

# **SPECIAL PROVISIONS**

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## **WATERWAY PERMITS CONDITIONS**

**C-R-S: SUM-IR 271 / SR 8-  
8.49 / VAR**

**PID: 93101**

**Date: 03/29/2023**

1. Waterway Permits Time Restrictions:

Regional General Permit (RGP), Section B (Maintenance) is authorized for SUM - IR 271/SR 8 - 8.49/VAR, PID: 93101. A copy of the RGP shall be kept at the work site at all times and made available to all contractors and subcontractors. The permit is effective starting: March 29, 2023. The permit expires: October 24, 2024.

For authorized work in aquatic resources (including streams, wetlands, jurisdictional ditches, captured streams, lakes, ponds), the Department will consider the Contractor’s submission of a reauthorization to the waterway permit expiration date based on project constraints. If more than one permit is authorized for the project, then all permits become invalid once the first permit expires. In order for the request to be considered, the Contractor must submit a justification to the Engineer at least 90 days prior to the waterway permit expiration date. The Engineer will submit the request for a time extension to the Ohio Department of Transportation, Office of Environmental Services, Waterway Permits Unit (ODOT-OES-WPU) for consideration and coordination with the U.S. Army Corps of Engineers (USACE), Ohio Environmental Protection Agency (OEPA), U.S. Coast Guard (USCG), U.S. Fish and Wildlife Service (USFWS), and Ohio Department of Natural Resources (ODNR) as appropriate.

2. Deviations From Permitted Construction Activities:

No deviation from the requirements for work in aquatic resources depicted in the plans, Special Provisions, and/or Working Drawings may be made unless a modification has been submitted to ODOT-OES-WPU and approved by the appropriate agencies (i.e., USACE, OEPA, USCG, ODNR, and USFWS). Original plan sheets are attached to these Special Provisions for reference only for stream names and OHWM elevations.

For emergency situations resulting in unanticipated impacts to aquatic resources, provide notification (verbal or written) to the Engineer as soon as possible following discovery of the situation. Written notification to the Engineer and notification to the ODOT-OES-WPU (614-466-2159) must be made within 24 hours.

For non-emergency situations, notify the Engineer in writing for submission to the ODOT-OES-WPU (614-466-2159) for consideration and coordination with the appropriate agencies. Notification must be made at least 90 days prior to planned, non-permitted activities. Consideration of the requested deviation is at the discretion of the Director and must be coordinated with the appropriate regulatory agencies.

3. In-Stream Work Restrictions:

Work in the following aquatic resources is further restricted as follows:

Stream Name /Description	Location	Work restriction dates (No in-stream work permitted)
UNT to Cuyahoga River	STA 448+50	None
Stanford Run	STA 470+72	None
UNT to Brandywine Creek 1	STA 491+50	None
UNT to Brandywine Creek 2	STA 499+54	None
UNT to Brandywine Creek 3	STA 533+91	None
UNT to Brandywine Creek 4	STA 568+45	None

*UNT = unnamed tributary stream*

In-stream work has been defined as the placement and/or removal of fill materials (temporary or permanent) below ordinary high water of a stream. Examples of “fill” include, but are not limited to: bridge piers, abutments, culverts, rock channel protection, scour protection, and temporary access fills.

Fills placed within a stream identified in the above table (outside of the work restriction dates) can continue to be worked from during the work restriction dates, but cannot be expanded, removed, or otherwise modified (below ordinary high water) until once again outside of the work restriction dates.

**4. Materials:**

Materials utilized in or adjacent to aquatic resources for temporary or permanent fill or bank protection shall consist of suitable material free from toxic contaminants in other than trace quantities. Asphalt products are specifically excluded for use as fill. Chromated Copper Arsenate (CCA), creosote, and other pressure treated lumber shall not be used in structures that are placed in aquatic resources.

**5. Cultural Resources:**

Per CMS 107.10, if archeological sites, historical sites, or human remains are discovered, cease all work in the immediate area and notify the Engineer who will immediately contact the ODOT-District Environmental Coordinator and ODOT-OES-Cultural Resource Section at 614-466-2159. In the event of human remains are identified by OES-Cultural Resources Section, the Engineer shall also contact the Summit County Sheriff’s Office at 330-643-2154.

**6. Aquatic Resource Demarcation:**

The table below includes detailed fill quantities authorized within the aquatic resources. Aquatic resources not authorized for impact by these Special Provisions shall be demarcated in the field as per SS 832 prior to site disturbance. The fence shall remain in place and be maintained throughout the construction process. Following the completion of the project, the fence and posts shall be removed.

Resource ID	Resource Location	Impact Location	Temporary Impact Amount	Permanent Impact Amount	Total Impact Amount
UNT to Cuyahoga River	SUM-271-8.50	STA 448+50	10 feet (0.001 acre)	43 feet (0.003 acre)	43 feet (0.003 acre)
Stanford Run	SUM-271-8.94	STA 470+72	10 feet (0.002 acre)	40 feet (0.018 acre)	40 feet (0.018 acre)
UNT to Brandywine Creek 1	SUM-271-9.33	STA 491+50	10 feet (0.001 acre)	52 feet (0.011 acre)	52 feet (0.011 acre)
UNT to Brandywine Creek 2	SUM-271-9.49	STA 499+54	10 feet (0.001 acre)	30 feet (0.006 acre)	30 feet (0.006 acre)
UNT to Brandywine Creek 3	SUM-271-10.13	STA 533+91	10 feet (0.001 acre)	42 feet (0.01 acre)	42 feet (0.01 acre)
UNT to Brandywine Creek 4	SUM-271-10.78	STA 568+45	10 feet (0.001 acre)	0	10 feet (0.001 acre)

### 7. Spill containment:

Provide and Maintain an Oil Spill Kit with a minimum capacity of 65 gallons. The Spill Kit shall contain:

- 6 - 3 in. X 8 ft. Oil only socks
- 4 - 18 in. X18 in. Oil only pillows
- 2 - 5 in. X 10ft. Booms
- 50 - 16in. X 20 in. Oil only pads
- 10- Disposable Bags
- 1 - 65 Gallon drum with lid
- 25 pounds of Granular Oil Absorbent

The Oil Spill Kit shall be located within 150 feet of any equipment working in a stream or wetland. The oil Spill Kit shall be maintained for the life of the contract. Any materials utilized during the project will be replaced within 48 hours. All costs associated with furnishing and maintaining the above referenced spill containment kit is incidental to work.

### 8. Blasting:

State law requires notification to the Ohio Department of Natural Resources should blasting be required within or near stream channels (See ORC 1533.58 & CMS 107.09). Notify the Engineer, in writing, a minimum of 30 days in advance of blasting, for submission to ODOT-OES-WPU (614-466-2159) for coordination with ODNR.

### 9. Project Inspection:

Inspection of Work may include inspection by representatives of other government agencies or railroad corporations that pay a portion of the cost of the Work or regulate the Work through State and Federal law. Comments from the representatives of these agencies shall be directed to the Engineer who will immediately contact the ODOT-District Environmental Coordinator and ODOT-OES-WPU at 614-466-2159.

### 10. Temporary Access Fills:

#### **Definitions:**

#### **Hydraulic Opening**

The cross-sectional area allowing an unimpeded discharge equal to twice the highest monthly flow without producing a rise in the backwater above the Ordinary High Water Mark (OHWM).

#### **Standard Temporary Discharge**

Discharge equal to twice the *highest monthly flow* without producing a rise in the backwater above the OHWM. The U.S. Geologic Service publication "Techniques for estimating Selected Streamflow Characteristics of Rural Unregulated Streams in Ohio" provides equations that estimate monthly flow for Ohio Waterways These flows are also available in a web application by USGS StreamStats, (<https://water.usgs.gov/osw/streamstats/ohio.html>). The highest monthly flow is the highest monthly mean discharge occurring in a 12-month period from January to December.

**Average Monthly Flow**

The average monthly flow represents the estimated “normal” flow.

**Temporary Access Fills (TAFs)**

Include, but are not limited to, dewatering fills, causeways, cofferdams, access pads, temporary bridges, etc. below the OHWM.

**Requirements**

21 calendar days prior to the initiation of any in-stream work, provide the Engineer with Working Drawings that include:

- Plan view drawing (50 scale or less) showing the location of all TAFs proposed for use on the project.
- Scaled cross section and profile drawing showing the OHWM and the proposed hydraulic opening.
- Identify the minimum diameter size, placement location and thickness of non-erodible Dumped Rock Fill material on the plan and profile.
- Calculations analyzing the hydraulic impacts of the TAF on the waterway. Include in the calculations an analysis of the hydraulic opening sized adequately to pass the Standard Temporary Discharge without producing a rise in backwater above the OHWM. Include, in the analysis, calculated channel velocities adjacent to the TAF, culvert exit velocities, calculated headwater and tailwater elevations, and any additional appropriate calculations to assess potential impacts to the waterway during normal and anticipated high flow (twice the highest monthly flow) events.
- A description of all temporary material to be placed below the OHWM elevation.
- A description of the installation and staging of all temporary fill over the life of the contract.
- Identify the protection methods and/or structural Best Management Practices for minimizing impacts to the waterway.
- Volume of temporary fill below the OHWM elevation.
- A description of the diversion ditches, equipment, conduits or means for maintaining normal flows in the waterway.
- A description of the removal of all temporary fill and restoration of the channel and all areas impacted by the TAFs.
- A schedule outlining the timing of the placement and removal of all temporary fill.
- Have competent individuals prepare and check the Working Drawings and hydraulic calculations. Provide a cover sheet containing the preparer(s) and checker(s): First Name, Last Name and Initials. The preparer(s) and checker(s) shall not be the same individual. Have an Ohio Registered Engineer review, approve, sign, seal and date the Working Drawings and hydraulic calculations according to ORC 4733 and OAC 4733-35. Include the following statement on the Working Drawings:

“These Working Drawings were prepared in compliance with the terms of these Special Provisions and all contract documents.”

Do not begin in-stream work until the Engineer has accepted the Working Drawings and hydraulic calculations.

The design and construction of the Contractor’s TAF must minimize impacts to water bodies, stream banks, stream beds, and riparian zones to the maximum extent practicable.

Fording of waterways and other aquatic resources is prohibited.

Construct TAFs in such a manner that will maintain flows, minimize upstream flooding, and avoid overtopping the TAF on a regular basis. ***TAFs shall be designed and constructed so that the hydraulic opening provides capacity for a discharge equal to twice the highest monthly flow without producing a rise in the backwater above the (OHWM).***

If the Contractor proposes a TAF which does not meet all the requirements of these Special Provisions, the Contractor must submit a request in writing for a modified TAF to the Engineer. The request must include all Working Drawings and hydraulic calculations required by these Special Provisions. The Department makes no guarantee to grant the request. The Contractor's proposed TAF request will be coordinated by OES with the USACE and the OEPA, as appropriate. The time frame allowed for the coordination of the contractor's proposed TAF will be a minimum of 60 days.

Installation of any temporary fill without appropriate authorization is strictly prohibited. All direct coordination with the USACE and/or OEPA will be performed through OES.

### **TAFs Construction and Payment**

Begin planning and installing causeways and access fills as early in construction as possible to avoid conflicts with these Special Provisions or other environmental commitments that have been included in the construction plans.

TAFs in Streams and Rivers may include, but are not limited to, causeways, cofferdams, access pads, sheet piling, temporary bridges, etc. The Contractor must make every attempt to minimize disturbance to waterbodies, stream banks, stream beds and riparian zones during the construction, maintenance, and removal of the TAF. Construct the TAFs as narrow as practical. Install in-stream conduits parallel to the stream banks. Make the TAFs in shallow areas rather than deep pools where possible. Minimize clearing, grubbing, and excavation of stream banks, and approach sections. Construct the TAFs as to not cause erosion or allow sediment deposits in the waterway.

Prior to the initiation of any in-stream work, establish a monument upstream of the proposed TAF to visually monitor the water elevation in the waterway where the fill is permitted. Maintain the monument throughout the project. Provide a visual mark on the monument that identifies the elevation 1 foot above the OHWM. Ensure that the monument can be read from the bank of the waterway. Have this elevation set and certified by an Ohio Registered Surveyor. All costs associated with furnishing and maintaining the above referenced monument is incidental to the work.

Should the surface water elevation exceed the elevation 1 foot above OHWM, the Department will compensate the Contractor for repair of any resulting damage to the TAF up to the elevation of 1 foot above the OHWM, except as noted. The Department will recognize this event as an excusable, non-compensable delay in accordance with Section 108.06 B. of the Construction & Materials Specifications.

Follow the requirements in Item 502 for Structures for Maintaining Traffic and in Item 503 for Cofferdams and Excavation Bracing and any modifications to these items as shown in the plans. The Department will not pay for repair and maintenance of TAFs associated with Items 502 and 503 as a result of surface water elevation exceeding 1 foot above the OHWM. Compensation for damages associated with waterway flows will be provided as described in Items 502 and 503.

Construct the TAFs, not including Items 502 and 503, to a water elevation at least 1 foot (0.3 m) above the OHWM. If more than one-third the width of the stream is filled, then use culvert pipes to allow the movement of aquatic life. Ensure that any ponding of water behind the TAF will not damage property, flood roadways, or threaten human health and safety.

The following minimum requirements apply to TAFs where culverts are used:

- A. Furnish culverts on the existing stream bottom.
- B. Avoid a drop in water elevation at the downstream end of the culvert that would result in an adverse impact to the waterway.
- C. Furnish a sufficient number of culverts in addition to stream openings to provide a discharge equal to twice the highest monthly flow without producing a rise in the backwater above the OHWM.
- D. Furnish culverts with a minimum diameter of 18 inches (0.5 m).

All TAFs must be constructed of suitable materials. Causeways and access fills must be encapsulated with clean, non-erodible, nontoxic Dumped Rock Fill, Type A, B, C, or D, meeting the requirements of C&MS 703.19.B. Utilize appropriately sized Dumped Rock Fill determined by the Contractor's engineer for encapsulating the sides of the TAF. Encapsulate all sides of the TAF with the non-erodible material. For causeways, contractors may use clean aggregate meeting C&MS 703.01 Size Number 1 and 2 for creating a working surface above the OHWM. Extend the non-erodible encapsulating material to at least the elevation of the top of the working surface. Extend clean aggregate up the slope from the original stream bank for 50 feet (10 m) to remove erodible material and prevent tracking from equipment onto the TAF.

When the work requiring TAF is complete, all portions of the TAF (including all rock and culverts) will be removed in its entirety. Do not dispose of TAF material in other aquatic resources or where erosion into another aquatic resource is possible. The stream bottom affected by the TAFs will be restored to its pre-construction elevations. The TAFs will not be paid as a separate item but will be included by the Contractor as part of the total project cost.

Unless specific TAF compensation is included in the plans, all environmental protection and control associated with the authorized activities, are incidental to the work within the boundaries of the aquatic resources.

#### 11. Excavation Activities:

Excavated material will be placed at an upland site and disposed of in such a manner that sediment and runoff to streams and other aquatic resources is controlled and minimized. Additionally, no more than incidental fallback into aquatic resources is permitted during the excavation process. If any changes to the proposed work are deemed necessary, notify the Engineer who will immediately contact the ODOT-District Environmental Coordinator and ODOT-OES-WPU at 614-466-2159.

#### 12. Demolition Debris:

The intentional discharge of demolition debris from any structure (including but not limited to bridges, culverts, abutments, wing walls, piers) is not authorized for this project. If any demolition debris inadvertently falls into aquatic resources, it must be removed immediately. Notify the Engineer immediately in writing of any inadvertent fill discharged into aquatic resources. The Engineer will immediately contact ODOT-OES-WPU at 614-466-2159 if any unintentional discharge occurs.

# STATE OF OHIO DEPARTMENT OF TRANSPORTATION

## SUM-271/8-8.49/VAR

BOSTON AND NORTHFIELD CENTER TOWNSHIP

SUMMIT COUNTY



END PROJECT  
SUM IR 271 NB SLM: 12.44  
SUM IR 271 SB SLM: 12.52

BEGIN PROJECT  
SUM IR 271 SLM: 8.54

**LOCATION MAP**

LATITUDE: 41°17'04" LONGITUDE: 81°31'33"



PORTION TO BE IMPROVED	—————	=====
INTERSTATE HIGHWAY	—————	=====
FEDERAL ROUTES	—————	=====
STATE ROUTES	—————	=====
COUNTY & TOWNSHIP ROADS	—————	=====
OTHER ROADS	—————	=====

**DESIGN DESIGNATION**

DESIGN FUNCTIONAL CLASSIFICATION:  
FREEWAYS AND EXPRESSWAYS  
NHS PROJECT ----- YES

**DESIGN EXCEPTIONS**

NONE

**ADA DESIGN WAIVERS**

NONE

**INDEX OF SHEETS:**

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**FEDERAL PROJECT NUMBER**

E170(438)

**RAILROAD INVOLVEMENT**

NONE

**PROJECT DESCRIPTION**

RESURFACING OF SUM IR 271 FROM SLM 8.54 TO SLM 12.52. INCLUDES RETAINING WALL REPAIRS, MINOR WORK TO 12 STRUCTURES AND 5 CONDUITS.

**EARTH DISTURBED AREAS**

PROJECT EARTH DISTURBED AREA: 2.4 ACRES  
ESTIMATED CONTRACTOR EARTH DISTURBED AREA: 1.0 ACRES  
NOTICE OF INTENT EARTH DISTURBED AREA: N/A (NOI NOT REQUIRED)  
\*ROUTINE MAINTENANCE PROJECT

**LIMITED ACCESS**

THIS IMPROVEMENT IS ESPECIALLY DESIGNED FOR THROUGH TRAFFIC AND HAS BEEN DECLARED A LIMITED ACCESS HIGHWAY OR FREEWAY BY ACTION OF THE DIRECTOR IN ACCORDANCE WITH THE PROVISIONS OF SECTION 5511.02 OF THE OHIO REVISED CODE.

**2019 SPECIFICATIONS**

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PLANS, CHANGES LISTED IN THE PROPOSAL, AND THE SUPPLEMENTAL SPECIFICATION 800 VERSION INDICATED ON 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 EXCEPT AS NOTED ON SHEET P.7-11, AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.

**DISTRICT DEPUTY DIRECTOR**

DIRECTOR, DEPARTMENT OF TRANSPORTATION

**UNDERGROUND UTILITIES**  
Contact Two Working Days  
Before You Dig

**OHIO811.org**  
Before You Dig

**OHIO 811. 8-1-1. or 1-800-362-2764**  
(Non members must be called directly)

PLAN PREPARED BY:  
ODOT DISTRICT 4, CAPITAL PLANNING  
2088 S. ARLINGTON ROAD  
AKRON, OHIO 44306

STANDARD CONSTRUCTION DRAWINGS						SUPPLEMENTAL SPECIFICATIONS	SPECIAL PROVISIONS
BP-3.1	1/21/22	MT-95.30	7/19/19	TC-41.20	10/18/13	800-2019 SEE PROPOSAL	
BP-3.2	1/18/19	MT-95.50	7/21/17	TC-42.10	10/18/13	821 4/20/12	
BP-4.1	7/19/13	MT-98.10	1/17/20	TC-42.20	10/18/13	832 7/15/22	
BP-9.1	1/18/19	MT-98.11	1/17/20	TC-52.10	10/18/13	833 1/21/22	
		MT-98.20	4/19/19	TC-52.20	1/15/21	840 4/15/22	
DM-1.1	7/17/20	MT-98.22	1/17/20	TC-65.10	1/17/14	843 10/18/19	
DM-4.1	7/17/20	MT-98.29	1/17/20	TC-65.11	7/15/22	899 1/17/20	
DM-4.3	1/15/16	MT-99.20	4/19/19	TC-71.10	7/15/22	921 4/20/12	
DM-4.4	1/15/16	MT-101.90	7/17/20	TC-72.20	7/20/18		
		MT-104.10	10/16/15	TC-73.20	1/17/20		
EXJ-2-81	7/15/22	MT-105.10	1/17/20				
HW-1.1	7/20/18						
HW-2.1	7/20/18						
NBS-1-09	7/15/22						

**ENGINEER'S SEAL**  
ROADWAY

SUM-271/8-8.49/VAR

MODEL: Sheet PAPER: 34x22 (in.) DATE: 2/16/2023 TIME: 10:33:18 AM USER: jffzsim pvc:\ohiodot-pw\benley.com\ohiodot-pw-02\Documents\01 Active Projects\District 04\Summit\93101\400-Engineering\Roadway\Sheets\93101\_GT001.dgn

TITLE SHEET

DESIGN AGENCY	
DESIGNER	ROF
REVIEWER	MJA 02/03/23
PROJECT ID	93101
SHEET	TOTAL
P.1	39

**PROPOSED WORK**

SUM-271-0850 (CFN 1830197), (D=42")  
 - REPLACE OUTLET END SECTIONS  
 - REPLACE HEADWALL AT OUTLET  
 - REPAIR SCOUR AND EROSION AT THE OUTLET  
 - INSTALL ROCK CHANNEL PROTECTION AT INLET AND OUTLET  
 - RENEW THE CONDUIT WITH A SPRAY APPLIED STRUCTURAL LINER  
 - CHANNEL CLEANOUT AT THE INLET  
 - CLEARING AND GRUBBING 15' AROUND THE STRUCTURE TO REMOVE VEGETATION

SUM-271-0933 (CFN 1824287), (D=84")  
 - REPLACE HEADWALL AT INLET AND OUTLET  
 - REPAIR EROSION AT THE INLET, REPAIR EROSION AND SCOUR AT THE OUTLET  
 - INSTALL ROCK CHANNEL PROTECTION AT INLET AND OUTLET  
 - REPAIR UNDERMINING AT OUTLET WITH LSM  
 - RENEW THE CONDUIT WITH A SPRAY APPLIED STRUCTURAL LINER  
 - CHANNEL CLEANOUT AT THE INLET  
 - CLEARING AND GRUBBING 15' AROUND THE STRUCTURE TO REMOVE VEGETATION

SUM-271-0949 (CFN 1847713), (D=36")  
 - REPAIR EROSION AT THE OUTLET  
 - RENEW THE CONDUIT WITH A SPRAY APPLIED STRUCTURAL LINER  
 - CHANNEL CLEANOUT AT THE INLET  
 - CLEARING AND GRUBBING 15' AROUND THE STRUCTURE TO REMOVE VEGETATION

SUM-271-1013 (CFN 1824296), (D=60")  
 - REPLACE INLET END SECTIONS  
 - REPLACE HEADWALL AT INLET  
 - REPAIR EROSION AT THE INLET, REPAIR SCOUR AT THE INLET AND OUTLET  
 - INSTALL ROCK CHANNEL PROTECTION AT THE INLET AND OUTLET  
 - REPAIR UNDERMINING AT INLET WITH LSM  
 - RENEW THE CONDUIT WITH A SPRAY APPLIED STRUCTURAL LINER  
 - CHANNEL CLEANOUT AT THE INLET  
 - CLEARING AND GRUBBING 15' AROUND THE STRUCTURE TO REMOVE VEGETATION

SUM-271-1078 (CFN 1824293), (D=54")  
 - RENEW THE CONDUIT WITH A SPRAY APPLIED STRUCTURAL LINER  
 - CHANNEL CLEANOUT AT THE INLET AND OUTLET  
 - CLEARING AND GRUBBING 15' AROUND THE STRUCTURE TO REMOVE VEGETATION

**EROSION AND SCOUR REPAIR**

THIS WORK WILL CONSIST OF REPAIRING THE EROSION AND SCOUR AT THE APPROXIMATE LOCATIONS DETAILED BELOW AND AT THE DIRECTION OF THE ENGINEER. REPAIR WORK SHALL BE PAID FOR BY THE FOLLOWING ITEMS:

SUM-271-0850 (REPAIR OUTLET SIDE EMBANKMENT AFTER PIPE END REPLACEMENT, REPAIR SCOUR AT OUTLET)

SUM-271-0933 (REPAIR INLET SIDE EMBANKMENT, REPAIR SCOUR AT INLET AND OUTLET)

SUM-271-0949 (REPAIR OUTLET SIDE EMBANKMENT)

SUM-271-1013 (REPAIR INLET SIDE EMBANKMENT AFTER PIPE END REPLACEMENT, REPAIR SCOUR AT INLET AND OUTLET)

**HEADWALL REPLACEMENT**

THIS WORK SHALL CONSIST OF REMOVING AND REPLACING THE HEADWALL AT THE FOLLOWING STRUCTURES/LOCATIONS:

SUM-271-0850 (OUTLET SIDE - FULL HEIGHT HW)  
 SUM-271-0933 (INLET AND OUTLET SIDE - HALF HEIGHT HW)  
 SUM-271-1013 (INLET SIDE - FULL HEIGHT HW)

REPLACEMENT HEADWALLS SHALL BE CONSTRUCTED ACCORDING TO STANDARD CONSTRUCTION DRAWINGS HW-1.1 OR HW-2.1 THE REPLACEMENT HEADWALL SHALL BE PAID FOR AT THE UNIT BID PRICE FOR ITEM 602 - CONCRETE MASONRY. THIS PRICE SHALL INCLUDE THE COST FOR MATERIAL, EQUIPMENT, LABOR, AND ALL INCIDENTALS TO CONSTRUCT THE HEADWALLS.

**PIPE REPAIR**

THIS WORK SHALL CONSIST OF REMOVING AND REPLACING DAMAGED OR DISPLACED PORTIONS OF EXISTING CONDUIT ON THE FOLLOWING STRUCTURES:

SUM-271-0850: REMOVE AND REPLACE APPROXIMATELY 22 FT OF CONDUIT AT THE OUTLET. USE ITEM 611 - 42" CONDUIT, TYPE A, (707.01 OR 707.02)

SUM-271-1013: REMOVE AND REPLACE APPROXIMATELY 20 FT OF CONDUIT AT THE OUTLET. USE ITEM 611 - 60" CONDUIT, TYPE A, (707.01 OR 707.02)

CONNECT REPLACEMENT PIPE AND EXISTING PIPE WITH A MASONRY COLLAR AS SHOWN IN STANDARD CONSTRUCTION DRAWING DM-1.1.

**ITEM 201 - CLEARING AND GRUBBING, AS PER PLAN, AROUND BRIDGES/STRUCTURES/CULVERTS**

ALTHOUGH NO TREES OR STUMPS ARE SPECIFICALLY MARKED FOR REMOVAL WITHIN THE PLANS, A LUMP SUM QUANTITY IS INCLUDED IN THE STRUCTURE GENERAL SUMMARY FOR ITEM 201 – CLEARING AND GRUBBING, AS PER PLAN, AROUND BRIDGES/STRUCTURES/CULVERTS. SCALPING IS NOT REQUIRED FOR THIS ITEM OF WORK. ALL VEGETATION SHALL BE REMOVED WITHIN 15 FEET (OR TO THE R/W LIMITS, WHICHEVER IS CLOSER) OF THE HEADWALLS, ABUTMENTS AND/OR PIERS.

ALL OTHER PROVISIONS AS SET FORTH IN THE CMS UNDER THIS ITEM ARE INCLUDED IN THE LUMP SUM BID PRICE FOR ITEM 201 – CLEARING AND GRUBBING, AS PER PLAN, AROUND BRIDGES/STRUCTURES/CULVERTS.

**ITEM 202 - REMOVAL MISC.: CHANNEL CLEANOUT**

THIS WORK WILL CONSIST OF RE-ESTABLISHING THE ORIGINAL CHANNEL PROFILE BY REMOVING SEDIMENT BUILDUP, VEGETATION, AND DEBRIS FROM THE EXISTING CHANNEL WITHIN STATE RIGHT-OF-WAY LIMITS AS SPECIFIED IN THE PLANS FOR STRUCTURES SUM-271-0850, SUM-271-0933, SUM-271-0949, SUM-271-1013 AND SUM-271-1078. ANY TREES LOCATED WITHIN CHANNEL OR BANK LIMITS WILL BE INCLUDED UNDER ITEM 201, CLEARING AND GRUBBING. ALL MATERIALS REMOVED SHALL BE DISPOSED OF IN ACCORDANCE WITH 105.16 AND 105.17 OF THE CMS WITH THE APPROVAL OF THE ENGINEER. NO AREAS OF EXISTING CHANNEL PROTECTION SHALL BE REMOVED IN ORDER TO RESTORE THE ORIGINAL CHANNEL PROFILE. AFFECTED CHANNEL AREAS SHALL BE CLEANED OUT TO THE SATISFACTION OF THE ENGINEER.

CHANNEL CLEANOUT WILL BE PAID FOR AT THE UNIT PRICE BID FOR ITEM 202 REMOVAL MISC.: CHANNEL CLEANOUT. THIS PRICE WILL INCLUDE THE COST FOR LABOR, EQUIPMENT, AND ALL INCIDENTALS REQUIRED TO COMPLETE THE CHANNEL CLEANOUT.

DESIGN AGENCY



DESIGNER  
JRF

REVIEWER  
MJA 02/03/23

PROJECT ID  
93101

SHEET TOTAL  
P.20 39

CULVERT NUMBER	CFN	SHEET NO.	201	201	201	201	201	202	202	202	202	202	202	202	203	601	601	602	611	611	613	659	833	833	833	833	833
			CLEARING AND GRUBBING, AS PER PLAN, AROUND SUM-271-0850	CLEARING AND GRUBBING, AS PER PLAN, AROUND SUM-271-0933	CLEARING AND GRUBBING, AS PER PLAN, AROUND SUM-271-0949	CLEARING AND GRUBBING, AS PER PLAN, AROUND SUM-271-1013	CLEARING AND GRUBBING, AS PER PLAN, AROUND SUM-271-1078	HEADWALL REMOVED	PIPE REMOVED, OVER 24"	REMOVAL MISC.: CHANNEL CLEANOUT, SUM-271-0850	REMOVAL MISC.: CHANNEL CLEANOUT, SUM-271-0933	REMOVAL MISC.: CHANNEL CLEANOUT, SUM-271-0949	REMOVAL MISC.: CHANNEL CLEANOUT, SUM-271-1013	REMOVAL MISC.: CHANNEL CLEANOUT, SUM-271-1078	EMBANKMENT	DUMPED ROCK FILL, TYPE B	ROCK CHANNEL PROTECTION, TYPE B WITH FILTER	CONCRETE MASONRY	42" CONDUIT, TYPE A, 707.05	60" CONDUIT, TYPE A, 707.05	LOW STRENGTH MORTAR BACKFILL	SEEDING AND MULCHING	CONDUIT RENEWAL USING SPRAY APPLIED STRUCTURAL LINER, ROUND CONDUIT, D=42"	CONDUIT RENEWAL USING SPRAY APPLIED STRUCTURAL LINER, ROUND CONDUIT, D=84"	CONDUIT RENEWAL USING SPRAY APPLIED STRUCTURAL LINER, ROUND CONDUIT, D=36"	CONDUIT RENEWAL USING SPRAY APPLIED STRUCTURAL LINER, ROUND CONDUIT, D=60"	CONDUIT RENEWAL USING SPRAY APPLIED STRUCTURAL LINER, ROUND CONDUIT, D=54"
			LS	LS	LS	LS	LS	EACH	FT	LS	LS	LS	LS	LS	CY	CY	CY	CY	FT	FT	CY	SY	FT	FT	FT	FT	FT
SUM-271-0850	1830197	19	LS					1	22	LS					278		10	7.6	22			70	328				
SUM-271-0933	1824287			LS				2		LS					112	15	10	6.6			5	34		548			
SUM-271-0949	1847713				LS						LS					30									442		
SUM-271-1013	1824296	20				LS		1	20				LS		112		10	12.7		20	5	34				294	
SUM-271-1078	1824293						LS							LS												406	
TOTALS CARRIED TO GENERAL SUMMARY			LS	LS	LS	LS	LS	4	42	LS	LS	LS	LS	LS	502	45	30	27	22	20	10	138	328	548	442	294	406

DRAINAGE SUBSUMMARY

DESIGN AGENCY



DESIGNER

JRF

REVIEWER

MJA 02/03/23

PROJECT ID

93101

SHEET TOTAL

P.21 39

PROPOSED WORK TABLE																
BRIDGE NAME	INTERSECTING FEATURE	SFN	CLEARING AND GRUBBING, AS PER PLAN, AROUND BRIDGES/STRUCTURES/CULVERTS	TREATING CONCRETE BRIDGE DECKS WITH GRAVITY FED RESIN	REPAIR EXISTING CONCRETE WEARING SURFACE WITH PATCHING	TREATING CONCRETE BRIDGE DECKS WITH SRS	CONCRETE PATCHING	SPALL REMOVAL	RESET AND REFURBISH ALL ABUTMENT BEARING DEVICES	EXPANSION JOINT REPAIR	JACKING AND TEMPORARY SUPPORT	REPLACE ELASTOMETRIC GLAND AT INTERMEDIATE JOINT	LINING CONDUIT	CHANNEL CLEANOUT	INSTALL ROCK CHANNEL PROTECTION	SCOUR AND EROSION REPAIR
SUM-271-0894	SANFORD RUN	7709130	X										X	X	X	X
SUM-271-0914	HINES HILL ROAD	7709153	X	X			X		X	X						
SUM-271-0965	UNDER PEDESTRIAN BRIDGE	7709161	X			X										
SUM-271-0967	BRANDYWINE ROAD	7709188	X	X	X		X	X		X		X				
SUM-271-1116R	AKRON CLEVELAND ROAD	7709242	X	X	X		X	X		X						
SUM-271-1117L	AKRON CLEVELAND ROAD	7709218	X	X												
SUM-271-1122R	BRANDYWINE CREEK	7709307	X	X	X		X	X	X	X	X					
SUM-271-1122L	BRANDYWINE CREEK	7709277	X	X												
SUM-271-1186R	S.R. 8	7709366	X	X			X									
SUM-271-1189L	S.R. 8	7709331	X	X			X									
SUM-271-1265R	S.R. 82	7710003	X	X												
SUM-271-1265L	S.R. 82	7710002	X	X												

\*INCLUDING APPROACH SLABS

**DESIGN SPECIFICATIONS**

THIS STRUCTURE CONFORMS TO THE 9th EDITION OF THE "LRFD BRIDGE DESIGN SPECIFICATIONS" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, INCLUDING THE 2020 INTERIM SPECIFICATIONS AND THE ODOT BRIDGE DESIGN MANUAL, 2020.

**STANDARD DRAWINGS AND SUPPLEMENTAL SPECIFICATIONS**

REFER TO THE FOLLOWING STANDARD BRIDGE DRAWING(S):

AS-1-15 DATED (REVISED) 7/17/2015  
 EXJ-2-81 DATED (REVISED) 7/15/2022

AND TO THE FOLLOWING SUPPLEMENTAL SPECIFICATION(S):

833 DATED 1/21/2022  
 840 DATED 4/15/2022  
 843 DATED 10/18/2019

**ITEM 201 - CLEARING AND GRUBBING, AS PER PLAN, AROUND BRIDGES/STRUCTURES/CULVERTS**

ALTHOUGH NO TREES OR STUMPS ARE SPECIFICALLY MARKED FOR REMOVAL WITHIN THE PLANS, A LUMP SUM QUANTITY IS INCLUDED IN THE STRUCTURE GENERAL SUMMARY FOR ITEM 201 – CLEARING AND GRUBBING, AS PER PLAN, AROUND BRIDGES/STRUCTURES/CULVERTS. SCALPING IS NOT REQUIRED FOR THIS ITEM OF WORK. ALL VEGETATION SHALL BE REMOVED WITHIN 15 FEET (OR TO THE R/W LIMITS, WHICHEVER IS CLOSER) OF THE HEADWALLS, ABUTMENTS AND/OR PIERS.

ALL OTHER PROVISIONS AS SET FORTH IN THE CMS UNDER THIS ITEM ARE INCLUDED IN THE LUMP SUM BID PRICE FOR ITEM 201 – CLEARING AND GRUBBING, AS PER PLAN, AROUND BRIDGES/STRUCTURES/CULVERTS.

**PROPOSED WORK DESCRIPTION**

CONCRETE PATCHING  
 - SOUND THE BELOW LOCATIONS PER BRIDGE AND PATCH AREAS THAT ARE UNSOUND  
 - SEAL WITH EPOXY-URETHANE SEALER

SUM-271-0914  
 SUBSTRUCTURE INCLUDING PIERS  
 SUM-271-0967  
 SUBSTRUCTURE INCLUDING PIERS, BOTTOM OF DECK, AND DECK EDGES  
 SUM-271-1116R  
 SUBSTRUCTURE INCLUDING PIERS AND BOTTOM OF DECK  
 SUM-271-1122R  
 SUBSTRUCTURE INCLUDING ABUTMENTS AND BOTTOM OF DECK  
 SUM-271-1186R  
 DAMAGE AT FORWARD LEFT PARAPET  
 SUM-271-1189L  
 SUBSTRUCTURE INCLUDING PIERS AND ABUTMENTS

**EROSION AND SCOUR REPAIR**

THE FOLLOWING QUANTITIES SHALL BE USED AS DIRECTED BY THE ENGINEER TO REPAIR EROSION/SLOPE PROTECTION AT THE FOLLOWING STRUCTURES AND LOCATIONS:

SUM-271-0894 (EROSION REPAIR AT INLET SIDE EMBANKMENT AND SCOUR REPAIR AT THE OUTLET END)  
 ITEM 203, EMBANKMENT, 50 CY  
 ITEM 601, DUMPED ROCK FILL, TYPE B, 20 CY

**ITEM 202 - REMOVAL MISC.: CHANNEL CLEANOUT**

THIS WORK WILL CONSIST OF RE-ESTABLISHING THE ORIGINAL CHANNEL PROFILE BY REMOVING SEDIMENT BUILDUP, VEGETATION, AND DEBRIS FROM THE EXISTING CHANNEL WITHIN STATE RIGHT-OF-WAY LIMITS AS SPECIFIED IN THE PLANS FOR STRUCTURES SUM-271-0894. ANY TREES LOCATED WITHIN CHANNEL OR BANK LIMITS WILL BE INCLUDED UNDER ITEM 201, CLEARING AND GRUBBING. ALL MATERIALS REMOVED SHALL BE DISPOSED OF IN ACCORDANCE WITH 105.16 AND 105.17 OF THE CMS WITH THE APPROVAL OF THE ENGINEER. NO AREAS OF EXISTING CHANNEL PROTECTION SHALL BE REMOVED IN ORDER TO RESTORE THE ORIGINAL CHANNEL PROFILE. AFFECTED CHANNEL AREAS SHALL BE CLEANED OUT TO THE SATISFACTION OF THE ENGINEER.

CHANNEL CLEANOUT WILL BE PAID FOR AT THE UNIT PRICE BID FOR ITEM 202 REMOVAL MISC.: CHANNEL CLEANOUT. THIS PRICE WILL INCLUDE THE COST FOR LABOR, EQUIPMENT, AND ALL INCIDENTALS REQUIRED TO COMPLETE THE CHANNEL CLEANOUT.

**ITEM 202, PORTIONS OF STRUCTURE REMOVED, AS PER PLAN**

THIS ITEM SHALL INCLUDE THE ELEMENTS INDICATED IN THE PLANS AND GENERAL NOTES AND THAT ARE NOT SEPARATELY LISTED FOR PAYMENT, EXCEPT FOR WEARING COURSE REMOVAL. ITEMS TO BE REMOVED INCLUDE ALL EXISTING MATERIALS BEING REPLACED BY NEW CONSTRUCTION AND MISCELLANEOUS ITEMS THAT ARE NOT SHOWN TO BE INCORPORATED INTO THE FINAL CONSTRUCTION AND ARE DIRECTED TO BE REMOVED BY THE ENGINEER. THE USE OF EXPLOSIVES, HEADACHE BALLS AND/OR HOE-RAMS WILL NOT BE PERMITTED. THE METHOD OF REMOVAL AND THE WEIGHT OF HAMMER SHALL BE APPROVED BY THE ENGINEER. PERFORM ALL WORK IN A MANNER THAT WILL NOT CUT, ELONGATE OR DAMAGE THE EXISTING REINFORCING STEEL TO BE PRESERVED. CHIPPING HAMMERS SHALL NOT BE HEAVIER THAN THE NOMINAL 90-POUND CLASS. PNEUMATIC HAMMERS SHALL NOT BE PLACED IN DIRECT CONTACT WITH REINFORCING STEEL THAT IS TO BE RETAINED IN THE REBUILT STRUCTURE. SUBMIT CONSTRUCTION PLANS ACCORDING TO C&MS 501.05.

**ITEM 509 - EPOXY COATED REINFORCING STEEL, AS PER PLAN**

IN ADDITION TO THE PROVISIONS OF ITEM 509, FIELD BEND AND/OR FIELD CUT THE REINFORCING STEEL DESIGNATED IN THE PLANS, AS NECESSARY, IN ORDER TO MAINTAIN THE REQUIRED CLEARANCES AND BAR SPACINGS. REPAIR ALL DAMAGE TO THE EPOXY COATING, AS A RESULT OF THIS WORK, ACCORDING TO C&MS 709.00.

**SPECIAL - STRUCTURES: CONCRETE SPALL REMOVAL**

THIS WORK WILL CONSIST OF REMOVING ALL VISIBLY SPALLED AREAS OF THE BOTTOM DECK FLOOR OF STRUCTURE(S) SUM-271-0967, SUM-271-1116R, AND SUM-271-1122R WITHOUT SOUNDING. AFTER SPALLED CONCRETE AREAS HAVE BEEN REMOVED, REMOVAL AREAS WILL BE SEALED WITH ITEM 512, SEALING OF CONCRETE SURFACES (EPOXY-URETHANE) AND CONFINED WITH FIBER REINFORCED POLYMER WRAPS.

CONCRETE SPALL REMOVAL WILL BE PAID FOR AT THE UNIT BID PRICE FOR SPECIAL – STRUCTURE MISC.: CONCRETE SPALL REMOVAL. THIS PRICE WILL INCLUDE THE COST OF LABOR, EQUIPMENT, AND ALL INCIDENTALS REQUIRED TO COMPLETE THIS WORK.

SUM-271-0967  
 SPEC, STRUCTURES: CONCRETE SPALL REMOVAL, 50 SQ YD  
 512, SEALING OF CONCRETE SURFACES (EPOXY-URETHANE), 50 SQ YD

SUM-271-1116R  
 SPEC, STRUCTURES: CONCRETE SPALL REMOVAL, 20 SQ YD  
 512, SEALING OF CONCRETE SURFACES (EPOXY-URETHANE), 20 SQ YD

SUM-271-1116R  
 SPEC, STRUCTURES: CONCRETE SPALL REMOVAL, 30 SQ YD  
 512, SEALING OF CONCRETE SURFACES (EPOXY-URETHANE), 30 SQ YD

**ITEM 516 - JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN**

THIS WORK CONSISTS OF RAISING OR RE-POSITIONING EXISTING STRUCTURES TO THE DIMENSIONS AND REQUIREMENTS DEFINED IN THE PROJECT PLANS. SUBMIT CONSTRUCTION PLANS IN ACCORDANCE WITH C&MS 501.05. IF, DURING THE JACKING OPERATIONS, CRACKING OF THE CONCRETE SUPERSTRUCTURE, SEPARATION OF THE CONCRETE DECK FROM THE STEEL STRINGERS, OR OTHER DAMAGE TO THE STRUCTURE IS VISUALLY OBSERVED, IMMEDIATELY CEASE THE JACKING OPERATION AND INSTALL SUPPORTS TO THE SATISFACTION OF THE ENGINEER. ANALYZE THE DAMAGE AND SUBMIT A METHOD OF CORRECTION TO THE ENGINEER FOR APPROVAL. EPOXY INJECT ALL BEAMS THAT SEPARATE FROM THE DECK FOR A DISTANCE OF THE SEPARATION IN ACCORDANCE WITH C&MS 512.07. THE DEPARTMENT WILL NOT PAY FOR THE COST OF THIS EPOXY INJECTION OR OTHER REQUIRED REPAIRS. THE BRIDGE BEARINGS SHALL BE FULLY SEATED ALL CONTACT AREAS. IF FULL SEATING IS NOT ATTAINED, SUBMIT A REPAIR PLAN TO THE ENGINEER. THE DEPARTMENT WILL NOT PAY FOR THE REPAIR COSTS TO ENSURE FULL SEATING ON BEARINGS. THE DEPARTMENT WILL MEASURE THIS WORK ON A LUMP SUM BASIS. THE DEPARTMENT WILL PAY FOR THE ACCEPTED QUANTITIES AT THE CONTRACT PRICE FOR ITEM 516, JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN.

**STRUCTURE NOTES**

BRIDGE NO.: SUM-271-0894, SUM-271-0914, SUM-271-0965, SUM-271-0967, SUM-271-1116R, SUM-271-1117L  
 SUM-271-1122R, SUM-271-1122L, SUM-271-1186R, SUM-271-1189L, SUM-271-1265R, SUM-271-1265L

SFN	
VARIOUS	
DESIGN AGENCY	
DESIGNER	CHECKER
JRF	MJA
REVIEWER	
MJA 02/03/23	
PROJECT ID	
93101	
SUBSET	TOTAL
1	9
SHEET	TOTAL
P.25	39

CALC: JRF DATE: 11/8/2022  
 CHECKED: MJA DATE:

BRIDGE NO. / STRUCTURE FILE NO.								ESTIMATED QUANTITIES				SEE SHEET
SUM-271-0894 7709130 03/IMS/04	SUM-271-0914 7709153 02/IMS/14	SUM-271-0965 7709161 02/IMS/14	SUM-271-0967 7709188 02/IMS/14	SUM-271-1116R 7709242 02/IMS/14	SUM-271-1117L 7709218 02/IMS/14	SUM-271-1122R 7709307 02/IMS/14	SUM-271-1122L 7709277 02/IMS/14	ITEM	EXTENSION	UNIT	DESCRIPTION	SEE SHEET
LS	LS	LS	LS	LS	LS	LS	LS	201	11001		CLEARING AND GRUBBING, AS PER PLAN, AROUND BRIDGES/STRUCTURES/CULVERTS	1 / 9
	LS		LS	LS		LS		202	11201		PORTIONS OF STRUCTURE REMOVED, AS PER PLAN	1 / 9
LS								202	98000		REMOVAL MISC.: CHANNEL CLEANOUT, SUM-271-0894	
50								203	20000	CY	EMBANKMENT	
	1188		1233	1635		1570		509	10001	LB	EPOXY COATED REINFORCING STEEL, AS PER PLAN	1 / 9
		541						512	10400	SY	TREATING OF CONCRETE BRIDGE DECK WITH SRS	
	898		835	823	905	936	1032	512	73500	SY	TREATING CONCRETE BRIDGE DECKS WITH GRAVITY FED RESIN	
	23		95	37		42		512	10100	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	
	8					10		516	45305	EACH	REFURBISH BEARING DEVICE, AS PER PLAN	2 / 9
	LS					LS		516	47001		JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN	1 / 9
			28					516	10000		PREFORMED ELASTOMERIC COMPRESSION JOINT SEAL	
			50	20		30		SPECIAL	51900100		COMPOSITE FIBER WRAP SYSTEM	
	200		400	150		100		519	11101	SF	PATCHING CONCRETE STRUCTURE, AS PER PLAN	1 / 9
	7		2								PATCHING CONCRETE BRIDGE DECK - TYPE A	
				9		10		519	12304	SY	PATCHING CONCRETE BRIDGE DECK - TYPE C	
			50	20		30		SPECIAL	53000800	SY	STRUCTURES: CONCRETE SPALL REMOVAL	
				9		9		SPECIAL	51911900	CY	PATCHING CONCRETE STRUCTURE: VES LMS (VERY EARLY SETTING LATEX MODIFIED CONCRETE)	
	6		6					511	52110	CY	CLASS QC MS CONCRETE: CLASS QC MS CONCRETE	
				LS		LS		SPECIAL	51960000		PATCHING CONCRETE STRUCTURE: TRIAL BATCH VES LMC	
20								601	32100	CY	ROCK CHANNEL PROTECTION, TYPE B WITH FILTER	
	1010		939	555	555	482	483	512	74500	FT	REMOVAL OF EXISTING PAVEMENT MARKING	
1148								833	10000	FT	CONDUIT RENEWAL USING SPRAY APPLIED STRUCTURAL LINER, ROUND CONDUIT, D=96"	
			50	20		30		843	50000	SF	PATCHING CONCRETE STRUCTURES WITH TROWELABLE MORTAR	

STRUCTURE ESTIMATED QUANTITIES

BRIDGE NO.: SUM-271-0894, SUM-271-0914, SUM-271-0965, SUM-271-0967  
 SUM-271-1116R, SUM-271-1117L, SUM-271-1122R, SUM-271-1122L

SFN  
 VARIOUS  
 DESIGN AGENCY



DESIGNER: JRF  
 CHECKER: MJA

REVIEWER: MJA  
 DATE: 02/03/23

PROJECT ID: 93101

SUBSET TOTAL  
 4 9

SHEET TOTAL  
 P.28 39

**STRUCTURE NO SUM-271-0852**

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

SUM - 271 - 8.29

205  
313

**FOR REFERENCE ONLY**

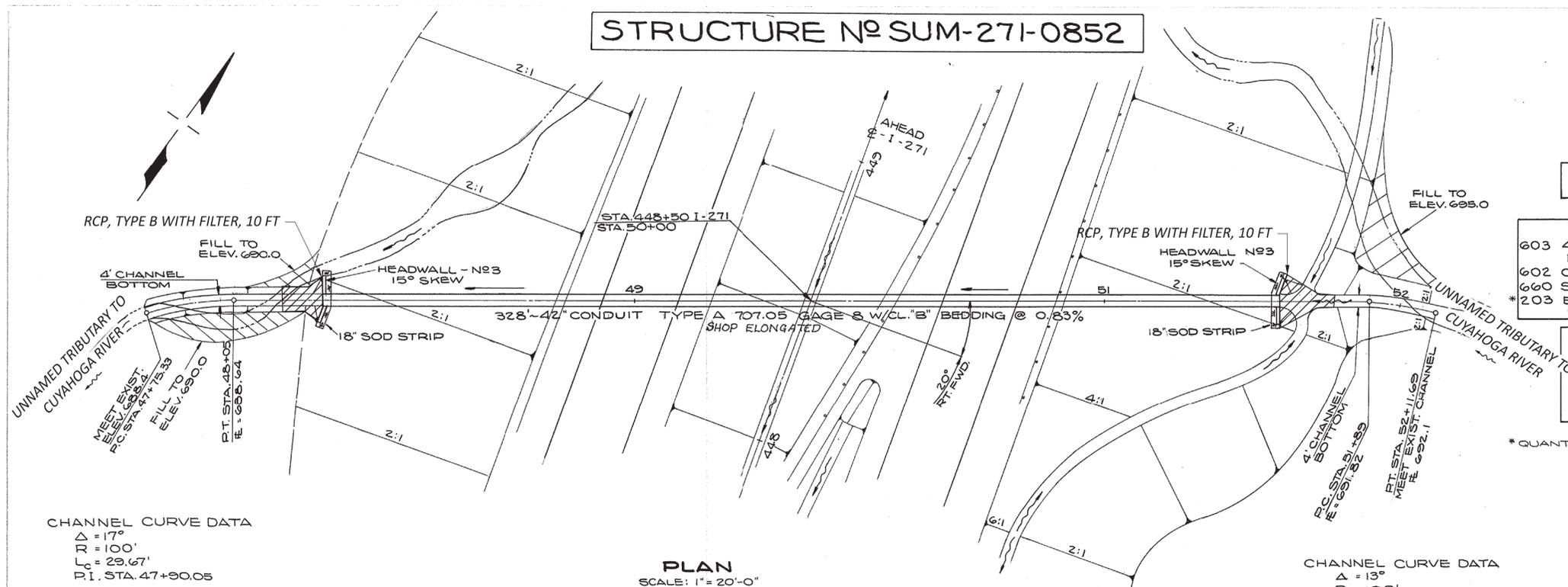
AREA	= 102 ACRES
Q <sub>50</sub>	= 83 C.F.S.

**ESTIMATED QUANTITIES**

603 42" CONDUIT - TYPE "A" 707.05 GAGE 8 W/CL. "B"	
BEDDING	= 328 LIN. FT.
602 CONCRETE MASONRY	= 14.6 CU. YDS.
660 SODDING	= 6 SQ. YDS.
* 203 EXCAVATION INCL. EMBANKMENT CONSTRUCTION	= 266 CU. YDS.

**CULVERT DATA**  
 TYPE - 603 CONDUIT TYPE A - 707.05 GAGE 8 W/CL. "B" BEDDING, SHOP ELONGATED  
 SIZE - 42" x 328"  
 SKEW - 20° RT. F.W.D.  
 WORK REQ'D. - BUILD NEW 42" DIA. 603 PIPE CULVERT AS SHOWN

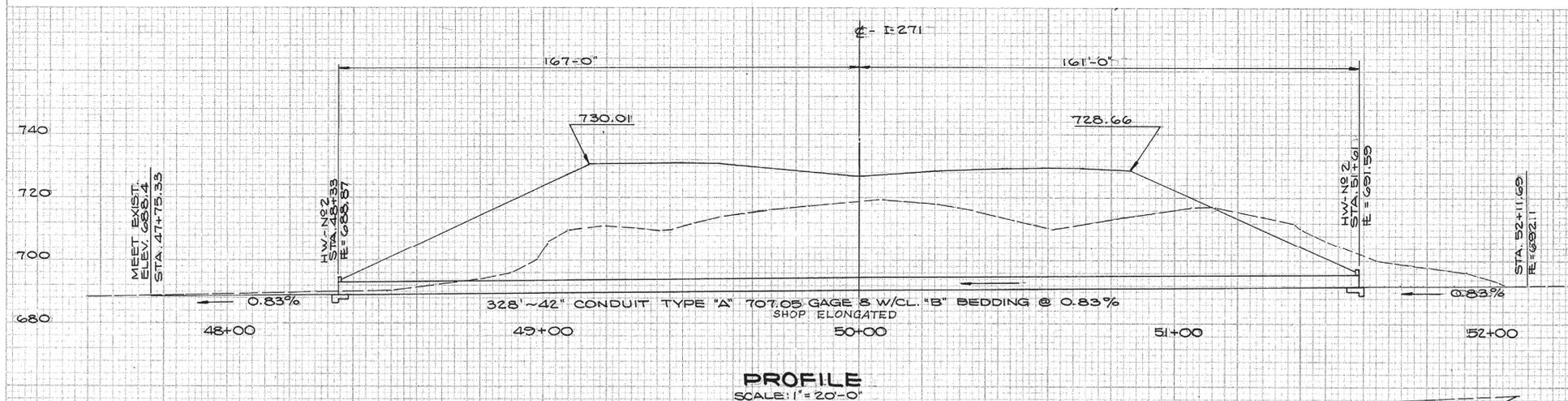
\* QUANTITY INCLUDED IN EARTHWORK TABULATION



**CHANNEL CURVE DATA**  
 $\Delta = 17^\circ$   
 $R = 100'$   
 $L_c = 29.67'$   
 P.I. STA. 47+90.05

**PLAN**  
 SCALE: 1" = 20'-0"

**CHANNEL CURVE DATA**  
 $\Delta = 13^\circ$   
 $R = 100'$   
 $L_c = 22.69'$   
 P.I. STA. 52+02.17

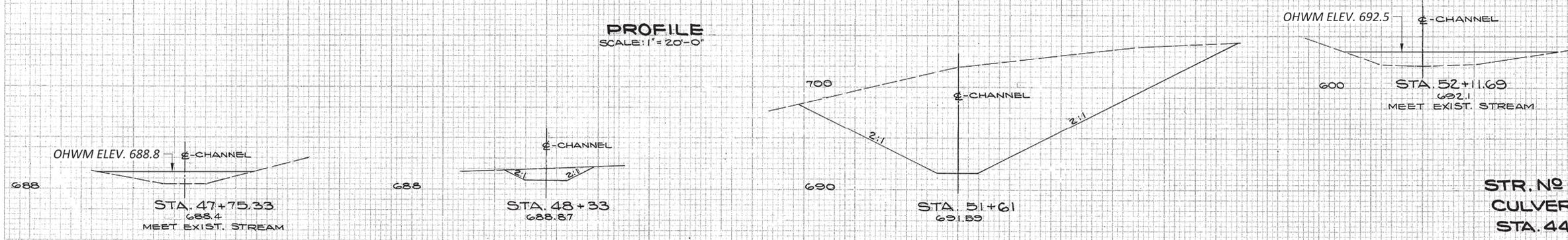


**PROFILE**  
 SCALE: 1" = 20'-0"

ITEM 203 - EXCAV.

STA.	END AREA	CU. YDS.
47+75.33	0	8
48+33	7	
51+61	240	258
52+25.64	0	
<b>TOTAL</b>		<b>266</b>

**CHANNEL SECTIONS**  
 SCALE: 1" = 5'-0"



**STR. NO SUM-271-0852**  
**CULVERT DETAILS**  
**STA. 448+50 I-271**

PLATE 4-CROSS SECTION D.P.R. & R.E. STANDARD  
 EUGENE GIBTZEN CO. - CHICAGO

STRUCTURE DETAILS - SUM-271-0850

**STRUCTURE N° SUM-271-0895**

FED. DIVISION	STATE	PROJECT	
2	OHIO		

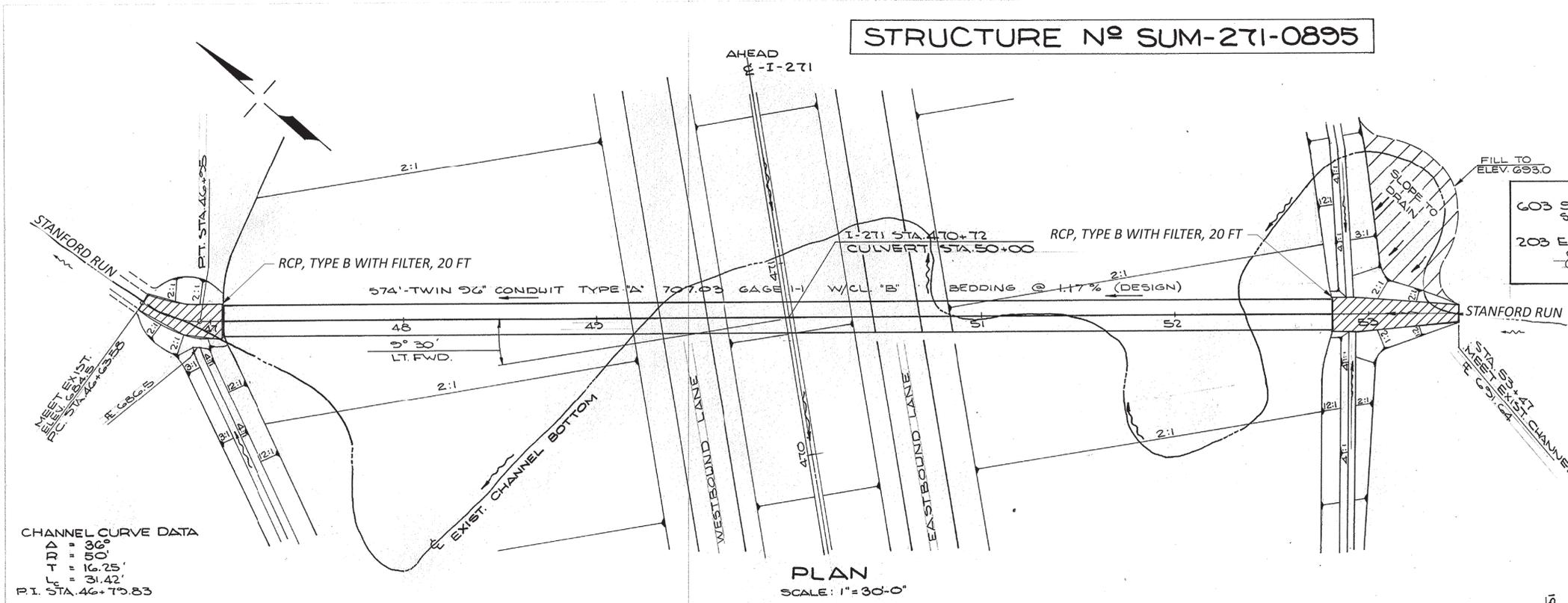
SUM - 271 - 8.29

206  
313

**FOR REFERENCE ONLY**

FINAL SURVEY

DATE	BY



**ESTIMATED QUANTITIES**

603 36" TWIN CONDUIT TYPE "A" 707.03 GAGE I-1 SHOPELONGATED OR FIELD STRUTTED W/CL "B" BEDDING	= 1148 LIN. FT.
203 EXCAVATION INCL. EMBANKMENT* CONSTRUCTION (INCLUDED IN EARTHWORK QUANTITIES)	= 235 CU. YDS.

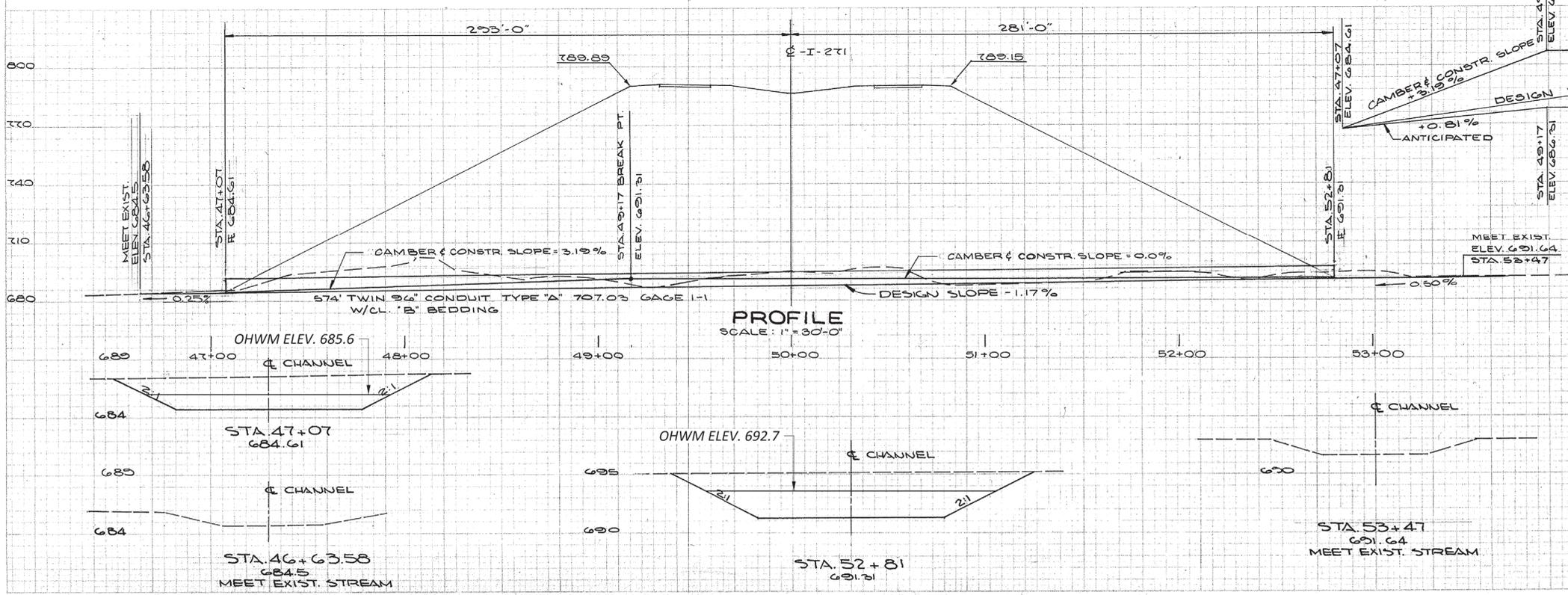
**CULVERT DATA**

TYPE - 603 CONDUIT TYPE "A" 707.03 GAGE I-1 SHOPELONGATED OR FIELD STRUTTED PER MANUFACTURER SPECIFICATIONS.
SIZE - 36" TWIN x 574'
SKEW - 10° LT. FWD
WORK REQ'D - BUILD NEW 36" DIA. 603 TWIN PIPE CULVERT AS SHOWN.

AREA	= 1174 ACRES
Q <sub>50</sub>	= 712 C.F.S.

\*QUANTITY INCLUDED IN EARTHWORK TABULATION  
 @ See note on std drawing SP-53 for shop elongation, field strutting, and extra bolts.

**PLAN**  
SCALE: 1" = 30'-0"



**CAMBER DIAGRAM**

ITEM 203-EXCAV.

STA.	END AREA	CU. YDS.
46+63.58	0	0
47+07	51	34
52+81	76	141
53+47	0	0
<b>TOTAL</b>	<b>127</b>	<b>235</b>

CHANNEL SECTIONS

**STR. N° SUM-271-0895**  
**CULVERT DETAILS**  
 STA. 470+72 I-271

PLATE A - CROSS SECTION O. P. R. & E. STANDARD  
 NATIONAL TRACING PAPER DIVISION

DESIGN AGENCY



DESIGNER	JRF
REVIEWER	MJA
DATE	02/03/23
PROJECT ID	93101
SHEET	P.35
TOTAL	39

STRUCTURE N<sup>o</sup> SUM-271-0932

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	



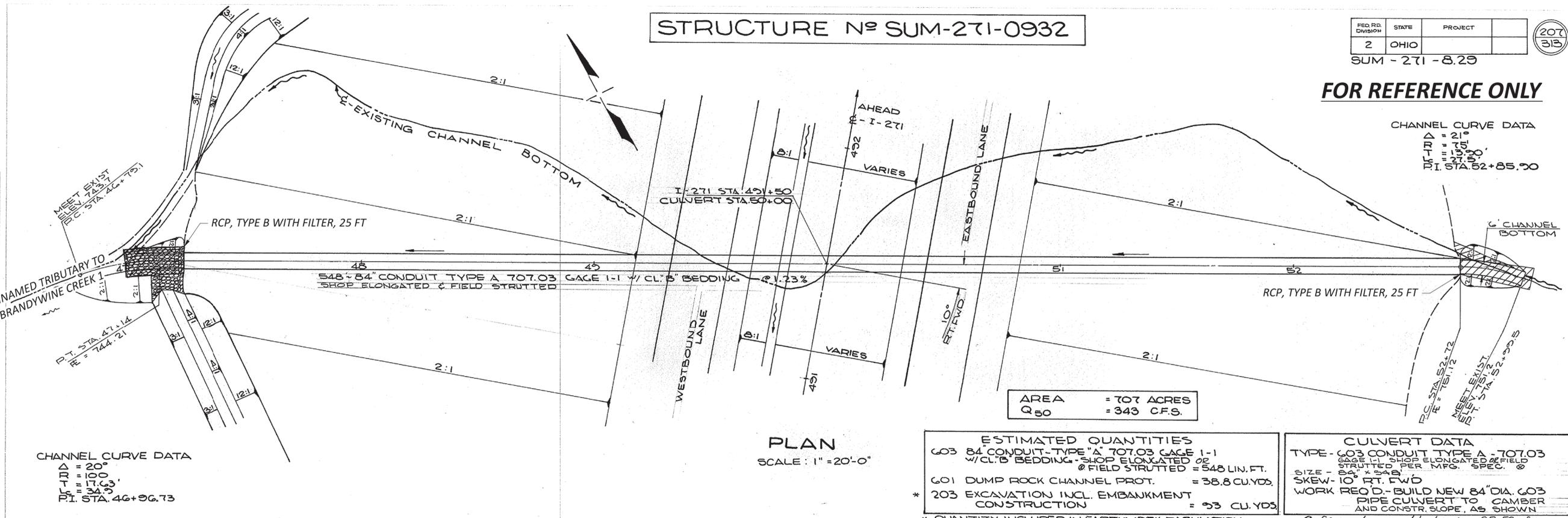
SUM - 271 - 8.29

FOR REFERENCE ONLY

CHANNEL CURVE DATA  
 Δ = 21°  
 L.T.P. = 13.75'  
 = 27.00'  
 P.I. STA. 52+85.00

FINAL SURVEY  
 DATE: 10/11/11  
 BY: JFZ  
 CHECKED: JFZ  
 DATE: 10/11/11

ORIGINAL SURVEY  
 DATE: 10/11/11  
 BY: JFZ  
 CHECKED: JFZ  
 DATE: 10/11/11



PLAN  
 SCALE: 1" = 20'-0"

ESTIMATED QUANTITIES

603 84" CONDUIT TYPE "A" 707.03 GAGE 1-1 W/CL "B" BEDDING - SHOP ELONGATED & FIELD STRUTTED @ FIELD STRUTTED = 548 LIN. FT.	
601 DUMP ROCK CHANNEL PROT.	= 38.8 CU. YDS.
* 203 EXCAVATION INCL. EMBANKMENT CONSTRUCTION	= 93 CU. YDS.

\* QUANTITY INCLUDED IN EARTHWORK TABULATION

CULVERT DATA

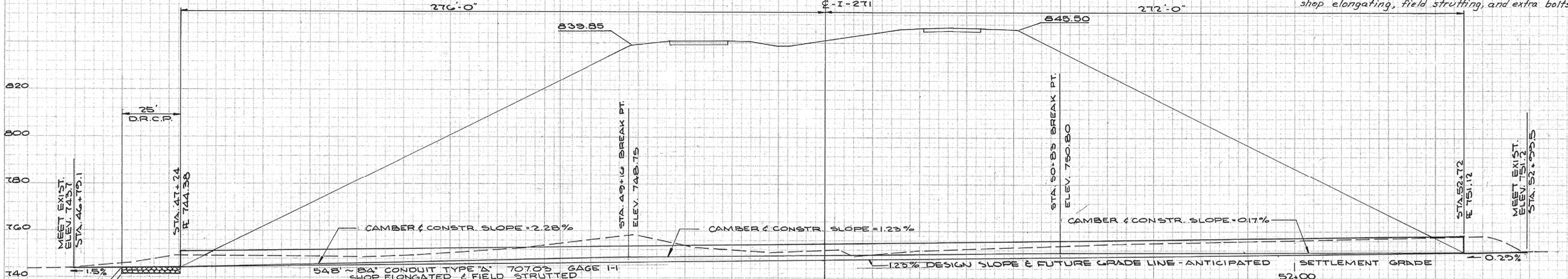
TYPE - 603 CONDUIT TYPE "A" 707.03 GAGE 1-1 SHOP ELONGATED & FIELD STRUTTED PER MFG. SPEC. @

SIZE - 84" x 548'

SKEW - 10° FT. FWD

WORK REQ'D - BUILD NEW 84" DIA. 603 PIPE CULVERT TO CAMBER AND CONSTR. SLOPE, AS SHOWN

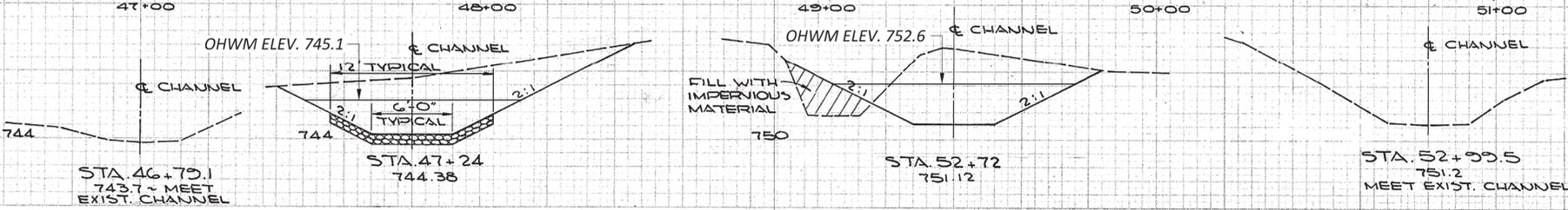
@ See note on std. drawing SP-53 for shop elongating, field strutting, and extra bolts.



PROFILE  
 SCALE: 1" = 20'-0"

STA.	EUD AREA	CU. YDS.
46+75.1	0	58
47+24	63	—
52+72	68	—
52+99.5	0	35
TOTAL		93

ITEM 203 EXCAV.



CHANNEL SECTIONS  
 SCALE: 1" = 5'-0"

STR. N<sup>o</sup> SUM-271-0932  
 CULVERT DETAILS  
 STA. 491+50 I-271

PLATE 4 - CROSS SECTION A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z  
 NATIONAL TRACING PAPER DIVISION  
 1100 N. ZEEB RD., TALLAHASSEE, FLORIDA 32310

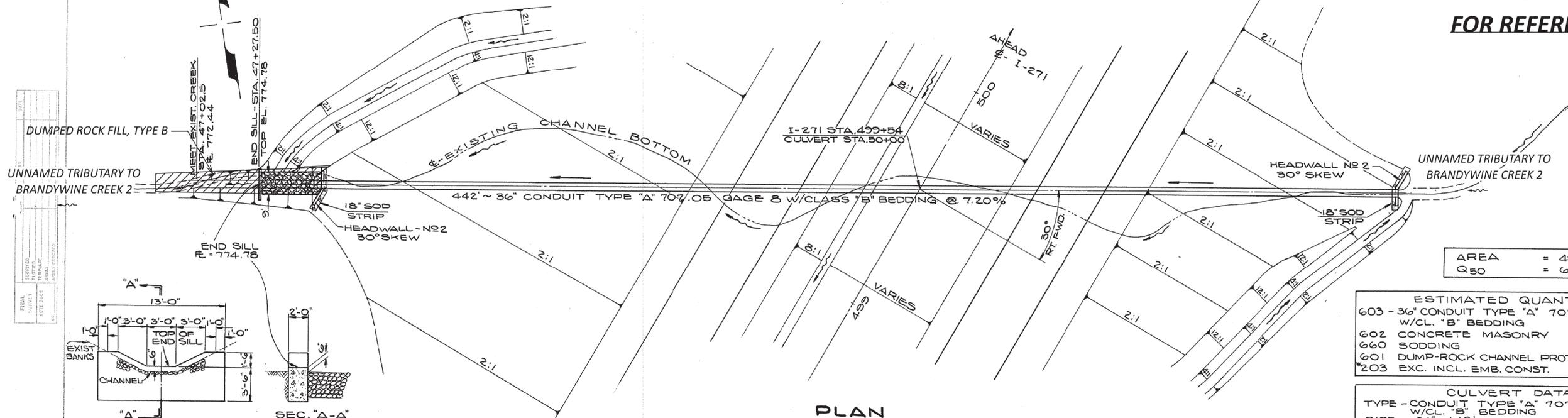
STRUCTURE NO SUM-271-0948

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

SUM - 271 - 8.29



FOR REFERENCE ONLY



AREA = 49 ACRES  
 Q50 = 60 C.F.S.

ESTIMATED QUANTITIES

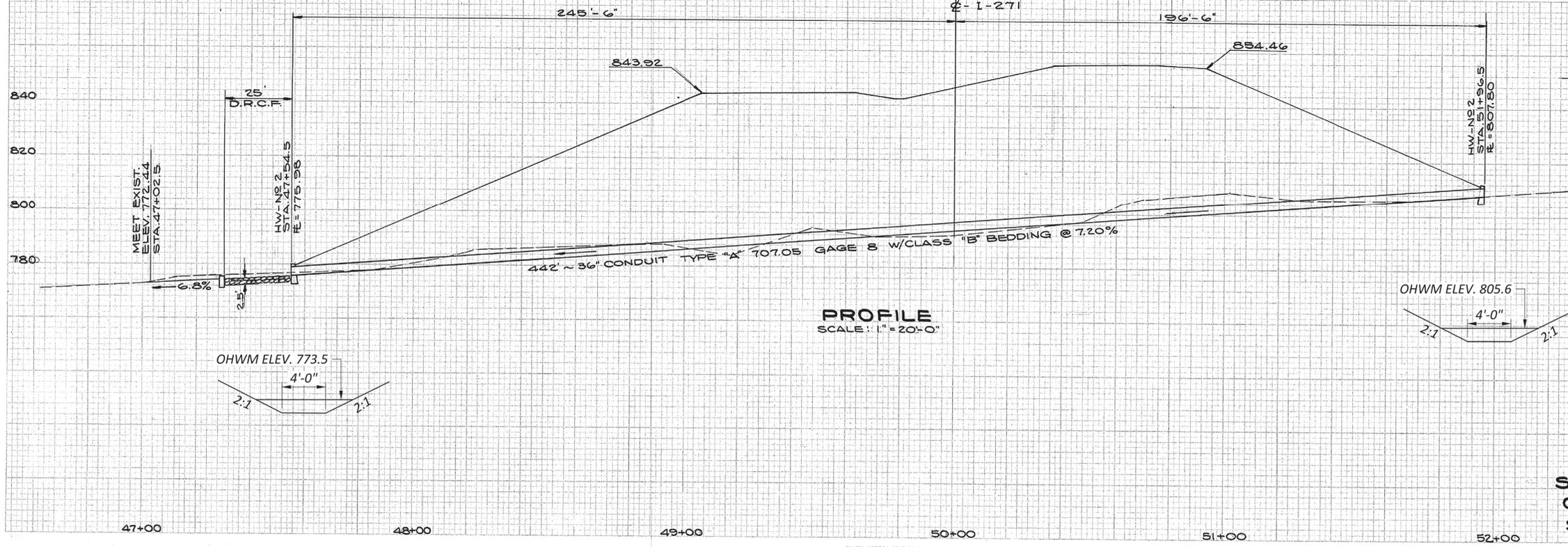
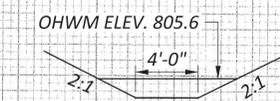
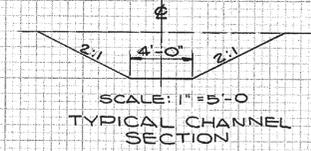
603 - 36" CONDUIT TYPE "A" 707.05 GAGE 8 W/CL. "B" BEDDING	= 442 LIN. FT.
602 CONCRETE MASONRY	= 15.8 CU. YDS.
600 SODDING	= 7 SQ. YDS.
601 DUMP-ROCK CHANNEL PROT.	= 21 CU. YDS.
203 EXC. INCL. EMB. CONST.	= 22 CU. YDS.

CULVERT DATA  
 TYPE - CONDUIT TYPE "A" 707.05 GAGE 8 W/CL. "B" BEDDING  
 SIZE - 36" x 442"  
 SKEW - 30° RT. FWD.  
 WORK REQ'D. - BUILD NEW 36" DIA. 603 PIPE CULVERT AS SHOWN

\*QUANTITY INCLUDED IN EARTHWORK TABULATION

END SILL DETAIL  
 SCALE: 1" = 5'-0"  
 602 CONCRETE MASONRY = 4.2 CU. YDS.

PLAN  
 SCALE: 1" = 20'-0"



PROFILE  
 SCALE: 1" = 20'-0"

STR. NO SUM-271-0948  
 CULVERT DETAILS  
 STA. 499+54 I-271

PLATE 15 CROSS SECTION B. P. P. & R. E. STANDARD  
 EUGENE DIEZGEN CO. - CHICAGO

DESIGN AGENCY



DESIGNER	JRF
REVIEWER	MJA 02/03/23
PROJECT ID	93101
SHEET TOTAL	P.37 39

**STRUCTURE NO SUM-271-1014**

FED. RD. DIVISION	STATE	PROJECT	21 313
2	OHIO		

SUM - 271 - 8.29

**FOR REFERENCE ONLY**

**ESTIMATED QUANTITIES**

603 - 60" CONDUIT TYPE "A" 707.03	GAGE 10-8	= 294 LIN. FT.
W/CL. "B" BEDDING		
602 CONCRETE MASONRY		= 24.6 CU. YDS.
660 SODDING		= 9.4 SQ. YDS.
601 DUMPED ROCK CHANNEL PROT.		= 31.2 CU. YDS.
601 RIPRAP		= 32.5 SQ. YDS.
*203 EXCAVATION INCL. EMB. CONST.		= 89.0 CU. YDS.

\* QUANTITY INCLUDED IN EARTHWORK TABULATION

**CULVERT DATA**

TYPE "A" CONDUIT 707.03 GAGE 10-8  
 W/CL. "B" BEDDING  
 SIZE: 60" DIA.  
 SKEW: NONE  
 WORK REQ'D. - BUILD NEW 60" DIA. CONDUIT AS SHOWN

AREA = 338 ACRES  
 Q50 = 208 C.F.S.

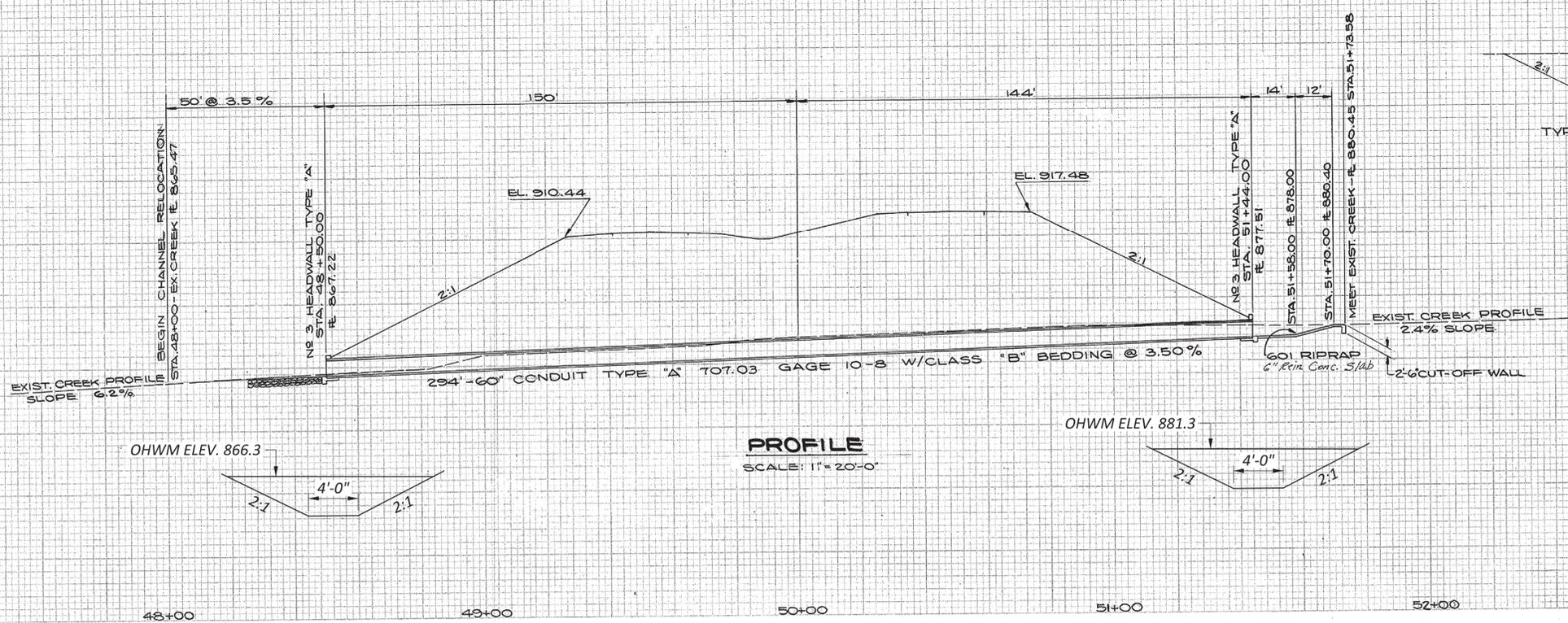
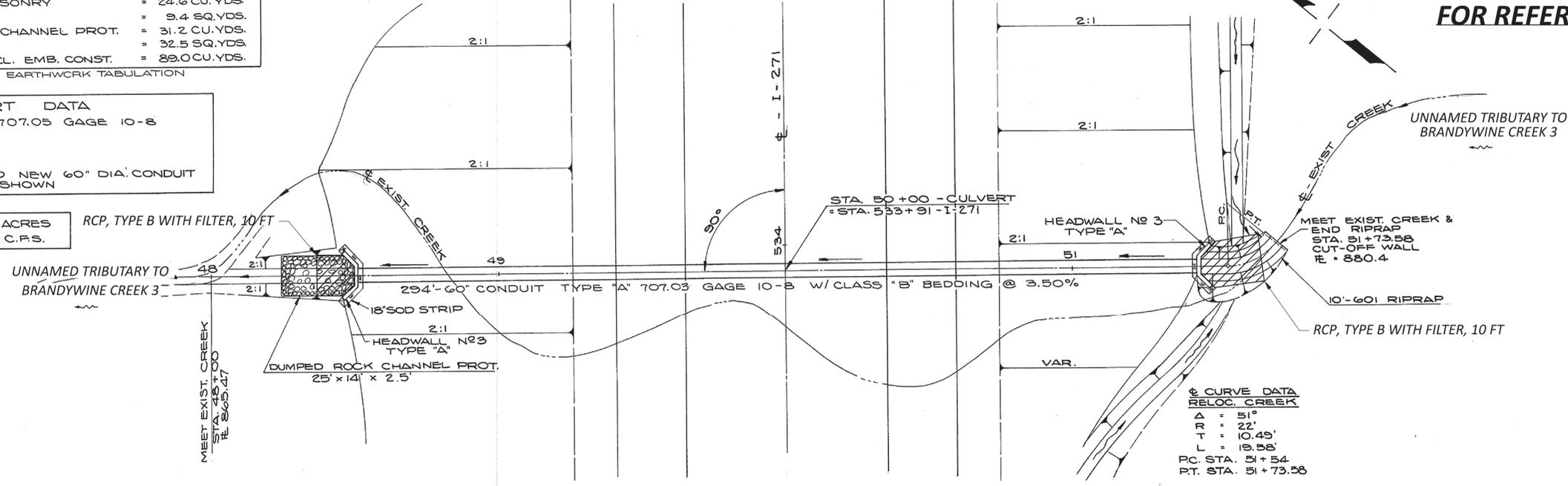


PLATE 4-CR25 SECTION D, P. 8 & 9 E. STANDARD  
 EUGENE DITZGEN CO. - CHICAGO

**STR. NO SUM-271-1014  
 CULVERT DETAILS  
 STA. 533+91 I-271**

DESIGN AGENCY

DESIGNER: JRF  
 REVIEWER: MJA 02/03/23  
 PROJECT ID: 93101  
 SHEET: P.38 TOTAL: 39

DATE	
DESIGNED BY	
CHECKED BY	
IN CHARGE	
PROJECT NO.	
SHEET NO.	
TOTAL SHEETS	
SCALE	
DATE	
DESIGNED BY	
CHECKED BY	
IN CHARGE	
PROJECT NO.	
SHEET NO.	
TOTAL SHEETS	
SCALE	
DATE	

**ESTIMATED QUANTITIES**

603 54" CONDUIT - TYPE "A" - 707.05 W/CL "B" BEDDING SHOP ELONGATED & STRUTTED	GAGE 8	= 406 LIN. FT.
602 CONCRETE MASONRY		= 10.5 CU. YDS.
660 SODDING		= 7.3 SQ. YDS.
601 DUMPED ROCK CHANNEL PROT.		= 23.2 CU. YDS.
604 STILLING BASIN, AS PER PLAN		= LUMP

**CULVERT DATA**  
 TYPE: 54" CONDUIT - 707.05 - GAGE 8 W/CL "B"  
 BEDDING - SHOP ELONGATED & FIELD STRUTTED  
 SIZE: 54" DIA.  
 SKEW: 30° LT. FWD.  
 WORK REQ'D.: BUILD NEW 54" DIA. CONDUIT

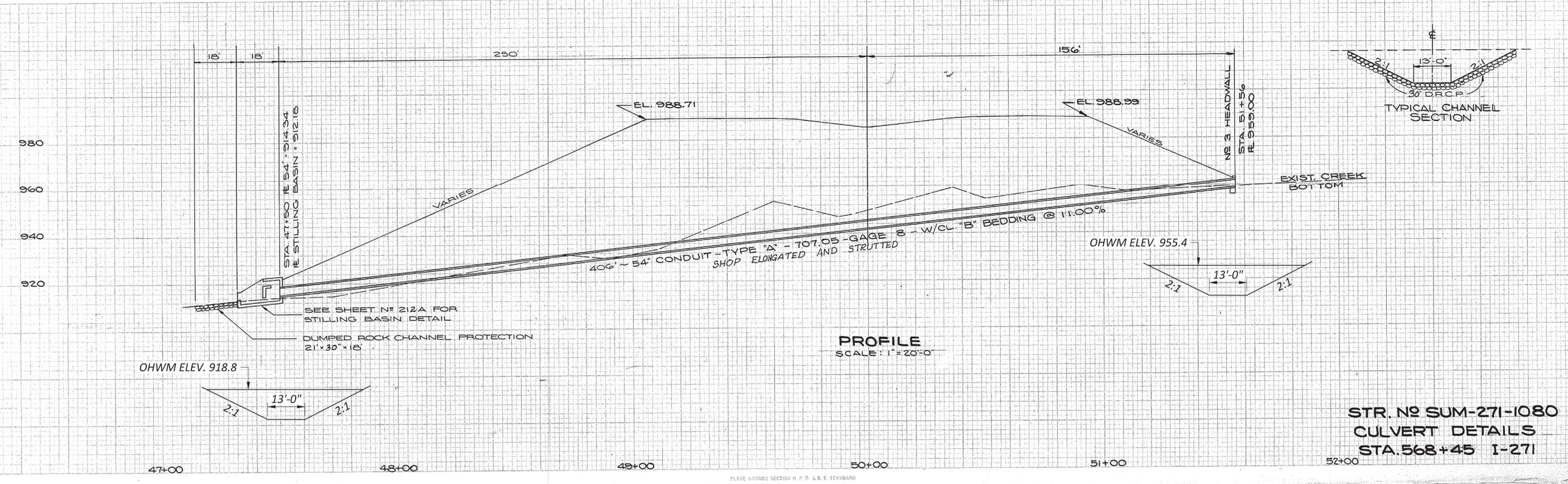
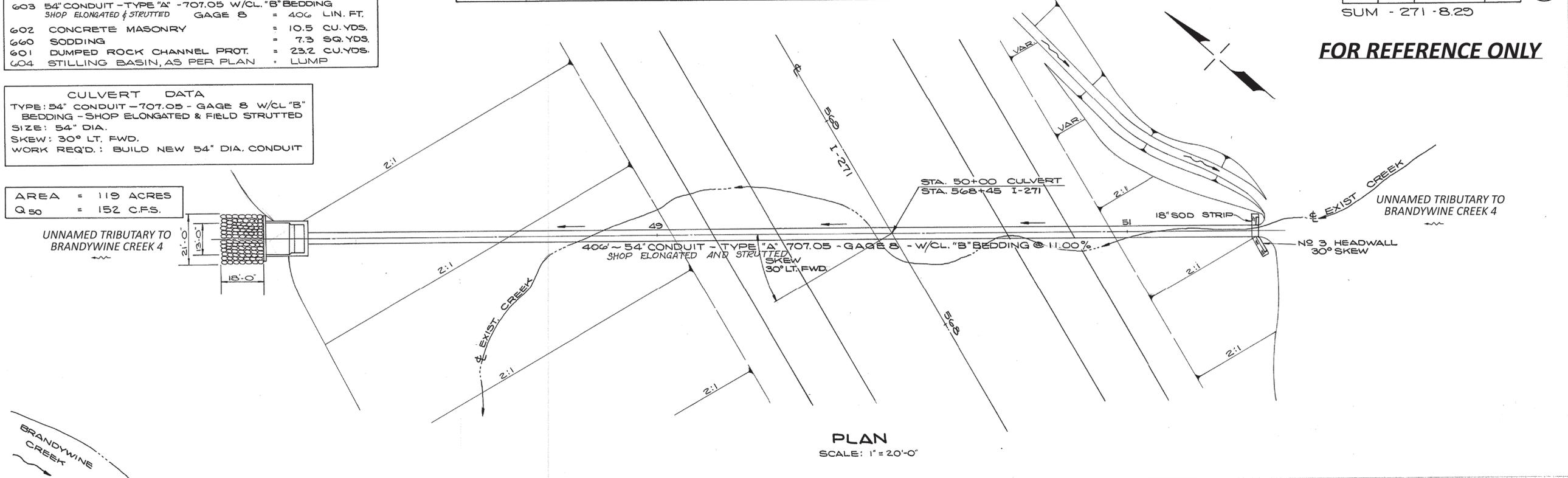
AREA = 119 ACRES  
 Q<sub>50</sub> = 152 C.F.S.

**STRUCTURE NO SUM-271-1080**

FED. RD. DIVISION	STATE	PROJECT	(212/313)
2	OHIO		

SUM - 271 - 8.23

**FOR REFERENCE ONLY**



**STR. NO SUM-271-1080  
 CULVERT DETAILS  
 STA. 568+45 I-271**

DESIGN AGENCY

DESIGNER: JRF  
 REVIEWER: MJA 02/03/23  
 PROJECT ID: 93101  
 SHEET: P.39 TOTAL: 39