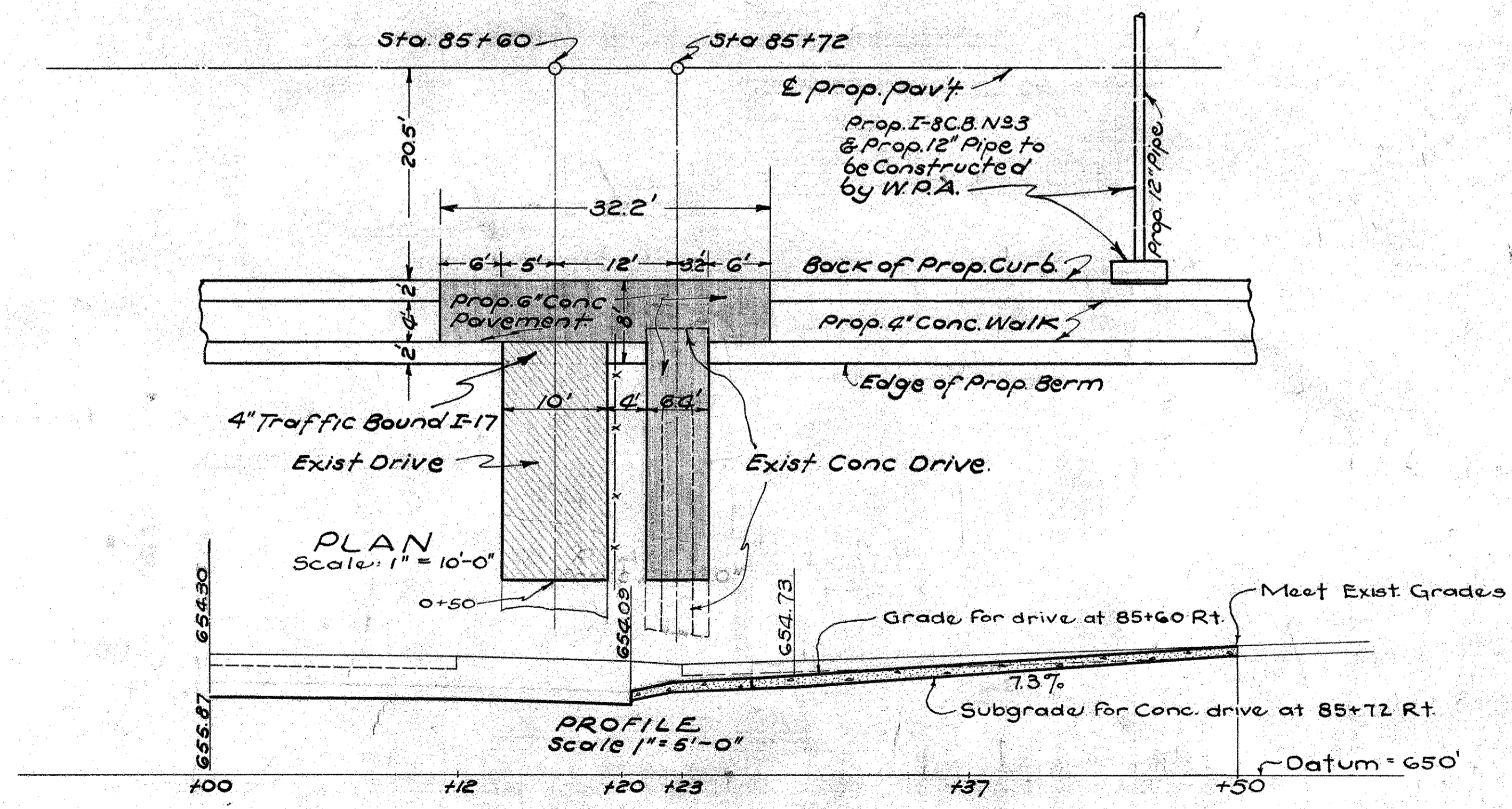
DRIVE STA. 82+73 LT.



ESTIMATED QUANTITIES

Excavation (Incl. in Rdwy Quant)	11 Cu. Yd.
6" Conc. Pav't (Item T-70)	29.3 Sq. Yd.
Remove Ex. 6" Conc. (Item E-8)	11.9 Sq. Yd.
4" Conc. Sidewalk (Item I-13) (Reduction)	74 Sq. Ft.

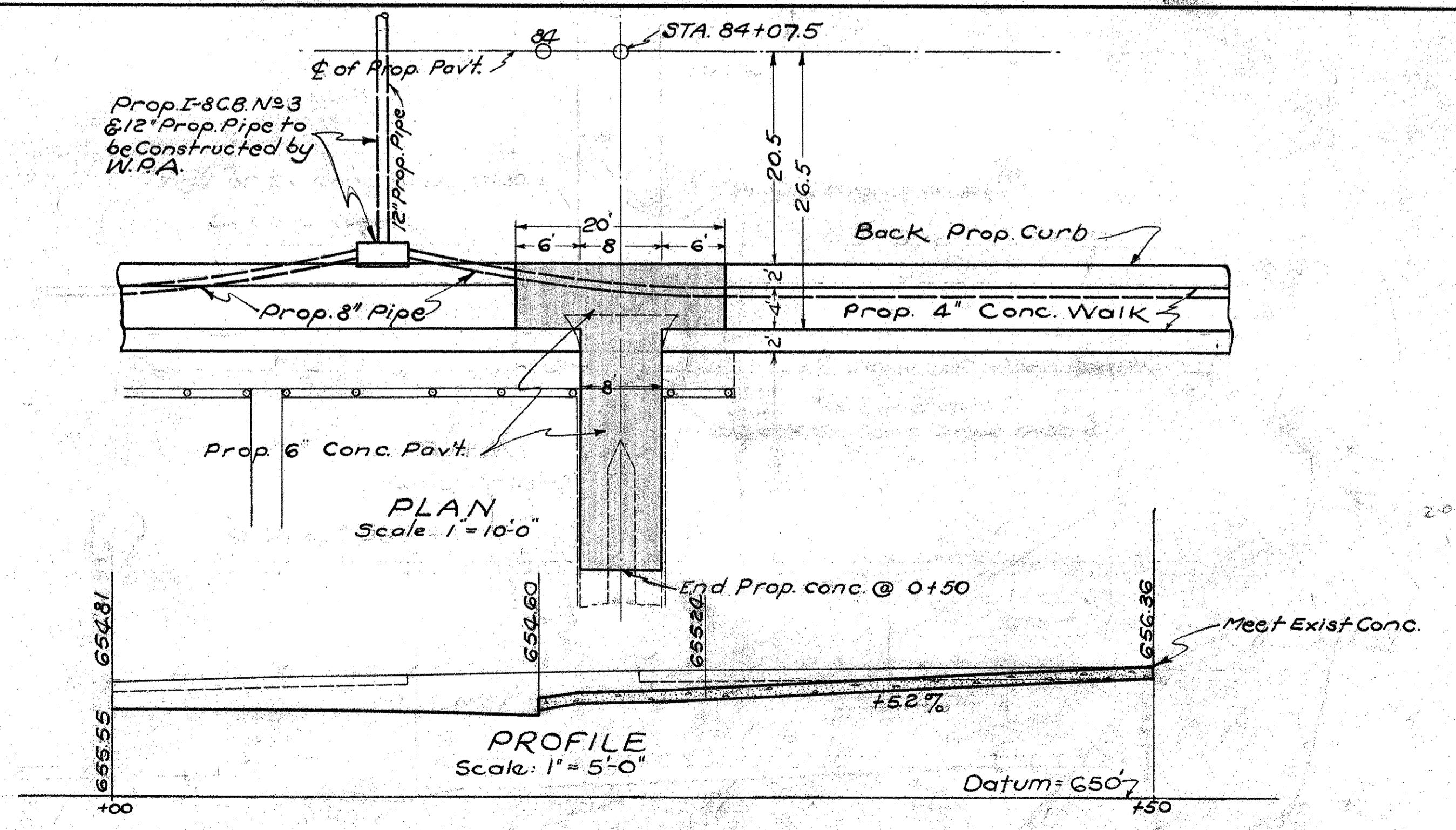
DRIVE STA. 85+72 LT.



ESTIMATED QUANTITIES

Excavation (Incl. in Rdwy Quant)	9 Cu. Yds.
6" Conc. Pav't (Item T-70)	38.2 Sq. Yds.
Traffic Bound (Item I-17) 40% N ⁷ .60% N ⁴ .	3 Cu. Yd.
4" Conc. Sidewalk (Item I-13) (Reduction)	128 Sq. Ft.
Remove Ex. 6" Conc. Pav't (Item E-8)	11.6 Sq. Yds.

DOUBLE DRIVE STA. 85+66 RT.



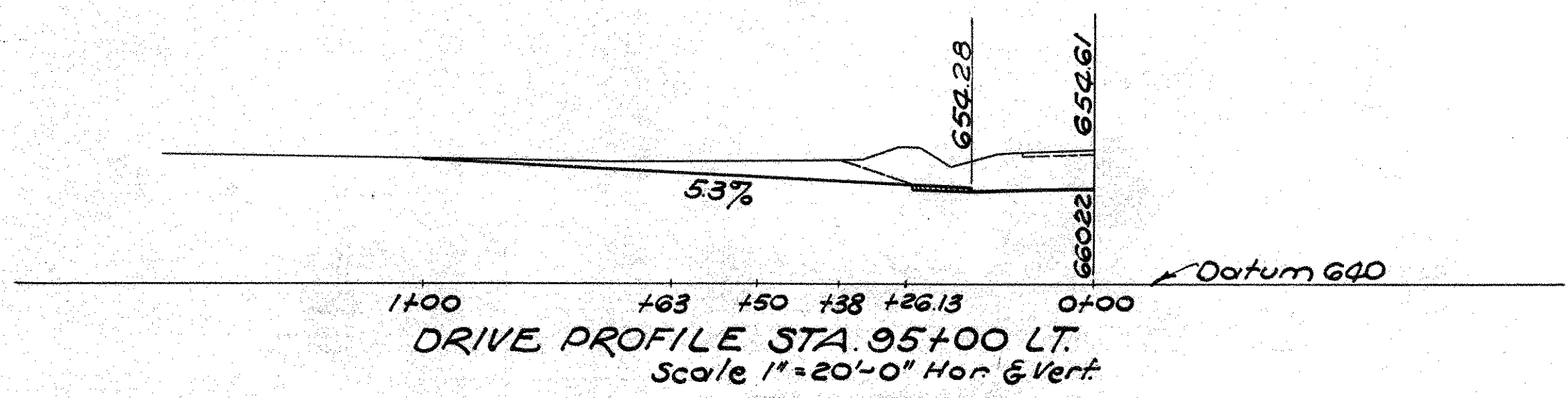
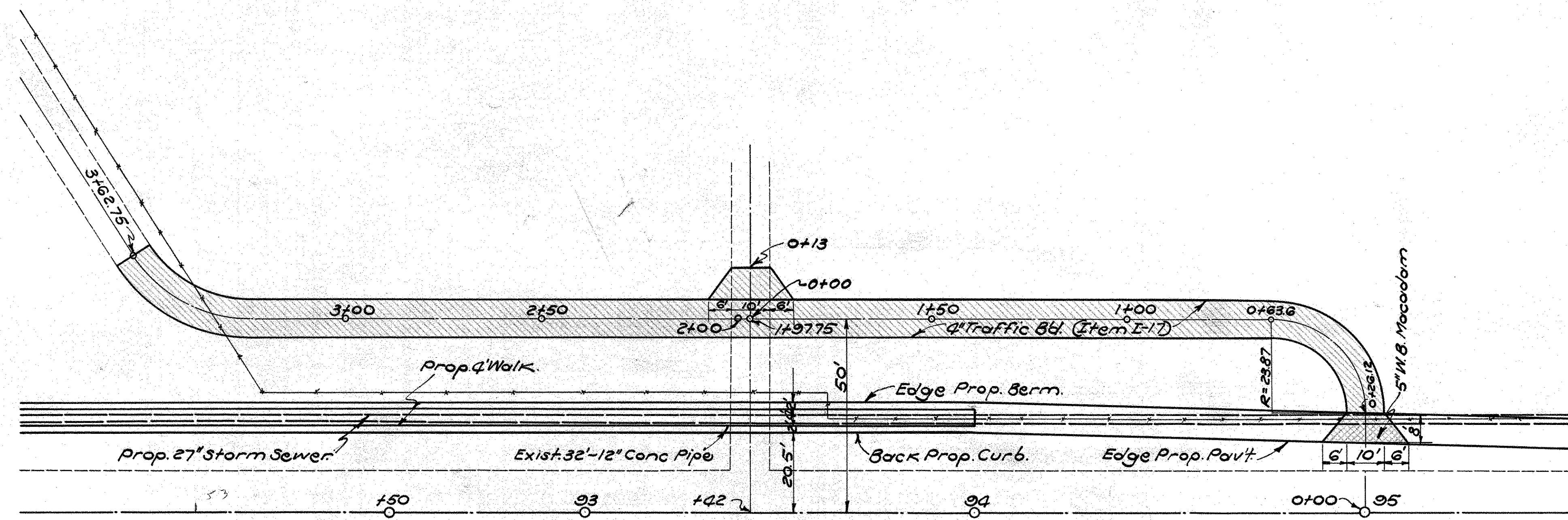
ESTIMATED QUANTITIES

Excavation (Incl. in Rdwy Quantities)	9 Cu. Yds.
6" Concrete Pavement (Item T-70)	34.2 Sq. Yds.
Remove Ex. 6" Conc. Pav't	20.7 " "
4" Conc. Sidewalk Reduction (Item E-13)	80.0 Sq. Ft.

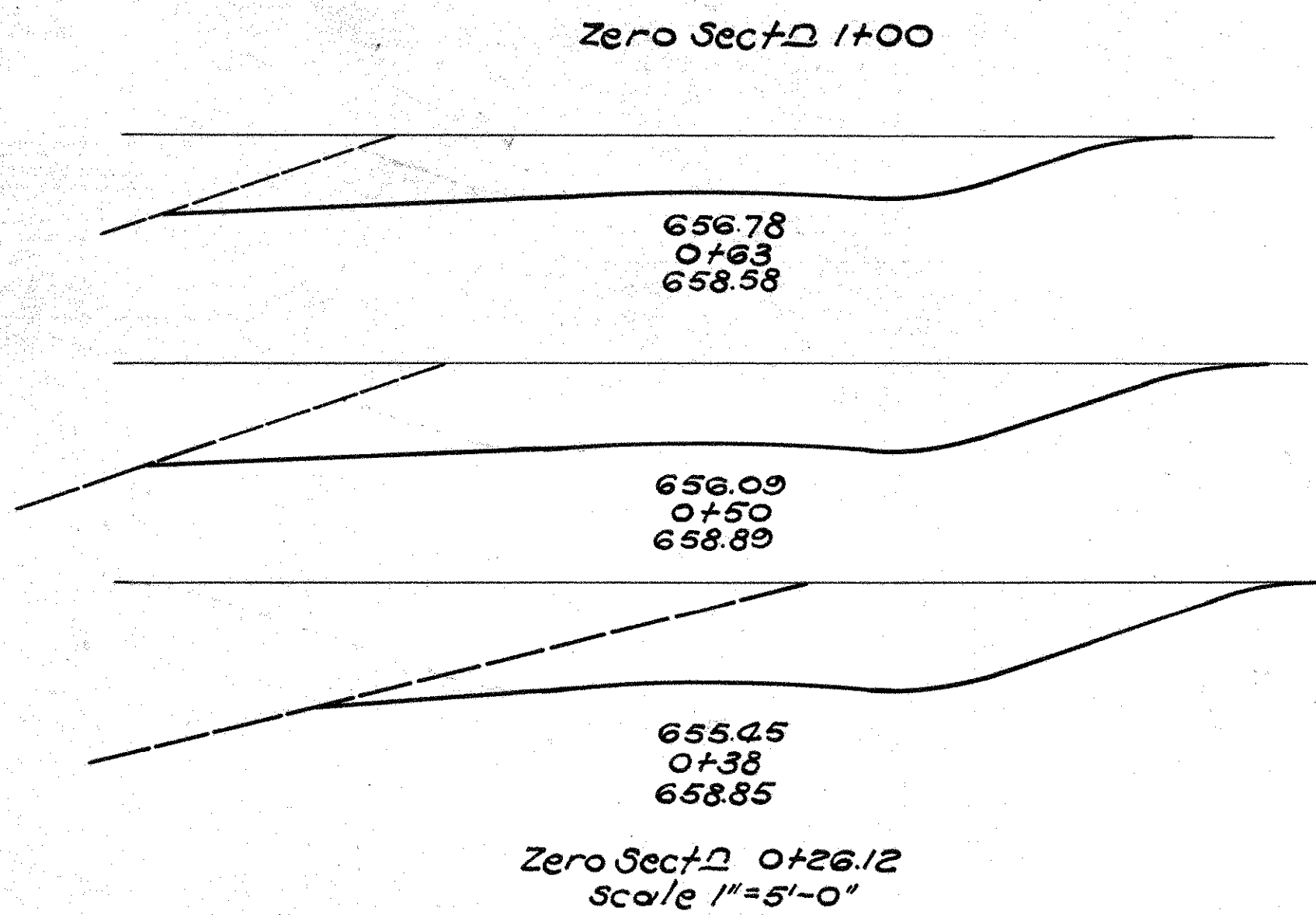
DRIVE STA. 84+07.5 RT.

Drawn by: C.S.R. 1-9-40
Checked by: M.B.S. 1-11-40
Checked by:

**BUTLER COUNTY
S.H. 186 SEC 'D' (PT)
GRADE SEPARATION**



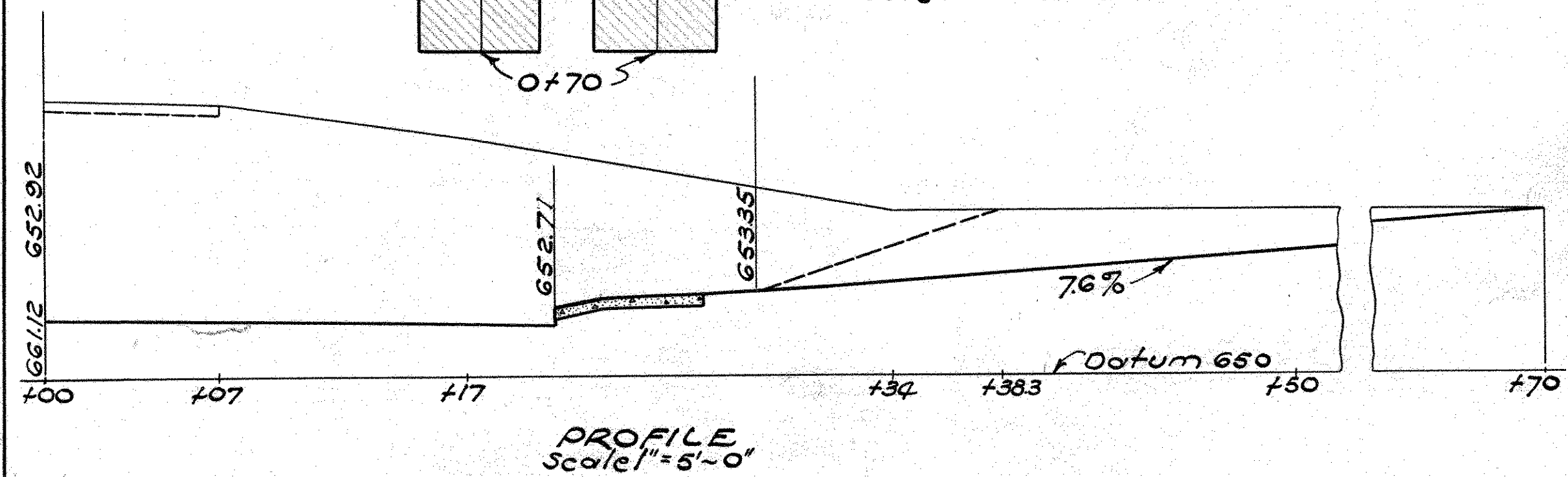
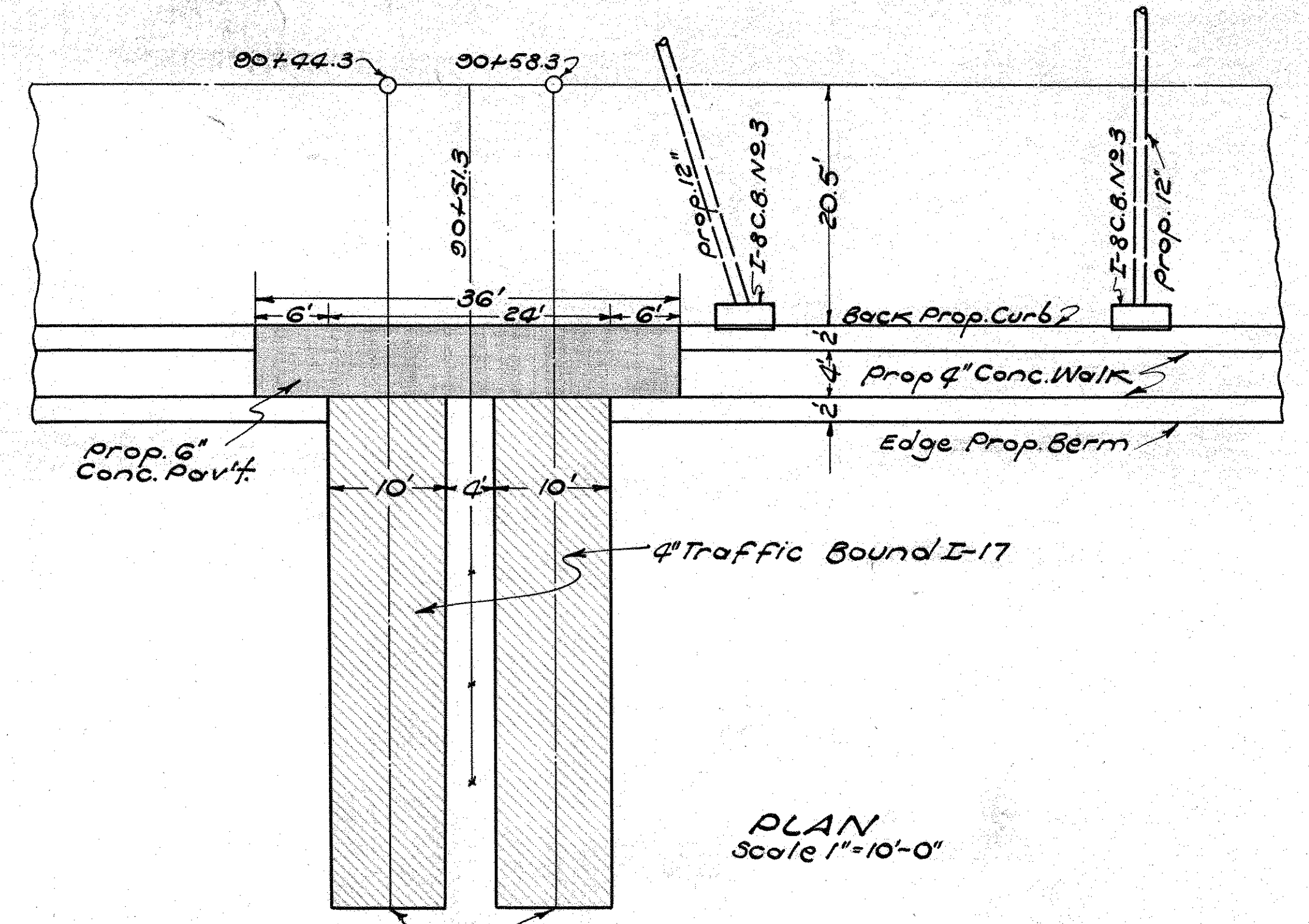
ESTIMATED QUANTITIES
Excavation (Encl. in Rdwy. Quant) ----- 117 Cu.Yd.
5" W.B. Macadam Base Course (Item 8-20) ----- 14.2 Sq.Yd.
Bituminous Prime Coat (Item F-30) ----- 14.2 Sq.Yd.
Bituminous Surface Treatment (Item F-31) ----- 14.2 Sq.Yd.
Traffic Bound (Item I-17) (20% N^o 7 60% N^o 24) ----- 44 Cu.Yd.
Remove & Store Exist. 12" Conc. Pipe (Item E-12) ----- 32.0 Lin.Ft.



Excavation Area	Cu.Yd.
0	37
54	
32	
77	
31	
62	
14	
0	
114	
3	
117	

For W.B. Mac.
Total.

DRIVE STA 95+00 LT.



Excavation Area	Cu.Yds.
0	58
98	18
0	
76	
4	
80	

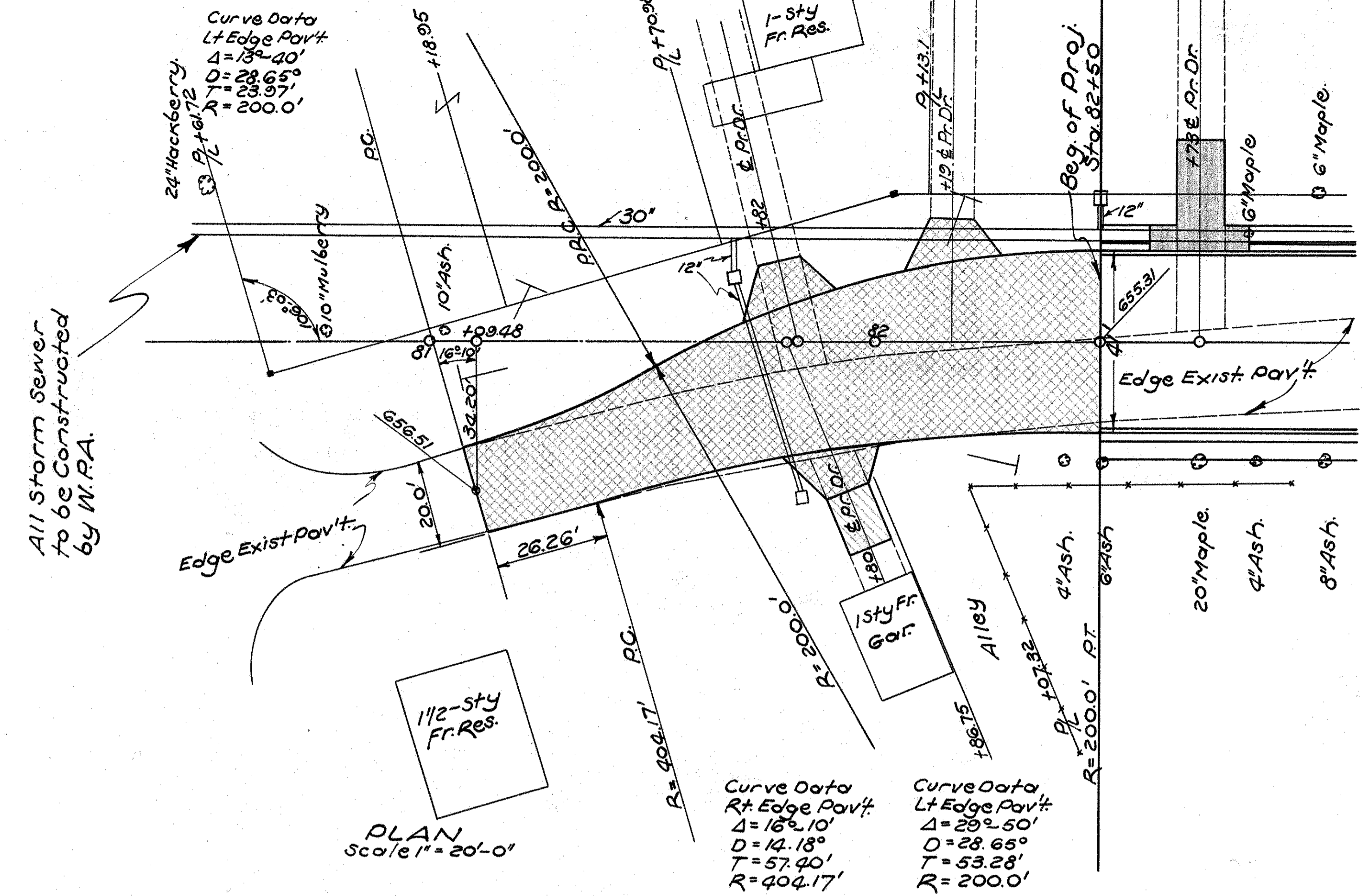
For Conc. Pav't
Total

ESTIMATED QUANTITIES
Excavation (Encl. in Rdwy. Quant) ----- 80 Cu.Yds.
6" Conc. Pav't (Item T-70) ----- 24.0 Sq.Yds.
4" Traffic Bound (Item I-17) (20% N^o 7 60% N^o 24) ----- 11.0 Cu.Yds.
4" Conc. Sidewalk (Item I-13) (Reduction) ----- 14.4 Sq.Ft.

DOUBLE DRIVE STA. 90+51.3 RT.

Drawn By M.B.S. Date 3-12-40
Checked By C.L. Date 3-12-40
Checked By _____ Date _____

**BUTLER COUNTY
S.H.186 SEC. "D" (PT)
GRADE SEPARATION**



ESTIMATED QUANTITIES

- * 5" Water Bound Macadam Base Course (Item B-20) 561.4 Sq. Yd.
- * Bituminous Prime Coat (Item T-30) 561.4 Sq. Yd.
- * Bituminous Surface Treatment (Item T-31) 561.4 Sq. Yd.
- * Traffic Bound 40% N#7, 60% N#4 (Item I-17) 2 Cu. Yd.

*These quantities include quantities for drives at Sta. 81+80 Rt. and Sta. 81+82 Lt. and Sta. 82+19 Lt.

APPROACH STA 82+50

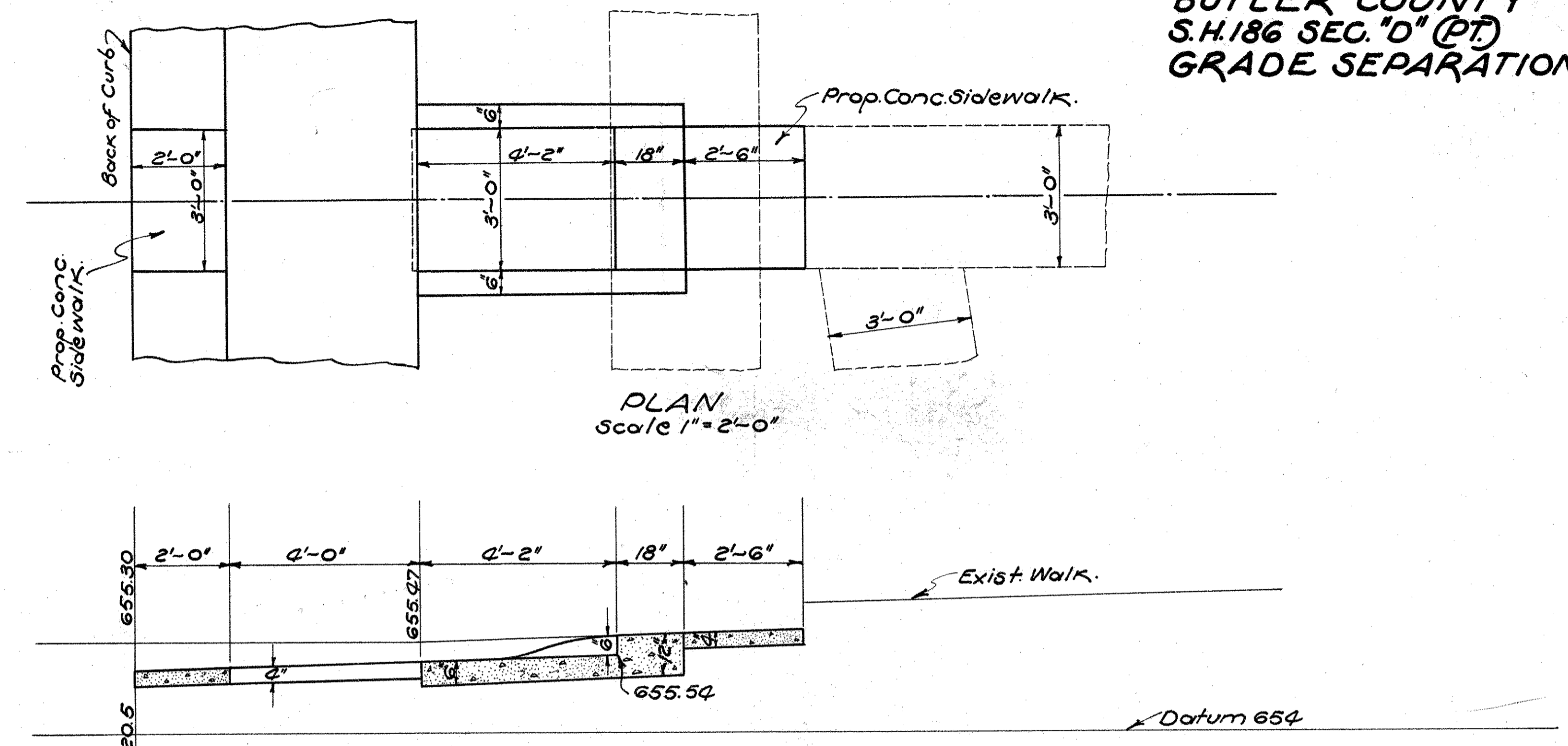
DRIVES

Station	Side	5" W.B. Macadam Base Course Item B-20	Bit Prime Coat Item T-30	Bit Surf Treatment Item T-31	Traffic Bd. 40% N#7, 60% N#4 Item I-17	See Sheet No.
81+80	Rt.	35.6	35.6	35.6	2	20
81+82	Lt.	17.8	17.8	17.8		20
Totals		53.4	53.4	53.4	2	

DRIVES

Station	Side	5" W.B. Macadam Base Course Item B-20	Bit Prime Coat Item T-30	Bit Surf Treatment Item T-31	Pipe for Drive Ways Item E-12	Remove & Store Exist. 18" C.M.P. Item E-13	Traffic Bd. 40% N#7, 60% N#4 Item I-17	See Sheet No.
104+39	Rt.	14.2	14.2	14.2	24	18	4	20

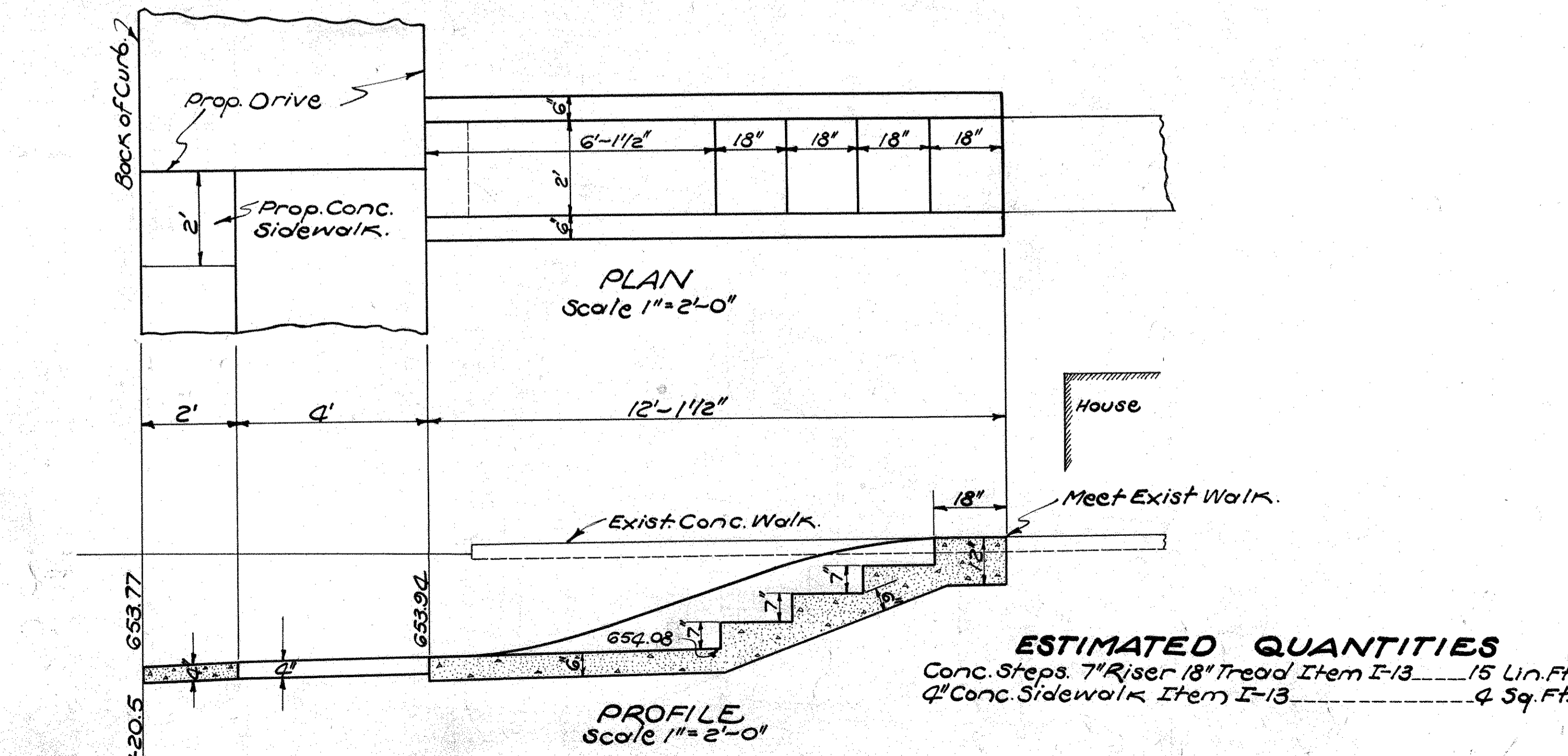
*These quant. included with Flare quant. at Sta. 104+00



ESTIMATED QUANTITIES

- Conc. Steps 6" Riser 18" Tread (Item I-13) 8 Lin. Ft.
- 4" Conc. Sidewalks (Item I-13) 13.5 Sq. Ft.

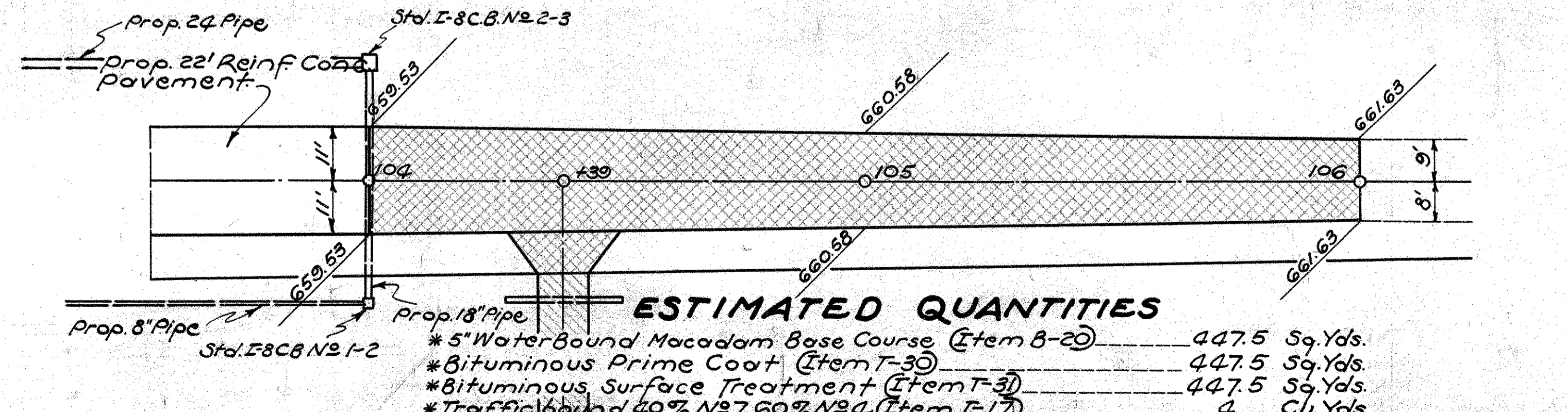
**SIDEWALK & STEPS
STA. 83+10.92 RT.**



ESTIMATED QUANTITIES

- Conc. Steps 7" Riser 18" Tread Item I-13 15 Lin. Ft.
- 4" Conc. Sidewalk Item I-13 4 Sq. Ft.

**SIDEWALKS & STEPS
STA. 87+88.8 RT.**



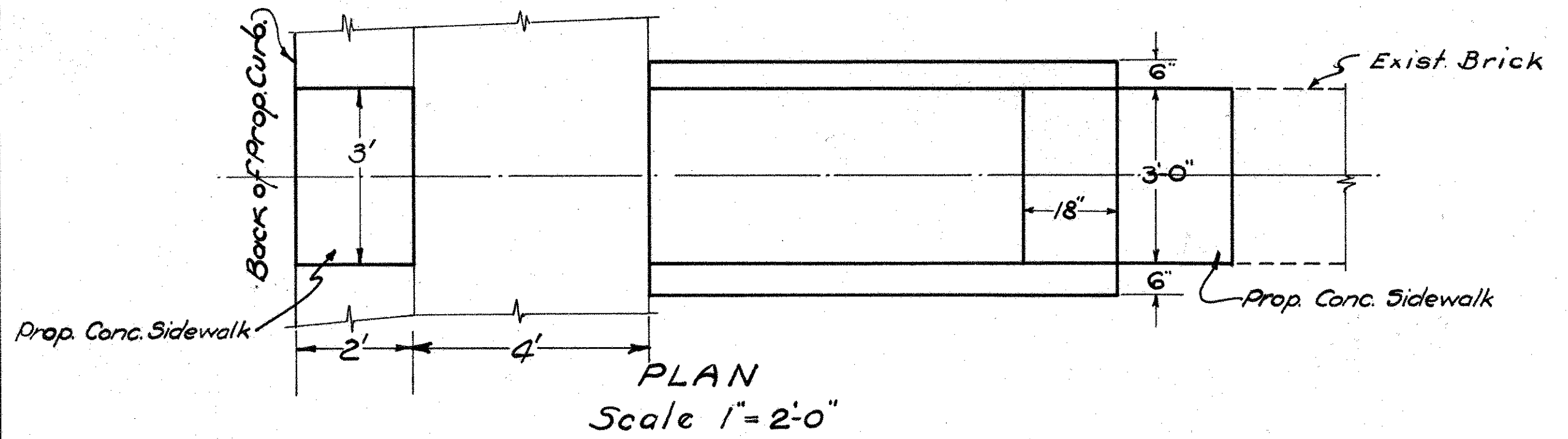
ESTIMATED QUANTITIES

- * 5" Water Bound Macadam Base Course (Item B-20) 447.5 Sq. Yds.
- * Bituminous Prime Coat (Item T-30) 447.5 Sq. Yds.
- * Bituminous Surface Treatment (Item T-31) 447.5 Sq. Yds.
- * Traffic Bound 40% N#7, 60% N#4 (Item I-17) 4 Cu. Yds.
- * Remove & Store Exist. 18" C.M.P. (Item E-13) 18 Lin. Ft.
- * 18" Pipe for Driveways (Item I-1) 24 Lin. Ft.

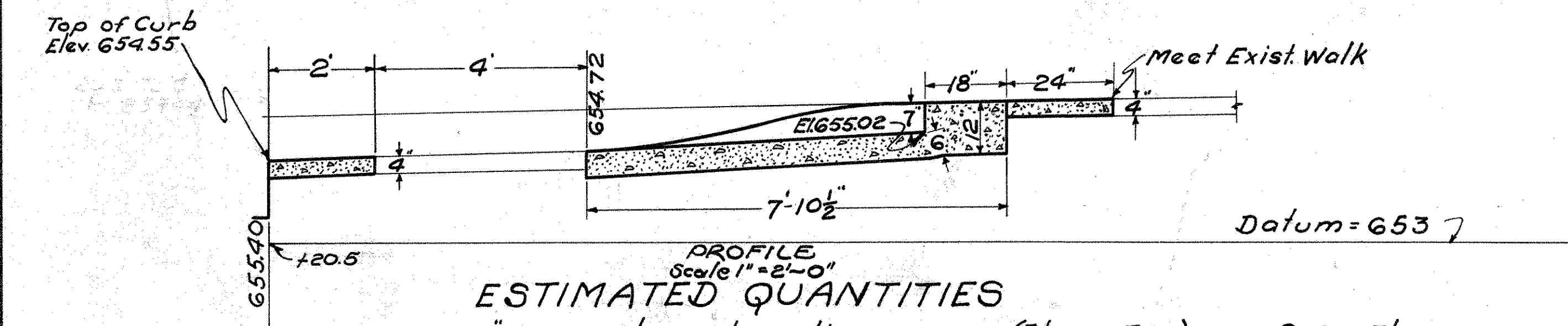
*These quantities include quantities for drive at Sta. 104+39 Rt.

Drawn By: C.S.R. Date: 2-21-40
Chkd By: M.B.S. Date: 2-26-40
Chkd By: _____ Date: _____

**BUTLER COUNTY
S.H. 186 SEC. 'D' (PD)
GRADE SEPARATION**

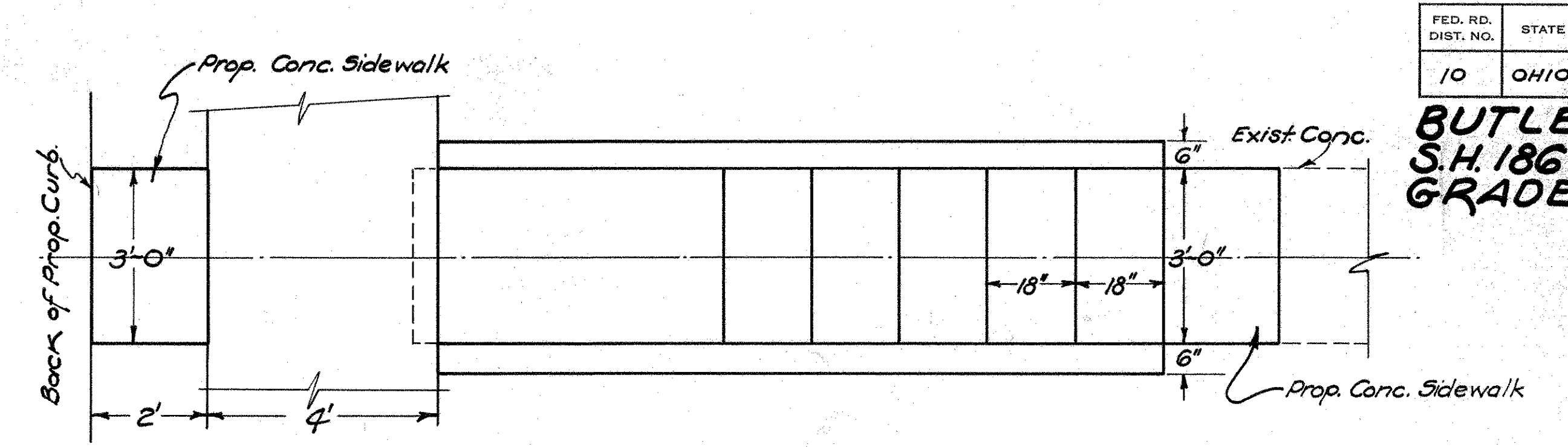


PLAN
Scale 1"=2'-0"

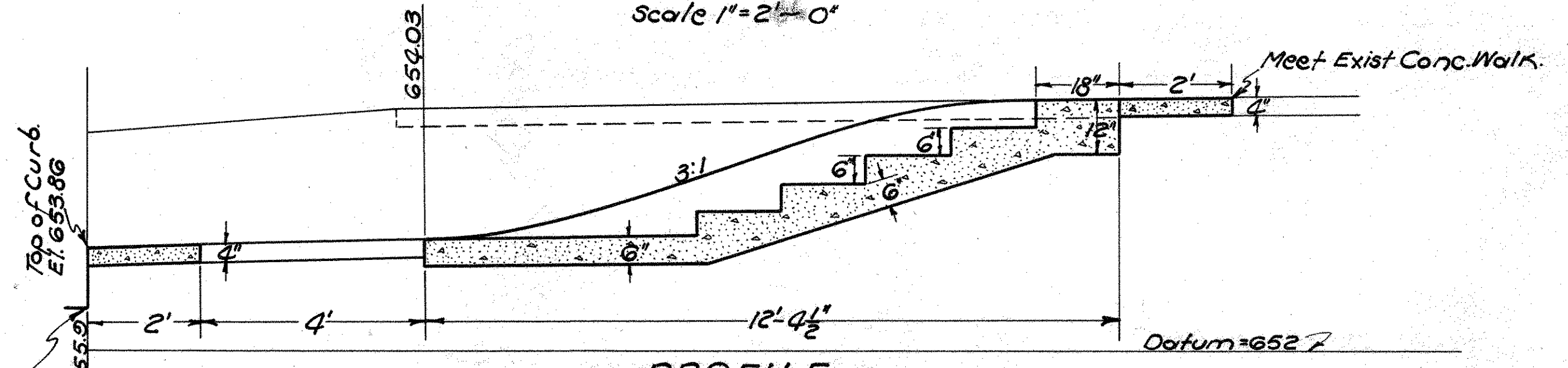


PROFILE
Scale 1"=2'-0"
ESTIMATED QUANTITIES
4" Concrete Sidewalk (Item I-13) 12 Sq. Ft.
Concrete Steps 7" Riser, 18" Tread (Item I-13) 8 Lin. Ft.

CONCRETE SIDEWALK STA. 85+44 RT.

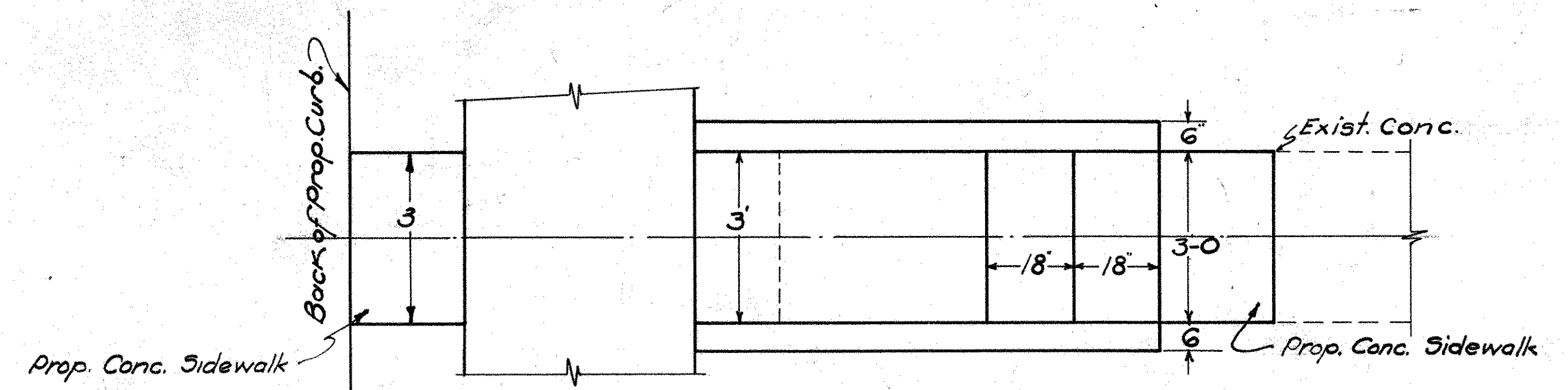


PLAN
Scale 1"=2'-0"

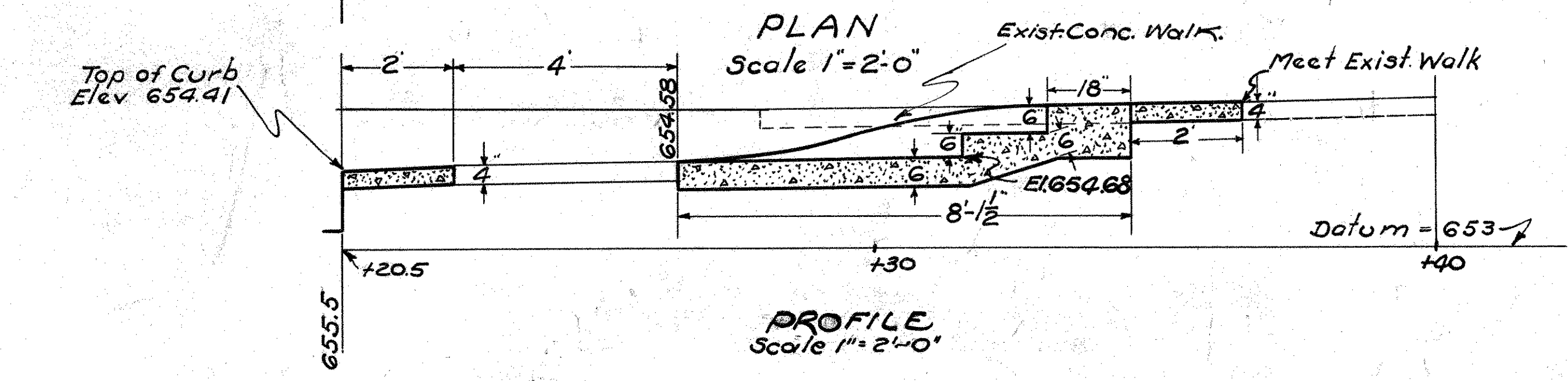


PROFILE
Scale 1"=2'-0"
ESTIMATED QUANTITIES
Conc. Steps 6" Riser, 18" Tread. (Item I-13) 24.0 Lin. Ft.
4" Conc. Sidewalk. (Item I-13) 12.0 Sq. Ft.

**CONC. WALK & STEPS
STA 87+59 RT.**

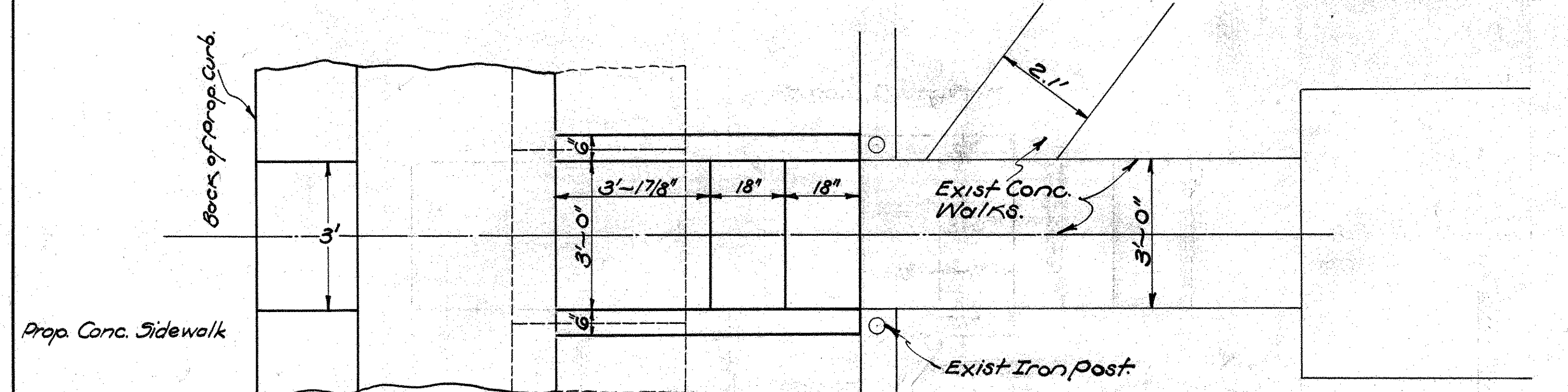


PLAN
Scale 1"=2'-0"

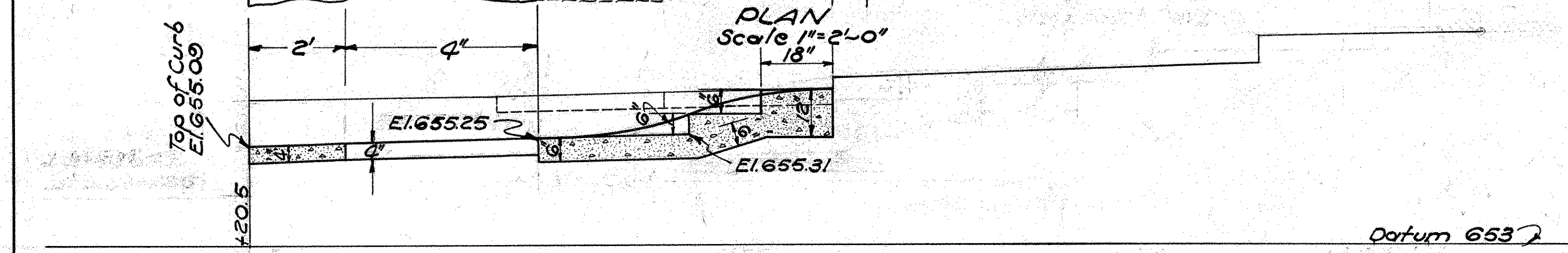


PROFILE
Scale 1"=2'-0"
ESTIMATED QUANTITIES
4" Concrete Sidewalk (Item I-13) 12.0 Sq. Ft.
Concrete Steps, 6" Riser, 18" Tread (Item I-13) 12.0 Lin. Ft.

CONCRETE SIDEWALK STA. 85+88 RT.



PLAN
Scale 1"=2'-0"



PROFILE
Scale 1"=2'-0"
ESTIMATED QUANTITIES
Conc. Step, 6" Riser, 18" Tread. (Item I-13) 12.0 Lin. Ft.
4" Conc. Sidewalk. (Item I-13) 6.0 Sq. Ft.

**CONC. SIDEWALK & STEPS.
STA 83+74.3 RT.**

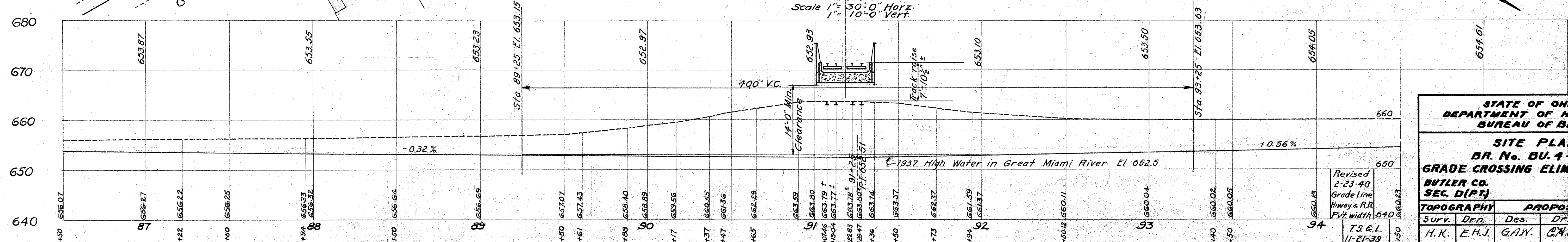
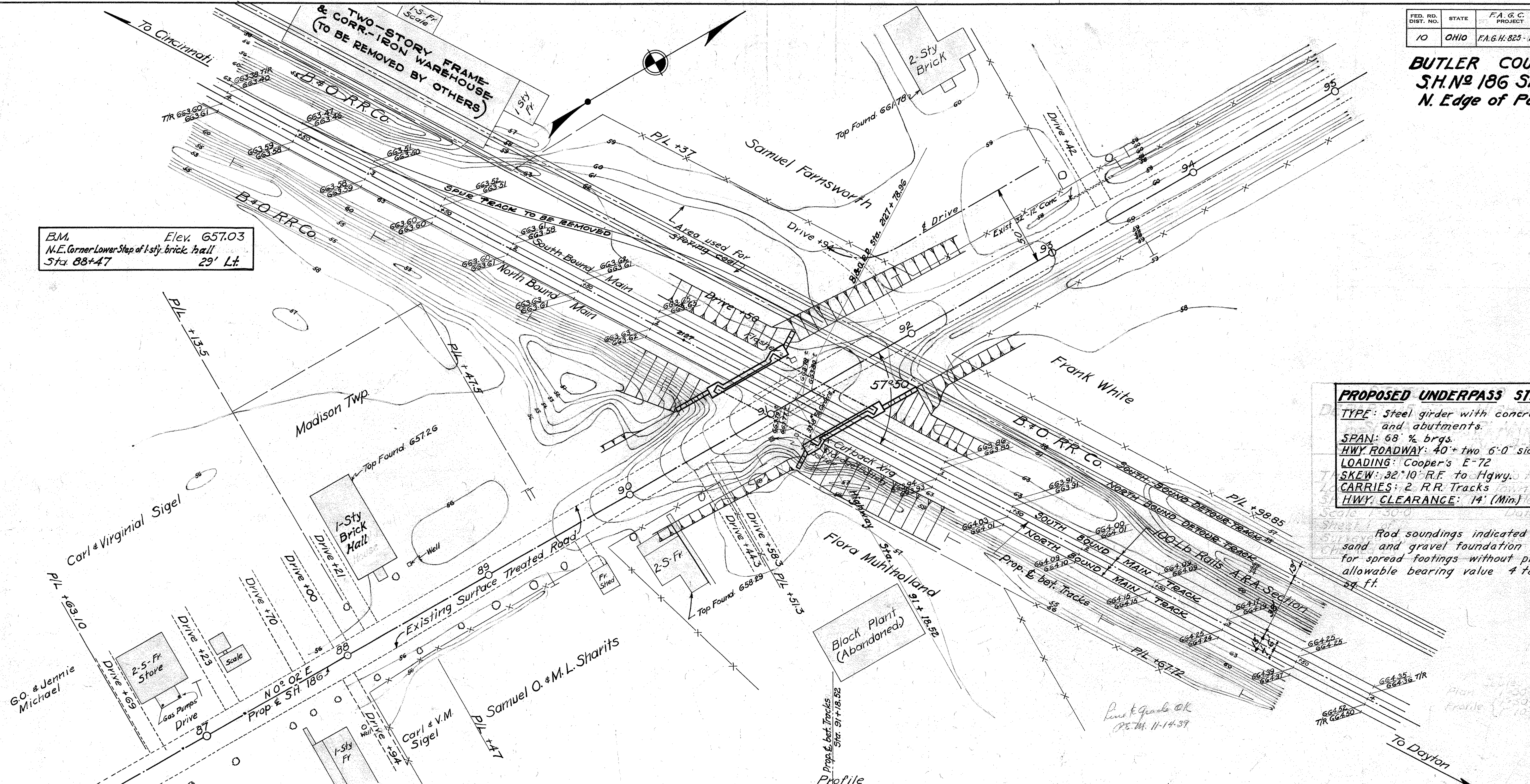
Drawn By: C.S.R. Date: 2-23-40
Chkd By: M.B.S. Date: 2-26-40
Chkd By: Date:

BUTLER COUNTY
S.H. No 186 SEC D(PH)
N. Edge of Poast Town.

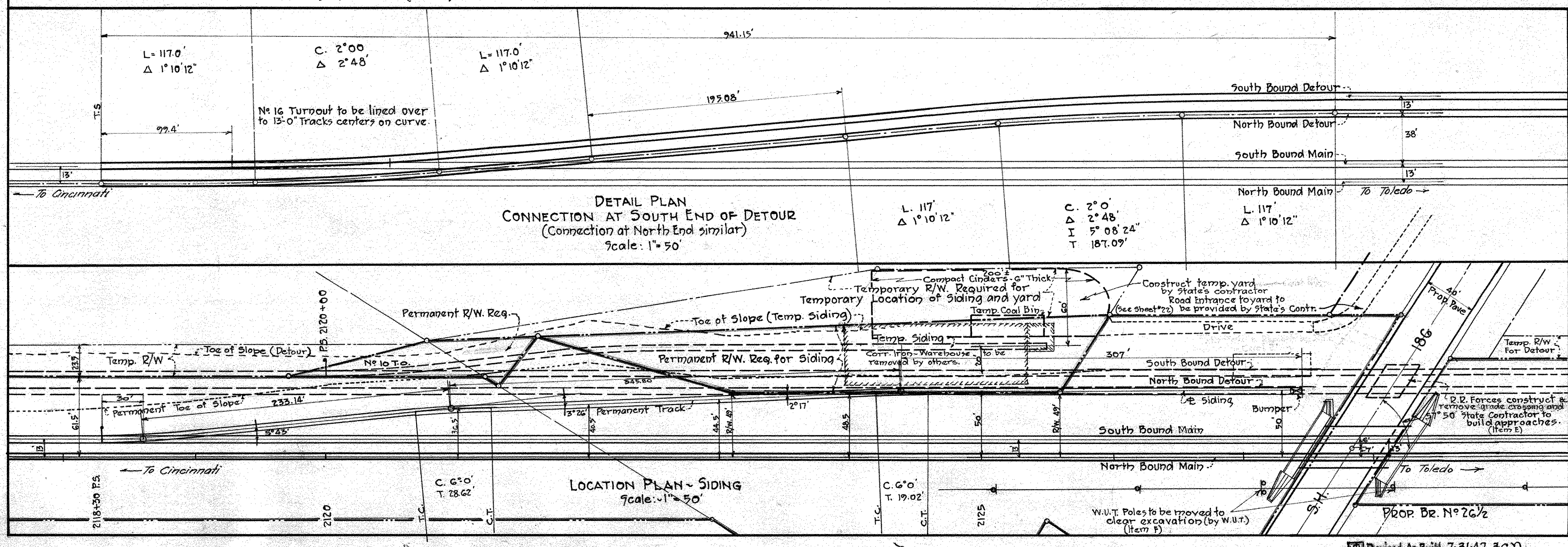
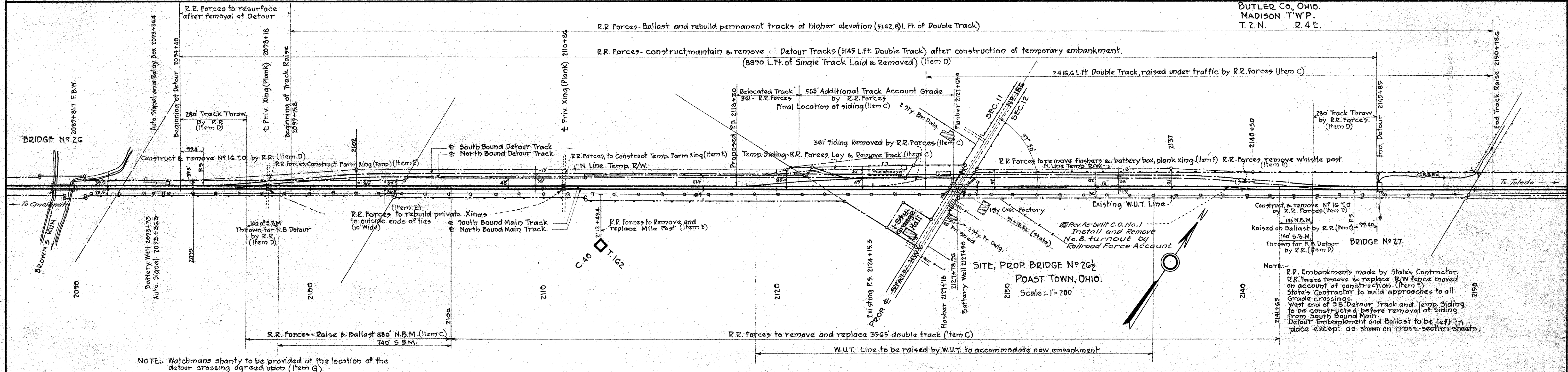
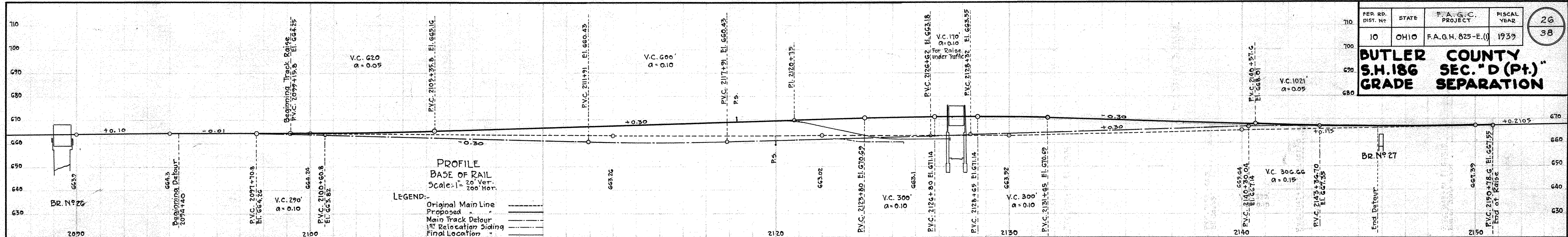
B.M. Elev. 657.03
 N.E. Corner Lower Step of 1-sty brick hall
 Sta. 88+47 29' Lt.

PROPOSED UNDERPASS STRUCTURE
 TYPE: Steel girder with concrete deck and abutments.
 SPAN: 68' ¾ brgs.
 HWY ROADWAY: 40' + two 6'-0" sidewalks
 LOADING: Cooper's E-72
 SKEW: 32° 10' R.F. to Hgwy's Railroad
 CARRIES: 2 R.R. Tracks
 HWY. CLEARANCE: 14' (Min.)

Rod soundings indicated a cemented sand and gravel foundation suitable for spread footings without piling. Max. allowable bearing value 4 tons per sq. ft.



STATE OF OHIO DEPARTMENT OF HIGHWAYS BUREAU OF BRIDGES				
SITE PLAN BR. No. BU. 4-243 GRADE CROSSING ELIMINATION B.&O. RR. BUTLER CO. S.H. 186 SEC. D(PH) STA. 91+18.52				
TOPOGRAPHY		PROPOSED WORK		
Surv.	Drn.	Des.	Drn.	Chd.
H.K.	E.H.J.	G.A.W.	C.H.D.	J.B.M.



ESTIMATED QUANTITIES - CONTRACT WORK

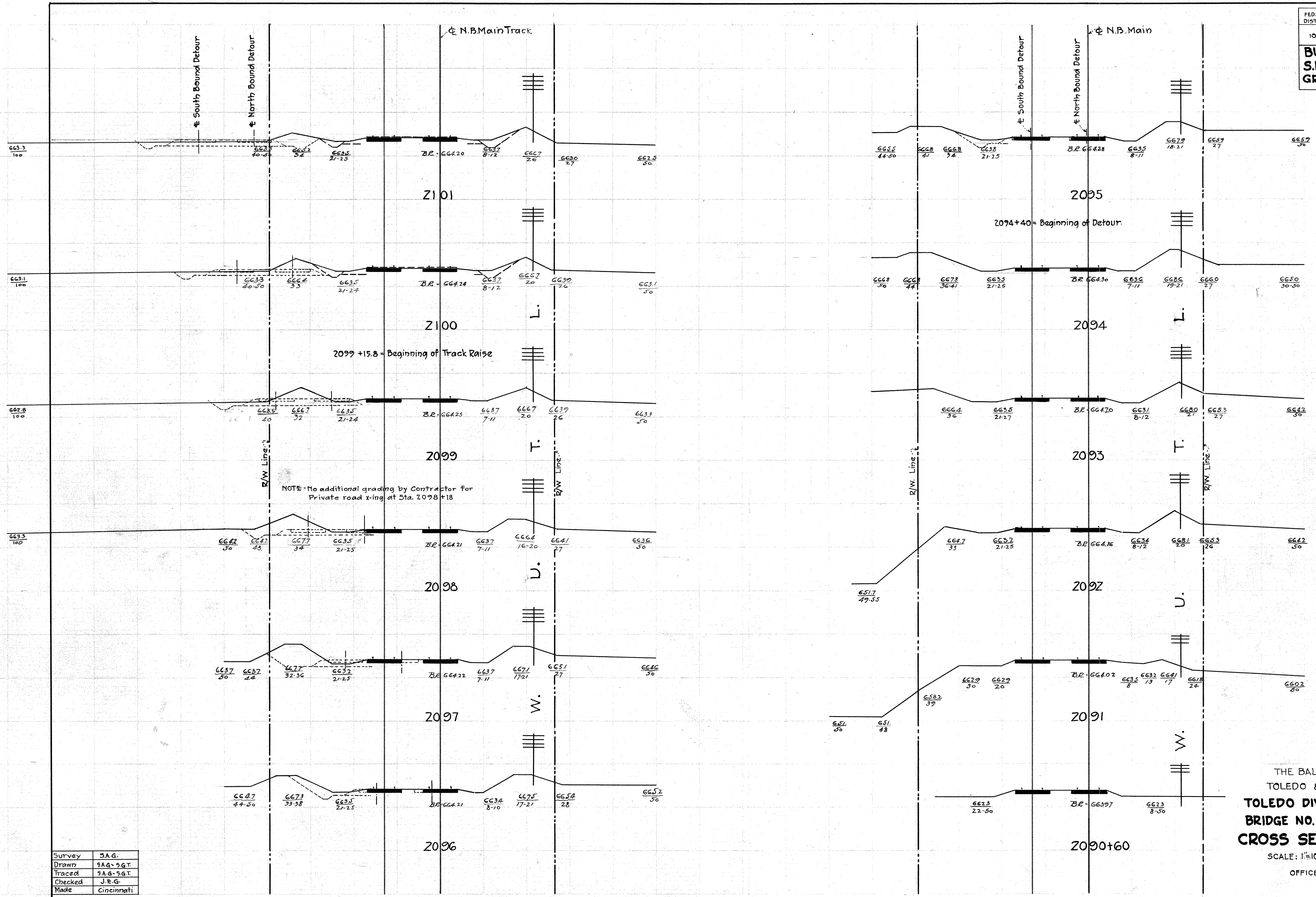
I-17 Compacted Cinders for Temporary Yard (6' depth)	150 Cu. Yds.
I-17 Aggregate for side approaches to Farm Crossings (Cinders) sta. 2098+18 and sta. 2110+86	30 Cu. Yds.

THE BALTIMORE & OHIO RAILROAD
 TOLEDO & CINCINNATI RAILROAD CO.
 TOLEDO DIVISION MAIN LINE.
 BRIDGE No. 26½ POAST TOWN, O.
RAILROAD FORCE ACCOUNT WORK

SCALE: AS NOTED. MAY 6, 1940.
 OFFICE OF ASSISTANT CHIEF ENGINEER.
 PITTSBURGH, PA.

FILE: G160 DRAWING: 14094A

Survey	S.A.G.
Drawn	S.G.T.
Checked	
Traced	S.G.T.
Made	Cin'ti



NOTE - No additional grading by Contractor for Private road x-ing at Sta. 2098+18

Survey	J.A.G.
Drawn	J.A.G. - J.G.T.
Traced	J.A.G. - J.G.T.
Checked	J.E.G.
Made	Cincinnati

THE BALTIMORE & OHIO RAILROAD
 TOLEDO & CINCINNATI RAILROAD CO.
TOLEDO DIV. MAIN LINE
BRIDGE NO. 26 1/2 POAST TOWN, O.
CROSS SECTIONS - TRACK RAISE.

SCALE: 1"=10' APRIL 26, 1940.

OFFICE OF ASSISTANT CHIEF ENGR.
 PITTSBURGH, PA.

**BUTLER COUNTY
S.H. 186 SEC. D (P)
GRADE SEPARATION**

**GRADING BY STATES CONTRACTOR
TEMPORARY SIDING.**

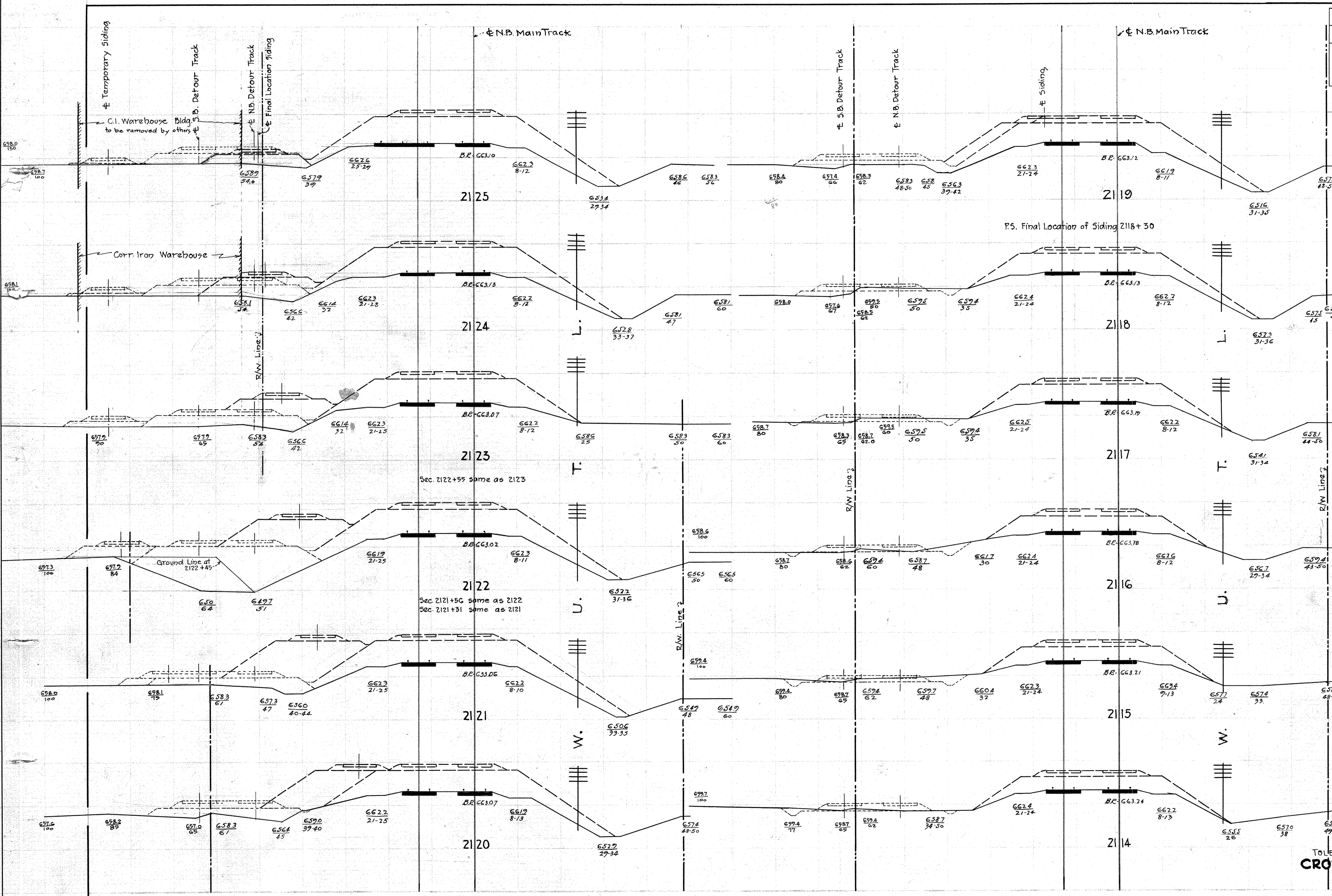
STATION	FILL		CUT	
	AREA	CU. FT.	AREA	CU. FT.
2120	0	550		
2121	11	341		
2121+50	11	715		
2121+56	51	2244		
2122	51	2182		
2122+45	46	340		
2122+55	22	790		
2123	22	1600		
2124	10	650		
2125	3	75		
2125+50	0			
TOTAL	9747	00		

Embankment + 20% 361 c.yds.
Borrow 433 c.yds.

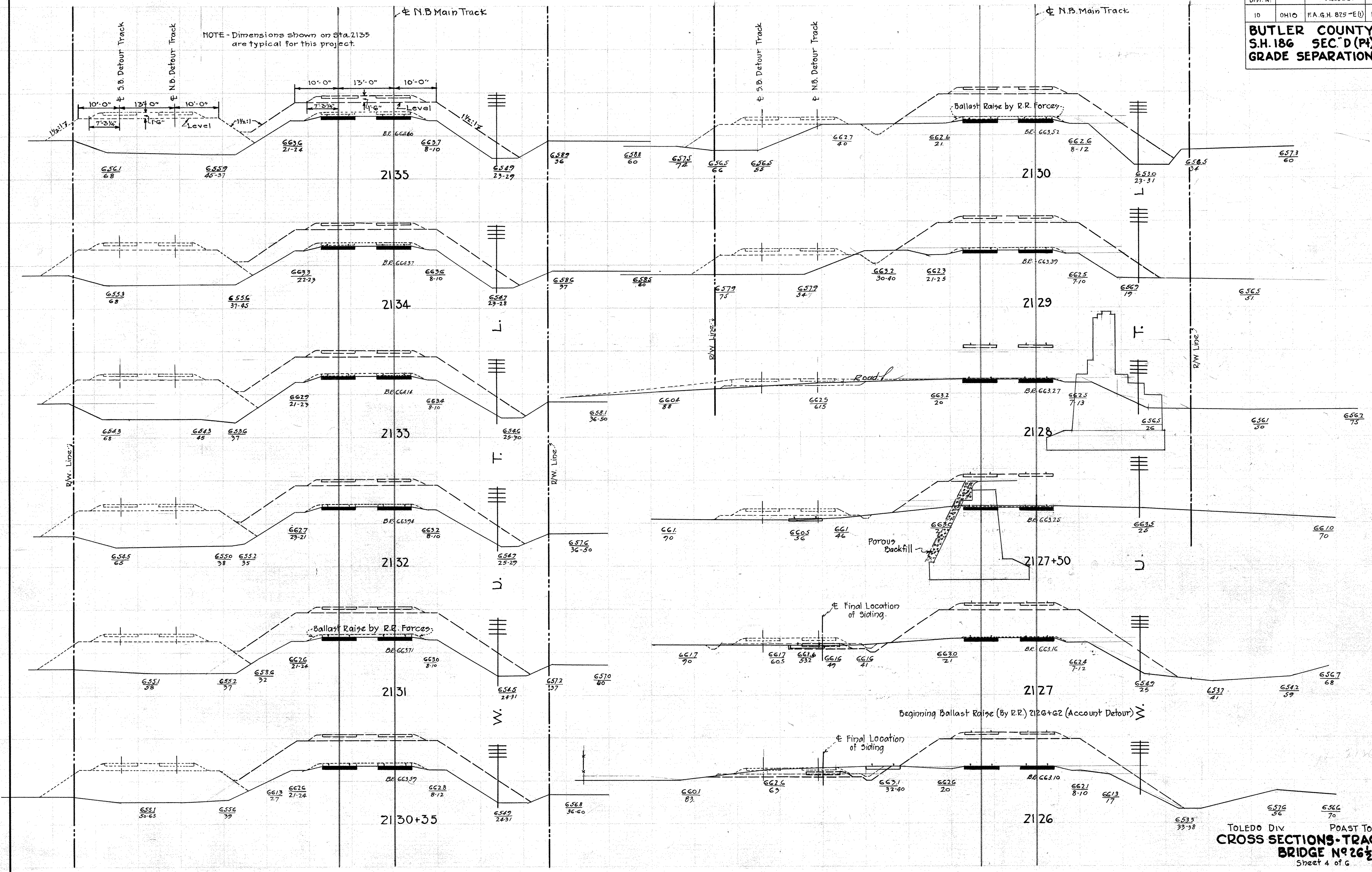
PERMANENT SIDING

STATION	FILL		CUT	
	AREA	CU. FT.	AREA	CU. FT.
2118+50	0	1505		
2119	43	8050		
2120	118	14900		
2121	180	19650		
2122	133	10450		
2123	76	4650		
2124	17	850		
2125	0			
2125+50		0		790
2126		30		2600
2127		22		585
2127+45		4		
TOTAL	56055	4	3935	

Excavation 146 c.yds.
Embankment + 20% 2076 c.yds.
Embankment + 20% 2491 c.yds.
Borrow (From Detour) 2345 c.yds.



TOLEDO DIV. POAST TOWN, OHIO.
CROSS SECTIONS-TRACK RAISE
BRIDGE No 26 1/2
Sheet 3 of 6

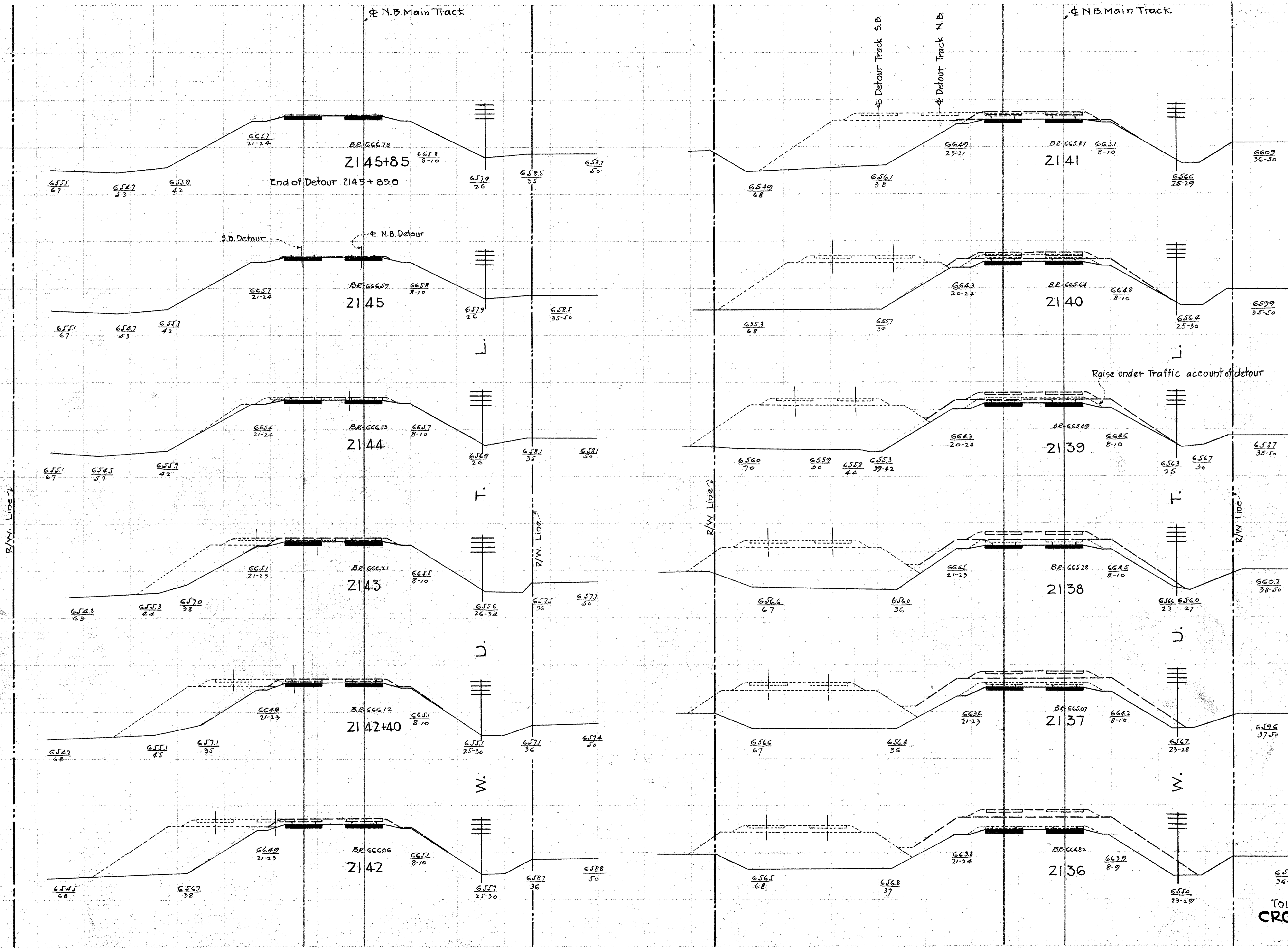


TOLEDO DIV. POAST TOWN, OHIO.
CROSS SECTIONS-TRACK RAISE
BRIDGE No 26 1/2
 Sheet 4 of 6

GRADING FOR DETOUR
By STATE'S CONTRACTOR.

STATION	FILL		CUT	
	AREA	CU. FT.	AREA	CU. FT.
2094+40			13	780
2095			13	1800
2096			23	4000
2097			37	5100
2098			57	5600
2099			55	5750
2100			60	5750
2101			61	6050
2102			87	7400
2103			73	8000
2104			94	6350
2105			54	5400
2106	0		61	5750
2107	T	350	5	3300
2108	23	1500	2	350
2109	7	1500	15	850
2110	3	500	16	1550
2111	2	250	38	2700
2112	0	100	28	3300
2113	2	100	36	3200
2114	1	50	16	2600
2115	0	50	29	2500
2116	1	250	21	2200
2117	4	250	23	2200
2118	15	950	17	2000
2118+40		3100	0	340
2119	47	7850		
2120	70	7500		
2121	80	2480		
2121+30	80	5100		
2121+50	328	14432		
2122	328	11839		
2122+40	198	1450		
2122+50	92	4140		
2123	92	7800		
2124	104	9600		
2125	88	4500		
2125+50		4500	0	800
2126	2	650	32	1800
2127	11	1000	4	150
2127+50	29	800	2	30
2127+80		800	0	100
2128	3		10	650
2128+20	3	60		
2128+50	130	1995	16	800
2129	130	6500	16	1200
2130	130	13000	8	80
2130+35	294	7420		
2130+20			0	
2131	289	18248		
2132	350	30950		
2133	370	38000		
2134	319	34450		
2135	313	21600		
2136	314	31350		
2137	323	31950		
2138	350	33750		
2139	389	36950		
2140	358	37350		
2141	271	31450		
2142	211	24100		
2142+40	160	7420		
2143	90	1500		
2144	7	4850		
2147+80	0	350		
TOTAL		514,930		95,350

Excavation 3531 c.yds
Embankment 19,072 c.yds
Embank. + 20% 22,886 c.yds
Borrow 19,355 c.yds



**BUTLER COUNTY
S.H. 186 SEC'D (PH)
GRADE SEPARATION**

GRADING FOR MAIN TRACK RAISE BY STATE'S CONTRACTOR

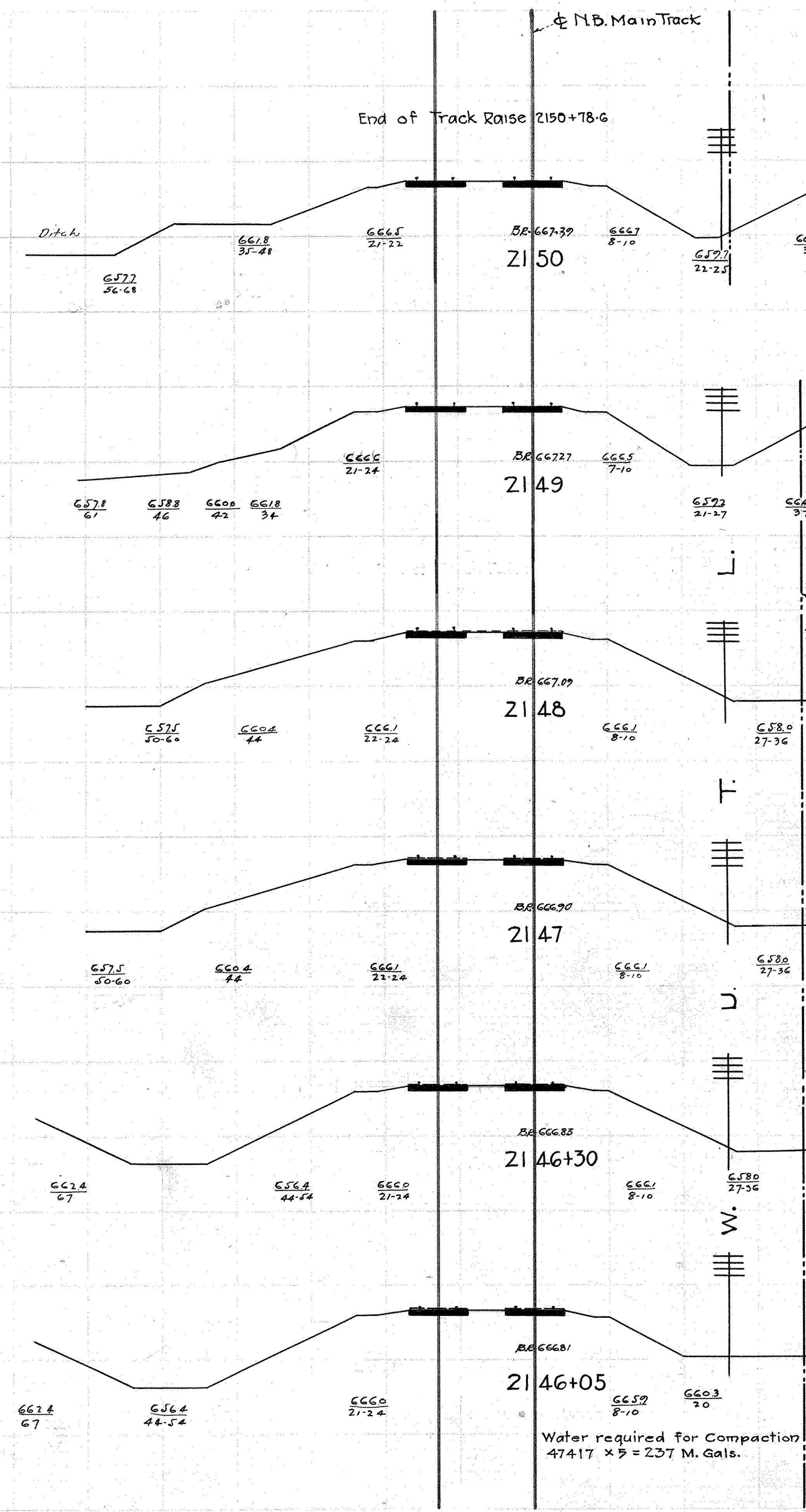
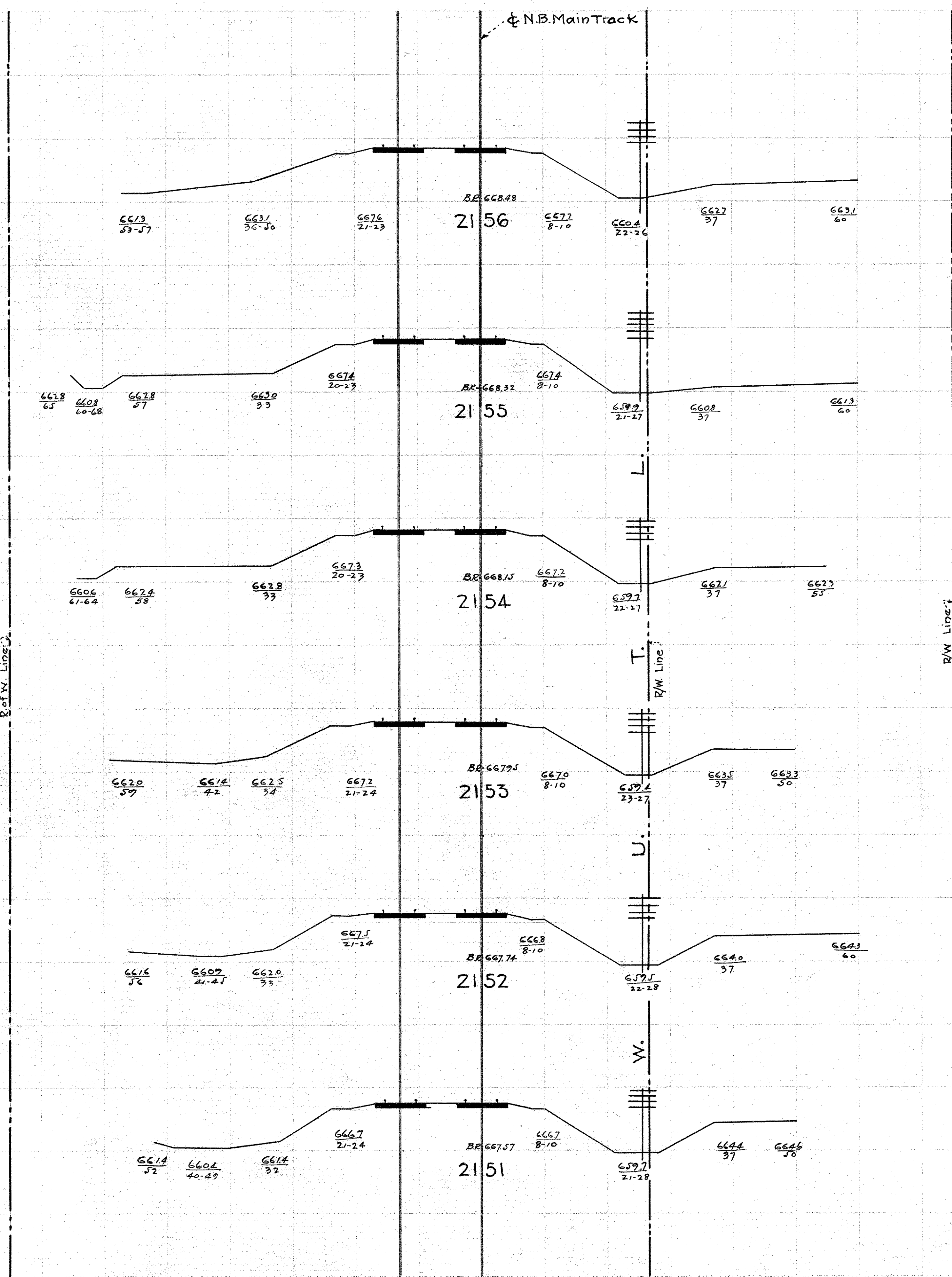
STATION	FILL		CUT	
	AREA	CU. FT.	AREA	CU. FT.
2099+15.8			12	1010
2100			12	1500
2101			18	1650
2102			15	1690
2103			18	1500
2104			8	200
2104+50	0		0	
2105	3	450		
2106	6	1750		
2107	29	3200		
2108	55	4950		
2109	56	6450		
2110	73	9150		
2111	87	8000		
2112	96	10750		
2113	119	13450		
2114	150	15200		
2115	154	15950		
2116	169	18450		
2117	204	22000		
2118	236	26750		
2119	303	29550		
2120	284	31150		
2121	339	24600		
2122	353	31600		
2123	279	31050		
2124	342	35350		
2125	365	34900		
2126	325	33850		
2127	392	5984		
2127+17	352	7298		
2127+52	69	138		
2127+56	0			
2128+02	60	8020		
2128+42	341	19036		
2129	343	30700		
2130	355	12373		
2130+35	322	22815		
2131	290	25090		
2132	311	29950		
2133	288	26800		
2134	248	22350		
2135	199	17750		
2136	156	12400		
2137	112	8950		
2138	59	4800		
2139	37	3100		
2140	25	1250		
2141	0	0		
2142	0	0		
2142+40	0	0		
2143	0	0		
2143+10	0	0		
TOTAL	689,581		7310	

Excavation 271 c.yds.
Embankment 29,533 c.yds.
Embank. + 20% 30,640 c.yds.
Borrow 30,369 c.yds.

SUMMARY OF RAILROAD GRADING			
	Excavation Cu. Yds.	Embankment Cu. Yds.	Borrow Cu. Yds.
Detour Tracks	3531	19,072	19,359
Main Tracks	271	29,533	30,369
Temp. Siding	—	361	433
Perm. Siding	146	2076	2345*
Farm Crossings (Detail Sheet 48)	—	375	450
Totals	3,948	47,417	52,952

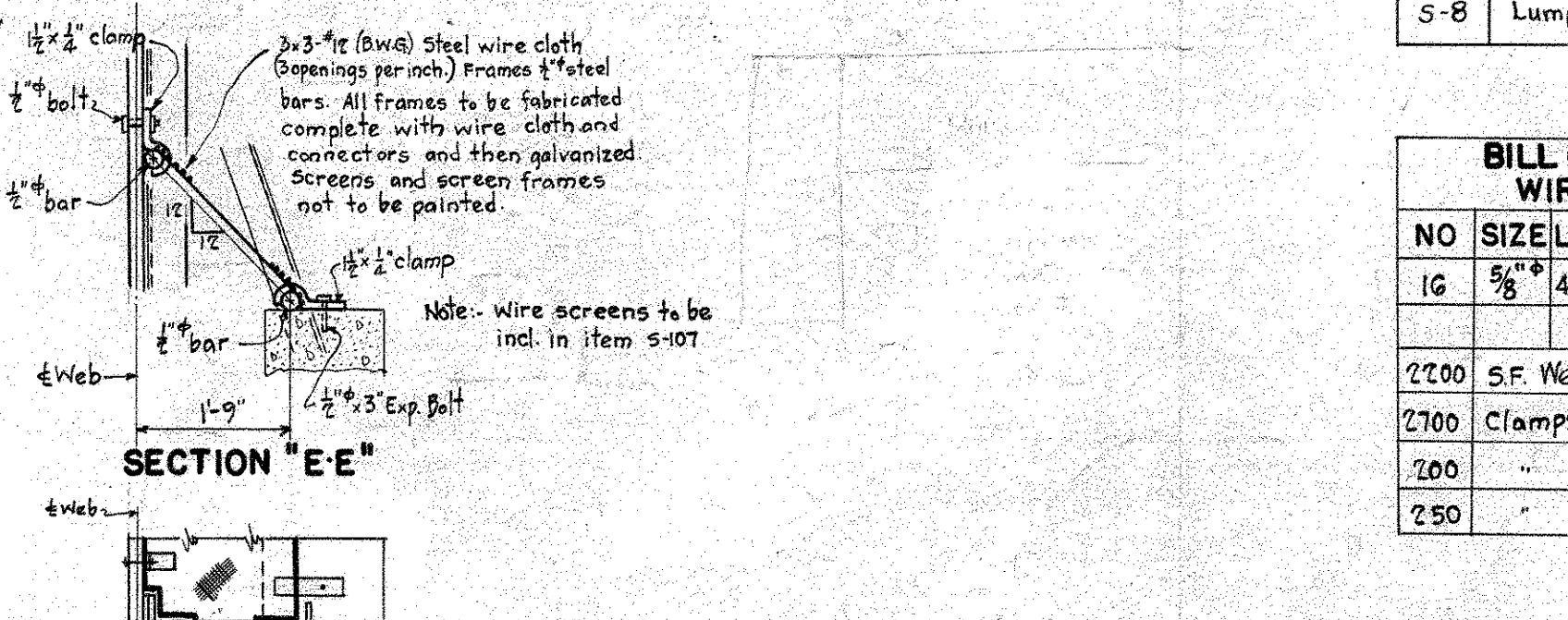
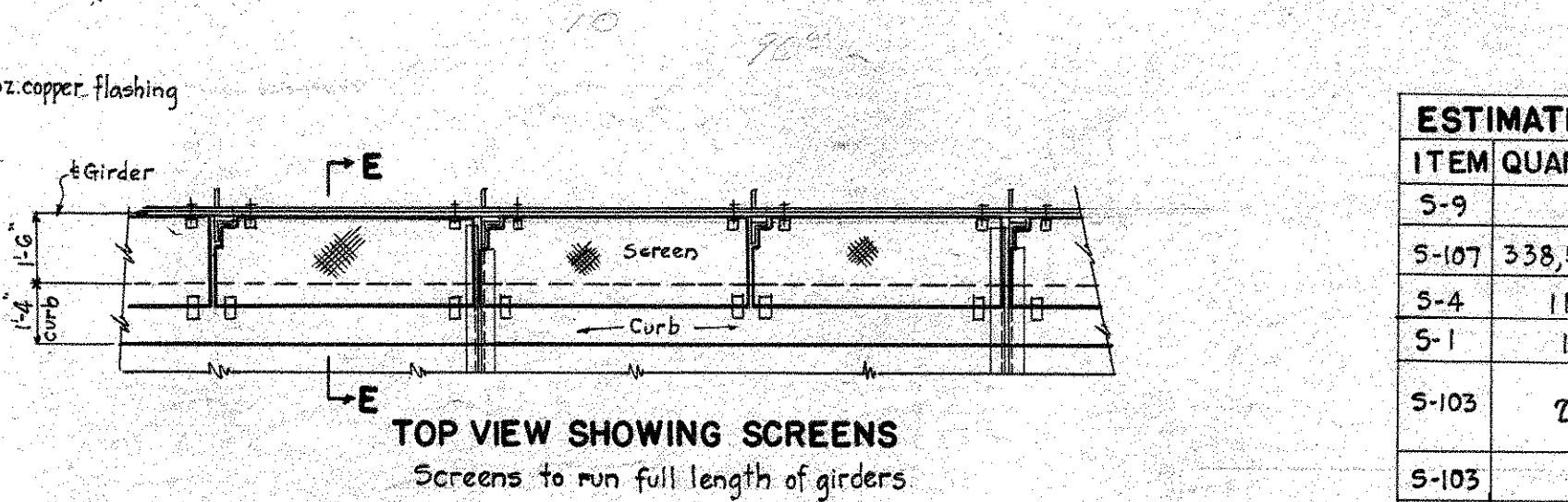
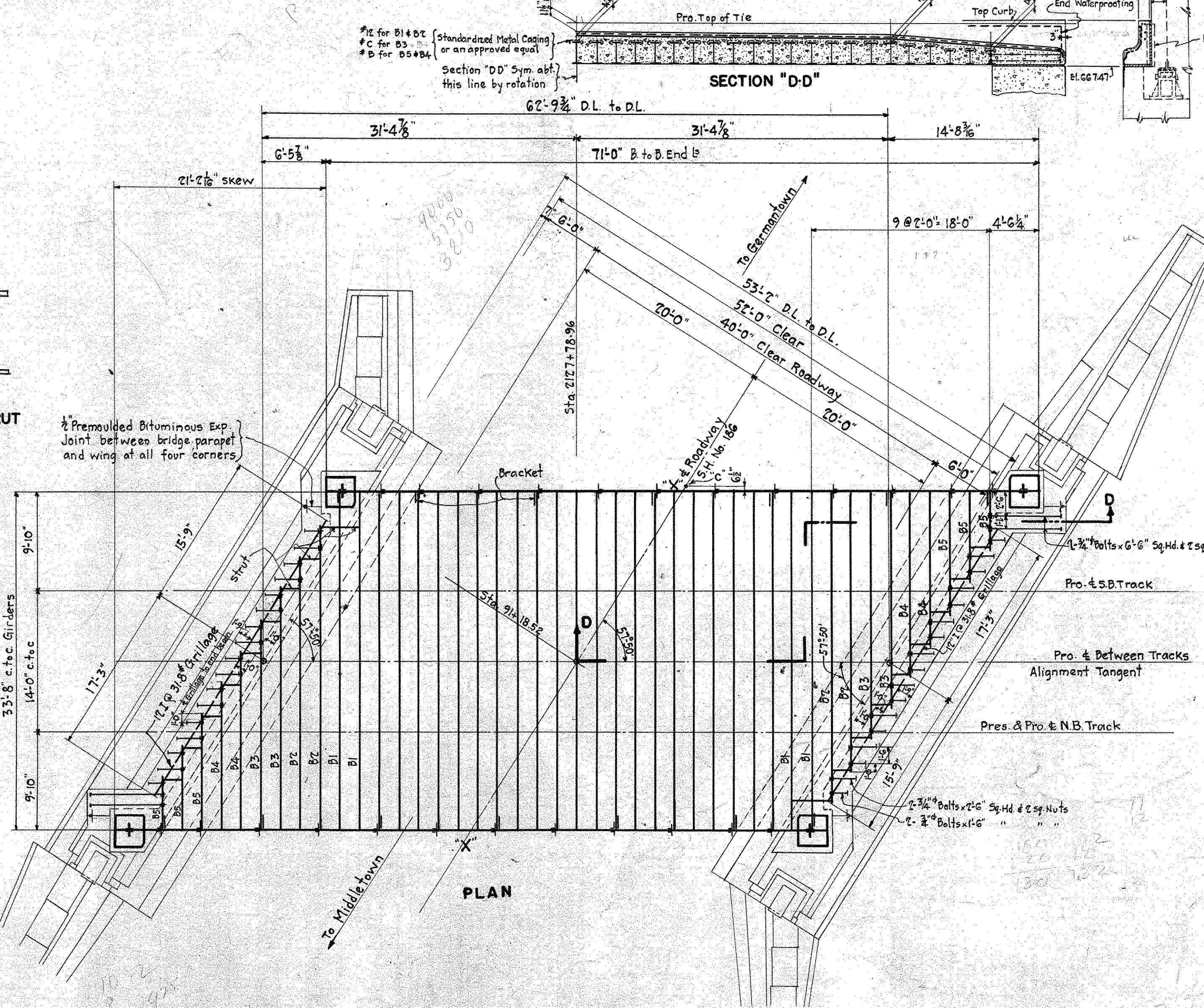
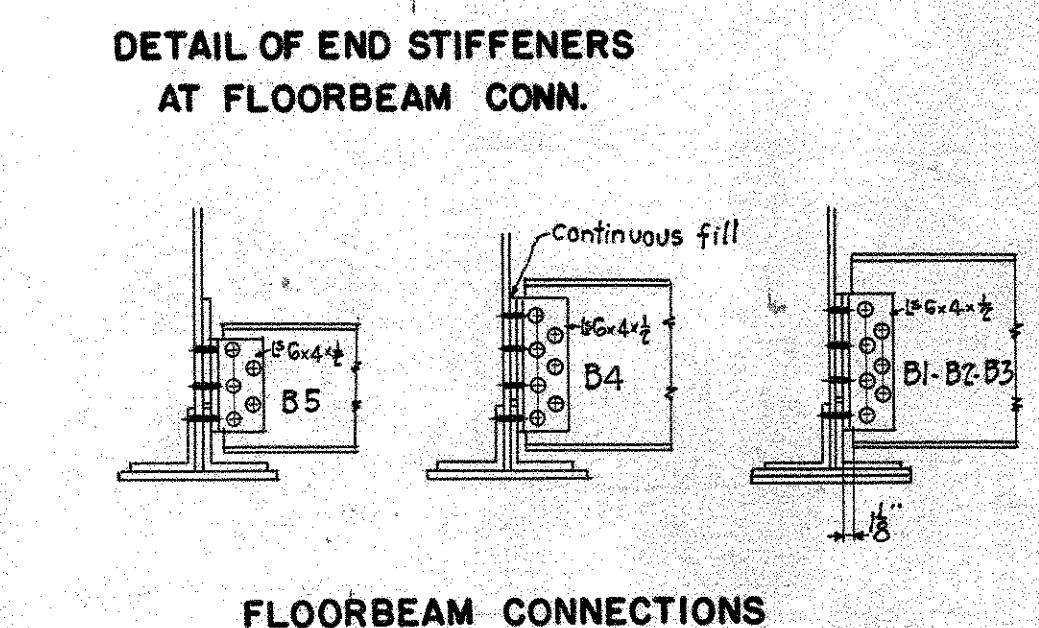
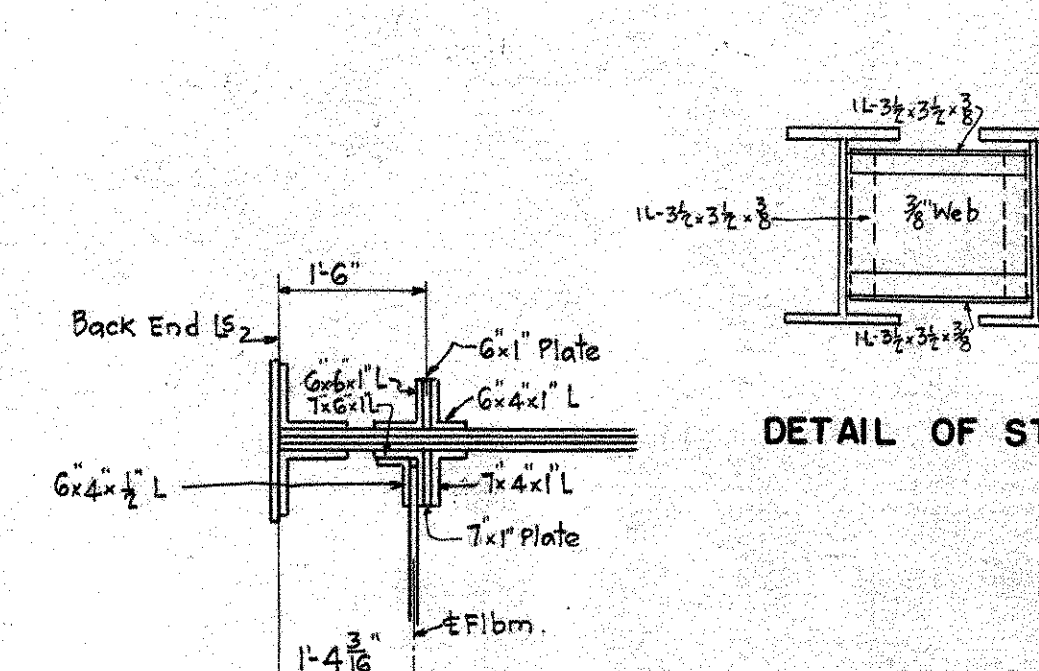
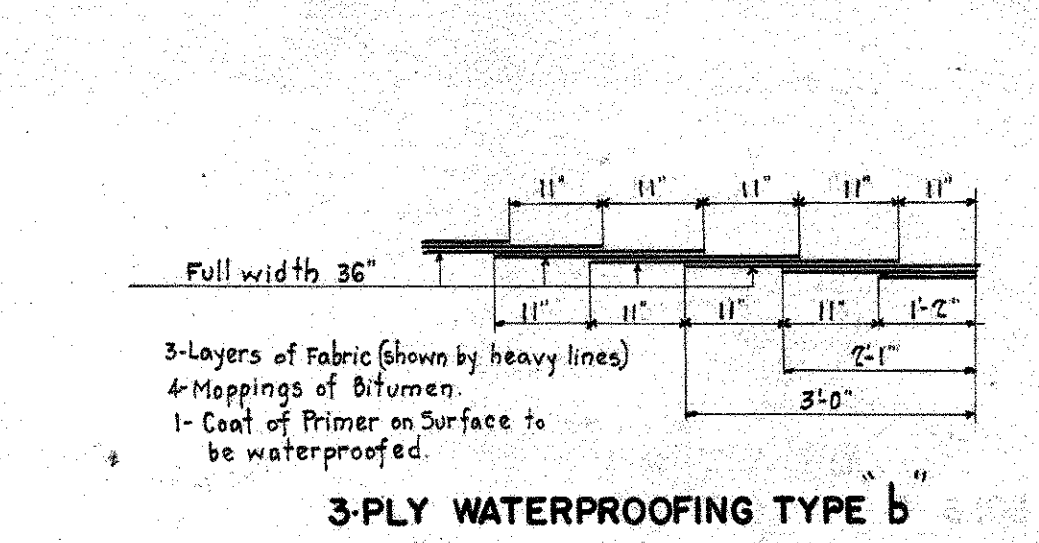
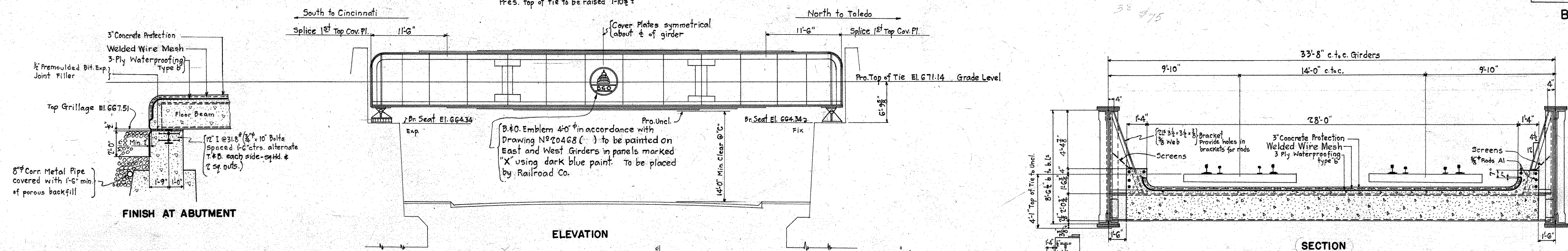
*Borrow to be obtained from Detour Tracks Embankment.
Surplus Excavation from Roadway (See Sheet #37) 20,141 C.Y.
Surplus Excavation from Structure (Estimated) 300 C.Y.
Total 20,441 C.Y.
Net Borrow 52,952 - 20,441 = 32,511 Cu. Yds.

TOLEDO DIV. POAST TOWN, OHIO.
CROSS SECTIONS-TRACK RAISE
BRIDGE No 26 1/2
Sheet 6 of 6



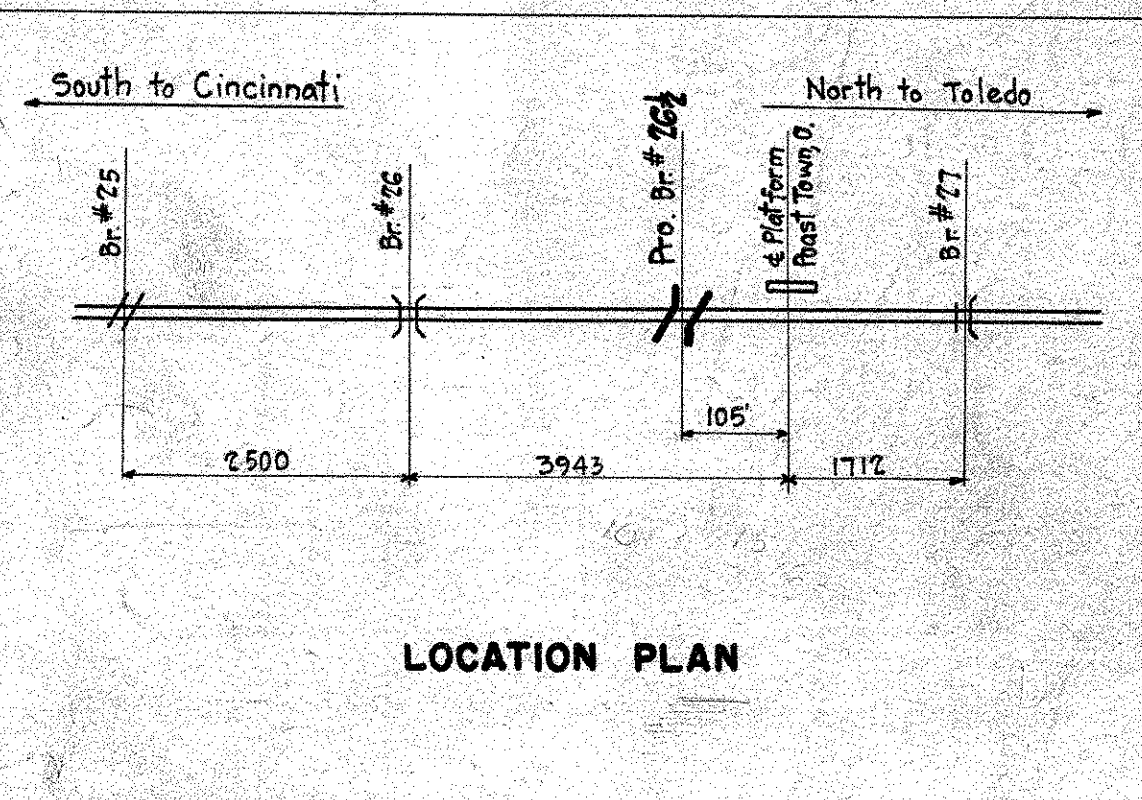
Water required for Compaction
47417 x .5 = 237 M. Gals.

**BUTLER COUNTY
S.H. NO. 186 SEC. D (PT.)**



ITEM	QUANTITY	DESCRIPTION
S-9	220 S.F.	1/2 Pre-molded Bituminous Exp. Joint
S-107	338,500 lbs	Structural Steel including castings & screens
S-4	1135 lbs	Reinforcing Steel (Intim. Grade M-71)
S-1	190 c.y.	Conc. in Superstructure (Coarse Aggregate M-31 or M-39)
S-103	252 S.Y.	3-Ply waterproofing type 'b' incl. 3' conc. protection Class 'A' (conc. & Mesh)
S-103	25 S.Y.	3-Ply waterproofing type 'b'
S-8	Lump Sum	Field Painting of Structural Steel and Steel Castings

NO	SIZE	LGTH	MARK	REMARKS	WEIGHT
1G	5/8"	40'-0"	A1	Straight	670
2200	S.F.			Welded Wire Mesh (For Conc. Protection)	
2100				Clamps - Standardized Metal Caging #12	400
200				# C	30
250				# B	35
Total -					1135*



GENERAL NOTES
 Fabricated Steelwork - Design, manufacture and materials - S107
 Material - O.H. Structural Steel - S107
 Castings - Cast Steel annealed - S107
 Waterproofing - 3-Ply Type 'b' - S103 (For lapping see sketch.)
 Prime Coat included with Type 'b' Waterproofing for payment
 Live Load - Coopers E72
 Rivets - 1", except 3/4" in brackets, struts and floorbeams.

State of Ohio Specifications:-
 Shop paint :- One coat of red lead. Steel in contact with concrete not to be painted.
 Field Paint - two (2) coats of white lead [Sec. M-26(b)] tinted to match concrete - (S-8)
 Concrete in deck Class 'C'. In Waterproofing protection cover - Class 'A'.
 Coarse aggregate M-31 or M-39 (Stipulated by R.R. Co.)
 Chamfer all exposed edges of concrete in superstructure 1/4" x 1/4".
 Concrete not to be subjected to strains or vibrations from trains until it has had time to season and harden.
 Reinforcing Bars - deformed billet steel, intermediate grade M-71.
 For Detail of C.S. Shoes see Drawing No. 37805 (35).
 Elevations based on Ohio State Highway Datum.
 Design - A.R.E.A. 1935 Specifications.
 Welded Wire Mesh - to be 4' x 4' mesh, No. 12 x No. 12 wires, 48" wide, and lapped a min. of 4".

SHIPPING NOTES:
 Girders to be shipped with webs vertical and in same relative position as in the finished structure.
 Mark North end of girders - "KEEP THIS END NORTH"

GIRDERS	
71'-0" B to B End B, 68'-0" c.t.c. Bear, 8'-6 1/2" B to B Fig. 15	
Max. End Shear = 835,000*	Max. Moment = 12,750,000*
835,000 x 11,000 = 76,000* Req'd.	12,750,000 x 12 = 11,750,000* 8620* S.M. Req'd.
Web 102 x 1/2 = 76.5* Furn.	
End Stiff B - 48 G. x 1/2 (Fill) except at splice see detail	
2 Pls. G. x 1/2	9.56
Int. Stiff - 1L 6 x 4 1/2 Crimp 0.5.	27.12
1L 6 x 4 1/2 FILL 1.5	12.20
Rivet Pitch: Ends 3", 4" P. 4", c. 6"	12.20
Web Splice: Hor. 4 Pls. 12 x 1/2; Vert. 2 Pls. 22 x 1/2	12.20
Special Shoe - See Detail.	12.20
	Net Area 1-Flg. = 85.48*
	4 Lines Rivets Cov. Plates.

FLOORBEAMS B1	
33'-8" c.t.c. Girs - 2'0" max. c.t.c.	
Max. End Shear = 63,000*	Max. Moment = 600,000*
End Conn. 2B 6 x 4 1/2	600,000 x 12 = 18,000,000* 3340* S.M. Req'd.
8-1" Riv. S.S.	Use 2 1/2" WF @ 100" S.M. - 418.5*
7-3/8" Riv. Bear. on web	

FLOORBEAMS B2	
29'-10" Max. c. Gir. to 4 Bear - 2'0" max. c.t.c.	
Max. End Shear = 36,500*	Max. Moment = 560,000*
End Conn. 2B 6 x 4 1/2	193,000 x 12 = 18,000,000* 128* S.M. Req'd.
8-1" Riv. S.S.	Use 2 1/2" WF @ 140" S.M. - 358.0*
7-3/8" Riv. Bear. on web	

FLOORBEAMS B3	
23'-6" Max. c. Gir. to 4 Bear - 2'0" max. c.t.c.	
Max. End Shear = 42,500*	Max. Moment = 320,000*
End Conn. 2B 6 x 4 1/2	320,000 x 12 = 18,000,000* 216* S.M. Req'd.
8-1" Riv. S.S.	Use 2 1/2" WF @ 94" S.M. - 270.9*
7-3/8" Riv. Bear. on web	

FLOORBEAMS B5	
10'-10 1/2" Max. c. Gir. to 4 Bear - 2'0" max. c.t.c.	
Max. End Shear = 13,800*	Max. Moment = 63,000*
End Conn. 2B 6 x 4 1/2	63,000 x 12 = 18,000,000* 472* S.M. Req'd.
6-1" Riv. S.S.	Use 1 1/2" WF @ 35" S.M. - 71.4*
5-3/8" Riv. Bear. on web	

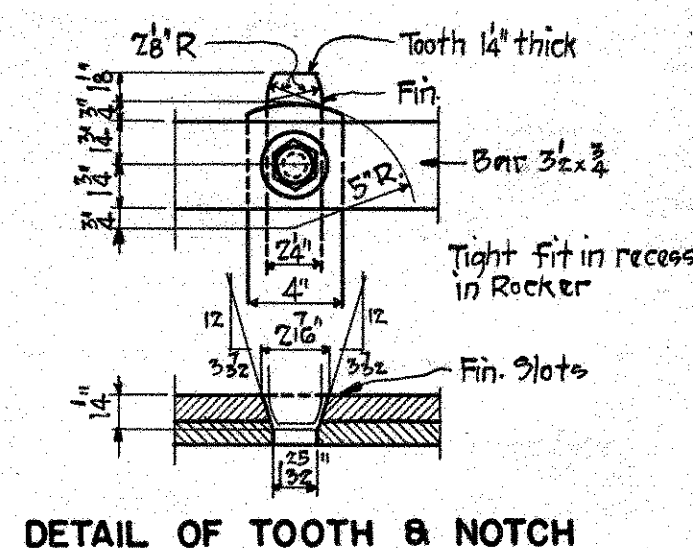
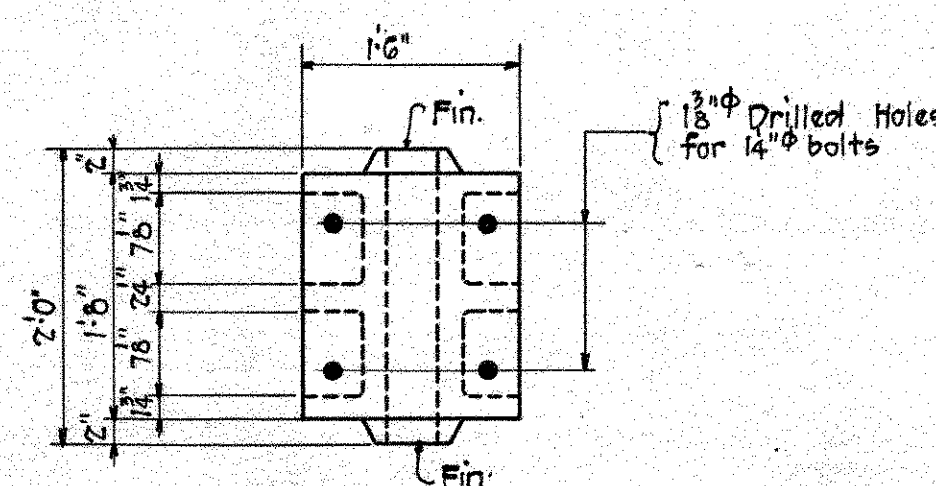
CHECKED IN FIELD BY A.C. CLARKE 7-3-40.

APPROVED: *[Signature]*
ENGINEER OF BRIDGES

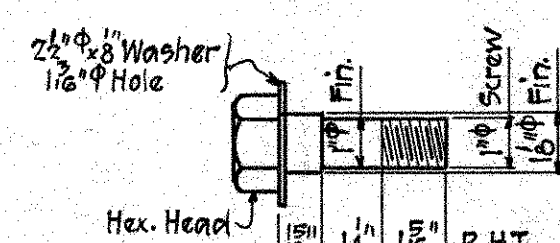
WANTED:- One Solid Floor D.T. Thru P.Gir. Span 71'-0" B to B End B, 8'-6 1/2" B to B Fig. 15 Floorbeams, Brackets, Struts, Shoes, Anchor Bolts, Screens, Grilles, Bolts etc.

BR. NO. BU-4-243
 THE BALTIMORE & OHIO RAILROAD
 TOLEDO & CINCINNATI RAILROAD CO.
 TOLEDO DIV. MAIN LINE
 BRIDGE NO. 26 1/2 POAST TOWN, O.
STRESS SHEET
 SCALE: 1/8", 1/4" = 1'-0"
 MARCH 12, 1940
 OFFICE OF ENGINEER OF BRIDGES
 BALTIMORE, MD.
 DRAWING No. 32792 B

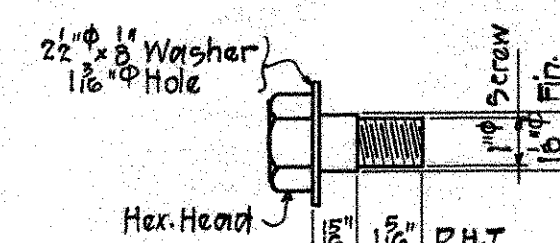
BUTLER COUNTY
S.H. No. 186 SEC. D (P_T)



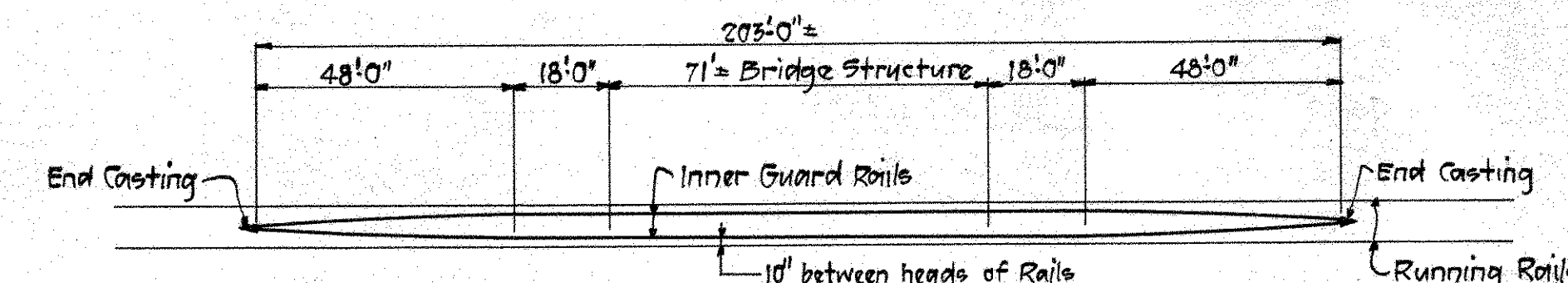
DETAIL OF TOOTH & NOTCH



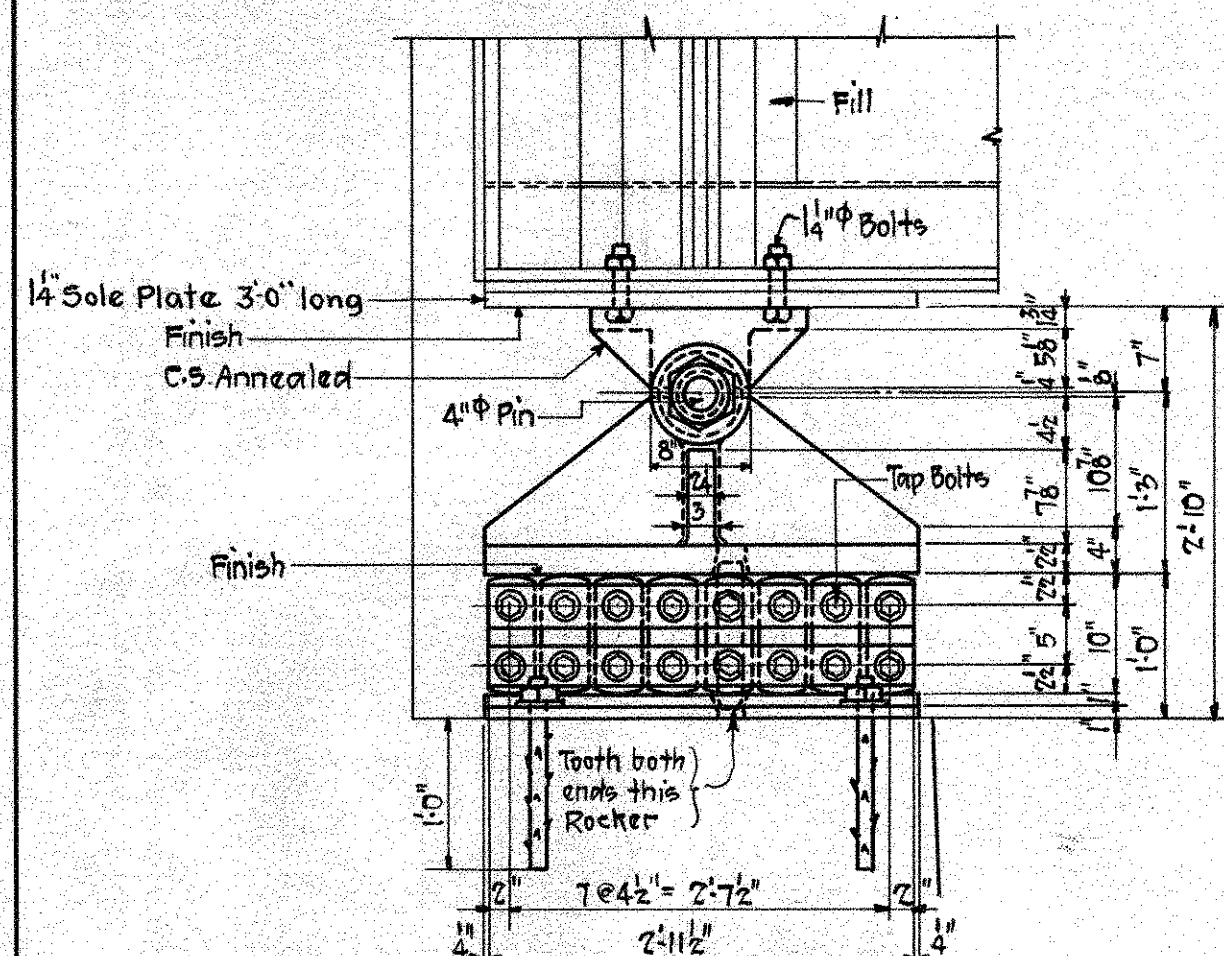
TAP BOLT AT TOOTH
Scale 3" = 1'-0"



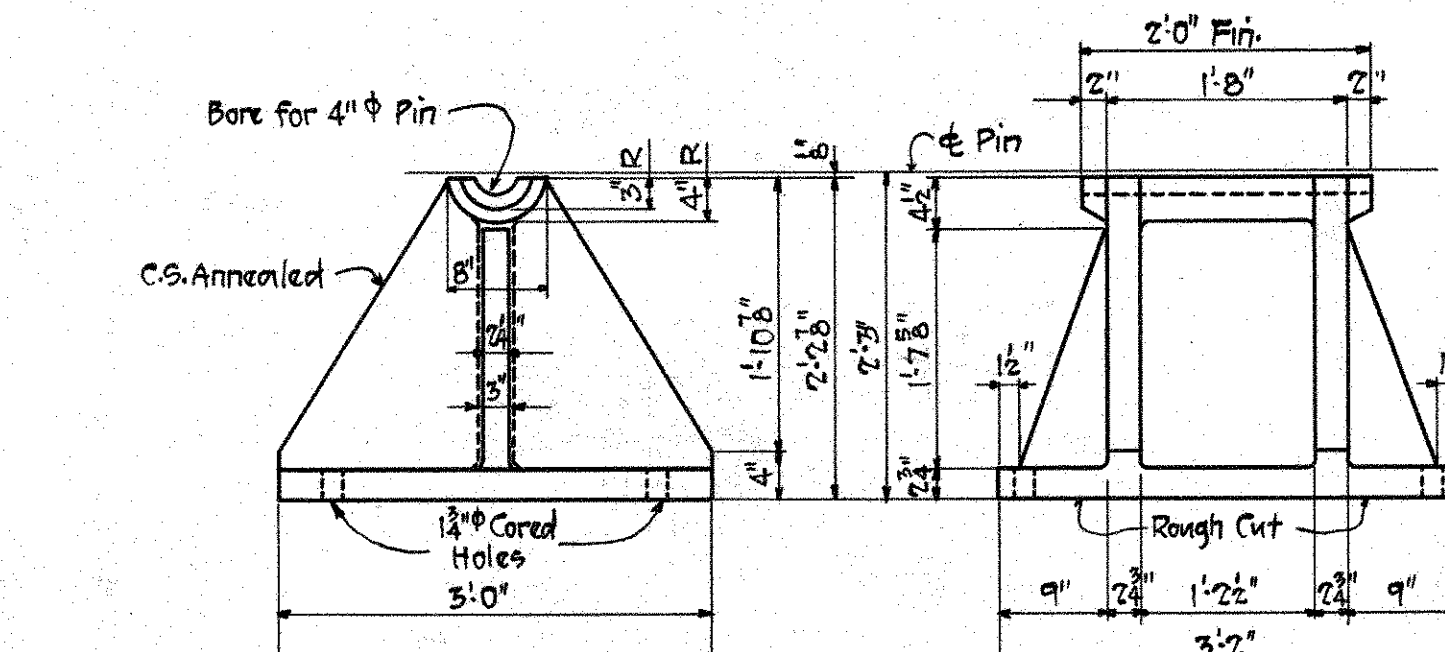
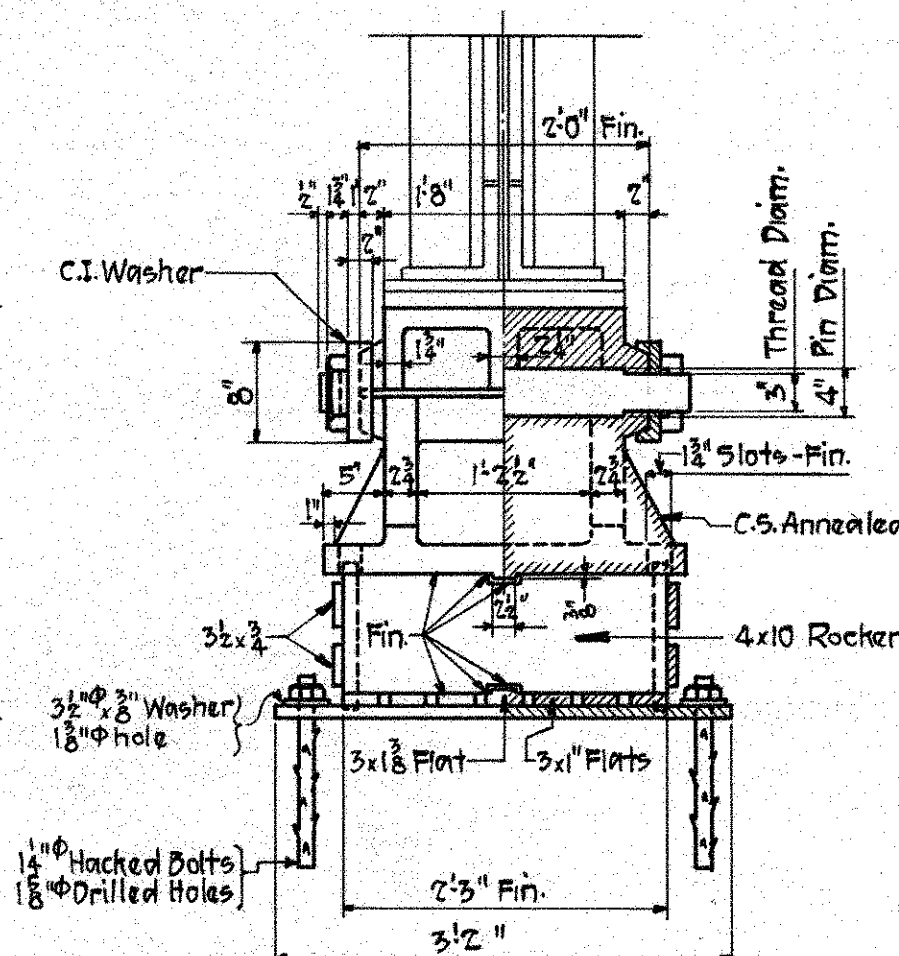
TAP BOLT



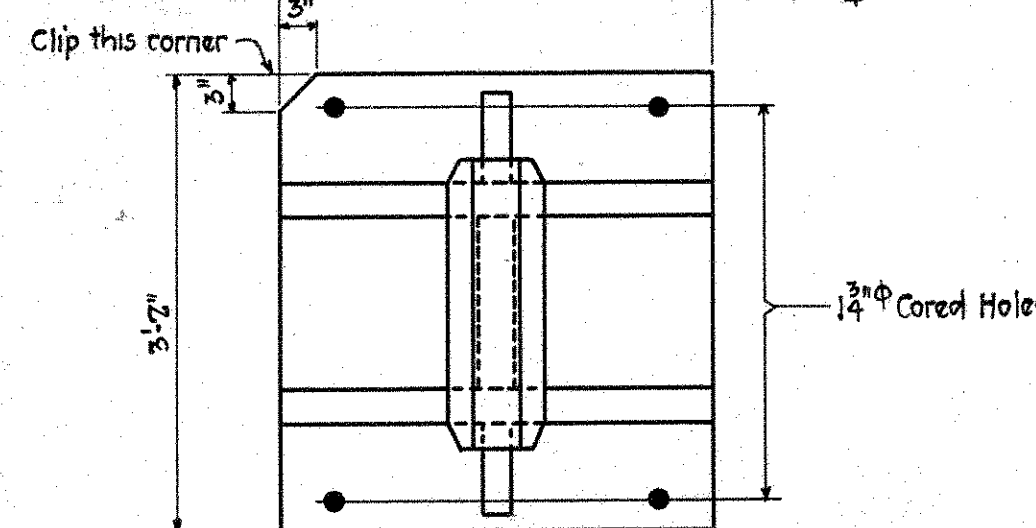
PLAN OF INNER GUARD RAILS FOR PERMANENT STRUCTURE
BY RAILROAD FORCE ACCOUNT (ITEM E)



ROCKER SHOE
Scale 3/4" = 1'-0"



FIXED SHOE
Scale 3/4" = 1'-0"



NOTES

36 X 38 C.S. SHOES

The material used for the different parts will be as follows:
Castings to be Cast Steel (Annealed).
Material for Rocker Shoes to be O.H. Structural Steel except as noted.
Specifications: S-107
All corners to be filleted.
Shop Paint-One coat.
Finished surfaces to be given one coat of white lead and tallow.
(Incl. in Item S-8)

BR. NO. BU-4-243
THE BALTIMORE & OHIO RAILROAD
TOLEDO & CINCINNATI RAILROAD CO.
TOLEDO DIV. MAIN LINE
BRIDGE NO. 26 1/2 POAST TOWN, O.
GENERAL DETAILS

SCALE: AS NOTED MARCH 13, 1940
OFFICE OF ENGINEER OF BRIDGES
BALTIMORE, MD.

APPROVED: *E. C. Sloan*
ENGINEER OF BRIDGES

DRAWING No. 32805 A

SUMMARY OF QUANTITIES

FED. RD. DIST. NO.	STATE	F.A.G.C. PROJECT	FISCAL YEAR
10	OHIO	FAG.H.825E(0)	1939

37
38

**BUTLER COUNTY
S.H.186 SEC. D (PT.)
GRADE SEPARATION**

STORM SEWERS												
Sheet No	PIPE ITEM I-2		PIPE Open Joints Porous Backfill ITEM I-2		CATCH BASINS Std. Drwg. I-8 C.B.							
	Lin. Ft.	Under Pav't.	Lin. Ft.	Under Pav't.	Each							
	27" 12" 27"	24" 18"	No 1-2	No 2-2	No 1-3	No 2-3	No 3					
6	72	77	366					2	1	2	2	4
7	428	136	3595					1				
8			298.5	46	1					1		
Total	500	213	366	6580	46	3	1	2	3	4	4	

Note: Storm Sewer quantities may be increased or decreased if the limits of storm sewer construction by the W.P.A. are changed (If right of way is not available) from those shown on these plans.

DRIVES AND APPROACHES										
Sheet No	5" W.B. Macadam Base Course ITEM B-20 Sq. Yd.	Bitum. inous Prime Coat ITEM T-30 Sq. Yd.	Bitum. inous Treat. ment ITEM T-31 Sq. Yd.	6" Concrete Pav't ITEM T-70 Sq. Yd.	9"-7"-9" Reinf. Conc. 40% No 2 Traffic Bound 60% No 4 ITEM I-17 Cu. Yd.	18" Pipe for Driveways ITEM I-1 Lin. Ft.	Remove Exist. 6" Conc. Pav't ITEM E-8 Sq. Yd.	Remove & Store Exist. Pipe ITEM E-12 Lin. Ft.		
								12"	18"	
6	561.4	561.4	561.4	3079	49		66.4			
7	14.2	14.2	14.2		4238	44			32	
8	447.5	447.5	447.5		4	24			18	
Total	1023.1	1023.1	1023.1	3079	4238	97	24	66.4	32	18

ROADWAY EXCAVATION & EMBANKMENT				
Station To Station	Excavation Cu. Yd.	Embankment Cu. Yd.	Embankment +20% Cu. Yd.	Surplus Cu. Yd.
82+50 To 104+00	20,730	491	589	20,141

Note: Surplus Excavation to be used to reduce borrow for Railroad Embankment.

ROADWAY DRAINAGE	
Sheet No	BELL & SPIGOT PIPE Open Joints Porous Backfill ITEM I-3 8" Lin. Ft.
	6
7	363
8	300
Total	958

CLASSIFIED SUBGRADE MATERIAL ITEM SS-112	
Sheet No	Cu. Yd.
8	512
Total	512

ADDITION	
Sheet No	Add To Project Length Lin. Ft.
7	1.10

REMOVAL OF TREES & STUMPS ~ Item E-109 (See Supplemental Specifications)	
Lump Sum	

CONC. SIDEWALKS & STEPS			
Sheet No	4" Conc. Sidewalk ITEM I-13 Sq. Ft.	Conc. Steps ITEM I-13 Lin. Ft.	
		6" Riser 18" Tread	7" Riser 18" Tread
6	7287.5	56	23
7	800		
Total	8087.5	56	23

8087.5

PROJECT LENGTH	
Beginning of Project	Sta. 82+50
End of Project	Sta. 104+00
Gross Length of Project	= 2150.00 Lin. Ft.
Add for Equation - Sta. 96+01.10 Back = Sta. 96+00.00 Ahead	= 1.10 "
Net Length of Project	= 2151.10 Lin. Ft. or 0.407 Miles.

PAVEMENT CALCULATIONS	
7" REINF. CONC. PAV'T. ITEM T-71 (41'-0" WIDE)	1150.00 Lin. Ft.
Net Length of 41'-0" Pav't. (See Typical Section)	1150.00 Lin. Ft.
Total 7" Reinf. Conc. Pav't. Item T-71 (41'-0" wide)	1150 x 41 x 1/2 = 5238.9 Sq. Yd.
9"-7"-7"-9" REINF. CONC. PAV'T. ITEM T-71 (22'-0" WIDE)	1001.10 Lin. Ft.
Net Length of 22'-0" Pav't. (See Typical Section)	1001.10 x 22 x 1/2 = 2447.1 Sq. Yd.
Addition for Flares (See Summary)	423.8 Sq. Yd.
Total 9"-7"-7"-9" Reinf. Conc. Pav't. Item T-71 (22'-0" Wide)	2870.9 Sq. Yd.

6" CONC. PAV'T. ITEM T-70	
Total 6" Conc. Pav't. Item T-70 (See Summary)	307.9 Sq. Yd.

TYPE 2-A CONC. CURB ITEM I-12	
Net Length 41'-0" Pav't. (See Typical Section)	1150.00 Lin. Ft.
Total Type 2-A Conc. Curb Item I-12 (1150 x 2)	2300.00 Lin. Ft.

SEEDING AND SODDING				
Sheet No	Renovating Existing Soil ITEM L-4 M. Sq. Ft.	Seeding & Protecting Shoulders Slopes & Ditches ITEM E-305 Sq. Yd.	Sodding ITEM L-10 Sq. Yd.	Commercial Fertilizer ITEM L-9 Lbs.
	6	135	2883	1497
7	4	5529	44	1004
8		2631		474
Total	139	11043	1541	2267

WATER BOUND MACADAM BASE COURSE					
Item	Area in Sq. Yd.	Material	Quan. per Sq. Yd.	Calculation	Quantity
T-30 Prime Coat	1023.1	RT-2	0.25 Gal.	1023.1 x 0.25	256 Gal.
T-31 Surface Treatment	1023.1	MC-5	0.40 to 0.46 Gal.	1023.1 x 0.43	440 Gal.
T-31 Surface Treatment	1023.1	No. 46 Aggr.	0.40 Cu. Ft.	1023.1 x 0.40 x 1.2	14.3 Tons
T-31 Seal Coat	1023.1	MC-5	0.2 Gal.	1023.1 x 0.20	205 Gal.
T-31 Seal Coat	1023.1	No. 6 Aggr.	0.11 Cu. Ft.	1023.1 x 0.11 x 1.2	3.9 Tons
B-20 Water Bound Macadam	1023.1	Course Aggr.	5 x 0.03 = 0.15 Tons	1023.1 x 0.15	153.5 Tons
B-20 Water Bound Macadam	1023.1	Screenings	5 x 0.013 = 0.065 Tons	1023.1 x 0.065	66.5 Tons

Drawn By: M.B.S. 3-14-40
Checked By: A.R.T. J.P.M. 3-14-40

GENERAL SUMMARY

ITEM No	DESCRIPTION	QUANTITIES	UNIT
ROADWAY			
E-1	Roadway Excavation (Unclassified)	20,730	Cu. Yd.
E-8	Removal and Disposal of Existing 6" Conc. Pavement	66.4	Sq. Yd.
E-11	Water	13	M. Gal.
E-12	Existing 12" Conc. Pipe Removed and Stored	32	Lin. Ft.
E-12	Existing 18" Corr. Metal Pipe Removed and Stored	18	Lin. Ft.
E-109	Removal of Trees and Stumps. (See Supplemental Specification)	Lump	Lump Sum
E-305	Seeding and Protecting Shoulders Slopes and Ditches. (See Supplemental Specification)	11043	Sq. Yd.
L-4	Renovating Existing Soil	14	M Sq. Ft.
L-9	Commercial Fertilizer (F-12-4 Mix)	2267	Lbs.
L-10	Sodding	1541	Sq. Yd.
I-1	18" Pipe for Driveways	24	Lin. Ft.
I-2	12" Pipe for Storm Sewers. (Under Pavement)	213	Lin. Ft.
I-2	18" Pipe for Storm Sewers. (Under Pavement) Open Joints Porous Backfill. as per plan	46	Lin. Ft.
I-2	24" Pipe for Storm Sewers. Open Joints Porous Backfill. as per plan	658	Lin. Ft.
I-2	27" Pipe for Storm Sewers	500	Lin. Ft.
I-2	27" Pipe for Storm Sewers (Under Pavement)	366	Lin. Ft.
I-3	8" Bell and Spigot Pipe. Porous backfill as per plan for Roadway Drainage.	958	Lin. Ft.
I-8	Catch Basins Std. Drwg. I-8 C.B. N ^o 1-2	3	Each
I-8	Catch Basins Std. Drwg. I-8 C.B. N ^o 2-2	1	Each
I-8	Catch Basins Std. Drwg. I-8 C.B. N ^o 1-3	2	Each
I-8	Catch Basins Std. Drwg. I-8 C.B. N ^o 2-3	3	Each
I-8	Catch Basins Std. Drwg. I-8 C.B. N ^o 3	4	Each
I-13	4" Conc. Sidewalk	8088	Sq. Ft.
I-13	Conc. Steps. 6" Riser, 18" Tread	56	Lin. Ft.
I-13	Conc. Steps. 7" Riser, 18" Tread	23	Lin. Ft.
I-17	Traffic Bound Side Approaches. (60% N ^o 4 - 90% N ^o 7)	97	Cu. Yd.
SS-112	Classified Subgrade Material	512	Cu. Yd.
PAVEMENT			
B-20	Water Bound Macadam Base Course. (Coarse Agg)	154	Tons
B-20	Water Bound Macadam Base Course. (Screenings)	67	Tons
T-30	Bituminous Prime Coat. Sec. M-5.15 RT-2	256	Gal.
T-31	Bituminous Surface Treatment - Bituminous Material. Sec. M-5.10 MC-5	440	Gal.
T-31	Bituminous Surface Treatment - Aggregate. (N ^o 46)	15	Tons
T-31	Seal Coat - Bituminous Material. Sec. M-5.10 MC-5	205	Gal.
T-31	Seal Coat - Aggregate. (N ^o 6)	4	Tons
T-70	6" Portland Cement Conc. Pavement	308	Sq. Yd.
T-71	7" Reinf. Portland Cement Conc. Pavement	6299	Sq. Yd.
T-71	9" 7" 7" 9" Reinf. Portland Cement Conc. Pavement	2871	Sq. Yd.
I-12	Type 2-A Portland Cement Conc. Curb	2300	Lin. Ft.

Drawn By: ART 3-14-40
 Checked By: J.P.M. 3-14-40