PLANS FOR CONSTRUCTION

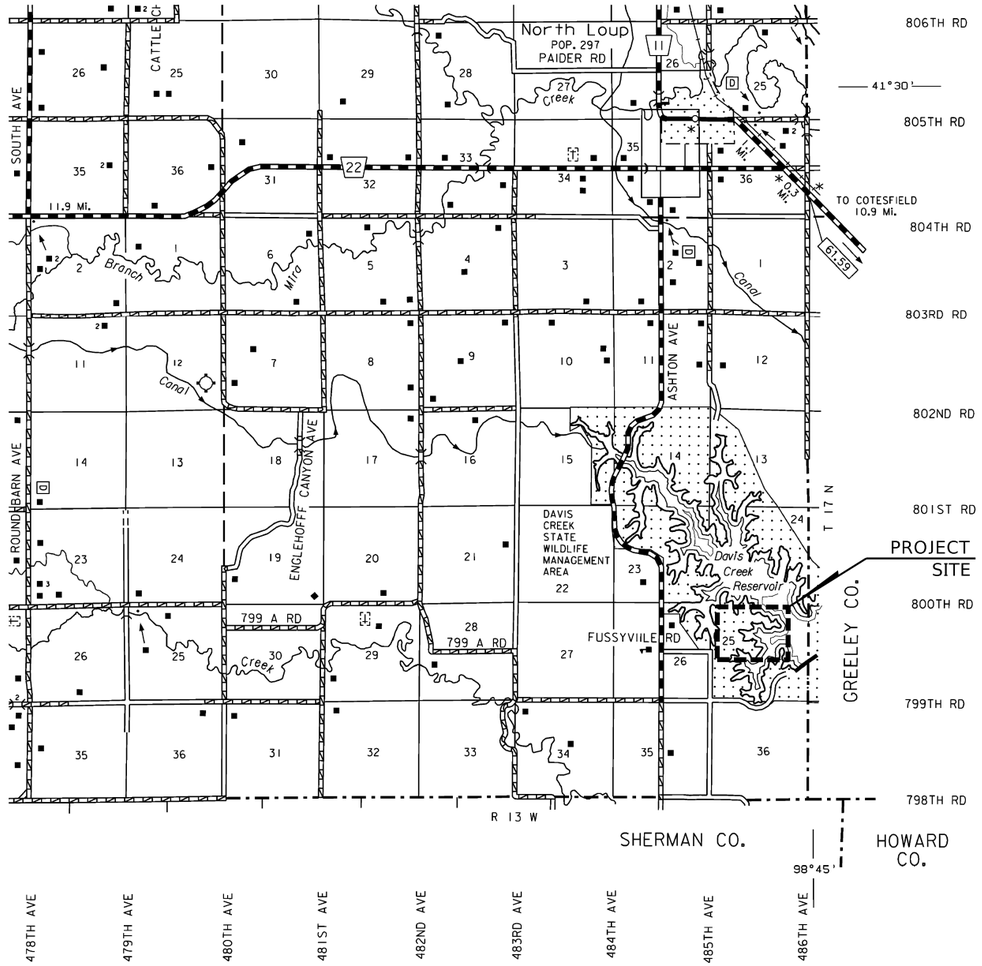
DAVIS CREEK RESERVOIR

ROAD IMPROVEMENT

INDEX OF SHEETS

STANDARD PLANS

STANDARD PLAN NO.	DESCRIPTION
108-R5	SUPERELEVATION PLAN FOR CONCRETE & BITUMINOUS SURFACING
301-R12	(3 SHEETS) PAVEMENT DETAILS
329-R12	(4 SHEETS) 8 TO 16 INCH CONCRETE PAVEMENT
410-R4	(2 SHEETS) FLARED END SECTIONS FOR CULVERT PIPES
411-R2	(4 SHEETS) BEDDING AND BACKFILL REQUIREMENTS FOR CULVERT PIPE
501-R7	(3 SHEETS) EROSION CONTROL
502-R2	(2 SHEETS) SILT FENCE DETAILS
941-R1	(2 SHEETS) PAVEMENT MARKING



THE 2017 EDITION OF THE NEBRASKA DEPT. OF TRANSPORTATION STANDARD SPECIFICATIONS AND THE PROJECT SPECIAL PROVISIONS APPLY TO THIS PROJECT.

HALF SIZE PLANS

REFERENCE POST NO. N/A TO REFERENCE POST NO. N/A

EXCEPTIONS: FROM STA. N/A TO STA. N/A

TOTAL NET LENGTH OF PROJECT: 5,106 FEET 0.967 MILES

PLANS PREPARED BY:

MIDWEST ENGINEERING, INC

3260 FOLKWAYS BLVD, STE B, LINCOLN, NE 68504

PH: 402.786.2203 WWW.MIDWESTE.COM

JOSHUA L. KEITHLEY E-16118 PROFESSIONAL CIVIL ENGINEER STATE OF NEBRASKA

09/01/2023

1

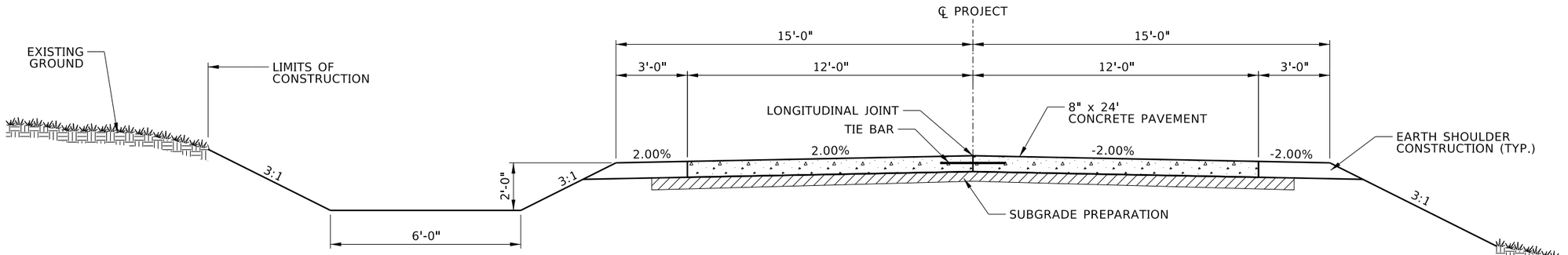
Project Number 23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

TITLE PAGE

TYPICAL CROSS SECTION OF IMPROVEMENT



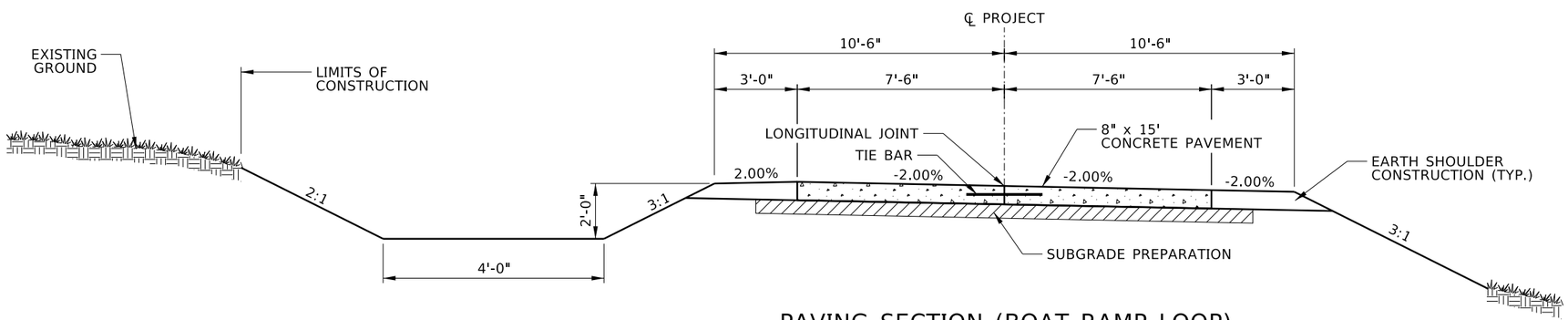
HALF CUT SECTION

PAVING SECTION (MAIN ROAD)

STATION	TO	STATION
0+81		42+37

(UNLESS SHOWN OTHERWISE)

HALF FILL SECTION



HALF CUT SECTION

PAVING SECTION (BOAT RAMP LOOP)

STATION	TO	STATION
42+37		51+87

(UNLESS SHOWN OTHERWISE)

HALF FILL SECTION

2-T

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT
IN SEC. 25-T17N-R13W

TYPICAL CROSS SECTION OF IMPROVEMENT

MIDWEST ENGINEERING, INC
3260 FOLKWAYS BLVD
SUITE B
LINCOLN, NE 68504
PH: 402-786-2203
MIDWESTE.COM

PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16119
STATE OF NEBRASKA

09/01/2023

LEGEND

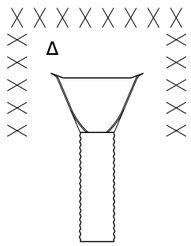
– — G — –	GAS LINE
– – – – E – – –	ELECTRICAL SERVICE
—— P ——	POWER LINE
—— OP ——	OVERHEAD POWER LINE
—— SAN ——	SANITARY SEWER
—— SS ——	STORM SEWER
—— T ——	TELEPHONE LINE
—— TFO ——	FIBER OPTIC TELE. LINE
—— OT ——	OVERHEAD TELEPHONE LINE
—— TV ——	CABLE TV LINE
—— OTV ——	OVERHEAD CABLE TV LINE
——W——	WATER LINE
——○——	FENCE - CHAIN LINK
——×——	FENCE - R.O.W. OR WIRE
——□——	FENCE - WOOD
——–––——	FLOWLINE
—— – ——	CENTER LINE DRIVE
BM	BENCH MARK
	CENTER PIVOT
	CONTROL POINT
XXXXXXX	DIKE
G	GAS METER
	GAS VALVE
	GRID TICK
	GUARDRAIL
	GUARD POST
	GUY POLE
	GUY WIRE
OR	LIGHT POLE
	MAILBOX
	MANHOLE
	MARSH
	OIL WELL
	PHOTO CODE POINT
P	POWER BOX
	POWER POLE
Ⓟ	POWER PULL BOX
	PROPANE TANK
Ⓡ	R.O.W. MARKER
	ADVANCED R.R. WARNING SIGN
	RAILROAD WARNING
	RAILROAD TRACKS
	RETAINING WALL
	SATELLITE DISH
	SIGN
	TRAFFIC SIGNAL
	TRAFFIC SIGNAL/ST. LIGHT
T	TELEPHONE BOX
FO	TELE. FIBER OPTICS BOX
Ⓣ	TELEPHONE PULL BOX
	TELEPHONE POLE
TV	TELEVISION BOX
	TREE - CONIFEROUS
	TREE - DECIDUOUS
	TREE STUMP
	WATER (FIRE) HYDRANT
	WATER VALVE
Ⓦ	WATER METER
	WELL
	WINDMILL

GENERAL NOTES:

THE LOCATIONS OF ALL AERIAL AND UNDERGROUND UTILITY FACILITIES MAY NOT BE INDICATED IN THESE PLANS. UNDERGROUND UTILITIES, WHETHER INDICATED OR NOT WILL BE LOCATED AND FLAGGED BY THE UTILITIES AT THE REQUEST OF THE CONTRACTOR.

NO EXCAVATION WILL BE PERMITTED IN THE AREA OF UNDERGROUND UTILITIES UNTIL ALL SUCH FACILITIES HAVE BEEN LOCATED AND IDENTIFIED TO THE SATISFACTION OF ALL PARTIES. THE EXCAVATION MUST BE ACCOMPLISHED WITH EXTREME CARE IN ORDER TO AVOID ANY POSSIBILITY OF DAMAGE TO THE UTILITY FACILITY.

UPON COMPLETION OF GRADING OPERATIONS, SEEDING OF ALL DISTURBED AREAS SHALL BE PERFORMED BY THE CONTRACTOR, AS DIRECTED BY THE PROJECT MANAGER. SEE THE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.



COMPACTION REQUIREMENTS,
CLASS III
(SEE SPECIFICATIONS)

	SOIL TYPE	DEPTH BELOW FINISHED GRADE	PERCENT DENSITY	MOISTURE REQUIREMENTS	
				MIN.	MAX.
EMBANKMENT/ROADWAY GRADING TO RECEIVE CONCRETE PAVEMENT	SILT-CLAY	UPPER 3 FEET	98 MIN.	OPT. -3%	OPT. +2%
	SILT-CLAY	AT DEPTHS GREATER THAN 3 FEET	95 MIN.	OPT. -3%	OPT. +2%
	GRANULAR	ALL DEPTHS	100 MIN.	**	**
SUBGRADE PREPARATION, SHOULDER SUBGRADE PREPARATION (CONCRETE PAVEMENT)	SILT-CLAY	UPPER 6 INCHES OF SUBGRADE SOIL	98 MIN.	OPT. -3%	OPT. +2%
	GRANULAR	UPPER 6 INCHES OF SUBGRADE SOIL	100 MIN.	**	**
EMBANKMENT/ GRADING ON SECONDARY ROADS	ALL	ALL DEPTHS	CLASS II	SEE SPECIFICATIONS	
OTHER GRADING, INCLUDING DRIVES NOT SURFACED	ALL	ALL DEPTHS	CLASS I	SEE SPECIFICATIONS	

** MOISTURE AS NECESSARY TO OBTAIN DENSITY
(CONTRACTOR SHALL ESTABLISH MOISTURE TARGET VALUE IN THE FIELD DURING COMPACTION PROCESS. ONCE ESTABLISHED, ACCEPTABLE MOISTURE CONTENT SHALL BE +/- 2% OF TARGET VALUE.)

*DESIGN EARTHWORK QUANTITIES** *(DOES NOT INCLUDE DRIVES AND DIKES)*

STATION	TO STATION	DESCRIPTION	EXCAVATION (CU. YDS.)	EMBANKMENT (CU. YDS.)
0+81	23+00	PHASE 1	1,087	1,088
23+00	33+00	PHASE 2	801	94
33+00	51+87	PHASE 3	1,001	688
		TOTAL	2,889	1,870

NOTE: EARTHWORK NUMBERS SHOWN DO NOT INLUDE A BALANCE FACTOR.

BUILD SILT FENCE, STANDARD PLAN NO. 502

STATION	SIDE	LENGTH (FT.)	TYPE
1+33	Δ RT.	30	HIGH
4+66	Δ RT.	30	HIGH
15+05	Δ RT.	30	HIGH
21+80	Δ LT.	30	HIGH
31+50	Δ LT.	30	HIGH
44+95	Δ RT.	30	HIGH
47+17	Δ LT.	30	HIGH
0+81 TO 2+50	* LT	169	LOW
4+00 TO 6+00	* RT	200	LOW
4+00 TO 10+00	* LT	600	LOW
12+50 TO 13+50	* RT	100	LOW
16+50 TO 18+00	* LT	150	LOW
20+00 TO 23+00	* RT	300	LOW
31+50 TO 32+00	* RT	50	LOW
34+00 TO 35+00	* RT	100	LOW
37+00 TO 40+00	* LT	300	LOW
37+00 TO 40+00	* RT	300	LOW
43+00 TO 45+00	* LT	200	LOW
46+00 TO 47+00	* LT	100	LOW

Δ PLACE AT INLET OF CULVERT AS SHOWN
* PLACE ALONG TOE OF FILL SLOPE

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT
IN SEC. 25-T17N-R13W
GENERAL INFORMATION

MIDWEST ENGINEERING, INC
3260 FOLKWAYS BLVD
SUITE B
LINCOLN, NE 68504
PH: 402-786-2203
MIDWESTE.COM

PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16118
STATE OF NEBRASKA
09/01/2023

BASE BID

SUMMARY OF QUANTITIES

PHASE 1

ITEM	QUANTITY	UNIT
MOBILIZATION	1.000	LUMP SUM
GENERAL CLEARING AND GRUBBING	1.000	LUMP SUM
REMOVE CULVERT PIPE	83.000	LIN. FT.
EARTHWORK MEASURED IN EMBANKMENT	1,088.000	CU. YDS.
12" CORRUGATED METAL PIPE	64.000	LIN. FT.
12" FLARED-END SECTION	4.000	EACH
8" CONCRETE PAVEMENT, CLASS 47B-3500	5,918.000	SQ. YDS.
SUBGRADE PREPARATION	5,918.000	SQ. YDS.
8" CONCRETE PAVEMENT, CLASS 47B-3500 FOR INTERSECTIONS, DRIVES AND PARKING AREAS	1,551.000	SQ. YDS.
PREPARATION OF INTERSECTIONS, DRIVES AND PARKING AREAS	1,551.000	SQ. YDS.
EARTH SHOULDER CONSTRUCTION	44.380	STA.
SEEDING, TYPE "A"	1.100	ACRES
COVERCROP SEEDING	1.100	ACRES
TEMPORARY SILT FENCE	800.000	LIN. FT.
FABRIC SILT FENCE, HIGH POROSITY	120.000	LIN. FT.
FABRIC SILT FENCE, LOW POROSITY	1,519.000	LIN. FT.
REMOVABLE SPEED BUMP	1.000	EACH
PRE-CAST CONCRETE CURB STOP	10.000	EACH

ALTERNATE 1

SUMMARY OF QUANTITIES

PHASE 2

ITEM	QUANTITY	UNIT
MOBILIZATION	1.000	LUMP SUM
GENERAL CLEARING AND GRUBBING	1.000	LUMP SUM
EXCAVATION, ESTABLISHED QUANTITY	801.000	CU. YDS.
12" CORRUGATED METAL PIPE	60.000	LIN. FT.
12" FLARED-END SECTION	2.000	EACH
8" CONCRETE PAVEMENT, CLASS 47B-3500	2,667.000	SQ. YDS.
SUBGRADE PREPARATION	2,667.000	SQ. YDS.
8" CONCRETE PAVEMENT, CLASS 47B-3500 FOR INTERSECTIONS, DRIVES AND PARKING AREAS	578.000	SQ. YDS.
PREPARATION OF INTERSECTIONS, DRIVES AND PARKING AREAS	578.000	SQ. YDS.
EARTH SHOULDER CONSTRUCTION	20.000	STA.
SEEDING, TYPE "A"	0.500	ACRES
COVERCROP SEEDING	0.500	ACRES
TEMPORARY SILT FENCE	600.00	LIN. FT.
FABRIC SILT FENCE, HIGH POROSITY	60.000	LIN. FT.
FABRIC SILT FENCE, LOW POROSITY	50.000	LIN. FT.
REMOVABLE SPEED BUMP	1.000	EACH
PRE-CAST CONCRETE CURB STOP	16.000	EACH

ALTERNATE 2

SUMMARY OF QUANTITIES

PHASE 3

ITEM	QUANTITY	UNIT
MOBILIZATION	1.000	LUMP SUM
GENERAL CLEARING AND GRUBBING	1.000	LUMP SUM
EXCAVATION, ESTABLISHED QUANTITY	1,001.000	CU. YDS.
12" CORRUGATED METAL PIPE	24.000	LIN. FT.
12" FLARED-END SECTION	2.000	EACH
8" CONCRETE PAVEMENT, CLASS 47B-3500	4,066.000	SQ. YDS.
SUBGRADE PREPARATION	4,066.000	SQ. YDS.
8" CONCRETE PAVEMENT, CLASS 47B-3500 FOR INTERSECTIONS, DRIVES AND PARKING AREAS	1,884.000	SQ. YDS.
PREPARATION OF INTERSECTIONS, DRIVES AND PARKING AREAS	1,884.000	SQ. YDS.
EARTH SHOULDER CONSTRUCTION	38.360	STA.
SEEDING, TYPE "A"	0.900	ACRES
COVERCROP SEEDING	0.900	ACRES
TEMPORARY SILT FENCE	600.000	LIN. FT.
PERMANENT PAVEMENT MARKING, PAINT	630.000	LIN. FT.
FABRIC SILT FENCE, HIGH POROSITY	60.000	LIN. FT.
FABRIC SILT FENCE, LOW POROSITY	1,000.000	LIN. FT.
PRE-CAST CONCRETE CURB STOP	14.000	EACH

2-S

Project Number

23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

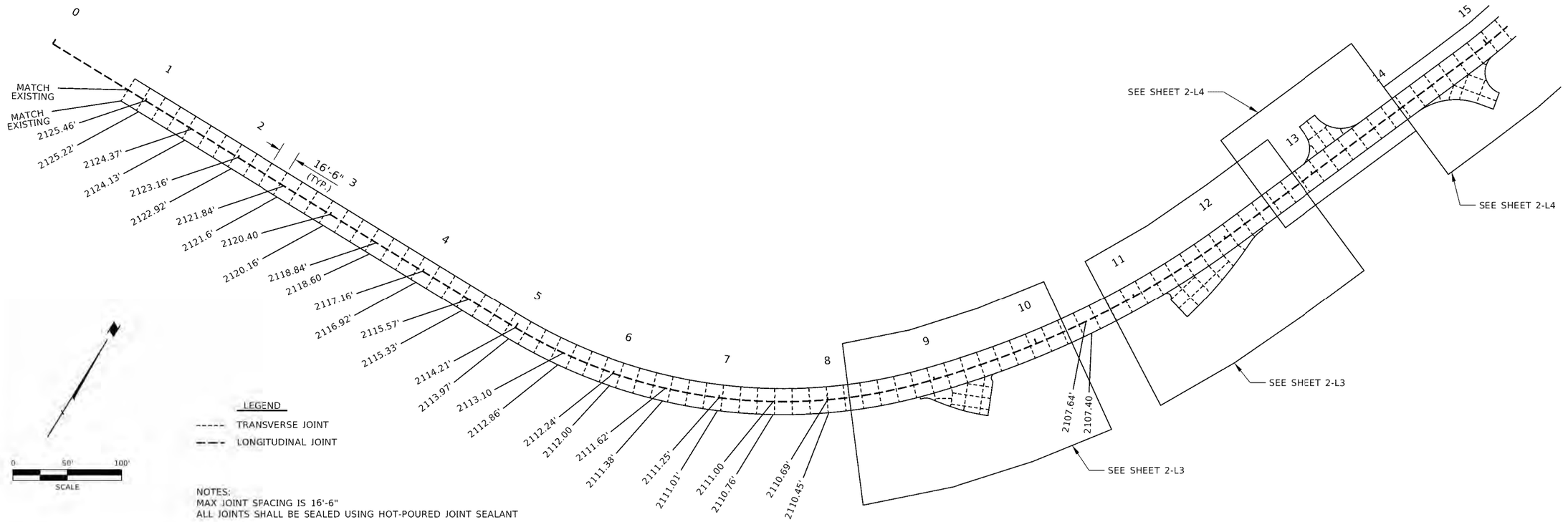
IN SEC. 25-T17N-R13W

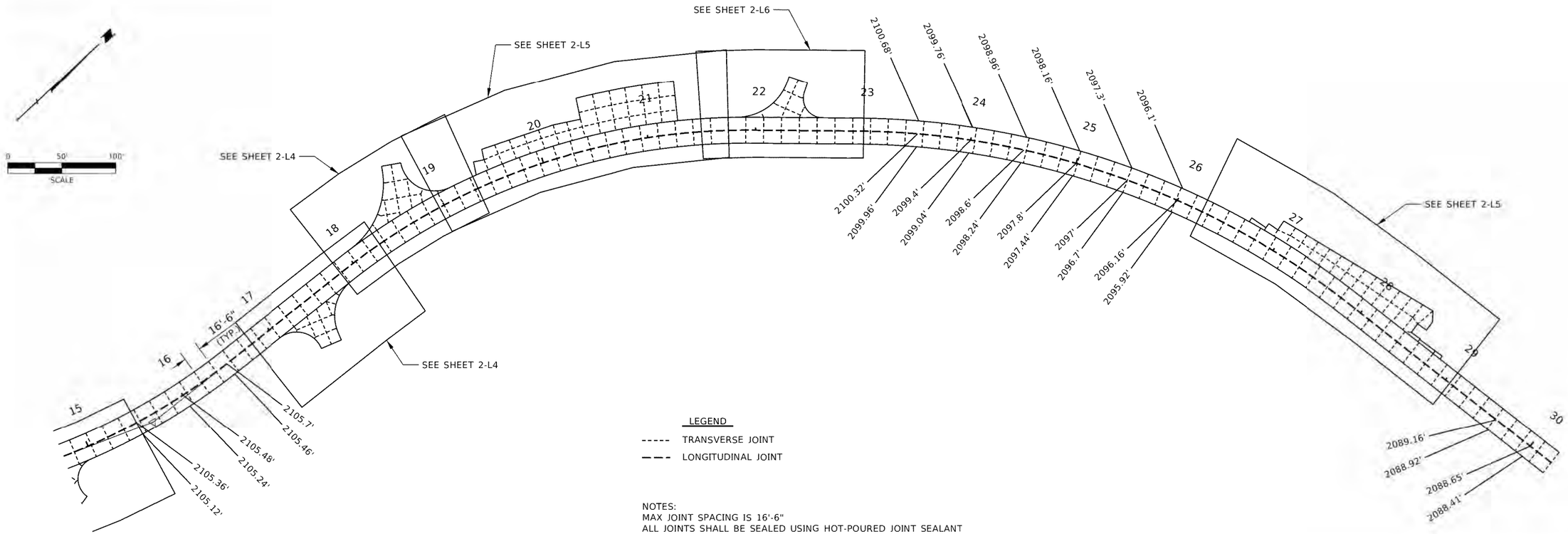
SUMMARY OF QUANTITIES

MIDWEST ENGINEERING, INC
3260 FOLKWAYS BLVD
SUITE B
LINCOLN, NE 68504
PH: 402-786-2203
MIDWESTE.COM

PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16118
STATE OF NEBRASKA

09/01/2023





2-L1

Project Number

23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

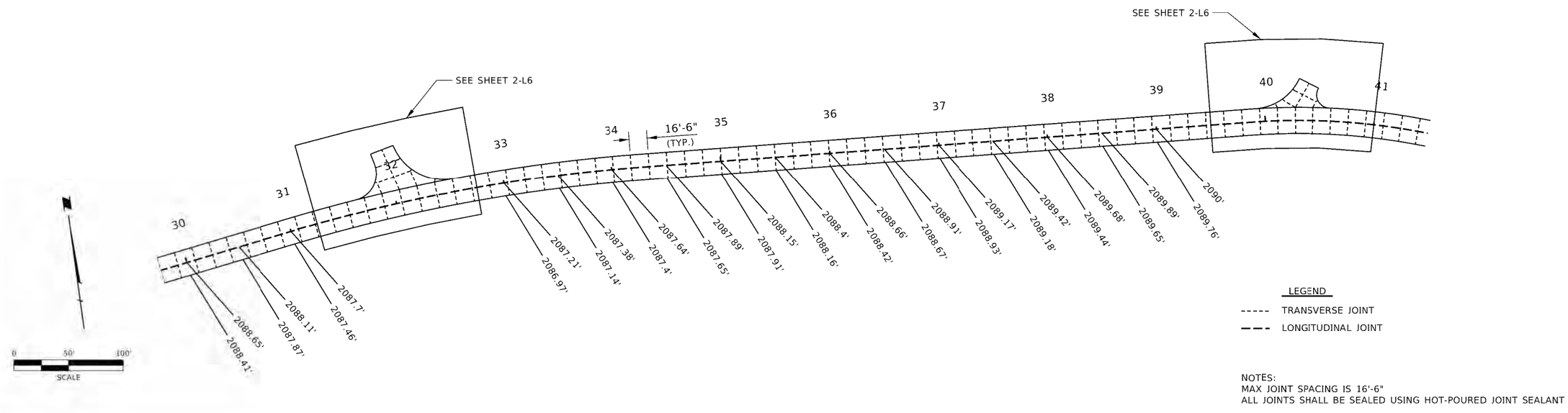
PAVEMENT JOINTS AND SPOT ELEVATIONS

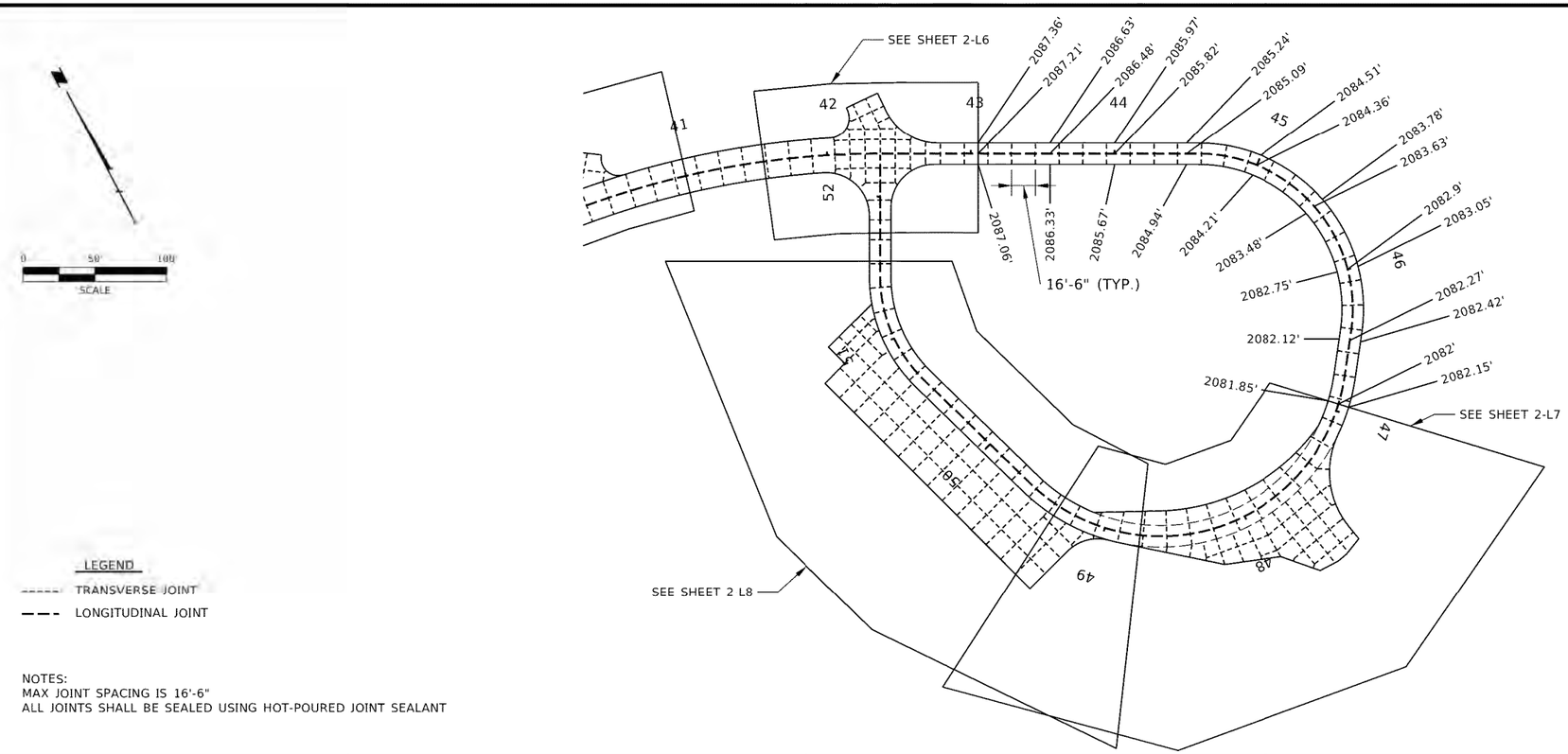
MIDWEST ENGINEERING, INC

3260 FOLKWAYS BLVD
SUITE B
LINCOLN, NE 68504
PH: 402-786-2203
MIDWESTE.COM

PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16119
STATE OF NEBRASKA

09/01/2023





2-L2

Project Number

23020

PAVEMENT JOINTS AND SPOT ELEVATIONS

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

MIDWEST ENGINEERING, INC
3260 FOLKWAYS BLVD
SUITE B
LINCOLN, NE 68504
PH: 402-786-2203
MIDWESTE.COM

PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16119
STATE OF NEBRASKA

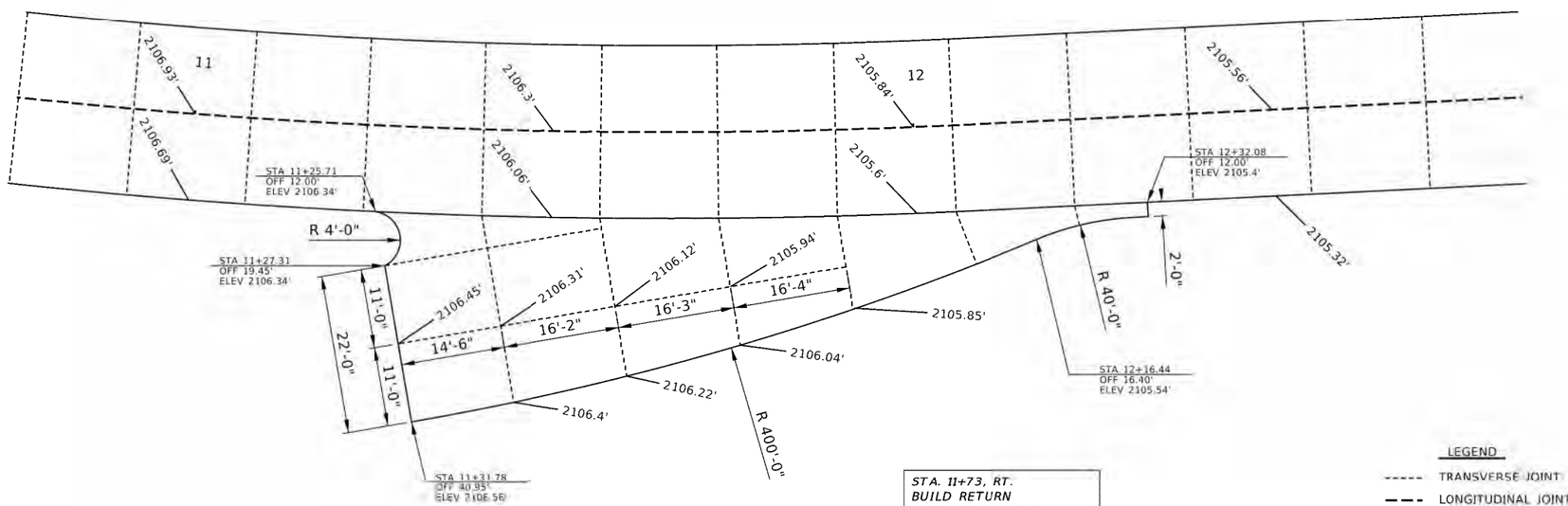
09/01/2023

0 10' 20'
SCALE

LEGEND
----- TRANSVERSE JOINT
– – – LONGITUDINAL JOINT

NOTES:
MAX JOINT SPACING IS 16'-6"
ALL JOINTS SHALL BE SEALED USING HOT-POURED JOINT SEALANT

STA. 9+22, RT.
BUILD RETURN
8" CONCRETE PAVEMENT
AREA = 141 SQ. YDS.



0 10' 20'
SCALE

STA. 11+73, RT.
BUILD RETURN
8" CONCRETE PAVEMENT
AREA = 183 SQ. YDS.

LEGEND
----- TRANSVERSE JOINT
– – – LONGITUDINAL JOINT

NOTES:
MAX JOINT SPACING IS 16'-6"
ALL JOINTS SHALL BE SEALED USING HOT-POURED JOINT SEALANT

2-L3

Project Number
23020

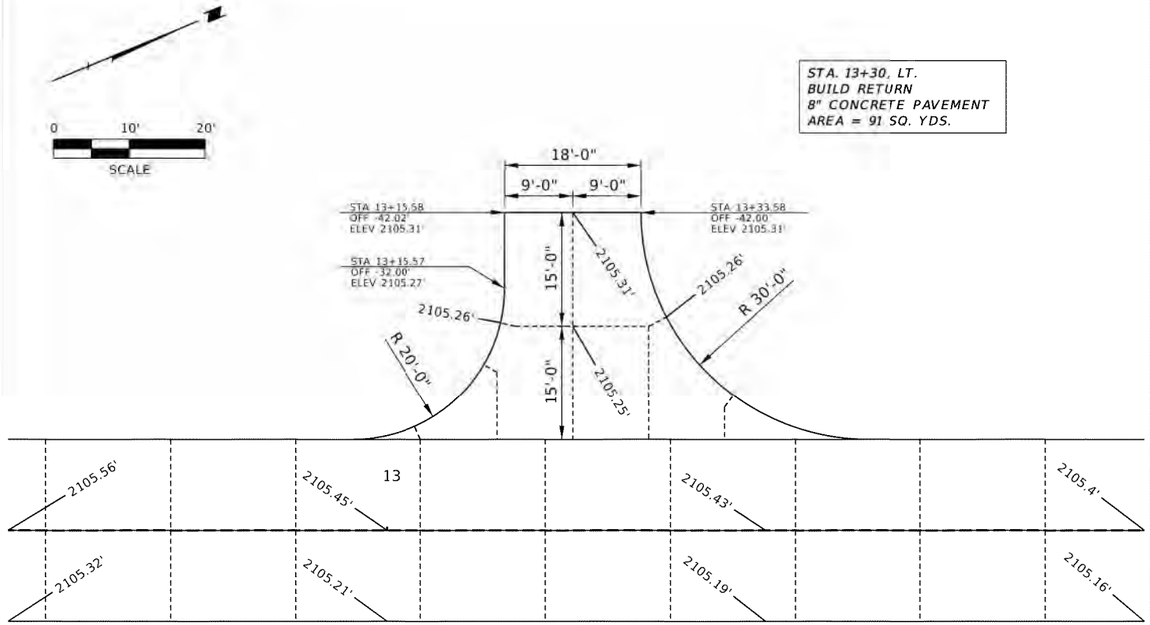
DAVIS CREEK RESERVOIR ROAD IMPROVEMENT
IN SEC. 25-T17N-R13W

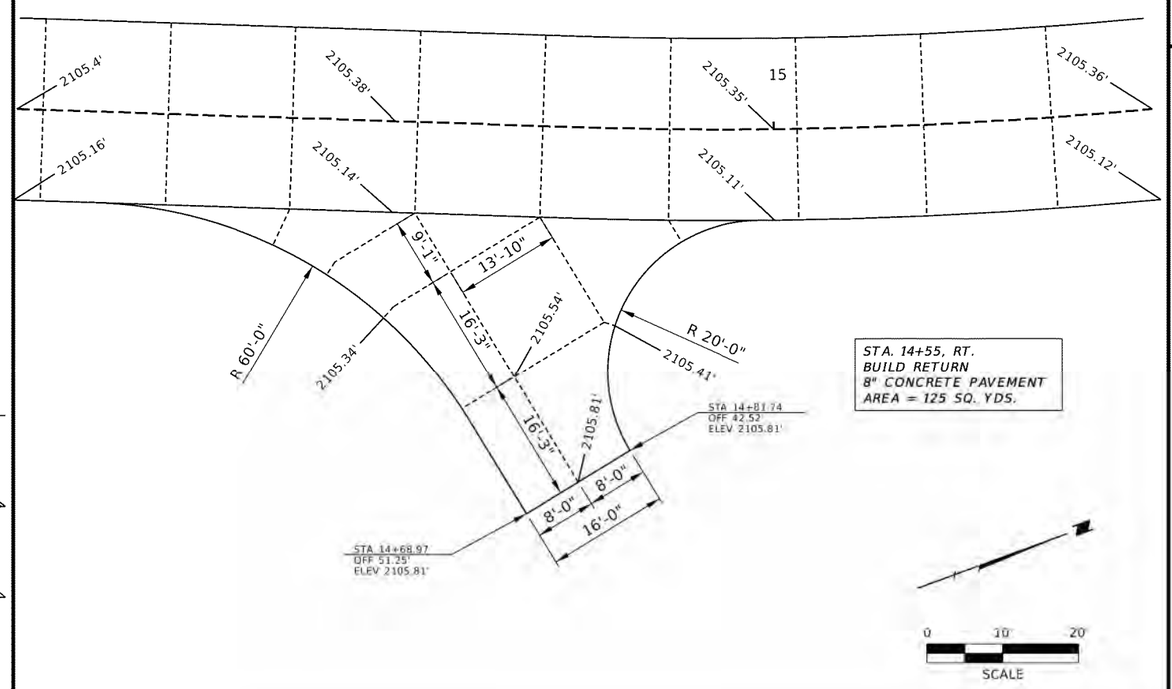
PAVEMENT JOINTS AND SPOT ELEVATIONS

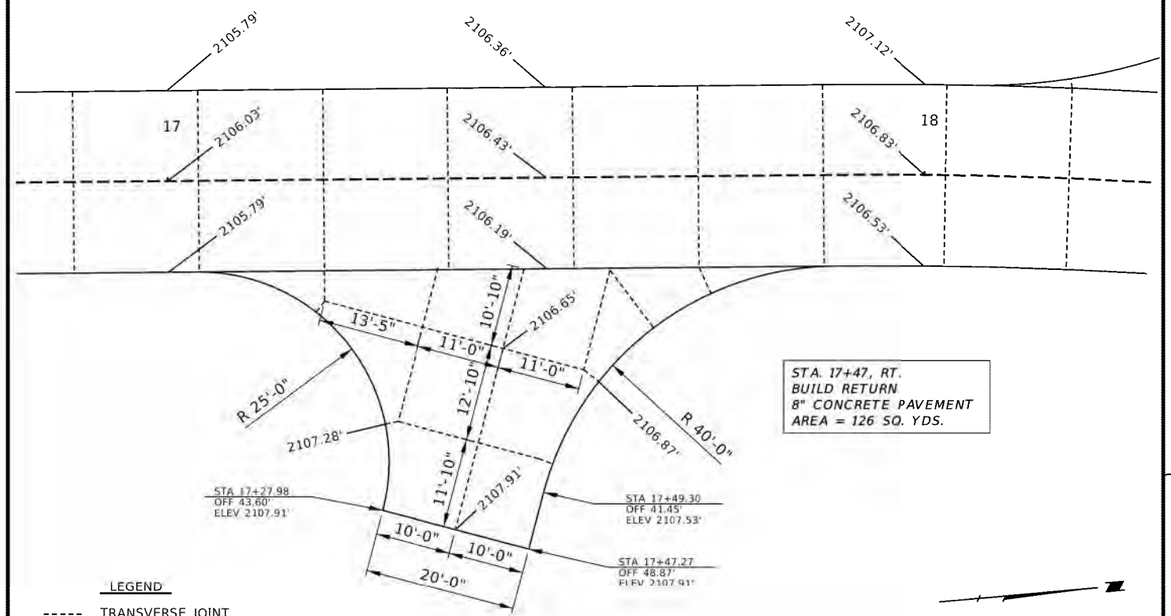
MEI
MIDWEST ENGINEERING, INC
3260 FOLKWAYS BLVD
SUITE B
LINCOLN, NE 68504
PH: 402-786-2203
MIDWESTE.COM

PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16118
STATE OF NEBRASKA

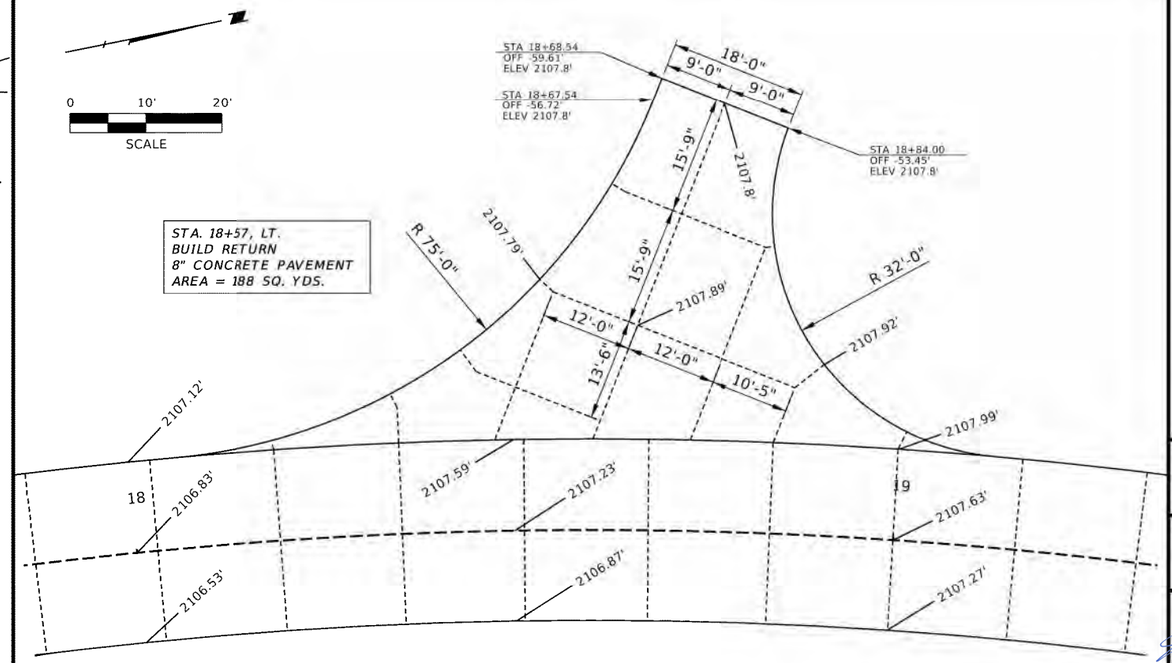
09/01/2023







NOTES:
MAX JOINT SPACING IS 16'-6"
ALL JOINTS SHALL BE SEALED USING HOT-POURED JOINT SEALANT



2-L4

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT
IN SEC. 25-T17N-R13W

PAVEMENT JOINTS AND SPOT ELEVATIONS

MIDWEST ENGINEERING, INC
3260 FOLKWAYS BLVD
SUITE B
LINCOLN, NE 68504
PH: 402-786-2203
MIDWESTE.COM

PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16118
STATE OF NEBRASKA

09/01/2023

Project Number
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PAVEMENT JOINTS AND SPOT ELEVATIONS

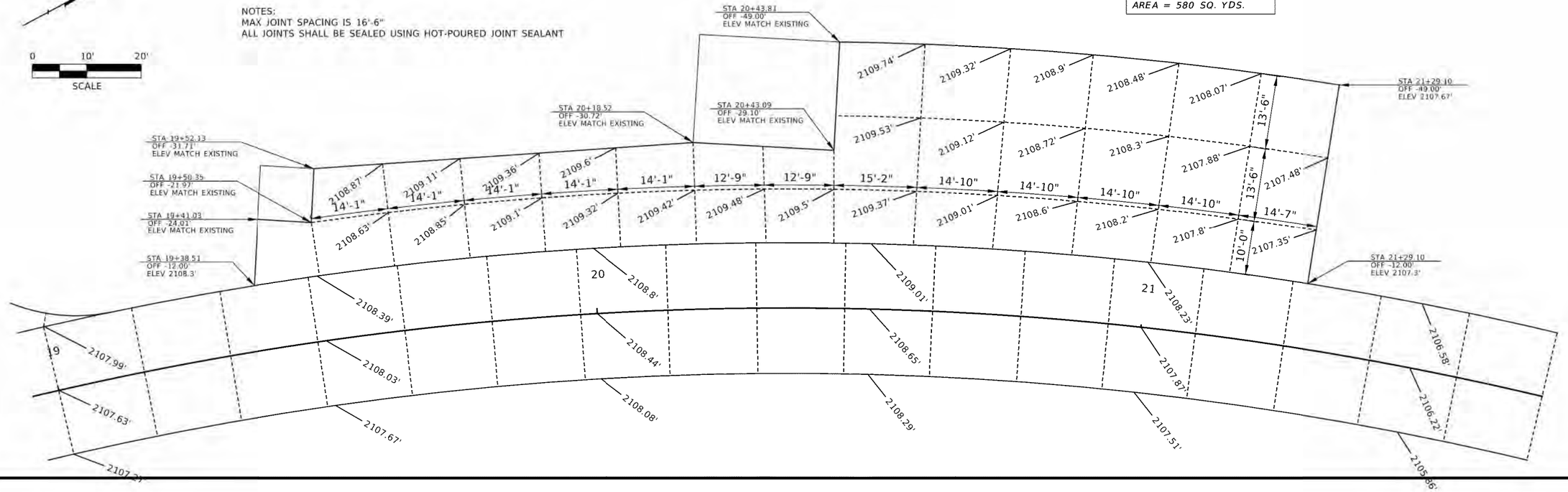
DAVIS CREEK RESERVOIR ROAD IMPROVEMENT
IN SEC. 25-T17N-R13W

LEGEND
TRANSVERSE JOINT
LONGITUDINAL JOINT

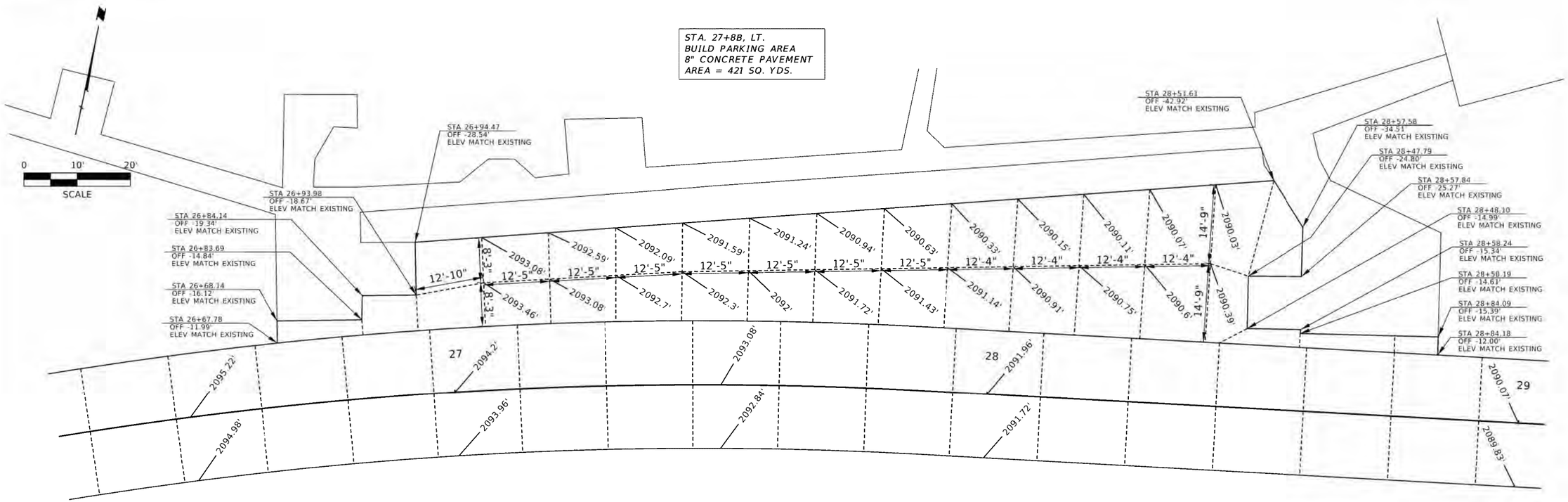
NOTES:
MAX JOINT SPACING IS 16'-6"
ALL JOINTS SHALL BE SEALED USING HOT-POURED JOINT SEALANT

0 10' 20'
SCALE

STA. 20+34, LT.
BUILD PARKING AREA
8" CONCRETE PAVEMENT
AREA = 580 SQ. YDS.



STA. 27+8B, LT.
BUILD PARKING AREA
8" CONCRETE PAVEMENT
AREA = 421 SQ. YDS.



MEI
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PROFESSIONAL CIVIL ENGINEER
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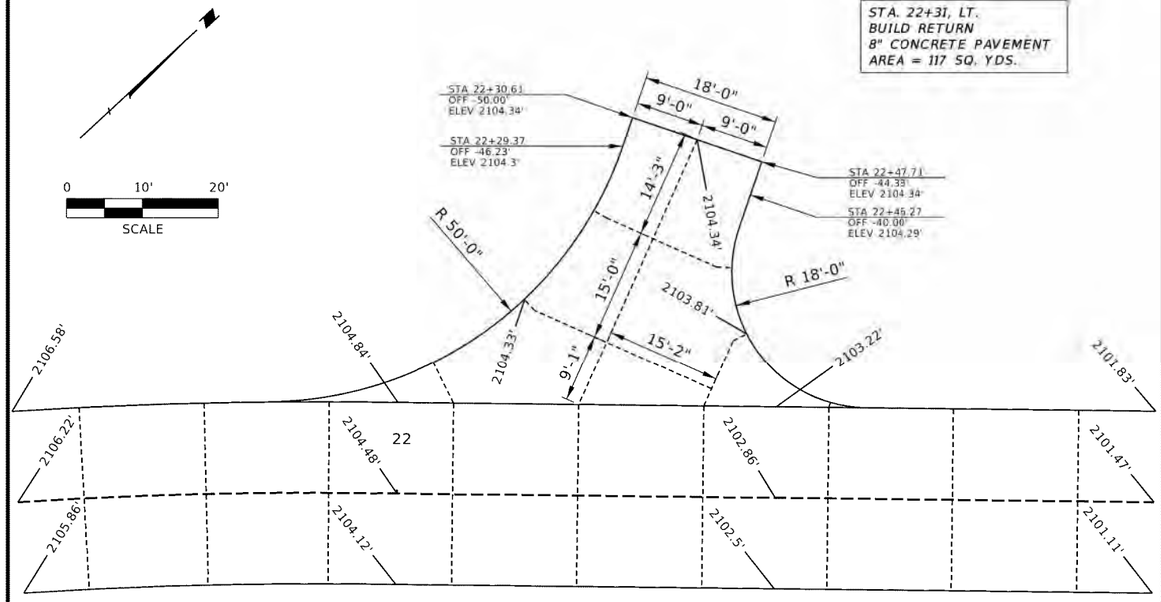

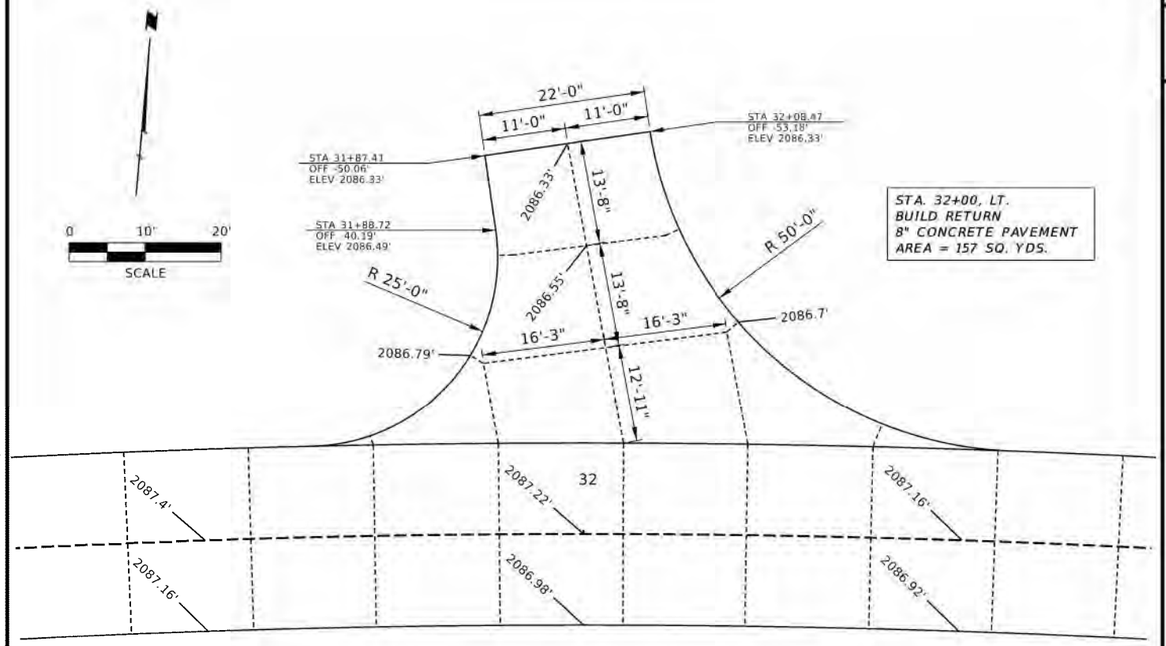

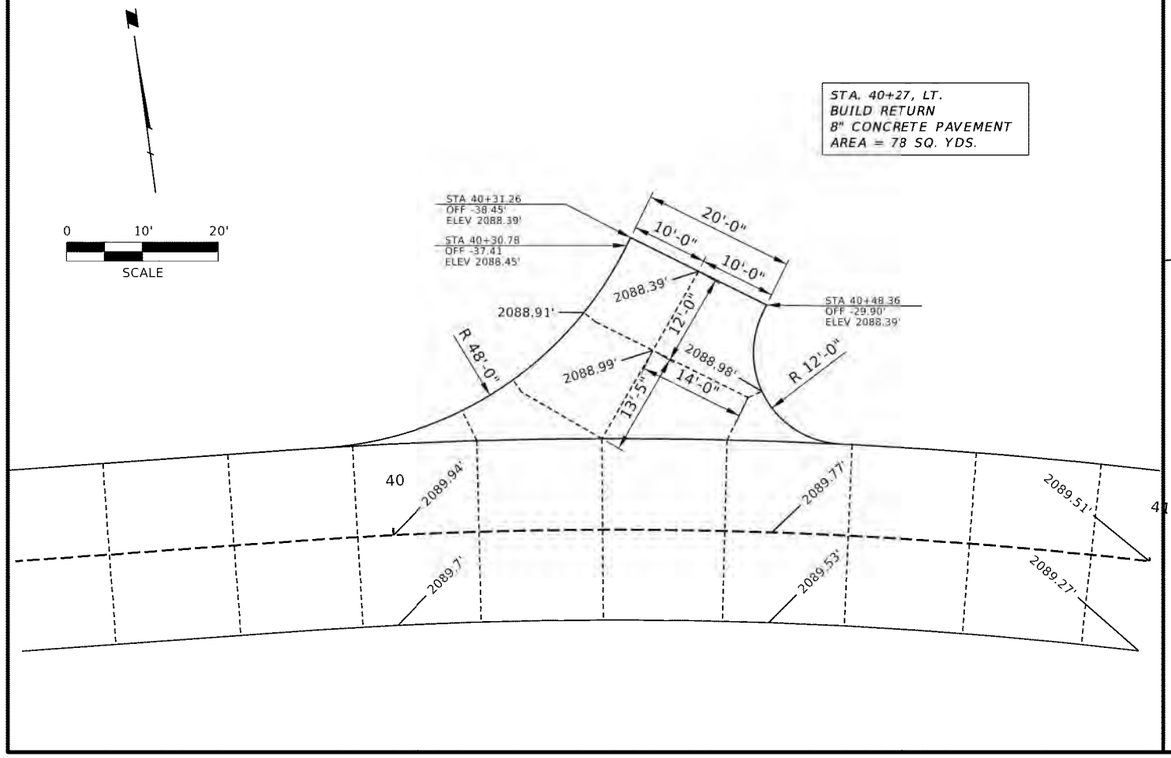

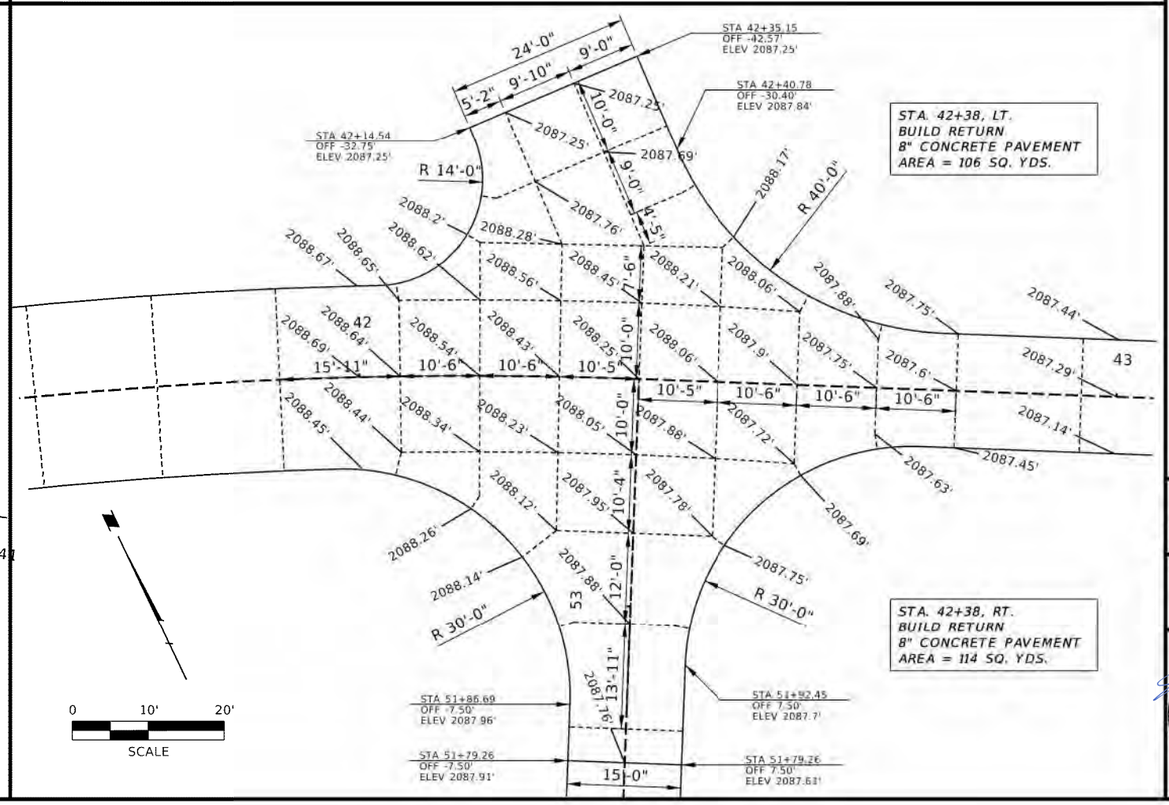

2-L6

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT
IN SEC. 25-T17N-R13W

PAVEMENT JOINTS AND SPOT ELEVATIONS

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3260 FOLKWAYS BLVD
SUITE B
LINCOLN, NE 68504
PH: 402-786-2203
MIDWESTE.COM

PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
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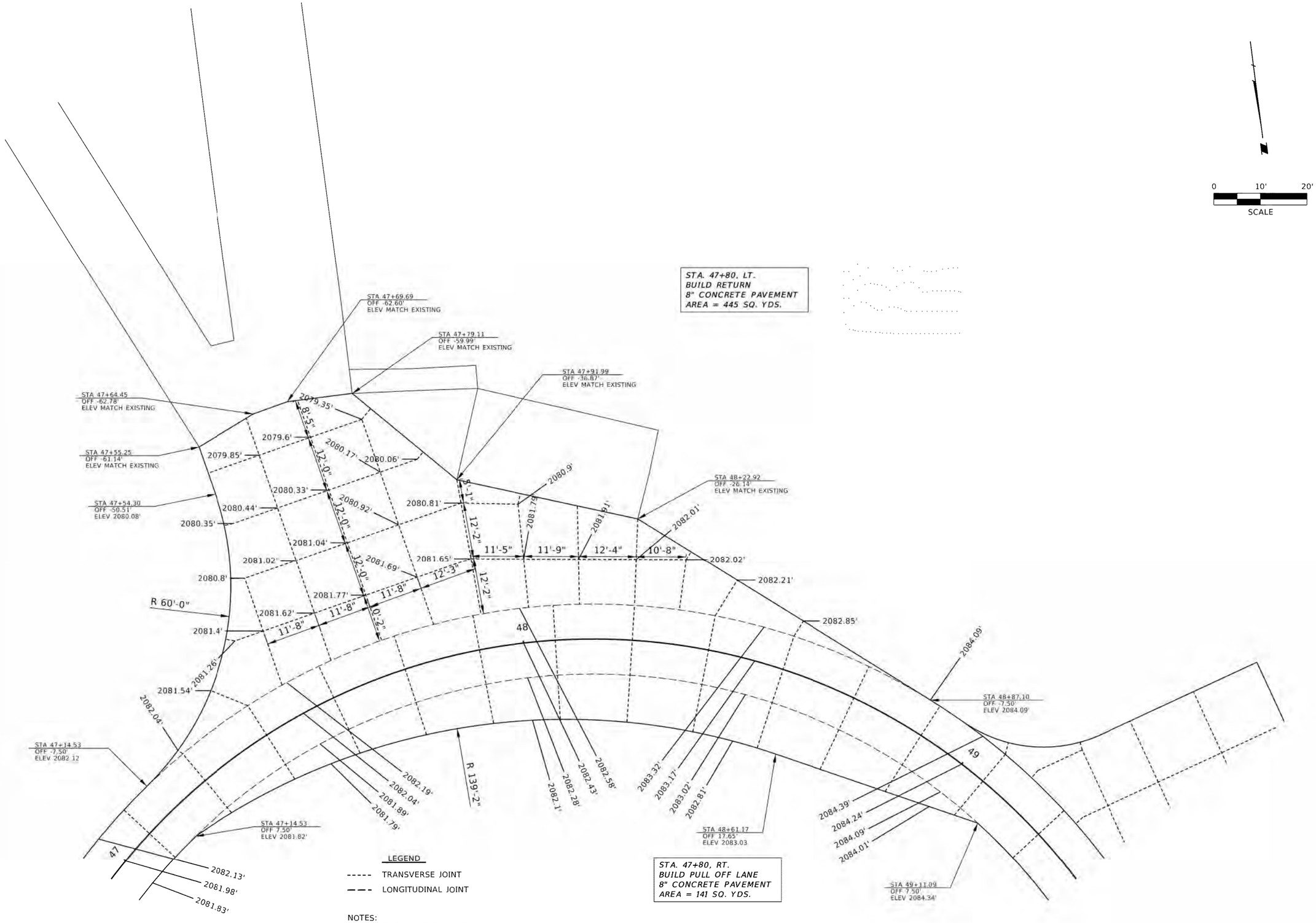


STA. 47+80, LT.
BUILD RETURN
8" CONCRETE PAVEMENT
AREA = 445 SQ. YDS.

STA. 47+80, RT.
BUILD PULL OFF LANE
8" CONCRETE PAVEMENT
AREA = 141 SQ. YDS.

LEGEND

----- TRANSVERSE JOINT

— — — LONGITUDINAL JOINT

NOTES:
MAX JOINT SPACING IS 16'-6"
ALL JOINTS SHALL BE SEALED USING HOT-POURED JOINT SEALANT

0 10' 20'
SCALE

2-L7

Project Number
23020

PAVEMENT JOINTS AND SPOT ELEVATIONS

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT
IN SEC. 25-T17N-R13W

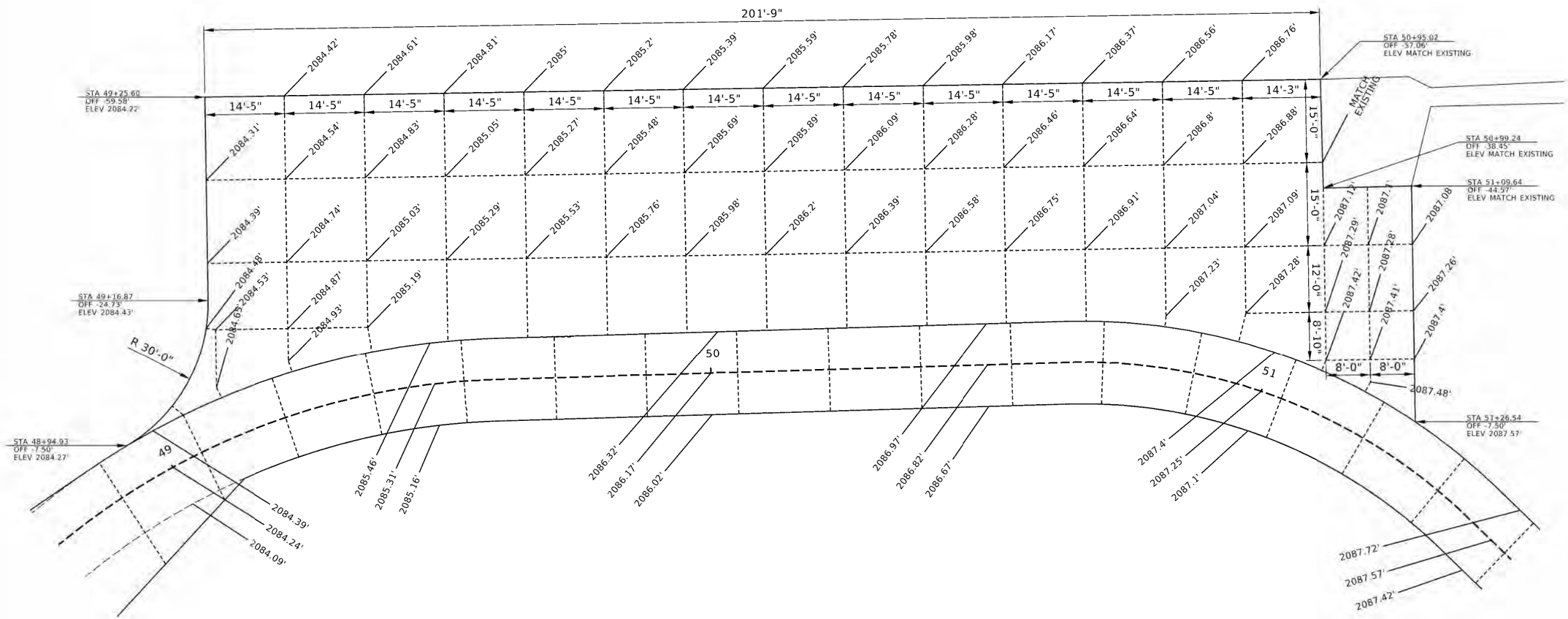
MIDWEST ENGINEERING, INC
3260 FOLKWAYS BLVD
SUITE B
LINCOLN, NE 68504
PH: 402-786-2203
MIDWESTE.COM

PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16119
STATE OF NEBRASKA
09/01/2023

Project Number
23020

0 10' 20'
SCALE

STA. 50+00, LT.
BUILD PARKING AREA
8" CONCRETE PAVEMENT
AREA = 1,000 SQ. YDS.



LEGEND

----- TRANSVERSE JOINT

– – – LONGITUDINAL JOINT

NOTES:
MAX JOINT SPACING IS 16'-6"
ALL JOINTS SHALL BE SEALED USING HOT-POURED JOINT SEALANT

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT
IN SEC. 25-T17N-R13W

PAVEMENT JOINTS AND SPOT ELEVATIONS

MEI
MIDWEST ENGINEERING, INC
3260 FOLKWAYS BLVD
SUITE B
LINCOLN, NE 68504
PH: 402-786-2203
MIDWESTE.COM

PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16119
STATE OF NEBRASKA

09/01/2023

2-P

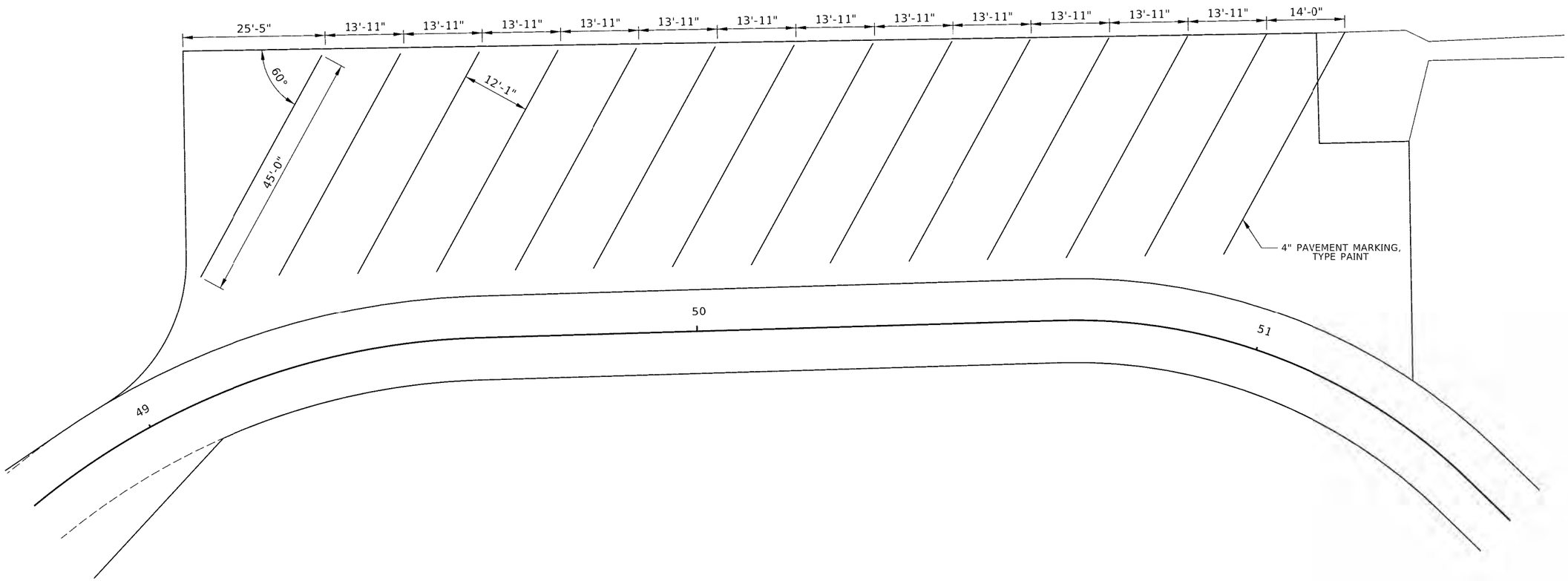
Project Number

23020

0 10' 20'

SCALE

STA. 50+00, LT.
INSTALL 630 LIN. FT. OF
4" PERMANENT PAVEMENT
MARKING, TYPE PAINT



DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

PAINT PLAN

MIDWEST ENGINEERING, INC

3260 FOLKWAYS BLVD
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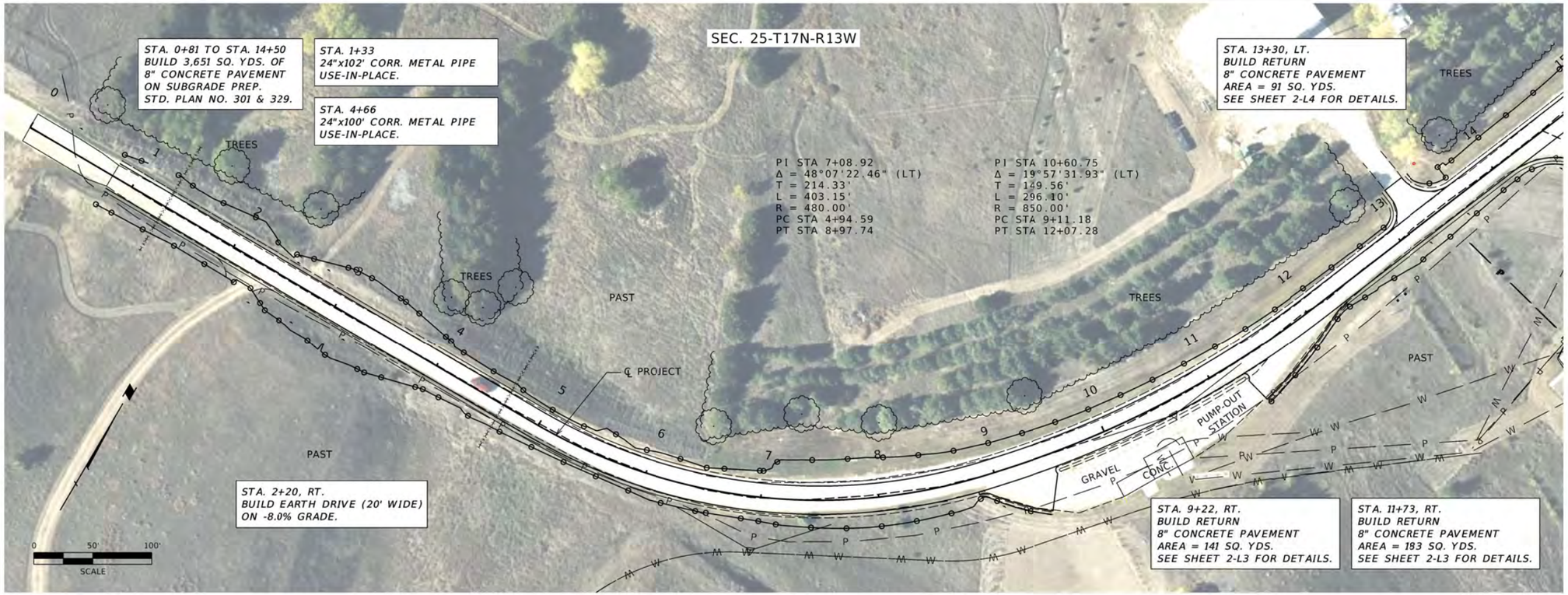
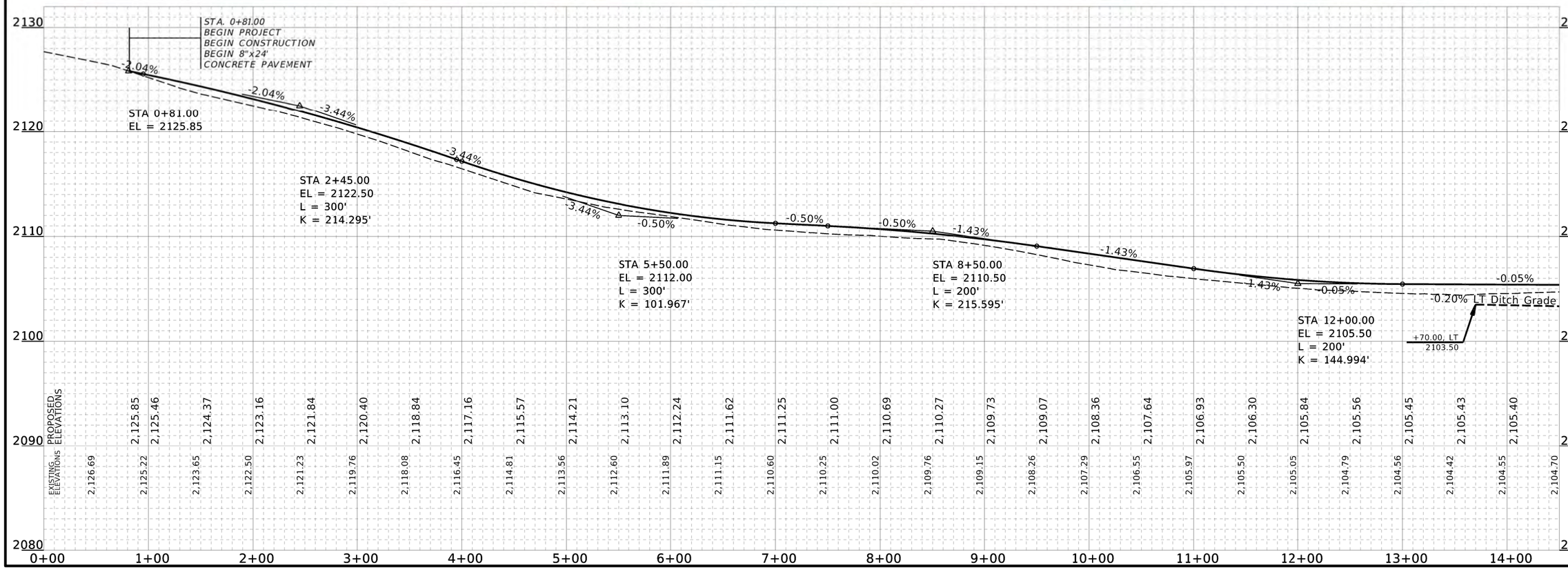
MIDWESTE.COM

PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16118
STATE OF NEBRASKA

09/01/2023





3

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT
IN SEC. 25-T17N-R13W

PLAN AND PROFILE

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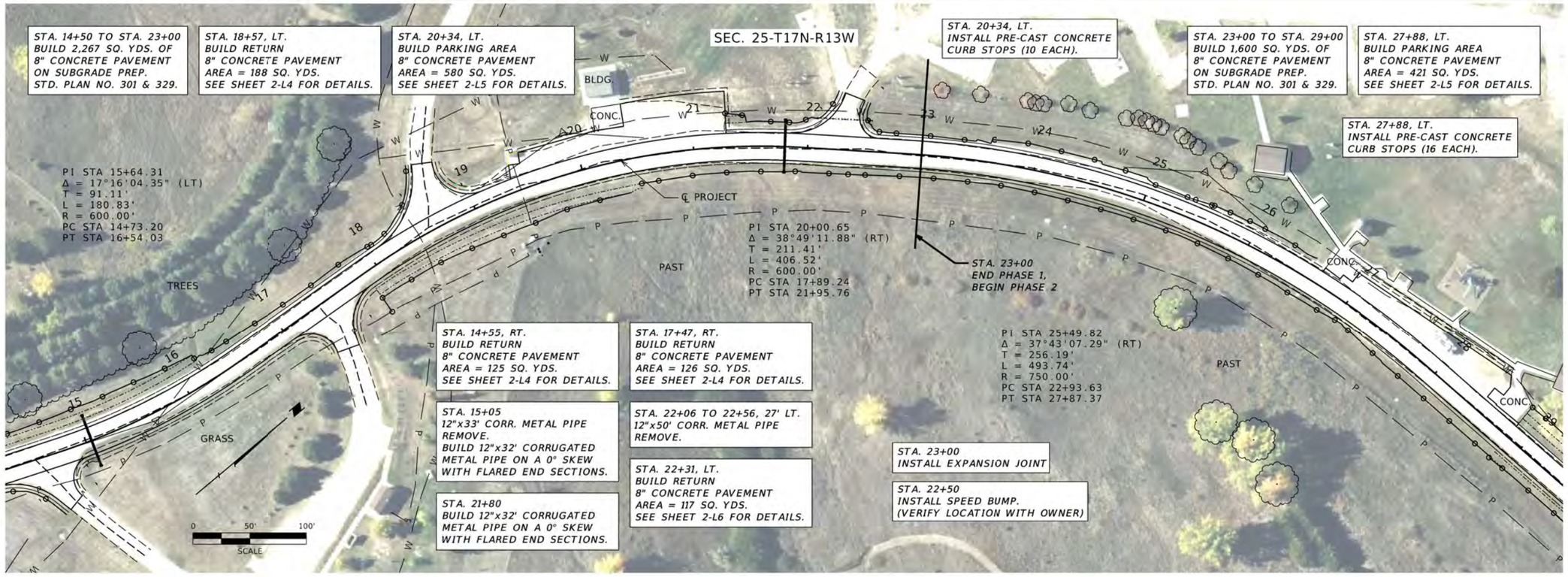
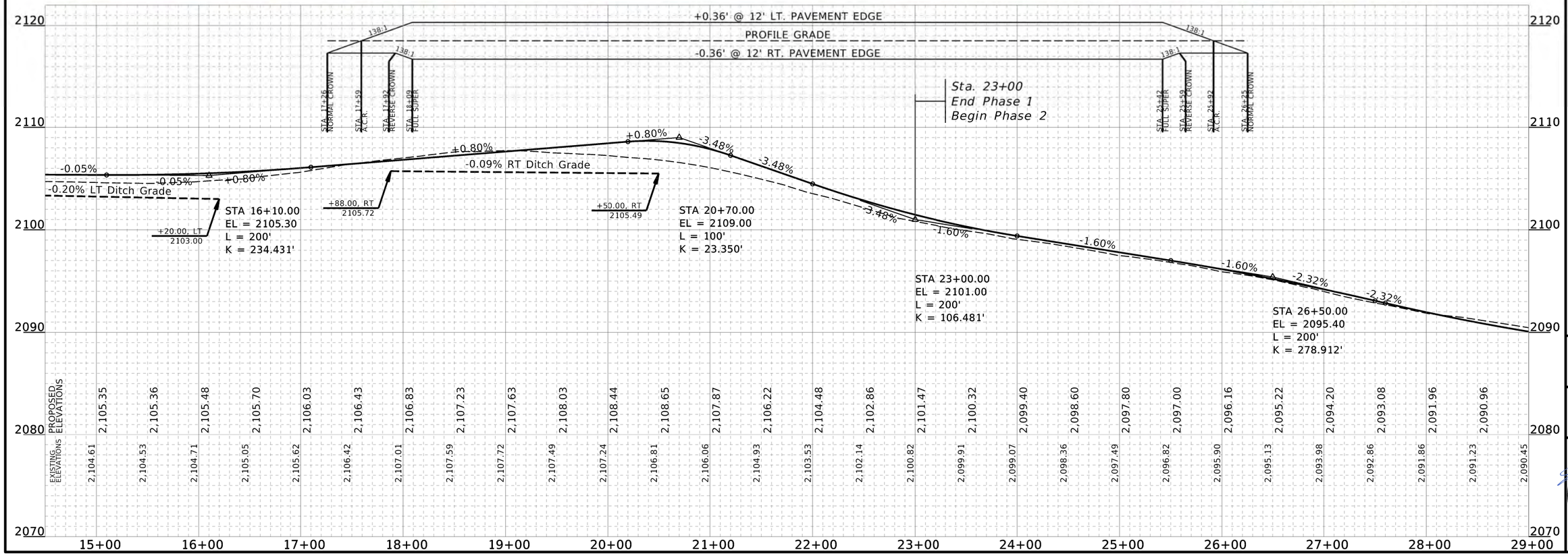
PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16118
STATE OF NEBRASKA
09/01/2023





4

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT
IN SEC. 25-T17N-R13W

PLAN AND PROFILE

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MIDWEST ENGINEERING, INC
3260 FOLKWAYS BLVD
SUITE B
LINCOLN, NE 68504
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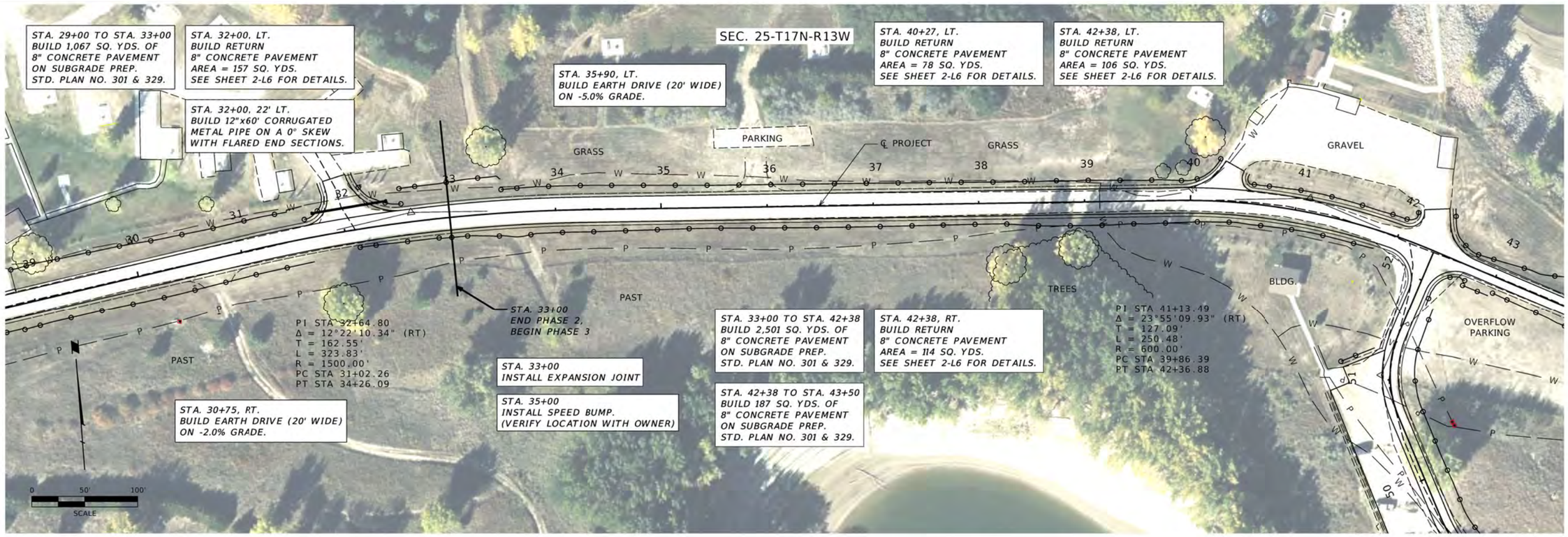
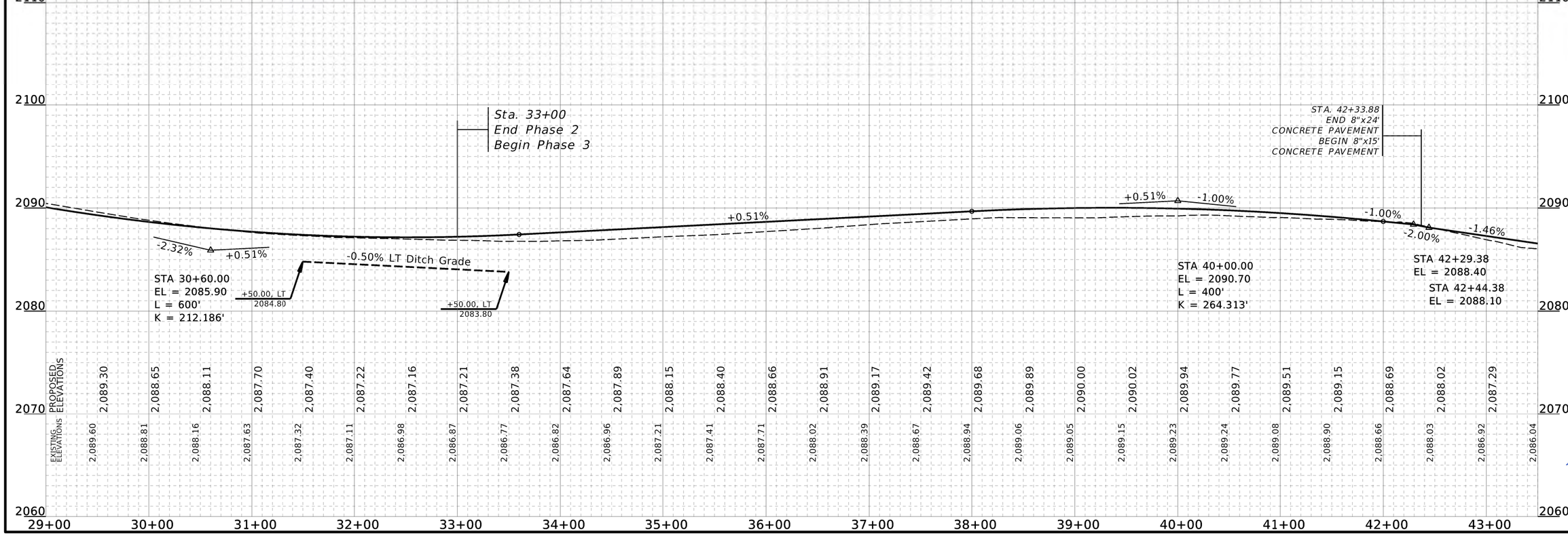
MIDWESTE.COM

PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16110
STATE OF NEBRASKA
09/01/2023





5

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT
IN SEC. 25-T17N-R13W

PLAN AND PROFILE

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MIDWEST ENGINEERING, INC
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PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
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STATE OF NEBRASKA
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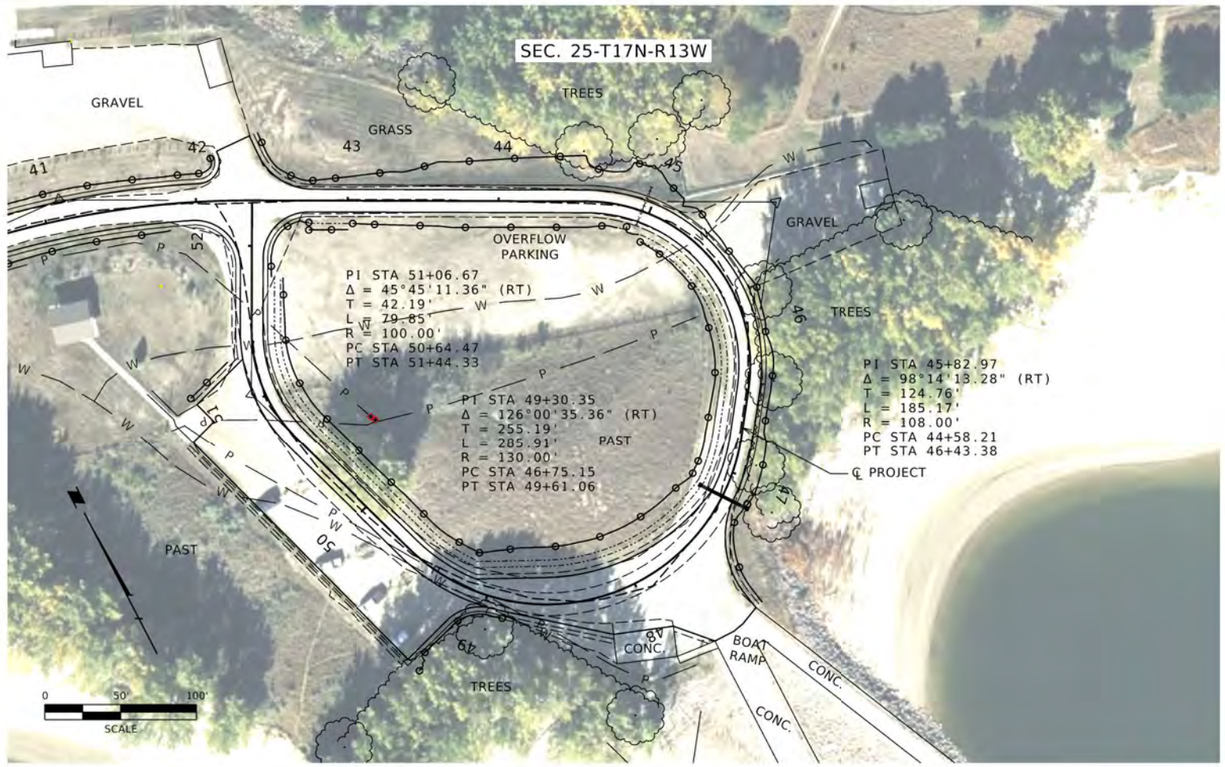


STA. 43+50 TO STA. 51+87
BUILD 1,395 SQ. YDS. OF
8" CONCRETE PAVEMENT
ON SUBGRADE PREP.
STD. PLAN NO. 301 & 329.

STA. 44+95
18"x29' CORR. METAL PIPE
USE-IN-PLACE.

STA. 45+50, LT.
BUILD EARTH DRIVE (50' WIDE)
ON -10.0% GRADE.

STA. 45+40, RT.
BUILD EARTH DRIVE (30' WIDE)
ON -3.8% GRADE.

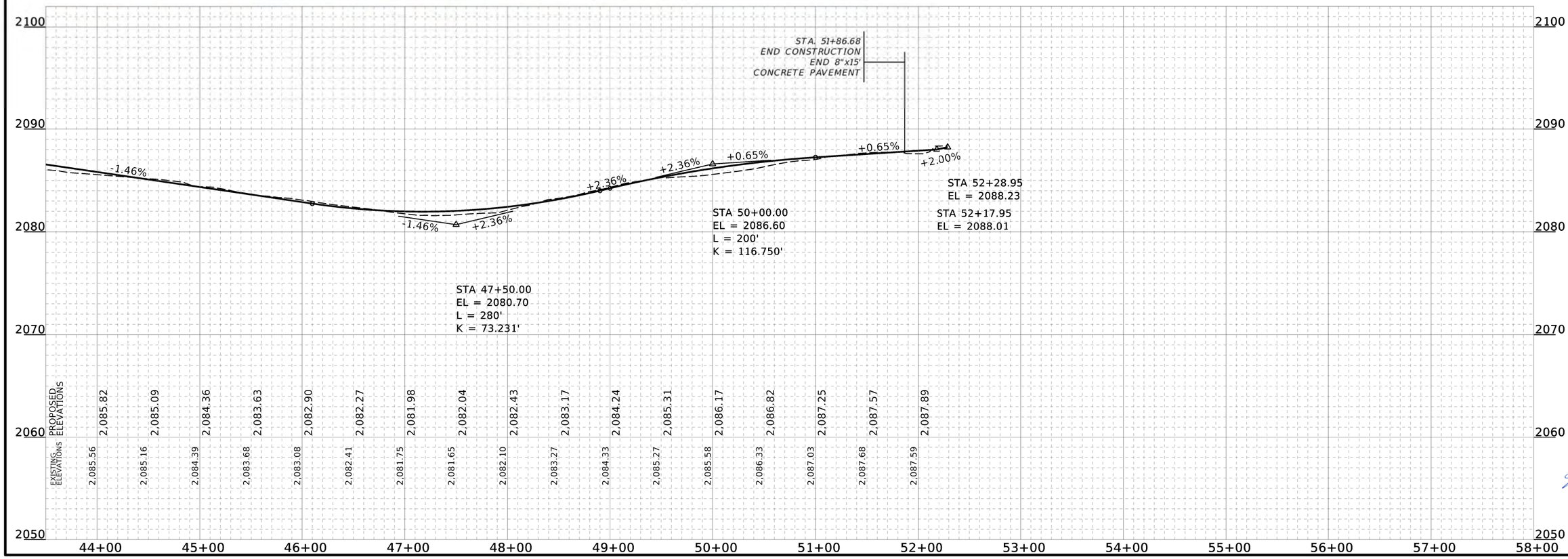
STA. 47+17
BUILD 12"x24' CORRUGATED
METAL PIPE ON A 0° SKEW
WITH FLARED END SECTIONS.

STA. 47+80, LT.
BUILD RETURN
8" CONCRETE PAVEMENT
AREA = 445 SQ. YDS.
SEE SHEET 2-L7 FOR DETAILS.

STA. 47+80, RT.
BUILD PULL OFF LANE
8" CONCRETE PAVEMENT
AREA = 141 SQ. YDS.
SEE SHEET 2-L7 FOR DETAILS.

STA. 50+00, LT.
BUILD PARKING AREA
8" CONCRETE PAVEMENT
AREA = 1,000 SQ. YDS.
SEE SHEET 2-L8 FOR DETAILS.

STA. 50+00, LT.
INSTALL PRE-CAST CONCRETE
CURB STOPS (14 EACH).



6

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT
IN SEC. 25-T17N-R13W
PLAN AND PROFILE

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PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16110
STATE OF NEBRASKA
09/01/2023

Project Number
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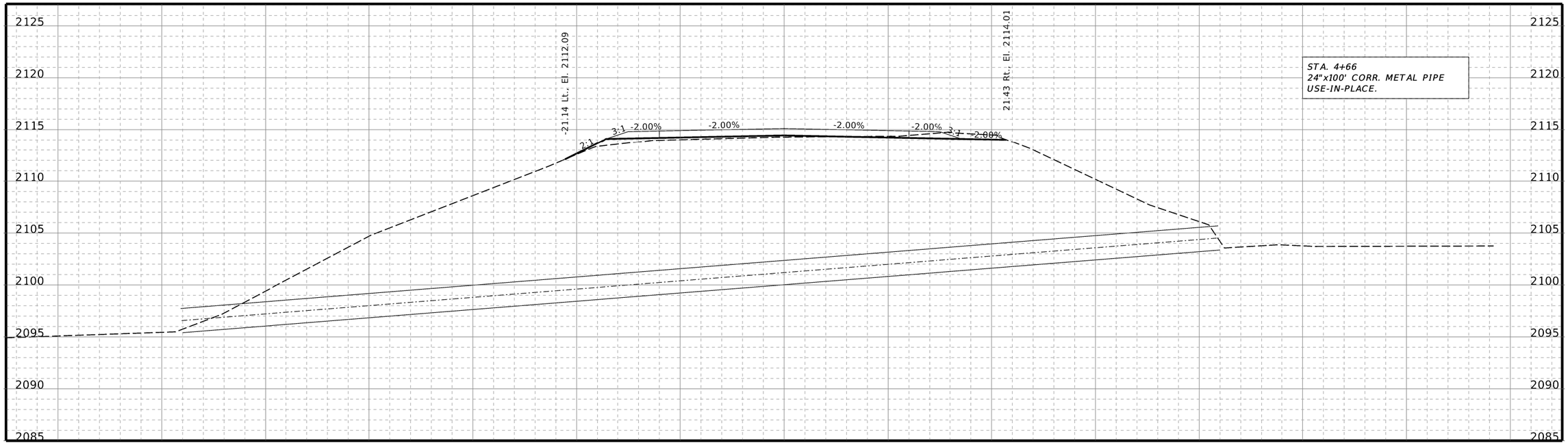
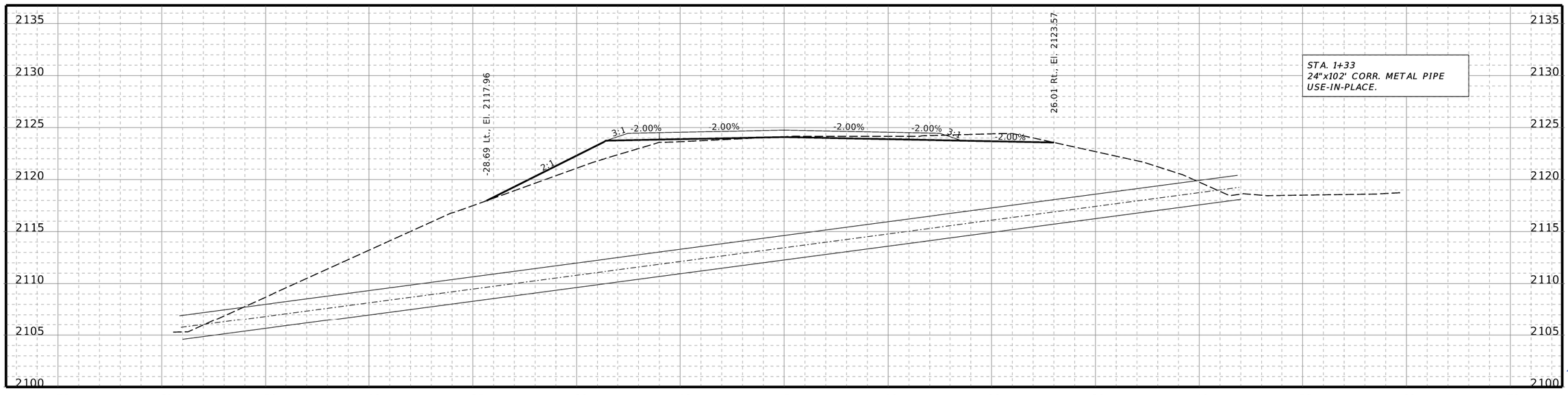


STA.4+66



STA.1+33

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT
IN SEC. 25-T17N-R13W

CULVERT CROSS SECTIONS

MIDWEST ENGINEERING, INC
3260 FOLKWAYS BLVD
SUITE B
LINCOLN, NE 68504
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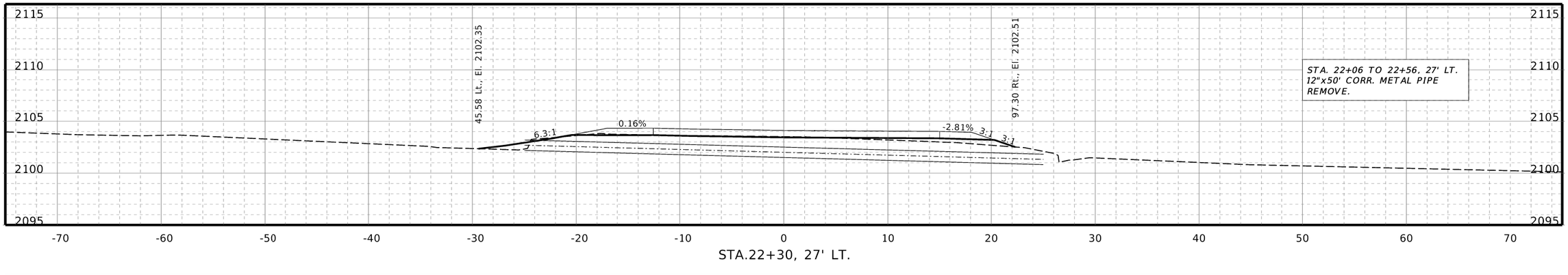
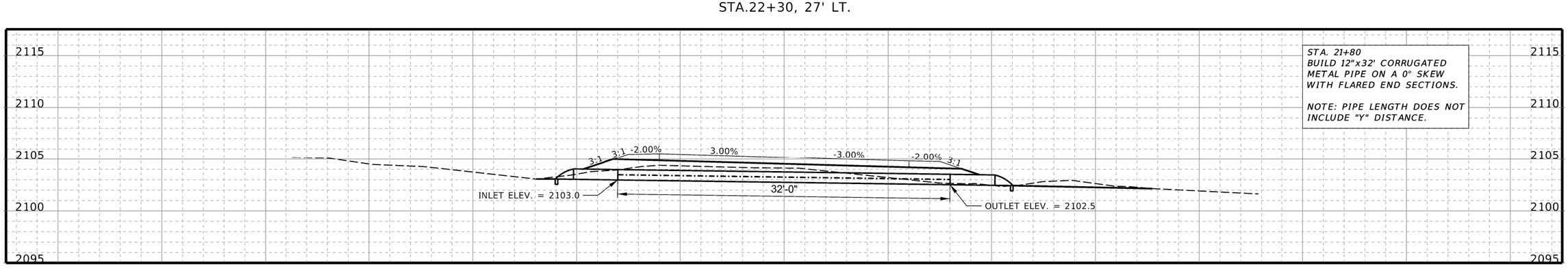
MIDWESTE.COM

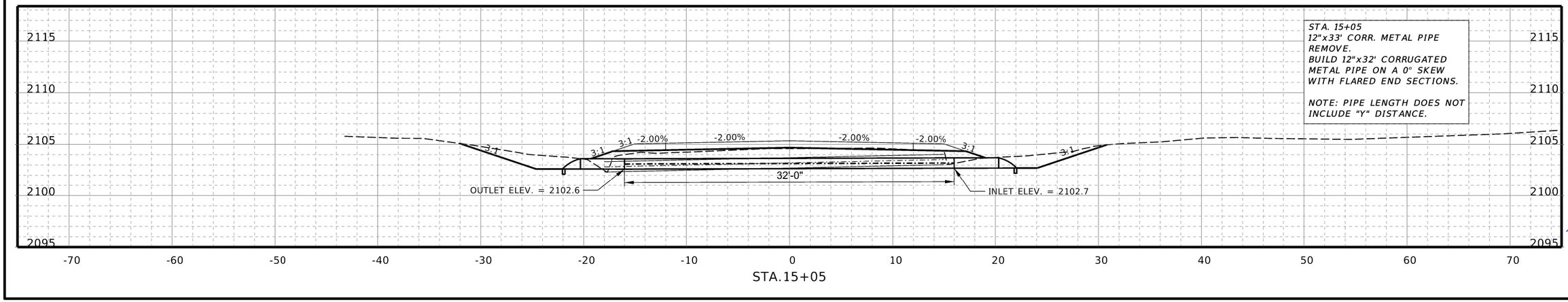
PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16118
STATE OF NEBRASKA
09/01/2023



STA.22+30, 27' LT.



STA.21+80



STA.15+05

8

Project Number

23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

CULVERT CROSS SECTIONS

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3260 FOLKWAYS BLVD
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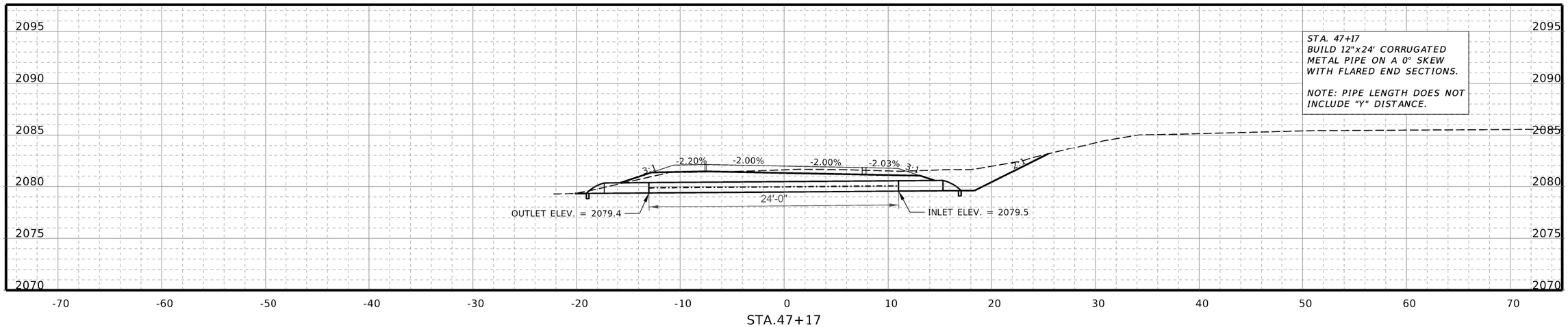
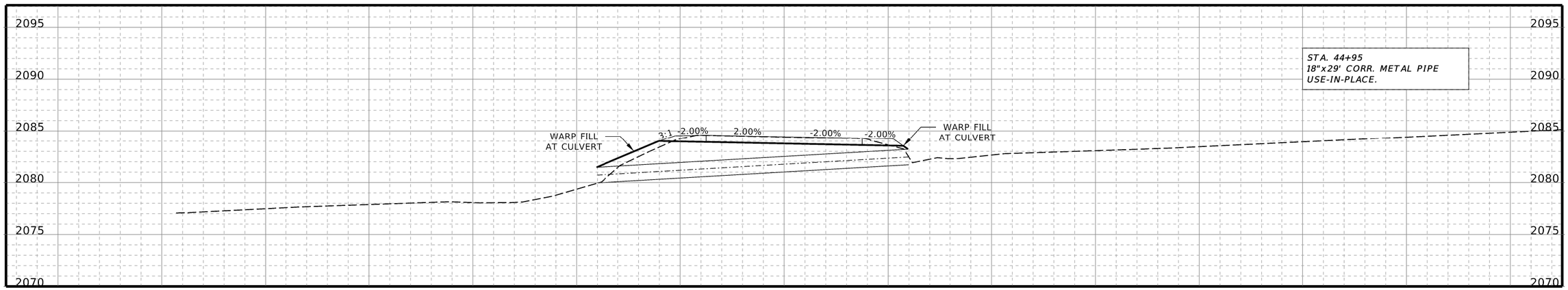
PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16119
STATE OF NEBRASKA

09/01/2023

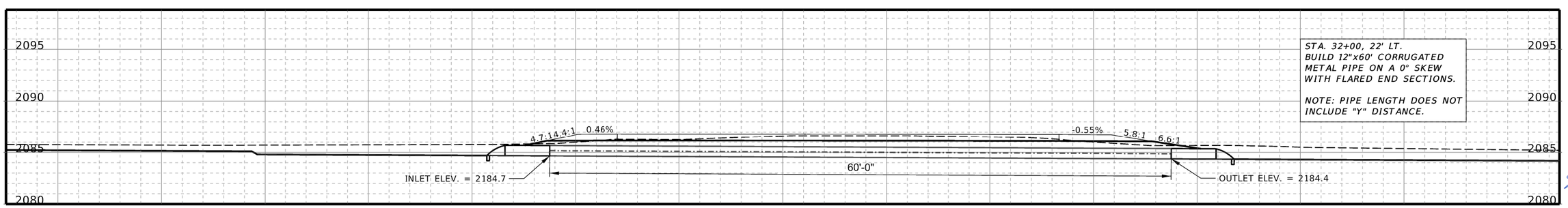
Project Number
23020



STA.47+17



STA.44+95



STA.32+00, 22' LT.

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT
IN SEC. 25-T17N-R13W

CULVERT CROSS SECTIONS

MIDWEST ENGINEERING, INC
3260 FOLKWAYS BLVD
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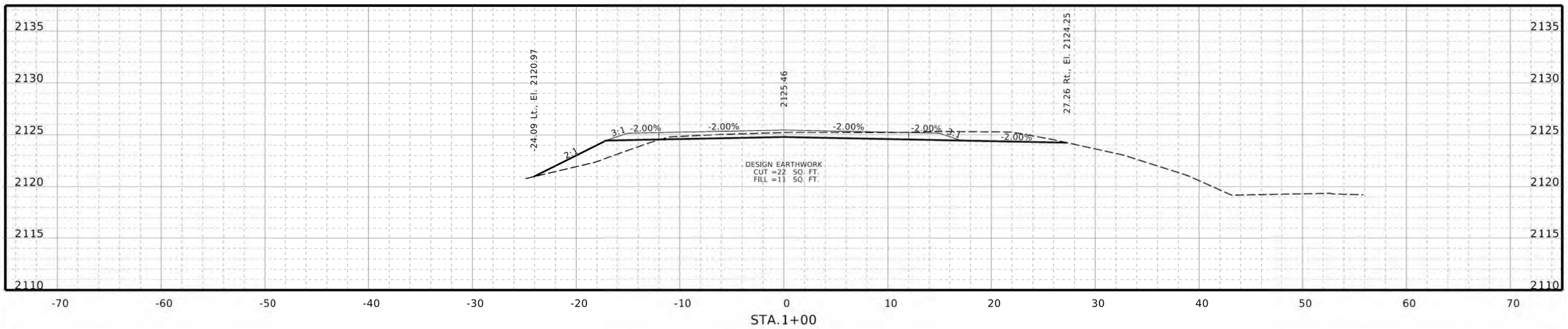
MIDWESTE.COM

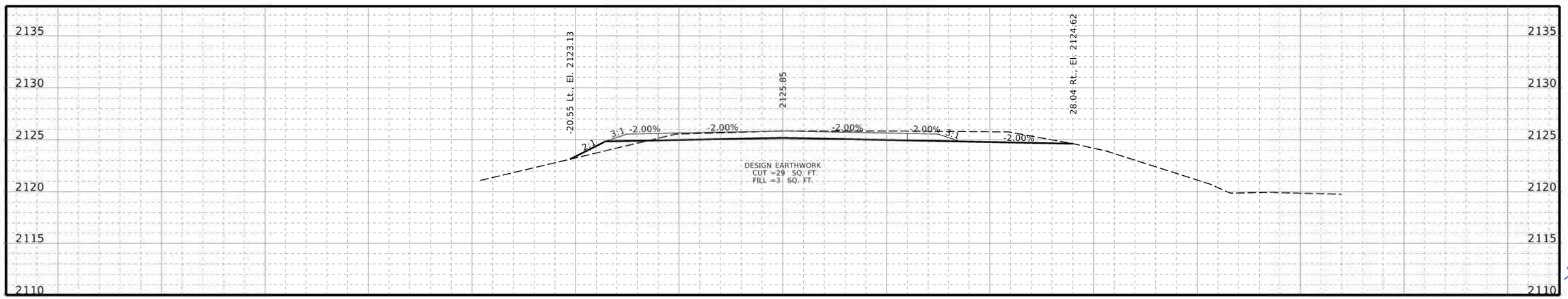
PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16118
STATE OF NEBRASKA
09/01/2023

X-1

Project Number
23020



STA.1+00



STA.0+81

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

CROSS SECTIONS

MIDWEST ENGINEERING, INC

3260 FOLKWAYS BLVD
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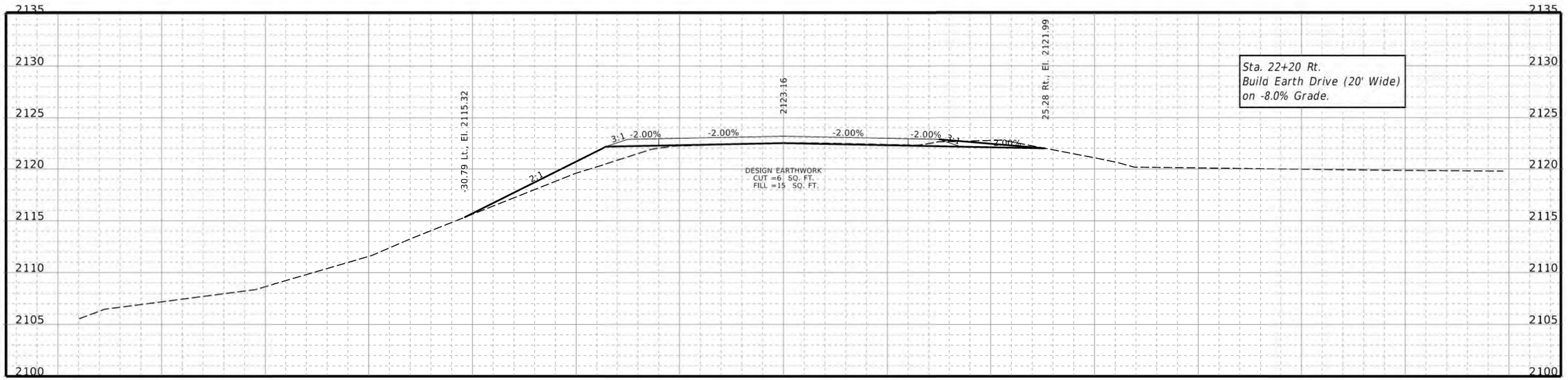
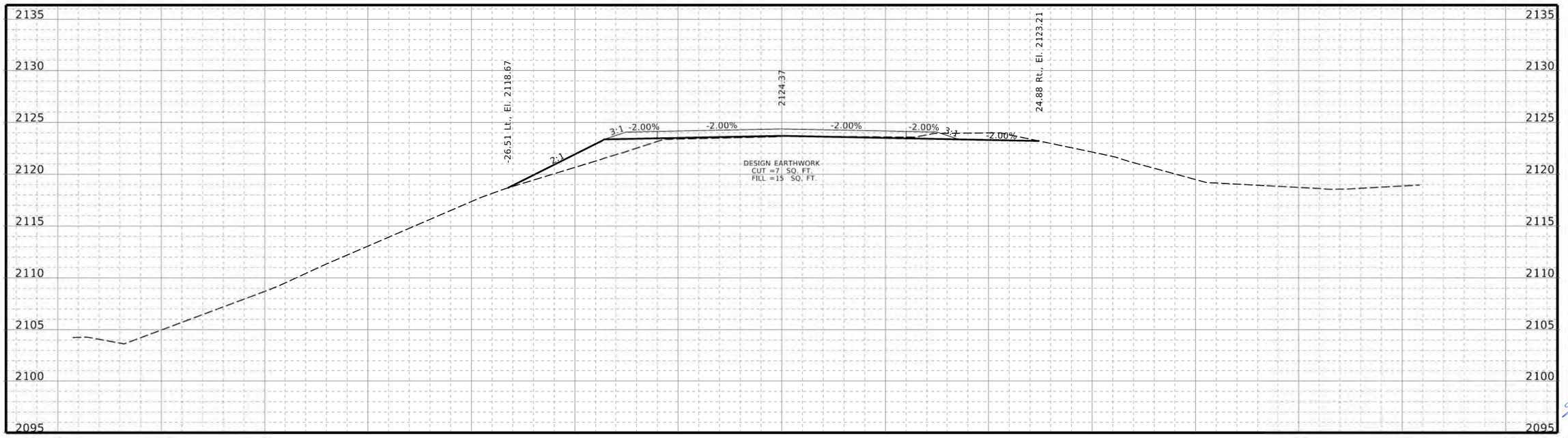
MIDWESTE.COM

PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16119
STATE OF NEBRASKA

09/01/2023



STA.2+00



STA.1+50

X-2

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

CROSS SECTIONS

MIDWEST ENGINEERING, INC
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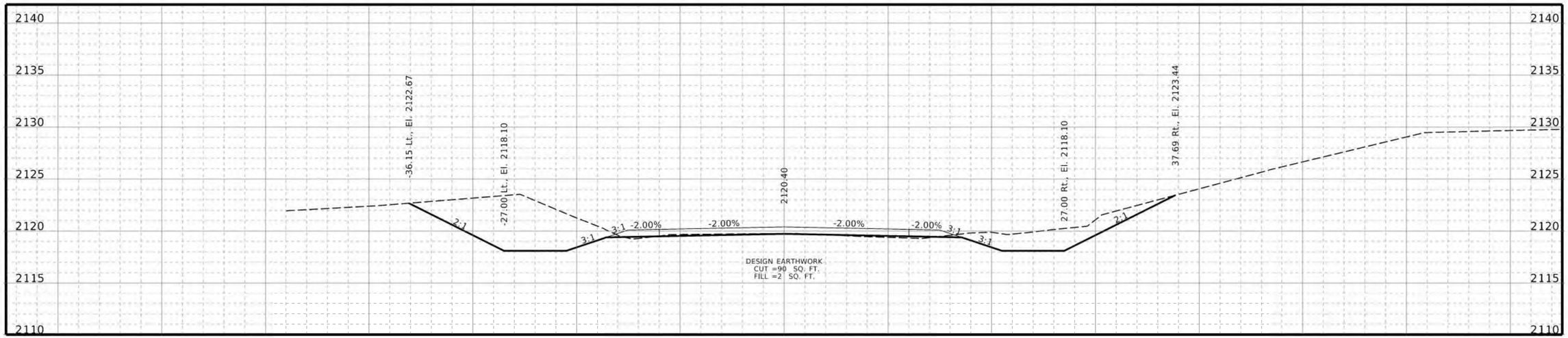
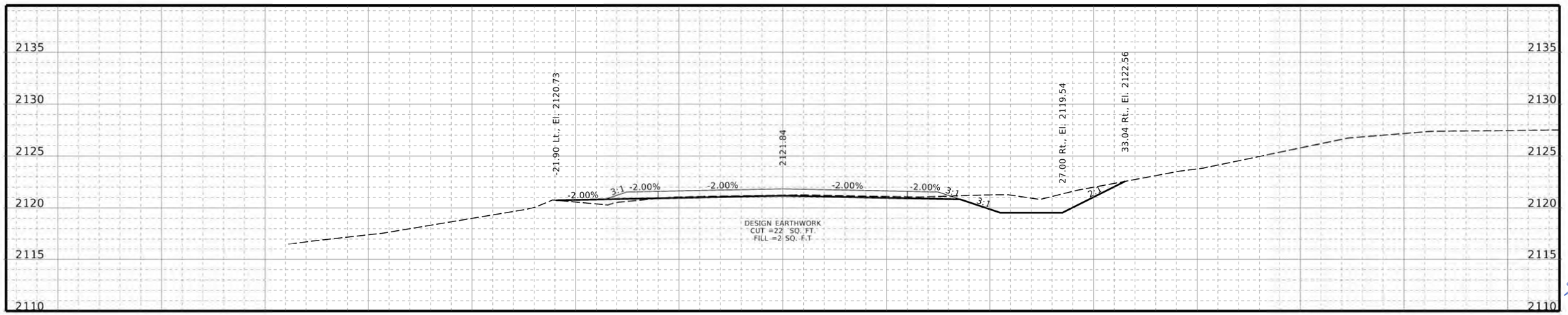
JOSHUA L. KEITHLEY
E-16119
STATE OF NEBRASKA

09/01/2023

Project Number
23020



STA.3+00



STA.2+50

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

CROSS SECTIONS

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09/01/2023

Project Number
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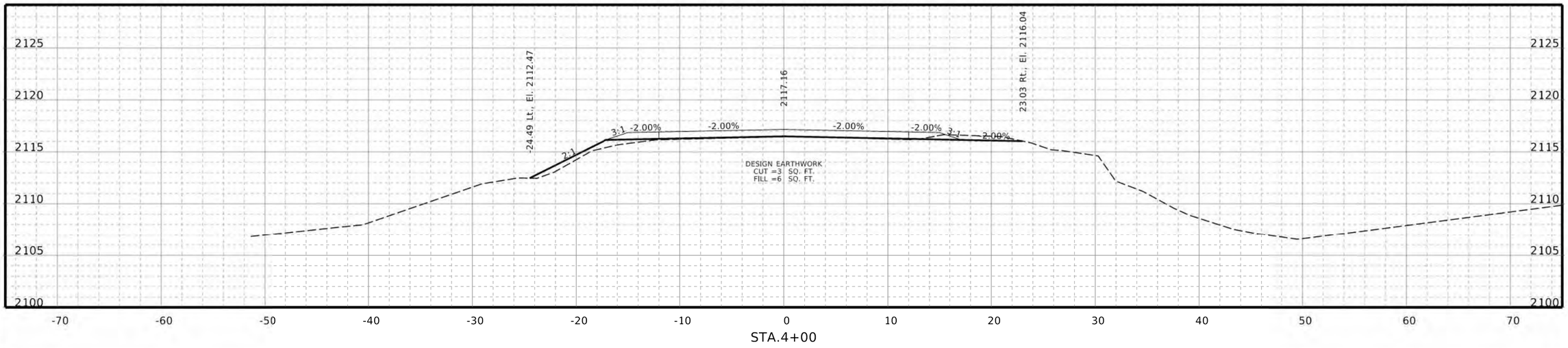
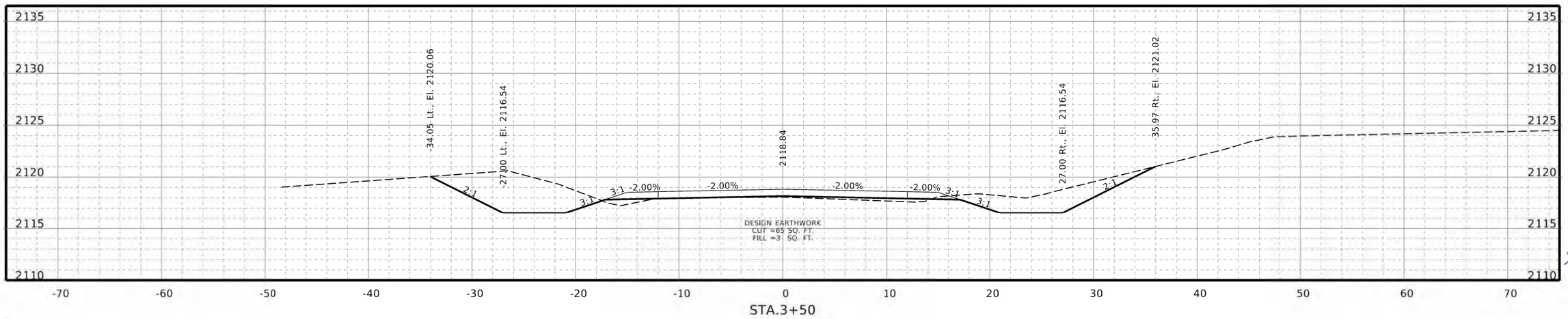


STA.4+00



STA.3+50

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

CROSS SECTIONS

MEI
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3260 FOLKWAYS BLVD
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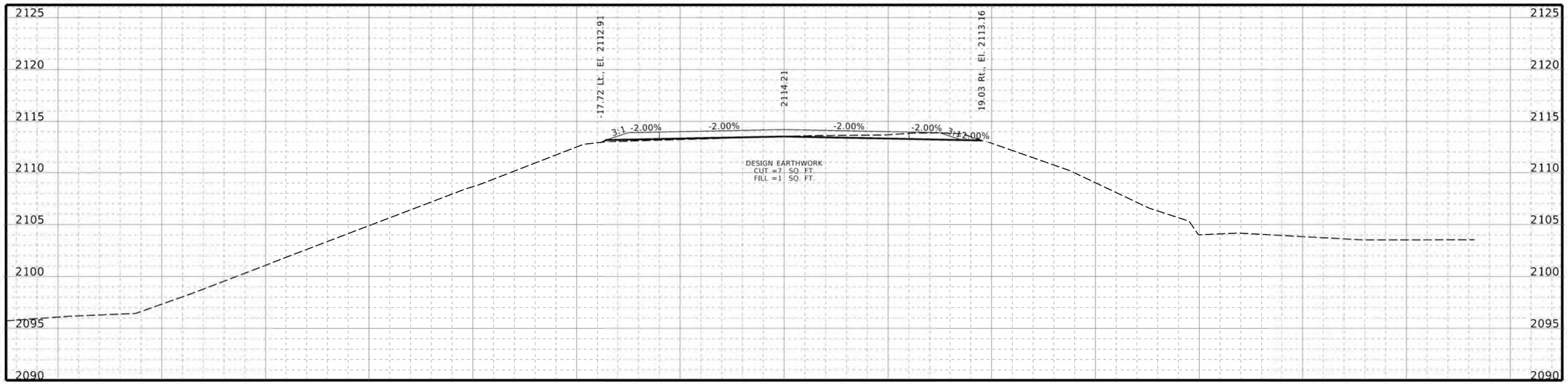
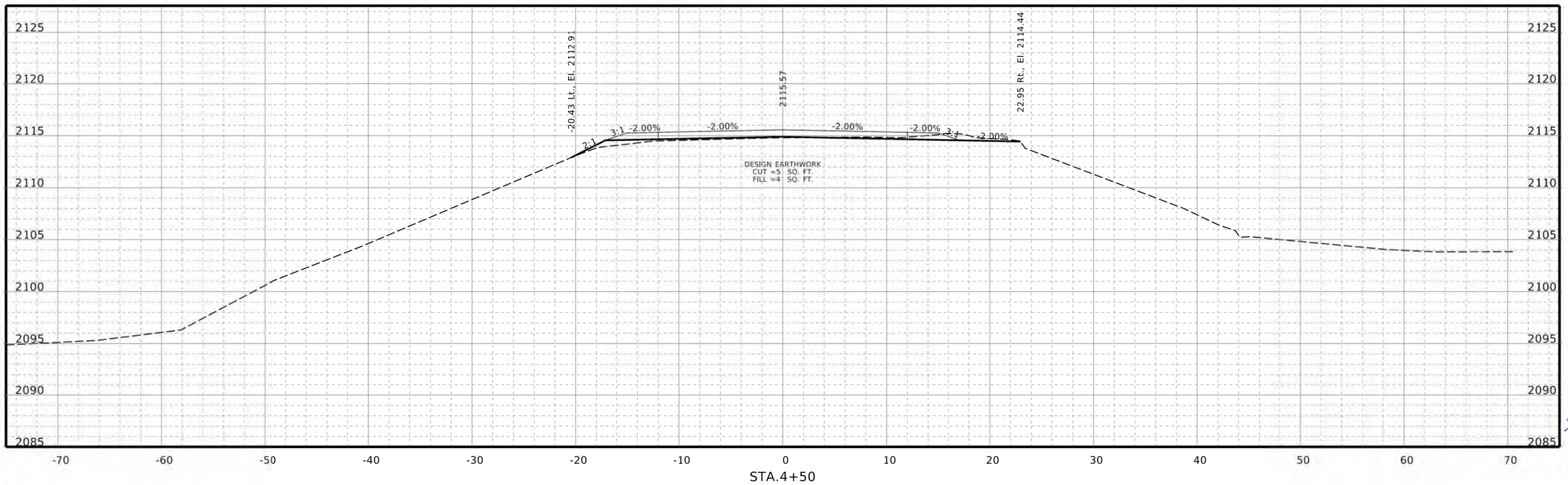
E-16118
STATE OF NEBRASKA

09/01/2023



STA.5+00



STA.4+50

X-5

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

CROSS SECTIONS

MEI
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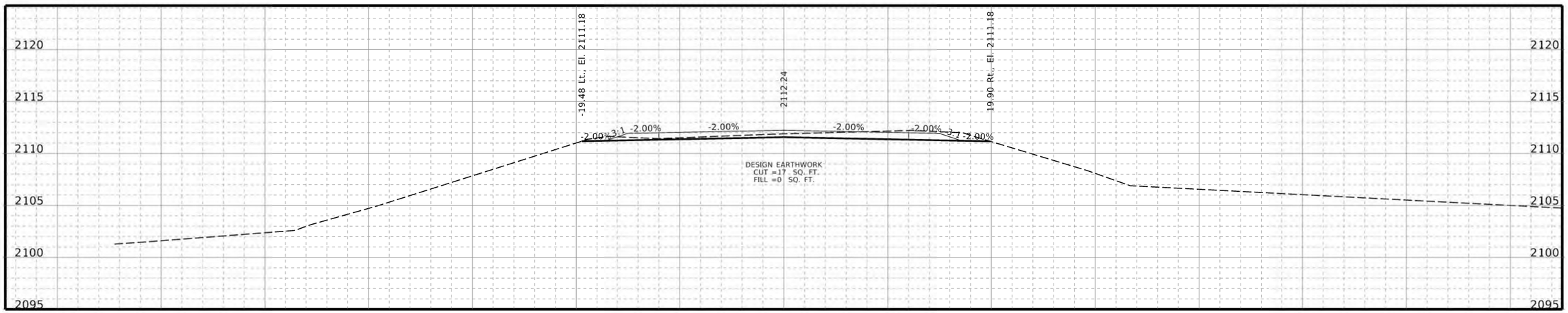
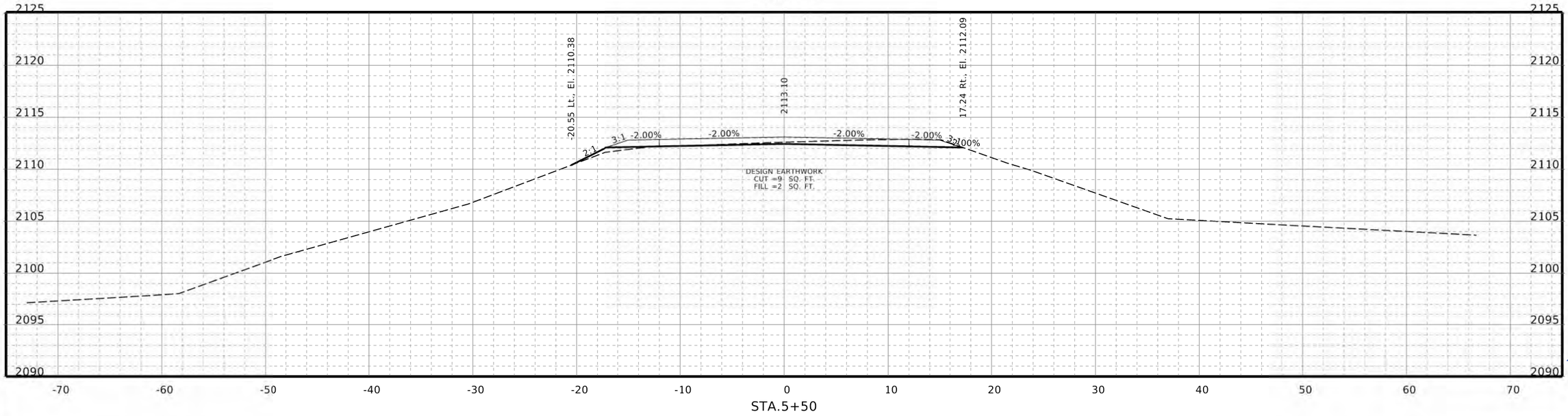


STA.6+00



STA.5+50

X-6

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT
IN SEC. 25-T17N-R13W
CROSS SECTIONS

MEI
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3260 FOLKWAYS BLVD
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09/01/2023

Project Number
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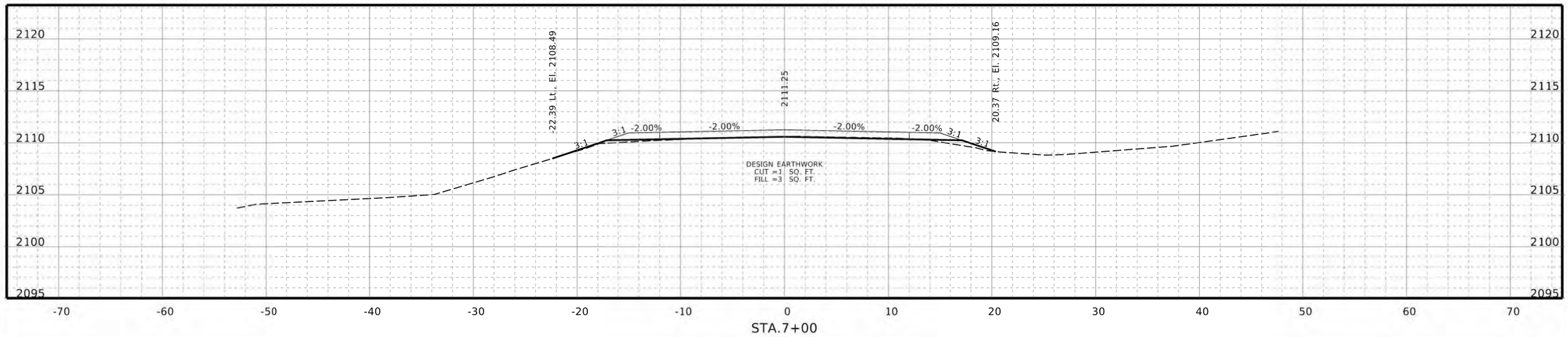

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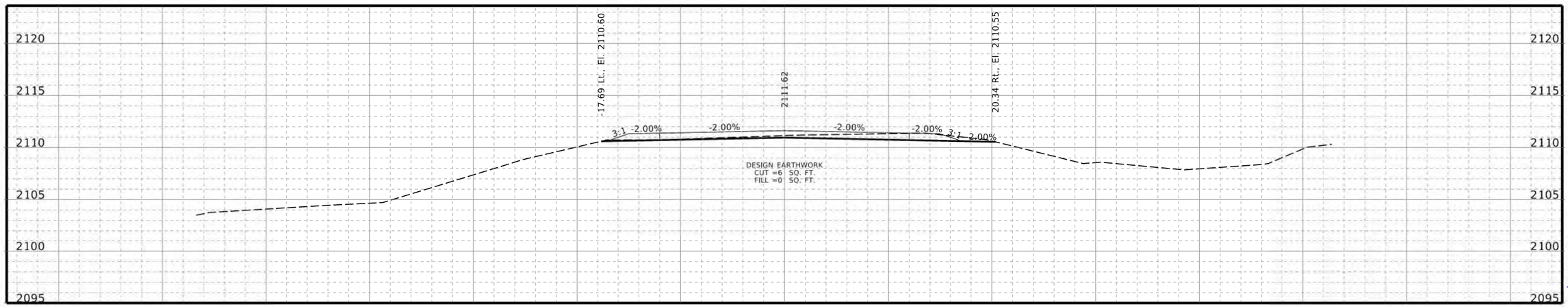

STA.6+50

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

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CROSS SECTIONS

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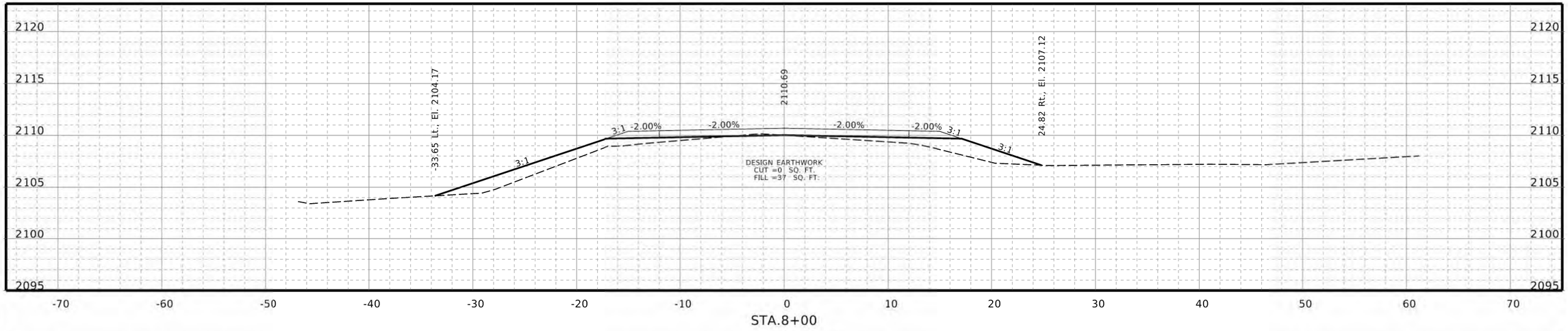
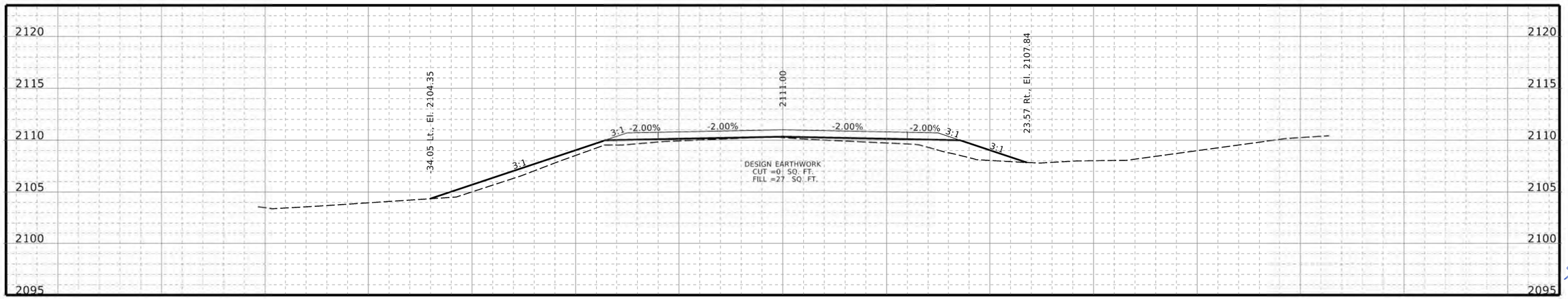
PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-18119
STATE OF NEBRASKA

09/01/2023



STA.8+00



STA.7+50

X-8

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

CROSS SECTIONS

MIDWEST ENGINEERING, INC
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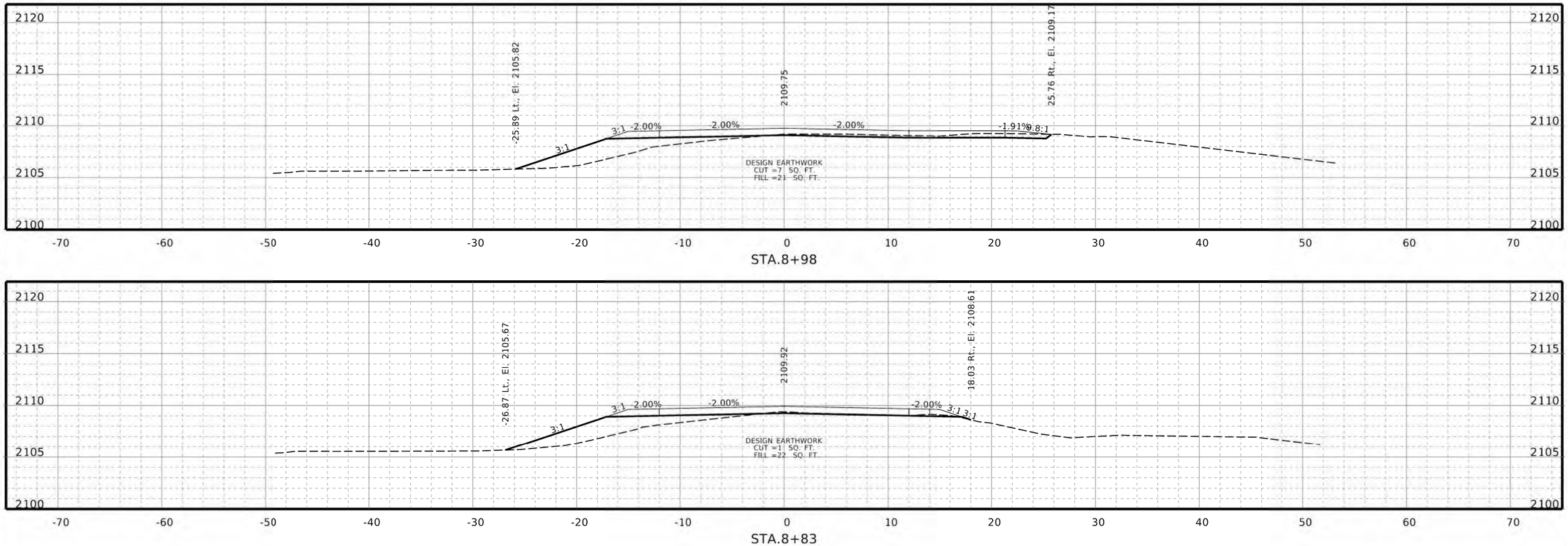
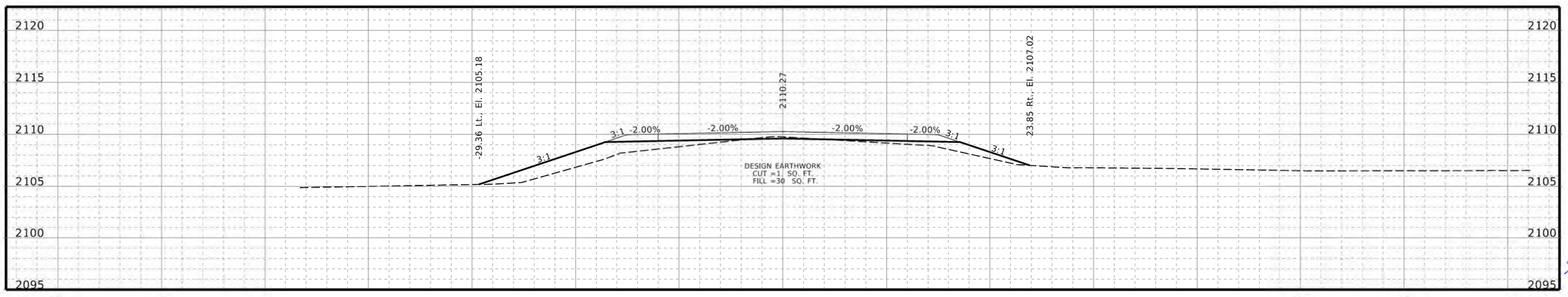
PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16119
STATE OF NEBRASKA

09/01/2023



STA.8+98

STA.8+83



STA.8+50

X-9

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

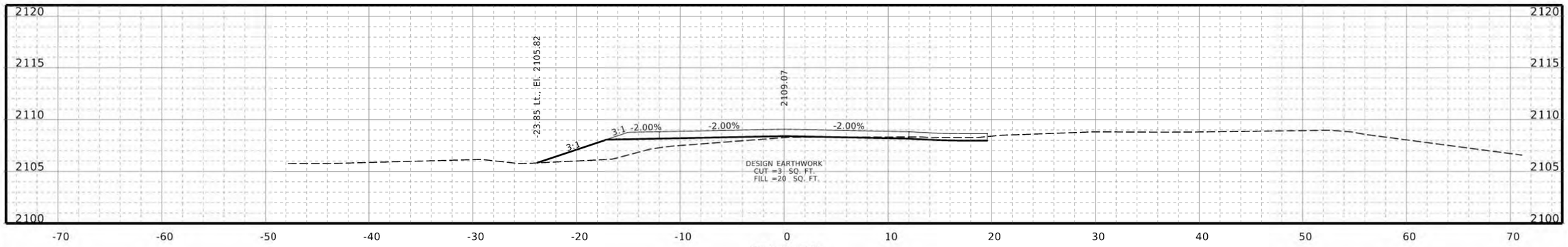
IN SEC. 25-T17N-R13W

CROSS SECTIONS

MIDWEST ENGINEERING, INC
3260 FOLKWAYS BLVD
SUITE B
LINCOLN, NE 68504
PH: 402-786-2203
MIDWESTE.COM

PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16118
STATE OF NEBRASKA

09/01/2023



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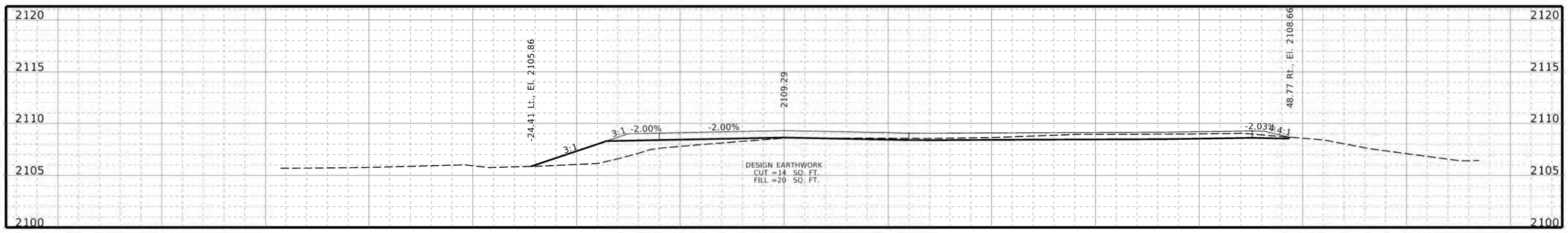

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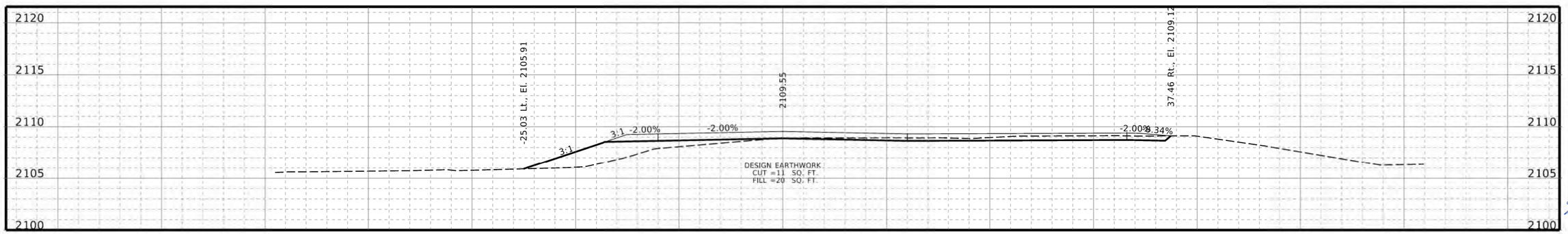


STA.9+14

X-10

Project Number
23020

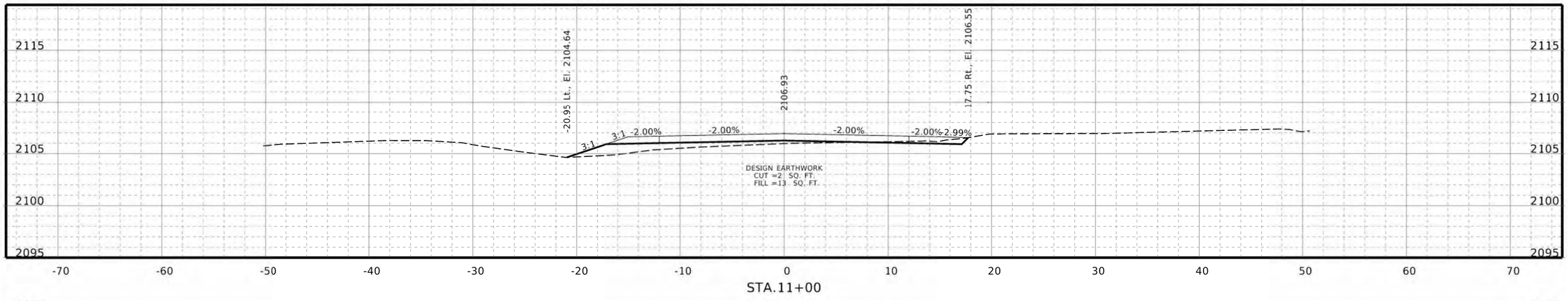
DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

CROSS SECTIONS

MIDWEST ENGINEERING, INC
3260 FOLKWAYS BLVD
SUITE B
LINCOLN, NE 68504
PH: 402-786-2203
MIDWESTE.COM

PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16118
STATE OF NEBRASKA
09/01/2023



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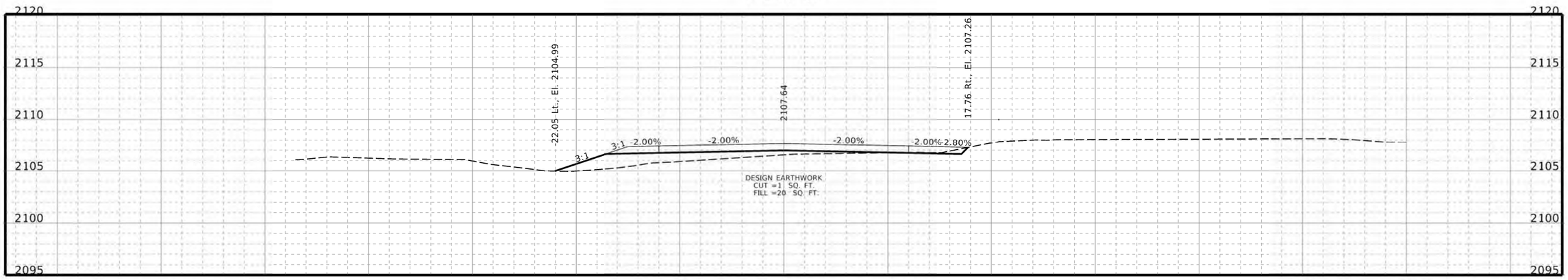

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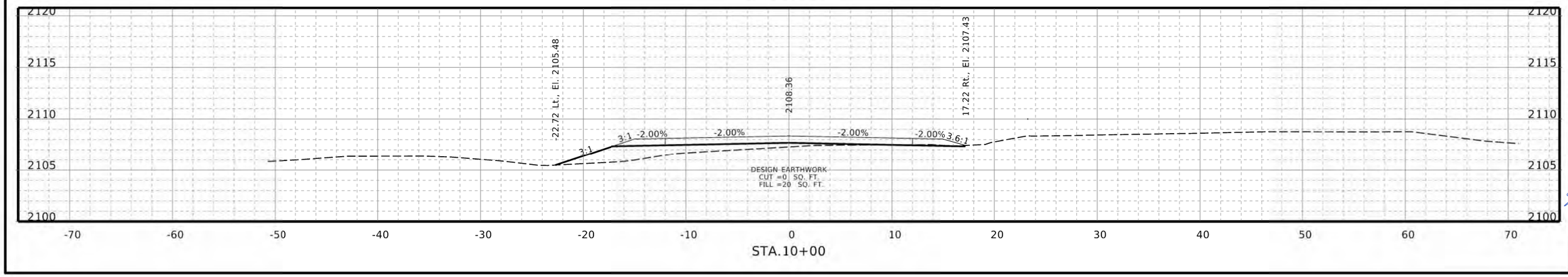


STA.10+00

X-11

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

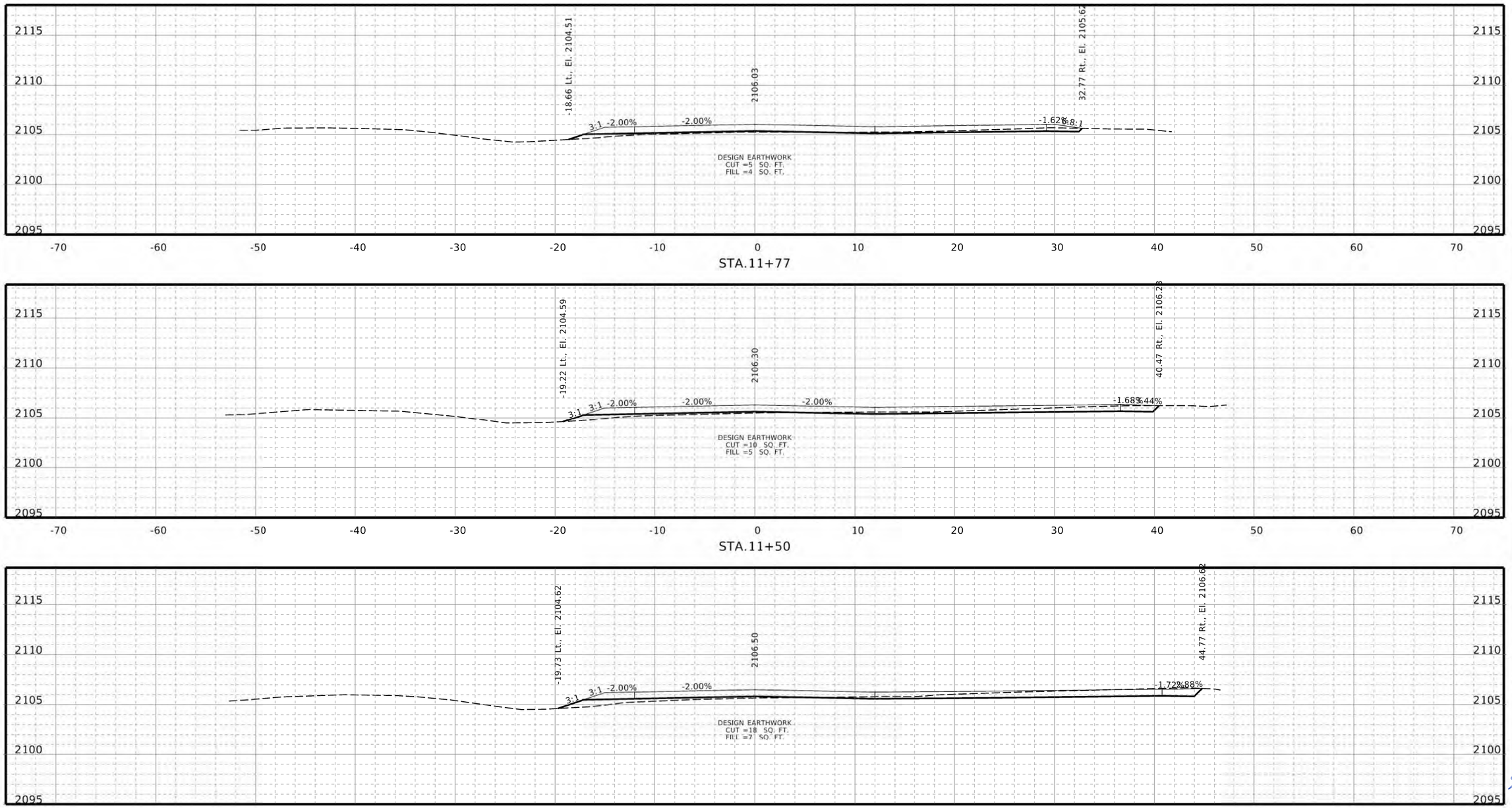
IN SEC. 25-T17N-R13W

CROSS SECTIONS

MIDWEST ENGINEERING, INC
3260 FOLKWAYS BLVD
SUITE B
LINCOLN, NE 68504
PH: 402-786-2203
MIDWESTE.COM

PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16119
STATE OF NEBRASKA

09/01/2023



STA.11+77

STA.11+50

STA.11+33

X-12

Project Number

23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

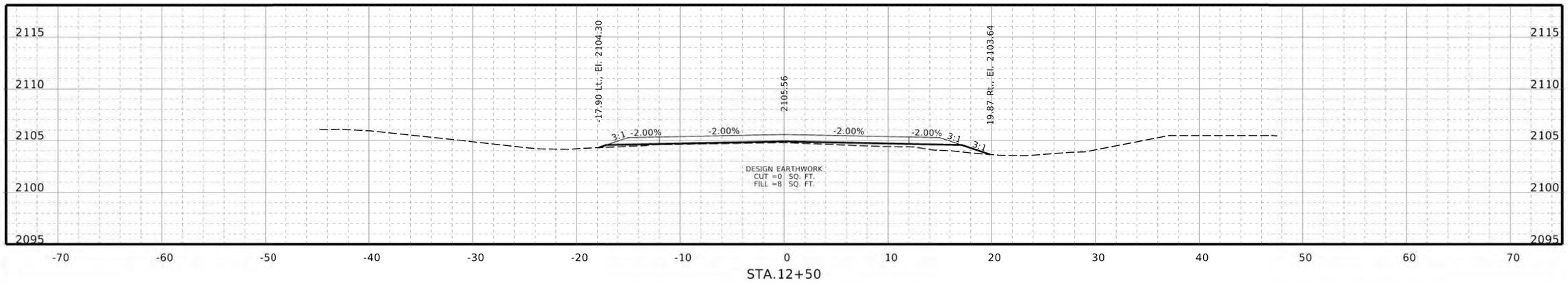
CROSS SECTIONS

MIDWEST ENGINEERING, INC

3260 FOLKWAYS BLVD
SUITE B
LINCOLN, NE 68504
PH: 402-786-2203
MIDWESTE.COM

PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16748
STATE OF NEBRASKA

09/01/2023



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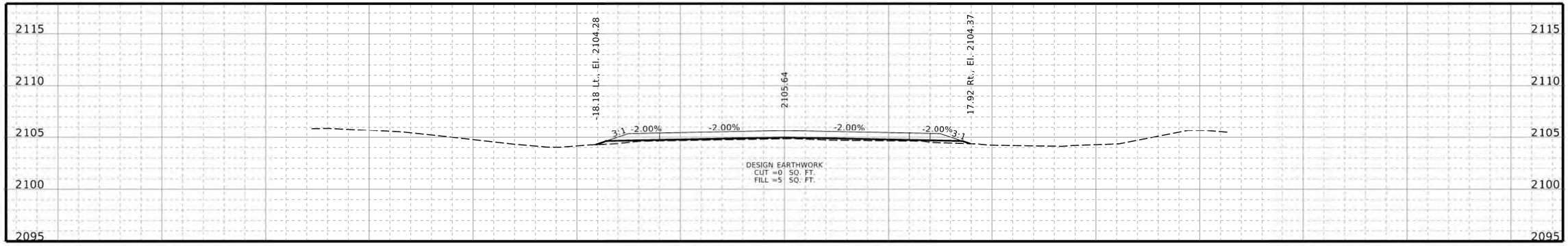

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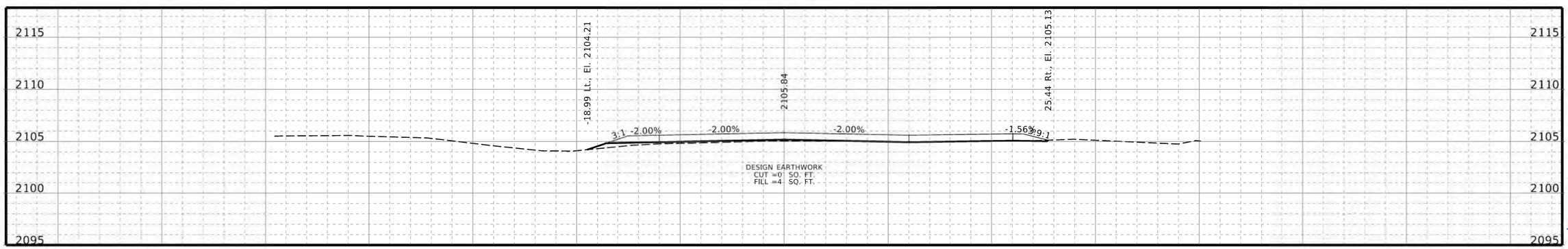


STA.12+00

X-13

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

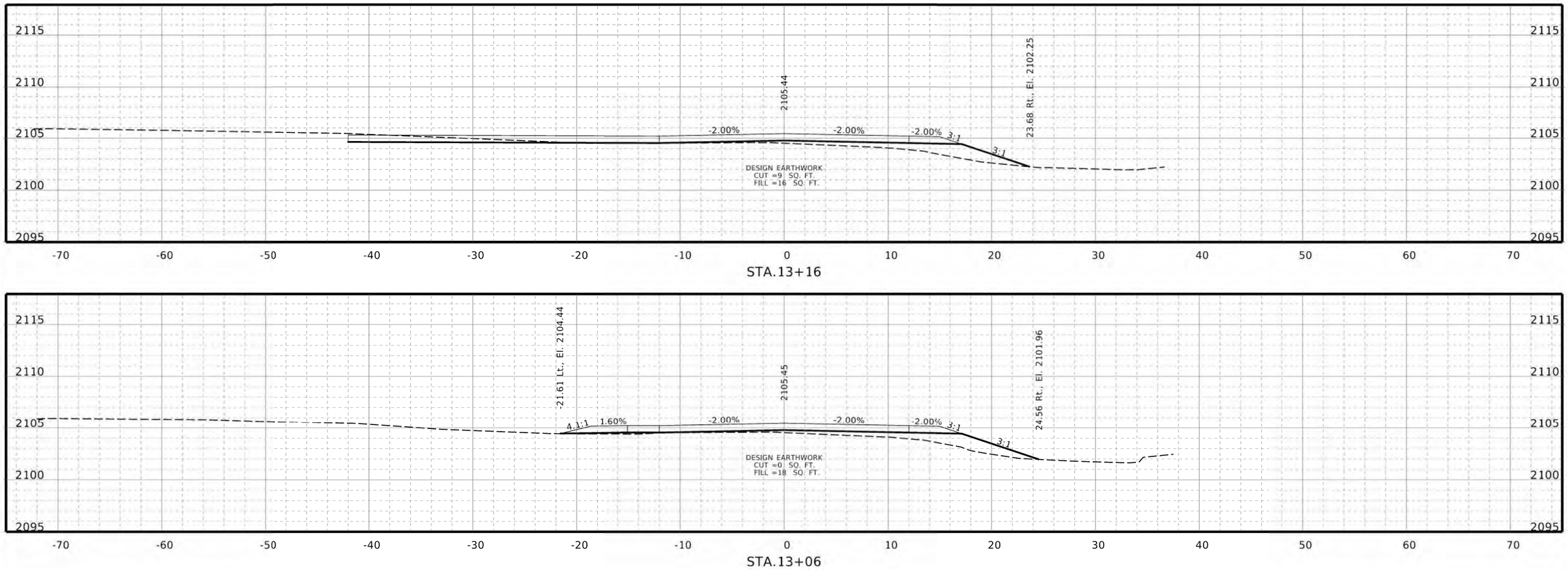
IN SEC. 25-T17N-R13W

CROSS SECTIONS

MEI
MIDWEST ENGINEERING, INC
3260 FOLKWAYS BLVD
SUITE B
LINCOLN, NE 68504
PH: 402-786-2203
MIDWESTE.COM

PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16119
STATE OF NEBRASKA

09/01/2023



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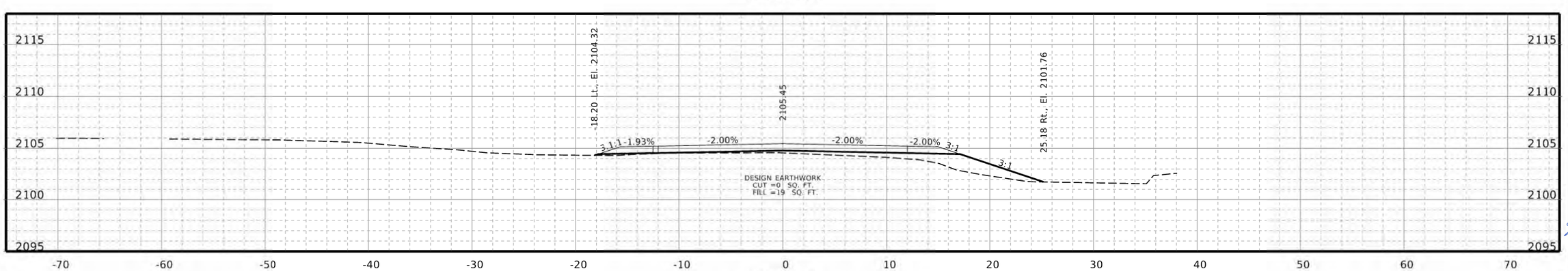


STA.13+00

X-14

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

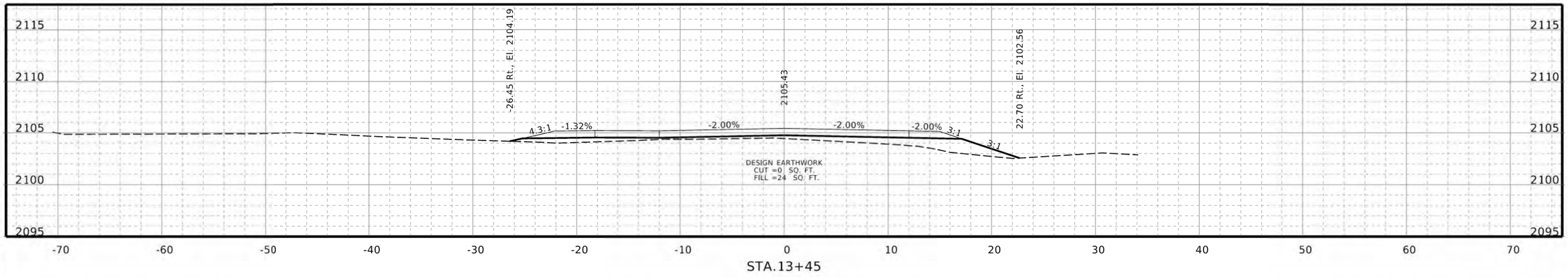
IN SEC. 25-T17N-R13W

CROSS SECTIONS

MIDWEST ENGINEERING, INC
3260 FOLKWAYS BLVD
SUITE B
LINCOLN, NE 68504
PH: 402-786-2203
MIDWESTE.COM

PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16710
STATE OF NEBRASKA

09/01/2023



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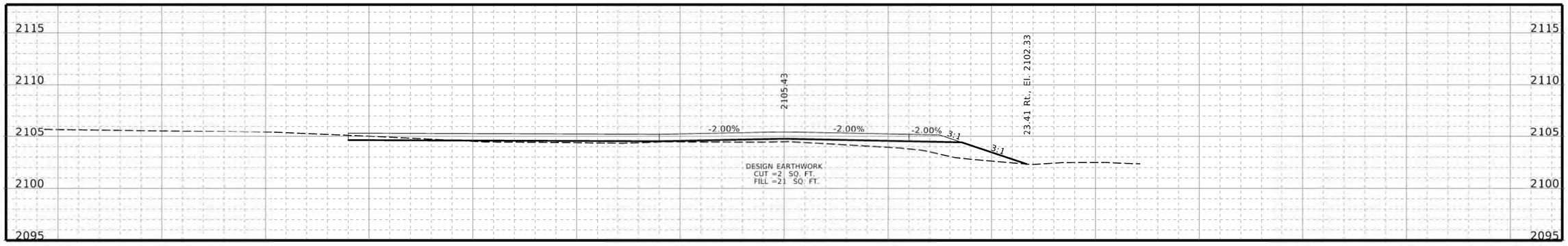

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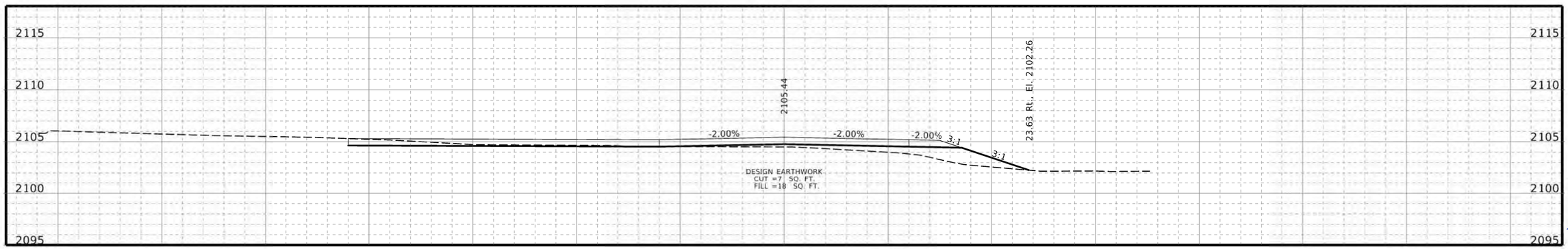


STA.13+25

X-15

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

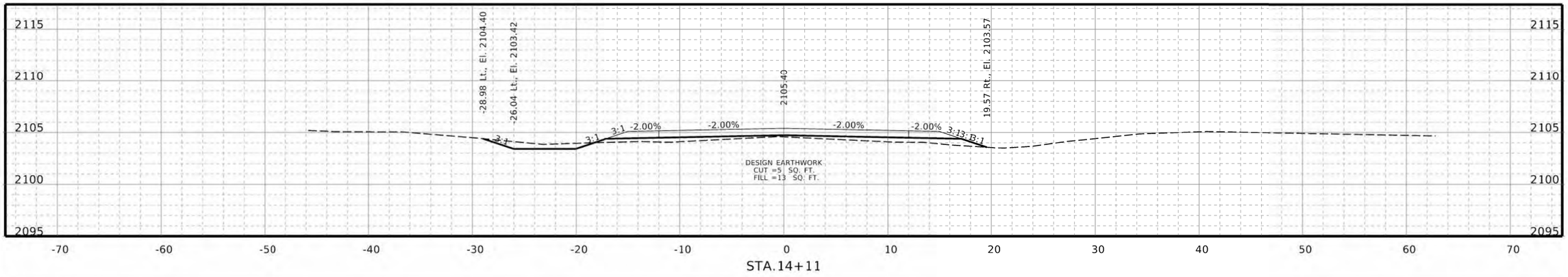
IN SEC. 25-T17N-R13W

CROSS SECTIONS

MEI
MIDWEST ENGINEERING, INC
3260 FOLKWAYS BLVD
SUITE B
LINCOLN, NE 68504
PH: 402-786-2203
MIDWESTE.COM

PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-18119
STATE OF NEBRASKA

09/01/2023



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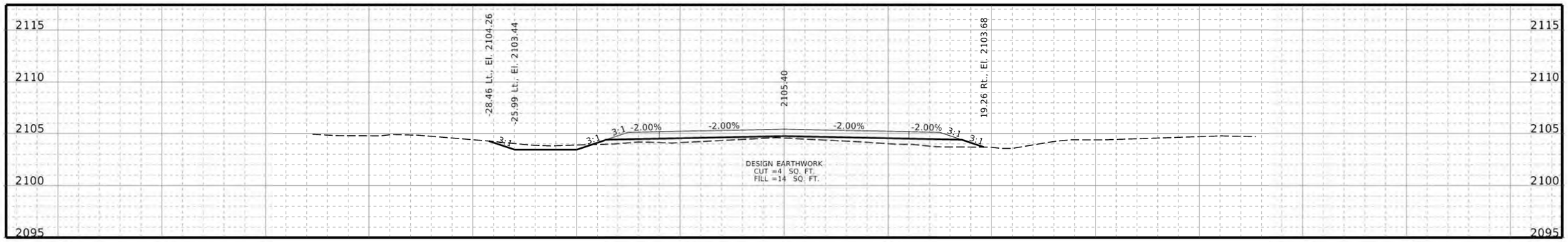

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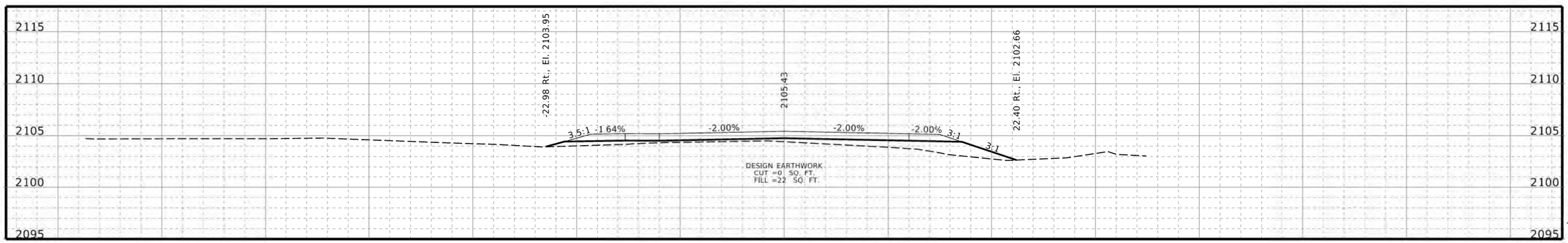

STA.13+50

X-16

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

CROSS SECTIONS

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MIDWEST ENGINEERING, INC
3260 FOLKWAYS BLVD
SUITE B
LINCOLN, NE 68504
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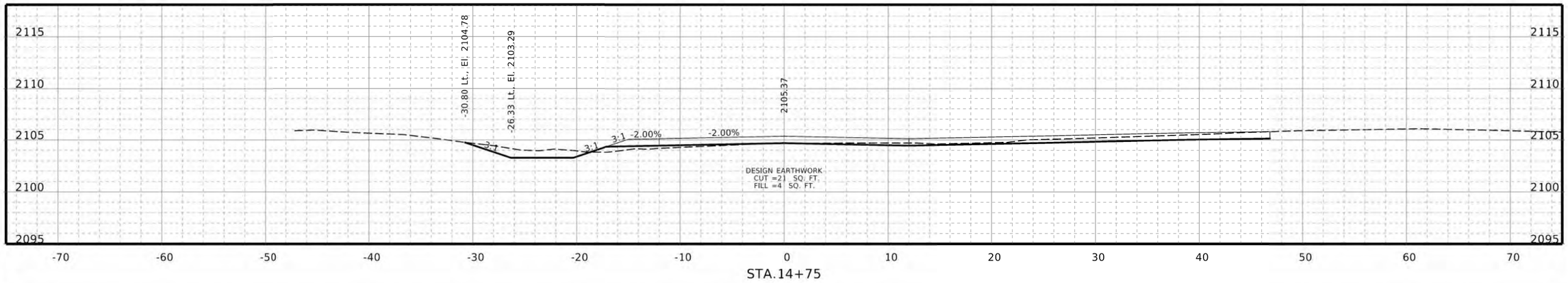
PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16119
STATE OF NEBRASKA

09/01/2023



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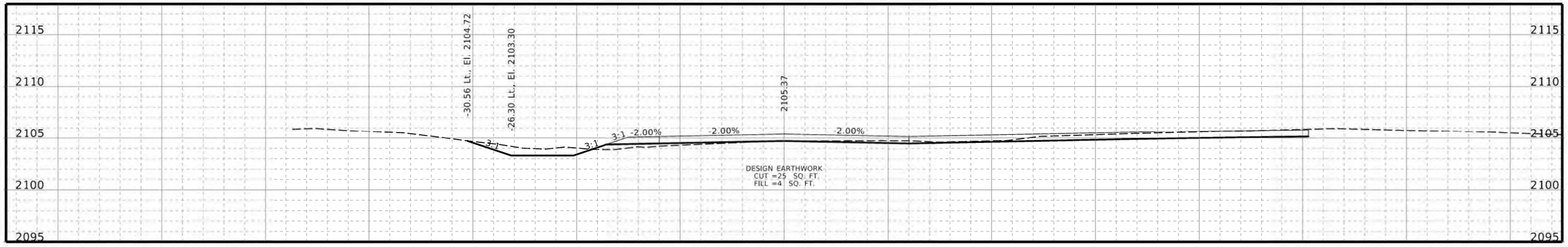

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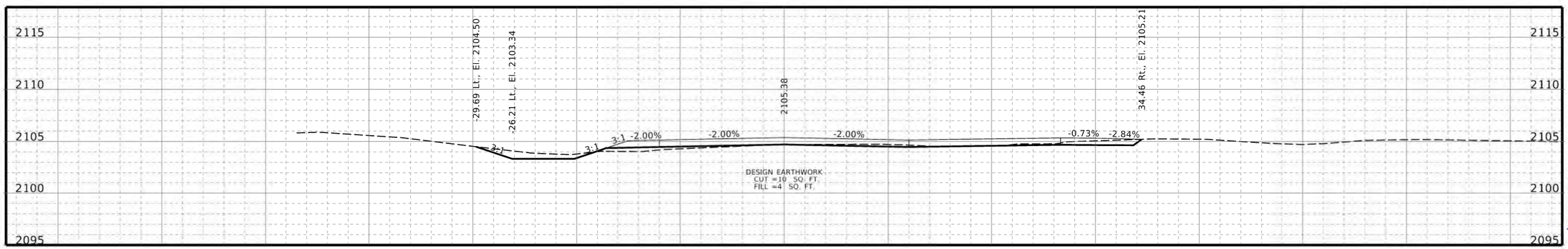


STA.14+50

X-17

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

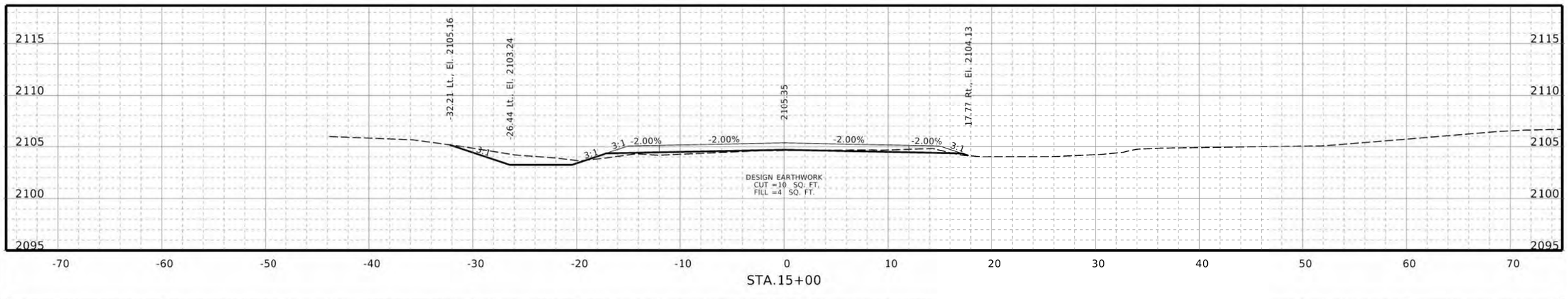
IN SEC. 25-T17N-R13W

CROSS SECTIONS

MIDWEST ENGINEERING, INC
3260 FOLKWAYS BLVD
SUITE B
LINCOLN, NE 68504
PH: 402-786-2203
MIDWESTE.COM

PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16119
STATE OF NEBRASKA

09/01/2023



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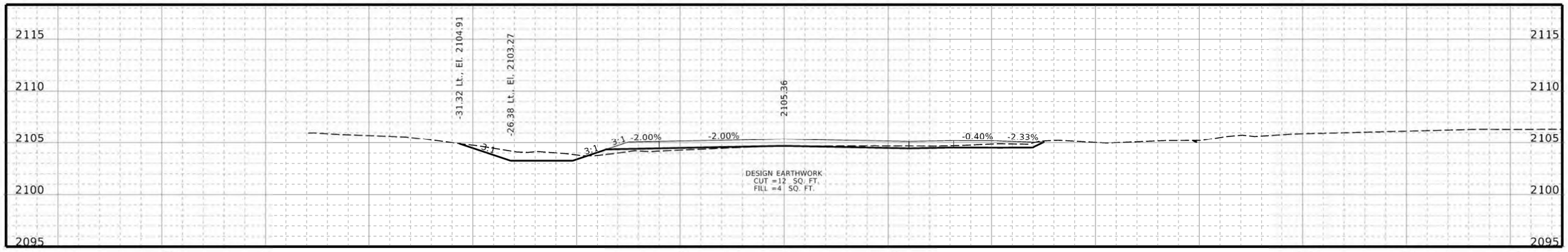
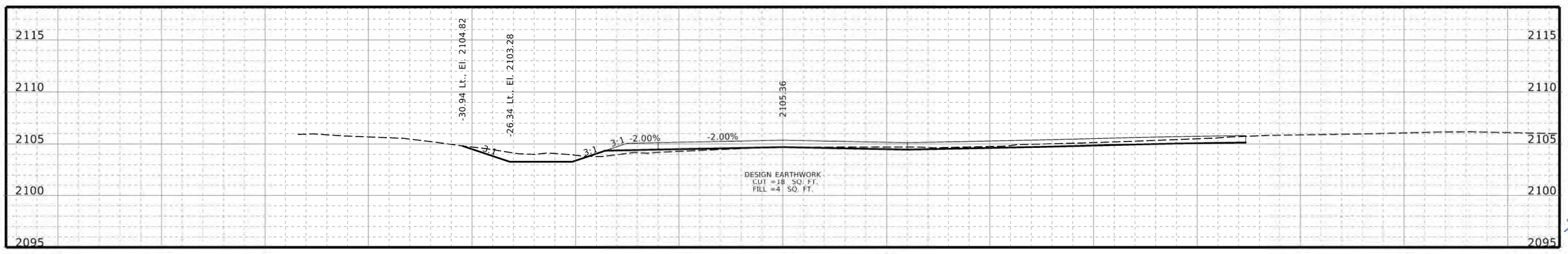


STA.14+86



STA.14+79

X-18

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

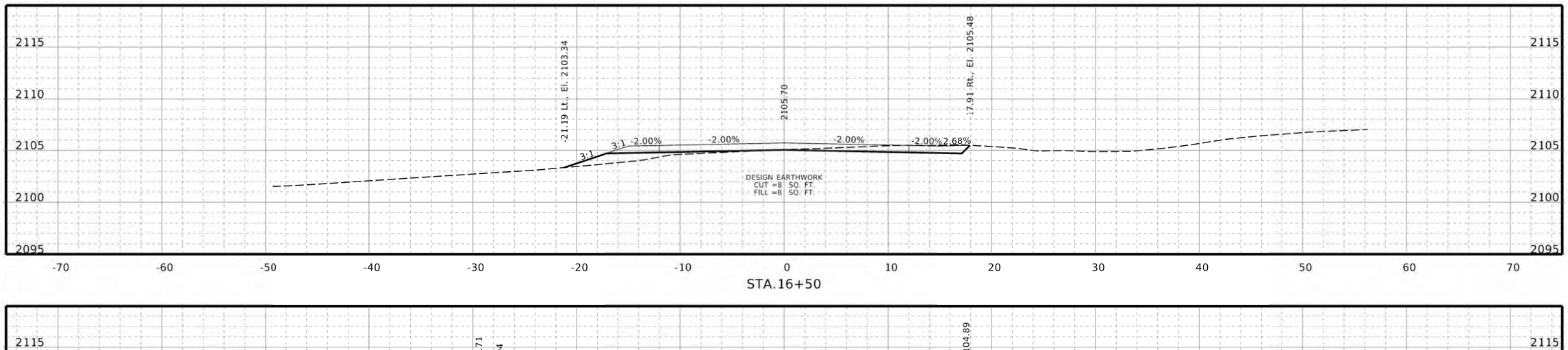
IN SEC. 25-T17N-R13W

CROSS SECTIONS

MEI
MIDWEST ENGINEERING, INC
3260 FOLKWAYS BLVD
SUITE B
LINCOLN, NE 68504
PH: 402-786-2203
MIDWESTE.COM

PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16119
STATE OF NEBRASKA

09/01/2023



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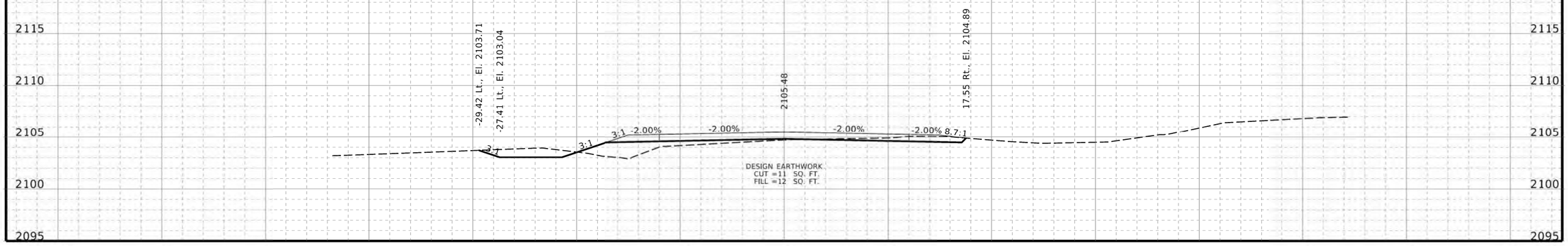

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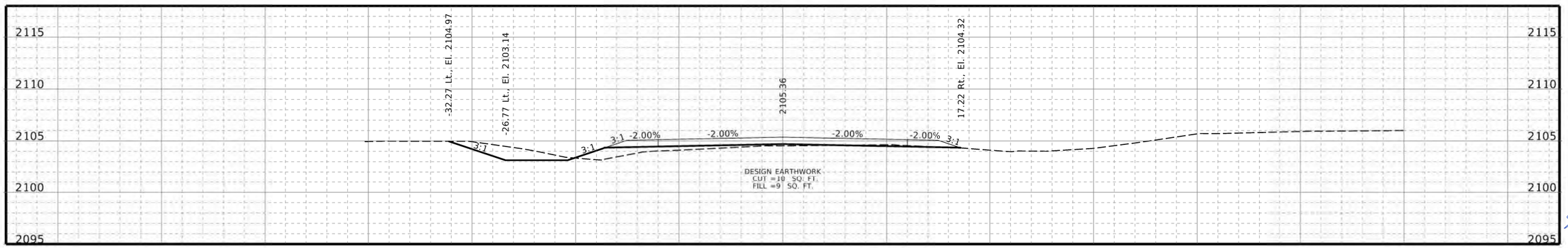

STA.15+50

X-19

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

CROSS SECTIONS

MIDWEST ENGINEERING, INC
3260 FOLKWAYS BLVD
SUITE B
LINCOLN, NE 68504
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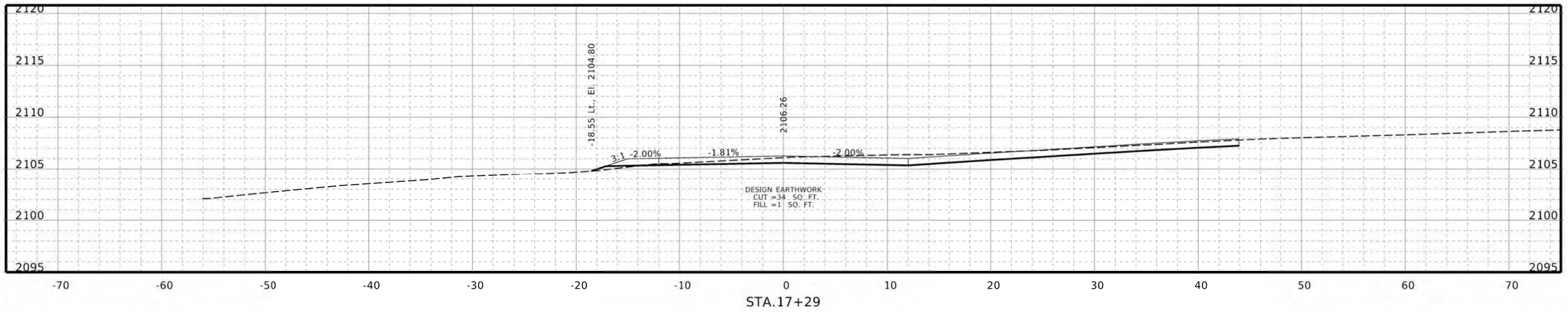
MIDWESTE.COM

PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16119
STATE OF NEBRASKA

09/01/2023



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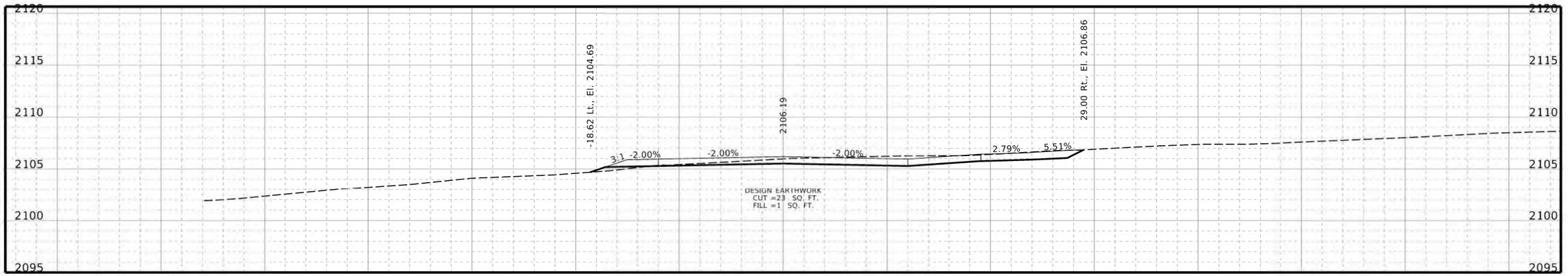

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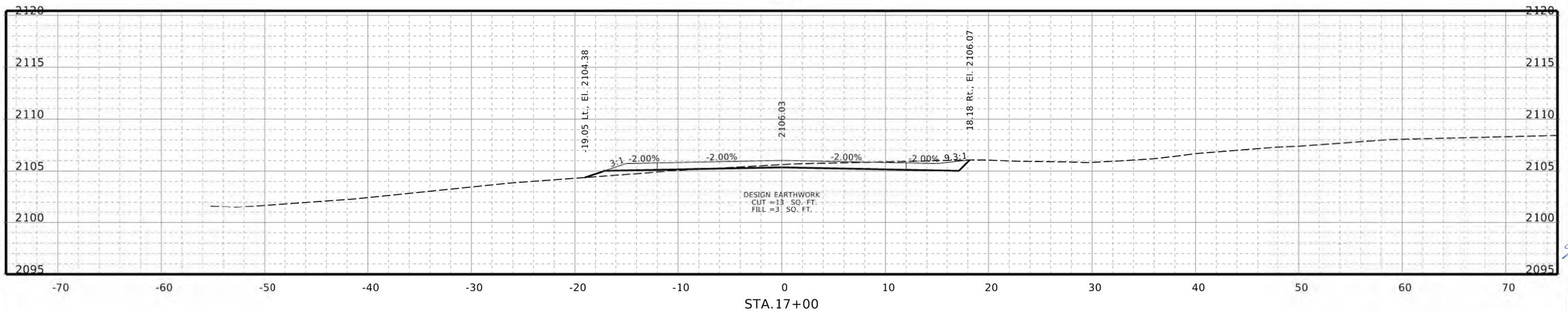

STA.17+00

X-20

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

CROSS SECTIONS

MEI
MIDWEST ENGINEERING, INC
3260 FOLKWAYS BLVD
SUITE B
LINCOLN, NE 68504
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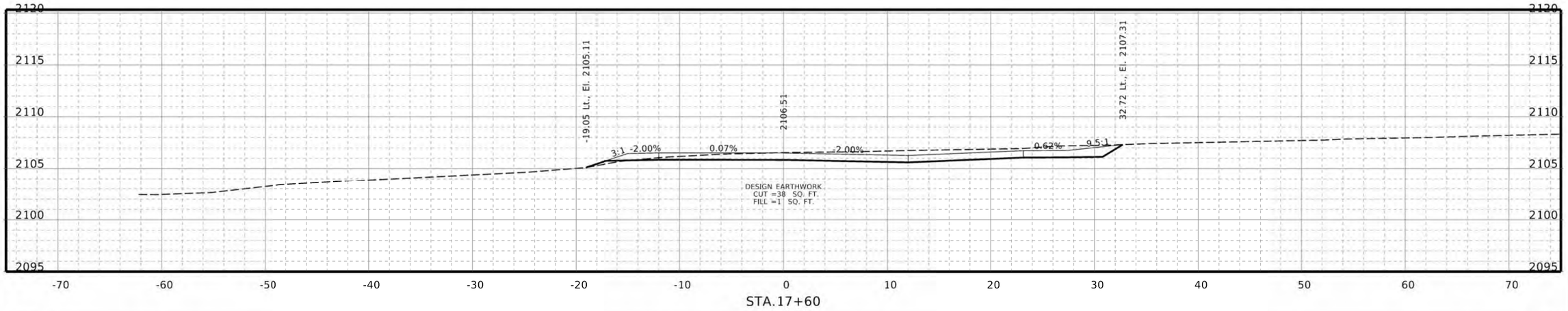
PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16118
STATE OF NEBRASKA

09/01/2023



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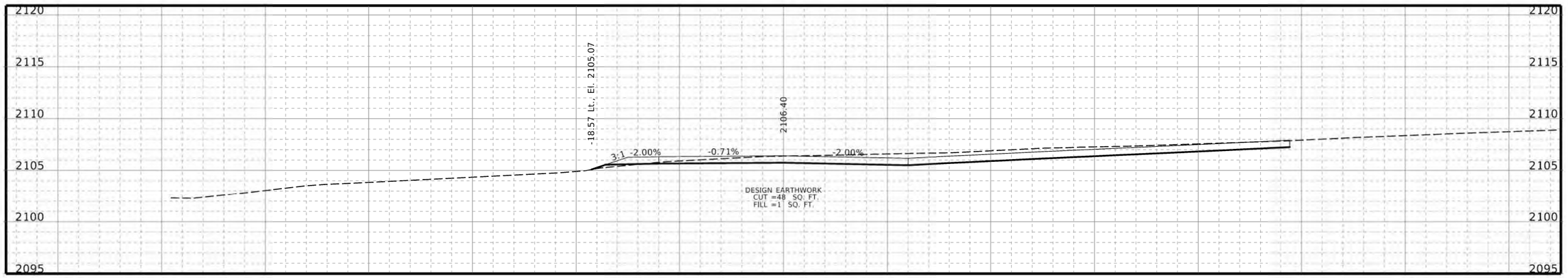

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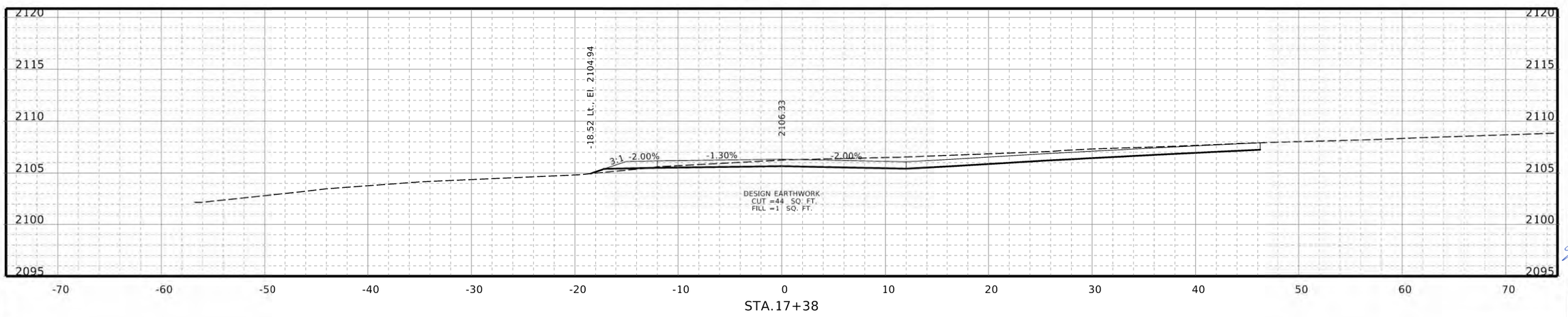

STA.17+38

X-21

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

CROSS SECTIONS

MIDWEST ENGINEERING, INC
3260 FOLKWAYS BLVD
SUITE B
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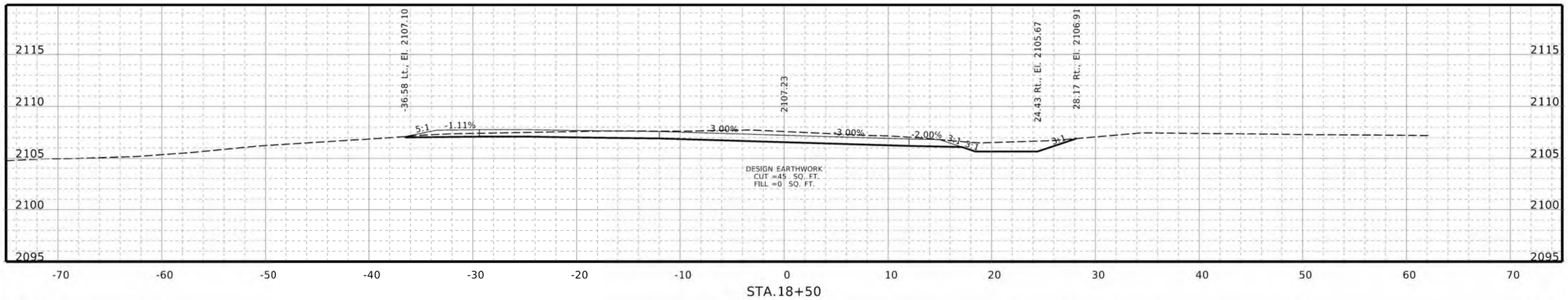
MIDWESTE.COM

PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16119
STATE OF NEBRASKA

09/01/2023

X-22

Project Number
23020



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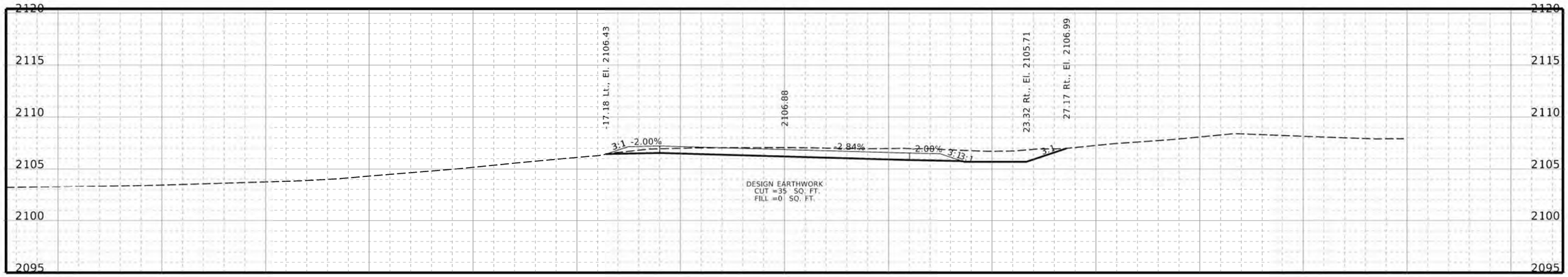
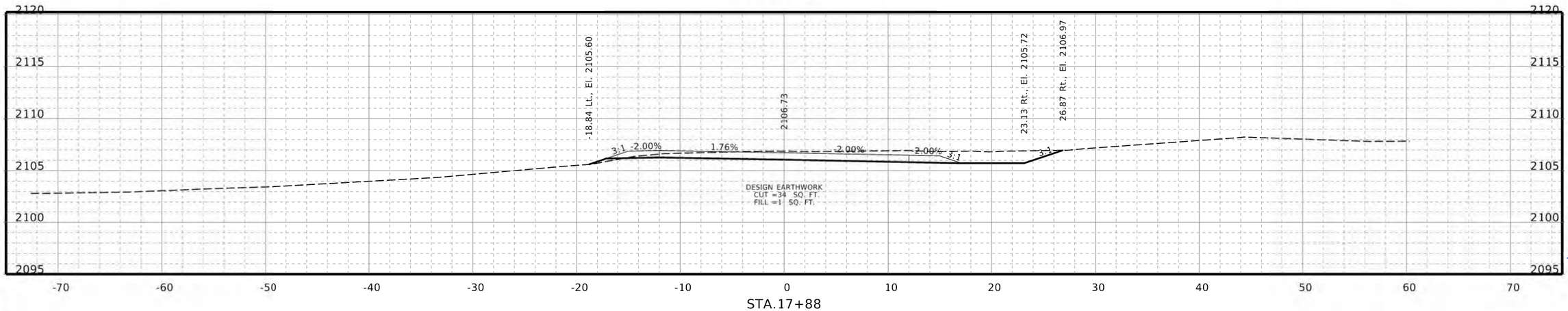


STA.18+06



STA.17+88

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

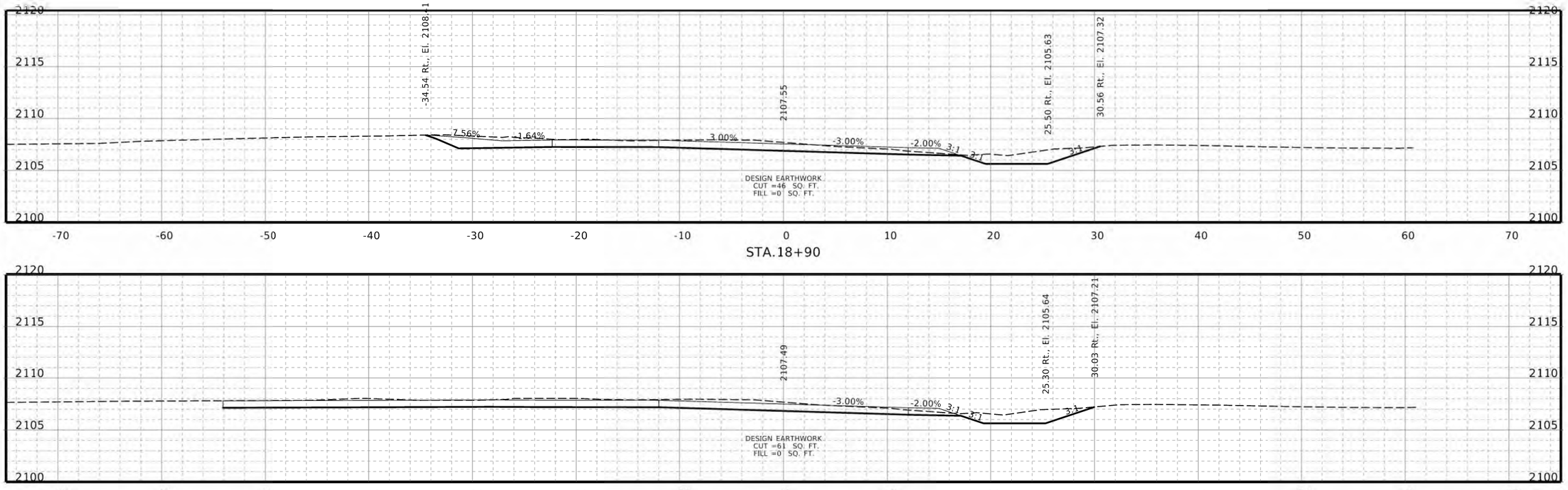
IN SEC. 25-T17N-R13W

CROSS SECTIONS

MIDWEST ENGINEERING, INC
3260 FOLKWAYS BLVD
SUITE B
LINCOLN, NE 68504
PH: 402-786-2203
MIDWESTE.COM

PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16172
STATE OF NEBRASKA

09/01/2023



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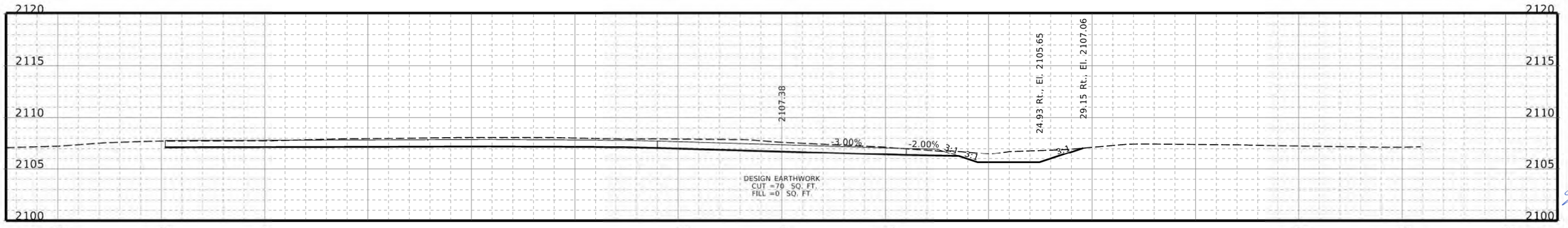

STA.18+69

X-23

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

CROSS SECTIONS

MEI
MIDWEST ENGINEERING, INC
3260 FOLKWAYS BLVD
SUITE B
LINCOLN, NE 68504
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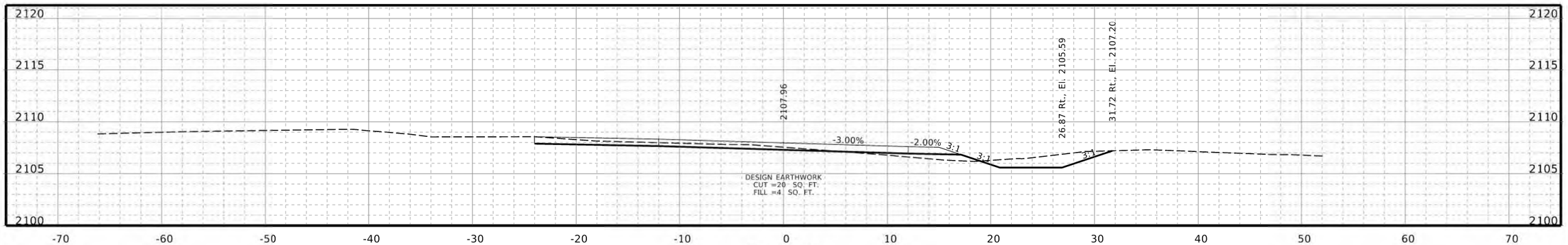
MIDWESTE.COM

PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16118
STATE OF NEBRASKA

09/01/2023



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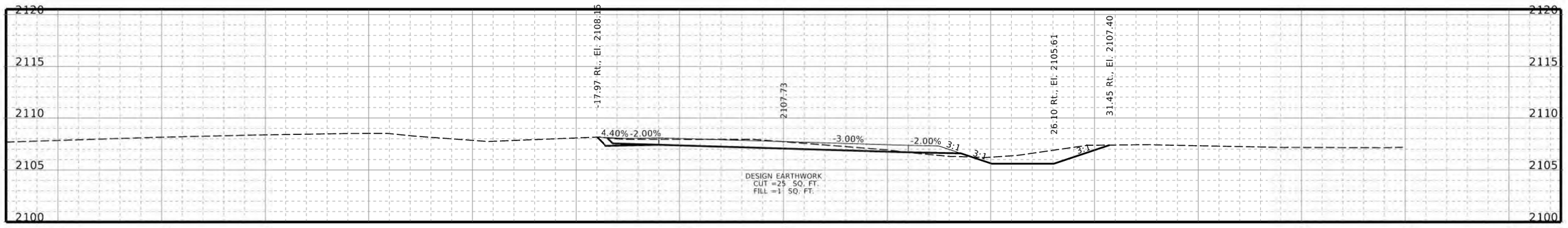

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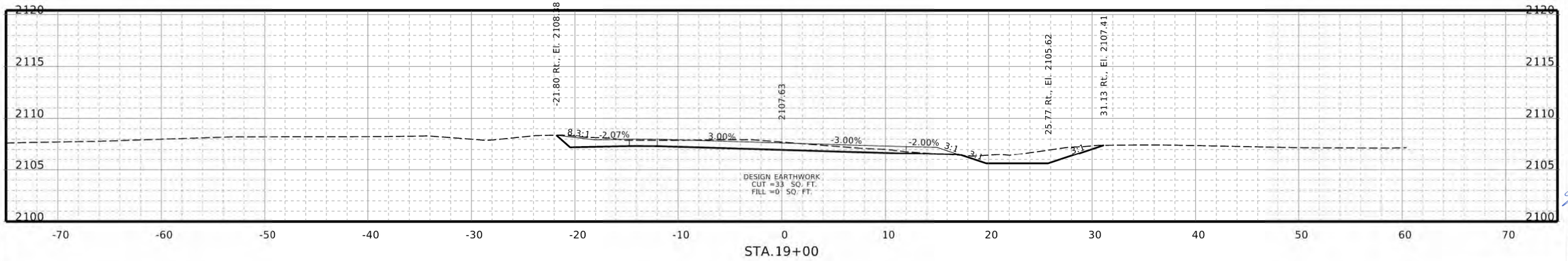

STA.19+00

X-24

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

CROSS SECTIONS

MIDWEST ENGINEERING, INC
3260 FOLKWAYS BLVD
SUITE B
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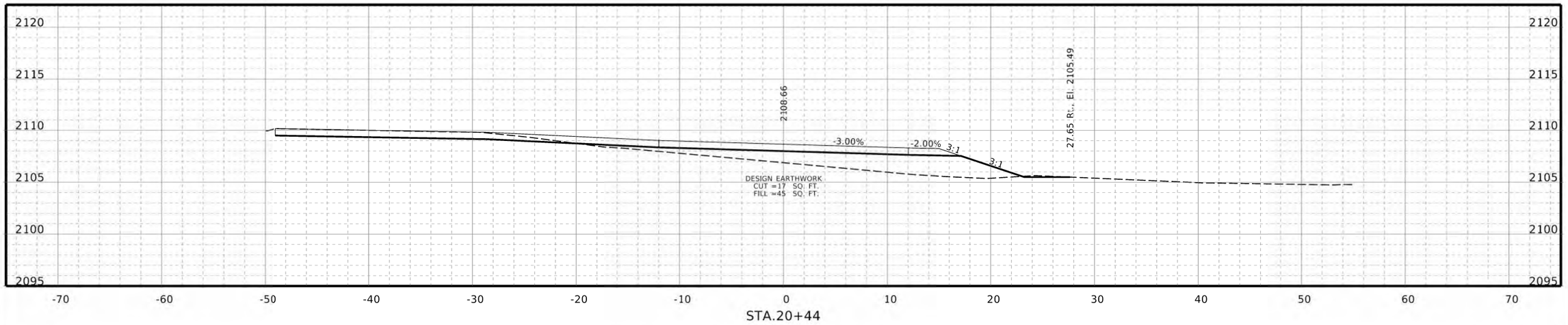
PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16118
STATE OF NEBRASKA

09/01/2023



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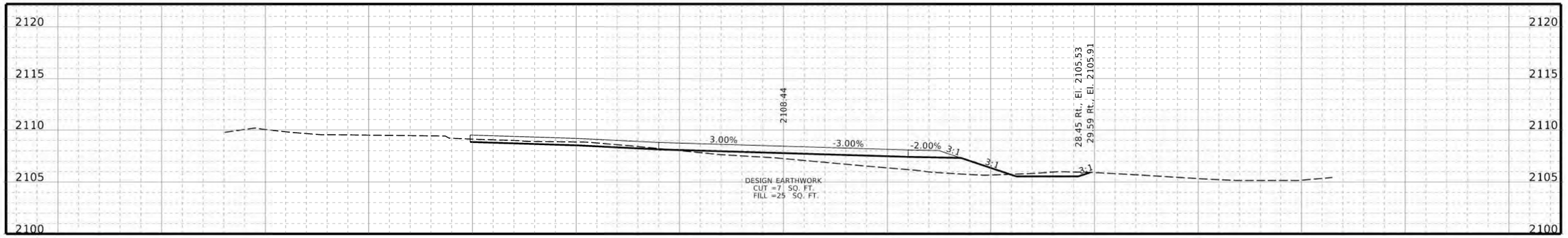

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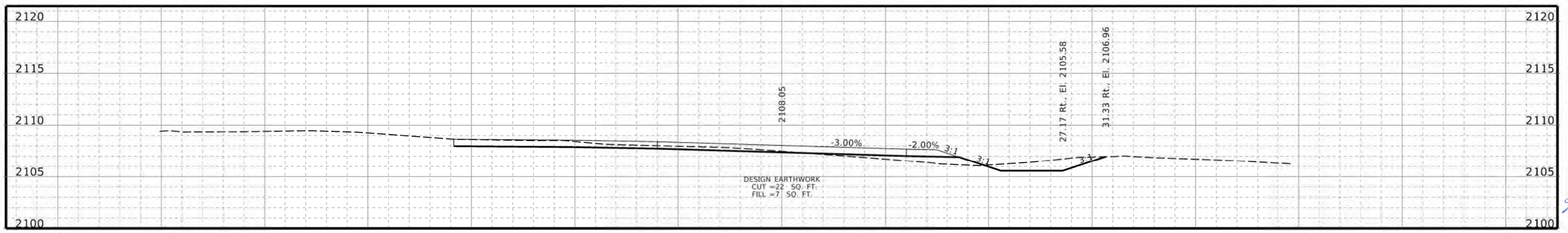


STA.19+52

X-25

Project Number
23020

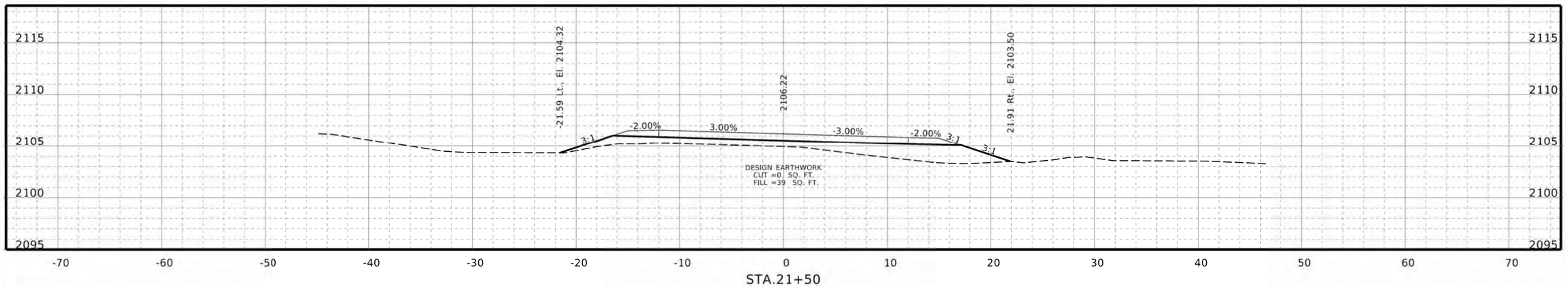
DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

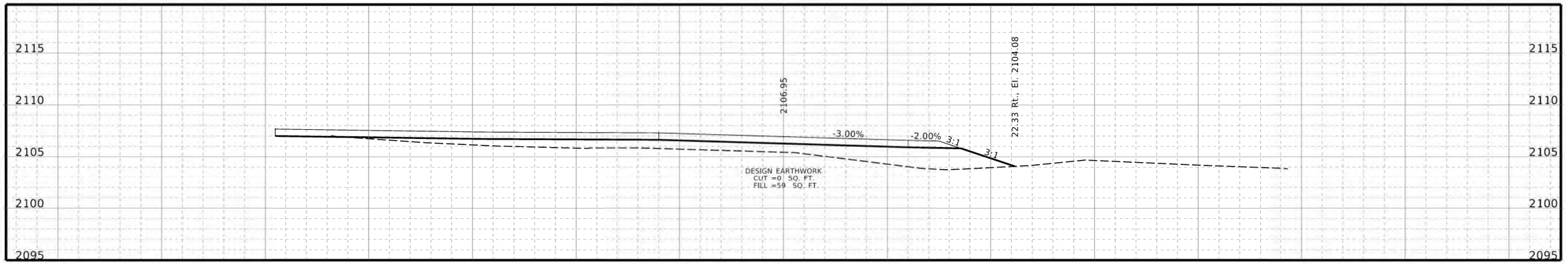
CROSS SECTIONS

MIDWEST ENGINEERING, INC
3260 FOLKWAYS BLVD
SUITE B
LINCOLN, NE 68504
PH: 402-786-2203
MIDWESTE.COM

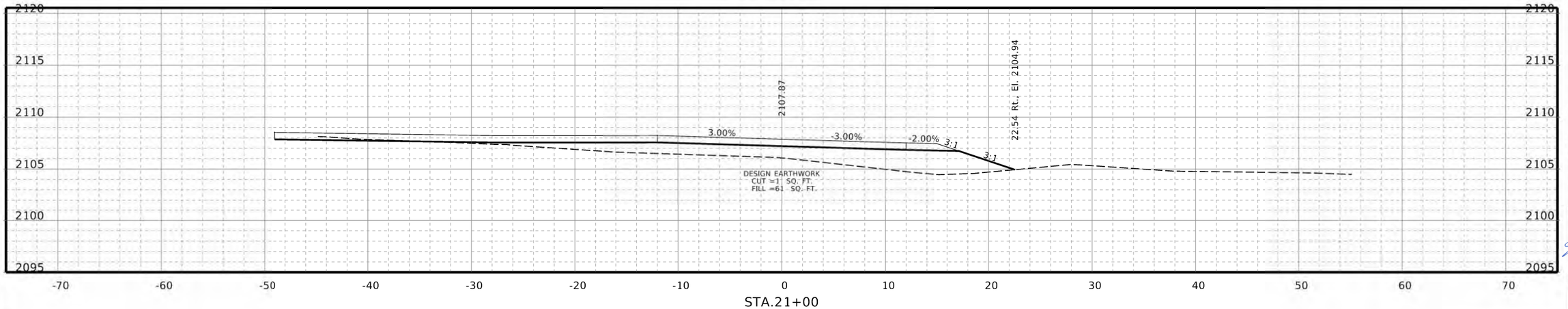
PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16119
STATE OF NEBRASKA
09/01/2023



STA.21+50



STA.21+29



STA.21+00

X-26

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

CROSS SECTIONS

MIDWEST ENGINEERING, INC
3260 FOLKWAYS BLVD
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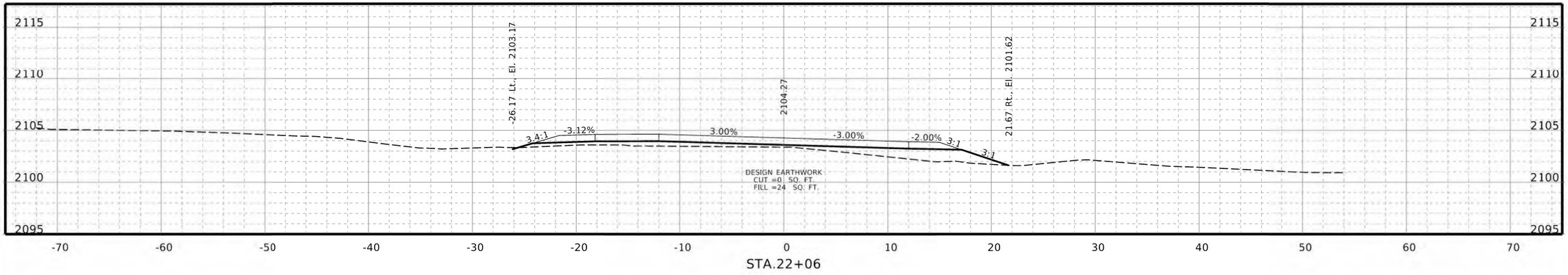
PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16119
STATE OF NEBRASKA

09/01/2023



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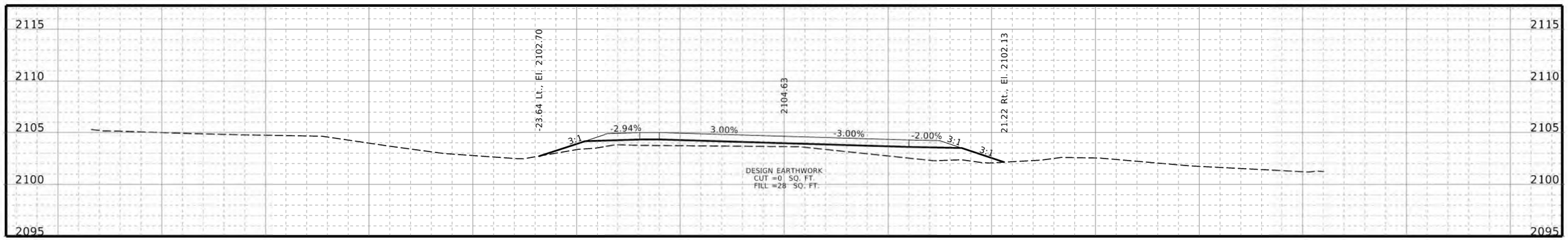
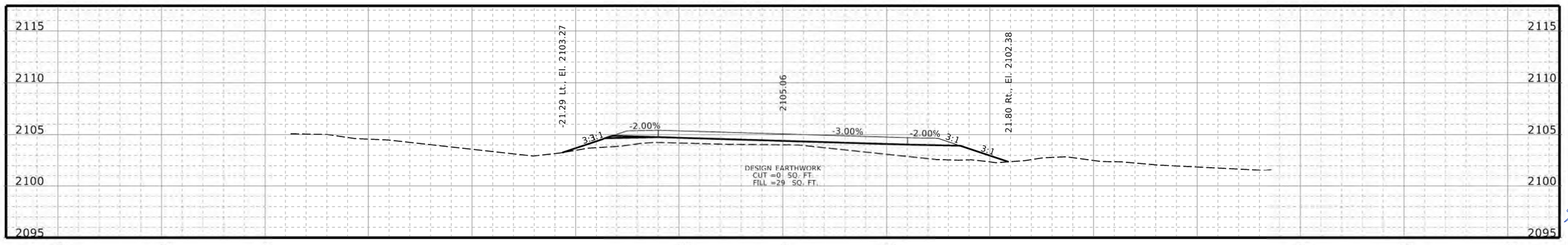


STA.21+96



STA.21+83

X-27

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

CROSS SECTIONS

MEI
MIDWEST ENGINEERING, INC
3260 FOLKWAYS BLVD
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LINCOLN, NE 68504
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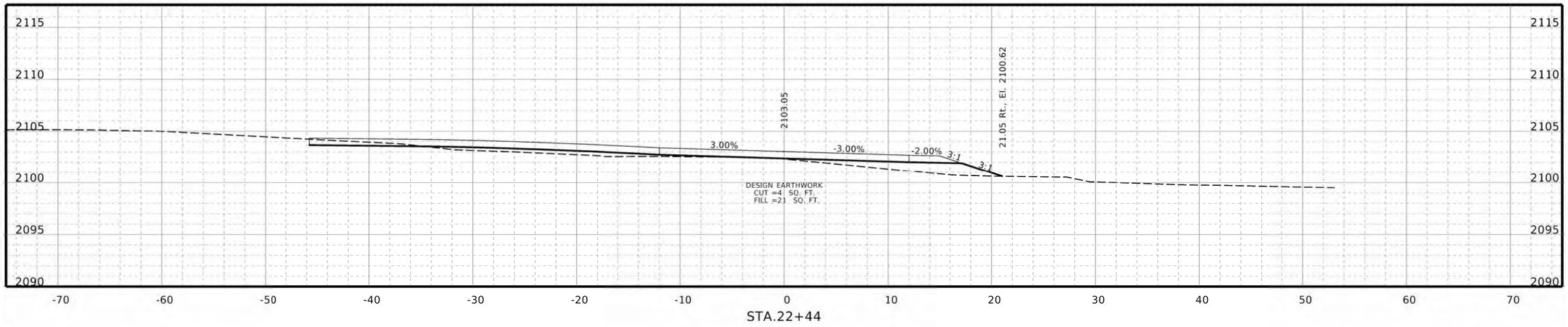
MIDWESTE.COM

PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16119
STATE OF NEBRASKA

09/01/2023



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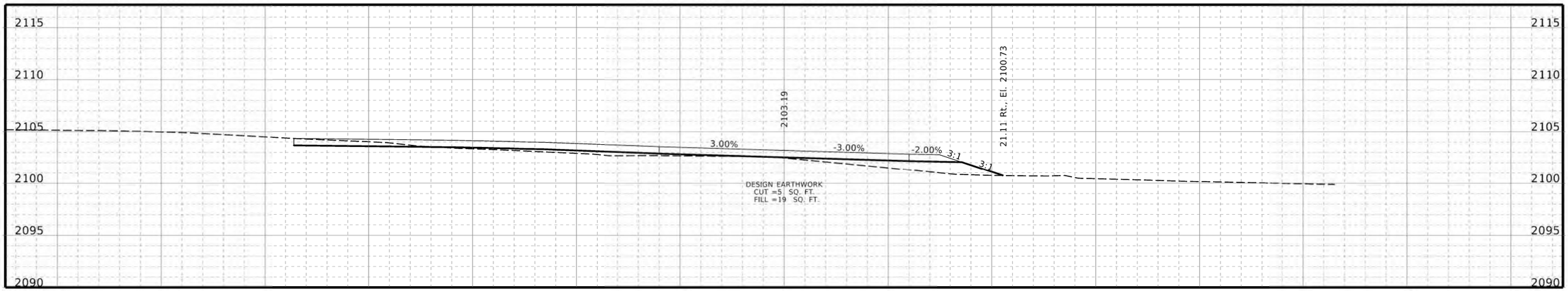

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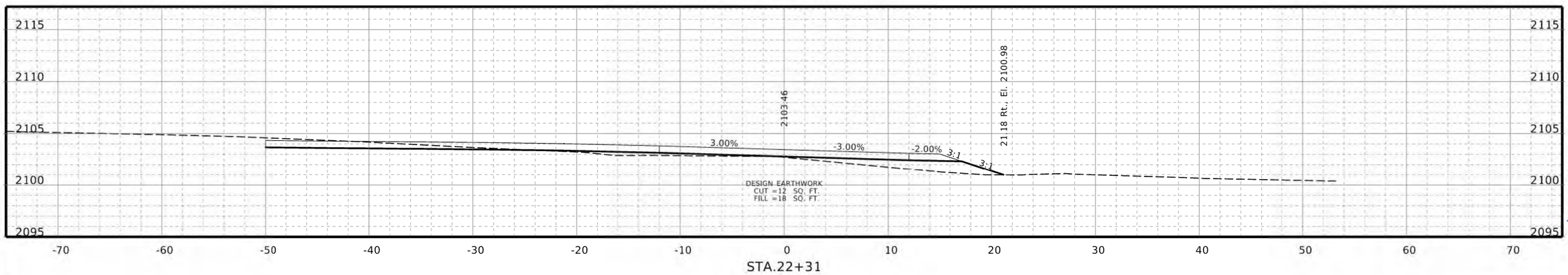

STA.22+31

X-28

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

CROSS SECTIONS

MEI
MIDWEST ENGINEERING, INC
3260 FOLKWAYS BLVD
SUITE B
LINCOLN, NE 68504
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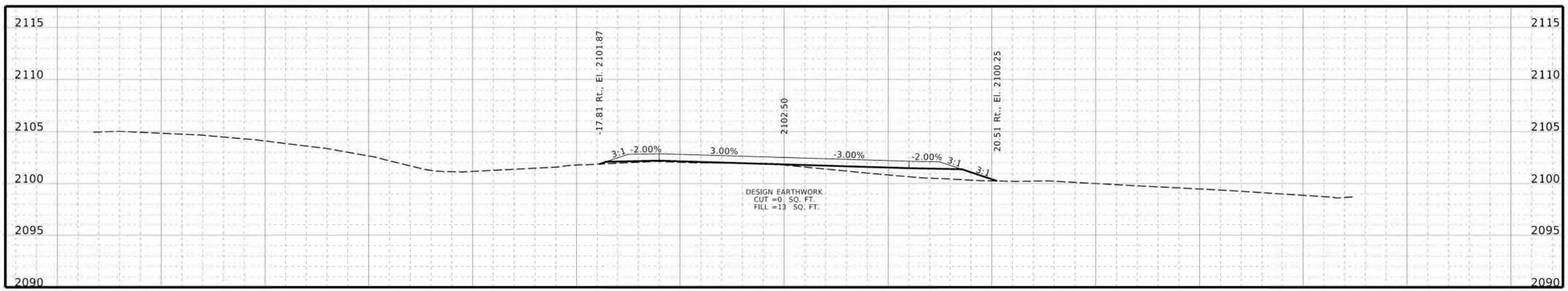
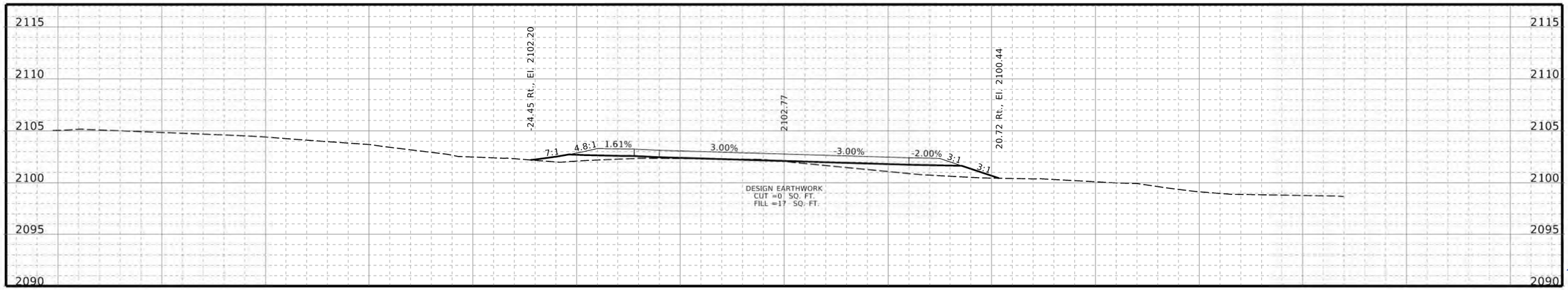
PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16119
STATE OF NEBRASKA

09/01/2023



STA.22+62



STA.22+53

X-29

Project Number

23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

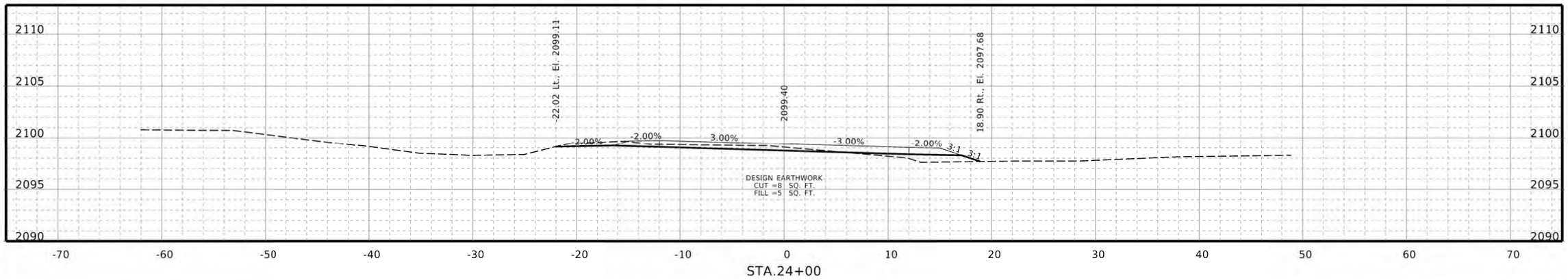
IN SEC. 25-T17N-R13W

CROSS SECTIONS

MEI
MIDWEST ENGINEERING, INC
3260 FOLKWAYS BLVD
SUITE B
LINCOLN, NE 68504
PH: 402-786-2203
MIDWESTE.COM

PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16172
STATE OF NEBRASKA

09/01/2023



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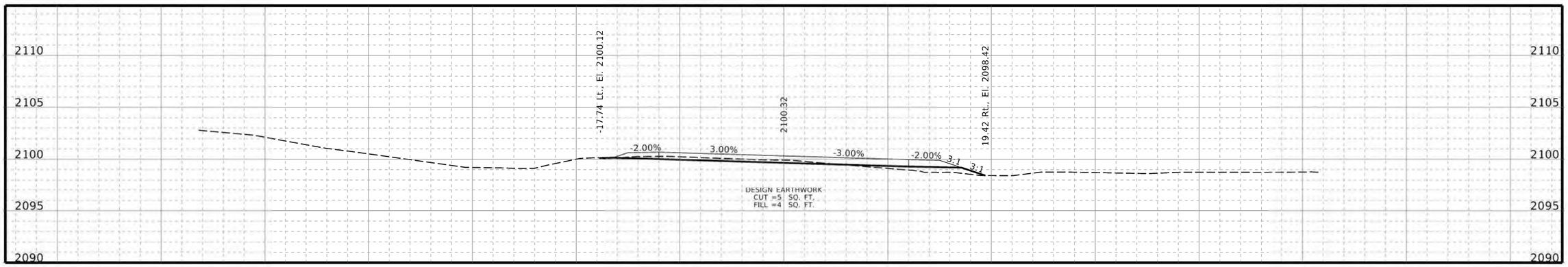

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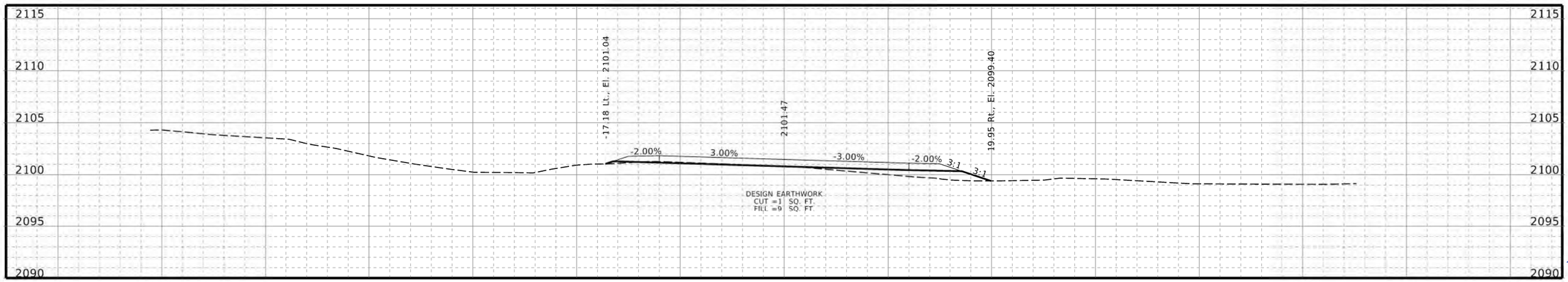


STA.23+00

X-30

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

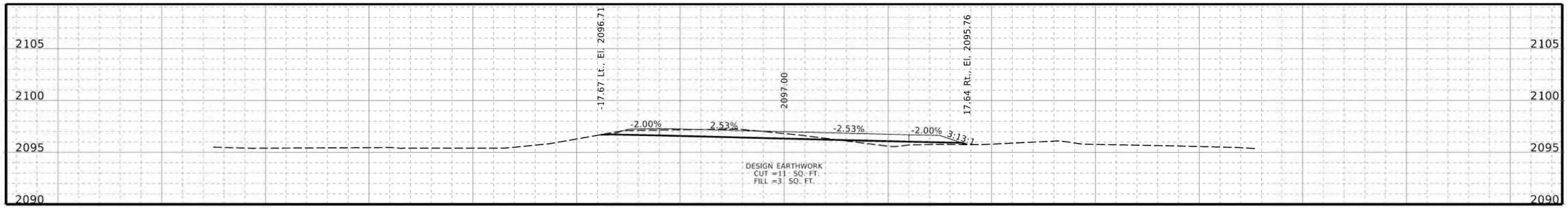
IN SEC. 25-T17N-R13W

CROSS SECTIONS

MEI
MIDWEST ENGINEERING, INC
3260 FOLKWAYS BLVD
SUITE B
LINCOLN, NE 68504
PH: 402-786-2203
MIDWESTE.COM

PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16118
STATE OF NEBRASKA

09/01/2023



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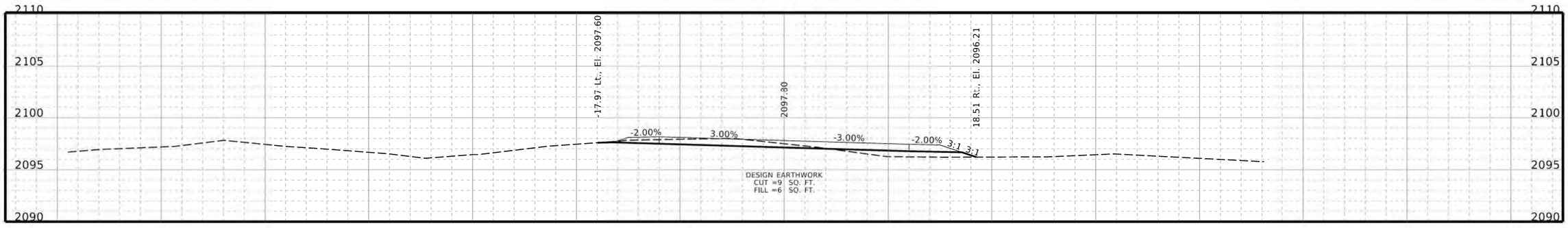

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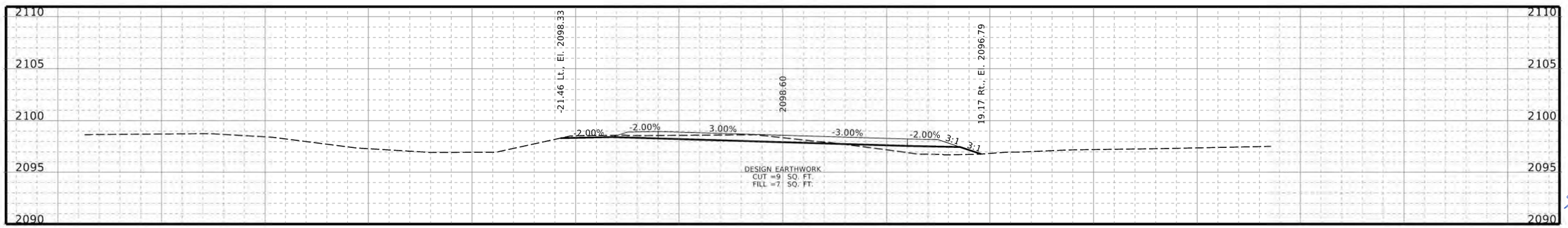

STA.24+50

X-31

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

CROSS SECTIONS

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MIDWEST ENGINEERING, INC
3260 FOLKWAYS BLVD
SUITE B
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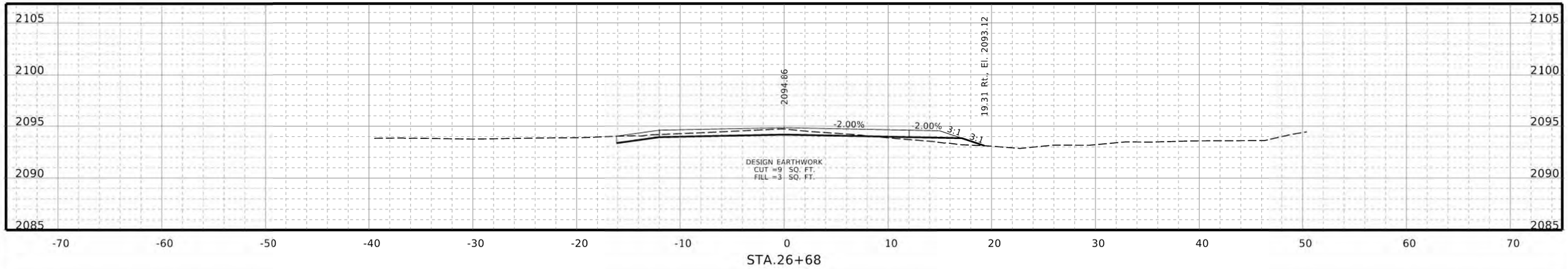
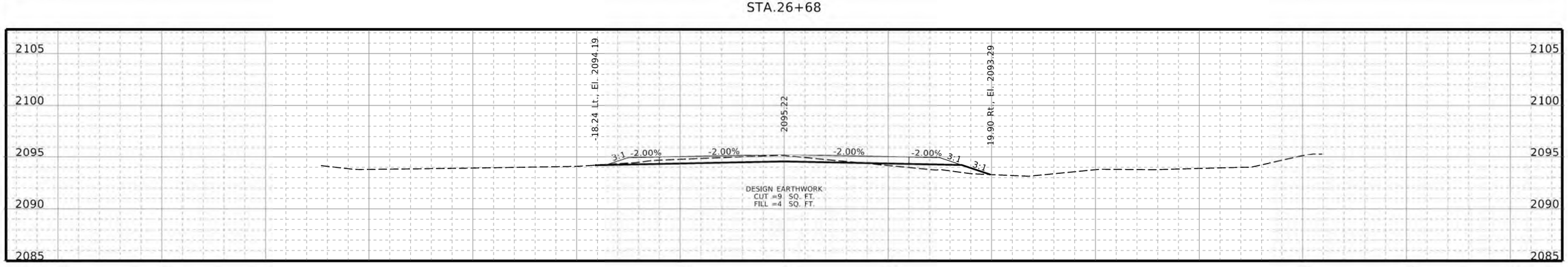
PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16119
STATE OF NEBRASKA

09/01/2023



STA.26+68



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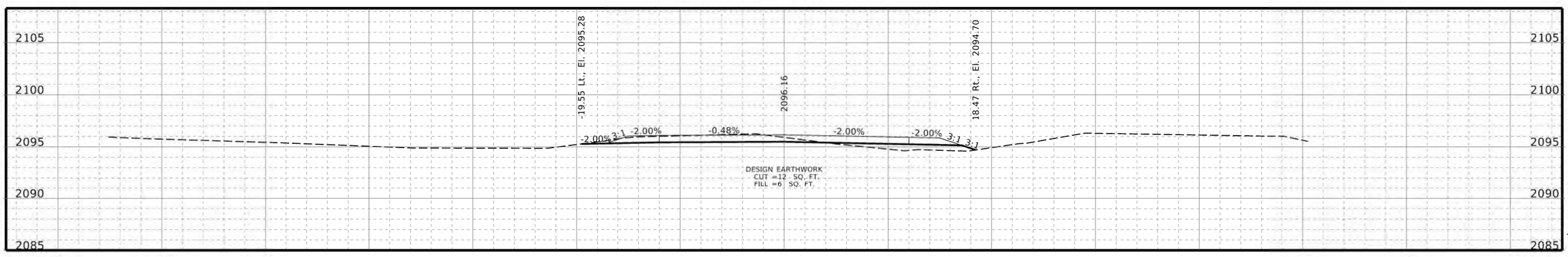

STA.26+00

X-32

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

CROSS SECTIONS

MEI
MIDWEST ENGINEERING, INC
3260 FOLKWAYS BLVD
SUITE B
LINCOLN, NE 68504
PH: 402-786-2203
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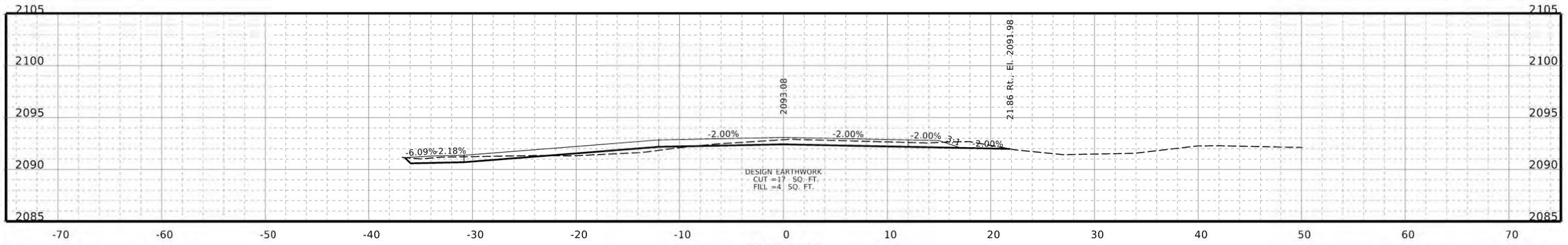
PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16119
STATE OF NEBRASKA

09/01/2023



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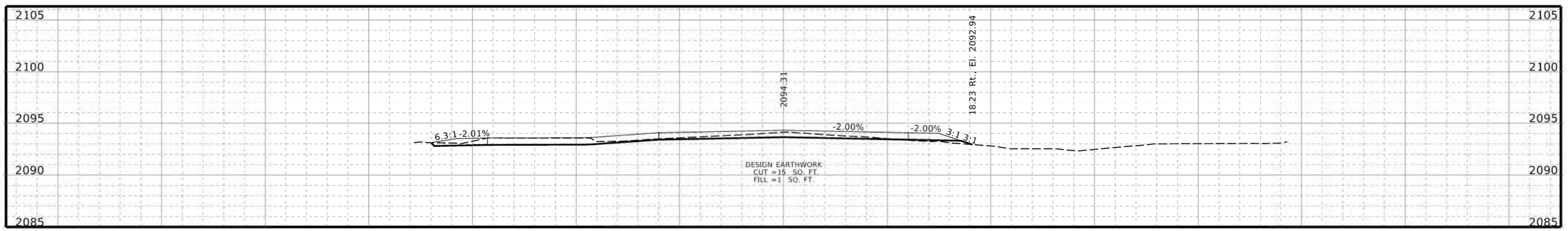

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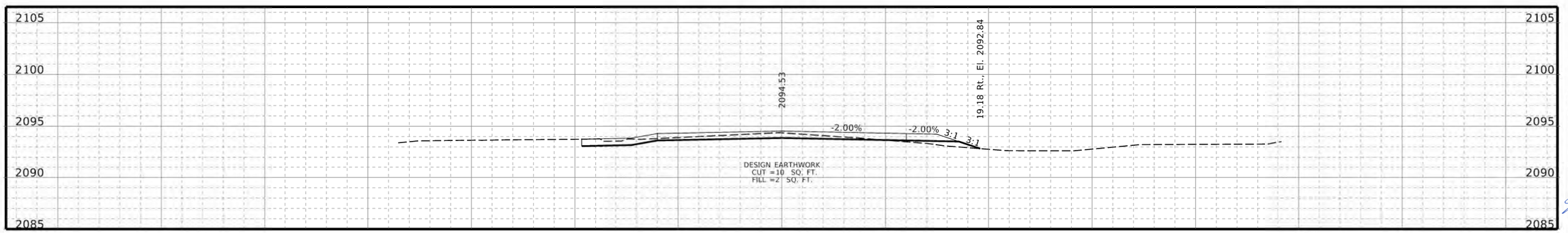


STA.26+84

X-33

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

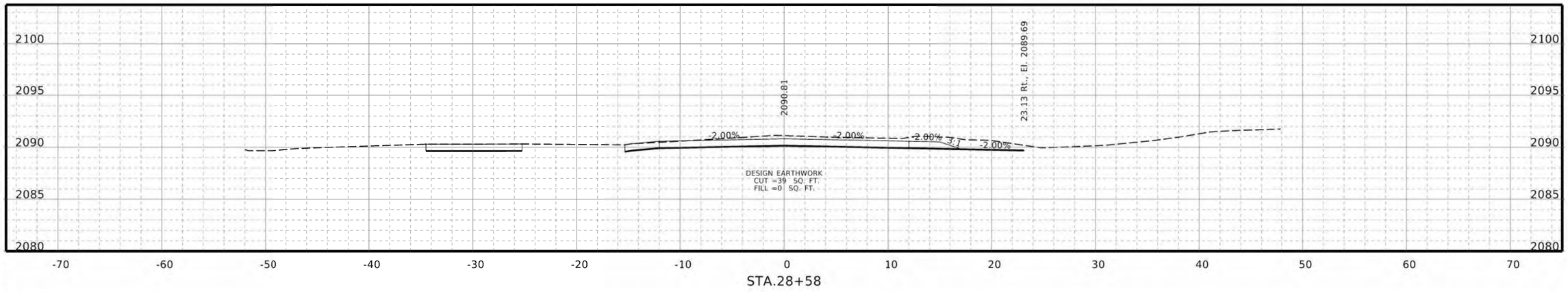
IN SEC. 25-T17N-R13W

CROSS SECTIONS

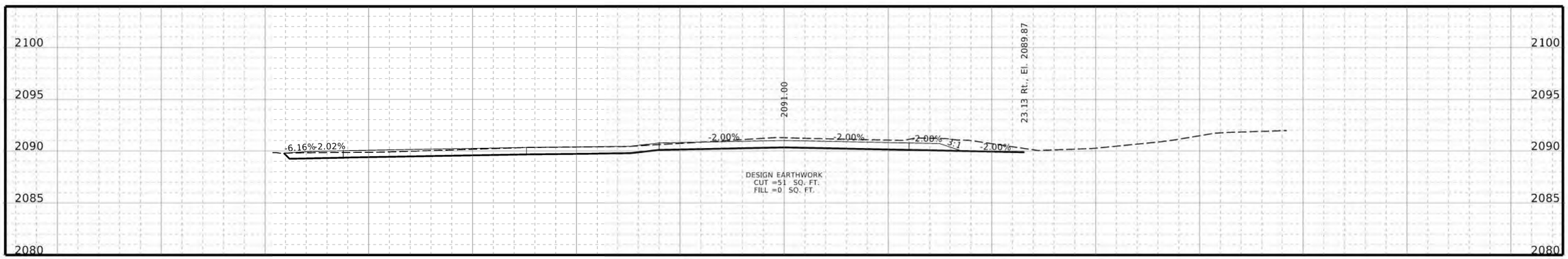
MIDWEST ENGINEERING, INC
3260 FOLKWAYS BLVD
SUITE B
LINCOLN, NE 68504
PH: 402-786-2203
MIDWESTE.COM

PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16118
STATE OF NEBRASKA

09/01/2023



STA.28+58



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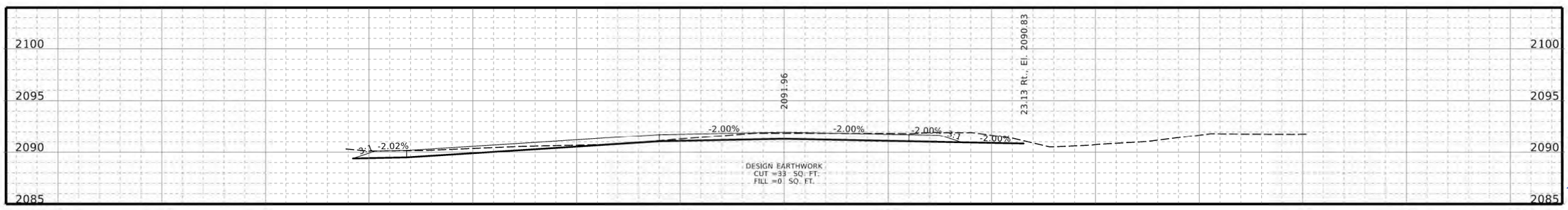

STA.28+00

X-34

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

CROSS SECTIONS

MIDWEST ENGINEERING, INC
3260 FOLKWAYS BLVD
SUITE B
LINCOLN, NE 68504
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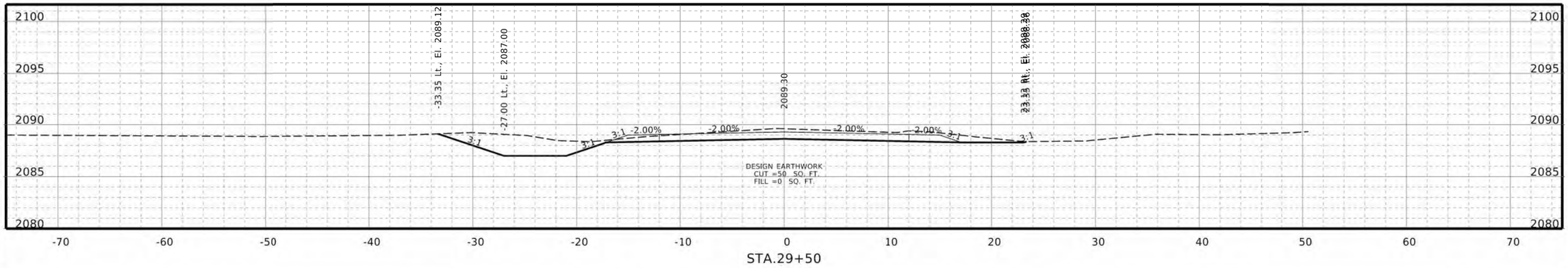
MIDWESTE.COM

PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16119
STATE OF NEBRASKA

09/01/2023



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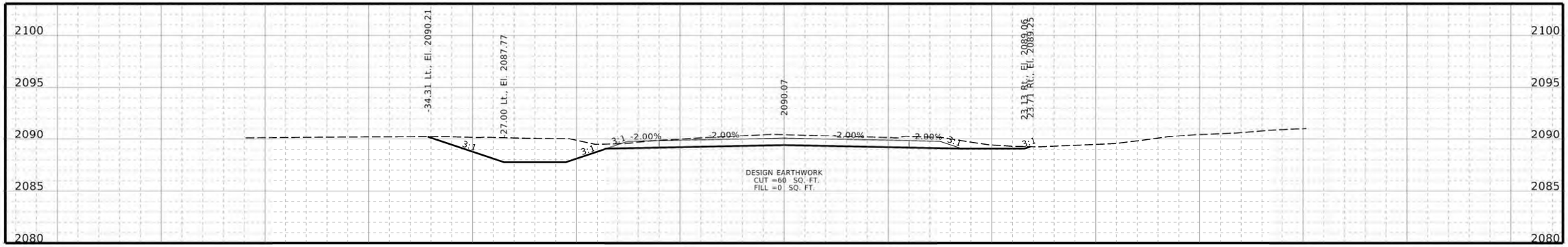

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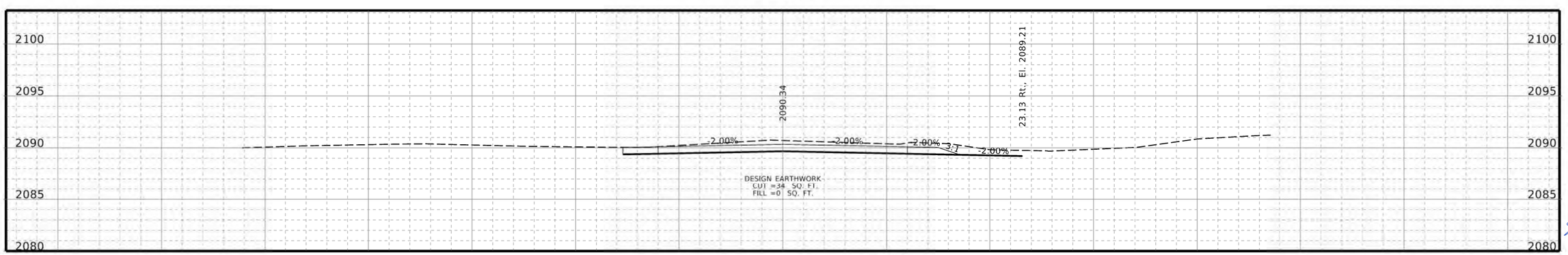

STA.28+84

X-35

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

CROSS SECTIONS

MEI
MIDWEST ENGINEERING, INC
3260 FOLKWAYS BLVD
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LINCOLN, NE 68504
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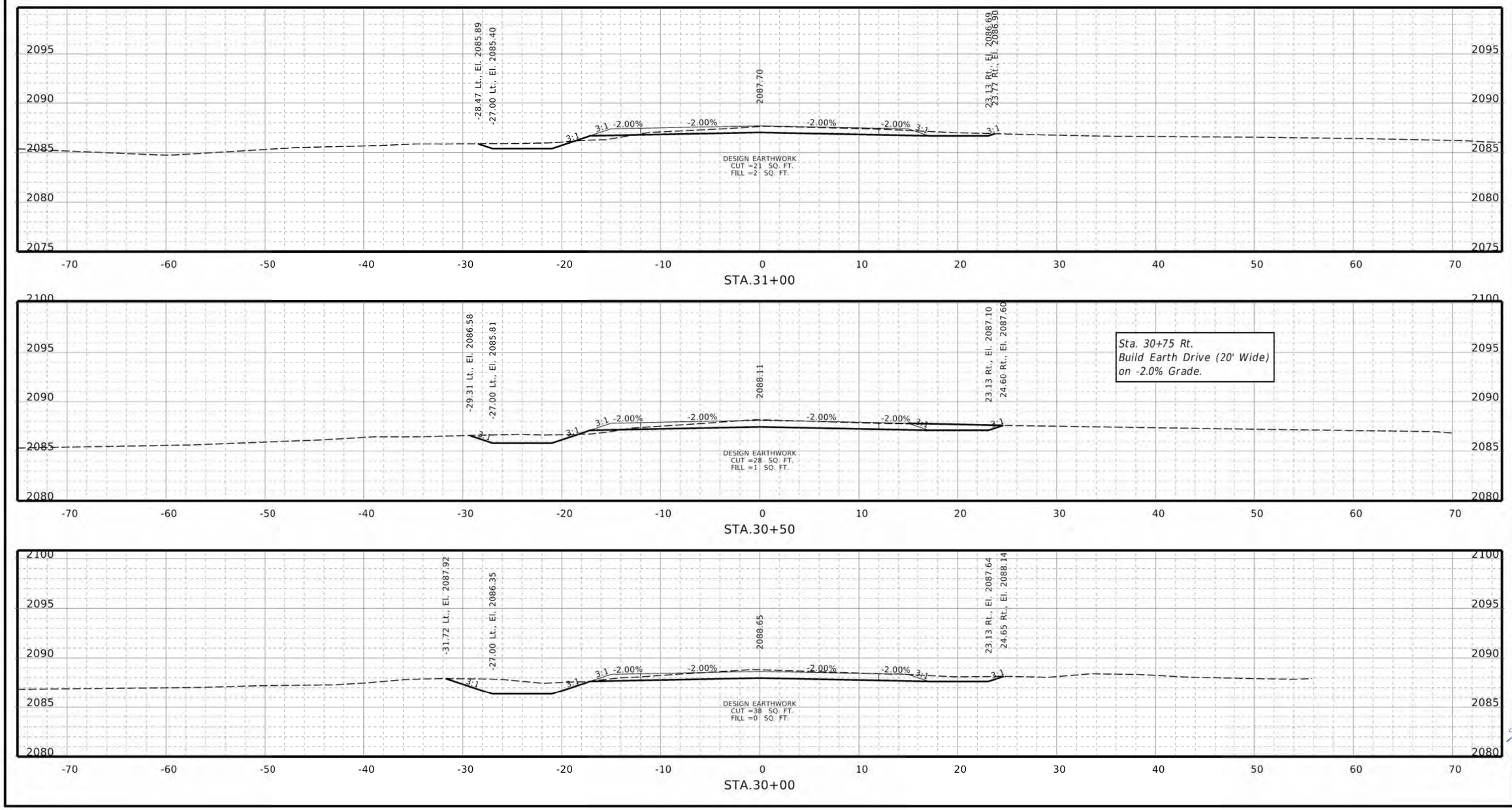
PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16118
STATE OF NEBRASKA

09/01/2023



STA.31+00

STA.30+50

STA.30+00

X-36

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

CROSS SECTIONS

MEI
MIDWEST ENGINEERING, INC
3260 FOLKWAYS BLVD
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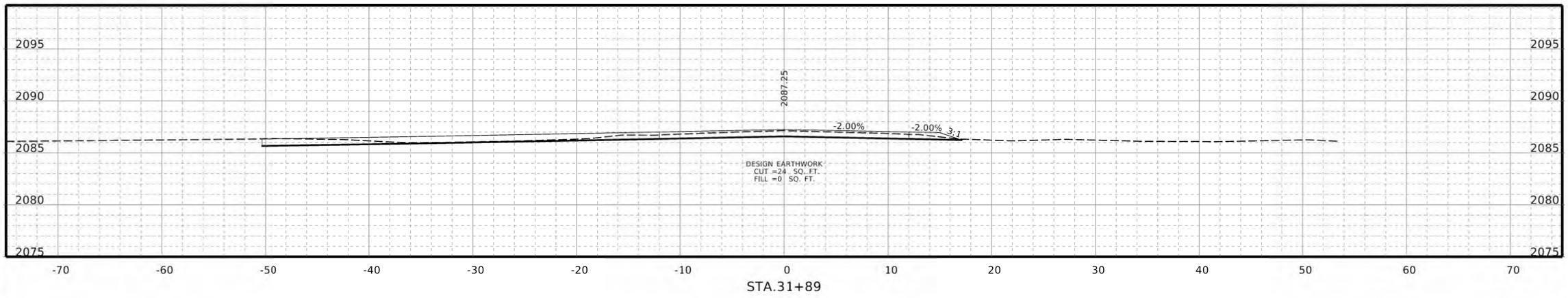
PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16119
STATE OF NEBRASKA

09/01/2023



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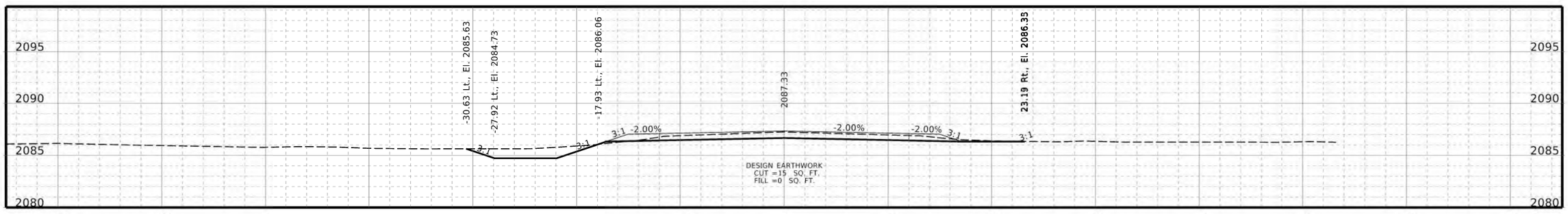

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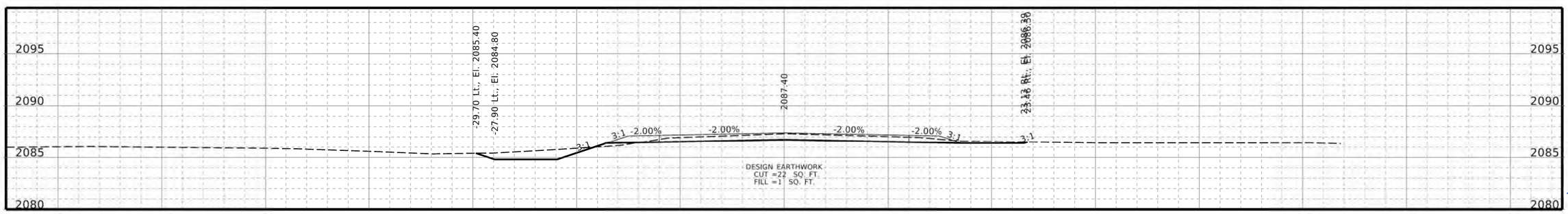

STA.31+50

X-37

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

CROSS SECTIONS

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LINCOLN, NE 68504
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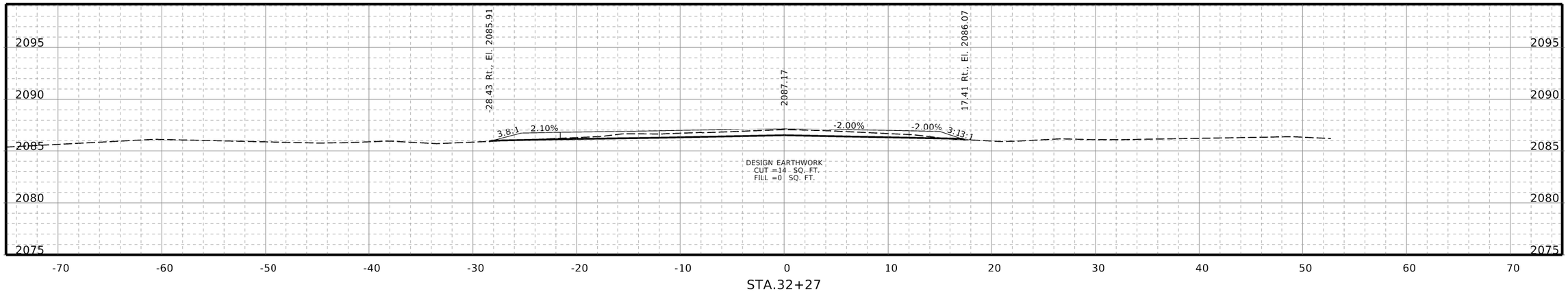
E-16119
STATE OF NEBRASKA

09/01/2023



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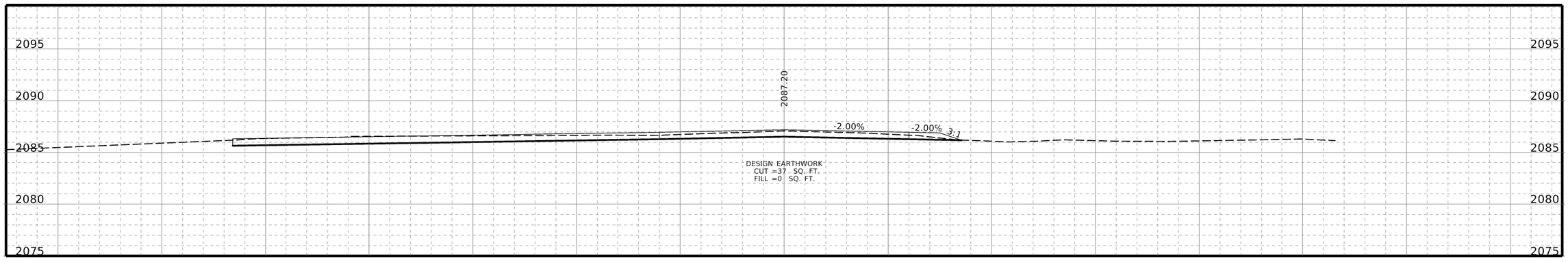

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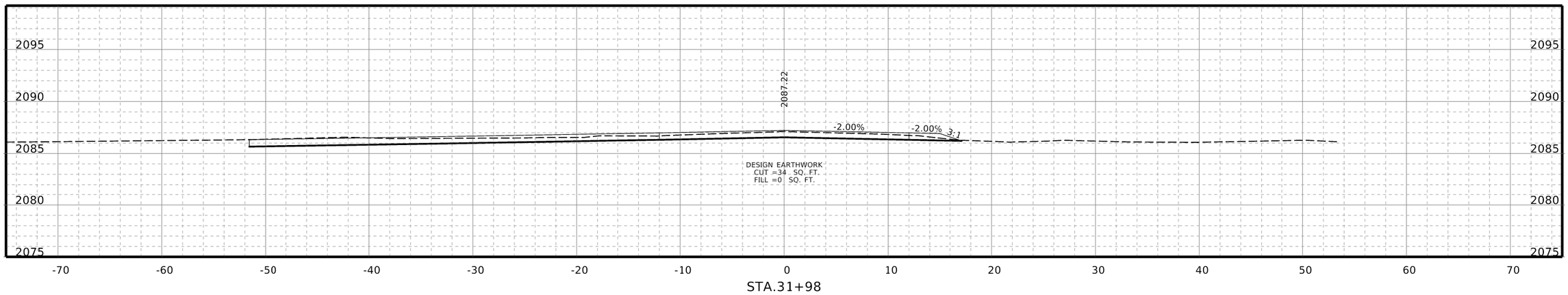

STA.31+98

X-38

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

CROSS SECTIONS

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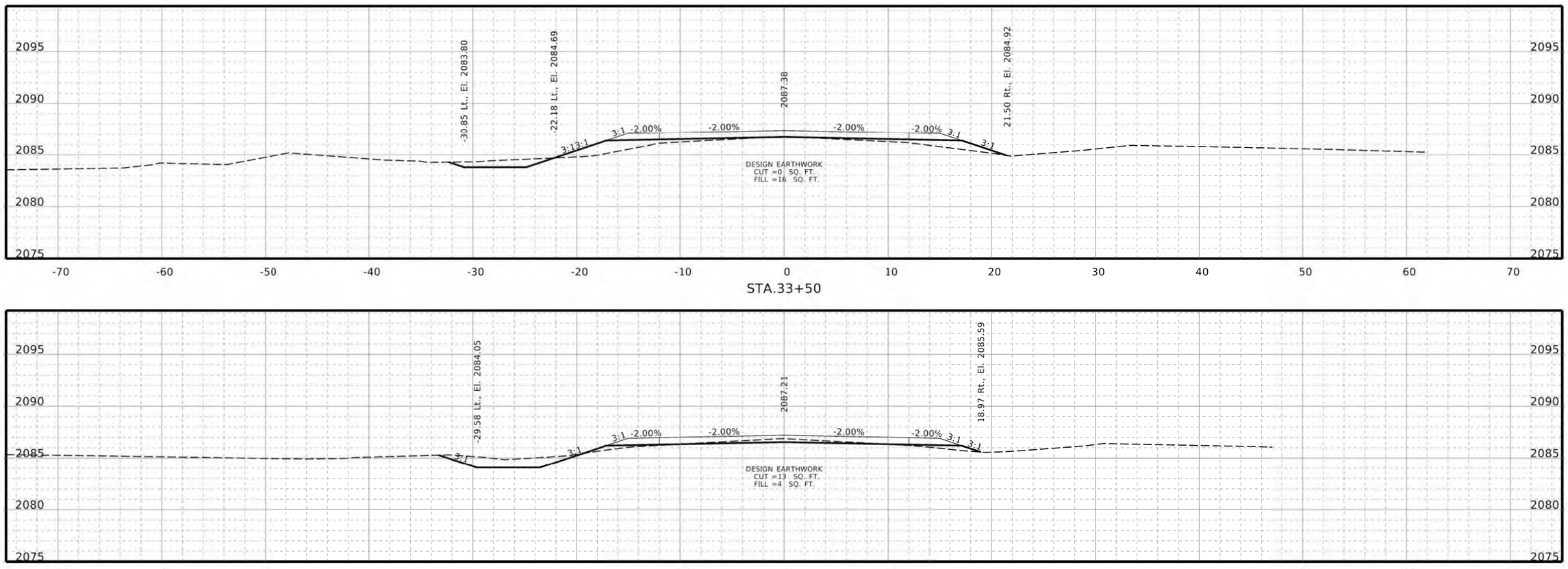
PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16119
STATE OF NEBRASKA

09/01/23



STA.33+50

STA.33+00

STA.32+56

X-39

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

CROSS SECTIONS

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SUITE B
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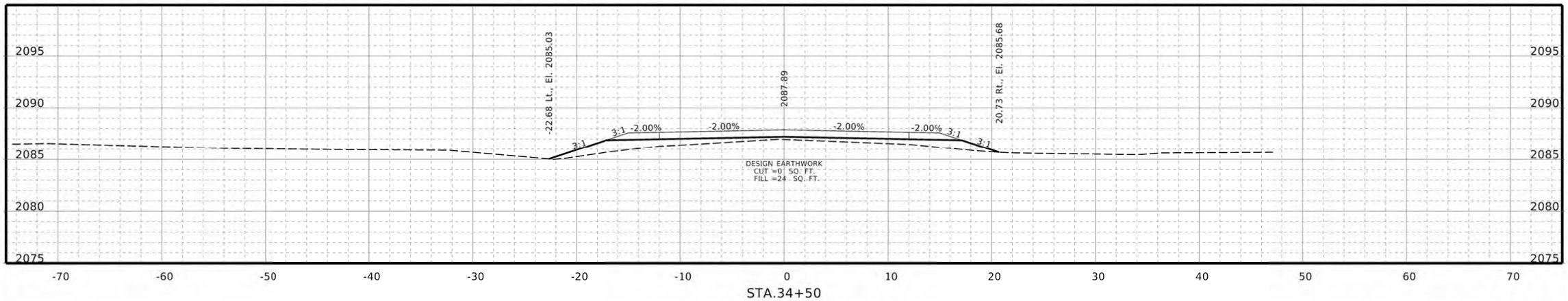
PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16710
STATE OF NEBRASKA

09/01/2023



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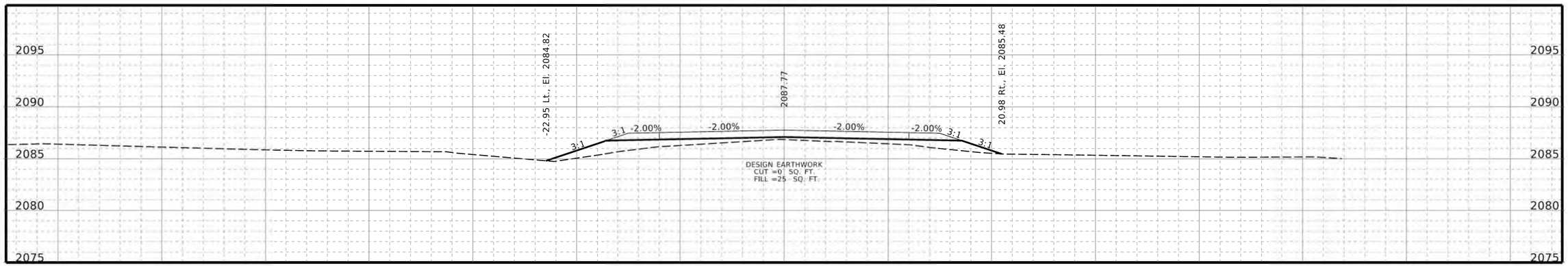

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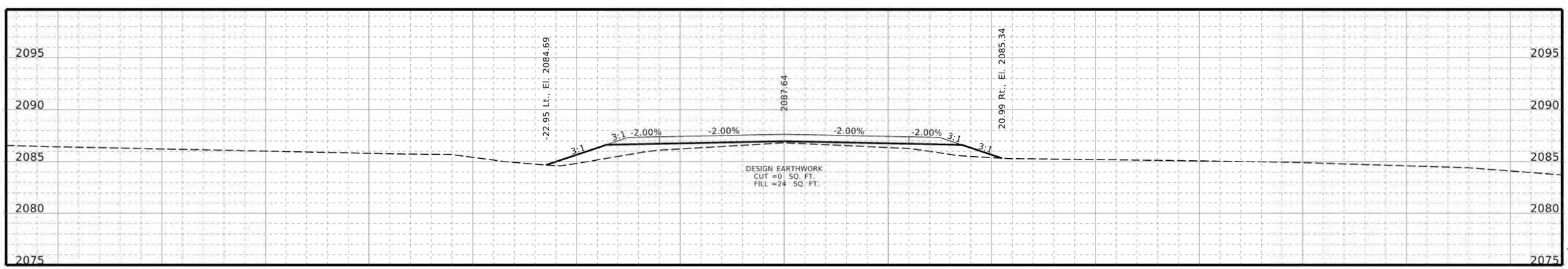


STA.34+00

X-40

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

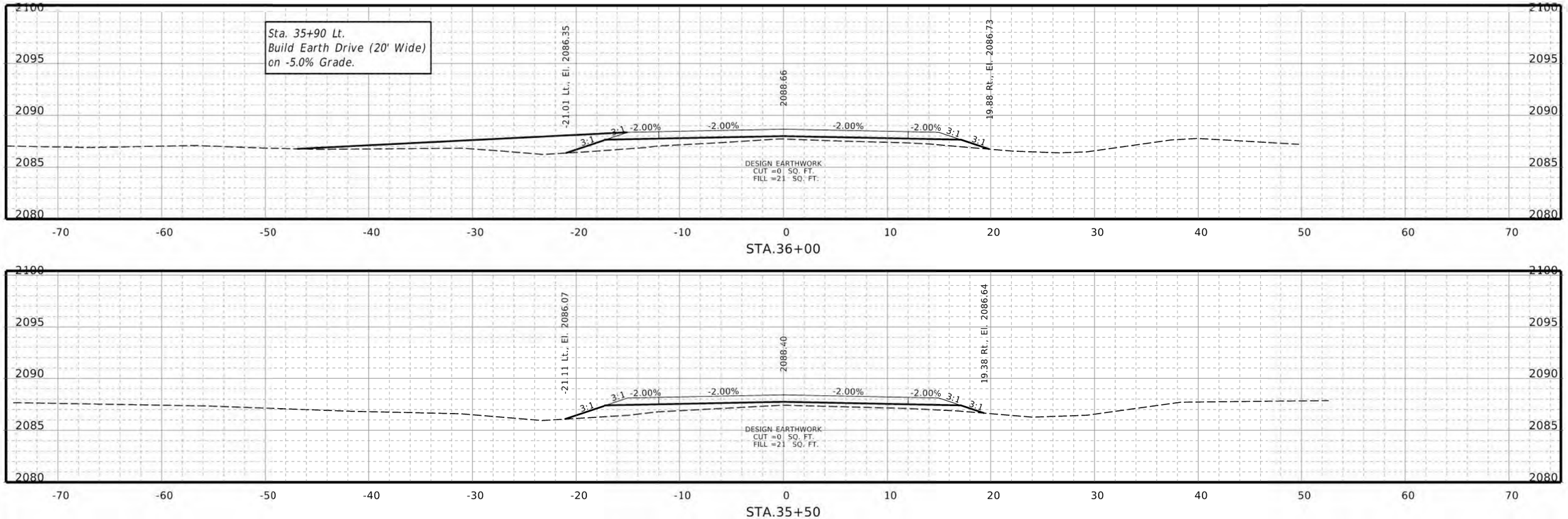
CROSS SECTIONS

MIDWEST ENGINEERING, INC
3260 FOLKWAYS BLVD
SUITE B
LINCOLN, NE 68504
PH: 402-786-2203
MIDWESTE.COM

PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16118
STATE OF NEBRASKA

09/01/2023

Project Number
23020



DAVIS CREEK RESERVOIR ROAD IMPROVEMENT
IN SEC. 25-T17N-R13W
CROSS SECTIONS

MEI
MIDWEST ENGINEERING, INC
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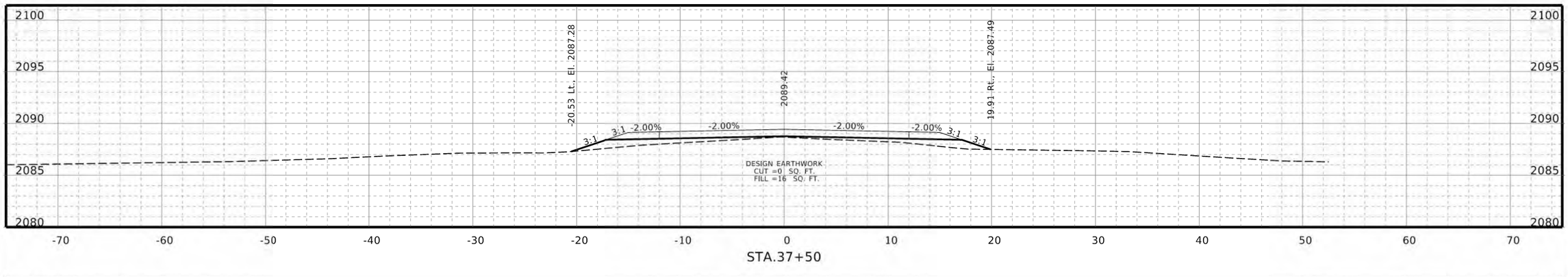
PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16119
STATE OF NEBRASKA
09/01/2023



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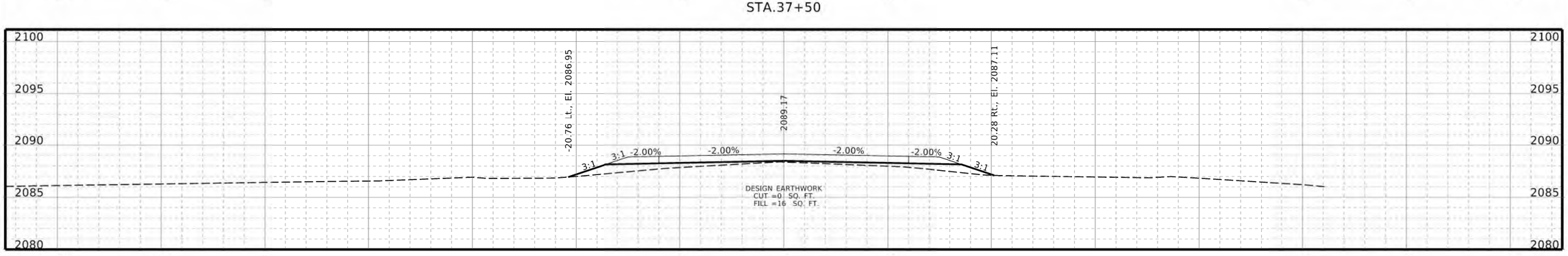

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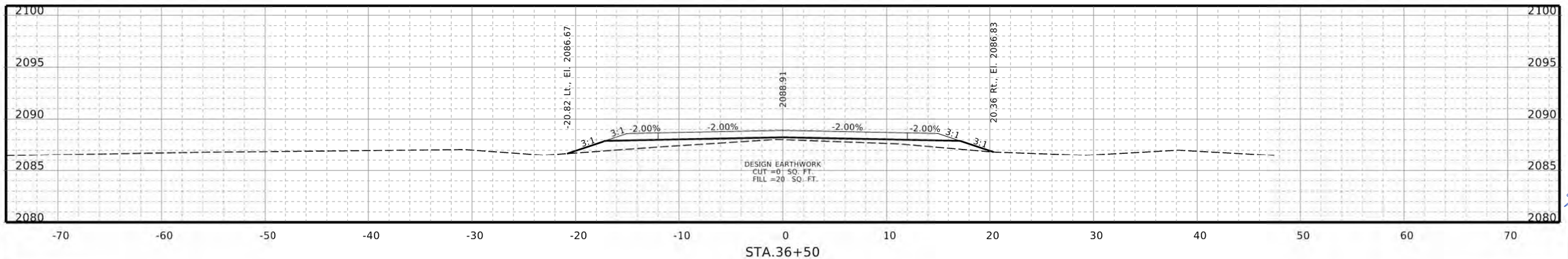

STA.36+50

X-42

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

CROSS SECTIONS

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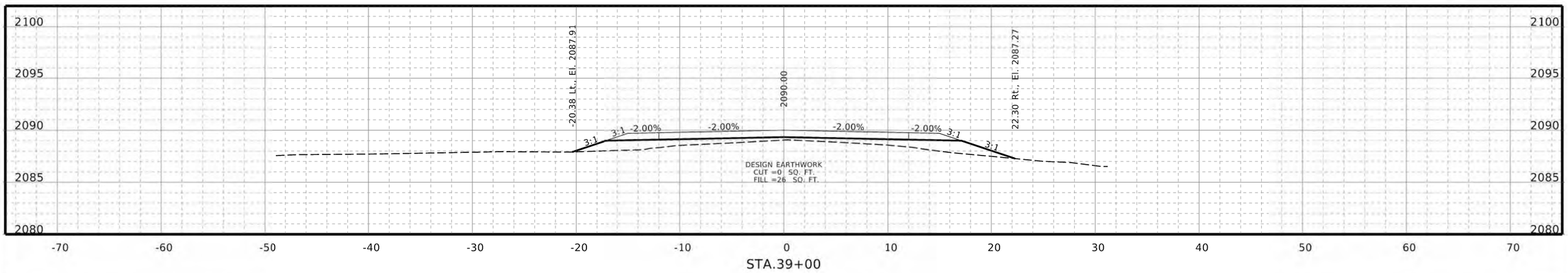
JOSHUA L. KEITHLEY
E-16119
STATE OF NEBRASKA

09/01/2023

X-43

Project Number
23020



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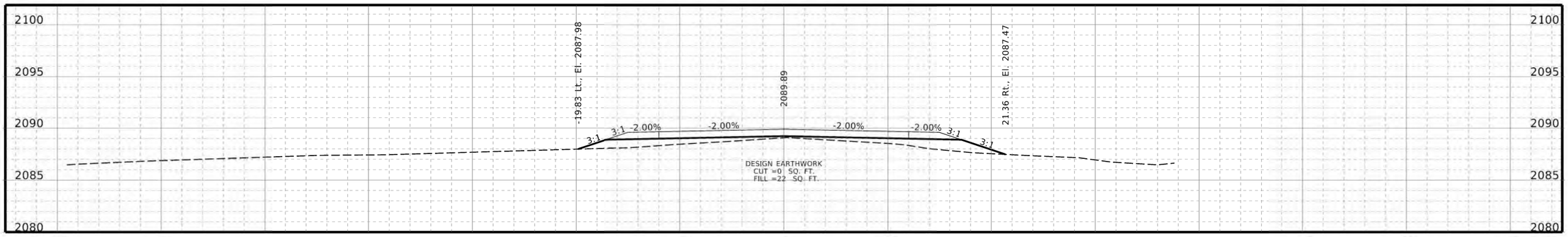
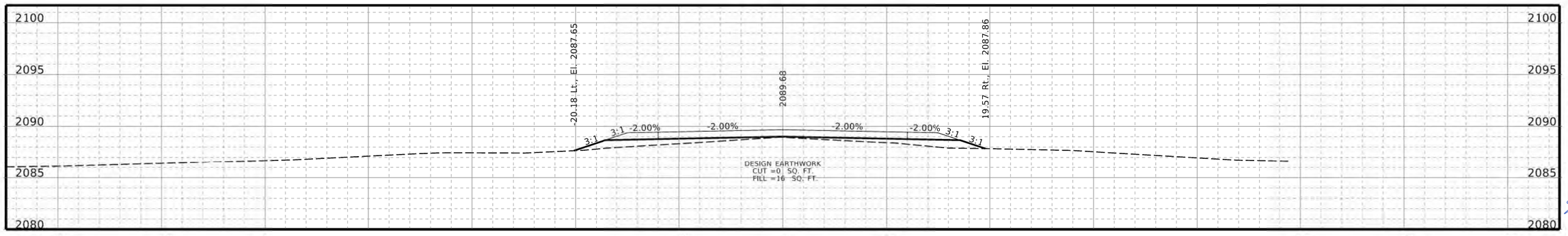


STA.38+50



STA.38+00

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

CROSS SECTIONS

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JOSHUA L. KEITHLEY
E-16118
STATE OF NEBRASKA

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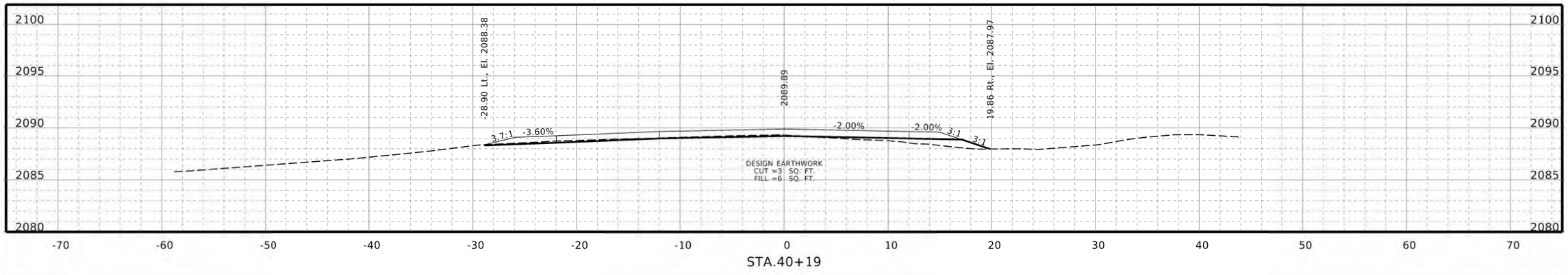

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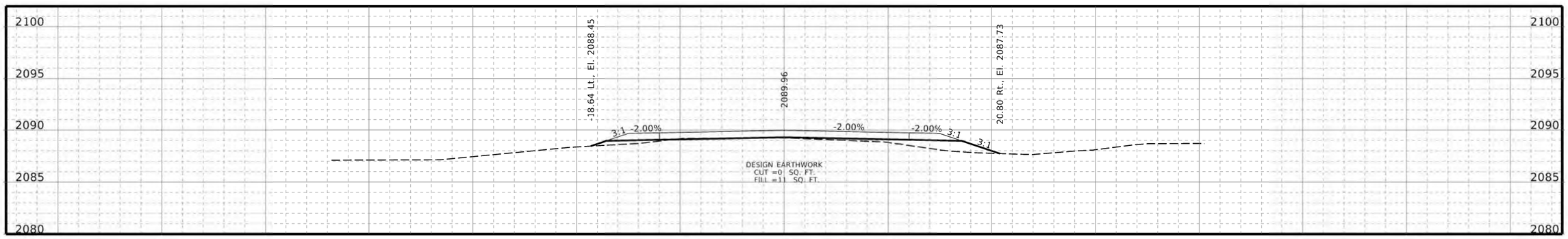
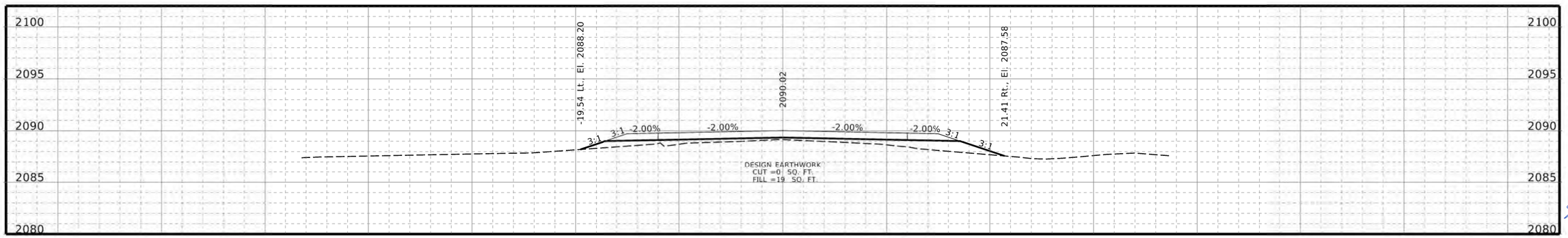


STA.39+92



STA.39+50

X-44

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

CROSS SECTIONS

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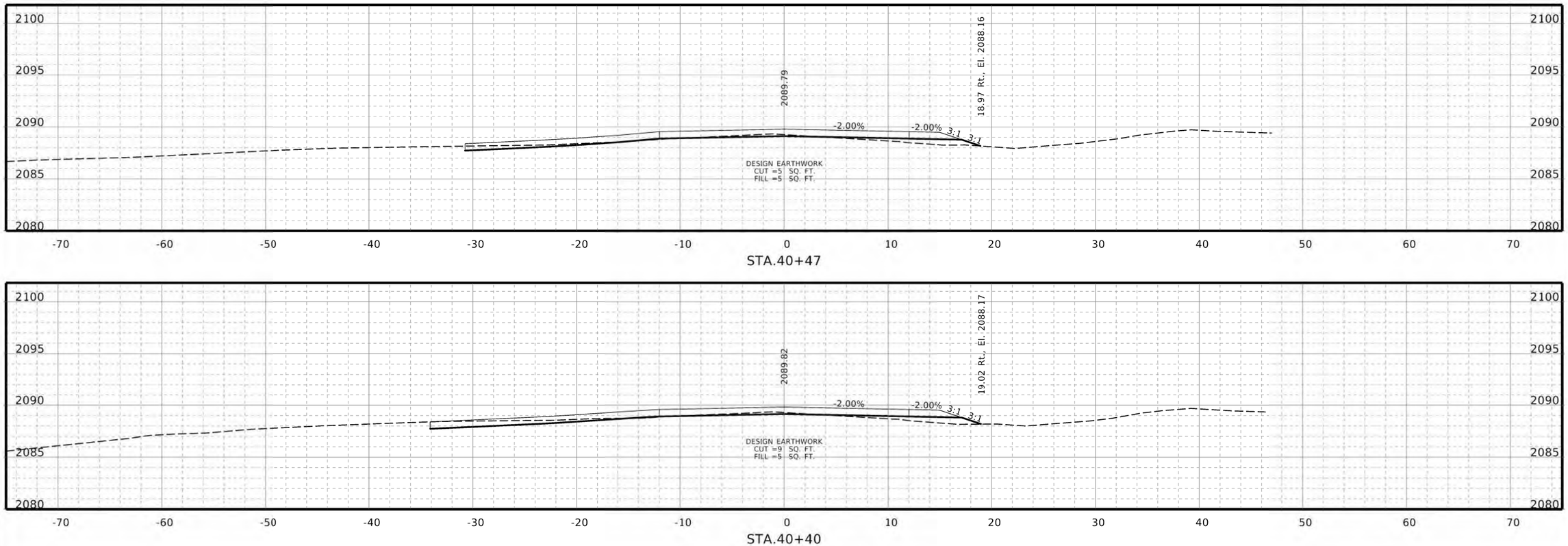
JOSHUA L. KEITHLEY
E-16118
STATE OF NEBRASKA

09/01/2023

X-45

Project Number
23020



DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

CROSS SECTIONS

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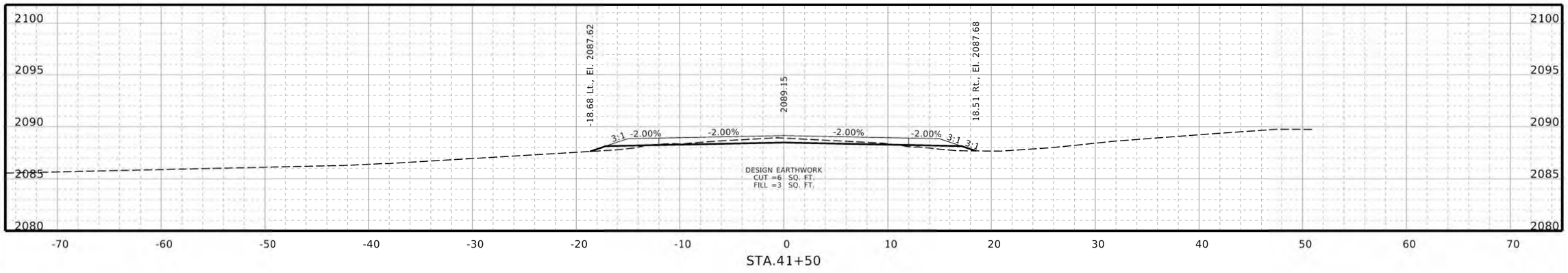
JOSHUA L. KEITHLEY
E-16119
STATE OF NEBRASKA

09/01/2023

X-46

Project Number
23020



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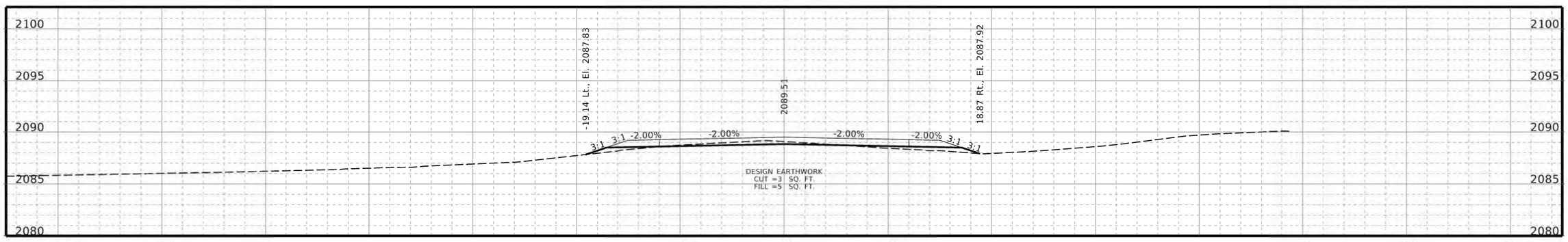

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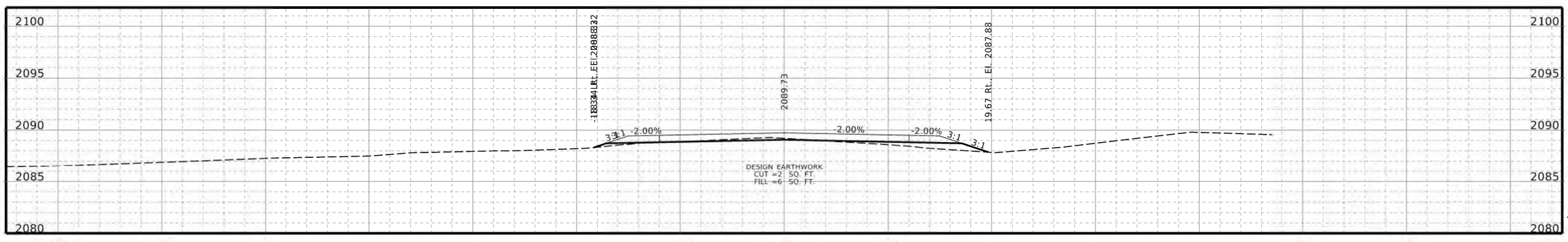

STA.40+58

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

CROSS SECTIONS

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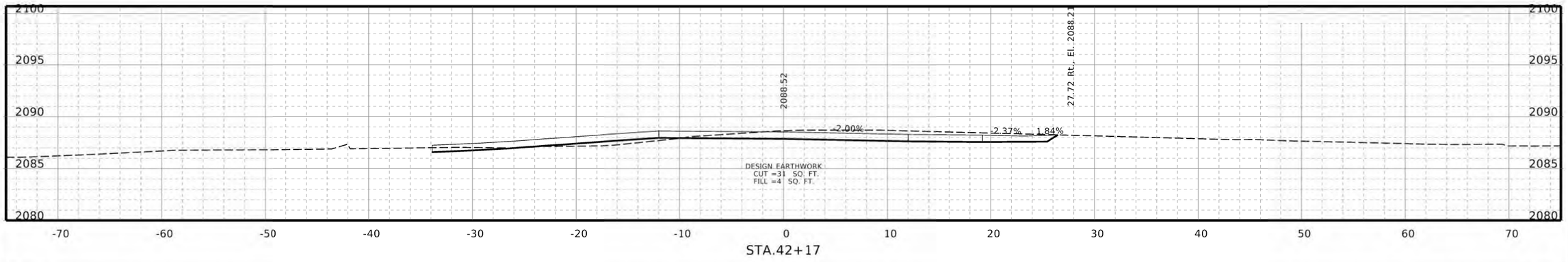

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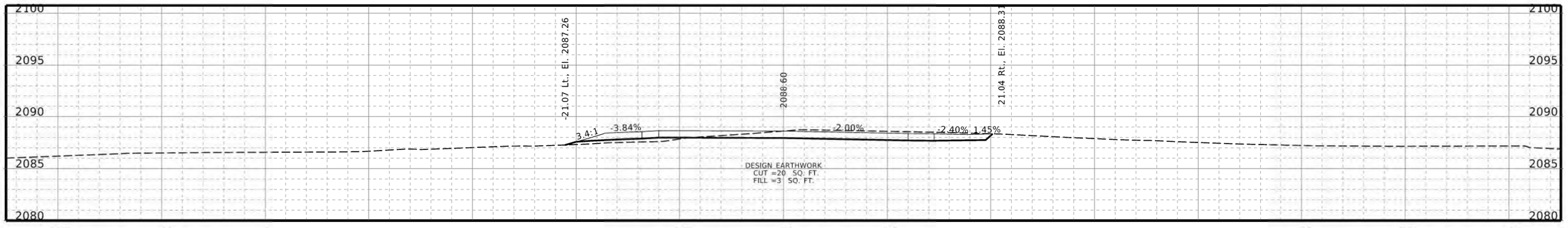

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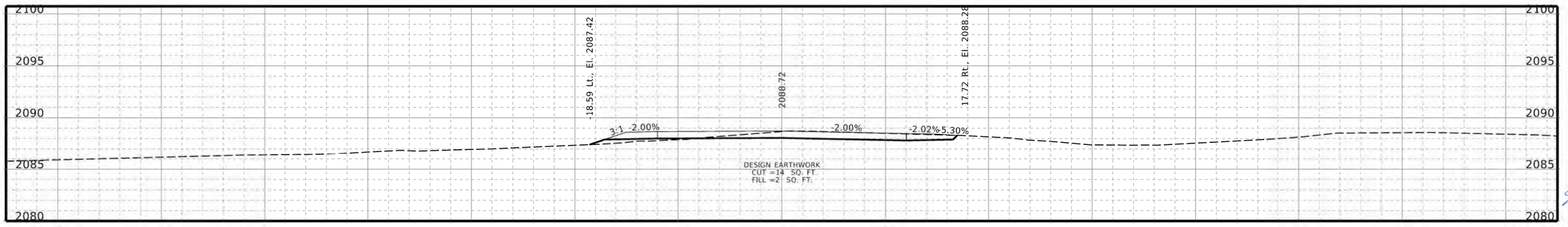

STA.41+97

X-47

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

CROSS SECTIONS

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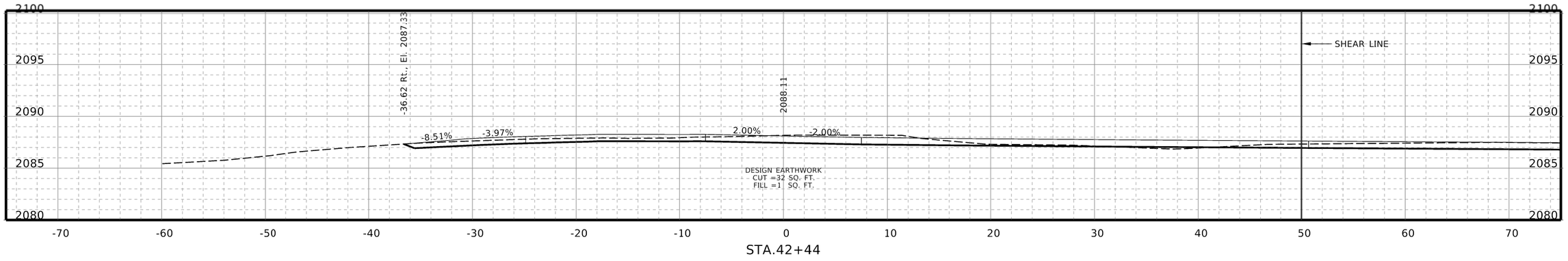
JOSHUA L. KEITHLEY
E-16118
STATE OF NEBRASKA

09/01/2023



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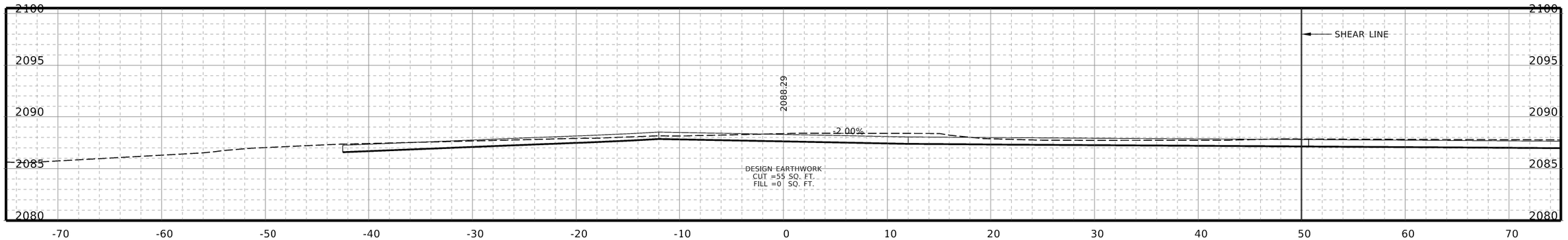

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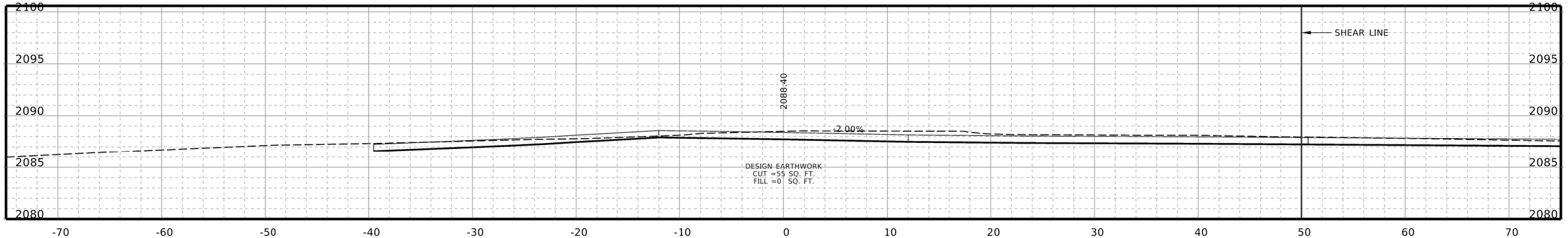

STA.42+29

X-48

Project Number

23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

CROSS SECTIONS

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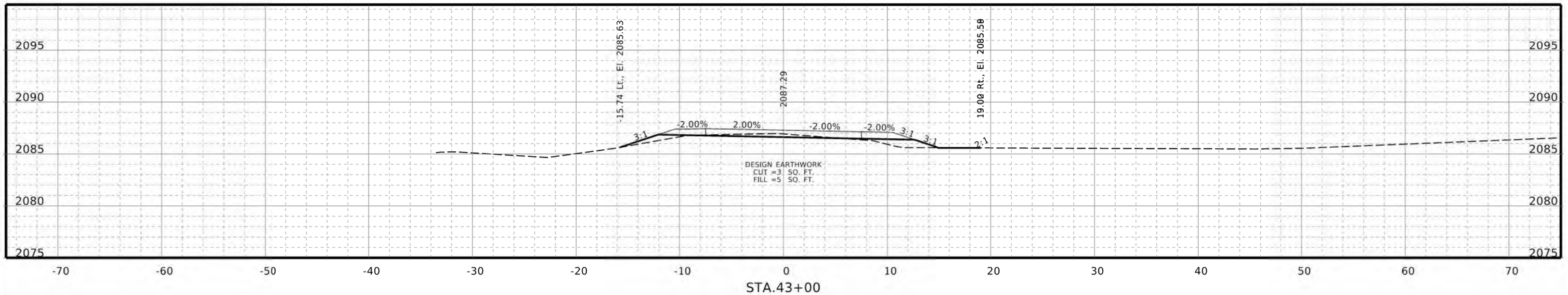
PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16119
STATE OF NEBRASKA

09/01/23



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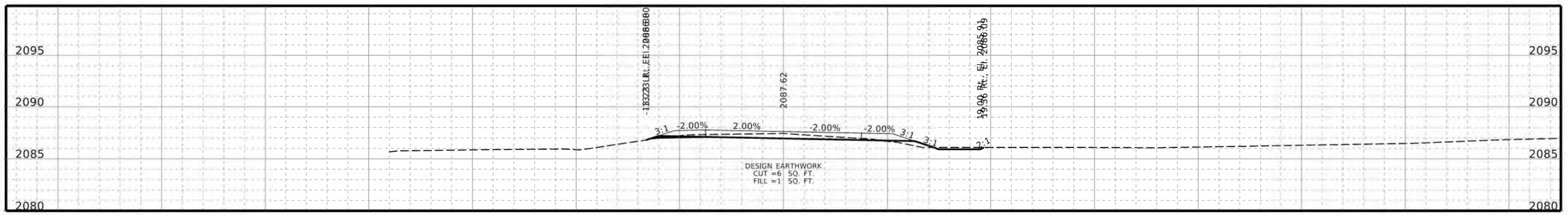

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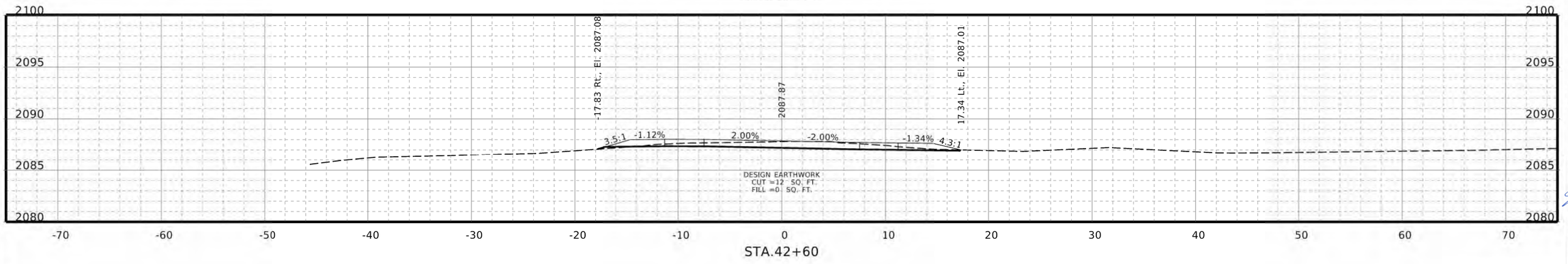

STA.42+60

X-49

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

CROSS SECTIONS

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3260 FOLKWAYS BLVD
SUITE B
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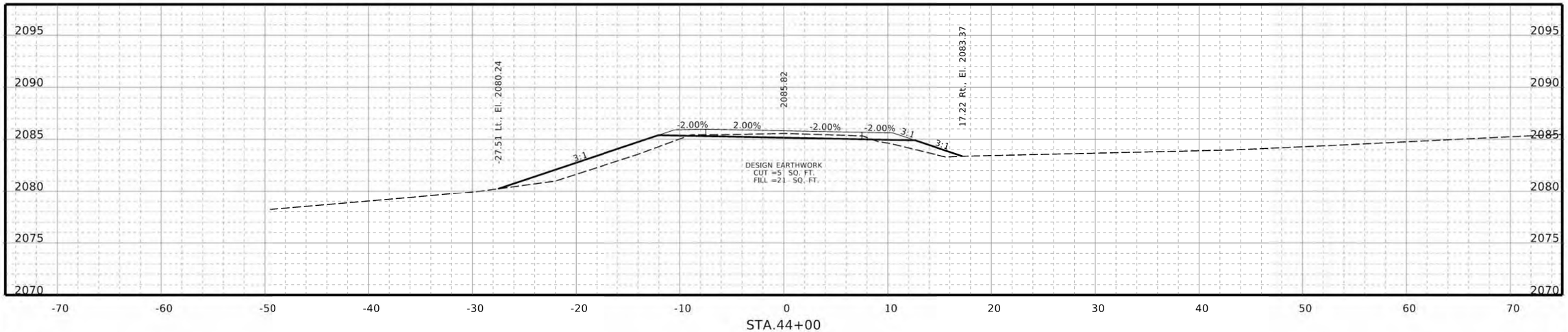
PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16119
STATE OF NEBRASKA

09/01/2023

X-50

Project Number
23020



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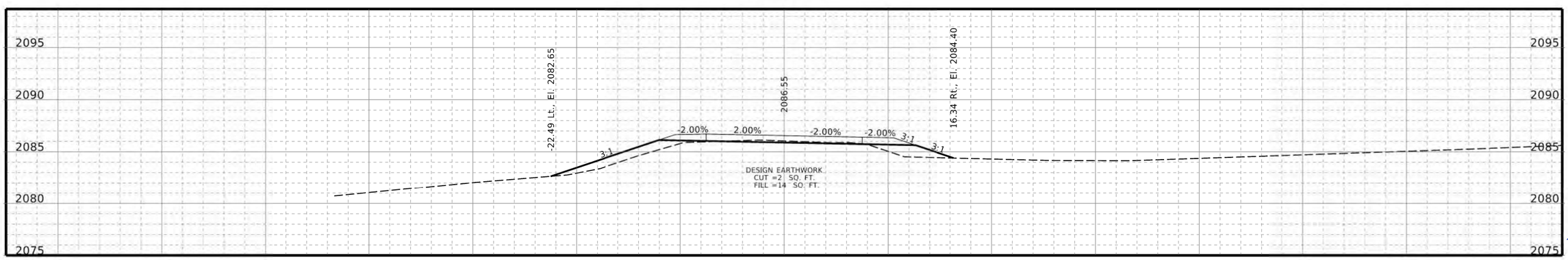

STA.43+50

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

CROSS SECTIONS

MIDWEST ENGINEERING, INC

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SUITE B
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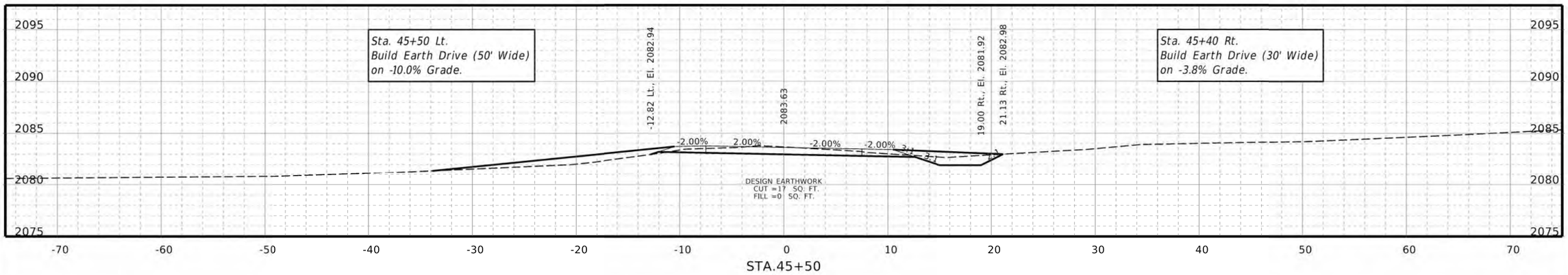
MIDWESTE.COM

PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16118
STATE OF NEBRASKA

09/01/2023



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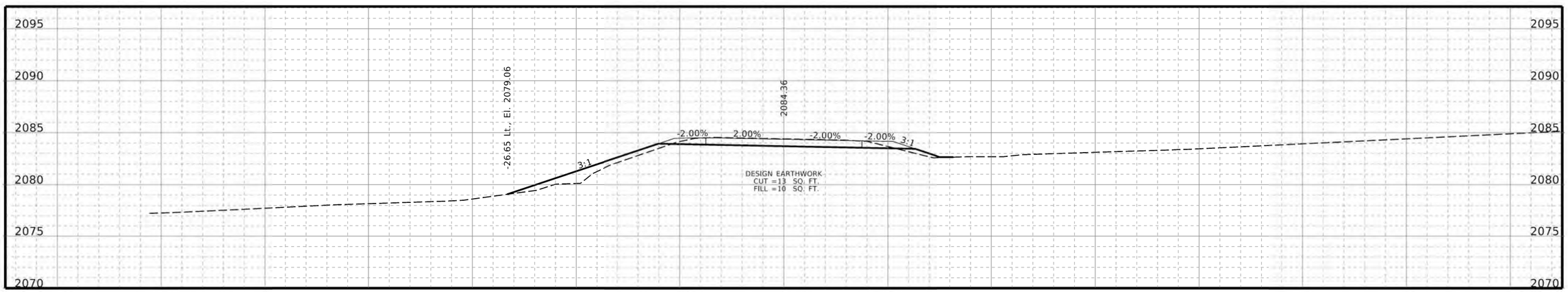

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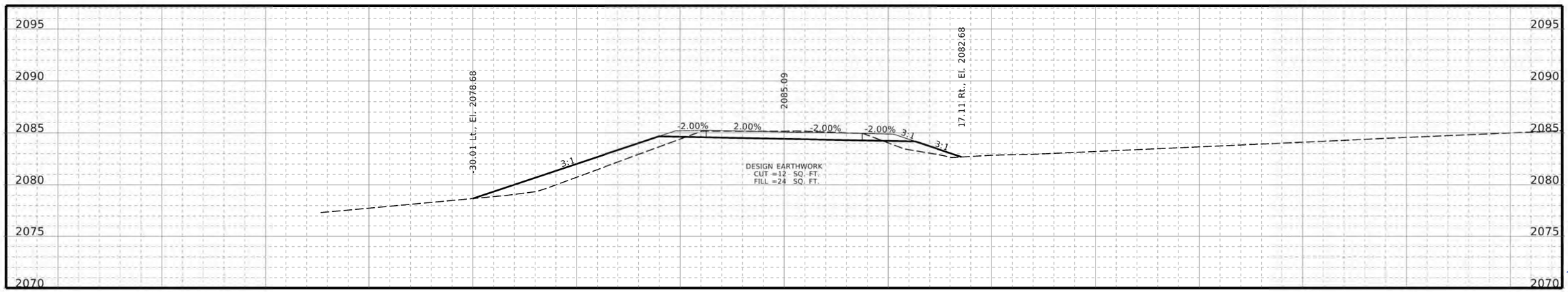

STA.44+50

X-51

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

CROSS SECTIONS

MIDWEST ENGINEERING, INC
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SUITE B
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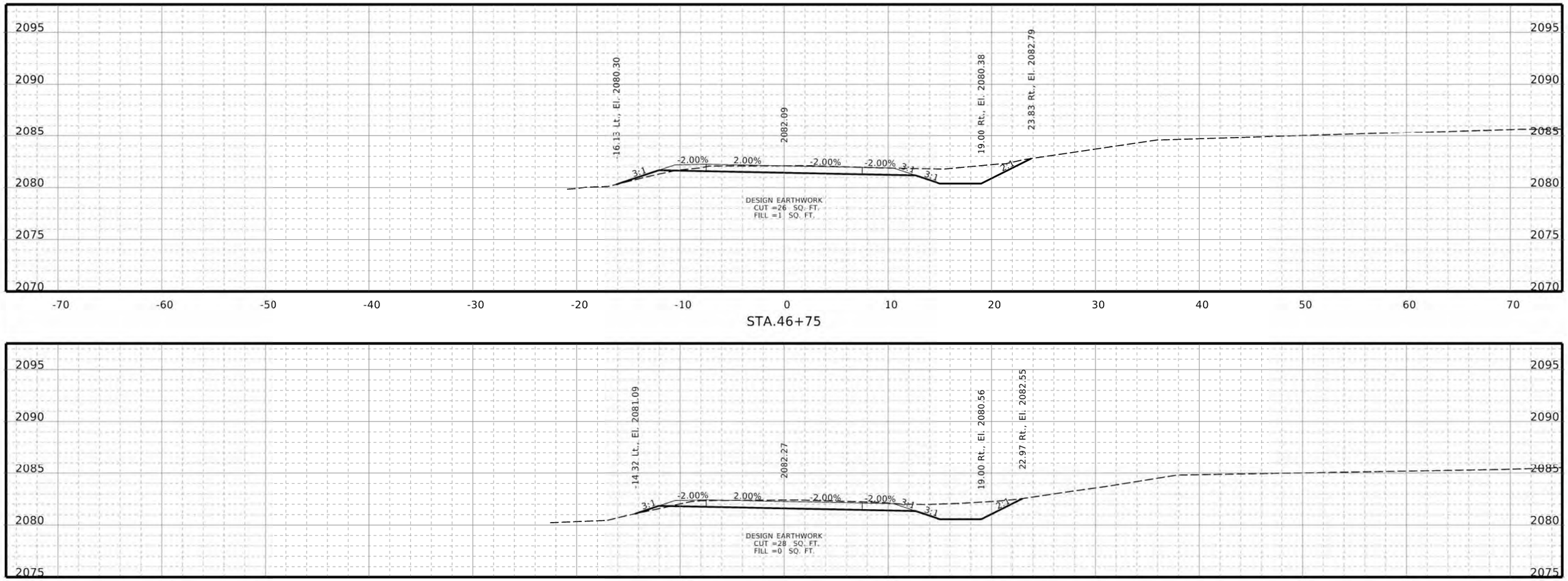
PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16172
STATE OF NEBRASKA

09/01/2023



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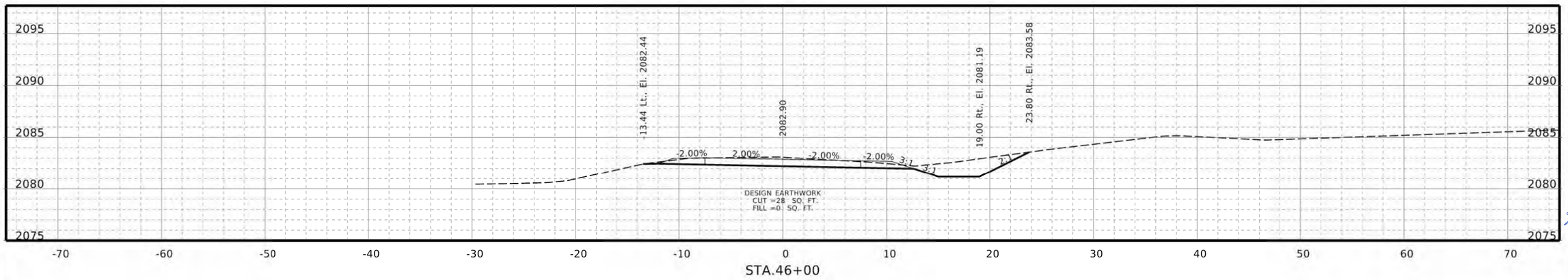

STA.46+00

X-52

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

CROSS SECTIONS

MEI
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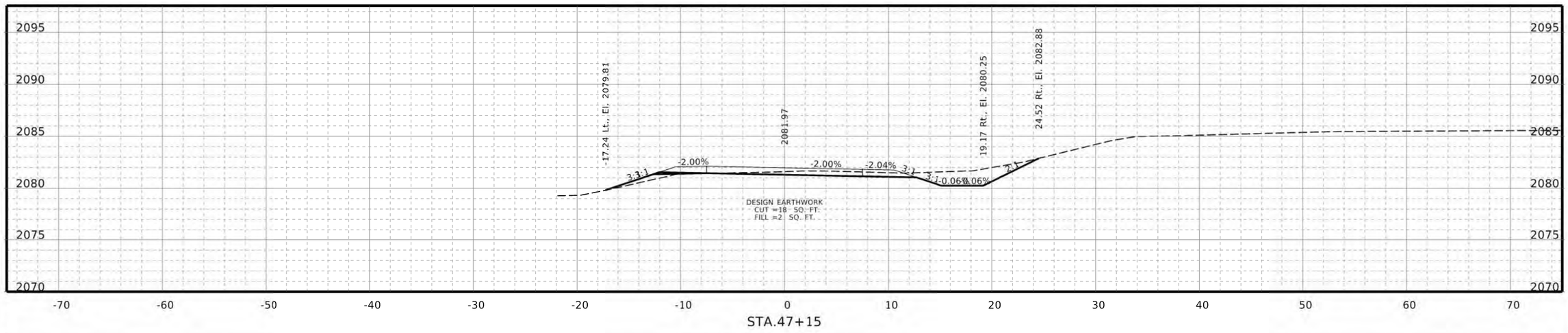
PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16118
STATE OF NEBRASKA

09/01/2023

Project Number
23020



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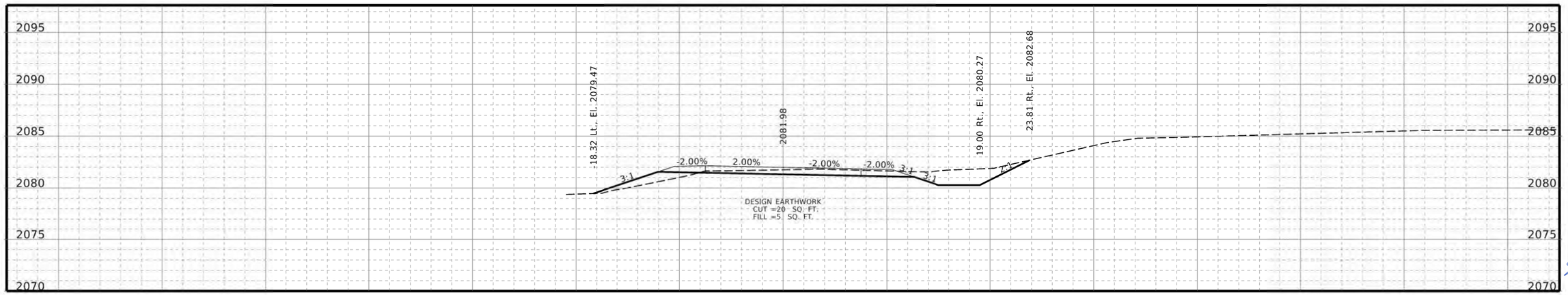

STA.47+00

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

CROSS SECTIONS

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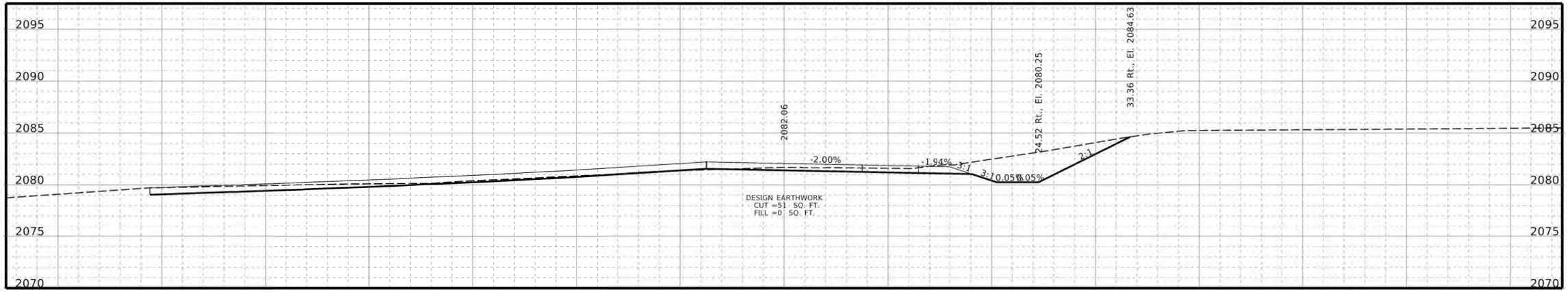
E-16119
STATE OF NEBRASKA

09/01/2023



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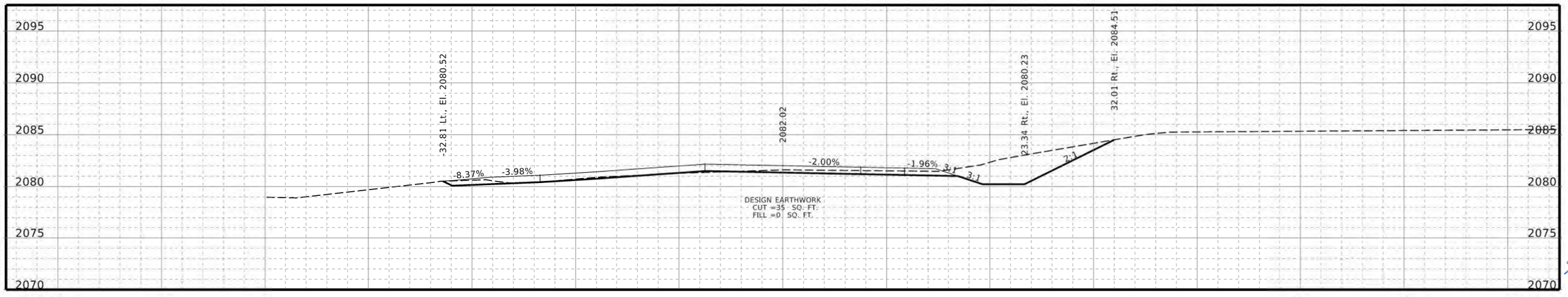

STA.47+45

X-54

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

CROSS SECTIONS

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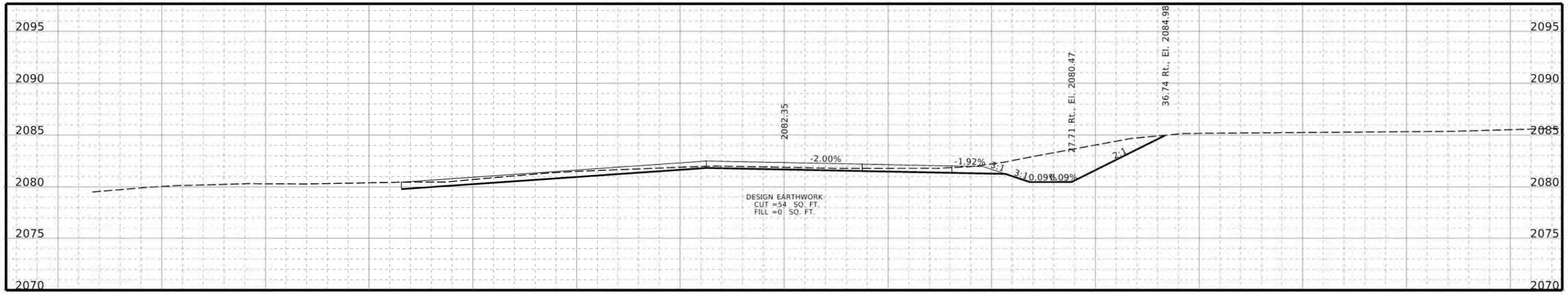
STATE OF NEBRASKA

09/01/2023



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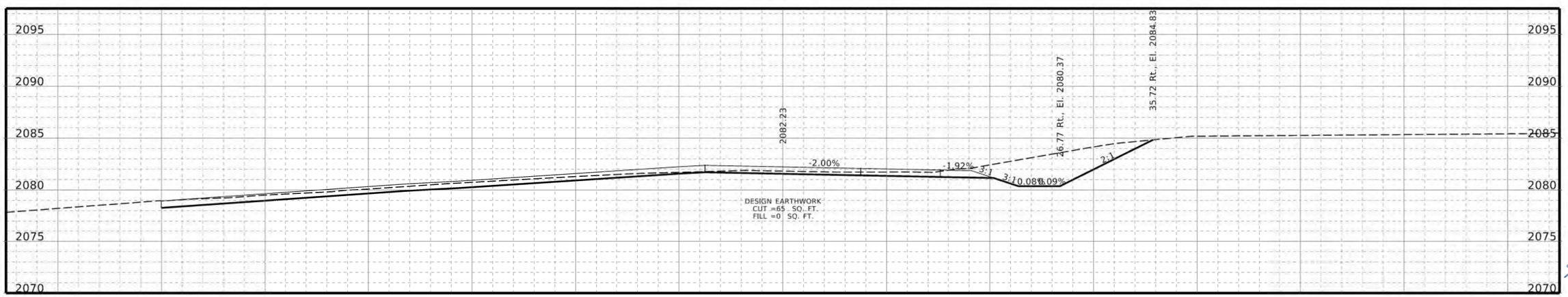

STA.47+79

X-55

Project Number

23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

CROSS SECTIONS

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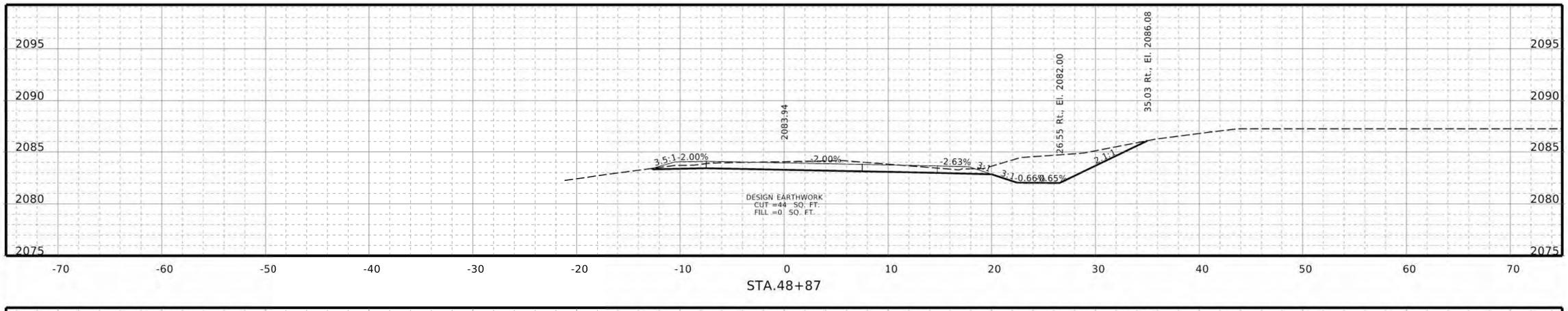

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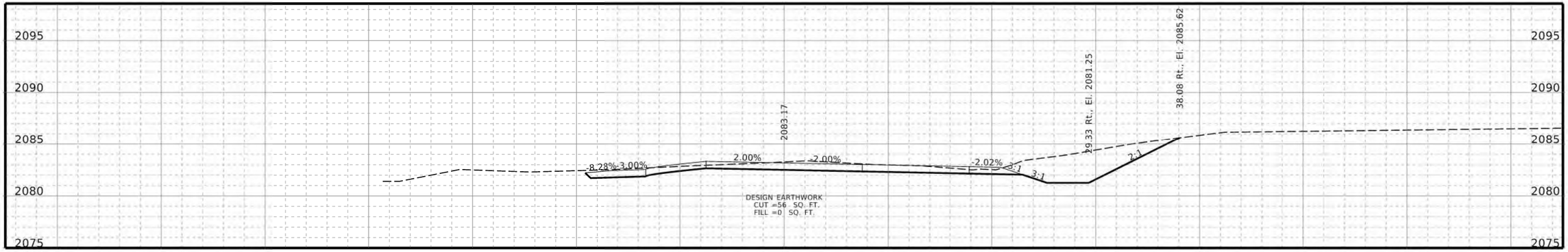
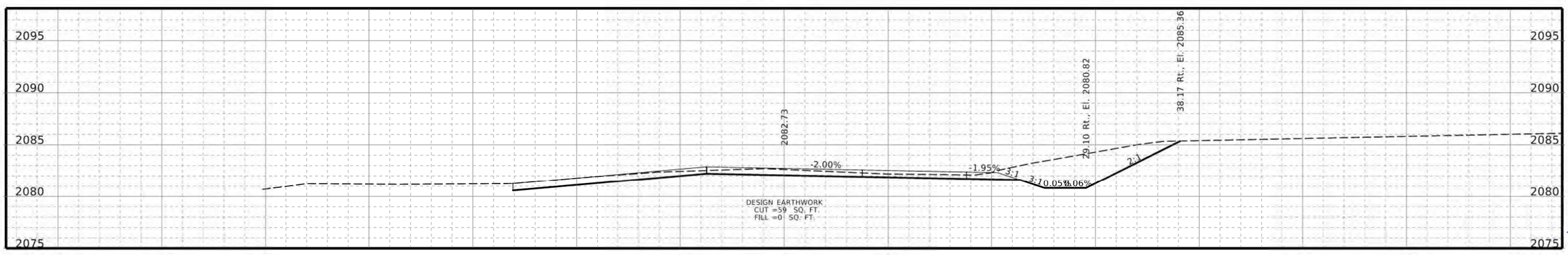


STA.48+50



STA.48+23

X-56

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

CROSS SECTIONS

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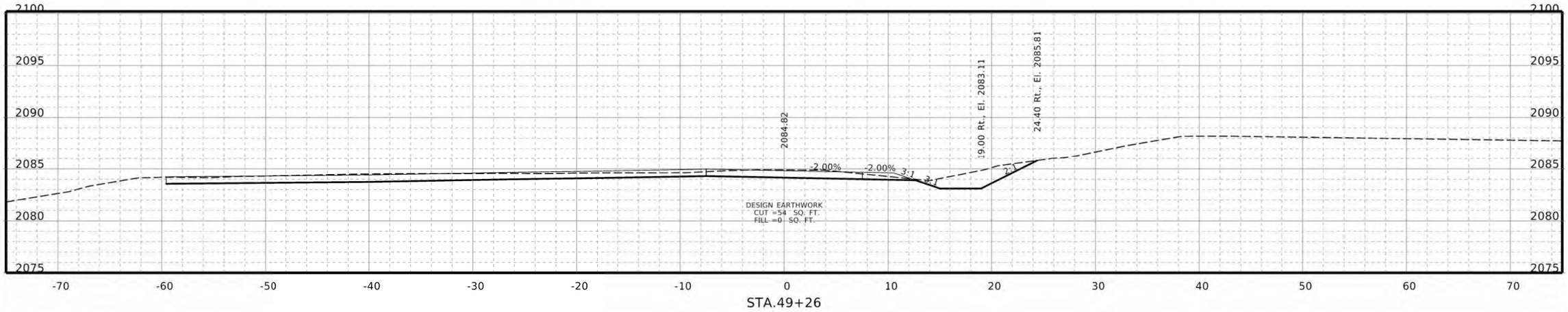
JOSHUA L. KEITHLEY
E-16119
STATE OF NEBRASKA

09/01/2023



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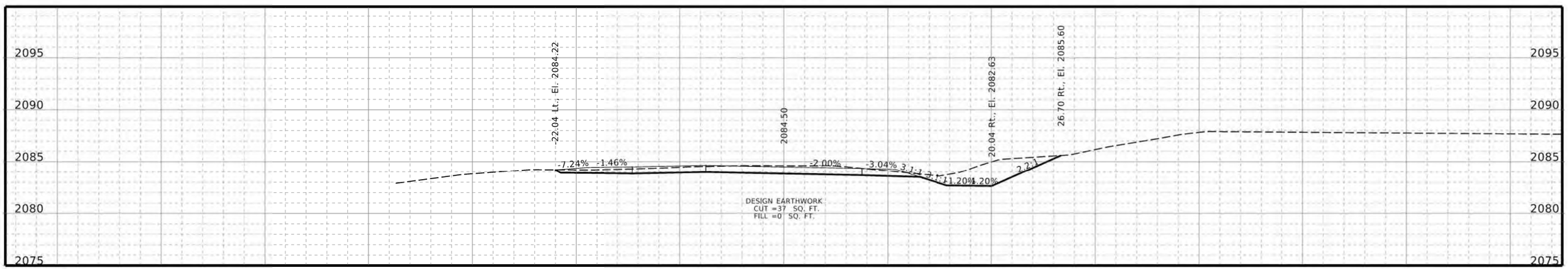

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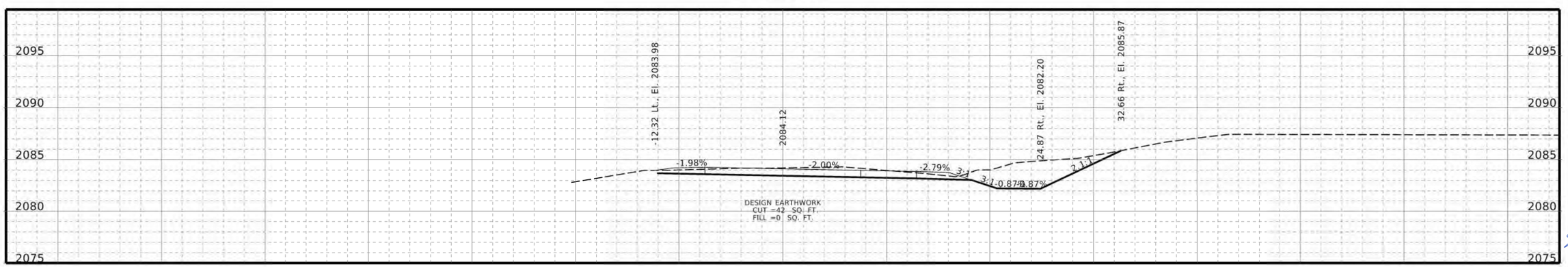


STA.48+95

X-57

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

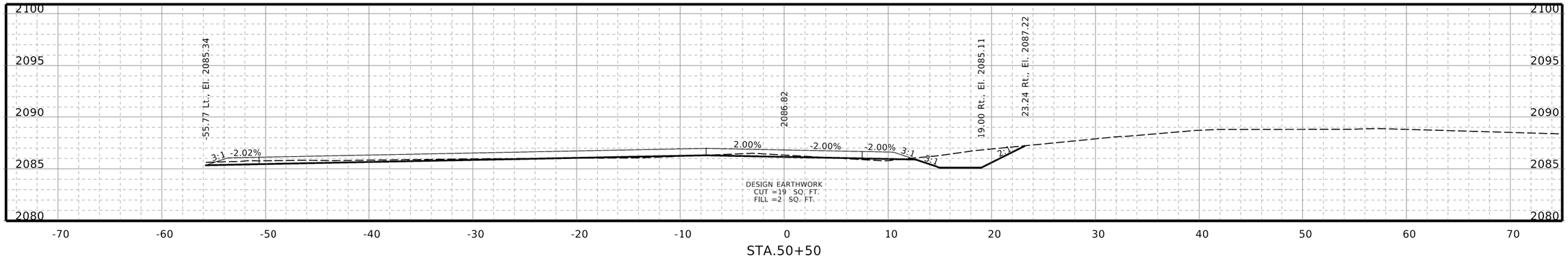
IN SEC. 25-T17N-R13W

CROSS SECTIONS

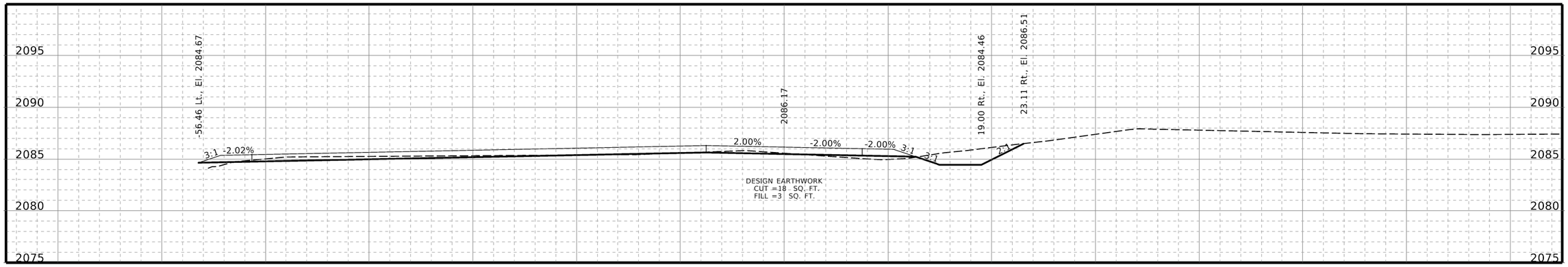
MEI
MIDWEST ENGINEERING, INC
3260 FOLKWAYS BLVD
SUITE B
LINCOLN, NE 68504
PH: 402-786-2203
MIDWESTE.COM

PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16118
STATE OF NEBRASKA

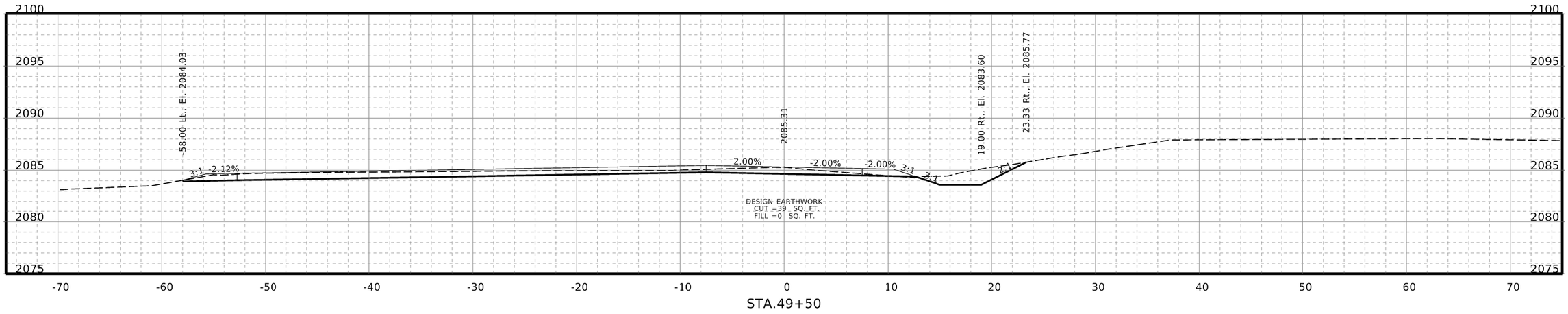
09/01/2023



STA.50+50



STA.50+00



STA.49+50

X-58

Project Number
23020

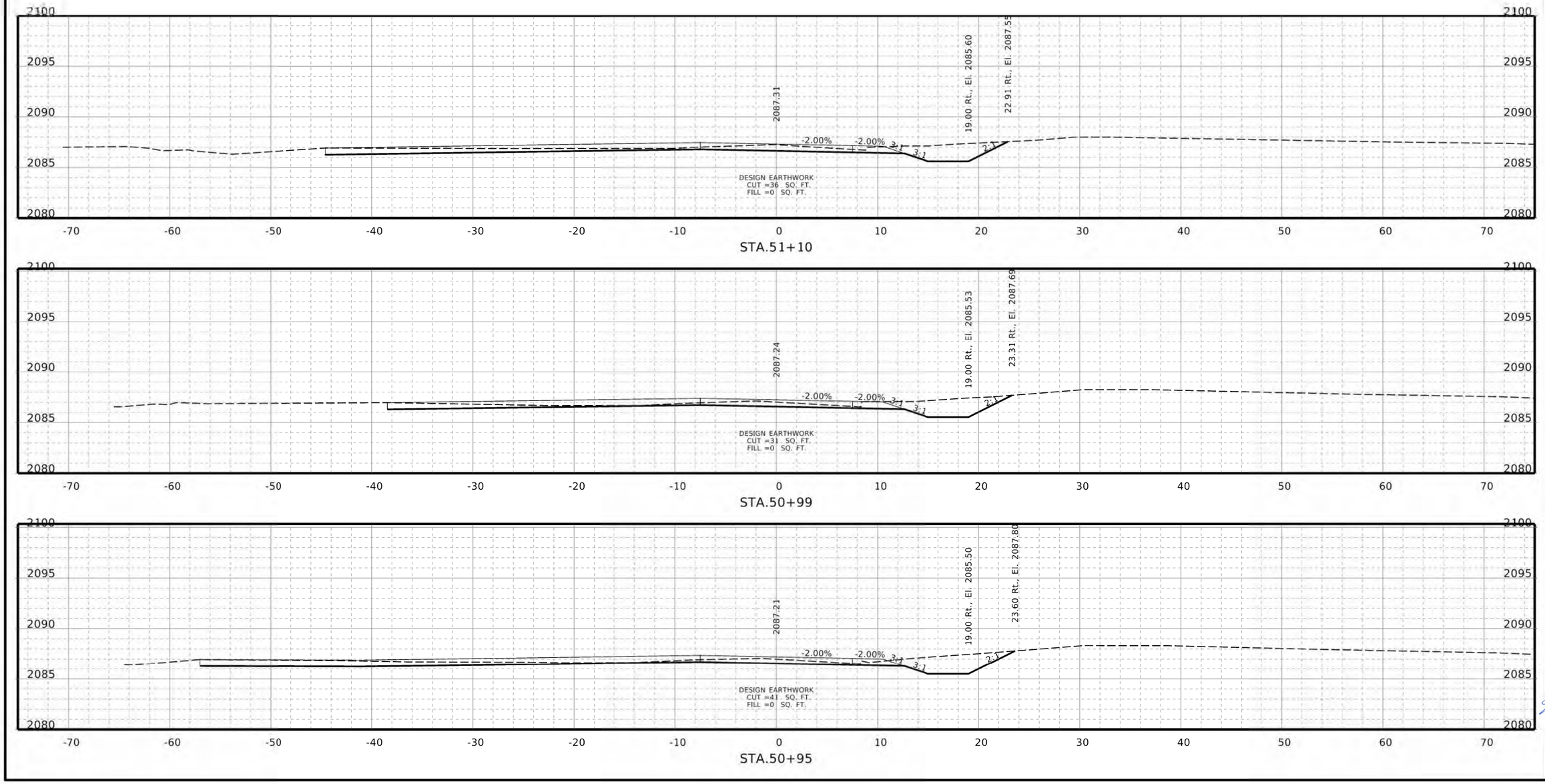
DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

CROSS SECTIONS

MIDWEST ENGINEERING, INC
3260 FOLKWAYS BLVD
SUITE B
LINCOLN, NE 68504
PH: 402-786-2203
MIDWESTE.COM

PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16119
STATE OF NEBRASKA
09/01/23



X-59

Project Number
23020

DAVIS CREEK RESERVOIR ROAD IMPROVEMENT

IN SEC. 25-T17N-R13W

CROSS SECTIONS

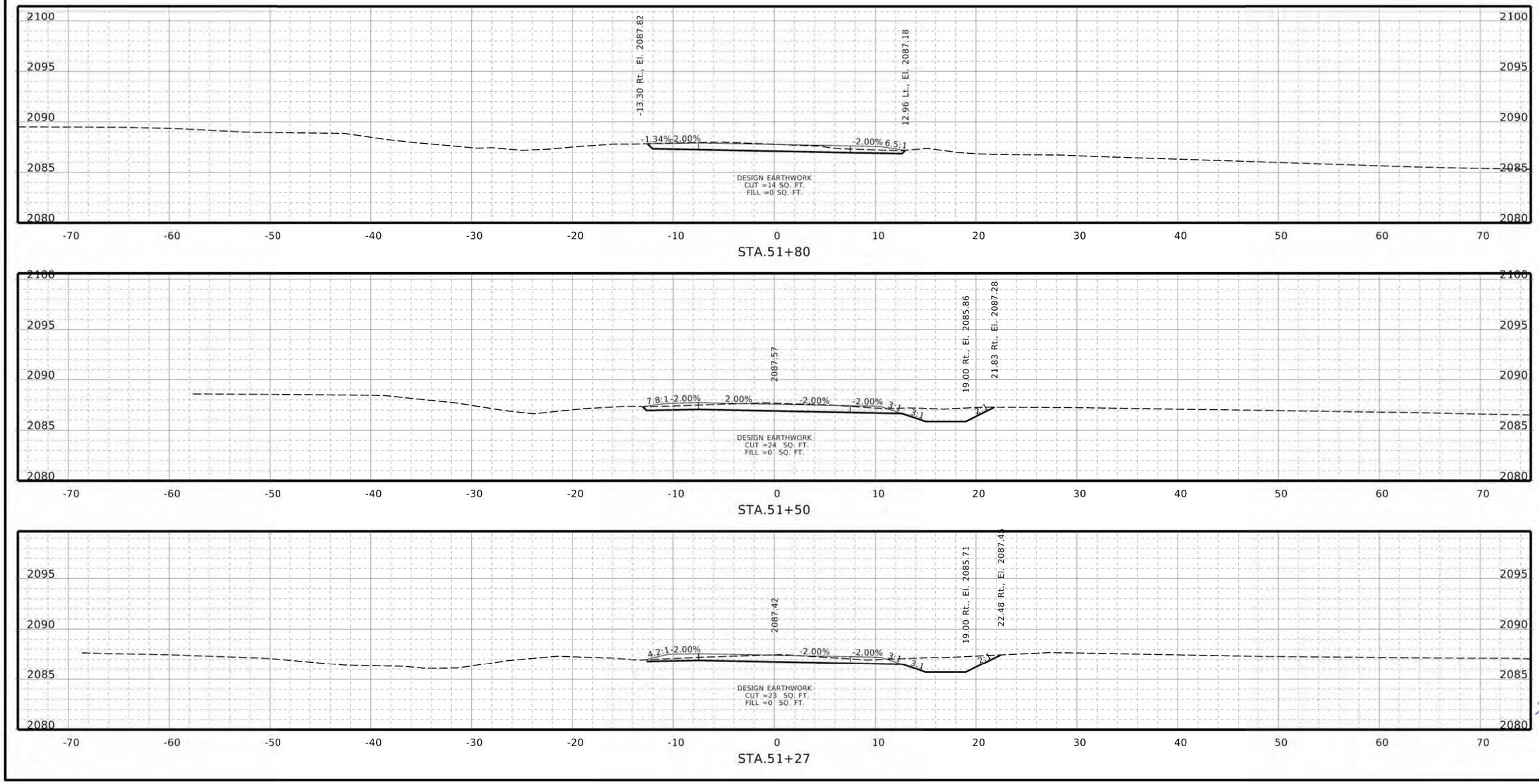
MEI
MIDWEST ENGINEERING, INC
3260 FOLKWAYS BLVD
SUITE B
LINCOLN, NE 68504
PH: 402-786-2203
MIDWESTE.COM

PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16118
STATE OF NEBRASKA

09/01/2023

X-60

Project Number
23020



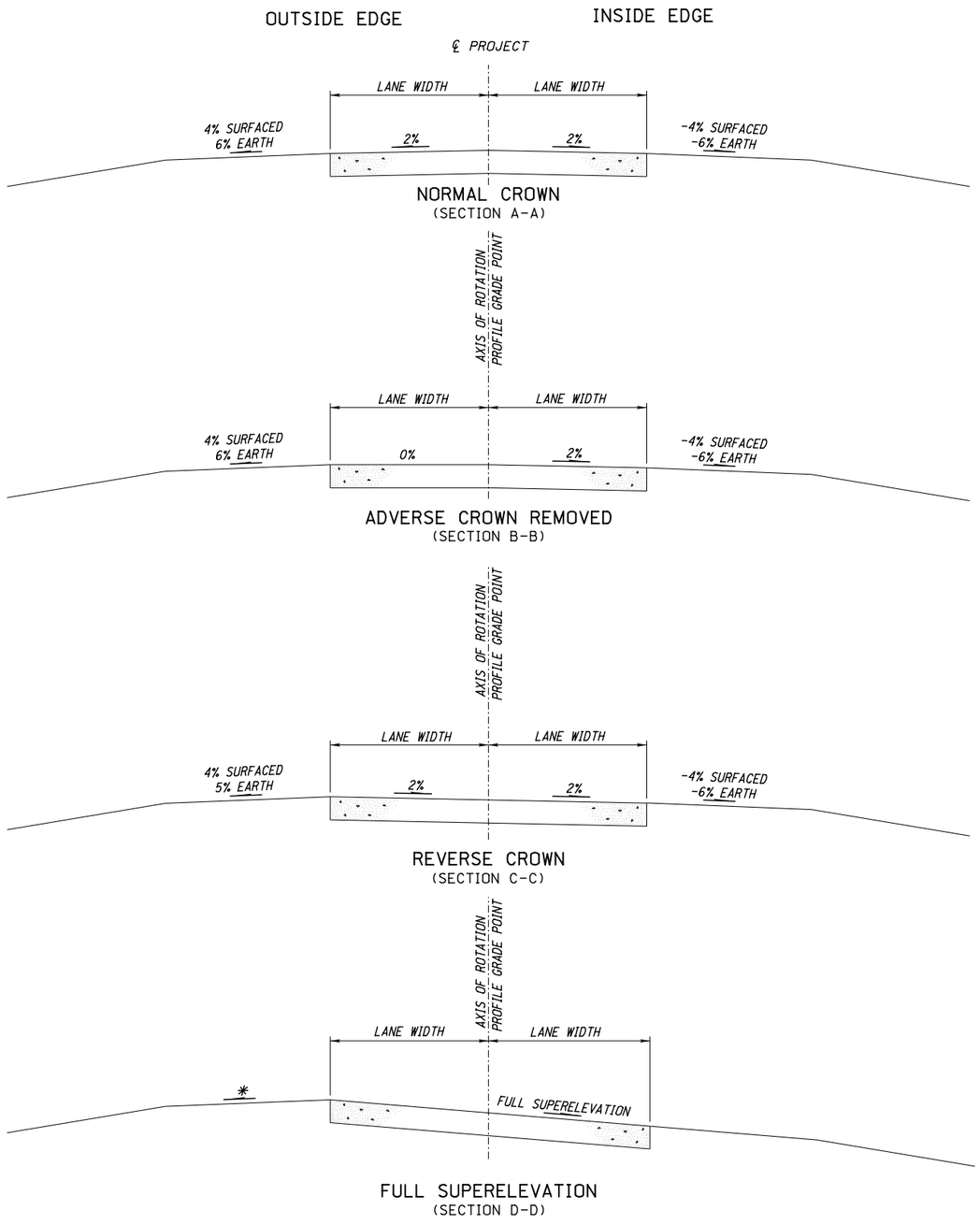
DAVIS CREEK RESERVOIR ROAD IMPROVEMENT
IN SEC. 25-T17N-R13W

CROSS SECTIONS

MIDWEST ENGINEERING, INC
3260 FOLKWAYS BLVD
SUITE B
LINCOLN, NE 68504
PH: 402-786-2203
MIDWESTE.COM

PROFESSIONAL CIVIL ENGINEER
JOSHUA L. KEITHLEY
E-16119
STATE OF NEBRASKA

09/01/2023



NORMAL CROWN
(SECTION A-A)

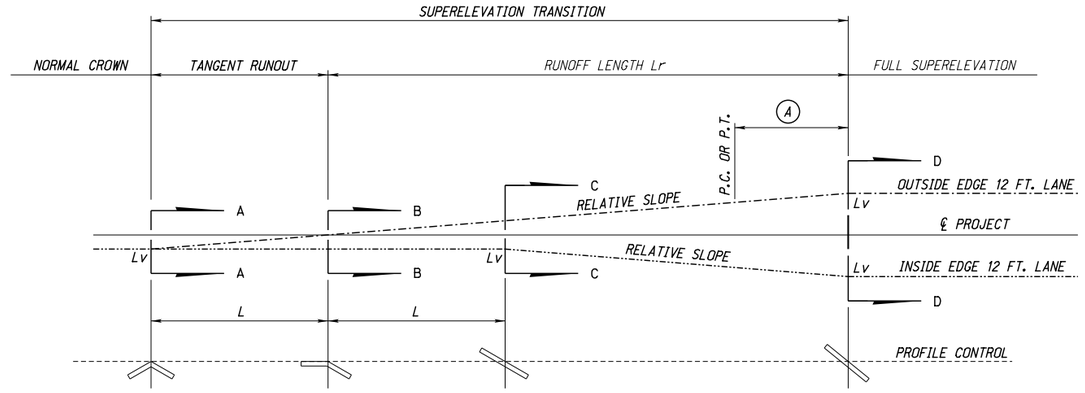
ADVERSE CROWN REMOVED
(SECTION B-B)

REVERSE CROWN
(SECTION C-C)

FULL SUPERELEVATION
(SECTION D-D)

✱ *THE SHOULDER SLOPE SHOULD BE MAINTAINED UNTIL THE SUPERELEVATION RATE ON THE ROADWAY IS SUCH THAT THE ALGEBRAIC DIFFERENCE BETWEEN CROSS SLOPES ON THE ROADWAY AND SHOULDER EQUALS 7%.*

THIS ALGEBRAIC DIFFERENCE SHOULD NOT EXCEED 7%.



DIAGRAMMATIC PROFILE SHOWING METHOD OF ATTAINING SUPERELEVATION

NOTES:

e = SUPERELEVATION RATE AS SHOWN IN THE PLANS (IN %)

FOR A 28 FT. TOP SYSTEM THE SUPERELEVATION RATE FOR THE 2 FT. SURFACED SHOULDER WILL BE THE SAME AS FOR THE THRU LANE.

AT POINTS MARKED "Lv" IT MAY BE NECESSARY TO INSERT A SHORT CONVENIENT LENGTH OF PARABOLIC CURVE TO ELIMINATE THE SHARP BREAK IN THE STRAIGHT LINE TRANSITION.

L = 12 FT. (WIDTH OF ROADWAY BEING ROTATED) × 0.02 (CHANGE IN ROADWAY CROSS-SLOPE) × RELATIVE SLOPE.
Lr = 12 FT. (WIDTH OF ROADWAY BEING ROTATED) × e/100 (FULL SUPERELEVATION) × RELATIVE SLOPE.

FOR A 14 FT. LANE WIDTH L AND Lr SHOULD BE COMPUTED USING THE 12 FT. DRIVING LANE WIDTH.

(A) 60% TO 90% OF THE RUNOFF LENGTH SHOULD BE PLACED ON THE TANGENT.

DESIGN SPEED (mph)	MAXIMUM RELATIVE SLOPE
50	200:1
55	213:1
60	222:1
65	233:1
70	250:1

REV. NO.	DATE	DESCRIPTION OF REVISION
R5	JAN. 18	NDOR BORDER TO NDOT BORDER
R4	OCT. 10	RUNOFF PLACEMENT
R3	SEP. 07	RELATIVE SLOPE TABLE

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 108-R5

SUPERELEVATION PLAN

FOR CONCRETE AND BITUMINOUS SURFACING

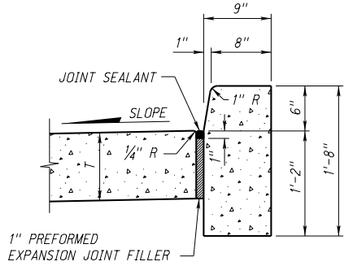
ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
MICHAEL H. OWEN
E-6515
STATE OF NEBRASKA

DATE

ORIGINAL:
JULY 30, 1974
DATE

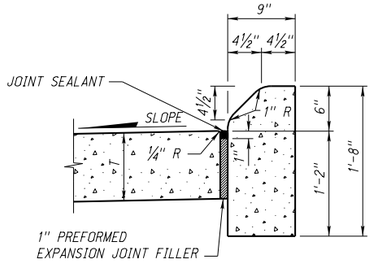
1
1



CONCRETE BARRIER CURB *

QUANTITIES

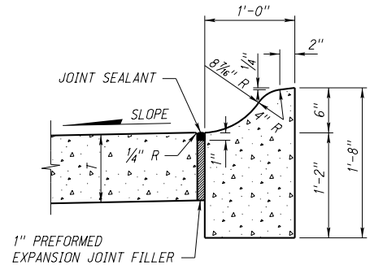
CONCRETE	*4.55 CU. YDS./STA.*
AREA	*1.228 SQ. FT.*



CONCRETE MEDIAN CURB *

QUANTITIES

CONCRETE	*4.42 CU. YDS./STA.*
AREA	*1.192 SQ. FT.*

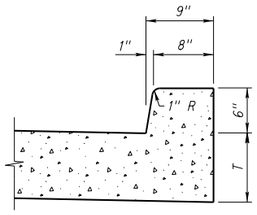


CONCRETE CURB, * TYPE I

QUANTITIES

CONCRETE	*5.22 CU. YDS./STA.*
AREA	*1.408 SQ. FT.*

*NOTE: * ONE INCH PREFORMED EXPANSION JOINT FILLER SHALL BE PLACED AT INTERVALS OF NOT MORE THAN 100 FEET THRU CONCRETE BARRIER CURB, CONCRETE MEDIAN CURB, AND CONCRETE CURB, TYPE I.*

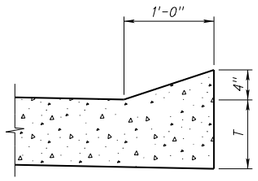


NOTE: MAY BE USED WHEN T IS LESS THAN 1 FOOT.

INTEGRAL CONCRETE BARRIER CURB

QUANTITIES

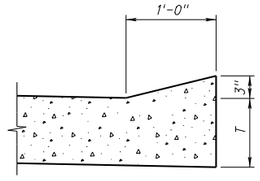
CONCRETE	*1.33 CU. YDS./STA.*
AREA	*0.359 SQ. FT.*



INTEGRAL CONCRETE SLOPING CURB

QUANTITIES

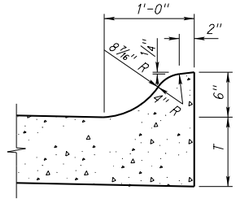
CONCRETE	*0.62 CU. YDS./STA.*
AREA	*0.167 SQ. FT.*



INTEGRAL CONCRETE SLOPING CURB

QUANTITIES

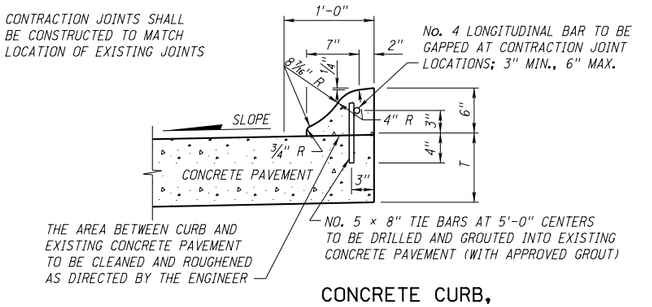
CONCRETE	*0.46 CU. YDS./STA.*
AREA	*0.123 SQ. FT.*



INTEGRAL CONCRETE CURB

QUANTITIES

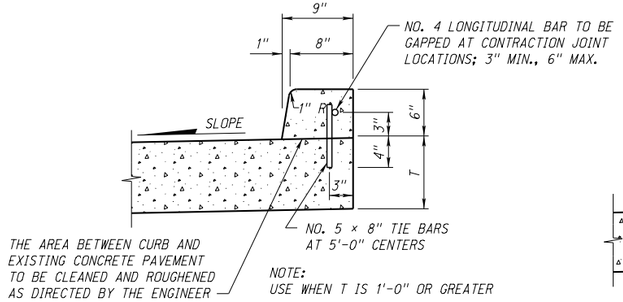
CONCRETE	*0.89 CU. YDS./STA.*
AREA	*0.239 SQ. FT.*



CONCRETE CURB, TYPE II

QUANTITIES

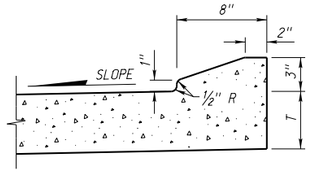
CONCRETE	*0.87 CU. YDS./STA.*
AREA	*0.234 SQ. FT.*



CONCRETE BARRIER CURB ALTERNATE

QUANTITIES

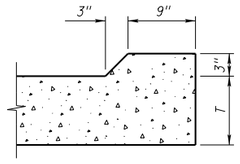
CONCRETE	*1.33 CU. YDS./STA.*
AREA	*0.359 SQ. FT.*



INTEGRAL CONCRETE TRUCK APRON CURB

QUANTITIES

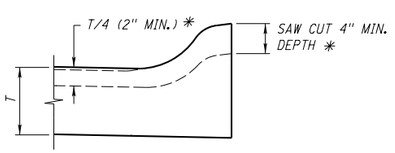
CONCRETE	*0.47 CU. YDS./STA.*
AREA	*0.127 SQ. FT.*



EROSION CONTROL CURB

QUANTITIES

CONCRETE	*0.81 CU. YDS./STA.*
AREA	*0.219 SQ. FT.*



CONTRACTION JOINT THRU CURB

* *FOR NON-INTEGRAL CURB THE CONTRACTION JOINTS MAY BE MADE WITH A DOUBLE EDGER WHILE THE CONCRETE IS STILL PLASTIC.*

NOTE: T = PAVEMENT THICKNESS

REV. NO.	DATE	DESCRIPTION OF REVISION
R12	JAN 18	NDOR BORDER TO NDOT BORDER
R11	JUL 15	ADDED TRUCK APRON CURB
R10	FEB 09	MULTIPLE REVISIONS

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 301-R12

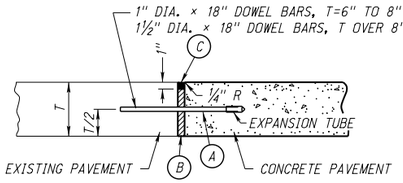
PAVEMENT DETAILS

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
MICHAEL H. OWEN
E-6515
STATE OF NEBRASKA

DATE

ORIGINAL:
JANUARY 31, 1974
DATE



(A) GREASE DOWEL BAR ON EXPANSION TUB SIDE

(B) 1" PREFORMED EXPANSION JOINT FILLER

(C) JOINT SEALANT

NOTES:

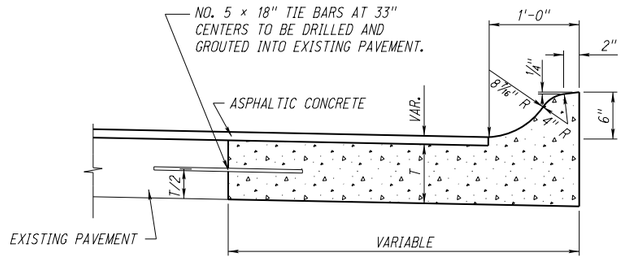
DOWEL BARS SHALL BE DRILLED TO A DEPTH OF 8" INTO EXISTING PAVEMENT AND GROUTED.

DOWEL BARS SHALL BE PLACED AT 1 FOOT CENTERS. THE OUTSIDE DOWEL BAR SHALL BE PLACED 6" FROM THE EDGE OF THE PAVEMENT.

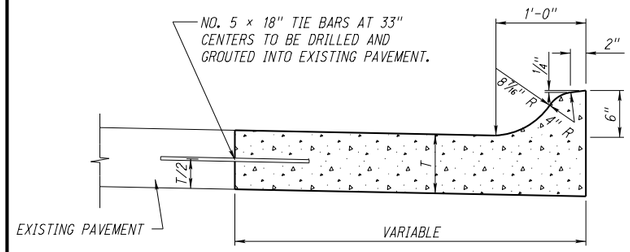
THIS JOINT SHALL BE CONSTRUCTED TRANSVERSE TO THE ROADWAY WHERE THE NEW CONCRETE ABUTS THE EXISTING CONCRETE.

DOWEL BARS SHALL BE PLACED PARALLEL TO THE ROADWAY ℄ AND TO THE ROAD BED.

EXPANSION JOINT (SUBSIDIARY)

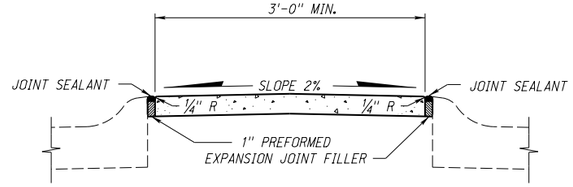


CONCRETE BASE COURSE W/INTEGRAL CURB



THE FOLLOWING NOTE IS TYPICAL FOR CONCRETE BASE COURSE WITH INTEGRAL CURB AND CONCRETE PAVEMENT WIDENING: CONTRACTION AND EXPANSION JOINTS SHALL BE CONSTRUCTED TO MATCH LOCATIONS OF EXISTING JOINTS.

CONCRETE PAVEMENT WIDENING



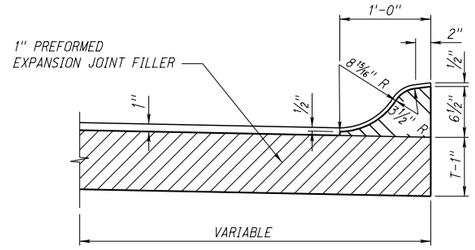
CONCRETE MEDIAN SURFACING

ONE INCH PREFORMED EXPANSION JOINT FILLER SHALL BE PLACED ACROSS THE FULL WIDTH OF THE MEDIAN SURFACING AT INTERVALS OF NOT MORE THAN 49 FEET.

LONGITUDINAL JOINTS ONE INCH DEEP SHALL BE MADE IN ALL MEDIANS WHEN SURFACING WIDTH IS 16 FEET OR GREATER.

TRANSVERSE JOINTS ONE INCH DEEP SHALL BE MADE IN ALL MEDIANS AT INTERVALS OF NOT MORE THAN 8 FEET.

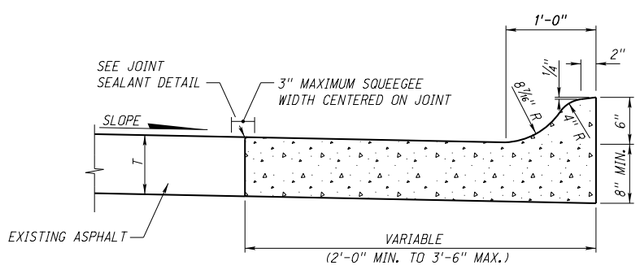
TRANSVERSE AND LONGITUDINAL JOINTS SHALL NOT BE FILLED.



ONE INCH PREFORMED EXPANSION JOINT FILLER SHALL BE PLACED AT INTERSECTION RETURNS AND WHERE SHOWN ON THE PLANS. TRANSVERSE JOINTS SHALL BE PLACED EVERY 8 FEET OR WHERE SHOWN ON THE PLANS.

NOTE:
RECESS THE EXPANSION JOINT FILLER 1/2" FROM THE TOP SURFACE OF THE CURB UNDER CONSTRUCTION

DETAIL FOR CUTTING & PLACEMENT OF EXPANSION JOINT FILLER

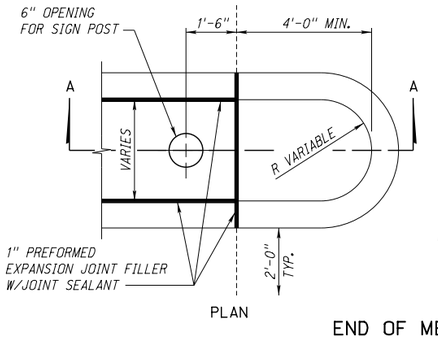


COMBINATION CONCRETE CURB & GUTTER

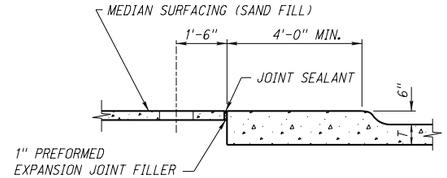
NOTE:

TRANSVERSE JOINTS SHALL BE PLACED EVERY 8 FEET AND JOINTS SHALL BE PLACED AT EACH HEADER, 2-NO. 5 × 18" TIE BARS ARE TO BE USED.

PLACE 1" PREFORMED EXPANSION JOINT FILLER AND SEAL AT THE RETURN OF RADIUS AT INTERSECTIONS.

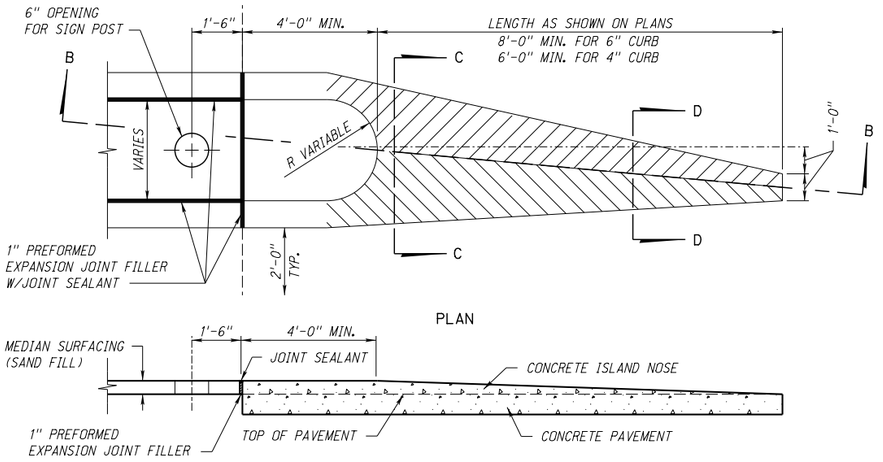


PLAN



SECTION A-A

END OF MEDIAN ISLAND



PLAN

SECTION B-B

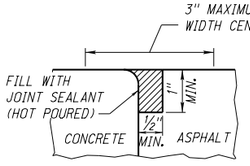
SECTION C-C

SECTION D-D

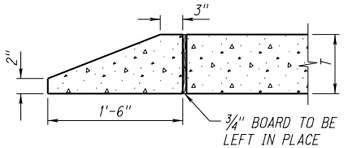
CONCRETE ISLAND NOSE

NOTE:
EXISTING CONCRETE PAVEMENT IS TO BE REMOVED TO BUILD CONCRETE ISLAND NOSE.

NOTE: T = PAVEMENT THICKNESS



JOINT SEALANT DETAIL



CONCRETE HEADER

REV. NO.	DATE	DESCRIPTION OF REVISION
R12	JAN 18	NDOR BORDER TO NDOT BORDER
R11	JUL 15	ADDED TRUCK APRON CURB
R10	FEB 09	MULTIPLE REVISIONS

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 301-R12

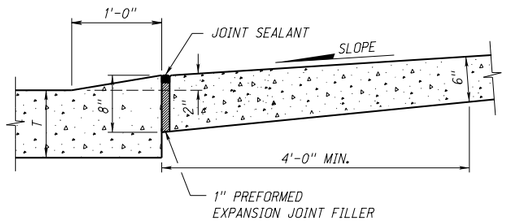
PAVEMENT DETAILS

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

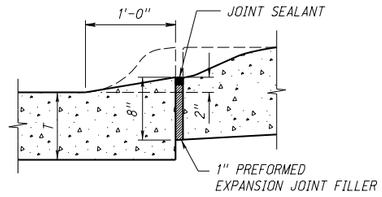
PROFESSIONAL CIVIL ENGINEER
MICHAEL H. OWEN
E-6515
STATE OF NEBRASKA

DATE

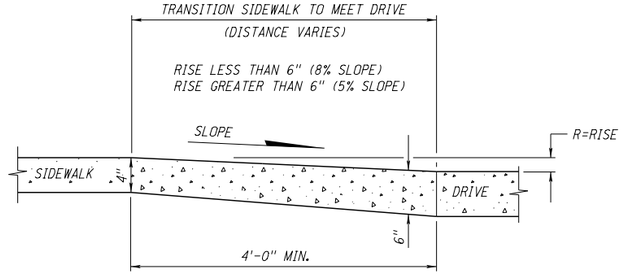
ORIGINAL: JANUARY 31, 1974
DATE



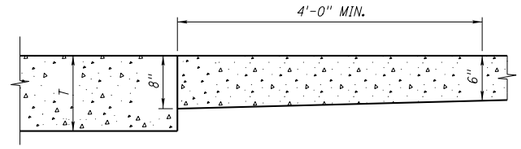
SECTION E-E



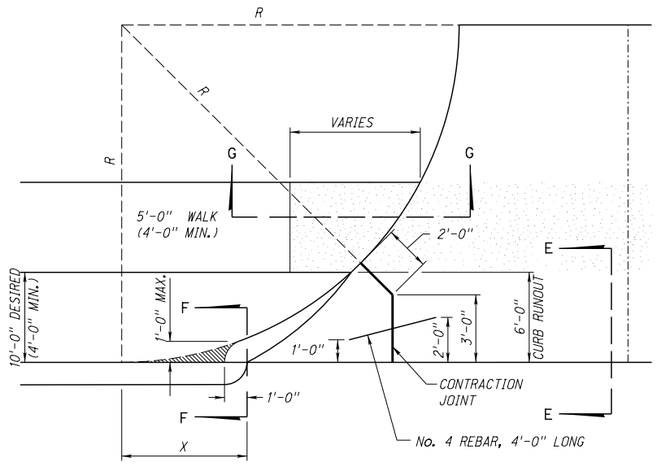
SECTION F-F



SECTION G-G



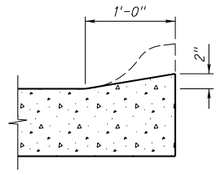
(RURAL DRIVEWAY)



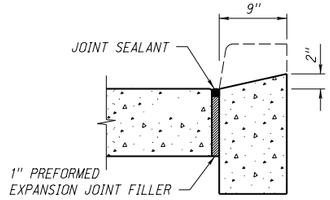
URBAN DRIVEWAY PLAN

R	X
10'-0"	4.6'
15'-0"	5.6'
20'-0"	6.0'
25'-0"	7.0'
30'-0"	8.0'
35'-0"	8.6'
40'-0"	9.0'

R = RADIUS
$X = \sqrt{(2R-1)}$
(X & R IN FEET)

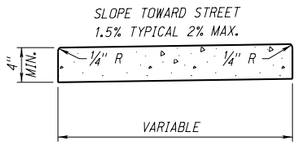


INTEGRAL CURB

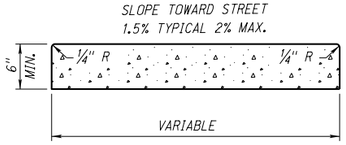


BARRIER CURB

DETAILS OF CURB DROPS



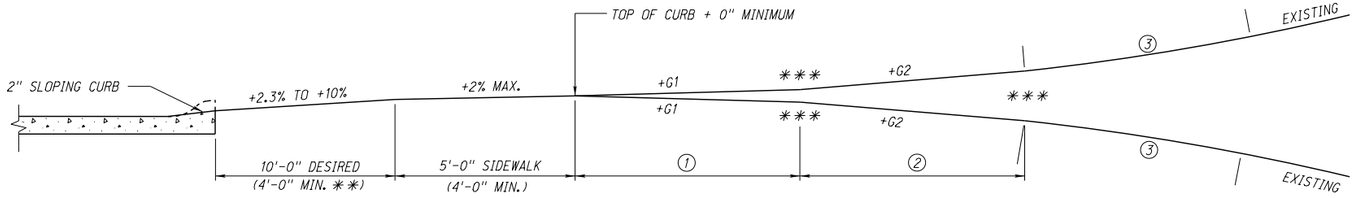
SIDEWALK



SIDEWALK AT
DRIVEWAY

NOTE:

1 INCH PREFORMED EXPANSION JOINT FILLER SHALL BE PLACED IN ALL SIDEWALKS OR CROSSWALKS AT INTERVALS OF NOT MORE THAN 50 FOOT, AND AT ALL POINTS WHERE SIDEWALKS OR CROSSWALKS ARE ADJACENT TO CURB. IF SIDEWALK OR CROSSWALK TO BE CONSTRUCTED IS LESS THAN 50 FOOT IN LENGTH, ONE SUCH EXPANSION JOINT SHALL BE PLACED AS DIRECTED BY THE ENGINEER.



DRIVEWAY TYPE	G1 (MAX.)	G2 (MAX.)
COMMERCIAL, INDUSTRIAL	±5%	±8%
DWELLINGS (RESIDENTIAL)	±8%	±15%

PROFILE URBAN DRIVEWAY WITH SIDEWALK
(MAXIMUM PERCENT OF GRADE)

① 10'-0" MINIMUM IS REQUIRED WHEN THE EXISTING GRADE IS GREATER THAN ±8%
② 10'-0" MINIMUM IS REQUIRED WHEN THE EXISTING GRADE IS GREATER THAN ±15%
③ 10'-0" MINIMUM ROUNDING IS REQUIRED WHEN THE EXISTING GRADE IS GREATER THAN ±22%

** 0 FEET IS ALLOWED IN URBAN BUSINESS DISTRICTS WITH SIDEWALKS OF 6 FEET MINIMUM WIDTH.
*** 10 FEET MINIMUM ROUNDING DESIRABLE FOR THE FOLLOWING GRADE CHANGES.

NOTE: T = PAVEMENT THICKNESS

REV. NO.	DATE	DESCRIPTION OF REVISION
R12	JAN 18	NDOR BORDER TO NDOT BORDER
R11	JUL 15	ADDED TRUCK APRON CURB
R10	FEB 09	MULTIPLE REVISIONS

NEBRASKA DEPARTMENT OF TRANSPORTATION
STANDARD PLAN NO. 301-R12

PAVEMENT DETAILS

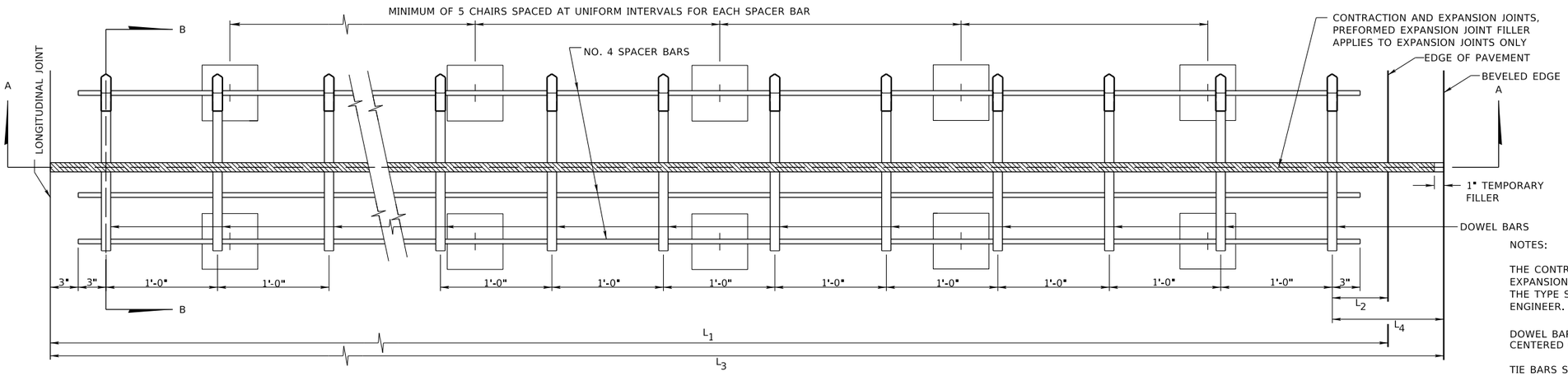
ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
MICHAEL H. OWEN
E-6515
STATE OF NEBRASKA

DATE

ORIGINAL:
JANUARY 31, 1974
DATE

3
3



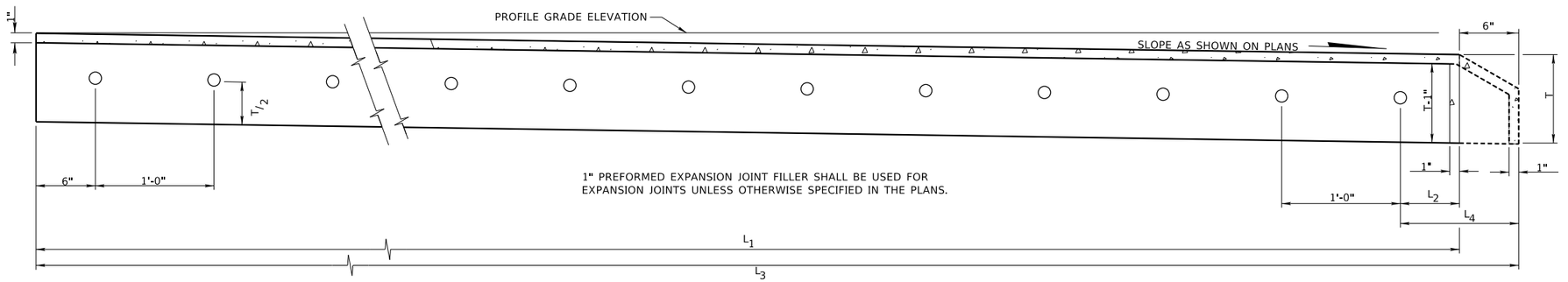
ASSEMBLY PLAN

DOWEL BAR HEIGHT AND DIAMETER			
PAVEMENT THICKNESS (T)	MINIMUM BAR DIA.	DOWEL BAR HEIGHT (T/2)	SKEW TOLERANCE
LESS THAN 10"	1¼"	T/2 ± ½"	¼"
10" OR MORE	1½"	T/2 ± ½"	¼"

DOWEL BAR LOCATION TABLE (WITHOUT BEVELED EDGE)				
	L_1	L_2	#BARS	DESCRIPTION
*	LESS THAN 12'-0'	6"	VARIES	IRREGULAR AREAS (WIDEN, FILLETS, GORE....)
	12'-0"	6"	12	12'-0" PAVEMENT
	14'-0"	2'-6"	12	14'-0" PAVEMENT
	15'-0"	2'-6"	13	15'-0' PAVEMENT (INCLUDES 3'-0" SHOULDER)
	16'-0"	3'-6"	13	16'-0" PAVEMENT (INCLUDES 4'-0" SHOULDER)
	16'-0"	6"	16	16'-0" RAMP & LOOPS
	LESS THAN 14'-6"	1'-6"	VARIES	PAVEMENT WITH CURB
	14'-6" OR MORE	2'-6"	VARIES	

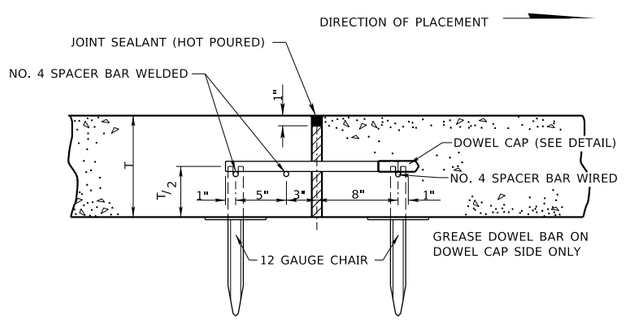
DOWEL BAR LOCATION TABLE (WITH BEVELED EDGE)				
	L_3	L_4	#BARS	DESCRIPTION
*	LESS THAN 12'-6"	1'-0"	VARIES	IRREGULAR AREAS (WIDEN, FILLETS, GORE....)
	12'-6"	1'-0"	12	12'-6" PAVEMENT INCLUDES BEVEL
	14'-6"	3'-0"	12	14'-6" PAVEMENT INCLUDES BEVEL
	15'-6"	3'-0"	13	15'-6" PAVEMENT (INCLUDES 3'-0" SHOULDER + BEVEL)
	16'-6"	4'-0"	13	16'-6" PAVEMENT (INCLUDES 4'-0" SHOULDER + BEVEL)
	16'-6"	1'-0"	16	16'-6" RAMP & LOOPS INCLUDES BEVEL
	LESS THAN 14'-6"	1'-6"	VARIES	PAVEMENT WITH CURB
	14'-6" OR MORE	2'-6"	VARIES	

L1 = PAVEMENT WIDTH PLUS 6" BEVEL FOR NON-CURBED SECTIONS

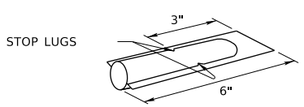


SECTION A-A

CONTRACTION AND EXPANSION JOINTS (PREFORMED EXPANSION JOINTS FILLER APPLIES TO EXPANSION JOINTS ONLY)

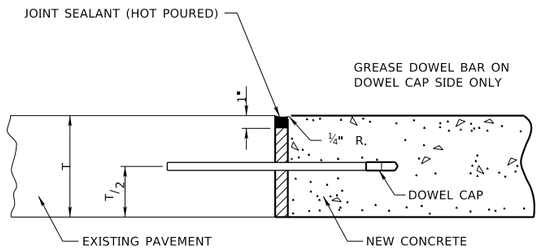


SECTION B-B



DOWEL CAP

EXPANSION JOINT
(SUBSIDIARY)



NOTES:
DOWEL BARS SHALL BE DRILLED TO A DEPTH OF 8" INTO EXISTING PAVEMENT AND EPOXIED.

SECTION B-B

NOTES:

THE CONTRACTOR MAY SUBSTITUTE OTHER DESIGNS FOR EXPANSION AND CONTRACTION JOINT SUPPORTS IN LIEU OF THE TYPE SHOWN WITH PRIOR WRITTEN APPROVAL BY THE ENGINEER.

DOWEL BARS SHALL BE A MINIMUM OF 17¾" IN LENGTH, CENTERED ON JOINTS AND BE SMOOTH BARS.

TIE BARS SHALL BE DEFORMED BARS.

FOR LOAD TRANSFER DEVICES AT EXPANSION JOINTS IN LANES OTHER THAN THE LANES SHOWN, MAINTAIN THE SPACING OF THE 1'-6" DOWEL BARS AT 1'-0" INTERVALS.

THE ENDS OF THE NO. 4 SPACER BARS SHALL NOT BE LESS THAN 3" FROM THE EDGES OF THE PAVEMENT OR THE LONGITUDINAL JOINT.

TIE, DOWEL & SPACER BARS SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS.

KEY TYPE LONGITUDINAL JOINTS AND TRANSVERSE CONSTRUCTION JOINTS SHALL BE EDGED WITH ¼" R. AT TIME OF CONCRETE PLACEMENT.

CONCRETE PAVEMENT SHALL BE TINED UNLESS OTHERWISE SHOWN IN THE PLANS.

EXPANSION JOINTS SHALL BE INSTALLED AT LOCATIONS SHOWN IN THE PLANS.

PAVEMENT PLACED ADJACENT TO R.R. TRACKS REQUIRES 3-EXPANSION JOINTS SPACED AT APPROXIMATELY 49'-6" INTERVALS.

EXPANSION JOINTS SHALL NOT BE SKEWED.

T= PAVEMENT THICKNESS

BEVELED EDGE SHALL BE USED WHEN PAVEMENT IS ADJACENT TO AN EARTH SHOULDER. CONCRETE SHOULDERS SHALL INCLUDE A BEVELED EDGE WHEN THE SHOULDER WIDTH IS LESS THAN 6'-0".

* THE DEPARTMENT REQUIRES THAT DOWEL BASKETS BE PLACED IN ALL CONTRACTION JOINTS WHICH ARE 6'-0" OR WIDER. THE DOWEL BASKETS SHALL BE PLACED TRANSVERSE TO THE DIRECTION OF THE PREDOMINANT TRAFFIC DIRECTION.

REV. NO.	DATE	DESCRIPTION OF REVISION
R12	DEC 22	ADDING BEVELED EDGE
R11	JUL 20	CHANGED TINING INFORMATION
R10	JAN 18	CHANGED DOWEL BAR LOCATION TABLE

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 329-R12

8 TO 16 INCH CONCRETE PAVEMENT

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

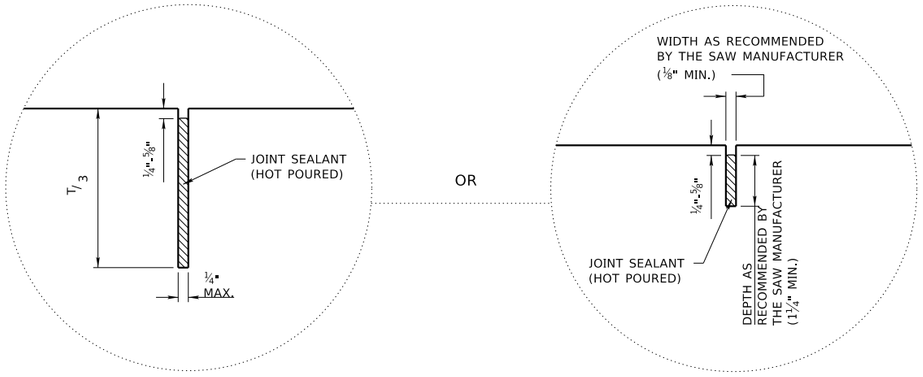
PROFESSIONAL CIVIL ENGINEER
BRANDON B. VARILEK
E-11929
STATE OF NEBRASKA

DATE

ORIGINAL:
OCTOBER 25, 1994
DATE

1
4

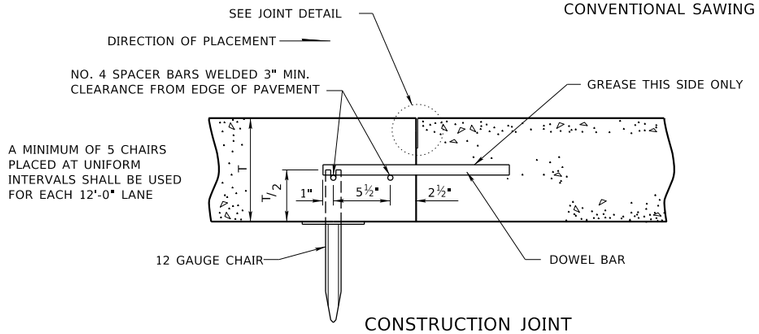
COMPUTER: BG0419M534
DATE: 17-APR-2023 15:04
FILE: 3290 0 R12.dgn



CONVENTIONAL SAWING

EARLY-SAW CUT

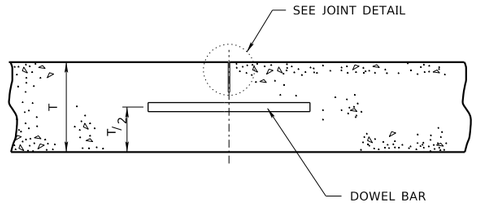
JOINT DETAIL



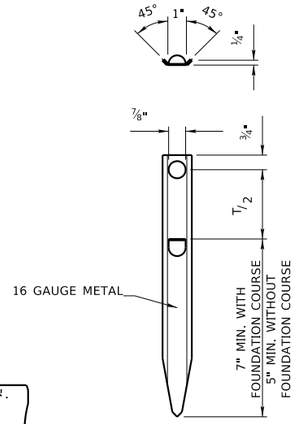
CONSTRUCTION JOINT

(BARS ARE SUBSIDIARY)
TO PAVEMENT

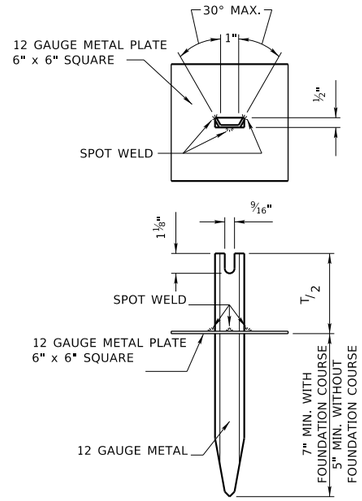
THE DOWEL BAR SPACING SHALL BE THE SAME AS SHOWN FOR THE EXPANSION JOINT. REFER TO DOWEL BAR LOCATION TABLE AND THE DOWEL BAR HEIGHT AND DIAMETER TABLE ON SHEET 1 OF 4.



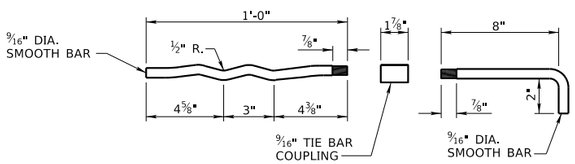
CONTRACTION JOINT



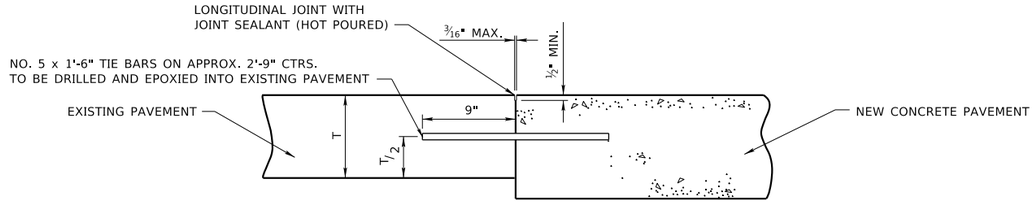
TIE BAR PIN



CHAIR

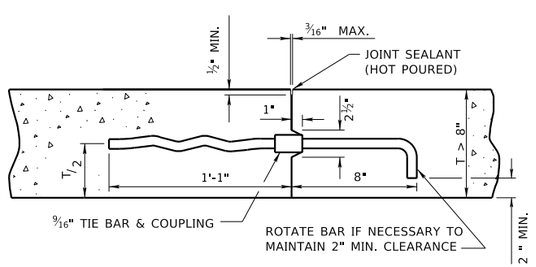


DETAILS OF "W" BAR



TIE BARS ARE TO BE INSTALLED WHERE NEW CONCRETE PAVEMENT IS PLACED ADJACENT TO EXISTING CONCRETE PAVEMENT

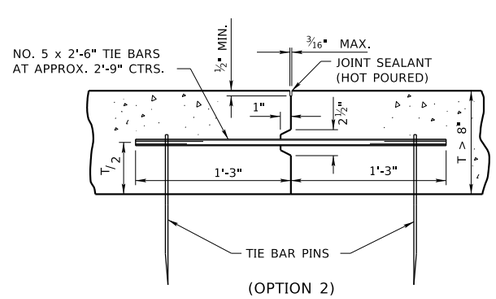
DETAILS OF TIE BAR



(OPTION 1)

KEY TYPE

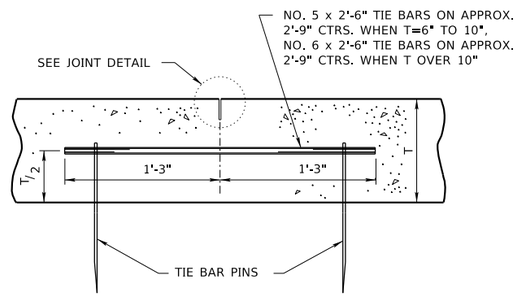
NO. 5 HOOK AND W-BARS AT APPROX. 2'-9" CTRS.
OR 9/16" HOOK AND W-BARS AT APPROX. 2'-9" CTRS.



(OPTION 2)

KEY TYPE

KEY TYPE JOINT SHALL BE USED ON ALL LONGITUDINAL CONSTRUCTION JOINTS WHEN THE ADJACENT LANE IS NOT PLACED AT THE SAME TIME



SAWED

WHEN TWO ADJACENT LANES ARE PLACED AT THE SAME TIME, THE LONGITUDINAL JOINT COMMON TO THE LANES SHALL BE SAWED

LONGITUDINAL JOINTS

NOTE:
NO TIE BARS SHALL BE CLOSER THAN 1'-3" TO A TRANSVERSE JOINT. ALL LONGITUDINAL JOINTS BETWEEN LANES AND BETWEEN LANES AND SHOULDERS MUST BE TIED. MEDIAN SHOULD NOT BE TIED.

NOTE: T = PAVEMENT THICKNESS

REV. NO.	DATE	DESCRIPTION OF REVISION
R12	DEC 22	ADDING BEVELED EDGE
R11	JUL 20	CHANGED TINING INFORMATION
R10	JAN 18	CHANGED DOWEL BAR LOCATION TABLE

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 329-R12

8 TO 16 INCH CONCRETE PAVEMENT

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

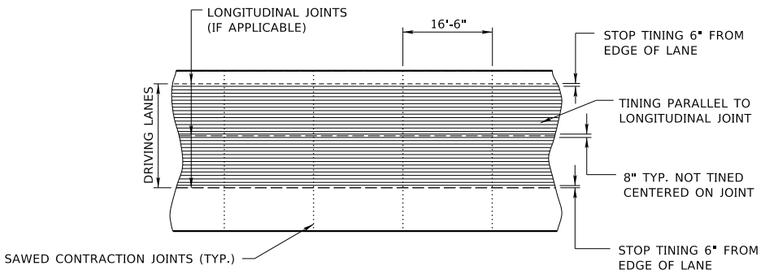
PROFESSIONAL CIVIL ENGINEER
BRANDON B. VARILEK
E-11929
STATE OF NEBRASKA

DATE

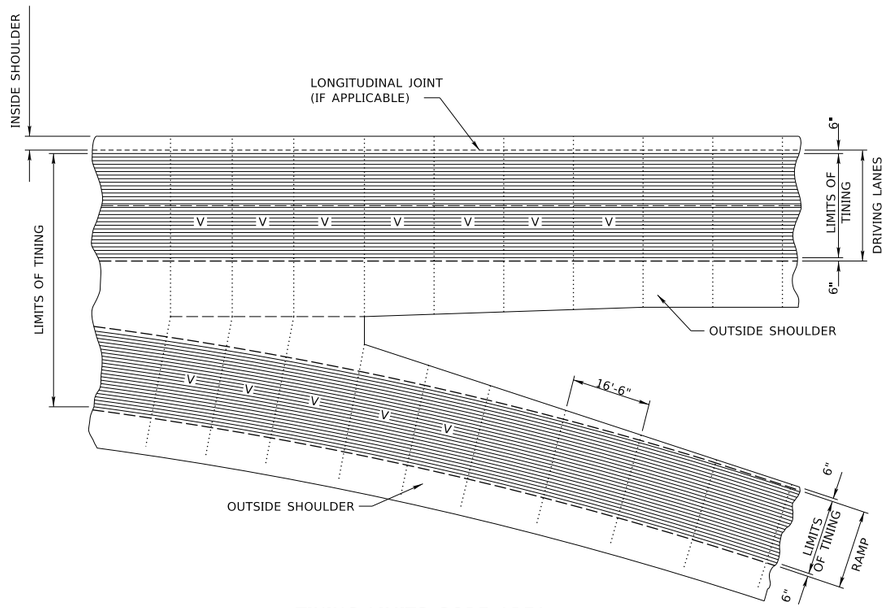
ORIGINAL:
OCTOBER 25, 1994
DATE

2/4

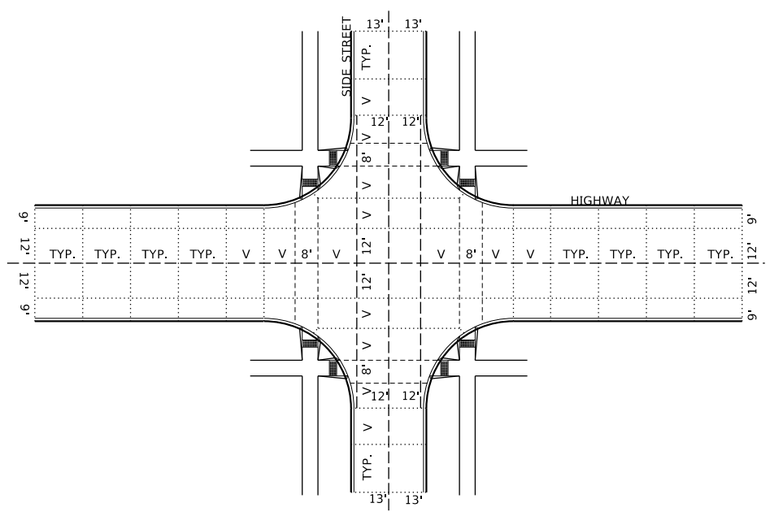
COMPUTER: BG0419M534
DATE: 17-APR-2023 15:04
FILE: 3290 0 R12.dgn



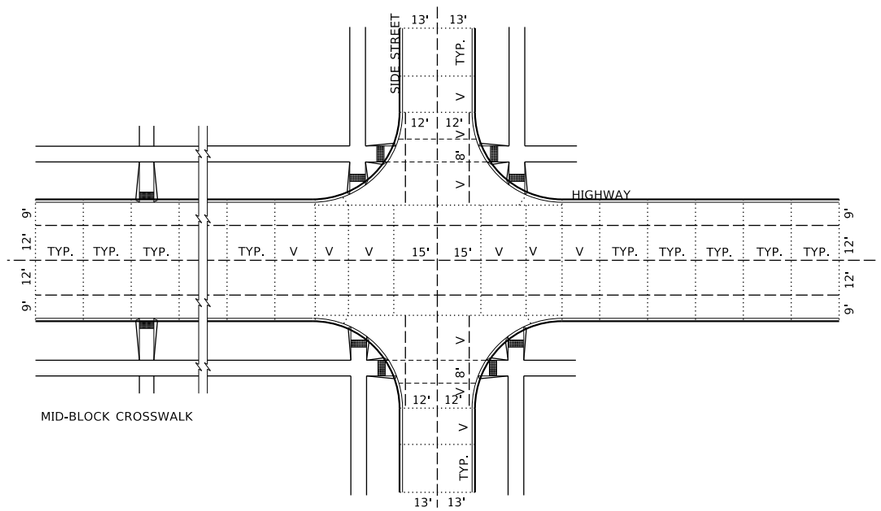
TINING WITH CONCRETE SHOULDER



TINING LIMITS GORE AREA



STOP OR YIELD CONTROL ON ALL FOUR LEGS



STOP OR YIELD CONTROL ON THE SIDE STREETS ONLY

NOTES:

TINING IS REQUIRED FOR PAVEMENT WITH POSTED SPEEDS GREATER THAN 40 MPH (INCLUDING TURN LANES).

16'-6" TRANSVERSE JOINT SPACING IS THE STANDARD JOINT SPACING REGARDLESS OF THE PAVEMENT THICKNESS.

V VARIES FROM 10'-0" TO MAX. 16'-6".

THE LONGITUDINAL JOINT BETWEEN THE SHOULDER AND THE 12'-0" DRIVING LANE IS NOT REQUIRED FOR SHOULDER WIDTHS OF 4'-0" OR LESS.

TRANSVERSE JOINTS FOR DOWELED CONCRETE PAVEMENT SHALL BE CONSTRUCTED PERPENDICULAR TO THE ROADWAY.

REV. NO.	DATE	DESCRIPTION OF REVISION
R12	DEC 22	ADDING BEVELED EDGE
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NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 329-R12

8 TO 16 INCH CONCRETE PAVEMENT

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
BRANDON B. VARILEK
E-11929
STATE OF NEBRASKA

DATE

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OCTOBER 25, 1994
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4

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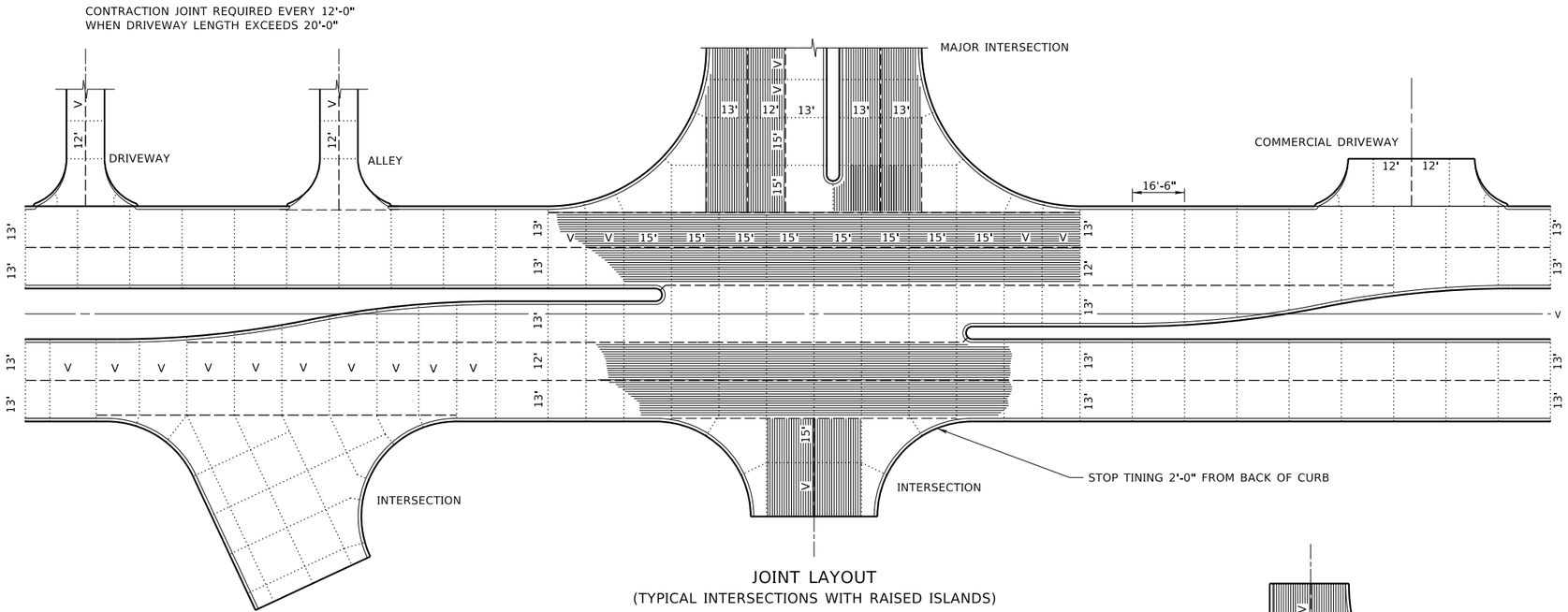
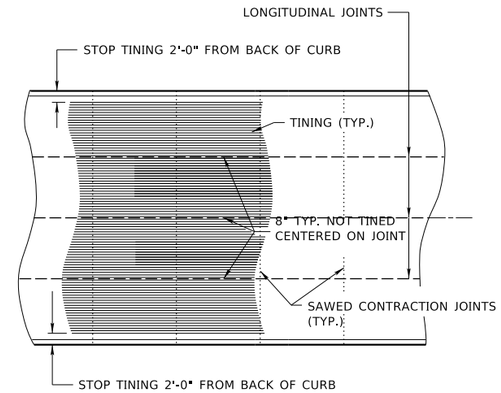
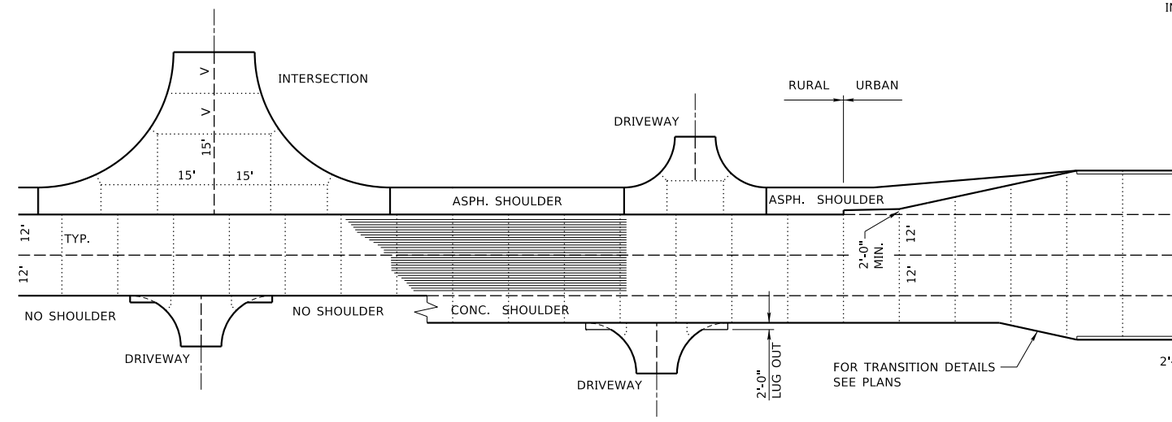
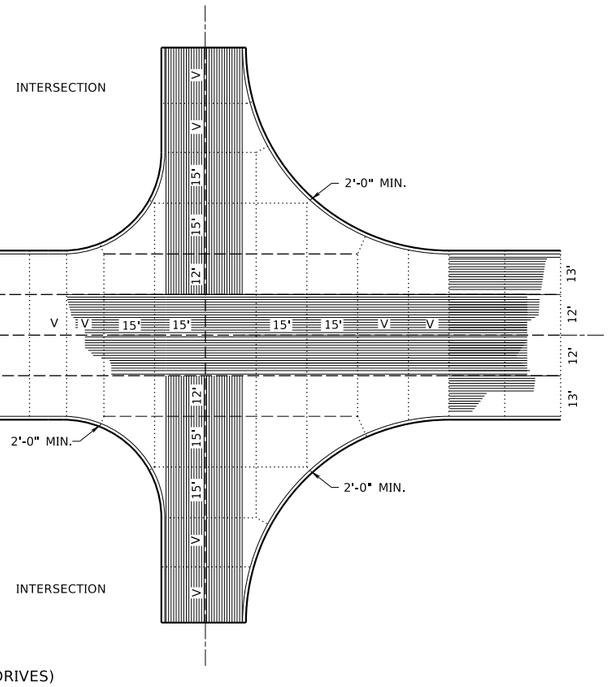


JOINT LAYOUT
(TYPICAL INTERSECTIONS WITH RAISED ISLANDS)

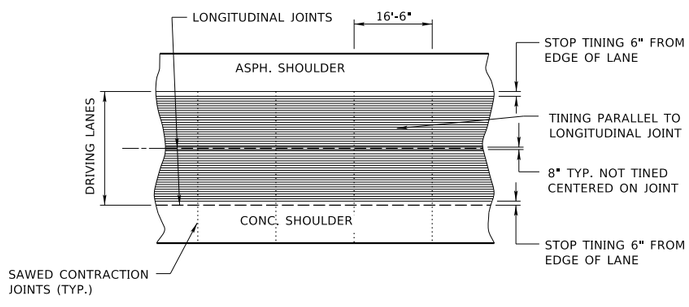


TINING LIMITS





JOINT LAYOUT
(TYPICAL INTERSECTIONS & DRIVES)



RURAL TINING LIMITS WITH SURFACED SHOULDERS

LEGEND

SAWED CONTRACTION JOINT

LONGITUDINAL JOINT

NOTES:

TINING IS REQUIRED FOR PAVEMENT WITH POSTED SPEEDS GREATER THAN 40 MPH (INCLUDING TURN LANES).

16'-6" TRANSVERSE JOINT SPACING IS THE STANDARD JOINT SPACING REGARDLESS OF THE PAVEMENT THICKNESS.

V VARIES FROM 10'-0" TO MAX. 16'-6".

VARIABLE SPACING IS USED AROUND INTERSECTIONS AND LARGE DRIVEWAYS WHICH IS TIED TO THE CONCRETE LANES OR SHOULDERS TO MATCH THE JOINTS.

REV. NO.	DATE	DESCRIPTION OF REVISION
R12	DEC 22	ADDING BEVELED EDGE
R11	JUL 20	CHANGED TINING INFORMATION
R10	JAN 18	CHANGED DOWEL BAR LOCATION TABLE

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 329-R12

8 TO 16 INCH CONCRETE PAVEMENT

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
BRANDON B. VARILEK
E-11929
STATE OF NEBRASKA

DATE

ORIGINAL:
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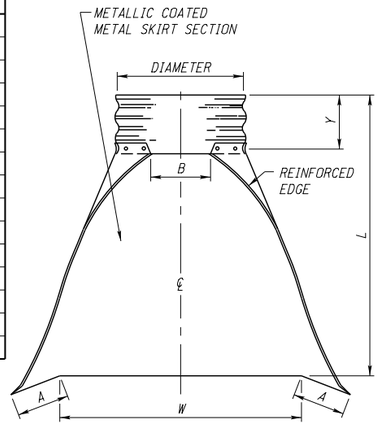
4

COMPUTER: BG0419M534
DATE: 17-APR-2023 15:04
FILE: 3290 0 R12.dgn

PIPE DIA.	GAUGE	NOMINAL DIMENSIONS						
		L ± 6"	W ± 2"	A MIN.	B MAX.	C MIN.	Y ± 4½"	S APPROX.
12"	16	6'-0⅞"	2'-0"	4¾"	6"	6"	4'-3⅞"	2½
15"	16	6'-1"	2'-6"	6"	8"	6"	3'-11"	2½
18"	16	6'-1"	3'-0"	7"	10"	6"	3'-8"	2½
21"	16	6'-1"	3'-8"	8¼"	1'-0"	6"	3'-1"	2½
24"	16	6'-1½"	4'-0"	9"	1'-1"	6"	2'-8½"	2½
30"	14	6'-1¾"	5'-0"	11"	1'-4"	6"	1'-10¾"	2½
36"	14	8'-1¾"	6'-0"	1'-2"	1'-7"	6"	3'-1¾"	2½
42"	12	8'-2"	7'-0"	1'-4"	1'-10"	6"	2'-5"	2½
48"	12	8'-2"	7'-6"	1'-6"	2'-3"	6"	1'-8"	2¼
54"	12	8'-4"	8'-6"	1'-6"	2'-6"	6"	1'-4"	2
60"	12	8'-3"	9'-6"	1'-6"	2'-9"	6"	1'-0"	1¾
66"	12	8'-3"	10'-0"	1'-6"	3'-0"	6"	1'-0"	1½
72"	12	8'-3"	10'-6"	1'-6"	3'-3"	6"	1'-0"	1⅓
78"	12	8'-3"	11'-0"	1'-6"	3'-6"	6"	1'-0"	1¼
84"	12	8'-3"	11'-6"	1'-6"	3'-9"	6"	1'-0"	1⅙



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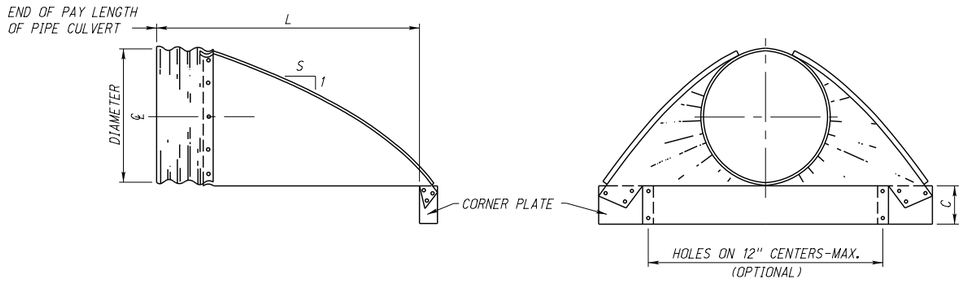
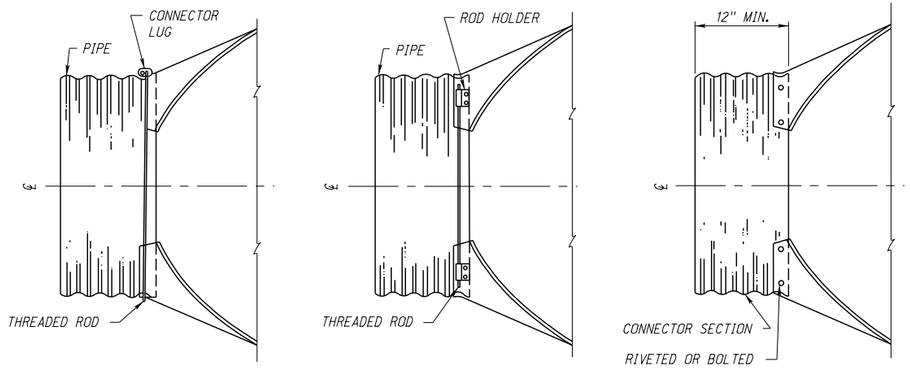


SECTION ELEVATION

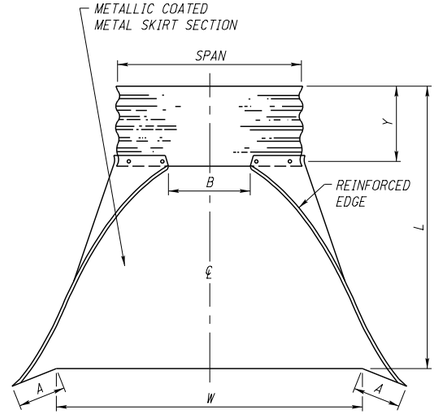
DETAILS OF METAL FLARED END SECTION
(FOR CORUGATED METAL PIPE)



TYPICAL CONNECTIONS

FOR CORRUGATED METAL PIPE DIAMETERS OF 12" TO 24" INCLUSIVE AND CORRUGATED METAL PIPE-ARCHES WITH RISE OF 11" TO 18" INCLUSIVE, THE SKIRT SECTION MAY BE ATTACHED WITH A 1" WIDE, 12 GAUGE METAL CONNECTOR STRAP AND ½" × 6" BOLT AND NUT. THIS STRAP MAY BE USED ON PIPE WITH ANNULAR ENDS ONLY.

EQUIV. DIA.	SPAN	RISE	GAUGE	NOMINAL DIMENSIONS						
				L ± 6"	W MIN.	A MIN.	B MAX.	C MIN.	Y ± 4½"	S APPROX.
15"	17"	13"	16	6'-0"	2'-6"	4½"	9"	6"	4'-5"	2½
18"	21"	15"	16	6'-0"	3'-0"	5¼"	10"	6"	4'-1"	2½
21"	24"	18"	16	6'-0"	3'-6"	6¼"	11½"	6"	3'-8"	2½
24"	28"	20"	16	6'-0"	4'-0"	7"	1'-2"	6"	3'-4½"	2½
30"	35"	24"	14	8'-0"	5'-0"	8¾"	1'-4"	6"	4'-9½"	2½
36"	42"	29"	14	8'-0"	6'-3"	10¾"	1'-5½"	6"	4'-2"	2½
42"	49"	33"	12	8'-0"	7'-1"	1'-0¼"	1'-8"	6"	3'-7"	2½
48"	57"	38"	12	8'-0"	7'-6"	1'-2"	2'-3"	6"	2'-9"	2½
54"	64"	43"	12	8'-0"	8'-6"	1'-3¾"	2'-6"	6"	2'-2"	2¼
60"	71"	47"	12	8'-0"	9'-6"	1'-5¼"	2'-9"	6"	1'-7"	2¼
66"	77"	52"	12	8'-0"	10'-6"	1'-6"	3'-0"	6"	1'-7"	2
72"	83"	57"	12	8'-0"	11'-6"	1'-6"	3'-3"	6"	1'-7"	2



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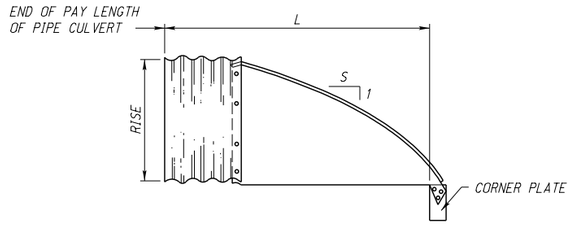

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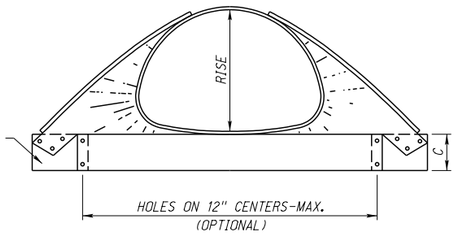


ELEVATION

DETAILS OF METAL FLARED END SECTION
(FOR CORUGATED METAL PIPE-ARCH)

NOTES:

CONNECTOR STRAP, STIFFENER ANGLES AND MISCELLANEOUS HARDWARE SHALL BE METALLIC COATED.

THE "Y" LENGTH MAY BE FABRICATED AS PART OF THE CULVERT.

CONNECTOR SECTIONS AND CORNER PLATES FOR CORRUGATED METAL PIPE AND PIPE-ARCH FLARED END SECTIONS SHALL BE METALLIC COATED AND OF THE SAME GAUGE AS SKIRTS AND EACH SHALL BE METALLIC COATED.

SKIRT SECTION FOR CORRUGATED METAL PIPE DIA. OF 12" TO 24" INCLUSIVE SHALL BE MADE IN ONE PIECE.

SKIRT SECTION FOR CORRUGATED METAL PIPE-ARCHES WITH RISE OF 11" TO 22" INCLUSIVE SHALL BE MADE IN ONE PIECE.

SKIRT SECTION FOR CORRUGATED METAL PIPE DIA. OF 30" TO 54" INCLUSIVE AND CORRUGATED METAL PIPE-ARCHES WITH RISE OF 27" TO 40" INCLUSIVE MAY BE MADE FROM TWO SHEETS JOINED BY RIVETING OR BOLTING ON CENTERLINE.

SKIRT SECTION OF CORRUGATED METAL PIPE DIA. OF 60" AND LARGER, AND CORRUGATED METAL PIPE-ARCHES WITH RISE OF 44" AND LARGER SHALL BE MADE FROM THREE SHEETS JOINED BY RIVETING OR BOLTING AT EQUAL DISTANCES FROM CENTERLINE. THE CENTER PANEL SHALL BE FURNISHED IN 10 GAUGE MATERIAL AND THE WIDTH OF THE CENTER PANEL SHALL BE GREATER THAN 20% OF THE PIPE PERIPHERY.

MULTIPLE SHEET SKIRT SECTIONS SHALL HAVE 2" MIN. LAP SEAMS. BOLTS OR RIVETS SHALL BE ⅜" DIA. (MIN.) AND ON 6" CENTERS (MAX.).

TYPICAL CONNECTIONS SHOWN MAY BE USED FOR HELICAL CORRUGATED METAL PIPE.

FOR SKIRT SECTIONS OF 60" DIA. PIPE AND LARGER, AND CORRUGATED METAL PIPE-ARCHES WITH A RISE OF 49" AND LARGER, REINFORCED EDGES TO BE SUPPLEMENTED WTH STIFFENER ANGLES PLACED JUST BELOW THE REINFORCED EDGES ON THE OUTSIDE OF THE SKIRT SECTION. THE ANGLES WILL BE 2" × 2" × ¼". THE ANGLES TO BE ATTACHED BY ⅜" DIA. (MIN.) BOLTS AND NUTS AND ON 6" CENTERS (MAX.).

REV. NO.	DATE	DESCRIPTION OF REVISION
R4	JAN 18	NDOR BORDER TO NDOT BORDER
R3	AUG 99	CHANGED NOTES
R2	MAR 89	SPAN. RISE SIZES FOR C.M. PIPE-ARCH

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 410-R4

FLARED END SECTIONS FOR CULVERT PIPES

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
MARK J. TRAYNOWICZ
E-8119
STATE OF NEBRASKA

DATE

ORIGINAL:
FEBRUARY 22, 1974
DATE

1
2

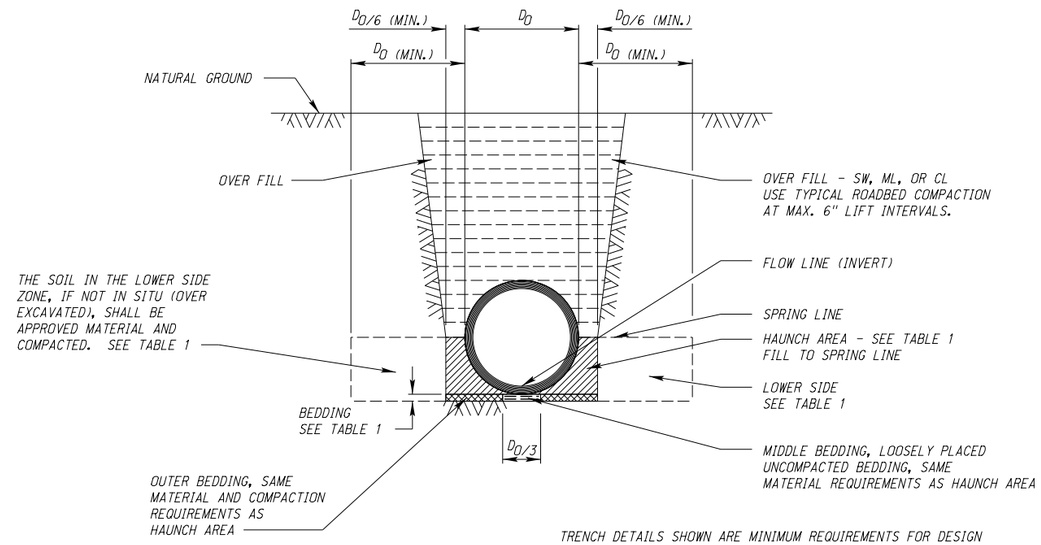
TABLE 1 - CONCRETE STANDARD INSTALLATIONS, SOILS AND MINIMUM COMPACTION REQUIREMENTS

INSTALLATION TYPE	BEDDING THICKNESS	HAUNCH AND OUTER BEDDING	LOWER SIDE
TYPE 1	$D_O/24$ MINIMUM, NOT LESS THAN 3" IF ROCK FOUNDATION,USE $D_O/12$ MINIMUM, NOT LESS THAN 6".	95% SW	90% SW, 95% ML, 100% CL, OR NATURAL SOILS OF EQUAL FIRMNESS
TYPE 2		90% SW OR 95% ML	85% SW, 90% ML, 95% CL, OR NATURAL SOILS OF EQUAL FIRMNESS
*TYPE 3		85% SW, 90% ML, OR 95% CL	85% SW, 90% ML, 95% CL, OR NATURAL SOILS OF EQUAL FIRMNESS

TABLE 1 NOTES:

** THE TYPE 3 INSTALLATION (SHADED) IN TABLE 4 IS THE NDOR MINIMUM STANDARD, USING EITHER A SHAPED TRENCH ACCORDING TO THE STANDARD SPECIFICATIONS, OR AT THE OPTION OF THE CONTRACTOR, THE BEDDING WITH COMPACTIONS AS SHOWN.*

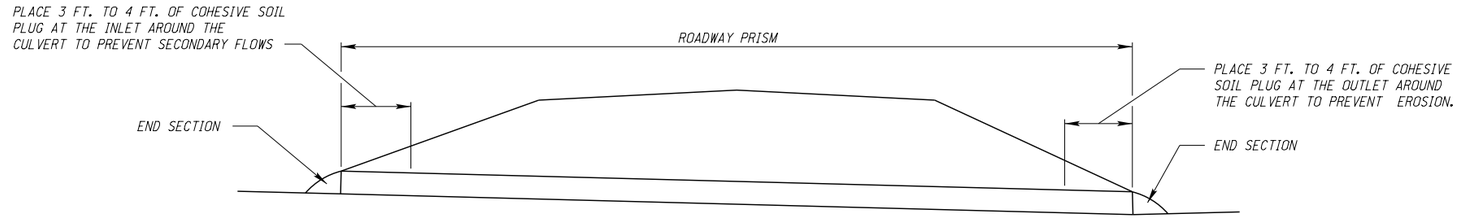
MAXIMUM FILL HEIGHTS FOR THE TYPE 1, 2, AND 3 INSTALLATIONS ARE SHOWN IN TABLE 4.



TRENCH DETAILS SHOWN ARE MINIMUM REQUIREMENTS FOR DESIGN AND CONSTRUCTION. PAYMENT FOR EXCAVATION IS BASED UPON THE GUIDELINES IN THE STANDARD SPECIFICATIONS.

TRENCHES SHALL BE EXCAVATED IN ACCORDANCE WITH APPROVED SAFETY PRACTICE.

TYPICAL TRENCH INSTALLATION



LIMITS OF BEDDING AND BACKFILL

EXCAVATION, BEDDING AND EMBANKMENT SEQUENCE:

TRENCH INSTALLATION:

(A) DETERMINE THE FLOW LINE AND TRENCH BOTTOM ELEVATIONS.

(B) DETERMINE THE SHAPE OF TRENCH. DECIDE IF SHORING IS NEEDED. CONTRACTOR IS ULTIMATELY RESPONSIBLE FOR THE SAFETY OF ALL WORKERS, EQUIPMENT AND MATERIALS IN THE TRENCH.

(C) PLACE THE BEDDING MATERIAL (SEE CONCRETE - TABLE 1) LOOSELY.

(D) PLACE PIPE ON THE BEDDING AND COMPACT OUTER BEDDING, (SEE TABLE 1).

(E) PLACE AND COMPACT THE LOWER SIDE, HAUNCH AND OVERFILL MATERIAL AT 6 IN. INTERVALS.

EMBANKMENT INSTALLATION:

(A) DETERMINE THE FLOW LINE AND SPRING LINE ELEVATION.

(B) IF FLOW LINE IS ABOVE THE NATURAL GROUND, PLACE AN EMBANKMENT AT LEAST 3DO WIDE WITH 3:1 FORESLOPES OR FLATTER AT SPRING LINE ELEVATION, COMPACTED AT ROADBED REQUIRED COMPACTION.

(C) IF THE FLOW LINE IS BELOW THE NATURAL GROUND BUT THE SPRING LINE IS ABOVE THE NATURAL GROUND, PLACE THE EMBANKMENT SIMILAR TO THE ONE IN STEP B.

(D) EXCAVATE TO PROPER ELEVATION.

(E) PLACE BEDDING MATERIAL (SEE TABLE 1) LOOSELY.

(F) PLACE THE PIPE ON THE BEDDING MATERIAL AND COMPACT OUTER BEDDING MATERIAL (SEE CONCRETE - TABLE 1).

(G) PLACE AND COMPACT THE HAUNCH, LOWER SIDE AND OVERFILL MATERIAL AT 6 IN. INTERVALS.

NOTES FOR TRENCH INSTALLATIONS:

1. *COMPACTION AND SOIL SYMBOLS, I.E. 95% SW, REFER TO SW SOIL MATERIAL WITH MINIMUM STANDARD PROCTOR COMPACTION OF 95%.*
2. *THE TRENCH TOP ELEVATION SHALL BE NO LOWER THAN 1 FT. BELOW THE BOTTOM OF THE PAVEMENT BASE MATERIAL.*
3. *SOIL IN BEDDING AND HAUNCH ZONES SHALL BE COMPACTED TO AT LEAST THE SAME COMPACTION AS SPECIFIED FOR THE MAJORITY OF SOIL IN THE BACKFILL ZONES.*
4. *THE TRENCH WIDTH SHALL BE WIDER THAN SHOWN IF REQUIRED FOR ADEQUATE SPACE TO ATTAIN THE SPECIFIED COMPACTION IN THE HAUNCH AND BEDDING ZONES.*
5. *FOR TRENCH WALLS THAT ARE WITHIN 10 DEGREES OF VERTICAL, THE COMPACTION OR FIRMNESS OF THE SOIL IN THE TRENCH WALLS AND LOWER SIDE ZONE NEED NOT TO BE CONSIDERED.*
6. *FOR TRENCH WALLS WITH GREATER THAN 10 DEGREE SLOPES THAT CONSIST OF EMBANKMENT, THE LOWER SIDE SHALL BE COMPACTED TO AT LEAST THE SAME COMPACTION AS SPECIFIED FOR THE SOIL IN THE BACKFILL ZONE.*

REV. NO.	DATE	DESCRIPTION OF REVISION
R2	JAN. 18	NDOR BORDER TO NDOT BORDER
R1	OCT. 14	UP TO 60" PLASTIC ALLOWED IN ALL OF TABLE 1 - PLASTIC

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 411-R2

BEDDING AND BACKFILL REQUIREMENTS FOR CONCRETE PIPE

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
MICK S. SYSLO
E-10043
STATE OF NEBRASKA

DATE

ORIGINAL:
JUNE 6, 2008
DATE

1
4

TABLE 1 - CONCRETE STANDARD INSTALLATIONS, SOILS AND MINIMUM COMPACTION REQUIREMENTS

INSTALLATION TYPE	BEDDING THICKNESS	HAUNCH AND OUTER BEDDING	LOWER SIDE
TYPE 1	$D_O/24$ MINIMUM, NOT LESS THAN 3" IF ROCK FOUNDATION,USE $D_O/12$ MINIMUM, NOT LESS THAN 6".	95% SW	90% SW, 95% ML OR 100% CL
TYPE 2		90% SW OR 95% ML	85% SW, 90% ML OR 95% CL
*TYPE 3		85% SW, 90% ML, OR 95% CL	85% SW, 90% ML OR 95% CL

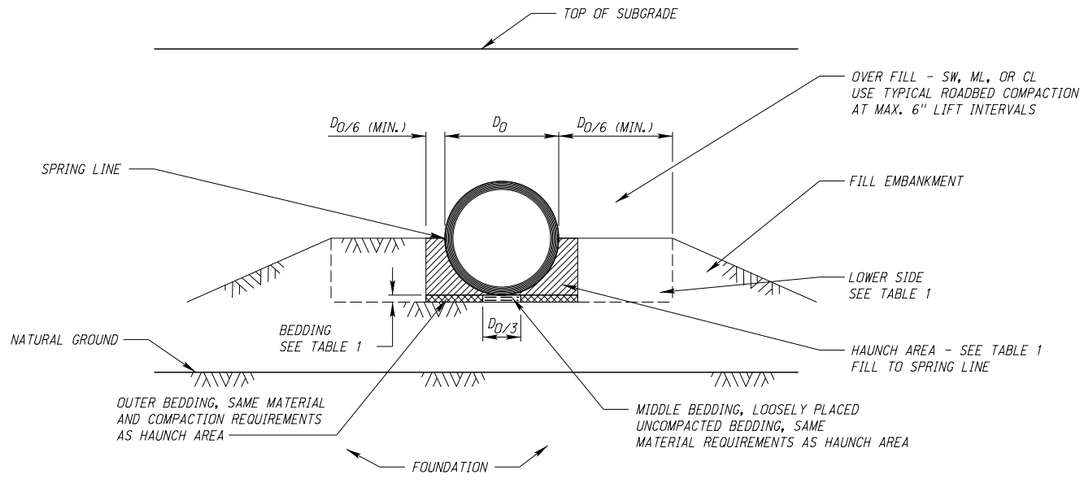
TABLE 1 NOTES:

** THE TYPE 3 INSTALLATION (SHADED) IN TABLE 4 IS THE NDOR MINIMUM STANDARD, USING EITHER A SHAPED TRENCH ACCORDING TO THE STANDARD SPECIFICATIONS, OR AT THE OPTION OF THE CONTRACTOR, THE BEDDING WITH COMPACTIONS AS SHOWN.*

MAXIMUM FILL HEIGHTS FOR THE TYPE 1, 2, AND 3 INSTALLATIONS ARE SHOWN IN TABLE 4.

TABLE 2 - CONCRETE PIPE DIMENSIONS

NOMINAL PIPE DIAMETER (INCHES)	STANDARD OUTSIDE PIPE DIAMETER, DO (SPAN)			
	ROUND PIPE	ARCH PIPE	H. ELLIP. PIPE	V. ELLIP. PIPE
15	19.5	22.5		
18	23	27	28.5	
21	26.5	31.5		
24	30	34.5	36.5	
27	33.5		41	
30	37	43.25	45.5	
36	44	51.75	54	38
42	51	60.13	63	44
48	58	68.5	71	49
54	65	76	80	55
60	72	85	89	61
66	79		97	67
72	86	102	106	73
78	93		114	79
84	100	118	123	85
90	107			
96	114			
102	121			
108	128			



TYPICAL EMBANKMENT INSTALLATION

TABLE 3 SOIL CLASSIFICATION FOR BEDDING & BACKFILL

ASTM SOIL GROUP SYMBOL D 2487	DESCRIPTION	PERCENTAGE PASSING SIEVE SIZES		
		1½ IN.	NO. 4	NO. 200
SW	WELL GRADED SANDS AND GRAVELLY-SANDS: LITTLE OR NO FINES. NON PLASTIC	100%	**> 50% OF "COURSE FRACTION"**	< 5%
ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY-FINE-SANDS, SILTS WITH SLIGHT PLASTICITY		100%	> 50%
CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELY-CLAYS, SANDY-CLAYS, SILTY-CLAYS, LEAN CLAYS			

NOTES FOR EMBANKMENT INSTALLATIONS:

1. COMPACTION AND SOIL SYMBOLS, I.E. 95% SW, REFER TO SW SOIL MATERIAL WITH A MINIMUM STANDARD PROCTOR COMPACTION OF 95%.

2. SOIL IN THE OUTER BEDDING, HAUNCH, AND LOWER SIDE ZONES, EXCEPT WITHIN THE $D_O/3$ MIDDLE BEDDING, SHALL BE COMPACTED TO AT LEAST THE SAME COMPACTION AS THE MAJORITY OF THE SOIL IN THE OVERFILL ZONES.

3. SUBTRENCHES

3.1 A SUBTRENCH IS DEFINED AS A TRENCH WITH ITS TOP AT AN ELEVATION LOWER THAN 1 FT. BELOW THE BOTTOM OF THE PAVEMENT BASE MATERIAL.

3.2 THE MINIMUM WIDTH OF A SUBTRENCH SHALL BE 1.33DO, OR WIDER IF REQUIRED FOR ADEQUATE SPACE TO ATTAIN THE SPECIFIED COMPACTION IN THE HAUNCH AND BEDDING ZONES.

3.3 FOR SUBTRENCHES WITH WALLS OF NATURAL SOIL, ANY PORTION OF THE LOWER SIDE ZONE IN THE SUBTRENCH WALL SHALL BE AT LEAST AS FIRM AS AN EQUIVALENT SOIL PLACED TO THE COMPACTION REQUIREMENTS SPECIFIED FOR THE LOWER SIDE ZONE, AND AS FIRM AS THE MAJORITY OF SOIL IN THE OVERFILL ZONE, OR SHALL BE REMOVED AND REPLACED WITH SOIL COMPACTED TO THE SPECIFIED LEVEL.

GENERAL NOTES:

WHEN IN-SITU LATERAL SOIL RESISTANCE IS NEGLIGIBLE, E.G. PEAT, MUCK, OR HIGHLY EXPANSIVE SOIL, EMBEDMENT SHALL BE PLACED AND COMPACTED AT THE DIRECTION OF THE ENGINEER.

TO PROTECT THE PIPE AND BACKFILL DURING CONSTRUCTION, PROVIDE A MINIMUM OF 36" OF COMPACTED FILL MATERIAL OVER THE TOP OF THE PIPE BEFORE ALLOWING ANY HEAVY EQUIPMENT TO TRAVERSE OVER THE PIPE. EXTREMELY HEAVY EQUIPMENT MAY REQUIRE LARGER COVER AS DETERMINED BY THE CONTRACTOR.

THE PIPE VOLUME SHOULD NOT BE SUBTRACTED FROM THE VOLUME OF EXCAVATION.

THESE DESIGN STANDARDS ARE MINIMUM. IF A MORE RESTRICTIVE DESIGN IS REQUIRED BY THE ENGINEER OR CULVERT MANUFACTURER, THEN THESE STANDARDS SHALL BE MODIFIED. CHANGES TO PAY ITEM QUANTITIES DUE TO UNFORESEEN SITE CONDITIONS SHALL BE CALCULATED AND INCORPORATED INTO THE CONTRACT THRU A CHANGE ORDER.

BOTH ENDS OF THE PIPE SHALL BE SEALED WITH COHESIVE SOIL (AROUND THE PIPE EXTENDING 3 FT. TO 4 FT. FROM EACH END) TO PROTECT AGAINST INFILTRATION AND EROSION.

BEDDING AND BACKFILL MATERIAL IS NOT PAID FOR DIRECTLY, BUT IS SUBSIDIARY TO THE LINEAR FEET OF CULVERT.

BEDDING AND BACKFILL MATERIAL SHALL MEET ASTM D 2487 (SOIL GROUPS AS SHOWN IN TABLE 3).

PERCENT COMPACTION SHALL BE DETERMINED IN ACCORDANCE WITH NDOR STANDARD TEST METHOD T 99.

REV. NO.	DATE	DESCRIPTION OF REVISION
R2	JAN. 18	NDOR BORDER TO NDOT BORDER
R1	OCT. 14	UP TO 60" PLASTIC ALLOWED IN ALL OF TABLE 1 - PLASTIC

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 411-R2

BEDDING AND BACKFILL REQUIREMENTS FOR CONCRETE PIPE

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
MICK S. SYSLO
E-10043
STATE OF NEBRASKA

DATE

ORIGINAL: JUNE 6, 2008
DATE

2
4

TABLE 1 - CONCRETE STANDARD INSTALLATIONS, SOILS AND MINIMUM COMPACTION REQUIREMENTS

INSTALLATION TYPE	BEDDING THICKNESS	HAUNCH AND OUTER BEDDING	LOWER SIDE
TYPE 1	$D_O/24$ MINIMUM, NOT LESS THAN 3" IF ROCK FOUNDATION,USE $D_O/12$ MINIMUM, NOT LESS THAN 6".	95% SW	90% SW, 95% ML OR 100% CL
TYPE 2		90% SW OR 95% ML	85% SW, 90% ML OR 95% CL
*TYPE 3		85% SW, 90% ML, OR 95% CL	85% SW, 90% ML OR 95% CL

NOTES:

** THE TYPE 3 INSTALLATION (SHADED) IN TABLE 4 IS THE NDOR MINIMUM STANDARD, USING EITHER A SHAPED TRENCH ACCORDING TO THE STANDARD SPECIFICATIONS, OR AT THE OPTION OF THE CONTRACTOR, THE BEDDING WITH COMPACTIONS AS SHOWN.*

MAXIMUM FILL HEIGHTS FOR THE TYPE 1, 2, AND 3 INSTALLATIONS ARE SHOWN IN TABLE 4.

INSTALLATION TYPE 2 AND TYPE 1 ARE IMPROVED METHODS IN ORDER TO SUPPORT HIGHER FILL HEIGHTS USING CLASS III, IV, AND V CIRCULAR CONCRETE PIPE. INSTALLATION TYPE I WILL PROVIDE THE BEST IN-SITU PERFORMANCE USING GREATER COMPACTION WITH GRANULAR BEDDING AND BACKFILL. THE CONTRACTOR WILL CHOOSE THE INSTALLATION TYPE AND CLASS OF PIPE. ACTUAL PROJECT FILL HEIGHTS MUST BE KNOWN IN ORDER TO USE TABLE 4.

ROUND EQUIVALENT, NON-CIRCULAR PIPE SUCH AS ARCH OR ELLIPTICAL PIPE, MAY BE SELECTED, PROVIDED SUCH PIPE ARE DESIGNED AND MANUFACTURED TO THE SAME D-LOADS AND ULTIMATE STRENGTHS (SEE TABLE 5) AS THE SELECTED CIRCULAR PIPE FROM THE FILL HEIGHT TABLE.

TABLE 4 MAXIMUM FILL HEIGHTS (FEET) FOR STANDARD DESIGN (AASHTO M 170) ROUND CONCRETE PIPE

	INSTALLATION TYPE 3* (NDOR STANDARD)			INSTALLATION TYPE 2			INSTALLATION TYPE 1		
PIPE SIZE (IN.)	CLASS III	CLASS IV	CLASS V	CLASS III	CLASS IV	CLASS V	CLASS III	CLASS IV	CLASS V
15	12	15	21	15	19	26	23	28	40
18	12	17	24	16	22	30	24	32	45
21	13	19	26	16	24	32	25	37	48
24	13	19	26	17	24	33	25	32	45
27	13	17	26	17	21	34	23	26	51
30	12	14	25	15	17	32	20	21	49
36	10	16	24	13	21	31	20	31	47
42	10	15	23	13	19	29	20	29	44
48	10	14	22	13	18	29	20	28	43
54	10	14		13	17		20	27	
60	9	14		12	18		19	28	
66	9	14		12	18		19	28	
72	9	14		12	18		19	28	
78	9			12			19		
84	9			12			19		
90	9			12			20		
96	9			12			19		
102	10			13			20		
108	10			14			22		

TABLE 4 NOTES:

AASHTO M 170 SPECIFICATIONS ARE MODIFIED AS FOLLOWS:

ONLY SINGLE INNER CAGE, CIRCULAR REINFORCING IS ALLOWED FOR CLASS III, 15", 18", 21", AND 24" ROUND RCP AS SHOWN:

PIPE SIZE (IN.)	CLASS	MINIMUM CIRCUMFERENTIAL REINFORCING ($IN.^2/FT.$ OF PIPE WALL)
15	III	0.08
18	III	0.10
21	III	0.12
24	III	0.14

APPLICABLE SPECIFICATIONS:

AASHTO M 170---ROUND RCP
AASHTO M 206---ARCH RCP
AASHTO M 207---ELLIPTICAL RCP

GENERAL NOTES:

FILL HEIGHTS SHOWN IN TABLE 4 WERE DEVELOPED USING ASCE STANDARDS FOR DIRECT DESIGN OF BURIED PRECAST CONCRETE PIPE, MANUFACTURED IN ACCORDANCE WITH AASHTO M 170 SPECIFICATION REQUIREMENTS (SEE TABLE 4 FOOTNOTE FOR EXCEPTIONS). FILL HEIGHTS SHOWN APPLY ONLY TO ROUND PIPE (UNDER FULL FLOW CONDITIONS), USED UNDER RIGID AND FLEXIBLE PAVEMENT, WITH SOIL OVERFILL WEIGHING 120 POUNDS PER CUBIC FOOT. UNDER SPECIAL CIRCUMSTANCES (WHERE PAVEMENT IS NOT USED AND LIVE LOAD BECOMES CRITICAL, OR DIFFERENT SOIL DENSITY IS ENCOUNTERED, OR THE ONE FOOT MINIMUM CLEARANCE FROM THE BOTTOM OF THE PAVEMENT TO THE TOP OF THE PIPE CANNOT BE MAINTAINED) THESE FILL HEIGHTS MAY NEED TO BE MODIFIED. DEEPER FILL HEIGHTS MAY BE USED BY SUBMITTING A SPECIAL STANDARD INSTALLATION DIRECT DESIGN (SIDD) FOR NDOR APPROVAL.

CONCRETE PIPE DESIGNS THAT ARE NOT SHOWN IN APPLICABLE AASHTO SPECIFICATIONS WILL BE CONSIDERED SPECIAL DESIGNS THAT MUST BE SUBMITTED TO NDOR FOR APPROVAL.

TABLE 5 D-LOADS FOR CONCRETE PIPE

PIPE CLASS	III	IV	V
D-LOAD TO PRODUCE A 0.01-IN. CRACK	1350	2000	3000
D-LOAD TO PRODUCE THE ULTIMATE LOAD	2000	3000	3750

NOTES:

LOAD ON PIPE IN POUNDS PER LINEAR FOOT = D-LOAD X INSIDE SPAN IN FEET D-LOAD = TEST LOAD EXPRESSED IN POUNDS-FORCE PER LINEAR FOOT PER FOOT OF DIAMETER

REV. NO.	DATE	DESCRIPTION OF REVISION
R2	JAN. 18	NDOR BORDER TO NDOT BORDER
R1	OCT. 14	UP TO 60" PLASTIC ALLOWED IN ALL OF TABLE 1 - PLASTIC

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 411-R2

BEDDING AND BACKFILL REQUIREMENTS FOR CONCRETE PIPE

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER * MICK S. SYSLO E-10043 * STATE OF NEBRASKA

DATE

ORIGINAL: JUNE 6, 2008
DATE

3
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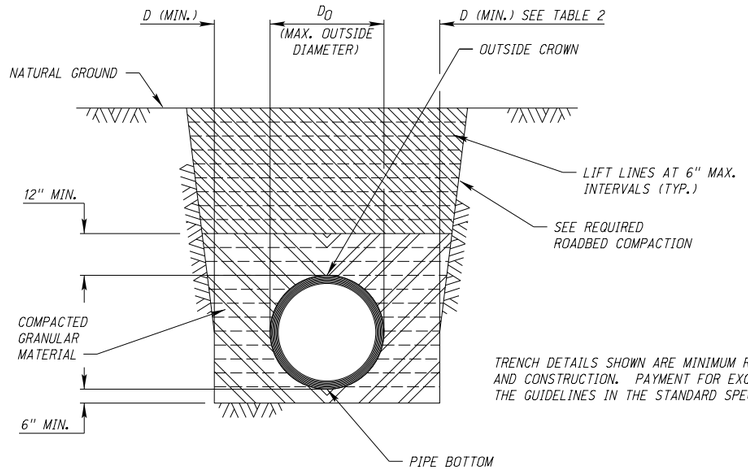
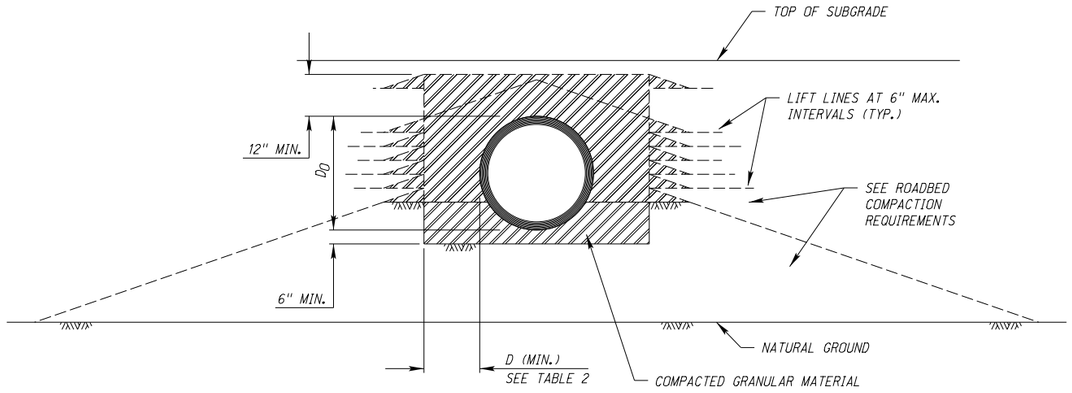


TRENCH DETAILS SHOWN ARE MINIMUM REQUIREMENTS FOR DESIGN AND CONSTRUCTION. PAYMENT FOR EXCAVATION IS BASED UPON THE GUIDELINES IN THE STANDARD SPECIFICATIONS.

TRENCHES SHALL BE EXCAVATED IN ACCORDANCE WITH APPROVED SAFETY PRACTICE.

TYPICAL TRENCH INSTALLATION



TYPICAL EMBANKMENT INSTALLATION

TABLE 1 - PLASTIC
SOIL CLASSIFICATION FOR GRANULAR FILL MATERIAL

SOIL GROUP SYMBOL D 2487	DESCRIPTION	% PASSING SIEVE SIZES		
		1½ IN.	NO. 4	NO. 200
GW	WELL GRADED GRAVEL AND GRAVEL-SAND MIXTURES; LITTLE OR NO FINES.	100%	(50% OF COARSE FRACTION	(5%
GP	POORLY GRADED GRAVEL AND GRAVEL-SAND MIXTURES; LITTLE OR NO FINES.			
SW	WELL GRADED SAND AND GRAVEL-SANDS; LITTLE OR NO FINES.		) 50% OF COARSE FRACTION	
SP	POORLY GRADED SAND AND GRAVEL-SANDS; LITTLE OR NO FINES.			
E.G. GW-GC SP-SM	SAND AND GRAVELS WHICH ARE BORDER LINE BETWEEN CLEAN AND WITH FINES.	100%	VARIES	5% TO 12%
GM	SILTY GRAVEL, GRAVEL-SAND-SILT MIXTURES.	100%	(50% OF COARSE FRACTION	12% TO 50%
GC	CLAYEY-GRAVEL, GRAVEL-SAND-CLAY MIXTURES.			
SM	SILTY SANDS, SAND-SILT MIXTURES.		) 50% OF COARSE FRACTION	

TABLE 2 - PLASTIC
MINIMUM D (INCHES)

NOMINAL PIPE DIAMETER (INCHES)	TRENCH INSTALLATION		EMBANKMENT INSTALLATION	
	METAL PIPE	PLASTIC PIPE	METAL PIPE	PLASTIC PIPE
15	11	11	15	15
18	12	12	18	18
24	13	13	24	24
30	15	15	24	24
36	17	17	24	24
42	24	24	24	24
48	24	24	24	24
54	24	24	24	24
60	24	24	24	24
66	24		24	
72	24		24	
78	24		24	
84	24		24	

NOTES:

INSTALLATIONS AS SHOWN ARE REQUIRED UNDER ALL SURFACED ROADWAYS. BEDDING AND BACKFILL FOR DRIVE PIPE OR OTHER PIPE OUTSIDE THE ROADWAY PRISM (OR BACK OF CURB-LINE FOR URBAN PROJECTS) MAY BE INSTALLED USING SUITABLE EXISTING SOIL, PLACED AND COMPACTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

WHERE IN-SITU LATERAL SOIL RESISTANCE IS NEGLIGIBLE E.G. PEAT, MUCK, OR HIGHLY EXPANSIVE SOIL, EMBEDMENT SHALL BE PLACED AND COMPACTED AT THE DIRECTION OF THE ENGINEER.

TO PROTECT THE PIPE AND BACKFILL DURING CONSTRUCTION, PROVIDE A MINIMUM OF 36" OF COMPACTED FILL MATERIAL OVER THE TOP OF THE PIPE BEFORE ALLOWING ANY HEAVY EQUIPMENT TO TRAVERSE OVER THE PIPE. EXTREMELY HEAVY EQUIPMENT MAY REQUIRE LARGER COVER AS DETERMINED BY THE CONTRACTOR.

PIPE VOLUME SHOULD NOT BE SUBTRACTED FROM THE VOLUME OF EXCAVATION.

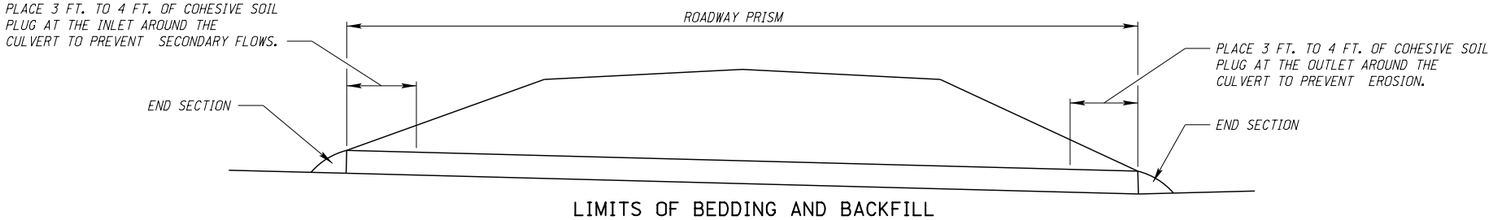
THESE DESIGN STANDARDS ARE MINIMUM. IF A MORE RESTRICTIVE DESIGN IS REQUIRED BY THE ENGINEER OR THE CULVERT MANUFACTURER, THEN THESE STANDARDS SHALL BE MODIFIED. CHANGES TO PAY ITEM QUANTITIES DUE TO UNFORESEEN SITE CONDITIONS SHALL BE CALCULATED AND INCORPORATED INTO THE CONTRACT BY A CHANGE ORDER.

EXPOSED ENDS OF THE PIPE SHALL BE SEALED WITH COHESIVE SOIL (AROUND THE PIPE EXTENDING 3 FT. TO 4 FT. FROM EACH END) TO PROTECT AGAINST INFILTRATION AND EROSION.

GRANULAR FILL MATERIAL IS NOT PAID FOR DIRECTLY, BUT IS SUBSIDIARY TO THE LINEAR FEET OF CULVERT.

GRANULAR MATERIAL SHALL MEET ASTM D 2487 (SOIL GROUP AS SHOWN IN TABLE 1). MATERIAL SHALL BE COMPACTED TO AT LEAST 90% PROCTOR TEST DENSITY.

PERCENT COMPACTION SHALL BE DETERMINED IN ACCORDANCE WITH NDOR STANDARD TEST METHOD T 99.



LIMITS OF BEDDING AND BACKFILL

REV. NO.	DATE	DESCRIPTION OF REVISION
R2	JAN. 18	NDOR BORDER TO NDOT BORDER
R1	OCT. 14	UP TO 60" PLASTIC ALLOWED IN ALL OF TABLE 1 - PLASTIC

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 411-R2

BEDDING AND BACKFILL REQUIREMENTS FOR MCCMP, PCCMP, & PLASTIC PIPE

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER * MICK S. SYSLO E-10043 * STATE OF NEBRASKA

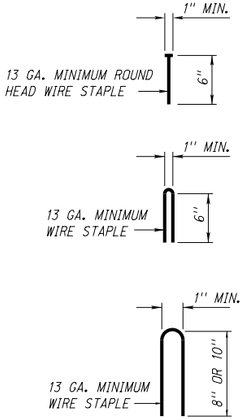
DATE

ORIGINAL: JUNE 6, 2008

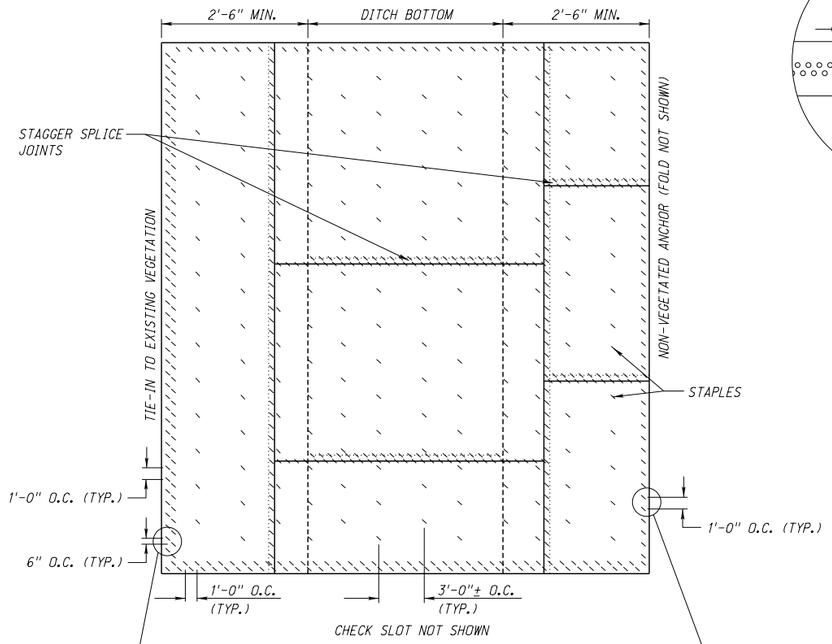
DATE

4/4

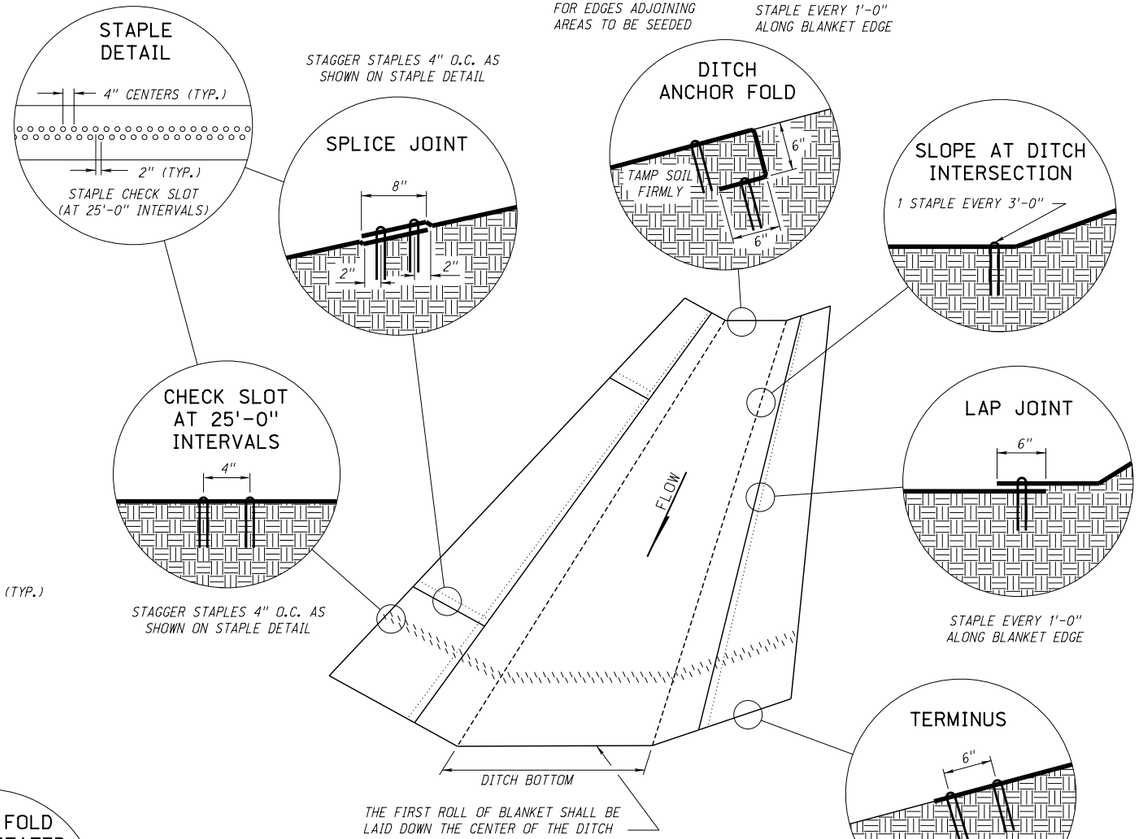
ROADWAY DESIGN DIVISION



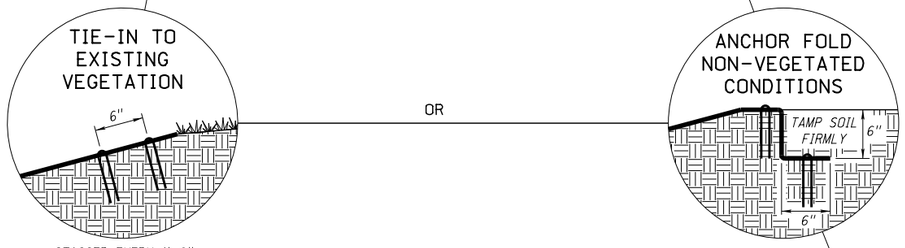
WIRE STAPLE DETAIL

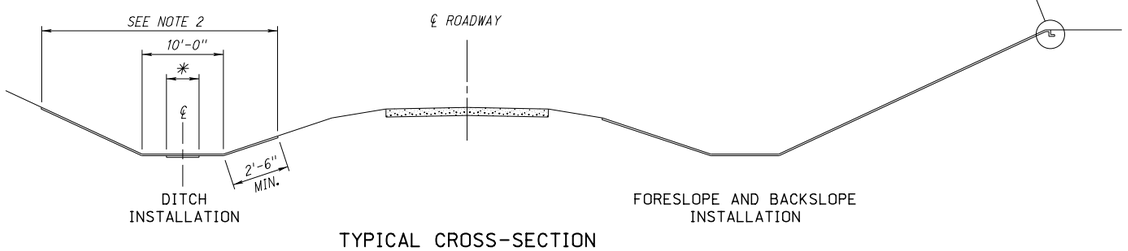


PLAN VIEW STAPLING DIAGRAM



TYPICAL EROSION CONTROL BLANKET INSTALLATION





TYPICAL CROSS-SECTION

* THE FIRST ROLL OF BLANKET SHALL BE LAID DOWN THE CENTER OF THE DITCH

NOTES:

1. THIS PLAN IS APPLICABLE FOR THE FOLLOWING: EROSION CONTROL CLASS 1B, 1C, 1D, 1E, 1F, 2A, 2B & 2C.
2. SOIL RETENTION BLANKET SHALL BE LAID A MINIMUM OF 2'-6" UP THE BACKSLOPE AND FORESLOPE.
3. CHECK SLOTS ARE PLACED PERPENDICULAR TO DITCH CENTER LINE ON 25'-0" INTERVALS.
4. THE MANUFACTURERS' RECOMMENDED STAPLING PATTERNS SHALL GOVERN OVER THE PLANS.

REV. NO.	DATE	DESCRIPTION OF REVISION
R7	JAN 18	NDOR BORDER TO NDOT BORDER
R6	APR 14	UPDATE INSTALLATION METHOD
R5	OCT 07	EROSION CONTROL AT SPLASH BASIN

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 501-R7

EROSION CONTROL

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

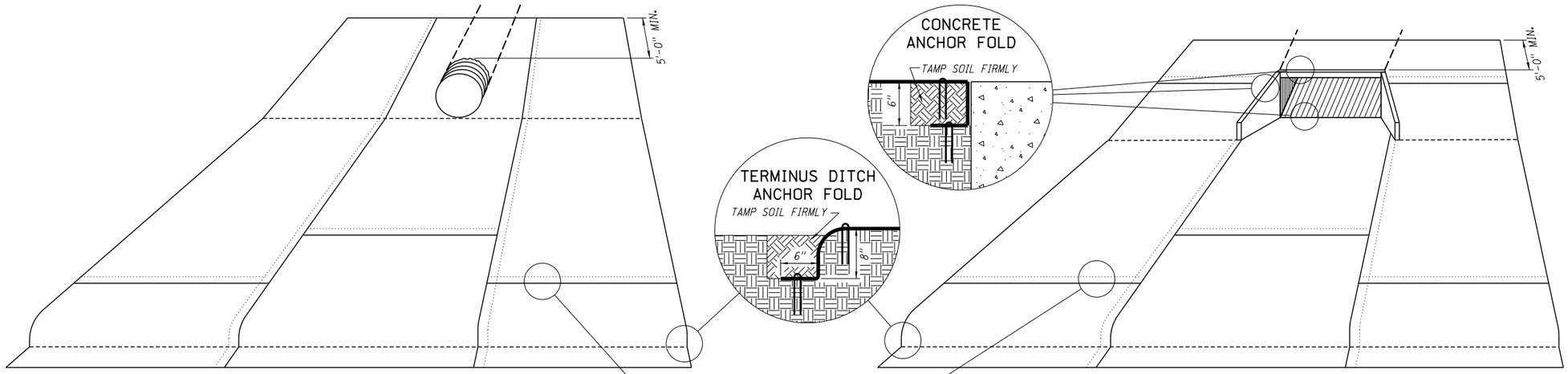
PROFESSIONAL CIVIL ENGINEER
BRANDIE S. NEEMANN
E-11829
STATE OF NEBRASKA

DATE

ORIGINAL: NOVEMBER 1973
DATE

1/3

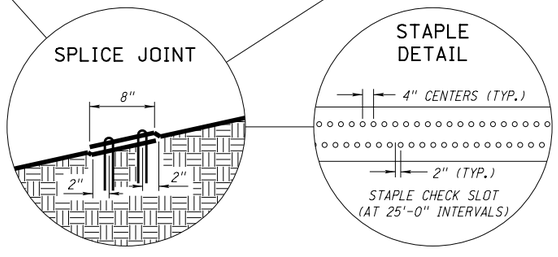
File: 501006R7.dgn Date: 29-JUN-2021 09:20 Computer: NDOTDESIGN134

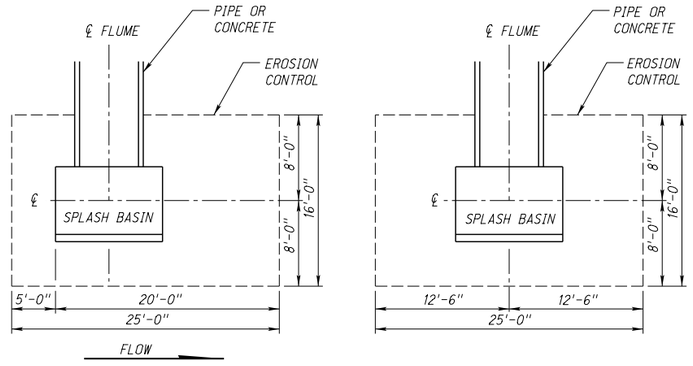


TYPICAL INSTALLATION AT PIPE CULVERT

(SHOWING STRAIGHT PIPE)

TYPICAL INSTALLATION AT BOX CULVERT

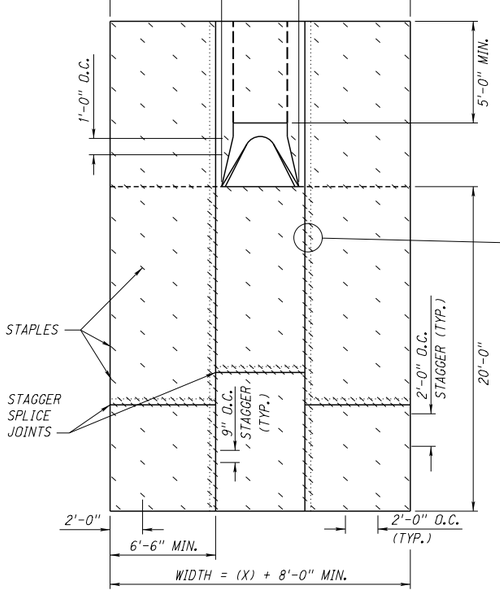




NOTE:
OFFSET EROSION CONTROL PLACEMENT ALONG THE DRAINAGE PATH

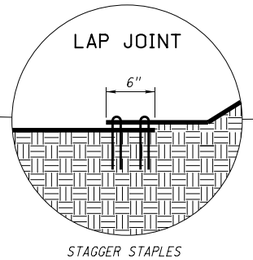
NOTE:
CENTER EROSION CONTROL ON FLUME WHERE THERE IS NO DEFINED DRAINAGE PATH

EROSION CONTROL BLANKET PLACEMENT AT SPLASH BASIN

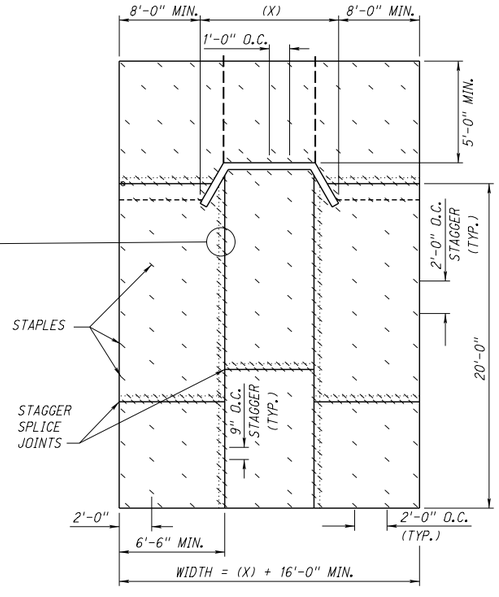


PLAN VIEW STAPLING DIAGRAM

(X) IS EQUAL TO THE OUTSIDE WIDTH OF THE FLARED END SECTION



STAGGER STAPLES EVERY 1'-0" O.C. WITHIN 20'-0" OF PIPE



PLAN VIEW STAPLING DIAGRAM

(X) IS EQUAL TO THE OUTSIDE WIDTH OF THE WING WALLS

REV. NO.	DATE	DESCRIPTION OF REVISION
R7	JAN 18	NDOR BORDER TO NDOT BORDER
R6	APR 14	UPDATE INSTALLATION METHOD
R5	OCT 07	EROSION CONTROL AT SPLASH BASIN

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 501-R7

EROSION CONTROL

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
BRANDIE S. NEEMANN
E-11829
STATE OF NEBRASKA

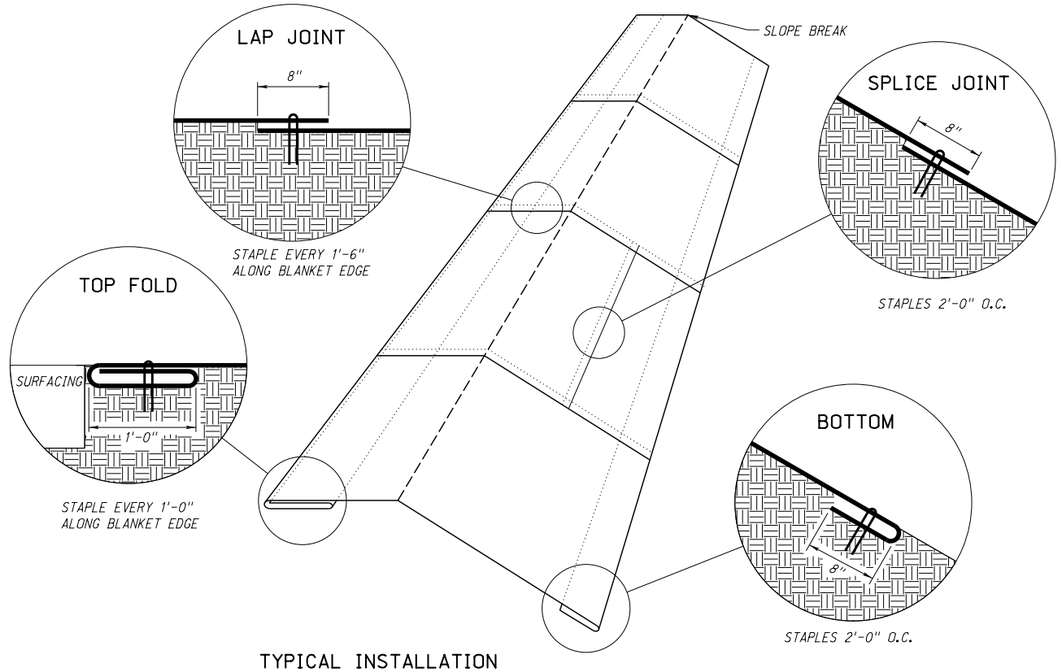
DATE

ORIGINAL: NOVEMBER 1973

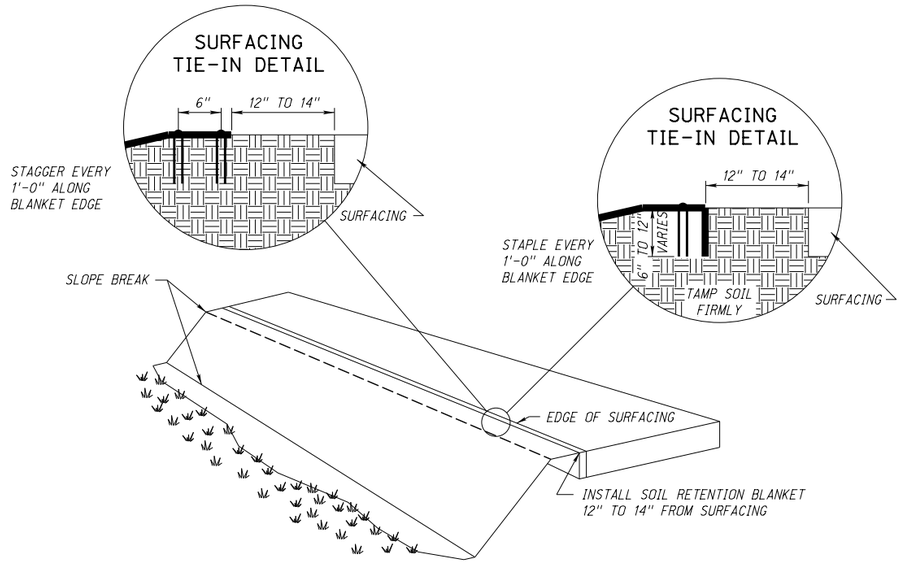
DATE

2/3

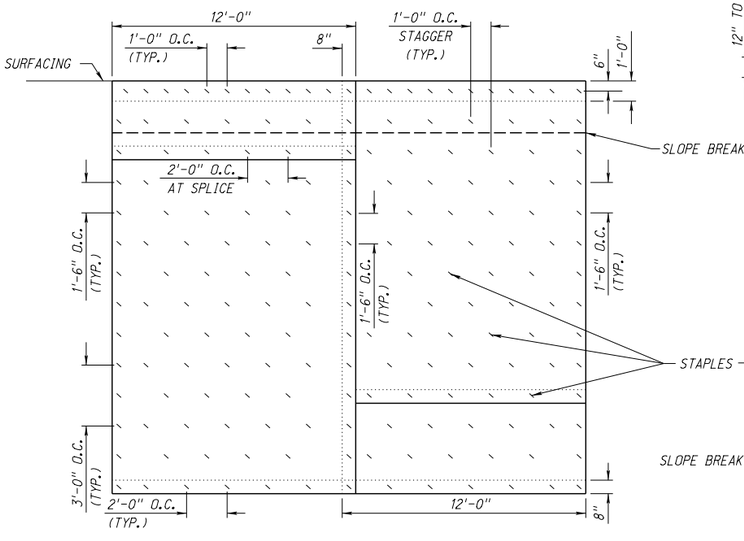
File: 50100607.dgn Date: 29-JUN-2021 09:20 Computer: NDOTDESIGN134



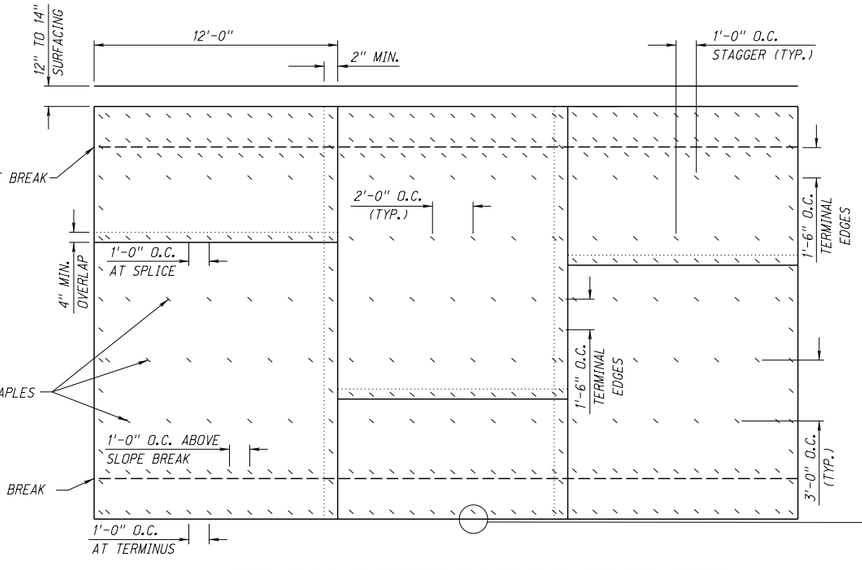
TYPICAL INSTALLATION
CLASS 1A (SLOPE PROTECTION, SAND)



SURFACING INSTALLATION



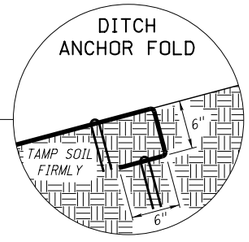
PLAN VIEW STAPLING DIAGRAM FOR
CLASS 1A (SLOPE PROTECTION, SAND)



TERMINATE BLANKET AT THE TOE OF SLOPE OR AT UNDISTURBED VEGETATION

PLAN VIEW STAPLING DIAGRAM FOR
CLASS 1B, 1C, 1D, 1E, 1F, 2A, 2B, & 2C

FOR EDGES ADJOINING AREAS TO BE SEEDED



STAPLE EVERY 1'-0" ALONG BLANKET EDGE

NOTES:

1. THE MANUFACTURERS' RECOMMENDED STAPLING PATTERNS SHALL GOVERN OVER THE PLANS.
2. SURFACING INSTALLATION IS APPLICABLE FOR ASPHALT, CONCRETE, OR BEVELLED EDGE.

REV. NO.	DATE	DESCRIPTION OF REVISION
R7	JAN 18	NDOR BORDER TO NDOT BORDER
R6	APR 14	UPDATE INSTALLATION METHOD
R5	OCT 07	EROSION CONTROL AT SPLASH BASIN

NEBRASKA DEPARTMENT OF TRANSPORTATION
STANDARD PLAN NO. 501-R7

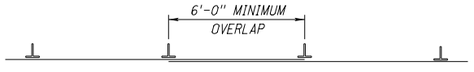
EROSION CONTROL

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

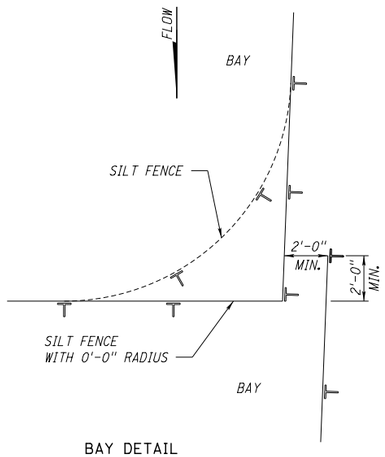
PROFESSIONAL CIVIL ENGINEER
BRANDIE S. NEEMANN
E-11829
STATE OF NEBRASKA

DATE

ORIGINAL:
NOVEMBER 1973
DATE

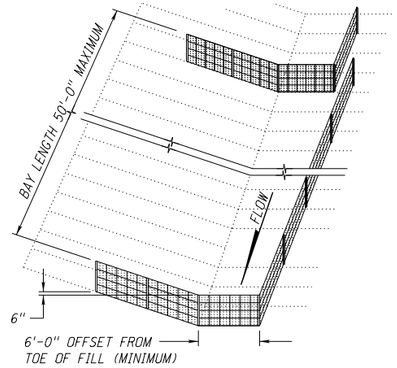


SILT FENCE SPLICE

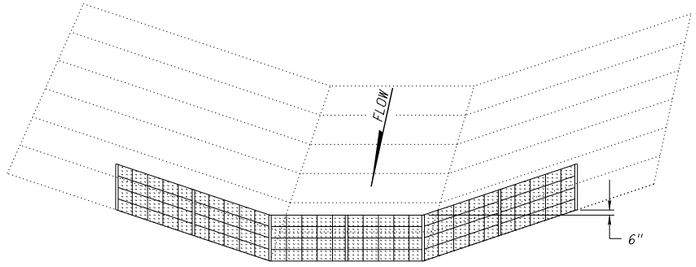


BAY DETAIL

NOTE:
SILT FENCE AT CORNERS SHALL HAVE A RADIUS OF 0'-0" MINIMUM TO 10'-0" MAXIMUM

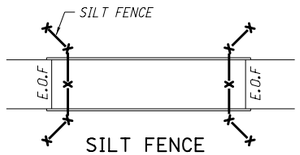


SILT FENCE BAYS

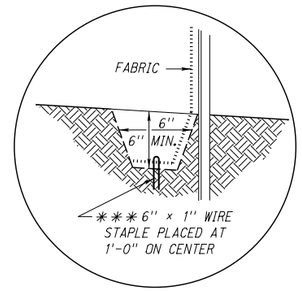


HIGH POROSITY SILT FENCE
(ACROSS DITCH)

NOTE:
POST SPACING 6'-0" MAXIMUM MULTIPLE BAYS MAY BE USED



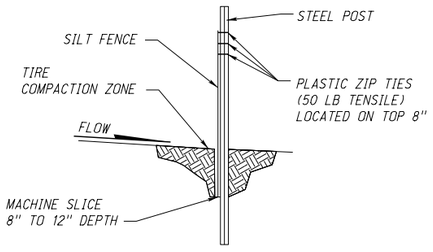
SILT FENCE
(UNDER BRIDGE)



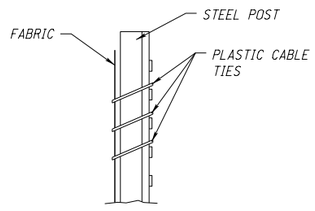
TRENCH DETAIL

✱✱✱SILT FENCE MAY ALSO BE INSTALLED WITH A SILT FENCE PLOW. NO STAPLING IS REQUIRED WHEN THE SILT FENCE PLOW IS USED.

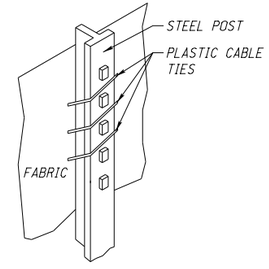
OPTION ONE (PREFERED)
SILT FENCE
(6'-0" OFFSET FROM TOE OF FILL)



SILT FENCE MACHINE SLICED



PROFILE VIEW
ATTACHMENT TO POST



BACK VIEW
ATTACHMENT TO POST

NOTES:

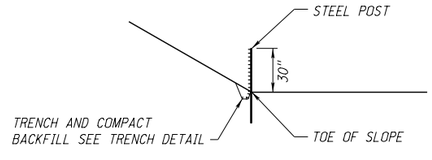
SILT FENCE SHOULD BE 30" ABOVE GRADE (MAY VARY)

SILT FENCE MINIMUM ROLL WIDTH:
LOW POROSITY = 42"
HIGH POROSITY = 42"
LOW PROFILE = 36"
COIR SILT FENCE = 36"

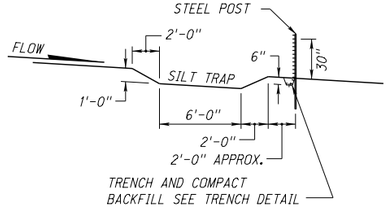
STEEL STUDDED "T" LINE POSTS 5'-6" LENGTH; 6'-0" MAXIMUM SPACING.

FOR EACH STEEL STUDDED "T" LINE POST, 3 PLASTIC CABLE TIES ARE REQUIRED.

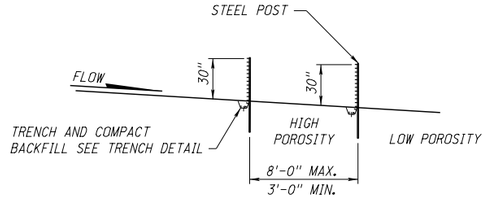
2" x 2" x 6'-0" NOMINAL WOOD STAKES SPACING, 6'-0" MAXIMUM ON CENTER DRIVEN UNTIL FIRM.



OPTION TWO (WITH LIMITED R.O.W.)
SILT FENCE
(AT TOE OF FILL)



HIGH POROSITY SILT
FENCE WITH SILT TRAP
(ACROSS DITCH)



SILT FENCE
(ACROSS DITCH)

REV. NO.	DATE	DESCRIPTION OF REVISION
R2	JAN 18	NDOR BORDER TO NDOT BORDER
R1	APR 14	STEEL POST INSTALLATION

NEBRASKA DEPARTMENT OF TRANSPORTATION
STANDARD PLAN NO. 502-R2

SILT FENCE DETAILS

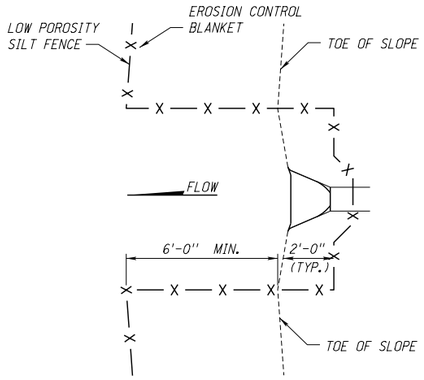
ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
BRANDIE S. NEEMANN
E-11829
STATE OF NEBRASKA

DATE

ORIGINAL:
DECEMBER 2006
DATE

1
2



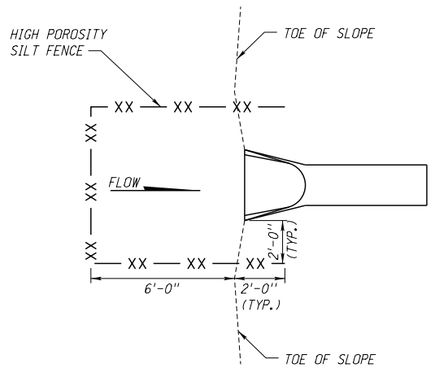
SILT FENCE OUTLET PROTECTION

NOTES:

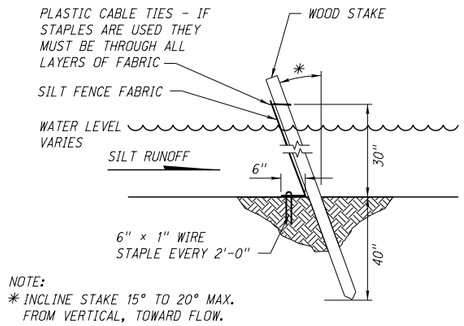
1. SILT FENCE SHOULD BE BROUGHT FLUSH WITH WING WALLS ON BOX CULVERTS IF IT CAN NOT BE INSTALLED ABOVE THE BOX CULVERT.

2. IF APPLICABLE, SILT FENCE AROUND THE CULVERT SHOULD BE ADJUSTED TO ALLOW FOR THE INSTALLATION OF EROSION CONTROL AS SHOWN IN STANDARD PLAN 501.

3. SILT CHECKS MAY USED IN PLACE OF SILT FENCE ABOVE THE OPENING OF A CULVERT, AS SHOWN IN SPECIAL PLAN C.

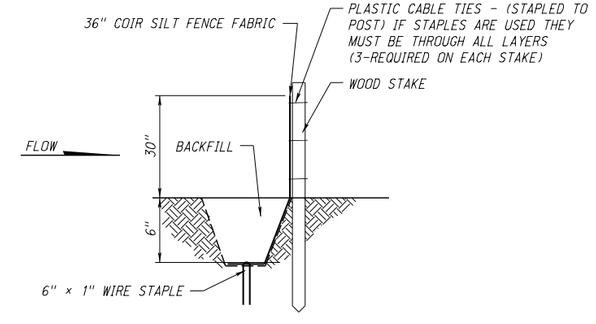


SILT FENCE INLET PROTECTION

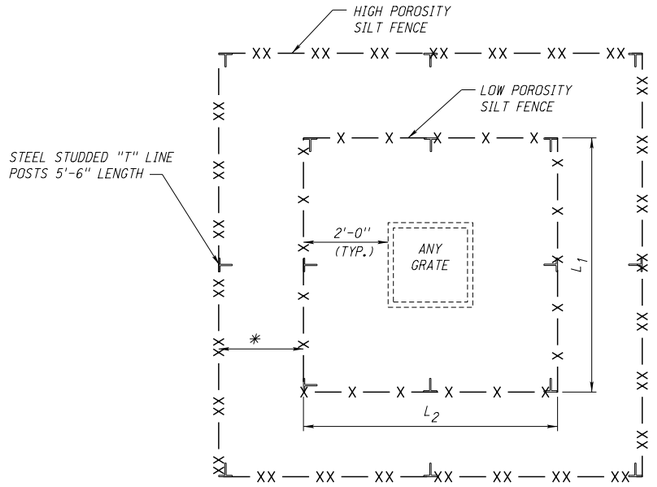


NOTE:
✳ INCLINE STAKE 15° TO 20° MAX. FROM VERTICAL, TOWARD FLOW.

SILT FENCE
(WET & BELOW WATER INSTALLATION)



COIR SILT FENCE - ON WOOD POSTS - DRY INSTALLATION

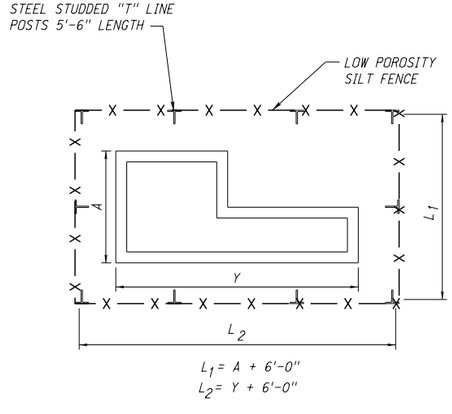


L_1 & L_2 = OUTSIDE OF WALL + 4'-0''

PLAN VIEW

SILT FENCE FOR GRATE, AREA, MEDIAN INLETS OR JUNCTION BOXES

✳ 3'-0'' IF POSSIBLE (MAY VARY)



L_1 = A + 6'-0''
L_2 = Y + 6'-0''

PLAN VIEW

SILT FENCE CURB INLET

REV. NO.	DATE	DESCRIPTION OF REVISION
R2	JAN 18	NDOR BORDER TO NDOT BORDER
R1	APR 14	STEEL POST INSTALLATION

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 502-R2

SILT FENCE DETAILS

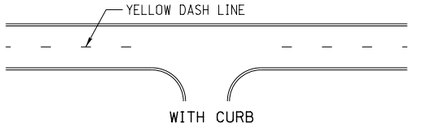
ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

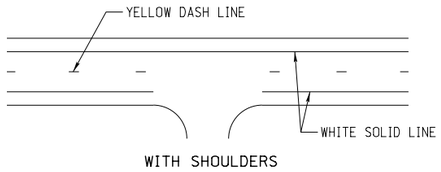
PROFESSIONAL CIVIL ENGINEER
BRANDIE S. NEEMANN
E-11829
STATE OF NEBRASKA

DATE

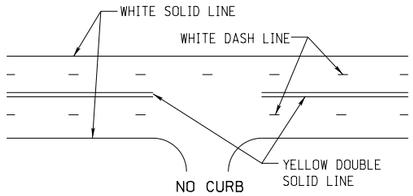
ORIGINAL: DECEMBER 2006
DATE

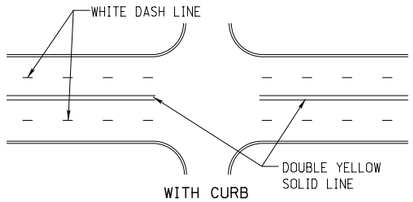
2
2



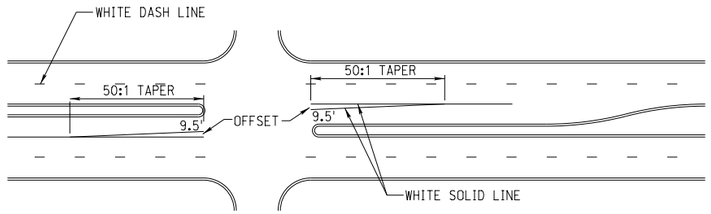


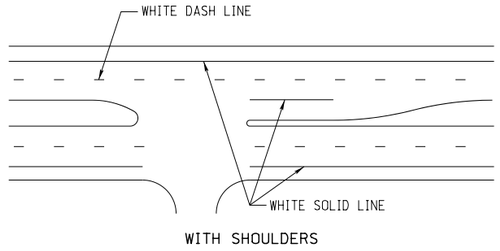
2 LANE ROADWAY

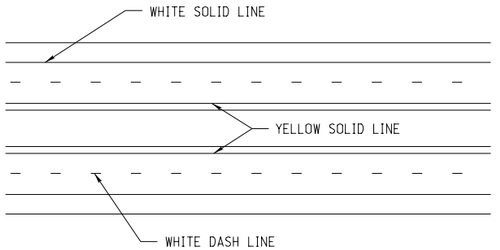




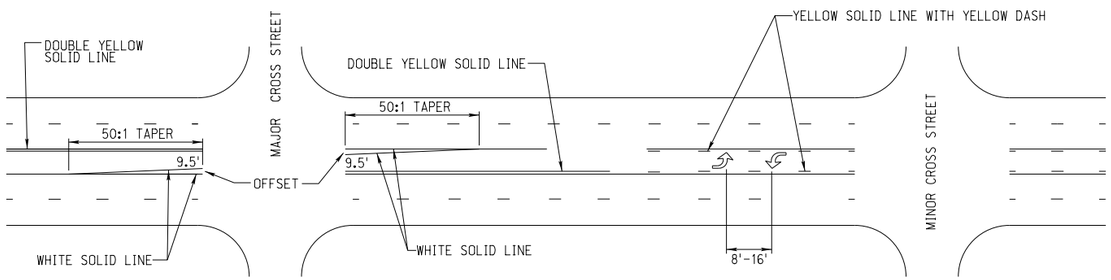
4 LANE UNDIVIDED ROADWAY



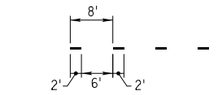




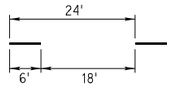
4 LANE DIVIDED ROADWAY



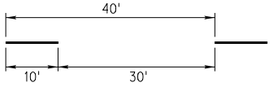
3 OR 5 LANE WITH TWO-WAY LEFT TURN LANE



DOTTED LINE DETAIL

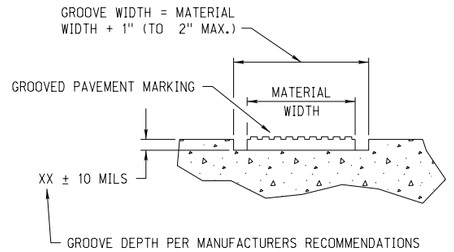


URBAN



RURAL

DASH LINE DETAIL



PERMANENT PAVEMENT MARKINGS INSTALLED IN GROOVES

2-LANE ROADWAY REQUIRED LOCATION FOR EDGE LINES

ROADWAY WIDTH	SHOULDER TYPE	DISTANCE FROM CENTERLINE OF ROADWAY TO OUTSIDE EDGE OF PAVEMENT EDGELINE
LESS THAN 24 FT	SURFACED	12 FT 0 IN
LESS THAN 24 FT	EARTH	PAVEMENT EDGE
24 FT	EARTH	PAVEMENT EDGE
24 FT	SURFACED	12 FT 0 IN
GREATER THAN 24 FT	EARTH	12 FT 0 IN

REV. NO.	DATE	DESCRIPTION OF REVISION
R1	SEP 21	CHANGE 3-GUN TO 2-GUN LAYOUT

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 941-R1

PAVEMENT MARKING

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

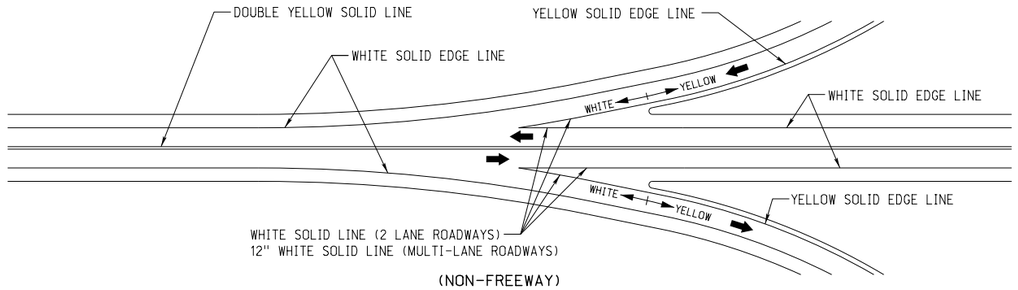
PROFESSIONAL CIVIL ENGINEER
DANIEL J. WADDLE
E-6289
STATE OF NEBRASKA

DATE

ORIGINAL: OCT. 2018
DATE

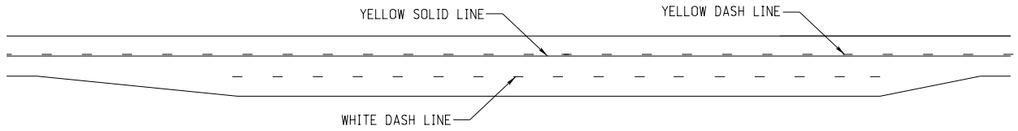
1
2

Computer: NDOTDESIGN134
Date: 29-JUN-2021 09:21
File: 94100e01.dgn

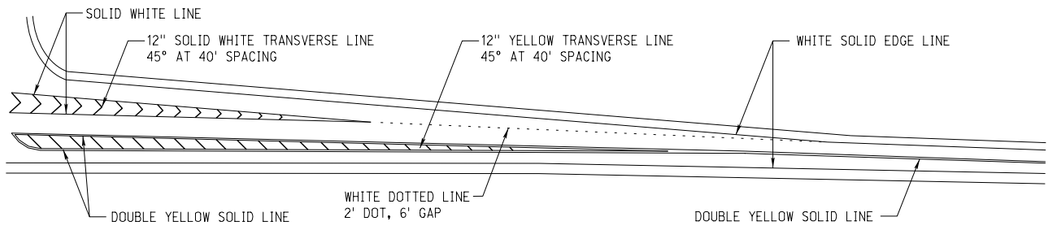


(NON-FREEWAY)

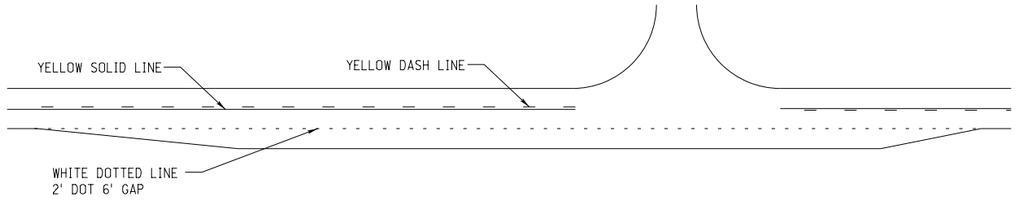
GORE MARKING



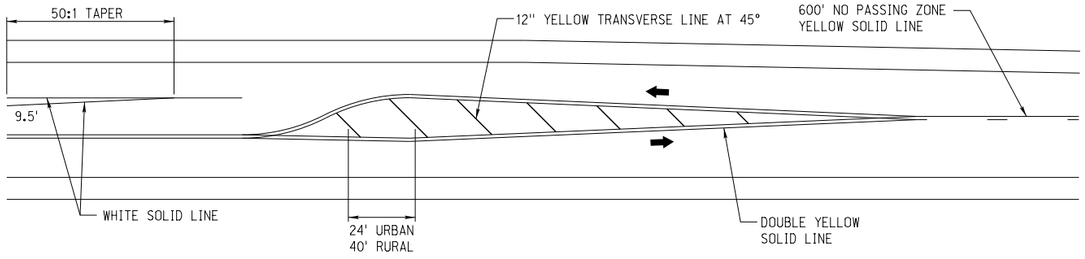
PASSING LANE MARKING



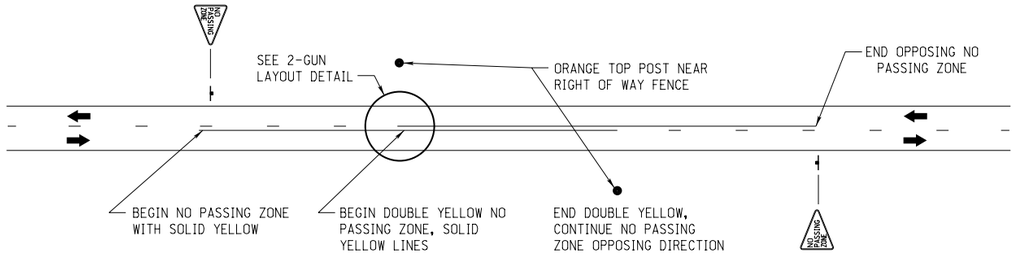
OFFSET RIGHT TURN LANE



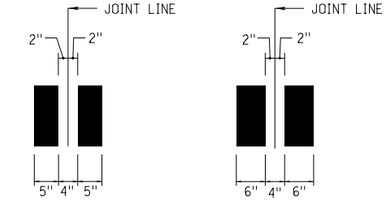
FLY-BY LANE MARKING



LEFT TURN LANE MARKING



NO PASSING ZONE MARKING



5" STRIPE WIDTH 6" STRIPE WIDTH

2-GUN LAYOUT

LEGEND

TRAFFIC FLOW

REV. NO.	DATE	DESCRIPTION OF REVISION
R1	SEP 21	CHANGE 3-GUN TO 2-GUN LAYOUT

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 941-R1

PAVEMENT MARKING

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
DANIEL J. WADDLE
E-6289
STATE OF NEBRASKA

DATE

ORIGINAL:
OCT. 2018
DATE

2
2

Computer: NDOTDESIGN134
Date: 29-JUN-2021 09:21
File: 94100e01.dgn

EROSION CONTROL PLAN
SCALE: 1" = 120'

120' 0 120'
SCALE

NOTE:
SEED AND MULCH ALL DISTURBED AREAS PER SPECIFICATIONS

REVISIONS

NO.	DATE	BY	DESCRIPTION

SEAL

PROFESSIONAL CIVIL ENGINEER
9/1/2023
RICHARD J. KRUSHENISKY
E-9059
STATE OF NEBRASKA

SEAL

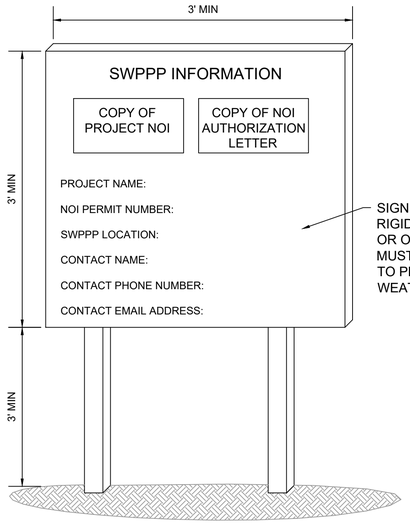
ROAD IMPROVEMENT
DAVIS CREEK RESERVOIR

EROSION CONTROL PLAN

THE FLATWATER GROUP INC.

The FLATWATER GROUP Inc.
8200 Cody Drive, Suite A
Lincoln, NE 68512
402-435-5441
CA-1145

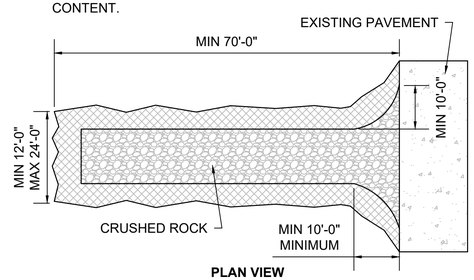
DATE	1-Sep-23
DESIGNED BY	RJK
DRAWN BY	STAFF
CHECKED BY	RJK
PROJECT NUMBER	
SCALE	AS SHOWN
SHEET NUMBER	EC-1



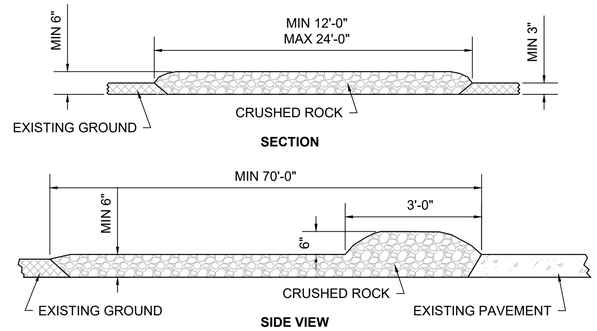
SIGN TO BE CONSTRUCTED OF A RIGID MATERIAL, SUCH AS PLYWOOD OR OUTDOOR SIGN BOARD. SIGN MUST BE CONSTRUCTED IN A MANNER TO PROTECT DOCUMENTS FROM WEATHER DAMAGE.

1 **TYPICAL SIGN BOARD DETAIL**
NOT TO SCALE

PLACE CLEAN CRUSHED ROCK (2" TO 3.5") OVER GEOTEXTILE FILTER FABRIC. DO NOT USE RECYCLED CONTENT.



PLAN VIEW



SECTION

SIDE VIEW

3 **CONSTRUCTION ENTRANCE**
NOT TO SCALE

SEDIMENT AND EROSION CONTROL NOTES:

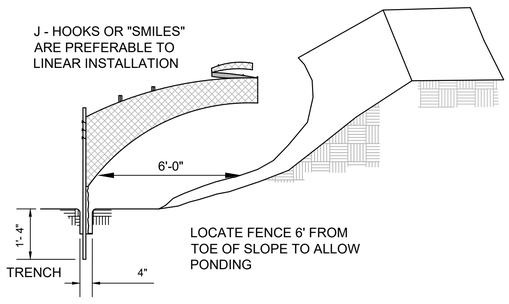
CONSTRUCTION SEQUENCING:

THE CONTRACTOR IS RESPONSIBLE FOR FOLLOWING THE CONDITIONS OF THE NPDES PERMIT AND IMPLEMENTING THE STORMWATER POLLUTION PREVENTION PLAN. ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH DIVISION 800 OF THE NEBRASKA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION. THE PERMIT NUMBER, CONTACT PHONE NUMBER, AND SWPPP SHALL BE POSTED ON A SIGN BOARD AT THE CONSTRUCTION ENTRANCE. RECORDS SHALL BE MAINTAINED FOR DATES WHEN MAJOR GRADING ACTIVITIES OCCUR, CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON A PORTION OF THE SITE AND STABILIZATION MEASURES ARE INITIATED. CONSTRUCTION SEQUENCING SHALL COMMENCE AS FOLLOWS:

1. CONSTRUCTION ENTRANCES (DETAIL 2), OR APPROVED ALTERNATIVE, SHALL BE INSTALLED AT THE LOCATIONS SHOWN ON THE PLANS. MATERIAL SHALL BE 2" - 3.5" CLEAN ROCK. RECYCLED CONTENT WILL NOT BE ACCEPTED.
2. INSTALL SEDIMENT FENCING (DETAIL 3), OR OTHER APPROVED PERIMETER CONTROL MEASURES AS NECESSARY AROUND STAGING (NOT SHOWN) AND SPOIL AREAS.
3. GRADE THE PROJECT AND CONSTRUCT STRUCTURES AS SHOWN ON THE PLANS.
4. PERFORM TEMPORARY SEEDING AND MULCHING IN ANY INACTIVE DISTURBED AREAS FOR PERIODS EXCEEDING FOURTEEN (14) CALENDAR DAYS.
5. REMOVE ANY REMAINING WASTE MATERIALS FROM CLEARING AND GRUBBING ACTIVITIES.
6. REMOVE SEDIMENT FENCE AND ANY REMAINING TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES.
7. PERFORM SEEDING AND PROTECT WITH HYDROMULCH AT THE COMPLETION OF THE PROJECT.
8. RECONSTRUCT THE CONSTRUCTION ENTRANCE FOR FUTURE SITE ACCESS.

MAINTENANCE:

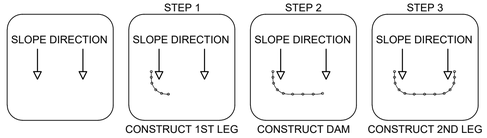
1. UNLESS OTHERWISE INDICATED, ALL EROSION AND SEDIMENT CONTROL PRACTICES AND STORMWATER MANAGEMENT PRACTICES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH DIVISION 800 OF THE NEBRASKA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF THE EROSION AND SEDIMENT CONTROL MEASURES UNTIL FINAL SITE STABILIZATION IS ACHIEVED.
3. ALL SEDIMENT AND EROSION CONTROL PRACTICES WILL BE INSPECTED AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS, OR EVERY FOURTEEN (14) CALENDAR DAYS AND AFTER ANY STORM EVENT OF GREATER THAN 0.25 INCHES OF PRECIPITATION DURING ANY 24-HOUR PERIOD BY QUALIFIED PERSONNEL ESTABLISHED BY THE CONTRACTOR . ANY NECESSARY REPAIRS, SEDIMENT REMOVAL OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE BEST MANAGEMENT PRACTICES SHALL BE MADE BEFORE THE NEXT STORM EVENT AND/OR WITHIN SEVEN (7) CALENDAR DAYS FROM THE INSPECTION DATE. SEDIMENT FROM SEDIMENT TRAPS OR SEDIMENTATION PONDS MUST BE REMOVED WHEN DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT. INSPECTION REPORTS SHALL BE GENERATED AND DELAYS SHALL BE DOCUMENTED WITH SUFFICIENT DETAIL AS TO EXPLAIN THE REASON FOR THE DELAY.
4. CONTRACTOR SHALL LIMIT THE TRACKING OF MUD AND DEBRIS ONTO NEIGHBORING ROADS. ANY ACCUMULATION OF MUD OR DEBRIS AS A RESULT OF THE CONSTRUCTION ON SHALL BE REMOVED ON A DAILY BASIS AND IMMEDIATELY AFTER SIGNIFICANT BUILDUP.
5. FOLLOWING SOIL DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED AT CONTRACTOR'S EXPENSE WITHIN FOURTEEN (14) CALENDAR DAYS TO THE SURFACE OF ALL PERIMETER SEDIMENT CONTROLS, TOPSOIL STOCKPILES, AND ANY OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITED WHICH ARE NOT BEING USED FOR MATERIAL STORAGE, OR ON WHICH ACTUAL EARTH MOVING ACTIVITIES ARE NOT BEING PERFORMED.
6. FINAL STABILIZATION OCCURS ONE HUNDRED EIGHTY (180) CALENDAR DAYS AFTER CONSTRUCTION ACTIVITY HAS CEASED, VEGETATIVE COVER HAS A MINIMUM 70% DENSITY, TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES HAVE BEEN REMOVED, AND PROPERTIES HAVE BEEN RETURNED TO THE PREEXISTING STATE.



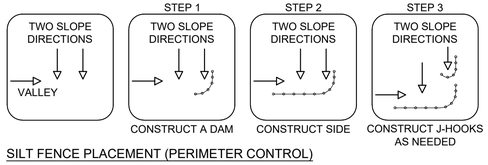
MAX J-HOOK SPACING	
SLOPE STEEPNESS	J-HOOK SPACING
2h:1v	25'
3h:1v	50'
4h:1v	75'
>5h:1v	100'

2 **SEDIMENT FENCE**
NOT TO SCALE

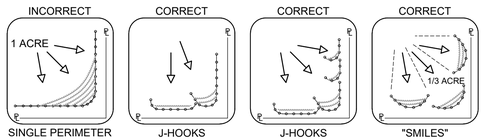
SILT FENCE PLACEMENT (ONE SLOPE)



SILT FENCE PLACEMENT (TWO SLOPES)



SILT FENCE PLACEMENT (PERIMETER CONTROL)



REVISIONS

NO.	DATE	BY	DESCRIPTION

SEAL

PROFESSIONAL CIVIL ENGINEER
9/1/2023
RICHARD J. KRUSHENISKY
E-9059
STATE OF NEBRASKA

SEAL

ROAD IMPROVEMENT
DAVIS CREEK RESERVOIR

EROSION CONTROL DETAILS

THE FLATWATER GROUP INC.
The FLATWATER GROUP Inc.
8200 Cody Drive, Suite A
Lincoln, NE 68512
402-435-5441
CA-1145

DATE	1-Sep-23
DESIGNED BY	RJK
DRAWN BY	STAFF
CHECKED BY	RJK
PROJECT NUMBER	
SCALE	AS SHOWN
SHEET NUMBER	EC-2