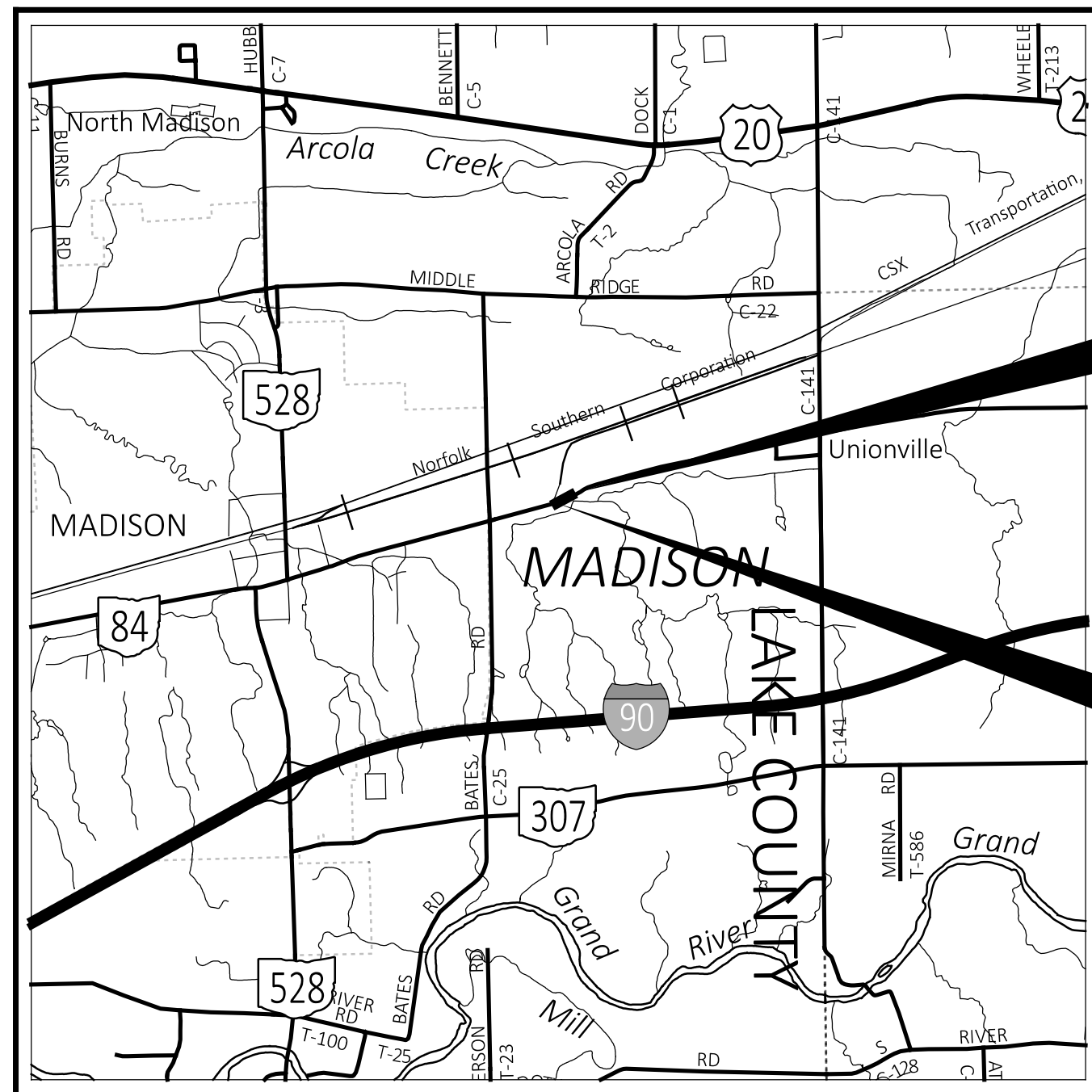


STATE OF OHIO DEPARTMENT OF TRANSPORTATION

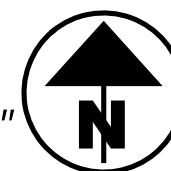
LAK-SR 084-30.86

MADISON TOWNSHIP
LAKE COUNTY



LOCATION MAP

LATITUDE: N41°46'35.96" LONGITUDE: W81°01'23.10"



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

DESIGN DESIGNATION

CURRENT ADT (2026)	2465
DESIGN YEAR ADT (2056)	2834
DESIGN HOURLY VOLUME (2056)	340
DIRECTIONAL DISTRIBUTION	58%
TRUCKS (24 HOUR B&C)	3%
DESIGN SPEED	50 MPH
LEGAL SPEED	45 MPH
DESIGN FUNCTIONAL CLASSIFICATION:	
05 - MAJOR COLLECTOR (RURAL)	
NHS PROJECT	NO

DESIGN EXCEPTIONS

NONE REQUIRED

ADA DESIGN WAIVERS

NONE REQUIRED

UNDERGROUND UTILITIES
Contact Two Working Days
Before You Dig

OHIO811.org
Before You Dig

OHIO811, 8-1-1, or 1-800-362-2764
(Non members must be called directly)

PLAN PREPARED BY:
OSBORN ENGINEERING
1111 SUPERIOR AVENUE, SUITE 2100
CLEVELAND, OHIO 44114

INDEX OF SHEETS:

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GENERAL NOTES	6
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SUBSUMMARIES	10-11
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CROSS SECTIONS	13-16
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TRAFFIC CONTROL	18
CULVERT DETAILS	19-23
SOIL PROFILES	24-29
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STANDARD CONSTRUCTION DRAWINGS				SUPPLEMENTAL SPECIFICATIONS	SPECIAL PROVISIONS
BP-3.1	1/19/24	RM-1.1	1/20/23	800-2023 7/19/24	WATERWAY PERMIT 10/10/24
BP-3.2	1/18/19			832 7/21/23	
MGS-1.1	7/16/21				
MGS-2.1	1/19/18				
MGS-2.3	1/20/23				
MT-101.60	4/21/23				
MT-105.10	1/17/20				
TC-41.20	10/18/13				
TC-42.20	10/18/13				
TC-61.10	4/21/23				
TC-61.30	7/19/24				
TC-65.10	1/17/14				
TC-65.11	1/19/24				

FEDERAL PROJECT NUMBER

E241069

RAILROAD INVOLVEMENT

NONE

PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE REPLACEMENT OF BRIDGE LAK-84-30.86 ON S.R. 84 IN LAKE COUNTY AT SLM 30.86 OVER UNNAMED TRIBUTARY TO ARCOLA CREEK. BRIDGE IS LOCATED 0.37 MILES EAST OF BATES ROAD. THIS PROJECT INCLUDES APPROACH PAVEMENT AND GUARDRAIL REPLACEMENT.

EARTH DISTURBED AREAS

PROJECT EARTH DISTURBED AREA:	0.28 ACRES
ESTIMATED CONTRACTOR EARTH DISTURBED AREA:	0.25 ACRES
NOTICE OF INTENT EARTH DISTURBED AREA:	N/A (NOI NOT REQUIRED)

2023 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 REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY AND THAT DETOURS WILL BE PROVIDED AS INDICATED ON SHEET P.7.

John Picuri, P.E., P.S.
District 12 Deputy Director

Pamela Boratyn
Director, Department of Transportation

ENGINEER'S SEAL ROADWAY	ENGINEER'S SEAL BRIDGE

TITLE SHEET

DESIGN AGENCY



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Cleveland, OH 44114
(216) 981-3333 www.osborneng.com

DESIGNER

JMB

REVIEWER

DRP 11/06/24

PROJECT ID

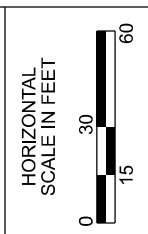
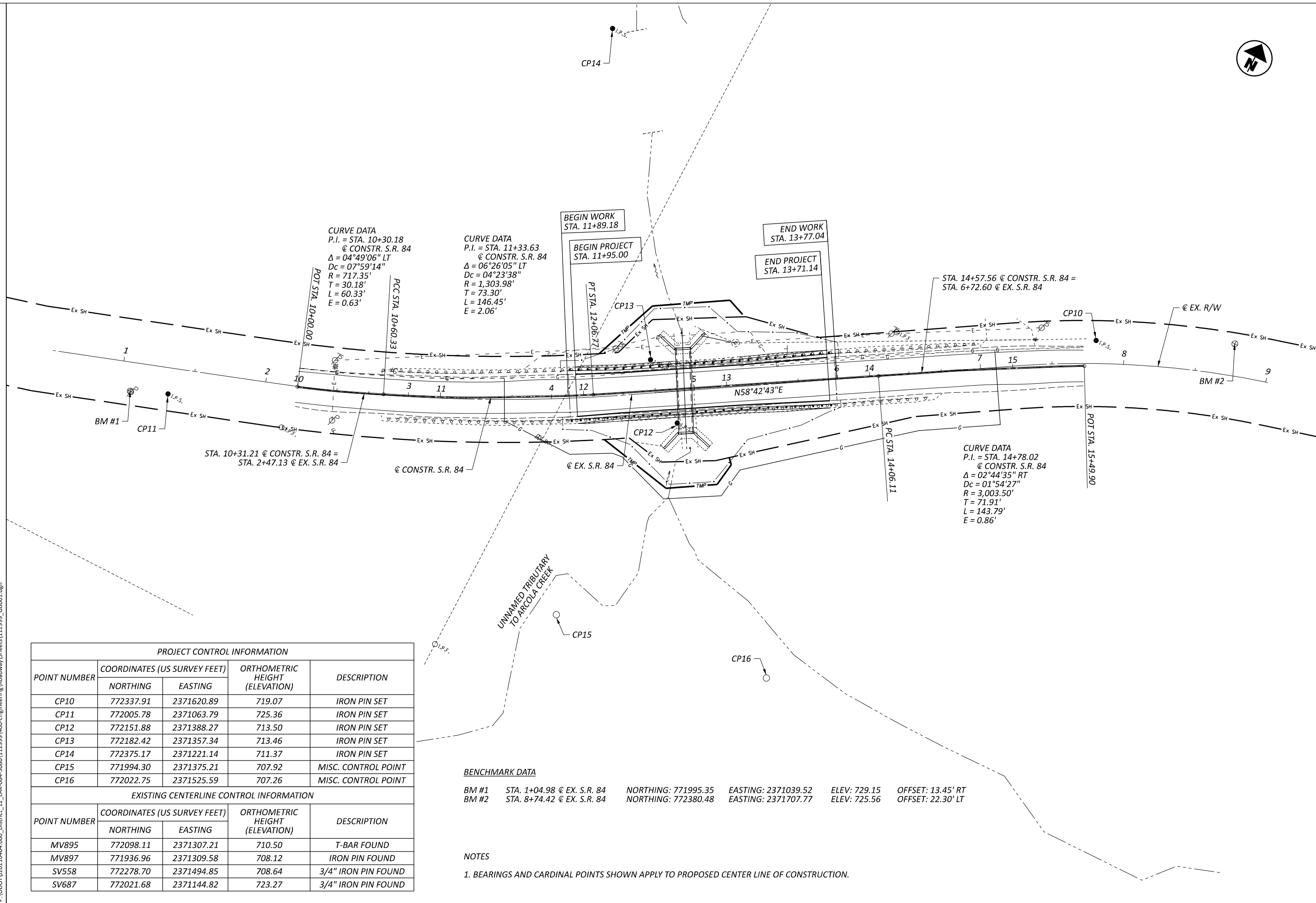
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SHEET TOTAL

P.1 29

LAK-084-30.86

MODEL: Sheet PAPER: 34x22 (in.) DATE: 12/19/2024 TIME: 10:21:14 AM USER: JBROWN P:\ODOT\2024\0404_000_District_12\LAK-084-30.86\112999\400-Engineering\Roadway\Sheets\112999_GT001.dgn



SCHEMATIC PLAN

PROJECT CONTROL INFORMATION				
POINT NUMBER	COORDINATES (US SURVEY FEET)		ORTHOMETRIC HEIGHT (ELEVATION)	DESCRIPTION
	NORTHING	EASTING		
CP10	772337.91	2371620.89	719.07	IRON PIN SET
CP11	772005.78	2371063.79	725.36	IRON PIN SET
CP12	772151.88	2371388.27	713.50	IRON PIN SET
CP13	772182.42	2371357.34	713.46	IRON PIN SET
CP14	772375.17	2371221.14	711.37	IRON PIN SET
CP15	771994.30	2371375.21	707.92	MISC. CONTROL POINT
CP16	772022.75	2371525.59	707.26	MISC. CONTROL POINT
EXISTING CENTERLINE CONTROL INFORMATION				
POINT NUMBER	COORDINATES (US SURVEY FEET)		ORTHOMETRIC HEIGHT (ELEVATION)	DESCRIPTION
	NORTHING	EASTING		
MV895	772098.11	2371307.21	710.50	T-BAR FOUND
MV897	771936.96	2371309.58	708.12	IRON PIN FOUND
SV558	772278.70	2371494.85	708.64	3/4" IRON PIN FOUND
SV687	772021.68	2371144.82	723.27	3/4" IRON PIN FOUND

BENCHMARK DATA

BM #1	STA. 1+04.98 @ EX. S.R. 84	NORTHING: 771995.35	EASTING: 2371039.52	ELEV: 729.15	OFFSET: 13.45' RT
BM #2	STA. 8+74.42 @ EX. S.R. 84	NORTHING: 772380.48	EASTING: 2371707.77	ELEV: 725.56	OFFSET: 22.30' LT

NOTES

1. BEARINGS AND CARDINAL POINTS SHOWN APPLY TO PROPOSED CENTER LINE OF CONSTRUCTION.

DESIGN AGENCY



DESIGNER

JMB

REVIEWER

DRP 11/06/24

PROJECT ID

112999

SHEET TOTAL

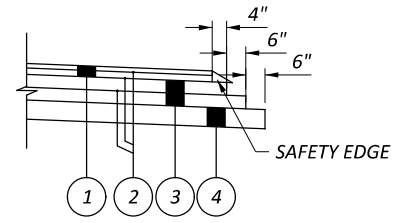
P.2 29

LEGEND

- ① ITEM 441 - 3" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (449), AS PER PLAN, PG70-22M (PLACED IN TWO LIFTS WITH ITEM 407 - TACK COAT BETWEEN; LAYERS SHALL BE 1 1/2")
- ② ITEM 407 - TACK COAT
- ③ ITEM 301 - 8" ASPHALT CONCRETE BASE, PG64-22, (449) (PLACED IN TWO LIFTS WITH ITEM 407 - TACK COAT BETWEEN; LAYERS SHALL BE 4")
- ④ ITEM 304 - 6" AGGREGATE BASE
- ⑤ ITEM 606 - GUARDRAIL, TYPE MGS WITH LONG POSTS
- ⑥ ITEM 659 - SEEDING AND MULCHING, CLASS 1
 ITEM 659 - SEEDING AND MULCHING, CLASS 6
- ⑦ ITEM 204 - SUBGRADE COMPACTION
- ⑧ ITEM 204 - PROOF ROLLING
- ⑨ ITEM 441 - 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, (449), UNDER GUARDRAIL, AS PER PLAN
- ⑩ ITEM 605 - AGGREGATE DRAINS (0.08 PREFERRED SLOPE, 0.04 MINIMUM SLOPE)

EXISTING LEGEND

- (A) 9.25" TO 12.75" ASPHALT CONCRETE PAVEMENT
- (B) 7.25" TO 7.75" AGGREGATE BASE
- (C) PAVING UNDER GUARDRAIL
- (D) GUARDRAIL, TYPE MGS



PAVEMENT EDGE STEP DETAIL

PAVED SHOULDER WIDTH:

(A) LT SIDE:
 11+95.00 TO 12+25.00 VARIES: 3.91' TO 3'
 13+11.14 TO 13+71.14 VARIES: 3' TO 4.17'

(B) RT SIDE:
 11+95.00 TO 12+25.00 VARIES: 3.62' TO 3'
 13+11.14 TO 13+71.14 VARIES: 3' TO 4.07'

PAVING UNDER GUARDRAIL WIDTH:

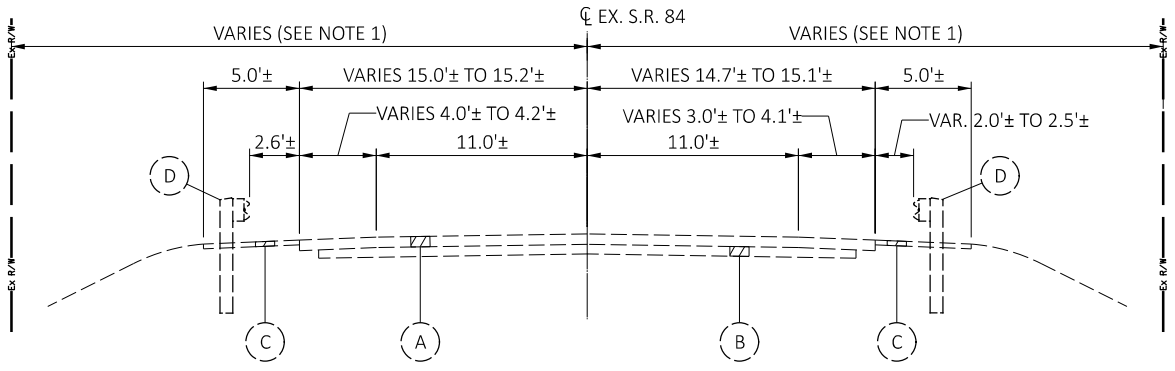
(C) LT SIDE:
 11+95.00 TO 12+25.00 VARIES: 4.92' TO 4'
 13+11.14 TO 13+71.14 VARIES: 4' TO 5.01'

(D) RT SIDE:
 11+95.00 TO 12+25.00 VARIES: 4.93' TO 4'
 13+11.14 TO 13+71.14 VARIES: 4' TO 5.02'

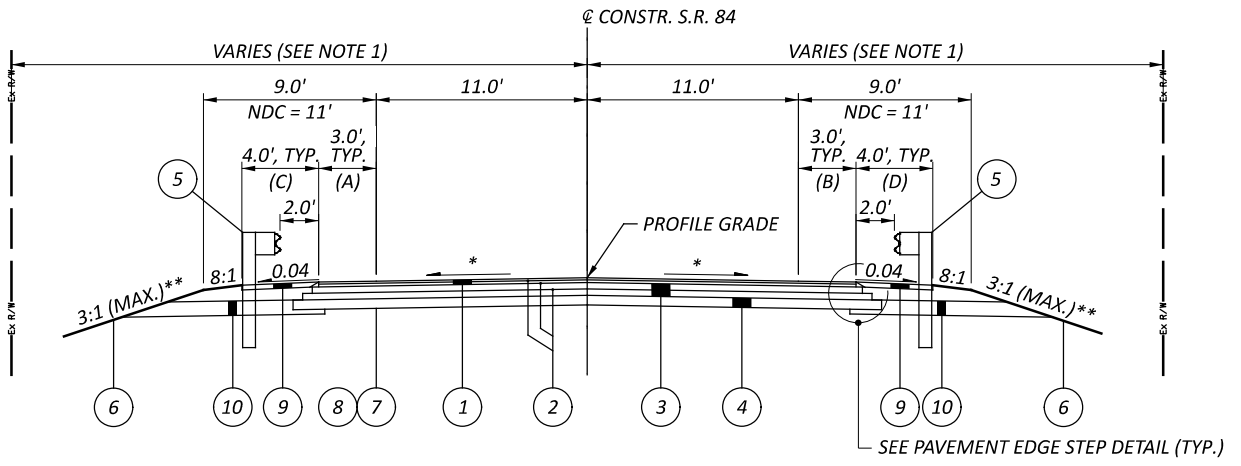
* = SEE PAVEMENT ELEVATION TABLE ON SHEET P.17 FOR PAVEMENT CROSS SLOPES
 ** = SEE NOTE 2 FOR FORESLOPE GRADING DETAILS. FORESLOPE GRADE SHALL BE 2:1 MAX OUTSIDE OF THE LIMITS OF THE LONG SPAN GUARDRAIL GRADING REQUIREMENT DESCRIBED IN SCD MGS-2.3.
 SEE CROSS SECTIONS ON SHEETS P.13-P.16 FOR FORESLOPE GRADING.

NOTES

- 1. SEE SCHEMATIC PLAN ON SHEET P.2 FOR VARYING RIGHT OF WAY LIMITS.



EXISTING TYPICAL SECTION



PROPOSED NORMAL TYPICAL SECTION
 STA. 11+95.00 TO STA. 13+71.14

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DESIGNER
JMB

REVIEWER
DRP 11/06/24

PROJECT ID
112999

SHEET TOTAL
 P.3 | 29

GENERAL**ROUNDING**

THE ROUNDING AT SLOPE BREAKPOINTS SHOWN ON THE TYPICAL SECTIONS APPLIES TO ALL CROSS-SECTIONS, EVEN THOUGH OTHERWISE SHOWN.

UTILITIES

LISTED BELOW ARE ALL UTILITIES AND MUNICIPALITIES LOCATED WITHIN THE PROJECT CONSTRUCTION LIMITS TOGETHER WITH THEIR RESPECTIVE OWNERS:

CEI FIRST ENERGY
6896 MILLER ROAD, SUITE 101
BRECKSVILLE, OHIO 44141
ATTN: JOHN ZASSICK
PHONE: 440-546-8706
CELL: 216-538-1580
EMAIL: JMZASSICK@FIRSTENERGYCORP.COM

ENBRIDGE GAS OHIO (FORMERLY DOMINION ENERGY OHIO) (EGO)
320 SPRINGSIDE DRIVE, SUITE 320
AKRON, OHIO 44333
ATTN: AARON CONANT
PHONE: 330-664-2451
EMAIL: K.AARON.CONANT@DOMINIONENERGY.COM
EMAIL (PLANS): RELOCATION@DOMINIONENERGY.COM

WINDSTREAM
100 OWEN BROWN STREET
HUDSON, OHIO 44236
ATTN: CHRIS BARKER
PHONE: 606-315-3820
CELL: 606-784-4140
EMAIL: CHRIS.BARKER@WINDSTREAM.COM

CHARTER COMMUNICATIONS
7820 DIVISION DRIVE
MENTOR, OHIO 44060
ATTN: JOE BOGGS
PHONE: 440-974-2694
EMAIL: JOSEPH.BOGGS@CHARTER.COM

EVERSTREAM
1228 EUCLID AVENUE
CLEVELAND, OHIO 44113
ATTN: JOSEPH GIRDLESTONE
PHONE: 234-521-2999
EMAIL: JGIRDLESTONE@EVERSTREAM.NET

MUNICIPALITIES/STAKEHOLDERS

MADISON TOWNSHIP
2065 HUBBARD ROAD
MADISON, OHIO 44057
ATTN: TIM BROWN
PHONE: 440-428-7551
EMAIL: TBROWN@MADISONTOWNSHIP.NET

MADISON VILLAGE
MADISON VILLAGE HALL
33 EAST MAIN STREET
MADISON, OHIO 44057
ATTN: DWAYNE BAILEY
PHONE: 440-428-7526
EMAIL: DBAILEY@MADISONVILLAGE.ORG

LAKE METROPARKS
11211 SPEAR ROAD
CONCORD TOWNSHIP, OHIO 44077
ATTN: PAUL PALAGYI
PHONE: 440-639-7275
EMAIL: PPALAGYI@LAKEMETROPARKS.COM

LAKE COUNTY SOIL AND WATER CONSERVATION DISTRICT
105 MAIN STREET
PAINESVILLE, OHIO 44077
ATTN: CHAD EDGAR
PHONE: 440-350-2032
EMAIL: CHAD.EDGAR@LAKECOUNTYOHIO.GOV

THE LOCATION OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE AS OBTAINED FROM THE OWNERS AS REQUIRED BY SECTION 153.64 O.R.C.

SURVEYING PARAMETERS

PRIMARY PROJECT CONTROL MONUMENTS GOVERN ALL POSITIONING ON ODOT PROJECTS. SEE SHEET P.2 OF THE PLANS FOR A TABLE CONTAINING PROJECT CONTROL INFORMATION.

USE THE FOLLOWING PROJECT CONTROL, VERTICAL POSITIONING, AND HORIZONTAL POSITIONING PARAMETERS FOR ALL SURVEYING:

PROJECT CONTROL

POSITIONING METHOD: VRS-DERIVED GNSS
MONUMENT TYPE: 5/8" IRON PIN SET WITH ID CAP

VERTICAL POSITIONING

ORTHOMETRIC HEIGHT DATUM: NAVD88
GEOID: GEOID 12B

HORIZONTAL POSITIONING

REFERENCE FRAME: NAD83 (2011)
ELLIPSOID: GRS80
MAP PROJECTION: LAMBERT CONFORMAL CONIC
COORDINATE SYSTEM: OHIO STATE PLANE, NORTH ZONE
COMBINED SCALE FACTOR: 1.00001744
ORIGIN OF COORDINATE SYSTEM: (0,0)

USE THE POSITIONING METHODS AND MONUMENT TYPE USED IN THE ORIGINAL SURVEY TO RESTORE ALL MONUMENTS RELATED TO PRIMARY PROJECT CONTROL THAT ARE DAMAGED OR DESTROYED BY CONSTRUCTION ACTIVITIES. RESTORE THE DAMAGED OR DESTROYED MONUMENTS IN ACCORDANCE WITH CMS 623.

UNITS ARE IN U.S. SURVEY FEET.

WORK LIMITS

THE WORK LIMITS SHOWN ON THESE PLANS ARE FOR PHYSICAL CONSTRUCTION ONLY. PROVIDE THE INSTALLATION AND OPERATION OF ALL WORK ZONE TRAFFIC CONTROL AND WORK ZONE TRAFFIC CONTROL DEVICES REQUIRED BY THESE PLANS WHETHER INSIDE OR OUTSIDE THESE WORK LIMITS.

CLEARING AND GRUBBING

THE DEPARTMENT HAS NOT MARKED INDIVIDUAL TREES AND STUMPS FOR REMOVAL. UNLESS SPECIFICALLY DESIGNATED AS "DO NOT DISTURB" IN THE PLANS, REMOVE ALL TREES AND STUMPS WITHIN THE CONSTRUCTION LIMITS UNDER THE LUMP SUM BID FOR ITEM 201 CLEARING AND GRUBBING.

CONSTRUCTION NOISE

ACTIVITIES AND LAND USE ADJACENT TO THIS PROJECT MAY BE AFFECTED BY CONSTRUCTION NOISE. IN ORDER TO MINIMIZE ANY ADVERSE CONSTRUCTION NOISE IMPACTS, DO NOT OPERATE POWER-OPERATED CONSTRUCTION-TYPE DEVICES BETWEEN THE HOURS OF 7:00 PM AND 7:00 AM. IN ADDITION, DO NOT OPERATE AT ANY TIME ANY DEVICE IN SUCH A MANNER THAT THE NOISE CREATED SUBSTANTIALLY EXCEEDS THE NOISE CUSTOMARILY AND NECESSARILY ATTENDANT TO THE REASONABLE AND EFFICIENT PERFORMANCE OF SUCH EQUIPMENT.

ITEM 204 - PROOF ROLLING

THE FOLLOWING QUANTITY IS PROVIDED IN THE GENERAL SUMMARY TO ADDRESS LOCATIONS REQUIRING PROOF ROLLING. SEE PLAN SHEET P.3 FOR ADDITIONAL INFORMATION.

ITEM 204 – PROOF ROLLING 0.3 HOUR

ITEM 204 - SUBGRADE COMPACTION AND PROOF ROLLING

CONSTRUCT THE SUBGRADE AS FOLLOWS AND IN THE FOLLOWING SEQUENCE:

- SHAPE THE SUBGRADE TO WITHIN 0.2 FEET OF THE PLAN SUBGRADE ELEVATION.
- EXCAVATE AND REPLACE UNSUITABLE SUBGRADE BEFORE PROOF ROLLING. THE EXCAVATION LIMITS ARE SHOWN AND LABELED ON THE CROSS SECTIONS AS UNSUITABLE SUBGRADE. UNSUITABLE SUBGRADE INCLUDES UNSUITABLE SOIL (A-4B, A-2-5, A-5, A-7-5, AND SOIL WITH A LIQUID LIMIT GREATER THAN 65) AND ANY COAL, SHALE, OR ROCK WHICH NEEDS TO BE REMOVED ACCORDING TO SECTION 204.05 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS (C&MS).
- IF THERE IS UNSUITABLE SUBGRADE IN A SHALLOW FILL LOCATION, EXCAVATE AND REPLACE THE UNSUITABLE SUBGRADE BEFORE CONSTRUCTING THE SHALLOW FILL AND SHAPING THE SUBGRADE.
- COMPACT THE SUBGRADE ACCORDING TO C&MS 204.03.
- PROOF ROLL THE COMPACTED SUBGRADE ACCORDING TO C&MS 204.06.
- THE ENGINEER WILL IDENTIFY THE ACTUAL LIMITS OF EXCAVATION FOR UNSTABLE SUBGRADE BASED ON THE PROOF ROLLING RESULTS AND VISUAL OBSERVATIONS.
- EXCAVATE UNSTABLE SUBGRADE AS DIRECTED BY THE ENGINEER AND STABILIZE BY REPLACING WITH THE SPECIFIED MATERIALS ACCORDING TO C&MS 204.07. EXCAVATIONS WILL EXTEND 18 INCHES BEYOND THE EDGE OF THE SURFACE OF THE PAVEMENT, PAVED SHOULDERS, OR PAVED MEDIANS.
- PROOF ROLL THE STABILIZED AREAS ACCORDING TO C&MS 204.06 TO VERIFY STABILITY.
- FINE GRADE THE SUBGRADE TO THE SPECIFIED GRADE.

THE FOLLOWING CONTINGENCY QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER TO PERFORM THIS WORK:

ITEM 204 - EXCAVATION OF SUBGRADE 162 CY
ITEM 204 - GRANULAR MATERIAL, TYPE B 162 CY

ITEM 441 - ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (449), AS PER PLAN, PG70-22M

THE COARSE VIRGIN AGGREGATE FOR THIS ITEM SHALL CONSIST OF A BLEND OF 60% MINIMUM. AIR COOLED BLAST FURNACE SLAG (ACBFS) OR TRAP ROCK FROM ONTARIO WITH LIMESTONE COMPRISING THE REMAINING PERCENTAGE.

ITEM 202 - REMOVAL MISC.: REMOVAL OF ABANDONED GAS LINE

THIS ITEM SHALL INCLUDE THE REMOVAL AND DISPOSAL OF THE PREVIOUSLY ABANDONED 4.5" GAS LINE LOCATED UNDER THE NORTH SHOULDER OF STATE ROUTE 84 IN THE PROJECT AREA IF ENCOUNTERED DURING CONSTRUCTION. THE LINE SHALL BE CUT WHERE NECESSARY AND ENDS PLUGGED. ENBRIDGE GAS OHIO (EGO) SHALL BE NOTIFIED PRIOR TO THIS WORK.

BASIS OF PAYMENT: THE CONTRACTOR SHALL INCLUDE ALL LABOR, EQUIPMENT AND MATERIALS NECESSARY TO COMPLETE THIS WORK IN THE UNIT PRICE BID PER LINEAR FOOT FOR ITEM 202 - REMOVAL MISC.: REMOVAL OF ABANDONED GAS LINE.

ITEM 202 - REMOVAL MISC.: REMOVAL OF ABANDONED GAS LINE 176 FT

EROSION CONTROL**SEEDING AND MULCHING**

THE FOLLOWING QUANTITIES ARE PROVIDED TO PROMOTE GROWTH AND CARE OF PERMANENT SEEDING AREAS:

ITEM 659, SOIL ANALYSIS TEST 1 EACH
ITEM 659, TOPSOIL 66 CU. YD.
ITEM 659, SEEDING AND MULCHING, CLASS 1 299 SQ. YD.
ITEM 659, REPAIR SEEDING AND MULCHING 30 SQ. YD.
ITEM 659, INTER-SEEDING 30 SQ. YD.
ITEM 659, COMMERCIAL FERTILIZER 0.14 TON
ITEM 659, LIME 0.13 ACRES
ITEM 659, WATER 2 M. GAL.

THE SEEDING AND MULCHING QUANTITY ABOVE IS PROVIDED IN THIS NOTE FOR INFORMATION ONLY. FOR SEEDING AND MULCHING QUANTITIES, SEE CROSS SECTIONS ON SHEETS P.13-P.16.

SEEDING AND MULCHING SHALL BE APPLIED TO ALL AREAS OF EXPOSED SOIL BETWEEN THE RIGHT-OF-WAY LINES, AND WITHIN THE CONSTRUCTION LIMITS FOR AREAS OUTSIDE THE RIGHT-OF-WAY LINES COVERED BY WORK AGREEMENT OR SLOPE EASEMENT. QUANTITY CALCULATIONS FOR SEEDING AND MULCHING ARE BASED ON LIMITS IDENTIFIED AS NECESSARY IN THE CROSS-SECTIONS. ANY ADDITIONAL AREAS OUTSIDE OF THE AREAS IDENTIFIED IN THE CROSS-SECTIONS THAT ARE DISTURBED BY THE CONTRACTOR TO FACILITATE CONSTRUCTION MUST BE RESTORED IN ACCORDANCE WITH C&MS 107.10 AND CONSIDERED INCIDENTAL TO THE WORK. NO ADDITIONAL COMPENSATION WILL BE MADE FOR THESE AREAS.

CONSERVATION EASEMENT SEEDING

IN ADDITION TO THE REQUIREMENTS OF ODOT C&MS 659, THE FOLLOWING SPECIFICATION SHALL APPLY:

CLASS 6 SEED MIX ONLY SHALL BE USED WITHIN THE LIMITS OF THE CONSERVATION EASEMENT NORTH OF S.R. 84.

THE FOLLOWING QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER:

ITEM 659, SEEDING AND MULCHING, CLASS 6 288 SQ. YD.

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DESIGNER

JMB

REVIEWER

DRP 11/06/24

PROJECT ID

112999

SHEET TOTAL

P.4 29

ROADWAY

CONNECTION BETWEEN EXISTING AND PROPOSED GUARDRAIL

WHEN IT IS NECESSARY TO SPLICE PROPOSED GUARDRAIL TO EXISTING GUARDRAIL, ONLY THE EXISTING GUARDRAIL SHALL BE CUT, DRILLED, OR PUNCHED. THE CONNECTION SHALL BE MADE USING AW-BEAM, BEAM SPLICE AS SHOWN IN AASHTO M 180-12, EXCEPT THE BEAM WASHERS ARE NOT TO BE USED. PAYMENT SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE RESPECTIVE GUARDRAIL ITEMS.

PAVING UNDER GUARDRAIL

THIS OPERATION SHALL INCLUDE PAVING UNDER THE GUARDRAIL USING 441 ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, (449), UNDER GUARDRAIL, AS PER PLAN.

PAVING UNDER GUARDRAIL SHALL CONSIST OF PLACING ITEM 441 TO THE DEPTH SPECIFIED USING ONE OF THE FOLLOWING METHODS:

METHOD A:

1. SET GUARDRAIL POSTS
2. PLACE ITEM 441

METHOD B:

1. PLACE ITEM 441
2. BORE ASPHALT AT POST LOCATIONS (MAY BE OMITTED IF STEEL POSTS ARE USED)
3. SET GUARDRAIL POSTS
4. PATCH AROUND POSTS.

THE MATERIALS USED FOR PATCHING SHALL BE AN ASPHALT CONCRETE APPROVED BY THE ENGINEER. PATCHED AREAS SHALL BE COMPACTED USING EITHER HAND OR MECHANICAL METHODS. FINISHED SURFACES SHALL BE SMOOTH AND SLOPED TO DRAIN AWAY FROM THE POSTS.

ALL EQUIPMENT, MATERIALS AND LABOR REQUIRED TO PERFORM THE WORK OUTLINED ABOVE, WITH THE EXCEPTION OF SETTING GUARDRAIL POSTS, SHALL BE INCLUDED FOR PAYMENT UNDER ITEM 441, ASPHALT CONCRETE, INTERMEDIATE COURSE, TYPE 1, (449), UNDER GUARDRAIL, AS PER PLAN.

ITEM 209 - RESHAPING UNDER GUARDRAIL, AS PER PLAN

THIS ITEM OF WORK SHALL BE USED TO PREPARE PROPOSED AND EXISTING GUARDRAIL RUNS FOR PAVING UNDER GUARDRAIL, INCLUDING THE REMOVAL AND DISPOSAL OF EXISTING ASPHALT UNDER GUARDRAIL.

FILL ALL HOLES REMAINING AFTER REMOVAL OF GUARDRAIL POSTS WITH GRANULAR MATERIAL. DO NOT USE FILL MATERIAL CONTAINING SOD. ALL FILL MATERIAL SHALL BE APPROVED BY THE ENGINEER AND SHALL BE COMPACTED AS DIRECTED BY THE ENGINEER. PAYMENT FOR THE ABOVE IS INCLUDED IN THE APPLICABLE GUARDRAIL ITEM.

IN AREAS WHERE ASPHALT UNDER GUARDRAIL WILL NOT BE REPLACED, THE REMOVED MATERIAL SHALL BE REPLACED WITH COMPACTIBLE GRANULAR MATERIAL CONFORMING TO 703.16 AND PLACED TO GRADE AS APPROVED BY THE ENGINEER. SEED AND MULCH THESE AREAS ACCORDING TO SECTION 659.

PAVEMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT BID PRICE FOR ITEM 209 RESHAPING UNDER GUARDRAIL, AS PER PLAN AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO PERFORM THE WORK.

ITEM 619 - FIELD OFFICE, TYPE B, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF C&MS 619, THE CONTRACTOR SHALL FURNISH AND SET UP A WI-FI ROUTER MEETING THE REQUIREMENTS OF IEEE 802.11AC FOR THE EXCLUSIVE USE OF THE DEPARTMENT.

ALL OTHER FIELD OFFICE ITEMS SUPPLIED SHALL MEET THE REQUIREMENTS OF A TYPE B FIELD OFFICE.

ITEM 619 - FIELD OFFICE, TYPE B, AS PER PLAN 3 MNTH

ENDANGERED BAT SPECIES HABITAT REMOVAL

THE PROJECT IS LOCATED WITHIN THE KNOWN HABITAT RANGES OF THE FEDERALLY ENDANGERED NORTHERN LONG-EARED AND INDIANA BAT, AND THE STATE ENDANGERED LITTLE BROWN AND TRICOLORED BATS. NO TREES SHALL BE REMOVED UNDER THIS PROJECT FROM APRIL 1 THROUGH SEPTEMBER 30. ALL NECESSARY TREE REMOVAL SHALL OCCUR FROM OCTOBER 1 THROUGH MARCH 31. THIS REQUIREMENT IS NECESSARY TO AVOID AND MINIMIZE IMPACTS TO THESE SPECIES AS REQUIRED BY THE ENDANGERED SPECIES ACT AND ORC 1531.25. FOR THE PURPOSES OF THIS NOTE, A TREE IS DEFINED AS A LIVE, DYING, OR DEAD WOODY PLANT, WITH A TRUNK THREE INCHES OR GREATER IN DIAMETER AT A HEIGHT OF 4.5 FEET ABOVE THE GROUND SURFACE, AND WITH A MINIMUM HEIGHT OF 13 FEET.

ASBESTOS NOTIFICATION

A CERTIFIED ASBESTOS HAZARD EVALUATION SPECIALIST SURVEYED THE BRIDGE STRUCTURE SCHEDULED FOR DEMOLITION AND/OR REHABILITATION; THE SURVEY DETERMINED THAT NO ASBESTOS IS PRESENT ON THE BRIDGE STRUCTURE.

ODOT SHALL PROVIDE A COPY OF THE OHIO ENVIRONMENTAL PROTECTION AGENCY (OEPA) NOTIFICATION OF DEMOLITION AND RENOVATION FORM, PARTIALLY COMPLETED AND SIGNED BY THE BRIDGE OWNER, TO THE SUCCESSFUL BIDDER. THE CONTRACTOR SHALL COMPLETE THE FORM AND SUBMIT IT TO ONE OF THE ADDRESSES BELOW AT LEAST TEN (10) WORKING DAYS PRIOR TO THE START OF ANY DEMOLITION AND/OR RENOVATION.

ASBESTOS PROGRAM OHIO EPA, DAPC
P.O. BOX 1049
COLUMBUS, OH 43216-1049

OR

ASBESTOS PROGRAM OHIO EPA, DAPC
50 W. TOWN ST., SUITE 700
COLUMBUS, OH 43215

THE CONTRACTOR SHALL PROVIDE A COPY OF THE COMPLETED FORM TO THE ENGINEER AT LEAST TEN (10) WORKING DAYS PRIOR TO THE START OF ANY DEMOLITION AND/OR RENOVATION. THE FORM SHALL INCLUDE: 1) THE CONTRACTORS NAME AND ADDRESS, 2) THE SCHEDULED DATES FOR THE START AND COMPLETION OF THE BRIDGE REMOVAL AND 3) A DESCRIPTION OF THE PLANNED DEMOLITION WORK AND THE METHOD(S) TO BE USED. COPIES OF THE OEPA FORM AND BRIDGE INSPECTION REPORT ARE AVAILABLE FOR REVIEW AT THE ODOT DISTRICT 12 OFFICE, 5500 TRANSPORTATION BLVD, GARFIELD HEIGHTS, OHIO 44125.

BASIS FOR PAYMENT: THE CONTRACTOR SHALL FURNISH ALL FEES, LABOR, AND MATERIAL NECESSARY TO COMPLETE AND SUBMIT THE OEPA NOTIFICATION FORM. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN ITEM 202 - STRUCTURE REMOVED, AS PER PLAN.

DRAINAGE

ITEM 605 - AGGREGATE DRAINS

LOCATIONS AND LENGTHS OF PROPOSED AGGREGATE DRAINS ARE LISTED BELOW:

STA. 12+25, LT - 10'	STA. 12+89.97, RT - 10'
STA. 12+50, LT - 10'	STA. 13+40, RT - 16.5'
STA. 12+89.97, LT - 10'	STA. 13+65, LT - 10.5'

THE FOLLOWING ESTIMATED QUANTITY IS PROVIDED IN THE GENERAL SUMMARY FOR THE WORK NOTED ABOVE:

ITEM 605 - AGGREGATE DRAINS 67 FT

DESIGN AGENCY



OSBORN ENGINEERING
1111 Superior Avenue, Suite 2100
Cleveland, OH 44114
216.961.5000 www.osborneng.com

DESIGNER

JMB

REVIEWER

DRP 11/06/24

PROJECT ID

112999

SHEET TOTAL

P.5 29

ITEM 614 - MAINTAINING TRAFFIC

A MINIMUM OF ONE LANE OF TRAFFIC IN EACH DIRECTION SHALL BE MAINTAINED AT ALL TIMES, EXCEPT FOR A PERIOD NOT TO EXCEED 90 CONSECUTIVE CALENDAR DAYS, WHEN THROUGH TRAFFIC MAY BE DETOURED AS SHOWN ON SHEET P.7. A DISINCENTIVE SHALL BE ASSESSED IN THE AMOUNT OF \$ 2,000 PER DAY FOR EACH CALENDAR DAY THE ROADWAY REMAINS CLOSED TO TRAFFIC BEYOND THE SPECIFIED LIMIT.

THROUGHOUT THE DURATION OF THE PROJECT, THE CONTRACTOR SHALL NOTIFY THE DISTRICT OFFICE AND THE PROJECT ENGINEER IN WRITING OF ALL TRAFFIC RESTRICTIONS AND UPCOMING MAINTENANCE OF TRAFFIC CHANGES. THE CONTRACTOR SHALL ENSURE THE WRITTEN NOTIFICATION IS SUBMITTED IN A TIMELY MANNER TO ALLOW THE DISTRICT TO MEET THE REQUIRED TIME FRAMES SET FORTH IN THE TABLE BELOW. NOTIFICATIONS SHALL BE SENT TO THE EMAIL ADDRESS D12.Detour.Notification@dot.ohio.gov AND THE PROJECT ENGINEER PRIOR TO THE PHYSICAL SETUP OF ANY APPLICABLE NOTIFICATION SIGNS OR MESSAGE BOARDS. UPON RECEIPT OF NOTIFICATION BY THE CONTRACTOR, THE DISTRICT OFFICE WILL ARRANGE NOTIFICATION OF THE FOLLOWING ORGANIZATIONS, IN WRITING, IN ACCORDANCE WITH THE BELOW TABLE:

- LAKE COUNTY ENGINEER'S OFFICE
- LAKE COUNTY SHERIFF'S OFFICE
- MADISON FIRE DISTRICT
- MADISON LOCAL SCHOOL DISTRICT
- ODOT DISTRICT TWELVE OFFICE OF ROADWAY SERVICES
- ODOT DISTRICT TWELVE PUBLIC INFORMATION OFFICE
- SPECIAL HAULING PERMITS SECTION
(Hauling.Permits@dot.ohio.gov)
- MADISON TOWNSHIP
- MADISON VILLAGE
- CITY OF GENEVA
- HARPERSFIELD TOWNSHIP
- ASHTABULA COUNTY ENGINEERS OFFICE
- ODOT DISTRICT 4

INFORMATION SHOULD INCLUDE, BUT IS NOT LIMITED TO, ALL CONSTRUCTION ACTIVITIES THAT IMPACT OR INTERFERE WITH TRAFFIC AND SHALL LIST THE SPECIFIC LOCATION, TYPE OF WORK, ROAD STATUS, DATE AND TIME OF RESTRICTION, NUMBER OF LANES MAINTAINED, NUMBER OF LANES CLOSED, MINIMUM VERTICAL CLEARANCE, MINIMUM WIDTH OF DRIVEABLE PAVEMENT, DETOUR ROUTES, IF APPLICABLE, AND ANY OTHER INFORMATION REQUESTED BY THE PROJECT ENGINEER.

NOTIFICATION TIME TABLE

ITEM	DURATION OF CLOSURE	NOTICE LEAD TIME REQUIRED*
RAMP AND/OR ROAD CLOSURES	TWO WEEKS OR GREATER	21 CALENDAR DAYS
	12 HOURS TO TWO WEEKS	14 CALENDAR DAYS
	12 HOURS OR LESS	4 BUSINESS DAYS
LANE CLOSURES AND RESTRICTIONS	TWO WEEKS OR GREATER	21 CALENDAR DAYS
	12 HOURS TO TWO WEEKS	14 CALENDAR DAYS
START OF CONSTRUCTION AND TRAFFIC PATTERN CHANGES	N/A	14 CALENDAR DAYS PRIOR TO IMPLEMENTATION

* = PRIOR TO CLOSURE DATE, UNLESS NOTED OTHERWISE

ANY UNFORESEEN CONDITIONS NOT SPECIFIED IN THE PLANS REQUIRING TRAFFIC RESTRICTIONS SHALL ALSO BE REPORTED TO THE PROJECT ENGINEER USING THE NOTIFICATION TIME TABLE.

NOTICE OF CLOSURE SIGNS (W20-H13) SHALL BE ERECTED BY THE CONTRACTOR PRIOR TO THE SCHEDULED ROAD OR RAMP CLOSURE ON THE RIGHT-HAND SIDE OF THE ROAD FACING TRAFFIC 14 CALENDAR DAYS PRIOR TO THE CLOSURE. THEY SHALL BE PLACED SO AS NOT TO INTERFERE WITH THE VISIBILITY OF ANY OTHER TRAFFIC CONTROL SIGNS. ON ROADWAYS, THEY SHOULD BE ERECTED AT OR NEAR THE POINT OF CLOSURE.

THE SIGN SHALL DISPLAY THE DATE OF THE CLOSURE IN MM-DD FORMAT AND THE NUMBER OF DAYS OF THE CLOSURE. THE LAST LINE OF THE W20-H13 SIGN LISTS A PHONE NUMBER WHICH A MOTORIST MAY CALL FOR ADDITIONAL INFORMATION. THIS IS TO BE A SPECIFIC OFFICE WITHIN THE DISTRICT RATHER THAN THE GENERAL SWITCHBOARD NUMBER.

ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH C&MS 614 AND OTHER APPLICABLE PORTIONS OF THE SPECIFICATIONS, AS WELL AS THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614, MAINTAINING TRAFFIC, UNLESS SEPARATELY ITEMIZED IN THE PLAN.

DETOUR SIGNING

ADVANCE TRAFFIC SIGNING AND SUPPORTS, INCLUDING DETOUR SIGNING, CONSTRUCTION WORK ZONE APPROACH SIGNING, BARRICADES, AND SIGNS ON BARRICADES SHOWN ON THE PLANS BEYOND THE WORK LIMITS SHALL BE FURNISHED, ERECTED, MAINTAINED, AND SUBSEQUENTLY REMOVED BY THE CONTRACTOR, AND ALL ASSOCIATED COST SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614, DETOUR SIGNING.

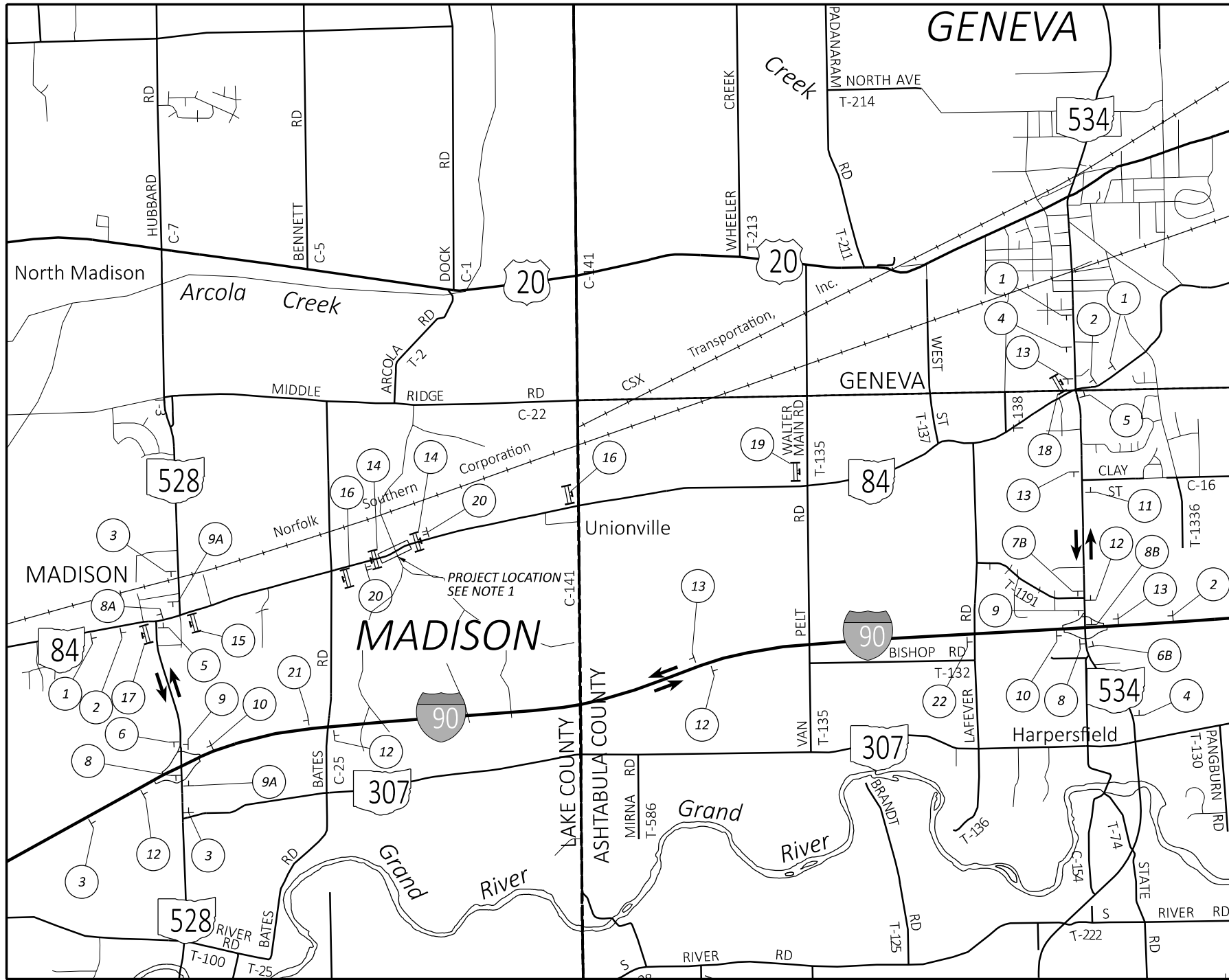
ACCESS TO ADJACENT PROPERTY

ACCESS TO ADJACENT PROPERTIES WITHIN AND ADJACENT TO THE WORK LIMITS SHALL BE MAINTAINED BY THE CONTRACTOR AT ALL TIMES, AS PER 614.02(a).

DESIGN AGENCY



DESIGNER	JMB
REVIEWER	DRP
PROJECT ID	112999
SHEET	P.6
TOTAL	29



1 ROAD CLOSED AHEAD W20-3-36	2 DETOUR AHEAD W20-2-36	3 EAST 84 DETOUR AHEAD M3-2-24 M1-5-24-2 W20-2-36	4 WEST 84 DETOUR AHEAD M3-4-24 M1-5-24-2 W20-2-36	5 END DETOUR M4-8a-24
6 DETOUR 84 Left arrow M4-8-24 M1-5-24-2 M5-1-21	7 DETOUR 84 Right arrow M4-8-24 M1-5-24-2 M5-1-21	8 DETOUR 84 Left arrow M4-8-24 M1-5-24-2 M6-1-21	9 DETOUR 84 Right arrow M4-8-24 M1-5-24-2 M6-1-21	10 DETOUR 84 Up-right arrow M4-8-24 M1-5-24-2 M6-2-21
11 DETOUR 84 Up arrow M4-8-24 M1-5-24-2 M6-3-21	12 DETOUR EAST 84 Up arrow M4-8-24 M3-2-24 M1-5-24-2 M6-3-21	13 DETOUR WEST 84 Up arrow M4-8-24 M3-4-24 M1-5-24-2 M6-3-21	14 ROAD CLOSED R11-2-48	15 BRIDGE OUT 1.25 MILES AHEAD LOCAL TRAFFIC ONLY R11-3b-60 W/ TYPE A FLASHING LIGHTS
16 ROAD CLOSED LOCAL TRAFFIC ONLY R11-3-66 W/ TYPE A FLASHING LIGHTS	17 ROAD CLOSED 1 MILES AHEAD LOCAL TRAFFIC ONLY DETOUR arrow R11-3a-60 M4-10R-48	18 ROAD CLOSED 3 MILES AHEAD LOCAL TRAFFIC ONLY DETOUR arrow R11-3a-60 M4-10L-48	A EAST M3-2-24	B WEST M3-4-24
19 ROAD CLOSED 1 MILES AHEAD LOCAL TRAFFIC ONLY R11-3a-60	20 BRIDGE WILL BE CLOSED * FOR * DAYS INFO: W20-H13-60 * = TO BE INSERTED BY CONTRACTOR (NOT TO EXCEED 90 CONSECUTIVE CALENDAR DAYS)	21 DETOUR 84 Up-right arrow EXIT 212 528 Madison Thompson 1/2 MILE M4-8-24 M1-5-24-2 M5-2-21 (MOUNT ON EX. SIGN)	22 DETOUR 84 Up-right arrow EXIT 218 534 Geneva 1/2 MILE HOSPITAL M4-8-24 M1-5-24-2 M5-2-21 (MOUNT ON EX. SIGN)	

LEGEND
 DETOUR ROUTE

DETOUR MAP
NOT TO SCALE

- NOTES**
- ROAD CLOSURE USING TYPE III BARRICADES, IN CONFORMANCE WITH ODOT STANDARD CONSTRUCTION DRAWING MT-101.60.
 - CONTRACTOR TO MAINTAIN ACCESS TO ADJACENT PROPERTIES, INCLUDING FIELD DRIVES, AT ALL TIMES DURING CONSTRUCTION.

LAK-084-30.86

MODEL: Sheet PAPER: 34x22 (in.) DATE: 10/31/2024 TIME: 2:55:29 PM USER: J.BROWN
 P:\ODOT\2021\0404_000_District_12_LAK-084-30.86\112999\400-Engineering\Roadway\Sheets\112999_GS001.dgn

STATION		SIDE	LENGTH (L) FT	AVERAGE WIDTH TO E/P (W1) FT	SURFACE AREA TO E/P (A1) A1=LxW SF	AVERAGE WIDTH FROM E/P TO E/P UNDER GUARDRAIL (W2) FT	SURFACE AREA TO E/P UNDER GUARDRAIL (A2) A2=LxW2 SF	202	204	301	304	407	441		441							
FROM	TO							PAVEMENT REMOVED SY	SUBGRADE COMPACTION SY	ASPHALT CONCRETE BASE, PG64-22. (449) CY	AGGREGATE BASE CY	TACK COAT GAL	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (449), AS PER PLAN, PG70-22M CY	SAFETY EDGE CY	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, (449), (UNDER GUARDRAIL), AS PER PLAN CY							
11+95.00	13+71.14	LT	176.14	15.05	2650.91	4.97	875.42	391.81														
11+95.00	13+71.14	RT	176.14	14.85	2615.68	4.98	877.18	388.10														
11+95.00	12+25.00	LT	30.00																			
Asphalt Concrete Courses				14.46	433.80	4.46	133.80					5.31	4.02	0.07	1.24							
Asphalt Base Courses				15.04	451.30					11.15		2.76										
Aggregate Base Courses				15.79	473.80						8.78											
Subgrade				15.96	478.80					53.20												
11+95.00	12+25.00	RT	30.00																			
Asphalt Concrete Courses				14.32	429.60	4.47	134.10					5.26	3.98	0.07	1.25							
Asphalt Base Courses				14.90	447.10					11.04		2.74										
Aggregate Base Courses				15.65	469.60						8.70											
Subgrade				15.82	474.60					52.74												
12+25.00	13+11.14	LT	86.14																			
Asphalt Concrete Courses				14.00	1205.96	4.00	344.56					14.74	11.17	0.2	3.2							
Asphalt Base Courses				14.58	1256.21					31.02		7.68										
Aggregate Base Courses				15.33	1320.81						24.46											
Subgrade				15.50	1335.17					148.36												
12+25.00	13+11.14	RT	86.14																			
Asphalt Concrete Courses				14.00	1205.96	4.00	344.56					14.74	11.17	0.2	3.2							
Asphalt Base Courses				14.58	1256.21					31.02		7.68										
Aggregate Base Courses				15.33	1320.81						24.46											
Subgrade				15.50	1335.17					148.36												
13+11.14	13+71.14	LT	60.00																			
Asphalt Concrete Courses				14.59	875.40	4.51	270.60					10.7	8.11	0.14	2.51							
Asphalt Base Courses				15.17	910.40					22.48		5.57										
Aggregate Base Courses				15.92	955.40						17.70											
Subgrade				16.09	965.40					107.27												
13+11.14	13+71.14	RT	60.00																			
Asphalt Concrete Courses				14.54	872.40	4.51	270.60					10.67	8.08	0.14	2.51							
Asphalt Base Courses				15.12	907.40					22.41		5.55										
Aggregate Base Courses				15.87	952.40						17.64											
Subgrade				16.04	962.40					106.94												
SUBTOTALS								779.91		616.87		129.12	101.74	93.40	46.53	0.82	13.91					
TOTALS CARRIED TO GENERAL SUMMARY								780		617		130	102	94		48		14				

PAVEMENT SUBSUMMARY

DESIGN AGENCY



1111 Superior Avenue Suite 2100
 Cleveland, OH 44114
 (216) 861-0200 www.osborneng.com

DESIGNER
JMB

REVIEWER
 DRP 11/06/24

PROJECT ID
 112999

SHEET TOTAL
 P.10 29

LAK-084-30.86

MODEL: Sheet PAPER SIZE: 34x22 (in.) DATE: 10/31/2024 TIME: 2:56:04 PM USER: JBROWN
 P:\ODOT\J2021\0404_000_District_12_LAK-084-30.86\112999\400-Engineering\Roadway\Sheets\112999_GS002.dgn

REF. NO.	SHEET NO.	STATION		SIDE	LENGTH FT	AREA SQ FT	202		209		606		611	611		626			
		FROM	TO				PIPE REMOVED, 24" AND UNDER FT	GUARDRAIL REMOVED FT			RESHAPING UNDER GUARDRAIL, AS PER PLAN STA	GUARDRAIL, TYPE MGS WITH LONG POSTS FT							
DA-1	P.12	13+11.05		LT															
DR-1	P.12	12+80.40	13+11.05	LT			31							1					
D-1	P.12	12+84.47	13+11.05	LT									25						
GR-1	P.12	11+89.12	13+76.19	RT	187.5														
GR-2	P.12	11+89.18	13+77.04	LT	187.5														
G-1	P.12	11+89.12	13+76.19	RT	187.5			2		175	12.5					2			
G-2	P.12	11+89.18	13+77.04	LT	187.5			2		175	12.5					2			
TOTALS CARRIED TO GENERAL SUMMARY							31	375	4	350	25	25	1	4					

ROADWAY SUBSUMMARY

DESIGN AGENCY

OSBORN ENGINEERING
 1111 Superior Avenue Suite 2100
 Cleveland, OH 44114
 (216) 861-5000 www.osborneng.com

DESIGNER
JMB

REVIEWER
 DRP 11/06/24

PROJECT ID
 112999

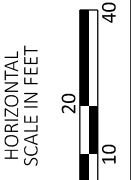
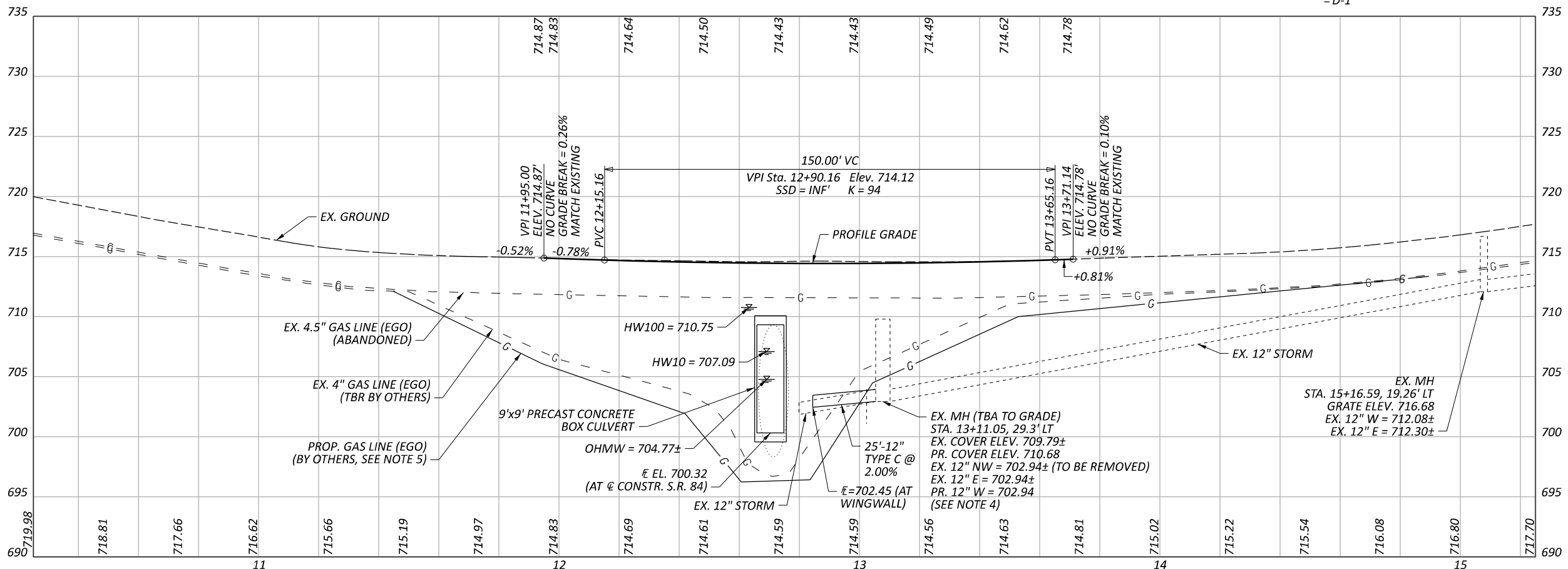
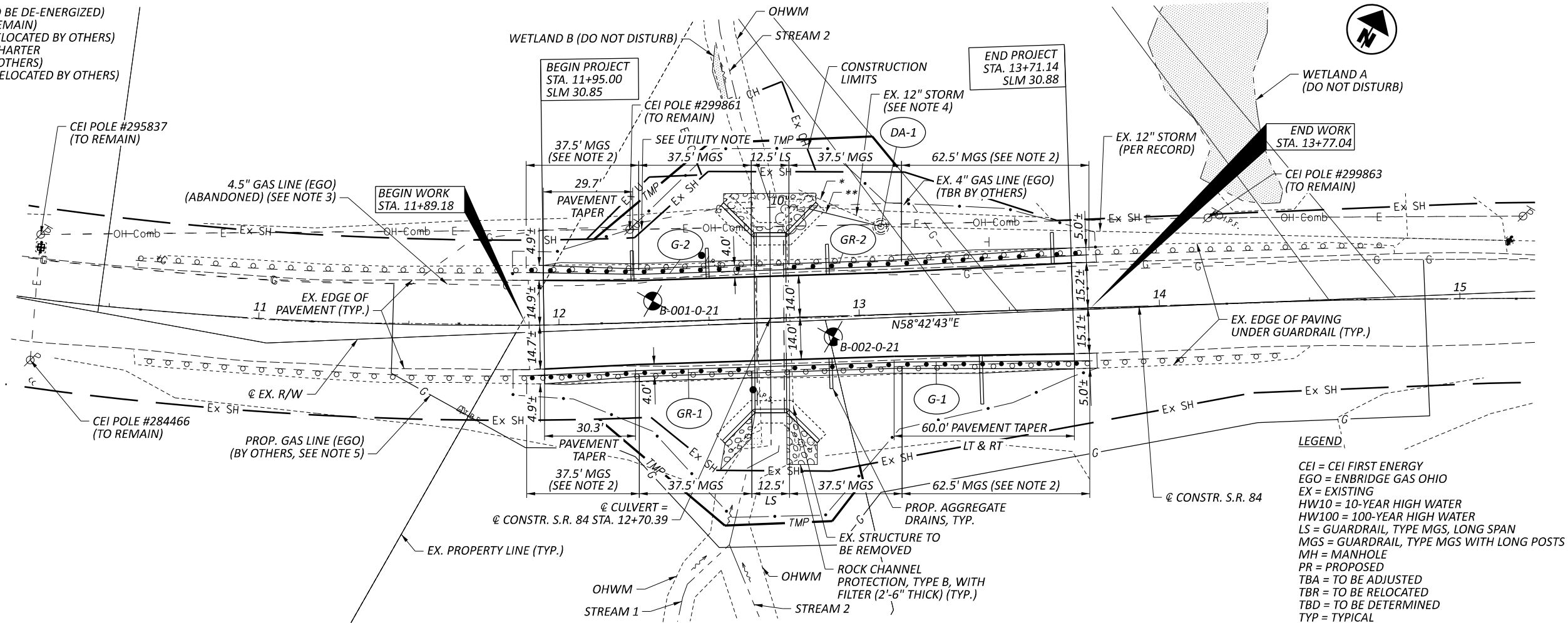
SHEET TOTAL
 P.11 | 29

UTILITY NOTE

EXISTING OVERHEAD LINES INCLUDE:
 -ELECTRIC (5000 VOLT) - CEI (TO REMAIN AND BE DE-ENERGIZED)
 -ELECTRIC (240 VOLT, INSULATED) - CEI (TO REMAIN)
 -TELECOM (1 FIBER) - EVERSTREAM (TO BE RELOCATED BY OTHERS)
 -TELECOM (1 BUNDLE OF 2 COAX CABLES) - CHARTER COMMUNICATIONS (TO BE RELOCATED BY OTHERS)
 -TELECOM (2 FIBER) - WINDSTREAM (TO BE RELOCATED BY OTHERS)

NOTES

- SEE SHEETS P.19-P.22 FOR CULVERT DETAILS.
- PROPOSED GUARDRAIL IS TO USE SPECIFIED LENGTH TO TAPER BACK TO EXISTING GUARDRAIL OFFSET AND CONNECT TO EXISTING GUARDRAIL.
- IF THE 4.5" ABANDONED GAS LINE IS ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER AND ENBRIDGE GAS OHIO IMMEDIATELY. UPON APPROVAL OF ENBRIDGE GAS OHIO, THE CONTRACTOR SHALL REMOVE THE ABANDONED LINE AS NOTED ON SHEET P.4.
- EXISTING STORM STRUCTURE COVER ELEVATION AND PIPE INVERTS SHOWN WERE FIELD LOCATED. CONTRACTOR SHALL CONFIRM ELEVATIONS AND INVERTS IN THE FIELD. PROPOSED 12" CONDUIT INVERT SHALL BE LOCATED AT THE SAME ELEVATION AS EXISTING AND REUSE THE EXISTING PIPE HOLE IN THE MANHOLE WALL.
- ENBRIDGE GAS OHIO (EGO) WILL BE RELOCATING THE PORTION OF THE EXISTING 4" GAS LINE ON THE NORTH SIDE OF S.R. 84 TO THE SOUTH SIDE OF S.R. 84 AS SHOWN. THE LOCATION SHOWN ON THE PLANS IS APPROXIMATE AND BASED ON PRELIMINARY DESIGN PLANS FROM ENBRIDGE. ANTICIPATED DEPTH IS 3 FEET. THE LOCATION IS FOR REFERENCE ONLY, THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING ACTUAL LOCATION WITH EGO PRIOR TO CONSTRUCTION. RELOCATION OF THE GAS LINE IS SCHEDULED TO BE COMPLETED IN MARCH 2025.



**PLAN AND PROFILE S.R. 84
 STA. 10+00 TO STA. 15+00**

DESIGN AGENCY

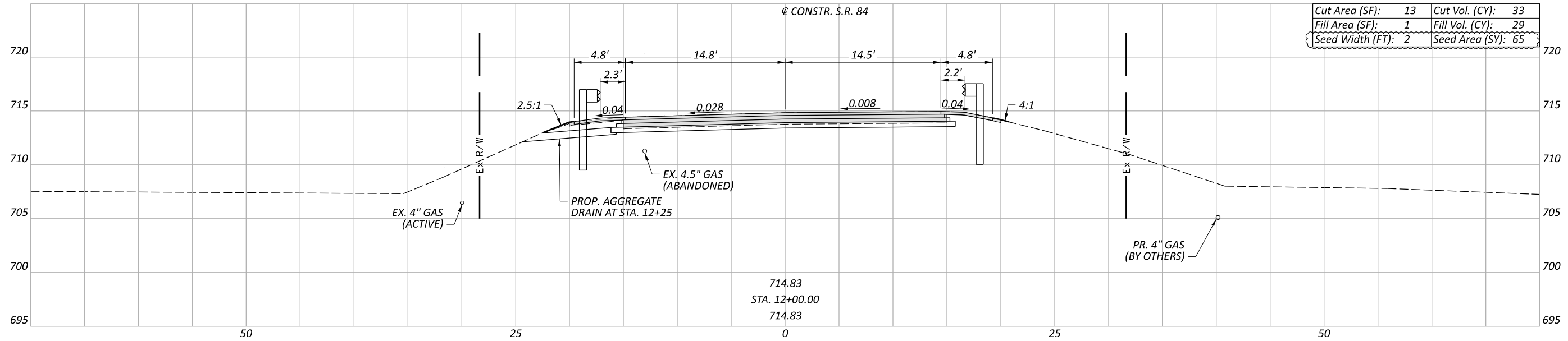
 OSBORN ENGINEERING
 11111 Superior Avenue, Suite 2100
 Cleveland, OH 44114
 (216) 961-2200 www.osborneng.com

DESIGNER
 JMB

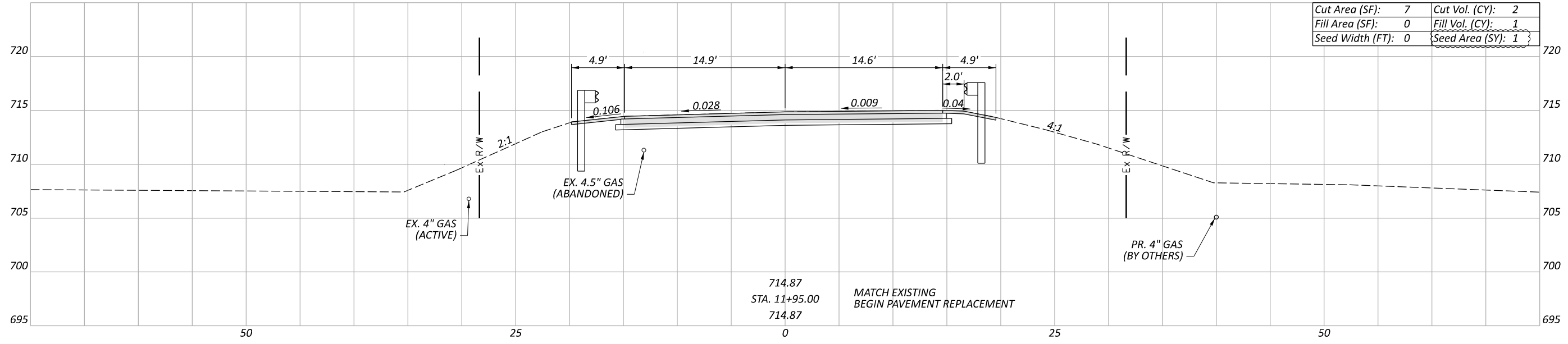
REVIEWER
 DRP 11/06/24

PROJECT ID
 112999

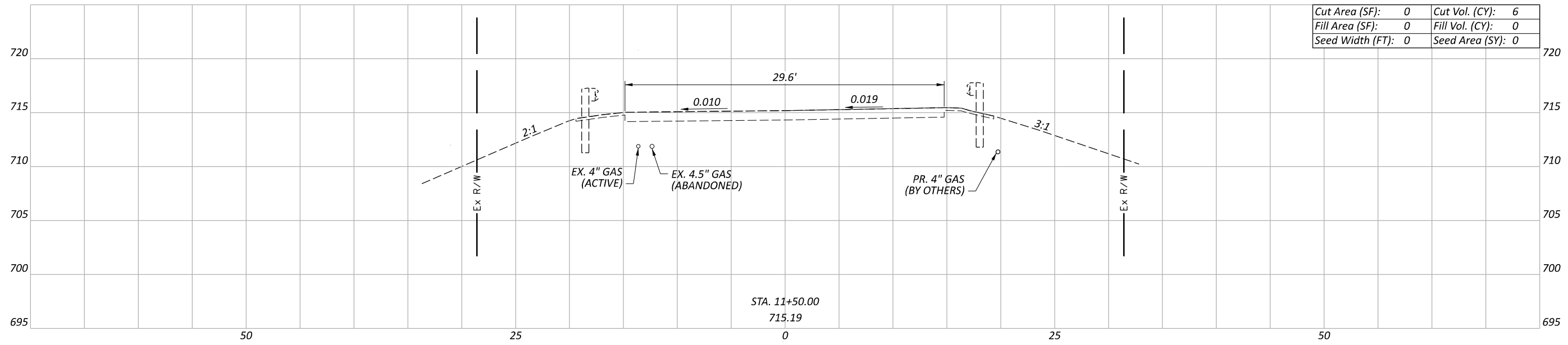
SHEET TOTAL
 P.12 29



Cut Area (SF):	13	Cut Vol. (CY):	33
Fill Area (SF):	1	Fill Vol. (CY):	29
Seed Width (FT):	2	Seed Area (SY):	65



Cut Area (SF):	7	Cut Vol. (CY):	2
Fill Area (SF):	0	Fill Vol. (CY):	1
Seed Width (FT):	0	Seed Area (SY):	1



Cut Area (SF):	0	Cut Vol. (CY):	6
Fill Area (SF):	0	Fill Vol. (CY):	0
Seed Width (FT):	0	Seed Area (SY):	0

NOTES:
 1. SEEDING QUANTITIES ON THIS SHEET SHALL BE PAID UNDER ITEM 659, SEEDING AND MULCHING, CLASS 1

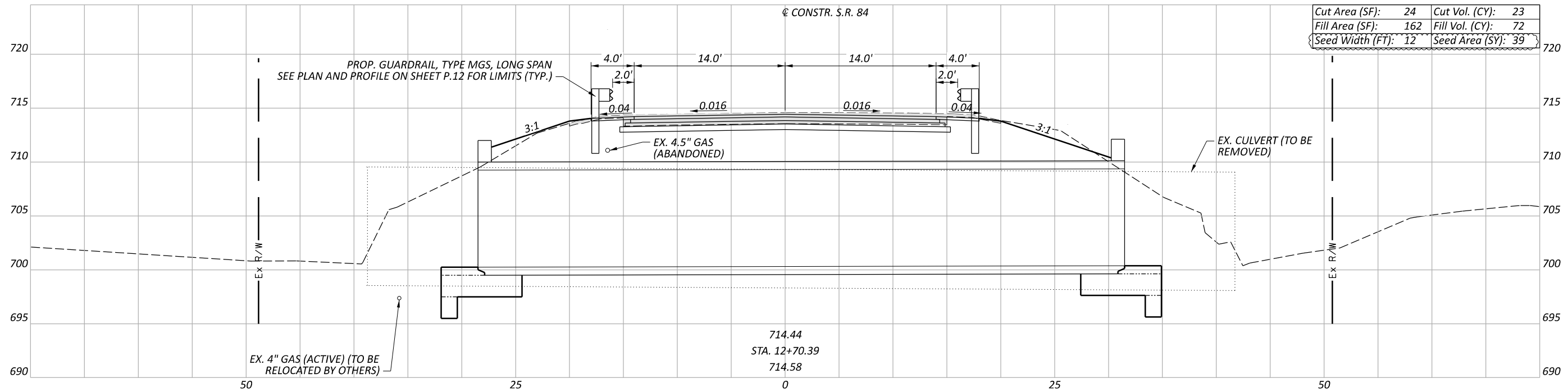
ITEM 202 - PAVEMENT REMOVED

Sheet Totals			112999
Seeding	Cut	Fill	TOTAL
66	41	30	P.13 29

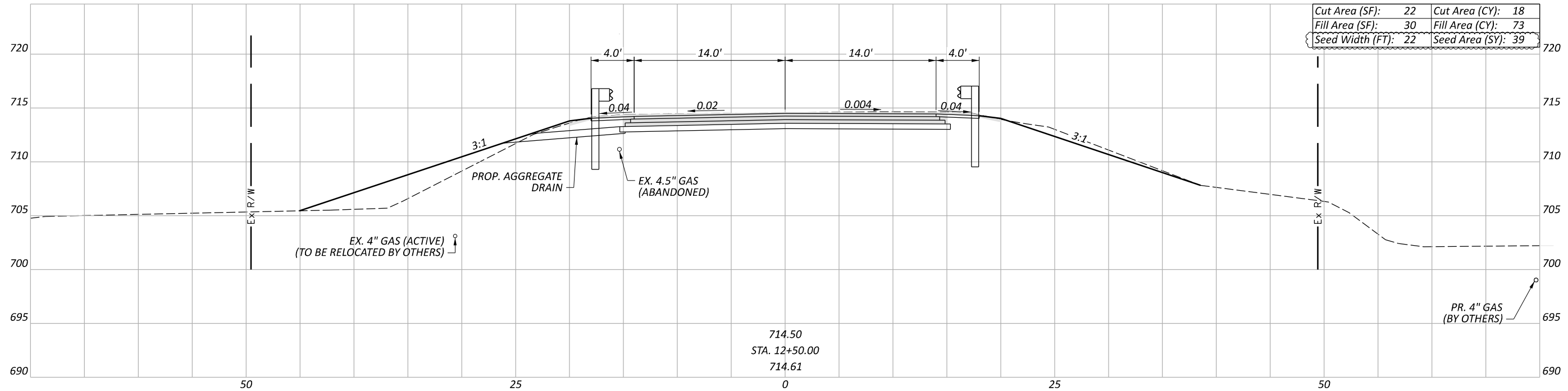
CROSS SECTIONS
 STA. 11+50.00 TO STA. 12+00.00

DESIGN AGENCY

 OSBORN ENGINEERING
 1111 Superior Avenue Suite 2100
 Cleveland, OH 44114
 (216) 861-0200 www.osborneng.com
 DESIGNER
 JMB
 REVIEWER
 DRP 11/06/24
 PROJECT ID
 112999



Cut Area (SF):	24	Cut Vol. (CY):	23
Fill Area (SF):	162	Fill Vol. (CY):	72
Seed Width (FT):	12	Seed Area (SY):	39



Cut Area (SF):	22	Cut Area (CY):	18
Fill Area (SF):	30	Fill Area (CY):	73
Seed Width (FT):	22	Seed Area (SY):	39

NOTES:
 1. SEEDING QUANTITIES ON THIS SHEET SHALL BE PAID UNDER ITEM 659, SEEDING AND MULCHING, CLASS 1.

ITEM 202 - PAVEMENT REMOVED

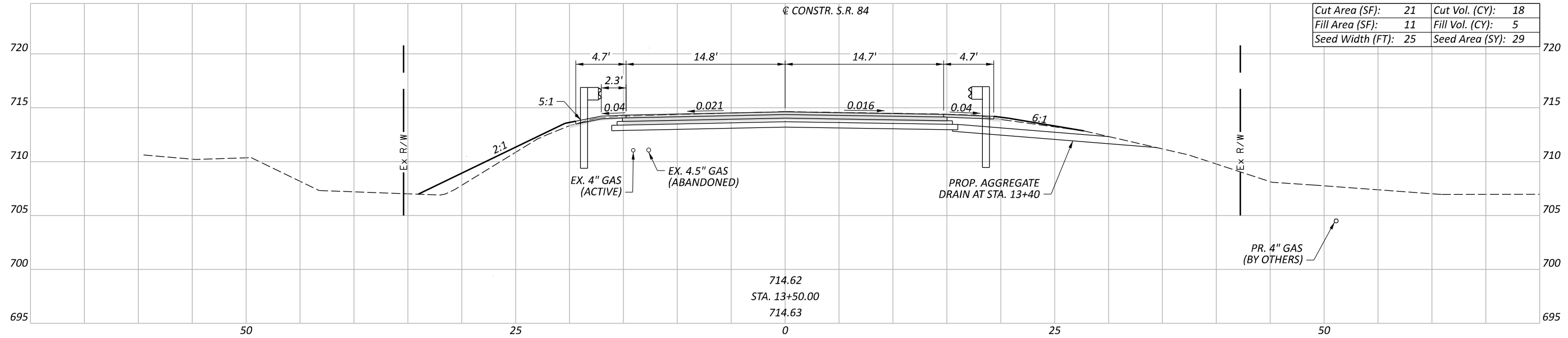
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Seeding	Cut	Fill	SHEET TOTAL
78	41	145	P.14 29

CROSS SECTIONS
 STA. 12+50.00 TO STA. 12+70.39

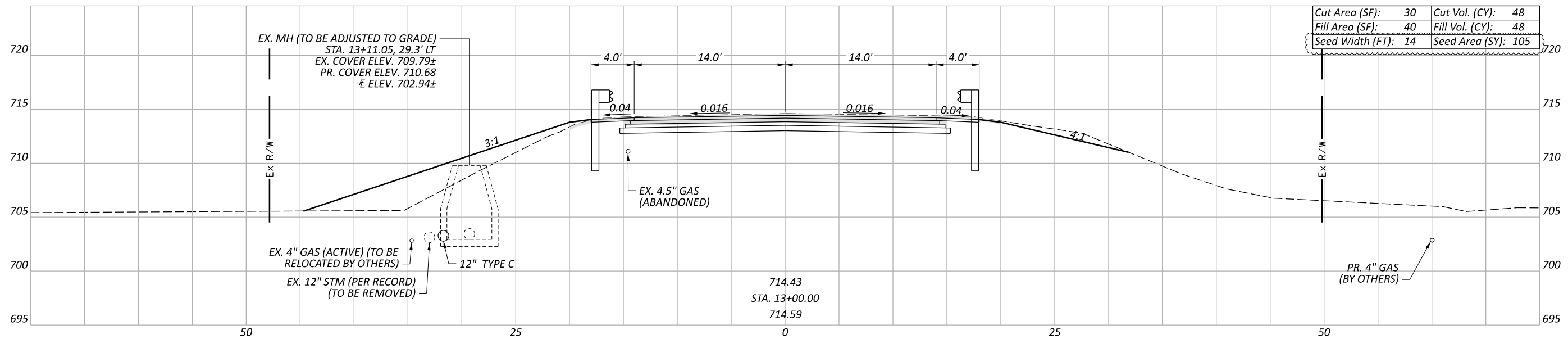


DESIGN AGENCY
OSBORN ENGINEERING
 1111 Superior Avenue Suite 2100
 Cleveland, OH 44114
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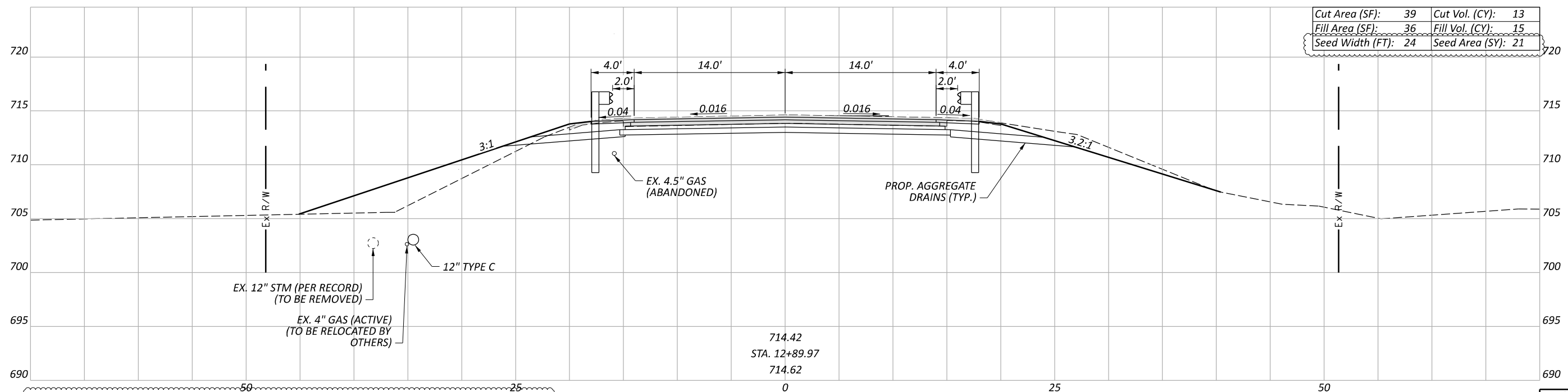
DESIGNER
JMB
 REVIEWER
 DRP 11/06/24
 PROJECT ID
 112999



Cut Area (SF):	21	Cut Vol. (CY):	18
Fill Area (SF):	11	Fill Vol. (CY):	5
Seed Width (FT):	25	Seed Area (SY):	29



Cut Area (SF):	30	Cut Vol. (CY):	48
Fill Area (SF):	40	Fill Vol. (CY):	48
Seed Width (FT):	14	Seed Area (SY):	105



Cut Area (SF):	39	Cut Vol. (CY):	13
Fill Area (SF):	36	Fill Vol. (CY):	15
Seed Width (FT):	24	Seed Area (SY):	21

NOTES:
 1. SEEDING QUANTITIES ON THIS SHEET SHALL BE PAID UNDER ITEM 659, SEEDING AND MULCHING, CLASS 1.

ITEM 202 - PAVEMENT REMOVED

Sheet Totals			112999
Seeding	Cut	Fill	SHEET TOTAL
155	79	68	P.15 29

CROSS SECTIONS
 STA. 12+89.97 TO STA. 13+50.00

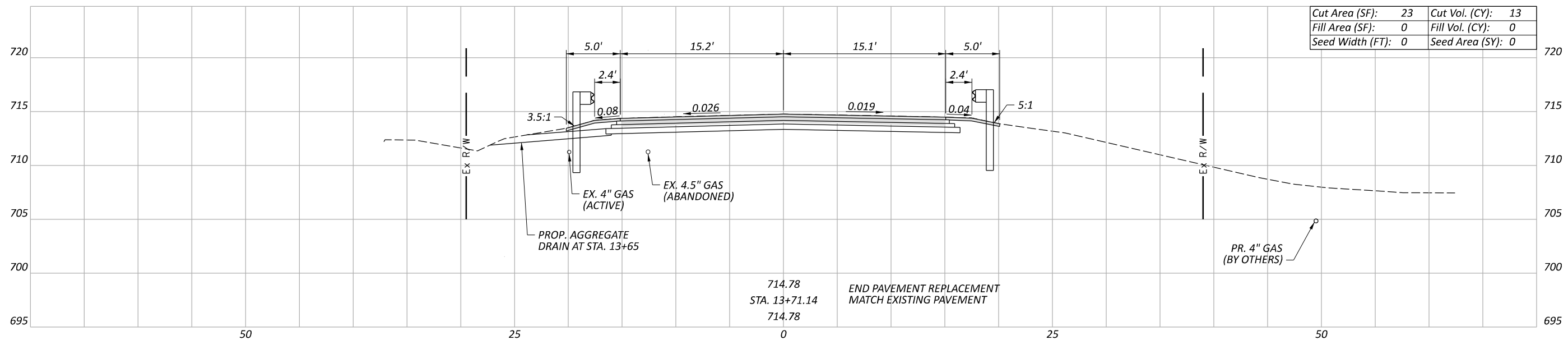
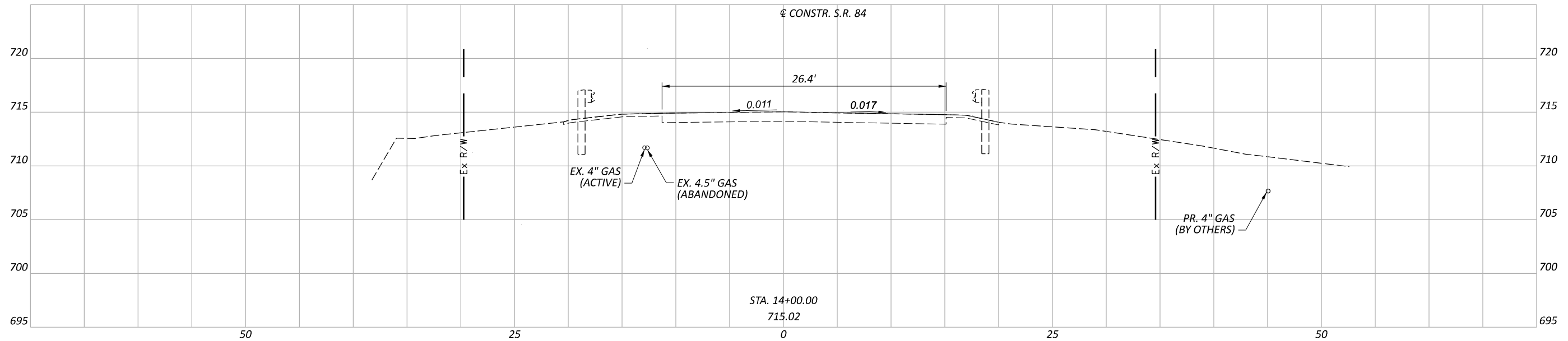
DESIGN AGENCY

 OSBORN ENGINEERING
 11111 Superior Avenue Suite 2100
 Cleveland, OH 44114
 (216) 881-0200 www.osborneng.com

DESIGNER
 JMB

REVIEWER
 DRP 11/06/24

PROJECT ID
 112999



Cut Area (SF):	23	Cut Vol. (CY):	13
Fill Area (SF):	0	Fill Vol. (CY):	0
Seed Width (FT):	0	Seed Area (SY):	0

ITEM 202 - PAVEMENT REMOVED

Sheet Totals			112999	
Seeding	Cut	Fill	SHEET	TOTAL
0	13	0	P.16	29

CROSS SECTIONS
 STA. 13+71.14 TO STA. 14+00.00

DESIGN AGENCY



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DESIGNER

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REVIEWER

DRP 11/06/24

PROJECT ID

112999

S.R. 84 PAVEMENT ELEVATION TABLE

WESTBOUND PAVEMENT			S.R. 84 PROFILE GRADE			EASTBOUND PAVEMENT			WB G RATE	EB G RATE	REMARKS
PROPOSED PAVEMENT WIDTH	PROPOSED EDGE OF PAVEMENT ELEVATION	PROPOSED PAVEMENT CROSS-SLOPE	CENTERLINE STATION	PROFILE GRADE ELEVATION	LONGITUDINAL SLOPE	PROPOSED PAVEMENT CROSS-SLOPE	PROPOSED EDGE OF PAVEMENT ELEVATION	PROPOSED PAVEMENT WIDTH			
14.85	715.04	-0.95%	11+50.00	715.19	-0.86%	1.90%	715.47	14.76			
15.07	714.72	-1.66%	11+75.00	714.97	-0.86%	1.67%	715.21	14.61			
14.91	714.45	-2.78%	11+95.00	714.87	-0.52%	0.94%	715.00	14.62	G = 398.85	G = 185.44	MATCH EXISTING - BEGIN PAVEMENT REPLACEMENT
14.82	714.42	-2.78%	12+00.00	714.83	-0.78%	0.82%	714.95	14.46			END PAVEMENT TAPER, LT & RT
14.00	714.30	-2.40%	12+25.00	714.64	-0.76%	0.21%	714.67	14.00			CENTERLINE OF CULVERT
14.00	714.22	-2.00%	12+50.00	714.50	-0.55%	-0.39%	714.45	14.00			
14.00	714.21	-1.60%	12+70.39	714.44	-0.30%	-1.60%	714.21	14.00			
14.00	714.21	-1.60%	12+75.00	714.43	-0.17%	-1.60%	714.21	14.00			
14.00	714.20	-1.60%	13+00.00	714.43	-0.01%	-1.60%	714.20	14.00			
14.00	714.22	-1.60%	13+11.14	714.45	0.18%	-1.60%	714.22	14.00	G = 366.30	G = 391.02	BEGIN PAVEMENT TAPER, LT & RT
14.27	714.24	-1.78%	13+25.00	714.49	0.31%	-1.60%	714.26	14.25			
14.76	714.31	-2.10%	13+50.00	714.62	0.52%	-1.60%	714.38	14.70			END PAVEMENT REPLACEMENT - MATCH EXISTING
15.17	714.38	-2.62%	13+71.14	714.78	0.76%	-1.94%	714.49	15.07			
15.16	714.43	-2.51%	13+75.00	714.81	0.78%	-1.97%	714.51	15.09			
15.01	714.82	-1.35%	14+00.00	715.02	0.84%	-1.71%	714.76	15.11			

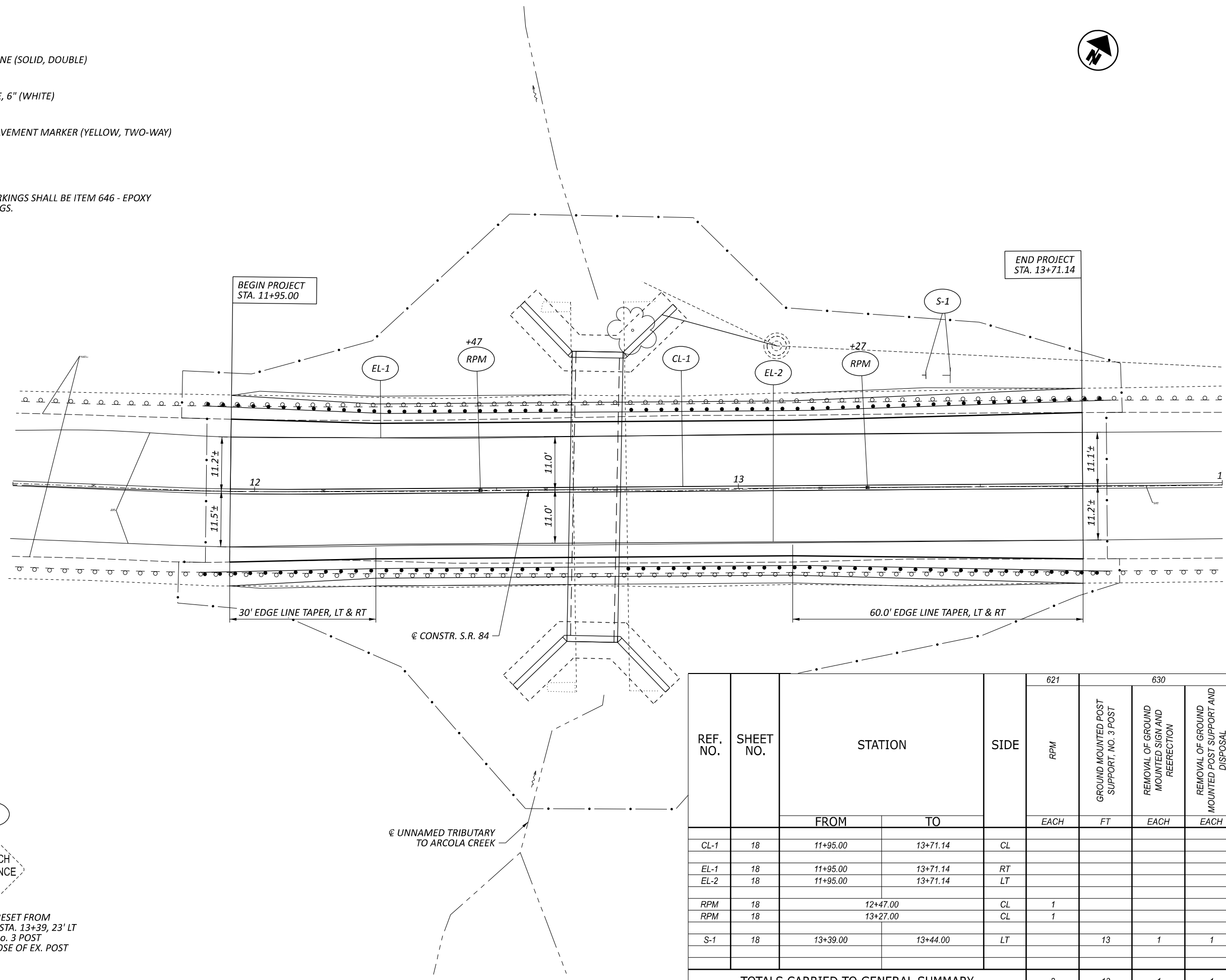
LAK-084-30.86

MODEL: CLP_CONSTR. S.R. 84 PAPER SIZE: 34x22 (in.) DATE: 10/31/2024 TIME: 3:09:26 PM USER: JBROWN
 P:\ODOT\20210404_000_District_12_LAK-084-3086\112999\400-Engineering\Traffic\Sheets\112999_TP001.dgn

- LEGEND**
- CL CENTER LINE (SOLID, DOUBLE)
 - EL EDGE LINE, 6" (WHITE)
 - RPM RAISED PAVEMENT MARKER (YELLOW, TWO-WAY)

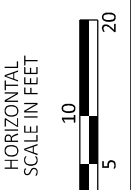
NOTES

1. ALL PAVEMENT MARKINGS SHALL BE ITEM 646 - EPOXY PAVEMENT MARKINGS.



REMOVE AND RESET FROM STA. 13+44, 23' LT TO STA. 13+39, 23' LT
 INSTALL ON No. 3 POST
 REMOVE AND DISPOSE OF EX. POST

REF. NO.	SHEET NO.	STATION		SIDE	621		630		646	
		FROM	TO		RPM	GROUND MOUNTED POST SUPPORT, NO. 3 POST	REMOVAL OF GROUND MOUNTED SIGN AND REERECTION	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	EDGE LINE, 6" (WHITE)	CENTER LINE (SOLID, DOUBLE)
					EACH	FT	EACH	EACH	MILE	MILE
CL-1	18	11+95.00	13+71.14	CL						0.04
EL-1	18	11+95.00	13+71.14	RT					0.04	
EL-2	18	11+95.00	13+71.14	LT					0.04	
RPM	18	12+47.00		CL	1					
RPM	18	13+27.00		CL	1					
S-1	18	13+39.00	13+44.00	LT		13	1	1		
TOTALS CARRIED TO GENERAL SUMMARY					2	13	1	1	0.08	0.04



TRAFFIC CONTROL PLAN
S.R. 84

DESIGN AGENCY

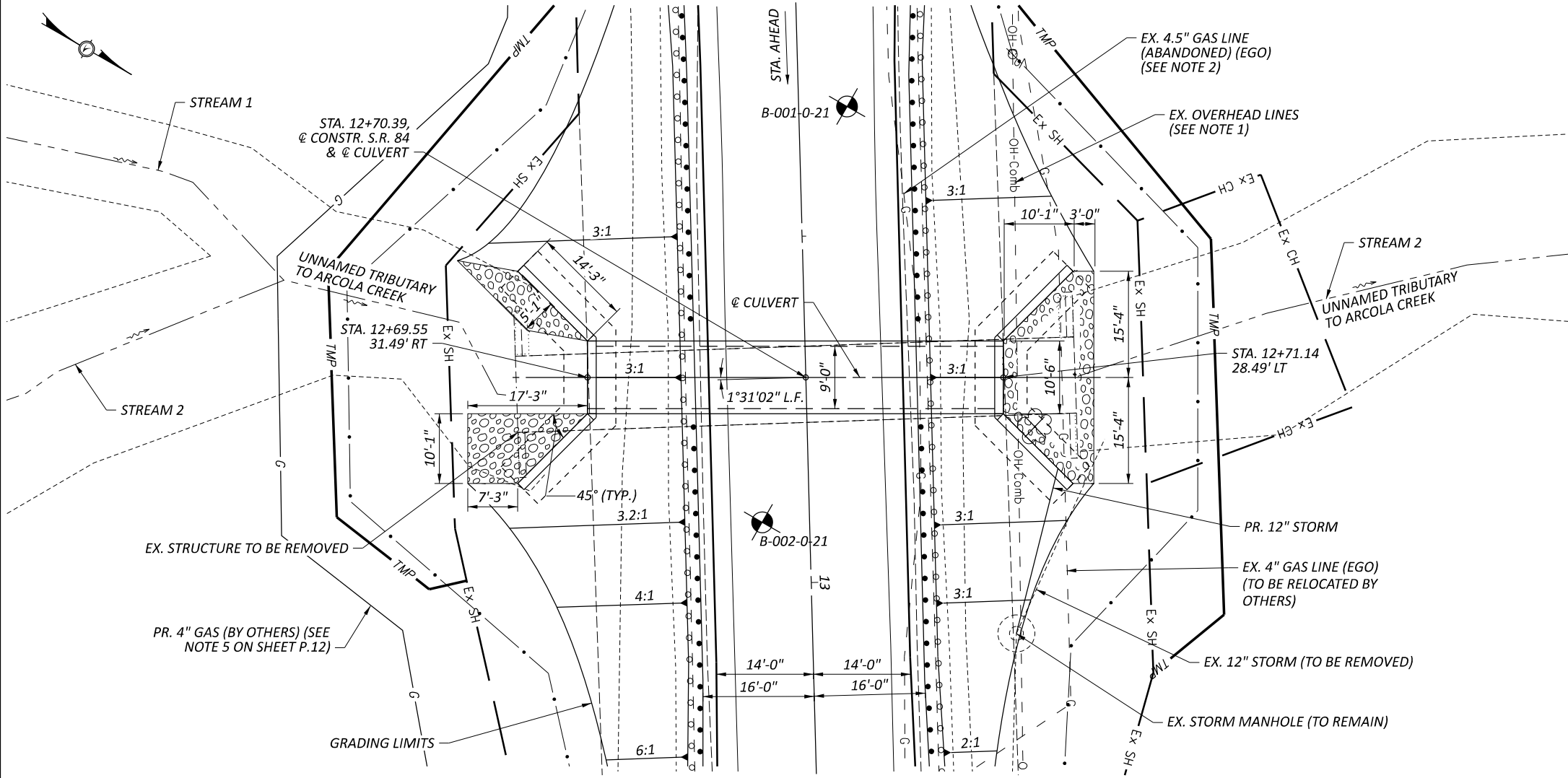
OSBORN ENGINEERING
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DESIGNER
JMB

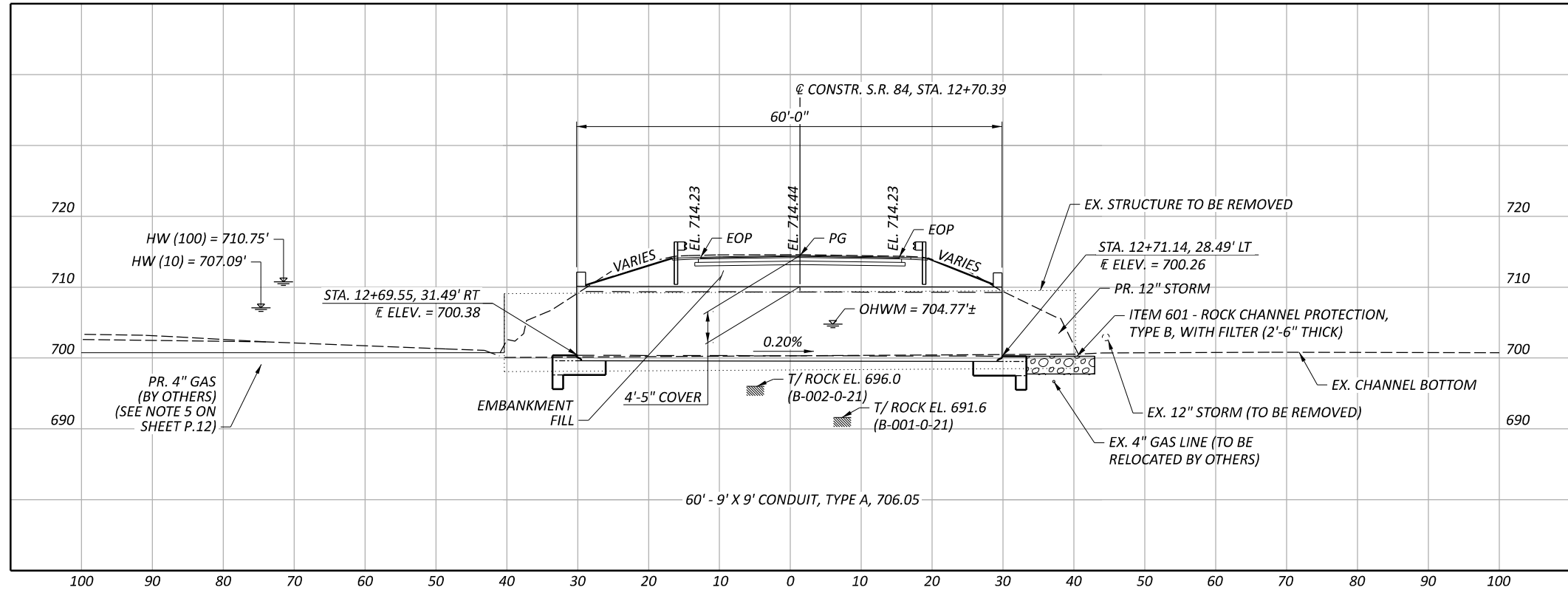
REVIEWER
DRP 11/06/24

PROJECT ID
112999

SHEET TOTAL
P.18 29



CULVERT PLAN



CULVERT PROFILE

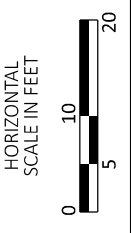
LEGEND

- NOTES**
- EXISTING OVERHEAD LINES INCLUDE:
 - ELECTRIC (5000 VOLT) - CEI (TO REMAIN AND BE DE-ENERGIZED)
 - ELECTRIC (240 VOLT, INSULATED) - CEI (TO REMAIN)
 - TELECOM (1 FIBER) - EVERSTREAM (TO BE RELOCATED BY OTHERS)
 - TELECOM (1 BUNDLE OF 2 COAX CABLES) - CHARTER COMMUNICATIONS (TO BE RELOCATED BY OTHERS)
 - TELECOM (2 FIBER) - WINDSTREAM (TO BE RELOCATED BY OTHERS)
 - IF THE 4.5" ABANDONED GAS LINE IS ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER AND ENBRIDGE GAS OHIO (EGO) IMMEDIATELY. UPON APPROVAL OF ENBRIDGE GAS OHIO (EGO) THE CONTRACTOR SHALL REMOVE THE ABANDONED LINE AS NOTED ON SHEET P.4.

HYDRAULIC DATA		
DRAINAGE AREA =	2.59 SQ. MI.	
Q (10) =	420 CFS	V (10) = 4.47 FT/S
Q (100) =	793 CFS	V (100) = 4.23 FT/S
ORDINARY HIGH WATER MARK:	700.99± FT	
DESIGN SERVICE LIFE:	75 YEARS	
ABRASION LEVEL:	4	
pH:	7.3	

EXISTING STRUCTURE
TYPE: 132" STRUCTURAL PLATE CORRUGATED STEEL PIPE
SKEW: NONE
ALIGNMENT: TANGENT
DATE BUILT: 1983
CONDITION: POOR - 4 (GENERAL APPRAISAL)
SFN: 4303105

PROPOSED STRUCTURE
TYPE: 9'x9' PRECAST CONCRETE BOX CULVERT (60' LONG) WITH TYPE A HEADWALLS
SKEW: 1°31'02" L.F.
ALIGNMENT: TANGENT
CFN: 1991223



CULVERT LOCATION PLAN
 STA. 12+70.39

DESIGN AGENCY

OSBORN ENGINEERING
 1111 Superior Avenue, Suite 2100
 Cleveland, OH 44114
 (216) 961-2000 www.osborneng.com

DESIGNER: MJD
 REVIEWER: SMK 11/06/24
 PROJECT ID: 112999
 SHEET TOTAL: P.19 | 29

CULVERT GENERAL NOTES

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, 2020 AND THE ODOT BRIDGE DESIGN MANUAL, 2020.

DESIGN DATA:

THE FOLLOWING DESIGN DATA IS ASSUMED:

INTERNAL ANGLE OF FRICTION OF BACKFILL SOIL, $\phi_{bf} = 30^\circ$
 TOTAL UNIT WEIGHT OF BACKFILL SOIL = 120 PCF
 INTERNAL ANGLE OF FRICTION (DRAINED), FOUNDATION SOIL, $\phi_f = 30^\circ$
 UNDRAINED SHEAR STRENGTH (COHESIVE), FOUNDATION SOIL, $S_{uf} = 1500$ PSF
 UNIT WEIGHT OF CONCRETE = 150 PCF
 SLOPE OF BACKFILL = 2:1

CONCRETE - CLASS QC1 - COMPRESSIVE STRENGTH - 4.0 KSI
 (FOOTING, WINGWALL AND FORESLOPE WALL)

REINFORCING STEEL - ASTM A615, A616, OR A617
 GRADE 60 MINIMUM YIELD STRENGTH
 60,000 PSI (ALL REINFORCING SHALL BE EPOXY COATED)

BASED ON THE ASSUMED DESIGN DATA, THE WINGWALLS ACHIEVE FACTORED BEARING RESISTANCES THAT ARE GREATER THAN THEIR RESPECTIVE BEARING PRESSURES. IF A BACKFILL MATERIAL WITH A HIGHER INTERNAL ANGLE OF FRICTION OR A LIGHTER TOTAL UNIT WEIGHT IS USED; OR IF A FOUNDATION SOIL WITH A HIGHER DRAINED INTERNAL ANGLE OF FRICTION OR A HIGHER UNDRAINED SHEAR STRENGTH IS ENCOUNTERED; THEN THE STABILITY OF THE WINGWALLS IS SATISFACTORY.

DESIGN LOADING

VEHICULAR LIVE LOAD: HL-93 LOADING
 FUTURE WEARING SURFACE (FWS) OF 0.060 KIPS/SQ FT

LRFD LOAD MODIFIERS

OPERATIONAL IMPORTANCE: A LOAD MODIFIER OF 1.0 HAS BEEN ASSUMED FOR THE DESIGN OF THIS STRUCTURE IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, ARTICLE 1.3.5 AND THE ODOT BRIDGE DESIGN MANUAL.

FOUNDATION BEARING RESISTANCE

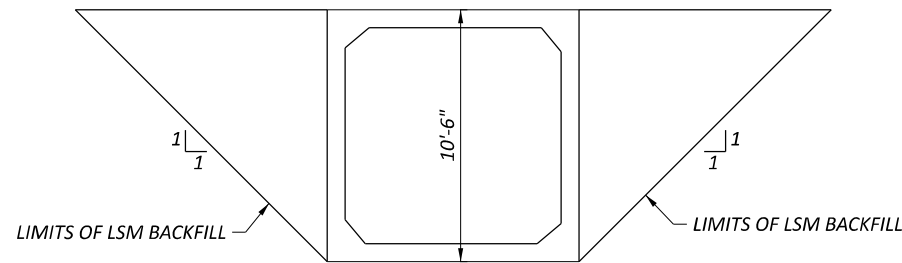
THE PRECAST CONCRETE STRUCTURE, AS DESIGNED, PRODUCES A MAXIMUM SERVICE LIMIT STATE BEARING PRESSURE OF 1.14 KIPS PER SQUARE FOOT AND A MAXIMUM STRENGTH LIMIT STATE BEARING PRESSURE OF 1.48 KIPS PER SQUARE FOOT. THE FACTORED BEARING RESISTANCE IS 1.48 KIPS PER SQUARE FOOT.

UTILITY LINES

THE UTILITIES SHALL BEAR ALL EXPENSE INVOLVED IN RELOCATING THE AFFECTED UTILITY LINES. THE CONTRACTOR AND UTILITIES ARE TO COOPERATE BY ARRANGING THEIR WORK IN SUCH A MANNER THAT INCONVENIENCE TO EITHER WILL BE HELD TO A MINIMUM.

EXISTING STRUCTURE VERIFICATION

DETAILS AND DIMENSIONS SHOWN ON THESE PLANS PERTAINING TO THE EXISTING STRUCTURE HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURE AND FROM FIELD OBSERVATIONS AND MEASUREMENTS. CONSEQUENTLY, THEY ARE INDICATIVE OF THE EXISTING STRUCTURE AND THE PROPOSED WORK, BUT THEY SHALL BE CONSIDERED TENTATIVE AND APPROXIMATE. THE CONTRACTOR IS REFERRED TO CMS SECTIONS 102.05 AND 105.02. BASE CONTRACT BID PRICES UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PREBID EXAMINATION OF THE EXISTING STRUCTURE. HOWEVER, THE DEPARTMENT WILL PAY FOR ALL PROJECT WORK BASED UPON ACTUAL DETAILS AND DIMENSIONS THAT HAVE BEEN VERIFIED IN THE FIELD



LIMITS OF ITEM 613 - LOW STRENGTH MORTAR BACKFILL (TYPE 1)

ITEM 503 - COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN

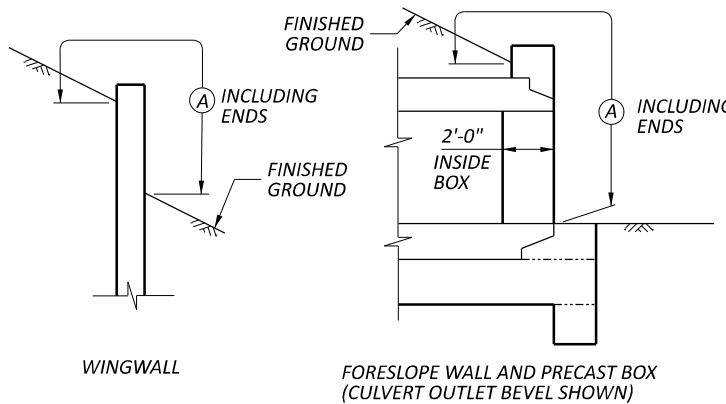
THE CONTRACTOR SHALL PROVIDE COFFERDAMS AND DE-WATERING METHODS THAT ARE DESIGNED TO CARRY A 2-YEAR STORM EVENT. THE DEPARTMENT WILL NOT COMPENSATE THE CONTRACTOR FOR ANY FLOOD CLEANUP, DAMAGE TO THE WORK, OR CORRECTIVE WORK NEEDED AS A RESULT OF WATER INFILTRATION UNLESS THE STORM EVENT IS GREATER THAN A 2-YEAR STORM EVENT.

POROUS BACKFILL WITH GEOTEXTILE FABRIC: 1'-6" THICK SHALL BE PLACED BEHIND THE WINGWALLS ONLY AND SHALL EXTEND TO 12" BELOW THE EMBANKMENT SURFACE. GEOTEXTILE FABRIC SHALL BE PLACED BETWEEN THE POROUS BACKFILL AND REPLACED EXCAVATION ADJACENT TO THE STRUCTURE. IT SHALL TURN UNDER THE BOTTOM OF THE POROUS BACKFILL AND RETURN 6" ABOVE THE TOP ELEVATION OF THE WEEPHOLE.

WEEPHOLES SHALL BE PLACED 6" TO 12" ABOVE THE NORMAL WATER ELEVATION OR GROUND LINE AND SHALL HAVE A MAXIMUM SPACING OF 10'-0". A MINIMUM OF ONE WEEPHOLE SHALL BE PROVIDED PER WINGWALL.

PERFORMED EXPANSION JOINT FILLER: PERFORMED EXPANSION JOINT FILLER (PEJF) CONFORMING TO CMS 705.03, 1 INCH THICK, SHALL BE PLACED ABOVE THE FOOTING BETWEEN THE SIDES OF THE BOX CULVERT AND THE ENDS OF THE WINGWALLS. PAYMENT FOR MATERIALS AND INSTALLATION SHALL BE INCLUDED WITH ITEM 516 - 1" PERFORMED EXPANSION JOINT FILLER.

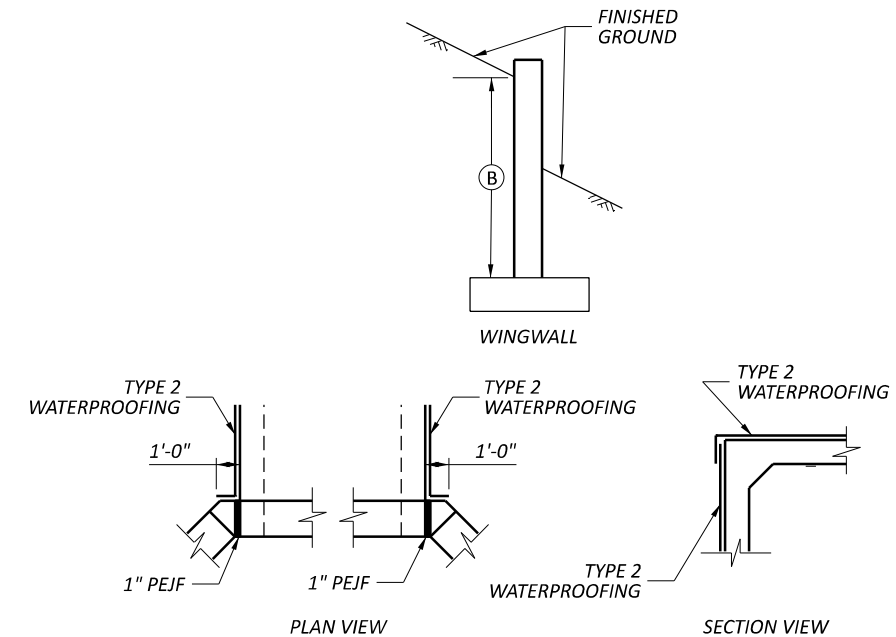
SEALING OF FORESLOPE WALL AND WINGWALLS: ALL EXPOSED FORESLOPE WALL AND WINGWALL CONCRETE SHALL BE SEALED WITH EPOXY-URETHANE SEALER. THE LIMITS SHALL BE AS SHOWN IN THE DIAGRAMS BELOW. PAYMENT FOR THE EPOXY-URETHANE SEALER SHALL BE PER ITEM 512 - SEALING OF CONCRETE SURFACES (EPOXY-URETHANE).



LIMITS OF ITEM 512-SEALING CONCRETE SURFACES

(A) - SEAL ENTIRE CONCRETE SURFACE AREA

WATERPROOFING: TYPE 2 WATERPROOFING, PER CMS 512.08 AND 711.25 SHALL EXTEND VERTICALLY DOWN THE ENTIRE SIDES OF THE PRECAST CULVERT SECTIONS FOR ALL PORTIONS OF THE CULVERT WHICH SHALL BE IN CONTACT WITH THE BACKFILL. ADDITIONALLY, TYPE 2 WATERPROOFING SHALL ALSO BE APPLIED TO THE ENTIRE TOP SURFACE OF THE PRECAST CULVERT SECTIONS AND SHALL EXTEND ONE FOOT VERTICALLY DOWN THE SIDES FOR ALL PORTIONS OF THE CULVERT WHICH SHALL BE IN CONTACT WITH THE BACKFILL. PAYMENT FOR THE MEMBRANE WATERPROOFING SHALL BE AT THE CONTRACT PRICE BID PER SQUARE YARD FOR ITEM 512 - TYPE 2 WATERPROOFING.



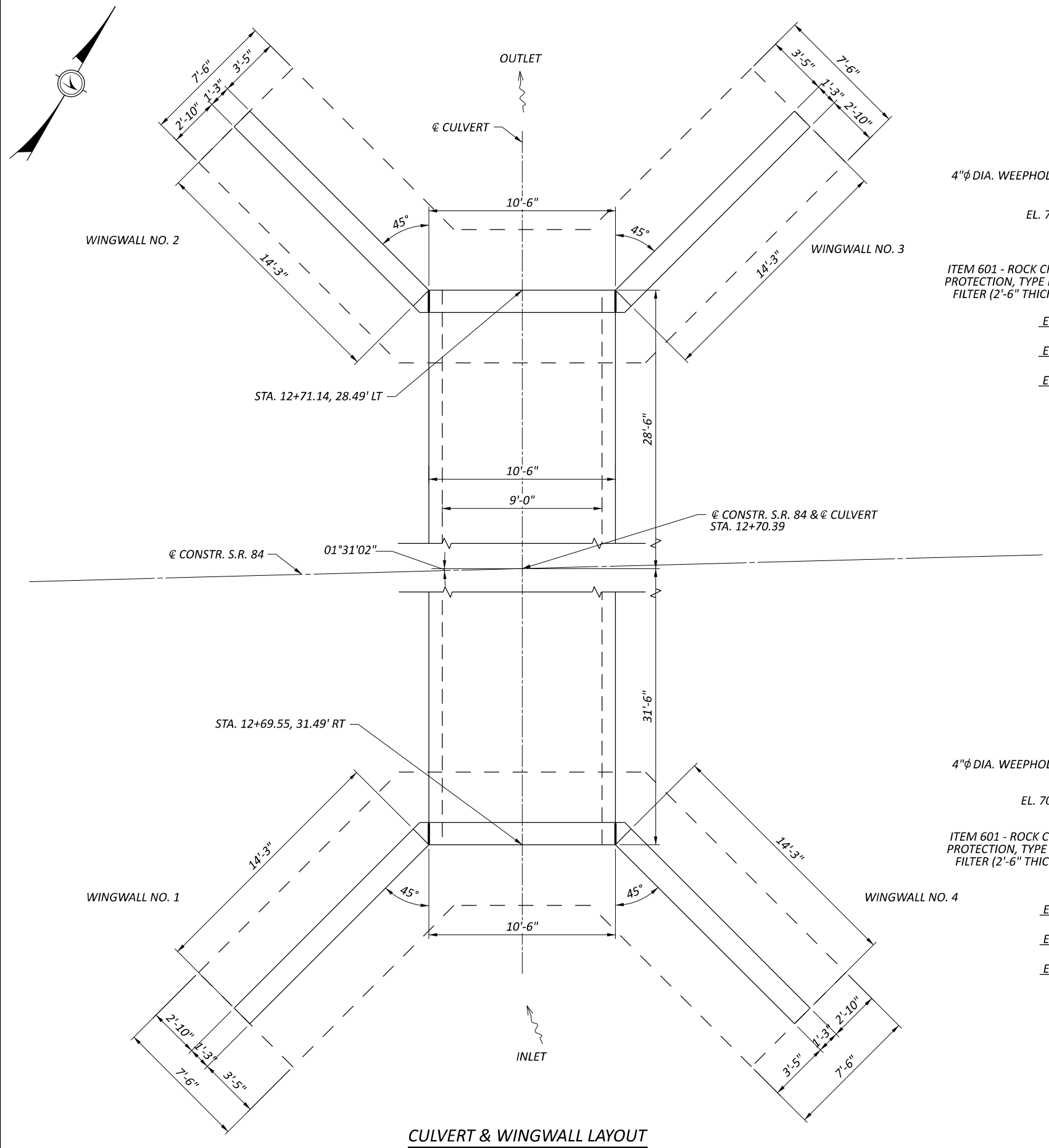
WATERPROOFING DETAILS

(B) - LIMITS OF TYPE A WATERPROOFING

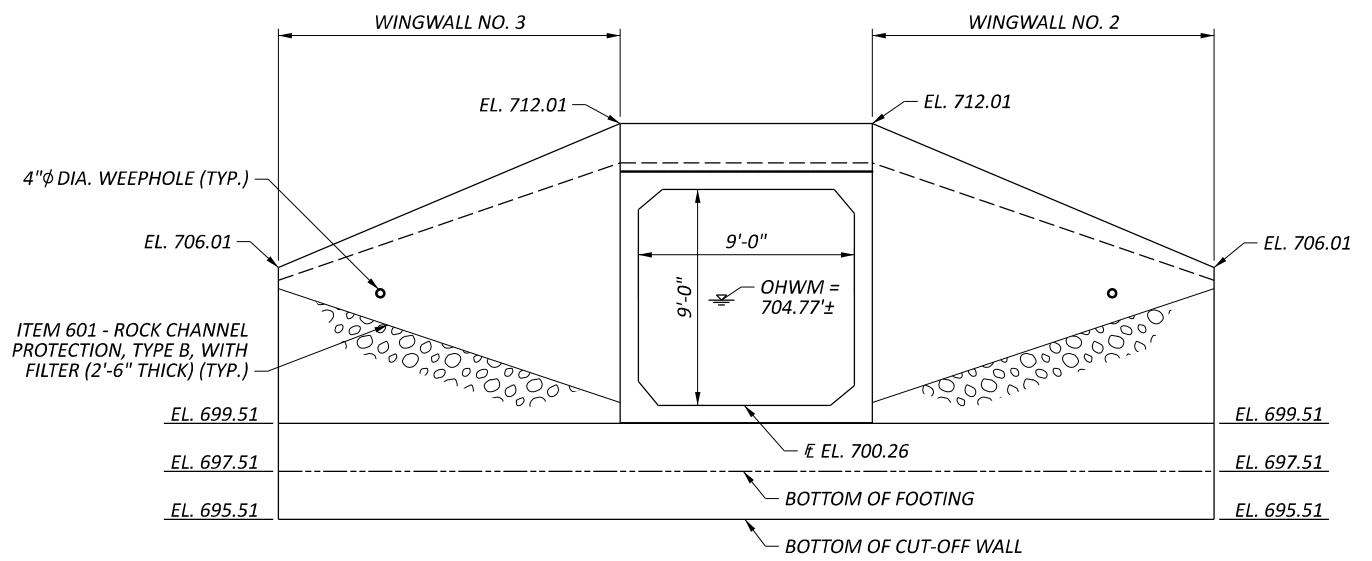
ESTIMATED QUANTITIES					SHEET
ITEM	ITEM EXT	TOTAL	UNIT	DESCRIPTION	
202	11001	LUMP		STRUCTURE REMOVED, AS PER PLAN	P.5
503	11101	LUMP		COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN	P.20
503	21100	648	CY	UNCLASSIFIED EXCAVATION	
509	10000	7269	LB	EPOXY COATED STEEL REINFORCEMENT	
511	46010	30	CY	CLASS QC1 CONCRETE, RETAINING/WINGWALL NOT INCLUDING FOOTING	
511	46510	52	CY	CLASS QC1 CONCRETE, FOOTING	
511	46610	2	CY	CLASS QC1 CONCRETE, HEADWALL	
512	10100	87	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	
512	33000	219	SY	TYPE 2 WATERPROOFING	
512	33300	57	SY	TYPE A WATERPROOFING	
516	13600	63	SF	1" PERFORMED EXPANSION JOINT FILLER	
518	21200	24	CY	POROUS BACKFILL WITH GEOTEXTILE FABRIC	
601	32100	47	CY	ROCK CHANNEL PROTECTION, TYPE B WITH FILTER (2'-6" THICK)	
611	94947	60	FT	9' X 9' CONDUIT, TYPE A, 706.05, AS PER PLAN	P.22
613	41250	235	CY	LOW STRENGTH MORTAR BACKFILL (TYPE 1)	

NOTE: TOTALS CARRIED TO GENERAL SUMMARY SHEET

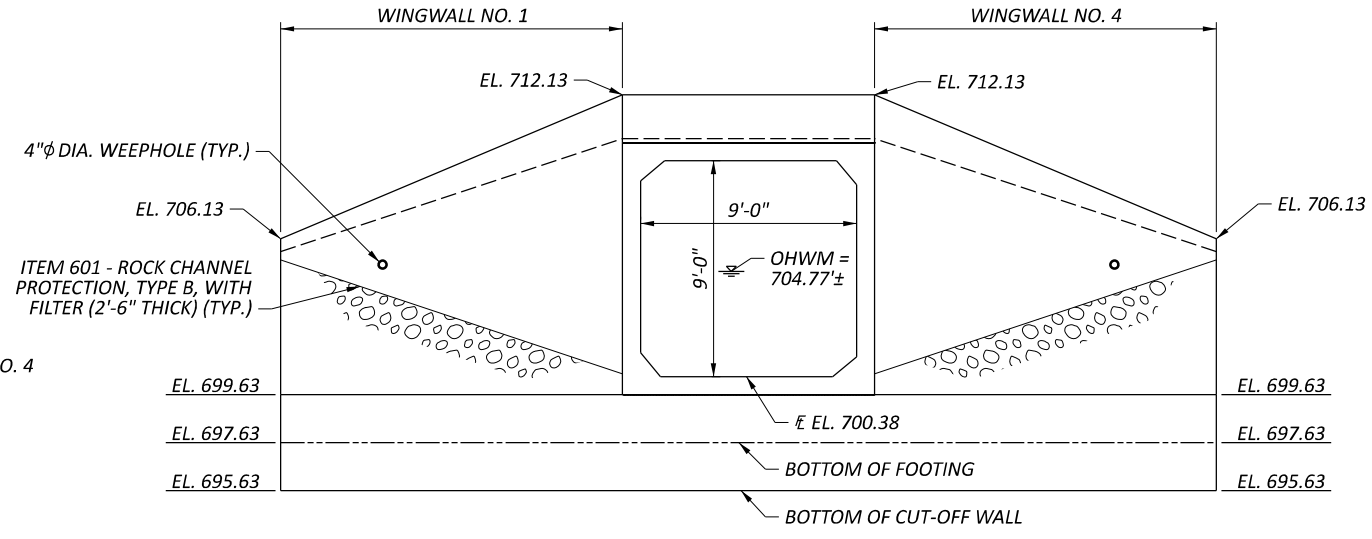




CULVERT & WINGWALL LAYOUT



**OUTLET ELEVATION
(LOOKING SOUTH)**



INLET ELEVATION

CULVERT LAYOUT

DESIGN AGENCY

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DESIGNER
MJD

REVIEWER
SMK 11/06/24

PROJECT ID
112999

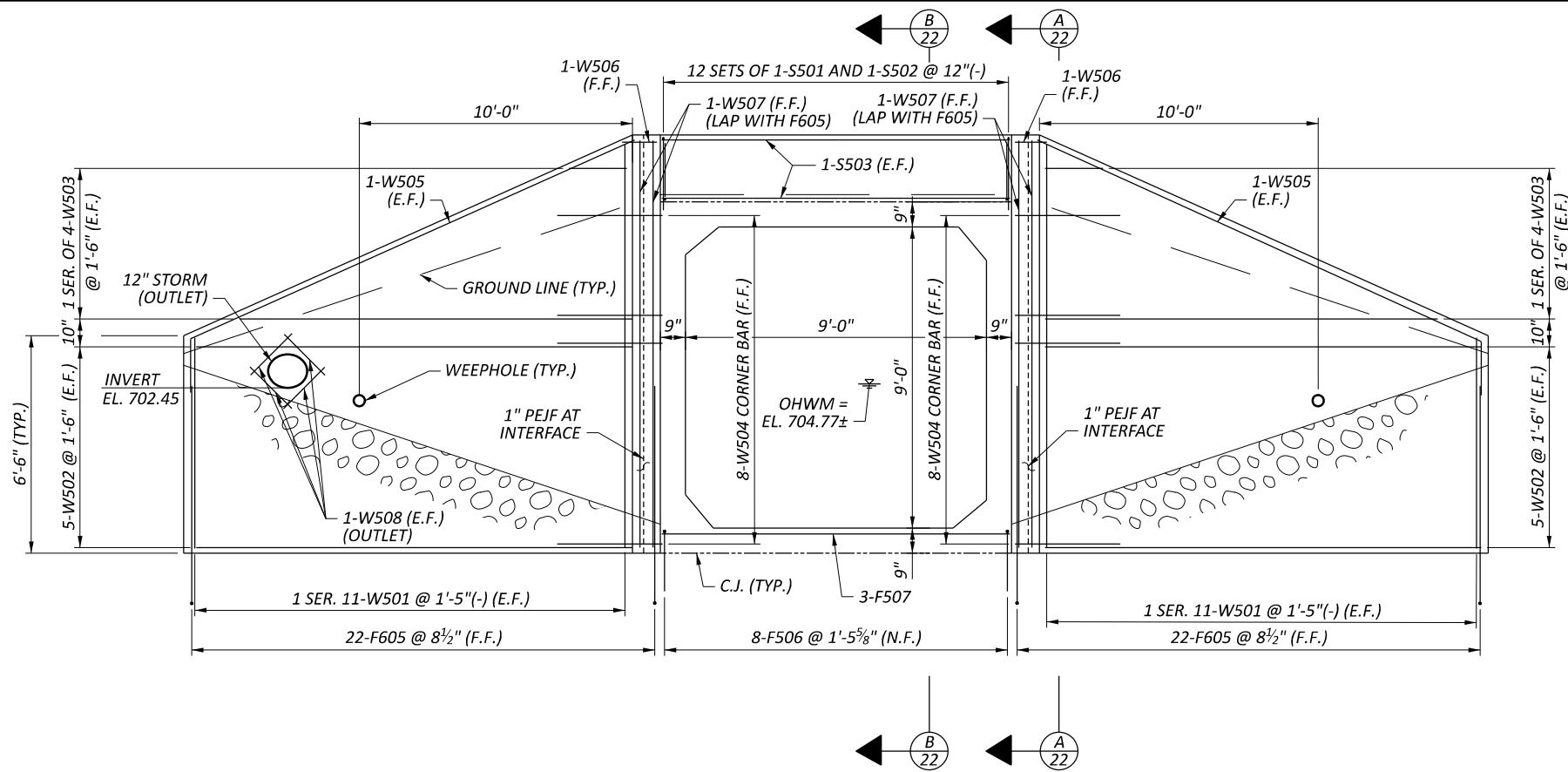
SHEET TOTAL
P.21 | 29

NOTES

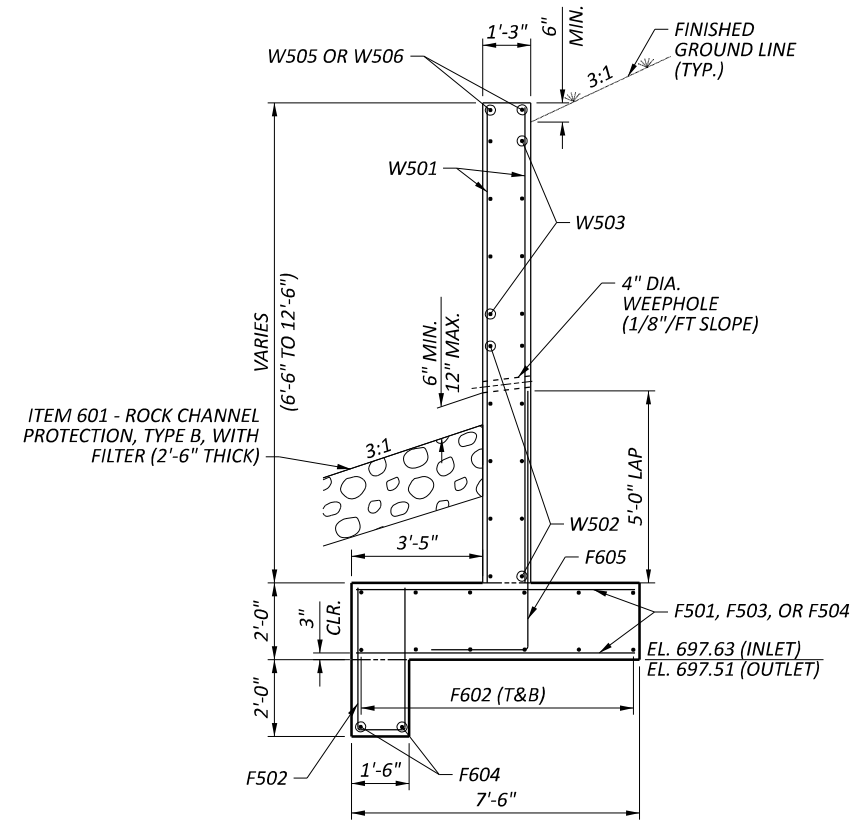
- FOR CULVERT LOCATION PLAN, SEE SHEET P.19.
- THE LAP SPLICE LENGTHS USED IN THESE DETAILS ARE AS FOLLOWS: 2'-5" FOR #5 BARS; 2'-11" FOR #6 BARS.
- LOOP INSERT SHALL BE DAYTON SUPERIOR F64 FERRULE LOOP INSERT (5/8" - 11 NC, 6-1/8" HEIGHT) OR EQUAL. PAYMENT TO BE INCLUDED WITH ITEM 611 - 9' X 9' CONDUIT, TYPE A, 706.05, AS PER PLAN.

LEGEND:

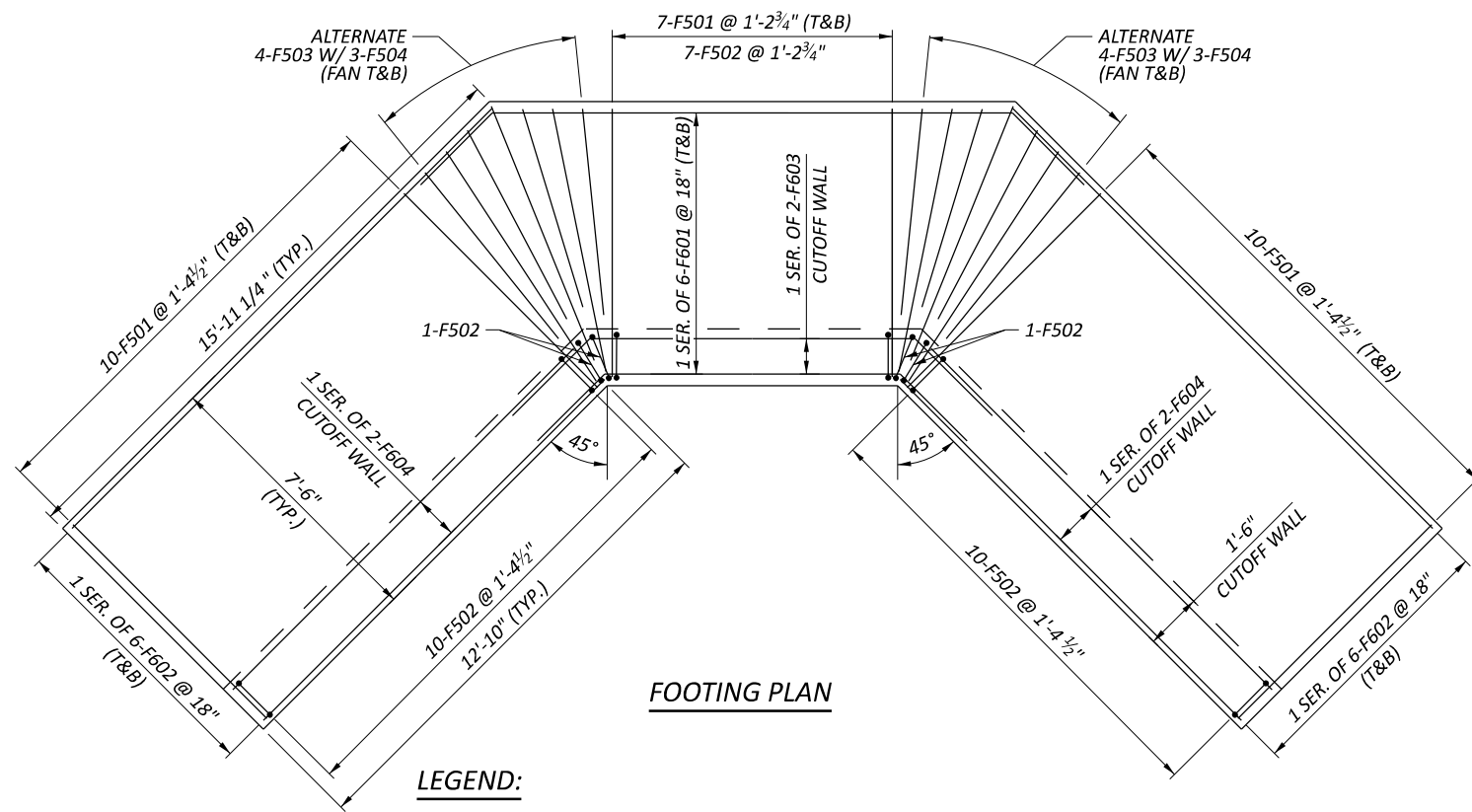
C.J.	CONSTRUCTION JOINT	N.F.	NEAR FACE
CLR.	CLEAR	SER.	SERIES
DIA.	DIAMETER	STR.	STRAIGHT
E.F.	EACH FACE	(T)	TOP
F.F.	FAR FACE	(B)	BOTTOM
MAX.	MAXIMUM	T&B	TOP AND BOTTOM
MIN.	MINIMUM	TYP.	TYPICAL
PEJF	PREFORMED EXPANSION JOINT FILLER	INC.	INCREMENT
		*	BAR WITH THREADED END



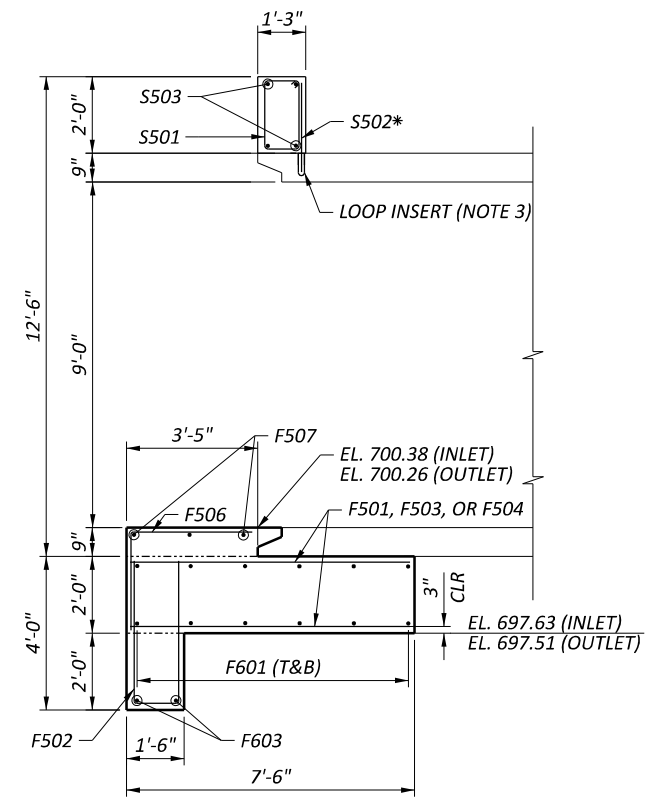
WINGWALL ELEVATION
(FOOTING NOT SHOWN)



WINGWALL SECTION
(POROUS BACKFILL NOT SHOWN FOR CLARITY)



FOOTING PLAN



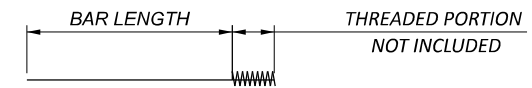
CULVERT SECTION
(CULVERT INLET BEVEL SHOWN)



MARK	NUMBER		LENGTH	WEIGHT	TYPE	DIMENSIONS					
	TOTAL					A	B	C	D	E	R
FOOTINGS											
F501	108		7'-2"	807	STR						
F502	62		8'-1"	523	2	3'-7"	1'-2"	3'-7"			
F503	32		5'-8"	189	STR						
F504	24		7'-3"	182	STR						
F505	NOT USED										
F506	16		5'-5"	90	1	3'-1"	2'-6"				
F507	6		10'-2"	64	STR						
F601	4 SR OF 6		13'-11" TO 19'-9"	607	20	2'-2"	2'-2"	7'-10" TO 13'-8"	2'-2"	2'-2"	1'-2"
F602	8 SR OF 6		12'-9" TO 15'-8"	1024	STR						0'-7"
F603	2 SR OF 2		13'-11" TO 14'-10"	86	20	2'-2"	2'-2"	7'-10" TO 8'-9"	2'-2"	2'-2"	0'-11"
F604	4 SR OF 2		12'-9" TO 13'-2"	156	STR						0'-5"
F605	88		9'-1"	1201	1	2'-6"	6'-9"				
SUB-TOTAL				4929	LBS						
WINGWALLS											
W501	8 SR OF 11		6'-3" TO 12'-1"	841	STR						0'-7"
W502	40		13'-11"	581	STR						
W503	8 SR OF 4		1'-9" TO 12'-6"	238	STR						3'-7"
W504	32		4'-0"	134	10	2'-2"	2'-2"	0'-3 1/2"	0'-10"		
W505	8		17'-5"	145	19	2'-5"	5'-10"	13'-11"			
W506	4		1'-5"	6	10	0'-4"	0'-4"	0'-3 1/2"	0'-10"		
W507	8		12'-4"	103	STR						
W508	8		1'-9"	15	STR						
SUB-TOTAL				2063	LBS						
FORESLOPE WALLS											
S501	24		5'-10"	146	3	0'-11"	1'-8"				
S502*	24		1'-10"	46	STR						
S503	8		10'-2"	85	STR						
SUB-TOTAL				277	LBS						

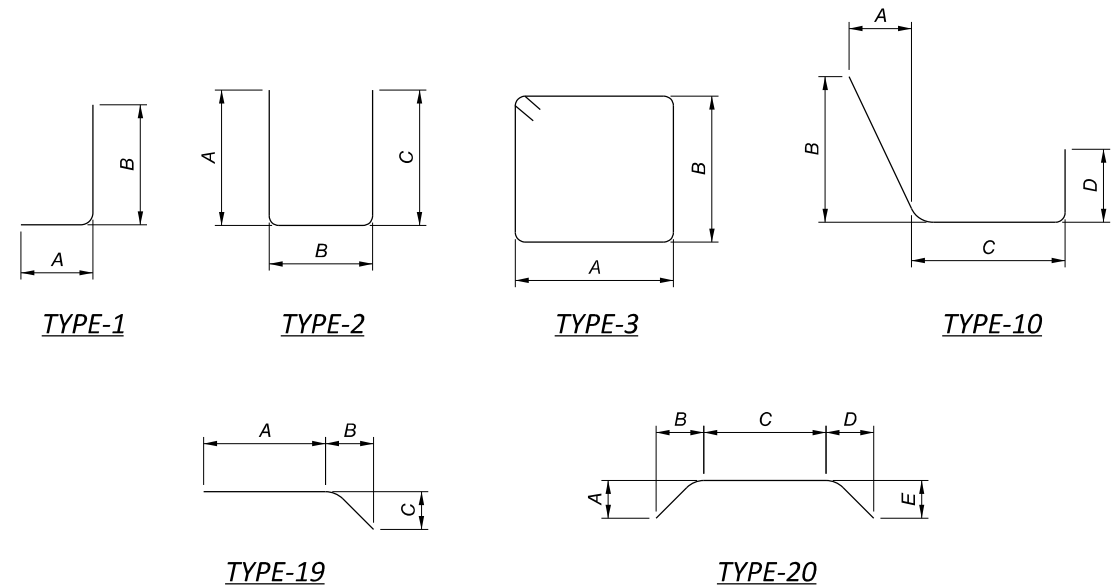
NOTES

1. ALL REINFORCING BARS SHALL BE EPOXY COATED.
2. ALL BAR DIMENSIONS ARE GIVEN OUT-TO-OUT UNLESS OTHERWISE INDICATED.
3. ALL BARS OF A GIVEN SERIES VARY BY A CONSTANT AMOUNT.
4. BAR SIZE NUMBER IS SPECIFIED ON THE PLANS IN THE BAR MARK COLUMN. THE FIRST DIGIT INDICATES THE BAR SIZE NUMBER. FOR EXAMPLE, S501 IS A #5 BAR.
5. MECHANICAL CONNECTORS REQUIRED AS FOLLOWS:
* - BAR WITH THREADED ENDS



LEGEND

STR = STRAIGHT
 SR = SERIES



PROJECT DESCRIPTION

THIS REPORT IS A PRESENTATION OF THE STRUCTURE FOUNDATION EXPLORATION PERFORMED FOR THE REPLACEMENT OF A CULVERT CARRYING SOUTH RIDGE ROAD (STATE ROUTE 84) OVER UNNAMED TRIBUTARY TO ARCOLA CREEK IN LAKE COUNTY, OHIO. THE EXISTING STRUCTURE IS A CORRUGATED METAL CULVERT, APPROXIMATELY 11 FEET IN DIAMETER. BASED ON INFORMATION PROVIDED TO RII, IT IS UNDERSTOOD THAT THE PROPOSED STRUCTURE FOR REPLACEMENT IS A BOX CULVERT WITH APPROXIMATE DIMENSIONS OF 9 FEET BY 9 FEET AND A LENGTH OF APPROXIMATELY 60 FEET. IT IS UNDERSTOOD THAT THE EXISTING STRUCTURE WILL BE REMOVED AND REPLACED WITH THE DESIGN CULVERT USING OPEN-CUT METHODS.

HISTORIC RECORDS

HISTORIC GEOTECHNICAL RECORDS WERE OBTAINED FROM ODOT'S TRANSPORTATION INFORMATION MAPPING SYSTEM (TIMS) FOR LAK-84-30.85 COMPLETED IN JANUARY 1982. RESULTS OF THIS EXPLORATION INDICATED THAT PREDOMINANTLY NON-COHESIVE SOILS ARE PRESENT AT THE SUBGRADE ELEVATION UNDERLAIN BY SHALE BEDROCK. ADDITIONALLY, THESE RESULTS INDICATED THAT GROUNDWATER WAS ENCOUNTERED AT A DEPTH OF 13.0 FEET BELOW THE GROUND SURFACE AT THE TIME OF THE EXPLORATION. THESE RESULTS WERE NOT UTILIZED DURING THE CURRENT DESIGN.

GEOLOGY

PHYSIOGRAPHICALLY, THE PROJECT SITE FALLS WITHIN THE ERIE LAKE PLAIN REGION OF THE HURON-ERIE LAKE PLAINS. THE HURON-ERIE LAKE PLAIN IS A REGION ON THE EDGE OF VERY LOW RELIEF ICE-AGE LAKE BASIN, SEPARATED FROM MODERN LAKE ERIE BY SHORELINE CLIFFS. THE SOIL AT THE PROPOSED SITE IS COMPRISED OF SILT LOAM (OR-ORVILLE SILT LOAM) WITH SOMEWHAT POORLY DRAINED, 0 TO 2 PERCENT SLOPES.

BASED ON BEDROCK GEOLOGY AND TOPOGRAPHY MAPS OF THE AREA FROM THE OHIO DEPARTMENT OF NATURAL RESOURCES (ODNR), THE UNDERLYING BEDROCK DIRECTLY BENEATH LAK-84-30.86 IS COMPRISED OF THE DEVONIAN-AGED OHIO SHALE. THE SHALE CONSISTS OF SHADES OF BROWNISH BLACK TO GREENISH GRAY, SHALE THAT ARE LAMINATED TO THIN BEDDED. THE UNIT RANGES FROM 200 TO 500+ FEET THICK.

RECONNAISSANCE

THE SITE RECONNAISSANCE WAS PERFORMED BY BARRY SCHIEDERER, FROM RII, ON DECEMBER 1, 2021. THE LOCATION OF THE EXISTING CULVERT ALONG STATE ROUTE 84, LIES APPROXIMATELY 1.3 MILES EAST OF THE MADISON AND 1 MILE WEST OF VILLAGE OF UNIONVILLE, OHIO. THE EXISTING STATE ROUTE 84 IS A TWO-LANE, ASPHALT PAVED ROADWAY WHICH IS ALIGNED IN THE EAST WEST DIRECTION AND ACCOMMODATES ONE LANE OF TRAFFIC IN EACH DIRECTION. THE TOPOGRAPHY OF THE AREA IS CHARACTERIZED BY UNEVEN TERRAIN WITH LOW RELIEFS AND ROLLING HILLS. THE SURFACE ELEVATION RANGES FROM 710 TO 740 FEET MEAN SEA LEVEL (MSL). SURFACE DRAINAGE AT THE PROJECT LIMIT IS DIRECTED TO DITCHES ON EITHER SIDE OF THE ROADWAY.

SUBSURFACE EXPLORATION

TWO (2) STRUCTURE BORINGS, DESIGNATED B-001-0-21 AND B-002-0-21, WERE PERFORMED AS PART OF THIS SUBSURFACE INVESTIGATION BETWEEN DECEMBER 8 AND 9, 2021. THE BORINGS WERE EXTENDED TO DEPTHS OF 33.0 AND 30.0 FEET BELOW THE EXISTING GROUND SURFACE, RESPECTIVELY. THE BORING LOCATIONS WERE DETERMINED AND FIELD STAKED BY RII REPRESENTATIVES.

THE BORINGS WERE DRILLED WITH A CME-55 TRUCK-MOUNTED ROTARY DRILLING MACHINE, UTILIZING 3.25-INCH HOLLOW-STEM AUGERS TO ADVANCE THE HOLES.

THE HAMMER FOR THE CME-55 DRILL RIG USED FOR THIS PROJECT WAS CALIBRATED ON SEPTEMBER 14, 2020 AND HAS A DRILL ROD ENERGY RATIO OF 84.2 PERCENT.

WHERE THE BORINGS REQUIRED ROCK CORE SAMPLES, AN NQ SIZED DOUBLETUBE DIAMOND BIT CORE BARREL (UTILIZING WIRE LINE EQUIPMENT) WAS USED TO CORE THE BEDROCK. CORING PRODUCED A 1.85-INCH DIMETER CORE FROM WHICH THE TYPE OF ROCK AND ITS GEOLOGICAL CHARACTERISTICS WERE DETERMINED.

EXPLORATION FINDINGS

BOTH BORINGS WERE PERFORMED IN THE AREA OF THE PROPOSED CULVERT REPLACEMENT ALONG STATE ROUTE 84. BORINGS B-001-0-21 AND B-002-0-21 EACH ENCOUNTERED ASPHALT WITH THICKNESS OF 12.75-INCH AND 9.25-INCH OVERLYING 7.25 AND 7.75 INCHES OF AGGREGATE BASE MATERIAL AT THE EXISTING GROUND SURFACE, RESPECTIVELY.

LEGEND		ODOT CLASS	CLASSIFIED MECH./VISUAL	
DESCRIPTION				
	GRAVEL AND/OR STONE FRAGMENTS	A-1-a	1	1
	GRAVEL AND/OR STONE FRAGMENTS WITH SAND	A-1-b	5	4
	COARSE AND FINE SAND	A-3a	1	0
	SANDY SILT	A-4a	2	1
	SHALE	VISUAL		
	PAVEMENT OR BASE = X = APPROXIMATE THICKNESS	VISUAL		
	BORING LOCATION - PLAN VIEW.			
	DRIVE SAMPLE AND/OR ROCK CORE BORING PLOTTED TO VERTICAL SCALE ONLY. HORIZONTAL BAR INDICATES A CHANGE IN STRATIGRAPHY.			
WC	INDICATES WATER CONTENT IN PERCENT.			
N ₆₀	INDICATES STANDARD PENETRATION RESISTANCE NORMALIZED TO 60% DRILL ROD ENERGY RATIO.			
X/Y/Z	NUMBER OF BLOWS FOR STANDARD PENETRATION TEST (SPT): X= NUMBER OF BLOWS FOR FIRST 6 INCHES. Y= NUMBER OF BLOWS FOR SECOND 6 INCHES. Z= NUMBER OF BLOWS FOR THIRD 6 INCHES.			
W	INDICATES FREE WATER ELEVATION.			
	INDICATES A NON-PLASTIC MATERIAL WITH A MOISTURE CONTENT GREATER THAN 25 % OR GREATER THAN 19 % WITH A WET APPEARANCE.			
*	INDICATES A SAMPLE TAKEN WITHIN 3 FT OF PROPOSED GRADE.			
SS	INDICATES A SPLIT SPOON SAMPLE.			
NP	INDICATES A NON-PLASTIC SAMPLE.			

EXPLORATION FINDINGS (CON'T)

BENEATH THE SURFACE MATERIALS, EXISTING FILL WAS ENCOUNTERED IN BOTH BORINGS TO APPROXIMATE DEPTHS OF 10.5 AND 15.0 FEET BELOW THE GROUND SURFACE, RESPECTIVELY. THE FILL MATERIAL ENCOUNTERED IN BOTH BORINGS CONSISTED OF BROWN AND GRAY SANDY SILT, COARSE AND FINE SAND, AND GRAVEL WITH SAND (ODOT A-4A, A-3A, A-1-B). CONSTRUCTION DEBRIS MATERIAL CONSISTED OF BRICK, CINDER AND TILE FRAGMENTS AS WELL AS ORGANIC MATERIAL CONSISTING OF WOOD FRAGMENTS WERE ENCOUNTERED IN THE SAMPLES RETRIEVED AT THIS DEPTH.

BELOW EXISTING FILL MATERIAL, NATURAL GRANULAR SOILS CONSISTING PRIMARILY OF GRANULAR MATERIAL. THE GRANULAR SOILS WERE GENERALLY DESCRIBED AS BROWN, DARK GRAY TO GRAY GRAVEL AND GRAVEL WITH SAND (ODOT A-1-A, A-1-B).

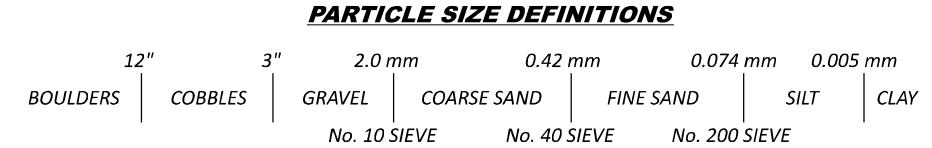
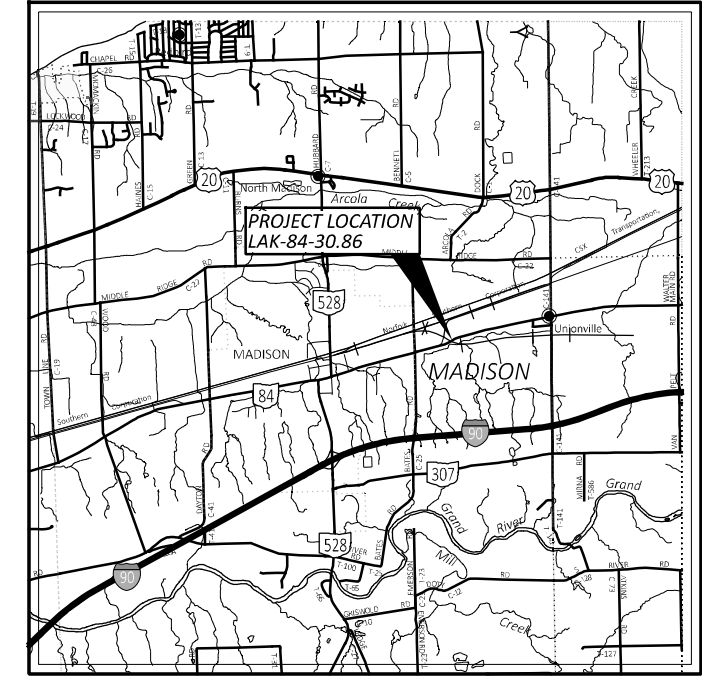
THE RELATIVE DENSITY OF GRANULAR SOILS IS PRIMARILY DERIVED FROM SPT BLOW COUNTS (N₆₀). BASED ON THE SPT BLOW COUNTS OBTAINED, THE GRANULAR SOILS ENCOUNTERED RANGED FROM LOOSE (5 < N₆₀ < 10 BLOWS PER FOOT [BPF]) TO MEDIUM DENSE (11 < N₆₀ < 30 BPF). BLOW COUNTS RECORDED FROM THE SPT SAMPLING RANGED FROM 6 TO 14 BPF.

NATURAL MOISTURE CONTENTS OF THE SOIL SAMPLES TESTED RANGED FROM 5 TO 25 PERCENT.

SHALE BEDROCK WAS ENCOUNTERED IN BOTH BORINGS, B-001-0-21 AND B-002-0-21, AT DEPTH OF 23.0 FEET AND 18.5 FEET BELOW THE EXISTING GROUND SURFACE, RESPECTIVELY. THE BEDROCK WAS DESCRIBED AS GRAY, SLIGHTLY TO HIGHLY WEATHERED, MODERATELY STRONG, THIN TO MEDIUM BEDDED, SLIGHTLY ROUGH TO VERY ROUGH.

IT SHOULD BE NOTED THAT BEDROCK EXPERIENCES MECHANICAL BREAKS DURING THE DRILLING AND CORING PROCESSES. RII ATTEMPTED TO ACCOUNT FOR FRESH, MANMADE BREAKS DURING TABULATION OF THE RQD ANALYSIS. THE PERCENT RECOVERY OF THE ROCK CORE RUNS RANGED FROM 0 TO 100 PERCENT, AND THE RQD VALUES RANGED FROM 0 TO 86 PERCENT. THE ROCK MASS QUALITY, ACCORDING TO THE RQD VALUES, RANGED FROM VERY POOR (RQD < 25%) TO GOOD (75% < RQD < 90%).

GROUNDWATER WAS ENCOUNTERED INITIALLY DURING DRILLING IN B-001-0-21 AND B-002-0-21 AT DEPTHS OF 11.1 AND 11.5 FEET BELOW THE EXISTING GROUND SURFACE, RESPECTIVELY. HOWEVER, GROUNDWATER WAS NOT MEASURED AT THE COMPLETION OF DRILLING DUE TO ADDING FLUIDS FOR THE ROCK CORING OPERATION.



SPECIFICATIONS

THIS GEOTECHNICAL EXPLORATION WAS PERFORMED IN ACCORDANCE WITH THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, OFFICE OF GEOTECHNICAL ENGINEERING, SPECIFICATIONS FOR GEOTECHNICAL EXPLORATIONS, DATED JULY 2021.

AVAILABLE INFORMATION

THE SOIL, BEDROCK, AND GROUNDWATER INFORMATION COLLECTED FOR THIS SUBSURFACE EXPLORATION THAT CAN BE CONVENIENTLY DISPLAYED ON THE SOIL PROFILE SHEETS HAS BEEN PRESENTED. GEOTECHNICAL REPORTS, IF PREPARED, ARE AVAILABLE FOR REVIEW ON THE OFFICE OF CONTRACT SALES WEBSITE.

- RECON. - BS 12/01/21
- DRILLING - TG & JK 12/08/21 & 12/09/21
- DRAWN - JS 3/30/23
- REVIEWED - DK 3/30/23

DESIGN AGENCY	
6350 PRESIDENTIAL GATEWAY COLUMBUS, OHIO 43231 (614) 823-4899	
DESIGNER	JAS
REVIEWER	DEK 01-27-23
PROJECT ID	112999
SUBSET	TOTAL
1	6
SHEET	TOTAL
P.24	29



RESOURCE INTERNATIONAL, INC.
Engineering Consultants

6350 Presidential Gateway, 9885 Rockside Road, 4480 Lake Forest Drive
Columbus, OH 43231, Cleveland, OH 44125, Cincinnati, Ohio 45242
Phone (614) 823-4949, Phone (216) 573-0955, Phone (513) 769-6998

**Unconfined Compressive Strength
of Intact Rock Core Specimens**
(ASTM D 7012-14)

Project: LAK-84-30.86
Project No.: N-21-013
Date of Testing: 12/15/2022
Test Performed by: KL/EM

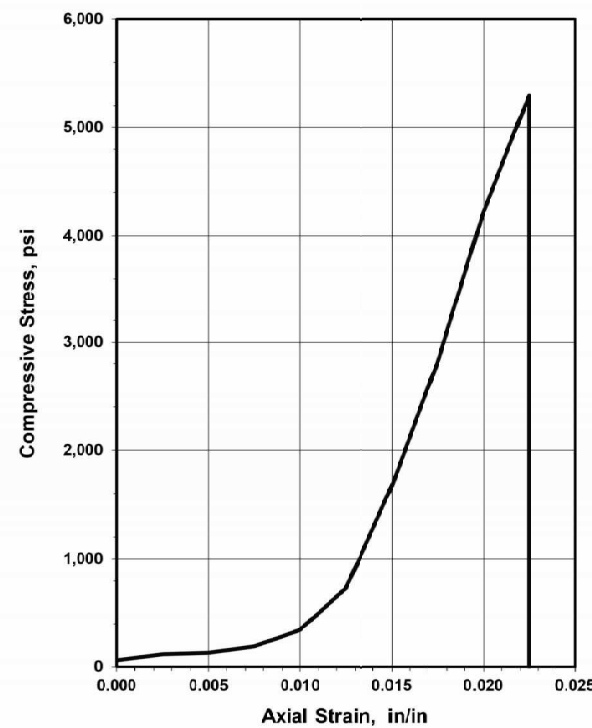
Rock Description: Gray SHALE
Rock Formation: _____

Boring No.:	<u>B-001-0-21</u>	Average Length:	<u>4.004</u>	in
Sample No.:	<u>RC-2</u>	Average Diameter:	<u>1.993</u>	in
Depth (ft):	<u>26.3'</u>	Length to diameter ratio:	<u>2.009</u>	
Moisture condition:	<u>As received</u>	Cross Sectional Area:	<u>3.120</u>	in ²
Sample Mass:	<u>529.90</u>	Volume:	<u>0.0072</u>	ft ³
Testing Temperature:	<u>23</u>	Unit Weight (sample specimen)*:	<u>161.61</u>	lbs/ft ³
Rate of Loading:	<u>71.8</u>	Failure Load:	<u>16,512</u>	lbs
Testing Time:	<u>230</u>	Axial Strain at Failure:	<u>0.0225</u>	in/in
	<i>(Rate 2-15 min)</i>	Compressive Strength:	<u>5,293</u>	psi

Sample Preparation: Per ASTM D4543

*Actual test sample used for unit weight prior to testing.

Unconfined Compression Test



Before Testing



After Failure



REMARKS: _____



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Phone (614) 823-4949, Phone (216) 573-0955, Phone (513) 769-6998

**Unconfined Compressive Strength
of Intact Rock Core Specimens**
(ASTM D 7012-14)

Project: LAK-84-30.86
Project No.: N-21-013
Date of Testing: 12/15/2022
Test Performed by: KL/EM

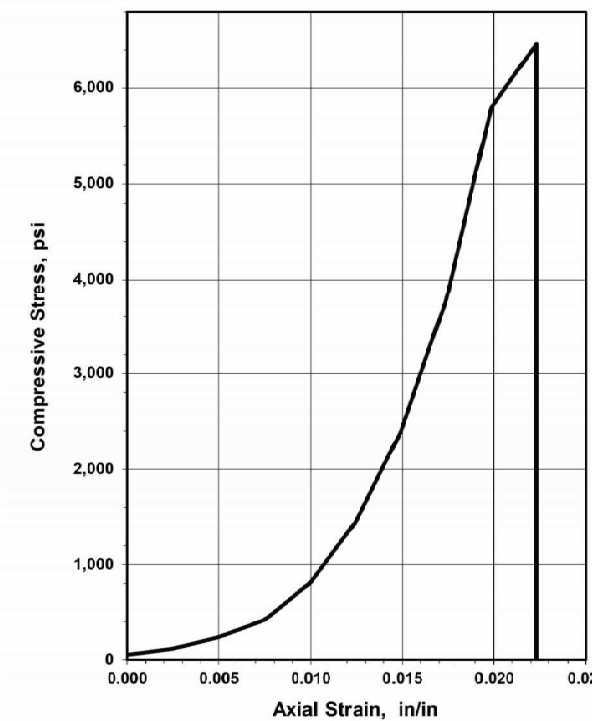
Rock Description: Gray SHALE
Rock Formation: _____

Boring No.:	<u>B-002-0-21</u>	Average Length:	<u>4.032</u>	in
Sample No.:	<u>RC-1</u>	Average Diameter:	<u>1.992</u>	in
Depth (ft):	<u>21.5</u>	Length to diameter ratio:	<u>2.024</u>	
Moisture condition:	<u>As received</u>	Cross Sectional Area:	<u>3.117</u>	in ²
Sample Mass:	<u>535.60</u>	Volume:	<u>0.0073</u>	ft ³
Testing Temperature:	<u>23</u>	Unit Weight (sample specimen)*:	<u>162.38</u>	lbs/ft ³
Rate of Loading:	<u>74.6</u>	Failure Load:	<u>20,144</u>	lbs
Testing Time:	<u>270</u>	Axial Strain at Failure:	<u>0.0223</u>	in/in
	<i>(Rate 2-15 min)</i>	Compressive Strength:	<u>6,464</u>	psi

Sample Preparation: Per ASTM D4543

*Actual test sample used for unit weight prior to testing.

Unconfined Compression Test



Before Testing



After Failure



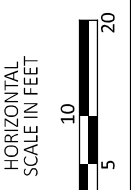
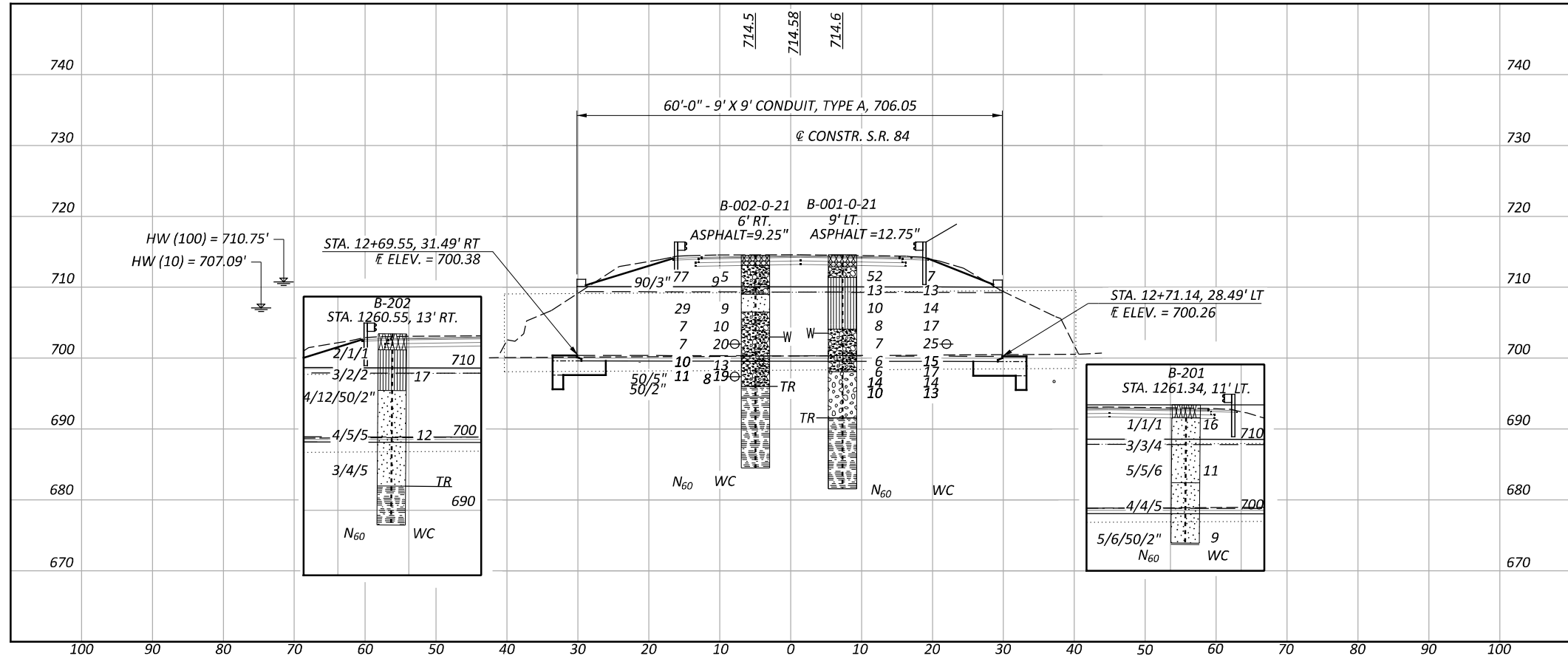
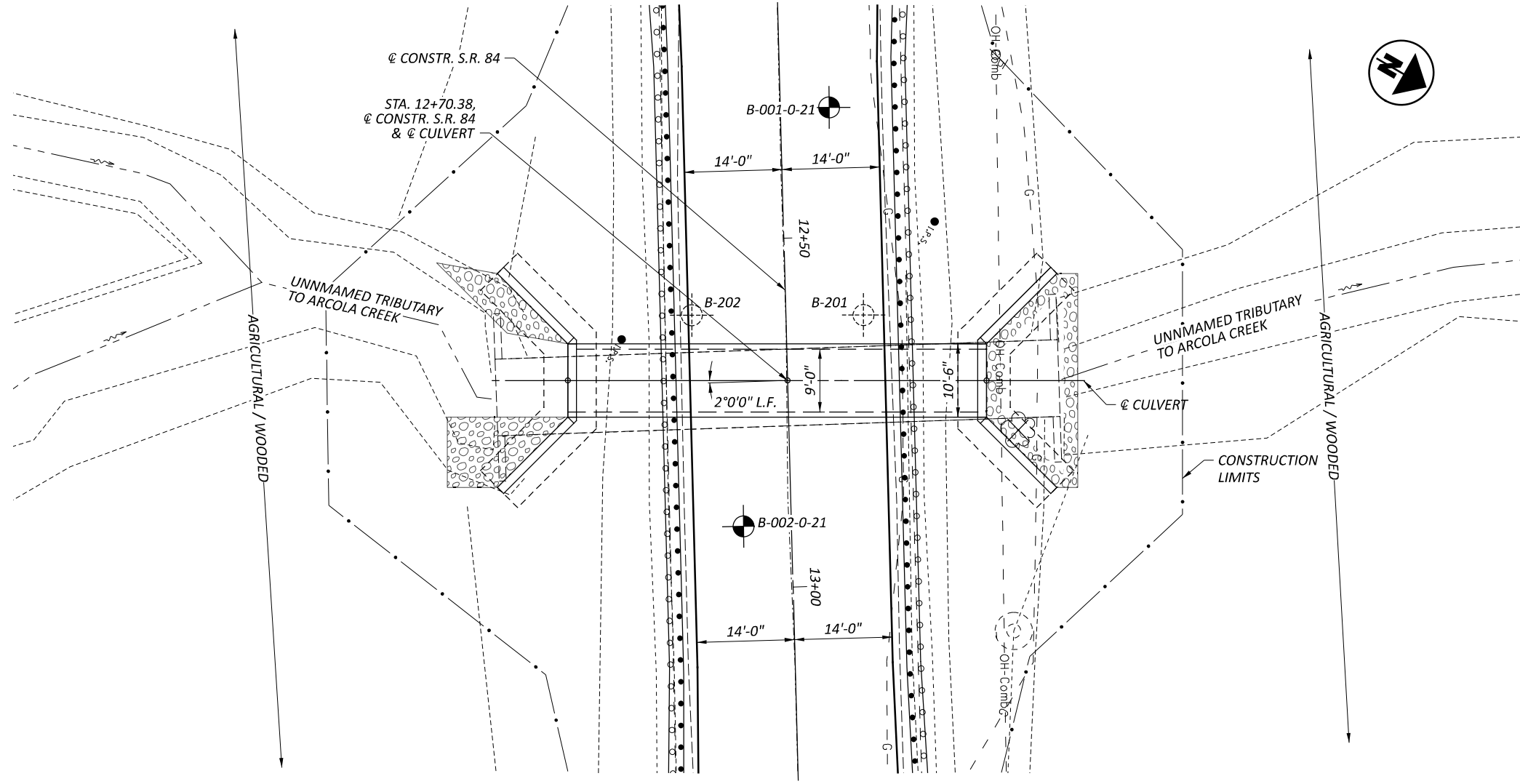
REMARKS: _____

LAK-84-30.86

MODEL: Sheet PAPER SIZE: 17x11 (in.) DATE: 10/27/2023 TIME: 11:18:51 AM USER: juans J:\GEO\TECH\Geotech Connect Projects\2021\N-21-013 LAK-84-30.86\112999\400-Engineering\Geotechnical\Sheets\112999_ZD001.dgn

SOIL PROFILE - CULVERT
LAK-84-30.86 OVER UNNAMED TRIBUTARY TO ARCOLA CREEK
UNCONFINED COMPRESSION RESULTS, B-001-0-21 & B-002-0-21

DESIGN AGENCY	
6350 PRESIDENTIAL GATEWAY COLUMBUS, OH 43231 (614) 823-4949	
DESIGNER	
JAS	
REVIEWER	
DEK 01-27-23	
PROJECT ID	
112999	
SUBSET	TOTAL
2	6
SHEET	TOTAL
P.25	29



SOIL PROFILE - CULVERT
 LAK-84-30.86 OVER UNNAMED TRIBUTARY TO ARCOLA CREEK

DESIGN AGENCY

 8350 PRESIDENTIAL GATEWAY
 COLUMBUS, OHIO 43231
 (614) 823-48-9

DESIGNER

REVIEWER
 DEK 01-27-23

PROJECT ID
 112999

SUBSET	TOTAL
3	6
SHEET	TOTAL
P.26	29

RESOURCE INTERNATIONAL, INC.

PROJECT: LAK-84-30.86 BRIDGE	DRILLING FIRM / OPERATOR: RII / TG	DRILL RIG: CME 55 (366345)	STATION / OFFSET: 14+04.07 / 8.68' LT	EXPLORATION ID: B-001-0-21
TYPE: CULVERT REPLACEMENT	SAMPLING FIRM / LOGGER: RII / J.K.	HAMMER: AUTOMATIC	ALIGNMENT: S.R. 84	
PID: 112999 SFN: 4303105	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 9/14/20	ELEVATION: 714.6 (ft)	EOB: 33.0 ft
START: 12/9/21 END: 12/9/21	SAMPLING METHOD: SPT / NQ2	ENERGY RATIO (%): 84.2	LAT / LONG: 41.776866, -81.023076	PAGE 1 OF 2

DEPTH (ft)	SPT / RQD	REC SAMPLE ID (%)	HP (ksi)	GRADATION (%)										WC	HOLE CLASS (GI)	HOLE SEALED	
				GR	CS	FS	SI	CL	LL	PL	PI						
1																	
2	21	52	SS-1													7	A-1-b (V)
3	12																
4	5	13	SS-2	2.75	10	16	25	30	19	20	13	7				13	A-4a (3)
5	4																
6	3	10	SS-3	1.50												14	A-4a (V)
7	4																
8	3																
9	4	8	SS-4	2.50	9	28	20	31	12	27	17	10				17	A-4a (2)
10	2																
11	2	7	SS-5													25	A-1-b (V)
12	3																
13																	
14	3	6	SS-6		28	33	17	-22		NP	NP	NP				15	A-1-b (0)
15	2	6	SS-7		40	37	10	-13		NP	NP	NP				17	A-1-b (0)
16	2																
17	4	14	SS-8		53	24	8	-15		NP	NP	NP				14	A-1-a (0)
18	5																
19	3	10	SS-9													13	A-1-a (V)
20	4																
21																	
22																	
23																	
24	86		NQ2-1														CORE
25																	
26																	
27	80		NQ2-2														CORE
28																	
29																	
30																	
31	0		NQ2-3														CORE
32																	
33																	

1.1'- ASPHALT (12.75")
 0.6'- AGGREGATE BASE (7.25")
 FILL: VERY DENSE, GRAY AND BLACK GRAVEL WITH SAND, LITTLE SILT, MOIST.
 -CINDERS, BRICK AND TILE FRAGMENTS IN SS-1
 FILL: STIFF TO VERY STIFF, GRAY SANDY SILT, LITTLE CLAY, TRACE FINE GRAVEL, MOIST.
 -Brick fragments in SS-4
 LOOSE, GRAY GRAVEL WITH SAND, LITTLE TO SOME SILT, WET.
 LOOSE TO MEDIUM DENSE, GRAY GRAVEL, SOME FINE TO COARSE SAND, LITTLE SILT, WET.
 -HEAVING SANDS @ 18.0'
 AUGER REFUSAL @ 23.0'
 SHALE: GRAY, SLIGHTLY WEATHERED, SLIGHTLY TO MODERATELY STRONG, THIN TO MEDIUM BEDDED, FISSILE, MODERATELY FRACTURED, NARROW TO OPEN, SLIGHTLY ROUGH TO VERY ROUGH, BLOCKY/DISTURBED/SEAMY, FAIR.
 -VERY SANDY @ 23.0'-25.0'
 - Rock Qu at 26.3 is 5,293 psi
 SHALE: GRAY, SLIGHTLY WEATHERED, SLIGHTLY TO MODERATELY STRONG, THIN TO MEDIUM BEDDED, FISSILE, MODERATELY FRACTURED, NARROW TO OPEN, SLIGHTLY ROUGH TO VERY ROUGH, BLOCKY/DISTURBED/SEAMY, FAIR. (continued)
 -SILTSTONE AND SANDSTONE LAMINAE PRESENT THROUGHOUT

NOTES: GROUNDWATER ENCOUNTERED INITIALLY @ 11.1'; CAVE-IN DEPTH @ 14.6'
 ABANDONMENT METHODS, MATERIALS, QUANTITIES. PUMPED 47 LBS CEMENT/25 LBS BENTONITE POWDER/40 GAL. WATER. PAVEMENT PATCHED WITH ASPHALT COLD PATCH.

DESIGN AGENCY

 6350 PRESIDENTIAL GATEWAY
 COLUMBUS, OHIO 43231
 (614) 833-4549
 DESIGNER
 JAS
 REVIEWER
 DEK 01-27-23
 PROJECT ID
 112999
 SUBSET TOTAL
 4 6
 SHEET TOTAL
 P.27 29

SOIL PROFILE - CULVERT
 LAK-84-30.86 OVER UNNAMED TRIBUTARY TO ARCOLA CREEK
 BORING LOG B-001-0-21

RESOURCE INTERNATIONAL, INC.

PROJECT: LAK-84-30-86 BRIDGE
 TYPE: CULVERT REPLACEMENT
 PID: 112999 SFN: 4303105
 START: 12/8/21 END: 12/8/21

DRILLING FIRM / OPERATOR: RII / TG
 SAMPLING FIRM / LOGGER: RII / J.K.
 DRILLING METHOD: 3.25" HSA
 SAMPLING METHOD: SPT / NO2

DRILL RIG: CME 55 (366345)
 HAMMER: AUTOMATIC
 CALIBRATION DATE: 9/14/20
 ENERGY RATIO (%): 84.2

STATION / OFFSET: 14+63.63 / 5.66' RT
 ALIGNMENT: S.R. 84
 ELEVATION: 714.5 (ft) EOB: 30.0 ft.
 LAT / LONG: 41.776716, -81.022861

EXPLORATION ID
B-002-0-21
 PAGE
 1 OF 1


MATERIAL DESCRIPTION
 AND NOTES

0.8" ASPHALT (9.25')	ELEV. 714.5	DEPTHS	SPT/ RQD	REC SAMPLE ID	HP (tsf)	GR	CS	FS	SI	CL	LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
0.6" AGGREGATE BASE (7.75')	7-3.7 7-3.1		9 21 34	SS-1	-	-	-	-	-	-	-	-	-	5	A-1-b (V)	
-brick fragments sporadically from 4.0 - 10.0			90/3"	SS-2	-	-	-	-	-	-	-	-	-	9	A-1-b (V)	
	709.0															
FILL: MEDIUM DENSE, GRAY COARSE AND FINE SAND, SOME SILT, LITTLE FINE GRAVEL, TRACE CLAY, MOIST.	706.5		15 12 9	SS-3	-	11	35	23	26	5	NP	NP	NP	9	A-3a (0)	
FILL: LOOSE, BROWN TO GRAY GRAVEL WITH SAND, LITTLE SILT, TRACE CLAY, MOIST TO WET.			6 3 2	SS-4	-	-	-	-	-	-	-	-	-	10	A-1-b (V)	
-Wood fragments			4	SS-5	-	37	20	19	19	5	NP	NP	NP	20	A-1-b (0)	
	689.5		6 4 3	SS-6	-	-	-	-	-	-	-	-	-	-	-	
MEDIUM DENSE TO VERY DENSE, DARK GRAY TO GRAY GRAVEL WITH SAND, LITTLE SILT, TRACE CLAY, MOIST TO WET. -HEAVING SANDS @ 15.5'			5 3 5	2S-6A SS-7	-	45 42	30 33	9 13	16 12	NP NP	NP NP	NP NP	NP NP	13 19	A-1-b (0) A-1-b (0)	
	696.0		50/5"	SS-8	-	61	15	6	18	NP	NP	NP	NP	8	A-1-b (0)	
SHALE : GRAY, HIGHLY WEATHERED. AUGER REFUSAL @ 19.5'			50/2"	SS-9	-	-	-	-	-	-	-	-	-	-	Rock (V)	
SHALE : GRAY, SLIGHTLY WEATHERED, MODERATELY STRONG, VERY THIN TO MEDIUM BEDDED, FISSILE, MODERATELY FRACTURED, NARROW TO OPEN, SLIGHTLY ROUGH TO VERY ROUGH, BLOCKY/DISTURBED/SEAMY, FAIR. -SANDY @ 21.6'-23.0' -SLIGHTLY CALCAREOUS @ 22.5' -FRACTURED @ 23.0'-24.0'	694.5		61	NQ2-1	95										CORE	
- Rock Qu at 21.5 is 6,464 psi -TRACE SANDSTONE, SILTSTONE AND CLAY LAMINAE THROUGHOUT			25	NQ2-2	99										CORE	
	684.5															

NOTES: GROUNDWATER ENCOUNTERED INITIALLY @ 11.5'; CAVE-IN DEPTH @ 21.8'

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PUMPED 47 LBS CEMENT/25 LBS BENTONITE POWDER/40 GAL. WATER; PAVEMENT PATCHED WITH ASPHALT COLD PATCH.

EOB

DESIGN AGENCY

 6350 PRESIDENTIAL GATEWAY
 COLUMBUS, OH 43231
 (614) 833-4549
 DESIGNER
 JAS
 REVIEWER
 DEK 01-27-23
 PROJECT ID
 112999
 SUBSET TOTAL
 5 6
 SHEET TOTAL
 P.28 29

SOIL PROFILE - CULVERT
 LAK-84-30.86 OVER UNNAMED TRIBUTARY TO ARCOLA CREEK
 BORING LOG B-002-0-21

Project Name: LAK-84-30.86		Location: Madison, Lake County, Ohio	Project No.: Rii. N-21-013
Photo No. 1			
Boring ID: B-001-0-21			
RC-1: 23.0 – 25.0 Recovery: 100% RQD: 86%			
RC-2: 25.0 – 30.0 Recovery: 85% RQD: 80%			

Project Name: LAK-84-30.86		Location: Madison, Lake County, Ohio	Project No.: Rii. N-21-013
Photo No. 2			
Boring ID: B-002-0-21			
RC-1: 20.0 – 25.0 Recovery: 95% RQD: 61.25%			
RC-2: 25.0 – 30.0 Recovery: 99.2% RQD: 25%			

Osborn Engineering
LAK-84-30.86 Bridge Replacement | PID:112999
Lake County, Ohio

PHOTO LOG
1

Resource International, Inc.
Engineering Consultants
Rii Project No. N-21-013 2/1/2023

SOIL PROFILE - CULVERT
LAK-84-30.86 OVER UNNAMED TRIBUTARY TO ARCOLA CREEK
BORING ROCK CORE PHOTO, B-001-0-21 & B-002-0-21

DESIGN AGENCY
Resource International
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