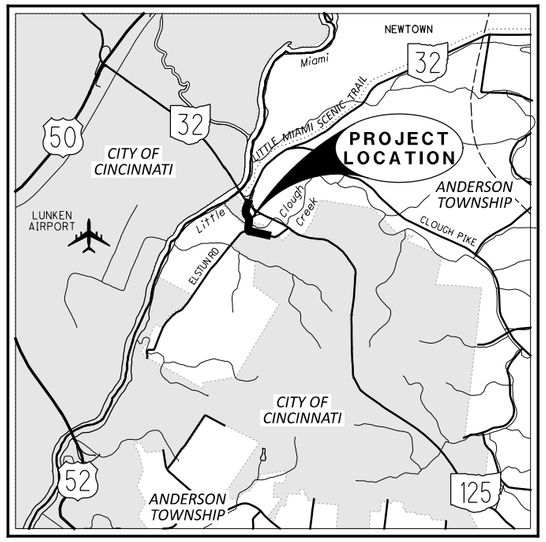
STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

HAM-LMST EXTENSION TO ELSTUN ROAD PHASE 2

ANDERSON TOWNSHIP
CITY OF CINCINNATI
HAMILTON COUNTY



LOCATION MAP

LATITUDE: 39 °06'20" LONGITUDE: -84°23'59"

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

DESIGN DESIGNATION	***ELSTUN CONNECTION PATH***	***ELSTUN RD***	***SR 32 EB RAMP***
CURRENT ADT (2022)		*3600*	*6500*
DESIGN YEAR ADT (2042)		*4100*	*8500*
DESIGN HOURLY VOLUME (2042)		*450*	*850*
DIRECTIONAL DISTRIBUTION		*0.60*	*0.60*
TRUCKS (24 HOUR B&C)		*0.02*	*0.02*
DESIGN SPEED	*15*	*35*	*35*
LEGAL SPEED		*35*	*35*
DESIGN FUNCTIONAL CLASSIFICATION:	*SHARED-USE PATH*	*(07) URBAN LOCAL*	*(03) URBAN PRINCIPAL ARTERIAL*
NHS PROJECT	*NO*	*NO*	*YES*

ADA DESIGN WAIVERS

NONE REQUIRED

DESIGN EXCEPTIONS

NONE REQUIRED

INDEX OF SHEETS:

FEDERAL PROJECT NUMBER

E201 (160)

RAILROAD INVOLVEMENT

NONE

PROJECT DESCRIPTION

CONSTRUCTION A OF A NEW 0.34 MILE, 10' WIDE SHARED-USE PATH CONNECTION FROM THE LITTLE MIAMI SCENIC TRAIL NEAR THE SR 125 / SR 32 INTERCHANGE TO SPINDLEHILL DRIVE. THIS PROJECT IS PHASE 2 OF THE GREATER ELSTUN CONNECTION TO THE LITTLE MIAMI SCENIC TRAIL. THE PROJECT INCLUDES A NEW STRUCTURE OVER CLOUGH CREEK.

EARTH DISTURBED AREAS

PROJECT EARTH DISTURBED AREA:	*2.53 ACRES*
ESTIMATED CONTRACTOR EARTH DISTURBED AREA:	*0.13 ACRES*
NOTICE OF INTENT EARTH DISTURBED AREA:	*2.66 ACRES*

2023 SPECIFICATIONS

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING SUPPLEMENTAL SPECIFICATIONS LISTED IN 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 DECLARE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE TRAFFIC THE CLOSING TO TRAFFIC OF THE HIGHWAY AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.

Tammy K. Campbell, P.E.
District 08 Deputy Director

Jack Marchbanks, PhD
Director, Department of Transportation

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:

Stantec
10200 Alliance Road,
Suite 300
Cincinnati OH 45242
(513) 842-8200

STANDARD CONSTRUCTION DRAWINGS

BP-3.1	*1/21/22*	*RM-5.2*	*7/21/23*	*TC-52.10*	*10/18/13*			***SUPPLEMENTAL SPECIFICATIONS***	***SPECIAL PROVISIONS***
				TC-52.20	*1/15/21*			*800 2023 10/20/23*	*WATERWAY PERMIT 12/15/23*
CB-2-2A, 2B, 2C	*1/20/23*	*HW-1.1*	*7/20/18*	*TC-61.30*	*7/19/19*			*823 10/20/23*	
		HW-2.1	*7/15/22*					*832 7/21/23*	
DM-1.1	*7/17/20*	*HW-2.2*	*7/20/18*					*863 7/21/23*	
DM-4.1	*7/17/20*							*870 7/21/23*	
DM-4.3	*1/15/16*	*MT-97.10*	*4/19/19*					*878 1/21/22*	
DM-4.4	*1/15/16*	*MT-98.30*	*7/16/21*					*894 4/16/21*	
		MT-101.60	*4/23/23*					*902 7/19/19*	
MGS-1.1	*7/16/21*	*MT-101.90*	*7/17/20*						
MGS-2.1	*1/19/18*	*MT-105.10*	*1/17/20*						
MGS-4.2	*7/19/13*								
MGS-4.3	*1/18/13*	*TC-41.20*	*10/18/13*						
		TC-41.30	*4/21/23*						
MH-2	*7/16/21*	*TC-42.20*	*10/18/13*						

ENGINEER'S SEAL

STATE OF OHIO
PAUL J DURHAM E-81699
REGISTERED PROFESSIONAL ENGINEER

Paul Durham
Digitally signed by Durham, Paul
DN: CN="Durham, Paul", OU=Internal, OU=users, OU=stantec, DC=corp, DC=ads
Location: Cincinnati, OH
Date: 2024.01.30 15:23:50-05'00'

ENGINEER'S SEAL
RETAINING WALL AND BRIDGE

STATE OF OHIO
MICHAEL R STURDEVANT E-49864
REGISTERED PROFESSIONAL ENGINEER

Digitally signed by Sturdevant, Michael
DN: CN="Sturdevant, Michael", OU=Internal, OU=users, OU=stantec, DC=corp, DC=ads
Location: Cincinnati, OH
Date: 2024.01.31 08:00:45-05'00'

ENGINEER'S SEAL
GEOTECHNICAL

STATE OF OHIO
BRENDAN P ANDREWS E-81471
REGISTERED PROFESSIONAL ENGINEER

Brendan Andrews
Digitally signed by Brendan Andrews
Date: 2024.01.30 15:56:37 -05'00'

DESIGN AGENCY
Stantec
10200 Alliance Road, Suite 300
Cincinnati, OH 45242
(513) 842-8200

DESIGNER ZTM
REVIEWER PJD 10-20-23
PROJECT ID 113602
SHEET P.1 TOTAL 71

TITLE SHEET

HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: Sheet PAPERSIZE: 17x11 (in.) DATE: 1/17/2024 TIME: 9:10:05 AM USER: pdurham
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HAM-LMST EXTENSION TO ELSTUN PHASE 2

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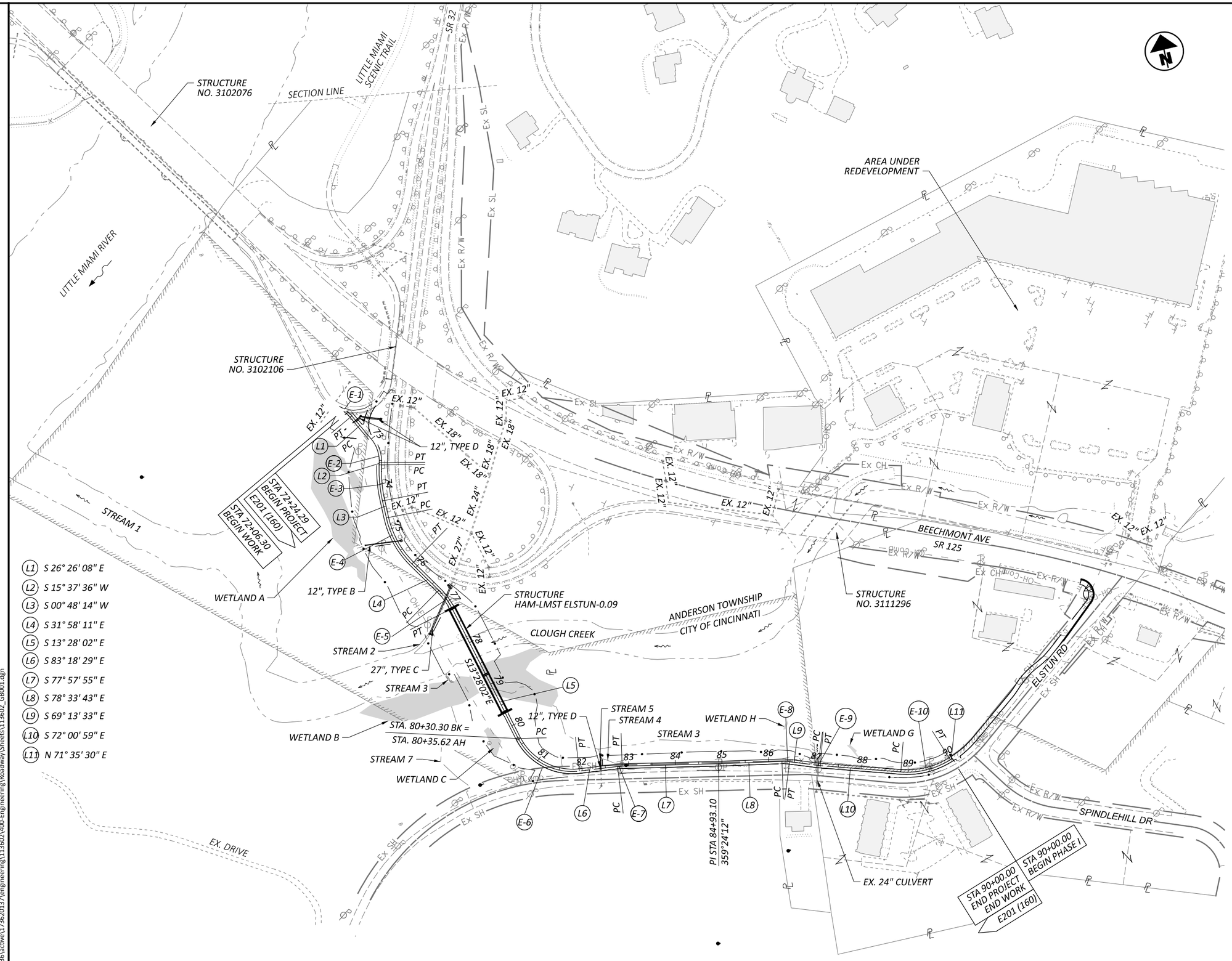


THERE ARE NO LANDSCAPED AREAS WITHIN THE WORK LIMITS

CURVE E-1
P.I. = STA. 72+18.87
Δ = 25°44'58" RT
Dc = 76°23'40"
R = 75.00'
T = 17.14'
L = 33.71'
E = 1.93'
C = 33.42'
C.B. = S 39°18'37" E
PC = 72+01.73
PT = 72+35.43

CURVE E-2
P.I. = STA. 73+28.24
Δ = 42°03'44" RT
Dc = 76°23'40"
R = 75.00'
T = 28.84'
L = 55.06'
E = 5.35'
C = 53.83'
C.B. = S 05°24'16" E
PC = 72+99.41
PT = 73+54.47

CURVE E-3
P.I. = STA. 73+98.46
Δ = 14°49'22" LT
Dc = 19°05'55"
R = 300.00'
T = 39.02'
L = 77.61'
E = 2.53'
C = 77.40'
C.B. = S 08°12'55" W
PC = 73+59.43
PT = 74+37.04

CURVE E-4
P.I. = STA. 75+33.32
Δ = 32°46'25" LT
Dc = 28°38'52"
R = 200.00'
T = 58.81'
L = 114.40'
E = 8.47'
C = 112.85'
C.B. = S 15°34'59" E
PC = 74+74.51
PT = 75+88.91

CURVE E-5
P.I. = STA. 76+93.81
Δ = 18°30'09" RT
Dc = 38°11'50"
R = 150.00'
T = 24.43'
L = 48.44'
E = 1.98'
C = 48.23'
C.B. = S 22°43'07" E
PC = 76+69.38
PT = 77+17.82

CURVE E-6
P.I. = STA. 81+21.05
Δ = 69°50'27" LT
Dc = 44°04'25"
R = 130.00'
T = 90.76'
L = 158.46'
E = 28.55'
C = 148.83'
C.B. = S 48°23'15" E
PC = 80+30.30
PT = 81+94.08

CURVE E-7
P.I. = STA. 82+81.11
Δ = 05°20'34" RT
Dc = 57°17'45"
R = 100.00'
T = 4.67'
L = 9.32'
E = 0.11'
C = 9.32'
C.B. = S 80°38'12" E
PC = 82+76.45
PT = 82+85.77

CURVE E-8
P.I. = STA. 86+36.79
Δ = 09°20'10" RT
Dc = 57°17'45"
R = 100.00'
T = 8.17'
L = 16.29'
E = 0.33'
C = 16.28'
C.B. = S 73°53'38" E
PC = 86+28.63
PT = 86+44.92

CURVE E-9
P.I. = STA. 87+09.03
Δ = 02°47'26" LT
Dc = 57°17'45"
R = 100.00'
T = 2.44'
L = 4.87'
E = 0.03'
C = 4.87'
C.B. = S 70°37'16" E
PC = 87+06.60
PT = 87+11.47

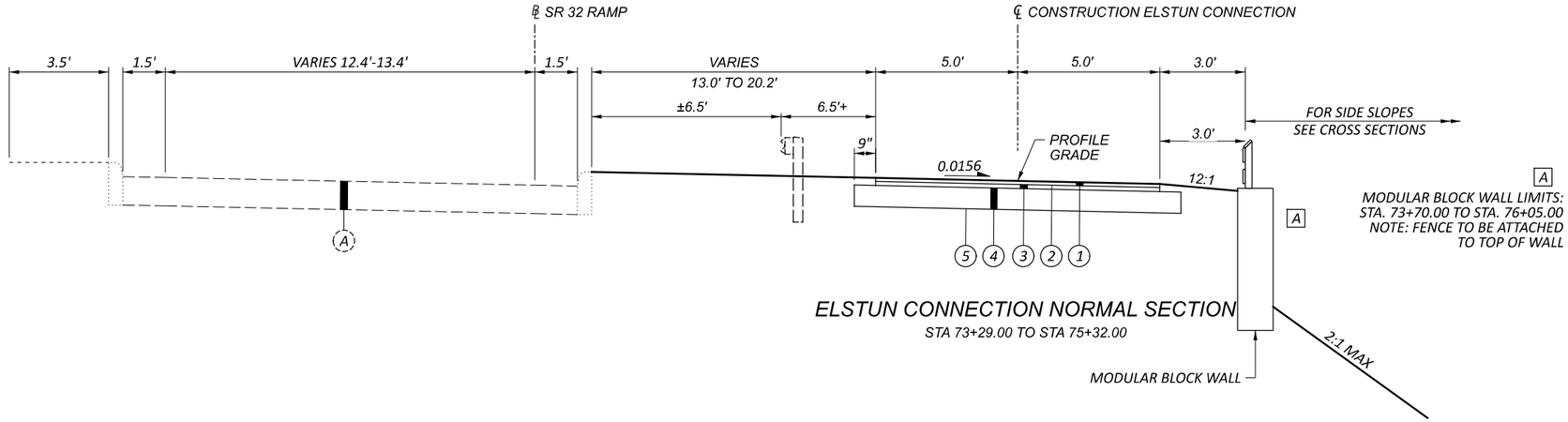
CURVE E-10
P.I. = STA. 89+41.60
Δ = 36°23'32" LT
Dc = 32°44'26"
R = 175.00'
T = 57.52'
L = 111.15'
E = 9.21'
C = 109.29'
C.B. = N 89°47'15" E
PC = 88+84.08
PT = 89+95.23

HORIZONTAL SCALE IN FEET
0 50 100 200

SCHEMATIC PLAN

DESIGN AGENCY
Stantec
10200 Alliance Road, Suite 300
Cincinnati, OH 45242
(513) 842-8200

DESIGNER	ZTM
REVIEWER	PJD 10-20-23
PROJECT ID	113602
SHEET	P.2
TOTAL	71



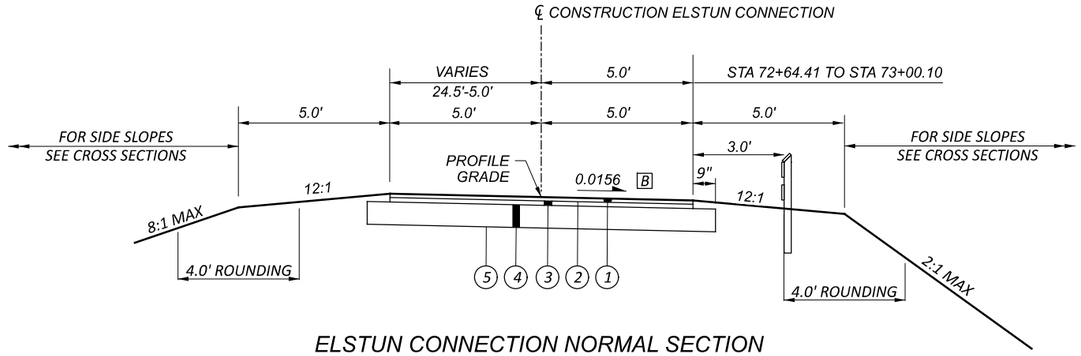
ELSTUN CONNECTION NORMAL SECTION

STA 73+29.00 TO STA 75+32.00

LEGEND

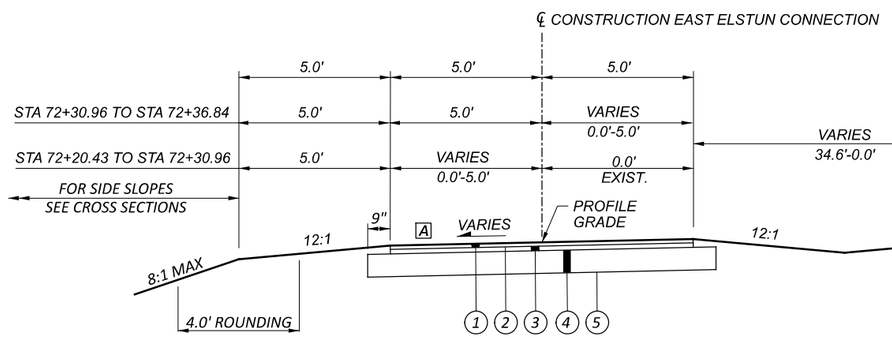
1. ITEM 823, 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (449), PG64-22
2. ITEM 407, NON-TRACKING TACK COAT
3. ITEM 823, 1¾" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, (449)
4. ITEM 304, 9" AGGREGATE BASE
5. ITEM 204, SUBGRADE COMPACTION AND PROOF ROLLING
6. ITEM 204, EXCAVATION OF SUBGRADE, 12"
7. ITEM 204, GRANULAR MATERIAL, TYPE C
8. ITEM 204, GEOTEXTILE FABRIC, 712.09, TYPE D

A. EXISTING PAVEMENT



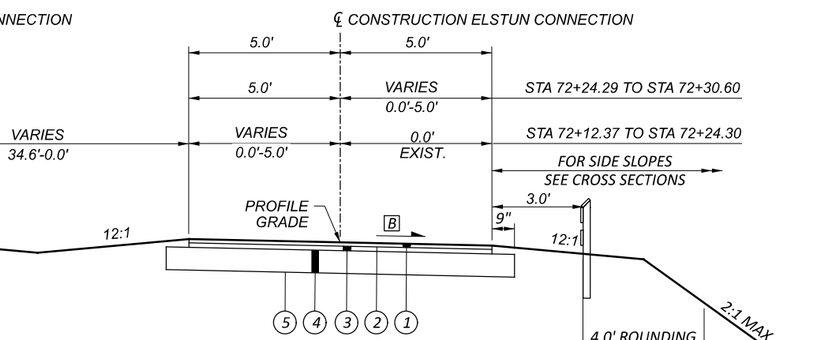
ELSTUN CONNECTION NORMAL SECTION

STA 72+64.41 TO STA 73+29.00



ELSTUN CONNECTION EAST NORMAL SECTION

STA 72+20.43 TO STA 72+66.00



ELSTUN CONNECTION NORMAL SECTION

STA 72+12.37 TO STA 72+64.41

A. SEE INTERSECTION DETAIL SHEET P.33 FOR MORE DETAILS

B. TRANSITION FROM -0.05 TO 0.0156 BETWEEN STA. 72+12.37 AND STA. 72+75.00

HAM-LMST EXTENSION TO ELSTUN PHASE 2

TYPICAL ELSTUN CONNECTION

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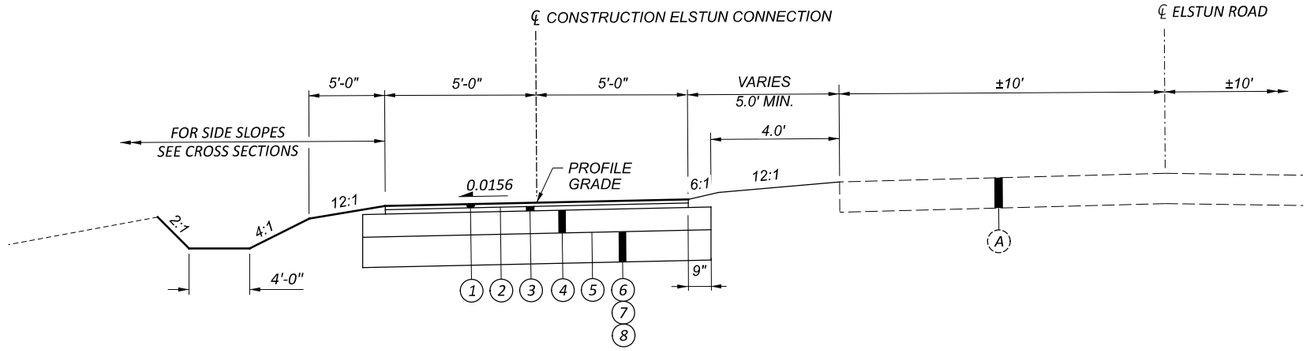
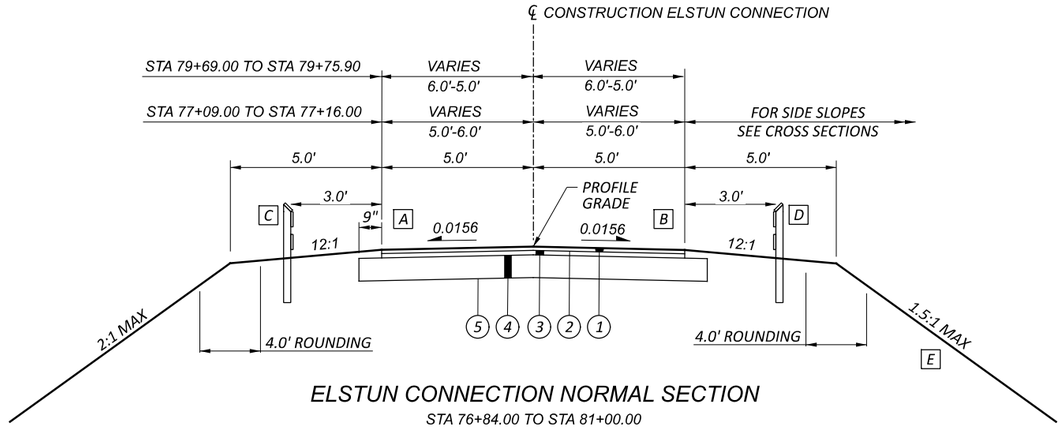
DESIGN AGENCY
Stantec
10200 Alliance Road, Suite 300
Cincinnati, OH 45242
(513) 842-8200

DESIGNER ZTM
REVIEWER PJD 10-20-23
PROJECT ID 113602
SHEET P.3 TOTAL 71



ELSTUN CONNECTION NORMAL SECTION

STA 82+40.00 TO STA 90+00.00



ELSTUN CONNECTION NORMAL SECTION

STA 76+84.00 TO STA 81+00.00

A TRANSITION FROM -0.0156 TO 0.0156 BETWEEN STA 76+84.00 AND STA 77+16.00

B TRANSITION FROM 0.0156 TO -0.0156 BETWEEN STA 80+68.00 AND STA 81+00.00

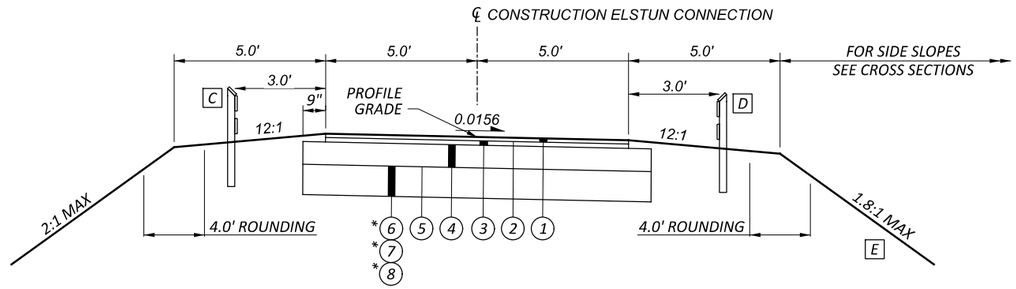
C FENCE LIMITS LEFT:
STA 75+09.40 TO STA 77+16.00
STA 79+69.00 TO STA 80+71.00

D FENCE LIMITS RIGHT:
STA 72+12.37 TO STA 77+16.00
STA 79+69.00 TO STA 80+65.00

E FOR REINFORCED SOIL SLOPE DETAILS, SEE SHEET NO. 5

BRIDGE LIMITS

STA 77+16.20 TO STA 79+69.00



ELSTUN CONNECTION NORMAL SECTION

STA 75+32.00 TO STA 76+84.00
STA 81+00.00 TO STA 82+40.00 (-0.0156)

* STA 81+50.00 TO STA 82+40.00

TYPICAL ELSTUN CONNECTION

HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: Sheet - 2 PAPERSIZE: 17x11 (in.) DATE: 10/23/2023 TIME: 1:38:32 PM USER: zmorman
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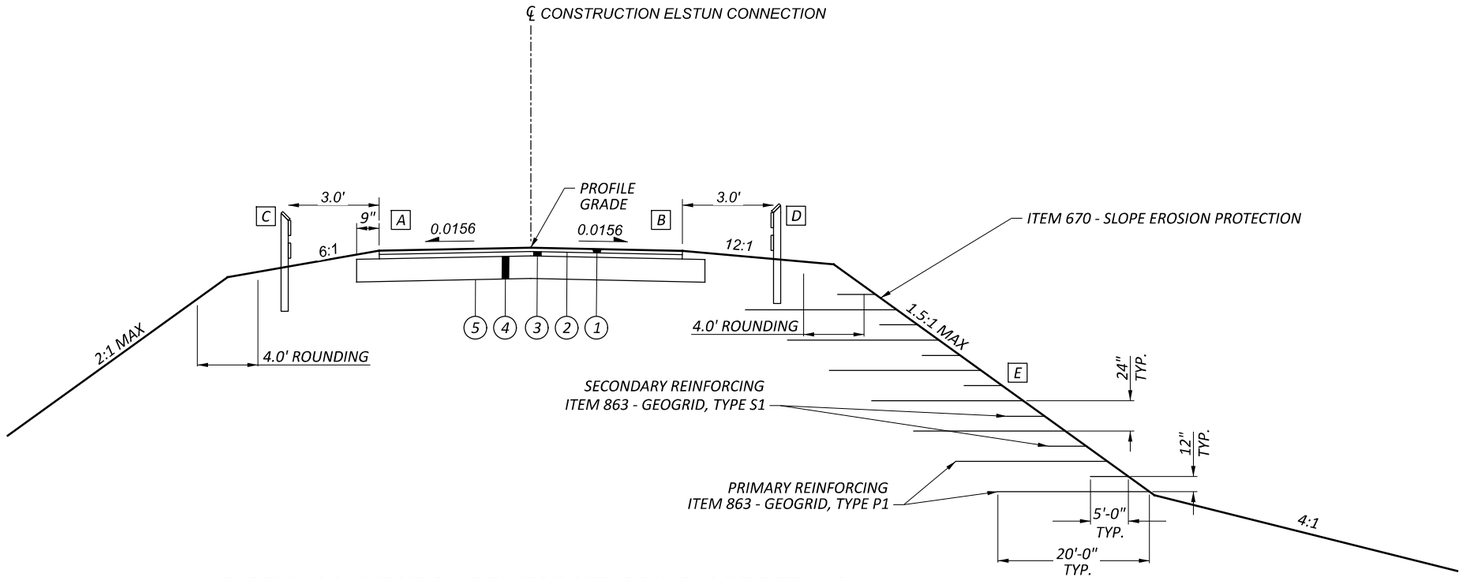
DESIGN AGENCY
Stantec
10200 Alliance Road, Suite 300
Cincinnati, OH 45242
(513) 842-8200

DESIGNER ZTM

REVIEWER PJD 10-20-23

PROJECT ID 113602

SHEET P.4 TOTAL 71



ELSTUN CONNECTION REINFORCED SOIL SLOPE DETAILS

STA 76+00.00 TO STA 80+50.00

TYPICAL ELSTUN CONNECTION

HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: Sheet - 3 PAPERSIZE: 17x11 (in.) DATE: 10/23/2023 TIME: 1:38:33 PM USER: zmorman
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DESIGN AGENCY
Stantec
10200 Alliance Road,
Suite 300
Cincinnati, OH 45242
(513) 842-8200

DESIGNER ZTM

REVIEWER PJD 10-20-23

PROJECT ID 113602

SHEET P.5 | TOTAL 71

UTILITIES

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

ELECTRIC DISTRIBUTION:
DUKE ENERGY
2010 DANA AVENUE
CINCINNATI, OH 45207
PHONE: (513) 514-8211
(AARON WRIGHT)

ELECTRIC TRANSMISSION:
DUKE ENERGY
139 EAST FOURTH ST, 4TH FLOOR ANNEX
CINCINNATI, OH 45202
PHONE: (513) 659-3513
(TIM MEYER)

GAS:
DUKE ENERGY
139 EAST FOURTH ST,
P.O. BOX 960, ROOM 460A
CINCINNATI, OH 45202
PHONE: (513) 614-8648
(RICHARD HACK)

TELEPHONE:
CINCINNATI BELL TELEPHONE
221 EAST FOURTH ST, BLDG 121-900
CINCINNATI, OH 45202
PHONE: (513) 565-7043
(MARK CONNER)

SANITARY:
METROPOLITAN SEWER DISTRICT (MSD)
1600 GEST STREET
CINCINNATI, OH 45242
PHONE: (513) 557-7108
(ROB FRANKLIN)

CABLE:
CHARTER COMMUNICATIONS
11252 CORNELL PARK DRIVE
CINCINNATI, OH 45242
PHONE: (513) 386-5499
(KENT RIEGER)

TRAFFIC MAINTENANCE:
ODOT DISTRICT 8
505 SOUTH STATE ROUTE 741
LEBANON, OHIO 45036
PHONE: (513) 933-6689

BENCHING OF FOUNDATION SLOPES

ALTHOUGH CROSS-SECTIONS INDICATE SPECIFIC DIMENSIONS FOR PROPOSED BENCHING OF THE EMBANKMENT FOUNDATIONS IN CERTAIN AREAS, NO WAIVER OF THE SPECIFICATIONS IS INTENDED. BENCH ALL OTHER SLOPED EMBANKMENT AREAS AS SET FORTH IN SECTION 203.05 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS (C&MS). NO ADDITIONAL PAYMENT WILL BE MADE FOR BENCHING REQUIRED UNDER THE PROVISIONS OF SECTION 203.05.

SURVEYING PARAMETERS

PRIMARY PROJECT CONTROL MONUMENTS GOVERN ALL POSITIONING ON ODOT PROJECTS.

PROJECT CONTROL POINTS ARE SHOWN IN A TABLE AT THE BOTTOM OF THIS SHEET.

PROJECT CONTROL

POSITIONING METHOD: GPS-FAST STATIC
MONUMENT TYPE: 30" X 5/8" IRON PIN W/ CAP

VERTICAL POSITIONING

ORTHOMETRIC HEIGHT DATUM: NAVD 88
GEOID: 18

HORIZONTAL POSITIONING

REFERENCE FRAME: NAD 83 (2011)
ELLIPSOID: (GRS 80)
MAP PROJECTION: LAMBERT CONFORMAL
COORDINATE SYSTEM: SPC (3402 OH SOUTH)
COMBINED SCALE FACTOR: 1.0000718352
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

ALTHOUGH THERE ARE NO TREES OR STUMPS SPECIFICALLY MARKED FOR REMOVAL WITHIN THE LIMITS OF THE PROJECT, A LUMP SUM QUANTITY IS INCLUDED IN THE GENERAL SUMMARY FOR ITEM 201, CLEARING AND GRUBBING. ALL PROVISIONS AS SET FORTH IN THE SPECIFICATIONS UNDER THIS ITEM ARE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 201, CLEARING AND GRUBBING.

ITEM 203 - ROADWAY MISC.: EXISTING GAS LINE PROTECTION

THIS ITEM SHALL CONSIST OF UTILITY COORDINATION AND THE INSTALLATION AND SUBSEQUENT REMOVAL OF PROTECTION MEASURES FOR AN EXISTING 24" GAS MAIN.

WHEN IT IS NECESSARY FOR THE CONTRACTOR TO CROSS THE EXISTING 24" GAS MAIN SHOWN ON SHEET 19 WITH HEAVY EQUIPMENT, APPROPRIATE PROTECTION MEASURES SHALL BE IMPLEMENTED TO PREVENT DAMAGE TO THE EXISTING PIPELINE. THE CONTRACTOR SHALL CONTACT JOHN PERKINS WITH DUKE ENERGY AT (513) 287-1276 OR JOHN.PERKINS@DUKE-ENERGY.COM TO COORDINATE THE LOCATION OF AND REQUIRED PROTECTION FOR HEAVY EQUIPMENT CROSSINGS. THIS CROSSING SHALL MEET THE PROTECTION REQUIRMENTS OF DUKE ENERGY. THESE REQUIRMENTS ARE EXPECTED TO INCLUDE BUILDING AND REMOVING A CRANE MAT BRIDGE OVER THE EXISTING GAS MAIN AS SHOWN IN THE DETAIL TO THE RIGHT.

INCLUDE ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS REQUIRED TO COMPLETE THE ABOVE WORK IN THE UNIT PRICE BID FOR ITEM 203 ROADWAY MISC.: EXISTING GAS LINE PROTECTION

ITEM 863 - REINFORCED EMBANKMENT, AS PER PLAN

ALL ASPECTS OF ITEM 863 REINFORCED EMBANKMENT SHALL APPLY WITH THE ADDITIONAL REQUIREMENT THAT COHESIVE SOILS CLASSIFYING AS CLAY (A-7-6) SHALL BE PROHIBITED FROM USE AS REINFORCED SOIL SLOPE BACKFILL.

THE REINFORCED EMBANKMENT ZONE SHALL EXTEND 1' BELOW THE BOTTOM REINFORCING LAYER AND 1' BEYOND THE END OF THE PRIMARY REINFORCING LAYERS.

ROUNDING

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

ITEM 204 - PROOF ROLLING

THE FOLLOWING QUANTITY IS PROVIDED IN THE GENERAL SUMMARY TO ADDRESS LOCATIONS REQUIRING PROOF ROLLING.

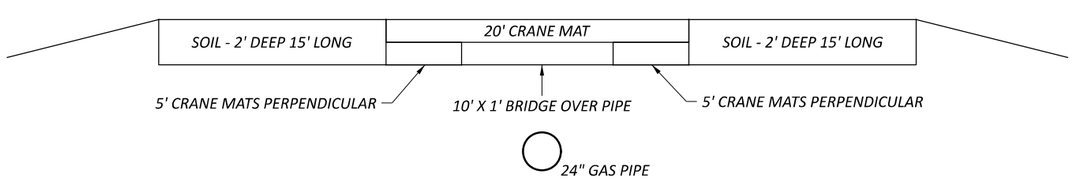
ITEM 204 - PROOF ROLLING 1 HOUR.

CENTERLINE AND PROJECT CONTROL TABLE

IDENTIFIER	STATION	OFFSET	NORTHING	EASTING	ELEVATION	DESCRIPTION
CP-1	74+01.48	67.42' RT	408920.630	1429244.290	474.49	I.P.S "STANTEC" CONTROL
CP-2	77+44.64	97.29' RT	408568.616	1429311.171	471.68	I.P.S "STANTEC" CONTROL
CP-3	81+08.45	37.11' RT	408224.423	1429481.744	500.60	I.P.S "STANTEC" CONTROL
CP-4	84+75.05	39.50' RT	408125.424	1429851.469	508.13	I.P.S "STANTEC" CONTROL
CP-5	89+73.96	44.63' RT	408003.303	1430349.875	519.18	I.P.S "STANTEC" CONTROL

NOTE: ALL COORDINATES ARE PROJECT COORDINATES

EXISTING GAS LINE PROTECTION DETAIL



GENERAL NOTES

HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: Sheet PAPERSIZE: 17x11 (in.) DATE: 1/17/2024 TIME: 11:06:38 AM USER: qkichen
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DESIGN AGENCY
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DESIGNER ZTM
REVIEWER PJD 10-20-23
PROJECT ID 113602
SHEET P.6 TOTAL 71

ITEM 204 - SUBGRADE COMPACTION AND PROOF ROLLING

CONSTRUCT THE SUBGRADE AS FOLLOWS AND IN THE FOLLOWING SEQUENCE:

1. *SHAPE THE SUBGRADE TO WITHIN 0.2 FEET OF THE PLAN SUBGRADE ELEVATION.*

2. *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.

3. *COMPACT THE SUBGRADE ACCORDING TO C&MS 204.03.*

4. *APPROXIMATE LIMITS FOR EXCAVATION OF UNSTABLE SUBGRADE ARE SHOWN AND LABELED ON THE CROSS SECTIONS AS UNSTABLE SUBGRADE. THE ENGINEER WILL IDENTIFY THE ACTUAL LIMITS OF EXCAVATION FOR UNSTABLE SUBGRADE BASED ON THE PROOF ROLLING RESULTS AND VISUAL OBSERVATIONS.*

   PROOF ROLL THE COMPACTED SUBGRADE ACCORDING TO C&MS 204.06.

5. *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.*

6. *PROOF ROLL THE STABILIZED AREAS ACCORDING TO C&MS 204.06 TO VERIFY STABILITY.*

7. *FINE GRADE THE SUBGRADE TO THE SPECIFIED GRADE.*

THE QUANTITIES FOR EXCAVATING THE UNSUITABLE SUBGRADE AND UNSTABLE SUBGRADE ARE BOTH PAID UNDER ITEM 204, EXCAVATION OF SUBGRADE.

ITEM 602 - CONCRETE MASONRY, FULL HEIGHT HEADWALLS

CONSTRUCT HEADWALLS FOR CONDUITS SMALLER THAN 42" PER HW-1.1 EXCEPT THAT THE DIMENSIONS SHOULD BE MODIFIED ACCORDING TO THE TABLE ON SHEET P.44. NOTE THAT ADDITIONAL HEIGHT AND/OR LENGTH MAY BE NECESSARY TO INSTALL CHECK VALVES, DEPENDING ON THE TYPE SELECTED, AS NOTED IN THE PLANS.

ITEM 607 - FENCE, MISC.: WOOD FENCE

THIS ITEM SHALL CONSIST OF CONSTRUCTING A WOODEN BIKEWAY RAILING ACCORDING TO STANDARD CONSTRUCTION DRAWING RM-5.2. AT THE LOCATION SPECIFIED ON THE PLANS. ALL LABOR, EQUIPMENT, AND MATERIALS REQUIRED TO PERFORM THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 607, FENCE, MISC.: WOOD FENCE.

SAW CUT

THE EXISTING PAVEMENT EDGES SHALL BE SAW CUT TO LOCATE A SOUND PAVEMENT. FOR ESTIMATING PURPOSES, PAVEMENT CALCULATIONS INCLUDED IN THE PLAN INDICATE AN AVERAGE WIDTH OF 1' OF EXISTING PAVEMENT BEING REPLACED.

ITEM SPECIAL–SETTLEMENT PLATFORMS

DESCRIPTION: THIS ITEM CONSISTS OF FURNISHING, CONSTRUCTING, AND MAINTAINING SETTLEMENT PLATFORMS AND OBTAINING SETTLEMENT READINGS AS REQUIRED BY THE PLANS OR AS DIRECTED BY THE ENGINEER. AT THE OPTION AND EXPENSE OF THE CONTRACTOR, ADDITIONAL SETTLEMENT PLATFORMS MAY BE INSTALLED AT LOCATIONS APPROVED BY THE ENGINEER. SETTLEMENT READINGS SHALL BE TAKEN AND RECORDED AT EACH OF THE FOLLOWING SETTLEMENT MONITORING PERIODS:

1) THREE TIMES A WEEK FOR THE FIRST 2 WEEKS;

2) ON A WEEKLY BASIS THEREAFTER UNTIL AS DETERMINED BY THE ENGINEER.

THE ESTIMATED WAITING PERIOD IS 70 CALENDER DAYS FOR THE REAR ABUTMENT (SP-1) AND 170 CALENDER DAYS FOR THE FORWARD ABUTMENT (SP-2).

THE READINGS SHALL BE PLOTTED ON GRAPH PAPER PRESENTING DEFORMATION (ON THE NEGATIVE Y-AXIS) AND FILL HEIGHT (ON THE POSITIVE Y-AXIS) VERSUS TIME (ON THE X-AXIS). IN ORDER TO CREATE THE GRAPH, USE THE SETTLEMENT PLATFORM SPREADSHEET LOCATED AT HTTP://WWW.DOT.STATE.OH.US/DIVISIONS/ENGINEERING/GEOTECHNICAL/ENGLISH.XLS IN THE OGE WEBSITE PUBLICATIONS AND DOCUMENTS SECTION. A COPY OF EACH CUMULATIVE PLOT SHALL BE SENT TO THE OFFICE OF GEOTECHNICAL ENGINEERING, ATTENTION: GEOTECHNICAL DESIGN COORDINATOR, AFTER EACH SETTLEMENT READING IS RECORDED.

SETTLEMENT PLATFORMS SHALL BE INSTALLED AT THE FOLLOWING LOCATIONS:

BEHIND EACH BRIDGE ABUTMENT
STA 77+00.00, 0.00' LT SP-1
STA 79+80.00, 0.00' LT SP-2

MATERIALS: SOUND LUMBER SUCH AS 19MM (3/4-INCH) EXTERIOR GRADE PLYWOOD SHALL BE USED FOR THE BASE. THE PIPE SHALL BE 64MM (2-1/2-INCH) STANDARD BLACK PIPE WITH THREADED FITTINGS AS SHOWN ON THE PLANS. A STEEL PLATE 915MM X 915MM X 3.2MM (36" X 36" X 1/8") MAY BE SUBSTITUTED FOR THE LUMBER FOR THE PLATFORMS, AT THE CONTRACTOR'S OPTION.

CONSTRUCTION METHODS: THE PLATFORM SHALL CONFORM TO THE DETAILS SHOWN ON THE PLANS. THE PLATFORM SHALL BE SET ON A LEVEL SURFACE. THE PIPE SHALL BE FIRMLY SECURED TO THE PLATFORM AND SHALL BE MAINTAINED IN A PLUMB POSITION DURING THE PLACEMENT OF THE EMBANKMENT. THE PIPE SHALL BE MARKED AT INTERVALS TO FACILITATE MEASUREMENT OF THE DEPTH OF FILL. THE CONTRACTOR SHALL STOP WORK IN ANY LOCATION WHERE THE SETTLEMENT PLATFORM HAS BEEN DISTURBED OR DAMAGED. PLATFORMS OR PIPES DAMAGED OR DISPLACED DURING CONSTRUCTION SHALL BE RESTORED TO THEIR PROPER CONDITION AT THE CONTRACTOR'S EXPENSE.

PRIOR TO PAVING, THE TOP OF THE SETTLEMENT PLATFORM PIPE SHALL BE CUT OFF 600 (TWO FEET) BELOW THE FINISHED SURFACE OF THE SUBGRADE OR FINISHED GROUND SURFACE, WHICHEVER IS APPLICABLE.

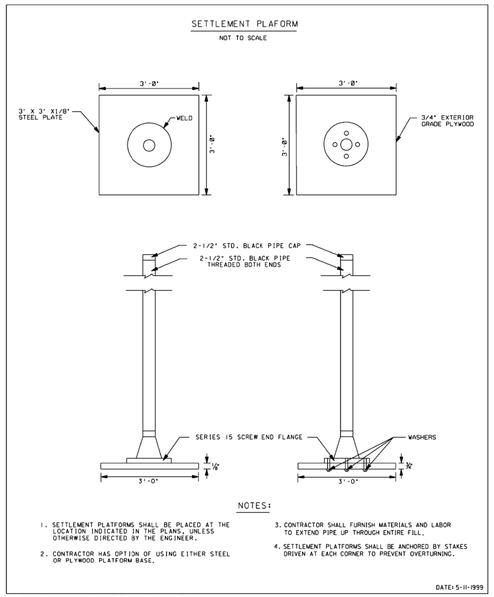
METHOD OF MEASUREMENT: THE NUMBER OF SETTLEMENT PLATFORMS TO BE PAID FOR SHALL BE THE ACTUAL NUMBER OF SETTLEMENT PLATFORMS COMPLETED, MAINTAINED, AND ACCEPTED BY THE ENGINEER.

BASIS OF PAYMENT: PAYMENT SHALL BE MADE AT THE CONTRACT UNIT PRICE EACH FOR "ITEM SPECIAL – SETTLEMENT PLATFORMS" WHICH IS COMPENSATION FOR CONSTRUCTING MAINTAINING, AND MONITORING THE SETTLEMENT PLATFORMS INCLUDING FURNISHING ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK. PAYMENT SHALL NOT BE MADE FOR SETTLEMENT PLATFORMS WHICH BECOME USELESS DUE TO DAMAGE CAUSED BY THE CONTRACTOR'S OPERATIONS.

ITEM SPECIAL–SETTLEMENT PLATFORMS (CONTINUED)

THE FOLLOWING QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY FOR THIS WORK:

ITEM 203 SETTLEMENT PLANFORM 2 EACH



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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 A W-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.

ITEM SPECIAL - CONSULTANT FOR CONCRETE QUALITY CONTROL INCLUDING TESTING AND INSPECTION

ALL CONCRETE SHALL BE TESTED. ALL TESTING, INSPECTION AND QUALITY CONTROL FOR CONCRETE, NOT INCLUDED UNDER QC/QA PAY ITEMS, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL PROVIDE A CONCRETE TESTING CONSULTANT WITH PREVIOUS EXPERIENCE AND FAMILIARITY IN ODOT PROCEDURES, CONCRETE TESTING REQUIREMENTS AND CONCRETE TESTING DOCUMENTATION. AT LEAST 30 DAYS PRIOR TO CONCRETE PLACEMENT, SUBMIT TO THE ENGINEER FOR APPROVAL, THE PROPOSED CONCRETE TESTING CONSULTANT ALONG WITH THE RESUMES OF THE PROPOSED TESTING PERSONNEL.

TESTING CONCRETE FOR STRUCTURES AND PORTLAND CEMENT CONCRETE PAVEMENT SHALL BE PERFORMED AS OUTLINED IN CMS SPECIFICATIONS 455 RESPECTIVELY.

THROUGH THE CONTRACTOR, THE CONSULTANT SHALL BE RESPONSIBLE FOR ENSURING THAT ALL CONCRETE PLACED IS IN ACCORDANCE WITH THE SPECIFICATIONS. SUCH WORK SHALL BE IN ACCORDANCE WITH THE APPLICABLE CONSTRUCTION AND MATERIAL SPECIFICATIONS AND THE ODOT CONSTRUCTION INSPECTION MANUAL OF PROCEDURES FOR CONCRETE. THE CONCRETE CONSULTANT SHALL PROVIDE THE NECESSARY TRAINED TECHNICIAN(S), ALL EQUIPMENT, AND SHALL FURNISH THE PROJECT ENGINEER WITH TWO (2) COPIES OF ALL TEST RESULTS WITHIN 24 HOURS AFTER COMPLETION OF CONCRETE PLACEMENT.

ITEM SPECIAL - CONSULTANT FOR CONCRETE QUALITY CONTROL INCLUDING TESTING AND INSPECTION (CONTINUED)

THE TECHNICIAN SHALL BE ACI LEVEL 1 CERTIFIED AND WILL BE REQUIRED TO DEMONSTRATE HIS/HER COMPETENCE AND EXPERIENCE LEVELS TO THE ENGINEER PRIOR TO BEGINNING WORK. THE ENGINEER WILL ORDER THE CONTRACTOR TO REPLACE ANY TECHNICIAN THAT IS NOT VERSED IN THE REQUIRED TESTING PROCEDURE.

*THE TECHNICIAN SHALL VERBALLY NOTIFY THE ODOT PROJECT ENGINEER OF ANY FAILING TEST AND SHALL SUBMIT FOLLOW-UP WRITTEN NOTIFICATION TO THE PROJECT ENGINEER OF REMEDIAL ACTION(S) TAKEN. TESTS SHALL BE TAKEN AS SPECIFIED WITHIN THE CONSTRUCTION AND MATERIAL SPECIFICATIONS, CONCRETE MANUAL OR APPROPRIATE SUPPLEMENTAL SPECIFICATION AS LISTED IN THE PROPOSAL GOVERNING THE PROJECT. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO MAKE **IMMEDIATE** CORRECTIONS OR ADJUSTMENTS TO THE CONCRETE MIX VIA DIRECT COMMUNICATION WITH THE CONCRETE SUPPLIER'S PLANT PERSONNEL TO MAINTAIN UNINTERRUPTED COMPLIANCE WITH THE SPECIFICATIONS UPON NOTIFICATION OF CONCRETE MIX NON-COMPLIANCE BY THE CONSULTANT TECHNICIAN. THE PROJECT ENGINEER MAY REQUIRE MORE FREQUENT TESTING AS CONDITIONS WARRANT.*

UPON COMPLETION OF DAILY CONCRETE PLACEMENT(S), THE CONCRETE CONSULTANT SHALL PROVIDE THE PROJECT ENGINEER WITH DAILY TEST REPORTS, TE-45'S, INSPECTORS DAILY REPORT AND SUPPORTING DOCUMENTATION FOR EACH ITEM OF CONCRETE WORK PERFORMED SEPARATED BY MIX DESIGN. SUBSEQUENTLY, UPON COMPLETION OF AN ENTIRE CONCRETE SPECIFICATION ITEM, THE CONCRETE CONSULTANT SHALL ALSO PROVIDE THE PROJECT ENGINEER WITH TWO (2) COPIES OF AN ADDITIONAL INSPECTION REPORT BY A REGISTERED PROFESSIONAL ENGINEER, STATE OF OHIO, WHICH CONTAINS THE TESTING-RESULTS SUMMARY FOR EACH ITEM BY CONTRACT REFERENCE NUMBER AND THE CONSULTANT'S CONCLUSIONS RELATIVE TO SPECIFICATION COMPLIANCE FOR ALL CONCRETE-TESTING WORK.

THE ODOT PROJECT ENGINEER RESERVES THE RIGHT TO MAKE UNANNOUNCED QUALITY-CONTROL TESTS TO VERIFY PROCEDURES USED AND RESULTS BEING OBTAINED BY THE CONTRACTOR.

THE CONCRETE TECHNICIAN SHALL WORK UNDER THE DIRECTION OF A REGISTERED PROFESSIONAL ENGINEER, STATE OF OHIO, WHO WILL MONITOR THE CONCRETE TEST RESULTS. THE FINAL INSPECTION REPORTS FOR EACH COMPLETED ITEM SHALL BE SIGNED BY A REGISTERED PROFESSIONAL ENGINEER, STATE OF OHIO, CERTIFYING THAT ALL CONCRETE TESTS PROVIDED BY THE CONTRACTOR MET APPLICABLE CONTRACT REQUIREMENTS. A FINAL REPORT ISSUED BY THE CONSULTING FIRM SHALL CONTAIN A CERTIFIED STATEMENT OF COMPLIANCE WITH ODOT SPECIFICATIONS AND ANY OTHER CONCLUSIONS REGARDING THE CONCRETE MATERIALS INCORPORATED INTO THE PROJECT. SUCH STATEMENT SHALL BE SIGNED BY A REGISTERED PROFESSIONAL ENGINEER, STATE OF OHIO. AND, THE CONCRETE CONSULTANT SHALL BE REQUIRED TO ATTEND MONTHLY PROGRESS MEETINGS AS REQUIRED BY THE PROJECT ENGINEER.

ADDITIONALLY, THE CONTRACTOR SHALL BE REQUIRED TO KEEP A POSTED LIST OF BEAM AND CYLINDER IDENTIFICATION NUMBERS FOR THE PURPOSE OF IDENTIFYING THE CORRESPONDING PLACEMENT LOCATION AND CONCRETE SPECIFICATION ITEM.

PAYMENT SHALL BE BID AS LUMP SUM FOR ITEM SPECIAL MISC.: CONSULTANT FOR CONCRETE QUALITY CONTROL INCLUDING TESTING AND INSPECTION. THE ITEM WILL BE PAID FOR AS FOLLOWS:
UPON APPROVAL OF CONSULTANT 20%
PROGRESSIVE EQUIVALENT PAYMENTS 50%
UPON SUBMISSION OF FINAL REPORT . . . . . 30%.

THE TECHNICIAN SHALL HAVE THE FULL EFFECT AND AUTHORITY OF AN ODOT PROJECT INSPECTOR IN DETERMINING ACCEPTABILITY OF MATERIAL AND CONCRETE PLACEMENT PRACTICES.

HAM-LMST EXTENSION TO ELSTUN PHASE 2
MODEL: Sheet2 PAPERSIZE: 34x22 (in.) DATE: 1/17/2024 TIME: 8:11:24 AM USER: pdurham
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DESIGNER ZTM
REVIEWER PJD 10-20-23
PROJECT ID 113602

SOLE SOURCE AQUIFER AND SCENIC RIVER SPILL PREVENTION

THIS PROJECT IS OVER A PORTION OF THE GREAT MIAMI BURIED AQUIFER AND WITHIN 1000 FEET OF THE LITTLE MIAMI SCENIC RIVER. IN ORDER TO MINIMIZE THE POTENTIAL FOR A RELEASE IN THIS SENSITIVE AREA, PROJECT RELATED REFUELING AND MAINTENANCE ACTIVITIES SHALL BE PERFORMED IN AN ENVIRONMENTALLY RESPONSIBLE MANNER. THE CONTRACTOR SHALL KEEP ALL IDLE EQUIPMENT, FUELS, LUBRICANTS, AND ANY STORAGE FOR/OR POTENTIALLY TOXIC OR HAZARDOUS MATERIALS OUT OF THE FEMA DESIGNATED SPECIAL FLOOD HAZARD AREA AND NOT WITHIN 1000 FEET OF THE LITTLE MIAMI SCENIC RIVER. IF REFUELING OF IMMOBILE EQUIPMENT IS NECESSARY WITHIN THE FLOODPLAIN OR NEAR ANY TRIBUTARY DRAINAGE WAYS, DITCHES, OR STREAMS, THE CONTRACTOR SHALL PROVIDE SECONDARY CONTAINMENT WITH ENOUGH CAPACITY TO COMPLETELY CONTAIN AND COLLECT ALL POTENTIAL LIQUID WASTES IN THE EVENT OF A SPILL. SPILLS OF FUELS, OILS, CHEMICALS, OR OTHER MATERIALS WHICH COULD POSE A THREAT TO GROUNDWATER SHALL BE CLEANED UP IMMEDIATELY BY THE CONTRACTOR.

ITEM SPECIAL - SPILL PREVENTION CONTROL AND COUNTERMEASURES PLAN

THE CONTRACTOR SHALL DEVELOP A SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN (SPCC) FOR REVIEW AND APPROVAL BY THE ENGINEER WHICH SHALL ALSO INCLUDE ALL AREAS OF FUEL STORAGE, EQUIPMENT REFUELING, AND EQUIPMENT MAINTENANCE, AND SPILL KITS. ALL AREAS UTILIZED BY THE CONTRACTOR NOT WITHIN THE PROJECT LIMITS SHALL BE ASSESSED FOR POTENTIAL GROUNDWATER CONTAMINATION AND BE INDICATED ON THE SPILL PREVENTION CONTROL AND COUNTERMEASURES PLAN.

THE CONTRACTOR SHALL IMMEDIATELY TAKE STEPS TO MITIGATE ANY EVENT, SUCH AS A SPILL OF FUELS, OILS, OR CHEMICALS. IF THE SPILL IS A REPORTABLE AMOUNT, THE CONTRACTOR SHALL CONTACT THE LOCAL FIRE DEPARTMENT (911), THE LOCAL EMERGENCY COORDINATOR (513-263-8200 - DAY; OR (513)-825-2260 - 24 HOUR) AND THE OPEA SPILLS HOTLINE AT 1-800-282-9378 FOR CLEAN UP.

ALL WORK DESCRIBED IN THIS NOTE SHALL BE INCLUDED FOR PAYMENT IN THE LUMP SUM FOR ITEM SPECIAL - SPILL PREVENTION CONTROL AND COUNTERMEASURES PLAN.

ITEM SPECIAL - SPILL PREVENTION CONTROL AND COUNTERMEASURES PLAN

TEMPORARY ACCESS ROUTES

THE CONTRACTOR SHALL REMOVE ALL TEMPORARY ACCESS ROUTES FROM THE CORRIDOR AND RETURN THEM TO THEIR PRE-EXISTING CONDITION OR BETTER.

STORAGE OF FUELS, PETROCHEMICALS AND EQUIPMENT

THE CONTRACTOR SHALL NOT STORE IDLE EQUIPMENT, PETROCHEMICALS, AND TOXIC/HAZARDOUS MATERIALS IN THE FLOODPLAIN OR NEAR ANY DRAINAGE WAYS, DITCHES OR STREAMS THAT COULD CONVEY SUCH MATERIALS TO THE LITTLE MIAMI SCENIC RIVER OR ANY OF ITS TRIBUTARIES. THE CONTRACTOR SHALL NOT DISCHARGE ANY PETROCHEMICALS AND TOXIC/HAZARDOUS MATERIALS INTO THE LITTLE MIAMI SCENIC RIVER, ITS FLOODPLAINS, OR ANY OF ITS TRIBUTARY DRAINAGE WAYS, DITCHES OR STREAMS. THE CONTRACTOR SHALL NOT REFUEL EQUIPMENT IN THE FLOODPLAIN OR NEAR ANY TRIBUTARY DRAINAGE WAYS, DITCHES OR STREAMS.

MATERIAL DISPOSAL

THE CONTRACT SHALL ENSURE THAT ALL CONSTRUCTION DEBRIS, EARTHEN DEBRIS, EXCESS ASPHALT OR CONCRETE, WOOD DEBRIS FROM CLEARING, EXCESS FILL MATERIAL, AND TRASH IS DISPOSED OR AT AN APPROVED UPLAND SITE OR LAND FILL ABOVE 100-YEAR FLOOD ELEVATIONS. THE CONTRACTOR SHALL NOT DISPOSE OF ANY SUCH MATERIALS IN WETLANDS, FLOODPLAINS OR WITHIN 1000 FEET OF THE LITTLE MIAMI SCENIC RIVER.

SCENIC RIVER COORDINATION

THE CONTRACTOR SHALL INVITE THE SOUTHWEST REGIONAL SCENIC RIVER MANAGER, AARON ROURKE, AARON.ROURKE@DNR.OHIO.GOV, (614)-230-8534, TO A PRE-CONSTRUCTION MEETING WITH THE CONTRACTOR PRESENT AND NOTIFY MR. ROURKE OF THE PROJECT START DATE ONE WEEK PRIOR TO THE COMMENCEMENT OF WORK. THE CONTRACTOR SHALL MEET MR. ROURKE PERIODICALLY FOR PERIODIC INSPECTIONS OF THE PROJECT TO ENSURE THAT SCENIC RIVER REQUIREMENTS ARE BEING MET. THE CONTRACTOR SHALL ALSO CONTACT MR. ROURKE ONE WEEK PRIOR TO COMPLETION OF THE PROJECT FOR A FINAL SITE INSPECTION. THE CONTRACTOR SHALL BE PRESENT AT THE FINAL SITE INSPECTION TO ENSURE THAT FINAL SITE STABILIZATION HAS BEEN ACHIEVED.

THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER 40 DAYS PRIOR TO WORK WITHIN 1000 FEET OF THE LITTLE MIAMI SCENIC RIVER. THE PROJECT ENGINEER SHALL NOTIFY THE DISTRICT ENVIRONMENTAL COORDINATOR 35 DAYS PRIOR TO WORK WITHIN 1000 FEET OF THE SCENIC RIVER. THE DISTRICT ENVIRONMENTAL COORDINATOR SHALL COORDINATE WITH ODNR SCENIC RIVERS A MINIMUM OF 30 DAYS PRIOR TO ANY WORK WITHIN 1000 FEET OF THE LITTLE MIAMI SCENIC RIVER.

ENDANGERED BAT HABITAT REMOVAL

THIS PROJECT IS LOCATED WITHIN THE KNOWN HABITAT RANGES OF THE FEDERALLY LISTED AND PROTECTED INDIANA BAT, AND NORTHERN LONG-EARED BAT. NO TREES SHALL BE REMOVED 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 (ESA). FOR THE PURPOSES OF THIS NOTE, A TREE IS DEFINED AS: A LIVE, DYING, OR DEAD WOODY PLANT, WITH A TRUNK 3 INCHES OR GREATER IN DIAMETER AT A HEIGHT OF 4.5 FEET ABOVE THE GROUND SURFACE, AND WITH A MINIMUM HEIGHT OF 13 FEET.

IN-STREAM WORK AND MITIGATION

NO IN-STREAM WORK SHALL BE PERFORMED UNTIL THE APPROPRIATE WETLAND AND STREAM MITIGATION HAS BEEN OBTAINED BY ANDERSON TOWNSHIP.

THE CONTRACTOR SHALL MAKE EVERY ATTEMPT TO CONDUCT IN-STREAM WORK USING WATER DIVERSION SUCH AS SHEET PILING, MEMBRANE DAMS, ETC. THAT DO NOT REQUIRE THE PLACEMENT OF EARTHEN FILL

ACCESS TO THE CLOUGH CREEK CHANNEL SHALL BE CONFINED TO ONE STREAM BANK WHENEVER POSSIBLE. THE STREAM BOTTOMS AND BANK AFFECTED BY THE CAUSEWAY AND ACCESS FILLS SHALL BE RESTORED TO THEIR PRE-CONSTRUCTION ELEVATIONS.

NO IN-STREAM WORK SHALL BE PERFORMED BEFORE 5/1/2024 UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

CULTURAL RESOURCES

THE CONTRACTOR SHALL ENSURE THAT THE OHIO SHPO BE CONTACTED IN THE EVENT THAT CULTURAL RESOURCES ARE ENCOUNTERED DURING SITE DISTURBANCE AND CONSTRUCTION.

STREAMBANK VEGETATION

THE CONTRACTOR SHOULD LEAVE ALL LITTLE MIAMI RIVER STREAMBANK VEGETATION UNDISTURBED TO THE MAXIMUM EXTENT POSSIBLE. ALL DISTURBED STREAMBANKS SHALL BE RETURNED TO THE PREVIOUSLY EXISTING CONTOURS AND ELEVATIONS, EXCEPT AS INDICATED OTHERWISE IN THE PLANS. AREAS WHERE VEGETATION IS REMOVED SHALL BE RE-VEGETATED WITH NATIVE TREE SPECIES. THE CONTRACTOR SHALL CONTACT AARON ROURKE, SOUTHWEST REGIONAL SCENIC RIVERS MANAGER AT 614-230-8534 OR AARON.ROURKE@DNR.STATE.OH.US TO OBTAIN A LIST OF SPECIFIC SPECIES TO BE PLANTED AND APPROPRIATE PLANTING DENSITY/SPACING.

IT IS ANTICIPATED THAT APPROXIMATELY 25 TREES SHOULD BE PLANTED IN THE BANK AREAS , AND OUTSIDE THE UTILITY EASEMENT, DISTURBED BY THE PROJECT.

TREE SPECIES SHALL BE PROVIDED AS ABOVE WITH THE FOLLOWING MINIMUM REQUIREMENTS:

EASTERN COTTONWOOD (POPULUS DELTOIDES)	20%
DOGWOOD (CORNUS SPP.)	10%
MAPLE (ACER SPP.)	15%
OAK (QUERCUS SPP.)	15%
TULIPTREE (LIRIODENDRON TULIPEFERA)	5%
SYCAMORE (PLATANUS OCCIDENTALIS)	5%

PAYMENT FOR THE ABOVE WORK WILL BE MADE AT THE CONTRACT UNIT PRICE PER EACH FOR ITEM 661 DECIDUOUS TREE, 1" CALIPER AND SHALL INCLUDE ALL MATERIALS, LABOR, EQUIPMENT, AND INCIDENTALS NECESSARY TO COMPLETE THIS WORK. ALL ASPECTS OF ITEM 661 SHALL APPLY.

PAYMENT FOR VEGETATION WILL BE LIMITED TO DISTURBED AREAS WHICH ARE NECESSARY FOR CONSTRUCTION AS DETERMINED BY THE ENGINEER. ANY ADDITIONAL AREAS WHICH ARE DISTURBED BY THE CONTRACTOR SHALL BE REGRADED AND REVEGETATED AT THE CONTRACTORS EXPENSE.

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN PROVIDED FOR THIS WORK.

ITEM 661, DECIDUOUS TREE, 1" CALIPER 25 EA

DEWATERING

THE CONTRACTOR SHALL NOT DISCHARGE WASTEWATER OF ANY KIND INTO THE LITTLE MIAMI SCENIC RIVER OR ANY OF ITS TRIBUTARY STREAMS, DRAINAGE WAYS, OR DITCHES. IF DEWATERING IS NECESSARY TO FACILITATE IN-STREAM WORK OR PIER CONSTRUCTION, PUMP ALL WASTEWATER ONTO A VEGETATED AREA A SUFFICIENT DISTANCE FROM THE RIVER TO ALLOW FOR COMPLETE INFILTRATION. IF DISCHARGE TO A VEGETATED AREA IS NOT FEASIBLE, THEN WASTEWATER SHALL BE DISCHARGED INTO A SEDIMENT FILTER BAG OR INTO A TEMPORARY DETENTION/RETENTION POND OR APPROPRIATE SEDIMENT CONTROL WITH A SUFFICIENT RETENTION PERIOD THAT PERMITS THE SETTLING OF ALL SUSPENDED SOLIDS. THE CONTRACTOR SHALL PUMP ALL WATER TO AN AREA WITHIN THE PROJECT LIMITS OR AN AREA CLEARED BY THE CONTRACTOR.

POST CONSTRUCTION STORM WATER TREATMENT

THIS PLAN UTILIZES STRUCTURAL BEST MANAGEMENT PRACTICES (BMP'S) FOR POST CONSTRUCTION STORM WATER TREATMENT.

VEGETATED FILTER STRIP

THIS PLAN UTILIZES VEGETATED FILTER STRIP(S) FOR POST CONSTRUCTION STORM WATER TREATMENT. PLACE EITHER ITEM 660 SODDING OR ITEM 659 SEEDING AND MULCHING WITH A 4-INCH LIFT OF TOPSOIL AND ITEM 670, SLOPE EROSION PROTECTION TO ALL DISTURBED AREAS DESIGNATED AS VEGETATED FILTER STRIPS, THE EDGE OF SHOULDER, AND THE FORESLOPE AS SPECIFIED IN THE PLANS.

VEGETATED BIOFILTER

THIS PLAN UTILIZES VEGETATED BIOFILTERS FOR POST CONSTRUCTION STORM WATER TREATMENT. PLACE ITEM 659 SEEDING AND MULCHING WITH A 4-INCH LIFT OF TOPSOIL AS SHOWN IN THE PLANS TO ANY DISTURBED AREA ON THE SHOULDER AND FORESLOPE DRAINING TO A VEGETATED BIOFILTER. THE DITCH FOR EACH VEGETATED BIOFILTER SHALL BE TRAPEZOIDAL, AS SHOWN IN THE PLAN CROSS SECTIONS. PROVIDE ITEM 670 AS SPECIFIED IN THE PLANS.

WATERWAY PERMITS

FEDERAL AND STATE WATERWAY PERMITS ARE PENDING FOR THIS PROJECT AND WILL BE OBTAINED BY ODOT. SEE SPECIAL PROVISIONS IN THE CONTRACT DOCUMENT FOR WATERWAY PERMIT CONDITIONS OF WHICH THE CONTRACTOR MUST COMPLY.

ITEM 611 - DRAINAGE STRUCTURE, MISC.: CHECK VALVE FOR XX" CONDUITS

FURNISH AND INSTALL AN OUTLET CHECK VALVE SUCH AS THE REDVALVE TIDEFLEX TF-1 OR SERIES 35-1, PROCO PRODUCTS PROFLEX SERIES 700, OR APPROVED EQUAL AT THE LOCATION SHOWN ON THE PLANS. THE CHECK VALVE SHALL PREVENT ALL BACKWATER FROM CLOUGH CREEK, THE LITTLE MIAMI RIVER, AND THE OHIO RIVER FROM PASSING THROUGH IT AND BE AN ALL RUBBER OR NEOPRENE LOW-HEADLOSS CHECK VALVE WITH NO MECHANICAL PARTS AND SHALL OPERATE ON DIFFERENTIAL PRESSURE AS A PASSIVE DEVICE. THE VALVE SHALL OPEN WITH AS LITTLE AS ONE INCH OF HEAD PRESSURE AND BE SELF DRAINING. THE VALVE SHALL HAVE A MINIMUM 25 YEAR SERVICE LIFE. INSTALL THE CHECK VALVE PER THE MANUFACTURER'S RECOMMENDATIONS.

CHECK VALVE SIZES AND LOCATIONS ARE SHOWN BELOW:

12" STA. 72+48.50, 37' RT. P.18
27" STA. 77+45.50, 68' RT. P.19

INCLUDE ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS REQUIRED FOR INSTALLATION IN THE UNIT PRICE BID FOR ITEM 611 DRAINAGE STRUCTURE MISC.: CHECK VALVE FOR XX" CONDUIT

ITEM 203 – ROADWAY, MISC.: TRAIL COUNTER

THIS ITEM INCLUDES THE FURNISHING AND INSTALLATION OF A PEDESTRIAN COUNTER AT THE LOCATION SHOWN IN THE PLANS. THE COUNTER SHALL USE A PASSIVE INFRARED SENSOR TO DETECT PEDESTRIAN AND CYCLISTS TRAVELING AT ANY SPEED AND IN EITHER DIRECTION. THE COUNTER SHALL BE CAPABLE OF DETECTING BIDIRECTIONAL TRAFFIC AT A RANGE OF AT LEAST 15'. THE SENSOR ENCLOSURE SHALL BE IP 68 RATED AND BE SAFE AGAINST FLOODING AND DUST. THE TRAIL COUNTER SHALL ALSO BE CAPABLE OF AUTOMATIC DATA TRANSMISSION THROUGH CELLULAR NETWORKS. THE DATA TRANSMISSION ACCOUNT SHALL BE SETUP IN THE NAME OF TRI-STATE TRAILS. THE CONTRACTOR SHALL COORDINATE THE TRANSMISSION OF COUNT DATA WITH RACHEL CULLEY AT TRI-STATE TRAILS. RACHEL@TRISTATETRAILS.ORG. PAYMENT FOR ONE YEAR OF AUTOMATIC DATA TRANSMISSION SHALL BE INCLUDED WITH THIS ITEM.

THE TRAIL COUNTER SHALL BE LOCATED IN AN INCONSPICUOUS AND TAMPERPROOF MANNER IN OR ON A PERMANENT POST OR MOUNTED TO THE BIKEWAY RAILING ALONG THE TRAIL.

PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT BID PRICE PER EACH FOR ITEM 202 ROADWAY, MISC.: TRAIL COUNTER AND SHALL INCLUDE ALL MATERIALS, EQUIPMENT, LABOR, AND INCIDENTALS NECESSARY TO FURNISH AND INSTALL A FULLY FUNCTIONAL TRAIL COUNTER.

GENERAL NOTES

HAM-LMST EXTENSION TO ELSTUN PHASE 2

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DESIGNER ZTM
REVIEWER PJD 10-20-23
PROJECT ID 113602
SHEET P.8 TOTAL 71

EXISTING SEWERS TO REMAIN

THE EXISTING 36" SANITARY SEWER RUNNING PARALLEL TO AND THEN CROSSING THE ELSTUN CONNECTION SHALL BE INSPECTED ACCORDING TO THE FOLLOWING SPECIFICATIONS PRE AND POST CONSTRUCTION.

REQUIREMENTS OF PACP CCTV AND MANHOLE SEWER INSPECTIONS

MSD CONFORMS TO THE NATIONAL ASSOCIATION OF SEWER SERVICE COMPANIES' (NASSCO) PIPELINE ASSESSMENT CERTIFICATION PROGRAM (PACP) AND MANHOLE INSPECTION UTILIZING MSD INSPECTION FORMS. THESE INSPECTIONS WILL BE MAINTAINED WITHIN MSD'S LIBRARY OF SEWER INSPECTIONS AND IT IS IMPERATIVE THAT THEY MEET ALL APPROPRIATE MSD REQUIREMENTS.

ALL PACP CCTV WORK TO BE PERFORMED VIA THIS CONTRACT SHALL THEREFORE CONFORM TO ALL CURRENT NASSCO STANDARDS EXCEPT WHERE SPECIFICALLY INSTRUCTED OTHERWISE BY THE MSDGC PROGRAM MANAGER (PM). THESE STANDARDS INCLUDE BUT ARE NOT LIMITED TO: SPEED OF CAMERA TRAVEL, CENTERING OF CAMERA IN PIPE, CODING OF DEFECTS/STRUCTURAL FEATURES/OBSERVATIONS, PANNING OF DEFECTS/STRUCTURAL FEATURES, CAMERA LIGHTING, HEADER INFORMATION, FLOW CONTROL, AND REVERSAL INSPECTIONS. MSD GIS STANDARDS AND DESIGNATIONS SHALL APPLY FOR HEADER INFORMATION INCLUDING, BUT NOT LIMITED TO: MANHOLE NUMBERS, ASSET ID NUMBERS, CITYWORKS® WORK ORDER NUMBERS, BUILDING SEWER NAMES AND IDENTIFICATION, AND PREVIOUSLY UNDOCUMENTED MANHOLES.

ALL PACP CCTV WORK TO BE PERFORMED VIA THIS WORK ORDER SHALL BE CARRIED OUT UTILIZING A COLOR PAN AND TILT ROTATING HEAD CAMERA SPECIFICALLY DESIGNED AND CONSTRUCTED FOR SEWER INSPECTION. ALL CCTV WORK SHALL BE RECORDED ENTIRELY IN DIGITAL MP4 FORMAT ENCODED WITH A FILE COMPRESSION OF HIGH EFFICIENCY VIDEO CODING (HEVC OR H.265) (OTHER FORMATS NEED MSDGC PM APPROVAL) WITH AN APPROPRIATE PACP DATABASE FILE (NASSCO PACP DATABASE HAVING COMPATIBILITY WITH PIPETECH® PIPELINE INSPECTION SOFTWARE), AND ALL VIDEO MUST BE CONTINUOUSLY METERED.

THE PERSON CODING THE PIPELINE INSPECTION MUST BE NASSCO PACP CERTIFIED WITH A MINIMUM OF THREE YEARS OF FULL-TIME EXPERIENCE CODING DEFECTS USING THE NASSCO STANDARD. PACP CERTIFICATION NUMBERS MUST BE PROVIDED TO MSDGC AND PROOF OF EXPERIENCE MUST BE DEMONSTRATED BY DOCUMENTATION SUCH AS A RESUME WITH REFERENCES.

ROBOTIC PACP & MANHOLE INSPECTION

THE CONTRACTOR SHALL BE RESPONSIBLE FOR:

- CONDUCTING A FINAL MANHOLE-TO-MANHOLE (MH-MH), TELEVISING OF THE MAINLINE SEWER SECTION TO EVALUATE THE CONDITION OF THE SEWER AFTER ALL APPROPRIATE CLEANING, TRIMMING, GRINDING, AND FLUSHING HAS BEEN PERFORMED. IN THE EVENT AN INSPECTION CANNOT BE COMPLETED FROM ONE SET-UP DUE TO A STRUCTURAL OR MAINTENANCE DEFECT, THE INSPECTOR SHALL PERFORM A REVERSE INSPECTION FROM AN ADDITIONAL SET-UP THE SAME DAY. THE INSPECTOR SHALL SUBMIT TWO INSPECTION REPORTS AS THE FINAL INSPECTION. THIS FINAL TELEVISING SHALL BE IN PACP AND SHALL FOLLOW ALL PACP V 7.0 STANDARDS.

- EMPLOYING VARIOUS FLOW CONTROL METHODS AS APPROPRIATE TO ENSURE VISIBILITY OF THE ENTIRE CIRCUMFERENCE OF THE SEWER.

THE CONTRACTOR SHALL SUBMIT WORK IN THE FORMAT REQUIRED BY MSDGC AND SHALL FOLLOW GUIDELINES FROM THE MSDGC PROJECT PM. IN ORDER TO CONTINUE IMPROVING THE UPLOADING OF DATA AND SUBMITTALS, THE MSDGC PM MAY UPDATE THE REQUIREMENTS AT ANY TIME, BUT WILL GIVE THE CONTRACTOR SUFFICIENT ACCESS TO MSD'S PROGRAMS AS NEEDED.

EXISTING SEWERS TO REMAIN (CONTINUED)

SUBMITTAL OF WORK TO MSDGC

WORK COMPLETED AND SUBMITTED TO MSDGC SHALL FOLLOW THE SPECIFICATIONS DETAILED IN THE SUBSECTIONS BELOW.

REQUIREMENTS OF ALL PACP CCTV SUBMITTALS AND MANHOLE INSPECTION SUBMITTALS

ALL SUBMITTALS OF PACP INSPECTIONS SHALL CONFORM TO THE FOLLOWING SPECIFICATIONS:

- EACH SUBMITTAL – THE PACP DATABASE FILE AND ITS CORRESPONDING VIDEO FILES – SHALL CONTAIN WORK FROM ONLY 1 (ONE) INSPECTOR AND ONLY 1 (ONE) CCTV WORK CATEGORY FROM THE LIST BELOW:

  - SANITARY AND/OR COMBINED MAINLINE SEWER INSPECTIONS (PACP)
  - STORM MAINLINE SEWER INSPECTIONS (PACP)

- EACH SUBMITTAL SHALL BE ASSIGNED A UNIQUE TRACKING IDENTIFIER.

  - IN THE EVENT THAT A SUBMITTAL IS REJECTED AS UNACCEPTABLE, THE MSD PM SHALL DIRECT THE CONTRACTOR WHETHER TO REUSE THE ORIGINAL OR TO ASSIGN A NEW TRACKING IDENTIFIER.

- EACH SUBMITTAL SHALL INCLUDE INSPECTIONS FROM ONLY ONE CALENDAR MONTH.

- EACH PACP VIDEO FILE MUST BE IN STANDARD *.MP4 FORMAT AND NAMED AS DESCRIBED BELOW:

  - [MONTH]_[DAY]_[YEAR]-[HOUR]_[MINUTE]_[AM/PM]-[INSPECTOR NAME]-[WORK ORDER NUMBER].MP4
  - E.G., "1_03_2012-11_23_AM-M LONGMIRE-411032.MP4"

- EACH MANHOLE INSPECTION SHALL FOLLOW THE FORMAT PROVIDED BY MSD UTILIZING THEIR MANHOLE INSPECTION FORM.

- ALL PACP AND MANHOLE INSPECTIONS MUST BE SUBMITTED WITHIN FOURTEEN (14) CALENDAR DAYS OF THE DATE OF WORK.

- IN THE CASE OF REJECTION OF A WHOLE OR ANY PART OF A SUBMITTAL, CONTRACTOR SHALL HAVE FOURTEEN (14) CALENDAR DAYS FROM THE DATE OF NOTIFICATION OF SAID REJECTION TO ADDRESS, CORRECT, AND/OR RE-PERFORM AND THEN RE-SUBMIT SAID WORK TO MSDGC.

NO ADDITIONAL LOADING MAY BE ADDED TO THE EXISTING SEWER.

ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS NECESSARY TO PERFORM THIS WORK SHALL BE INCLUDED IN THE LUMP SUM UNIT PRICE BID FOR ITEM 611, CONDUIT, SEWER INSPECTION.

ITEM 203: EMBANKMENT, AS PER PLAN

IN ADDITION TO THE NORMAL REQUIREMENTS OF ITEM 203 EMBANKMENT THE CONTRACTOR MUST CONTACT DUKE ENERGY WITHIN 14 CALENDAR DAYS OF EMBANKMENT WORK AROUND DUKE ELECTRIC'S TRANSMISSION POLES. ONCE NOTIFIED, THE PROJECT AND DUKE WILL HOLD A MEETING WITHIN 3 DAYS OF THE BEGINNING OF THE EMBANKMENT WORK TO DISCUSS THE EMBANKMENT PROCEDURES, EQUIPMENT, AND ANY CONCERNS THE UTILITY OWNER MAY HAVE WITH THIS ITEM OF WORK. THE REPRESENTATIVE FROM DUKE WILL WORK DIRECTLY WITH THE CONTRACTOR AND THE PROJECT INSPECTOR OR ENGINEER TO ENSURE THE TRANSMISSION POLES AND SERVICE TO ITS CUSTOMERS WILL NOT BE IMPEDED DURING THIS OPERATION. IF DESIRED DUKE MAY HAVE A REPRESENTATIVE ONSITE DURING THE EMBANKMENT WORK TO OBSERVE THE EMBANKMENT INSTALLATION PROCESS. IF DUKE DOES NOT HAVE A REPRESENTATIVE ONSITE OR IS UNABLE TO SEND OUT A REPRESENTATIVE, THE CONTRACTOR MAY CONTINUE WITH THE WORK, BUT WILL MAKE EVERY REASONABLE PRECAUTION TO AVOID DAMAGING THE POLES. THIS NOTE DOES NOT WAIVE THE REQUIREMENTS OF THE CONTRACTOR TO CONSTRUCT THE EMBANKMENT IN ACCORDANCE WITH ITEM 203 EMBANKMENT.

THIS LINE ITEM IS CONSIDERED FULL PAYMENT FOR ALL LABOR, MATERIALS, EQUIPMENT FOR THIS ITEM OF WORK. ALL OTHER ITEMS, RESOURCES, MAINTENANCE OF TRAFFIC, OR OTHER RESOURCES REQUIRED TO COMPLETE THIS WORK IS INCIDENTAL TO THIS ITEM OF WORK.

AIRWAY/HIGHWAY CLEARANCE FOR AIRPORTS AND HELIPORTS

THIS PROJECT HAS BEEN IDENTIFIED AS BEING WITHIN THE INFLUENCE AREA OF A PUBLIC USE AIRPORT OR HELIPORT. NO TEMPORARY STRUCTURES OR CONSTRUCTION EQUIPMENT AT MAXIMUM OPERATING HEIGHT SHALL EXCEED A HEIGHT OF 100 FT. IF ANY TEMPORARY STRUCTURES OR CONSTRUCTION EQUIPMENT WILL EXCEED THIS HEIGHT, FURTHER COORDINATION WITH THE FEDERAL AVIATION ADMINISTRATION (FAA), AND THE ODOT OFFICE OF AVIATION, WILL BE NECESSARY PRIOR TO ERECTING SUCH TEMPORARY STRUCTURES OR OPERATING SUCH EQUIPMENT ON THE PROJECT. THE PROJECT CONTRACTOR WILL BE REQUIRED TO FILE A NEW FAA FORM 7460-1, ADVISING THE FAA THAT THE AERONAUTICAL STUDY NUMBER (ASN), NOTED BY THE NUMBERS BELOW, IS BEING RESUBMITTED AND THAT AN ALTERATION TO THE ORIGINAL SUBMISSION IS REQUESTED.

ASN'S
2023-AGL-15951-OE
2023-AGL-15952-OE
2023-AGL-15953-OE
2023-AGL-18391-OE
2023-AGL-18392-OE
2023-AGL-18393-OE
2023-AGL-18394-OE

NOTIFY THE ODOT OFFICE OF AVIATION WHEN RESUBMITTING FAA FORM 7460-1. NO TEMPORARY STRUCTURES OR CONSTRUCTION EQUIPMENT SHALL EXCEED THE PERMISSIBLE HEIGHT, UNTIL A COPY OF THE FAA APPROVAL AND THE ODOT OFFICE OF AVIATION PERMIT HAS BEEN FURNISHED TO THE PROJECT ENGINEER.

CONSTRUCTION VEHICLES
NOTICE IS REQUIRED IF THE PROJECT IS ABANDONED OR MODIFIED.
COMPLIANCE WITH CONDITIONS OF FAA DETERMINAITON.

CRANE
NOTICE IS REQUIRED IF THE PROJECT IS ABANDONED OR MODIFIED.
OBSTRUCTION MARKING AND/OR LIGHTING PER THE CURRENT FAA ADVISORY CIRCULAR (AC 70/7460-1M) "OBSTRUCTION MARKING AND LIGHTING" IS REQUIRED.
COMPLIANCE WITH CONDITIONS OF FAA DETERMINATION.

FAA APPROVAL MAY TAKE UP TO 45 DAYS. ALL SUBMISSIONS SHALL BE DIRECTED TO THESE OFFICES:

FEDERAL AVIATION ADMINISTRATION
SOUTHWEST REGIONAL OFFICE
OBSTRUCTION EVALUATION GROUP
10101 HILLWOOD PARKWAY
FORT WORTH, TX 76177
FAX: (817) 222-5920
HTTP://CEAAA.FAA.GOV

OHIO DEPARTMENT OF TRANSPORTATION
OFFICE OF AVIATION
2829 WEST DUBLIN-GRANVILLE ROAD
COLUMBUS, OHIO 43235

GENERAL NOTES

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DESIGNER ZTM
REVIEWER PJD 10-20-23
PROJECT ID 113602
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MAINTENANCE OF TRAFFIC

THE CONTRACTOR SHALL MAINTAIN TRAFFIC ON THE SR 32 RAMPS AT ALL TIMES BY USE OF THE EXISTING PAVEMENT EXCEPT FOR INTERMITTENT CLOSURES OF THE SR 32 WB TO SR 125 EB RAMP THAT SHALL BE LIMITED TO THE HOURS OF 9 AM THROUGH 3 PM MONDAY THROUGH FRIDAY. A DISINCENTIVE AMOUNT OF $125 FOR EACH MINUTE THE RAMP REMAINS CLOSED TO TRAFFIC BEYOND THE SPECIFIED LIMIT.

A MINIMUM OF ONE LANE OF ELSTUN ROAD SHALL BE MAINTAINED AT ALL TIMES WITH THE USE OF A ONE-LANE, TWO-WAY FLAGGER OPERATION AND THE EXISTING PAVEMENT.

EXISTING SHARED USE PATHS INCLUDING THE LITTLE MIAMI SCENIC TRAIL AND PHASE 1 OF THE ELSTUN CONNECTION SHALL REMAIN OPEN AT ALL TIMES. FLAGGERS SHALL BE USED TO CONTROL SHARED USE PATH TRAFFIC, AS NEEDED, TO CONSTRUCT TIE-IN WORK.

LENGTH AND DURATION OF LANE CLOSURES AND RESTRICTIONS SHALL BE AT THE APPROVAL OF THE ENGINEER. IT IS THE INTENT TO MINIMIZE THE IMPACT TO THE TRAVELING PUBLIC. LANE CLOSURES OR RESTRICTIONS OVER SEGMENTS OF THE PROJECT IN WHICH NO WORK IS ANTICIPATED WITHIN A REASONABLE TIME FRAME, AS DETERMINED BY THE ENGINEER, SHALL NOT BE PERMITTED. THE LEVEL OF UTILIZATION OF MAINTENANCE OF TRAFFIC DEVICES SHALL BE COMMENSURATE WITH THE WORK IN PROGRESS.

THE CONTRACTOR SHALL PROVIDE, ERECT, AND MAINTAIN SIGNS, SIGN SUPPORTS, AND TYPE 1 BARRICADES AS DETAILED IN THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. "TRAIL WORK AHEAD" (W2-1-24 MODIFIED) SIGNS SHALL BE PLACED ON THE LITTLE MIAMI SCENIC TRAIL APPROXIMATELY 300' IN ADVANCE OF THE WORK AREA AT STA. 72+25. THE SAME SIGN SHALL BE PLACED AT STA. 93+00 OF PHASE 1 OF THE ELSTUN CONNECTION. "FLAGGER AHEAD" (W20-7-24) SIGNS SHALL BE PLACED APPROXIMATELY 150' IN ADVANCE OF THE WORK AREA ON THE LITTLE MIAMI SCENIC TRAIL WHEN FLAGGING. MODIFIED R9-9-30 "TRAIL CLOSED" SIGNS AND TYPE 1 BARRICADES SHALL BE PLACED AT STA. 90+00.00 FACING SOUTH AND AT STA 72+25 WHEN APPLICABLE.

ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH ODOT 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, MATERIALS, AND INCIDENTALS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614, MAINTAINING TRAFFIC, UNLESS SEPARATELY ITEMIZED IN THE PLAN.

SEQUENCE OF CONSTRUCTION

THE SEQUENCE OF CONSTRUCTION OUTLINED BELOW IS INTENDED TO GUIDE THE WORK IN A MANNER THAT PROVIDES A BASIC LEVEL OF SERVICE TO THE TRAVELING PUBLIC.

UNLESS OTHERWISE INDICATED, THE SURFACE COURSE MAY BE PLACED NEAR THE COMPLETION OF THE CONTRACTOR'S WORK IN ANY PARTICULAR AREA.

ALTHOUGH THIS SEQUENCE OF CONSTRUCTION LISTS TASKS IN A SPECIFIC ORDER, NOT EVERY ITEM LISTED MUST BE COMPLETED BEFORE COMMENCING THE NEXT ITEM, AND SOME TASKS MAY BE PERFORMED CONCURRENTLY.

PHASE 1

CONSTRUCT CONSTRUCTION ACCESS POINTS AS DETAILED IN THE "CONSTRUCTION ACCESS POINTS" NOTE ON SHEET P.11.

SEQUENCE OF CONSTRUCTION (CONTINUED)

PHASE 2

CONSTRUCT EMBANKMENTS BETWEEN STA. 72+95 AND 81+00. CONSTRUCT THE CLOSED DRAINAGE SYSTEM AT STA. 75+30, THE PIPE EXTENSION AT STA. 76+80 AND THE DITCHES AND DITCH OUTLETS ON BOTH SIDES OF CLOUGH CREEK FOR NECESSARY UPSTREAM DRAINAGE. THE CONTRACTOR CAN BEGIN GRADING IN THE INTERSECTION AREA WITH THE LITTLE MIAMI SCENIC TRAIL, BUT SHOULD ENSURE THAT POSITIVE DRAINAGE IS MAINTAINED WHILE CREATING A STORAGE AND STAGING AREA FOR EQUIPMENT AND MATERIALS IN THIS AREA.

PHASE 3

CONSTRUCT THE STRUCTURE OVER CLOUGH CREEK. CONSTRUCTION OF THE PIER CAN BEGIN IMMEDIATELY, CONSTRUCTION OF THE ABUTMENTS CAN BEGIN AFTER EMBANKMENT SETTLEMENT HAS BEEN ATTAINED. CONSTRUCT THE SUPERSTRUCTURE AFTER ALL SUBSTRUCTURE UNITS HAVE BEEN COMPLETED.

PHASE 4

CONSTRUCT THE SHARED-USE PATH BETWEEN STA. 81+40 AND STA. 90+00. THIS WORK WILL REQUIRE THE CLOSURE OF ONE LANE OF ELSTUN ROAD AND UTILIZATION OF A FLAGGER OPERATION USING SCD MT-97.10. THIS WORK CAN BE COMPLETED AT ANY TIME AFTER THE DITCHES BETWEEN STA. 77+50 AND 81+00 ARE CONSTRUCTED. TEMPORARY CONSTRUCTION FENCING SHALL BE PROVIDED, INSTALLED, AND MAINTAINED BETWEEN ELSTUN ROAD AND THE SHARED-USE PATH DURING CONSTRUCTION.

PHASE 5

COMPLETE THE EMBANKMENT AND CONSTRUCT THE SHARED USE PATH FROM STA. 72+25 TO THE REAR BRIDGE ABUTMENT AND FROM THE FORWARD ABUTMENT TO STA. 81+00. CONSTRUCT THE TIE-IN WITH THE LITTLE MIAMI SCENIC TRAIL. WHEN THE EXISTING BIKEWAY RAILING ALONG THE LITTLE MIAMI SCENIC TRAIL IS REMOVED FOR TIE-IN WORK, TEMPORARY CONSTRUCTION FENCING SHALL BE PROVIDED TO REPLACE THE PERMANENT FENCING. FLAGGERS SHALL BE USED DURING TIE-IN WORK TO MAINTAIN PEDESTRIAN AND BICYCLISTS ON THE LITTLE MIAMI SCENIC TRAIL.

ITEM 614, MAINTAINING TRAFFIC (NOTICE OF CLOSURE SIGN)

NOTICE OF CLOSURE SIGNS (W20-H13) SHALL BE ERECTED BY THE CONTRACTOR PRIOR TO THE SCHEDULED ROAD OR RAMP CLOSURE IN ACCORDANCE WITH THE NOTICE OF CLOSURE TIME TABLE BELOW. AT THE APPROVAL OF THE ENGINEER, PORTABLE CHANGEABLE MESSAGE SIGNS MAY BE USED IN LIEU OF THE STANDARD FLATSHEET SIGN FOR CLOSURE DURATIONS OF LESS THAN 1 WEEK.

THE SIGNS SHALL BE ERECTED ON THE RIGHT-HAND SIDE OF THE ROAD/RAMP FACING TRAFFIC. 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 SIGNS MAY BE ERECTED ANYWHERE ON RAMPS AS LONG AS THEY ARE VISIBLE TO THE MOTORISTS USING THE RAMP. ON ENTRANCE RAMPS, THE SIGN SHALL BE ERECTED WELL IN ADVANCE OF THE MERGE AREA TO AVOID DISTRACTING MOTORISTS.

NOTICE OF CLOSURE SIGN TIME TABLE

ITEM	DURATION OF CLOSURE	SIGN DISPLAYED TO PUBLIC
ROAD CLOSURES	>= 2 WEEKS	14 CALENDAR DAYS PRIOR TO CLOSURE
	> 12 HOURS & < 2 WEEKS	7 CALENDAR DAYS PRIOR TO CLOSURE
	<= 12 HOURS	2 BUSINESS DAYS PRIOR TO CLOSURE

ITEM 614, MAINTAINING TRAFFIC (NOTICE OF CLOSURE SIGN) (CONTINUED)

THE SIGN SHALL DISPLAY THE DATE OF THE CLOSURE IN MMM-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.

NOTIFICATION OF TRAFFIC RESTRICTIONS

THROUGHOUT THE DURATION OF THE PROJECT, THE CONTRACTOR SHALL NOTIFY 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 PROJECT ENGINEER TO MEET THE REQUIRED TIME FRAMES SET FORTH IN THE TABLE BELOW TO INFORM THE SPECIAL HAULING PERMITS SECTION (HAULING.PERMITS@DOT.OHIO.GOV) AND THE DISTRICT PUBLIC INFORMATION OFFICE (PIO). THIS NOTIFICATION SHALL BE RECEIVED BY THE PROJECT ENGINEER PRIOR TO THE PHYSICAL SETUP OF ANY APPLICABLE SIGNS OR MESSAGE BOARDS.

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, DURATION OF RESTRICTION, NUMBER OF LANES MAINTAINED, NUMBER OF LANES CLOSED, MINIMUM VERTICAL CLEARANCE, MINIMUM WIDTH OF DRIVABLE PAVEMENT, DETOUR ROUTES, IF APPLICABLE, AND ANY OTHER INFORMATION REQUESTED BY THE PROJECT ENGINEER.

NOTIFICATION OF TRAFFIC RESTRICTIONS TIME TABLE

ITEM	DURATION OF CLOSURE	NOTICE DUE TO PERMITS & PIO
ROAD CLOSURES	< 12 HOURS	4 BUSINESS DAYS
	>= 12 HOURS & < 2 WEEKS	14 CALENDAR DAYS
	<= 12 HOURS	21 CALENDAR DAYS
LANE CLOSURES & RESTRICTIONS	< 2 WEEKS	5 BUSINESS DAYS
	>= 2 WEEKS	21 CALENDAR DAYS
START OF CONSTRUCTION & TRAFFIC PATTERN CHANGES	N/A	14 BUSINESS DAYS

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

ITEM 614, PORTABLE CHANGEABLE MESSAGE SIGNS, AS PER PLAN

THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN AND REMOVE, WHEN NO LONGER NEEDED, A CHANGEABLE MESSAGE SIGN. THE SIGN SHALL BE OF A TYPE SHOWN ON A LIST OF APPROVED PCMS UNITS AVAILABLE ON THE OFFICE OF MATERIALS MANAGEMENT WEB PAGE. THE LIST CONTAINS CLASS A AND B UNITS WITH MINIMUM LEGIBILITY DISTANCES OF 800 FEET AND 650 FEET, RESPECTIVELY.

EACH SIGN SHALL BE TRAILER-MOUNTED AND EQUIPPED WITH A FUNCTIONAL DIMMING MECHANISM, TO DIM THE SIGN DURING DARKNESS, AND A TAMPER AND VANDAL PROOF ENCLOSURE. EACH SIGN SHALL BE PROVIDED WITH APPROPRIATE TRAINING AND OPERATION INSTRUCTIONS TO ENABLE ON-SITE PERSONNEL TO OPERATE AND TROUBLESHOOT THE UNIT. THE SIGN SHALL ALSO BE CAPABLE OF BEING POWERED BY AN ELECTRICAL SERVICE DROP FROM A LOCAL UTILITY COMPANY. THE PCMS SHALL BE DELINEATED IN ACCORDANCE WITH C&MS 614.03.

ITEM 614, PORTABLE CHANGEABLE MESSAGE SIGNS, AS PER PLAN (CONTINUED)

THE PROBABLE PCMS LOCATIONS AND WORK LIMITS FOR THOSE LOCATIONS ARE SHOWN ON SHEET 12 OF THE PLAN. PLACEMENT, OPERATION, MAINTENANCE AND ALL ACTIVATION OF THE SIGNS BY THE CONTRACTOR SHALL BE AS DIRECTED BY THE ENGINEER. THE PCMS SHALL BE LOCATED IN A HIGHLY VISIBLE POSITION YET PROTECTED FROM TRAFFIC. THE CONTRACTOR SHALL, AT THE DIRECTION OF THE ENGINEER, RELOCATE THE PCMS TO IMPROVE VISIBILITY OR ACCOMMODATE CHANGED CONDITIONS. WHEN NOT IN USE, THE PCMS SHALL BE TURNED OFF. ADDITIONALLY, WHEN NOT IN USE FOR EXTENDED PERIODS OF TIME, THE PCMS SHALL BE TURNED AWAY FROM ALL TRAFFIC.

THE ENGINEER SHALL BE PROVIDED ACCESS TO EACH SIGN UNIT AND SHALL BE PROVIDED WITH APPROPRIATE TRAINING AND OPERATION INSTRUCTIONS TO ENABLE ODOT PERSONNEL TO OPERATE AND TROUBLESHOOT THE UNIT, AND TO REVISE SIGN MESSAGES, IF NECESSARY.

ALL MESSAGES TO BE DISPLAYED ON THE SIGN WILL BE PROVIDED BY THE ENGINEER. A LIST OF ALL REQUIRED PRE-PROGRAMMED MESSAGES WILL BE GIVEN TO THE CONTRACTOR AT THE PROJECT PRECONSTRUCTION CONFERENCE. THE SIGN SHALL HAVE THE CAPABILITY TO STORE UP TO 99 MESSAGES. MESSAGE MEMORY OR PRE-PROGRAMMED DISPLAYS SHALL NOT BE LOST AS A RESULT OF POWER FAILURES TO THE ON-BOARD COMPUTER. THE SIGN LEGEND SHALL BE CAPABLE OF BEING CHANGED IN THE FIELD. THREE-LINE PRESENTATION FORMATS WITH UP TO SIX MESSAGE PHASES SHALL BE SUPPORTED. PCMS FORMAT SHALL PERMIT THE COMPLETE MESSAGE FOR EACH PHASE TO BE READ AT LEAST TWICE.

THE PCMS SHALL CONTAIN AN ACCURATE CLOCK AND PROGRAMMING LOGIC WHICH WILL ALLOW THE SIGN TO BE ACTIVATED, DEACTIVATED OR MESSAGES CHANGED AUTOMATICALLY AT DIFFERENT TIMES OF THE DAY FOR DIFFERENT DAYS OF THE WEEK.

THE PCMS UNIT SHALL BE MAINTAINED IN GOOD WORKING ORDER BY THE CONTRACTOR IN ACCORDANCE WITH THE PROVISIONS OF C&MS 614.07. THE CONTRACTOR SHALL, PRIOR TO ACTIVATING THE UNIT, MAKE ARRANGEMENTS, WITH AN AUTHORIZED SERVICE AGENT FOR THE PCMS, TO ASSURE PROMPT SERVICE IN THE EVENT OF FAILURE. ANY FAILURE SHALL NOT RESULT IN THE SIGN BEING OUT OF SERVICE FOR MORE THAN 12 HOURS, INCLUDING WEEKENDS. FAILURE TO COMPLY MAY RESULT IN AN ORDER TO STOP WORK AND OPEN ALL TRAFFIC LANES AND/OR IN THE DEPARTMENT TAKING APPROPRIATE ACTION TO SAFELY CONTROL TRAFFIC. THE ENTIRE COST TO CONTROL TRAFFIC, ACCRUED BY THE DEPARTMENT DUE TO THE CONTRACTOR'S NONCOMPLIANCE, WILL BE DEDUCTED FROM MONEYS DUE, OR TO BECOME DUE THE CONTRACTOR ON HIS CONTRACT.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR 24-HOUR-PER-DAY OPERATION AND MAINTENANCE OF THESE SIGNS ON THE PROJECT FOR THE DURATION OF THE PHASES WHEN THE PLAN REQUIRES THEIR USE.

PAYMENT FOR THE ABOVE DESCRIBED ITEM SHALL BE AT THE CONTRACT UNIT PRICE. PAYMENT SHALL INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, FUELS, LUBRICATING OILS, SOFTWARE, HARDWARE AND INCIDENTALS TO PERFORM THE ABOVE DESCRIBED WORK.

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY FOR PCMS SIGNS.

ITEM 614 PORTABLE CHANGEABLE MESSAGE SIGN 2 SIGN MONTH

(ASSUMING 1 PCMS SIGN FOR 2 MONTHS.)

MAINTENANCE OF TRAFFIC NOTES

HAM-LMST EXTENSION TO ELSTUN PHASE 2

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DESIGNER STC
REVIEWER PJD 10-20-23
PROJECT ID 113602
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ITEM 614, MAINTAINING TRAFFIC (ROAD CLOSED SIGN)

THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN STANDARD 48 X 30 INCH ROAD CLOSED SIGNS, SIGN SUPPORTS, BARRICADES AND LIGHTS, AS DETAILED IN SCD MT-101.60 AT THE FOLLOWING LOCATIONS DURING PERIODS IN WHICH THE AFFECTED ROADS ARE CLOSED TO TRAFFIC.

SR 32 WB RAMP TO SR 125 EB

DUST CONTROL

THE CONTRACTOR SHALL FURNISH AND APPLY WATER FOR DUST CONTROL AS DIRECTED BY THE ENGINEER. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED FOR DUST CONTROL PURPOSES:

ITEM 616, WATER 30 M. GAL

FLAGGER OPERATION

FLAGGERS, ONE FOR EACH DIRECTION, SHALL BE USED TO CONTROL TRAFFIC CONTINUOUSLY FOR AS LONG AS ONE LANE OPERATION IS IN EFFECT ON ELSTUN ROAD AND THE LITTLE MIAMI SCENIC TRAIL. THE FLAGGERS SHALL BE ABLE TO COMMUNICATE WITH EACH OTHER AT ALL TIMES. FLAGGER OPERATIONS SHALL BE CONDUCTED ACCORDING TO MT-97.10.

PROTECTION OF THE LITTLE MIAMI SCENIC TRAIL

TEMPORARY ORANGE CONSTRUCTION FENCING SHALL BE INSTALLED, AS NECESSARY, ALONG PROPOSED CONSTRUCTION LIMITS PRIOR TO THE START OF CONSTRUCTION ACTIVITIES IN THE AREA OF THE LITTLE MIAMI SCENIC TRAIL TO PROTECT THE SECTION 4(F) PROPERTY AND THE PUBLIC. IT IS ANTICIPATED THAT THIS FENCING WILL BE NEEDED BETWEEN THE TIME THAT THE PERMANENT WOODEN BIKEWAY RAILING ALONG THE LITTLE MIAMI SCENIC TRAIL IS REMOVED AND THIS PROJECT IS COMPLETELY OPEN TO TRAFFIC.

PAYMENT FOR THE ABOVE WORK SHALL BE INCLUDED IN THE LUMP SUM ITEM FOR MAINTENANCE OF TRAFFIC

DETOUR SIGNING

A LUMP SUM QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY TO INCLUDE FURNISHING, INSTALLING, MAINTAINING, AND REMOVING THE DETOUR SIGNING AND ASSOCIATED SIGN SUPPORTS.

ITEM 614, DETOUR SIGNING LUMP SUM

CONSTRUCTION ACCESS POINTS:

THE CONTRACTOR MAY ACCESS THE WORK FROM THE FOLLOWING TWO LOCATIONS:

FROM THE SR 32 RAMP BETWEEN STA. 72+00 AND 73+00 (WEST ACCESS POINT)

FROM ELSTUN ROAD NEAR STA. 81+00 (EAST ACCESS POINT)

THE CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE IS MAINTAINED AT ALL ACCESS POINTS THROUGHOUT THE DURATION OF THE CONSTRUCTION ACTIVITIES. ALL SURFACE MATERIALS USED FOR ACCESS POINTS SHALL BE FIRM AND UNYIELDING MATERIAL AS APPROVED BY THE ENGINEER. ACCESS DRIVES SHALL BE MAINTAINED IN ACCORDANCE WITH C&MS 614 AND ENSURE THAT THE SURFACE MATERIAL IS NOT TRACKED OUT INTO EXISTING LANES OF TRAFFIC. ALL INGRESS AND EGRESS SHALL ONLY OCCUR AT THE ESTABLISHED ACCESS POINTS.

CONSTRUCTION ACCESS POINTS: (CONTINUED)

THE WEST ACCESS POINT SHALL BE CREATED BY REMOVING FOUR SECTIONS (50 FEET) OF GUARDRAIL TO CREATE AN OPENING IN THE EXISTING GUARDRAIL, INSTALLING TYPE T ANCHOR ASSEMBLIES PLACED TANGENT TO THE SR 32 RAMP ALIGNMENT, CONSTRUCTING NEW GUARDRAIL TURN BACKS, AND PERFORMING CLEARING AND GRADING OPERATIONS TO CONSTRUCT A DRIVE TO ACCESS THE WORK WEST OF CLOUGH CREEK. THIS ACCESS POINT SHALL NOT INTERFERE WITH THE OPERATION OF THE LITTLE MIAMI SCENIC TRAIL.
(SEE DETAIL BELOW)

IT WILL BE NECESSARY TO INTERMITTENTLY CLOSE THE RAMP DURING THE REMOVAL AND RECONFIGURATION OF THE GUARDRAIL, THE GRADING FOR THE WEST ACCESS POINT, AND THE REESTABLISHING OF THE GUARDRAIL. THE RAMP CLOSURES SHALL BE LIMITED TO THE HOURS BETWEEN 9 AM AND 3 PM MONDAY THROUGH FRIDAY. WHEN NO WORK IS BEING PERFORMED, ALL HAZARDS SHALL BE DELINEATED WITH DRUMS, ALL DETOUR SIGNS SHALL BE COVERED, THE PCMS SIGN SHALL BE TURNED OFF, AND THE RAMP SHALL BE REOPENED TO TRAFFIC. DRUMS SPACED AT 10' CENTER TO CENTER SHALL BE PLACED ACCROSS THE ACCESS POINT WHEN NOT IN USE.

PROPER SIGNING SHALL BE INSTALLED AS FOLLOWS:

- TRUCKS ENTERING AND EXITING SIGN, W8-H6a-48, AND ON LEFT/RIGHT SIGN, W8-H6aP, INSTALLED 300' IN ADVANCE OF THE ACCESS POINT
- ROAD WORK AHEAD SIGN, W20-1-48, INSTALLED 600' IN ADVANCE OF THE ACCESS POINT.

IT IS ANTICIPATED THAT ALL WORK WILL BE PERFORMED DURING DAYTIME HOURS AND THE INSTALLATION OF FLASHING WARNING LIGHTS ON THE ADVANCE WARNING SIGNS WILL NOT BE REQUIRED.

THE EAST ACCESS POINT SHALL BE CONSTRUCTED OFF THE WEST SIDE OF ELSTUN ROAD. CLEARING AND GRADING OPERATIONS SHALL BE PERFORMED TO CONSTRUCT A DRIVE TO ACCESS THE WORK EAST OF CLOUGH CREEK. THE CONTRACTOR SHALL NOT PARK OR STORE ANY VEHICLES, EQUIPMENT, OR MATERIALS ALONG THE SHOULDER OR IN THE CLEAR ZONE OF ELSTUN ROAD. DRUMS SPACED AT 10' CENTER TO CENTER SHALL BE PLACED ACCROSS THE ACCESS POINT WHEN NOT IN USE.

PROPER SIGNING SHALL BE INSTALLED AS FOLLOWS:

- TRUCKS ENTERING AND EXITING SIGN, W8-H6a-48, AND ON LEFT/RIGHT SIGN, W8-H6aP, INSTALLED 100' IN ADVANCE OF THE ACCESS POINT
- ROAD WORK AHEAD SIGN, W20-1-48, INSTALLED 100' IN ADVANCE OF TRUCKS ENTERING AND EXITING SIGN, W8-6A, FOR EASTBOUND ELSTUN ROAD AND AT STA. 91+00 FOR WESTBOUND ELSTUN ROAD.

IT IS ANTICIPATED THAT ALL WORK WILL BE PERFORMED DURING DAYTIME HOURS AND THE INSTALLATION OF FLASHING WARNING LIGHTS ON THE ADVANCE WARNING SIGNS WILL NOT BE REQUIRED.

PAYMENT FOR ALL ITEMS ASSOCIATED WITH THE CONSTRUCTION OF THESE ACCESS POINTS, INCLUDING GUARDRAIL WORK, AND OTHER REPAIRS NECESSARY TO RESTORE THE ROADWAY TO PRECONSTRUCTION CONDITION, SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614 MAINTENANCE OF TRAFFIC.

ITEM 614, LAW ENFORCEMENT OFFICER (WITH PATROL CAR) FOR ASSISTANCE DURING CONSTRUCTION OPERATIONS

USE OF LAW ENFORCEMENT OFFICERS (LEOS) BY CONTRACTORS OTHER THAN THE USES SPECIFIED BELOW WILL NOT BE PERMITTED AT PROJECT COST. LEOS SHOULD NOT BE USED WHERE THE OMUTCD INTENDS THAT FLAGGERS BE USED.

ITEM 614, LAW ENFORCEMENT OFFICER (WITH PATROL CAR) FOR ASSISTANCE DURING CONSTRUCTION OPERATIONS (CONTINUED)

IN ADDITION TO THE REQUIREMENTS OF C&MS 614 AND THE OMUTCD, A UNIFORMED LEO WITH AN OFFICIAL PATROL CAR (CAR WITH TOP-MOUNTED EMERGENCY FLASHING LIGHTS AND COMPLETE MARKINGS OF THE APPROPRIATE LAW ENFORCEMENT AGENCY) SHALL BE PROVIDED FOR THE FOLLOWING TRAFFIC CONTROL TASKS:

DURING THE ENTIRE ADVANCE PREPARATION AND CLOSURE SEQUENCE WHERE COMPLETE BLOCKAGE OF TRAFFIC IS REQUIRED.

DURING A TRAFFIC SIGNAL INSTALLATION WHEN IMPACTING THE NORMAL FUNCTION OF THE SIGNAL OR THE FLOW OF TRAFFIC, OR WHEN TRAFFIC NEEDS TO BE DIRECTED THROUGH AN ENERGIZED TRAFFIC SIGNAL CONTRARY TO THE SIGNAL DISPLAY (E.G., DIRECTING MOTORISTS THROUGH A RED LIGHT).

IN ADDITION TO THE REQUIREMENT OF C&MS 614 AND THE OMUTCD, A UNIFORMED LEO WITH AN OFFICIAL PATROL CAR (CAR WITH TOP-MOUNTED EMERGENCY FLASHING LIGHTS AND COMPLETE MARKINGS OF THE APPROPRIATE LAW ENFORCEMENT AGENCY) SHOULD BE PROVIDED FOR THE FOLLOWING TRAFFIC CONTROL TASKS AS APPROVED BY THE ENGINEER:

FOR LANE CLOSURES: DURING INITIAL SET-UP PERIODS, TEAR DOWN PERIODS, SUBSTANTIAL SHIFTS OF A CLOSURE POINT OR WHEN NEW LANE CLOSURE ARRANGEMENTS ARE INITIATED FOR LONG-TERM LANE CLOSURES/SHIFTS (FOR THE FIRST AND LAST DAY OF MAJOR CHANGES IN TRAFFIC CONTROL SETUP).

IN GENERAL, LEOS SHOULD BE POSITIONED IN ADVANCE OF AND ON THE SAME SIDE AS THE LANE RESTRICTION (OR AT THE POINT OF ROAD CLOSURE), AND TO MANUALLY CONTROL TRAFFIC MOVEMENTS THROUGH SIGNALIZED INTERSECTIONS IN WORK ZONES.

LEOS SHOULD NOT FORGO THEIR TRAFFIC CONTROL RESPONSIBILITIES TO APPREHEND MOTORISTS FOR ROUTINE TRAFFIC VIOLATIONS. HOWEVER, IF A MOTORIST'S ACTIONS ARE CONSIDERED TO BE RECKLESS, THEN PURSUIT OF THE MOTORIST IS APPROPRIATE.

ITEM 614, LAW ENFORCEMENT OFFICER (WITH PATROL CAR) FOR ASSISTANCE DURING CONSTRUCTION OPERATIONS (CONTINUED)

THE LEOS WORK AT THE DIRECTION OF THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR SECURING THE SERVICES OF THE LEOS WITH THE APPROPRIATE AGENCIES AND COMMUNICATING THE INTENTIONS OF THE PLANS WITH RESPECT TO DUTIES OF THE LEOS. THE ENGINEER SHALL HAVE FINAL CONTROL OVER THE LEOS' DUTIES AND PLACEMENT, AND WILL RESOLVE ANY ISSUES THAT MAY ARISE BETWEEN THE TWO PARTIES.

ENSURE PROVIDED LEOS HAVE BEEN TRAINED APPROPRIATE TO THE JOB DECISIONS THEY ARE REQUIRED TO MAKE WHILE ON THE PROJECT, IN ACCORDANCE WITH C&MS 614.03.

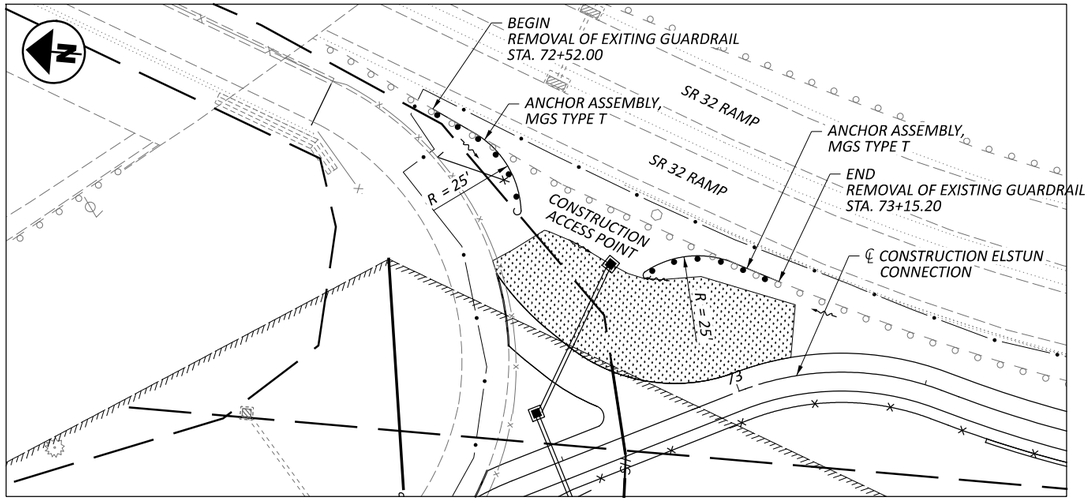
THE LEO SHALL REPORT IN TO THE CONTRACTOR PRIOR TO THE START OF THE SHIFT, IN ORDER TO RECEIVE INSTRUCTIONS REGARDING SPECIFIC WORK ASSIGNMENTS DURING HIS/HER SHIFT. THE LEO IS EXPECTED TO STAY AT THE PROJECT SITE FOR THE ENTIRE DURATION OF HIS/HER SHIFT. THE LEO SHALL REPORT TO THE CONTRACTOR AT THE END OF HIS/HER SHIFT. SHOULD IT BE NECESSARY TO LEAVE THE PROJECT SITE, THE LEO SHALL NOTIFY THE ENGINEER. THE CONTRACTOR SHALL PROVIDE THE LEO WITH A TWO-WAY COMMUNICATION DEVICE THAT SHALL BE RETURNED TO THE CONTRACTOR AT THE END OF HIS/HER SHIFT.

LEOS (WITH PATROL CAR) REQUIRED BY THE TRAFFIC MAINTENANCE TASKS ABOVE SHALL BE PAID FOR ON A UNIT PRICE (HOURLY) BASIS UNDER ITEM 614, LAW ENFORCEMENT OFFICER (WITH PATROL CAR) FOR ASSISTANCE. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY.

ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE 70 HOURS

THE HOURS PAID SHALL INCLUDE ANY MINIMUM SHOW-UP TIME REQUIRED BY THE LAW ENFORCEMENT AGENCY INVOLVED.

ANY ADDITIONAL COSTS (ADMINISTRATIVE OR OTHERWISE) INCURRED BY THE CONTRACTOR TO OBTAIN THE SERVICES OF A LEO ARE INCLUDED WITH THE BID UNIT PRICE FOR ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE.



TEMPORARY REMOVAL OF EXISTING GUARDRAIL FOR WEST CONSTRUCTION ACCESS

MAINTENANCE OF TRAFFIC NOTES

MODEL: Sheet 2 PAPERSIZE: 17x11 (in.) DATE: 1/22/2024 TIME: 11:30:24 AM USER: pdurham
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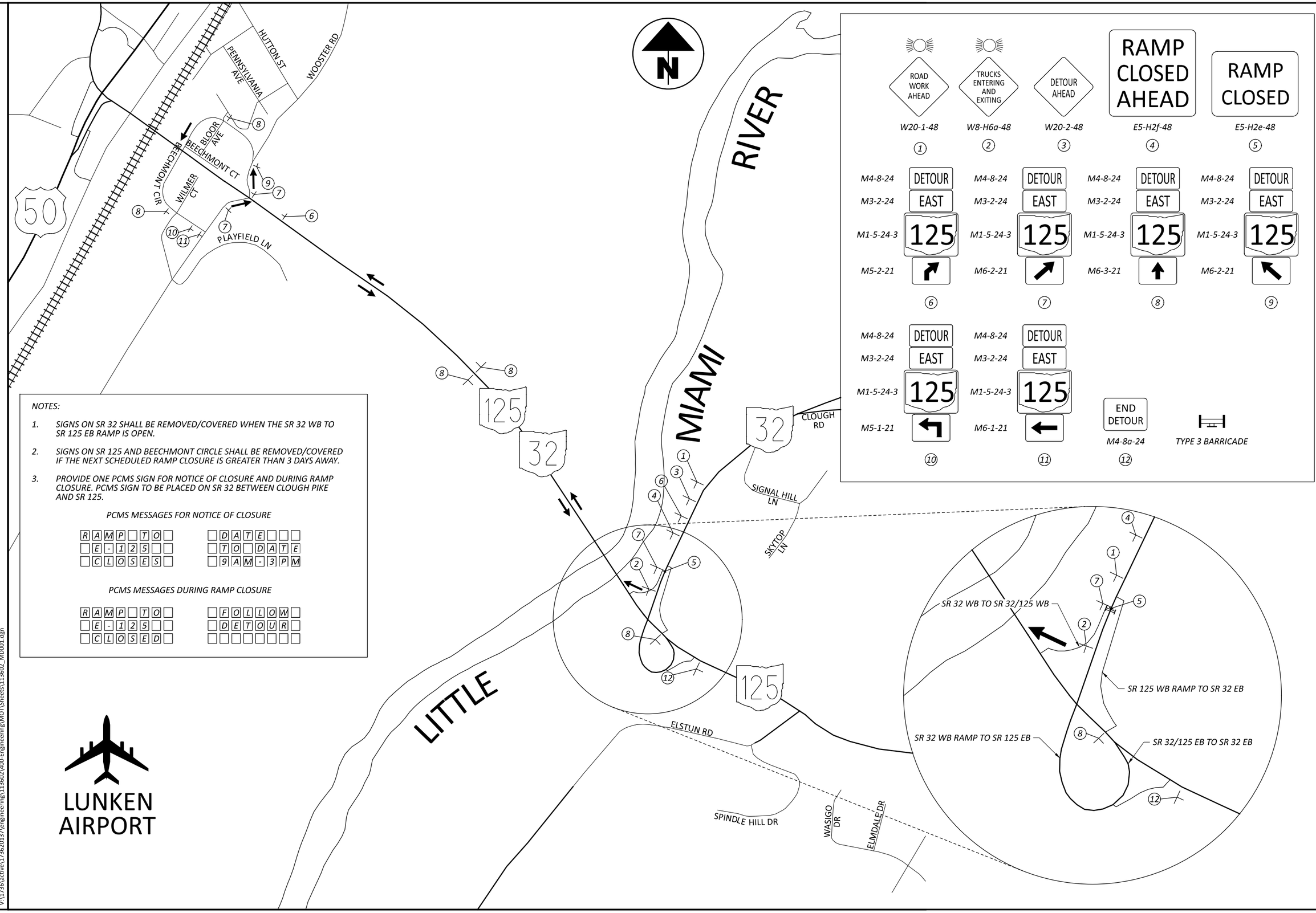
DESIGNER STC
REVIEWER PJD 10-20-23
PROJECT ID 113602
SHEET P.11 TOTAL 71



NOTES:

1. *SIGNS ON SR 32 SHALL BE REMOVED/COVERED WHEN THE SR 32 WB TO SR 125 EB RAMP IS OPEN.*
2. *SIGNS ON SR 125 AND BEECHMONT CIRCLE SHALL BE REMOVED/COVERED IF THE NEXT SCHEDULED RAMP CLOSURE IS GREATER THAN 3 DAYS AWAY.*
3. *PROVIDE ONE PCMS SIGN FOR NOTICE OF CLOSURE AND DURING RAMP CLOSURE. PCMS SIGN TO BE PLACED ON SR 32 BETWEEN CLOUGH PIKE AND SR 125.*

PCMS MESSAGES FOR NOTICE OF CLOSURE

RAMP TO	DATE
E-125	TO DATE
CLOSES	9AM-3PM

PCMS MESSAGES DURING RAMP CLOSURE

RAMP TO	FOLLOW
E-125	DETOUR
CLOSED	

LUNKEN AIRPORT

HORIZONTAL SCALE IN FEET
0 100 200 400

SR 32 WB RAMP TO SR 125 SB DETOUR PLAN

HAM-SR32-1.44R

MODEL: SR-32 WB to SR-125 SB Detour [Sheet] PAPERSIZE: 17x11 (in.) DATE: 10/23/2023 TIME: 1:38:56 PM USER: zmorman
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DESIGNER	STC
REVIEWER	PJD 10-20-23
PROJECT ID	113602
SHEET	P.12
TOTAL	71

SHEET NUM.													PART.	ITEM	ITEM	GRAND	UNIT	DESCRIPTION	SEE SHEET NO.
6	7	8	9	10	11	15	16	17	46	47	55		01/S>2/28		EXT	TOTAL			
																		ROADWAY	
LS													LS	201	11000	LS		CLEARING AND GRUBBING	
							53						53	202	35200	53	FT	PIPE REMOVED, OVER 24"	
							117						117	202	75000	117	FT	FENCE REMOVED	
						1,221							1,221	203	10000	1,221	CY	EXCAVATION	
						14,384							14,384	203	20001	14,384	CY	EMBANKMENT, AS PER PLAN	9
	2												2	SPECIAL	20365000	2	EACH	SETTLEMENT PLATFORM	7
LS													LS	203	98500	LS		ROADWAY, MISC.: EXISTING GAS LINE PROTECTION	6
							1						1	203	98600	1	EACH	ROADWAY, MISC.: TRAIL COUNTER	8
							2,284						2,284	204	10000	2,284	SY	SUBGRADE COMPACTION	
							410						410	204	13000	410	CY	EXCAVATION OF SUBGRADE	7
							410						410	204	30020	410	CY	GRANULAR MATERIAL, TYPE C	
1													1	204	45000	1	HOUR	PROOF ROLLING	
							1,230						1,230	204	50000	1,230	SY	GEOTEXTILE FABRIC, 712.09, TYPE D	
							871						871	607	98000	871	FT	FENCE, MISC.: WOOD FENCE	7
	LS												LS	SPECIAL	69098400	LS		CONSULTANT FOR CONCRETE QUALITY CONTROL INCLUDING TESTING AND INSPECTION	7
		LS											LS	SPECIAL	69098400	LS		SPILL PREVENTION CONTROL AND COUNTERMEASURES PLAN	8
						3,454							3,454	863	00100	3,454	SY	GEOGRID, TYPE P1	
						850							850	863	00600	850	SY	GEOGRID, TYPE S1	
						2,956							2,956	863	00801	2,956	CY	REINFORCED EMBANKMENT, AS PER PLAN	6
													LS	878	25000	LS		INSPECTION AND COMPACTION TESTING OF UNBOUND MATERIALS	
																		EROSION CONTROL	
						2							2	601	11000	2	SY	RIPRAP, TYPE D	
						3							3	601	32200	3	CY	ROCK CHANNEL PROTECTION, TYPE C WITH FILTER	
						2							2	659	00100	2	EACH	SOIL ANALYSIS TEST	
						1,015							1,015	659	00300	1,015	CY	TOPSOIL	
						9,143							9,143	659	10001	9,143	SY	SEEDING AND MULCHING, AS PER PLAN	15
						458							458	659	14001	458	SY	REPAIR SEEDING AND MULCHING, AS PER PLAN	15
						1.24							1.24	659	20000	1.24	TON	COMMERCIAL FERTILIZER	
						1.89							1.89	659	31000	1.89	ACRE	LIME	
						50							50	659	35000	50	MGAL	WATER	
						885							885	670	00500	885	SY	SLOPE EROSION PROTECTION	
						582							582	670	00700	582	SY	DITCH EROSION PROTECTION	
								LS					LS	832	15000	LS		STORM WATER POLLUTION PREVENTION PLAN	
								LS					LS	832	15002	LS		STORM WATER POLLUTION PREVENTION INSPECTIONS	
								LS					LS	832	15010	LS		STORM WATER POLLUTION PREVENTION INSPECTION SOFTWARE	
								80,000					80,000	832	30000	80,000	EACH	EROSION CONTROL	
																		DRAINAGE	
						LS							LS	503	11100	LS		COFFERDAMS AND EXCAVATION BRACING	
						9.4							9.4	602	20000	9.4	CY	CONCRETE MASONRY	7
						98							98	611	04400	98	FT	12" CONDUIT, TYPE B	
						92							92	611	04900	92	FT	12" CONDUIT, TYPE D	
						110							110	611	11900	110	FT	27" CONDUIT, TYPE B, 706.02	
			LS										LS	611	97300	LS		CONDUIT, MISC.: SEWER INSPECTION	9
						3							3	611	98470	3	EACH	CATCH BASIN, NO. 2-2B	
						1							1	611	98510	1	EACH	CATCH BASIN, NO. 2-3	
						1							1	611	99570	1	EACH	MANHOLE, NO. 2	
		1											1	611	99900	1	EACH	DRAINAGE STRUCTURE, MISC.:CHECK VALVE FOR 12" CONDUIT	8
		1											1	611	99900	1	EACH	DRAINAGE STRUCTURE, MISC.:CHECK VALVE FOR 27" CONDUIT	8
																		PAVEMENT	
							504						504	304	20000	504	CY	AGGREGATE BASE	
							97						97	407	20000	97	GAL	NON-TRACKING TACK COAT	
							73						73	823	40000	73	CY	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (449) PG64-22	
							86						86	823	41000	86	CY	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, (449)	
																		TRAFFIC CONTROL	
										36			36	630	03100	36	FT	GROUND MOUNTED SUPPORT, NO. 3 POST	
										3			3	630	08600	3	EACH	SIGN POST REFLECTOR	
										8.1			8.1	630	80100	8.1	SF	SIGN, FLAT SHEET	
										0.05			0.05	644	00300	0.05	MILE	CENTER LINE DASHED, 4"	
										15			15	644	20800	15	FT	YIELD LINE	

GENERAL SUMMARY

HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: Sheet PAPERSIZE: 17x11 (in.) DATE: 1/17/2024 TIME: 9:28:22 AM USER: pdurham
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DESIGNER ZTM

REVIEWER PJD 10-20-23

PROJECT ID 113602

SHEET P.13 TOTAL 71

SHEET NUM.												PART.		ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
6	7	8	9	10	11	15	16	17	46	47	55		01/S>2/28						
																		LANDSCAPING	
		25											25	661	40040	25	EACH	DECIDUOUS TREE, 1" CALIPER	7
																		RETAINING WALLS	
									205				205	512	10100	205	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	
									302				302	518	21200	302	CY	POROUS BACKFILL WITH GEOTEXTILE FABRIC	
									2,012				2,012	870	10000	2,012	SF	PREFABRICATED MODULAR RETAINING WALL	
									318				318	870	11000	318	CY	WALL EXCAVATION	
									235				235	870	12000	235	FT	6" DRAINAGE PIPE, PERFORATED	
									50				50	870	12100	50	FT	6" DRAINAGE PIPE, NON-PERFORATED	
									235				235	870	12500	235	FT	CONCRETE COPING	
									2				2	870	14000	2	DAY	ON-SITE ASSISTANCE	
																		STRUCTURE OVER 20 FOOT SPAN (HAM-LMST ELSTUN-0.09)	
											LS		LS	503	11101	LS		COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN	51
											LS		LS	503	21300	LS		UNCLASSIFIED EXCAVATION	
											LS		LS	505	11100	LS		PILE DRIVING EQUIPMENT MOBILIZATION	
											880		880	507	00100	880	FT	STEEL PILES HP10X42, FURNISHED	
											800		800	507	00150	800	FT	STEEL PILES HP10X42, DRIVEN	
											9,767		9,767	509	10000	9,767	LB	EPOXY COATED STEEL REINFORCEMENT	
											69		69	511	42012	69	CY	CLASS QC1 CONCRETE WITH QC/QA, PIER ABOVE FOOTINGS	
											74		74	511	43512	74	CY	CLASS QC1 CONCRETE WITH QC/QA, ABUTMENT INCLUDING FOOTING	
											171		171	512	10100	171	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	
											31		31	518	20000	31	SY	PREFABRICATED GEOCOMPOSITE DRAIN	
											11		11	518	21200	11	CY	POROUS BACKFILL WITH GEOTEXTILE FABRIC	
											62		62	518	40000	62	FT	6" PERFORATED CORRUGATED PLASTIC PIPE	
											80		80	518	40010	80	FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS	
											11		11	524	94804	11	FT	DRILLED SHAFTS, 42" DIAMETER, INTO BEDROCK	
											52		52	524	94902	52	FT	DRILLED SHAFTS, 48" DIAMETER, ABOVE BEDROCK	
											LS		LS	SPECIAL	53000200	LS		STRUCTURES, MISC: PREFABRICATED BRIDGE	50-52
											1,285		1,285	601	32004	1,285	CY	ROCK CHANNEL PROTECTION, TYPE A WITH GEOTEXTILE FABRIC	
											2		2	894	10000	2	EACH	THERMAL INTEGRITY PROFILING (TIP) TEST	51
																		MAINTENANCE OF TRAFFIC	
						70							70	614	11110	70	HOUR	LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE	
						LS							LS	614	12420	LS		DETOUR SIGNING	
				2									2	614	18601	2	SNMT	PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN	10
					30								30	616	10000	30	MGAL	WATER	
																		INCIDENTALS	
				LS									LS	614	11000	LS		MAINTAINING TRAFFIC	10
													LS	623	10000	LS		CONSTRUCTION LAYOUT STAKES AND SURVEYING	
													LS	624	10000	LS		MOBILIZATION	

GENERAL SUMMARY

HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: Sheet PAPERSIZE: 17x11 (in.) DATE: 1/22/2024 TIME: 4:27:57 PM USER: qlechen
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DESIGNER ZTM

REVIEWER PJD 10-20-23

PROJECT ID 113602

SHEET P.14 | TOTAL 71

EARTHWORK QUANTITIES

STATION		203		863		
		EXCAVATION	EMBANKMENT, AS PER PLAN	GEOGRID, TYPE P1	GEOGRID, TYPE S1	REINFORCED EMBANKMENT, AS PER PLAN
		CU YD	CU YD	SQ YD	SQ YD	CU YD
ELSTUN CONNECTION						
72+12.37	90+00.00	1221	11599	2614	640	2116
REAR ABUTMENT			685	840	210	840
FORWARD ABUTMENT			2100			
SUBTOTAL		1221	14384	3454	850	2956
TOTALS CARRIED TO GENERAL SUMMARY		1221	14384	3454	850	2956

ITEM 659 - SEEDING AND MULCHING, AS PER PLAN

ALL ASPECTS OF SPECIFICATION 659 SHALL APPLY EXCEPT THOSE MODIFIED BELOW

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

SEEDING AND MULCHING QUANTITIES

(QUANTITIES CARRIED TO GENERAL SUMMARY)

ITEM 659 SEEDING & MULCHING, AS PER PLAN
9143 SQ YD (FROM SHEET NO. 42)

ITEM 659 SOIL ANALYSIS TEST
9143 SQ YD x 9 x 1/43560 ACRES x 1 EACH /10 ACRES = 0.19 EACH
USE 2 EACH

ITEM 659 TOPSOIL
9143 SQ YD x 111 CY/1000 SY = 1014.88
USE 1015 CY

ITEM 659 COMMERCIAL FERTILIZER
9143 SQ YD x 1 TON/7410 SQ YD = 1.24 TONS

ITEM 659 LIME
9143 SQ YD x 9 x 1/43560 = 1.89 ACRES

ITEM 659 WATER
9143 SQ YD x 0.0027 M GAL/SQ YD x 2 = 49.38 M GAL
USE 50 M GAL

ITEM 659 REPAIR SEEDING & MULCHING, AS PER PLAN
9143 SQ YD x 0.05 = 458 SQ YD

VEGETATION OUTSIDE OF THE PROJECT CONSTRUCTION LIMITS SHALL BE LEFT UNDISTURBED. ALL DISTURBED/EXPOSED AREAS WITHIN THE CONSTRUCTION LIMITS (INCLUDING STAGING AND CONSTRUCTION ACCESS AREAS) SHALL BE PROPERLY STABILIZED (SEEDED/MULCHED) IMMEDIATELY AFTER GRADING TO PREVENT EROSION AND ESTABLISHMENT OF INVASIVE PLANT SPECIES. THE ABOVE ESTIMATED QUANTITY CALCULATIONS ARE BASED ON THESE LIMITS.

FURNISH GRASS SEED MIXTURE CLASS 1 ALONG ROADSIDES AND IN OTHER AREAS EXPECTED TO BE MOWED REGULARLY. FURNISH NATIVE GRASS SEED CLASS 4B ALONG TRAILSIDES. FURNISH GRASS SEED MIXTURE CLASS 3B ON SLOPES STEEPER THAN 3:1. FURNISH GRASS SEED & WILDFLOWER SEED MIXTURE CLASS 5B ALONG STREAMBANKS AND IN ALL OTHER AREAS AS OUTLINED ABOVE. SEED CLASS SELECTION FOR ALL AREAS SHALL BE AT THE APPROVAL OF THE ENGINEER.

THE CONTRACTOR SHALL PERFORM WATERING AND MAINTENANCE, AS NECESSARY, UNTIL THE SEEDED AREAS HAVE BECOME FULLY ESTABLISHED.

PAYMENT FOR ALL THE ABOVE WORK SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE PER SQUARE YARD FOR ITEM 659, SEEDING AND MULCHING, AS PER PLAN, OR OTHER PERTINENT PAY ITEM LISTED ABOVE.

DRAINAGE AND EROSION CONTROL SUBSUMMARY

REF. NO.	SHEET NO.	STATION		SIDE	503	601		602	611								670	
					COFFERDAMS AND EXCAVATION BRACING	ROCK CHANNEL PROTECTION, TYPE C WITH FILTER	RIPRAP, TYPE D	CONCRETE MASONRY	12" CONDUIT, TYPE B	12" CONDUIT, TYPE D	27" CONDUIT, TYPE B, 706.02	CATCH BASIN, NO. 2-2B	CATCH BASIN, NO. 2-3	MANHOLE, NO. 2	DRAINAGE STRUCTURE, MISC.: CHECK VALVE FOR 12" CONDUIT	DRAINAGE STRUCTURE, MISC.: CHECK VALVE FOR 27" CONDUIT	SLOPE EROSION PROTECTION	DITCH EROSION PROTECTION
		FROM	TO		LUMP	CU YD	SQ YD	CU YD	FOOT	FOOT	FOOT	EACH	EACH	EACH	EACH	EACH	SQ YD	SQ YD
		ELSTUN CONNECTION																
D1	16	72+48.00	72+80.00	LT						44		1						
D2	16	72+48.00	72+48.50	LT/RT				3.80		43		1			1			
D3	16	75+32.00	75+10.90	LT/RT		2		0.21	78				1					
D4	17	77+76.00	76+80.60	LT	1					5		1		1				
D5	17	77+11.00	77+45.50	RT				5.1			110					1		
D6	18	82+40.00		LT/RT		1	1.2	0.21	20									
E1	16	72+52.06	73+17.79	LT													205	
E2	17	76+50.00	76+76.00	LT														24
E3	17-18	79+68.90	81+08.00	LT													126	
E4	18-19	82+45.00	86+20.00	LT														313
E5	19	87+06.00	90+00.00	LT														245
E6		76+00.00	77+16.00	RT													387	
E7		77+69.00	80+50.00	RT													167	
SUBTOTAL					1	3.0	1.2	9.32	98	92	110	3	1	1	1	1	885	582
TOTALS CARRIED TO GENERAL SUMMARY					1	3	2	9.40	98	92	110	3	1	1	1	1	885	582

SUBSUMMARY

HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: Sheet PAPERSIZE: 17x11 (in.) DATE: 1/17/2024 TIME: 12:41:28 PM USER: qlachen
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DESIGN AGENCY
Stantec
10200 Alliance Road, Suite 300
Cincinnati, OH 45242
(513) 842-8200

DESIGNER ZTM
REVIEWER PJD 10-20-23
PROJECT ID 113602
SHEET P.15 TOTAL 71

ROADWAY SUBSUMMARY								
					202		203	607
REF. NO.	SHEET NO.	STATION FROM	STATION TO	SIDE	FENCE REMOVED	PIPE REMOVED, OVER 24"	ROADWAY, MISC.: TRAIL COUNTER	FENCE, MISC.: WOOD FENCE
					FT	FT	EACH	FT
		ELSTUN CONNECTION						
R1	18	72+48.50	72+63.75	LT				20
R2	18	72+06.30	72+48.50	LT	117			
R3	18	72+06.30	72+35.08	RT				20
R4	19	75+09.00	77+16.00	LT				206
R5	19	79+69.00	80+71.00	LT				100
R6	19	79+69.00	80+65.00	RT				100
R7	19	76+81.90	77+11.08			53		
R8	20	74+40.00		RT			1	
R9	18-19	72+89.56	77+16.20	RT				425
SUBTOTAL					117	53	1	871
TOTALS CARRIED TO GENERAL SUMMARY					117	53	1	871

PAVEMENT SUBSUMMARY														
						204				304	407	823		
SHEET NO.	REFERENCE NO.	LOCATION	STATION FROM	STATION TO	AREA (COMPUTER GENERATED)	SUBGRADE COMPACTION (AREA/9)	EXCAVATION OF SUBGRADE, 12" (AREA*1/27)	GRANULAR MATERIAL, TYPE C	GEOTEXTILE FABRIC, 712.09, TYPE D	9" AGGREGATE BASE (AREA*0.75/27)	NON-TRACKING TACK COAT 0.055 GAL/SY (AREA*0.055/9)	1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (449), PG64-22 (AREA*0.125/27)	1.75" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, (449) (AREA*0.146/27)	COMMENTS AND ADDITIONAL AREAS FOR STEPS
			FROM	TO	SF	SY	CY	CY	SY	CY	GAL	CY	CY	
18	P1	ELSTUN CONNECTION	72+12.37	76+00.00	4288	629.8				138.3	26.2	19.9	23.2	ADD 1380 SF FOR 204, ADD 690 SF FOR 304
19	P2	ELSTUN CONNECTION	76+00.00	77+16.12	1168	168.4				37.3	7.1	5.4	6.3	ADD 348 SF FOR 204, ADD 174 SF FOR 304
19	P3	ELSTUN CONNECTION	79+69.08	81+00.00	1264	184.9				40.7	7.7	5.9	6.8	ADD 400 SF FOR 204, ADD 200 SF FOR 304
20	P4	ELSTUN CONNECTION	81+00.00	86+00.00	5000	722.2				159.7	30.6	23.1	27.0	ADD 1500 SF FOR 204, ADD 750 SF FOR 304
21	P5	ELSTUN CONNECTION	86+00.00	90+00.00	4000	577.8				127.8	24.4	18.5	21.6	ADD 1200 SF FOR 204, ADD 600 SF FOR 304
20-21	P6	ELSTUN CONNECTION	81+50.00	90+00.00	8500		409.3	409.3	1227.8					ADD 2550 SF FOR 204
SUBTOTAL						2283.1	409.3	409.3	1227.8	503.7	96.1	72.8	85.0	
TOTALS CARRIED TO GENERAL SUMMARY						2284	410	410	1230	504	97	73	86	

ROADWAY QUANTITIES

HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: Sheet PAPERSIZE: 17x11 (in.) DATE: 10/20/2023 TIME: 1:38:58 PM USER: zmorman
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DESIGN AGENCY
Stantec
10200 Alliance Road, Suite 300
Cincinnati, OH 45242
(513) 842-8200

DESIGNER ZTM

REVIEWER PJD 10-20-23

PROJECT ID 113602

PROJECT DESCRIPTION

CONSTRUCTION OF A NEW 0.34 MILE, 10' WIDE SHARED-USE PATH CONNECTION FROM THE LITTLE MIAMI SCENIC TRAIL NEAR THE SR 125 / SR 32 INTERCHANGE TO SPINDLEHILL DRIVE. THIS PROJECT IS PHASE 2 OF THE GREATER ELSTUN CONNECTION TO THE LITTLE MIAMI SCENIC TRAIL. THE PROJECT INCLUDES A NEW STRUCTURE OVER CLOUGH CREEK.

LATITUDE: 39°06'20"
LONGITUDE: -84°23'59"

USGS QUADRANT: EAST CINCINNATI

PROJECT DATA			
TOTAL AREA (RIGHT-OF-WAY)	4.42 ACRES	RUNOFF COEFFICIENT FOR PRE-CONSTRUCTION SITE	0.45
PROJECT EARTH DISTURBED AREA	2.53 ACRES	RUNOFF COEFFICIENT FOR POST-CONSTRUCTION SITE	0.50
ESTIMATED CONTRACTOR EARTH DISTURBED AREA	0.13 ACRES	POST CONSTRUCTION BMP:	BIORETENTION CELLS AND VEGETATED FILTER STRIP
NOTICE OF INTENT EARTH DISTURBED AREA	2.66 ACRES	IMMEDIATE RECEIVING WATERS	LITTLE MIAMI RIVER
IMPERVIOUS (PAVED) AREA FOR PRE-CONSTRUCTION SITE	1.10 ACRES	SUBSEQUENT RECEIVING WATERS	OHIO RIVER
IMPERVIOUS (PAVED) AREA FOR POST-CONSTRUCTION SITE	1.27 ACRES		

LEGEND

- CATCH BASIN (DITCH)
- MANHOLE
- ROCK CHANNEL PROTECTION

HORIZONTAL SCALE IN FEET: 0, 50, 100, 200

LINEAR BMP LOCATION					
DESCRIPTION	START LAT.	START LONG.	END LAT.	END LONG.	EDA TREATMENT CREDIT
VEGETATED FILTER STRIP	39.107601	-84.400173	39.107378	-84.400233	0.055
VEGETATED FILTER STRIP	39.105679	-84.399685	39.105359	-84.399515	0.078
VEGETATED BIOFILTER	39.105281	-84.399085	39.105083	-84.397778	0.34
VEGETATED BIOFILTER	39.105021	-84.397479	39.104874	-84.396512	0.22
				TREATMENT PROVIDED	0.69
				*TREATMENT REQUIRED	0.54

*CALCULATED PER L&D VOL. 2, SECTION 1115.7

THE FOLLOWING ITEMS HAVE BEEN CARRIED TO THE GENERAL SUMMARY:

ITEM 832, STORM WATER POLLUTION PREVENTION PLAN	LS
ITEM 832, STORM WATER POLLUTION PREVENTION INSPECTION	LS
ITEM 832, STORM WATER POLLUTION PREVENTION INSPECTION SOFTWARE	LS
ITEM 832, EROSION CONTROL (SEE NOTES THIS SHEET)	80,000 EACH

NOTES

STRAW BALES WILL NOT BE PERMITTED AS A FORM OF EROSION CONTROL.

TEMPORARY SEEDING AND MULCHING SHOULD NOT LAG BEHIND TRAIL CONSTRUCTION BY MORE THAN 500'.

PROJECT SITE PLAN

HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: Sheet PAPERSIZE: 17x11 (in.) DATE: 10/23/2023 TIME: 1:23:34 PM USER: pdurham
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DESIGN AGENCY
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10200 Alliance Road, Suite 300
Cincinnati, OH 45242
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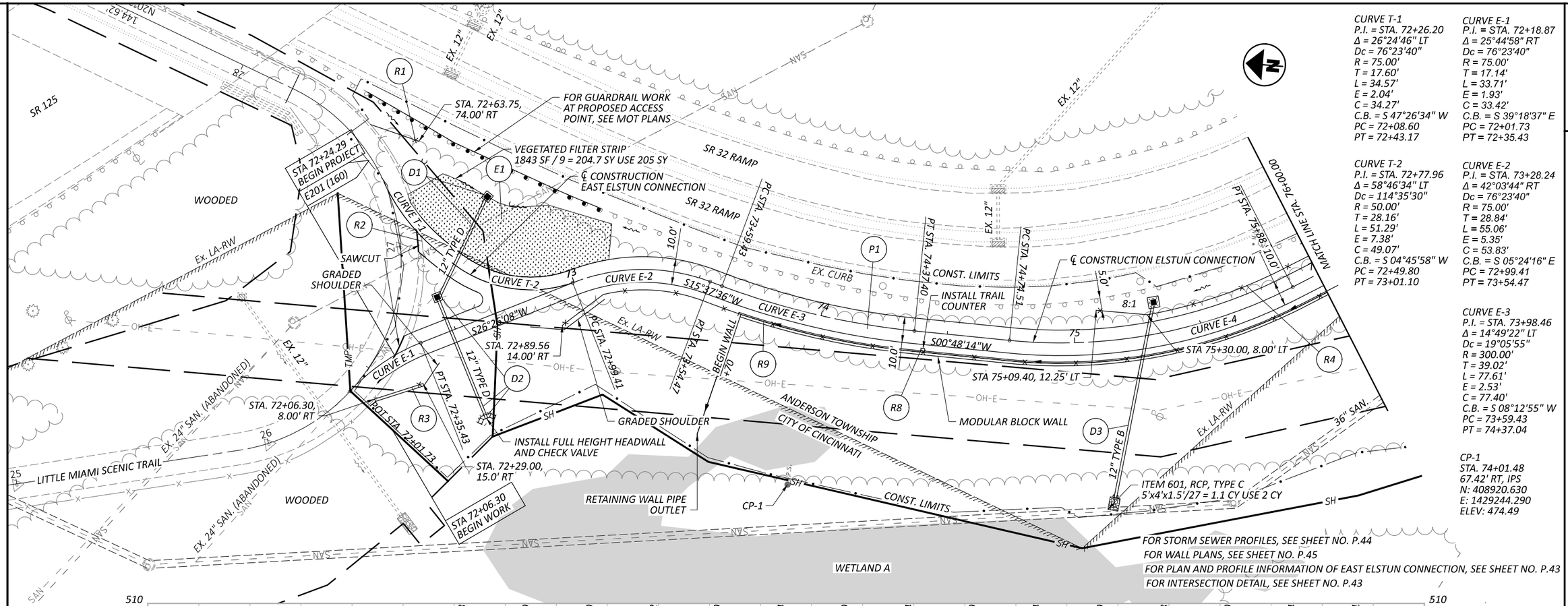
DESIGNER ZTM
REVIEWER PJD 10-20-23
PROJECT ID 113602
SHEET P.17 TOTAL 71



CURVE T-1
P.I. = STA. 72+26.20
Δ = 26°24'46" LT
Dc = 76°23'40"
R = 75.00'
T = 17.60'
L = 34.57'
E = 2.04'
C = 34.27'
C.B. = S 47°26'34" W
PC = 72+08.60
PT = 72+43.17

CURVE T-2
P.I. = STA. 72+77.96
Δ = 58°46'34" LT
Dc = 114°35'30"
R = 50.00'
T = 28.16'
L = 51.29'
E = 7.38'
C = 49.07'
C.B. = S 04°45'58" W
PC = 72+49.80
PT = 73+01.10

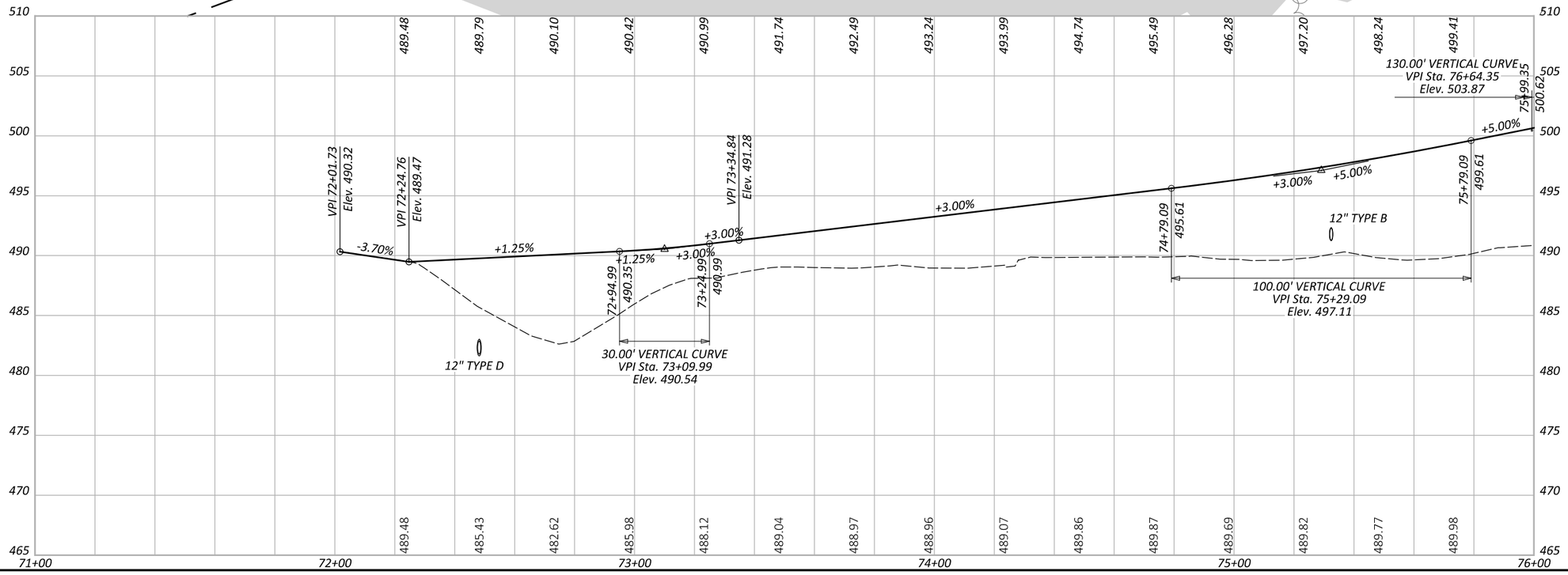
CURVE E-1
P.I. = STA. 72+18.87
Δ = 25°44'58" RT
Dc = 76°23'40"
R = 75.00'
T = 17.14'
L = 33.71'
E = 1.93'
C = 33.42'
C.B. = S 39°18'37" E
PC = 72+01.73
PT = 72+35.43

CURVE E-2
P.I. = STA. 73+28.24
Δ = 42°03'44" RT
Dc = 76°23'40"
R = 75.00'
T = 28.84'
L = 55.06'
E = 5.35'
C = 53.83'
C.B. = S 05°24'16" E
PC = 72+99.41
PT = 73+54.47

CURVE E-3
P.I. = STA. 73+98.46
Δ = 14°49'22" LT
Dc = 19°05'55"
R = 300.00'
T = 39.02'
L = 77.61'
E = 2.53'
C = 77.40'
C.B. = S 08°12'55" W
PC = 73+59.43
PT = 74+37.04

CP-1
STA. 74+01.48
67.42' RT, IPS
N: 408920.630
E: 1429244.290
ELEV: 474.49

HORIZONTAL
SCALE IN FEET
0 10 20 40



PLAN AND PROFILE
STA 72+25.02 TO STA 76+00.00

HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: CLP_B363 - Plan 1 [Sheet] PAPERSIZE: 17x11 (in.) DATE: 1/17/2024 TIME: 11:19:59 AM USER: qiachen
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DESIGN AGENCY
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DESIGNER ZTM
REVIEWER PJD 10-20-23
PROJECT ID 113602
SHEET P.18 TOTAL 71

HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: CLP_B363 - Plan 2 [Sheet] PAPERSIZE: 17x11 (in.) DATE: 1/17/2024 TIME: 11:20:38 AM USER: qiachen
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PLAN AND PROFILE
STA 76+00.00 TO STA 81+00.00

HORIZONTAL SCALE IN FEET
0 10 20 40

CURVE E-5
P.I. = STA. 76+93.81
Δ = 18°30'09" RT
Dc = 38°11'50"
R = 150.00'
T = 24.43'
L = 48.44'
E = 1.98'
C = 48.23'
C.B. = S 22°43'07" E
PC = 76+69.38
PT = 77+17.82

CURVE E-6
P.I. = STA. 81+21.05
Δ = 69°50'27" LT
Dc = 44°04'25"
R = 130.00'
T = 90.76'
L = 158.46'
E = 28.55'
C = 148.83'
C.B. = S 48°23'15" E
PC = 80+30.30
PT = 81+94.08

CP-2
STA. 77+44.64
97.29' RT, IPS
N: 408568.616
E: 1429311.171
ELEV: 471.68

FOR WALL PLANS, SEE SHEET NO. P.45
FOR STRUCTURE DETAILS, SEE SHEET NO. P.50
FOR STORM SEWER PROFILES, SEE SHEET NO. P.44

■ SETTLEMENT PLATFORM

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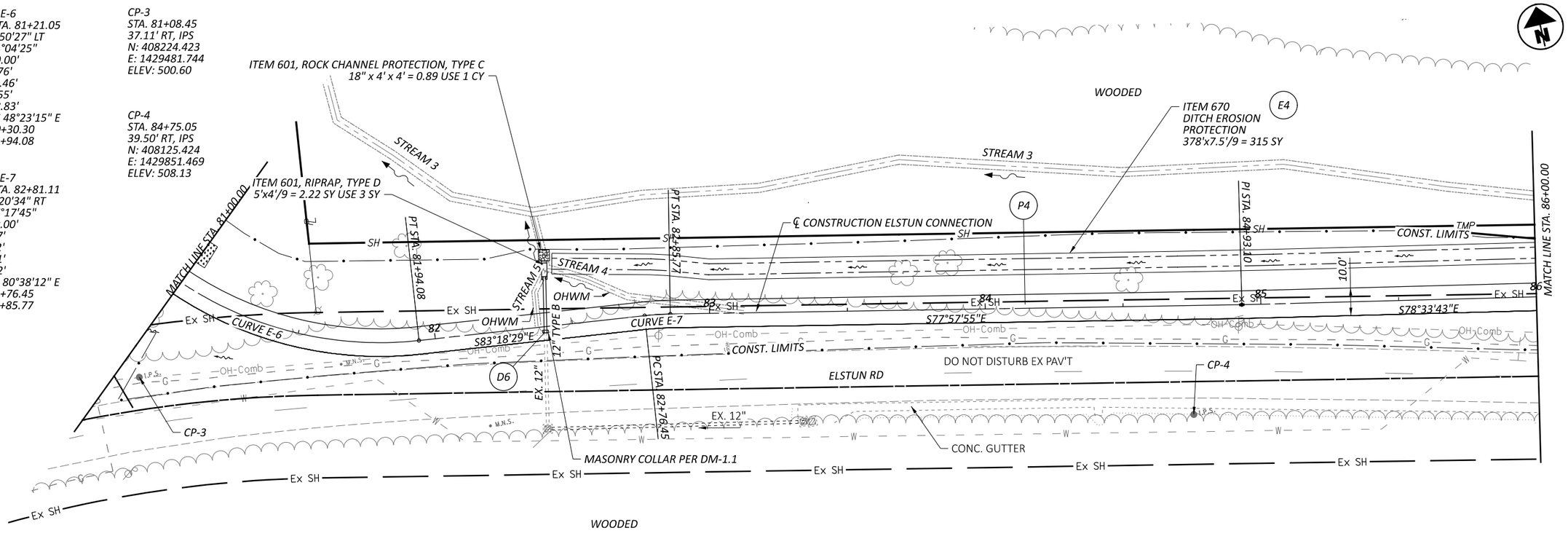
DESIGNER ZTM
REVIEWER PJD 10-20-23
PROJECT ID 113602
SHEET P.19 TOTAL 71

CURVE E-6
P.I. = STA. 81+21.05
Δ = 69°50'27" LT
Dc = 44°04'25"
R = 130.00'
T = 90.76'
L = 158.46'
E = 28.55'
C = 148.83'
C.B. = S 48°23'15" E
PC = 80+30.30
PT = 81+94.08

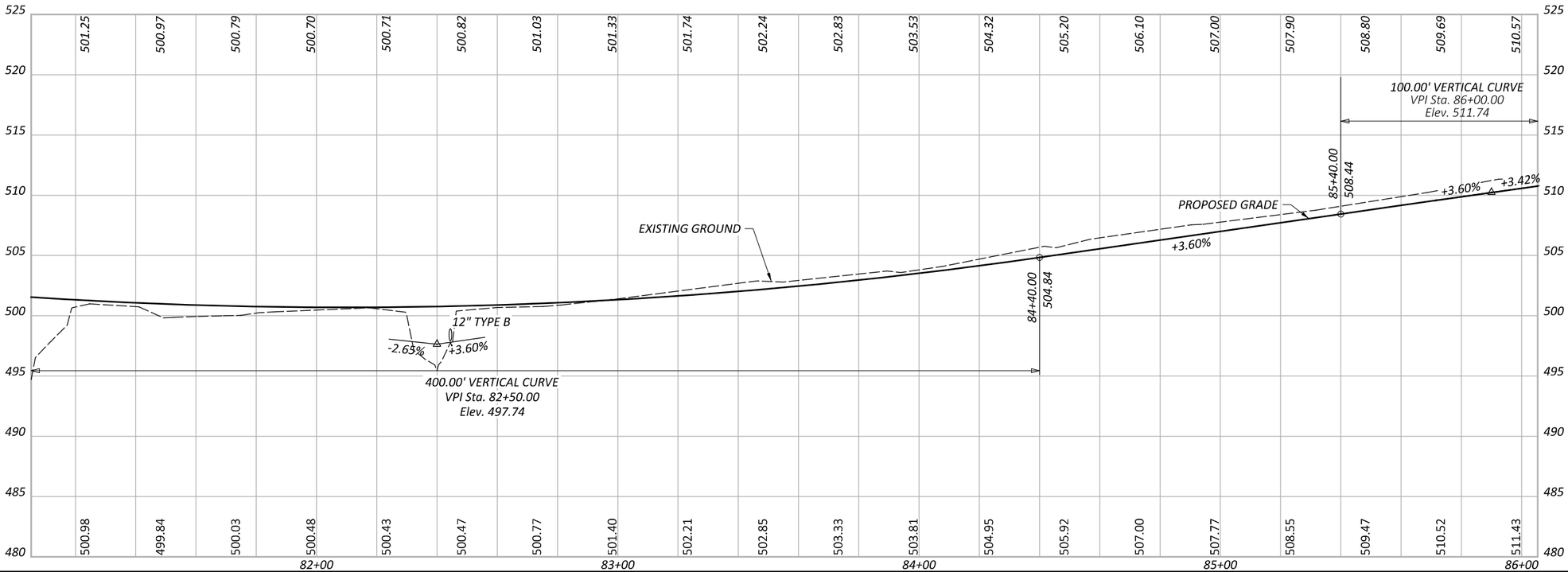
CURVE E-7
P.I. = STA. 82+81.11
Δ = 05°20'34" RT
Dc = 57°17'45"
R = 100.00'
T = 4.67'
L = 9.32'
E = 0.11'
C = 9.32'
C.B. = S 80°38'12" E
PC = 82+76.45
PT = 82+85.77

CP-3
STA. 81+08.45
37.11' RT, IPS
N: 408224.423
E: 1429481.744
ELEV: 500.60

CP-4
STA. 84+75.05
39.50' RT, IPS
N: 408125.424
E: 1429851.469
ELEV: 508.13



FOR STORM SEWER PROFILES, SHEET SHEET NO. P.44.



HAM-LMST EXTENSION TO ELSTUN PHASE 2

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HORIZONTAL SCALE IN FEET
0 10 20 40

PLAN AND PROFILE
STA 81+00.00 TO STA 86+00.00

DESIGN AGENCY
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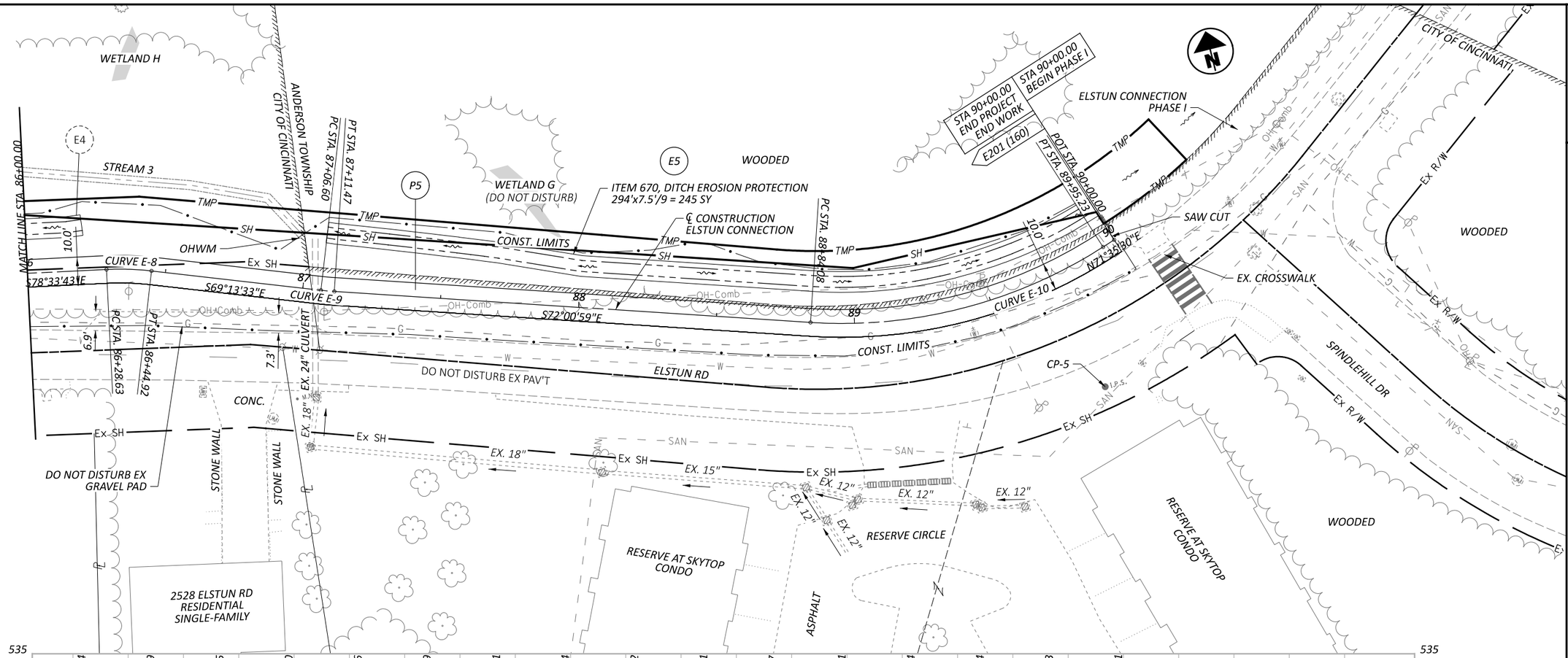
DESIGNER	ZTM
REVIEWER	PJD 10-20-23
PROJECT ID	113602
SHEET	P.20
TOTAL	71

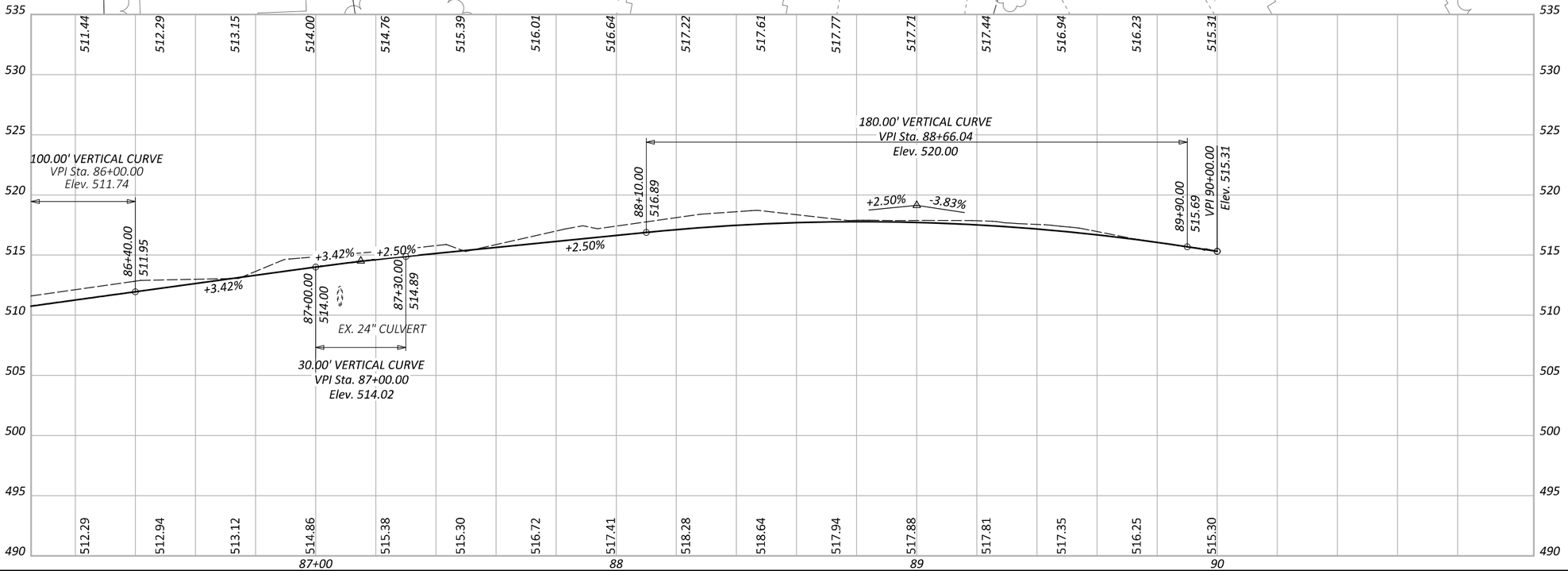
CURVE E-8
P.I. = STA. 86+36.79
Δ = 09°20'10" RT
Dc = 57°17'45"
R = 100.00'
T = 8.17'
L = 16.29'
E = 0.33'
C = 16.28'
C.B. = S 73°53'38" E
PC = 86+28.63
PT = 86+44.92

CURVE E-9
P.I. = STA. 87+09.03
Δ = 02°47'26" LT
Dc = 57°17'45"
R = 100.00'
T = 2.44'
L = 4.87'
E = 0.03'
C = 4.87'
C.B. = S 70°37'16" E
PCR = 87+06.60
PRC = 87+11.47

CURVE E-10
P.I. = STA. 89+41.60
Δ = 36°23'32" LT
Dc = 32°44'26"
R = 175.00'
T = 57.52'
L = 111.15'
E = 9.21'
C = 109.29'
C.B. = N 89°47'15" E
PC = 88+84.08
PT = 89+95.23

CP-5
STA. 89+73.96
44.63' RT, IPS
N: 408003.303
E: 1430349.875
ELEV: 519.18





HORIZONTAL
SCALE IN FEET
0 10 20 40

PLAN AND PROFILE
STA 86+00.00 TO STA 90+00.00

HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: CLP_8363 - Plan & [Sheet] PAPERSIZE: 17x11 (in.) DATE: 10/23/2023 TIME: 2:06:32 PM USER: pdurham
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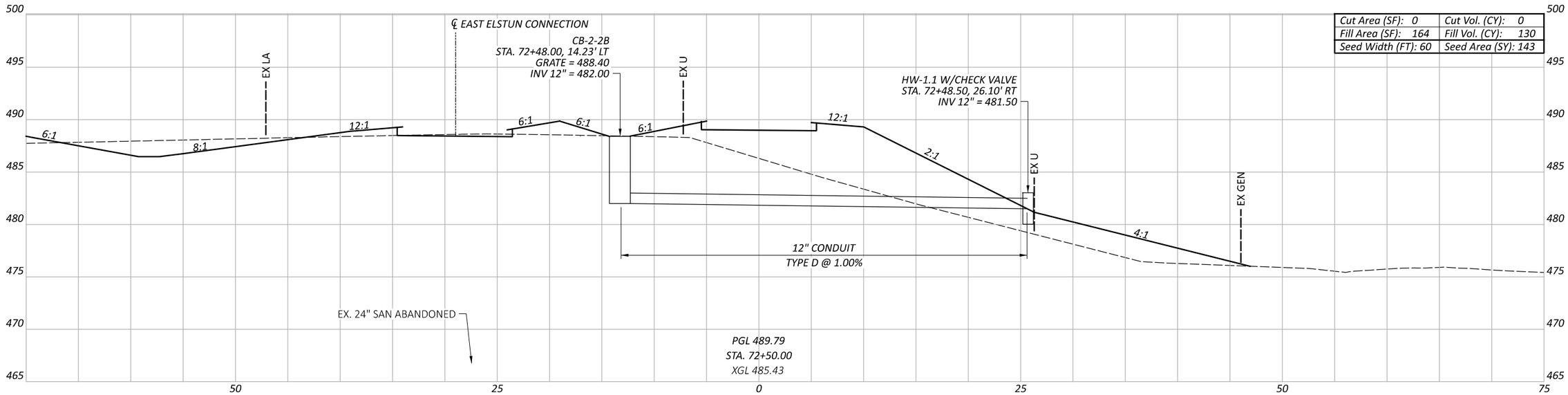
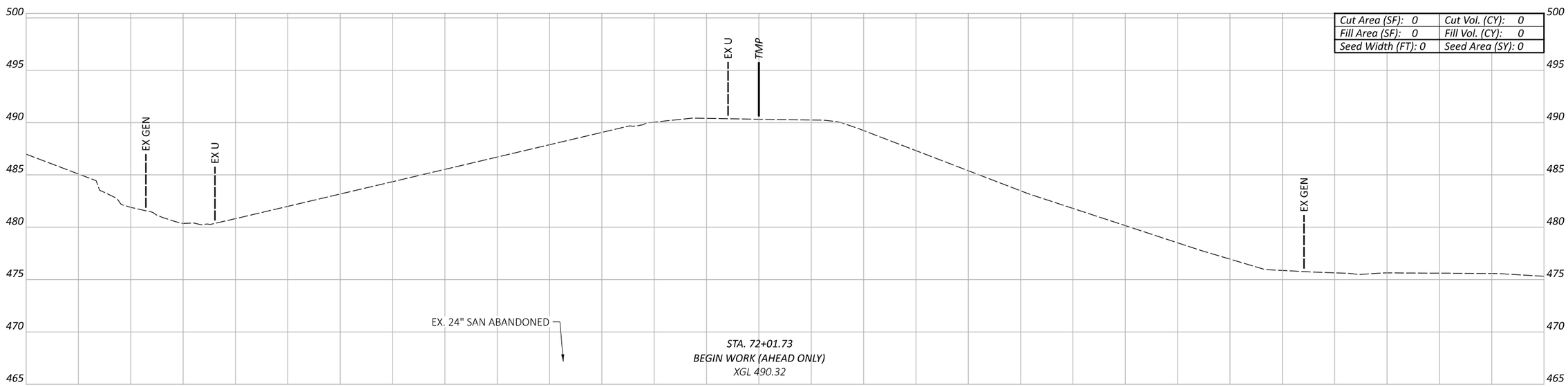
DESIGNER	ZTM
REVIEWER	PJD 10-20-23
PROJECT ID	113602
SHEET	P.21
TOTAL	71



Cut Area (SF): 0	Cut Vol. (CY): 0
Fill Area (SF): 164	Fill Vol. (CY): 130
Seed Width (FT): 60	Seed Area (SY): 143



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

CROSS SECTIONS
STA. 72+07.05 TO STA. 72+50.00

HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: CLP_B363 - 72+07.05 [Sheet] PAPERSIZE: 17x11 (in.) DATE: 10/23/2023 TIME: 1:50:37 PM USER: zmorman
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Sheet Totals		
Seeding	Cut	Fill
143	0	130

DESIGN AGENCY

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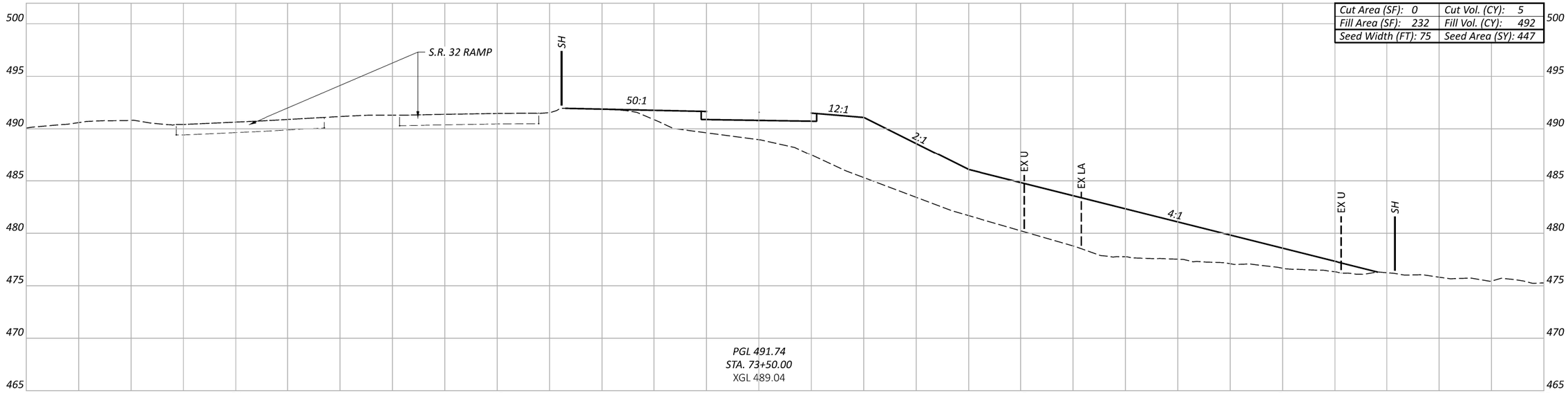
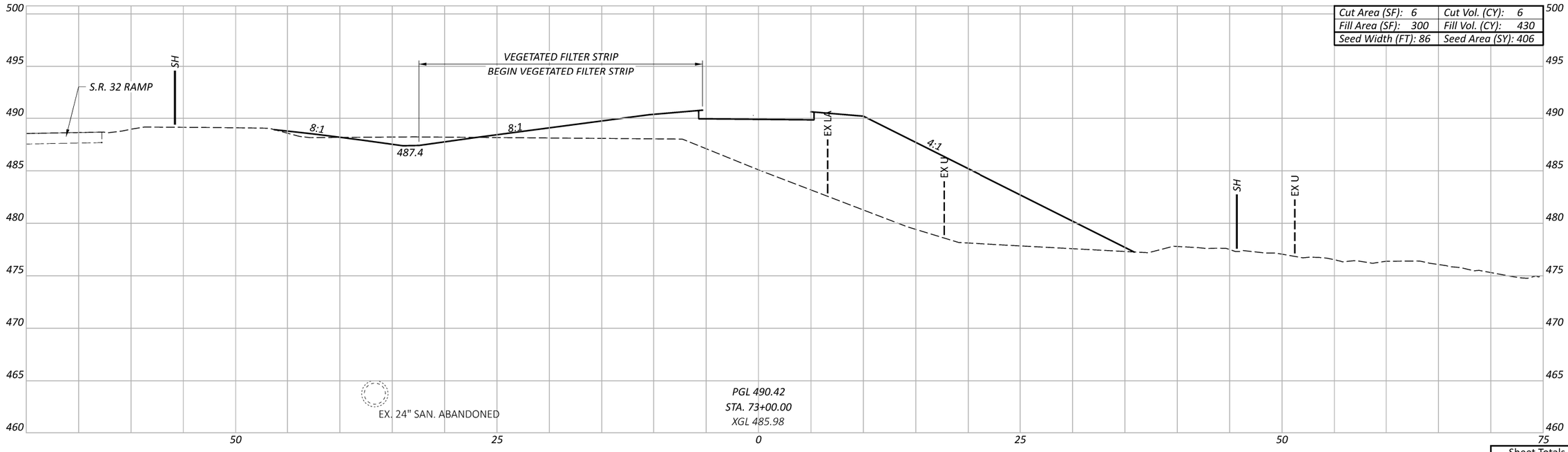
DESIGNER ZTM

REVIEWER PJD 10-20-23

PROJECT ID 113602

SHEET P.22 TOTAL 71





CROSS SECTIONS
STA. 73+00.00 TO STA. 73+50.00

HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: CLP_B363 - 73+00.00 [Sheet] PAPERSIZE: 17x11 (in.) DATE: 10/23/2023 TIME: 1:39:52 PM USER: zmorman
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Sheet Totals		
Seeding	Cut	Fill
853	11	922

DESIGN AGENCY
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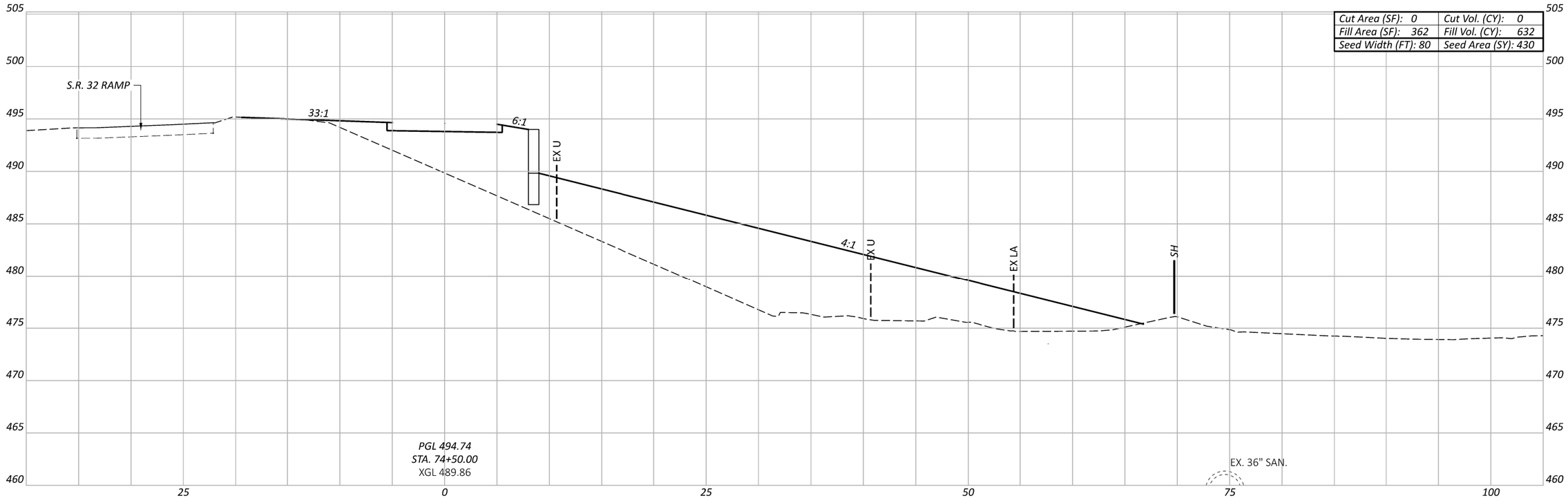
DESIGNER ZTM

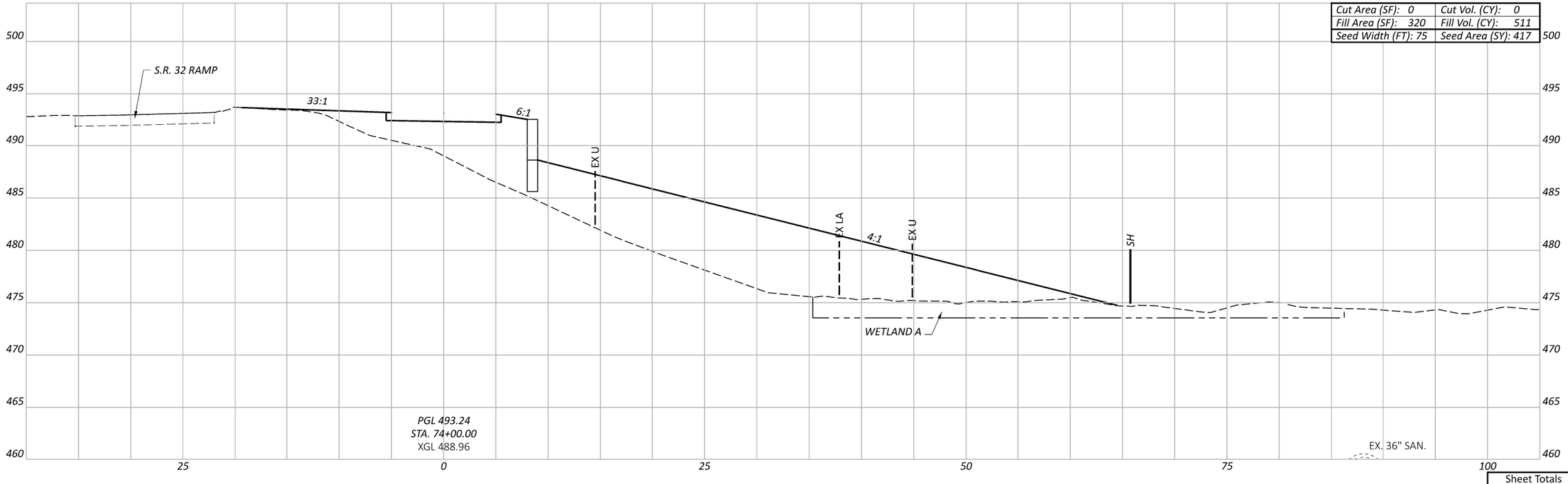
REVIEWER PJD 10-20-23

PROJECT ID 113602

SHEET P.23 TOTAL 71

CROSS SECTIONS
STA. 74+00.00 TO STA. 74+50.00





Sheet Totals

Seeding	Cut	Fill
847	0	1143

HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: CLP_8363 - 74+00.00 [Sheet] PAPERSIZE: 17x11 (in.) DATE: 10/23/2023 TIME: 1:39:58 PM USER: zmorman
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REVIEWER PJD 10-20-23

PROJECT ID 113602

SHEET P.24 TOTAL 71

HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: CLP_8363 - 75+00.00 [Sheet] PAPERSIZE: 17x11 (in.) DATE: 10/23/2023 TIME: 1:40:04 PM USER: zmorman
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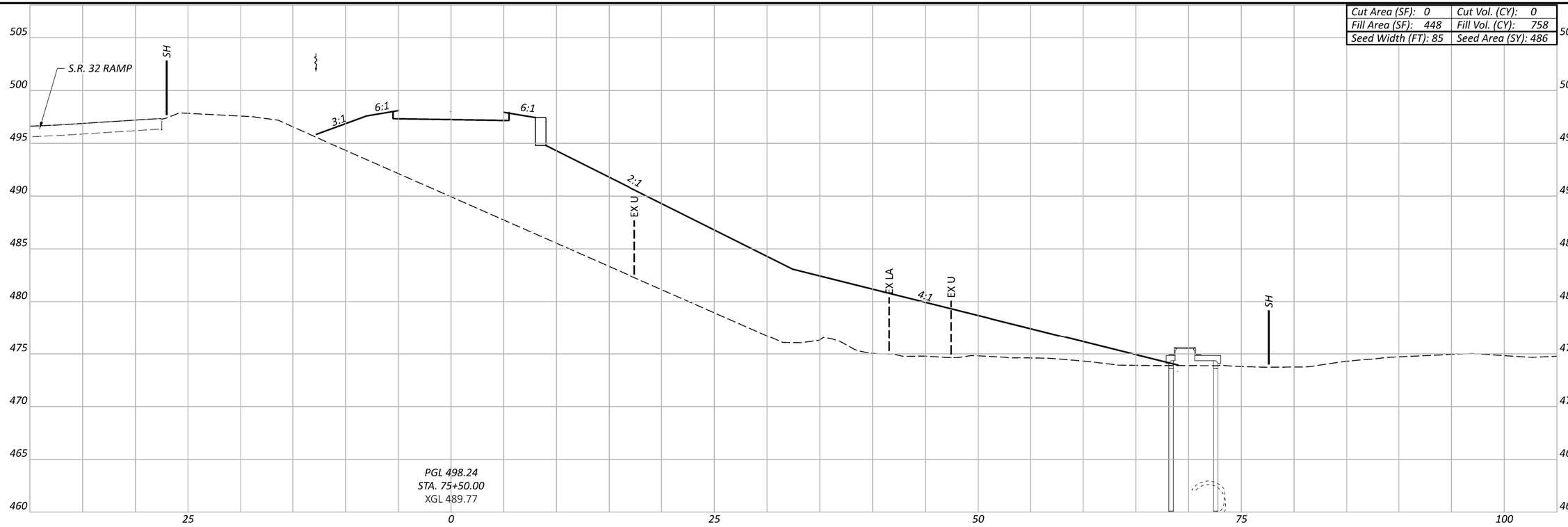
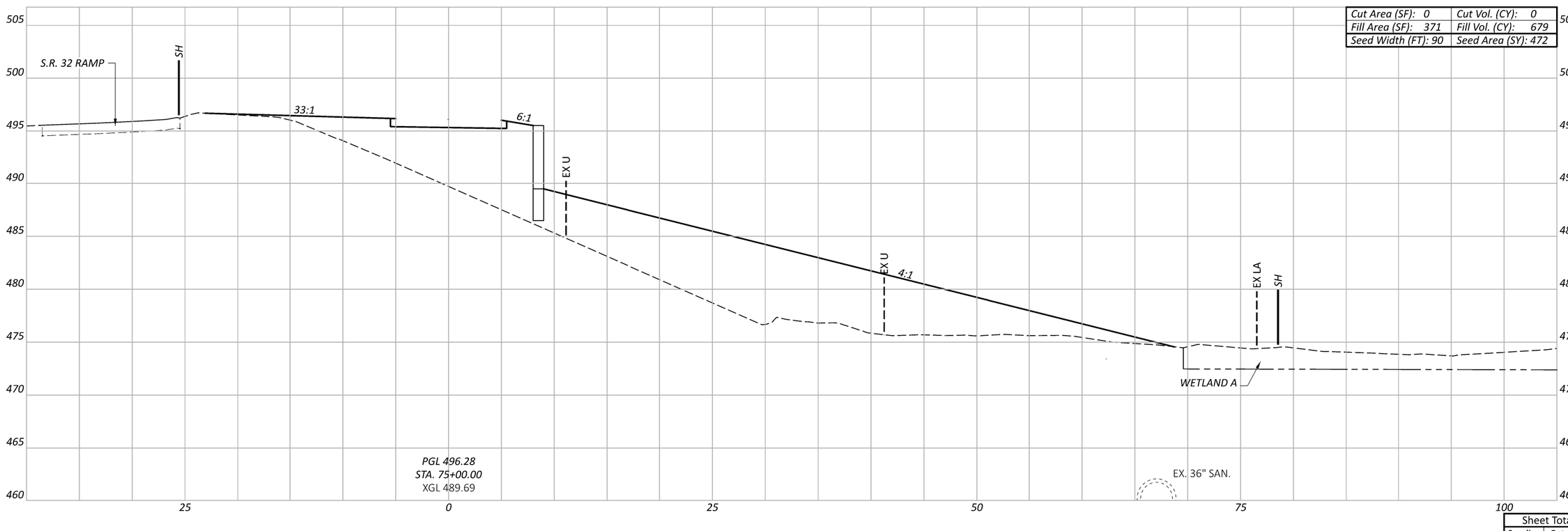
Cut Area (SF): 0	Cut Vol. (CY): 0
Fill Area (SF): 448	Fill Vol. (CY): 758
Seed Width (FT): 85	Seed Area (SY): 486



Cut Area (SF): 0	Cut Vol. (CY): 0
Fill Area (SF): 371	Fill Vol. (CY): 679
Seed Width (FT): 90	Seed Area (SY): 472



Sheet Totals		
Seeding	Cut	Fill
958	0	1437

CROSS SECTIONS
STA. 75+00.00 TO STA. 75+50.00

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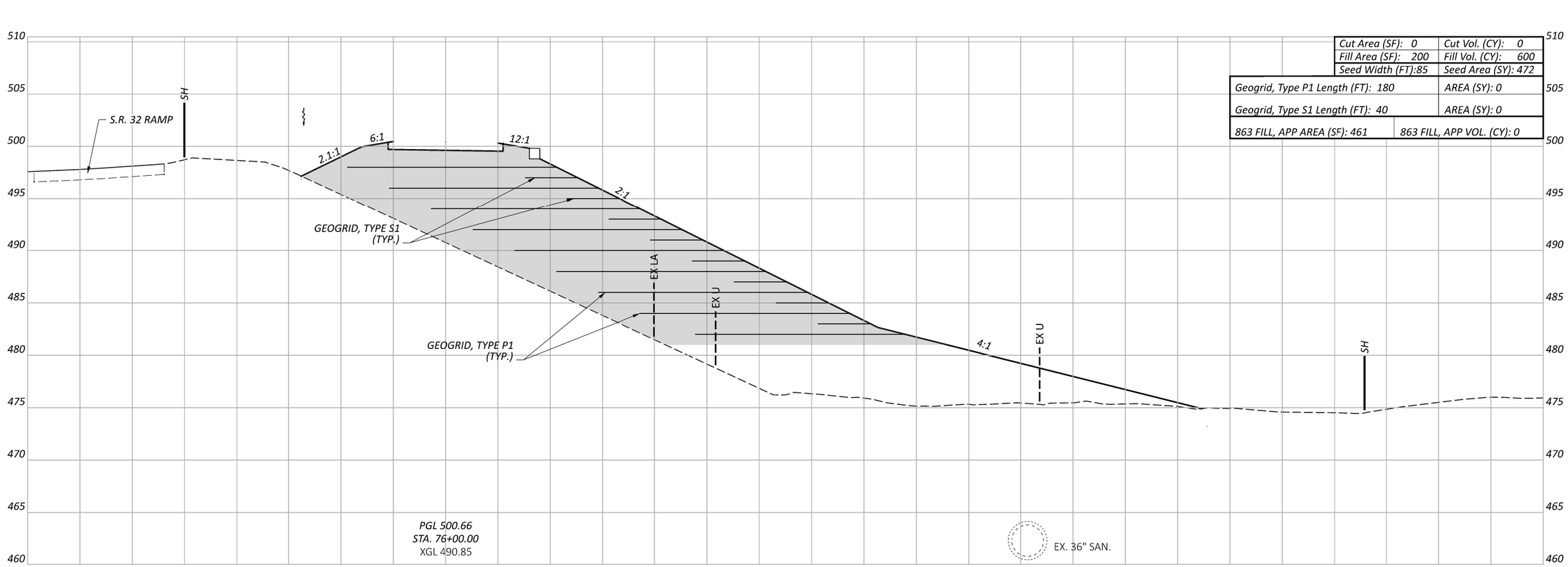
SHEET P.25 TOTAL 71

ITEM 863 REINFORCED EMBANKMENT, AS PER PLAN



Cut Area (SF): 0	Cut Vol. (CY): 0
Fill Area (SF): 200	Fill Vol. (CY): 600
Seed Width (FT):85	Seed Area (SY): 472
Geogrid, Type P1 Length (FT): 180	AREA (SY): 0
Geogrid, Type S1 Length (FT): 40	AREA (SY): 0
863 FILL, APP AREA (SF): 461	863 FILL, APP VOL. (CY): 0

CROSS SECTIONS
STA. 76+00.00

HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: CLP_B363 - 76+00.00 [Sheet] PAPERSIZE: 17x11 (in.) DATE: 10/23/2023 TIME: 1:40:09 PM USER: zmorman
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Sheet Totals				
Geogrid, P1	Geogrid, S1	Seeding	Cut	Fill
0	0	472	0	600

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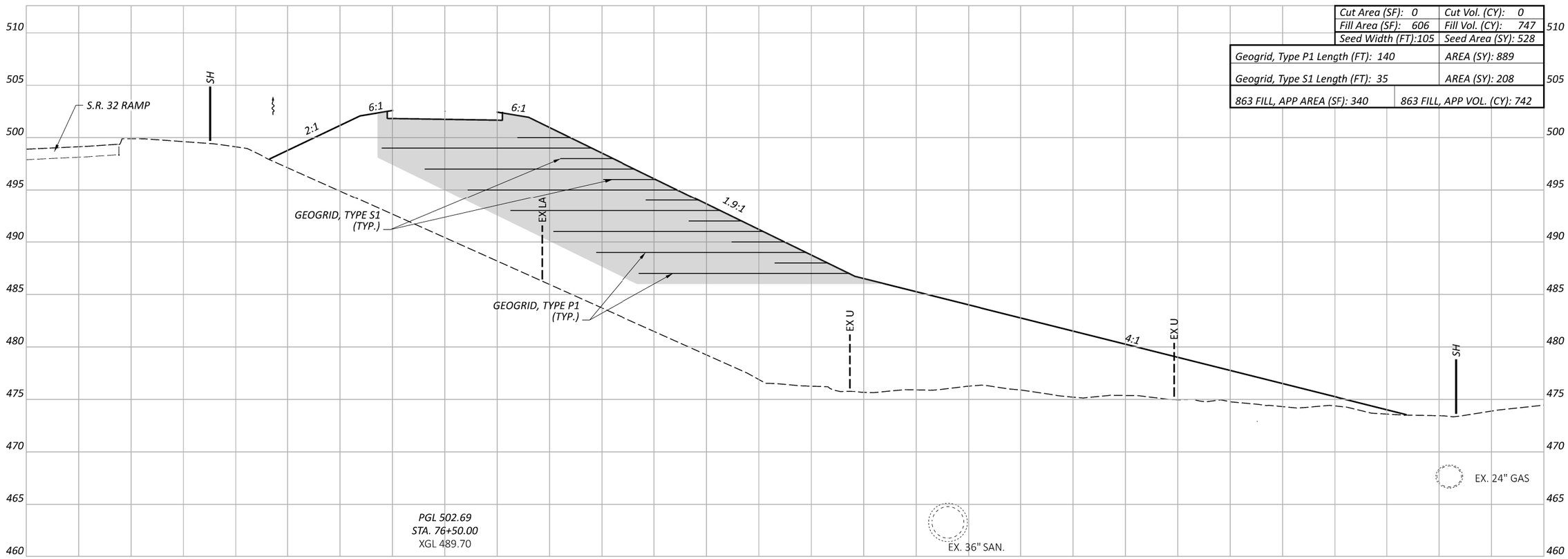
SHEET P.26 TOTAL 71

ITEM 863 REINFORCED EMBANKMENT, AS PER PLAN

Cut Area (SF): 0	Cut Vol. (CY): 0
Fill Area (SF): 606	Fill Vol. (CY): 747
Seed Width (FT):105	Seed Area (SY): 528

Geogrid, Type P1 Length (FT): 140	AREA (SY): 889
Geogrid, Type S1 Length (FT): 35	AREA (SY): 208
863 FILL, APP AREA (SF): 340	863 FILL, APP VOL. (CY): 742



Sheet Totals					
863 Fill	Geogrid, P1	Geogrid, S1	Seeding	Cut	Fill
742	889	208	528	0	747

CROSS SECTIONS
STA. 76+50.00

HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: CLP_B363 - 76+50.00 [Sheet] PAPERSIZE: 17x11 (in.) DATE: 10/23/2023 TIME: 1:40:15 PM USER: zmorman
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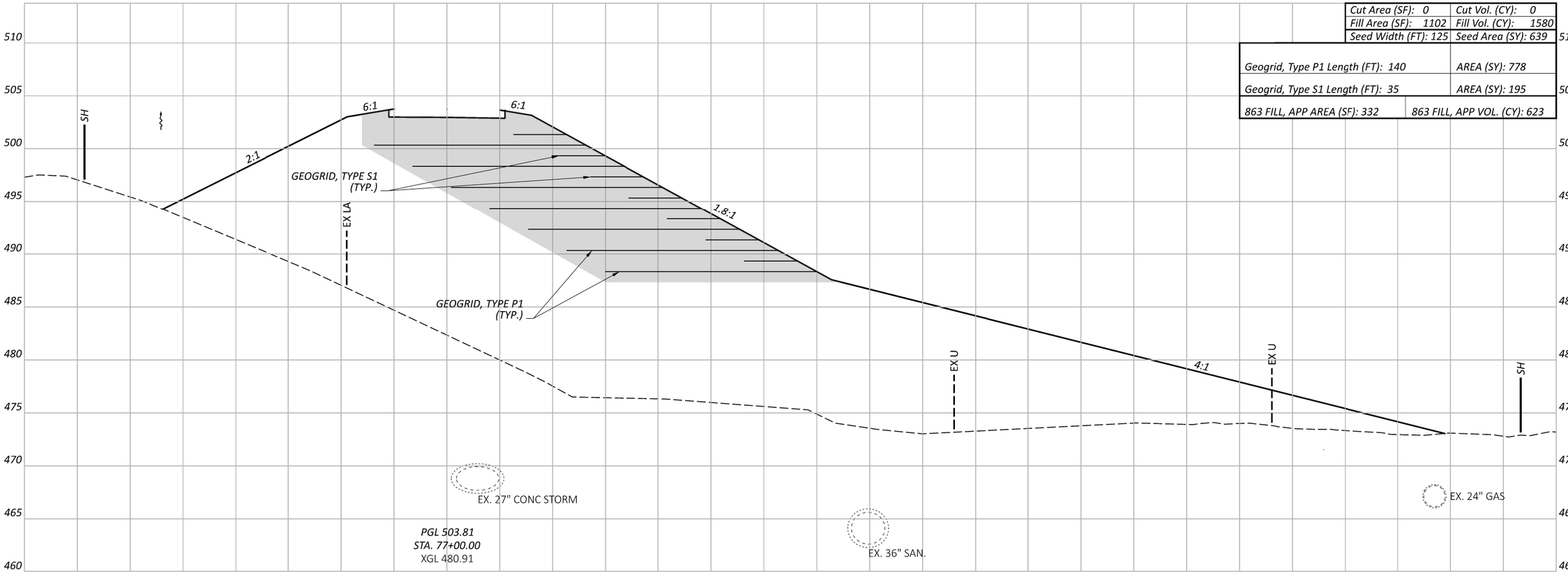
SHEET P.27 TOTAL 71

ITEM 863 REINFORCED EMBANKMENT, AS PER PLAN

Cut Area (SF): 0	Cut Vol. (CY): 0
Fill Area (SF): 1102	Fill Vol. (CY): 1580
Seed Width (FT): 125	Seed Area (SY): 639

Geogrid, Type P1 Length (FT): 140	AREA (SY): 778
Geogrid, Type S1 Length (FT): 35	AREA (SY): 195
863 FILL, APP AREA (SF): 332	863 FILL, APP VOL. (CY): 623



Sheet Totals					
863 Fill	Geogrid, P1	Geogrid, S1	Seeding	Cut	Fill
623	778	195	639	0	1580

CROSS SECTIONS
STA. 77+00.00

HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: CLP_B363 - 77+00.00 [Sheet] PAPERSIZE: 17x11 (in.) DATE: 10/23/2023 TIME: 1:40:20 PM USER: zmorman
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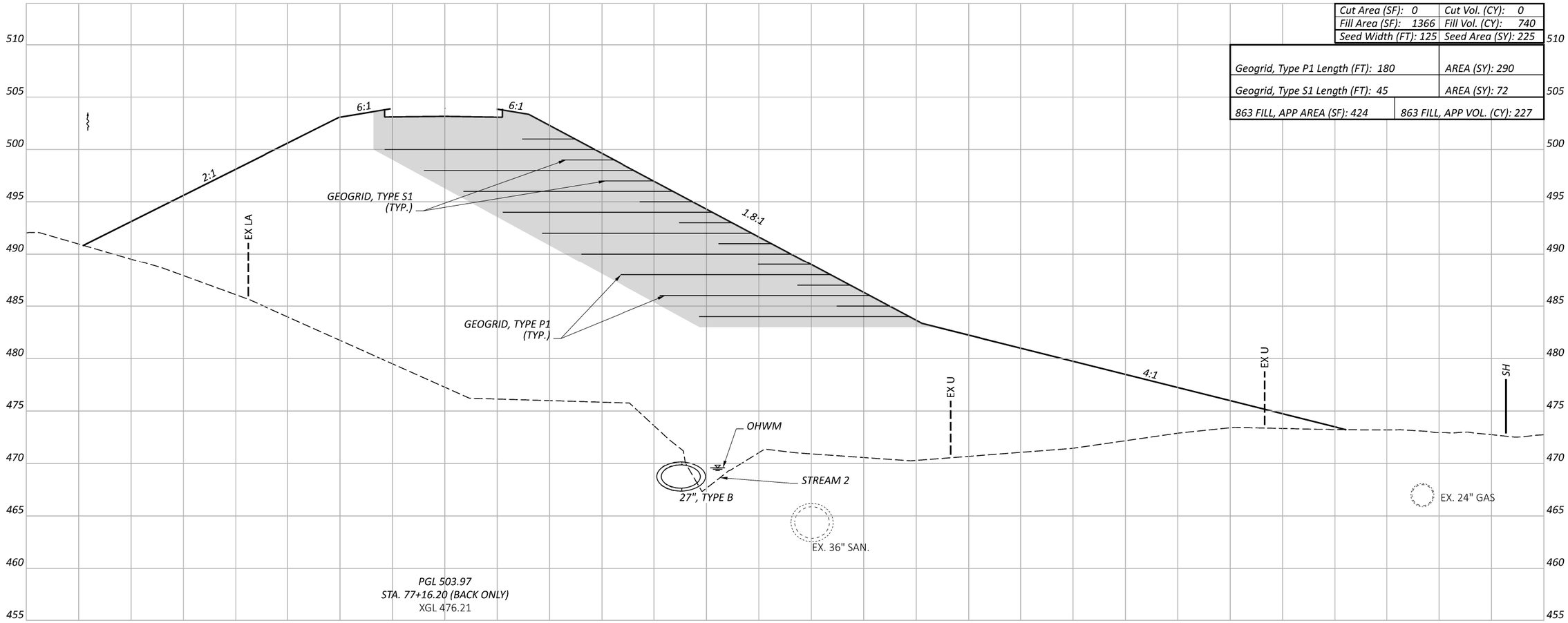
SHEET P.28 TOTAL 71

ITEM 863 REINFORCED EMBANKMENT, AS PER PLAN

Cut Area (SF): 0	Cut Vol. (CY): 0
Fill Area (SF): 1366	Fill Vol. (CY): 740
Seed Width (FT): 125	Seed Area (SY): 225

Geogrid, Type P1 Length (FT): 180	AREA (SY): 290
Geogrid, Type S1 Length (FT): 45	AREA (SY): 72
863 FILL, APP AREA (SF): 424	863 FILL, APP VOL. (CY): 227



Sheet Totals					
863 Fill	Geogrid, P1	Geogrid, S1	Seeding	Cut	Fill
227	290	72	45	0	740

CROSS SECTIONS
STA. 77+16.20

HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: CLP_B363 - 77+16.20 [Sheet] PAPERSIZE: 17x11 (in.) DATE: 10/23/2023 TIME: 1:40:30 PM USER: zmorman
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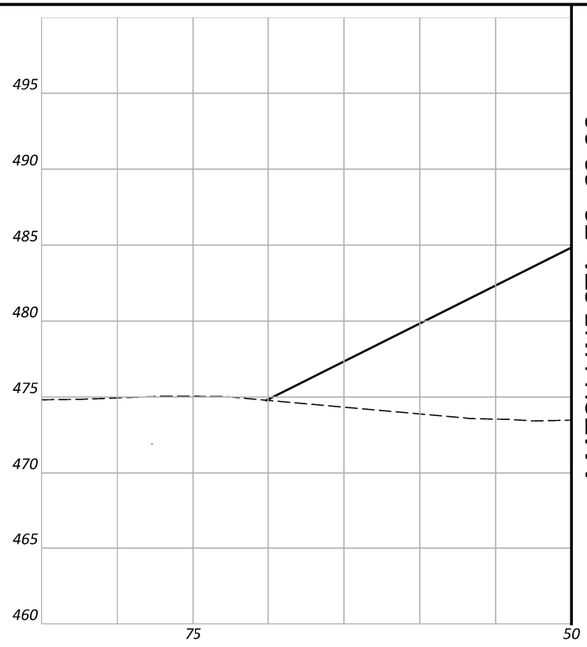
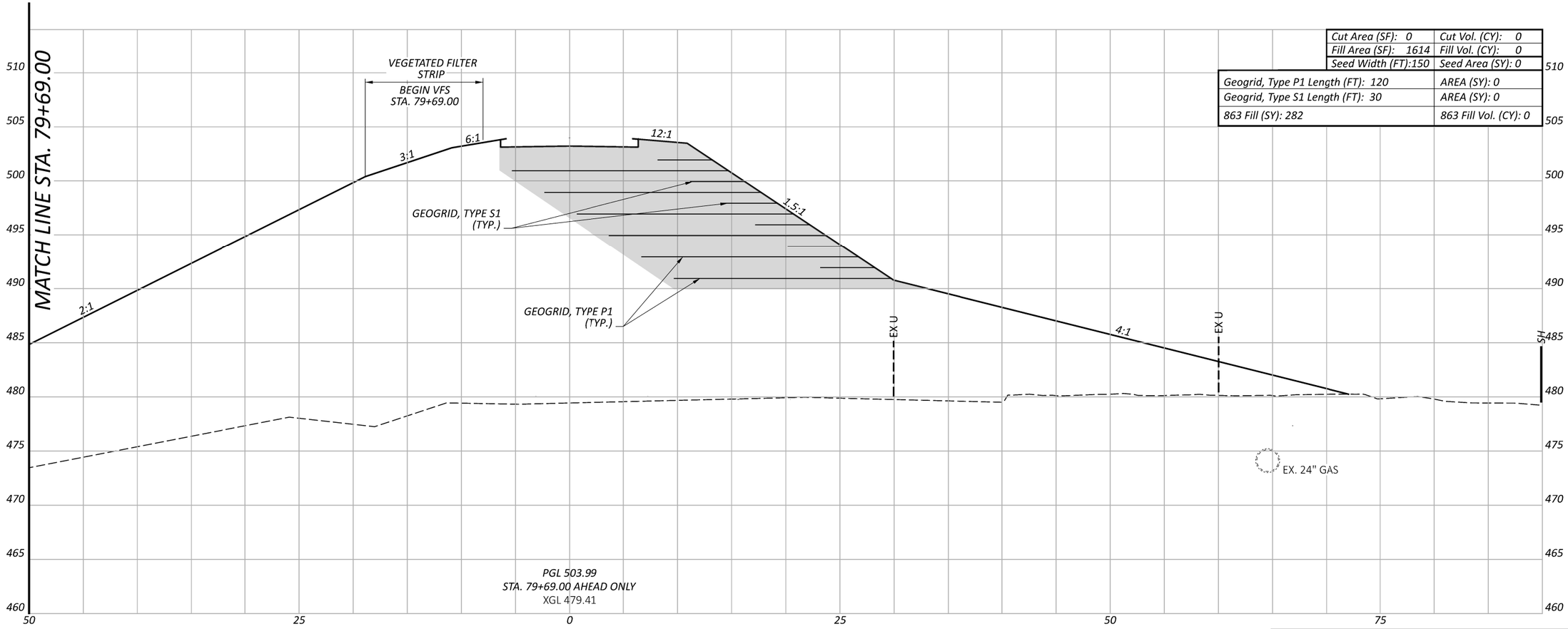
SHEET P.29 TOTAL 71



ITEM 863 REINFORCED EMBANKMENT, AS PER PLAN



Cut Area (SF): 0	Cut Vol. (CY): 0
Fill Area (SF): 1614	Fill Vol. (CY): 0
Seed Width (FT):150	Seed Area (SY): 0

Geogrid, Type P1 Length (FT): 120	AREA (SY): 0
Geogrid, Type S1 Length (FT): 30	AREA (SY): 0
863 Fill (SY): 282	863 Fill Vol. (CY): 0

Sheet Totals					
863 Fill	Geogrid, P1	Geogrid, S1	Seeding	Cut	Fill
0	0	0	0	0	0

CROSS SECTIONS
STA. 79+75.00

HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: CLP_B363 - 79+75.00 [Sheet] PAPERSIZE: 17x11 (in.) DATE: 10/23/2023 TIME: 1:40:36 PM USER: zmorman
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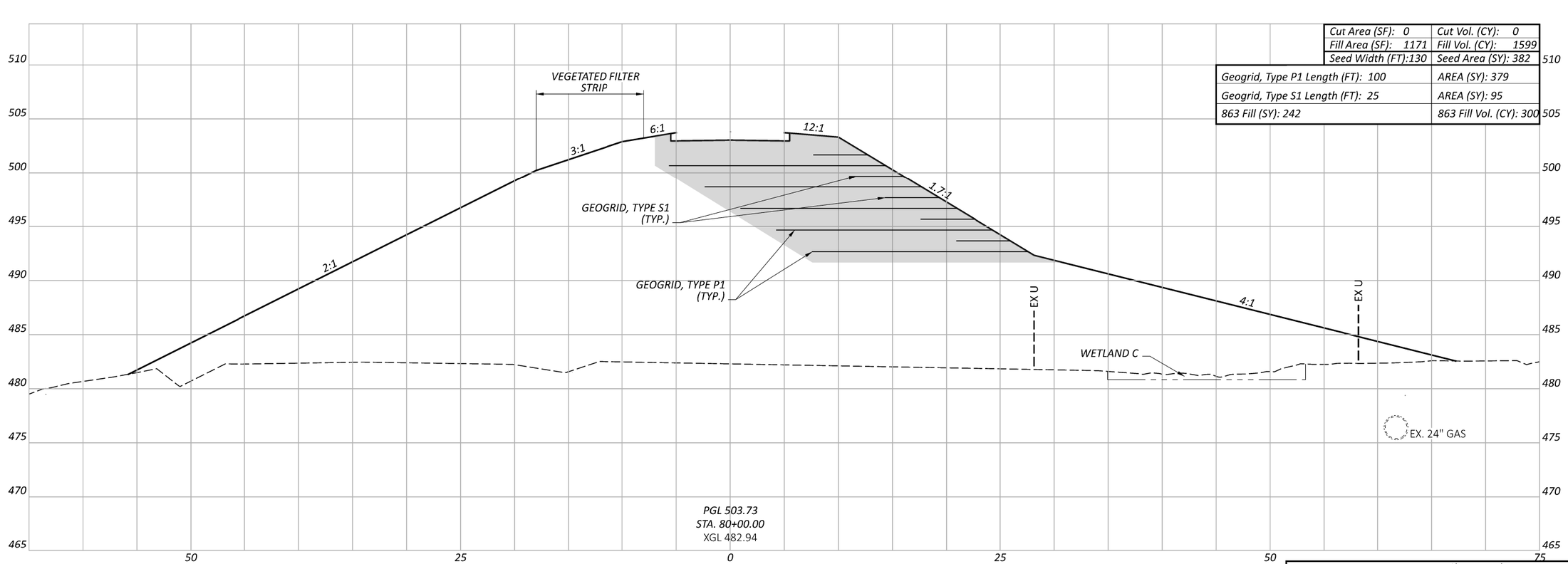
PROJECT ID 113602
SHEET P.30 TOTAL 71

ITEM 863 REINFORCED EMBANKMENT, AS PER PLAN



Cut Area (SF): 0	Cut Vol. (CY): 0
Fill Area (SF): 1171	Fill Vol. (CY): 1599
Seed Width (FT):130	Seed Area (SY): 382

Geogrid, Type P1 Length (FT): 100	AREA (SY): 379
Geogrid, Type S1 Length (FT): 25	AREA (SY): 95
863 Fill (SY): 242	863 Fill Vol. (CY): 300

Sheet Totals

863 Fill	Geogrid, P1	Geogrid, S1	Seeding	Cut	Fill
300	379	95	382	0	1599

CROSS SECTIONS
STA. 80+00.00

HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: CLP_B363 - 80+00.00 [Sheet] PAPERSIZE: 17x11 (in.) DATE: 10/23/2023 TIME: 1:40:43 PM USER: zmorman
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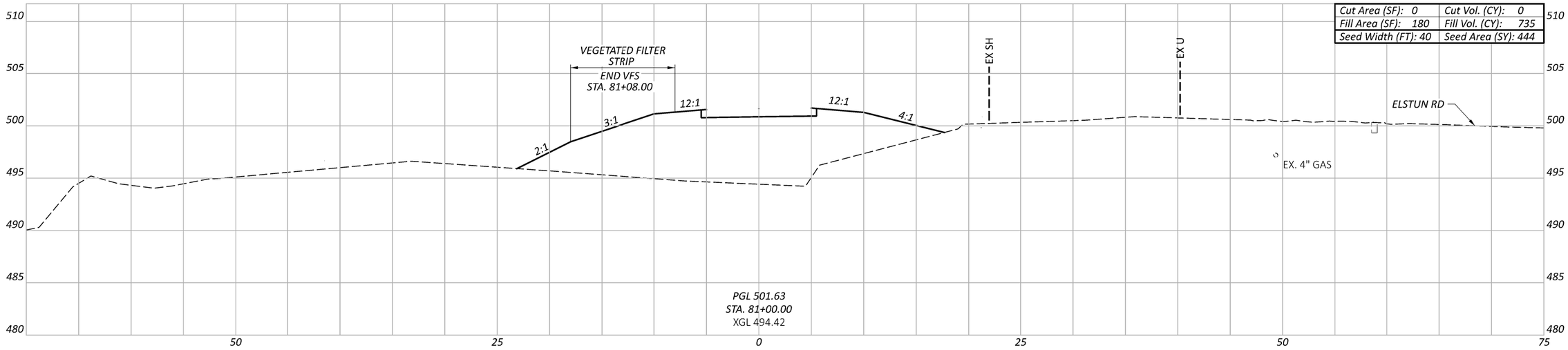
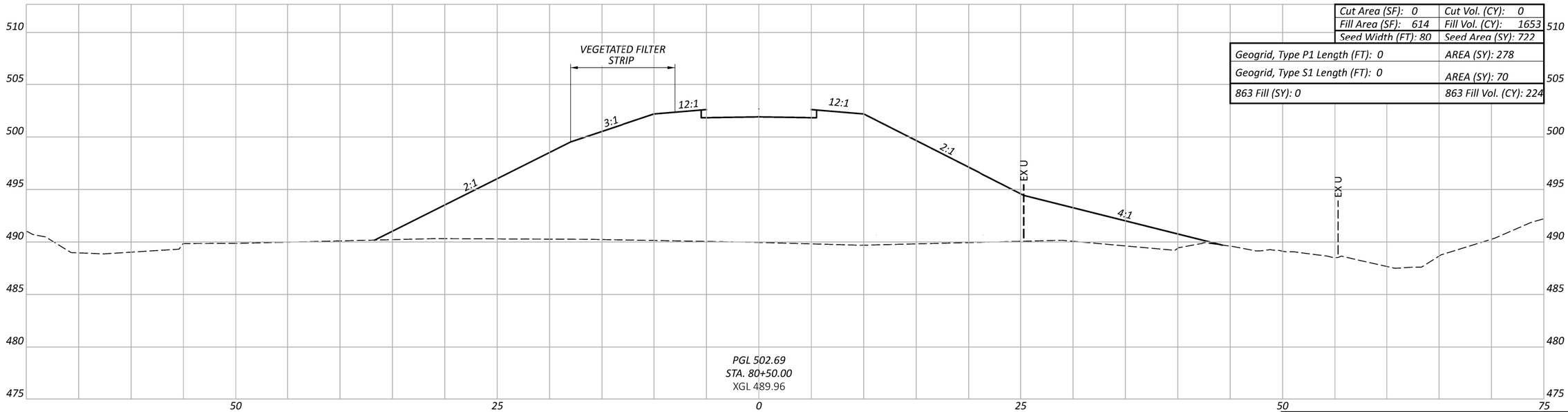
SHEET P.31 TOTAL 71

CROSS SECTIONS
STA. 80+50.00 TO 81+00.00

Cut Area (SF): 0	Cut Vol. (CY): 0
Fill Area (SF): 180	Fill Vol. (CY): 735
Seed Width (FT): 40	Seed Area (SY): 444



Cut Area (SF): 0	Cut Vol. (CY): 0
Fill Area (SF): 614	Fill Vol. (CY): 1653
Seed Width (FT): 80	Seed Area (SY): 722
Geogrid, Type P1 Length (FT): 0	AREA (SY): 278
Geogrid, Type S1 Length (FT): 0	AREA (SY): 70
863 Fill (SY): 0	863 Fill Vol. (CY): 224



Sheet Totals					
863 Fill	Geogrid, P1	Geogrid, S1	Seeding	Cut	Fill
224	278	70	1166	0	2388

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SHEET P.32 TOTAL 71

HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: CLP_8363 - 80+50.00 [Sheet] PAPERSIZE: 17x11 (in.) DATE: 10/23/2023 TIME: 1:40:48 PM USER: zmorman
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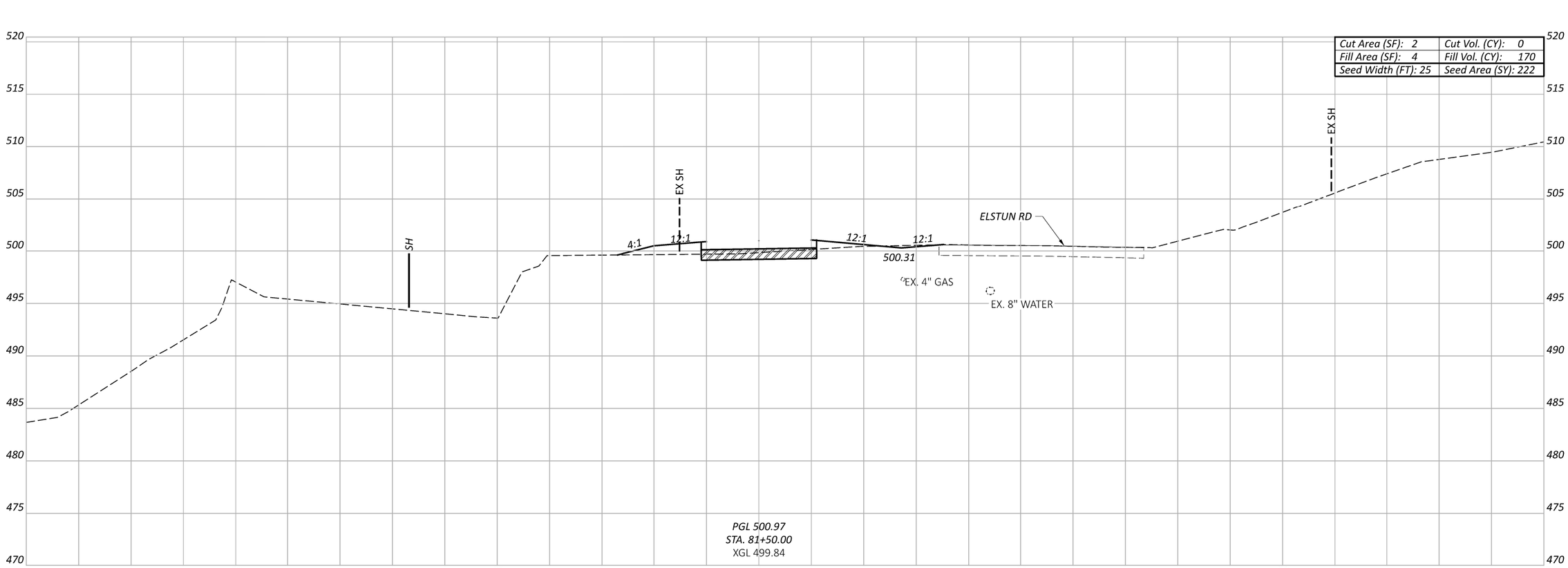
ITEM 204 EXCAVATION OF SUBGRADE, 12"
ITEM 204 GRANULAR MATERIAL, TYPE C
ITEM 204 GEOTEXTILE FABRIC, 712.09, TYPE D



Cut Area (SF): 2	Cut Vol. (CY): 0
Fill Area (SF): 4	Fill Vol. (CY): 170
Seed Width (FT): 25	Seed Area (SY): 222

Sheet Totals		
Seeding	Cut	Fill
222	0	170

CROSS SECTIONS STA. 81+50.00

HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: CLP_B363 - 81+50.00 [Sheet] PAPERSIZE: 17x11 (in.) DATE: 10/23/2023 TIME: 1:41:12 PM USER: zmorman
V:\1736\active\173620137\engineering\113602\400-Engineering\Roadway\Sheets\113602_XS006.dgn

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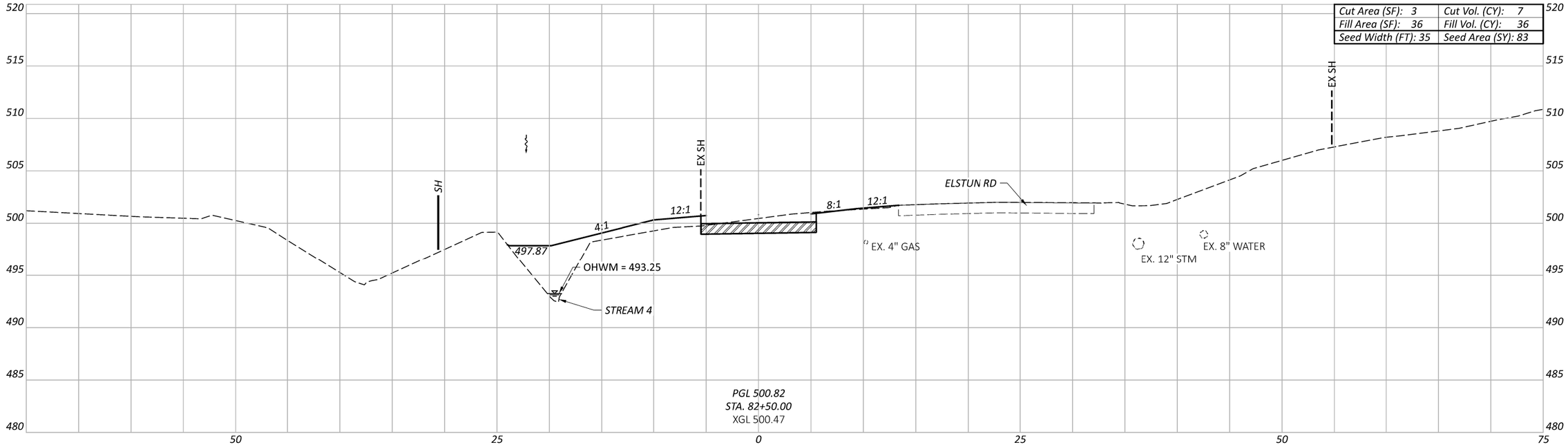
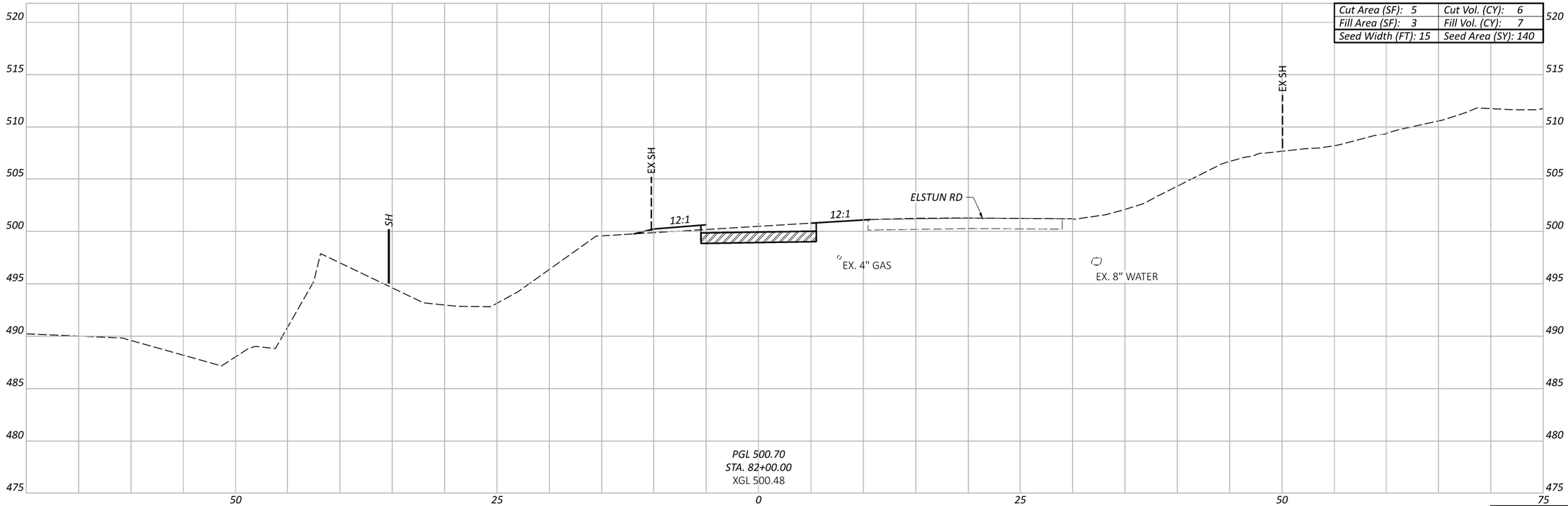
REVIEWER PJD 10-20-23
PROJECT ID 113602
SHEET P.33 TOTAL 71

ITEM 204 EXCAVATION OF SUBGRADE, 12"
ITEM 204 GRANULAR MATERIAL, TYPE C
ITEM 204 GEOTEXTILE FABRIC, 712.09, TYPE D



Cut Area (SF): 3	Cut Vol. (CY): 7
Fill Area (SF): 36	Fill Vol. (CY): 36
Seed Width (FT): 35	Seed Area (SY): 83



Cut Area (SF): 5	Cut Vol. (CY): 6
Fill Area (SF): 3	Fill Vol. (CY): 7
Seed Width (FT): 15	Seed Area (SY): 140

CROSS SECTIONS
STA. 82+00.00 TO STA. 82+50.00

HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: CLP_8363 - 82+00.00 [Sheet] PAPERSIZE: 17x11 (in.) DATE: 10/23/2023 TIME: 1:41:27 PM USER: zmorman
V:\1736\active\173620137\engineering\113602\400-Engineering\Roadway\Sheets\113602_XS006.dgn

Sheet Totals		
Seeding	Cut	Fill
223	13	43

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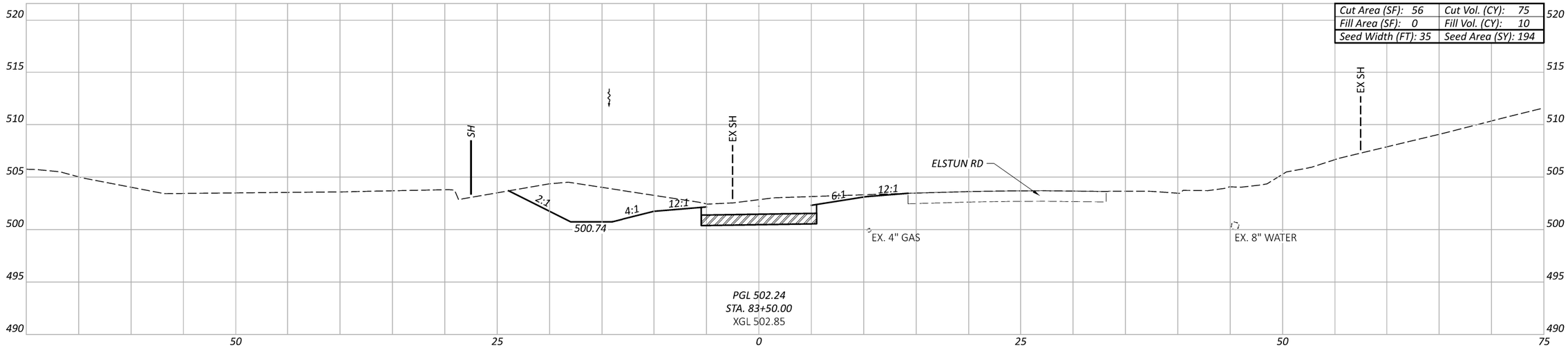
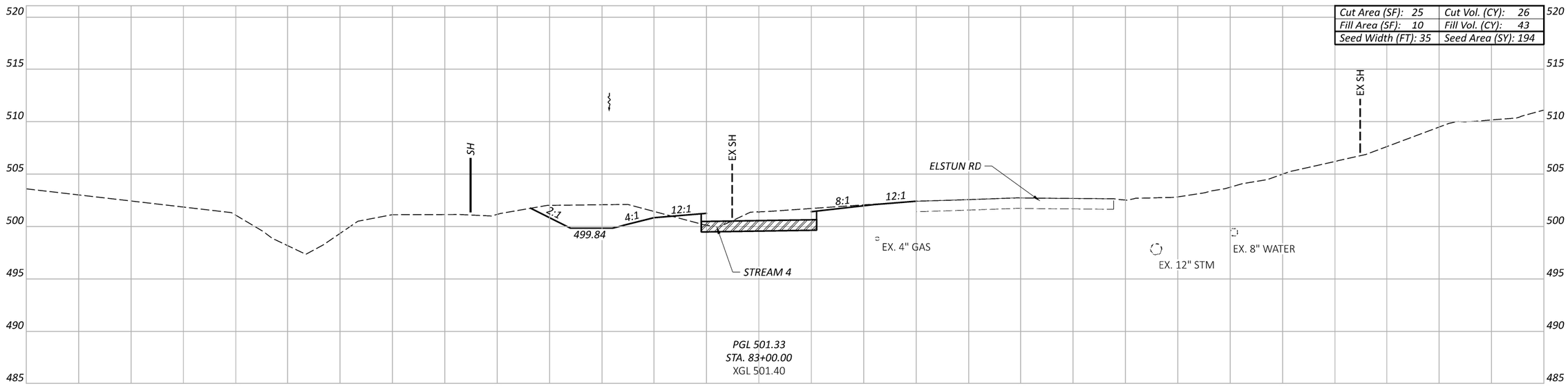
PROJECT ID 113602
SHEET P.34 TOTAL 71

ITEM 204 EXCAVATION OF SUBGRADE, 12"
ITEM 204 GRANULAR MATERIAL, TYPE C
ITEM 204 GEOTEXTILE FABRIC, 712.09, TYPE D



Cut Area (SF): 56	Cut Vol. (CY): 75
Fill Area (SF): 0	Fill Vol. (CY): 10
Seed Width (FT): 35	Seed Area (SY): 194

PGL 502.24
STA. 83+50.00
XGL 502.85



Cut Area (SF): 25	Cut Vol. (CY): 26
Fill Area (SF): 10	Fill Vol. (CY): 43
Seed Width (FT): 35	Seed Area (SY): 194

PGL 501.33
STA. 83+00.00
XGL 501.40

Sheet Totals		
Seeding	Cut	Fill
388	101	53

CROSS SECTIONS
STA. 83+00.00 TO STA. 83+50.00

HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: CLP_B363 - 83+00.00 [Sheet] PAPERSIZE: 17x11 (in.) DATE: 10/23/2023 TIME: 1:41:43 PM USER: zmorman
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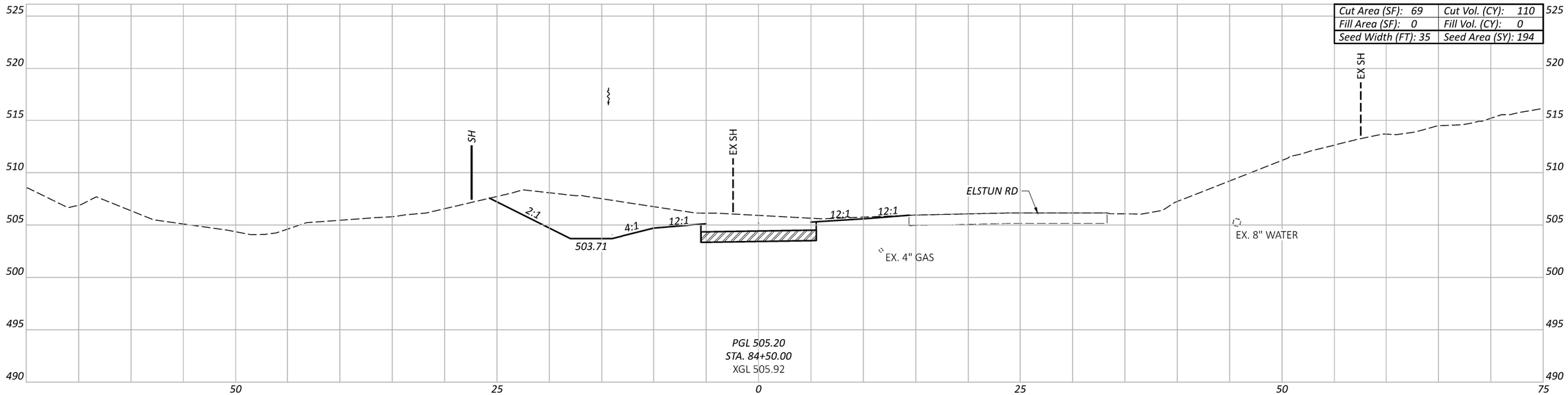
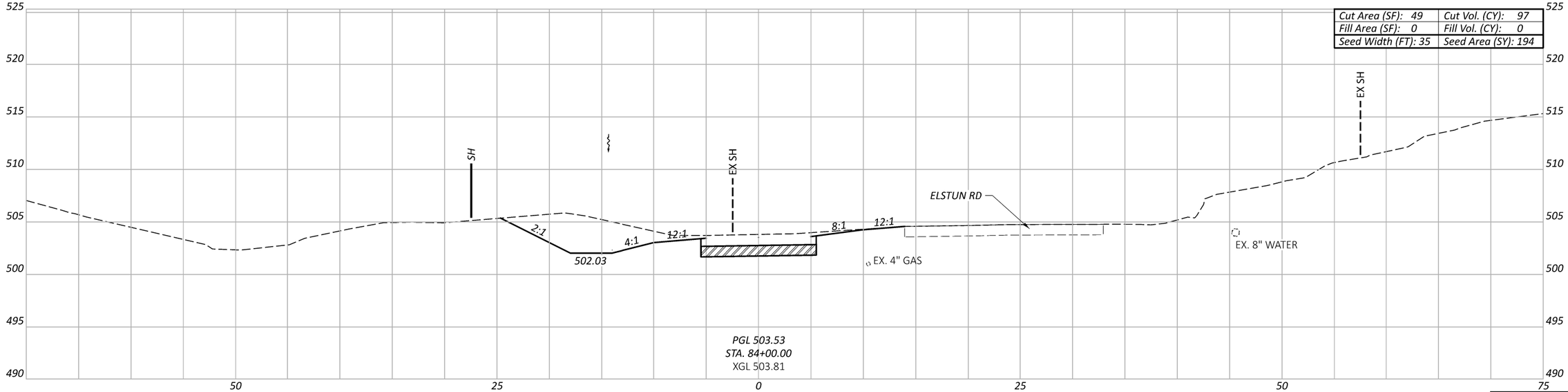
REVIEWER PJD 10-20-23
PROJECT ID 113602
SHEET P.35 TOTAL 71

ITEM 204 EXCAVATION OF SUBGRADE, 12"
ITEM 204 GRANULAR MATERIAL, TYPE C
ITEM 204 GEOTEXTILE FABRIC, 712.09, TYPE D



Cut Area (SF): 69	Cut Vol. (CY): 110
Fill Area (SF): 0	Fill Vol. (CY): 0
Seed Width (FT): 35	Seed Area (SY): 194



Cut Area (SF): 49	Cut Vol. (CY): 97
Fill Area (SF): 0	Fill Vol. (CY): 0
Seed Width (FT): 35	Seed Area (SY): 194

Sheet Totals		
Seeding	Cut	Fill
388	207	0

CROSS SECTIONS
STA. 84+00.00 TO STA. 84+50.00

HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: CLP_B363 - 84+00.00 [Sheet] PAPERSIZE: 17x11 (in.) DATE: 10/23/2023 TIME: 1:41:50 PM USER: zmorman
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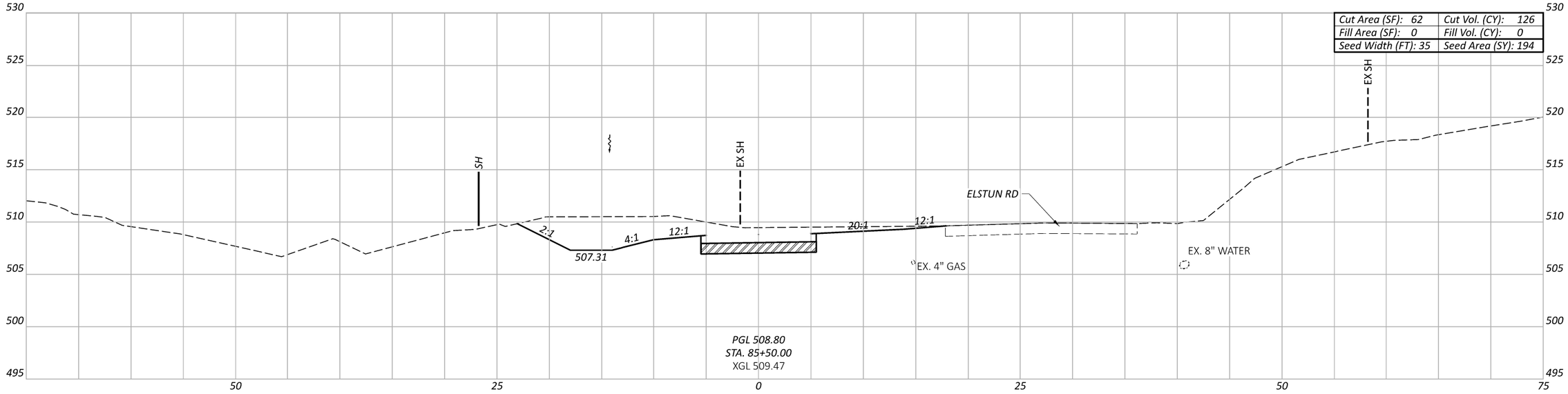
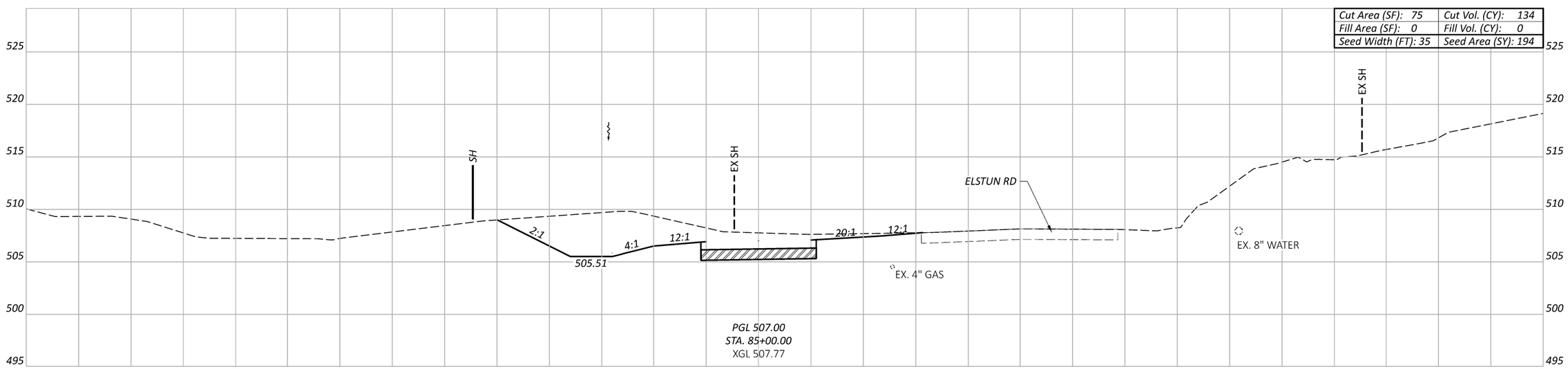
PROJECT ID 113602
SHEET P.36 TOTAL 71

ITEM 204 EXCAVATION OF SUBGRADE, 12"
ITEM 204 GRANULAR MATERIAL, TYPE C
ITEM 204 GEOTEXTILE FABRIC, 712.09, TYPE D



Cut Area (SF): 62	Cut Vol. (CY): 126
Fill Area (SF): 0	Fill Vol. (CY): 0
Seed Width (FT): 35	Seed Area (SY): 194



Cut Area (SF): 75	Cut Vol. (CY): 134
Fill Area (SF): 0	Fill Vol. (CY): 0
Seed Width (FT): 35	Seed Area (SY): 194

Sheet Totals		
Seeding	Cut	Fill
388	260	0

CROSS SECTIONS
STA. 85+00.00 TO STA. 85+50.00

HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: CLP_B363 - 85+00.00 [Sheet] PAPERSIZE: 17x11 (in.) DATE: 10/23/2023 TIME: 1:41:56 PM USER: zmorman
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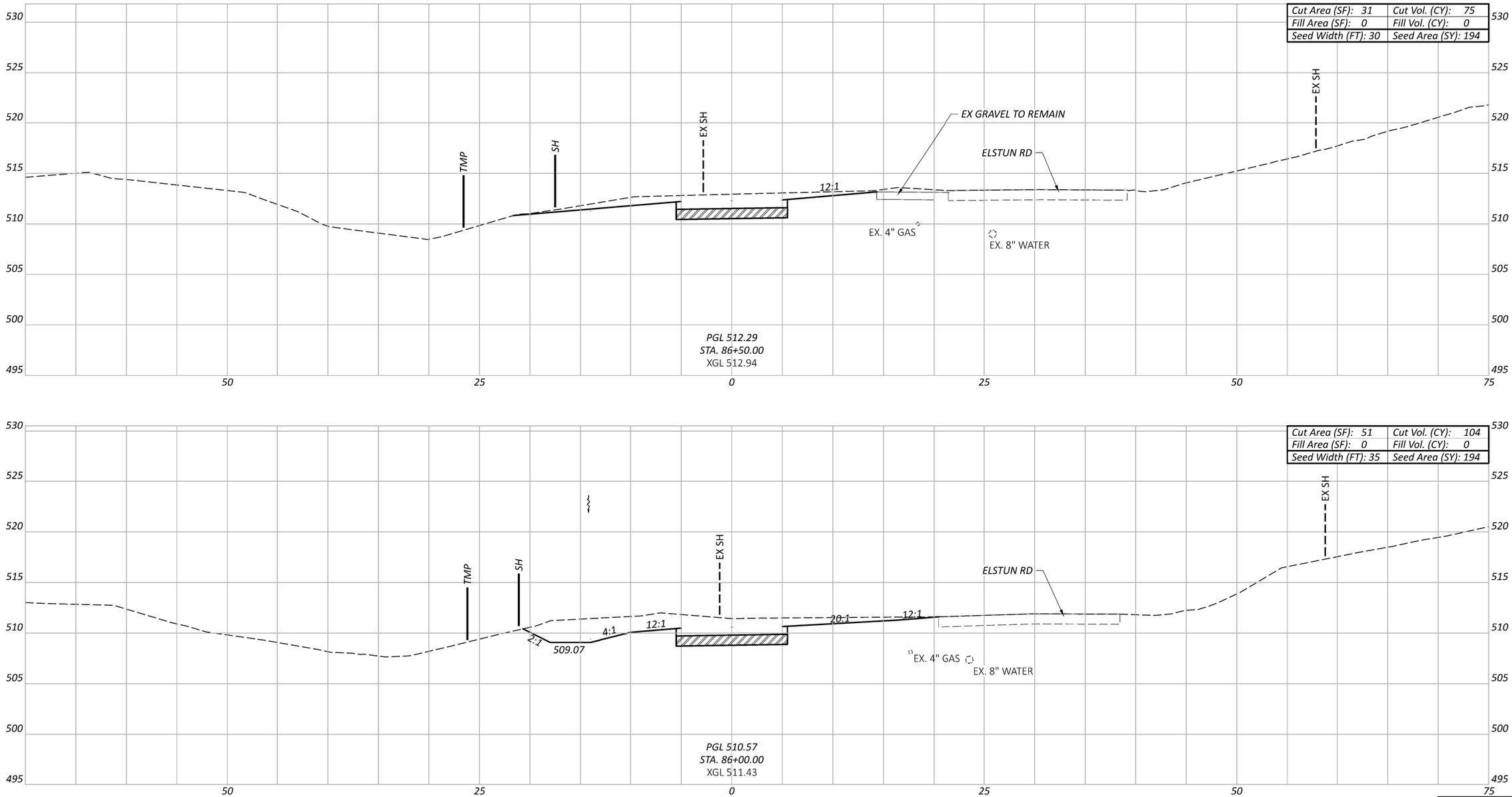
PROJECT ID 113602
SHEET P.37 TOTAL 71

ITEM 204 EXCAVATION OF SUBGRADE, 12"
ITEM 204 GRANULAR MATERIAL, TYPE C
ITEM 204 GEOTEXTILE FABRIC, 712.09, TYPE D



CROSS SECTIONS
STA. 86+00.00 TO STA. 86+50.00

HAM-LMST EXTENSION TO ELSTUN PHASE 2

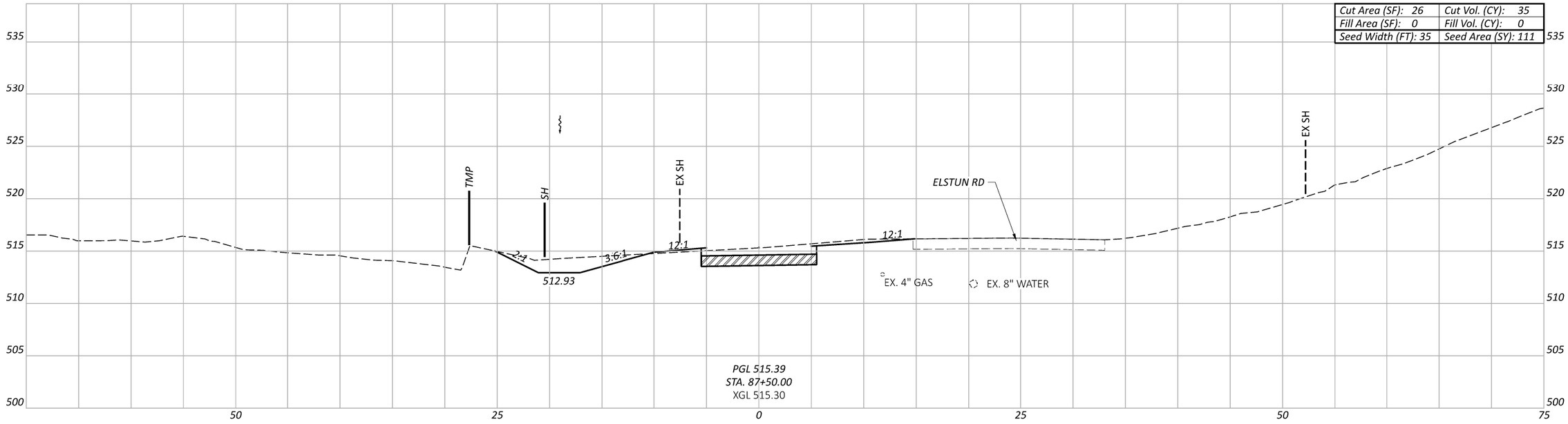
MODEL: CLP_I363 - 86+00.00 [Sheet] PAPERSIZE: 17x11 (in.) DATE: 10/23/2023 TIME: 1:42:02 PM USER: zmorman
V:\1736\active\173620137\engineering\113602\400-Engineering\Roadway\Sheets\113602_XS006.dgn

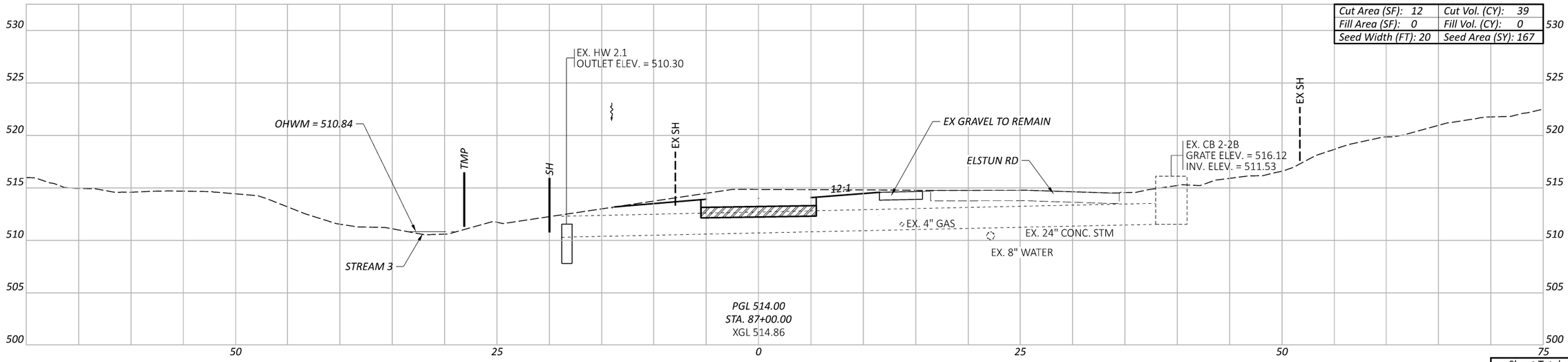
Sheet Totals		
Seeding	Cut	Fill
388	179	0

DESIGN AGENCY
Stantec
10200 Alliance Road, Suite 300
Cincinnati, OH 45242
(513) 842-8200

DESIGNER ZTM
REVIEWER PJD 10-20-23
PROJECT ID 113602
SHEET P.38 TOTAL 71

ITEM 204 EXCAVATION OF SUBGRADE, 12"
ITEM 204 GRANULAR MATERIAL, TYPE C
ITEM 204 GEOTEXTILE FABRIC,, 712.09, TYPE D





CROSS SECTIONS
STA. 87+00.00 TO STA. 87+50.00

HAM-LMST EXTENSION TO ELSTUN PHASE 2

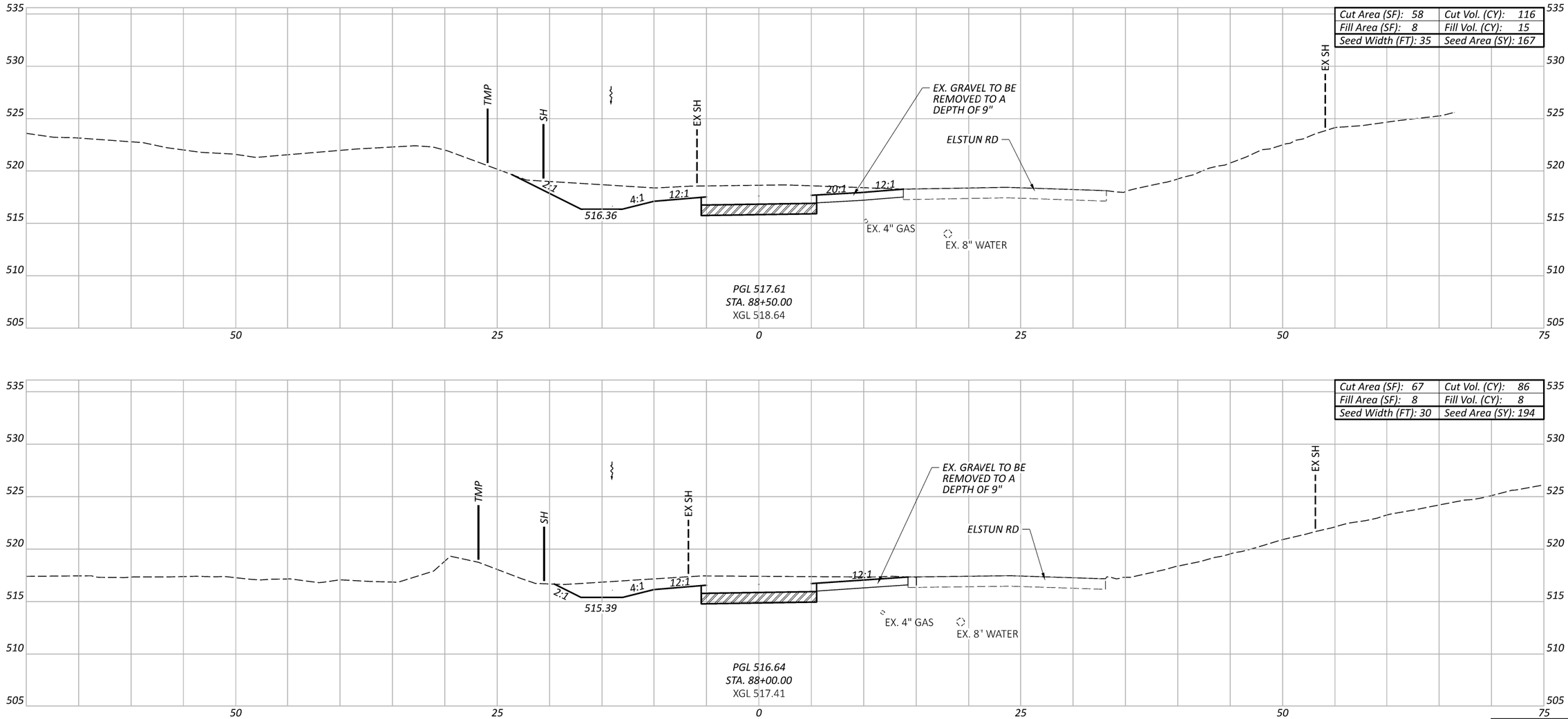
MODEL: CLP_8363 - 87+00.00 [Sheet] PAPERSIZE: 17x11 (in.) DATE: 10/23/2023 TIME: 1:42:09 PM USER: zmorman
V:\1736\active\173620137\engineering\113602\400-Engineering\Roadway\Sheets\113602_XS006.dgn

Sheet Totals		
Seeding	Cut	Fill
278	74	0

DESIGN AGENCY
Stantec
10200 Alliance Road, Suite 300
Cincinnati, OH 45242
(513) 842-8200

DESIGNER ZTM
REVIEWER PJD 10-20-23
PROJECT ID 113602
SHEET P.39 TOTAL 71

ITEM 204 EXCAVATION OF SUBGRADE, 12"
ITEM 204 GRANULAR MATERIAL, TYPE C
ITEM 204 GEOTEXTILE FABRIC, 712.09, TYPE D



CROSS SECTIONS
STA. 88+00.00 TO STA. 88+50.00

HAM-LMST EXTENSION TO ELSTUN PHASE 2

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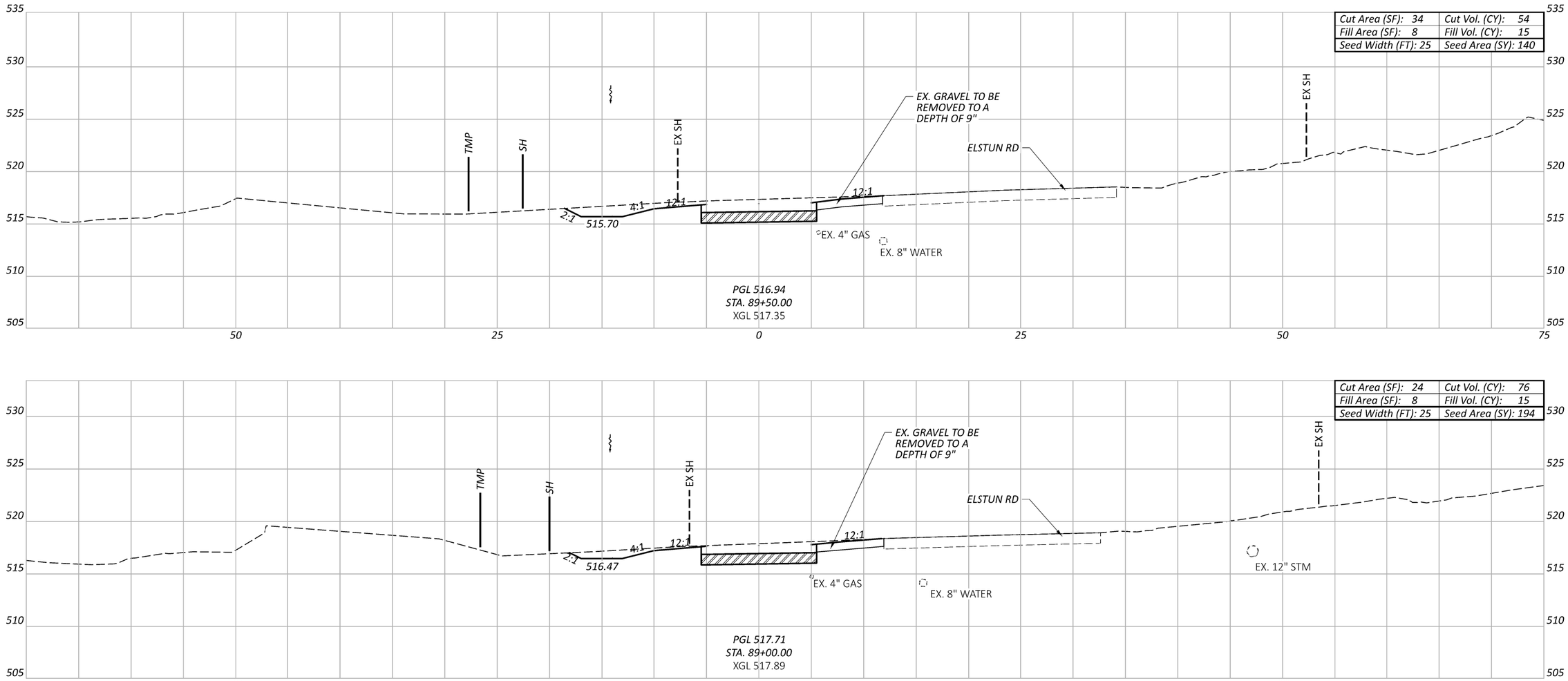
Sheet Totals		
Seeding	Cut	Fill
361	202	23

DESIGN AGENCY
Stantec
10200 Alliance Road, Suite 300
Cincinnati, OH 45242
(513) 842-8200

DESIGNER ZTM
REVIEWER PJD 10-20-23
PROJECT ID 113602
SHEET P.40 TOTAL 71

ITEM 204 EXCAVATION OF SUBGRADE, 12"
ITEM 204 GRANULAR MATERIAL, TYPE C
ITEM 204 GEOTEXTILE FABRIC, 712.09, TYPE D



CROSS SECTIONS
STA. 89+00.00 TO STA. 89+50.00

Sheet Totals		
Seeding	Cut	Fill
334	130	30

DESIGN AGENCY
Stantec
10200 Alliance Road, Suite 300
Cincinnati, OH 45242
(513) 842-8200

DESIGNER ZTM
REVIEWER PJD 10-20-23
PROJECT ID 113602
SHEET P.41 TOTAL 71

HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: CLP_8363 - 89+00.00 [Sheet] PAPERSIZE: 17x11 (in.) DATE: 10/23/2023 TIME: 1:42:21 PM USER: zmorman
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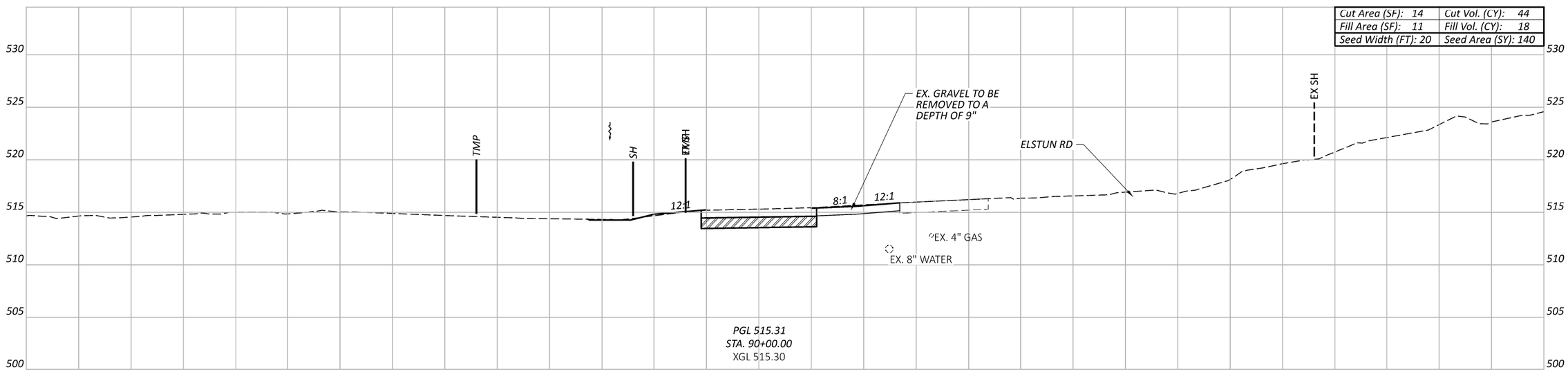
ITEM 204 EXCAVATION OF SUBGRADE, 12"
ITEM 204 GRANULAR MATERIAL, TYPE C
ITEM 204 GEOTEXTILE FABRIC, 712.09, TYPE D

EARTHWORK TOTALS	
ITEM 203 EXCAVATION	1221 CY
ITEM 203 EMBANKMENT AS PER PLAN	11599
ITEM 659 SEEDING AND MULCHING	9143
ITEM 863 GEOGRID, TYPE P1	2614
ITEM 863 GEOGRID, TYPE S1	640 SY
ITEM 863 REINFORCED EMBANKMENT, AS PER PLAN	2116

TOTALS CARRIED TO SHEET NO. 15

Cut Area (SF): 14	Cut Vol. (CY): 44
Fill Area (SF): 11	Fill Vol. (CY): 18
Seed Width (FT): 20	Seed Area (SY): 140



CROSS SECTIONS
STA. 90+00.00

HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: CLP_B363 - 90+00.00 [Sheet] PAPERSIZE: 17x11 (in.) DATE: 10/23/2023 TIME: 1:42:27 PM USER: zmorman
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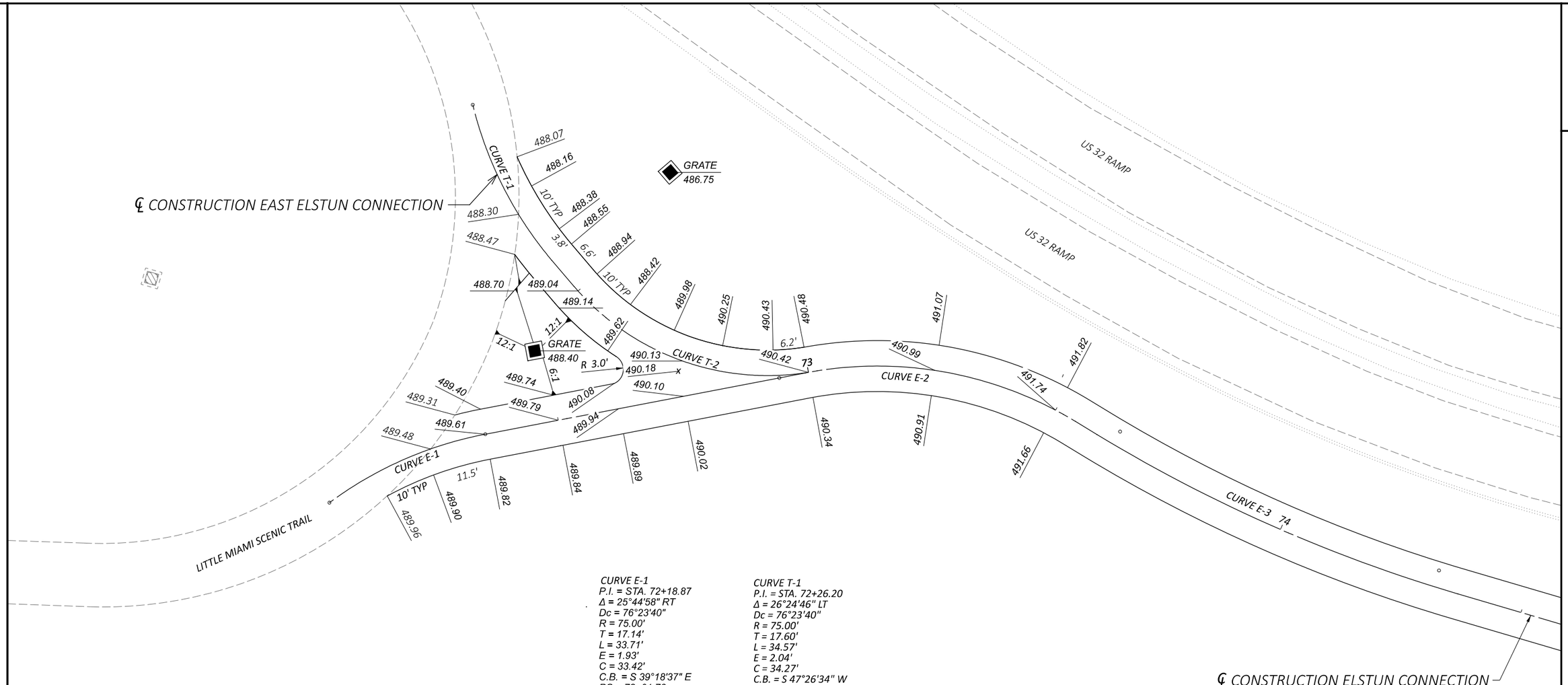
Sheet Totals		
Seeding	Cut	Fill
140	44	18

DESIGN AGENCY
Stantec
10200 Alliance Road, Suite 300
Cincinnati, OH 45242
(513) 842-8200

DESIGNER ZTM
REVIEWER PJD 10-20-23
PROJECT ID 113602
SHEET P.42 TOTAL 71



CURVE E-1
P.I. = STA. 72+18.87
Δ = 25°44'58" RT
Dc = 76°23'40"
R = 75.00'
T = 17.14'
L = 33.71'
E = 1.93'
C = 33.42'
C.B. = S 39°18'37" E
PC = 72+01.73
PT = 72+35.43

CURVE E-2
P.I. = STA. 73+28.24
Δ = 42°03'44" RT
Dc = 76°23'40"
R = 75.00'
T = 28.84'
L = 55.06'
E = 5.35'
C = 53.83'
C.B. = S 05°24'16" E
PC = 72+99.41
PT = 73+54.47

CURVE E-3
P.I. = STA. 73+98.46
Δ = 14°49'22" LT
Dc = 19°05'55"
R = 300.00'
T = 39.02'
L = 77.61'
E = 2.53'
C = 77.40'
C.B. = S 08°12'55" W
PC = 73+59.43
PT = 74+37.04

CURVE T-1
P.I. = STA. 72+26.20
Δ = 26°24'46" LT
Dc = 76°23'40"
R = 75.00'
T = 17.60'
L = 34.57'
E = 2.04'
C = 34.27'
C.B. = S 47°26'34" W
PC = 72+08.60
PT = 72+43.17

CURVE T-2
P.I. = STA. 72+77.96
Δ = 58°46'34" LT
Dc = 114°35'30"
R = 50.00'
T = 28.16'
L = 51.29'
E = 7.38'
C = 49.07'
C.B. = S 04°45'58" W
PC = 72+49.80
PT = 73+01.10

HORIZONTAL SCALE IN FEET
0 5 10 20

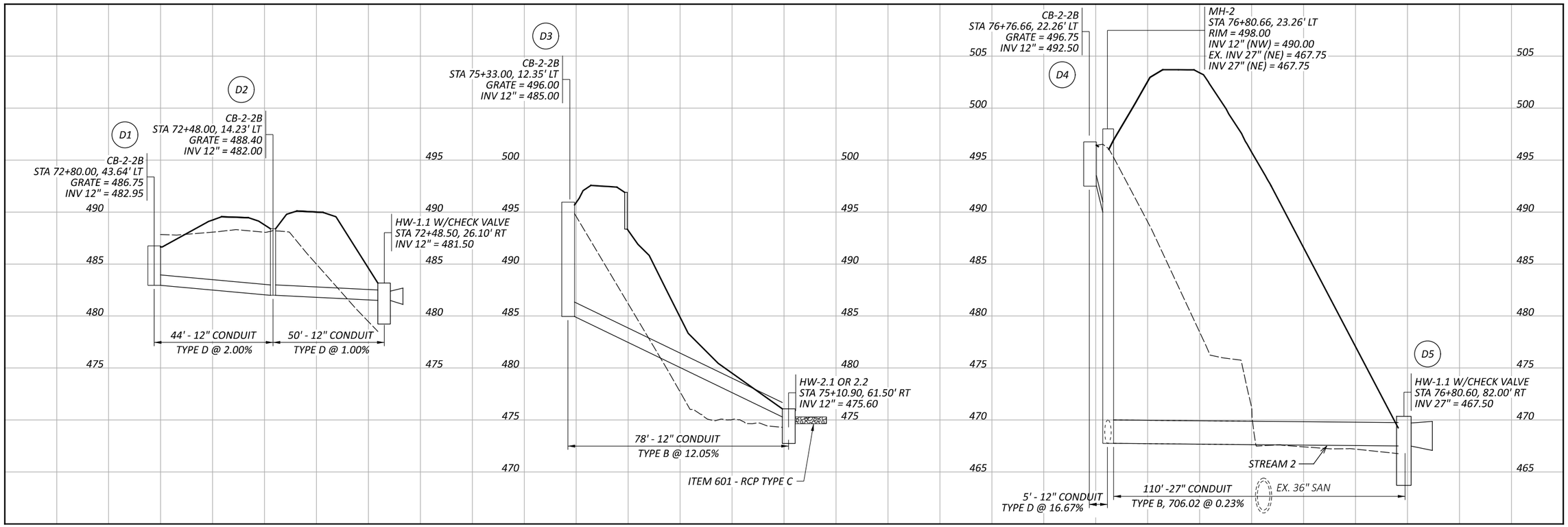
INTERSECTION DETAIL ELSTUN CONNECTION

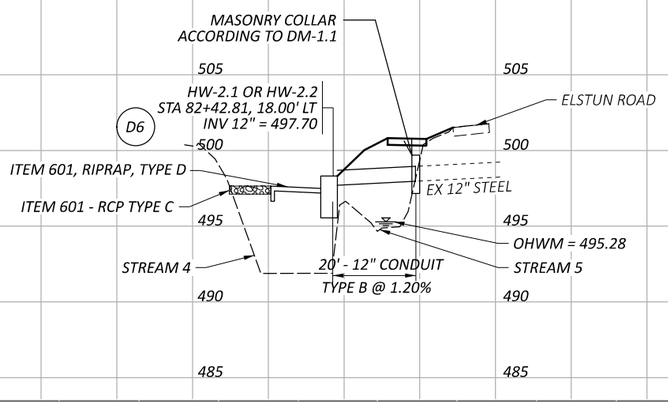
HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: CLP_B363 - Plan 1 [Sheet] PAPERSIZE: 17x11 (in.) DATE: 10/23/2023 TIME: 1:53:10 PM USER: pdurham
V:\1736\active\173620137\engineering\113602\400-Engineering\Roadway\Sheets\113602_GI001.dgn

DESIGN AGENCY
Stantec
10200 Alliance Road, Suite 300
Cincinnati, OH 45242
(513) 842-8200

DESIGNER	ZTM
REVIEWER	PJD 10-20-23
PROJECT ID	113602
SHEET	P.43
TOTAL	71





FULL-HEIGHT HEADWALLS (English)

PIPE DIA. D	H	a	b	c	t_S	Bar# d	$\theta \approx 0^\circ$					$\theta \approx 15^\circ$							$\theta \approx 30^\circ$							PIPE DIA. D
							L_2	h_2	Conc. CMP (cy)	Conc. RCP (cy)	Steel (lbs.)	L_1	L_2	h_1	h_2	Conc. CMP (cy)	Conc. RCP (cy)	Steel (lbs.)	L_1	L_2	h_1	h_2	Conc. CMP (cy)	Conc. RCP (cy)	Steel (lbs.)	
12"	2'-4"	2'-0"	1'-6"	1'-3"	1'-6"	#5	2'-0"	1'-3"	2.4	2.3	238														12"
27"	4'-0"	3'-0"	1'-6"	2'-0"	1'-6"	#5	3'-0"	2'-6"	3.8	3.7	376	6'-3"	4'-0"	3'-0"	2'-7"	5.2	5.1	515	5'-3"	5'-0"	3'-0"	2'-8"	5.1	5	505	27"

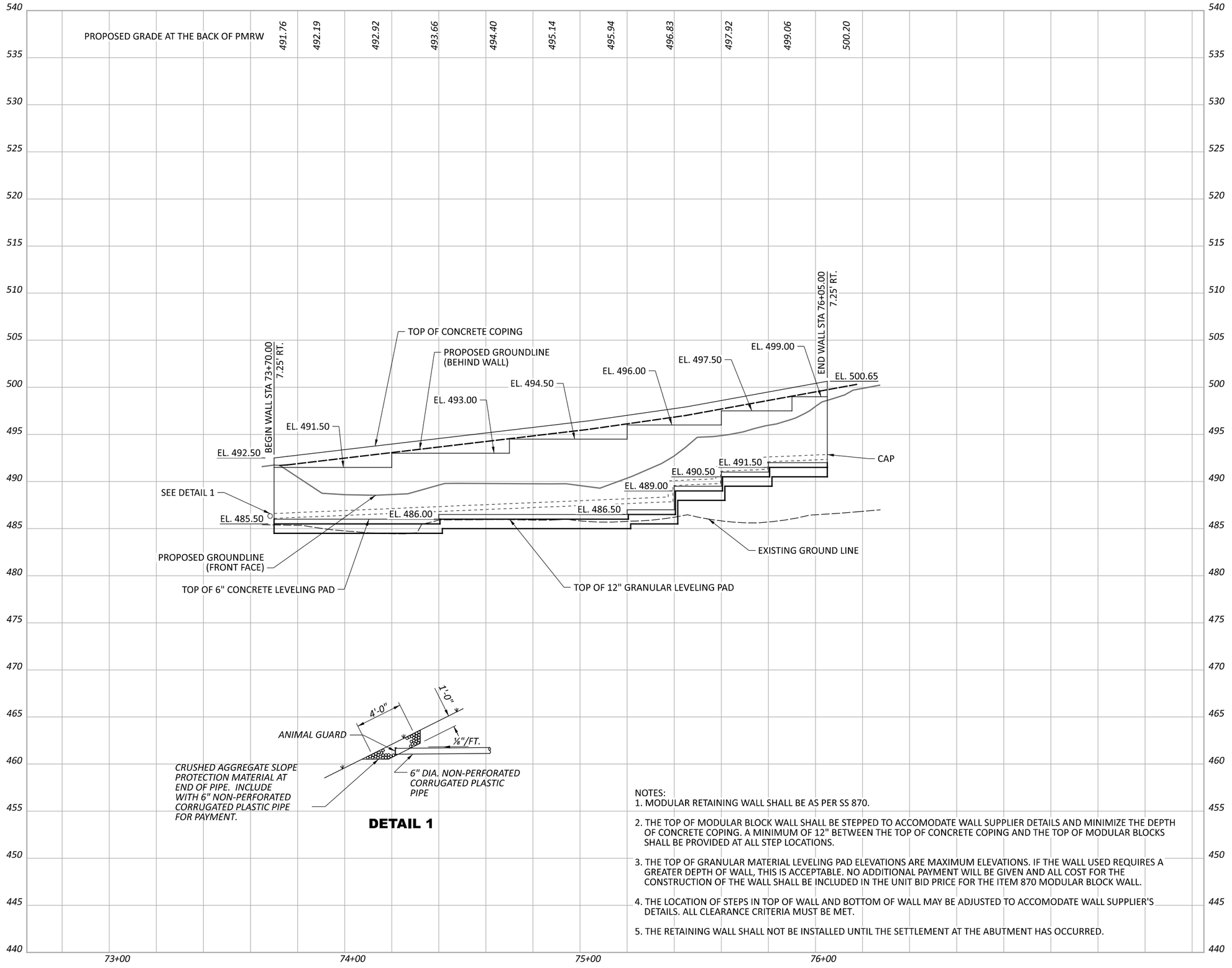
HAM-LMST EXTENSION TO ELSTUN PHASE 2

STORM SEWER PROFILES
ELSTUN CONNECTION

MODEL: D1-HW13 - Profile 1 [Sheet] PAPERSIZE: 17x11 (in.) DATE: 10/23/2023 TIME: 7:09:48 AM USER: pdurham
V:\1736\active\173620137\engineering\113602\400-Engineering\Drainage\Sheets\113602_DF001.dgn

DESIGN AGENCY
Stantec
11687 Lebanon Road
Cincinnati OH 45241
(513) 842-8200

DESIGNER ZTM
REVIEWER PJD 07-21-2023
PROJECT ID 113602
SHEET P.44 TOTAL 71



DETAIL 1

NOTES:

1. MODULAR RETAINING WALL SHALL BE AS PER SS 870.
2. THE TOP OF MODULAR BLOCK WALL SHALL BE STEPPED TO ACCOMODATE WALL SUPPLIER DETAILS AND MINIMIZE THE DEPTH OF CONCRETE COPING. A MINIMUM OF 12" BETWEEN THE TOP OF CONCRETE COPING AND THE TOP OF MODULAR BLOCKS SHALL BE PROVIDED AT ALL STEP LOCATIONS.
3. THE TOP OF GRANULAR MATERIAL LEVELING PAD ELEVATIONS ARE MAXIMUM ELEVATIONS. IF THE WALL USED REQUIRES A GREATER DEPTH OF WALL, THIS IS ACCEPTABLE. NO ADDITIONAL PAYMENT WILL BE GIVEN AND ALL COST FOR THE CONSTRUCTION OF THE WALL SHALL BE INCLUDED IN THE UNIT BID PRICE FOR THE ITEM 870 MODULAR BLOCK WALL.
4. THE LOCATION OF STEPS IN TOP OF WALL AND BOTTOM OF WALL MAY BE ADJUSTED TO ACCOMODATE WALL SUPPLIER'S DETAILS. ALL CLEARANCE CRITERIA MUST BE MET.
5. THE RETAINING WALL SHALL NOT BE INSTALLED UNTIL THE SETTLEMENT AT THE ABUTMENT HAS OCCURRED.

WALL PROFILE SHEET

HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: PGL2 - Profile 1 [Sheet] PAPERSIZE: 17x11 (in.) DATE: 10/23/2023 TIME: 1:42:37 PM USER: zmorman
V:\1736\active\173620137\engineering\113602\400-Engineering\Roadway\Sheets\113602_WF001.dgn

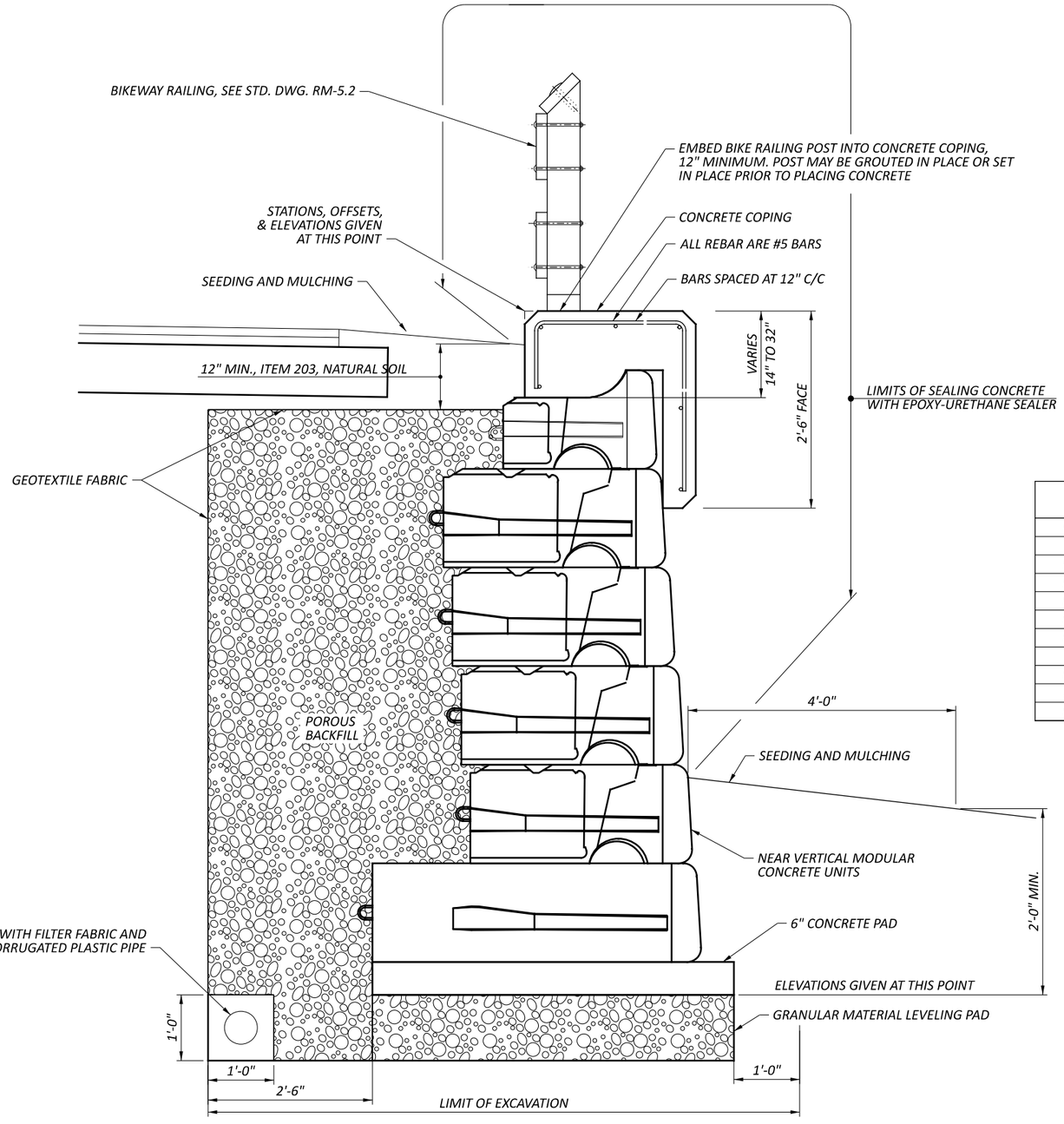
DESIGN AGENCY
Stantec
10200 Alliance Road,
Suite 300
Cincinnati, OH 45242
(513) 842-8200

DESIGNER
EDA

REVIEWER
MRS MM-DD-YY

PROJECT ID
113602

SHEET P.45 | TOTAL 71



PROPOSED MODULAR BLOCK WALL SECTION

RETAINING WALL ESTIMATED QUANTITIES				
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION
512	10100	205	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)
518	21200	302	CY	POROUS BACKFILL WITH GEOTEXTILE FABRIC
870	10000	2012	SF	PREFABRICATED MODULAR RETAINING WALL
870	11000	318	CY	WALL EXCAVATION
870	12000	235	FT	6" DRAINAGE PIPE, PERFORATED
870	12100	50	FT	6" DRAINAGE PIPE, NON-PERFORATED
870	12500	235	FT	CONCRETE COPING
870	14000	2	DAY	ON-SITE ASSISTANCE

NOTES:
1. WALL IS A MODULAR BLOCK WALL PER ODOT SUPPLEMENTAL SPECIFICATION 870 AND THE ODOT BDM.
2. ALL EXPOSED SURFACES OF THE WALL ARE TO BE SEALED WITH EPOXY-URETHANE SEALER.
3. PAYMENT FOR THE RAILING AND CONNECTIONS ARE INCIDENTAL TO ITEM 607 FENCE, MISC.; WOOD FENCE.

WALL NOTES & DETAILS

HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: Sheet PAPERSIZE: 17x11 (in.) DATE: 1/17/2024 TIME: 1:00:42 PM USER: qkichen
V:\1736\active\173620137\engineering\113602400-Engineering\Roadway\Sheets\113602_WN001.dgn

DESIGN AGENCY
Stantec
10200 Alliance Road, Suite 300
Cincinnati, OH 45242
(513) 842-8200

DESIGNER EDA

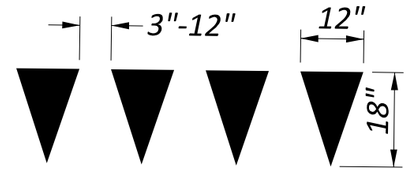
REVIEWER MRS MM-DD-YY

PROJECT ID 113602

PAVEMENT MARKING SUBSUMMARY						
					644	
SHEET NO.	REFERENCE NO.	LOCATION	STATION FROM	STATION TO	SIDE	CENTERLINE, DASHED, 4"	YIELD LINE
						MILE	FT
46	YL-1	EAST ELSTUN CONNECTION	72+53.00		LT		5
46	YL-2	EAST ELSTUN CONNECTION	72+66.00		RT		5
46	YL-3	ELSTUN CONNECTION	72+35.00		LT		5
46	CLD-1	ELSTUN CONNECTION	72+25.00	74+50.00	CL	0.05	
SUBTOTAL						0.05	15
TOTALS CARRIED TO GENERAL SUMMARY						0.05	15

SIGNING SUBSUMMARY									
							630		
SHEET NO.	REFERENCE NO.	LOCATION	STATION FROM	STATION TO	SIDE	CODE	SIZE (INCHES)	GROUND MOUNTED SUPPORT, NO. 3 POST	SIGN, FLAT SHEET	SIGN POST REFLECTOR
								FT	SF	EACH
46	S-1	EAST ELSTUN CONNECTION	72+61		LT	R1-2-18	18x18x18	9.0	1.2	1
46	S-2	ELSTUN CONNECTION	72+57		RT	R1-2-18	18x18x18	9.0	1.2	1
46	S-3	ELSTUN CONNECTION	72+44		LT	R1-2-18	18x18x18	9.0	1.2	1
47	S-4	ELSTUN CONNECTION	89+50		RT	W7-5-18	18x18	9.0	2.3	
47	S-5	ELSTUN CONNECTION	89+50		RT	W13-1P-18	18x18		2.3	
SUBTOTAL								36.0	8.1	3
TOTALS CARRIED TO GENERAL SUMMARY								36	8.1	3

YIELD LINE PAVEMENT MARKING DETAIL



DIRECTION OF TRAVEL

TRAFFIC CONTROL SUBSUMMARY

DESIGN AGENCY
Stantec
10200 Alliance Road, Suite 300
Cincinnati, OH 45242
(513) 842-8200

DESIGNER ZTM

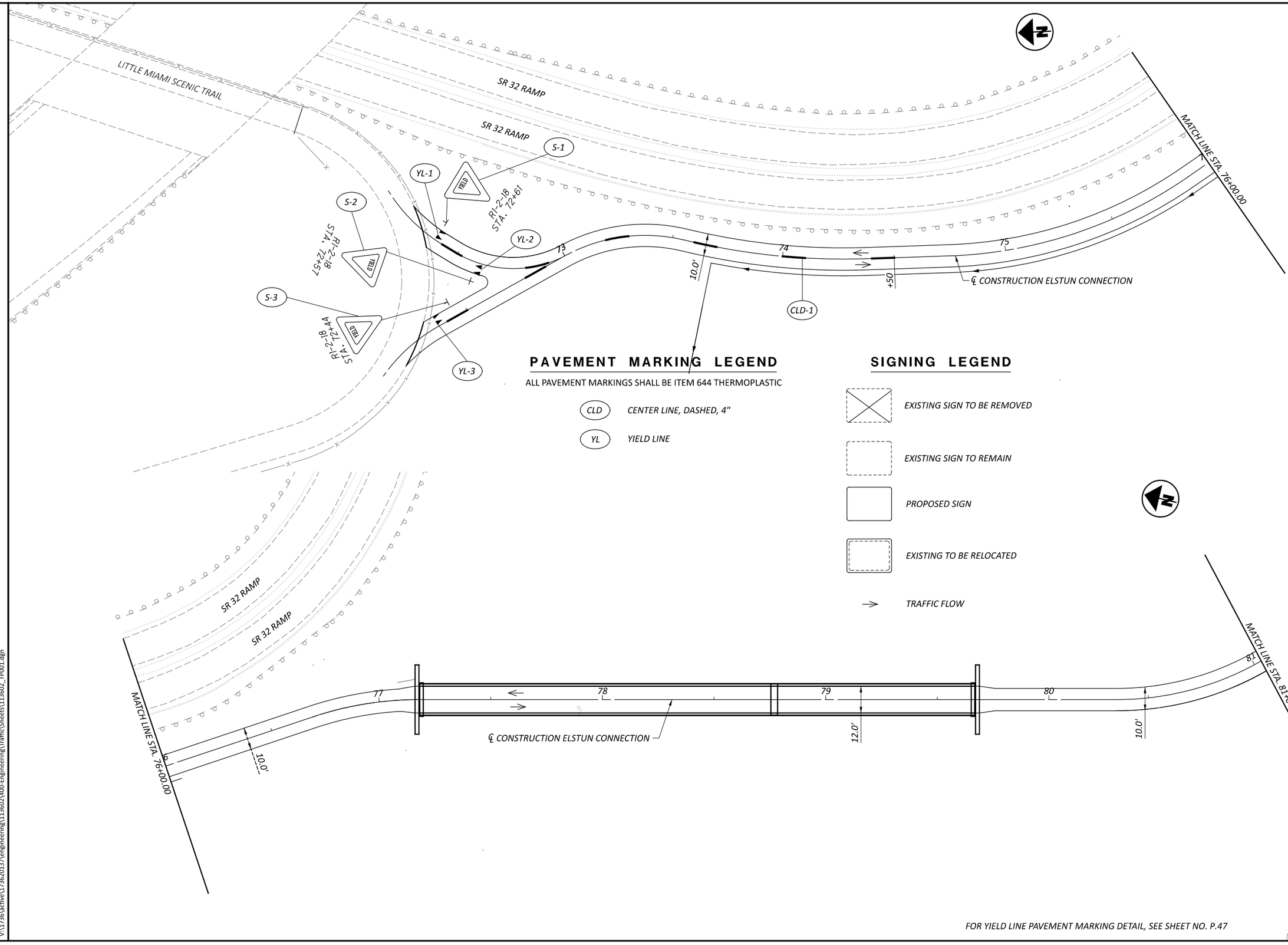
REVIEWER PJD 10-20-23

PROJECT ID 113602

SHEET P.47 | TOTAL 71

HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: Sheet PAPERSIZE: 17x11 (in.) DATE: 10/23/2023 TIME: 1:42:39 PM USER: zmorman
V:\1736\active\173620137\engineering\113602\400-Engineering\Traffic\Sheets\113602_TS001.dgn



PAVEMENT MARKING LEGEND

ALL PAVEMENT MARKINGS SHALL BE ITEM 644 THERMOPLASTIC

- CLD — CENTER LINE, DASHED, 4"
- YL — YIELD LINE

SIGNING LEGEND

- EXISTING SIGN TO BE REMOVED
- EXISTING SIGN TO REMAIN
- PROPOSED SIGN
- EXISTING TO BE RELOCATED
- TRAFFIC FLOW

FOR YIELD LINE PAVEMENT MARKING DETAIL, SEE SHEET NO. P.47

HORIZONTAL SCALE IN FEET
0 10 20 40

TRAFFIC CONTROL PLAN
STA 72+02.88 TO STA 81+00.00

HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: CLP_B363 - Bikepath II [Sheet] PAPERSIZE: 17x11 (in.) DATE: 10/23/2023 TIME: 1:42:43 PM USER: zmorman
V:\1736\active\173620137\engineering\113602\400-Engineering\Traffic\Sheets\113602_TP001.dgn

DESIGN AGENCY
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10200 Alliance Road, Suite 300
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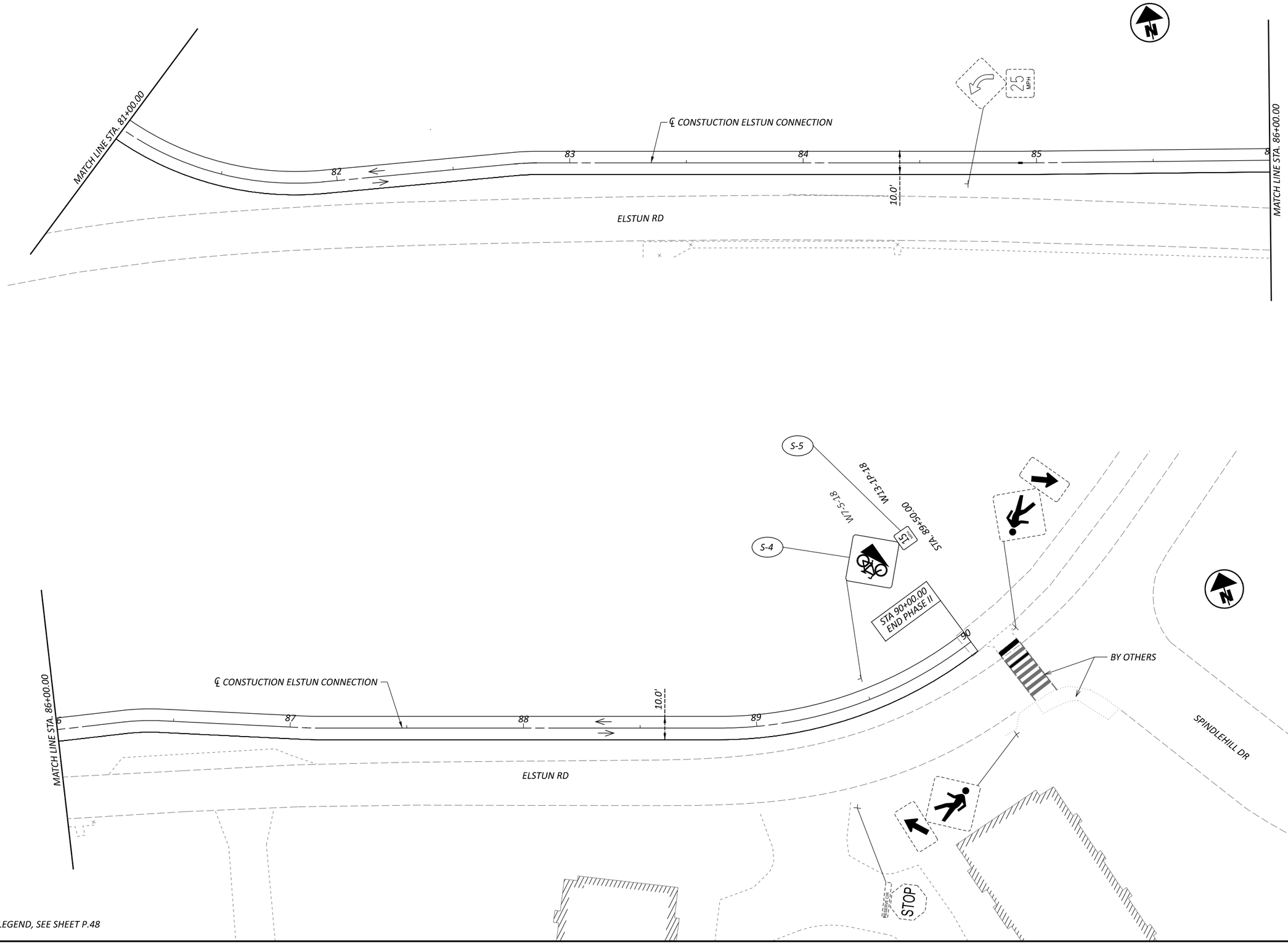
(513) 842-8200

DESIGNER	
ZTM	
REVIEWER	
PJD	10-20-23
PROJECT ID	
113602	
SHEET	TOTAL
P.48	71



FOR LEGEND, SEE SHEET P.48

HORIZONTAL SCALE IN FEET
0 10 20 40

TRAFFIC CONTROL PLAN
STA 81+00.00 TO STA 90+00.00

HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: CLP_B363 - Bikepath II-2 [Sheet] PAPERSIZE: 17x11 (in.) DATE: 10/23/2023 TIME: 1:42:45 PM USER: zmorman
V:\1736\active\173620137\engineering\113602\v400-Engineering\Traffic\Sheets\113602_TP001.dgn

DESIGN AGENCY
Stantec
10200 Alliance Road, Suite 300
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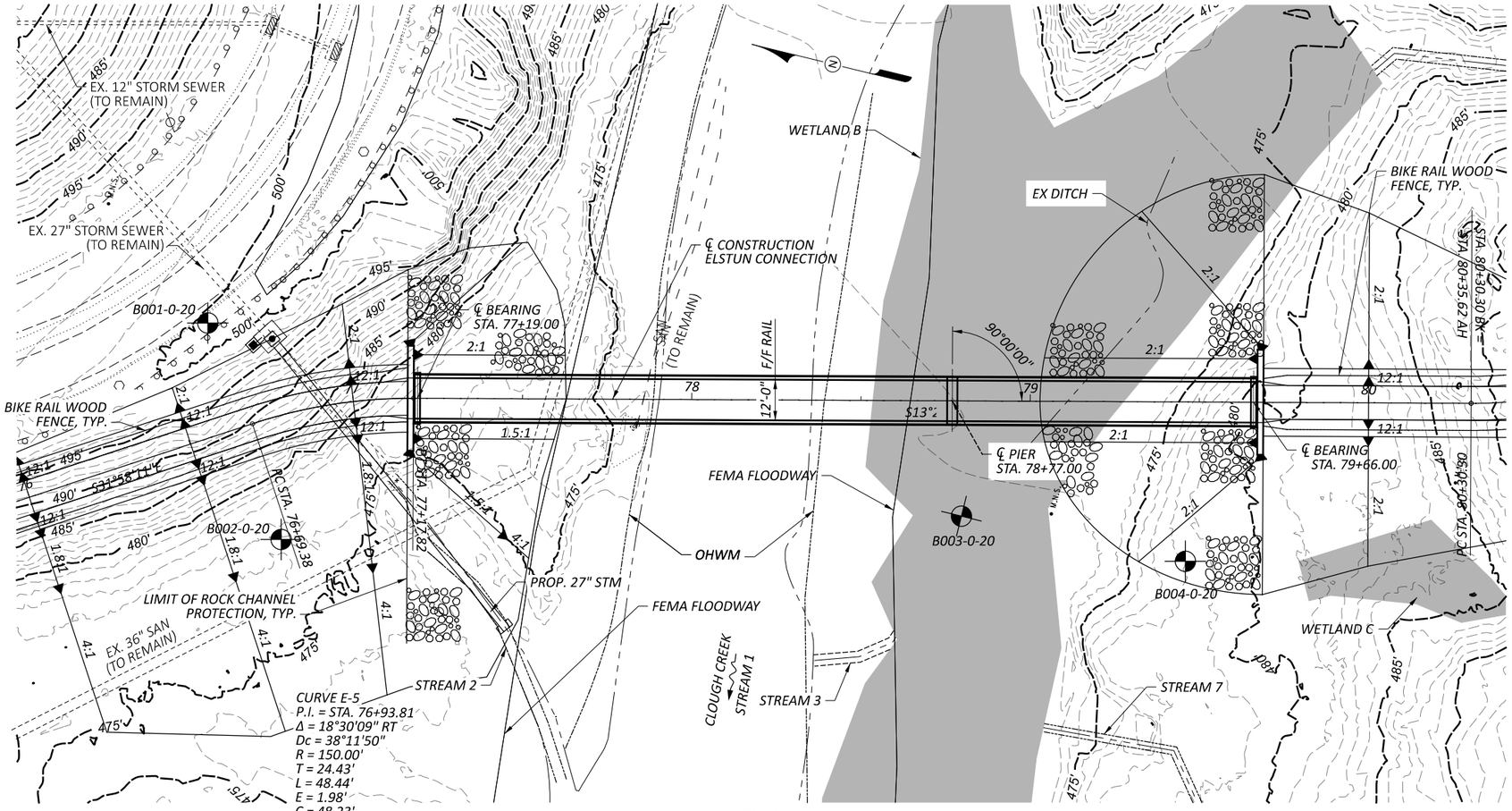
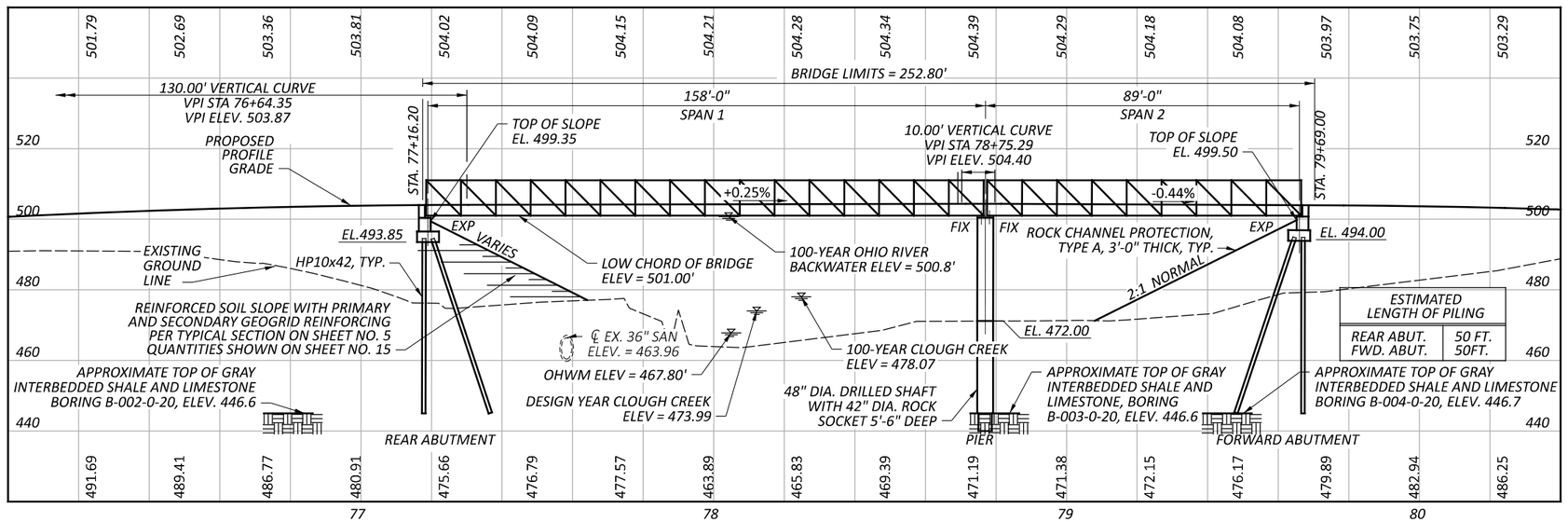
(513) 842-8200

DESIGNER ZTM
REVIEWER PJD 10-20-23
PROJECT ID 113602
SHEET P.49 TOTAL 71



PLAN



PROFILE

BENCHMARK DATA

BM #1 STA.	,	ELEV.	,	OFFSET	,
BM #2 STA.	,	ELEV.	,	OFFSET	,
BM #3 STA.	,	ELEV.	,	OFFSET	,
BM #4 STA.	,	ELEV.	,	OFFSET	,

FOR ADDITIONAL BENCHMARK INFORMATION. SEE ROADWAY PLAN SHEET

NOTES

EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.

HYDRAULIC DATA

DRAINAGE AREA = 8.04 SQ. MILES

Q (10) =	4774 CFS	V (10) =	8.36 FT/S
Q (100) =	9781 CFS	V (100) =	11.80 FT/S

THE ABOVE FLOWS AND VELOCITIES ARE THE FEMA FLOWS IN CLOUGH CREEK NOT THE BACKWATER WATER SURFACE ELEVATION FROM THE OHIO RIVER THAT CONTROLS THE FIRM RATE MAP.

STRUCTURE CLEARS THE DESIGN YEAR WATER SURFACE ELEVATION BY 6.01 FEET

PROPOSED STRUCTURE

TYPE: 2 SPAN PREFABRICATED SIMPLE SPAN TRUSS WITH CONCRETE DECK, STUB ABUTMENTS AND WALL TYPE PIERS

SPANS: 158'-0", 89'-0" MEASURED ℄ BRG ABUTMENT TO ℄ PIER

ROADWAY: 12'-0" F/F RAILING

LOADING: 90 PSF & H15 TRUCK

FUTURE WEARING SURFACE: NONE

SKEW: 00°00'00"

WEARING SURFACE: CONCRETE

APPROACH SLABS: NONE

ALIGNMENT: CURVED AND TANGENT

CROWN: .02 FT/FT

DECK AREA: 2964 SF

COORDINATES: LATITUDE 39°06'22"

LONGITUDE -84°23'59"

HORIZONTAL SCALE IN FEET
0 10 20 40

SITE PLAN
HAM LMST TO ELSTUN OVER CLOUGH CREEK

HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: Sheet PAPERSIZE: 17x11 (in.) DATE: 10/23/2023 TIME: 12:47:24 PM USER: pdurham
V:\1736\active\173620137\engineering\113602\400-Engineering\Structures\sheets\113602_SP001.dgn

SFN 0

DESIGN AGENCY

Stantec
10200 Alliance Road, Suite 300
Cincinnati, OH 45242
(513) 842-8200

DESIGNER	CHECKER
MRS	EDA

REVIEWER MRS MM-DD-YY

PROJECT ID 113602

SUBSET	TOTAL
1	10

SHEET	TOTAL
P.50	71

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.

REDUNDANCY
THE FOLLOWING ITEM(S) WERE CONSIDERED NON-REDUNDANT FOR DESIGN AND INCLUDE A LOAD MODIFIER EQUAL TO 1.05 IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, ARTICLE 1.3.4: TRUSS BRIDGE, PIER

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.

DESIGN LOADING
DESIGN LOADING INCLUDES:
PEDESTRIAN LIVE LOAD: 0.090 KIPS/SF AND H15 TRUCK

DESIGN DATA
CONCRETE CLASS QC2:
COMPRESSIVE STRENGTH 4.5 KSI (SUPERSTRUCTURE)

CONCRETE CLASS QC1:
COMPRESSIVE STRENGTH 4.0 KSI (SUBSTRUCTURE)

CONCRETE CLASS QC5, WITH 3/8 IN MAX AGGREGATE SIZE:
COMPRESSIVE STRENGTH 4.5 KSI (DRILLED SHAFT)

CONCRETE REINFORCEMENT:
EPOXY COATED STEEL REINFORCEMENT - MINIMUM YIELD STRENGTH 60 KSI (ABUTMENTS, PIERS, DECK SLAB)

STRUCTURAL STEEL - ASTM A709 GRADE 50:
YIELD STRENGTH = 50 KSI

STEEL H-PILES - ASTM A572: YIELD STRENGTH 50 KSI

MONOLITHIC WEARING SURFACE
MONOLITHIC WEARING SURFACE IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1 INCH THICK.

SCOUR ELEVATIONS

THE DESIGN FLOOD AND CHECK FLOOD SCOUR ELEVATIONS ARE PROVIDED BELOW:

	PIER 1
DESIGN FLOOD	459.14'
CHECK FLOOD	460.04'

PILE DRIVING CONSTRAINTS
PRIOR TO DRIVING PILES, CONSTRUCT THE SPILL THROUGH SLOPES AND THE BRIDGE APPROACH EMBANKMENT BEHIND THE ABUTMENTS UP TO THE LEVEL OF THE SUBGRADE ELEVATION FOR A MINIMUM DISTANCE OF 200 FEET BEHIND EACH ABUTMENT. DO NOT BEGIN THE EXCAVATION FOR THE ABUTMENT FOOTINGS AND THE INSTALLATION OF THE ABUTMENT PILES UNTIL AFTER THE ABOVE REQUIRED EMBANKMENT HAS BEEN CONSTRUCTED AND A 70 CALENDAR DAY WAITING PERIOD AT THE REAR ABUTMENT AND A 170 CALENDAR DAY WAITING PERIOD AT THE FORWARD ABUTMENT HAS ELAPSED. THE ENGINEER MAY ADJUST THE LENGTH OF THE WAITING PERIOD BASED ON SETTLEMENT PLATFORM READINGS. AFTER THE SPECIFIED WAITING PERIOD HAS ELAPSED, DRIVE ABUTMENT PILES TO REFUSAL ON BEDROCK.

PILES TO BEDROCK
DRIVE PILES TO REFUSAL ON BEDROCK. THE DEPARTMENT WILL CONSIDER REFUSAL TO BE OBTAINED WHEN THE PILE PENETRATION IS AN INCH OR LESS AFTER RECEIVING AT LEAST 20 BLOWS FROM THE PILE HAMMER. SELECT THE HAMMER SIZE TO ACHIEVE THE REQUIRED DEPTH TO BEDROCK AND REFUSAL.

THE TOTAL FACTORED LOAD IS 197 KIPS PER PILE FOR THE REAR ABUTMENT PILES. THE TOTAL FACTORED LOAD IS 112 KIPS PER PILE FOR THE FORWARD ABUTMENT PILES.

ABUTMENT PILES:
16 PILES 55 FEET LONG, ORDER LENGTH

PILE SPLICES
IN LIEU OF USING THE FULL PENETRATION BUTT WELDS SPECIFIED IN CMS 507.09 TO SPLICE STEEL H-PILES, THE CONTRACTOR MAY USE A MANUFACTURED H-PILE SPLICER. FURNISH SPLICERS FROM THE FOLLOWING MANUFACTURER:

ASSOCIATED PILE AND FITTING CORPORATION
8 WOOD HOLLOW RD. PLAZA 1
PARSIPPANY, NEW JERSEY 07054

INSTALL AND WELD THE SPLICER TO THE PILE SECTIONS IN
ACCORDANCE WITH THE MANUFACTURER'S WRITTEN ASSEMBLY PROCEDURE SUPPLIED TO THE ENGINEER BEFORE THE WELDING IS PERFORMED.

PILE DRIVING
THE MINIMUM RATED ENERGY OF THE HAMMER USED TO INSTALL THE PILES SHALL BE 44,000 FOOT-POUNDS. ENSURE THAT STRESSES IN THE PILES DURING DRIVING DO NOT EXCEED 45,000 POUNDS PER SQUARE INCH.

RCP PLACEMENT
THE CONTRACTOR SHALL MAKE EVERY ATTEMPT TO WORK FROM THE BRIDGE DECKS TO PLACE RCP AROUND THE STRUCTURE AND TO USE THE MINIMUM AMOUNT OF RCP NECESSARY TO PREVENT SCOUR. NEW OR USED CONCRETE OR ASPHALT ARE SPECIFICALLY PROHIBITED FROM USE AS FILL BELOW THE OHWM OR ON ANY PORTION OF THE SCENIC RIVER STREAM BANK.

ITEM 894 - THERMAL INTEGRITY PROFILER (TIP) TEST
PERFORM INTEGRITY TESTING ON ALL OF THE DRILLED SHAFTS AT THE PIER BY THERMAL INTEGRITY PROFILING (TIP). PERFORM TIP TESTING PER ASTM D7949, "STANDARD TEST METHODS FOR THERMAL INTEGRITY PROFILING OF CONCRETE DEEP FOUNDATIONS", METHOD B, AND SUPPLEMENTAL SPECIFICATION 894.

ITEM 503 - COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN
IN ADDITION TO THE NORMAL REQUIREMENTS OF 503, THE CONTRACTOR WILL BE RESPONSIBLE FOR DESIGNING AND CONSTRUCTING COFFERDAMS AND EXCAVATION BRACING UTILIZING ANY MEANS AND METHODS THAT WILL MEET THE REQUIREMENTS FOR THE CONSTRUCTION AND MATERIALS SPECIFICATIONS ITEM 503: EXCAVATION FOR STRUCTURES, THE WATERWAY PERMIT, THE SPECIAL PROVISIONS, AND THE FOLLOWING ADDITIONAL REQUIREMENTS.

1.) THE CONTRACTOR MUST CONSIDER ALTERNATIVE MEANS TO ACCESS THE RIVERBED TO CONSTRUCT THE WORK SUCH AS WATER DIVERSION BY USE OF SHEET PILING, MEMBRANE DAMS, ETC. THIS METHOD SHOULD BE CONSIDERED AS THE PREFERRED OPTION FOR CONSTRUCTION.

2.) IF OPTION ONE IS NOT CONSTRUCTIBLE, THE CONTRACTOR MAY CONSIDER OTHER MEANS OF CONSTRUCTION TO COMPLETE THE WORK SUCH AS THE USE OF DUMP ROCK FILL TO CONSTRUCT A TEMPORARY ACCESS FILL. IF DUMP ROCK IS CHOSEN, THE CONTRACTOR MUST DESIGN THE COFFERDAMS AND EXCAVATION BRACING UTILIZING TYPE A ROCK PER 703.19 B AND WILL CONSTRUCT THE COFFERDAMS AND EXCAVATION BRACING TO AN ELEVATION OF 471.80 FEET. THIS ELEVATION IS 4 FEET ABOVE THE ORDINARY HIGH-WATER MARK (OHWM) AS DENOTED IN THE PLAN. IN ADDITION, THE DEPARTMENT WILL ONLY COMPENSATE THE CONTRACTOR FOR TYPE A ROCK SIZED MATERIALS LOST DUE TO FLOODING EVENTS. ANY OTHER MATERIAL SMALLER THAN TYPE A, MAY BE USED AT THE CONTRACTOR'S OPTION SO LONG AS IT IS IN ACCORDANCE WITH ITEM 503, THE WATERWAY PERMIT, AND THE SPECIAL PROVISIONS.

3.) THE CONTRACTOR SHALL MAKE EVERY EFFORT TO AVOID DAMAGING THE STREAM BED. MATERIALS PLACED IN THE STREAM BED SHALL BE REMOVED IMMEDIATELY FOLLOWING THE CONSTRUCTION. BOTTOM ELEVATIONS SHALL BE DETERMINED PRIOR TO THE START OF THE WORK TO ENSURE THE STREAM BED BOTTOM IS RETURNED TO THE ORIGINAL CONTOURS AND ELEVATIONS SURVEYED AT THE START OF CONSTRUCTION. FURTHERMORE, IF TYPE A ROCK IS UTILIZED, THE CONTRACTOR SHALL INSTALL FILTER FABRIC ON THE STREAM BED PRIOR TO INSTALLING THE ROCK TO ENSURE ALL MATERIALS ARE REMOVED AT THE END OF CONSTRUCTION.

THE CONTRACTOR SHALL INTERPRET ANY REFERENCE TO 3 FEET ABOVE THE ORDINARY HIGH WATER MARK (OHWM) IN CMS 503.03, WATERWAY PERMIT, OR SPECIAL PROVISIONS AS 4 FEET ABOVE THE OHWM.

ALTERNATIVE MEANS AND METHODS OF CONSTRUCTION CAN BE PROPOSED AND WILL BE CONSIDERED BY THE DEPARTMENT, BUT WILL NOT RELIEVE THE CONTRACTOR OF THEIR RESPONSIBILITY TO COMPLETE THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

ALL MATERIALS, EQUIPMENT, LABOR, AND INCIDENTALS REQUIRED TO PROVIDED ACCESS FOR THE CONSTRUCTION OF THE PROPOSED BRIDGE SHALL BE INCLUDED IN THE PAY ITEM 503 COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN.

GENERAL NOTES (1)
HAM LMST TO ELSTUN
OVER CLOUGH CREEK

HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: Sheet PAPERSIZE: 1.41667x0.916667 (ft.) DATE: 10/23/2023 TIME: 1:42:57 PM USER: zmorman
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DESIGNER	CHECKER
MRS	EDA

REVIEWER
BSM 12-20-22

PROJECT ID
113602

SUBSET	TOTAL
2	10

SHEET	TOTAL
P.51	71

ITEM 530, STRUCTURE, MISC.: - PREFABRICATED BRIDGE

1.0 GENERAL
1.1 SCOPE
THESE SPECIFICATIONS ARE FOR FULLY ENGINEERED HALF THROUGH TRUSS (NO OVERHEAD BRACING) BRIDGE OF STEEL CONSTRUCTION AND SHALL BE REGARDED AS MINIMUM STANDARDS FOR DESIGN AND FABRICATION. THE WORK INCLUDED UNDER THIS ITEM SHALL CONSIST OF DESIGN, FABRICATING, FINISHING AND TRANSPORTING THE STEEL TRUSS BRIDGE SUPERSTRUCTURE INCLUDING BEARINGS.

1.2 QUALIFIED BRIDGE MANUFACTURER
THE PREFABRICATED TRUSS SUPERSTRUCTURE SHALL BE SUPPLIED BY A MANUFACTURER ON ODOT'S PREQUALIFICATION LIST AS FOUND AT THE FOLLOWING WEBSITE:

HTTPS://WWW.DOT.STATE.OH.US/DIVISIONS/CONSTRUCTIONMGT/MATERIALS/MISCELLANEOUSLIST/STRUCTURALSTEELFABRICATORS.PDF

ALL SUPPLIERS SHALL FABRICATE THEIR PRODUCT UTILIZING A MODERN FABRICATION FACILITY OWNED AND OPERATED BY THE BRIDGE MANUFACTURER THAT INCLUDES THE USE OF CNC BEAM DRILLING MACHINES, NO BROKERS ARE ALLOWED.

1.3 BRIDGE MANUFACTURER'S DESIGN PROFESSIONAL AND SUBMITTALS
THE BRIDGE MANUFACTURER SHALL HAVE AS A DIRECT EMPLOYEE, AN ENGINEER WHO IS EXPERIENCED IN BRIDGE DESIGN TO BE IN RESPONSIBLE CHARGE OF ALL ENGINEERING RELATED TASK AND DESIGN. THE ENGINEER SHALL HAVE A MINIMUM OF 10 YEARS OF EXPERIENCE IN BRIDGE DESIGN AND BE A CURRENTLY LICENSED CIVIL OR STRUCTURAL PROFESSIONAL ENGINEER IN THE STATE OF OHIO AND SHALL BE THE ENGINEER WHO WILL SEAL AND SIGN THE PLANS.

ENGINEERING DRAWINGS, 11X17 FORMAT, SHALL BE PREPARED AND SUBMITTED TO THE CONTRACTOR OR OWNER FOR THEIR REVIEW AFTER RECEIPT OF THE ORDER. SUBMITTAL DRAWINGS SHALL BE UNIQUE DRAWINGS, PREPARED TO ILLUSTRATE THE SPECIFIC PORTION OF THE BRIDGE BEING FABRICATED. ALL RELATIVE

DESIGN INFORMATION SUCH AS MEMBER SIZE, ASTM/AASHTO MATERIAL SPECIFICATION, DIMENSIONS NECESSARY TO FABRICATE AND REQUIRED WELDING SHALL BE CLEARLY SHOWN ON THE DRAWINGS. DRAWINGS SHALL HAVE REFERENCED DETAILS AND SHEET NUMBERS. ALL DRAWINGS SHALL BE STAMPED, SIGNED AND DATED BY THE BRIDGE MANUFACTURER□S DESIGN PROFESSIONAL.

STRUCTURAL CALCULATIONS FOR THE DESIGN OF THE BRIDGE SUPERSTRUCTURE SHALL BE PREPARED BY THE BRIDGE MANUFACTURER AND SUBMITTED FOR REVIEW AFTER RECEIPT OF THE ORDER. CALCULATIONS SHALL INCLUDE COMPLETE DESIGN, ANALYSIS AND CODE CHECKS FOR THE CONTROLLING MEMBERS, CONNECTIVITY AND SUPPORT CONDITIONS, TRUSS STABILITY CHECKS, DECK DESIGN, DEFLECTION CHECKS, BEARINGS AND ALL SPLICES.

2.0 APPLICABLE CODES AND STANDARDS
2.1 GOVERNING SPECIFICATIONS
BRIDGE SHALL BE DESIGNED IN COMPLIANCE WITH THE AASHTO LRFD GUIDE SPECIFICATIONS FOR THE DESIGN OF PEDESTRIAN BRIDGES, 2009 (AASHTO PED) AND THE OHIO BRIDGE DESIGN MANUAL. CALCULATIONS SHALL BE IN ACCORDANCE WITH THIS DOCUMENT, AND FORMULAS SHALL REFERENCE THE APPROPRIATE SECTIONS.

2.2 OTHER REFERENCE CODES, SPECIFICATIONS AND STANDARDS
- AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION, 2020 (AASHTO LRFD)
- AASHTO LRFD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS, FIRST EDITION, 2005 (AASHTO SIGNS)
- AISC STEEL CONSTRUCTION MANUAL, 15TH EDITION, 2017 (AISC)
- ANSI/AISC 360-16 SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, 2016 (AISC 360)
- AMERICAN WELDING SOCIETY, STRUCTURAL WELDING CODE, D1.1, 2015 (AWS D1.1)
- SETRA TECHNICAL GUIDE FOR FOOTBRIDGES, 2006 (SETRA)

THE AASHTO LRFD GUIDE SPECIFICATIONS FOR THE DESIGN OF PEDESTRIAN BRIDGES SHALL CONTROL IF ANY CONFLICTING REQUIREMENTS OCCUR WITH THE OTHER REFERENCE DOCUMENTS AND/OR OTHER LOCAL CODES.

3.0 BRIDGE SYSTEM TYPE
3.1 TRUSS STYLE
THE TRUSS STYLE SHALL BE THE SAME FOR BOTH SPANS AND BE THE MOST ECONOMICAL STYLE. THE VERTICAL TRUSSES SHALL BE DESIGNED SUCH THAT THE TOP AND BOTTOM CHORD MEMBERS ARE PARALLEL FOR THE ENTIRE LENGTH OF BRIDGE. THE INTERIOR VERTICALS OF THE TRUSSES SHALL BE PERPENDICULAR TO THE TOP FACE OF THE BOTTOM CHORD AND THE END VERTICALS OF THE TRUSSES SHALL BE PLUMB. TRUSSES SHALL BE LAID OUT SUCH THAT DIAGONALS SHALL BE AT AN ANGLE OF 30-DEGREES OR MORE WITH RESPECT TO THE BOTTOM CHORD.

3.2 DIAGONAL STYLE
THE VERTICAL TRUSS SHALL USE A SINGLE-DIAGONAL, PRATT CONFIGURATION, WHERE ALL THE DIAGONALS ARE IN TENSION FOR GRAVITY LOADS.

3.3 FLOOR BEAM LOCATION
THE BRIDGE SHALL UTILIZE AN H-SECTION CONFIGURATION WHERE THE ENDS OF THE FLOOR BEAMS ARE WELDED ONLY TO THE INTERIOR FACE OF THE VERTICALS. THE DISTANCE FROM THE TOP OF DECK TO THE BOTTOM OF THE BOTTOM CHORD SHALL BE DETERMINED BY THE BRIDGE MANUFACTURER DURING FINAL DESIGN.

4.0 BRIDGE GEOMETRY
4.1 SPAN LENGTH
THE BRIDGE WILL CONSIST OF TWO SIMPLE SPAN TRUSSES. THE TOTAL DISTANCE OF THE BRIDGE FROM CENTER TO CENTER OF BEARING AT THE ABUTMENTS WILL BE 247 FEET. SPAN 1 WILL BE 158 FEET FROM CENTERLINE OF BEARING AT THE ABUTMENT TO CENTERLINE OF PIER. SPAN 2 WILL BE 90 FEET FROM CENTERLINE OF PIER TO CENTERLINE OF BEARING AT THE ABUTMENT.

4.2 WIDTH
THE BRIDGE WIDTH SHALL PROVIDE A MINIMUM CLEARANCE OF 12'-0" BETWEEN ALL INTERIOR RAILING ELEMENTS.

4.3 TOP OF TRUSS HEIGHT ABOVE DECK
THE TOP OF THE TOP CHORD SHALL NOT BE LESS THAN 48" ABOVE THE DECK (MEASURED FROM THE HIGH POINT OF THE DECK). NOTE THAT THIS DIMENSION MAY BE EXCEEDED DUE TO TRUSS HEIGHT REQUIREMENTS FOR STRUCTURAL, DEFLECTION AND VIBRATION REQUIREMENTS. THE SAME HEIGHT SHALL BE USED FOR BOTH SPANS.

4.4 LOWER STEEL CLEARANCE
THE BRIDGE MANUFACTURER SHALL DETERMINE THE DISTANCE FROM THE TOP OF THE DECK (MEASURED FROM THE HIGHEST POINT OF THE DECK) TO THE BOTTOM OF ANY STEEL MEMBER.

4.5 TRUSS BAY SPACING
THE NUMBER OF BAYS AND THE DIMENSION OF THE PANEL POINTS SHALL BE DETERMINED BY THE BRIDGE MANUFACTURER.

4.6 CAMBER
EACH SINGLE SIMPLE-SPAN BRIDGE SHALL HAVE A VERTICAL CAMBER DIMENSION AT THE MID-SPAN EQUAL TO 100% OF THE ANTICIPATED FULL DEAD LOAD DEFLECTION.

4.7 ELEVATION DIFFERENCE
THE TOP OF THE DECKS AT EACH END OF THE BRIDGE SHALL BE CONSTRUCTED WITH A VERTICAL ELEVATION DIFFERENCE AS SHOWN ON THE PLANS.

5.0 STRUCTURAL DESIGN LOADS
5.1 DEAD LOAD
THE BRIDGE STRUCTURE SHALL BE DESIGNED FOR THE TOTAL BRIDGE WEIGHT INCLUDING THE FINAL DECK SYSTEM.

5.2 PEDESTRIAN LOADING (PL)
THE BRIDGE STRUCTURE SHALL BE DESIGNED FOR A UNIFORM PEDESTRIAN LOADING OF 90 PSF OR AN H15 TRUCK. THIS LOADING SHALL BE PATTERNED TO PRODUCE THE MAXIMUM LOAD EFFECTS. CONSIDERATION OF DYNAMIC LOAD ALLOWANCE IS NOT REQUIRED WITH THIS LOADING.

5.3 VEHICLE LOAD (VL)
WHEN VEHICULAR ACCESS IS NOT PREVENTED BY PERMANENT PHYSICAL METHODS, THE SUPERSTRUCTURE AND DECK SYSTEM SHALL BE DESIGNED FOR EACH OF THE FOLLOWING CONCENTRATED/VEHICULAR LOADS:
- A CONCENTRATED LOAD OF 1,000 POUNDS PLACED ON ANY AREA 2.5' BY 2.5' SQUARE.
- A SINGLE TRUCK SHALL BE PLACED TO PRODUCE THE MAXIMUM LOAD EFFECTS AND SHALL NOT BE PLACED IN COMBINATION WITH THE PEDESTRIAN LOAD. THE DYNAMIC LOAD ALLOWANCE NEED NOT BE CONSIDERED FOR THIS LOADING. THE TRUCK SHALL BE AN H10 VEHICLE (20,000 POUND TWO-AXLE VEHICLE WITH 80% TO REAR AXLE).

5.4 WIND LOAD (WS)
PEDESTRIAN BRIDGES SHALL BE DESIGNED FOR WIND LOADS AS SPECIFIED IN AASHTO SIGNS, ARTICLES 3.8 AND 3.9. THE LOADING SHALL BE APPLIED OVER THE EXPOSED AREA IN FRONT ELEVATIONS OF BOTH TRUSSES INCLUDING ALL ENCLOSURES.

IN ADDITION TO THE WIND LOAD SPECIFIED ABOVE, A VERTICAL UPLIFT LINE LOAD AS SPECIFIED IN AASHTO LRFD ARTICLE 3.8.2 AND DETERMINED AS THE FORCE CAUSED BY A PRESSURE OF 20 PSF OVER THE FULL DECK WIDTH, SHALL BE APPLIED CONCURRENTLY. THIS LOADING SHALL BE APPLIED AT THE WINDWARD QUARTER POINT OF THE DECK WIDTH.

5.5 SEISMIC (EQ)
THE BRIDGE STRUCTURE SHALL BE DESIGNED FOR SEISMIC LOADING AS SPECIFIED IN SECTION 3.10 OF AASHTO LRFD. THE TRANSVERSE LOADS SHALL BE CALCULATED CONSIDERING THE TRANSVERSE PERIOD OF THE BRIDGE AND LONGITUDINAL LOADS SHALL BE CALCULATED USING A PERIOD OF ZERO. A RESPONSE MODIFICATION FACTOR OF 0.8 SHALL BE USED FOR THE CALCULATION OF FORCES APPLIED TO THE BRIDGE ANCHORAGE. A RESPONSE MODIFICATION FACTOR OF 1.0 SHALL BE USED FOR THE CALCULATION OF BEARING REACTIONS. THE TRANSVERSE SEISMIC LOAD SHALL BE APPLIED TO ALL THE BEARINGS AND THE LONGITUDINAL SEISMIC LOAD SHALL BE APPLIED TO THE FIXED BEARINGS ONLY. THE VERTICAL BEARING REACTIONS SHALL BE CALCULATED USING AN OVERTURNING FORCE ON THE BRIDGE BASED ON THE CENTER OF GRAVITY OF THE BRIDGE TIMES THE TRANSVERSE SEISMIC LOAD.

5.6 FATIGUE LOAD (FL)
THE FATIGUE LOADING SHALL BE AS SPECIFIED IN SECTION 11 OF AASHTO SIGNS. THE NATURAL WIND GUST SPECIFIED IN ARTICLE 11.7.1.2 AND THE TRUCK-INDUCED GUST SPECIFIED IN ARTICLE 11.7.1.3 OF AASHTO SIGNS ONLY NEED ONLY BE CONSIDERED, AS APPROPRIATE.

5.7 COMBINATION OF LOADS
THE LOAD COMBINATIONS AND LOAD FACTORS TO BE USED SHALL BE AS SPECIFIED IN AASHTO LRFD TABLE 3.4.1-1, WITH THE FOLLOWING EXCEPTIONS:
- LOAD COMBINATIONS STRENGTH II, STRENGTH IV, AND STRENGTH V NEED NOT BE CONSIDERED.
- THE LOAD FACTOR FOR FATIGUE I LOAD COMBINATION SHALL BE TAKEN AS 1.0, AND FATIGUE II LOAD COMBINATION NEED NOT BE CONSIDERED.

6.0 STRUCTURAL DESIGN CRITERIA
STRUCTURAL DESIGN OF THE BRIDGE STRUCTURE SHALL BE PERFORMED BY OR UNDER THE DIRECT SUPERVISION OF A LICENSED PROFESSIONAL ENGINEER, REGISTERED IN THE STATE OF OHIO, WHO IS EXPERIENCED IN TRUSS BRIDGE DESIGN, AND DONE IN ACCORDANCE WITH RECOGNIZED ENGINEERING PRATICES AND PRINCIPLES.

6.1 MODELING
THE BRIDGE SHALL BE MODELED AND ANALYZED UTILIZING A THREE-DIMENSIONAL COMPUTER SOFTWARE WHICH SHALL ACCOUNT FOR MOMENTS INDUCED IN MEMBERS DUE TO JOINT FIXITY WHERE APPLICABLE. MOMENTS DUE TO BOTH TRUSS DEFLECTION AND JOINT ECCENTRICITY MUST BE CONSIDERED. ALL LOADS LISTED IN SECTION 5 OF THESE SPECIFICATIONS SHALL BE APPLIED TO THE MODEL AND ANALYZED APPROPRIATELY.

6.2 LATERAL FRAME AND MEMBER DESIGN
THE BRIDGE SHALL BE DESIGNED AND PROPORTIONED SUCH THAT APPROPRIATE LATERAL STIFFNESS IS PROVIDED LOCALLY AND GLOBALLY, TO ENSURE THAT THE STRUCTURE IS STABLE.

GENERAL NOTES (2)
HAM LMST TO ELSTUN
OVER CLOUGH CREEK

HAM-LMST EXTENSION TO ELSTUN PHASE 2

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DESIGNER	CHECKER
MRS	EDA

REVIEWER
BSM 12-20-22

PROJECT ID
113602

SUBSET	TOTAL
3	10

SHEET	TOTAL
P.52	71

FOR BRIDGES WITHOUT ANY OVERHEAD MEMBERS (HALF-THROUGH TRUSSES), THE VERTICAL TRUSS MEMBERS, THE FLOOR BEAMS AND THEIR CONNECTIONS SHALL BE PROPORTIONED TO RESIST A LATERAL FORCE APPLIED AT THE TOP OF THE TRUSS VERTICALS AT THE CENTER OF THE TOP CHORD. THIS LATERAL FORCE SHALL BE APPLIED AS AN ADDITIONAL LOAD TO THE TOP OF THE VERTICAL AT THE CENTER OF THE TOP CHORD, CREATING A CANTILEVER MOMENT, WHICH IS THEN ADDED TO THE FORCES OBTAINED FROM THE THREE-DIMENSIONAL MODEL. THE MAGNITUDE OF THIS LATERAL FORCE SHALL NOT BE LESS THAN 0.01/K TIMES THE AVERAGE FACTORED DESIGN COMPRESSIVE FORCE IN THE TWO ADJACENT TOP CHORD MEMBERS INCREASED BY A FACTOR OF SAFETY OF 1.33.

THE TOP CHORD SHALL BE ANALYZED AS A COLUMN WITH ELASTIC LATERAL SUPPORTS AT THE PANEL POINTS, CONSIDERING ALL MOMENTS DUE TO IN-PLANE AND OUT-OF-PLANE BENDING, ALONG WITH MOMENTS DUE TO ECCENTRICITIES OF THE MEMBERS.

THE U-FRAME STIFFNESS OF THE VERTICALS AND FLOOR BEAMS SHALL BE AS SPECIFIED IN AASHTO PED ARTICLE 7.1.2, ASSUMING THAT THE VERTICAL AND FLOOR BEAM CONNECTION IS RIGID. THIS MEANS THAT THE FOLLOWING MUST BE MET:

- ON H-SECTION FLOOR BEAM CONNECTIONS, THE FLOOR BEAM WIDTH SHALL BE AT LEAST 80% OF THE VERTICAL FACE WIDTH IN ORDER TO PREVENT ANY DEFORMATION DUE TO TUBE WALL PLASTIFICATION OF THE VERTICAL MEMBER FACES UNDER SERVICE LOADS. THE CONNECTION DESIGN WILL BE CHECKED AT STRENGTH I & STRENGTH III LOAD COMBINATIONS.
- ON UNDERHUNG FLOOR BEAM CONNECTIONS, THE VERTICAL WIDTH SHALL MATCH THE BOTTOM CHORD WIDTH IN ORDER TO TRANSFER VERTICAL MOMENTS THROUGH THE WALLS OF THE BOTTOM CHORD TO THE VERTICALS WITH NO DEFORMATION OF THE CHORD SIDE WALLS DUE TO SIDEWALL YIELDING OR CRIPPLING UNDER SERVICE LOADS. THE CONNECTION DESIGN WILL BE CHECKED AT STRENGTH I & STRENGTH III LOAD COMBINATIONS.
- THE VERTICAL AND FLOOR BEAM MEMBERS SHALL NOT BE CONNECTED TO FACES OF THE BOTTOM CHORD AT A 90-DEGREES TO ONE ANOTHER.
- ALL FIXED END MOMENTS IN THE FLOOR BEAMS AND VERTICALS DUE TO FLOOR BEAM ROTATIONS, IN ADDITION TO THE LOADS DERIVED FROM A U-FRAME ANALYSIS HAVE BEEN ACCOUNTED FOR IN THE STRENGTH DESIGN OF THE CONNECTIONS.

THE VERTICAL AND FLOOR BEAM MEMBERS SHALL BE PROPORTIONED SUCH THAT THE EFFECTIVE LENGTH FACTOR, K, USED IN THE DESIGN OF THE TOP CHORD SHALL NOT BE GREATER THAN 2.0.

THE END VERTICALS SHALL BE DESIGNED AS A SIMPLE CANTILEVER TO CARRY THE LOADS OBTAINED FROM THE THREE-DIMENSIONAL MODEL, PLUS THE CANTILEVER MOMENT DUE TO A LATERAL LOAD OF 0.01 TIMES THE AXIAL FORCE IN THE END VERTICAL, APPLIED LATERALLY AT THE TOP END OF THE END VERTICAL AT THE CENTER OF THE TOP CHORD.

THE FLOOR BEAMS SHALL BE SIZED FOR THE FORCES OBTAINED FROM A SIMPLE SPAN, PINNED END ANALYSIS, OR FROM THE FORCES OBTAINED FROM THE THREE-DIMENSIONAL MODEL, WHICHEVER CONTROLS.

THE DIAGONALS AND BRACE DIAGONALS SHALL BE ANALYZED AS PINNED-END CONNECTION MEMBERS.

INTERIOR VERTICALS SHALL BE ANALYZED AS PINNED-END CONNECTIONS UNLESS LONGITUDINAL FORCES ARE APPLIED TO THE VERTICALS SUCH AS WHEN THE BRACE DIAGONALS ARE CONNECTED TO FLOOR BEAMS ON AN H-SECTION FLOOR BEAM CONFIGURATION. WHEN LONGITUDINAL FORCES ARE APPLIED TO THE VERTICALS THEY SHALL BE ANALYZED AS FIXED-END CONNECTIONS.

ALL OTHER MEMBERS SHALL BE ANALYZED AS FIXED-END CONNECTIONS.

HSS MEMBER CONNECTIONS SHALL BE EVALUATED PER THE REQUIREMENTS OF AISC 360 CHAPTERS J & K.

6.3 DEFLECTIONS

THE VERTICAL DEFLECTION OF THE BRIDGE DUE TO THE UNFACTORED PEDESTRIAN LIVE LOADING SHALL NOT EXCEED 1/360 OF THE SPAN LENGTH.DEFLECTIONS
THE VERTICAL DEFLECTION OF THE BRIDGE DUE TO THE UNFACTORED PEDESTRIAN LIVE LOADING SHALL NOT EXCEED 1/360 OF THE SPAN LENGTH.

THE HORIZONTAL DEFLECTION OF THE BRIDGE UNDER UNFACTORED WIND LOADING SHALL NOT EXCEED 1/360 OF THE SPAN LENGTH.

6.4 FRACTURE CRITICAL MEMBERS (FCM)

ALL ITEMS DESIGNATED FCM ARE FRACTURE CRITICAL MEMBERS AND COMPONENTS AND SHALL BE FURNISHED AND FABRICATED ACCORDING TO THE REQUIREMENTS OF SECTION 12 OF THE AASHTO/AWS BRIDGE WELDING CODE D1.5. TUBULAR FCM AND COMPONENTS SHALL BE FURNISHED AND FABRICATED ACCORDING TO THE REQUIREMENTS OF SECTION 8.2.3 - TUBULAR FRACTURE CRITICAL MEMBERS OF THE LRFD GUIDE SPECIFICATIONS FOR THE DESIGN OF PEDESTRIAN BRIDGES.

6.5 VIBRATIONS

VIBRATION OF THE STRUCTURE SHALL NOT CAUSE DISCOMFORT OR CONCERN TO THE USERS OF THE BRIDGES. TO ASSURE THIS, THE FUNDAMENTAL FREQUENCY (F) OF THE PEDESTRIAN BRIDGE IN THE VERTICAL DIRECTION, WITHOUT LIVE LOAD, SHALL BE GREATER THAN 3.0 HERTZ (HZ) TO AVOID THE FIRST HARMONIC. THE FUNDAMENTAL FREQUENCY OF THE PEDESTRIAN BRIDGE IN THE LATERAL DIRECTION, SHALL BE GREATER THAN 1.3 HZ. IF THE FUNDAMENTAL FREQUENCY CANNOT SATISFY THESE LIMITATIONS, THEN THE BRIDGE SHOULD BE PROPORTIONED SUCH THAT EITHER OF THE FOLLOWING CRITERIA ARE SATISFIED:

$$F > 2.86 * LN(180/W$$

OR

$$W > 180 * E^{(-0.35*F)}$$

WHERE W IS THE WEIGHT OF THE BRIDGE IN KIPS AND F IS THE FUNDAMENTAL FREQUENCY IN THE VERTICAL DIRECTION IN HZ.

FOR BRIDGES LONGER THAN 85 FT AND SHORTER THAN 125 FT THE VERTICAL AND HORIZONTAL VIBRATION MUST ALSO MEET THE REQUIREMENTS FOR BRIDGE CLASS III WITH A MEAN COMFORT LEVEL IN ACCORDANCE WITH SETRA.

7.0 DECK SYSTEM

7.1 DECK SYSTEM

DECK TO BE COMPRISED OF REINFORCED CONCRETE DESIGNED TO SPAN FROM FLOOR BEAM TO FLOOR BEAM.

REINFORCED CONCRETE SHALL BE NORMAL WEIGHT CONCRETE (145 POUNDS PER CUBIC FOOT MAXIMUM) AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,500 PSI AT 28 DAYS, WITH AN AIR CONTENT OF 6% +/- 1.5%.

CONCRETE MIX DESIGN, MATERIALS, QUALITY, MIXING, PLACEMENT, FINISHING AND TESTING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF ODOT C&MS 499 AND 511.

THE SURFACE OF DECK CONCRETE SHALL BE FINISHED WITH A SIDEWALK FINISH ODOT C&MS 511.18.

STAY-IN-PLACE GALVANIZED (G90 COATING) METAL FORM DECK SHALL BE USED AND SHALL BE DESIGNED TO SUPPORT THE WEIGHT OF THE WET CONCRETE PLUS A 20 POUNDS PER SQUARE FOOT CONSTRUCTION LOAD. FORM DECK SHALL BE SHOP ATTACHED TO FLOOR BEAMS VIA SELF-DRILLING FASTENERS, WELDING OR POWER ACTUATED FASTENERS. WELDING SHALL NOT BE USED ON PAINTED OR GALVANIZED BRIDGES. THE LONGITUDINAL SHEET LAPS SHALL BE ATTACHED WITH SELF-DRILLING SELF-TAPPING FASTENERS AT 36-INCH MAXIMUM SPACING. THE ATTACHMENT OF THE FORM DECK TO THE FLOOR BEAMS IS ONLY NECESSARY TO KEEP THE FORM DECK IN PLACE DURING TRANSPORTATION AND DURING THE CONCRETE PLACEMENT. THE FORM DECK IS NOT TO BE USED FOR DIAPHRAGM ACTION OR COMPOSITE ACTION AND PROVIDES NO STRUCTURAL BENEFIT TO THE TRUSS OR THE DECK AFTER THE CONCRETE IS SET. METAL FORM DECK PANELS SHALL BE OF A LENGTH TO SPAN A MINIMUM OF TWO BAYS OF THE TRUSS SUPPORTS. THE TOP OF DECK TO BOTTOM OF FORM DECK SHALL BE AS REQUIRED TO SUPPORT THE ANTICIPATED LOADS BUT SHALL NOT BE LESS THAN 5".

THE CONCRETE DECK SHALL BE DESIGNED TO SPAN LONGITUDINALLY FROM FLOOR BEAM TO FLOOR BEAM AND TO SUPPORT THE LOADS SPECIFIED IN SECTION 5.0 OF THESE SPECIFICATIONS.

A DISTRIBUTION WIDTH OF DECK IS ALLOWED, TO SUPPORT THE ANTICIPATED VEHICLE WHEEL LOADS. THIS DISTRIBUTION WIDTH (E IN FEET) SHALL BE THE NARROWER OF THE FOLLOWING:

* $E = 4 + .06S$
  - WHERE S IS THE FLOOR BEAM SPACING MINUS ONE-HALF OF THE FLOOR BEAM WIDTH.
* ONE-HALF OF THE TOTAL DRIVING WIDTH OF THE BRIDGE
* 0.75 TIMES THE LATERAL WHEEL SPACING OF THE VEHICLE.
* $0.6S + WHEEL\ WIDTH$
  - WHERE S IS THE FLOOR BEAM SPACING MINUS ONE-HALF OF THE FLOOR BEAM WIDTH.
  - THE WHEEL WIDTH (IN INCHES) IS $2.5 * \sqrt{((0.01*P)/2.5)}$, WHERE P IS THE WHEEL LOAD IN POUNDS

REINFORCING STEEL SHALL BE ASTM A615 GRADE 60 EPOXY COATED BARS. ALL BAR BENDS, ANCHORAGE AND SPLICES SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATIONS. TOP REINFORCING SHALL HAVE A MINIMUM CLEARANCE OF 2" TO THE TOP OF DECK.

BRIDGE MANUFACTURER SHALL DESIGNATE THE ESTIMATED SLAB THICKNESS AND REINFORCING REQUIREMENTS AT TIME OF QUOTATION. THESE ESTIMATES ARE TO BE USED FOR QUOTING PURPOSES ONLY. ACTUAL QUANTITIES MAY VARY DURING THE FINAL DESIGN PROCESS, WITH COSTS VARIANCES DUE TO ANY CHANGES TO THE QUANTITIES BEING THE SOLE RESPONSIBILITY OF THE CONTRACTOR. CONTRACTOR SHALL SUPPLY ALL CONCRETE AND REINFORCING MATERIALS.

8.0 MATERIALS OF CONSTRUCTION

8.1 STRUCTURAL STEEL

ALL MEMBERS OF THE TRUSS AND DECK SUPPORT SYSTEM SHALL BE FABRICATED FROM SQUARE OR RECTANGULAR HOLLOW STRUCTURAL SHAPES (HSS), WITH THE EXCEPTION THAT FLOOR BEAMS MAY BE WIDE FLANGE SHAPES. ALL OPEN ENDS OF END POSTS AND FLOOR SUPPORT BEAMS SHALL BE CAPPED. DRAIN HOLES SHALL BE PROVIDED FOR ALL SECTIONS AT THE LOW POINT OF THE MEMBER THAT MAY BECOME FILLED WITH WATER.

ALL BRIDGES SHALL BE FABRICATED USING A847 FOR HSS SECTIONS AND A588 FOR STRUCTURAL SHAPES AND PLATES.

MINIMUM NOMINAL THICKNESS OF PRIMARY HOLLOW STRUCTURAL SHAPES SHALL BE 1/4". ROLLED SHAPES SHALL HAVE A MINIMUM THICKNESS OF 1/4".

8.2 FASTENERS

STRUCTURAL BOLTS USED TO FIELD SPLICE OR CONNECT ALL MAIN MEMBERS SHALL BE ASTM F3125 GRADE A325. THE NUTS FOR THESE STRUCTURAL BOLTS SHALL BE ASTM A563. THE BRIDGE MANUFACTURER SHALL DETERMINE THE FINISH OF THE STRUCTURAL BOLTS. THEY WILL BE EITHER TYPE 3 (WEATHERING) OR TYPE 1 (HOT-DIPPED OR MECHANICALLY GALVANIZED) AS SPECIFIED BY THE BRIDGE MANUFACTURER.

SELF-DRILLING FASTENERS FOR ATTACHMENT OF THE FORM DECKING SHALL BE #14 X 1" ZINC PLATED HEX WASHER HEAD TEK SCREWS.

POWER ACTUATED FASTENERS SHALL BE HILTI SHEET METAL NAIL X-ENP-19 FASTENER.

OTHER MISCELLANEOUS FASTENERS SHALL BE ASTM A307 ZINC PLATED OR GALVANIZED, AS DETERMINED BY THE BRIDGE MANUFACTURER.

9.0 FINISH

FOR CORROSION RESISTANT HIGH-STRENGTH LOW-ALLOY (WEATHERING) STEEL NO SURFACE FINISH TREATMENT IS NECESSARY. ALL EXPOSED SURFACES OF STRUCTURAL STEEL TO BE CLEANED IN ACCORDANCE WITH STEEL STRUCTURES PAINTING COUNCIL SURFACE PREPARATION SPECIFICATIONS NO. 6, SSPC-SP6 COMMERCIAL BLAST CLEANING. EXPOSED SURFACES OF STEEL SHALL BE DEFINED AS THOSE SURFACES SEEN FROM THE DECK OR FROM THE OUTSIDE AND BOTTOM OF THE STRUCTURE. ALL OTHER SURFACES TO HAVE STANDARD MILL FINISH. THE STEEL WILL BE ALLOWED TO FORM A PROTECTIVE WEATHERING PATINA OVER TIME.

10.0 ATTACHMENTS

10.1 PEDESTRIAN RAILS

SAFETY RAIL SYSTEM SHALL BE PLACED ON THE INSIDE OF THE STRUCTURE, SPACED SO AS TO PREVENT A 4" SPHERE FROM PASSING THROUGH THE SIDE TRUSS FOR THE FULL HEIGHT OF THE SIDE TRUSS, OR 48", WHICHEVER IS LESS. THE TOP OF THE TOP CHORD MAY BE CONSIDERED THE TOP OF THE RAIL SYSTEM.

RAIL SYSTEM SHALL CONSIST OF VERTICAL PICKETS IN BETWEEN HORIZONTAL TOP AND BOTTOM RAILS. THE TOP AND BOTTOM HORIZONTAL RAIL SHALL BE HSS 1 X 1 X 1/8 WELDED DIRECTLY TO THE TRUSS VERTICALS. IN BETWEEN THESE RAILS, VERTICAL PICKETS SHALL BE ½" ROUND BAR WELDED TO THE TOP AND BOTTOM RAIL. THE MAXIMUM UNSUPPORTED LENGTH SHALL BE 7'-0" WHEN PLACED ON THE INSIDE OF THE STRUCTURE AND THE VERTICAL SPACING IS GREATER THAN THE MAXIMUM UNSUPPORTED LENGTH, MID-BAY SUPPORTS WILL BE REQUIRED. WHEN THE RAIL SYSTEM IS PLACED ON THE INSIDE OF THE STRUCTURE AND NOT COVERED BY THE END VERTICAL, THE ENDS OF THE HORIZONTAL RAILS NEAR THE END OF THE BRIDGE SHALL BE CAPPED AND GROUND SMOOTH. IF A TOE PLATE IS ALSO SPECIFIED, THEN THE BOTTOM HORIZONTAL RAIL MAY BE MODIFIED TO BE USED AS A STEEL TOE PLATE AS SPECIFIED. IF A RUB RAIL IS ALSO SPECIFIED, THEN THE TOP HORIZONTAL RAIL MAY BE MODIFIED TO BE USED AS A STEEL RUB RAIL AS SPECIFIED.

EACH ELEMENT OF THE PEDESTRIAN RAIL SYSTEM SHALL BE DESIGNED TO THE STANDARDS SET FORTH IN SECTION 13.10 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS - 9TH EDITION FOR COMBINATION RAILINGS

GENERAL NOTES (3)
HAM LMST TO ELSTUN
OVER CLOUGH CREEK

SFN 0

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DESIGNER	CHECKER
MRS	EDA

REVIEWER
BSM 12-20-22

PROJECT ID
113602

SUBSET	TOTAL
4	10

SHEET	TOTAL
P.53	71

HAM-LMST EXTENSION TO ELSTUN PHASE 2

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10.2 BICYCLE RUB RAIL
AN 8-INCH WIDE SMOOTH RUB RAIL SHALL BE INSTALLED ON EACH SIDE OF THE BRIDGE SET TO EXTEND FROM 36 INCHES TO 44 INCHES ABOVE THE DECK.

10.4 EXPANSION JOINT
THE GAP BETWEEN THE END OF THE BRIDGE DECK AND THE BACK WALL OF THE FOUNDATION SYSTEM SHALL BE SIZED TO ACCOMMODATE BRIDGE MOVEMENTS DUE TO THERMAL EXPANSION OF THE BRIDGE OVER THE DESIGN TEMPERATURE RANGE. THE GAPS AT THE PIER AND ABUTMENTS SHALL BE COVERED WITH A STEEL COVER WHICH ATTACHES TO THE BRIDGE AND EXTENDS OVER THE GAP AND ONTO THE ADJOINING DECK OR TOP OF THE FOUNDATION SYSTEM BACK WALL. THE STEEL COVER SHALL HAVE ITS EDGES ROUNDED OR BEVELED AT A 45- DEGREE ANGLE.

11.0 BEARINGS
11.1 BEARING TYPE
BEARING TYPE AND SIZE SHALL BE DESIGNED BY THE BRIDGE MANUFACTURER BASED ON ANTICIPATED LOADS AND MOVEMENTS.

11.2 DESIGN TEMPERATURE RANGE THE DESIGN TEMPERATURE
RANGE WILL BE 150 DEGREES PER ODOT BDM S1003.21 WITH AN ASSUMED ERECTION TEMPERATURE OF 60 DEGREES.

11.3 NON-SHRINK GROUTING
THE BRIDGE WILL BE SUPPLIED WITH A LOWER SETTING PLATE. THIS SETTING PLATE SHALL BE LEVELED AND SHIMMED TO THE PROPER ELEVATION. THE SPACE BETWEEN THE LOWER SURFACE OF THE SETTING PLATE AND THE FOUNDATION SURFACE SHALL BE FILLED WITH A NON-SHRINK GROUT CAPABLE OF ACHIEVING A MINIMUM COMPRESSIVE STRENGTH EQUAL TO OR GREATER THAN THE STRENGTH OF THE FOUNDATION CONCRETE. THE COST OF THE LEVELING, SHIMMING, AND NON-SHRINK GROUT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

12.1 FOUNDATION SYSTEM
FOUNDATION SYSTEM SHALL UTILIZE ABUTMENTS DESIGNED BY THE FOUNDATION ENGINEER IN CONJUNCTION WITH THE BRIDGE BEARING REQUIREMENTS AND DIMENSIONS PROVIDED BY THE BRIDGE MANUFACTURER AND THE SITE-SPECIFIC GEOTECHNICAL INFORMATION PROVIDED BY THE GEOTECHNICAL ENGINEER. ALL ABUTMENT DIMENSIONS AND MATERIALS SHALL BE SHOWN ON THE FINAL CONTRACT PLANS.

12.2 ANCHOR BOLTS
BRIDGE MANUFACTURER SHALL DESIGN THE DIAMETER AND GRADE OF ANCHOR BOLTS, BASED ON THE SHEAR AND TENSILE STRENGTH OF THE ANCHOR BOLT MATERIAL ONLY. ALL DESIGN CONSIDERATIONS REGARDING CONCRETE BREAKOUT STRENGTH IN SHEAR AND TENSION, PULLOUT STRENGTH, CONCRETE SIDE-FACE BLOWOUT STRENGTH, CONCRETE PRY OUT STRENGTH, EMBEDMENT DEPTH, TYPE OF ANCHORAGE OR ANY OTHER CONCRETE FAILURE MODES ARE THE RESPONSIBILITY OF THE FOUNDATION ENGINEER AND SHALL BE SHOWN ON THE FINAL CONTRACT PLANS. ALL ANCHOR BOLTS SHALL BE GALVANIZED. THE FOUNDATION ENGINEER SHALL DETERMINE IF THE ANCHOR BOLTS SHALL BE CAST-IN-PLACE, DRILLED/EPOXY, OR EXPANSION ANCHORS. ANCHOR BOLTS SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR.

13.0 FABRICATION
13.1 WELDING
WELDING PROCEDURES AND WELD QUALIFICATION TEST PROCEDURES SHALL CONFORM TO THE PROVISIONS OF AWS D1.1. FILLER METAL SHALL BE IN ACCORDANCE WITH THE APPLICABLE AWS FILLER METAL SPECIFICATION AND SHALL MATCH THE CORROSION PROPERTIES OF THE BASE METAL.

13.2 WELDERS
WELDERS SHALL BE QUALIFIED FOR EACH PROCESS AND POSITION USED WHILE FABRICATING THE BRIDGE. QUALIFICATION TESTS SHALL BE IN ACCORDANCE WITH AWS D1.1. ALL WELD QUALIFICATIONS AND RECORDS SHALL BE KEPT IN ACCORDANCE WITH THE FABRICATOR□S QUALITY ASSURANCE MANUAL WHICH HAS BEEN APPROVED AND AUDITED BY AISC AS THE BASIS FOR CERTIFICATION.

13.3 SHOP SPLICES
SHOP SPLICES FOR MAIN TRUSS MEMBERS SHALL BE FULL PENETRATION WELDS ALL AROUND THE PERIMETER OF THE MEMBER. THESE SHOP SPLICES SHALL BE PERFORMED USING A FULL PERIMETER BACKING PLATE. AFTER WELDING OF THE SHOP SPLICES, THE WELD SHALL BE GROUND SMOOTH TO MATCH THE PERIMETER OF THE MEMBER. GRINDING THESE WELDS SMOOTH IS REQUIRED AND WILL BE GROUNDS FOR REJECTION OF THE BRIDGE UPON DELIVERY IF NOT COMPLETED.

SHOP SPLICES FOR ALL HORIZONTAL RAIL COMPONENTS TO BE LOCATED AT THE CENTERLINE OF THE TRUSS VERTICALS, EACH END WELDED TO THE TRUSS VERTICAL AND SEAL WELDED TOGETHER. EXPOSED SURFACE OF THE SEAL WELDS AS SEEN FROM THE DECK SHALL BE GROUND SMOOTH.

SHOP SPLICED FOR ALL HORIZONTAL STRINGERS TO BE LOCATED AT THE CENTERLINE OF THE FLOOR BEAMS, EACH END WELDED TO THE FLOOR BEAM AND SEAL WELDED TOGETHER.

13.4 BOLTED SPLICES
FOR SHIPPING PURPOSES, THE BRIDGE MAY BE FABRICATED IN SECTIONS. SECTIONS SHALL BE FIELD ASSEMBLED USING BOLTED CONNECTIONS. NO FIELD WELDING OF MEMBERS SHALL BE ALLOWED.

THE CHORD MEMBERS OF THE BRIDGE SHALL BE BOLTED SUCH THAT AT LEAST TWO FACES OF THE MEMBER ARE BOLTED. THIS IS TO PROVIDE REASONABLE FORCE DISTRIBUTION AROUND THE PERIMETER OF THE MEMBER. BOLTED SPLICES SHALL BE DESIGNED AND FABRICATED SUCH THAT THE HEAD OF THE BOLT AND WASHER ARE THE ONLY ITEM EXPOSED. NO THROUGH-BOLTING OF THE MEMBER IS ALLOWED. THE NUTS OF THE FASTENER CANNOT BE WELDED TO THE INTERNAL SPLICE PLATE AND SHALL BE HELD IN PLATE WITH A NUT CAPTURE SYSTEM PER PATENT US 10,267,345 B2 OR EQUAL.

THE DIAGONALS AND BRACE DIAGONALS SHALL BE BOLTED UTILIZING A THROUGH-BOLT SYSTEM WITH PLATES ON THE EXTERIOR FACES OF THE MEMBERS. AN INTERNAL STIFFENING PLATE IS REQUIRED TO KEEP THE MEMBER FROM CRUSHING DURING THE BOLT TIGHTENING PROCESS.

ALL BOLTED CONNECTIONS ARE CONSIDERED TO BE PRETENSIONED OR SLIP-CRITICAL CONNECTIONS. ALL BOLTS ARE TO BE PRETENSIONED PER THE REQUIREMENTS OF SECTION 8.2 OF THE SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS. RECOMMENDED TIGHTENING METHOD OF ALL STRUCTURAL BOLTS SHALL BE TURN-OF-THE-NUT PRETENSIONING.

14.0 QUALITY CONTROL
14.1 AISC CERTIFICATION
THE BRIDGE SHALL BE FABRICATED IN A SHOP OWNED BY THE BRIDGE MANUFACTURER. THIS FACILITY SHALL HAVE UP TO DATE QUALITY CERTIFICATION BY AISC AS CERTIFIED BRIDGE FABRICATOR - ADVANCED (MAJOR) WITH FRACTURE CRITICAL ENDORSEMENT AND COMPLEX COATING ENDORSEMENT (P1-ENCLOSED OR P2-COVERED).

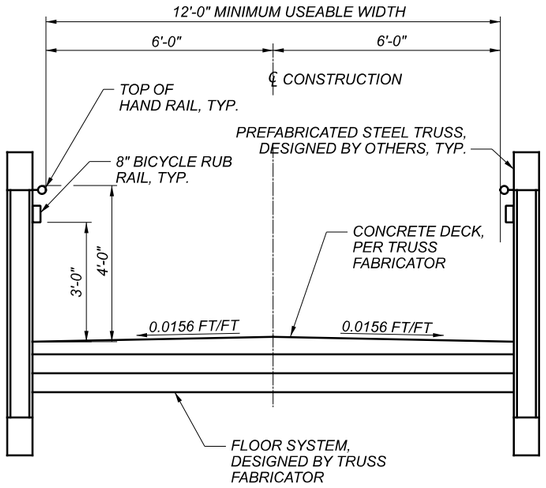
14.2 CERTIFIED WELD INSPECTOR
THE BRIDGE MANUFACTURER SHALL EMPLOY AT LEAST TWO CERTIFIED WELD INSPECTORS (CWI), WITH ENDORSEMENT BY AWS QC1. AT LEAST ONE CWI SHALL BE PRESENT DURING THE COMPLETE FABRICATION OF THE BRIDGE. THE CWI SHALL PROVIDE WRITTEN DOCUMENTATION THAT THE BRIDGE HAS BEEN FABRICATED IN ACCORDANCE WITH THESE SPECIFICATIONS AND THE APPROVED DESIGN DRAWINGS.

14.3 DOCUMENTATION
MATERIAL CERTIFICATIONS SHALL BE AVAILABLE FOR REVIEW FOR ALL MATERIALS WITHIN THE BRIDGE. TRACEABILITY OF HEAT NUMBERS IS REQUIRED FOR ALL STRUCTURAL STEEL.

DOCUMENTATION SHOWING THE PERFORMANCE OF ALL CRITICAL QUALITY CHECKS SHALL ALSO BE MADE AVAILABLE FOR REVIEW BY THE ENGINEER OR OWNER.

14.4 NON-DESTRUCTIVE TESTING
ALL WELDS WITHIN THE STRUCTURE, SHALL BE VISUALLY INSPECTED FOR CONFORMANCE TO SIZE, UNDER CUT, PROFILE AND FINISH.

ALL SHOP SPLICES OF MAIN TRUSS MEMBERS SHALL BE MAGNETIC PARTICLE



TYPICAL SECTION
PREFABRICATED STEEL TRUSS

15.0 DELIVERY AND ERECTION
15.1 DELIVERY
DELIVERY SHALL BE MADE VIA TRUCK TO A LOCATION NEAREST THE SITE WHICH IS ACCESSIBLE TO NORMAL OVER-THE-ROAD EQUIPMENT. ALL TRUCKS DELIVERING BRIDGE MATERIALS WILL NEED TO BE UNLOADED AT THE TIME OF ARRIVAL. IF THE ERECTION CONTRACTOR NEEDS SPECIAL DELIVERY OR DELIVERY IS RESTRICTED, THEY SHALL NOTIFY THE BRIDGE MANUFACTURER PRIOR TO BID DATE. THIS INCLUDES SITE ISSUES WHICH MAY PREVENT OVER-THE-ROAD EQUIPMENT FROM ACCESSING THE SITE. STEERABLE DOLLIES ARE NOT USED IN THE COST PROVIDED BY THE BRIDGE MANUFACTURER. DETERMINING THE LENGTH OF BRIDGE SECTION WHICH CAN BE DELIVERED IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE COMMUNICATED TO THE BRIDGE MANUFACTURER PRIOR TO THE BID DATE.

15.2 INSTALLATION & LIFTING PROCEDURES.
THE BRIDGE MANUFACTURER WILL PROVIDE STANDARD TYPICAL WRITTEN PROCEDURES FOR LIFTING AND SPLICING THE BRIDGE. ALL ACTUAL MEANS, METHODS, EQUIPMENT AND SEQUENCE OF ERECTION USED ARE THE RESPONSIBILITY OF THE CONTRACTOR.

16.0 WARRANTY
THE BRIDGE MANUFACTURER SHALL WARRANT, AT THE TIME OF DELIVERY, THAT IT HAS CONVEYED GOOD TITLE TO ITS STEEL STRUCTURE, FREE OF LIENS AND ENCUMBRANCES CREATED BY THE BRIDGE MANUFACTURER, AND THAT ITS STEEL STRUCTURE IS FREE OF DEFECTS IN DESIGN, MATERIAL AND WORKMANSHIP. THIS WARRANTY SHALL BE VALID FOR A PERIOD OF ONE (1) YEAR FROM THE EARLIER DATE OF DELIVERY OR 60 DAYS AFTER FINAL FABRICATION IS COMPLETE. PAINT, GALVANIZING AND OTHER SPECIAL COATINGS, IF WARRANTED, SHALL BE WARRANTED BY THE COATING MANUFACTURER IN ACCORDANCE WITH THEIR WARRANTY PROVISIONS AND ARE NOT COVERED UNDER THE BRIDGE MANUFACTURER'S WARRANTY.

THIS WARRANTY SHALL NOT COVER DEFECTS IN THE STEEL STRUCTURE CAUSED BY ABUSE, MISUSE, OVERLOADING, ACCIDENT, IMPROPER INSTALLATION, MAINTENANCE, ALTERATION, OR ANY OTHER CAUSE NOT EXPRESSLY WARRANTED. THIS WARRANTY SHALL NOT COVER DAMAGE RESULTING FROM OR RELATING TO THE USE OF ANY KIND OF DE-ICING MATERIAL. THIS WARRANTY SHALL BE VOID UNLESS OWNER'S RECORDS ARE SUPPLIED THAT SHOW COMPLIANCE WITH THE MINIMUM GUIDELINES SPECIFIED IN THE IN THE BRIDGE MANUFACTURER'S INSPECTION AND MAINTENANCE PROCEDURES.

REPAIR, REPLACEMENT, OR ADJUSTMENT, IN BRIDGE MANUFACTURER'S SOLE DISCRETION, SHALL BE THE EXCLUSIVE REMEDY FOR ANY DEFECTS UNDER THIS WARRANTY. THIS WARRANTY SHALL EXCLUDE LIABILITY FOR ANY INDIRECT, CONSEQUENTIAL, OR INCIDENTAL DAMAGES.

17.0 PAYMENT
ITEM 530, SPECIAL - STRUCTURE, MISC.: PREFABRICATED BRIDGE, WILL BE PAID FOR AT THE LUMP SUM CONTRACT UNIT PRICE. THIS WORK SHALL INCLUDE ALL MATERIALS, EQUIPMENT AND LABOR NECESSARY TO DESIGN, FURNISH, UNLOAD, ERECT AND INSTALL THE ENTIRE SUPERSTRUCTURE WITH APPURTENANCES (INCLUDING, BUT NOT LIMITED TO: CONCRETE DECK, BEARINGS, RAILINGS AND JOINT PLATES)

GENERAL NOTES (4)
HAM LMST TO ELSTUN
OVER CLOUGH CREEK

SFN 0

DESIGN AGENCY
Stantec
11687 Lebanon Road
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DESIGNER	CHECKER
MRS	EDA

REVIEWER: BSM 12-20-22

PROJECT ID: 113602

SUBSET	TOTAL
5	10

SHEET	TOTAL
P.54	71

HAM-LMST EXTENSION TO ELSTUN PHASE 2

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ESTIMATED QUANTITIES									
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT.	PIERS	SUPER.	GEN.	SHEET NO.
503	11101	LUMP	LS	COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN				LUMP	
503	21300	LUMP	LS	UNCLASSIFIED EXCAVATION				LUMP	
505	11100	LUMP	LS	PILE DRIVING EQUIPMENT MOBILIZATION				LUMP	2
507	00100	880	FT	STEEL PILES HP10X42, FURNISHED	880				2
507	00150	800	FT	STEEL PILES HP10X42, DRIVEN	800				2
509	10000	9767	LB	EPOXY COATED REINFORCING STEEL	5745	4022			10
511	42012	69	CY	CLASS QC1 CONCRETE WITH QC/QA, PIER ABOVE FOOTINGS		69			9
511	43512	74	CY	CLASS QC1 CONCRETE WITH QC/QA, ABUTMENT INCLUDING FOOTING	74				8
512	10100	171	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	130	41			8/9
518	20000	31	SY	PREFABRICATED GEOCOMPOSITE DRAIN	31				8
518	21200	11	CY	POROUS BACKFILL WITH GEOTEXTILE FABRIC	11				8
518	40000	62	FT	6" PERFORATED CORRUGATED PLASTIC PIPE	62				8
518	40010	80	FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS	80				8
524	94804	11	FT	DRILLED SHAFTS, 42" DIAMETER, INTO BEDROCK		11			9
524	94902	52	FT	DRILLED SHAFTS, 48" DIAMETER, ABOVE BEDROCK		52			9
SPECIAL	53000200	LUMP	LS	STRUCTURE, MISC.: PREFABRICATED BRIDGE			LUMP		1
601	32004	1285	CY	ROCK CHANNEL PROTECTION, TYPE A WITH GEOTEXTILE FABRIC				1285	1
894	10000	2	EACH	THERMAL INTEGRITY PROFILING (TIP) TEST		2			2

ESTIMATED QUANTITIES
HAM LMST TO ELSTUN
OVER CLOUGH CREEK

HAM-LMST EXTENSION TO ELSTUN PHASE 2

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SFN
0

DESIGN AGENCY

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MRS	EDA

REVIEWER
BSM 12-20-22

PROJECT ID
113602

SUBSET	TOTAL
6	10

SHEET	TOTAL
P.55	71

PLAN

2 — *DRILLED SHAFT LOCATION AND NUMBER*

16 — *PILE LOCATION AND NUMBER*

13 — *PILE LOCATION AND NUMBER BATTERED 3:1*

FOUNDATION LAYOUT
HAM LMST TO ELSTUN
OVER CLOUGH CREEK

HAM-LMST EXTENSION TO ELSTUN PHASE 2

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SFN 0

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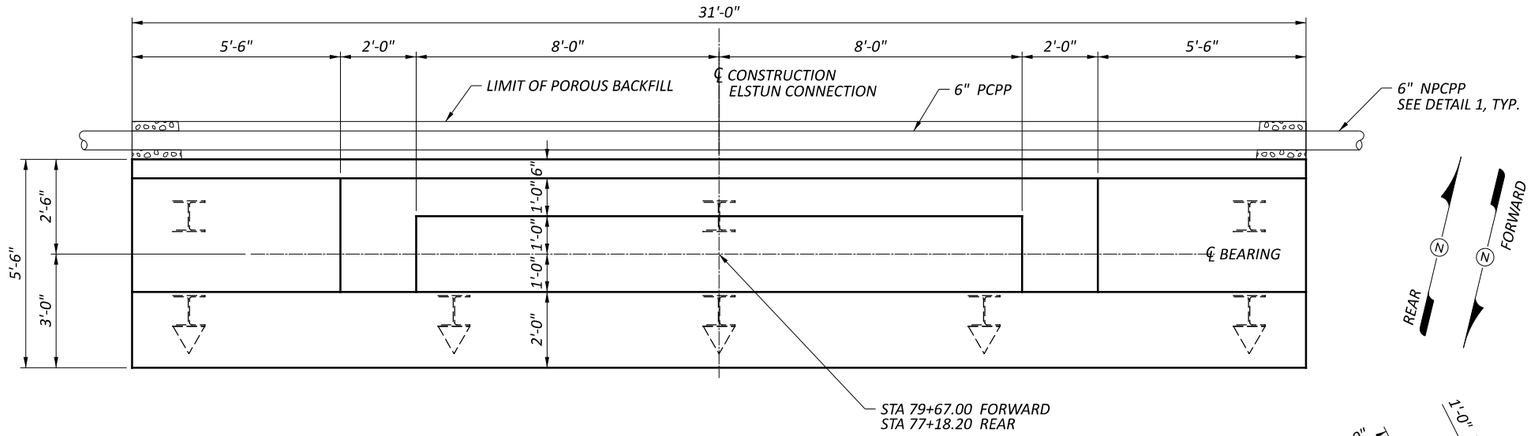
REVIEWER: BSM 12-20-22

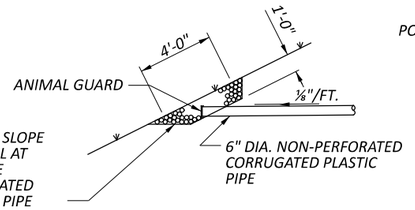
PROJECT ID: 113602

SUBSET	TOTAL
7	10

SHEET	TOTAL
P.56	71

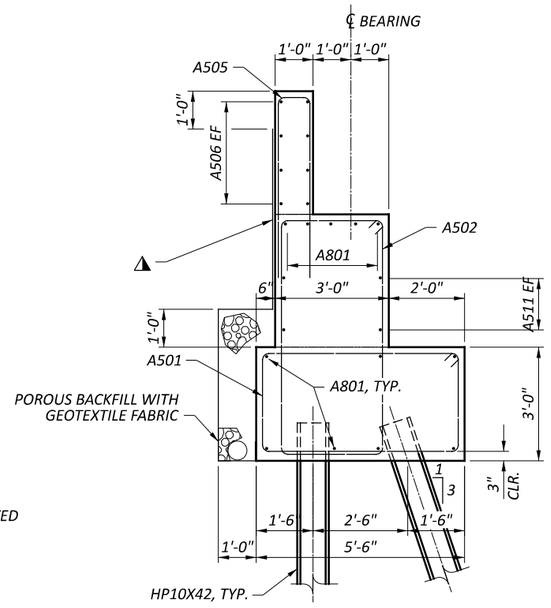


PLAN

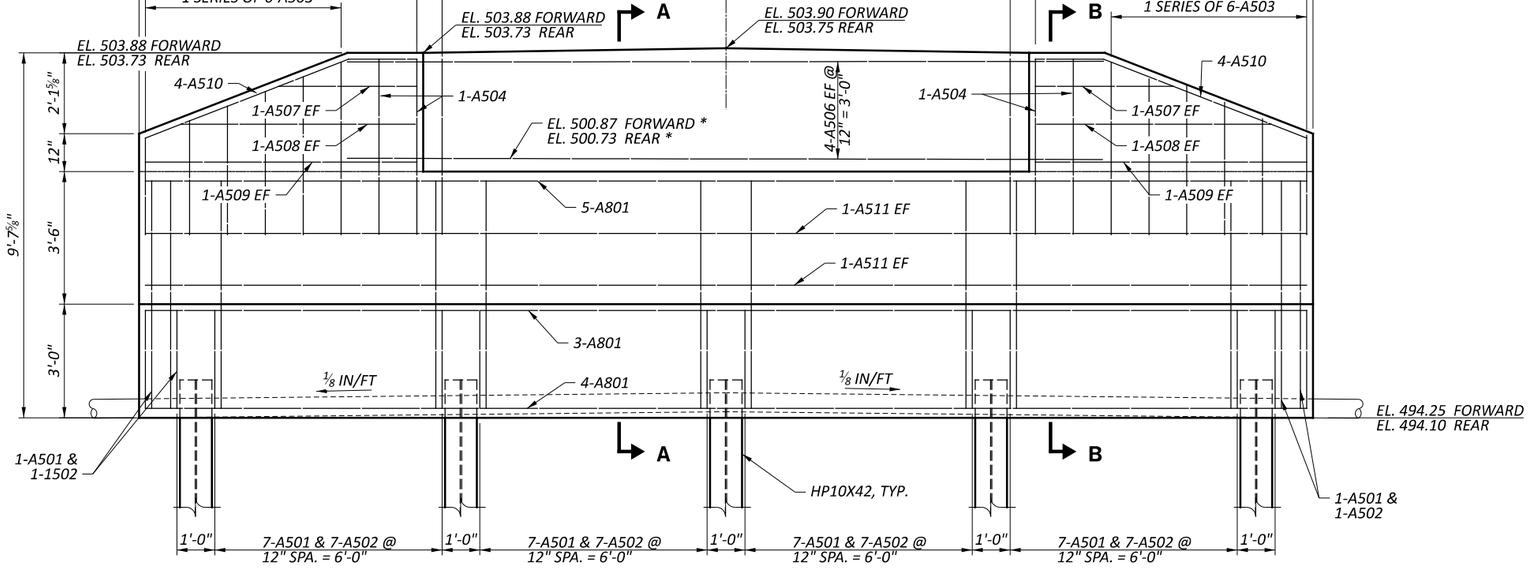


CRUSHED AGGREGATE SLOPE PROTECTION MATERIAL AT END OF PIPE. INCLUDE WITH 6" NON-PERFORATED CORRUGATED PLASTIC PIPE FOR PAYMENT.

DETAIL 1



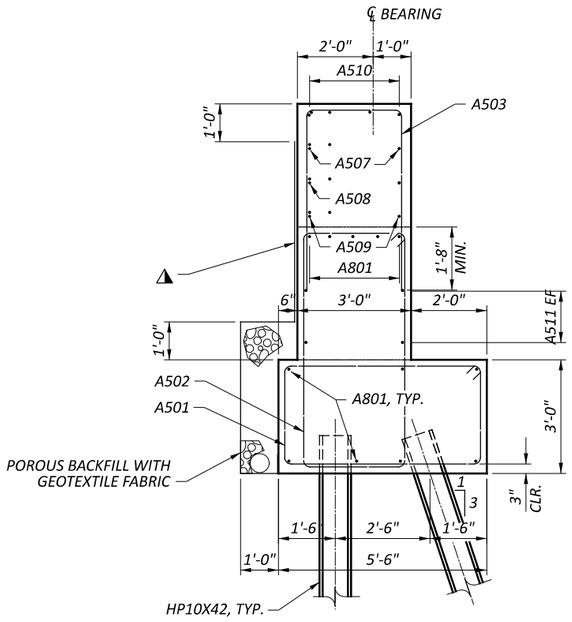
SEC A-A



ELEVATION

* ELEVATION BASED ON 3'-3" DIMENSION FROM TOP OF DECK TO BEAM SEAT. ADJUST AS NEEDED IF THE ACTUAL DIMENSION VARIES FROM THIS.

⚠ PREFABRICATED GEOCOMPOSITE DRAINAGE SYSTEM IN ACCORDANCE WITH C&MS 518.



SEC B-B

ABUTMENT DETAILS
HAM LMST TO ELSTUN
OVER CLOUGH CREEK

SFN	0
DESIGN AGENCY	Stantec 11687 Lebanon Road Cincinnati OH 45241 (513) 842-8200
DESIGNER	MRS
CHECKER	EDA
REVIEWER	BSM 12-20-22
PROJECT ID	113602
SUBSET	8
TOTAL	10
SHEET	P.57
TOTAL	71

HAM-LMST EXTENSION TO ELSTUN PHASE 2

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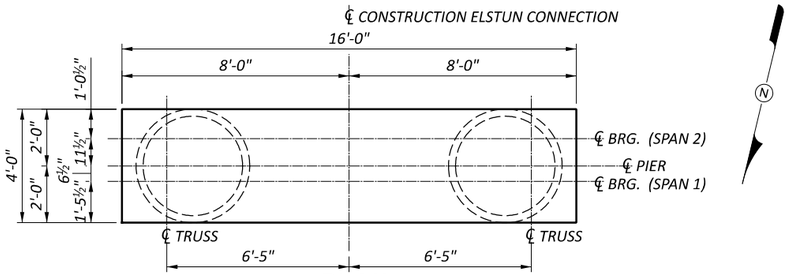
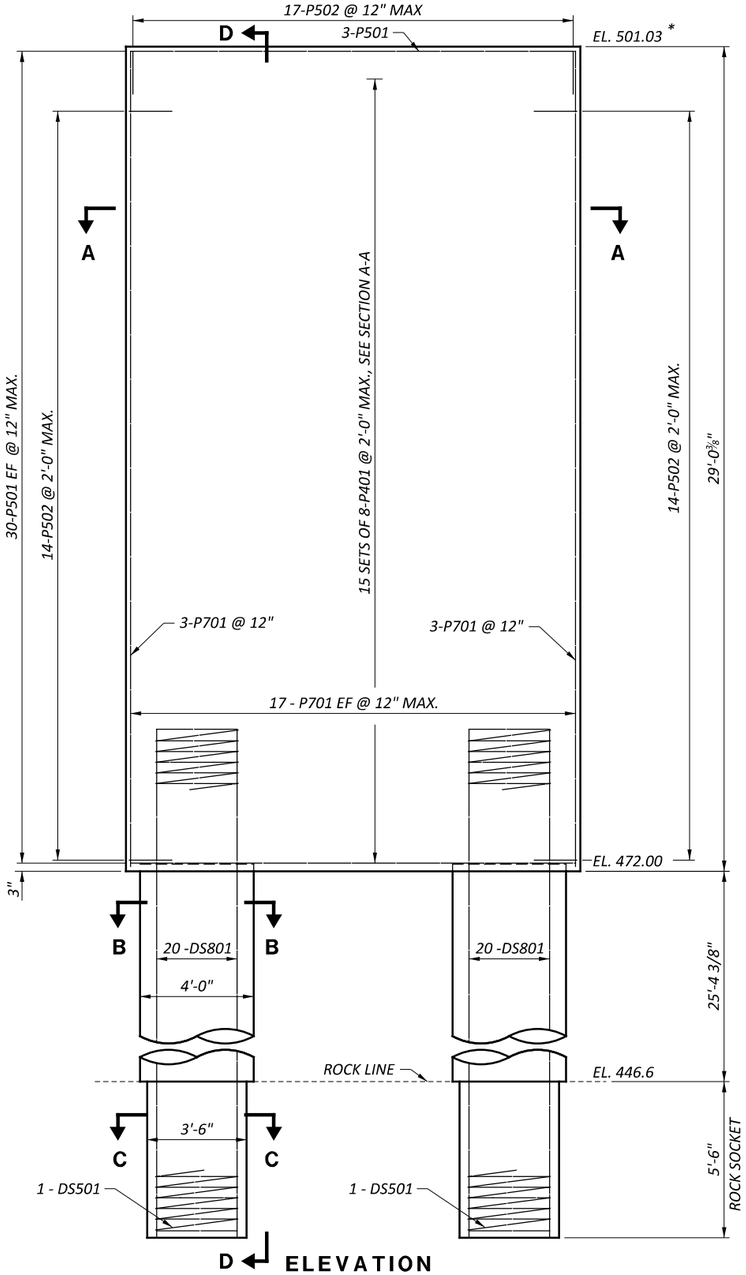
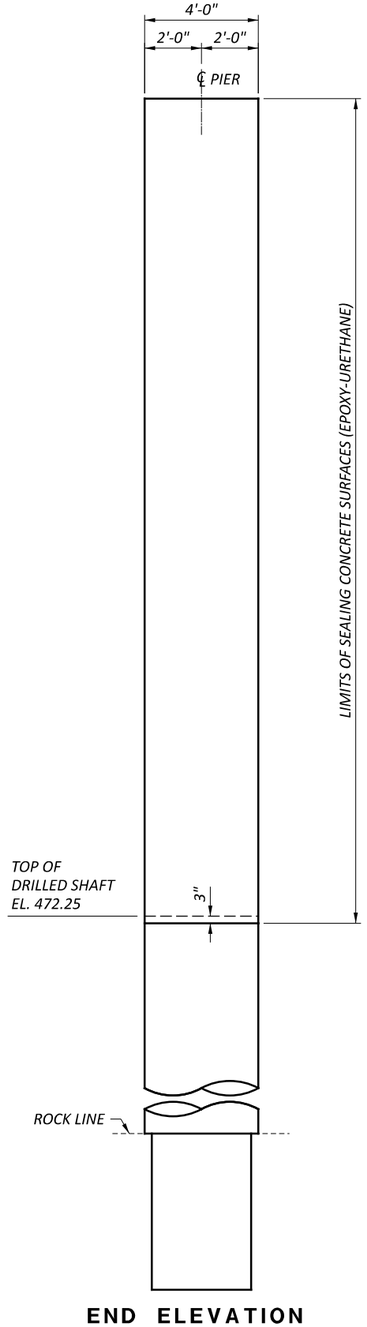


PLAN

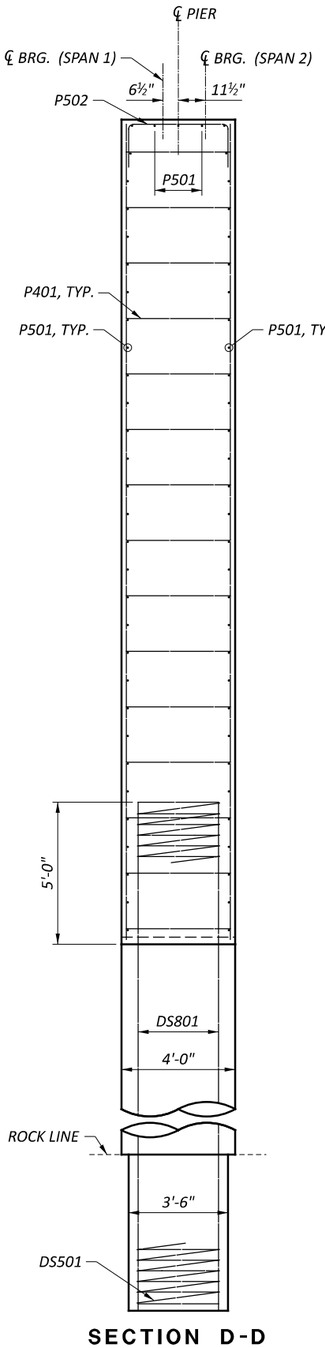


ELEVATION

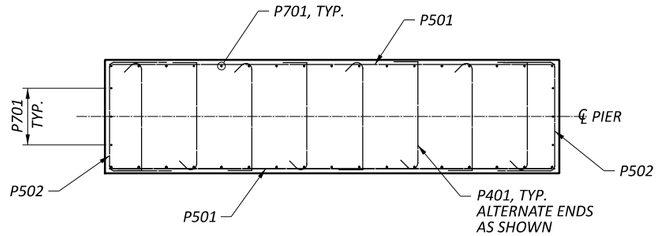
* ELEVATION BASED ON 3'-3" DIMENSION FROM TOP OF DECK TO BEAM SEAT. ADJUST AS NEEDED IF THE ACTUAL DIMENSION VARIES FROM THIS.



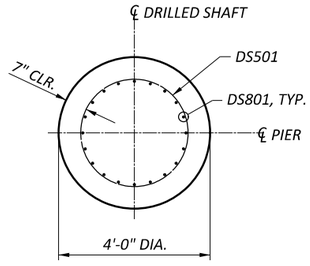
END ELEVATION



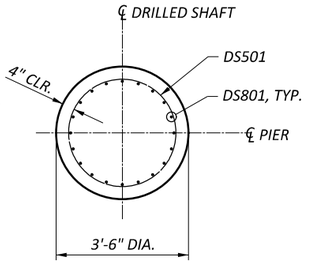
SECTION D-D



SECTION A-A



SECTION B-B



SECTION C-C

PIER DETAILS
HAM LMST TO ELSTUN
OVER CLOUGH CREEK

HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: Sheet PAPERSIZE: 1.41667x0.916667 (ft.) DATE: 10/23/2023 TIME: 1:43:03 PM USER: zmorman
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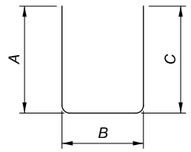
SFN	0
DESIGN AGENCY	Stantec 11687 Lebanon Road Cincinnati OH 45241 (513) 842-8200
DESIGNER / CHECKER	MRS / EDA
REVIEWER	BSM 12-20-22
PROJECT ID	113602
SUBSET / TOTAL	9 / 10
SHEET / TOTAL	P.56 / 71

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS						
					A	B	C	D	E	R	INC
ABUTMENTS											
A801	24	30'-8"	1965	STR							
A501	64	15'-11"	1063	3	5'-2"	2'-7"					
A502	64	17'-11"	1196	3	2'-8"	6'-1"					
	4	7'-7"			2'-7"		2'-7"				
A503	SERIES OF	TO	240	2	TO	2'-8"	TO				9 5/8"
	6	11'-7"			4'-7"		4'-7"				
A504	8	11'-9"	98	2	4'-8"	2'-8"	4'-8"				
A505	32	9'-9"	325	2	4'-8"	8"	4'-8"				
A506	16	20'-0"	334	STR							
A507	8	3'-8"	31	STR							
A508	8	6'-3"	52	STR							
A509	8	7'-2"	60	STR							
A510	16	7'-6"	125	19	1'-9"	5'-4"	2'-1"				
A511	8	30'-8"	256	STR							
		TOTAL	5745								

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS						
					A	B	C	D	E	R	INC
PIER											
P701	40	28'-7"	2337	STR.							
P501	63	15'-8"	1030	STR.							
P502	45	6'-5"	301	2	1'-6"	3'-8"	1'-6"				
P401	120	4'-5"	354	30	3'-8"						
		TOTAL	4022								
DS801	40	35'-11"	3836	STR.							
DS501	2	866'-2"	1807	27	4 1/2"	2'-10"	35'-11"				
ALL DS-BARS ABOVE ARE INCLUDED FOR PAYMENT WITH ITEMS 524,											
DRILLED SHAFTS, 42" DIAMETER, INTO BEDROCK AND											
DRILLED SHAFTS, 48" DIAMETER, ABOVE BEDROCK											



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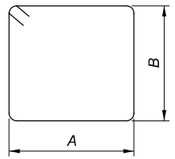

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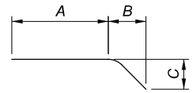

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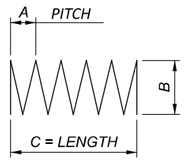

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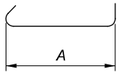

TYPE-30

REINFORCING STEEL LIST
HAM LMST TO ELSTUN
OVER CLOUGH CREEK

HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: Untitled Sheet PAPERSIZE: 17x11 (in.) DATE: 10/23/2023 TIME: 1:43:04 PM USER: zmorman
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SFN 0

DESIGN AGENCY

Stantec
10200 Alliance Road, Suite 300
Cincinnati, OH 45242
(513) 842-8200

DESIGNER	CHECKER
MRS	EDA

REVIEWER: BSM 12-20-22

PROJECT ID: 113602

SUBSET	TOTAL
10	10

SHEET	TOTAL
P.59	71

PROJECT DESCRIPTION

CONSTRUCTION OF BRIDGE TO CARRY THE LITTLE MIAMI SCENIC TRAIL (LMST) OVER CLOUGH CREEK IMMEDIATELY SOUTH OF THE SR-32 AND SR 125/BEECHMONT AVENUE INTERCHANGE WITHIN THE CITY OF CINCINNATI, HAMILTON COUNTY, OHIO.

HISTORIC RECORDS

THE FOLLOWING REPORT/PLANS WERE AVAILABLE FOR REVIEW AND EVALUATION FOR THIS PROJECT:

PROJECT BORING LOGS, AND STRUCTURAL FOUNDATION INVESTIGATION SHEETS FOR PROJECT HAM-125-1.50, DATED OCTOBER 22, 1982.

HISTORICAL SOIL BORINGS ASSOCIATED WITH THE ABOVE PLANS WERE REVIEWED, HOWEVER, THEY WERE NOT UTILIZED FOR OUR ANALYSIS, AND THEREFORE, ARE NOT REFERENCED WITHIN THESE SHEETS.

GEOLOGY

THE PROJECT SITE IS LOCATED WITHIN THE OUTER BLUEGRASS PHYSIOGRAPHIC REGION, PART OF THE BLUEGRASS SECTION. THIS IS AN AREA OF MODERATELY HIGH RELIEF, DISSECTED PLATEAU OF CARBONATE ROCKS WITH CAVES AND OTHER KARST FEATURES TO THE EAST AND THIN, EARLY DRIFT CAPS AND NARROW RIDGES TO THE WEST. THE GEOLOGY WITHIN THIS REGION CONSISTS OF ODOVICIAN- AND SILURIAN-AGE DOLOMITES, LIMESTONES, AND CALCAREOUS SHALES WITH THE PRESENCE OF SILT-LOAM COLLUVIUM AND THIN PRE-WISCONSINAN DRIFT ON RIDGES IN THE WEST.

RECONNAISSANCE

A FIELD RECONNAISSANCE VISIT FOR THE OVERALL PROJECT AREA WAS CONDUCTED ON JUNE 10, 2022.

NO GEOHAZARDS WERE OBSERVED WITHIN THE IMMEDIATE VICINITY OF THE BRIDGE SITE. LAND USE OF THE PROJECT AREA GENERALLY CONSISTS OF A COMBINATION OF WOODLAND AS WELL AS TREE-CLEARED GRASS LANDS CONTAINING HIGH VOLTAGE ELECTRICAL LINES AND ASSOCIATED ELECTRIC POLES. LAND USES OF THE AREAS SURROUNDING THE PROJECT ARE IDENTIFIED AS: 1) WOODLAND; 2) COMMERCIAL PROPERTIES; AND, 3) RESIDENTIAL PROPERTIES.

IN GENERAL, THE LAND LOCATED ALONG THE PROPOSED LMST EXTENSION AND BRIDGE SITE CONSISTED OF PROPERTY THAT WAS EITHER A UTILITY EASEMENT THAT IS TREE-CLEARED GRASSLAND OR MODERATELY VEGETATED WOODLANDS. THE WOODLAND IS GENERALLY LOCATED TO BOTH THE EAST AND WEST OF THE REFERENCED UTILITY EASEMENT. WITH RESPECT TO TOPOGRAPHY, THE PROPERTY APPEARS TO GRADUALLY SLOPE DOWNWARD TOWARDS CLOUGH CREEK FROM BOTH THE NORTH AND SOUTH. ALTHOUGH THE REFENCED AREA APPEARED TO DRAIN TOWARDS CLOUGH CREEK, STANDING SURFACE WATER WAS OBSERVED THROUGHOUT THE PROJECT AREA PARTICULARLY ON THE SOUTH SIDE OF CLOUGH CREEK. MARKERS FOR WHAT APPEARED TO BE A LARGE GAS MAIN WERE OBSERVED JUST WEST OF THE PROJECT AREA WHILE A DRAINAGE DITCH WAS OBSERVED TO RUN THROUGH THE SITE STARTING AT AN EXISTING CULVERT LOCATED NEAR THE BASE OF THE SR 32 AND SR 125 INTERCHANGE RAMP EMBANKMENT SLOPE AND EXTENDING SOUTHWEST TO CLOUGH CREEK. SOME MINOR EROSION OF THE BOTH THE DRAINAGE DITCH AND BANKS OF CLOUGH CREEK WERE OBSERVED. IT WAS ALSO NOTED THAT A LARGE CONCRETE STRUCTURE WAS OBSERVED ALONG THE CLOUGH CREEK BANK, NEAR THE SOUTHWEST PORTION OF THE PROJECT SITE.

IN GENERAL, THE EXISTING SR-32 SOUTHBOUND TO SR-125 EASTBOUND RAMP PAVEMENT WAS OBSERVED TO BE IN GOOD CONDITION WITH SOME SIGNS OF WEATHERING AND SURFACE WEAR. MODERATE SEVERITY LONGITUDINAL CRACKING WAS COMMON ALONG THIS RAMP AS WELL AS MODERATE SEVERITY RAVELING AND CRACK SEALING DEFICIENCIES. THE INDICATED RAMP IS LOCATED IN THE NORTHEASTERN LIMITS OF THE PROJECT AREA AND SITS ATOP A 2H:1V (2 HORIZONTAL TO 1 VERTICAL (2H:1V) EMBANKMENT SLOPE WITH VEGETATION THAT VARIED FROM HEAVY TO LIGHT. NO APPARENT SIGNS OF INSTABILITY WERE NOTED ALONG THE EXISTING SLOPE DURING OUR SITE VISIT. THE RAMP PAVEMENT IN THIS AREA APPEARED TO BE GENERALLY WELL-DRAINED WITH NO SIGNS OF STANDING WATER OBSERVED DURING OUR RECONNAISSANCE.

SUBSURFACE EXPLORATION

THE EXPLORATION FOR THE BRIDGE WAS CONDUCTED BY NEAS BETWEEN JULY 6, 2022 AND AUGUST 11, 2022 AND INCLUDED 3 BORINGS DRILLED TO DEPTHS BETWEEN 33.3 AND 41.0 FT BGS

BORINGS WERE DRILLED USING A CME 55X TRACK-MOUNTED DRILLING RIG UTILIZING 3.25-INCH DIAMETER HOLLOW STEM AUGERS AND NQ2 CORING EQUIPMENT. SOIL SAMPLES WERE GENERALLY RECOVERED USING A SPLIT SPOON SAMPLER (AASHTO T-206) AT INTERVALS OF 2.5-FT TO DEPTHS BETWEEN 25 AND 35 FT BGS AND AT 5-FT INTERVALS THEREAFTER UNTIL REFUSAL WAS ENCOUNTERED. CONTINUOUS SAMPLING WAS PERFORMED WITHIN BORING B-003-0-20 AT DEPTHS ESTIMATED TO BE REPRESENTATIVE OF EXISTING STREAMBED SOILS FOR FURTHER GRAIN-SIZE TESTING. STANDARD PENETRATION TESTS (SPT) WERE CONDUCTED USING CME AUTO HAMMERS THAT HAVE BEEN CALIBRATED TO BE 79% EFFICIENT WITH THE MOST RECENT CALIBRATION DATE OF 01/24/22. WHEN BEDROCK WAS ENCOUNTERED THE SAMPLES WERE COLLECTED IN 10.0-FT RUNS USING NQ2, TRIPLE TUBE, CORE BARREL, WITH WATER AS THE CIRCULATING FLUID.

LEGEND

DESCRIPTION	ODOT CLASS	CLASSIFIED MECH./VISUAL	
GRAVEL AND/OR STONE FRAGMENTS	A-1-a	0	2
GRAVEL AND/OR STONE FRAGMENTS WITH SAND	A-1-b	3	6
GRAVEL AND/OR STONE FRAGMENTS W/ SAND & SILT	A-2-4	1	3
COARSE AND FINE SAND	A-3a	0	2
SANDY SILT	A-4a	0	1
SILT AND CLAY	A-6a	7	6
SILTY CLAY	A-6b	5	9
CLAY	A-7-6	2	4
	TOTAL	18	33
INTERBEDDED SHALE AND LIMESTONE	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/D"	NUMBER OF BLOWS FOR STANDARD PENETRATION TEST (SPT): X= NUMBER OF BLOWS FOR FIRST 6 INCHES. Y/D"= NUMBER OF BLOWS (UNCORRECTED) FOR D INCHES OF PENETRATION AT REFUSAL.
W	INDICATES FREE WATER ELEVATION.
TR	INDICATES TOP OF ROCK ELEVATION.
SS	INDICATES A SPLIT SPOON SAMPLE.
NP	INDICATES A NON-PLASTIC SAMPLE.

EXPLORATION FINDINGS

OVERBURDEN SOIL

AT THE PROPOSED BRIDGE SITE, THREE DIFFERENT MATERIALS WERE ENCOUNTERED BELOW THE EXISTING PAVEMENT SECTION OR GROUND SURFACE. IN GENERAL, THE THREE DIFFERENT OVERBURDEN MATERIALS CONSISTED OF EITHER: 1) EMBANKMENT "MAN-MADE" FILL SOILS; 2) NATURAL ALLUVIAL SOILS; OR, 3) NATURAL INTERLAYERED MEDIUM-FINE TO VERY-FINE GRAINED MATERIAL.

FILL SOILS WERE ENCOUNTERED IN ONE OF THE FOUR BORINGS (B-001-0-20) PERFORMED FOR THE PROJECT WITH THESE SOILS BEING ENCOUNTERED AT THE GROUND SURFACE AND EXTENDED TO A DEPTH OF 22 FT BGS (APPROXIMATE ELEVATION 477.5 FT AMSL). BASED ON LABORATORY TESTING RESULTS AND A VISUAL REVIEW OF THE SOIL SAMPLES OBTAINED, THE FILL AT THE SITE IS COMPRISED OF FINE-GRAINED COHESIVE MATERIAL AND IS CLASSIFIED ON THE BORING LOGS AS SILTY CLAY (A-6b). WITH RESPECT TO THE SOIL STRENGTH OF THE FILL, THESE SOILS CAN BE DESCRIBED AS HAVING A CONSISTENCY OF MEDIUM STIFF TO HARD CORRELATING TO CONVERTED SPT-N VALUES (N_{60}) BETWEEN 7 AND 29 BPF AND UNCONFINED COMPRESSIVE STRENGTHS BETWEEN APPROXIMATELY 2.5 AND 4.5 TONS PER SQUARE FOOT (TSF). NATURAL MOISTURE CONTENTS OF THE FILL RANGED FROM 14 TO 21 PERCENT. BASED ON ATTERBERG LIMITS TESTS PERFORMED ON REPRESENTATIVE SAMPLES OF THE COHESIVE FILL MATERIAL, THE LIQUID AND PLASTIC LIMITS RANGED FROM 35 TO 39 PERCENT AND FROM 19 TO 21 PERCENT, RESPECTIVELY.

LOCATION MAP

SCALE IN MILES

0 1 2 3 4

N

PARTICLE SIZE DEFINITIONS

12"	3"	2.0 mm	0.42 mm	0.074 mm	0.005 mm
BOULDERS	COBBLES	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY
		No. 10 SIEVE	No. 40 SIEVE	No. 200 SIEVE		

INDEX OF SHEETS					
EXPLORATION NOTES (CONT.), SHEET 2.					
LOCATION FROM STA.	TO STA.	PLAN	PROFILE	CROSS SECTION	STRUCTURE INCLUDED: BRIDGE NO.	STRUCTURE INCLUDED: SFN
LITTLE MIAMI SCENIC TRAIL BEGIN	END	3	3	-	HAM-LMST TO ELSTUN	-
BORING LOGS, ROCK CORE PHOTOS, ROCK/SOIL UNC. REPORTS, CONSOLIDATION REPORT, SHEETS 4-12.						

RECON. - EB 06/10/22

DRILLING - JH 07/06/22 - 08/11/22

DRAWN - MWJ 12/12/22 - 12/15/22

REVIEWED - BPA 12/15/22

GEOTECHNICAL PROFILE - BRIDGE
BRIDGE HAM-LMST TO ELSTUN

HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: Sheet_SurvFt PAPERSIZE: 17x11 (in.) DATE: 12/15/2022 TIME: 12:06:08 PM USER: mjasiewicz
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DESIGN AGENCY
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Nuhoon Engineering & Architectural Services Inc
2800 CORPORATE EXCHANGE DR, SUITE 240
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TEL:614.714.0299
WWW.NEASINC.COM

DESIGNER MWJ

REVIEWER BPA 12/15/22

PROJECT ID 113602

SUBSET 1 TOTAL 12

SHEET P.60 TOTAL 71

EXPLORATION FINDINGS

OVERBURDEN SOIL

THE STRATA ENCOUNTERED EITHER BELOW THE FILLS SOILS (B-001-0-20) OR AT THE GROUND SURFACE (B-002-0-20, B 003-0-20 AND B-004-0-20) CONSISTED OF NATURAL ALLUVIAL SOILS COMPRISED OF AN UPPER FINE-GRAINED COHESIVE STRATUM FOLLOWED BY A LOWER STRATUM OF GRANULAR NON-COHESIVE SOILS. THE COHESIVE ALLUVIAL MATERIAL EXTENDS TO DEPTHS BETWEEN 1.5 AND 36.5 FT BGS (APPROXIMATE ELEVATIONS 468.5 AND 463.0 FT AMSL) FOLLOWED BY THE GRANULAR ALLUVIAL MATERIAL THAT EXTENDS TO DEPTHS BETWEEN 11.3 AND 19.5 FT BGS (APPROXIMATE ELEVATIONS 463.8 AND 458.2 FT AMSL). IT SHOULD BE NOTED, THE COHESIVE ALLUVIAL SOILS EXTENDED TO BOREHOLE TERMINATION DEPTH IN BORING B-001-0-21 AND THEREFORE THE GRANULAR NON-COHESIVE ALLUVIAL SOILS WERE NOT ENCOUNTERED WITHIN THE REFERENCED BORING. BASED ON LABORATORY TESTING RESULTS AND A VISUAL REVIEW OF THE SOIL SAMPLES OBTAINED WITHIN THIS STRATUM, THE UPPER SOILS ARE COMPRISED OF COHESIVE MATERIAL CLASSIFIED ON THE BORING LOGS AS SILT AND CLAY (A-6a), SILTY CLAY (A-6b) AND CLAY (A-7-6) WHILE THE GRANULAR ALLUVIUM IS CLASSIFIED AS STONE FRAGMENTS (A-1-a), GRAVEL AND/OR STONE FRAGMENTS WITH SAND (A-1-b) AND GRAVEL WITH SAND AND SILT (A-2-4). WITH RESPECT TO THE SOIL STRENGTH OF THE FINE-GRAINED ALLUVIUM ENCOUNTERED, THESE SOILS CAN BE DESCRIBED AS HAVING A CONSISTENCY OF MEDIUM STIFF TO HARD CORRELATING TO N_{60} BETWEEN 8 AND 20 BPF AND UNCONFINED COMPRESSIVE STRENGTHS BETWEEN 2.0 AND 4.5 TSF. NATURAL MOISTURE CONTENTS OF THE COHESIVE SOILS RANGED FROM 13 TO 25 PERCENT. BASED ON ATTERBERG LIMITS TESTS PERFORMED ON REPRESENTATIVE SAMPLES OF THE COHESIVE ALLUVIAL MATERIAL, THE LIQUID AND PLASTIC LIMITS RANGED FROM 34 TO 46 PERCENT AND FROM 20 TO 25 PERCENT, RESPECTIVELY. WITH RESPECT TO THE SOIL STRENGTH OF THE GRANULAR ALLUVIUM, THESE SOILS CAN BE DESCRIBED AS HAVING A RELATIVE COMPACTNESS OF VERY LOOSE TO DENSE CORRELATING TO CONVERTED N_{60} VALUES BETWEEN 3 AND 42 BPF. NATURAL MOISTURE CONTENTS OF THE GRANULAR ALLUVIUM RANGED FROM 2 TO 14 PERCENT.

THE SOIL STRATUM ENCOUNTERED IMMEDIATELY BENEATH THE GRANULAR ALLUVIAL SOILS IN THREE OF THE FOUR BORINGS PERFORMED (B-002-0-20, B-003-0-20 AND B-004-0-20) CONSISTED OF NATURAL OVERBURDEN SOILS GENERALLY COMPRISED OF MEDIUM- TO VERY-FINE GRAINED COHESIVE MATERIAL. THESE SOILS EXTENDED TO BEDROCK ENCOUNTERED AT DEPTHS RANGING BETWEEN 23.3 AND 31.0 FT BGS (APPROXIMATE ELEVATIONS 446.7 TO 446.6 FT AMSL) AND ARE CLASSIFIED ON THE BORINGS LOGS AS COHESIVE SANDY SILT (A-4a), SILT AND CLAY (A-6a) AND CLAY (A-7-6). THE EXCEPTION BEING INTERBEDDED LAYERS OF NON-COHESIVE GRANULAR MATERIAL WHICH WAS ENCOUNTERED IN BORINGS B 002-0-20 AND B-003-0-20. THE INTERBEDDED GRANULAR LAYERS RANGED IN THICKNESS FROM 1.8 TO 3.8 FT BGS AND WERE ENCOUNTERED AT DEPTHS BETWEEN 14.5 AND 24.5 FT BGS (APPROXIMATE ELEVATIONS 456.6 AND 450.5 FT AMSL). WITH RESPECT TO THE SOIL STRENGTH OF THE COHESIVE MATERIAL ENCOUNTERED IN THIS STRATUM, THESE SOILS CAN BE DESCRIBED AS HAVING A CONSISTENCY OF MEDIUM STIFF TO HARD CORRELATING TO N_{60} VALUES BETWEEN 5 AND 43 BPF AND UNCONFINED COMPRESSIVE STRENGTHS BETWEEN 0.5 AND 4.5 TSF. NATURAL MOISTURE CONTENTS OF THE NATURAL COHESIVE SOILS RANGED FROM 9 TO 31 PERCENT. BASED ON ATTERBERG LIMITS TESTS PERFORMED ON REPRESENTATIVE SAMPLES OF THE COHESIVE MATERIAL, THE LIQUID AND PLASTIC LIMITS RANGED FROM 29 TO 42 PERCENT AND FROM 17 TO 21 PERCENT, RESPECTIVELY. THE LAYERS OF GRANULAR MATERIAL ENCOUNTERED WITHIN BORINGS B-002-0-20 AND B-003-0-20 WERE CLASSIFIED ON THE LOGS AS STONE FRAGMENTS WITH SAND AND SILT (A-2-4) AND COARSE AND FINE SAND (A-3A). WITH RESPECT TO THE SOIL STRENGTH, THE GRANULAR MATERIAL CAN BE DESCRIBED AS HAVING A RELATIVE COMPACTNESS OF LOOSE TO DENSE CORRELATING TO CONVERTED N_{60} VALUES BETWEEN 9 AND 37 BPF. NATURAL MOISTURE CONTENTS OF THE GRANULAR LAYERS RANGED FROM 9 TO 19 PERCENT.

GROUNDWATER

GROUNDWATER WAS ENCOUNTERED DURING DRILLING IN THREE OF THE FOUR PROJECT BORINGS PERFORMED AT THE PROPOSED BRIDGE SITE (B-002-0-20, B-003-0-20 AND B-004-0-20) AT DEPTHS RANGING FROM 9.0 TO 17.5 FT BGS (ELEVATIONS 465.1 TO 460.2 FT AMSL).

BEDROCK

BEDROCK WAS ENCOUNTERED IN EACH BORING PERFORMED AT THE PROJECT SITE, WITH THE EXCEPTION OF BORING B 001 0-20. IN GENERAL, BEDROCK WAS ENCOUNTERED AT DEPTHS BETWEEN APPROXIMATELY 23.3 AND 31.0 FEET BGS (APPROXIMATE ELEVATIONS 446.7 AND 446.6 FT AMSL). BEDROCK ENCOUNTERED AT THE PROPOSED BRIDGE SITE CAN GENERALLY CHARACTERIZED AS INTERBEDDED LIMESTONE AND SHALE CONTAINING ¼- TO ½ INCH CLAY SEAMS THROUGHOUT. THE LIMESTONE ENCOUNTERED WITHIN THE PROJECT BORINGS PERFORMED IS DESCRIBED AS UNWEATHERED TO SLIGHTLY WEATHERED WITH A RELATIVE STRENGTH RANGING FROM MODERATELY STRONG TO STRONG. THE INTERBEDDED SHALE ENCOUNTERED WITHIN THE PROJECT BORINGS IS DESCRIBED AS HIGHLY TO SEVERELY WEATHERED WITH A RELATIVE STRENGTH RANGING FROM VERY WEAK TO WEAK. BASED ON THE PROJECT BORINGS PERFORMED AT THE SITE, THE ESTIMATED BEDROCK SURFACE APPEARS TO BE RELATIVELY LEVEL ACROSS THE SITE.

ROCK CORING WAS PERFORMED AT EACH BRIDGE BORING LOCATION AT WHICH BEDROCK WAS ENCOUNTERED ONCE AUGER REFUSAL WAS ENCOUNTERED. RECOVERY OF THE BEDROCK CORE SAMPLES RANGED FROM 90 TO 96 PERCENT WHILE ROCK QUALITY DESIGNATION (RQD) VALUES RANGED FROM 24 TO 33 PERCENT.

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 2022.

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.

D_{50} VALUES			
BORING NO.	SAMPLE NO.	ELEVATION	VALUE
B-003-0-20	SS-1	470.0' - 468.5'	0.130 mm
	SS-2	468.5' - 467.0'	0.530 mm
	SS-3	467.0' - 465.5'	0.380 mm
	SS-4	465.5' - 464.0'	1.488 mm
	SS-5	464.0' - 462.5'	0.886 mm

BEDROCK TEST SUMMARY				
BORING NO.	SAMPLE	DEPTH	QU (PSI)	SDI (%)
B-003-0-20	NQ2-1	23.7' - 24.1'	5634	
	NQ2-1	32.8' - 33.2'	7935	

HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: Sheet_SurvFt PAPERSIZE: 17x11 (in.) DATE: 12/15/2022 TIME: 12:06:11 PM USER: mjasiewicz
P:\OHDOT_v2\WorkSets\113602\400-Engineering\Geotechnical\Sheets\113602_2C002.dgn

GEOTECHNICAL PROFILE - BRIDGE
BRIDGE HAM-LMST TO ELSTUN

DESIGN AGENCY
NEAS
National Engineering & Architectural Services Inc.
2800 CORPORATE EXCHANGE DR, SUITE 240
COLUMBUS, OH, 43231
TEL:614.714.0299
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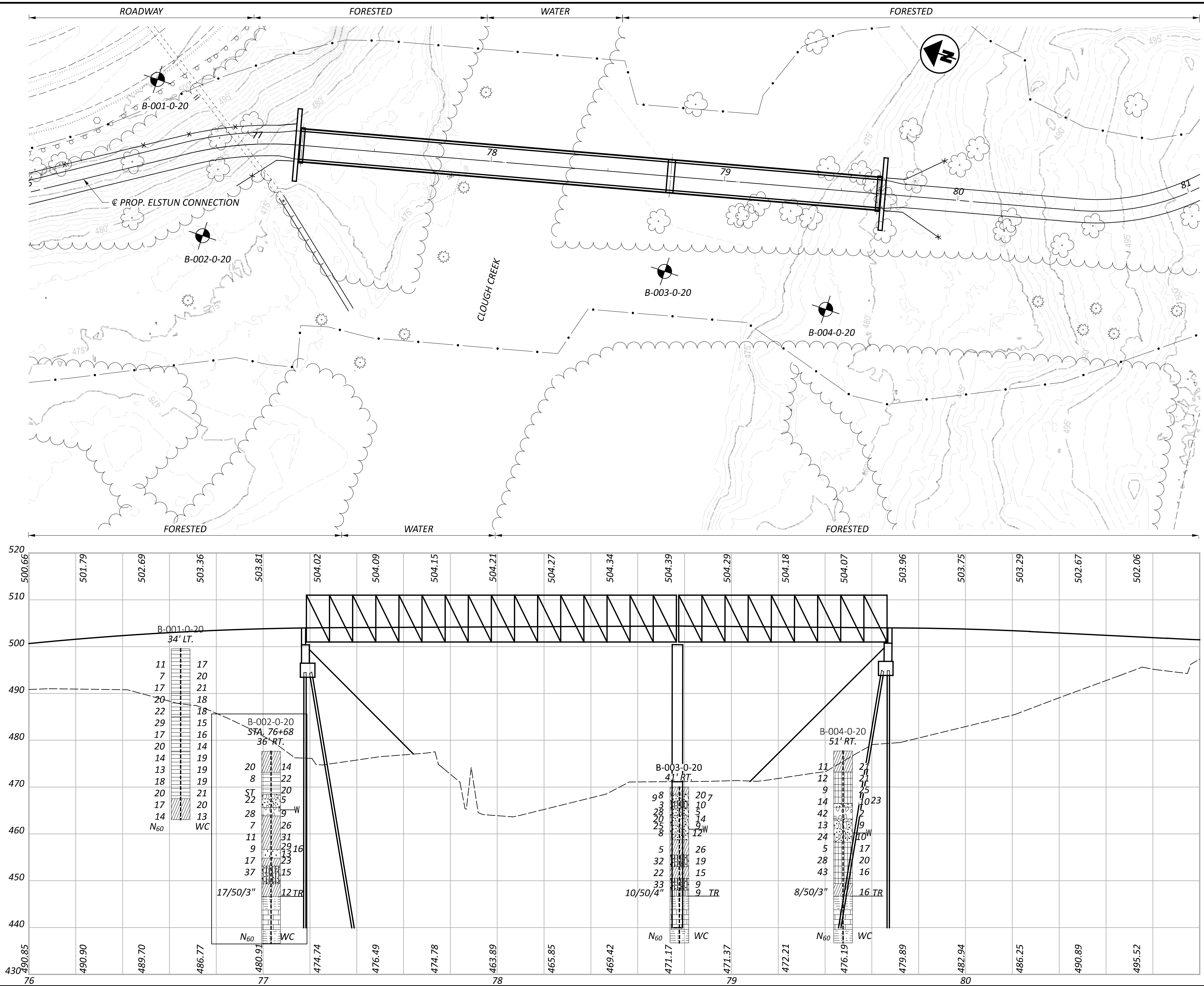
DESIGNER MWJ
REVIEWER BPA 12/15/22
PROJECT ID 113602
SUBSET 2 TOTAL 12
SHEET P.61 TOTAL 71



HORIZONTAL SCALE IN FEET

0 10 20 40

GEOTECHNICAL PROFILE - BRIDGE
BRIDGE HAM-LMST TO ELSTUN

HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: 113602_IP001 PAPERSIZE: 17x11 (in.) DATE: 12/15/2022 TIME: 12:18:26 PM USER: mjasiewicz
P:\OHDOT_v2\WorkSets\113602\400-Engineering\Geotechnical\Sheets\113602_ZP001.dgn

DESIGN AGENCY	NEAS National Engineering & Architectural Services Inc.
	2800 CORPORATE EXCHANGE DR, SUITE 240 COLUMBUS, OH, 43231 TEL:614.714.0299 WWW.NEASINC.COM
DESIGNER	MWJ
REVIEWER	BPA 12/15/22
PROJECT ID	113602
SUBSET 3	TOTAL 12
SHEET P.62	TOTAL 71

HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: Sheet_SurvFt PAPERSIZE: 17x11 (in.) DATE: 12/15/2022 TIME: 12:08:58 PM USER: mjasiewicz
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PROJECT: HAM-LMST EXT	DRILLING FIRM / OPERATOR: NEAS / J. HODGES	DRILL RIG: CME 55X	STATION / OFFSET: 76+65, 34' LT.	EXPLORATION ID B-001-0-20
TYPE: BRIDGE	SAMPLING FIRM / LOGGER: NEAS / J. HODGES	HAMMER: CME AUTOMATIC	ALIGNMENT: ELSTUN CONNECTION	
PID: 113602 SFN:	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 1/24/22	ELEVATION: 499.5 (MSL) EOB: 36.5 ft.	PAGE 1 OF 1
START: 8/11/22 END: 8/11/22	SAMPLING METHOD: SPT	ENERGY RATIO (%): 79	LAT / LONG: 39.106434, -84.400284	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
VERY STIFF, BROWN AND LIGHT BROWN, **SILTY CLAY**, LITTLE SAND, TRACE TO LITTLE GRAVEL, DAMP TO MOIST	499.5																	
		3	2 3 5	11	56	SS-1	3.25	13	7	10	35	35	39	21	18	17	A-6b (10)	
		6	2 3 2	7	39	SS-2	3.00	5	5	13	39	38	39	20	19	20	A-6b (12)	
		9	2 4 9	17	33	SS-3	2.50	-	-	-	-	-	-	-	-	21	A-6b (V)	
	490.0																	
HARD, GRAYISH BROWN, **SILTY CLAY**, TRACE SAND, TRACE GRAVEL, DAMP		12	3 6 9	20	100	SS-4	4.25	-	-	-	-	-	-	-	-	18	A-6b (V)	
		14	3 6 11	22	67	SS-5	4.25	-	-	-	-	-	-	-	-	18	A-6b (V)	
	485.0																	
HARD, GRAYISH BROWN AND BROWN, **SILTY CLAY**, SOME GRAVEL AND STONE FRAGMENTS, SOME SAND, DAMP		16	3 14 8	29	100	SS-6	4.25	24	14	9	30	23	35	19	16	15	A-6b (6)	
		18	5 6 7	17	44	SS-7	4.50	-	-	-	-	-	-	-	-	16	A-6b (V)	
		21	7 7 8	20	28	SS-8	4.25	-	-	-	-	-	-	-	-	14	A-6b (V)	
	477.5																	
HARD, BROWN AND BROWNISH GRAY, **SILTY CLAY**, TRACE TO LITTLE SAND, TRACE GRAVEL, DAMP		23	5 5 6	14	39	SS-9	4.25	-	-	-	-	-	-	-	-	19	A-6b (V)	
		26	3 4 6	13	56	SS-10	4.25	4	6	8	44	38	39	21	18	19	A-6b (11)	
		28	4 6 8	18	28	SS-11	4.25	-	-	-	-	-	-	-	-	19	A-6b (V)	
		31	5 7 8	20	50	SS-12	4.25	-	-	-	-	-	-	-	-	21	A-6b (V)	
	467.5																	
VERY STIFF TO HARD, GRAY, **SILT AND CLAY**, LITTLE SAND, TRACE GRAVEL, DAMP		33	4 6 7	17	44	SS-13	4.25	4	5	10	49	32	35	20	15	20	A-6a (10)	
	463.0	36	4 5 6	14	39	SS-14	4.00	-	-	-	-	-	-	-	-	13	A-6a (V)	
		EOB																

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE DID NOT CAVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PUMPED 50 GAL. BENTONITE GROUT; SHOVELED SOIL CUTTINGS

STANDARD ODOT SOIL BORING LOG (11 X 17) - OH DOT.GDT - 12/15/22 11:49 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\HAM LMST EXT\GINT FILES\HAM-LMST EXT.GPJ

DESIGN AGENCY
NEAS
2800 CORPORATE EXCHANGE DR.
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DESIGNER MWJ
REVIEWER BPA 12/15/22
PROJECT ID 113602
SUBSET 4 TOTAL 12
SHEET P.63 TOTAL 71

GEOTECHNICAL PROFILE - BRIDGE
BRIDGE HAM-LMST TO ELSTUN
BORING LOG B-001-0-20

HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: Sheet_SurvFt PAPERSIZE: 17x11 (in.) DATE: 12/15/2022 TIME: 12:09:05 PM USER: mjasiewicz
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PROJECT: HAM-LMST EXT	DRILLING FIRM / OPERATOR: NEAS / J. HODGES	DRILL RIG: CME 55X	STATION / OFFSET: 76+68, 36' RT.
TYPE: BRIDGE	SAMPLING FIRM / LOGGER: NEAS / J. HODGES	HAMMER: CME AUTOMATIC	ALIGNMENT: ELSTUN CONNECTION
PID: 113602 SFN:	DRILLING METHOD: 3.25" HSA / NQ2	CALIBRATION DATE: 1/24/22	ELEVATION: 477.6 (MSL) EOB: 41.0 ft.
START: 7/7/22 END: 7/8/22	SAMPLING METHOD: SPT / ST / NQ2	ENERGY RATIO (%): 79	LAT / LONG: 39.106323, -84.400483

EXPLORATION ID B-002-0-20 — PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GR	CS	FS	SI	CL	LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
HARD, BROWN, **SILT AND CLAY**, SOME GRAVEL, LITTLE SAND, CONTAINS ROOTS, DAMP	477.6																	
	473.1		3 7 8	20	61	SS-1	4.50	24	11	9	36	20	34	20	14	14	A-6a (6)	
STIFF TO VERY STIFF, BROWN AND BROWNISH GRAY, **SILTY CLAY**, LITTLE SAND, TRACE GRAVEL, CONTAINS IRON STAINING, MOIST TO DAMP			2 3 3	8	100	SS-2	3.25	-	-	-	-	-	-	-	-	22	A-6b (V)	
@7.9' TO 8.4'; Qu = 2271 PSF @ 15.0%	468.4			83	ST-1	2.00	9	6	9	41	35	38	20	18	20	A-6b (11)		
MEDIUM DENSE, BROWN, **GRAVEL AND STONE FRAGMENTS WITH SAND**, TRACE SILT, TRACE CLAY, DAMP	465.6		10 8 9	22	50	SS-3	-	-	-	-	-	-	-	-	-	5	A-1-b (V)	
MEDIUM DENSE, GRAY, **STONE FRAGMENTS**, LITTLE SAND, TRACE SILT, TRACE CLAY, ENCOUNTER WITH COBBLE, MOIST	463.8	W 465.1	4 9 12	28	44	SS-4	-	-	-	-	-	-	-	-	-	9	A-1-a (V)	
SOFT TO STIFF, GRAY, **SILT AND CLAY**, TRACE TO LITTLE SAND, TRACE GRAVEL, MOIST TO WET			1 2 3	7	100	SS-5	1.75	3	2	6	56	33	32	20	12	26	A-6a (9)	
			3 4 4	11	39	SS-6	0.75	-	-	-	-	-	-	-	-	31	A-6a (V)	
	456.6		4 4 3	9	100	SS-7A	0.50	-	-	-	-	-	-	-	-	29	A-6a (V)	
LOOSE TO MEDIUM DENSE, GRAY, **COARSE AND FINE SAND**, SOME GRAVEL, TRACE SILT, TRACE CLAY, WET	454.8					SS-7B	-	-	-	-	-	-	-	-	-	16	A-3a (V)	
						SS-8A	-	-	-	-	-	-	-	-	-	13	A-3a (V)	
STIFF, GRAY, **SILT AND CLAY**, LITTLE SAND, TRACE GRAVEL, MOIST	453.1		3 5 8	17	100	SS-8B	1.50	-	-	-	-	-	-	-	-	23	A-6a (V)	
DENSE, GRAY, **STONE FRAGMENTS WITH SAND AND SILT**, TRACE CLAY, WET	449.3		7 10 18	37	44	SS-9	-	-	-	-	-	-	-	-	-	15	A-2-4 (V)	
VERY STIFF, GRAY, **SILT AND CLAY**, TRACE SAND, TRACE GRAVEL, RELIC ROCK STRUCTURE, DAMP	446.6	TR	17 50/3"	-	89	SS-10	3.50	-	-	-	-	-	-	-	-	12	A-6a (V)	
INTERBEDDED LIMESTONE (51%) AND SHALE (49%), CONTAINS MANY INTERBEDDED 1/8" - 1/2" CLAY SEAMS, BEDDING DISCONTINUITIES: LOW ANGLE, HIGHLY FRACTURED TO MODERATELY FRACTURED, OPEN TO NARROW, SLIGHTLY ROUGH TO VERY ROUGH, BLOCKY/DISTURBED/SEAMY, GOOD TO FAIR SURFACE CONDITION, RQD 24%, REC. 90%; **LIMESTONE**, GRAY AND LIGHT GRAY, UNWEATHERED TO SLIGHTLY WEATHERED, MODERATELY STRONG TO STRONG, FINE TO COARSE GRAINED, LAMINATED TO THIN BEDDED, FOSSILIFEROUS, STYLOLITIC; **SHALE**, GRAY, SEVERELY TO HIGHLY WEATHERED, VERY WEAK TO WEAK, FISSILE.	436.6	EOB	24		90	NQ2-1											CORE	

NOTES: GROUNDWATER ENCOUNTERED AT 12.5' DURING DRILLING. HOLE DID NOT CAVE.
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PUMPED 100 GAL. BENTONITE GROUT

STANDARD ODOT SOIL BORING LOG (11 X 17) - OH DOT.GDT - 12/15/22 11:50 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\HAM LMST EXT\GINT FILES\HAM-LMST EXT.GPJ

SHEET P.64 | TOTAL 71
SUBSET 5 | TOTAL 12
PROJECT ID 113602
REVIEWER BPA 12/15/22
DESIGNER MWJ

DESIGN AGENCY NEAS
2800 CORPORATE EXCHANGE DR. SUITE 240
COLUMBUS, OH. 43231
TELEPHONE: 614.818.4868
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GEOTECHNICAL PROFILE - BRIDGE
BRIDGE HAM-LMST TO ELSTUN
BORING LOG B-002-0-20

OHIO DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING

HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: Sheet_SurvFt PAPERSIZE: 17x11 (in.) DATE: 12/15/2022 TIME: 12:09:11 PM USER: mjasiewicz
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NEAS
National Engineering & Architectural Services Inc.
5710 Westbourne Avenue
Columbus, OH 43213
614.892.0162

Consolidation Test

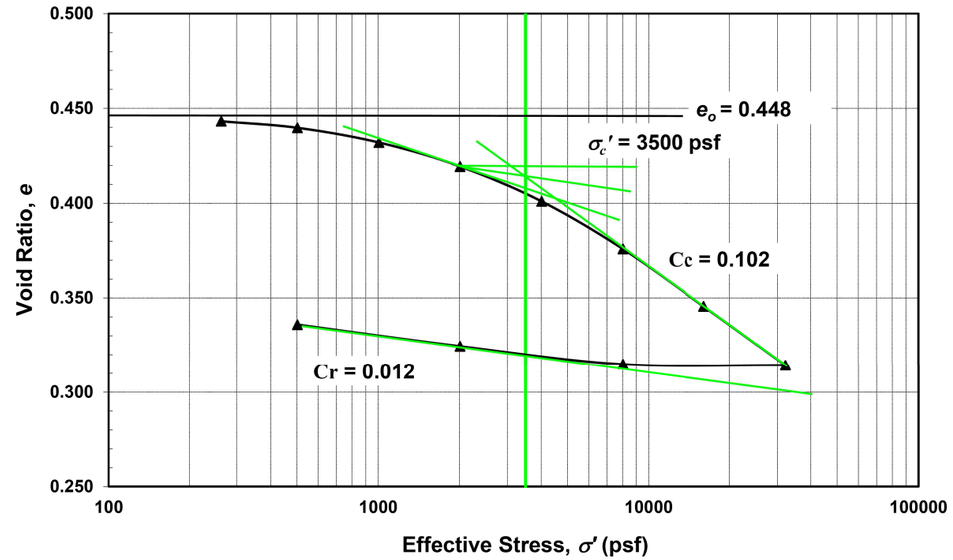
Project Name: HAM-LMST Ext
Source: B-002-0-20 ST-1 (8.4' - 8.5')
Description: Stiff to very stiff, gray, SILTY CLAY, little sand, trace gravel, damp.
After testing, a 7/16" gravel piece was found within the specimen.
Test Specification: ASTM D 2435
Initial Void Ratio: 0.448
In-situ Vertical Effective Stress (psf): 1100

Prepared by: LR
Checked by: ZM
Date: 7/29/2022
Initial Bulk Unit Weight (lb/ft^3): 135
Dry Unit Weight (lb/ft^3): 116

Compression and Swelling Index

Compression Index (Cc): 0.102
Recompression Index (Cr): 0.012
Preconsolidation Pressure (σ_c')(psf): **3500**
Over-Consolidation Ratio (OCR): **3.18**

Consolidation Curve



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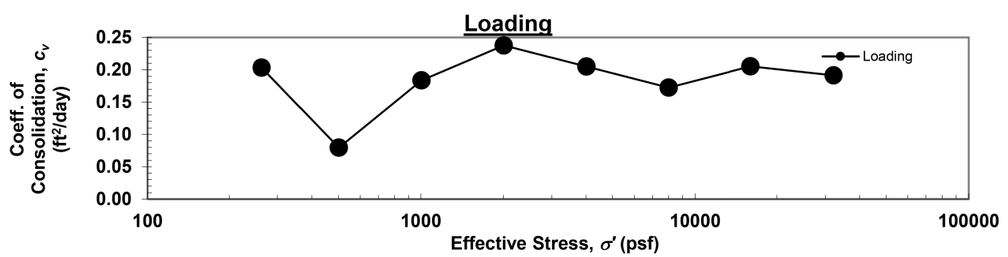

GEOTECHNICAL PROFILE - BRIDGE
LABORATORY TEST DATA - ROCK CORE PHOTOS AND CONSOLIDATION REPORT

DESIGN AGENCY
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DESIGNER: MWJ
REVIEWER: BPA 12/15/22
PROJECT ID: 113602
SUBSET: 6 TOTAL: 12
SHEET: P.65 TOTAL: 71

NEAS
National Engineering & Architectural Services Inc.

5710 Westbourne Avenue
Columbus, OH 43213
614-892-0162

Unconfined Compressive Strength of Cohesive Soil (ASTM D2166)

(Project: HAM-LMST Ext, Boring Location: B-002-0-20, ST-1, Depth: 7.9 - 8.4ft)

Tested Date: 7/11/2022

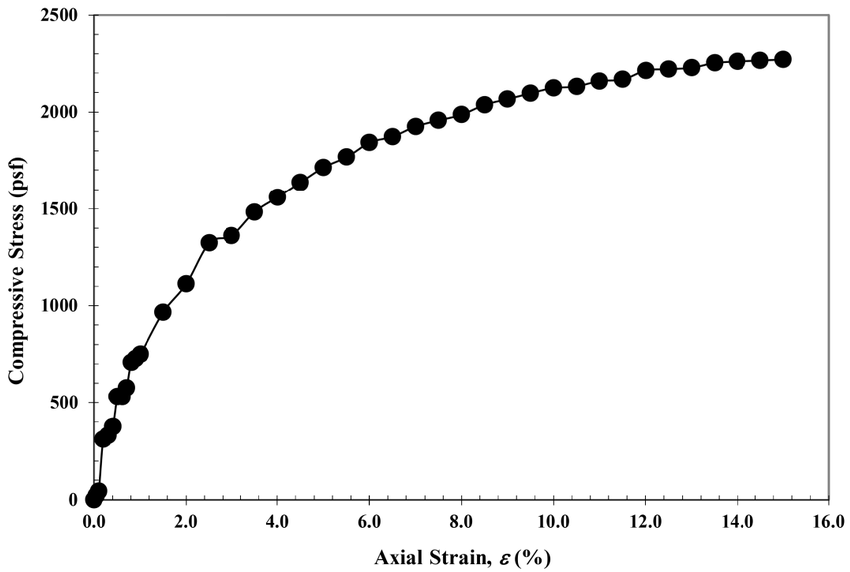
Specimen Properties

Average Dia., D_{avg} (in):	2.87
Average Height, H_{avg} (in):	5.75
Area, A (in^2):	6.47
Volume, V (in^3):	37.21
Wet Mass of Specimen (lb):	2.8
Moisture Content (%):	21.9
Dry Mass of Specimen (lb):	2.3
Wet Unit Weight, γ (lb/ft^3):	129.1
Dry Unit Weight, γ_d (lb/ft^3):	105.9

Final Specimen Figure

Results

Unconfined Compressive Strength (psf):	**2271**
Strain (%):	**15.0**



Notes: Stiff, brownish gray, SILTY CLAY, little sand, trace gravel, damp. Specimen contains gravel >1/6 specimen diameter. Results reported may differ from a specimen that meets the maximum particle size allowance of D2166. Specimen exceeded strain limitations of 15.0%.

HAM-LMST EXTENSION TO ELSTUN PHASE 2

MODEL: Sheet_SurvFt PAPERSIZE: 17x11 (in.) DATE: 12/15/2022 TIME: 12:09:16 PM USER: mjasiewicz
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GEOTECHNICAL PROFILE - BRIDGE
LABORATORY TEST DATA - SOIL UNC REPORT

DESIGN AGENCY
NEAS
National Engineering & Architectural Services Inc.
2800 CORPORATE EXCHANGE DR, SUITE 240
COLUMBUS, OH, 43231
TEL:614.714.0299
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DESIGNER	MWJ
REVIEWER	BPA 12/15/22
PROJECT ID	113602
SUBSET / TOTAL	7 / 12
SHEET / TOTAL	P.66 / 71

PROJECT: HAM-LMST EXT	DRILLING FIRM / OPERATOR: NEAS / J. HODGES	DRILL RIG: CME 55X	STATION / OFFSET: 78+78, 41' RT.
TYPE: RETAINING WALL	SAMPLING FIRM / LOGGER: NEAS / J. HODGES	HAMMER: CME AUTOMATIC	ALIGNMENT: ELSTUN CONNECTION
PID: 113602 SFN:	DRILLING METHOD: 3.25" HSA / NQ2	CALIBRATION DATE: 1/24/22	ELEVATION: 470.0 (MSL) EOB: 33.3 ft.
START: 7/6/22 END: 7/6/22	SAMPLING METHOD: SPT / NQ2	ENERGY RATIO (%): 79	LAT / LONG: 39.105798, -84.400302

EXPLORATION ID: B-003-0-20 — PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. (470.0)	DEPTHS
MEDIUM STIFF, BROWN, **SILT AND CLAY**, TRACE SAND, TRACE GRAVEL, CONTAINS NO INTACT SOIL FOR HP READINGS, DAMP	468.5	
LOOSE, BROWN, **GRAVEL WITH SAND**, LITTLE SILT, TRACE CLAY, DAMP	467.0	
VERY LOOSE, BROWN, **GRAVEL WITH SAND AND SILT**, TRACE CLAY, DAMP	465.5	
MEDIUM DENSE, GRAY, **GRAVEL AND STONE FRAGMENTS WITH SAND**, LITTLE SILT, TRACE CLAY, ENCOUNTER WITH COBBLE, LARGE STONE FRAGMENTS, DAMP	464.0	
LOOSE TO MEDIUM DENSE, ORANGISH BROWN AND GRAY, **GRAVEL AND STONE FRAGMENTS WITH SAND**, LITTLE SILT, TRACE CLAY, CONTAINS IRON STAINING, WET TO MOIST	458.7	W 461.0
STIFF, GRAY, **SILT AND CLAY**, SOME SAND, TRACE GRAVEL, MOIST	455.5	
DENSE, GRAY, **STONE FRAGMENTS WITH SAND AND SILT**, TRACE CLAY, WET	453.0	
VERY STIFF, GRAY, **SILT AND CLAY**, SOME SAND, LITTLE GRAVEL AND STONE FRAGMENTS, DAMP	450.5	
DENSE, GRAY, **STONE FRAGMENTS WITH SAND AND SILT**, TRACE CLAY, DAMP	448.0	
HARD, GRAY, **SANDY SILT**, LITTLE CLAY, LITTLE STONE FRAGMENTS, RELIC ROCK STRUCTURE, DAMP	446.7	TR
INTERBEDDED LIMESTONE (61%) AND SHALE (39%), CONTAINS MANY INTERBEDDED 1/8" - 1/2" CLAY SEAMS, BEDDING DISCONTINUITIES: LOW ANGLE, HIGHLY FRACTURED TO MODERATELY FRACTURED, OPEN TO NARROW, SLIGHTLY ROUGH TO VERY ROUGH, BLOCKY/DISTURBED/SEAMY, GOOD TO FAIR SURFACE CONDITION, RQD 33%, REC. 96%; **LIMESTONE**, GRAY AND LIGHT GRAY, UNWEATHERED TO SLIGHTLY WEATHERED, MODERATELY STRONG TO STRONG, FINE TO COARSE GRAINED, LAMINATED TO THIN BEDDED, FOSSILIFEROUS, STYLOLITIC; **SHALE**, GRAY, SEVERELY WEATHERED, VERY WEAK, FISSILE. @23.7'-24.1'; Qu = 5634 PSI @ 0.5% @32.8'-33.2'; Qu = 7935 PSI @ 0.7%	436.7	EOB

SPT/RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GR	CS	FS	SI	CL	LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
3-3-3	8	22	SS-1	-	1	0	6	65	28	40	25	15	20	A-6a (10)	
2-4-3	9	100	SS-2	-	16	39	30	11	4	NP	NP	NP	7	A-1-b (0)	
1-1-1	3	28	SS-3	-	21	28	20	22	9	NP	NP	NP	10	A-2-4 (0)	
3-11-10	28	100	SS-4	-	46	23	14	12	5	NP	NP	NP	5	A-1-b (0)	
8-8-7	20	89	SS-5	-	33	32	20	11	4	NP	NP	NP	14	A-1-b (0)	
3-10-9	25	39	SS-6	-	-	-	-	-	-	-	-	-	9	A-1-b (V)	
3-4-2	8	28	SS-7	-	-	-	-	-	-	-	-	-	12	A-1-b (V)	
2-2-2	5	100	SS-8	1.50	1	2	31	33	33	31	18	13	26	A-6a (7)	
7-12-12	32	100	SS-9	-	-	-	-	-	-	-	-	-	19	A-2-4 (V)	
5-10-7	22	100	SS-10	2.75	16	18	20	22	24	29	17	12	15	A-6a (3)	
6-8-17	33	100	SS-11	-	-	-	-	-	-	-	-	-	9	A-2-4 (V)	
10-50/4"	-	60	SS-12	4.50	-	-	-	-	-	-	-	-	9	A-4a (V)	
33		96	NQ2-1											CORE	

NOTES: GROUNDWATER ENCOUNTERED AT 9.0' DURING DRILLING, HOLE DID NOT CAVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PUMPED 100 GAL. BENTONITE GROUT

STANDARD ODOT SOIL BORING LOG (11 X 17) - OH DOT.GDT - 12/15/22 11:50 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\HAM LMST EXTGINT FILES\HAM-LMST EXT.GPJ

GEOTECHNICAL PROFILE - BRIDGE
BRIDGE HAM-LMST TO ELSTUN
BORING LOG B-003-0-20

OHIO DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING

Office of Geotechnical Engineering

B-003-0-20

Run #:	Depth		Recovery		RQD	
NQ2-1	23.3'	33.3'	115"/120"	96%	39.25"/120"	33%

HAM-LMST Extension to Ranchvale (PID #113602)

DESIGN AGENCY
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DESIGNER MWJ
REVIEWER BPA 12/15/22
PROJECT ID 113602
SUBSET 9 TOTAL 12
SHEET P.68 TOTAL 71

GEOTECHNICAL PROFILE - BRIDGE
LABORATORY TEST DATA - ROCK CORE PHOTOS

NEAS National Engineering & Architectural Services Inc.
5710 Westbourne Avenue
Columbus, OH 43213
614-892-0162

Unconfined Compressive Strength of Rock Core (ASTM D7012 Method C)

(Project: HAM-LMST Extension, Boring Location: B-003-0-20, NQ2-1, Depth: 23.7 - 24.1ft)

Tested Date: 7/14/2022

Specimen Properties

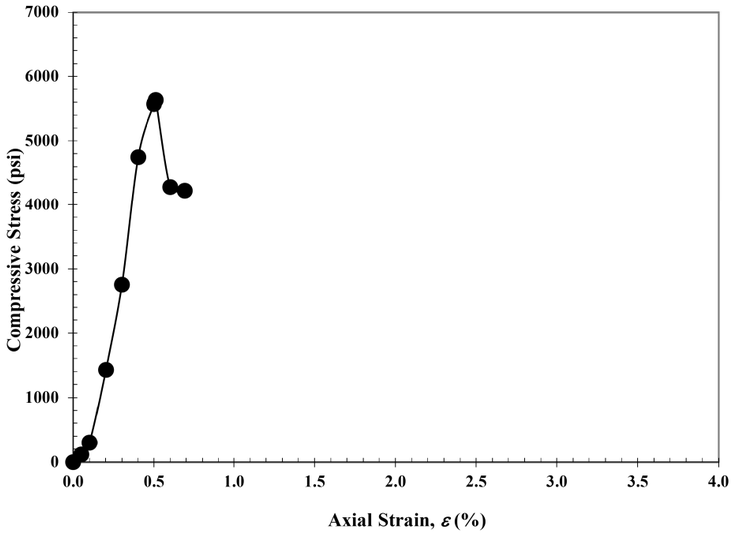
Average Dia., D_{avg} (in):	1.97
Average Height, H_{avg} (in):	4.50
Length to Diameter Ratio:	2.28
Area, A (in^2):	3.06
Volume, V (in^3):	13.75
Wet Mass of Specimen (lb):	1.3
Moisture Content (%):	0.5
Dry Mass of Specimen (lb):	1.3
Wet Unit Weight, γ (lb/ft^3):	168.1
Dry Unit Weight, γ_d (lb/ft^3):	167.2

Final Specimen Figure

Results

Unconfined Compressive Strength (psi): **5634** **39** (MPa)

Strain (%): **0.5**



Notes: Limestone, gray, unweathered, fine to coarse grained, moderately strong, fossiliferous.

Sample trimming procedure does not conform to ASTM D4543 and the results reported may differ from the results obtained from a test specimen that meets the requirements of Practice D4543.

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Unconfined Compressive Strength of Rock Core (ASTM D7012 Method C)

(Project: HAM-LMST Extension, Boring Location: B-003-0-20, NQ2-1, Depth: 32.8 - 33.2ft)

Tested Date: 7/14/2022

Specimen Properties

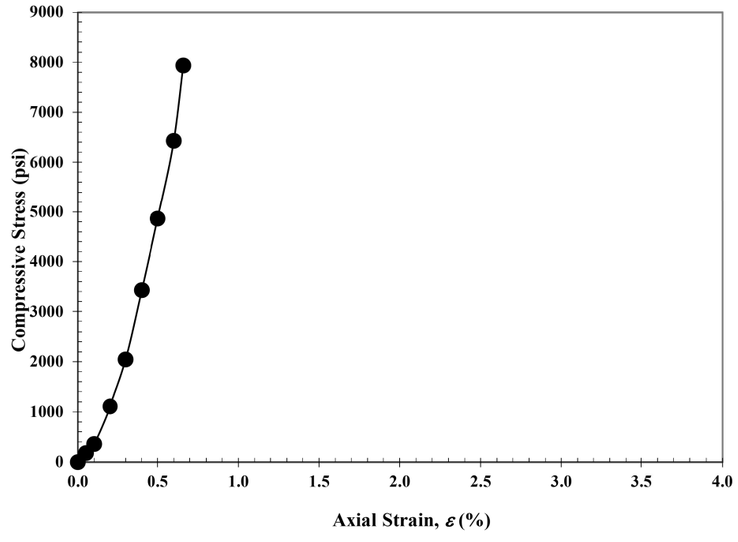
Average Dia., D_{avg} (in):	1.97
Average Height, H_{avg} (in):	4.41
Length to Diameter Ratio:	2.24
Area, A (in^2):	3.04
Volume, V (in^3):	13.41
Wet Mass of Specimen (lb):	1.3
Moisture Content (%):	1.4
Dry Mass of Specimen (lb):	1.3
Wet Unit Weight, γ (lb/ft^3):	166.4
Dry Unit Weight, γ_d (lb/ft^3):	164.1

Final Specimen Figure

Results

Unconfined Compressive Strength (psi): **7935** **55** (MPa)

Strain (%): **0.7**



Notes: Limestone, gray, unweathered, fine to medium grained, strong, slightly fossiliferous, slightly argillaceous.

Sample trimming procedure does not conform to ASTM D4543 and the results reported may differ from the results obtained from a test specimen that meets the requirements of Practice D4543.

HAM-LMST EXTENSION TO ELSTUN PHASE 2

GEOTECHNICAL PROFILE - BRIDGE
LABORATORY TEST DATA - ROCK UNC REPORT

DESIGN AGENCY
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DESIGNER	MWJ
REVIEWER	BPA 12/15/22
PROJECT ID	113602
SUBSET / TOTAL	10 / 12
SHEET / TOTAL	P.69 / 71

MODEL: Sheet_SurvFt PAPERSIZE: 17x11 (in.) DATE: 12/15/2022 TIME: 12:09:27 PM USER: mjasiewicz
P:\OHDOT_v2\WorkSets\113602\400-Engineering\Geotechnical\Sheets\113602_2D004.dgn

MODEL: Sheet_SurvFt PAPERSIZE: 17x11 (in.) DATE: 12/15/2022 TIME: 12:09:31 PM USER: mjasiewicz
P:\OHDOT_v2\WorkSets\113602\400-Engineering\Geotechnical\Sheets\113602_ZL004.dgn

PROJECT: HAM-LMST EXT	DRILLING FIRM / OPERATOR: NEAS / J. HODGES	DRILL RIG: CME 55X	STATION / OFFSET: 79+48, 51' RT.	EXPLORATION ID B-004-0-20
TYPE: RETAINING WALL	SAMPLING FIRM / LOGGER: NEAS / J. HODGES	HAMMER: CME AUTOMATIC	ALIGNMENT: ELSTUN CONNECTION	
PID: 113602 SFN:	DRILLING METHOD: 3.25" HSA / NQ2	CALIBRATION DATE: 1/24/22	ELEVATION: 477.7 (MSL) EOB: 41.0 ft.	PAGE 1 OF 1
START: 7/7/22 END: 7/7/22	SAMPLING METHOD: SPT / NQ2	ENERGY RATIO (%): 79	LAT / LONG: 39.105605, -84.400275	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
HARD, BROWN, **SILT AND CLAY**, TRACE SAND, TRACE GRAVEL, DAMP	477.7		4 4 4	11	83	SS-1	4.25	1	1	3	63	32	36	22	14	21	A-6a (10)	
	473.2																	
VERY STIFF TO HARD, BROWN, **CLAY**, "AND" SILT, TRACE SAND, TRACE GRAVEL, DAMP			2 4 5	12	100	SS-2	4.25	-	-	-	-	-	-	-	-	21	A-7-6 (V)	
			3 3 4	9	100	SS-3	3.00	0	1	9	55	35	46	25	21	25	A-7-6 (14)	
	466.5		3 4 7	14	100	SS-4A	2.75	-	-	-	-	-	-	-	-	23	A-7-6 (V)	
MEDIUM DENSE, BROWN, **GRAVEL WITH SAND**, TRACE SILT, TRACE CLAY, DAMP	465.7					SS-4B	-	-	-	-	-	-	-	-	-	10	A-1-b (V)	
DENSE, GRAY, **STONE FRAGMENTS**, LITTLE SAND, TRACE SILT, TRACE CLAY, ENCOUNTER WITH COBBLE, DAMP	463.2		38 13 19	42	67	SS-5	-	-	-	-	-	-	-	-	-	2	A-1-a (V)	
MEDIUM DENSE, BROWN, **GRAVEL WITH SAND**, LITTLE SILT, TRACE CLAY, DAMP			8 6 4	13	100	SS-6	-	-	-	-	-	-	-	-	-	9	A-1-b (V)	
		W 460.2																
SS-7 BECOMES ORANGISH BROWN, CONTAINS IRON STAINING, WET	458.2		7 10 8	24	78	SS-7	-	-	-	-	-	-	-	-	-	10	A-1-b (V)	
MEDIUM STIFF TO VERY STIFF, GREENISH GRAY, **CLAY**, SOME SILT, TRACE TO LITTLE SAND, TRACE GRAVEL, SS-8 CONTAINS NO INTACT SOIL FOR HP READINGS, DAMP			2 2 2	5	22	SS-8	-	-	-	-	-	-	-	-	-	17	A-7-6 (V)	
			6 6 15	28	100	SS-9	3.50	5	6	6	34	49	42	21	21	20	A-7-6 (13)	
			5 20 13	43	100	SS-10	3.25	-	-	-	-	-	-	-	-	16	A-7-6 (V)	
	449.4																	
HARD, GRAY, **SILT AND CLAY**, LITTLE SAND, TRACE STONE FRAGMENTS, RELIC ROCK STRUCTURE, CONTAINS NO INTACT SOIL FOR HP READINGS, DAMP	446.7		8 50/3"	-	67	SS-11	-	-	-	-	-	-	-	-	-	16	A-6a (V)	
INTERBEDDED LIMESTONE (57%) AND SHALE (43%), CONTAINS MANY INTERBEDDED 1/8" - 1/2" CLAY SEAMS, BEDDING DISCONTINUITIES: LOW ANGLE, HIGHLY FRACTURED TO MODERATELY FRACTURED, OPEN TO NARROW, SLIGHTLY ROUGH TO VERY ROUGH, BLOCKY/DISTURBED/SEAMY, GOOD TO FAIR SURFACE CONDITION, RQD 24%, REC. 94%; **LIMESTONE**, GRAY AND LIGHT GRAY, UNWEATHERED TO SLIGHTLY WEATHERED, MODERATELY STRONG TO STRONG, FINE TO COARSE GRAINED, LAMINATED TO THIN BEDDED, FOSSILIFEROUS, STYLOLITIC; **SHALE**, GRAY, SEVERELY TO HIGHLY WEATHERED, VERY WEAK, FISSILE.		TR	24		94	NQ2-1											CORE	
	436.7	EOB																

NOTES: GROUNDWATER ENCOUNTERED AT 17.5' DURING DRILLING. HOLE DID NOT CAVE.
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PUMPED 100 GAL. BENTONITE GROUT

STANDARD ODOT SOIL BORING LOG (11 X 17) - OH DOT.GDT - 12/15/22 11:50 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\HAM LMST EXT\GINT FILES\HAM-LMST EXT.GPJ

SHEET	TOTAL	SUBSET	TOTAL	PROJECT ID	REVIEWER	DESIGNER	DESIGN AGENCY
P.70	71	11	12	113602	BPA 12/15/22	MWJ	NEAS

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GEOTECHNICAL PROFILE - BRIDGE
BRIDGE HAM-LMST TO ELSTUN
BORING LOG B-004-0-20

OHIO DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING

Office of Geotechnical Engineering

B-004-0-20

Run #:	Depth		Recovery		RQD	
NQ2-1	31.0'	41.0'	112.75"/120"	94%	28.5"/120"	24%

HAM-LMST Extension to Ranchvale (PID #113602)

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DESIGNER MWJ
REVIEWER BPA 12/15/22
PROJECT ID 113602
SUBSET 12 TOTAL 12
SHEET P.71 TOTAL 71

GEOTECHNICAL PROFILE - BRIDGE
LABORATORY TEST DATA - ROCK CORE PHOTOS