



CUY-90-14.90

PID 77332/85531

APPENDIX EX-05

**U.S. Route 42 Relocation Part 1 – Preliminary Test Piles
(Reference Document)**

State of Ohio
Department of Transportation
Jolene M. Molitoris, Director

**Innerbelt Bridge
Construction Contract Group 1 (CCG1)**

6-0

CUY-90-15.45 ±

FED. RD. DIVISION	STATE	FEDERAL AID PROJECT	FISCAL YEAR
2	OHIO	U1-1057 (1)	

1/5

CENTRAL VIADUCT PART 1
CITY OF CLEVELAND

CUY-42

STATE OF OHIO DEPARTMENT OF HIGHWAYS

U.S. ROUTE 42 RELOCATION

CENTRAL VIADUCT-INNER BELT FREEWAY

PART 1-PRELIMINARY TEST PILES

CUYAHOGA COUNTY CITY OF CLEVELAND

CONVENTIONAL SIGNS

CORPORATION LINE _____
 CENTER LINE _____
 RAILROAD _____

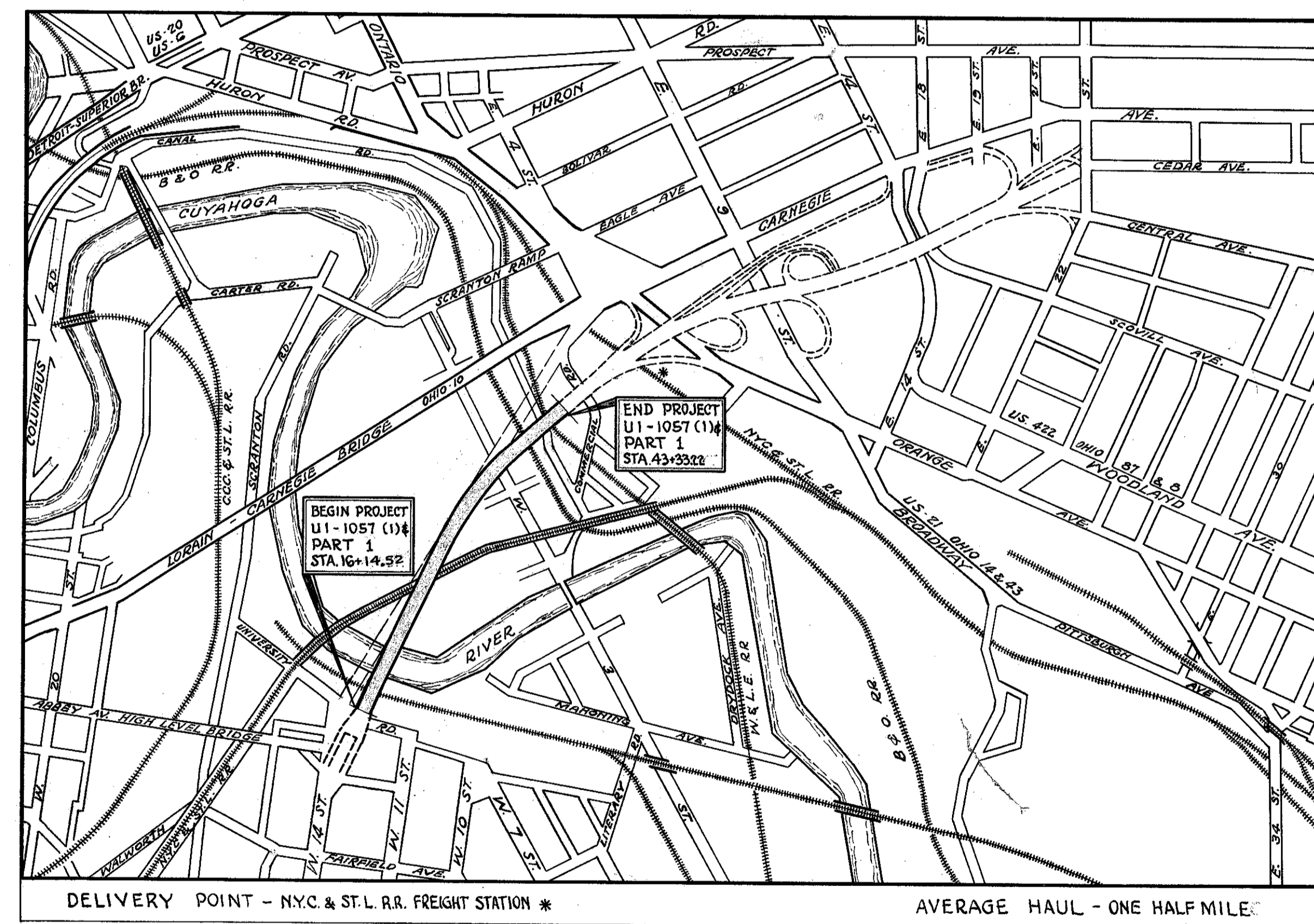
INDEX OF SHEETS

TITLE SHEET	SHEET NO 1
LOCATION PLANS	2-3
CROSS SECTIONS	4
NOTES & QUANTITIES	5

LINE DATA

Begin Project U-I-1057(1) Sta. 16+14.52
 End Project U-I-1057(1) Sta. 43+33.22
 Net Length of Project U-I-1057(1) = 2718.70' or 0.514 mi.

Begin Work Sta. 16+00
 End Work Sta. 43+75
 Net Length of Work = 2775' or 0.525 mi.



LOCATION PLAN

SCALE: 1" = 800'

PORTION TO BE IMPROVED
 STATE HIGHWAYS _____
 OTHER HIGHWAYS _____

CONSTRUCTION
 BUREAU
 MAR 27 1956
 GRAPHIC PHOTO LAB

STANDARD DRAWINGS
(None)

SUPPLEMENTAL SPECIFICATIONS
 T-171.19 Rev. 3-19-53
 M-101.7 1-24-53

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 not require the closing to traffic of the highway, and that provisions for the maintenance and safety of traffic will be as set forth on the plans and estimates.

The right of way for this improvement will be provided by the State of Ohio.

- Approved Louis L. Drasler
 Date 4-6-53 Division Deputy Director
- Approved _____
 Date _____ Chief Engineer, Bureau of Maintenance
- Approved John Heier
 Date 4-15-53 Chief Engineer, Bureau of Planning & Programming
- Approved Richard Orth
 Date 4-13-53 Chief Engineer, Bureau of Bridges & R.R. Crossings
- Approved W. J. ...
 Date 4-16-53 Chief Engineer, Bureau of Location & Design
- Approved V. J. ...
 Date 4-16-53 First Ass't Director & Chief Engineer
- Approved S. J. ...
 Date 4-16-53 Director of Highways
- Approved for The City of Cleveland Samuel J. Davis
 Date 4-6-53 Director of Public Service

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

RECOMMENDED FOR APPROVAL:

DISTRICT ENGINEER

DATE

APPROVED

FOR THE DIVISION ENGINEER

DATE

FILE NO	CUY- CUYAHOGA COUNTY CITY OF CLEVELAND
DATE OF LETTING	1953
CONTRACT NO	

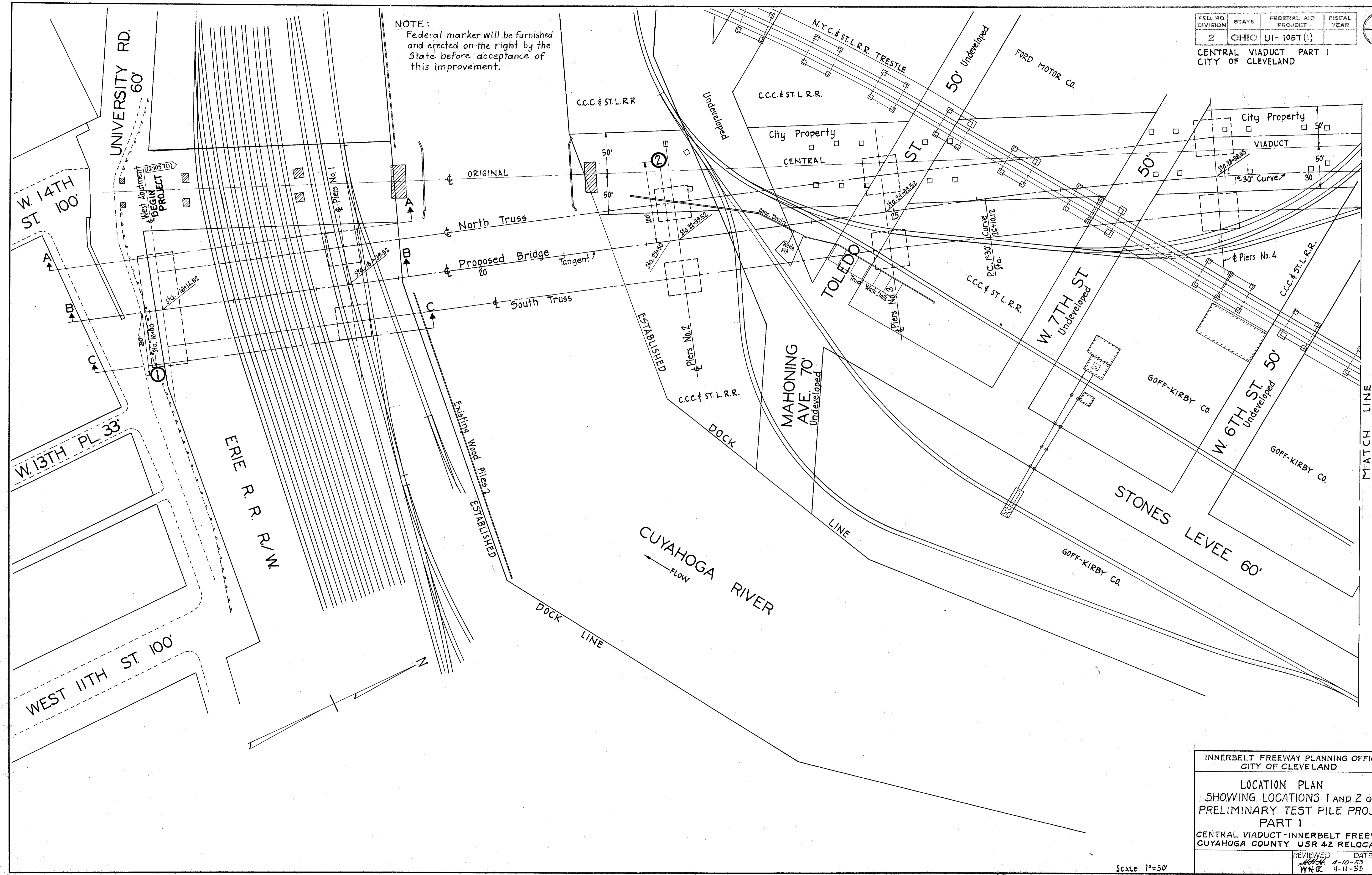
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FED. RD. DIVISION	STATE	FEDERAL AID PROJECT	FISCAL YEAR
2	OHIO	UI-1057 (I)	

2
5

CENTRAL VIADUCT PART I
CITY OF CLEVELAND

NOTE:
Federal marker will be furnished and erected on the right by the State before acceptance of this improvement.



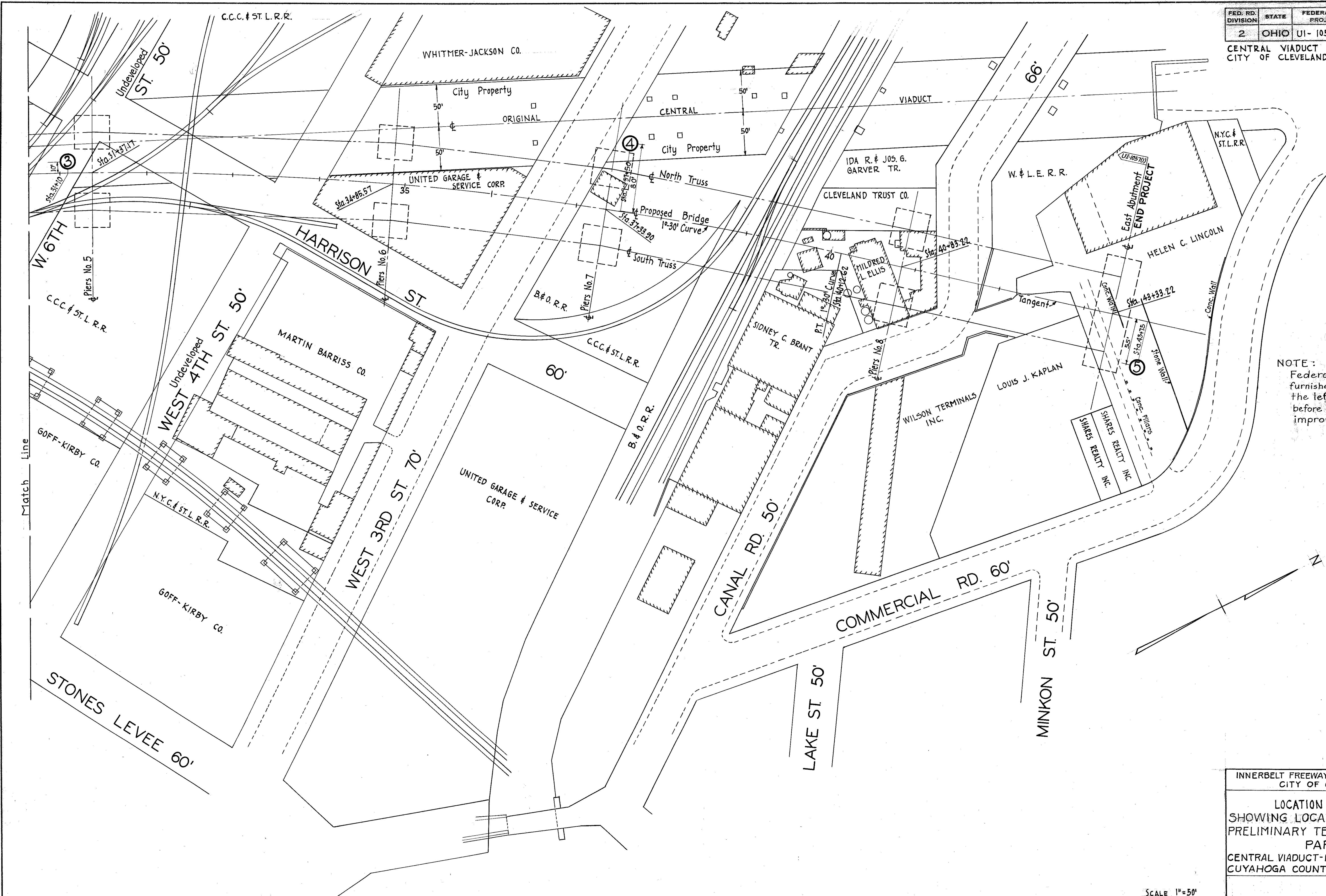
INNERBELT FREEWAY PLANNING OFFICE
CITY OF CLEVELAND

LOCATION PLAN
SHOWING LOCATIONS 1 AND 2 OF
PRELIMINARY TEST PILE PROJECT
PART I
CENTRAL VIADUCT-INNERBELT FREEWAY
CUYAHOGA COUNTY USR 42 RELOCATED

SCALE 1"=50'

REVIEWED	DATE
WNC	4-10-53
WNC	4-11-53

CENTRAL VIADUCT PART I
CITY OF CLEVELAND



NOTE:
Federal marker will be furnished and erected on the left by the State before acceptance of this improvement.

INNERBELT FREEWAY PLANNING OFFICE
CITY OF CLEVELAND

LOCATION PLAN
SHOWING LOCATIONS 3, 4, AND 5 OF
PRELIMINARY TEST PILE PROJECT
PART I
CENTRAL VIADUCT-INNERBELT FREEWAY
CUYAHOGA COUNTY USR 42 RELOCATE

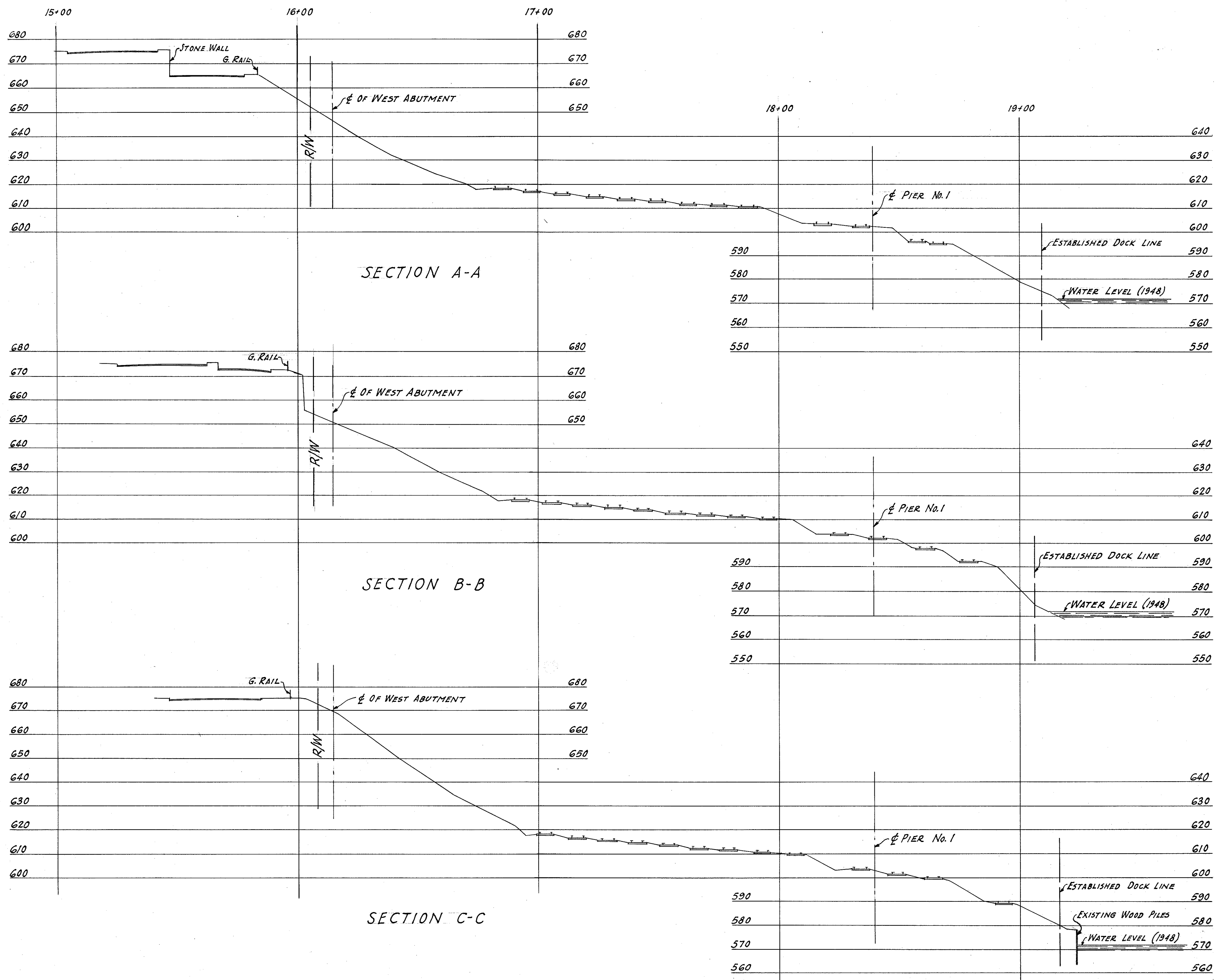
REVIEWED	DATE
WNC	4-11-53

SCALE 1"=50'

FED. RD. DIVISION	STATE	FEDERAL AID PROJECT	FISCAL YEAR
2	OHIO	UI-1057 (1)	

4
5

CENTRAL VIADUCT PART I
CITY OF CLEVELAND



INNERBELT FREEWAY PLANNING OFFICE
CITY OF CLEVELAND

CROSS-SECTIONS
AT WEST ABUTMENT & ERIE R. R.
PRELIMINARY TEST PILE PROJECT
PART I

CENTRAL VIADUCT-INNERBELT FREEWAY
CUYAHOGA COUNTY USR 42 RELOCATED

SCALE
HOR. 1" = 20'
VER. 1" = 20'

REVIEWED	DATE
WAC	4-10-53
WAC	4-11-53

GENERAL NOTES AND QUANTITIES

1. SCOPE AND PURPOSE

This contract consists of (a) the furnishing and driving of test piles at the locations shown on the general plan and (b) the test loading of these test piles under the direction of the Engineer, according to Items S-17 and S-18 of the Construction and Material Specifications and the following special provisions.

The purpose of this test pile project is to provide information for use in the design and construction of the pile foundations of a proposed viaduct at this site.

2. TYPE OF PILES

The types of piles to be tested by driving and loading are 14" cast-in-place concrete piles and 12" steel H piles (12BP53).

The cast-in-place concrete piles shall be of the type for which the casing is left in place and is driven without a mandrel. The casing of the first pile of this type driven shall be of approximately 7 gauge thickness, and this thickness of casing shall be used for subsequent piles unless and until appreciable constriction of the casing due to earth pressure occurs, as determined by the Engineer. If and after such constriction occurs, subsequently driven casings for this type shall be of approximately 5 gauge thickness. If a casing of 5 gauge thickness begins to constrict, as determined by the Engineer, the Contractor shall fill the lower part of the casing with high-strength cement concrete, to the extent directed by the Engineer, and after this concrete has set for 3 days driving shall be resumed. (It is contemplated that this testing of the type that is driven without a mandrel also will provide information regarding the required depth of penetration of left-in-place casings that are driven with a mandrel.)

3. TEST METHODS

The first testing shall be at Location No. 2 and the next at Location No. 3. At each of these two locations, two or more piles of the 14" cast-in-place type and two or more of the 12" steel H type shall be tested under two conditions: first, 20" ca. by providing a sheeted hole 20 feet deep and at least 24 inches in diameter, either by driving an open-end steel pipe and excavating all materials from within the pipe, or by any other suitable method and then driving the pile within the sheeted hole; second, by driving another pile of the same type and size, and by the same hammer, in an adjacent location beginning at the natural ground elevation (without the use of such sheeted hole). From a comparison of the penetration behavior of piles driven under these two conditions (at the same depth of penetration below the upper surface of the ground and with the same total length of pile in the leads) the difference in penetration (with and without the use of the sheeted hole) will be determined by the Engineer, and at the remaining locations the test piles shall be driven without the use of the sheeted hole.

Each pile shall be driven to a capacity of 65 tons according to the capacity formula in Sec. S-18.05. For the first two or three piles of each type driven the coefficient value of 2 in the numerator of the formula will be used. For the driving of subsequent piles, or for additional driving of a pile (after test loading thereon has been completed and if another test load at greater penetration is requested by the Engineer), this coefficient probably will be changed to a greater or lesser value by the Engineer, depending upon test load indications. Since one of the purposes of this test pile project is to determine the evaluation of the capacity formula to cause correct penetration for the contemplated design capacity of 65 tons, the driving shall be stopped immediately after a capacity of 65 tons according to the formula, has been attained.

The maximum magnitude of the test loads shall be 3R unless the yield point is reached at a smaller load. The test loading may be applied by use of a loaded platform or by the use of anchor piles or by a combination of these means. A pile driven as a test pile may be used as an anchor pile (for another, adjacent test pile) only after all test loading on it has been completed.

Any pile used as an anchor pile shall be located at least 6 feet from the pile being test loaded.

Except as noted above, the casing of a cast-in-place concrete pile shall not be filled with concrete until after the test loading has been completed, in order to facilitate subsequent driving of the casing to a greater penetration if so directed by the Engineer.

4. PILE DRIVING HAMMERS

The pile driving hammers used shall be of the single-acting steam type. The Contractor shall provide one hammer of approximately 15,000 ft. lb. (not less than 14,000, nor more than 16,500) and another of approximately 25,000 ft. lb. (not less than 24,000, nor more than 26,500) rated capacity, to be used as directed by the Engineer. It is expected that the 15,000 ft. lb. hammer will be adequate for this pile driving but the Contractor will be required to use both it and the 25,000 ft. lb. hammer, to ascertain the relative advantages and disadvantages of these two sizes. These hammers shall be applied on different piles or both shall be used in driving the same pile, as directed by the Engineer, but the use of both sizes of hammer on the same pile will not be required on more than six piles and the change from the one size to the other, where both sizes are used to drive the same pile, need be made not more than eight times altogether.

5. FINAL CLEANING UP

At the conclusion of each test, the cast-in-place piles shall be filled with concrete to within one foot of existing ground elevation and burned off at that elevation, or may be extracted and removed from the site, at the option of the Contractor. Likewise, unless extracted and removed from the site, the steel bearing piles shall be burned off at one foot below existing ground elevation. If steel pipe or other sheeting is left in the ground, the hole shall be filled with concrete to within one foot of existing ground elevation and burned off at that elevation. If piles, pipe or sheeting are extracted from the ground the holes shall be filled with concrete or with sand, flushed with water to eliminate voids. This also shall be done if a depression is created alongside a pile, pipe or sheet pile that is left in place. All equipment and material brought to the site by the Contractor except that which is left below ground, shall be removed from the site. All removed material, including extracted piles, pipes, and sheeting shall be considered the property of the Contractor.

6. REPORTS

A report on these tests will be prepared and submitted by the Engineer. The Contractor shall cooperate with the Engineer in the making of measurements, readings and observations.

7. METHOD OF MEASUREMENT AND BASIS OF PAYMENT

The lump sum item of "Pile Testing Overhead" is provided principally because of possible great variations in the final pay quantities of the unit price items (S-17, S-18 and the special item of 20ft. depth sheeted holes) from the estimated quantities, in view of the research character of this project. This item shall be considered as providing payment for the following: (1) Moving all pile-driving and test-loading equipment to the indicated locations at the site and away from the site. (2) Furnishing at

the site, pile, pipe and sheeting materials which is not used and not paid for under the unit price items. (3) Cleaning up the site and removing all materials. The payment of the lump sum price bid for this item together with the payment at the unit prices bid for the quantities of work actually done under Item S-17, the two S-18 items and the special item of 20-ft. depth sheeted holes, shall constitute complete compensation for this work, including all labor, material, equipment and incidentals.

No Item S-16 is provided in the quantities since all of the piles are test piles and are to be paid for per linear foot under Item S-18 and since the item of Pile Testing Overhead is provided.

All pile test loads shall be paid for at the unit price per Pile Test Load bid regardless of whether it be a first or subsequent load and regardless of whether it be another loading applied on the same pile or the loading of another pile at the same or another location.

For the purposes of payment the point of cutoff for the piles under Item S-18 shall be considered as one foot below the existing ground.

The basis of payment for the 20-ft. depth sheeted holes, obtained by use of a driven steel pipe or other approved method, shall be the unit price bid per hole and shall be considered to provide compensation for furnishing all material, equipment, labor and incidentals and for driving, excavating, filling with concrete, or extracting and filling the hole.

Payment will be made, at the price per lin. ft. bid, for piles damaged in driving, if driven with the approval of the Engineer and if such damage is not caused by the Contractor's failure to operate properly, even though such piles must be abandoned and are not subjected to test loading.

The estimated quantities in the S-18 items are based on a possibility of 400 linear feet of 14" cast-in-place concrete and 400 linear feet of 12" steel H piling at each of Locations 2 and 3, and 200 linear feet at each of the other three Locations, a total of 1400 lin. ft. of each type. It is contemplated that there will be two piles of each type driven at each of Locations 2 and 3, and perhaps one pile of each type at each of the other three Locations. There is a possibility of more than this number because of additional piles needed to replace damaged piles that are not suitable for test loading or because of the need for a subsequent shorter pile of the same type where the test loading indicates that a pile has been driven to a penetration greater than required. However, if the results of the testing at Locations 2 and 3 so indicate, the Engineer may consider it sufficient to test only one type of pile at each of Locations 4 and 5, but it is anticipated that it will be necessary to test both the cast-in-place concrete and the steel H pile at Location No. 1.

The estimated number of 20-ft. depth sheeted holes is based on at least two such holes at each of Locations 2 and 3, with a possibility of twice this number if additional piles must be driven for the reasons stated above.

The estimated quantity of pile test loads is based on from 4 to 8 test loads at each of Locations 2 and 3, and from 1 to 4 test loads at each of the other three locations.

ESTIMATED QUANTITIES

As Built	ITEM	TOTAL	UNIT	DESCRIPTION
	Special Lump Sum			Pile Testing Overhead
CO. 2 -4	Special	8	Each	20-ft. Depth Sheeted Holes
CO. 3 -9	S-17	28	Each	Pile Test Loads
CO. 3 -767.6	S-18	1400	Lin. ft.	14" Cast-in-place Concrete Piles
CO. 3 -777.4	S-18	1400	Lin. ft.	Steel Piles (12 BP 53)

Revised As-Built
4-11-53

INNERBELT FREEWAY PLANNING OFFICE
CITY OF CLEVELAND

GENERAL NOTES & QUANTITIES
PRELIMINARY TEST PILE PROJECT
PART 1

CENTRAL VIADUCT - INNERBELT FREEWAY
CUYAHOGA COUNTY USR 42 RELOCATED

REVIEWED
DATE
4-10-53
4-11-53