

FOR SURVEY CONTROL DATA,
SEE SURVEY DATA SHEETS



LOCATION MAP
DIVISION IV

STATE OF OKLAHOMA
DEPARTMENT OF TRANSPORTATION

OKLAHOMA DEPARTMENT OF TRANSPORTATION					
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	OKLA.			1	
DESCRIPTION		REVISIONS		DATE	
REVISED PROJECT NUMBER				10/17/17	

SEE SHEET 2 FOR INDEX OF SHEETS AND REQUIRED STANDARDS

PLAN OF PROPOSED
STATE HIGHWAY
FEDERAL AID PROJECT NO. STP-242C(059)SS Δ
BRIDGE & APPROACHES
S.H. 74D
LOGAN COUNTY

STATE JOB NO. 28312(04)
CONTROL SECTION NO. 74D-42-26
BRIDGE "A" LOCATION NO. 4226-0111X OLD NBI NO. 11098, NEW NBI NO. 31235
BRIDGE "B" LOCATION NO. 42E0690N3030001, OLD NBI NO. 02035, NEW NBI NO. 31875

DESIGN DATA

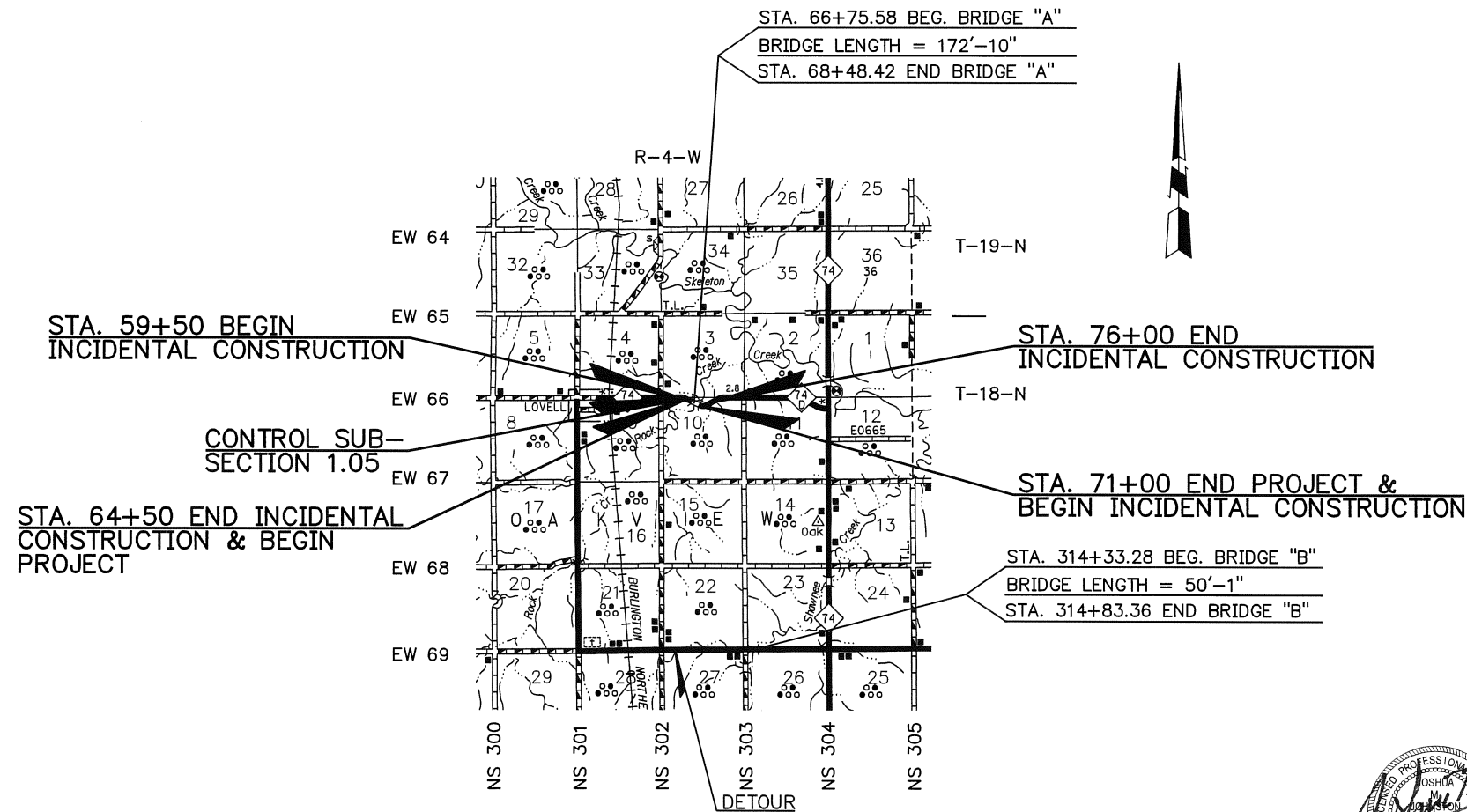
ADT 2013 = 150
ADT 2033 = 210
DHV = 26
D = 58%
T (% DHV) = 8%
T (% ADT) = 5%
T3 (% ADT) = 3%
V = 35 MPH
FLEX. ESALS = 0.1 M
(20 YR.)

SCALES
PLAN 1" = 30'
PROFILE HOR. 1" = 30'
VER. 1" = 3'
LAYOUT MAP 1" = 5,280'

LEVEL DATA IS MEAN SEA LEVEL (USC&GS)
BEARINGS ARE FROM OBSERVATION OF POLARIS.

CONVENTIONAL SYMBOLS

- PROPOSED ROAD
- RAILROADS
- RANGE & TOWNSHIP
- SECTION LINES
- QUARTER SECTION LINES
- FENCES
- GROUND LINE
- EXISTING ROADS
- BASE LINE
- GRADE LINES
- TELEPHONE & TELEGRAPH
- POWER LINES
- BUILDINGS
- DRAINAGE STRUCTURES - IN PLACE
- DRAINAGE STRUCTURES - NEW
- RIGHT-OF-WAY LINES - EXISTING
- RIGHT-OF-WAY LINES - NEW
- RIGHT-OF-WAY MARKERS - IN PLACE
- RIGHT-OF-WAY MARKERS - REMOVE & REPLACE
- RIGHT-OF-WAY MARKERS - NEW
- CONTROLLED ACCESS
- RIGHT-OF-WAY FENCE



ROADWAY LENGTH _____ 477.16 FT. 0.090 MI.
BRIDGE LENGTH _____ 172.84 FT. 0.032 MI.
PROJECT LENGTH _____ 0.122 MI.

EQUATIONS: NONE
EXCEPTIONS: NONE

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CA# 1759, RENEWAL 06-30-2017

Joshua M. Johnston
JOSHUA M. JOHNSTON
LICENSED PROFESSIONAL ENGINEER NO. 26204

10-17-17
DATE

OKLAHOMA DEPARTMENT OF TRANSPORTATION	DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION
DATE APPROVED _____	DATE APPROVED _____
BY _____ CHIEF ENGINEER	BY _____ DIVISION ADMINISTRATOR
SWO 4938(1)	F.A. PROJECT NO. STP-242C(059)SS Δ SHEET NO. 1

P.E. NO. XXXXX

TRIAD DESIGN GROUP / XXXX



**THE FOLLOWING STANDARD DRAWINGS
SHALL BE REQUIRED FOR THIS PROJECT:**

ROADWAY		BRIDGE	TRAFFIC	
SSS-1-1	PUD-3-2	TR3-2-01E	PM3-1-02	TCS1-1-01
TSC2-3-2	DC-3-2	HP1-2-01E	WSD1-1-00	TCS2-1-00
TFL-1-1	RDI-3-1	CB32-I-SK0-ABUT-PC2-01E	WSD3-1-00	TCS4-1-01
ASCD-5-2	RWF2-2-1	CB32-I-SK0-XSECT-PC234-01E	SBS1-1-00	TCS5-1-00
PSE-1-0		CB32-I-SK0-LSECT-PCB-01E	SBS2-1-00	TCS7-1-02
		CB32-I-SK0-DKSLB-BLIST-PCB-01E	SBS3-1-00	TCS9-1-01
		CB32-I-SK0-PCB-B-50-01E	GMS1-1-00	TCS14-1-00
		CB32-I-SK0-PCB-C-70-01E	SSP1-1-02	GA31-1-00
		CB32-I-SK0-DIA-ABUT-PC2-01E	SSA1-1-00	GHW1-1-00
		CB32-I-SK0-DIA-INTPR-PCB-01E		GHW2-1-00
		CB32-I-SK0-BRG-PC2-00E		
		CB32-I-SK0-BRG-PC3-01E		
		CB32-I-SK0-SPR-QUAN-PCB-1-01E		
		CB32-I-SK0-SPR-QUAN-PCB-2-01E		
		CB32-I-SK0-AS-01E		
		CB26..32-I-SK0-WING-PC2-01E		
		CB26-32-C-SK30-ABUT-MISC-01E		
		CB26..32-I-SK0-ABUT-MISC-01E		
		CB26..32-C..I-SK0..30-PCB-DTL-1-01E		
		CB26..32-C..I-SK0..30-PCB-DTL-2-01E		
		CB26..32-C..I-SK0..30-GRAU-BC-00E		

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 OKLAHOMA C.A. NO. 3919, RENEWAL 06/30/17



W. Mike Morrison 2/28/17
 W. MIKE MORRISON, P.E.
 OKLAHOMA P.E. NO. 16025 DATE

THIS SEAL COVERS SHEETS:
6, 17-25



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 SHAY V. SMITH
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7, 26-43



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 8000 S. Western, Suite 300 - Oklahoma City, OK 73139, Ph: 405-720-7721, Fax: 405-720-9848, Web: www.tecok.com

R. Wayne Russell 2-28-17
 R. WAYNE RUSSELL, P.E. # 16030
 C.A. # 1160, RENEWAL 06-30-17 DATE

THIS SEAL COVERS SHEETS:
8-9, 44-46



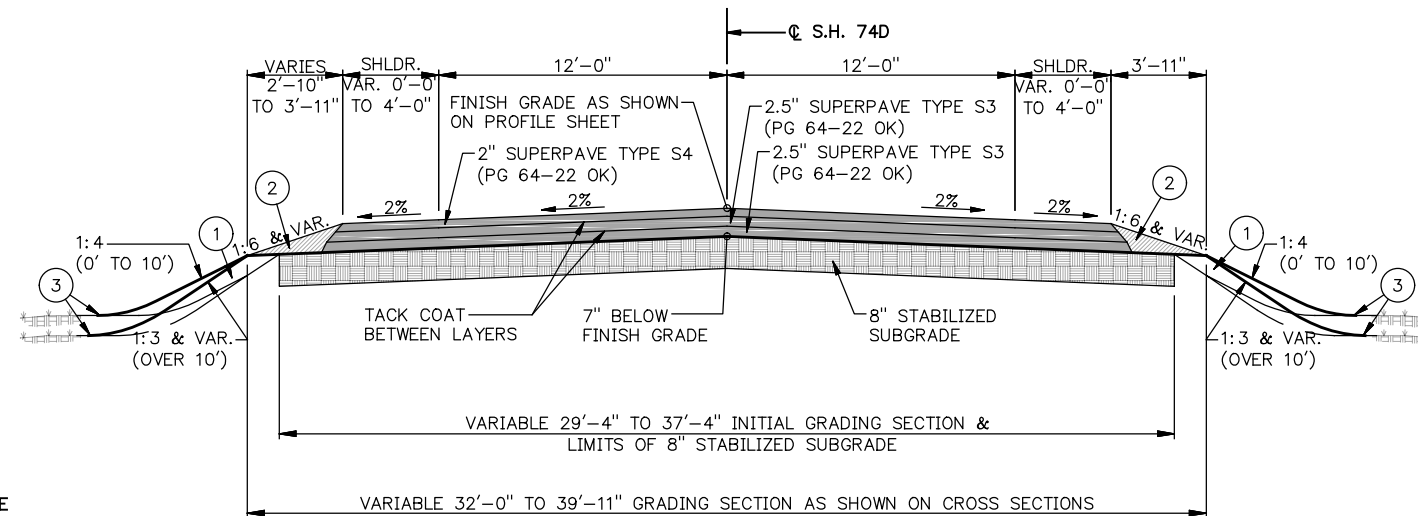
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Joshua M. Johnston 2-28-17
 JOSHUA M. JOHNSTON
 LICENSED PROFESSIONAL ENGINEER NO. 26204 DATE

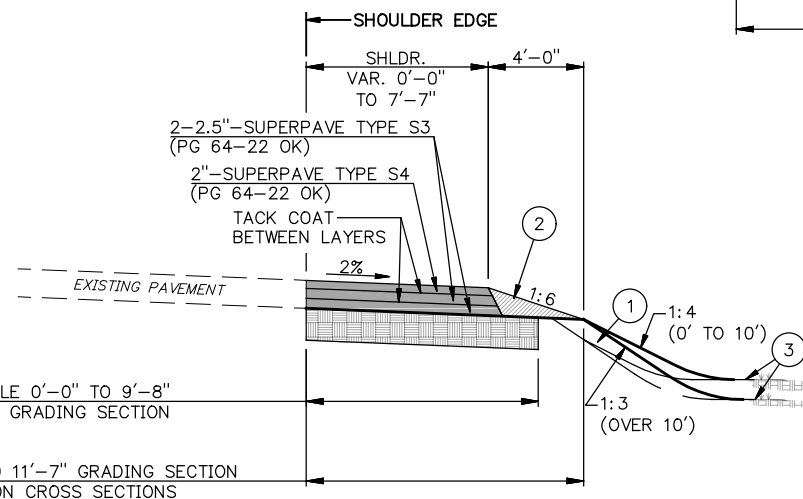
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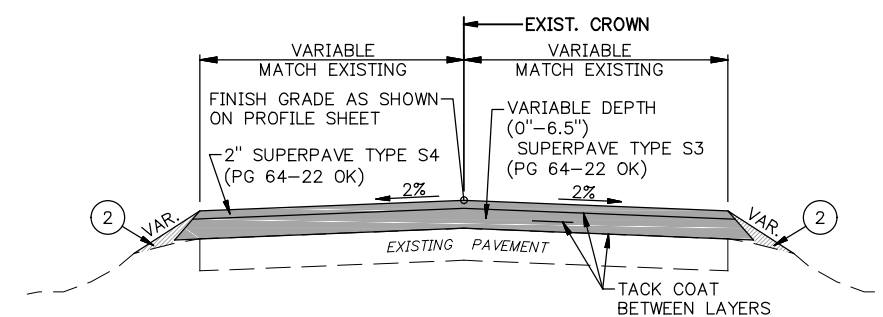
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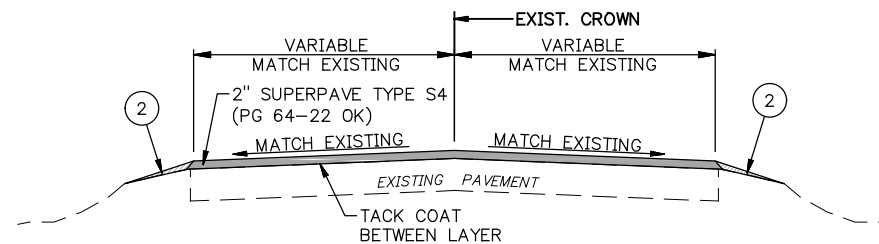
TYPICAL SECTION NO. 1
 S.H. 74D
 STA. 64+50.00 TO STA. 66+55.58
 STA. 68+68.42 TO STA. 71+00.00



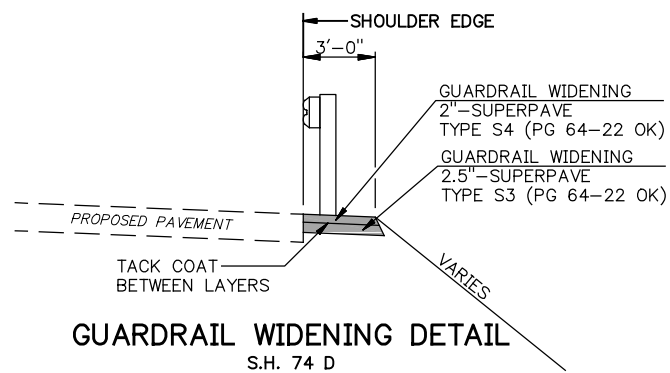
TYPICAL SECTION NO. 2
 S.H. 74D INCIDENTAL CONSTRUCTION
 STA. 63+88.00 TO STA. 64+50.00



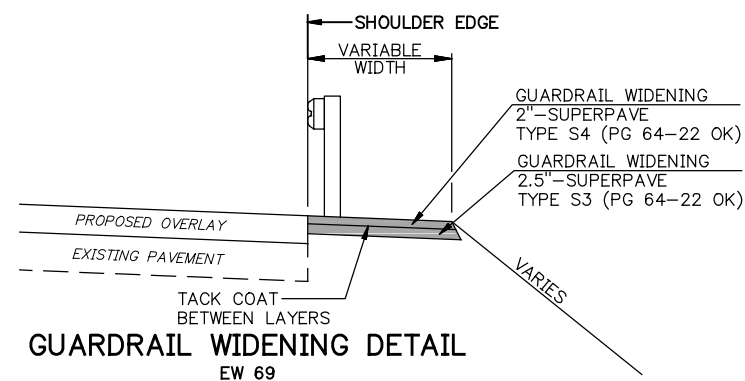
TYPICAL SECTION NO. 4
 EW 69
 STA. 313+02.00 TO STA. 314+33.28
 STA. 314+83.36 TO STA. 316+91.00



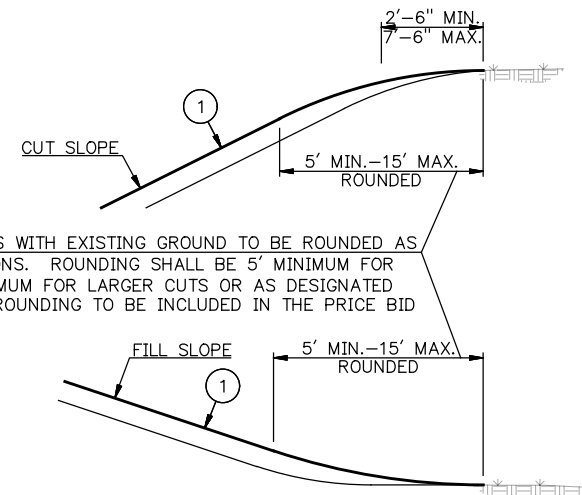
TYPICAL SECTION NO. 3
 EW 69
 STA. 204+65.00 TO STA. 313+02.00
 STA. 316+91.00 TO STA. 362+75.00



GUARDRAIL WIDENING DETAIL
 S.H. 74 D



GUARDRAIL WIDENING DETAIL
 EW 69



ROUNDING DETAIL

INTERSECTION OF CUT SLOPES WITH EXISTING GROUND TO BE ROUNDED AS PART OF FINISHING OPERATIONS. ROUNDED SHALL BE 5' MINIMUM FOR SMALLER CUTS AND 15' MAXIMUM FOR LARGER CUTS OR AS DESIGNATED BY THE ENGINEER. COST OF ROUNDED TO BE INCLUDED IN THE PRICE BID

TOPSOIL NOTE
 (1) THE CONTRACTOR SHALL STRIP ALL OF THE AVAILABLE TOPSOIL, STOCKPILE IT, AND PLACE IT BACK ON THE SECTION IN ACCORDANCE WITH SECTION 205 OF THE STANDARD SPECIFICATIONS. RESERVED TOPSOIL SHALL BE SPREAD FIRST ON THE COMPLETED SLOPES OF THE CUT SECTIONS AND THE REMAINDER ON COMPLETED FILL SLOPES OR OTHER PRIORITY AREAS LOCATED BY THE ENGINEER. ALL ADDITIONAL COSTS ASSOCIATED WITH OPERATIONS SHALL BE INCLUDED IN THE PAY ITEM FOR SALVAGED TOPSOIL, LUMP SUM.
 THE GRADING LINE AS SHOWN ON THE TYPICAL AND CROSS SECTIONS IS TO THE TOP OF THE TOPSOIL. EARTHWORK QUANTITIES WERE NOT ADJUSTED FOR SALVAGE AND THE TOPSOIL QUANTITY IS INCLUDED IN THE MASSLINE BALANCE.

BACKFILL NOTE
 (2) THIS AREA TO BE BACKFILLED & COMPACTED AS PART OF THE FINISHING OPERATIONS. COST TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS OF WORK.

(3) SEE ROUNDING DETAIL

TYPICAL SECTIONS

PAY QUANTITY NOTES

- (R-1) PAYMENT FOR THIS ITEM WILL BE BASED ON PLAN QUANTITY ONLY. SEE SECTION 109.01B OF THE STANDARD SPECIFICATIONS.
- (R-4) INCLUDES 25 CU. YDS. FOR DRIVEWAYS, RETURNS, DIKES, AND MISCELLANEOUS EARTHWORK.
- (R-5) AN ESTIMATED QUANTITY OF 693 C.Y. TOPSOIL TO BE RESERVED FOR REPLACEMENT OF APPROXIMATELY 5" ON COMPLETED FORESLOPES, DITCHES, AND BACKSLOPES. THIS QUANTITY IS INCLUDED IN THE EARTHWORK BALANCE. ANY ADDITIONAL EXCAVATION REQUIRED IN CUT SECTIONS TO ALLOW FOR PLACEMENT OF TOPSOIL TO FINAL GRADE, SHALL BE INCLUDED IN THE PRICE BID.
- (R-7) FOR SOLID SLAB SODDING PRICE BID TO INCLUDE COST OF 10-20-10 FERTILIZER, ESTIMATED AT 200 POUNDS PER 1000 SQ. YDS. FOR SALVAGED TOPSOIL PRICE BID TO INCLUDE COST OF 18-46-0 FERTILIZER, ESTIMATED AT 150 POUNDS PER 1000 SQ. YDS.
- (R-8) FOR SOLID SLAB SODDING PRICE BID TO INCLUDE COST OF WATERING, ESTIMATED AT 40 GALLONS PER S.Y.
- (R-11) THE QUANTITIES ESTIMATED FOR TEMPORARY EROSION AND SEDIMENT CONTROL IS 2 ACRES.
- (R-16) QUANTITY BASED ON TWO APPLICATIONS.
- (R-25) ESTIMATED AT 150 LBS. PER CU. FT.
- (R-32) ESTIMATED AT 112 LBS. PER SQ. YD. PER 1" THICK.
- (R-41) QUANTITY INCLUDES AN ESTIMATED 10 C.Y. TO BE USED AS DIRECTED BY THE ENGINEER.
- (R-48) INCLUDES REMOVAL OF ALL EXISTING ROADWAY DRAINAGE STRUCTURES, HEADWALLS (UNLESS OTHERWISE SPECIFIED), INLETS, FENCES, AND OTHER STRUCTURES WITHIN THE RIGHT OF WAY.
- (R-49) TO BECOME THE PROPERTY OF AND BE DISPOSED OF BY THE CONTRACTOR IN A MANNER APPROVED BY THE ENGINEER.
- (R-50) MATERIALS REMOVED SHALL NOT BE MEASURED FOR PAYMENT UNDER SECTION 202.06 UNCLASSIFIED EXCAVATION.
- (R-52) INCLUDES 2% FOR GROUND MEASUREMENT.

GENERAL CONSTRUCTION NOTES

(CONT.)

AREAS ON WHICH SALVAGED TOPSOIL IS TO BE REPLACED SHALL HAVE 18-46-0 FERTILIZER APPLIED, AT THE RATE OF 150 POUNDS PER ACRE, JUST PRIOR TO THE REPLACEMENT OF SALVAGED TOPSOIL.

AT THE BEGINNING OF TURFING OPERATIONS, ANY AREAS INCLUDED IN PLANNED QUANTITIES THAT HAVE GROWN A SATISFACTORY VOLUNTEER TURF OF PERENNIAL GRASS, AS DETERMINED BY THE ENGINEER, SHALL BE FERTILIZED AND WATERED AS CALLED FOR ON THE PLANS, BUT SHALL NOT BE SEEDED, SODDED, OR SPRIGGED.

PIPE UNDERDRAIN QUANTITIES ESTIMATED ONLY. LOCATION, IF AND WHERE REQUIRED, TO BE DETERMINED BY THE ENGINEER.

THE CONTRACTOR SHALL REMOVE AND RESET MAILBOXES AS NECESSARY. MAILBOXES ARE TO BE MAINTAINED IN AN UPRIGHT POSITION AND ACCESSIBLE TO MAIL CARRIER'S CAR DURING CONSTRUCTION. ANY DAMAGE TO BOXES OR SUPPORTS SHALL BE REPAIRED BY THE CONTRACTOR. ALL COST TO BE INCLUDED IN OTHER ITEMS OF WORK.

T.B.S.C. SURFACES SHALL BE SPRINKLED WITH WATER AND ROLLED WITH A PNEUMATIC ROLLER IN A MANNER APPROVED BY THE ENGINEER.

IN ACCORDANCE WITH THE OKLAHOMA UNDERGROUND FACILITIES DAMAGE PREVENTION ACT, THE CONTRACTOR SHALL NOTIFY THE OKLAHOMA ONE-CALL SYSTEM, INC. 48 HOURS PRIOR TO BEGINNING EXCAVATION. OKLAHOMA ONE-CALL SYSTEM, INC. "CALL OKIE" 1-800-522-6543 OR 811.

ENVIRONMENTAL MITIGATION NOTES

MIGRATORY BIRD: MIGRATORY BIRDS ARE PROTECTED BY THE FEDERAL MIGRATORY BIRD TREATY ACT. MANY BIRDS COMMONLY USE BRIDGES AND CULVERTS FOR NESTING. THE NESTING SEASON FOR MOST MIGRATORY BIRD SPECIES EXTENDS FROM MARCH 1 TO AUGUST 31. MIGRATORY BIRD NESTING USE OF THE SH-74D ROCK CREEK BRIDGE (NBI#: 11098; ST.#: 67+50.00); CR NS-301 STRUCTURES AT (97.6398W, 36.0450N), (NBI#: 25319; 97.6399W, 36.0301N), AND (97.6399W, 36.0288N); AS WELL AS CR EW-69 STRUCTURES AT (97.6340W, 36.0147N), (97.6222W, 36.0147N), (97.6214W, 36.0146N), (97.6185W, 36.0146N), (97.6074W, 36.0147N), AND (97.6009W, 36.0146N) HAVE BEEN OBSERVED. PAINTING, REPAIR, RETROFIT, REHABILITATION OR DEMOLITION OF THE EXISTING BRIDGE/STRUCTURES SHALL BE CONDUCTED BETWEEN SEPTEMBER 1, AND FEBRUARY 28, WHEN MIGRATORY BIRD NESTS ARE NOT OCCUPIED. IF PAINTING, REPAIR, RETROFIT, REHABILITATION OR DEMOLITION CANNOT BE COMPLETED BETWEEN SEPTEMBER 1 AND FEBRUARY 28, THE BRIDGE SHALL BE PROTECTED FROM NEW NEST ESTABLISHMENT PRIOR TO MARCH 1, BY MEANS THAT DO NOT RESULT IN BIRD DEATH OR INJURY. OPTIONS INCLUDE THE EXCLUSION OF ADULT BIRDS FROM SUITABLE NEST SITES ON OR WITHIN A STRUCTURE BY THE PLACEMENT OF WEATHER-RESISTANT POLYPROPYLENE NETTING WITH 0.25-INCH OR SMALLER OPENINGS, PRIOR TO MARCH 1. METHODS OTHER THAN NETTING MUST BE PRE-APPROVED BY THE ODOT BIOLOGIST. ALTHOUGH NO NESTS WERE OBSERVED ON ALL OTHER STRUCTURES, THE BIRDS MAY OCCUPY THE STRUCTURES IN THE FUTURE. THE RESIDENT ENGINEER SHALL CONTACT THE ODOT BIOLOGIST AT 405-521-2515 IF ANY BIRD USE OF THE EXISTING STRUCTURES IS OBSERVED. IF BIRDS ARE OBSERVED THEN PAINTING, REPAIR, RETROFIT, REHABILITATION OR DEMOLITION OF THE EXISTING BRIDGE/STRUCTURES SHALL BE CONDUCTED BETWEEN SEPTEMBER 1, AND FEBRUARY 28, WHEN MIGRATORY BIRD NESTS ARE NOT OCCUPIED.

BALD EAGLE NOTE: THE BALD EAGLE NESTING SEASON IN OKLAHOMA EXTENDS FROM SEPTEMBER 16, THROUGH MAY 31. A BALD EAGLE SURVEY WAS COMPLETED FOR THIS PROJECT IN JANUARY 2017. NO NESTS WERE OBSERVED WITHIN THE EXPECTED IMPACT AREA. SURVEY RESULTS ARE VALID ONLY FOR THE NESTING SEASON IN WHICH THE SURVEY WAS PERFORMED. IF CONSTRUCTION ACTIVITIES HAVE BEGUN, BUT ARE NOT COMPLETED BY SEPTEMBER 16, 2017 THE RESIDENT ENGINEER SHALL CONTACT THE ODOT BIOLOGIST AT 405-521-2515. THE ODOT BIOLOGIST SHALL SCHEDULE ANY ADDITIONAL SURVEYS THAT MAY BE REQUIRED AS SOON AS LEAVES FALL OFF THE TREES (APPROXIMATELY NOVEMBER 1). BECAUSE NO NESTS WERE OBSERVED DURING THE INITIAL SURVEY, AND IT CAN TAKE A PAIR OF EAGLES ONE TO THREE MONTHS TO CONSTRUCT A NEW NEST, IF CONSTRUCTION ACTIVITIES HAVE BEGUN BEFORE OCTOBER 31, 2017 THEY MAY CONTINUE WHILE ADDITIONAL NEST SEARCH SURVEYS ARE CONDUCTED AFTER LEAF-OFF. IF CONSTRUCTION ACTIVITIES HAVE NOT BEGUN BY OCTOBER 31, 2017 A NEW NEST SURVEY SHALL BE COMPLETED BY THE ODOT BIOLOGIST BEFORE CONSTRUCTION ACTIVITIES CAN BEGIN. NEST SEARCH SURVEYS CAN ONLY BE CONDUCTED WHEN LEAVES ARE NOT ON THE TREES TYPICALLY BETWEEN DECEMBER 1ST AND FEBRUARY 28TH. IF NESTS ARE OBSERVED, A 1000 FOOT NO-WORK BUFFER SHALL BE PLACED AROUND THE NEST. IF THE BUFFER CANNOT BE MAINTAINED, PROJECT ACTIVITIES WITHIN 1000 FEET OF THE NEST, SHALL BE CONDUCTED BETWEEN JUNE 1 AND SEPTEMBER 15 (OUTSIDE THE NESTING SEASON).

THIS PROJECT IS IN CLOSE PROXIMITY TO AREAS THAT HAVE HISTORICALLY BEEN USED FOR THE EXPLORATION AND EXTRACTION OF CRUDE OIL. AS A RESULT, THERE IS A POTENTIAL TO ENCOUNTER CRUDE OIL PRODUCTS AND RELATED WASTES. IF SUCH MATERIALS ARE FOUND, THE RESIDENT ENGINEER SHOULD BE NOTIFIED IMMEDIATELY.

IN ADDITION, THERE IS A POTENTIAL TO ENCOUNTER GATHERING LINES AND OTHER PIPING, AND ABANDONED OIL, GAS OR SALTWATER DISPOSAL WELLS. ANY WELLS ENCOUNTERED DURING CONSTRUCTION ACTIVITIES MUST BE PLUGGED, BY PROPERLY LICENSED PERSONNEL, IN ACCORDANCE WITH ALL APPLICABLE OKLAHOMA CORPORATION COMMISSION RULES AND REGULATIONS.

SUGGESTED SEQUENCE OF CONSTRUCTION

**PHASE 1: CLOSE EW 69
SH 74D TRAFFIC ON EXISTING PAVEMENT, EW 69 TRAFFIC DETOURS TO EW 68**

- A CLOSE EW 69 TO THROUGH TRAFFIC FROM SH 74 TO STA. 313+02.
- B DETOUR LOCAL TRAFFIC ONTO SH 74, EW 68, AND NS 303.
- C REMOVE THE EXISTING BRIDGE.
- D BUILD THE PROPOSED BRIDGE AND APPROACHES.
- E END DETOUR OPERATIONS AND OPEN TRAFFIC TO EW 69.
- F CONSTRUCT OVERLAY ALONG EW 69 FROM SH 74 TO NS 301 UTILIZING TWO FLAGMEN AS NECESSARY.
- G LAY TBSC TYPE E AS DIRECTED BY THE ENGINEER ALONG NS 301 UTILIZING TWO FLAGMEN AS NECESSARY.

**PHASE 2: CLOSE SH 74D
DETOUR SH 74D TRAFFIC TO EW 69 AND NS 301**

- A CLOSE SH 74D FROM STA. 59+50 TO STA. 76+00 TO THROUGH TRAFFIC, UTILIZING SH 74, EW 69, AND NS 301 AS A DETOUR ROUTE.
- B REMOVE THE EXISTING BRIDGE.
- C BUILD THE PROPOSED BRIDGE AND APPROACHES.
- D END DETOUR OPERATIONS AND OPEN TRAFFIC TO SH 74D.
- E COMPLETE FINISHING OPERATIONS.

- (1) PRICE BID INCLUDES 50 TONS TO BE USED AS DIRECTED BY THE ENGINEER.
- (2) PRICE BID INCLUDES 1,300 TONS TO BE USED ON NS 301 DETOUR AS DIRECTED ON SHEET 14.
- (3) PRICE BID TO INCLUDE 4,620 TONS TO BE USED ON EW 69 DETOUR AS DIRECTED ON SHEET 14.
- (4) PRICE BID TO INCLUDE 6,169 GALLONS TO BE USED ON EW 69 DETOUR AS DIRECTED ON SHEET 14.
- (5) PRICE BID TO INCLUDE THE COST TO SHAPE DETOUR TO DRAIN.
- (6) PRICE BID TO INCLUDE THE COST OF TRENCH EXCAVATION AND COVER MATERIAL.
- (7) TO BECOME THE PROPERTY OF LOGAN COUNTY.
- (8) TO INCLUDE A WORKING WI-FI HOTSPOT IN LIEU OF A PHONE AND FAX LINE.
- (9) THIS PAY ITEM WILL INCLUDE THE SKT-SP-MSG OR APPROVED SUBSTITUTE. THE ET-PLUS WILL NOT BE ALLOWED.

GENERAL CONSTRUCTION NOTES

FOR PROJECTS THAT INCLUDE WIDENING AND/OR RESURFACING, THE CONTRACTOR SHALL SCHEDULE OPERATIONS TO MINIMIZE POTENTIAL DROP-OFF HAZARDS AND SHALL SUBMIT A SEQUENCE OF CONSTRUCTION OPERATIONS TO THE RESIDENT ENGINEER FOR APPROVAL BEFORE OPERATIONS BEGIN. ANY PORTION OF THE CONSTRUCTION OPERATIONS, SUCH AS SUPERPAVE LAYING OPERATIONS, EXCAVATION FOR PAVEMENT WIDENING, OR EXTENSION OF ROADWAY STRUCTURES, SHALL BE LIMITED TO ONE SIDE AT A TIME, AND THE PROCEDURES OUTLINED IN THE PAVEMENT DROP OFF TREATMENT STANDARD PDT-1 (LATEST REVISION) SHALL BE IMPLEMENTED. ONLY THAT AMOUNT OF OPEN TRENCH WILL BE ALLOWED THAT CAN BE SURFACED IN 1 (ONE) DAY'S TIME WITHOUT APPROVAL BY THE ENGINEER. LIGHTS, SIGNS AND BARRICADES SHALL BE MOVED AS WORK PROGRESSES.

ALL TREES, BRUSH, AND OTHER DEBRIS THAT MIGHT INTERFERE WITH THE FLOW OF WATER SHALL BE CLEANED OUT TO THE RIGHT-OF-WAY LINE, AT EACH STRUCTURE AND BRIDGE, IN A MANNER APPROVED BY THE ENGINEER. ALL COST TO BE INCLUDED IN OTHER ITEMS OF WORK. ALL FLOWLINES THAT ARE TO BE FILLED SHALL BE THOROUGHLY TAMPED BEFORE CONSTRUCTION OR EXTENSION OF DRAINAGE STRUCTURES. ALL COST TO BE INCLUDED IN OTHER ITEMS OF WORK.

IN ORDER TO ALLEVIATE DUST CONDITIONS DURING GRADING OPERATIONS AND BEFORE PAVEMENT WORK IS COMPLETED, THE CONTRACTOR SHALL SPRINKLE GRADING AT INTERVALS APPROVED BY THE ENGINEER. ALL COST TO BE INCLUDED IN OTHER ITEMS OF WORK.

THE CONTRACTOR SHALL NOT WASTE ANY EXCESS EXCAVATION UNTIL ALL PLANNED EMBANKMENTS AND BACKFILLS ARE COMPLETED. EXCESS UNCLASSIFIED EXCAVATION MATERIAL DETERMINED BY THE ENGINEER TO BE SUITABLE FOR BACKFILL SHALL BE USED TO REDUCE ANY UNCLASSIFIED BORROW NEEDED. COST OF SECOND HANDLING SHALL BE INCLUDED IN OTHER ITEMS OF WORK. ANY REMAINING EXCESS EXCAVATION SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND BE DISPOSED OF IN A MANNER APPROVED BY THE ENGINEER.

VEGETATIVE MULCHING: THE VEGETATIVE MULCH SHALL BE ANCHORED IN ACCORDANCE WITH THE "ADHESIVE SPRAY METHOD", AS SPECIFIED IN 233.04B(1) OF THE STANDARD SPECIFICATIONS.

PAY QUANTITIES - ROADWAY

ROADWAY 100				
ITEM	PES NO.	DESCRIPTION	UNIT	QUANTITY
201(A)	0102	CLEARING AND GRUBBING	LSUM	1
202(A)	0183	UNCLASSIFIED EXCAVATION	(R-1) CY	504
202(D)	0184	UNCLASSIFIED BORROW	(R-1,4) CY	2,517
205(A)	4229	TYPE A-SALVAGED TOPSOIL	(R-5,7) LSUM	1
221(C)	2801	TEMPORARY SILT FENCE	LF	1,123
221(K)	0600	TEMPORARY FIBER LOG	LF	1,499
230(A)	2806	SOLID SLAB SODDING	(R-7,8) SY	3,133
233(A)	2817	VEGETATIVE MULCHING	(R-11) AC	2
241	2832	MOWING	(R-16) AC	4
307(K)	4300	STABILIZED SUBGRADE	SY	1,603
402(E)	0225	TRAFFIC BOUND SURFACE COURSE TYPE E	(1,2,5)(R-25) TON	1,365
407(B)	0250	TACK COAT	(4) GAL	7,065
411(B)	5945	SUPERPAVE, TYPE S3 (PG 64-22 OK)	(R-32) TON	726
411(C)	5960	SUPERPAVE, TYPE S4 (PG 64-22 OK)	(3)(R-32) TON	4,929
509(D)	0325	CLASS C CONCRETE	(R-41) CY	10
613(H)	0450	6" PERFORATED PIPE UNDERDRAIN ROUND	(6) LF	34
613(I)	1096	6" NON-PERF.PIPE UNDERDRAIN RND.	(6) LF	12
613(Q)	5946	OUTLET LATERAL HEADWALL	EA	2
619(A)	0920	REMOVAL OF STRUCTURES & OBSTRUCTIONS	(R-48,49) LSUM	1
619(B)	4728	REMOVAL OF ASPHALT PAVEMENT	(R-49,50) SY	1,394
619(B)	4780	REMOVAL OF GUARDRAIL	(7)(R-50) LF	211
619(C)	0924	SAWING PAVEMENT	LF	83
623	0100	(PL)GUARDRAIL CURBING	EA	8
623(A)	0932	BEAM GUARDRAIL W-BEAM SINGLE	LF	213
623(F)	5686	GUARDRAIL ANCHOR UNIT (TYPE D-BF)	EA	8
623(G)	8590	GUARDRAIL END TREATMENT (31")	(9) EA	8
624(C)	4458	FENCE-STYLE SWF (4 BARBED WIRE)	(R-52) LF	171
624(C)	4459	FENCE-STYLE SWF (5 BARBED WIRE)	(R-52) LF	124
853	9069	GUARDRAIL DELINEATORS(TYPE 2, CODE 1)	EA	27

PAY QUANTITIES - STAKING

STAKING 600				
ITEM	PES. NO.	DESCRIPTION	UNIT	QUANTITY
642(B)	0096	CONSTRUCTION STAKING LEVEL II	LSUM	1

PAY QUANTITIES - CONSTRUCTION

CONSTRUCTION 640				
ITEM	PES. NO.	DESCRIPTION	UNIT	QUANTITY
220	2800	(SP) SWPPP DOCUMENTATION AND MANAGEMENT	LSUM	1
640(A)	1426	FIELD OFFICE	(8) EA.	1
641	1552	MOBILIZATION	LSUM	1

**PAY QUANTITIES AND NOTES
(ROADWAY)**

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GENERAL NOTES (BRIDGE "A")

SPECIFICATIONS:

COMPLY WITH THE REQUIREMENTS OF THE ODOT 2009 STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EXCEPT AS MODIFIED BY THE PLANS AND SPECIAL PROVISIONS.

ABUTMENT PILING CAPACITY:

THE FACTORED REACTION FOR EACH HP10x42 PILE AT EACH ABUTMENT ON BRIDGE "A" IS 75.3 TONS.

THE FOLLOWING FORMULA (GATES EQUATION) SHALL BE USED TO DETERMINE THE AXIAL LOAD RESISTANCE OF THE DRIVEN FOUNDATION PILES:

$$\text{AXIAL LOAD RESISTANCE} = \phi [(0.875\sqrt{E} \text{ LOG}_{10}(10N)) - 50] \quad (\text{TONS})$$

WHERE:

- ϕ = RESISTANCE FACTOR OF 0.4
- E = ENERGY PRODUCED BY THE HAMMER PER BLOW IN FOOT-POUNDS. FOR GRAVITY AND SINGLE ACTING DIESEL HAMMERS, THE VALUE IS BASED ON THE ACTUAL RAM STROKE OBSERVED IN THE FIELD AND MEASURED IN FEET MULTIPLIED BY THE RAM WEIGHT IN POUNDS.
- N = AVERAGE NUMBER OF HAMMER BLOWS PER INCH OF PILE PENETRATION FOR THE LAST 10 TO 20 BLOWS DELIVERED TO THE PILE HEAD.

THE ABOVE FORMULA IS ONLY APPLICABLE WHEN:

- THE PILE DRIVING HAMMER HAS A FREE FALL (GRAVITY & SINGLE ACTING HAMMERS ONLY).
- THE HEAD OF THE PILE IS NOT BROOMED, CRUSHED OR OTHERWISE DAMAGED.
- THE PENETRATION IS QUICK AND UNIFORM.
- THERE IS NO APPRECIABLE REBOUND OF THE HAMMER, AND
- A FOLLOWER IS NOT USED.

THE NUMBER OF BLOWS PER INCH OF PILE PENETRATION MAY BE MEASURED EITHER DURING INITIAL DRIVING OR BY RE-DRIVING WITH A WARM HAMMER OPERATED AT FULL ENERGY AFTER A PILE SET PERIOD, AS DETERMINED BY THE ENGINEER.

IF WATER JETS ARE USED IN CONNECTION WITH THE DRIVING, DETERMINE THE AXIAL LOAD RESISTANCE BY THE FORMULA SHOWN ONLY AFTER THE JETS HAVE BEEN WITHDRAWN.

PILE DRIVING EQUIPMENT:

USE A PILE DRIVING HAMMER OF THE SIZE AND TYPE CAPABLE OF CONSISTENTLY DELIVERING THE EFFECTIVE DYNAMIC ENERGY SUFFICIENT TO DRIVE THE PILES TO THE REQUIRED TIP ELEVATION AND TO ACHIEVE THE FACTORED PILE CAPACITY WITHOUT EXCEEDING THE LIMITATIONS SET ON THE ALLOWABLE DRIVING STRESSES IN ACCORDANCE WITH SECTION 514.03.A.2.

DECK SLAB CONSTRUCTION AND STAY-IN-PLACE FORMS:

FOR DECK SLAB CONSTRUCTION AND STAY-IN-PLACE DECK FORM NOTES, SEE STD. CB32-I-SK0-XSECT-PC234-01E.

PENETRATING WATER REPELLENT SURFACE TREATMENT:

A PENETRATING WATER REPELLENT SURFACE TREATMENT SHALL BE APPLIED TO THE FOLLOWING CONCRETE SURFACES OF THE BRIDGE:

- (A) THE TOP OF THE PIER CAPS INCLUDING ALL SURFACES OF THE PEDESTALS AND STEP, AND ALL VERTICAL FACES OF THE PIER CAPS.

APPROACH SLABS:

CLASS AA CONCRETE SHALL BE USED IN THE APPROACH SLABS. THE QUANTITY GIVEN IS BASED ON THE ACTUAL SQUARE YARDS OF THE APPROACH SLABS. THE CONTRACT UNIT PRICE FOR APPROACH SLAB SHALL BE FULL COMPENSATION FOR ALL CONCRETE, INCLUDING THE APPROACH SLAB SUPPORTS AT THE BACK FACE OF THE END DIAPHRAGMS, REINFORCING STEEL (INCLUDING AS, BT1 AND SV1 BARS), BACKER RODS, RAPID CURE JOINT SEALANT, POLYSTYRENE, PREFORMED EXPANSION MATERIAL, POLYETHYLENE SHEETING, SAWING, GRINDING, EXCAVATIONS, BACKFILL, MATERIALS, LABOR, EQUIPMENT AND OTHER INCIDENTALS NECESSARY TO COMPLETE THE WORK AS SPECIFIED IN THE PLANS.

RIPRAP:

A 24 INCH THICK LAYER OF TYPE I-A PLAIN RIPRAP WITH A 6" THICK LAYER OF TYPE I-A FILTER BLANKET SHALL BE PLACED AT THE ABUTMENTS AS SHOWN ON THE PLANS. THE FILTER BLANKET SHALL BE PLACED IN ONE LAYER.

MISCELLANEOUS EXCAVATIONS REQUIRED FOR RIPRAP PLACEMENT SHALL BE INCLUDED IN THE PRICE BID FOR "TYPE I-A PLAIN RIPRAP", PER TON.

PERFORATED AND NON-PERFORATED PIPE UNDERDRAINS:

FOR LOCATIONS OF 6" PERFORATED AND NON-PERFORATED PIPE UNDERDRAINS, SEE SHEET NO. 17 AND REFER TO STD. CB26..32-I-SK0-ABUT-MISC FOR INSTALLATION DETAILS AND NOTES.

STRUCTURAL STEEL:

ALL STRUCTURAL STEEL SHALL BE AASHTO M270 (GRADE 50W), UNLESS OTHERWISE NOTED.

STEEL ANCHOR PLATES, ANCHOR BOLTS, NUTS, WASHERS AND WELD MATERIAL SHALL BE PROVIDED IN ACCORDANCE WITH SECTIONS 507 AND 724.03 OF THE STANDARD SPECIFICATIONS, AND PER THE ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE.

ANCHOR PLATES FOR FIXED AND EXPANSION BEARINGS SHALL BE MATCH MARKED, SHIPPED LOOSE, AND FIELD WELDED IN ORDER THAT ANY NECESSARY MINOR HORIZONTAL ADJUSTMENT OF THE ANCHOR PLATE CAN BE MADE.

ALL SHOP AND FIELD WELDING SHALL BE ARC WELDING AND SHALL BE DONE IN ACCORDANCE WITH THE CURRENT ANSI/AWS D1.5 BRIDGE WELDING CODE. FIELD WELDERS SHALL BE PRE-QUALIFIED BY THE OKLAHOMA DEPARTMENT OF TRANSPORTATION.

METAL USED IN FIELD WELDS WILL NOT BE MEASURED FOR PAYMENT.

REMOVAL OF EXISTING BRIDGE STRUCTURES:

ITEM "REMOVAL OF EXISTING BRIDGE STRUCTURE" CONSISTS OF THE REMOVAL OF THE EXISTING 121.34' LG. BY 29.0' WIDE BRIDGE, CONSISTING OF THREE (3) STEEL I-BEAM SPANS (35'-50'-35') WITH A CONCRETE DECK, ASPHALT OVERLAY AND CURBS, CONCRETE POSTS AND RAILS, AND CONCRETE ABUTMENTS AND PILE BENTS AT \pm STA. 67+60.87.

THE REMOVAL OF THE EXISTING BRIDGE SHALL BE IN ACCORDANCE WITH SECTION 619.04.B.2 OF THE STANDARD SPECIFICATIONS AND IN A MANNER APPROVED BY THE ENGINEER. THE EXISTING STEEL I-BEAMS SHALL BE SALVAGED AND STORED ON THE RIGHT OF WAY TO BECOME THE PROPERTY OF LOGAN COUNTY. ALL OTHER MATERIALS REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR.

THE EXISTING STEEL BEAMS ARE COATED WITH A LEAD BASED PAINT. MEASURES SHALL BE TAKEN TO ENSURE WORKER SAFETY IN ACCORDANCE WITH 29 CFR 1926.62 AND ALL APPLICABLE OSHA STANDARDS. ANY PAINT REMOVED DURING THE SEQUENCE OF WORK SHALL BE COLLECTED AND DISPOSED OF IN ACCORDANCE WITH SECTION 512 OF THE STANDARD SPECIFICATIONS. ALL COSTS TO BE INCLUDED IN THE PRICE BID FOR "REMOVAL OF EXISTING BRIDGE STRUCTURE".

DRAINS AT END OF BRIDGE:

ASPHALT SHOULDER WIDENING, CURBS, SLOPE DRAINS AND SPLASH BASINS SHALL BE CONSTRUCTED AS SHOWN ON SHEET NO. 25.

ASPHALT SHOULDER WIDENING ALONG THE BRIDGE GUARD RAIL SHALL BE IN ACCORDANCE WITH THE ROADWAY PLANS, EXCEPT AS SHOWN ON SHEET NO. 25. ALL COSTS OF ASPHALT SHOULDER WIDENING SHALL BE INCLUDED IN THE ROADWAY PAY ITEMS.

THERE IS 12.0 CUBIC YARDS OF CLASS "C" CONCRETE REQUIRED TO CONSTRUCT THE SLOPE DRAINS, SPLASH BASINS AND 6" CONCRETE CURBS AT THE ENDS OF THE BRIDGE. ALL COSTS FOR THE SLOPE DRAINS, SPLASH BASINS, 6" CONCRETE CURBS, CONCRETE, REINFORCING STEEL, EXCAVATIONS, AND BACKFILL INCLUDING ALL MATERIALS, LABOR, EQUIPMENT, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK AS SHOWN IN THE PLANS SHALL BE INCLUDED IN THE PRICE BID FOR "CLASS "C" CONCRETE", PER C.Y.

ENVIRONMENTAL NOTE:

REFER TO ROADWAY PLANS FOR NOTES REGARDING SWALLOW NESTS.

28312(04)				
PAY QUANTITIES - BRIDGE "A"				
0200 BRIDGE "A" (50'-70'-50') PRESTRESSED CONCRETE BEAM SPANS, 32'-0" CLR. RDWY. W/ CONC. TRAFFIC RAILS (TR3) SKEWED 0°				
ITEM NO.		DESCRIPTION	UNITS	QUANTITY
501(B)	1307	SUBSTRUCTURE EXCAVATION COMMON	(1) CY	120.00
501(F)	6352	GRANULAR BACKFILL	(1) CY	56.00
503(A)	6293	PRESTRESSED CONCRETE BEAM (TYPE B)	(1) LF	397.34
503(A)	6294	PRESTRESSED CONCRETE BEAM (TYPE C)	(1) LF	278.67
504(A)	1304	APPROACH SLAB	(1) SY	141.60
504(B)	1305	SAW-CUT GROOVING	(1)(5) SY	756.10
504(D)	6239	CONCRETE RAIL (TR3)	(1) LF	395.40
506(A)	1322	STRUCTURAL STEEL	(1) LB	870.00
507(A)	6172	WEATHERING STEEL FIXED BEARING ASSEMBLY	(1)(2) EA	8.00
507(B)	6176	WEATHERING STEEL EXPANSION BEARING ASSEMBLY	(1)(2) EA	16.00
507(C)	6282	ELASTOMERIC BEARING PADS	(1) EA	16.00
509(A)	1326	CLASS AA CONCRETE	(1) CY	180.80
509(B)	1328	CLASS A CONCRETE	(1) CY	117.10
509(D)	1331	CLASS C CONCRETE	(1) CY	12.00
511(A)	1332	REINFORCING STEEL	(1) LB	49030.00
511(B)	6010	EPOXY COATED REINFORCING STEEL	(1) LB	9080.00
514(A)	6010	PILES, FURNISHED (HP10x42)	(3) LF	560.00
514(B)	6292	PILES, DRIVEN (HP10x42)	LF	560.00
514(L)	6220	PILE SPLICE, H-PILE (NON-BIDDABLE)	EA	2.00
515(A)	6013	WATER REPELLENT (VISUALLY INSPECTED)	(1) SY	124.00
516(A)	6098	DRILLED SHAFTS 72" DIAMETER	(4) LF	241.20
516(C)	6200	CROSSHOLE SONIC LOGGING	(4) EA	1.00
601(B)	1353	TYPE I-A PLAIN RIPRAP	TON	1150.00
601(C)	1355	TYPE I-A FILTER BLANKET	TON	205.00
613(H)	6204	6" PERFORATED PIPE UNDERDRAIN ROUND	(1) LF	64.00
613(I)	6207	6" NON-PERF. PIPE UNDERDRAIN RND.	(1) LF	80.00
619(D)	1397	REMOVAL OF EXISTING BRIDGE STRUCTURE	LSUM	1.00

PAY QUANTITY NOTES

- (1) PAYMENT FOR THIS ITEM WILL BE BASED ON PLAN QUANTITIES. SEE THE 2009 STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION SECTION 109.01.B "PLAN QUANTITIES".
- (2) PROVIDE AND INSTALL BEARING ASSEMBLIES OF THE SIZE, SHAPE AND LOCATION DETAILED IN THE PLANS AND STANDARD DRAWINGS AT THE ABUTMENTS AND PIERS. THERE IS AN ESTIMATED 640 LBS. OF STRUCTURAL STEEL FOR THE FIXED BEARING ASSEMBLIES AND 2480 LBS. OF STRUCTURAL STEEL FOR THE EXPANSION BEARING ASSEMBLIES. INCLUDE ALL COSTS ASSOCIATED WITH PROVIDING AND INSTALLING THE ANCHOR PLATES, ANCHOR BOLTS, NUTS, WASHERS, AND ELASTOMERIC BEARING PADS, INCLUDING ALL MATERIALS, LABOR, EQUIPMENT, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK AS SHOWN IN THE PLANS, IN THE PRICE BID PER EACH OF "WEATHERING STEEL FIXED BEARING ASSEMBLY" OR "WEATHERING STEEL EXPANSION BEARING ASSEMBLY" AS APPLICABLE.
- (3) ALL ABUTMENT PILING SHALL BE AASHTO M270 GRADE 50 STEEL.
- (4) SEE SPECIAL PROVISIONS.
- (5) QUANTITY SHOWN IS BASED ON ACTUAL SQUARE YARDS OF DECK AND APPROACH SLAB CLEAR ROADWAY SURFACE AREA AND VARIES FROM THE QUANTITIES SHOWN IN THE STANDARD DRAWINGS.

**PAY QUANTITIES AND GENERAL NOTES
(BRIDGE "A")**

LOGAN COUNTY S.H. 74D

GENERAL NOTES (BRIDGE "B")

SPECIFICATIONS:

COMPLY WITH THE REQUIREMENTS OF THE ODOT 2009 STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EXCEPT AS MODIFIED BY THE PLANS AND SPECIAL PROVISIONS.

ABUTMENT PILING CAPACITY:

THE FACTORED REACTION FOR EACH HP14x102 PILE AT EACH ABUTMENT ON BRIDGE "B" IS 72.0 TONS.

THE FOLLOWING FORMULA (GATES EQUATION) SHALL BE USED TO DETERMINE THE AXIAL LOAD RESISTANCE OF THE DRIVEN FOUNDATION PILES:

$$\text{AXIAL LOAD RESISTANCE} = \phi [(0.875 \sqrt{E} \text{ LOG}_{10}(10N)) - 50] \quad (\text{TONS})$$

WHERE:

- ϕ = RESISTANCE FACTOR OF 0.4
- E = ENERGY PRODUCED BY THE HAMMER PER BLOW IN FOOT-POUNDS. FOR GRAVITY AND SINGLE ACTING DIESEL HAMMERS, THE VALUE IS BASED ON THE ACTUAL RAM STROKE OBSERVED IN THE FIELD AND MEASURED IN FEET MULTIPLIED BY THE RAM WEIGHT IN POUNDS.
- N = AVERAGE NUMBER OF HAMMER BLOWS PER INCH OF PILE PENETRATION FOR THE LAST 10 TO 20 BLOWS DELIVERED TO THE PILE HEAD.

THE ABOVE FORMULA IS ONLY APPLICABLE WHEN:

- THE PILE DRIVING HAMMER HAS A FREE FALL (GRAVITY & SINGLE ACTING HAMMERS ONLY).
- THE HEAD OF THE PILE IS NOT BROOMED, CRUSHED OR OTHERWISE DAMAGED.
- THE PENETRATION IS QUICK AND UNIFORM.
- THERE IS NO APPRECIABLE REBOUND OF THE HAMMER, AND
- A FOLLOWER IS NOT USED.

THE NUMBER OF BLOWS PER INCH OF PILE PENETRATION MAY BE MEASURED EITHER DURING INITIAL DRIVING OR BY RE-DRIVING WITH A WARM HAMMER OPERATED AT FULL ENERGY AFTER A PILE SET PERIOD, AS DETERMINED BY THE ENGINEER.

IF WATER JETS ARE USED IN CONNECTION WITH THE DRIVING, DETERMINE THE AXIAL LOAD RESISTANCE BY THE FORMULA SHOWN ONLY AFTER THE JETS HAVE BEEN WITHDRAWN.

PILE DRIVING EQUIPMENT:

USE A PILE DRIVING HAMMER OF THE SIZE AND TYPE CAPABLE OF CONSISTENTLY DELIVERING THE EFFECTIVE DYNAMIC ENERGY SUFFICIENT TO DRIVE THE PILES TO THE REQUIRED TIP ELEVATION AND TO ACHIEVE THE FACTORED PILE CAPACITY WITHOUT EXCEEDING THE LIMITATIONS SET ON THE ALLOWABLE DRIVING STRESSES IN ACCORDANCE WITH SECTION 514.03.A.2.

PILOT HOLES FOR ABUTMENT PILE:

A 30" DIAMETER PILOT HOLE SHALL BE DRILLED FOR EACH HP14x102 ABUTMENT PILE. PILOT HOLES SHALL BE DRILLED TO A MINIMUM ELEVATIONS SHOWN ON SHEET NO. 26 SHALL BE NO LESS THAN 18'-0" INTO THE BEDROCK. ONCE EACH PILE WITHIN THE PILOT HOLE HAS BEEN SEATED INTO THE BEDROCK AND VERIFIED FOR REQUIRED BEARING CAPACITY, THE CONTRACTOR SHALL THEN ENCASE EACH PILE WITH CLASS "AA" CONCRETE TO THE TOP OF BEDROCK. ALL COSTS INCLUDING LABOR, EQUIPMENT, AND INCIDENTALS SHALL BE INCLUDED IN THE PRICE BID FOR FOR "(PL) PILOT HOLES".

DECK SLAB CONSTRUCTION AND STAY-IN-PLACE FORMS:

IN THE EVENT OF AN EMERGENCY, HALT THE PLACEMENT OF CONCRETE BY FORMING AN EMERGENCY CONSTRUCTION JOINT MADE PERPENDICULAR TO THE DIRECTION OF TRAFFIC OR AS DIRECTED BY THE ENGINEER. DO NOT PLACE ANY HEAVY EQUIPMENT ON THE FINISHED DECK SLAB WITHIN 5' OF ANY CONSTRUCTION JOINT UNTIL CONCRETE IS IN PLACE ON BOTH SIDES OF THE RESPECTIVE JOINT AND AT LEAST 48 HOURS HAS ELAPSED SINCE CONCRETE PLACEMENT. SEAL ALL DECK SLAB CONSTRUCTION JOINTS WITH HIGH MOLECULAR WEIGHT METHACRYLATE IN ACCORDANCE WITH SECTION 523 OF THE STANDARD SPECIFICATIONS. INCLUDE ALL COST OF EQUIPMENT AND LABOR FOR THE INSTALLATION OF THE HIGH MOLECULAR WEIGHT METHACRYLATE SEALER IN THE PRICE BID FOR OTHER ITEMS OF WORK. THE DEPARTMENT WILL NOT MEASURE THE PREPARATION AND SEALER OF EMERGENCY CONSTRUCTION JOINTS FOR PAYMENT.

THE DECK SLAB SHALL BE POURED AT ONE TIME.

STAY-IN-PLACE STEEL DECK FORMS MAY BE USED IF THE MINIMUM DECK SLAB THICKNESS OF 8" IS OBTAINED BY MEASURING FROM THE TOP OF THE DECK SLAB TO THE TOP PORTION OF THE STEEL CORRUGATION. NO ADDITIONAL CONCRETE WEIGHT OF THE DECK SLAB IS PERMITTED. ADDITIONAL STEEL WEIGHT OF THE DECK FORMS MAY BE USED IF THE FOLLOWING CONDITIONS ARE MET:

- (1) SHOP DRAWINGS AND STRUCTURAL CALCULATIONS FOR THE FORMS ARE SUBMITTED TO THE ENGINEERING FOR APPROVAL.
- (2) THE NEW STRUCTURAL DESIGN, STRUCTURAL CALCULATIONS, AND A NEW REINFORCING SCHEDULE FOR THE DECK SLAB, SUPERSTRUCTURE COMPONENTS AND SUBSTRUCTURE COMPONENTS ARE SUBMITTED THE ENGINEER FOR APPROVAL.
- (3) SHOP DRAWINGS, NEW DECK SLAB REINFORCING SCHEDULE ANDS STRUCTURAL DESIGNS AND CALCULATIONS SHALL BE PREPARED BY AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF OKLAHOMA.

ALL COSTS ASSOCIATED WITH THE USE OF STAY-IN-PLACE FORMS, INCLUDING ALL PROFESSIONAL SERVICES, MATERIAL, LABOR, EQUIPMENT AND INCIDENTALS, SHALL BE AT THE CONTRACTOR'S EXPENSE. FOR ADDITIONAL INFORMATION CONCERNING THE USE OF STAY-IN-PLACE FORMS, SEE SECTION 502 OF THE STANDARD SPECIFICATIONS.

STRUCTURAL STEEL FOR SUPERSTRUCTURE:

ALL NEW STRUCTURAL STEEL FOR SUPERSTRUCTURE SHALL BE AASHTO M270 (GRADE 36).

STRUCTURAL STEEL FOR SUBSTRUCTURE:

ALL NEW STRUCTURAL STEEL FOR SUBSTRUCTURE SHALL BE AASHTO M270 (GRADE 50).

RIPRAP:

A 24" THICK LAYER OF TYPE I-A PLAIN RIPRAP WITH A 6" THICK LAYER OF TYPE I-A FILTER BLANKET SHALL BE PLACED AT THE ABUTMENTS AS SHOWN ON THE PLANS. THE FILTER BLANKET SHALL BE PLACED IN ONE LAYER. EARTHWORK QUANTITIES INCLUDE THE EXCAVATION REQUIRED FOR THE RIPRAP LADLES AT THE ABUTMENTS. ANY OTHER EXCAVATIONS REQUIRED FOR THE PLACEMENT OF RIPRAP, NOT INCLUDED IN THE EXCAVATION QUANTITIES, SHALL BE CONSIDERED INCIDENTAL TO THE PRICE BID FOR "TYPE I-A PLAIN RIPRAP".

REMOVAL OF EXISTING BRIDGE STRUCTURE:

THE PRICE BID FOR "REMOVAL OF EXISTING BRIDGE STRUCTURE" CONSISTS OF THE REMOVAL OF THE EXISTING 29.9' LG. BY 21.1' WIDE BRIDGE, CONSISTING OF ONE (1) STEEL I-BEAM SPAN WITH A CONCRETE DECK, ASPHALT OVERLAY, AND CONCRETE AND ROCK ABUTMENTS AT \mathcal{C} SURVEY STA. 14+58.27.

THE REMOVAL OF THE EXISTING BRIDGE SHALL BE IN ACCORDANCE WITH SECTION 619.04.B.2 OF THE STANDARD SPECIFICATIONS AND IN A MANNER APPROVED BY THE ENGINEER. THE BEAMS ARE TO BE SALVAGED, NEATLY STACKED ON THE RIGHT-OF-WAY, AND SHALL BECOME THE PROPERTY OF LOGAN COUNTY. ALL OTHER MATERIALS REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR.

THE EXISTING STEEL BEAMS MAY BE COATED WITH A LEAD BASED PAINT. MEASURES SHALL BE TAKEN TO ENSURE WORKER SAFETY IN ACCORDANCE WITH 29 CFR 1926.62 AND ALL APPLICABLE OSHA STANDARDS. ANY PAINT REMOVED DURING THE SEQUENCE OF WORK SHALL BE COLLECTED AND DISPOSED OF IN ACCORDANCE WITH SECTION 512 OF THE STANDARD SPECIFICATIONS. ALL COSTS TO BE INCLUDED IN THE PRICE BID FOR "REMOVAL OF EXISTING BRIDGE STRUCTURE".

DRAINS AT END OF BRIDGE:

SEE ROADWAY SHEETS FOR ASPHALT SHOULDER WIDENING AND GUARDRAIL DETAILS. ALL COSTS OF ASPHALT SHOULDER WIDENING SHALL BE INCLUDED IN THE ROADWAY PAY ITEMS.

THERE IS AN ESTIMATED 0.20 CUBIC YARDS OF CLASS "AA" CONCRETE AND 30.00 POUNDS OF REINFORCING STEEL REQUIRED TO CONSTRUCT THE 6" CONCRETE BASES AT THE WEST END OF BRIDGE. ALL COSTS FOR THE 6" CONCRETE BASES, CONCRETE, REINFORCING STEEL, EXCAVATIONS, AND BACKFILL INCLUDING ALL MATERIALS, LABOR, EQUIPMENT, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK AS SHOWN IN THE PLANS SHALL BE INCLUDED IN THE PRICE BID FOR "CLASS AA CONCRETE".

THERE IS AN ESTIMATED 2.00 CUBIC YARDS OF CLASS "C" CONCRETE AND 360.00 POUNDS OF REINFORCING STEEL REQUIRED TO CONSTRUCT THE 6" CONCRETE CURBS AT BOTH ENDS OF THE BRIDGE. ALL COSTS FOR THE 6" CONCRETE CURBS, CONCRETE, REINFORCING STEEL, EXCAVATIONS, AND BACKFILL INCLUDING ALL MATERIALS, LABOR, EQUIPMENT, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK AS SHOWN IN THE PLANS SHALL BE INCLUDED IN THE PRICE BID FOR "CLASS C CONCRETE".

PERFORATED AND NON-PERFORATED PIPE UNDERDRAINS:

FOR LOCATIONS OF 6" PERFORATED AND NON-PERFORATED PIPE UNDERDRAINS, SEE SHEET NOS. 30, 31 AND 32, AND REFER TO SHEET NO. 41 AND STD. CB26..32-C-SK30-ABUT-MISC FOR INSTALLATION DETAILS AND NOTES. EXTENT, LOCATION AND LENGTH OF 6" NON-PERFORATED PIPE UNDERDRAIN MAY BE ADJUSTED BY THE ENGINEER DURING CONSTRUCTION.

UNDERDRAIN COVER MATERIAL(S) SHALL BE SEPARATED FROM OTHER SOIL, SAND, AND/OR AGGREGATE SURFACES WITH A FILTER FABRIC IN ACCORDANCE WITH SECTION 510.02.

ALL COARSE PIPE UNDERDRAIN COVER MATERIAL SHALL BE IN ACCORDANCE WITH SECTION 703.06.

ALL COSTS OF TRENCH EXCAVATION, PIPE UNDERDRAIN COVER MATERIAL, FILTER FABRIC, APPURTENANCES, 6" PERFORATED AND NON-PERF. PIPE UNDERDRAIN ROUND, LABOR, MATERIALS AND OTHER INCIDENTALS SHALL BE INCLUDED IN PRICE BID FOR "6" PERFORATED PIPE UNDERDRAIN ROUND" AND "6" NON-PERF. PIPE UNDERDRAIN RND.".

RETAINING WALL:

RETAINING WALLS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 7TH EDITION, 2014 WITH 2015 AND 2016 INTERIMS, EXCEPT AS MODIFIED BY THE PLANS.

PILOT HOLES FOR SOLDIER PILE:

A 30" DIAMETER PILOT HOLE SHALL BE DRILLED FOR EACH HP14x117 SOLDIER PILE. PILOT HOLES SHALL BE DRILLED TO A MINIMUM ELEVATIONS SHOWN ON SHEET NO. 43 AND SHALL BE NO LESS THAN 12'-0" INTO THE BEDROCK. THE CONTRACTOR SHALL ENCASE EACH PILE IN THE PILOT HOLE WITH CLASS "AA" CONCRETE TO THE TOP OF BEDROCK. ALL COSTS INCLUDING LABOR, EQUIPMENT, AND INCIDENTALS SHALL BE INCLUDED IN THE PRICE BID FOR FOR "(PL) PILOT HOLES".

STRUCTURAL STEEL FOR RETAINING WALL:

ALL NEW STRUCTURAL STEEL FOR RETAINING WALL SHALL BE AASHTO M270 (GRADE 50), UNLESS OTHERWISE NOTED.

SHEET PILING:

SHEET PILING SHALL BE MADE FROM STEEL CONFORMING TO AASHTO M160 (GR. 50W). SHEET PILING SHALL BE 10 GAGE, 0.134 INCHES THICK, WEIGHING 10.80 POUNDS PER LINEAR FOOT OF PILE OR 7.2 POUNDS PER SQUARE FOOT OF WALL, SHALL HAVE A SECTION MODULUS OF 2.72 INCHES³ PER SECTION AND A MOMENT OF INERTIA OF 4.05 INCHES⁴ PER SECTION. ALL COST FOR SHEET PILING SHALL BE INCLUDED IN PRICE BID FOR "SHEET PILING, FURNISHED".

RECYCLED STEEL BEAMS:

RECYCLED CROSSTOWN BRIDGE BEAMS ARE LOCATED AT: 13600 WEST COUNTY ROAD #71, CRESCENT, OK 73028

RECYCLED CROSSTOWN BRIDGE BEAMS TO BE USED ARE MARKED:

- E67.1
- E67.2
- E67.3
- E67.5

ALL COSTS FOR HAULING AND ERECTING BEAMS, CUTTING OF THE BEAMS TO FIT, LABOR, MATERIALS, ADDING/REPLACING SHEAR CONNECTORS TO THE BEAMS, AND OTHER INCIDENTALS SHALL BE INCLUDED IN PRICE BID FOR "HAUL AND ERECT STEEL BEAMS".

COARSE COVER AGGREGATE:

ALL COARSE COVER AGGREGATE MATERIAL SHALL BE IN ACCORDANCE WITH SECTION 703.06.B(1).

COARSE COVER AGGREGATE SHALL BE COMPACTED IN ACCORDANCE WITH SECTION 501 OF THE STANDARD SPECIFICATIONS.

ALL COST FOR COARSE COVER AGGREGATE, LABOR, MATERIALS, TOOLS AND OTHER INCIDENTALS SHALL BE INCLUDED IN PRICE BID FOR "STANDARD BEDDING MATERIAL, CLASS B".

GRANULAR BACKFILL:

ALL GRANULAR BACKFILL MATERIAL SHALL BE IN ACCORDANCE WITH SECTION 703.07.

GRANULAR BACKFILL SHALL BE COMPACTED IN ACCORDANCE WITH SECTION 501 OF THE STANDARD SPECIFICATIONS.

ALL COST FOR GRANULAR BACKFILL, LABOR, MATERIALS, TOOLS AND OTHER INCIDENTALS SHALL BE INCLUDED IN PRICE BID FOR "GRANULAR BACKFILL".

CLAY PLATING:

CLAY PLATING SHALL BE COMPACTED IN ACCORDANCE WITH SECTION 208 OF THE STANDARD SPECIFICATIONS.

FOR CLAY PLATING DETAILS, SEE SHEETS NO. 41.

ALL COST FOR CLAY PLATING, LABOR, MATERIALS, TOOLS AND OTHER INCIDENTALS SHALL BE INCLUDED IN PRICE BID FOR "SELECT BACKFILL".

GEOTECHNICAL REPORT:

ALL BORING LOG DATA AND INFORMATION CAN BE REFERENCED IN THE PROJECT SPECIAL PROVISIONS AND/OR CONTRACT DOCUMENTS.

PAY QUANTITIES - BRIDGE "B"					
0201 BRIDGE "B" 50' STEEL GIRDER SPAN, 26'-0" CLR. RDWY. W/ CONC. TRAFFIC RAILS (TR3), SKEWED 30° L.F.					
ITEM	PES NO.	DESCRIPTION		UNIT	QUANTITY
501(B)	1307	SUBSTRUCTURE EXCAVATION COMMON	(1)(2)	CY	1,498.00
501(E)	6354	SELECT BACKFILL	(1)	CY	13.00
501(F)	6352	GRANULAR BACKFILL	(1)	CY	82.00
504(D)	6239	CONCRETE RAIL (TR3)	(1)	LF	100.00
506(A)	1322	STRUCTURAL STEEL	(1)	LB	26,440.00
509(A)	1326	CLASS AA CONCRETE	(1)	CY	139.40
509(D)	1331	CLASS C CONCRETE		CY	2.00
511(B)	6010	EPOXY COATED REINFORCING STEEL	(1)	LB	12,630.00
514(A)	6017	PILES, FURNISHED (HP 14x102)	(3)	LF	540.00
514(A)	6018	PILES, FURNISHED (HP 14x117)	(3)	LF	800.00
514(B)	6298	PILES, DRIVEN (HP 14x102)		LF	18.00
514(H)	6355	SHEET PILING, FURNISHED		SY	364.00
514(I)	6360	SHEET PILING, DRIVEN		SY	364.00
514(K)	6260	(PL) PILOT HOLES		LF	1,126.00
535	6225	HAUL AND ERECT STEEL BEAMS		LSUM	1.00
601(B)	1353	TYPE I-A PLAIN RIPRAP		TON	189.00
601(C)	1355	TYPE I-A FILTER BLANKET		TON	46.00
613(H)	6204	6" PERFORATED PIPE UNDERDRAIN ROUND	(1)	LF	226.00
613(I)	6207	6" NON-PERF. PIPE UNDERDRAIN RND.	(1)	LF	6.00
613(S)	1186	STANDARD BEDDING MATERIAL, CLASS B		CY	321.00
619(D)	1397	REMOVAL OF EXISTING BRIDGE STRUCTURE		LSUM	1.00

PAY QUANTITY NOTES

- (1) PAYMENT FOR THIS ITEM WILL BE BASED ON PLAN QUANTITIES. SEE THE 2009 STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION SECTION 109.01.B "PLAN QUANTITIES".
- (2) ROCK MAY BE ENCOUNTERED WITHIN THE LIMITS SHOWN FOR SUBSTRUCTURE EXCAVATION AT BOTH ABUTMENTS. PRICE BID FOR "SUBSTRUCTURE EXCAVATION COMMON" SHALL INCLUDE ALL REQUIRED ROCK EXCAVATION WITHIN THESE LIMITS. REFER TO FOUNDATION REPORT SHEET NO. 28 FOR ADDITIONAL INFORMATION.
- (3) ALL PILING SHALL BE AASHTO M270 GRADE 50 STEEL.

PAY QUANTITIES AND GENERAL NOTES (BRIDGE "B" AND RETAINING WALLS)

GENERAL CONSTRUCTION NOTES

- (C-152) ALL BROKEN CONCRETE, WASTE MATERIAL, AND DEBRIS SHALL BECOME THE PROPERTY OF THE CONTRACTOR, AND SHALL BE REMOVED FROM THE LIMITS OF THE PROJECT AND DISPOSED OF IN AN AREA APPROVED BY THE ENGINEER. NO PAYMENT WILL BE MADE FOR THE DISPOSAL OF THIS MATERIAL.

- (C-155) THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE HE MAY INFLICT TO THE EXISTING UNDERGROUND UTILITIES WITHIN THE PROJECT AREA AS A RESULT OF HIS DIGGING, TRENCHING, BORING, ETC..... PRIOR TO DIGGING NEAR THE UTILITIES, THE CONTRACTOR SHALL CALL FOR A LIST OF ALL UNDERGROUND FACILITIES REGISTERED IN THE AREA OF CONSTRUCTION LISTED WITH THE FOLLOWING AGENCIES:
THE "OKIE" NOTIFICATION CENTER 811 OR (405)522-6543 OR WWW.CALLOKIE.COM OR THE LOCAL COUNTY CLERK'S OFFICE.

PAY QUANTITY NOTES

- (TS-24) QUANTITY SHOWN INCLUDES 2,780 L.F. TRAFFIC STRIPE (MULTI-POLYMER) (WHITE) AND 1,670 L.F. TRAFFIC STRIPE (MULTI-POLYMER) (YELLOW) AND WILL BE MEASURED BY THE LINEAR FOOT OF FOUR INCH (4")WIDE TRAFFIC STRIPE.

- (TS-33) INCLUDED IN THIS PAY ITEM IS ALL HARDWARE ASSOCIATED WITH PROPERLY ANCHORING AND MOUNTING THE HIGHWAY SIGN IN ACCORDANCE WITH O.D.O.T. PLANS AND STANDARD DRAWINGS SSA1-1 AND SSP1-1- (LATEST REVISION).

- (1) PRICE BID FOR THIS ITEM SHALL INCLUDE THE REMOVAL OF EXISTING SIGNS ON THIS PROJECT. ALL REMOVED SIGNS, POSTS AND FOOTINGS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE PROJECT, AS APPROVED BY THE ENGINEER.


PAY QUANTITIES

0300 SIGNING AND STRIPING			
ITEM	DESCRIPTION	UNIT	TOTAL
850(A) 8110	SHEET ALUMINUM SIGNS (1)	SF	24.75
851(C) 8324	2" SQUARE TUBE POST (TS-33)	LF	46.00
856(A) 8530	TRAFFIC STRIPE (MULTI-POLYMER)(4" WIDE) (TS-24)	LF	4450.00

SIGN SUMMARY

SHEET NO.	ITEM NO.	APPROXIMATE LOCATION		SIGN TYPE	POSTS			FOOTINGS			SIGN AREA			REMARKS	
					TYPE	A L.F.	B L.F.	SPACING	DESIGN NO.	CONCRETE C.Y.	STEEL LBS.	SHEET S.F.	PANEL S.F.		PANEL OVERHEAD S.F.
	1	66+24	(SH 74D)	W4-1(L), W13-1P(45)	2" SQ. TUBE POST	12.0						8.50			
	2	66+53	(SH 74D)	I-3 (ROCK CREEK)	2" SQ. TUBE POST	11.0						5.00			
	3	68+81	(SH 74D)	I-3 (ROCK CREEK)	2" SQ. TUBE POST	11.0						5.00			
	4	69+80	(SH 74D)	W1-2(L)	2" SQ. TUBE POST	12.0						6.25			
TOTAL					2" SQ. TUBE POST	46.0						24.75			

Design	RWR	02/20/17
Drawn	CCC	02/20/17



PAY QUANTITIES, NOTES AND
SIGN SUMMARY
(SIGNING & STRIPING)

State Job No. 28312(04) Sheet No. 8

REVISIONS		
NO.	DESCRIPTION	DATE
1	REVISED PAY QUANTITIES & NOTE	10-18-17

GENERAL CONSTRUCTION NOTES

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE HE MAY INFLICT TO THE EXISTING UNDERGROUND UTILITIES WITHIN THE PROJECT AREA AS A RESULT OF HIS DIGGING, TRENCHING, BORING, ETC.... PRIOR TO DIGGING NEAR THE UTILITIES, THE CONTRACTOR SHALL CALL FOR A LIST OF ALL UNDERGROUND FACILITIES REGISTERED IN THE AREA OF CONSTRUCTION LISTED WITH THE FOLLOWING AGENCIES:
THE "OKIE" NOTIFICATION CENTER 811 OR (405)522-6543 OR WWW.CALLOKIE.COM OR THE LOCAL COUNTY CLERK'S OFFICE.

ALL TEMPORARY TRAFFIC CONTROL DEVICES SHALL MEET ODOT'S "QUALITY STANDARDS FOR TEMPORARY TRAFFIC CONTROL DEVICES".

PAY QUANTITY NOTES

(TC-26) ALL CONSTRUCTION TRAFFIC CONTROL WILL BE IMPLEMENTED ACCORDING TO CONSTRUCTION PLANS, AND INSTALLED IN A MANNER APPROVED BY THE ENGINEER, IN ACCORDANCE WITH CHAPTER VI OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, (CURRENT EDITION), AND COMPLIANT WITH APPLICABLE O.D.O.T. STANDARD DRAWINGS. PRICE BID FOR THIS ITEM SHALL BE PAYMENT IN FULL FOR THE INSTALLATION, MAINTENANCE AND SUBSEQUENT REMOVAL OF ALL NECESSARY CONSTRUCTION TRAFFIC CONTROL DEVICES REQUIRED FOR COMPLETION OF THE PROJECT.

ALL SIGNS AND BARRICADES WHICH ARE SHOWN WITH TYPE 'A' LIGHTS IN THE STANDARD DRAWINGS SHALL HAVE THE CORRESPONDING LIGHT ATTACHED DURING NON-DAYLIGHT HOURS.

(TC-28) INCLUDED IN THIS ITEM ARE ALL S.C.S. (SPECIAL CONSTRUCTION SIGNING) SIGNS WHICH ARE BETWEEN 0.00 S.F. AND 6.25 S.F. ALSO INCLUDED IN THIS ITEM SHALL BE THE COST OF INSTALLATION, MAINTENANCE, AND REMOVAL OF THESE SIGNS.

(TC-29) INCLUDED IN THIS ITEM ARE ALL S.C.S. (SPECIAL CONSTRUCTION SIGNING) SIGNS WHICH ARE BETWEEN 6.26 S.F. AND 15.99 S.F. ALSO INCLUDED IN THIS ITEM SHALL BE THE COST OF INSTALLATION, MAINTENANCE, AND REMOVAL OF THESE SIGNS.


(TC-30) INCLUDED IN THIS ITEM ARE ALL S.C.S. (SPECIAL CONSTRUCTION SIGNING) SIGNS WHICH ARE BETWEEN 16.00 S.F. AND 32.99 S.F. ALSO INCLUDED IN THIS ITEM SHALL BE THE COST OF INSTALLATION, MAINTENANCE, AND REMOVAL OF THESE SIGNS.


(TC-33) ALL CONSTRUCTION WORK ZONE SIGNS SHALL HAVE FLUORESCENT SHEETING. THE FLUORESCENT SHEETING SHALL MEET THE REQUIREMENTS OF ASTM D4956 (LATEST REVISION).

THE MANUFACTURER SHALL FURNISH A TYPE 'D' CERTIFICATION IN ACCORDANCE WITH O.D.O.T. STANDARD SPECIFICATIONS (CURRENT EDITION) SUBSECTION 106.04. THE CERTIFICATION SHALL INCLUDE TEST RESULTS ON MATERIAL SUBMITTED FOR APPROVAL.

(TC-52) ANY USED CHANGABLE MESSAGE SIGN TO BE PLACED ON THIS PROJECT SHALL BE SUBJECT TO INSPECTION AND APPROVAL, BY THE OKLAHOMA DEPARTMENT OF TRANSPORTATION, TO ASSURE THAT THEY ARE IN GOOD WORKING CONDITION, PRIOR TO PLACEMENT ON THE PROJECT.

(TC-85) THESE SIGNS MUST BE ON THE OKLAHOMA DEPARTMENT OF TRANSPORTATION LIST OF APPROVED CHANGEABLE MESSAGE SIGNS. FOR A LIST OF THE APPROVED SIGNS GO TO THE OKLAHOMA DEPARTMENT OF TRANSPORTATION WEBSITE AT:
<http://www.okladot.state.ok.us/traffic/qpl/index.php>.

(1)  210 CONSTRUCTION CALENDAR DAYS WERE USED TO COMPUTE THE SIGN DAY PAY ITEMS. THE AMOUNT OF CALENDAR DAYS USED TO COMPUTE THE SIGN DAY PAY ITEMS IS AN ESTIMATED QUANTITY ONLY, BASED ON THE CURRENT O.D.O.T. STANDARDS AND SUGGESTED CONSTRUCTION SEQUENCE FOR THIS PROJECT. THESE ESTIMATED SIGN DAY QUANTITIES MAY CHANGE AS THE PROJECT'S CONSTRUCTION TRAFFIC CONTROL IS MODIFIED DURING CONSTRUCTION. THE CALENDAR DAYS LISTED BELOW WERE USED TO CALCULATE THE PAY QUANTITIES PER PHASE.

 60 CALENDAR DAYS WERE USED FOR PHASE 1
 150 CALENDAR DAYS WERE USED FOR PHASE 2


(2) SIGNS TO BE SET 2 WEEKS PRIOR TO CONSTRUCTION.

PAY QUANTITIES

0301 TRAFFIC CONTROL			
ITEM	DESCRIPTION	UNIT	TOTAL
880(B) 8818	CONSTRUCTION SIGNS 0 TO 6.25 SF (TC-26,28,33)(1)	SD	3300.00
880(B) 8821	CONSTRUCTION SIGNS 6.26 SF TO 15.99 SF (TC-26,29,33)(1)	SD	2280.00
880(B) 8824	CONSTRUCTION SIGNS 16.0 SF TO 32.99 SF (TC-26,30,33)(1)	SD	540.00
880(C) 8842	CONSTRUCTION BARRICADES (TYPE III) (TC-26)(1)	SD	2280.00
880(E) 8860	WARNING LIGHTS (TYPE A) (TC-26)(1)	SD	5100.00
880(I) 8902	FLAGGER	SD	20.00
882(A) 8306	PORT. CHANGEABLE MESSAGE SIGN (TC-52,85)(2)	SD	28.00

10/18/17 G:\09\Projects\1-235\SH 74D Bridges east of Lovell in Logan County, OK\CAD\QUANT TC.dgn

S.H. 74D LOGAN COUNTY

Design	RWR	10/18/17
Drawn	CCC	10/18/17
		

PAY QUANTITIES AND NOTES (TRAFFIC CONTROL)

State Job No. 28312(04) Sheet No. 9

SUMMARY OF FENCE		
STATION EXTENTS AND LOCATION	FENCE - STYLE SWF (5 BARBED WIRE) 624(C)	FENCE - STYLE SWF (4 BARBED WIRE) 624(C)
	L.F.	L.F.
S.H. 74D		
STA. 66+76.00 RT.	33.00	
STA. 66+76.00 LT.	38.00	
STA. 68+48.00 LT.		167.00
STA. 68+48.00 RT.	50.00	
TOTALS	121.00	167.00

SUMMARY OF TEMPORARY SEDIMENT CONTROL				
STATION EXTENTS	LOCATION AND DESCRIPTION	TYPE	TEMPORARY SILT FENCE 221(C)	TEMPORARY FIBER LOG 221(K)
			L.F.	L.F.
S.H. 74D				
STA. 63+88.00 TO STA. 66+55.00	FIBER LOG LT. & RT.			412
STA. 63+88.00 TO STA. 71+00.00	SILT FENCE RT.		611	
STA. 68+68.00 TO STA. 71+00.00	FIBER LOG LT. & RT.			466
STA. 64+50.00 TO STA. 71+00.00	SILT FENCE LT.		512	
EW 69				
STA. 313+01.83 TO STA. 316+90.59	FIBER LOG LT.			254
STA. 312+55.29 TO STA. 316+91.33	FIBER LOG RT.			367
TOTALS			1,123	1,499

SUMMARY OF SURFACING				
STATION EXTENTS	STABILIZED SUBGRADE 307(K)	TACK COAT 407(B)	SUPERPAVE, TYPE S3 (PG 64-22 OK) 411(B)	SUPERPAVE, TYPE S4 (PG 64-22 OK) 411(C)
	S.Y.	GAL.	TONS	TONS
S.H. 74D				
STA. 63+00.00 TO STA. 71+00.00	1,602.29	498.19	466.53	193.63
DETOUR				
STA. 313+02.00 TO STA. 316+91.00		396.96	258.72	114.64
TOTALS	1,602.29	895.15	725.25	308.27

NOTE: QUANTITIES INCLUDE ASPHALT COAT QUANTITIES FOR GUARDRAIL WIDENING

SUMMARY OF GUARDRAIL					
STATION EXTENTS AND LOCATION	GUARDRAIL CURBING 623	GUARDRAIL W-BEAM SINGLE 623(A)	GUARDRAIL ANCHOR UNIT (TYPE D-BF) 623(F)	GUARDRAIL END TREATMENT (31") 623(G)	GUARDRAIL DELINEATORS (TYPE 2, CODE 1) 853
	EA.	L.F.	EA.	EA.	EA.
S.H. 74D					
STA. 64+76.75 TO STA. 66+64.25 - RT.	1	112.50	1	1	5
STA. 65+76.75 TO STA. 66+64.25 - LT.	1	12.50	1	1	3
STA. 68+59.75 TO STA. 69+59.75 - RT.	1	25.00	1	1	3
STA. 68+59.75 TO STA. 69+97.25 - LT.	1	62.50	1	1	4
EW 69					
STA. 313+66.03 TO STA. 314+41.03 - LT.	1		1	1	3
STA. 313+50.96 TO STA. 314+25.96 - RT.	1		1	1	3
STA. 314+89.03 TO STA. 315+64.03 - LT.	1		1	1	3
STA. 314+73.96 TO STA. 315+48.96 - RT.	1		1	1	3
TOTALS	8	212.50	8	8	27

NOTE: ASPHALT AND PRIME COAT QUANTITIES FOR GUARDRAIL WIDENING ARE INCLUDED IN THE MAINLINE SURFACING QUANTITIES

SUMMARY OF REMOVAL QUANTITIES				
STATION EXTENTS	REMOVAL OF FENCE	REMOVAL OF ASPHALT PAVEMENT 619(B)	REMOVAL OF GUARDRAIL 619(B)	SAWING PAVEMENT 619(C)
	L.F.	S.Y.	L.F.	L.F.
S.H. 74D				
STA. 64+50.00 TO STA. 71+00.00	391.00	1,296.00	211.00	44.00
EW 69				
STA. 314+18.74 TO STA. 314+98.79		98.00		39.00
TOTALS	391.00	1,394.00	211.00	83.00

FOR INFORMATION PURPOSES ONLY. PRICE BID TO BE INCLUDED IN OTHER ITEMS. TO BECOME THE PROPERTY OF LOGAN COUNTY.

SUMMARY OF DRIVES					
STATION AND LOCATION	WIDTH x LENGTH	TYPE	RADII (R1)	RADII (R2)	4" TBSC TYPE E 402(E)
					TON
EW 69					
STA. 313+37 - LT.	16.00' x 23.77'	1	20'	20'	14.24
TOTALS					14.24

SUMMARY OF EARTHWORK QUANTITIES				
STATION EXTENTS	UNCLASSIFIED EXCAVATION 202(A)	EMBANKMENT +15% 202(A)	EXCESS EXCAVATION	UNCLASSIFIED BORROW 202(D)
	C.Y.	C.Y.	C.Y.	C.Y.
S.H. 74D				
STA. 63+88.00 TO STA. 71+00.00	179	2,373		2,194
EW 69				
STA. 312+55.37 TO STA. 316+91.00	325	623		298
TOTALS	504	2,996		2,492

SUMMARY OF EROSION CONTROL		
STATION EXTENTS	LOCATION AND DESCRIPTION	SOLID SLAB SODDING 230(A)
		S.Y.
S.H. 74D		
STA. 63+88.00 TO STA. 66+55.00	SOD LT. & RT.	859.00
STA. 68+68.00 TO STA. 71+00.00	SOD LT. & RT.	1,675.00
EW 69		
STA. 312+55.29 TO STA. 314+09.85	SOD LT. & RT.	172.00
STA. 314+85.85 TO STA. 316+91.00	SOD LT. & RT.	427.00
TOTALS		3,133.00

LOGAN COUNTY S.H. 74D

STORM WATER MANAGEMENT PLAN

SITE DESCRIPTION

PROJECT LIMITS: EAST OF LOVELL, SH 74D 0.35 MILES E. OF NS 302 TO 0.56 MILES W. OF NS 303. DETOUR ALONG EW 69 FROM SH 74 W. TO NS 301 AND N. ALONG NS 301 TO EW 66

PROJECT DESCRIPTION: BRIDGE & APPROACHES

SUGGESTED SEQUENCE OF EROSION CONTROL ACTIVITIES: PRIOR TO INITIATING SOIL DISTURBING ACTIVITIES, THE CONTRACTOR WILL INSTALL ALL PERIMETER TEMPORARY SEDIMENT CONTROLS SPECIFIED, STRIP, STOCKPILE AND STABILIZE TOPSOIL. CLEAR AND GRUB ONLY IN NECESSARY AREAS, PRESERVING AS MUCH NATIVE VEGETATION AS POSSIBLE. INSTALL, MAINTAIN AND/OR MOVE TEMPORARY SEDIMENT ITEMS WITH CONSTRUCTION OPERATIONS AS PRACTICAL. IF DIRECTED BY THE ENGINEER, PLANT TEMPORARY SEEDING, REPLACE TOPSOIL AND DEVICES WHEN AN ACCEPTABLE VEGETATIVE COVER (AT LEAST 70%) HAS BEEN ATTAINED. AS SITE CONDITIONS WARRANT, THE CONTRACTOR MAY CHOOSE TO MODIFY THE TYPE OR ARRANGEMENT OF SPECIFIED PRACTICES TO IMPROVE THEIR EFFECTIVENESS AS APPROVED BY THE ENGINEER, THE CONTRACTOR WILL MAINTAIN A LOG OF THE DATES OF MAJOR SOIL DISTURBANCE ACTIVITIES, AND ALSO THE DATES OF INSTALLATION OF EROSION CONTROL MEASURES.

SOIL TYPE: SILTY LOAM

TOTAL AREA OF THE CONSTRUCTION SITE: 1.71 AC.

ESTIMATED AREA TO BE DISTURBED: 1.12 AC.

OFFSITE AREA TO BE DISTURBED: (FOR CONTRACTOR USE)

TOTAL IMPERVIOUS AREA PRE-CONSTRUCTION: 0.38 AC.

TOTAL IMPERVIOUS AREA POST-CONSTRUCTION: 0.55 AC.

POST-CONSTRUCTION RUNOFF COEFFICIENT OF THE SITE: 0.50

LATITUDE & LONGITUDE OF CENTER OF PROJECT: 36.0572° N 97.6146° W

PROJECT WILL DISCHARGE TO:

NAME OF RECEIVING WATERS: _____

SENSITIVE WATERS OR WATERSHEDS: YES NO

303(d) IMPAIRED WATERS: YES NO

IF YES, LIST IMPAIRMENT: _____

LOCATED IN A TMDL: YES NO

LAKE THUNDERBIRD TMDL: YES NO

MS4 ENTITY: YES NO

IF YES, LOCATION: LOGAN COUNTY

NOTE:
THIS SHEET SHOULD BE USED IN CONJUNCTION WITH A DRAINAGE MAP THAT ILLUSTRATES THE DRAINAGE PATTERNS/PATHWAYS AND RECEIVING WATERS FOR THIS PROJECT. THIS SHEET SHOULD ALSO BE USED WITH THE EROSION CONTROL SUMMARIES, PAY ITEMS, & NOTES.

EROSION AND SEDIMENT CONTROLS

SOIL STABILIZATION PRACTICES:

- TEMPORARY SEEDING
- PERMANENT SODDING, SPRIGGING OR SEEDING
- VEGETATIVE MULCHING
- SOIL RETENTION BLANKET
- PRESERVATION OF EXISTING VEGETATION

NOTE: TEMPORARY EROSION CONTROL METHODS MUST BE USED ON ALL DISTURBED AREAS WHERE CONSTRUCTION ACTIVITIES HAVE CEASED FOR OVER 14 DAYS. METHODS USED WILL BE AS SHOWN ON PLANS, OR AS DIRECTED BY THE ENGINEER.

STRUCTURAL PRACTICES:

- STABILIZED CONSTRUCTION EXIT
- TEMPORARY SILT FENCE
- TEMPORARY SILT DIKES
- TEMPORARY FIBER LOG
- DIVERSION, INTERCEPTOR OR PERIMETER DIKES
- DIVERSION, INTERCEPTOR OR PERIMETER SWALES
- ROCK FILTER DAMS
- TEMPORARY SLOPE DRAIN
- PAVED DITCH|W/ DITCH LINER PROTECTION
- TEMPORARY DIVERSION CHANNELS
- TEMPORARY SEDIMENT BASINS
- TEMPORARY SEDIMENT TRAPS
- TEMPORARY SEDIMENT FILTERS
- TEMPORARY SEDIMENT REMOVAL
- RIP RAP
- INLET SEDIMENT FILTER
- TEMPORARY BRUSH SEDIMENT BARRIERS
- SANDBAG BERMS
- TEMPORARY STREAM CROSSINGS

OFFSITE VEHICLE TRACKING:

- HAUL ROADS DAMPENED FOR DUST CONTROL
- LOADED HAUL TRUCKS TO BE COVERED WITH TARPULIN
- EXCESS DIRT ON ROAD REMOVED DAILY

NOTES:

THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE FOLLOWING:

MAINTENANCE AND INSPECTION:

ALL EROSION AND SEDIMENT CONTROLS WILL BE MAINTAINED IN GOOD WORKING ORDER FROM THE BEGINNING OF CONSTRUCTION UNTIL AN ACCEPTABLE VEGETATIVE COVER IS ESTABLISHED. INSPECTION BY THE CONTRACTOR AND ANY NECESSARY REPAIRS SHALL BE PERFORMED ONCE EVERY 7 CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.5 INCH AS RECORDED BY A NON-FREEZING RAIN GAUGE TO BE LOCATED ON SITE. POTENTIALLY ERODIBLE AREAS, DRAINAGEWAYS, MATERIAL STORAGE, STRUCTURAL DEVICES, CONSTRUCTION ENTRANCES AND EXITS ALONG WITH EROSION AND SEDIMENT CONTROL LOCATIONS ARE EXAMPLES OF SITES THAT NEED TO BE INSPECTED.

WASTE MATERIALS:

PROPER MANAGEMENT AND DISPOSAL OF CONSTRUCTION WASTE MATERIAL IS REQUIRED BY THE CONTRACTOR. MATERIALS INCLUDE STOCKPILES, SURPLUS, DEBRIS AND ALL OTHER BY-PRODUCTS FROM THE CONSTRUCTION PROCESS. PRACTICES INCLUDE DISPOSAL, PROPER MATERIALS HANDLING, SPILL PREVENTION AND CLEANUP MEASURES. CONTROLS AND PRACTICES SHALL MEET THE REQUIREMENTS OF ALL FEDERAL, STATE AND LOCAL AGENCIES.

HAZARDOUS MATERIALS:

PROPER MANAGEMENT AND DISPOSAL OF HAZARDOUS WASTE MATERIALS IS REQUIRED. THE CONTRACTOR IS RESPONSIBLE FOR FOLLOWING MANUFACTURER'S RECOMMENDATIONS, STATE AND FEDERAL REGULATIONS TO ENSURE CORRECT HANDLING, DISPOSAL, SPILL PREVENTION AND CLEANUP MEASURES. EXAMPLES INCLUDE BUT ARE NOT LIMITED TO: PAINTS, ACIDS, CLEANING SOLVENTS, CHEMICAL ADDITIVES, CONCRETE CURING COMPOUNDS AND CONTAMINATED SOILS.

GENERAL NOTES:

A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IS REQUIRED TO COMPLY WITH THE OKLAHOMA POLLUTION DISCHARGE ELIMINATION SYSTEM (OPDES) REGULATIONS. THIS PLAN IS INITIATED DURING THE DESIGN PHASE, CONFIRMED IN THE PRE-WORK MEETINGS AND AVAILABLE ON THE JOB SITE ALONG WITH COPIES OF THE NOTICE OF INTENT (NOI) FORM AND PERMIT CERTIFICATE THAT HAVE BEEN FILED WITH THE OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY (ODEQ). THE PLAN MUST BE KEPT CURRENT WITH UP-TO-DATE AMENDMENTS DURING THE PROGRESSION OF THE PROJECT. ALL CONTRACTOR OFF-SITE OPERATIONS ASSOCIATED WITH THE PROJECT MUST BE DOCUMENTED IN THE SWPPP, I.E., BORROW PITS, WORK ROADS, DISPOSAL SITES, ASPHALT/CONCRETE PLANTS, ETC. THE BASIC GOAL OF STORM WATER MANAGEMENT IS TO IMPROVE WATER QUALITY BY REDUCING POLLUTANTS IN STORM WATER DISCHARGES. RUNOFF FROM CONSTRUCTION SITES HAS A POTENTIAL FOR POLLUTION DUE TO EXPOSED SOILS AND THE PRESENCE OF HAZARDOUS MATERIALS USED IN THE CONSTRUCTION PROCESS. THE PREVENTION OF SOIL EROSION, CONTAINMENT OF HAZARDOUS MATERIALS AND/OR THE INTERCEPTION OF THESE POLLUTANTS BEFORE LEAVING THE CONSTRUCTION SITE ARE THE BEST PRACTICES FOR CONTROLLING STORM WATER POLLUTION.

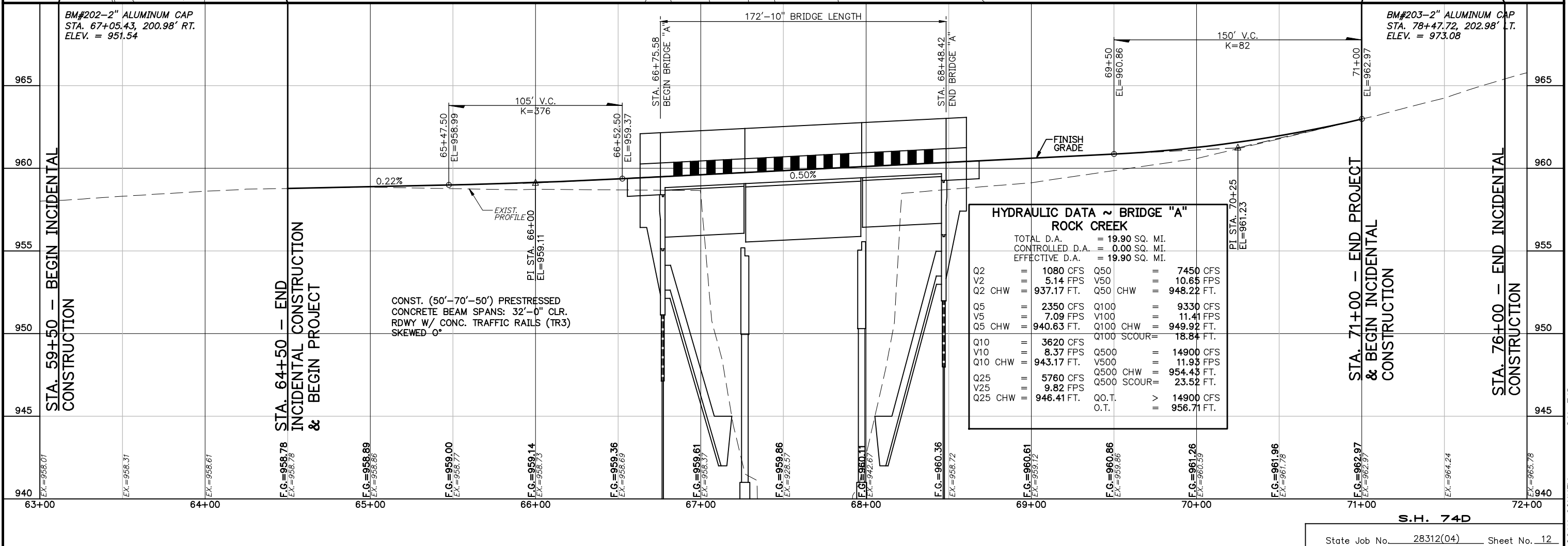
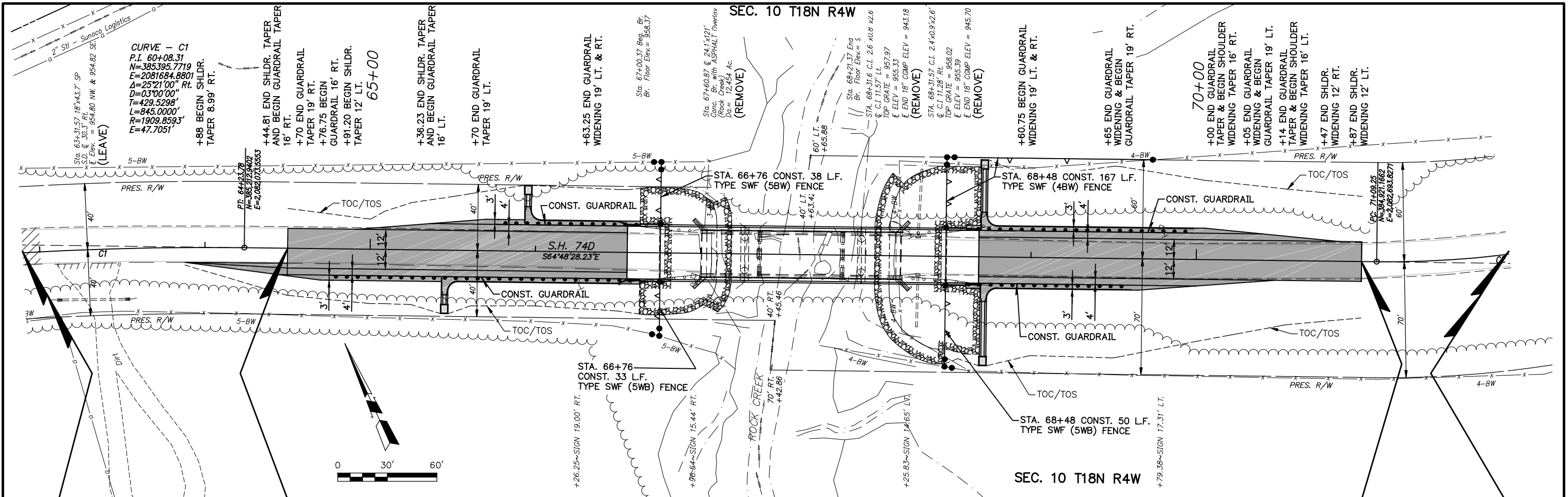
THE FOLLOWING SECTIONS OF THE 2009 ODOT STANDARD SPECIFICATIONS SHOULD BE NOTED:

- 103.05 BONDING REQUIREMENTS
- 104.10 FINAL CLEANING UP
- 104.12 CONTRACTOR'S RESPONSIBILITY FOR WORK
- 104.13 ENVIRONMENTAL PROTECTION
- 106.08 STORAGE AND HANDLING OF MATERIAL
- 107.01 LAWS, RULES AND REGULATIONS TO BE OBSERVED
- 107.20 STORM WATER MANAGEMENT
- 220 MANAGEMENT OF EROSION, SEDIMENTATION AND STORM WATER POLLUTION PREVENTION AND CONTROL
- 221 TEMPORARY SEDIMENT CONTROL

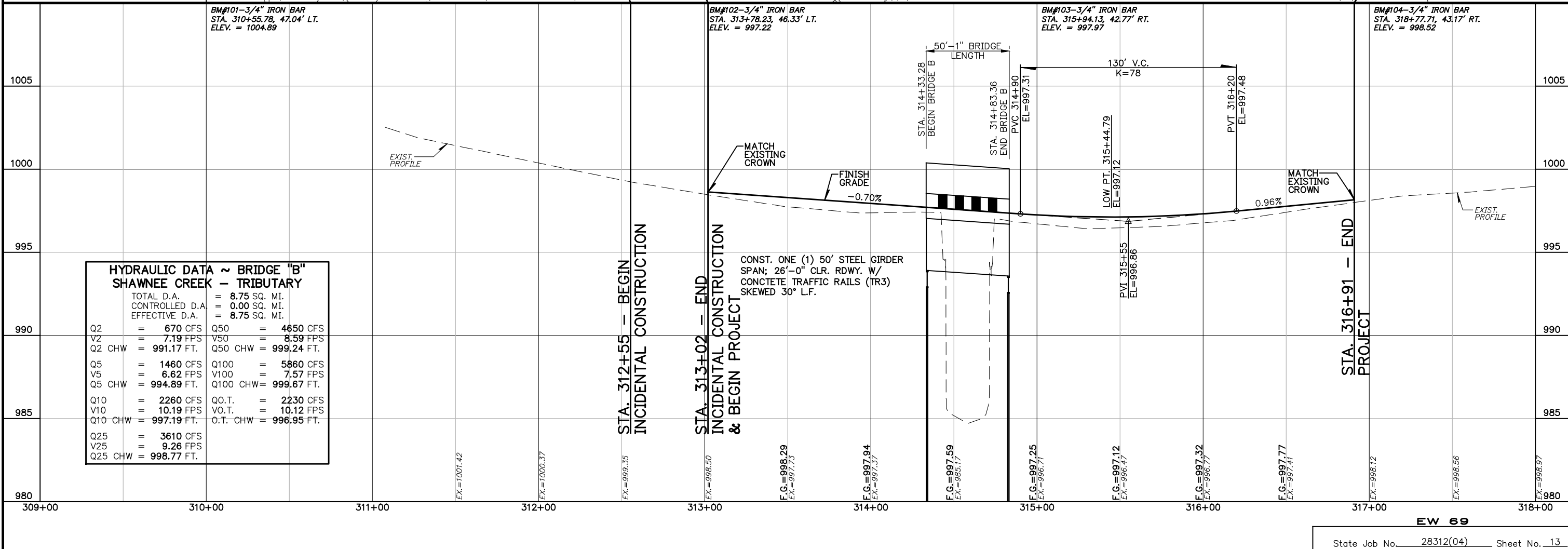
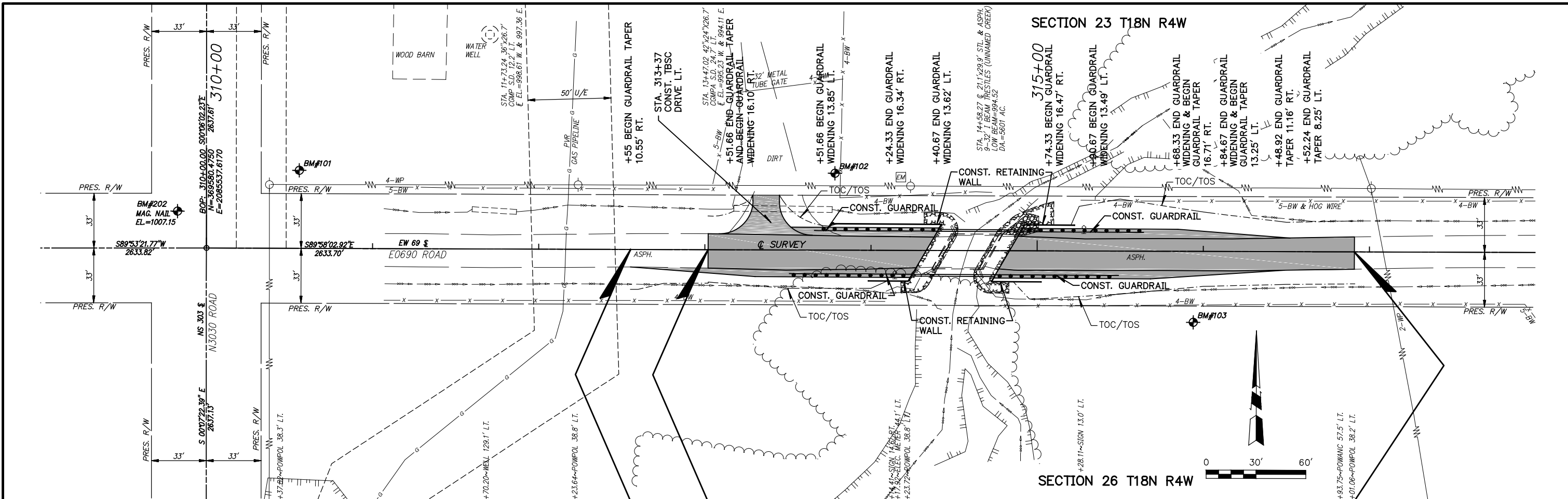
IN ADDITION:

"ODEQ GENERAL PERMIT (OKR10) FOR STORM WATER DISCHARGES FROM CONSTRUCTION ACTIVITIES WITHIN THE STATE OF OKLAHOMA." ODEQ, WATER QUALITY DIVISION, SEPTEMBER 13, 2017.

**STORM WATER
MANAGEMENT PLAN**



LOGAN COUNTY
 S.H. 74D



HYDRAULIC DATA ~ BRIDGE "B"
SHAWNEE CREEK - TRIBUTARY

TOTAL D.A.	= 8.75 SQ. MI.		
CONTROLLED D.A.	= 0.00 SQ. MI.		
EFFECTIVE D.A.	= 8.75 SQ. MI.		
Q2	= 670 CFS	Q50	= 4650 CFS
V2	= 7.19 FPS	V50	= 8.59 FPS
Q2 CHW	= 991.17 FT.	Q50 CHW	= 999.24 FT.
Q5	= 1460 CFS	Q100	= 5860 CFS
V5	= 6.62 FPS	V100	= 7.57 FPS
Q5 CHW	= 994.89 FT.	Q100 CHW	= 999.67 FT.
Q10	= 2260 CFS	QO.T.	= 2230 CFS
V10	= 10.19 FPS	VO.T.	= 10.12 FPS
Q10 CHW	= 997.19 FT.	O.T. CHW	= 996.95 FT.
Q25	= 3610 CFS		
V25	= 9.26 FPS		
Q25 CHW	= 998.77 FT.		

LOGAN COUNTY
 S.H. 740

BEGIN DETOUR

EW 66
S.H. 74D

NBI NO. 31235

NS 301
N. ROCKWELL AVE.

NS 302
N. MacARTHUR BLVD.

NS 303
N. MERIDIAN AVE.

S.H. 74
NS 304

EW 67
W. COUNTY RD. 67

1,300 TONS TBSC TYPE E-
1/4 MILE NORTH AND SOUTH
OF NBI NO. 25319 AND
OTHER PRIORITY LOCATIONS
ON NS 301 AS DIRECTED
BY THE ENGINEER.
QUANTITY ESTIMATED AT
24' WIDE BY 3" THICK.

SHAPE COUNTY ROAD TO
DRAIN. COST TO BE
INCLUDED IN THE COST OF
TBSC TYPE E.

PHASE 1 DETOUR

EW 68
W. COUNTY RD. 68

PHASE 2 DETOUR

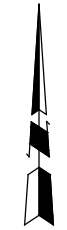
CONST. BRIDGE AND APPROACHES
STA. 313+02 TO STA. 316+91

END DETOUR

EW 69
W. COUNTY RD. 69

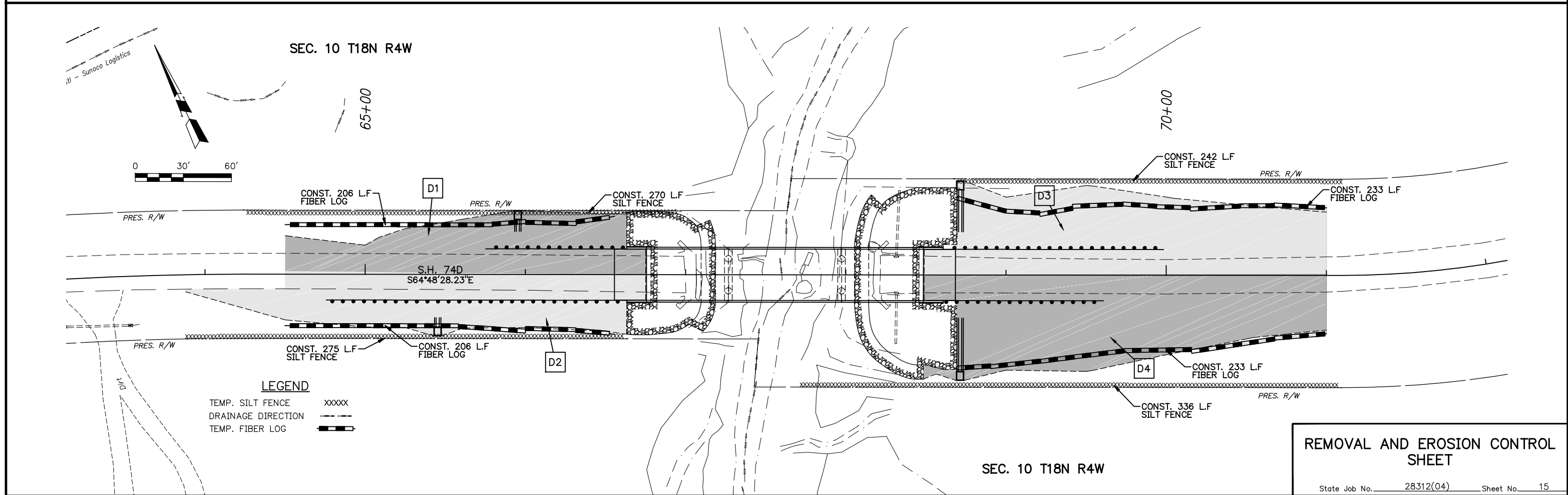
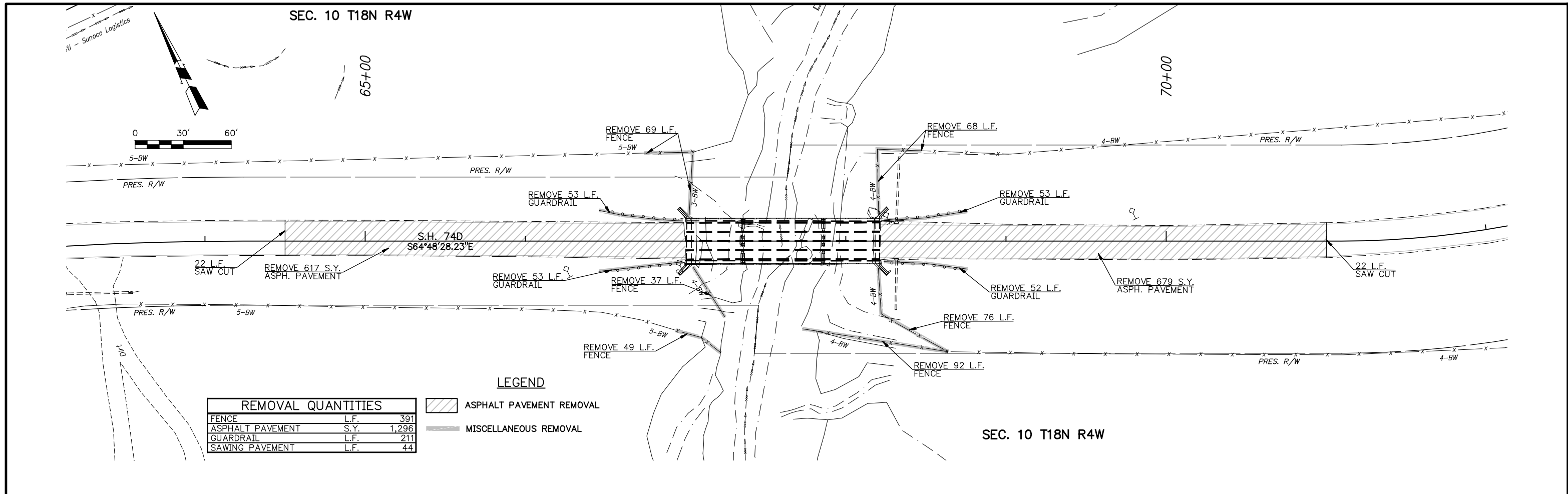
NBI NO. 31875

PROVIDE 4,620 TONS SUPERPAVE TYPE S4 (PG 64-22 OK) AND
6,169 GALLONS OF TACK COAT FOR OVERLAY NOT SHOWN IN
EW 69 PLAN AND PROFILE SHEET
STA. 204+65.00 TO STA. 313+02.00
STA. 316+91.00 TO STA. 362+75.00



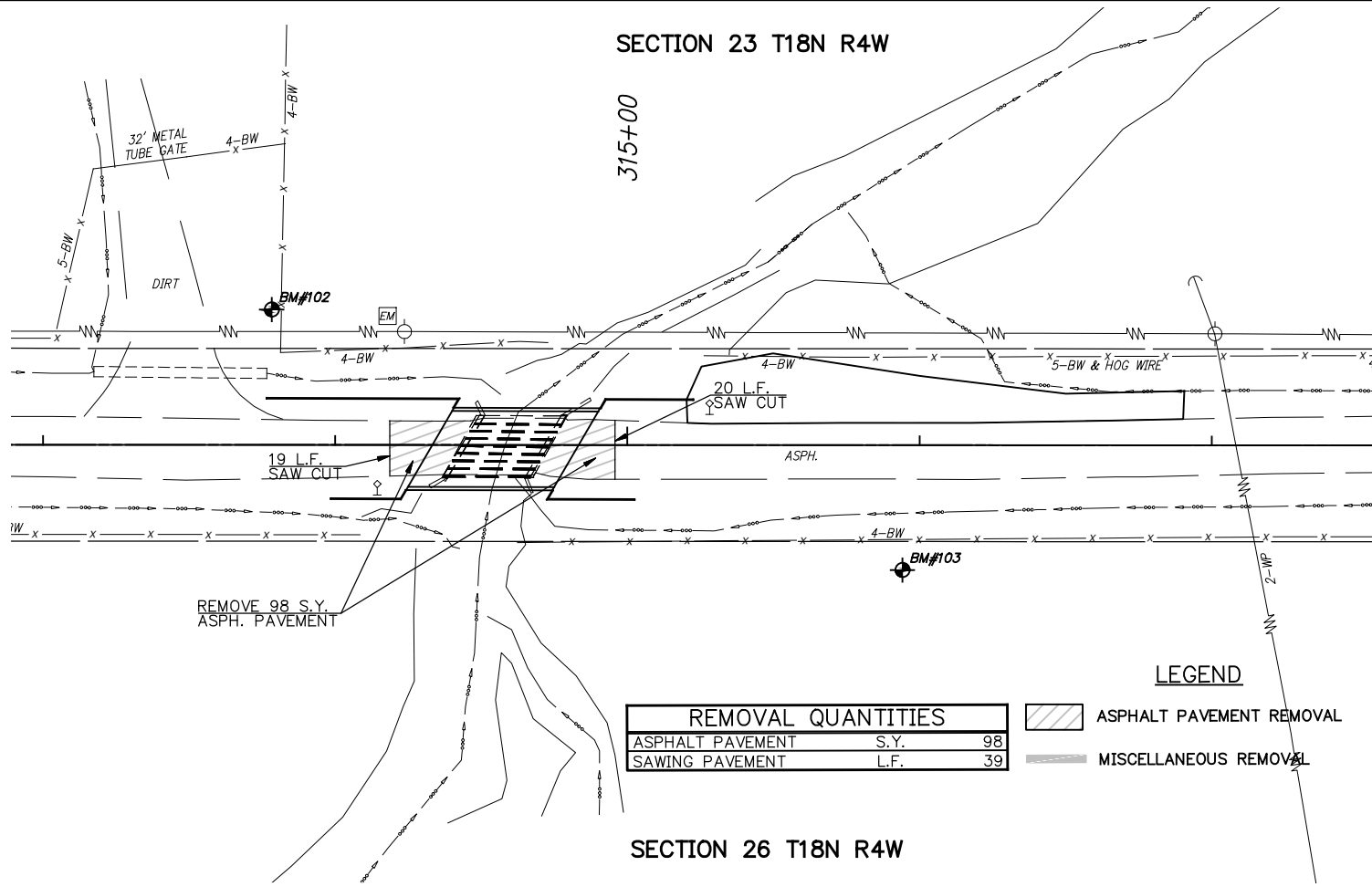
N.T.S.

DETOUR DETAIL



SECTION 23 T18N R4W

315+00



REMOVAL QUANTITIES	
ASPHALT PAVEMENT	S.Y. 98
SAWING PAVEMENT	L.F. 39

LEGEND

ASPHALT PAVEMENT REMOVAL

MISCELLANEOUS REMOVAL

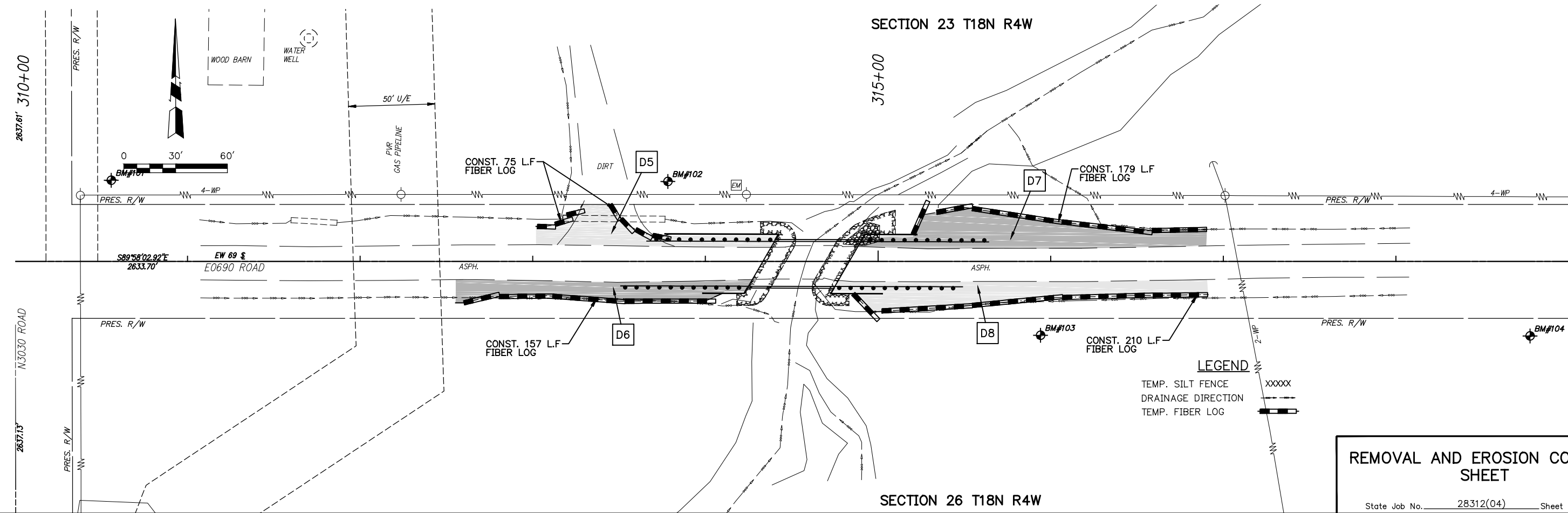
SECTION 26 T18N R4W

SUMMARY OF DISTURBED DRAINAGE AREAS

DISTURBED AREA NO.	OUTFLOW LOCATION (STA.)	DISTURBED AREA (STATION TO STATION)	DIRECTION TO OUTFALL	DESCRIPTION OF AREA	EROSION CONTROL MEASURES	DISTURBED AREA (AC.)
D1	N/A	STA. 63+88 TO STA. 66+55.58	N. & E.	RDWY & FORESLOPE OF S.H. 74 D	SILT FENCE, FIBER LOGS, AND SOLID SLAB SOD	0.15
D2	66+55.58	STA. 63+88 TO STA. 66+55.58	N. & E.	RDWY & FORESLOPE OF S.H. 74 D	SILT FENCE, FIBER LOGS, AND SOLID SLAB SOD	0.19
D3	N/A	STA. 68+68.42 TO STA. 71+00	S. & W.	RDWY & FORESLOPE OF S.H. 74 D	SILT FENCE, FIBER LOGS, AND SOLID SLAB SOD	0.27
D4	71+00	STA. 68+68.42 TO STA. 71+00	S. & W.	RDWY & FORESLOPE OF S.H. 74 D	SILT FENCE, FIBER LOGS, AND SOLID SLAB SOD	0.28
D5	N/A	STA. 316+91 TO STA. 314+40.67	N. & E.	RDWY & FORESLOPE OF EW 69	FIBER LOGS AND SOLID SLAB SOD	0.03
D6	314+40.67	STA. 316+91 TO STA. 314+40.67	S. & E.	RDWY & FORESLOPE OF EW 69	FIBER LOGS AND SOLID SLAB SOD	0.04
D7	N/A	STA. 314+74.33 TO STA. 316+91	N. & W.	RDWY & FORESLOPE OF EW 69	FIBER LOGS AND SOLID SLAB SOD	0.06
D8	316+91	STA. 314+74.33 TO STA. 316+91	S. & W.	RDWY & FORESLOPE OF EW 69	FIBER LOGS AND SOLID SLAB SOD	0.06

SECTION 23 T18N R4W

315+00



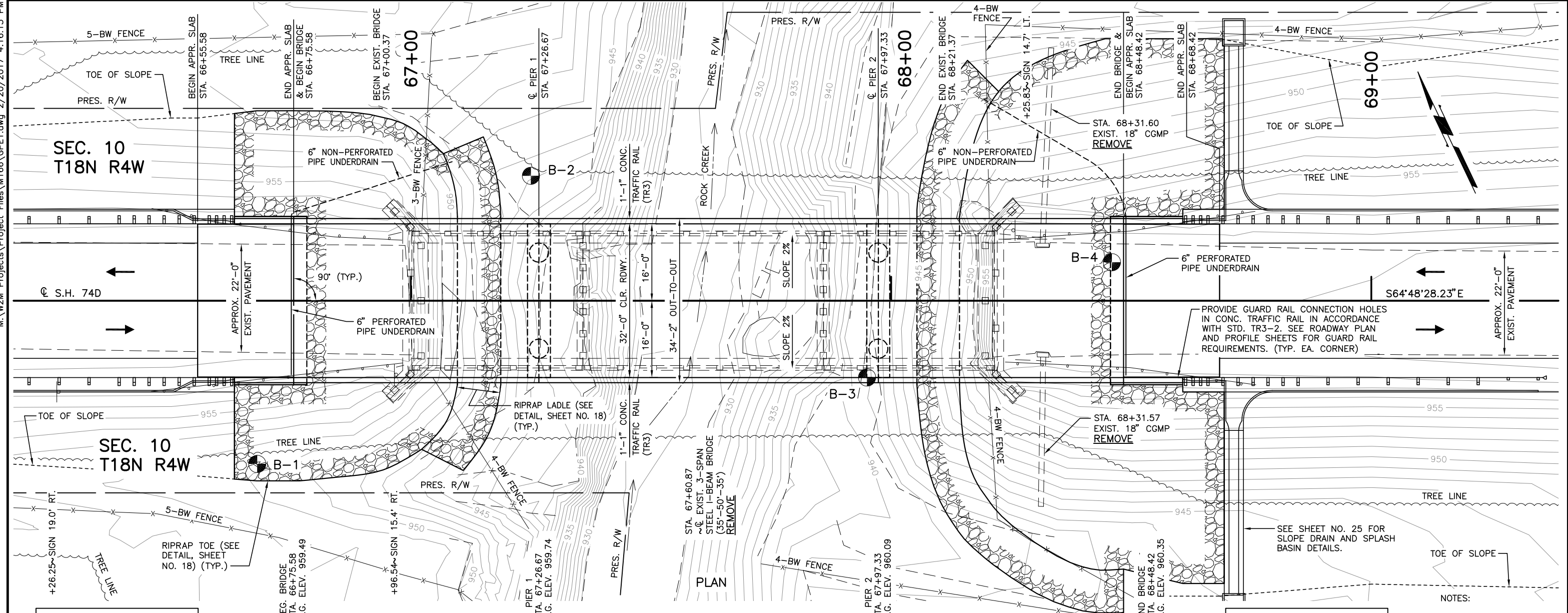
LEGEND

TEMP. SILT FENCE

DRAINAGE DIRECTION

TEMP. FIBER LOG

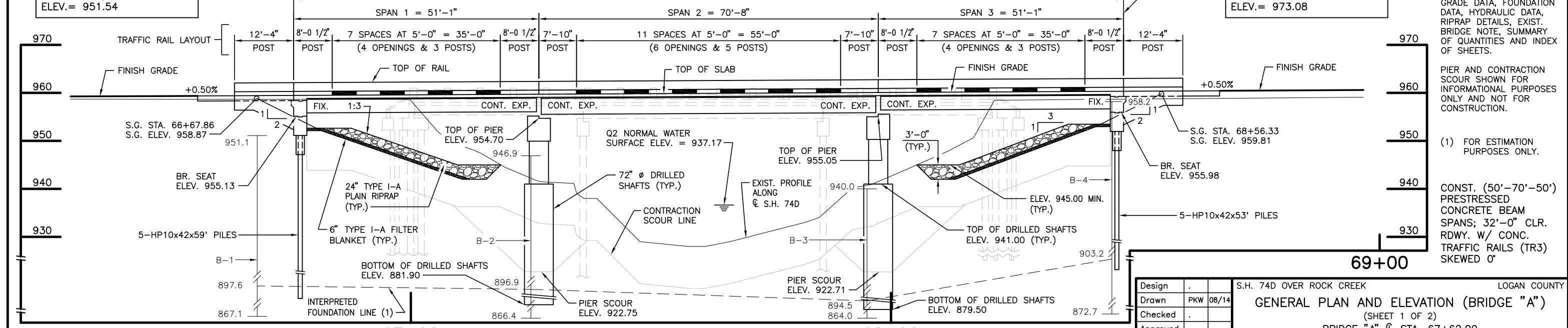
REMOVAL AND EROSION CONTROL SHEET



BM #202, 2" ALUMINUM CAP
200.98' RT., STA. 67+05.43
ELEV.= 951.54

BM #203, 2" ALUMINUM CAP
202.98' LT., STA. 78+47.72
ELEV.= 973.08

BRIDGE LENGTH = 172'-10"



67+00

ELEVATION

68+00

SCALE 1"=10'

Design	.	.
Drawn	PKW	08/14
Checked	.	.
Approved	.	.
Squad	.	.

S.H. 74D OVER ROCK CREEK
LOGAN COUNTY
GENERAL PLAN AND ELEVATION (BRIDGE "A")
(SHEET 1 OF 2)
BRIDGE "A" @ STA. 67+62.00
State Job No. 28312(04)
Sheet No. 17

NOTES:
SEE SHEET NO. 18 FOR DESIGN DATA, FINISH GRADE DATA, FOUNDATION DATA, HYDRAULIC DATA, RIPRAP DETAILS, EXIST. BRIDGE NOTE, SUMMARY OF QUANTITIES AND INDEX OF SHEETS.
PIER AND CONTRACTION SCOUR SHOWN FOR INFORMATIONAL PURPOSES ONLY AND NOT FOR CONSTRUCTION.
(1) FOR ESTIMATION PURPOSES ONLY.
CONST. (50'-70'-50') PRESTRESSED CONCRETE BEAM SPANS; 32'-0" CLR. RDWY. W/ CONC. TRAFFIC RAILS (TR3) SKEWED 0°

LOAD AND RESISTANCE FACTOR DESIGN

DESIGN DATA

CLASS "AA" CONCRETE $F'_c = 4,000$ PSI
 CLASS "A" CONCRETE $F'_c = 3,000$ PSI
 REINFORCING STEEL AASHTO M31 (Gr. 60) $F_y = 60,000$ PSI
 STRUCTURAL STEEL AASHTO M270 (Gr. 50W) $F_y = 50,000$ PSI

LOADING: HL-93
 20 PSF FUTURE WEARING SURFACE
 5 PSF STAY-IN-PLACE FORMS

DESIGN: AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 5TH EDITION, WITH 2010 INTERIM REVISIONS, EXCEPT AS MODIFIED BY CURRENT ODOT BRIDGE DIVISION DESIGN POLICIES. (PIERS - 7TH EDITION, 2014.)
 ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE.

LFD OPERATING RATING: HS 34.7

FOUNDATION DATA

ABUTMENTS (HP10x42 PILING):

(1) MAXIMUM FACTORED PILE REACTION = 75.3 TONS/PILE

PIERS (72" DIAMETER DRILLED SHAFTS)	PIER 1	PIER 2
FACTORED REACTION (TONS/SHAFT)	= 468.3	475.1
NOMINAL UNIT BEARING RESISTANCE (TSF)	= 60.0	60.0
BEARING RESISTANCE FACTOR	= 0.7	0.7
FACTORED BEARING RESISTANCE (TONS/SHAFT)	= 1187.5	1187.5
NOMINAL UNIT FRICTION RESISTANCE (TSF)	= 9.0	4.6
FRICTION RESISTANCE FACTOR	= 0.45	0.45
FACTORED FRICTION RESISTANCE (TONS/SHAFT)	= 687.1	351.2
DEPTH OF ROCK NEGLECTED FOR FRICTION (FT.)	= 6.0	6.0
MINIMUM DEPTH INTO ROCK (FT.)	= 15.0	15.0
TOTAL FACTORED RESISTANCE (TONS/SHAFT)	= 1874.6	1538.7

(1) ABUTMENT PILING SHALL BE DRIVEN THROUGH THE COMPACTED FILL TO POINT BEARING ON SOLID FOUNDATION MATERIAL AT THE APPROXIMATE ELEVATION SHOWN ON THE PLANS. PILE CAPACITY SHALL BE VERIFIED USING THE GATES EQUATION PROVIDED ON SHEET NO. 6. IF THE FACTORED PILE CAPACITY IS NOT OBTAINED AT THIS ELEVATION, DRIVING SHALL CONTINUE UNTIL THE FACTORED PILE CAPACITY IS OBTAINED. THE LENGTH OF STEEL PILING SHOWN ON THE PLANS IS FOR ESTIMATING PURPOSES ONLY.

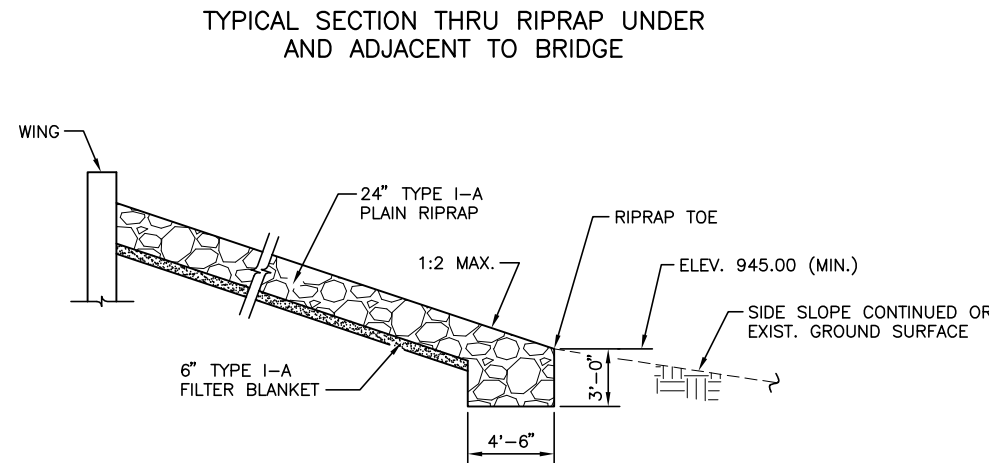
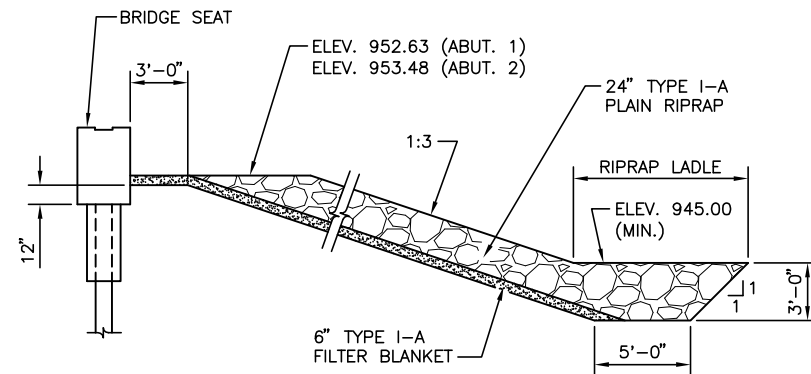
EXISTING BRIDGE NOTE:

THE EXISTING BRIDGE SHALL BE REMOVED IN ACCORDANCE WITH THE NOTES ON SHEET NO. 6.

HYDRAULIC DATA

TOTAL D.A.	= 19.90 sq. mi.	Q50	= 7450 cfs
CONTROLLED D.A.	= 0.00 sq. mi.	V50	= 10.65 fps
EFFECTIVE D.A.	= 19.90 sq. mi.	Q50 CHW	= 948.22 ft.
Q2	= 1080 cfs	Q100	= 9330 cfs
V2	= 5.14 fps	V100	= 11.41 fps
Q2 CHW	= 937.17 ft.	Q100 CHW	= 949.92 ft.
Q5	= 2350 cfs	Q500	= 14900 cfs
V5	= 7.09 fps	V500	= 11.93 fps
Q5 CHW	= 940.63 ft.	Q500 CHW	= 954.43 ft.
Q10	= 3620 cfs	Q0.T. > Q500	
V10	= 8.37 fps	O.T. ELEV.	= 956.71 ft.
Q10 CHW	= 943.17 ft.		
Q25	= 5760 cfs	MAX. CALC. TOTAL SCOUR	= 18.84 ft.
V25	= 9.82 fps	CONTRACTION SCOUR	= 8.72 ft.
Q25 CHW	= 946.41 ft.	PIER SCOUR	= 10.12 ft.

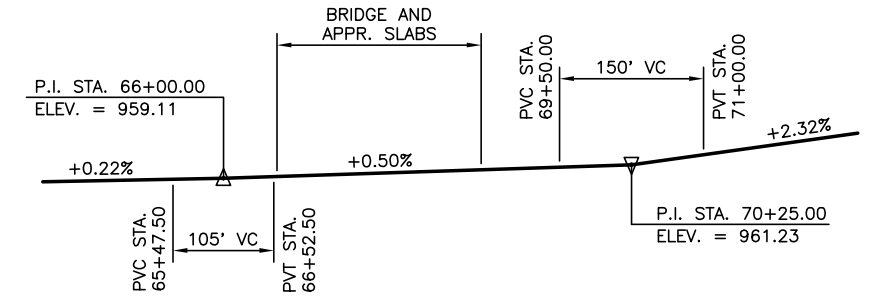
SUMMARY OF QUANTITIES						
DESCRIPTION	UNITS	ABUTS.	PIERS	SUPSTR.	APPR. SLABS	TOTAL
SUBSTRUCTURE EXCAVATION COMMON	CY	120.00				120.00
GRANULAR BACKFILL	CY	56.00				56.00
PRESTRESSED CONCRETE BEAM (TYPE B)	LF			397.34		397.34
PRESTRESSED CONCRETE BEAM (TYPE C)	LF			278.67		278.67
APPROACH SLAB	SY				141.60	141.60
SAW-CUT GROOVING	SY			614.60	141.50	756.10
CONCRETE RAIL (TR3)	LF	49.60		345.80		395.40
STRUCTURAL STEEL	LB			870.00		870.00
WEATHERING STEEL FIXED BEARING ASSEMBLY	EA			8.00		8.00
WEATHERING STEEL EXPANSION BEARING ASSEMBLY	EA			16.00		16.00
ELASTOMERIC BEARING PADS	EA			16.00		16.00
CLASS AA CONCRETE	CY			180.80		180.80
CLASS A CONCRETE	CY	42.20	74.90			117.10
CLASS C CONCRETE	CY					12.00
REINFORCING STEEL	LB	6420.00	610.00	42000.00		49030.00
EPOXY COATED REINFORCING STEEL	LB		9080.00			9080.00
PILES, FURNISHED (HP10x42)	LF	560.00				560.00
PILES, DRIVEN (HP10x42)	LF	560.00				560.00
PILE SPLICE, H-PILE (NON-BIDDABLE)	EA	2.00				2.00
WATER REPELLENT (VISUALLY INSPECTED)	SY		124.00			124.00
DRILLED SHAFTS 72" DIAMETER	LF		241.20			241.20
CROSSHOLE SONIC LOGGING	EA		1.00			1.00
TYPE I-A PLAIN RIPRAP	TON	1150.00				1150.00
TYPE I-A FILTER BLANKET	TON	205.00				205.00
6" PERFORATED PIPE UNDERDRAIN ROUND	LF	64.00				64.00
6" NON-PERF. PIPE UNDERDRAIN RND.	LF	80.00				80.00
REMOVAL OF EXISTING BRIDGE STRUCTURE	LSUM					1.00



TYPICAL SECTION THRU RIPRAP ALONG WINGS

NOTES: SEE SHEET NO. 17 FOR PLAN LIMITS.

RIPRAP SHALL NOT BE PLACED BELOW ELEV. 945.00 AT THE SURFACE.



FINISH GRADE DATA & PROPOSED S.H. 74D

INDEX OF SHEETS

SHEET NO.	TITLE
6	PAY QUANTITIES AND GENERAL NOTES (BRIDGE "A")
17	GENERAL PLAN AND ELEVATION (BRIDGE "A")
18	GENERAL PLAN AND ELEVATION (BRIDGE "A")
19	FOUNDATION REPORT
20	FOUNDATION REPORT
21	SUBSTRUCTURE STAKING DIAGRAM
22	PIER 1 DETAILS
23	PIER 2 DETAILS
24	MISCELLANEOUS PIER DETAILS
25	DRAIN AT END BRIDGE DETAILS

THE FOLLOWING STANDARDS SHALL BE REQUIRED:

TR3-2-01E	CB32-I-SKO-BRG-PC2-00E
HP1-2-01E	CB32-I-SKO-BRG-PC3-01E
CB32-I-SKO-ABUT-PC2-01E	CB32-I-SKO-SPR-QUAN-PCB-1-01E
CB32-I-SKO-XSECT-PC234-01E	CB32-I-SKO-SPR-QUAN-PCB-2-01E
CB32-I-SKO-LSECT-PCB-01E	CB32-I-SKO-AS-01E
CB32-I-SKO-DKSLB-BLIST-PCB-01E	CB26..32-I-SKO-WING-PC2-01E
CB32-I-SKO-PCB-B-50-01E	CB26..32-I-SKO-ABUT-MISC-01E
CB32-I-SKO-PCB-C-70-01E	CB26..32-C..I-SKO..30-PCB-DTL-1-01E
CB32-I-SKO-DIA-ABUT-PC2-01E	CB26..32-C..I-SKO..30-PCB-DTL-2-01E
CB32-I-SKO-DIA-INTPR-PCB-01E	CB26..32-C..I-SKO..30-GRAU-BC-00E

CONST. (50'-70'-50') PRESTRESSED CONCRETE BEAM SPANS; 32'-0" CLR. RDWY. W/ CONC. TRAFFIC RAILS (TR3) SKEWED 0°

Design	.	S.H. 74D OVER ROCK CREEK	LOGAN COUNTY
Drawn	PKW 08/14	GENERAL PLAN AND ELEVATION (BRIDGE "A")	
Checked	.	(SHEET 2 OF 2)	
Approved		BRIDGE "A" @ STA. 67+62.00	
Squad		State Job No. 28312(04)	Sheet No. 18

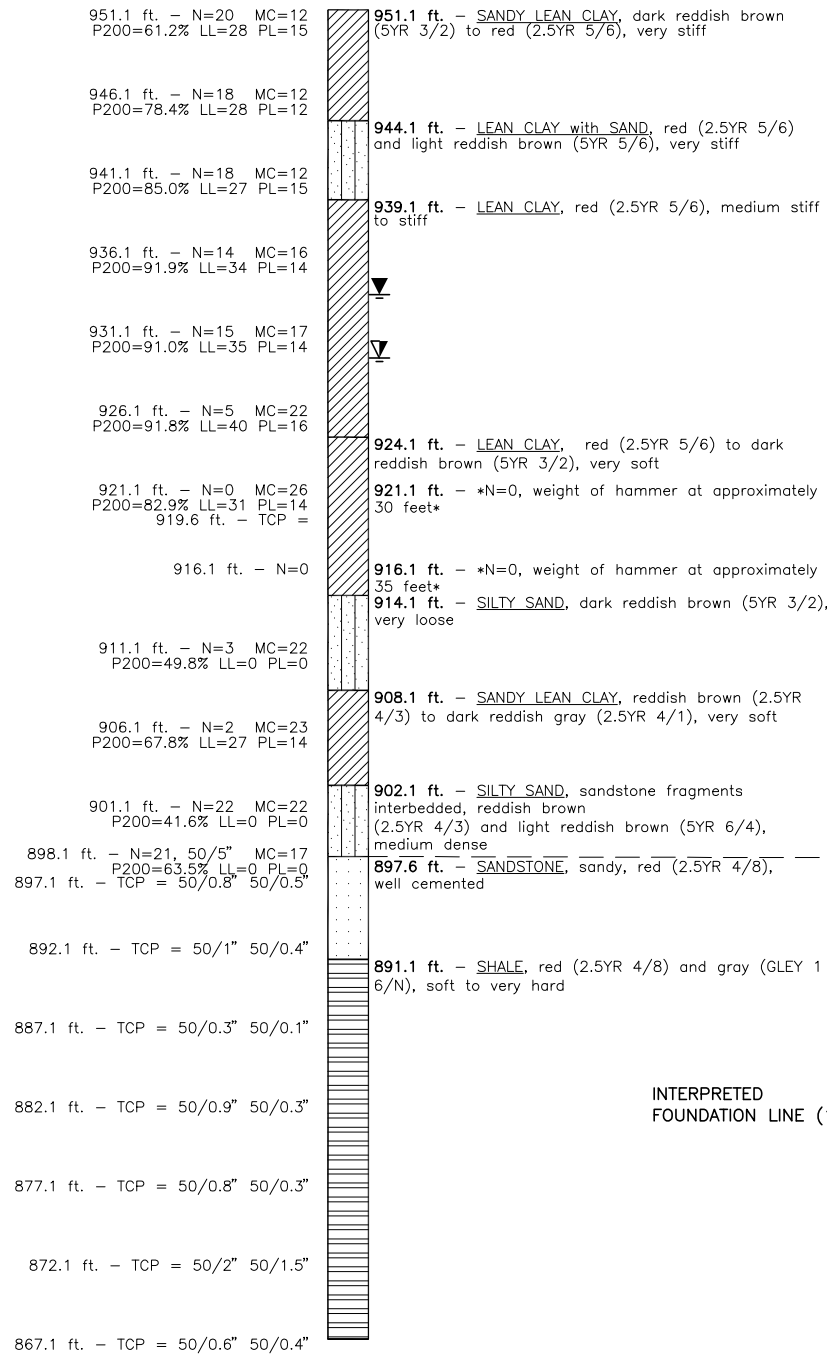
BORING NO. B-1
STA. 66+68
34' RT.

WATER LEVEL CHECK: 18.0 FT.
 (10/7/2014)

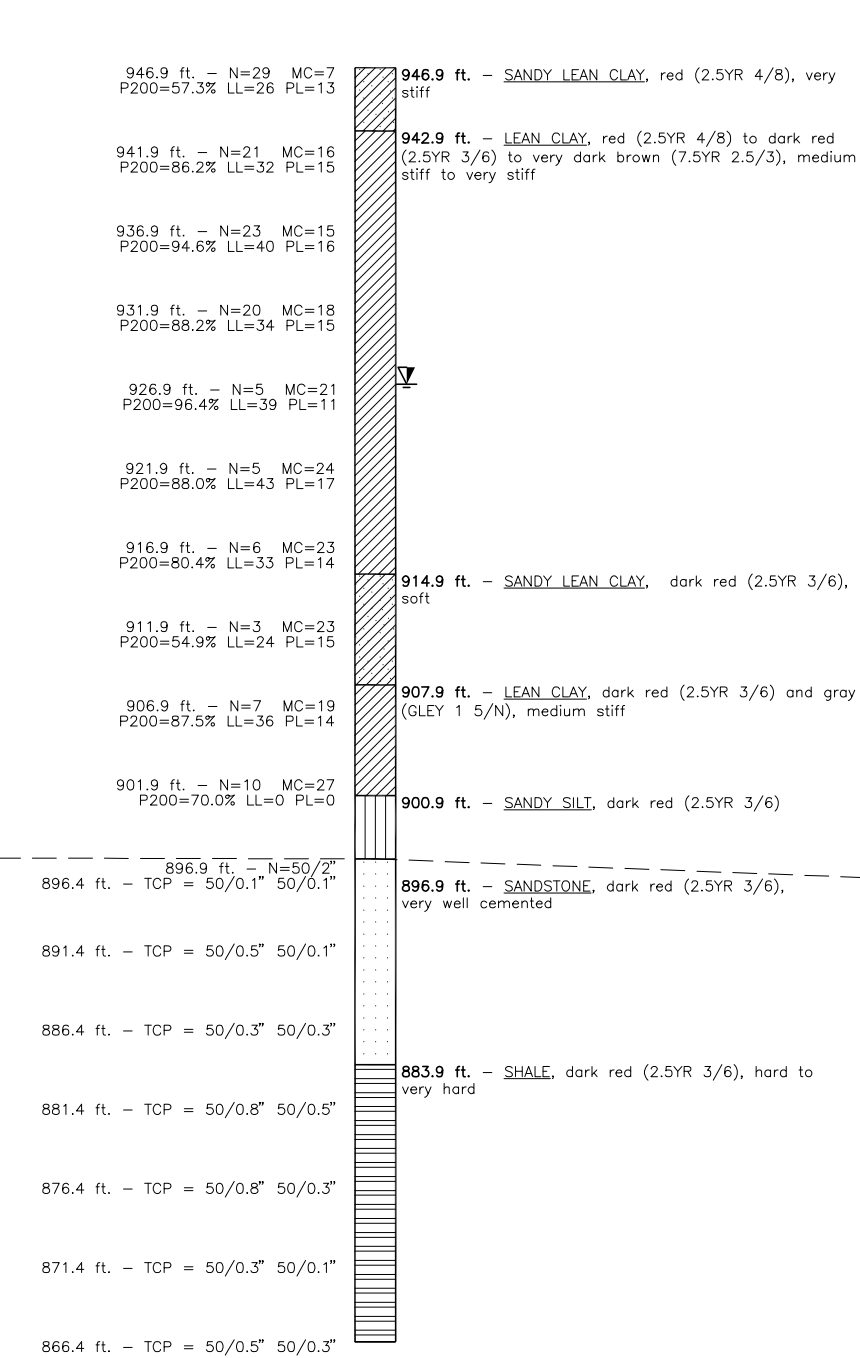
BORING NO. B-2
STA. 67+25
26' LT.

WATER LEVEL CHECK: NONE
 (~10/7/2014)

960
950
940
930
920
910
900
890
880
870
860



867.1 ft. - Boring Termination Depth = 84 feet
 Boring Completed and Grouted on 10/7/14



866.4 ft. - Boring Termination Depth = 80.5 feet
 Boring Completed on 10/3/14 and Grouted on 10/7/14

INTERPRETED FOUNDATION LINE (1)

(1) FOR ESTIMATION PURPOSES ONLY.

960
950
940
930
920
910
900
890
880
870
860

GEOLOGY:

DIVISION FOUR OF THE "ENGINEERING CLASSIFICATION OF GEOLOGICAL MATERIALS", PUBLISHED BY THE OKLAHOMA DEPARTMENT OF TRANSPORTATION (ODOT) INDICATES THE PROJECT SITE IS UNDERLAIN BY THE GARBER UNIT (PG).

THIS UNIT CONSISTS OF A SERIES OF RED CLAY SHALES, RED SANDY SHALES, AND RED MASSIVE COMMONLY CROSS-BEDDED LENTICULAR SANDSTONES. THE SANDSTONES ARE MORE PROMINENT IN THE SOUTHERN PORTION OF DIVISION FOUR. NORTHWARD, THE SANDSTONES THIN AND SHALES BECOME MORE DOMINANT.

THE TOTAL THICKNESS OF THE UNIT IS ABOUT 400 FEET IN OKLAHOMA COUNTY, IT THICKENS TO ABOUT 600 FEET IN GARFIELD COUNTY AND CONTINUES TO THICKEN NORTHWARD TO THE STATE LINE.

THE GARBER UNIT OUTCROPS IN A 12 TO 24 MILE BAND ACROSS GRANT, GARFIELD, KINGFISHER, LOGAN, NOBLE AND OKLAHOMA COUNTIES OF DIVISION FOUR. TOPOGRAPHICALLY, THE UNIT IS ONLY SLIGHTLY MORE ROLLING IN THE NORTHERN DIVISION FOUR THAN THE OVERLYING HENNESSEY UNIT AND UNDERLYING WELLINGTON UNIT. IN SOUTHERN DIVISION FOUR, THE INCREASE IN SANDSTONE RESULTS IN A ROLLING TOPOGRAPHY WITH THE HILLS GENERALLY CAPPED BY SANDSTONES AND COVERED BY THICK GROWTHS OF BLACKJACK OAK, AND POST OAK TREES.

NOTE: GROUNDWATER LEVELS WERE OBTAINED DURING THE DRILLING OPERATIONS, AND MAY FLUCTUATE THROUGHOUT THE YEAR.

▼ WATER LEVEL
 ▼ CAVE IN DEPTH

NOTES: FOR ADDITIONAL TESTING INFORMATION, SEE REPORT OF GEOTECHNICAL INVESTIGATION.

BORING LOCATIONS (STATIONS) ARE NOT TO SCALE HORIZONTALLY.

Design	.	
Drawn	PKW	11/14
Checked	.	
Approved		
Squad		

S.H. 74D OVER ROCK CREEK
 LOGAN COUNTY
FOUNDATION REPORT
 (SHEET 1 OF 2)
 BRIDGE "A" @ STA. 67+62.00
 State Job No. 28312(04) Sheet No. 19

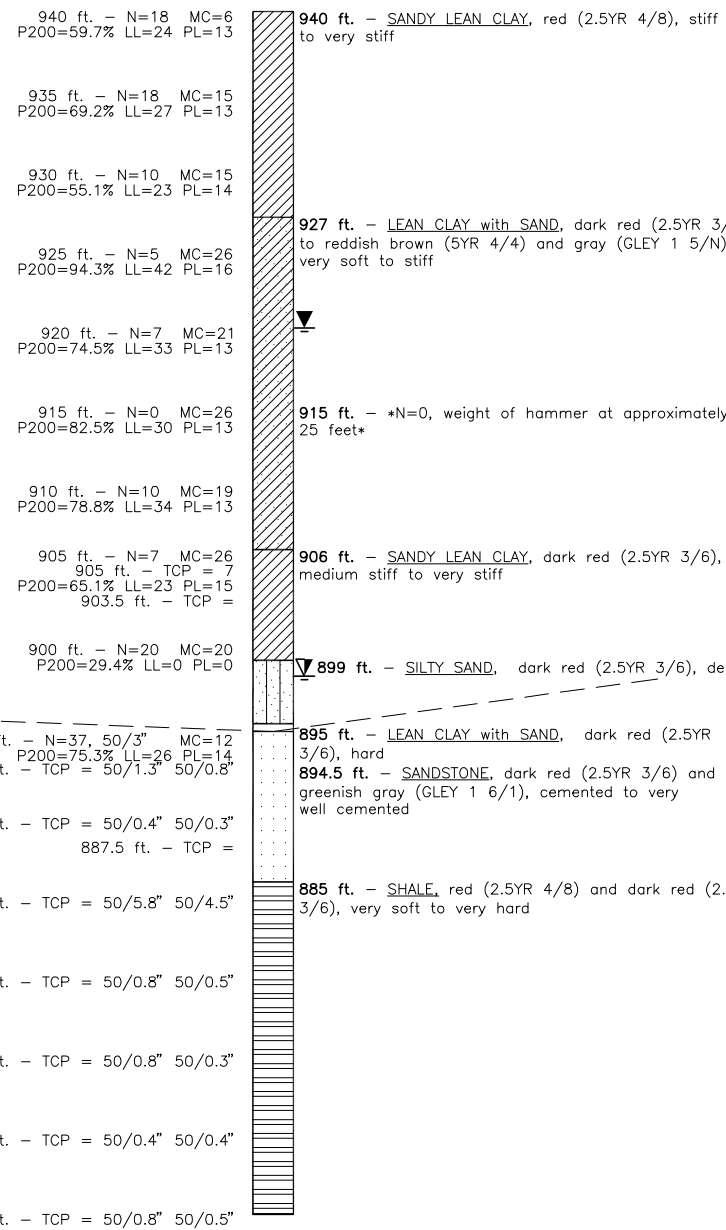
BORING NO. B-3
STA. 67+95
16' RT.

WATER LEVEL CHECK: 20.0 FT.
 (10/7/2014)

BORING NO. B-4
STA. 68+46
8' LT.

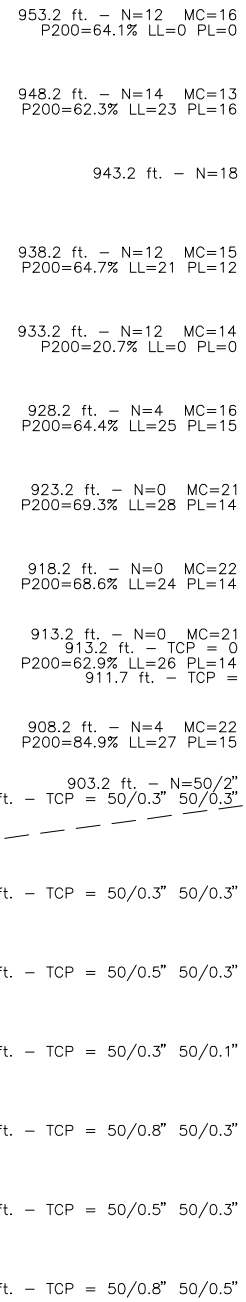
WATER LEVEL CHECK: 23.0 FT.
 (10/6/2014)

960
950
940
930
920
910
900
890
880
870
860



INTERPRETED FOUNDATION LINE (1)

(1) FOR ESTIMATION PURPOSES ONLY.



960
950
940
930
920
910
900
890
880
870
860

GEOLOGY:

DIVISION FOUR OF THE "ENGINEERING CLASSIFICATION OF GEOLOGICAL MATERIALS", PUBLISHED BY THE OKLAHOMA DEPARTMENT OF TRANSPORTATION (ODOT) INDICATES THE PROJECT SITE IS UNDERLAIN BY THE GARBER UNIT (PG).

THIS UNIT CONSISTS OF A SERIES OF RED CLAY SHALES, RED SANDY SHALES, AND RED MASSIVE COMMONLY CROSS-BEDDED LENTICULAR SANDSTONES. THE SANDSTONES ARE MORE PROMINENT IN THE SOUTHERN PORTION OF DIVISION FOUR. NORTHWARD, THE SANDSTONES THIN AND SHALES BECOME MORE DOMINANT.

THE TOTAL THICKNESS OF THE UNIT IS ABOUT 400 FEET IN OKLAHOMA COUNTY, IT THICKENS TO ABOUT 600 FEET IN GARFIELD COUNTY AND CONTINUES TO THICKEN NORTHWARD TO THE STATE LINE.

THE GARBER UNIT OUTCROPS IN A 12 TO 24 MILE BAND ACROSS GRANT, GARFIELD, KINGFISHER, LOGAN, NOBLE AND OKLAHOMA COUNTIES OF DIVISION FOUR. TOPOGRAPHICALLY, THE UNIT IS ONLY SLIGHTLY MORE ROLLING IN THE NORTHERN DIVISION FOUR THAN THE OVERLYING HENNESSEY UNIT AND UNDERLYING WELLINGTON UNIT. IN SOUTHERN DIVISION FOUR, THE INCREASE IN SANDSTONE RESULTS IN A ROLLING TOPOGRAPHY WITH THE HILLS GENERALLY CAPPED BY SANDSTONES AND COVERED BY THICK GROWTHS OF BLACKJACK OAK, AND POST OAK TREES.

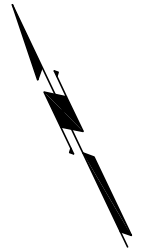
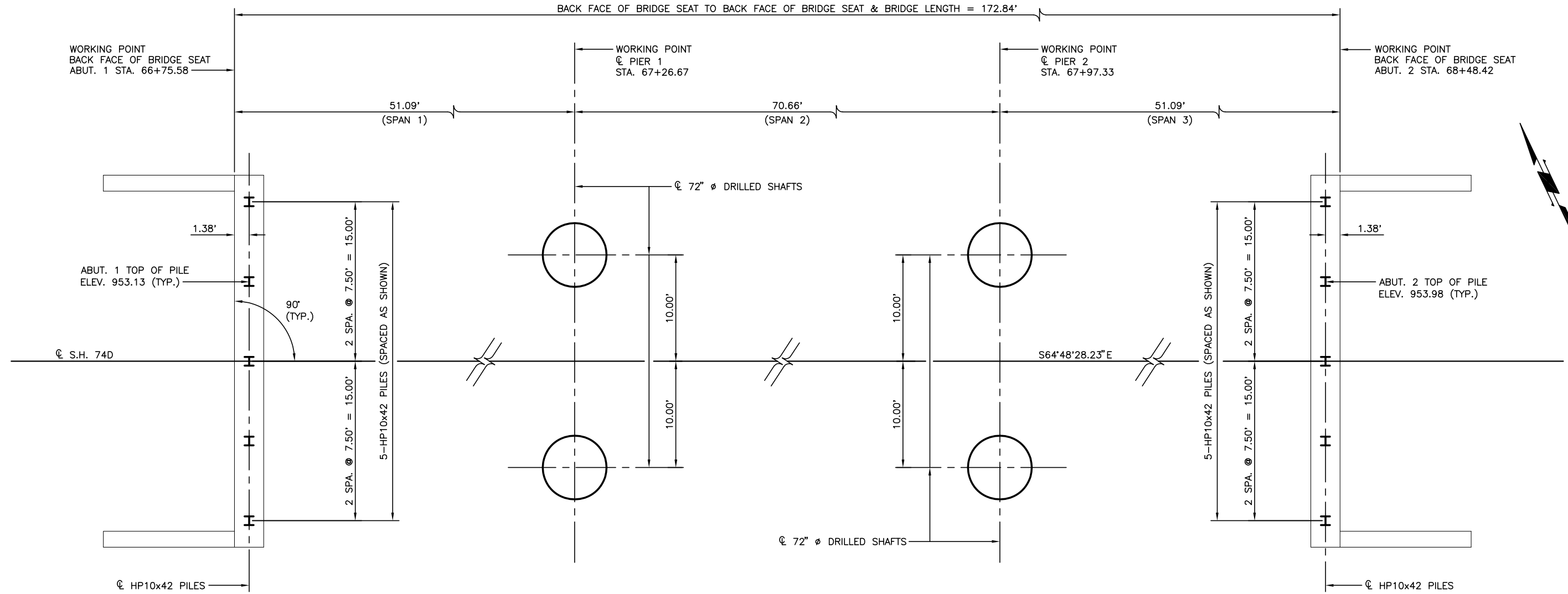
NOTE: GROUNDWATER LEVELS WERE OBTAINED DURING THE DRILLING OPERATIONS, AND MAY FLUCTUATE THROUGHOUT THE YEAR.

▼ WATER LEVEL
 ▼ CAVE IN DEPTH

NOTES: FOR ADDITIONAL TESTING INFORMATION, SEE REPORT OF GEOTECHNICAL INVESTIGATION.

BORING LOCATIONS (STATIONS) ARE NOT TO SCALE HORIZONTALLY.

Design	.	S.H. 74D OVER ROCK CREEK	LOGAN COUNTY
Drawn	PKW 11/14	FOUNDATION REPORT (SHEET 2 OF 2) BRIDGE "A" @ STA. 67+62.00 State Job No. 28312(04)	
Checked	.		
Approved	.		
Squad	.		
		Sheet No. 20	



SUBSTRUCTURE STAKING DIAGRAM
(NOT TO SCALE)

NOTE: ABUTMENT PILES SHALL BE ORIENTED SUCH THAT THE FACE OF THE WEB IS PARALLEL WITH THE BACK FACE OF THE ABUTMENT.

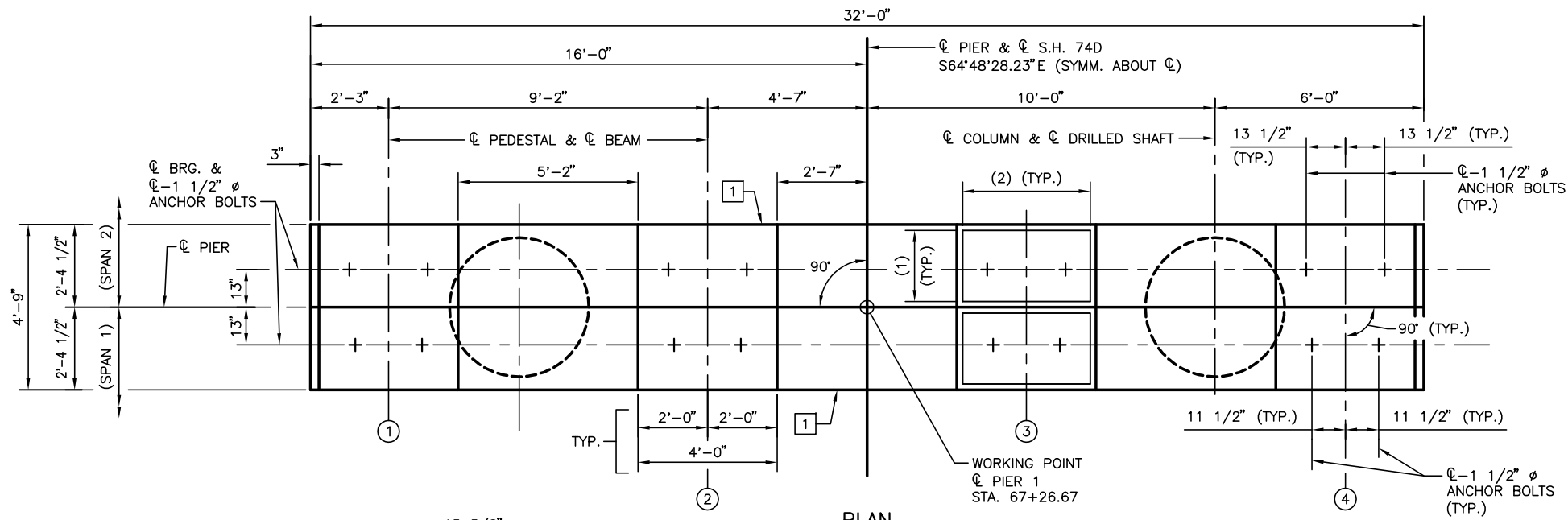
NOTES: ALL DIMENSIONS ARE HORIZONTAL DIMENSIONS.
FOR THE SUMMARY OF QUANTITIES, SEE SHEET NO. 18.
SEE STD. HP1-2 FOR STEEL PILE ENCASEMENT DETAILS.
FOR GEOMETRIC LAYOUT OF \odot S.H. 74D, SEE THE ROADWAY PLAN AND PROFILE SHEETS.

Design	.	
Drawn	PKW	09/14
Checked	.	
Approved		
Squad		

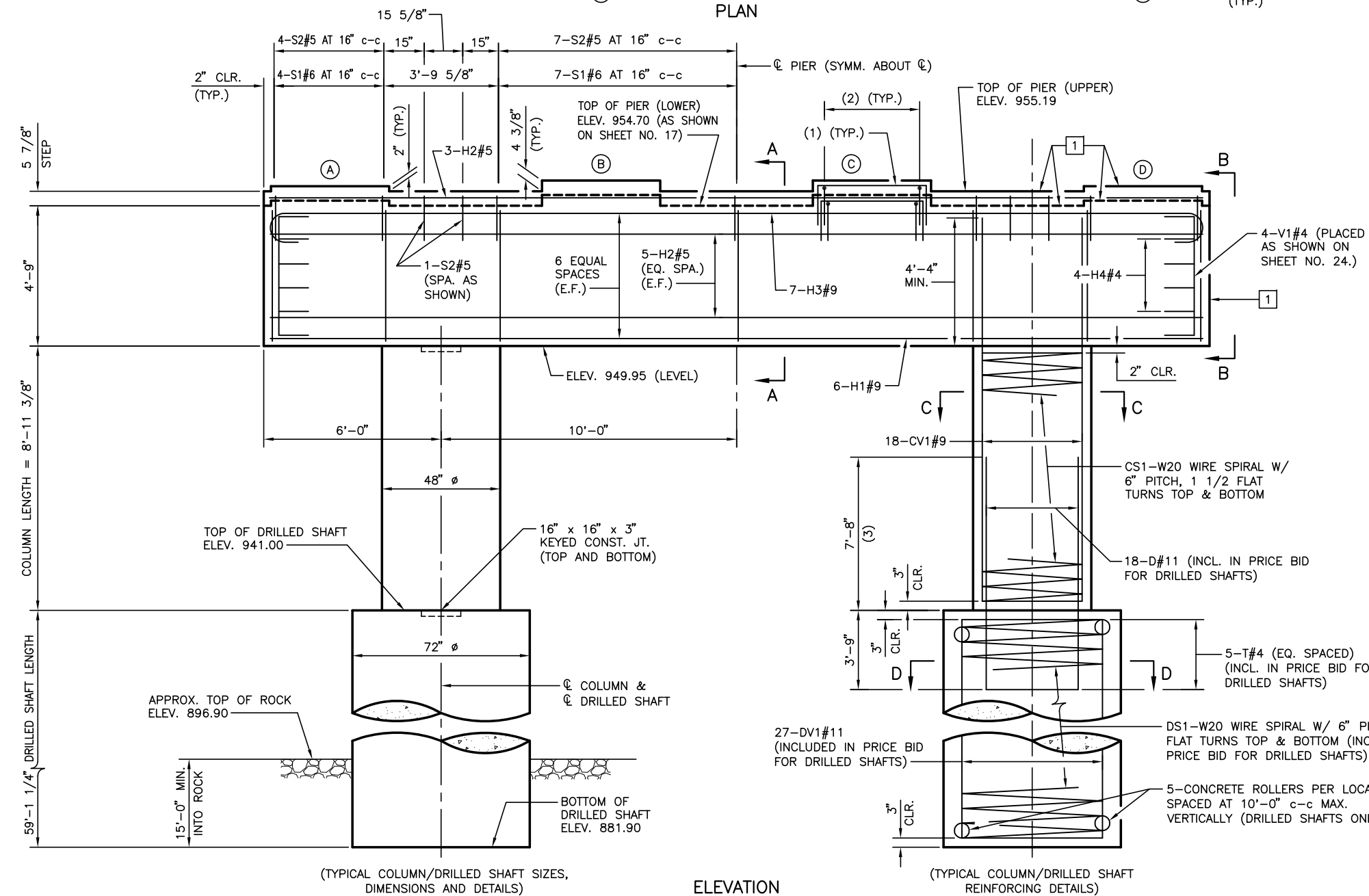
S.H. 74D OVER ROCK CREEK
LOGAN COUNTY

SUBSTRUCTURE STAKING DIAGRAM
BRIDGE "A" \odot STA. 67+62.00

State Job No. 28312(04)
Sheet No. 21



- (1) 3-P3#4 (EQ. SPA.) (TYP. EA. PED.)
- (2) 5-P4#4 (EQ. SPA.) (TYP. EA. PED.)
- (3) NOT TO BE CONSIDERED AS ADD'L DRILLED SHAFT PAY LENGTH.



SCHEDULE OF PEDESTAL ELEVATIONS		
PEDESTAL	SPAN 1 ELEVATIONS	SPAN 2 ELEVATIONS
A	955.36	954.87
B	955.55	955.06
C	955.55	955.06
D	955.36	954.87

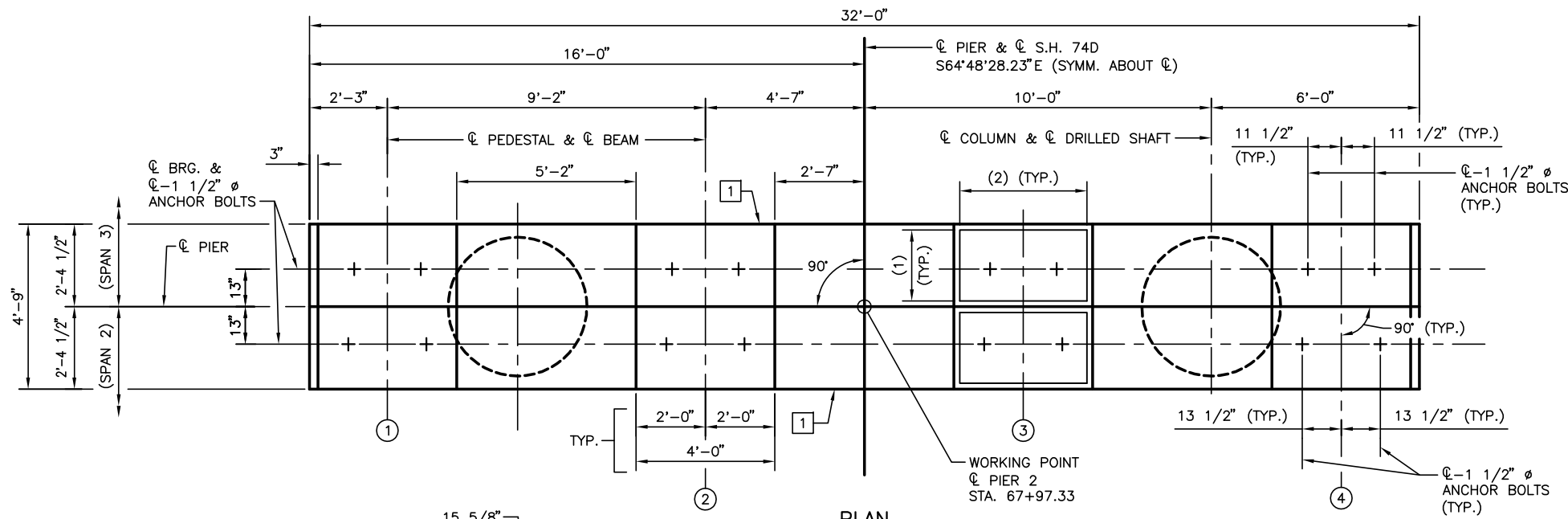
E.F. - DENOTES EACH FACE

- 1 TREAT TOP OF PIER CAP, INCLUDING ALL SURFACES OF PEDESTALS AND STEP, AND ALL VERTICAL FACES OF THE PIER CAP WITH A PENETRATING WATER REPELLENT SURFACE TREATMENT.

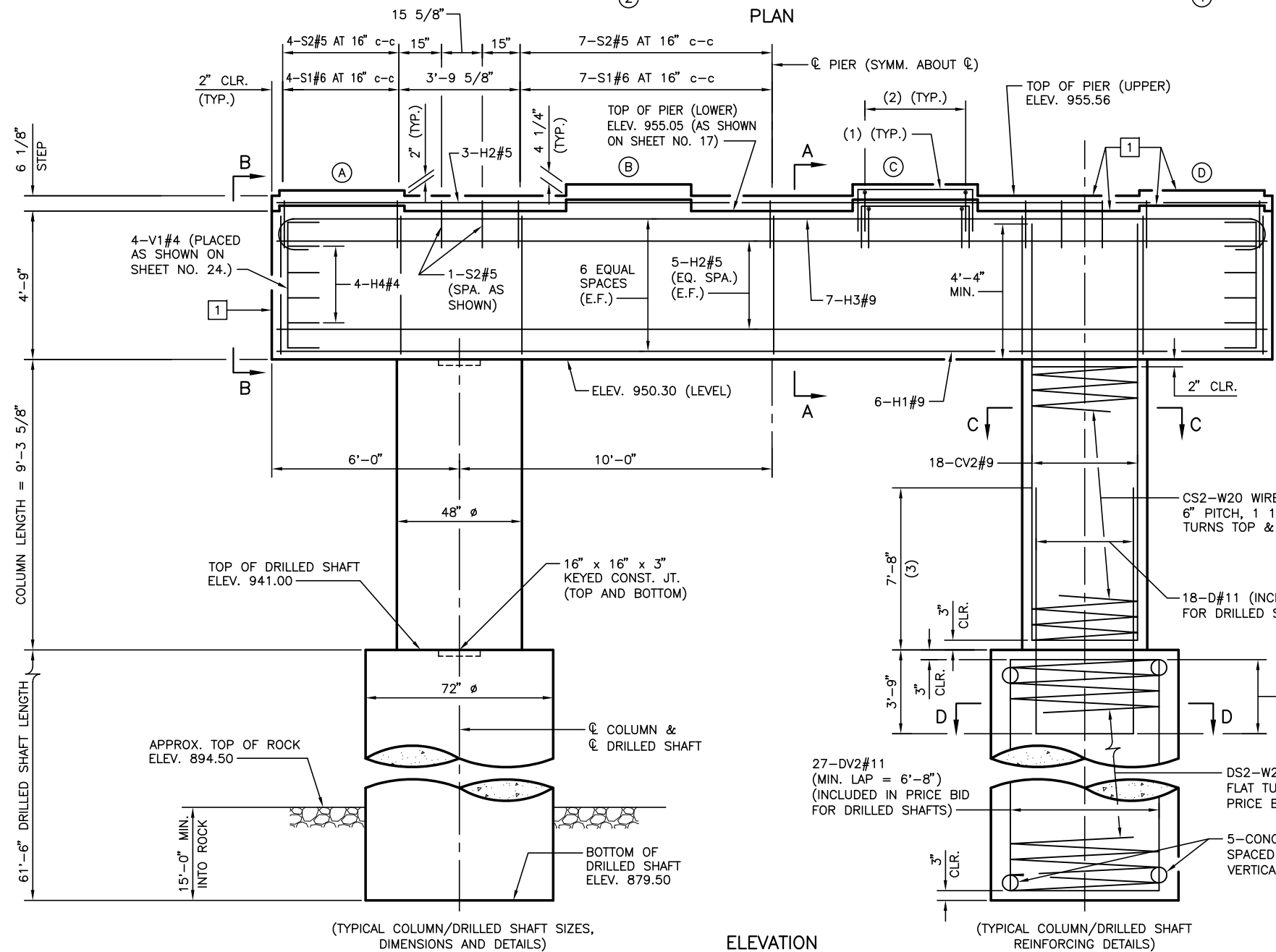
NOTES: ALL EDGES OF THE PIER CAP SHALL HAVE A 1 1/2" CHAMFER, EXCEPT FOR EDGES OF PEDESTALS, WHICH SHALL HAVE 3/4" CHAMFERS.

FOR SECTION VIEWS, BAR BEND DETAILS, BAR LIST, QUANTITIES, AND SPIRAL REINFORCING AND CONCRETE ROLLER DETAILS, SEE SHEET NO. 24.

Design	.	S.H. 74D OVER ROCK CREEK	LOGAN COUNTY
Drawn	PKW 09/14	PIER 1 DETAILS BRIDGE "A" @ STA. 67+62.00 State Job No. 28312(04)	
Checked	.		
Approved	.		
Squad	.		



- (1) 3-P3#4 (EQ. SPA.) (TYP. EA. PED.)
- (2) 5-P4#4 (EQ. SPA.) (TYP. EA. PED.)
- (3) NOT TO BE CONSIDERED AS ADD'L DRILLED SHAFT PAY LENGTH.



SCHEDULE OF PEDESTAL ELEVATIONS		
PEDESTAL	SPAN 2 ELEVATIONS	SPAN 3 ELEVATIONS
A	955.22	955.73
B	955.40	955.91
C	955.40	955.91
D	955.22	955.73

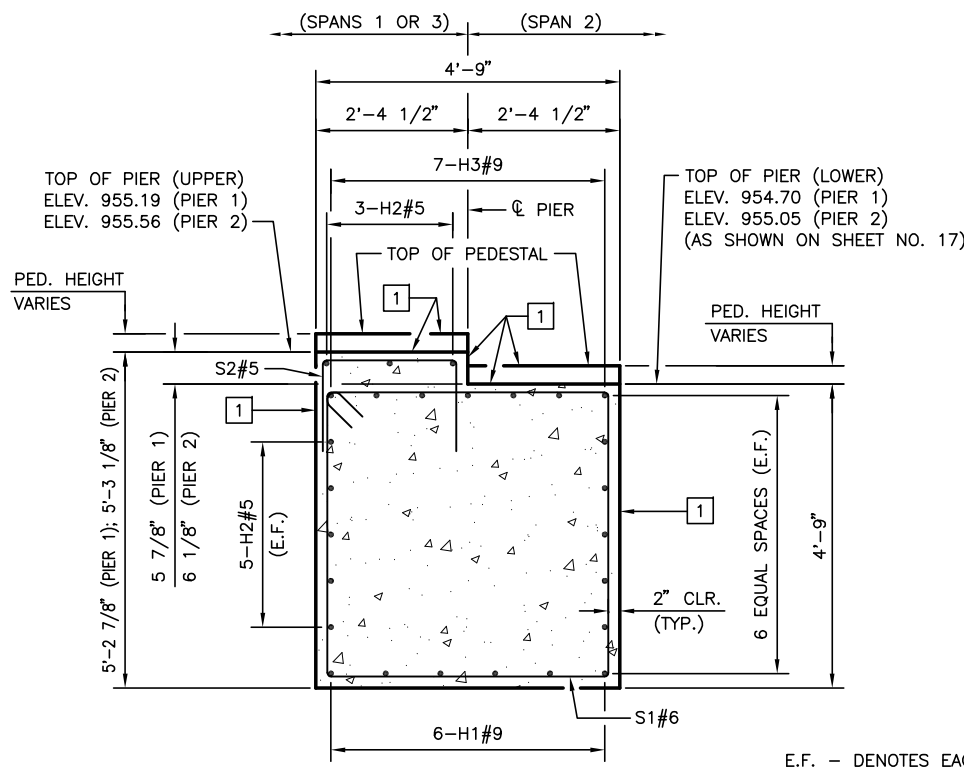
E.F. - DENOTES EACH FACE

- 1 TREAT TOP OF PIER CAP, INCLUDING ALL SURFACES OF PEDESTALS AND STEP, AND ALL VERTICAL FACES OF THE PIER CAP WITH A PENETRATING WATER REPELLENT SURFACE TREATMENT.

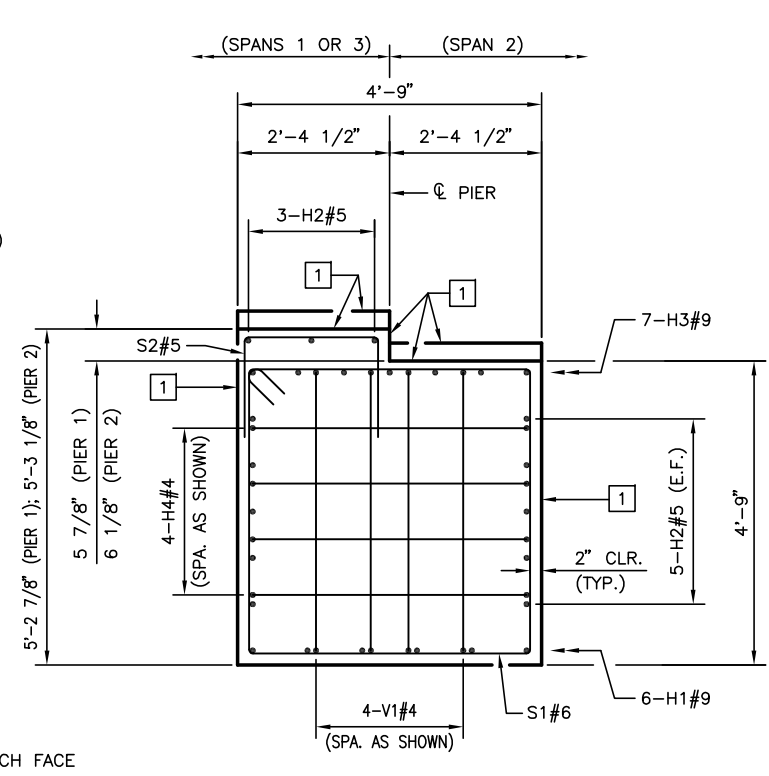
NOTES: ALL EDGES OF THE PIER CAP SHALL HAVE A 1 1/2" CHAMFER, EXCEPT FOR EDGES OF PEDESTALS, WHICH SHALL HAVE 3/4" CHAMFERS.

FOR SECTION VIEWS, BAR BEND DETAILS, BAR LIST, QUANTITIES, AND SPIRAL REINFORCING AND CONCRETE ROLLER DETAILS, SEE SHEET NO. 24.

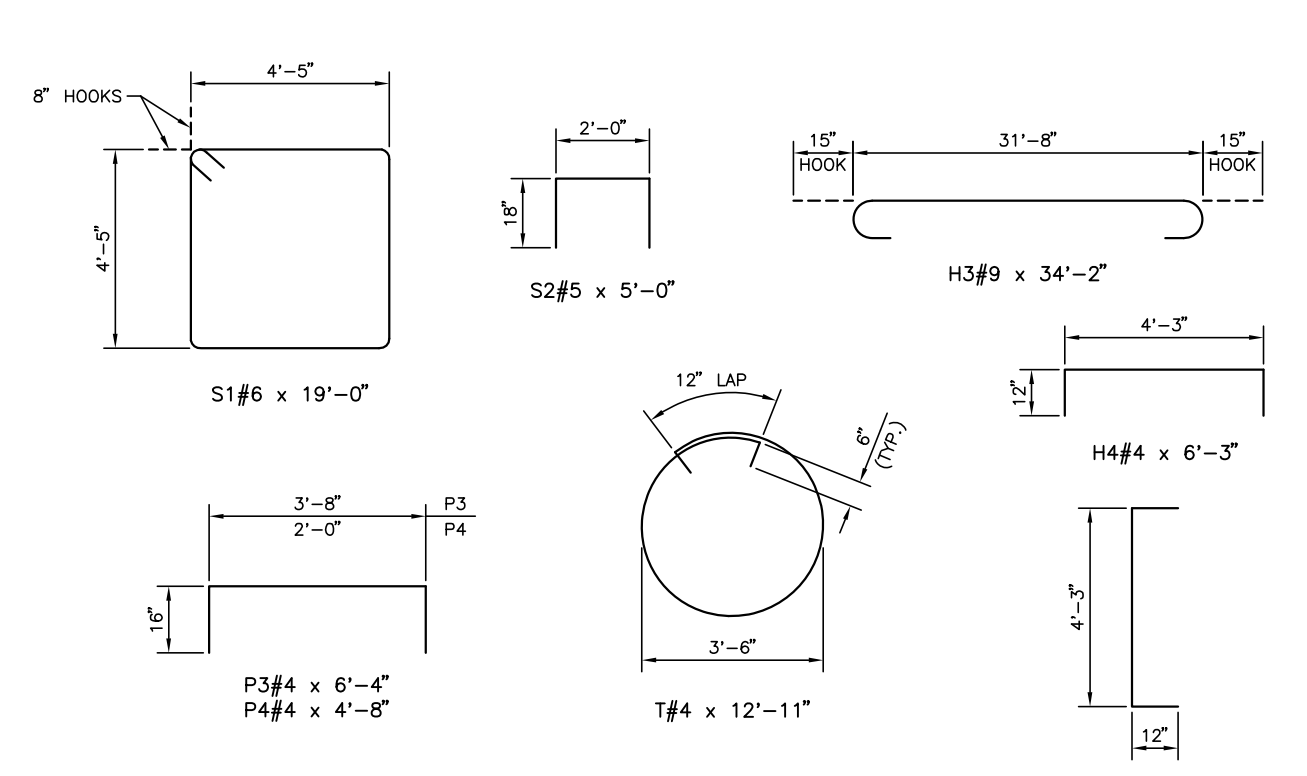
Design	.	S.H. 74D OVER ROCK CREEK	LOGAN COUNTY
Drawn	PKW 09/14	PIER 2 DETAILS BRIDGE "A" @ STA. 67+62.00	
Checked	.		
Approved	.		
Squad	.		
		State Job No. 28312(04)	Sheet No. 23



SECTION A-A



VIEW B-B

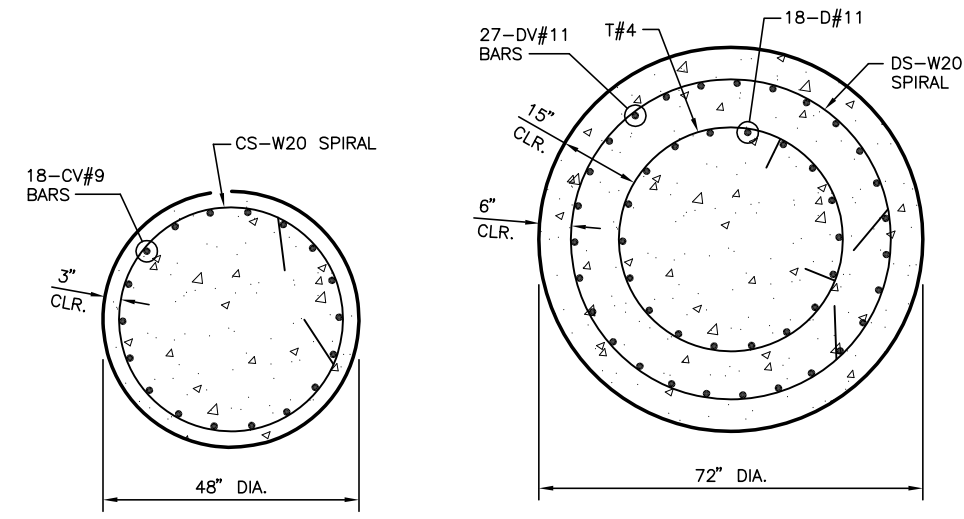


BAR BEND DETAILS

E.F. - DENOTES EACH FACE

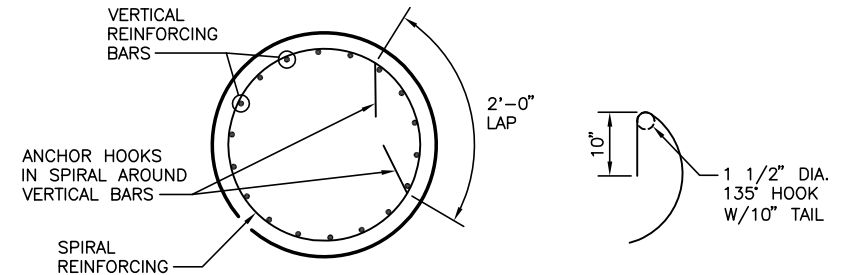
NOTE: PEDESTAL REINFORCING NOT SHOWN FOR CLARITY.

1 TREAT TOP OF PIER CAP, INCLUDING ALL SURFACES OF PEDESTALS AND STEP, AND ALL VERTICAL FACES OF THE PIER CAP WITH A PENETRATING WATER REPELLENT SURFACE TREATMENT.



SECTION C-C

SECTION D-D



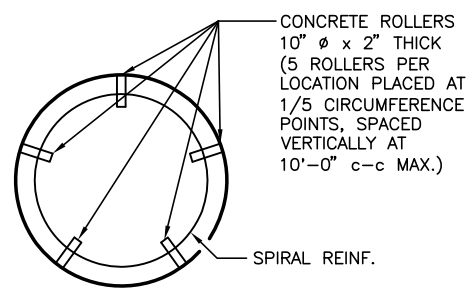
SPIRAL REINFORCING SPLICE DETAIL

NOTE: SPIRAL BARS SHALL CONFORM TO AASHTO M32. SPIRAL BAR LENGTHS DO NOT INCLUDE LAPS. IF LAPS ARE REQUIRED, THE LENGTH OF THE LAP SHALL BE 2'-0" WITH 10" HOOKS.

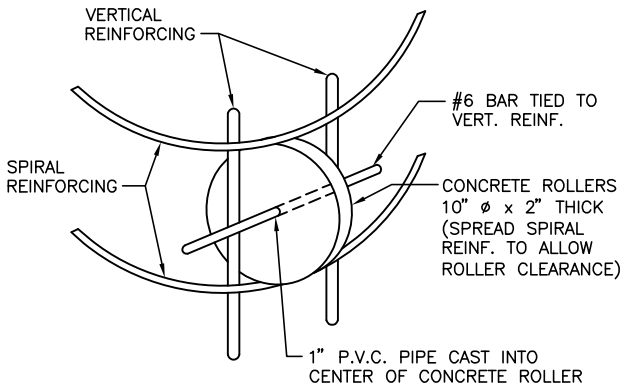
PIER 1 BAR LIST				
MARK	NO.	SIZE	SHAPE	LENGTH
(EPOXY COATED)				
CV1	36	9	STR.	13'-1"
H1	6	9	STR.	31'-8"
H2	13	5	STR.	31'-8"
H3	7	9	BNT.	34'-2"
H4	8	4	BNT.	6'-3"
P3	24	4	BNT.	6'-4"
P4	40	4	BNT.	4'-8"
S1	21	6	BNT.	19'-0"
S2	25	5	BNT.	5'-0"
V1	8	4	BNT.	6'-3"
(NON-EPOXY COATED)				
CS1	2	W20	SPIRAL	220'-2"
PIER 1 DRILLED SHAFTS				
(NON-EPOXY COATED)				
D	36	11	STR.	11'-5" (1)
DS1	2	W20	SPIRAL	1876'-5" (1)
DV1	54	11	STR.	58'-7" (1)
T	10	4	BNT.	12'-11" (1)

PIER 2 BAR LIST				
MARK	NO.	SIZE	SHAPE	LENGTH
(EPOXY COATED)				
CV2	36	9	STR.	13'-5"
H1	6	9	STR.	31'-8"
H2	13	5	STR.	31'-8"
H3	7	9	BNT.	34'-2"
H4	8	4	BNT.	6'-3"
P3	24	4	BNT.	6'-4"
P4	40	4	BNT.	4'-8"
S1	21	6	BNT.	19'-0"
S2	25	5	BNT.	5'-0"
V1	8	4	BNT.	6'-3"
(NON-EPOXY COATED)				
CS2	2	W20	SPIRAL	227'-10"
PIER 2 DRILLED SHAFTS				
(NON-EPOXY COATED)				
D	36	11	STR.	11'-5" (1)
DS2	2	W20	SPIRAL	1951'-2" (1)
DV2	54	11	STR.	67'-8" (1)(2)
T	10	4	BNT.	12'-11" (1)

(1) INCLUDED IN PRICE BID PER LIN. FT. OF DRILLED SHAFT.
 (2) LENGTH INCLUDES ONE (1) 6'-8" LAP SPLICE.



ROLLER PLACEMENT DETAIL



DETAIL OF ROLLER INSTALLATION

ROLLER NOTES:

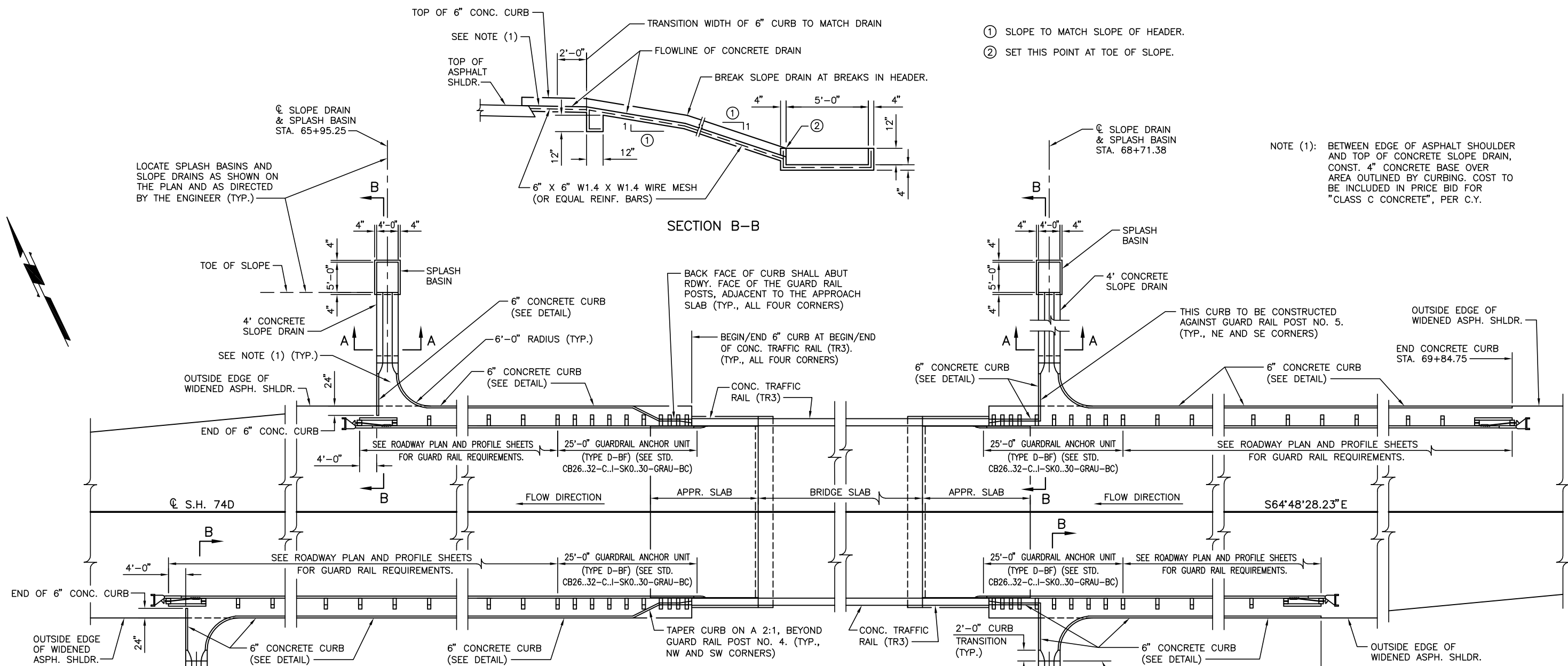
CONCRETE USED IN THE CONCRETE ROLLERS SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4000 PSI. SLAB BOLSTERS, HIGH CHAIRS, AND PLASTIC ROLLERS SHALL NOT BE SUBSTITUTED FOR THE CONCRETE ROLLERS.

ALL MATERIALS, LABOR, AND INCIDENTALS REQUIRED FOR THE INSTALLATION OF THE CONCRETE ROLLERS TO BE INCLUDED IN THE PRICE BID PER LF OF DRILLED SHAFTS.

PIER QUANTITIES				
ITEM	UNITS	PIER 1	PIER 2	TOTAL
CLASS A CONCRETE	CY	37.30	37.60	74.90
REINFORCING STEEL	LB	300.00	310.00	610.00
EPOXY COATED REINFORCING STEEL	LB	4520.00	4560.00	9080.00
WATER REPELLENT (VISUALLY INSPECTED)	SY	62.00	62.00	124.00
DRILLED SHAFTS 72" DIAMETER	LF	118.20	123.00	241.20
CROSSHOLE SONIC LOGGING	EA	1.00	0.00	1.00

① ESTIMATED QUANTITY ONLY, TO BE USED ON THE FIRST DRILLED SHAFT CONSTRUCTED, AS DIRECTED BY THE ENGINEER.

Design	.	S.H. 74D OVER ROCK CREEK	LOGAN COUNTY
Drawn	PKW 09/14	MISCELLANEOUS PIER DETAILS BRIDGE "A" @ STA. 67+62.00	
Checked	.		
Approved	.		
Squad	.		
State Job No. 28312(04)		Sheet No. 24	



PLAN OF GUARD RAIL WIDENING, CURBING, SLOPE DRAINS AND SPLASH BASINS

NOTE: SLOPE DRAINS, SPLASH BASINS AND CURBING TO BE LOCATED AS SHOWN ON THE PLAN AND AS DIRECTED BY THE ENGINEER.

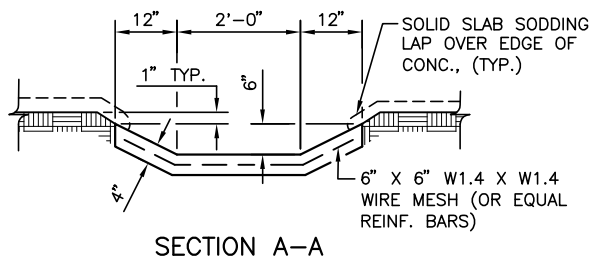
- ① SLOPE TO MATCH SLOPE OF HEADER.
- ② SET THIS POINT AT TOE OF SLOPE.

NOTE (1): BETWEEN EDGE OF ASPHALT SHOULDER AND TOP OF CONCRETE SLOPE DRAIN, CONST. 4" CONCRETE BASE OVER AREA OUTLINED BY CURBING. COST TO BE INCLUDED IN PRICE BID FOR "CLASS C CONCRETE", PER C.Y.

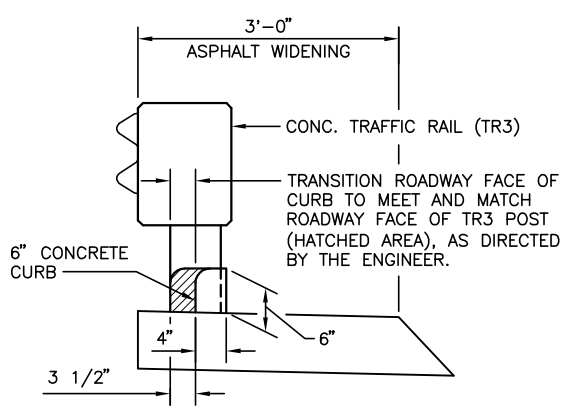
NOTES: ASPHALT SHOULDER WIDENING SHALL BE IN ACCORDANCE WITH THE ROADWAY PLANS AND DETAILS SHOWN ON THIS SHEET. ALL COSTS OF ASPHALT SHOULDER WIDENING SHALL BE INCLUDED IN THE ROADWAY PAY ITEMS.

THE SLOPE DRAINS AND SPLASH BASINS SHALL BE CONSTRUCTED USING CLASS "C" CONCRETE AS SHOWN ON THIS SHEET. ALL COSTS OF THE SLOPE DRAINS AND SPLASH BASINS INCLUDING WIRE MESH, EXCAVATIONS AND BACKFILLING SHALL BE INCLUDED IN THE BRIDGE PAY ITEM FOR "CLASS C CONCRETE".

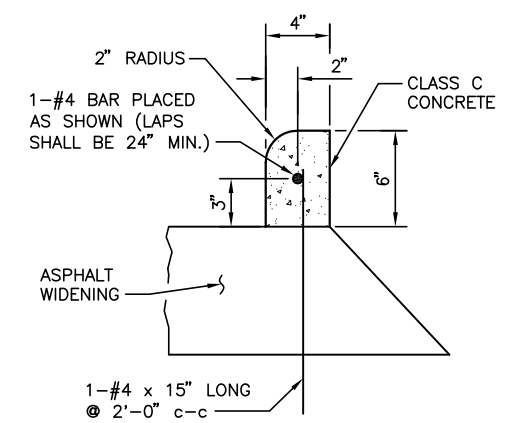
THE 6" CONCRETE CURBS SHALL BE CONSTRUCTED AS SHOWN ON THIS SHEET. ALL COSTS TO CONSTRUCT THE 6" CONCRETE CURBS INCLUDING CONCRETE AND REINFORCING STEEL SHALL BE INCLUDED IN THE BRIDGE PAY ITEM FOR "CLASS C CONCRETE".



SECTION A-A

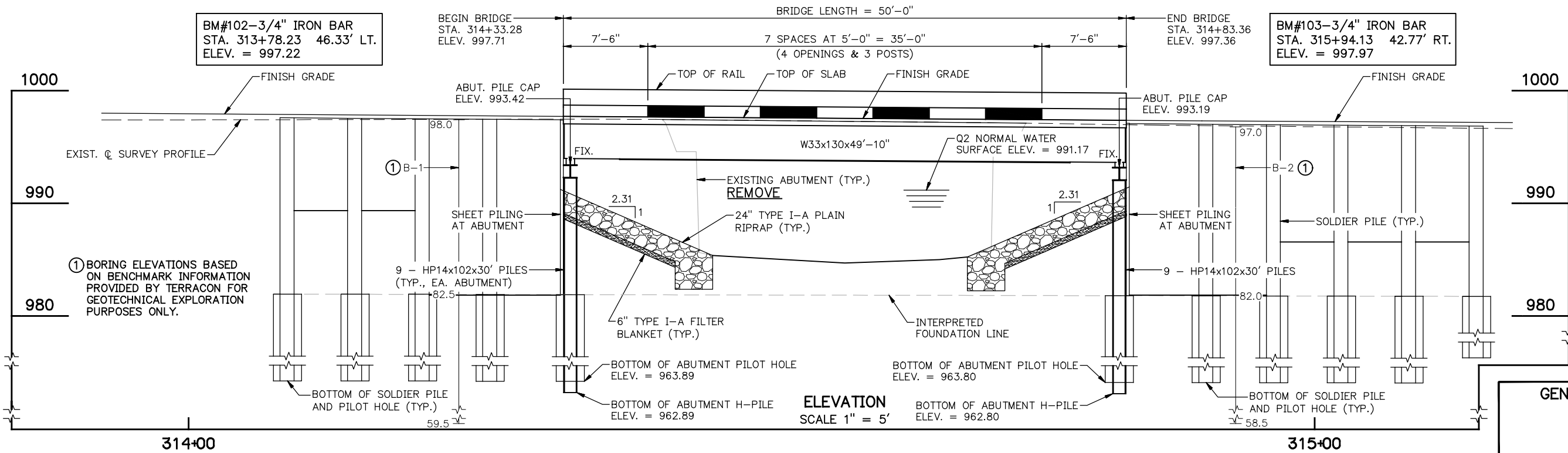
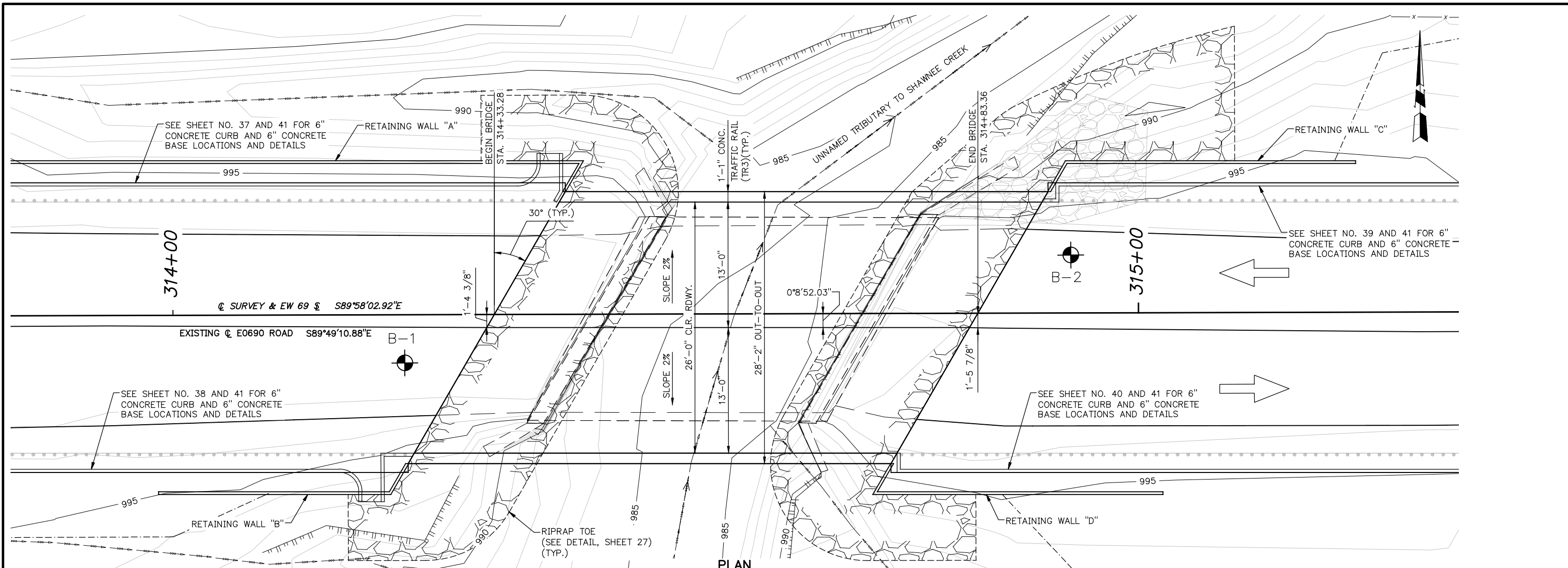


TYPICAL SECTION AT END OF CONC. TRAFFIC RAIL (TR3)



DETAIL OF 6" CONCRETE CURB (SHOWN AT OUTSIDE EDGE OF WIDENED ASPH. SHLDR.)

Design	.	S.H. 74D OVER ROCK CREEK	LOGAN COUNTY
Drawn	PKW 09/14	DRAIN AT END BRIDGE DETAILS BRIDGE "A" @ STA. 67+62.00 State Job No. 28312(04)	
Checked	.		
Approved	.		
Squad	.		
		Sheet No. 25	

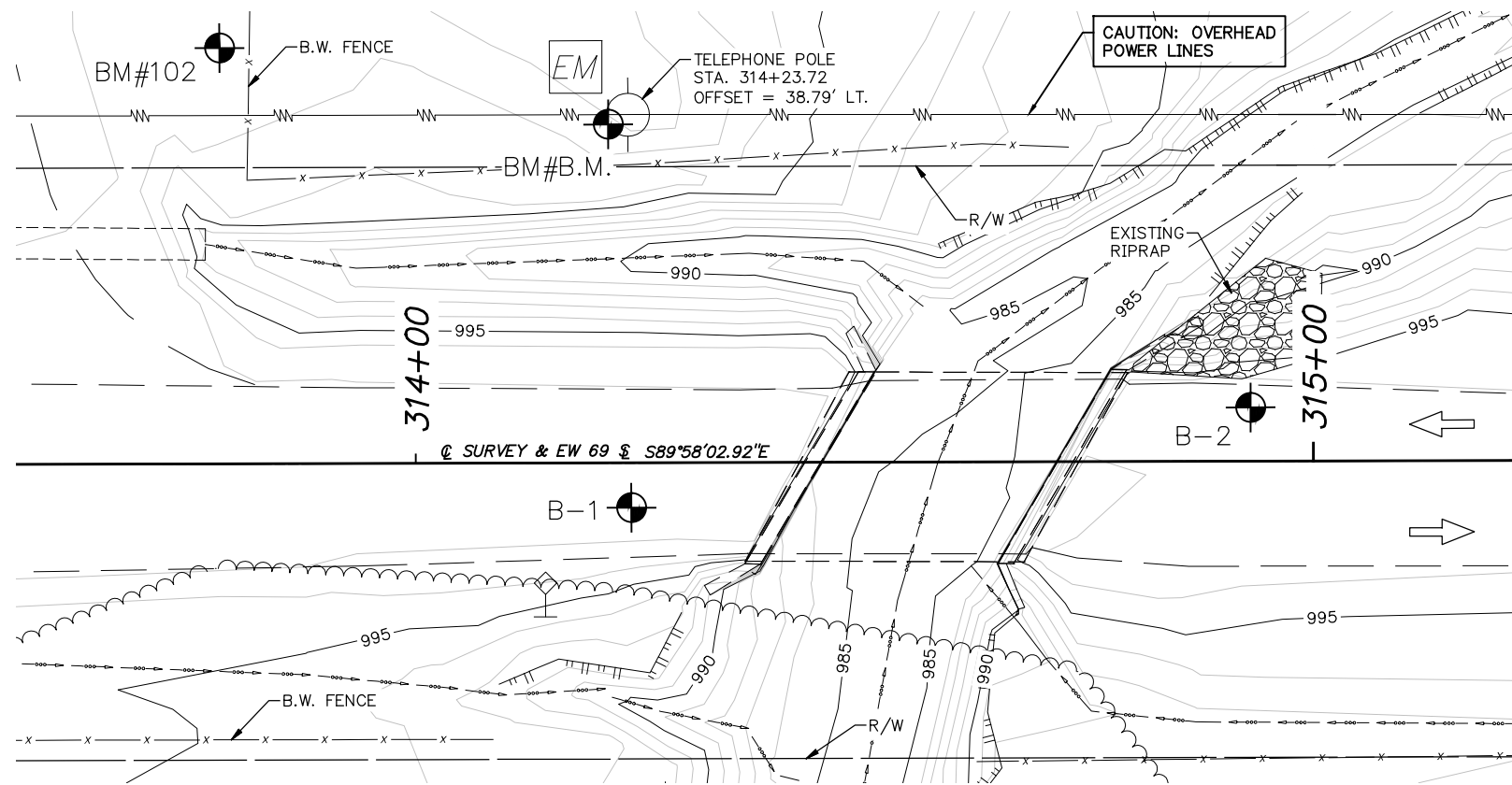


NOTES:
SEE SHEET NO. 27 FOR DESIGN DATA, FINISH GRADE DATA, FOUNDATION DATA, HYDRAULIC DATA, RIPRAP DETAILS, SUMMARY OF QUANTITIES AND INDEX OF SHEETS.

CONST. ONE (1) 50' STEEL GIRDER SPAN; 26'-0" CLR. RDWY. W/ CONCRETE TRAFFIC RAILS (TR3) SKEWED 30° LF.

GENERAL PLAN AND ELEVATION (BRIDGE "B")
(SHEET 1 OF 2)
 CL SURVEY STA. 314+58.28
State Job No. 28312(04) Sheet No. 26

LOGAN COUNTY S.H. 74D



BORING LOCATION INFORMATION
(SHOWING EXISTING BRIDGE)

- ① BM#B.M. NAIL IN TELEPHONE POLE
ELEV. = 100.00
- ① BENCHMARK INFORMATION PROVIDED BY TERRACON FOR GEOTECHNICAL EXPLORATION BORING LOCATION PURPOSES ONLY.
- BM#102-3/4" IRON BAR
STA. 313+78.23 46.33' LT.
ELEV. = 997.22
- BM#103-3/4" IRON BAR
STA. 315+94.13 42.77' RT.
ELEV. = 997.97

HYDRAULIC DATA

TOTAL D.A.	=	8.75 SQ. MI.
CONTROLLED D.A.	=	0.00 SQ. MI.
EFFECTIVE D.A.	=	8.75 SQ. MI.
Q2	=	670 CFS
V2	=	7.19 FPS
Q2 CHW	=	991.17 FT.
Q5	=	1460 CFS
V5	=	6.62 FPS
Q5 CHW	=	994.89 FT.
Q0.T. = Q9.81	=	2230 CFS
VO.T.	=	10.12 FPS
O.T. CHW	=	996.95 FT.
Q10	=	2260 CFS
V10	=	10.19 FPS
Q10 CHW	=	997.19 FT.
Q25	=	3610 CFS
V25	=	9.26 FPS
Q25 CHW	=	998.77 FT.
Q50	=	4650 CFS
V50	=	8.59 FPS
Q50 CHW	=	999.24 FT.
Q100	=	5860 CFS
V100	=	7.67 FPS
Q100 CHW	=	999.67 FT.

THE INFORMATION SHOWN ON THESE PLANS CONCERNING TYPES & LOCATIONS OF UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE TO MAKE THE DETERMINATIONS AS TO THE TYPE & LOCATION OF UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. THE CONTRACTOR SHALL VERIFY LOCATION OF UTILITIES BY CONTACTING OWNERS OF UTILITIES IN ADVANCE OF DRILLING OPERATIONS.

EXISTING BRIDGE NOTE:
THE EXISTING BRIDGE STRUCTURE SHALL BE REMOVED IN ACCORDANCE WITH THE NOTES ON SHEET NO. 7

LOAD AND RESISTANCE FACTOR DESIGN

DESIGN DATA

CLASS "AA" CONCRETE F'C = 4,000 PSI
 REINFORCING STEEL FY = 60,000 PSI
 NEW STRUCTURAL STEEL AASHTO M270 (GR. 36) FY = 36,000 PSI
 NEW STRUCTURAL STEEL AASHTO M270 (GR. 50) FY = 50,000 PSI
 EXISTING STRUCTURAL STEEL (GR. 36) FY = 36,000 PSI

LOADING: HL-93
 20 PSF FUTURE WEARING SURFACE
 5 PSF STAY-IN-PLACE FORMS

DESIGN: AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 2014 EDITION, WITH 2015 AND 2016 INTERIMS, EXCEPT AS MODIFIED BY THE PLANS.
 ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE.

LFD OPERATING RATING: HS 37

THE FOLLOWING STANDARDS SHALL BE REQUIRED:

- TR3-2-01E
- HP1-2-01E
- CB26..32-C-SK30-ABUT-MISC-01E

NOTES: ALL STATIONING FOLLOWS C SURVEY E0690 ROAD, UNLESS NOTED OTHERWISE.

THE CONTRACTOR SHALL MAINTAIN DRAINAGE AT ALL TIMES DURING CONSTRUCTION.

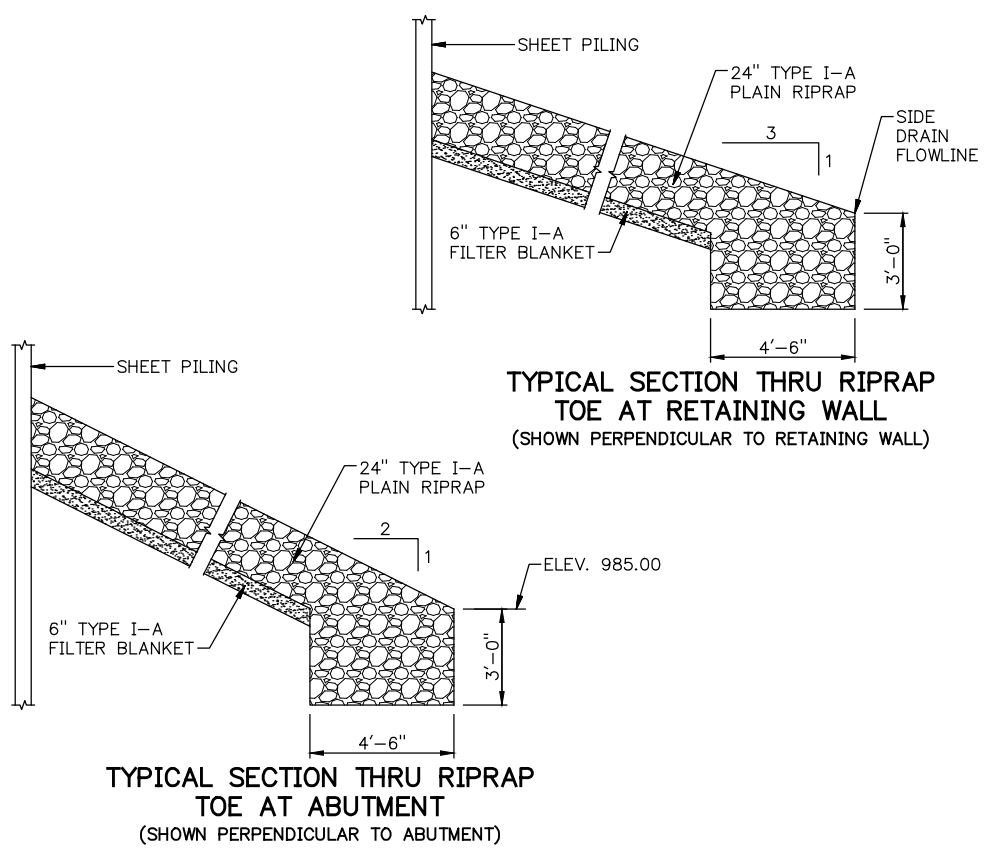
FOR CHANNEL WORK DETAILS, SEE THE PLAN AND PROFILE SHEETS AND CROSS-SECTIONS. (ROADWAY ITEMS).

FOR FINISH GRADE DATA, SEE THE PLAN AND PROFILE SHEETS AND CROSS-SECTIONS. (ROADWAY ITEMS).

FOUNDATION DATA

ABUTMENT NO. 1 AND 2 (HP14x102 PILING):
 MAXIMUM FACTORED PILE REACTION = 72.0 TONS/PILE

ABUTMENT PILING SHALL BE DRIVEN TO POINT BEARING ON SOLID FOUNDATION MATERIAL AT THE APPROXIMATE ELEVATION SHOWN ON THE PLANS. IF THE AXIAL LOAD RESISTANCE IS NOT OBTAINED AT THIS ELEVATION, DRIVING SHALL CONTINUE UNTIL THE AXIAL LOAD RESISTANCE IS OBTAINED. THE LENGTH OF STEEL PILING SHOWN ON THE PLANS IS FOR ESTIMATING PURPOSES ONLY.



SUMMARY OF QUANTITIES - BRIDGE "B"

DESCRIPTION	UNIT	ABUTS. (1)	SUPSTR.	RIPRAP	TOTAL
SUBSTRUCTURE EXCAVATION COMMON	CY	1,498.00			1,498.00
SELECT BACKFILL	CY	13.00			13.00
GRANULAR BACKFILL	CY	82.00			82.00
CONCRETE RAIL (TR3)	LF		100.00		100.00
STRUCTURAL STEEL	LB	16,880.00	9,560.00		26,440.00
CLASS AA CONCRETE	CY	102.40	37.00		139.40
CLASS C CONCRETE	CY	2.00			2.00
EPOXY COATED REINFORCING STEEL	LB		12,630.00		12,630.00
PILES, FURNISHED (HP 14x102)	LF	540.00			540.00
PILES, FURNISHED (HP 14x117)	LF	800.00			800.00
PILES, DRIVEN (HP 14x102)	LF	18.00			18.00
SHEET PILING, FURNISHED	SY	364.00			364.00
SHEET PILING, DRIVEN	SY	364.00			364.00
(PL) PILOT HOLES	LF	1,126.00			1,126.00
HAUL AND ERECT STEEL BEAMS	LSUM				1.00
TYPE I-A PLAIN RIPRAP	TON			189.00	189.00
TYPE I-A FILTER BLANKET	TON			46.00	46.00
6" PERFORATED PIPE UNDERDRAIN ROUND	LF	226.00			226.00
6" NON-PERF. PIPE UNDERDRAIN RND.	LF	6.00			6.00
STANDARD BEDDING MATERIAL, CLASS B	CY	321.00			321.00
REMOVAL OF EXISTING BRIDGE STRUCTURE	LSUM				1.00

(1) INCLUDES RETAINING WALL QUANTITIES. SEE SHEET NO. 43 FOR RETAINING WALL QUANTITIES.

INDEX OF BRIDGE SHEETS (BRIDGE "B")

- 7 PAY QUANTITIES AND GENERAL NOTES (BRIDGE "B" AND RETAINING WALLS)
- 26 GENERAL PLAN AND ELEVATION (BRIDGE "B")
- 27 GENERAL PLAN AND ELEVATION (BRIDGE "B")
- 28 FOUNDATION REPORT (BRIDGE "B")
- 29 SUBSTRUCTURE STAKING DIAGRAM (BRIDGE "B")
- 30 ABUTMENT 1 DETAILS (BRIDGE "B")
- 31 ABUTMENT 2 DETAILS (BRIDGE "B")
- 32 SUBSTRUCTURE EXCAVATION AND PIPE UNDERDRAIN DETAILS (BRIDGE "B")
- 33 TYPICAL CROSS SECTION AND LONGITUDINAL SECTION (BRIDGE "B")
- 34 BEAM FRAMING PLAN (BRIDGE "B")
- 35 SLAB REINFORCING PLAN (BRIDGE "B")
- 36 BEAM DETAILS (BRIDGE "B")
- 37 GENERAL PLAN AND ELEVATION (RETAINING WALL "A")
- 38 GENERAL PLAN AND ELEVATION (RETAINING WALL "B")
- 39 GENERAL PLAN AND ELEVATION (RETAINING WALL "C")
- 40 GENERAL PLAN AND ELEVATION (RETAINING WALL "D")
- 41 RETAINING WALL DETAILS
- 42 RETAINING WALL DETAILS
- 43 RETAINING WALL DETAILS

CONST. ONE (1) 50' STEEL GIRDER
 SPAN; 26'-0" CLR. RDWY. W/
 CONCRETE TRAFFIC RAILS (TR3)
 SKEWED 30° LF.

GENERAL PLAN AND ELEVATION
(BRIDGE "B")
(SHEET 2 OF 2)
C SURVEY STA. 314+58.28
State Job No. 28312(04) Sheet No. 27

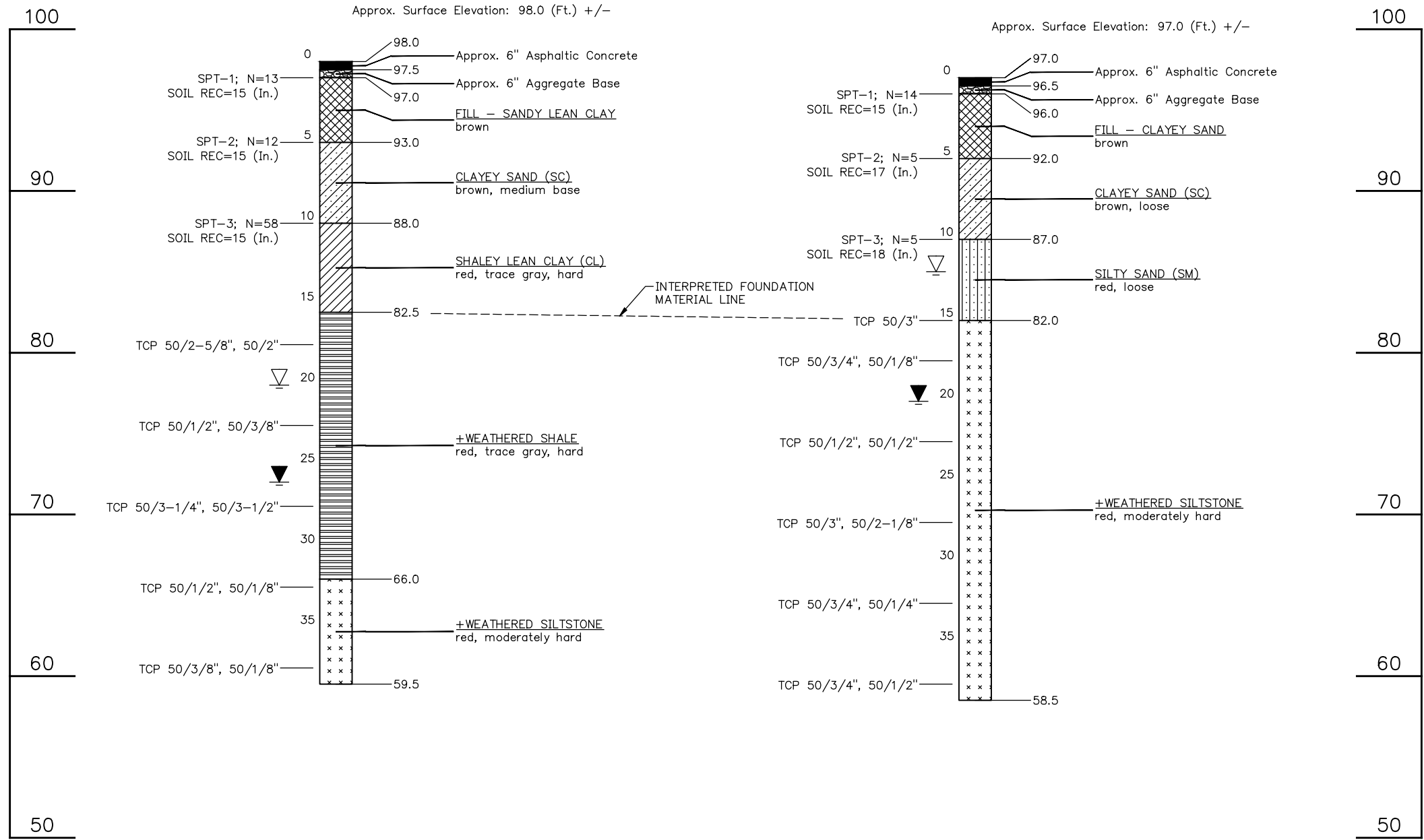
LOGAN COUNTY S.H. 74D

BORING NO. B-1
☉ SURVEY STA. 14+24
5' RT.

WATER LEVEL CHECK: 20.0 FT. WHILE DRILLING
 WATER LEVEL CHECK: 26.0 FT. AFTER BORING
 (3/21/2016)

BORING NO. B-2
☉ SURVEY STA. 14+93
6' LT.

WATER LEVEL CHECK: 20.0 FT. WHILE DRILLING
 WATER LEVEL CHECK: 12.0 FT. AFTER BORING
 (3/21/2016)



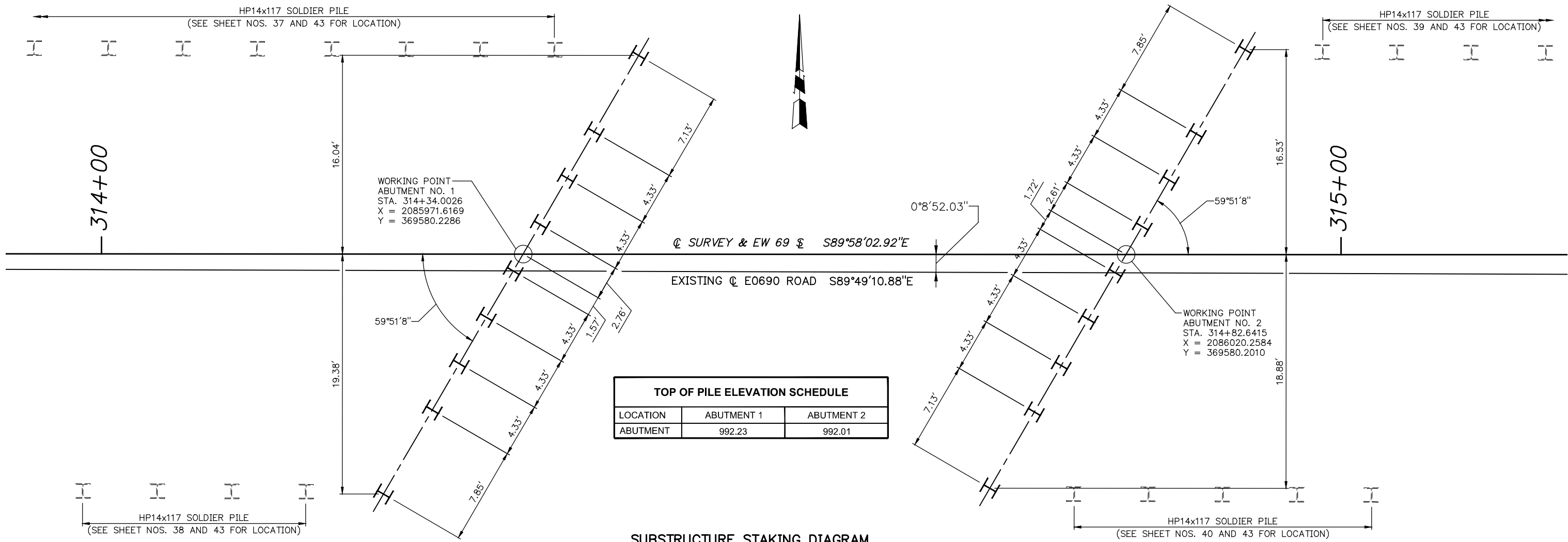
GEOLOGY:
 THE GEOLOGY AT THIS SITE CONSISTS OF A SERIES OF RED CLAY SHALES, MASSIVE COMMONLY CROSS-BEDDED LENTICULAR SANDSTONES OF THE GARBER UNIT. THE SANDSTONES ARE MORE PROMINENT IN THE SOUTHERN PORTION OF DIVISION FOUR. NORTHWARD, THE SANDSTONES THIN AND SHALE BECOME MORE DOMINANT. THE TOTAL THICKNESS OF THE UNIT IS ABOUT 400 TO 600 FEET.

NOTE: GROUNDWATER LEVELS WERE OBTAINED DURING THE DRILLING OPERATIONS, AND MAY FLUCTUATE THROUGHOUT THE YEAR.

▽ WATER LEVEL WHILE DRILLING
 ▼ WATER LEVEL AFTER DRILLING

NOTES: FOR ADDITIONAL TESTING INFORMATION, SEE THE GEOTECHNICAL ENGINEERING REPORT.
 BORING LOCATIONS (STATIONS) ARE NOT TO SCALE HORIZONTALLY.

S.H. 74D
 LOGAN COUNTY



WORKING POINT
 ABUTMENT NO. 1
 STA. 314+34.0026
 X = 2085971.6169
 Y = 369580.2286

WORKING POINT
 ABUTMENT NO. 2
 STA. 314+82.6415
 X = 2086020.2584
 Y = 369580.2010

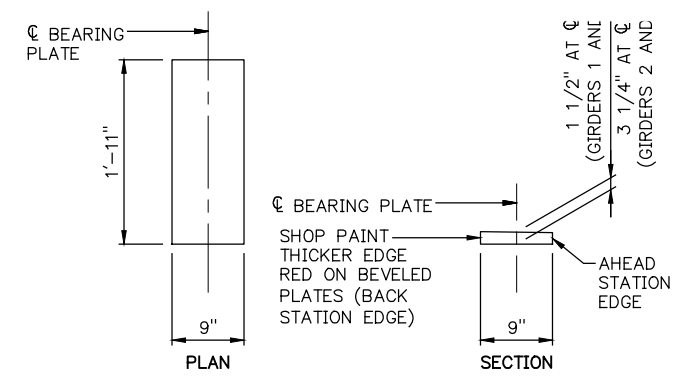
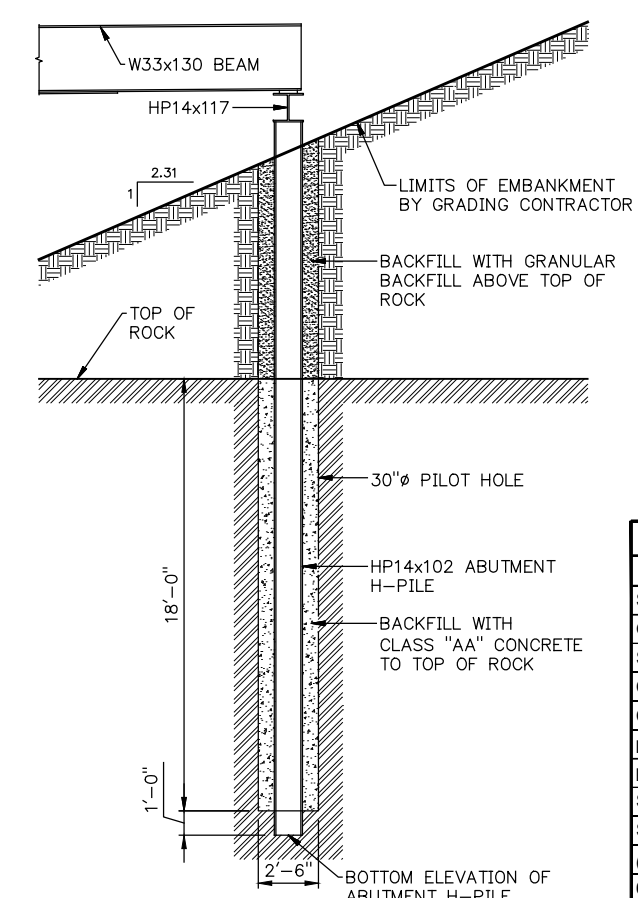
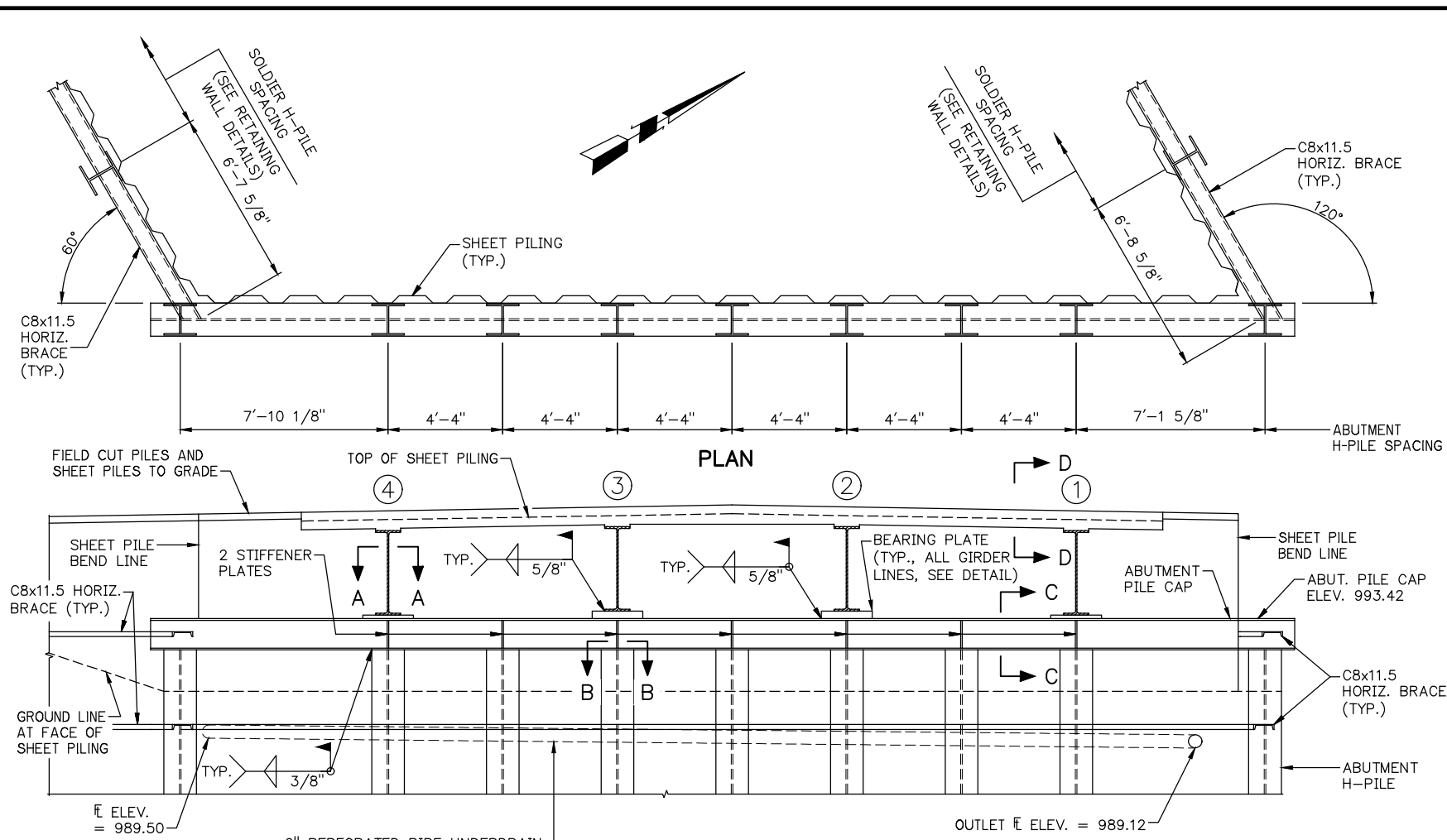
TOP OF PILE ELEVATION SCHEDULE		
LOCATION	ABUTMENT 1	ABUTMENT 2
ABUTMENT	992.23	992.01

SUBSTRUCTURE STAKING DIAGRAM

NOTES: ALL DIMENSIONS ARE HORIZONTAL DIMENSIONS.
 ABUTMENT PILES SHALL BE ORIENTED SUCH THAT THE FACE OF THE PILE WEB IS PERPENDICULAR WITH THE WEB OF THE PILE CAP.
 FOR THE SUMMARY OF QUANTITIES, SEE SHEET NO. 27.

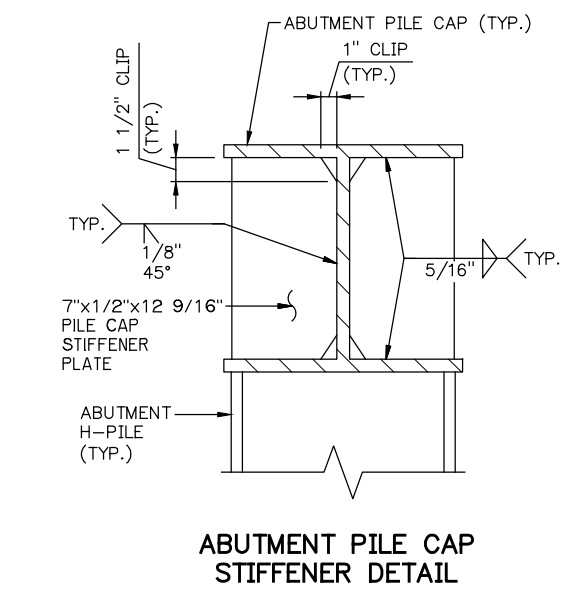
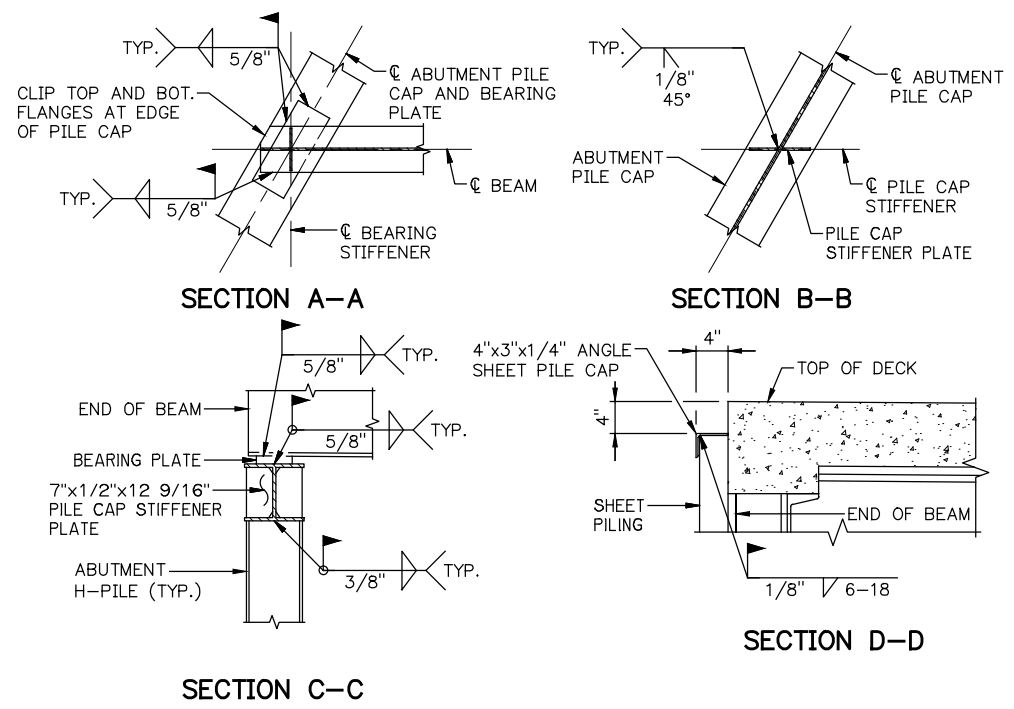
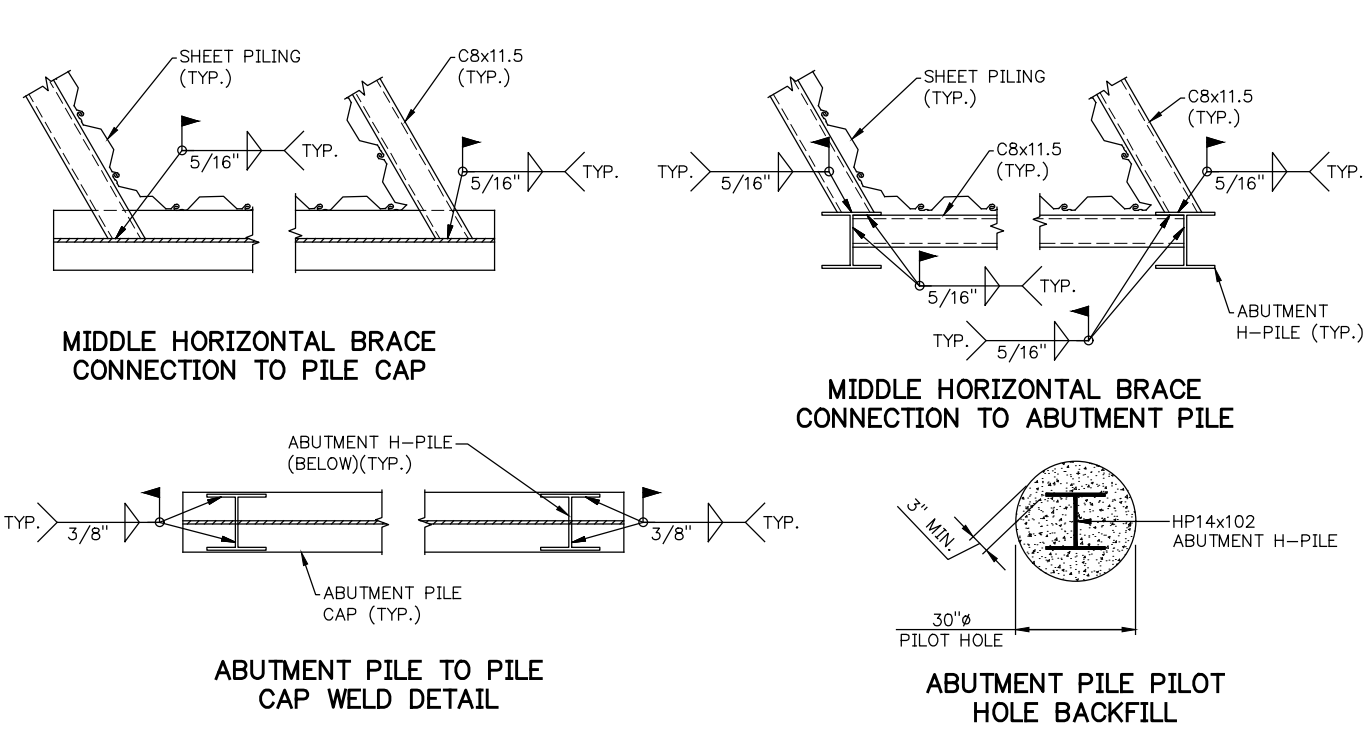
**SUBSTRUCTURE STAKING DIAGRAM
 (BRIDGE "B")**
 Q SURVEY STA. 314+58.28
 State Job No. 28312(04) Sheet No. 29

LOGAN COUNTY
 S.H. 74D

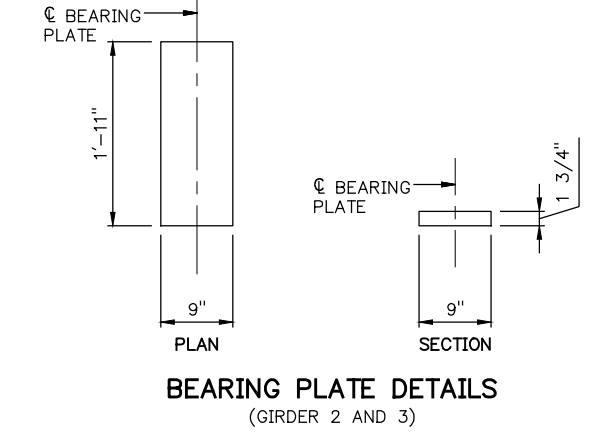
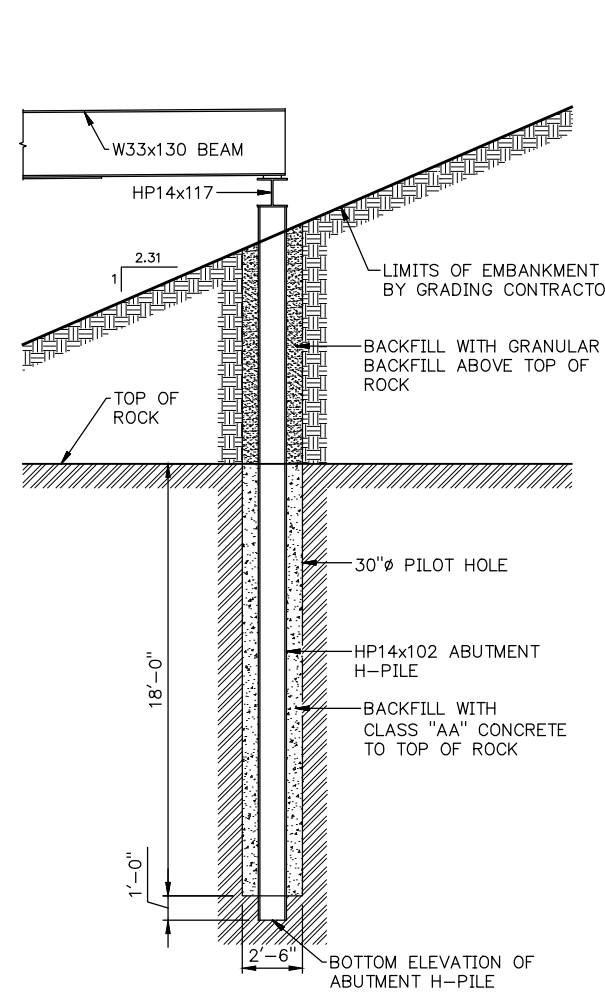
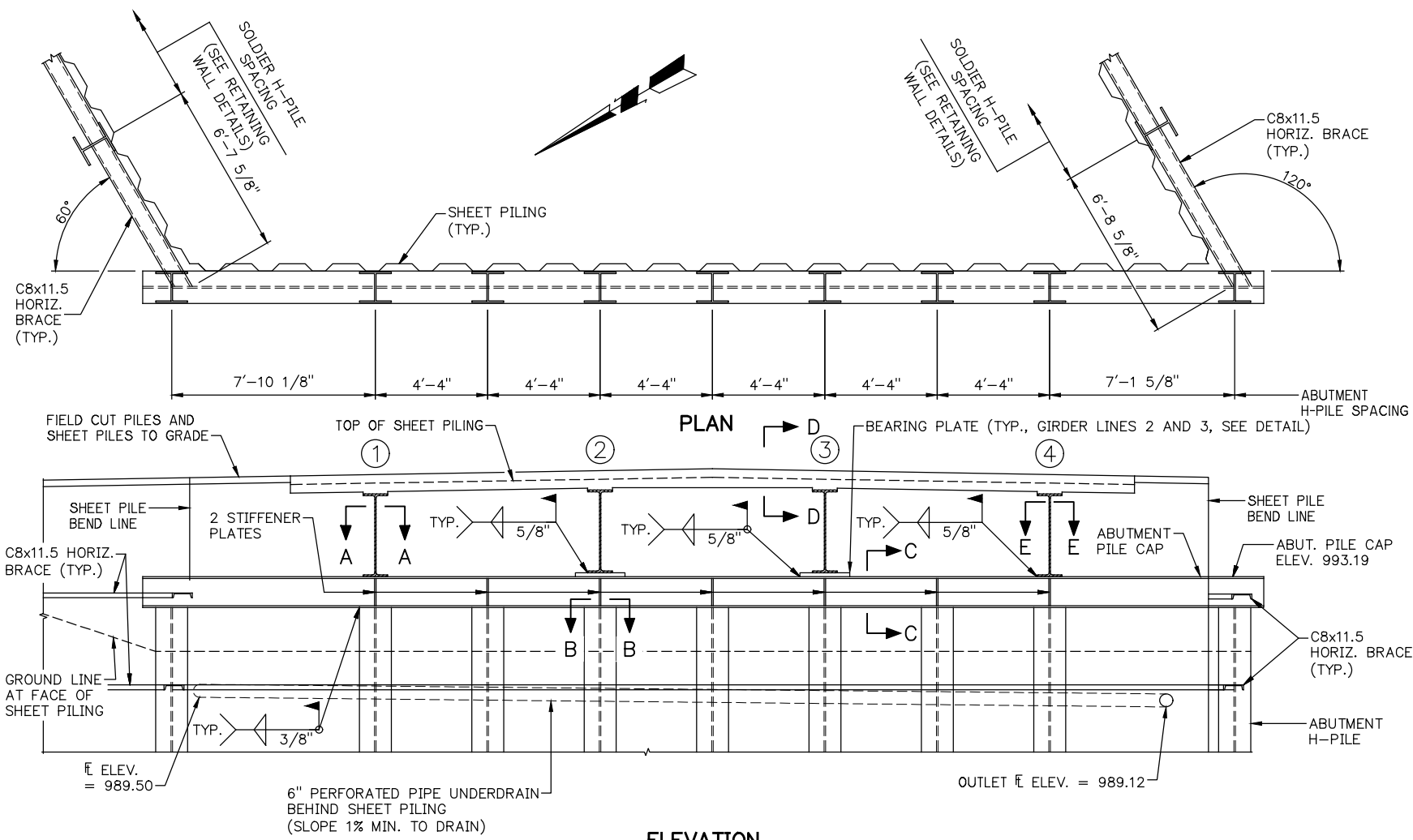


ABUTMENT 1 QUANTITIES		
ITEM	UNITS	TOTAL
SUBSTRUCTURE EXCAVATION COMMON	CY	129.00
GRANULAR BACKFILL	CY	13.00
STRUCTURAL STEEL	LB	6,500.00
CLASS AA CONCRETE	CY	23.80
CLASS C CONCRETE	CY	1.00
PILES, FURNISHED (HP14x102)	LF	270.00
PILES, DRIVEN (HP14x102)	LF	9.00
SHEET PILING, FURNISHED	SY	68.00
SHEET PILING, DRIVEN	SY	68.00
(PL) PILOT HOLES	LF	247.00
6" PERFORATED PIPE UNDERDRAIN ROUND	LF	38.00
6" NON-PERF. PIPE UNDERDRAIN RND.	LF	3.00
STANDARD BEDDING MATERIAL, CLASS B	CY	63.00

NOTE: BEARING PLATES, ABUTMENT PILE CAP, ABUTMENT PILE CAP STIFFENERS, ABUTMENT H-PILES, C8x11.5 BRACES, AND L4x3x1/4 SHEET PILE CAP SHALL BE COMPOSED OF NEW STRUCTURAL STEEL (GR. 50).

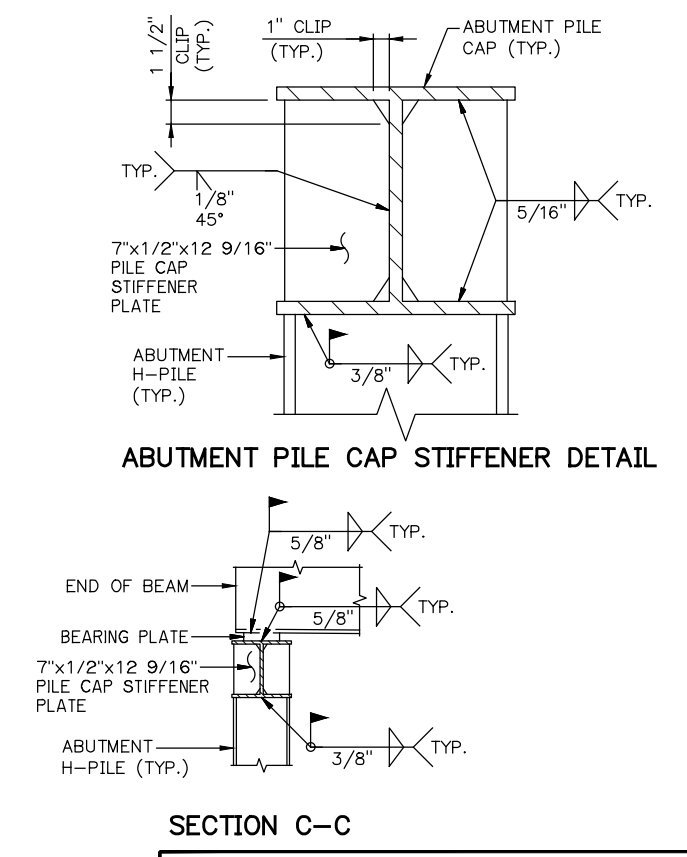
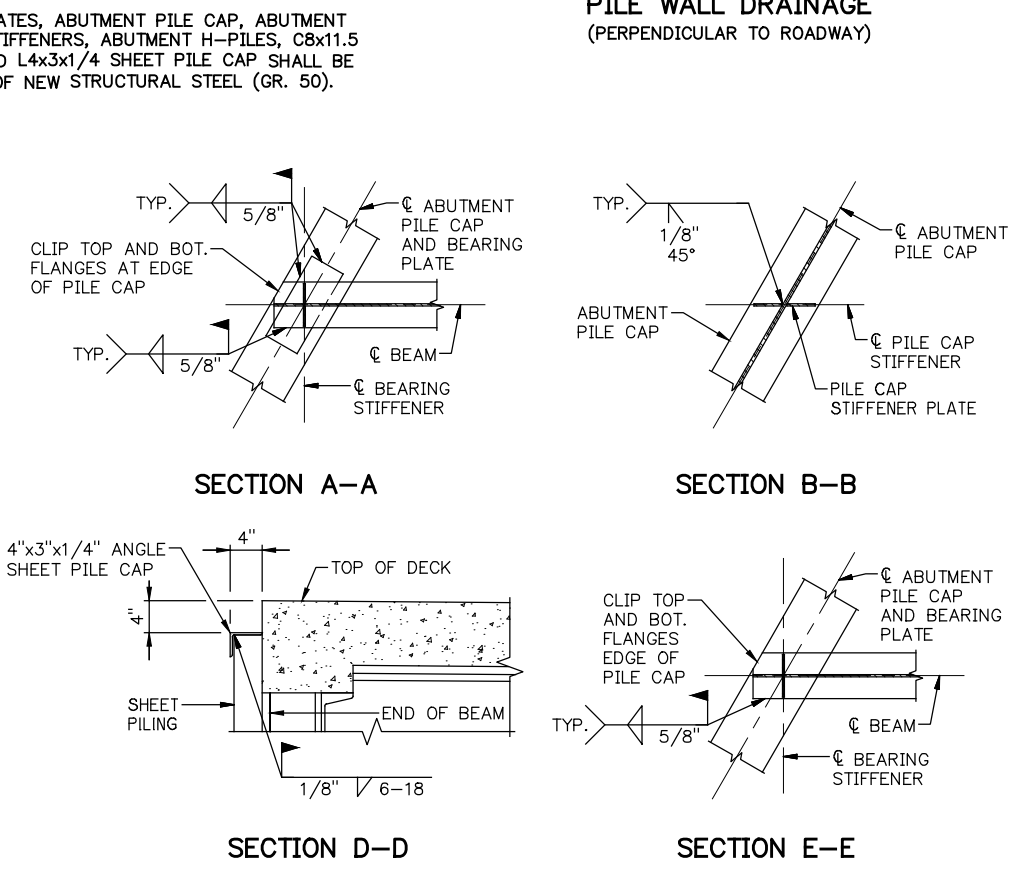
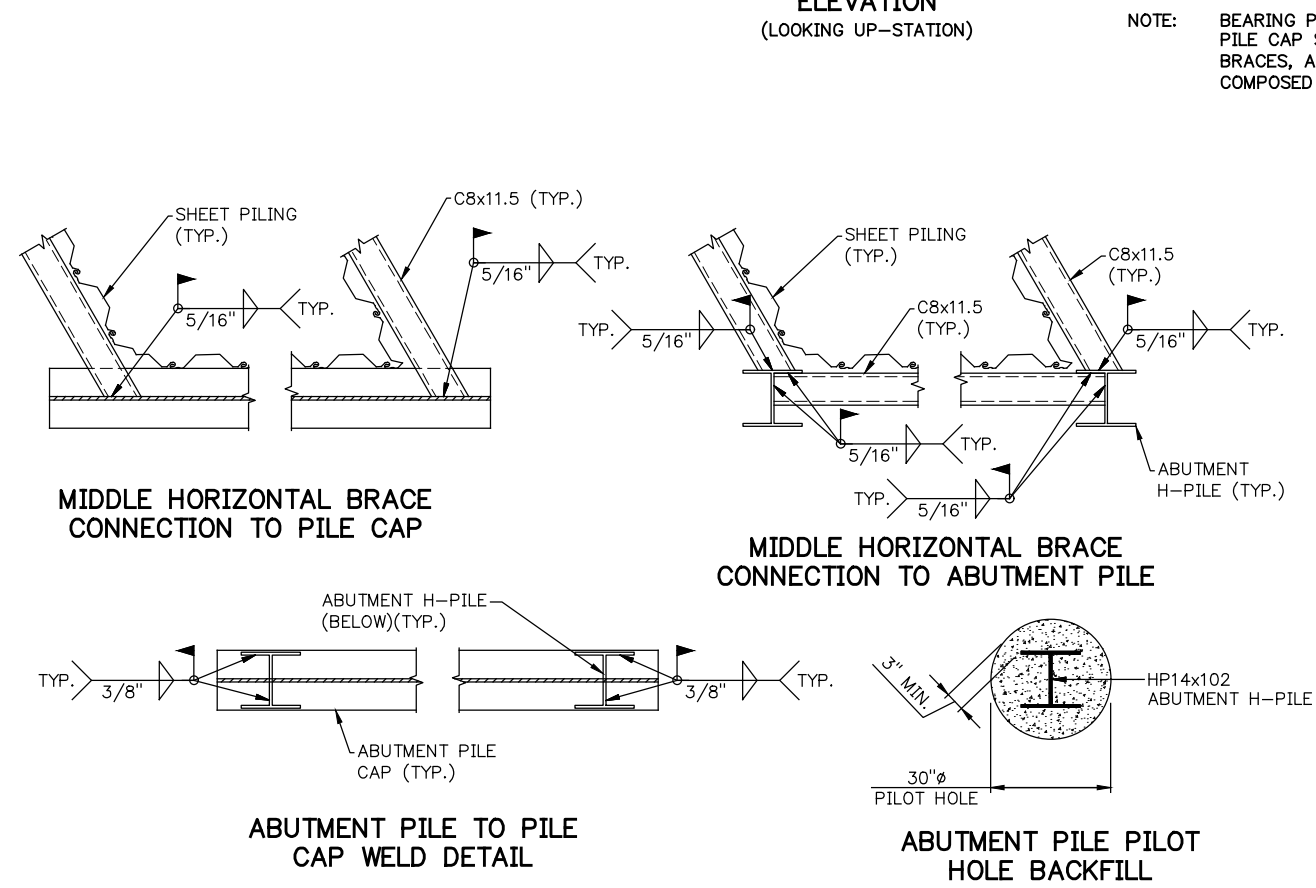


ABUTMENT 1 DETAILS (BRIDGE "B")
 © SURVEY STA. 314+58.28
 State Job No. 28312(04) Sheet No. 30

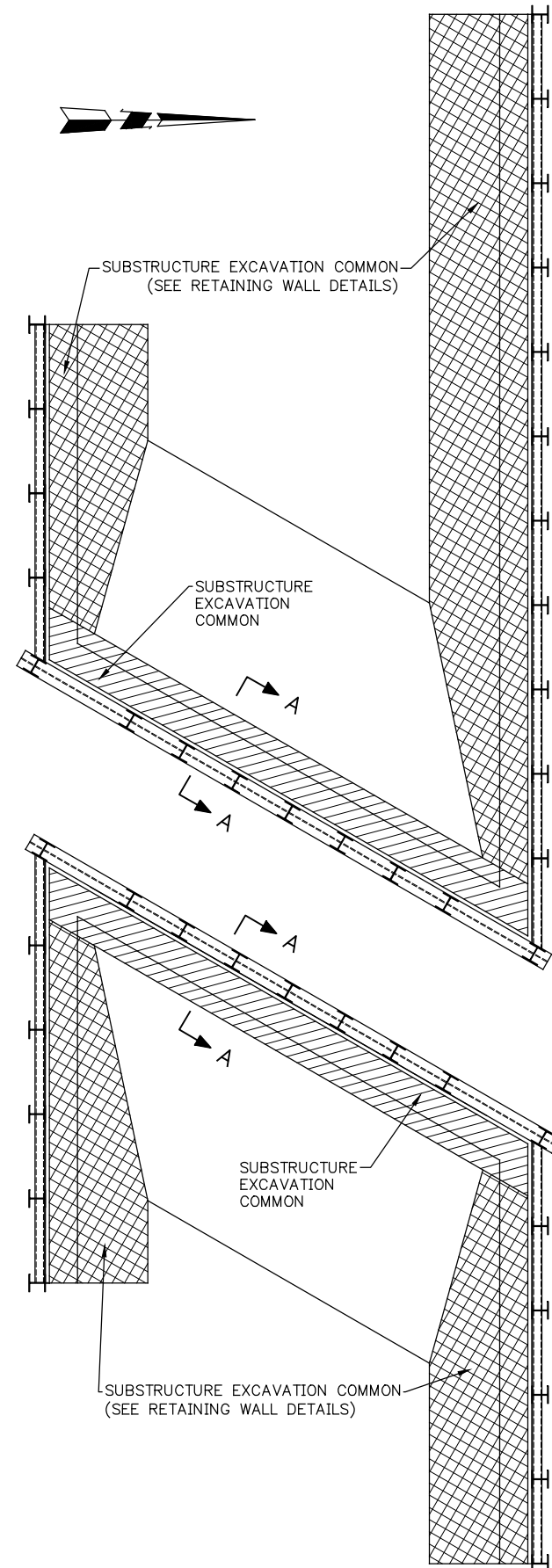


ABUTMENT 2 QUANTITIES		
ITEM	UNITS	TOTAL
SUBSTRUCTURE EXCAVATION COMMON	CY	159.00
GRANULAR BACKFILL	CY	13.00
STRUCTURAL STEEL	LB	6,140.00
CLASS AA CONCRETE	CY	23.80
CLASS C CONCRETE	CY	1.00
PILES, FURNISHED (HP14x102)	LF	270.00
PILES, DRIVEN (HP14x102)	LF	9.00
SHEET PILING, FURNISHED	SY	68.00
SHEET PILING, DRIVEN	SY	68.00
(PL) PILOT HOLES	LF	247.00
6" PERFORATED PIPE UNDERDRAIN ROUND	LF	38.00
6" NON-PERF. PIPE UNDERDRAIN RND.	LF	3.00
STANDARD BEDDING MATERIAL, CLASS B	CY	63.00

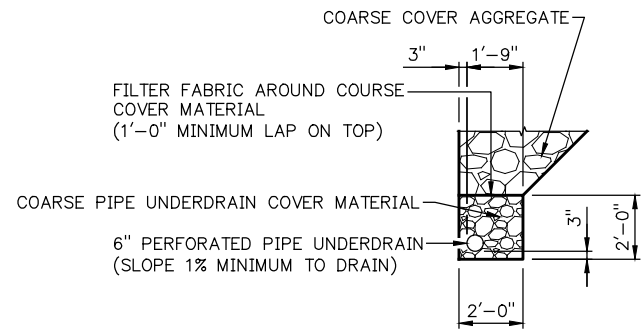
NOTE: BEARING PLATES, ABUTMENT PILE CAP, ABUTMENT PILE CAP STIFFENERS, ABUTMENT H-PILES, C8x11.5 BRACES, AND L4x3x1/4 SHEET PILE CAP SHALL BE COMPOSED OF NEW STRUCTURAL STEEL (GR. 50).



ABUTMENT 2 DETAILS (BRIDGE "B")
 © SURVEY STA. 314+58.28
 State Job No. 28312(04) Sheet No. 31



EXCAVATION PLAN

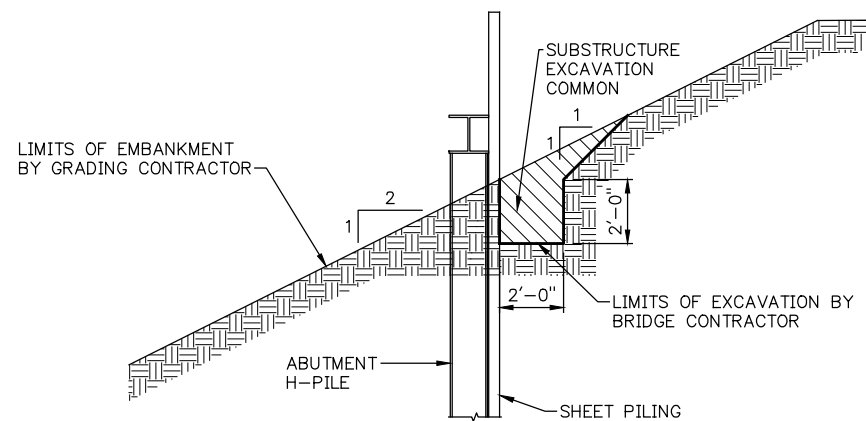


TYPICAL SECTION PIPE UNDERDRAIN (PERPENDICULAR TO ABUTMENT)

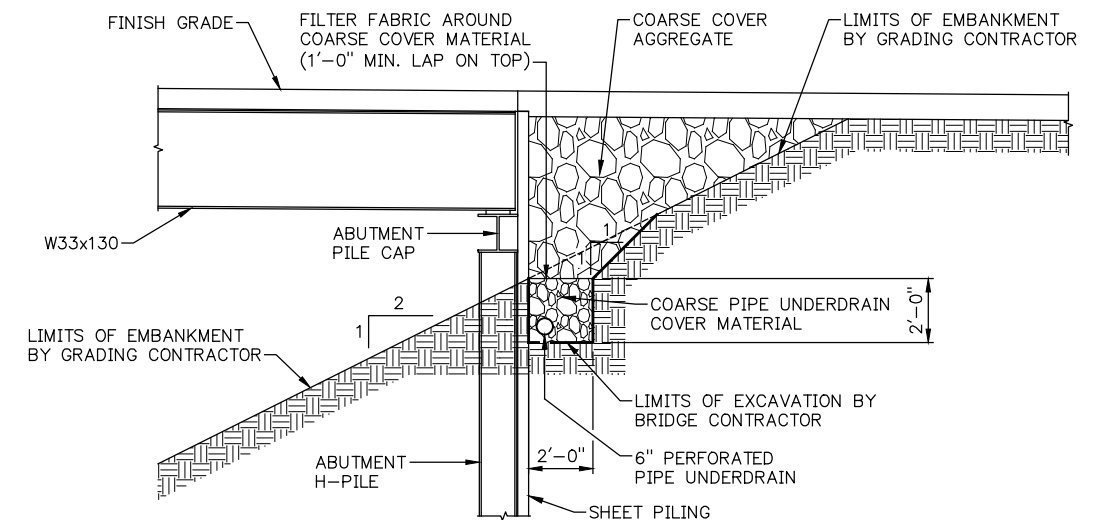
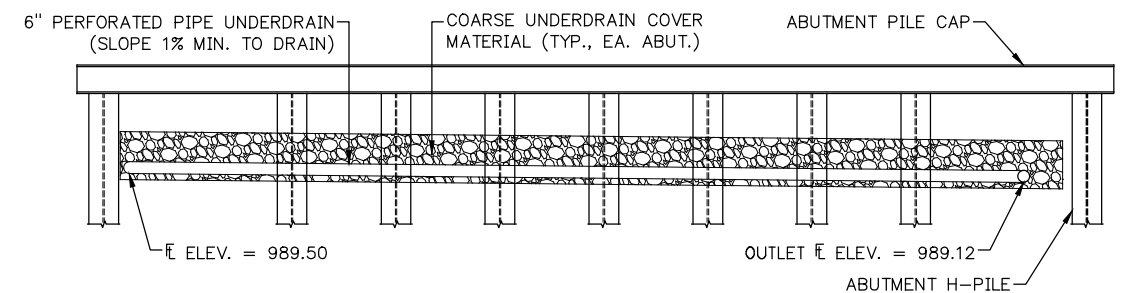
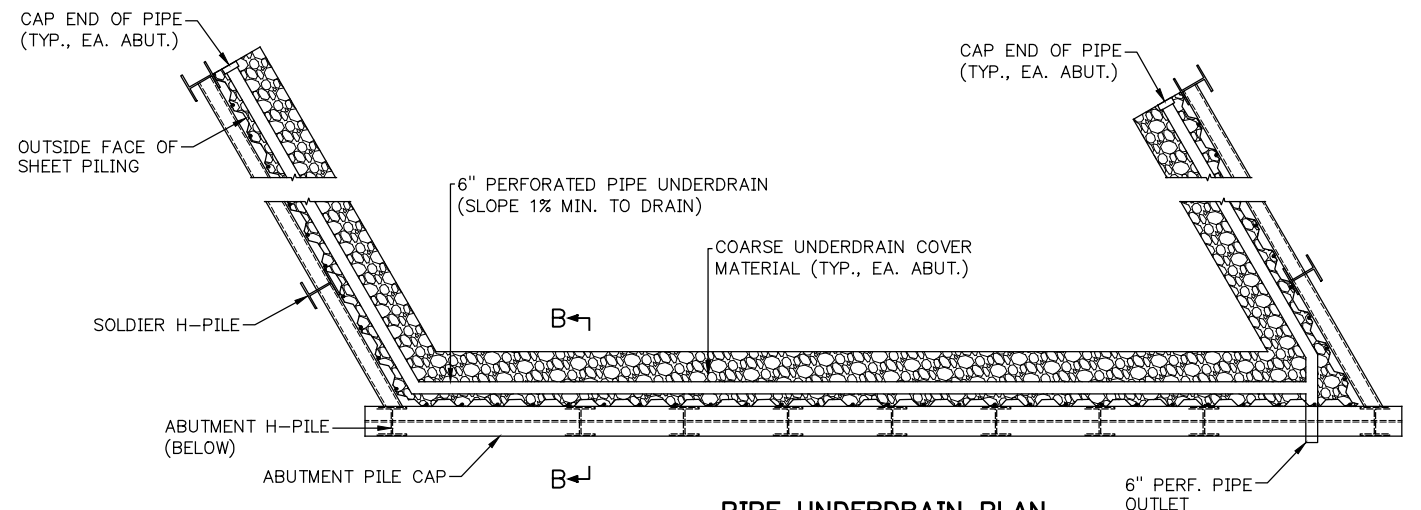
NOTE: EXTENT, LOCATION AND DEPTH OF 6" NON-PERFORATED PIPE UNDERDRAIN MAY BE ADJUSTED BY THE ENGINEER DURING CONSTRUCTION. ALL COST OF PIPE UNDERDRAIN COVER MATERIAL, FILTER FABRIC, TRENCH EXCAVATION, STANDARD BEDDING MATERIAL, AND EQUIPMENT AND LABOR FOR THEIR INSTALLATION SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE OF "6" PERFORATED PIPE UNDERDRAIN ROUND" AND "6" NON-PREF. PIPE UNDERDRAIN RND.". INSTALLATION SHALL BE AS SHOWN ON THE PLANS AND ON STANDARD CB26..32-C-SK30-ABUT-MISC. FOR DETAILS OF PIPE UNDERDRAIN NOT SHOWN SEE STD. CB26..32-C-SK30-ABUT-MISC.

COARSE COVER AGGREGATE SHALL BE PAID FOR AS "STANDARD BEDDING MATERIAL, CLASS B".

BACKFILL NOTE: COARSE PIPE UNDERDRAIN COVER MATERIAL SHALL NOT BE PLACED UNTIL THE PILOT HOLE CONCRETE HAS ATTAINED A STRENGTH OF 3000 P.S.I.

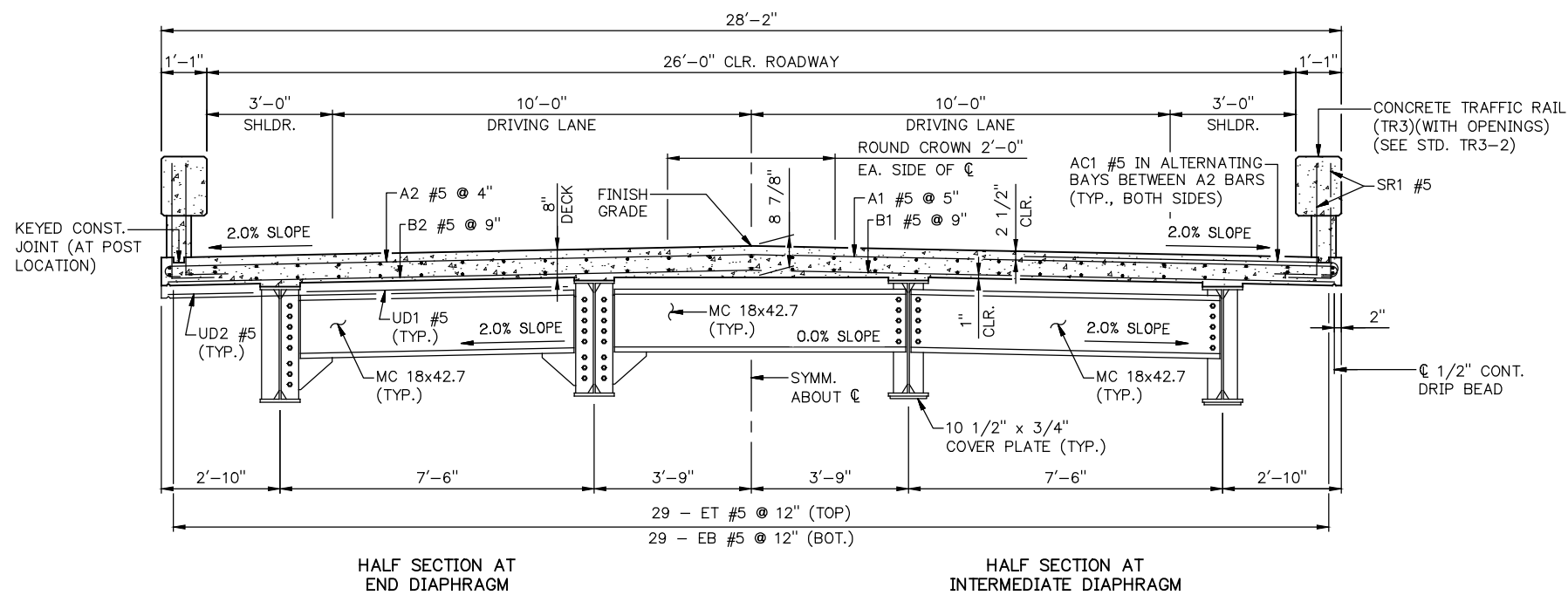


SECTION A-A (PERPENDICULAR TO ABUTMENT)

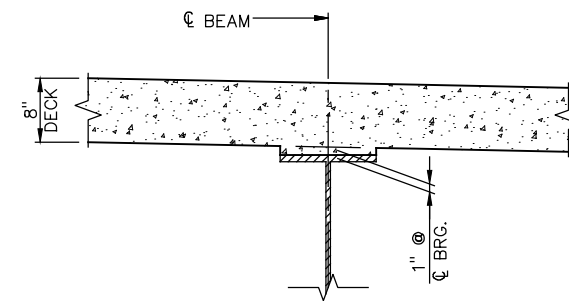


SUBSTRUCTURE EXCAVATION AND PIPE UNDERDRAIN DETAILS (BRIDGE "B")

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State Job No. 28312(04) Sheet No. 32



TYPICAL CROSS SECTION



HAUNCH DETAIL AT BEARING

NOTE: HAUNCH HEIGHT SHOWN IS AT CENTERLINE BEARING ONLY, MEASURED FROM BOTTOM OF DECK SLAB TO TOP OF BEAM, AND VARIES ACROSS THE SPAN. HAUNCH HEIGHT TO BE DETERMINED AFTER ERECTION OF BEAMS TO PROVIDE FOR DEAD LOAD DEFLECTION AND GRADE ADJUSTMENT.

NOTES: C4x7.2 SHEAR CONNECTORS, INTERMEDIATE DIAPHRAGM STIFFENERS, BEARING STIFFENERS, AND BENT GUSSET PLATES SHALL BE COMPOSED OF NEW STRUCTURAL STEEL (GR. 36).

BEARING PLATES, ABUTMENT PILE CAP, ABUTMENT PILE CAP STIFFENERS, ABUTMENT H-PILES, C8x11.5 BRACES AND L4x3x1/4 SHEET PILE CAP SHALL BE COMPOSED OF NEW STRUCTURAL STEEL (GR. 50).

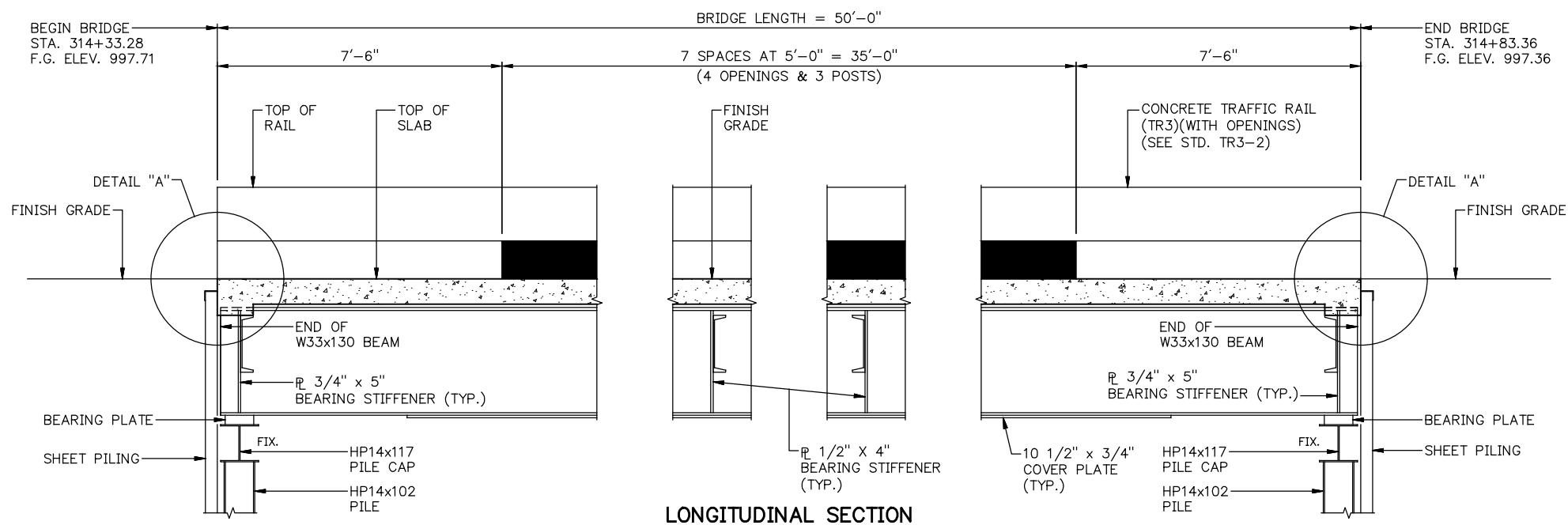
GENERAL DECK NOTES:

STAY-IN-PLACE STEEL DECK FORMS MAY BE USED IF THE MINIMUM DECK SLAB THICKNESS OF 8" IS OBTAINED BY MEASURING FROM THE TOP OF THE DECK SLAB TO THE TOP PORTION OF THE STEEL CORRUGATION. NO ADDITIONAL CONCRETE WEIGHT OF THE DECK SLAB IS PERMITTED. ADDITIONAL STEEL WEIGHT OF THE DECK FORMS MAY BE USED IF THE FOLLOWING CONDITIONS ARE MET:

1. SHOP DRAWINGS AND STRUCTURAL CALCULATIONS, AND A NEW REINFORCING SCHEDULE FOR THE DECK SLAB ARE SUBMITTED TO THE ENGINEER FOR APPROVAL.
2. A NEW STRUCTURAL DESIGN, STRUCTURAL CALCULATIONS, AND NEW REINFORCING SCHEDULE FOR THE DECK SLAB ARE SUBMITTED TO THE ENGINEER FOR APPROVAL.
3. SHOP DRAWINGS, NEW DECK SLAB REINFORCING SCHEDULE AND STRUCTURAL DESIGNS AND CALCULATIONS SHALL BE PREPARED BY AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF OKLAHOMA.

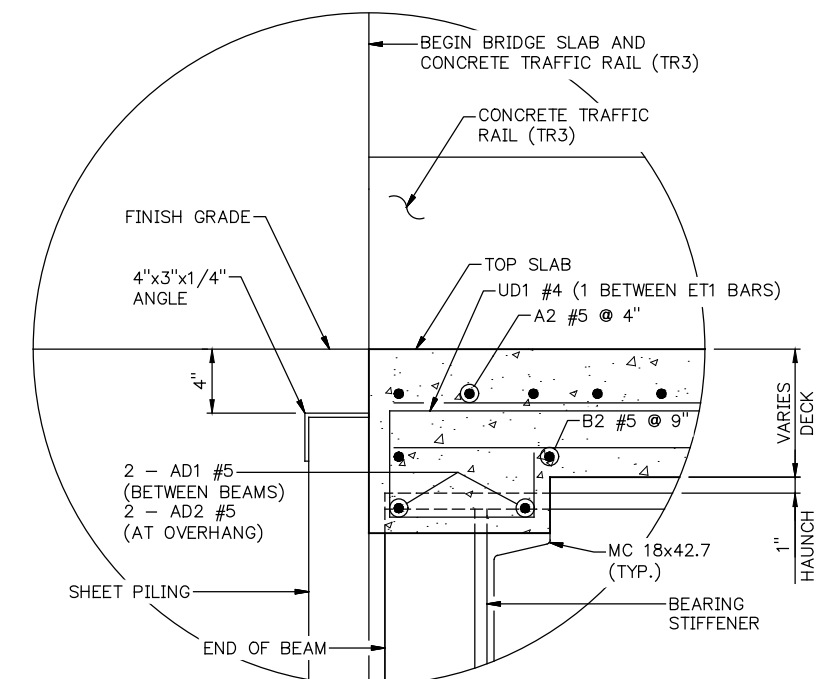
ALL COSTS ASSOCIATED WITH THE USE OF STAY-IN-PLACE FORMS, INCLUDING ALL PROFESSIONAL SERVICES, MATERIAL, LABOR, EQUIPMENT AND INCIDENTALS, SHALL BE AT THE CONTRACTOR'S EXPENSE. FOR ADDITIONAL INFORMATION CONCERNING THE USE OF STAY-IN-PLACE FORMS, SEE SECTION 502 OF THE STANDARD SPECIFICATIONS.

DO NOT SAW-CUT GROOVE OR TINE WITHIN 6" OF ANY CONSTRUCTION JOINT.



LONGITUDINAL SECTION

(ALL HORIZONTAL DIMENSIONS ARE TAKEN ALONG AND PARALLEL TO CL E0690 ROAD, UNLESS NOTED OTHERWISE)



DETAIL "A"

(SHOWN PERPENDICULAR TO CL E0690 ROAD)

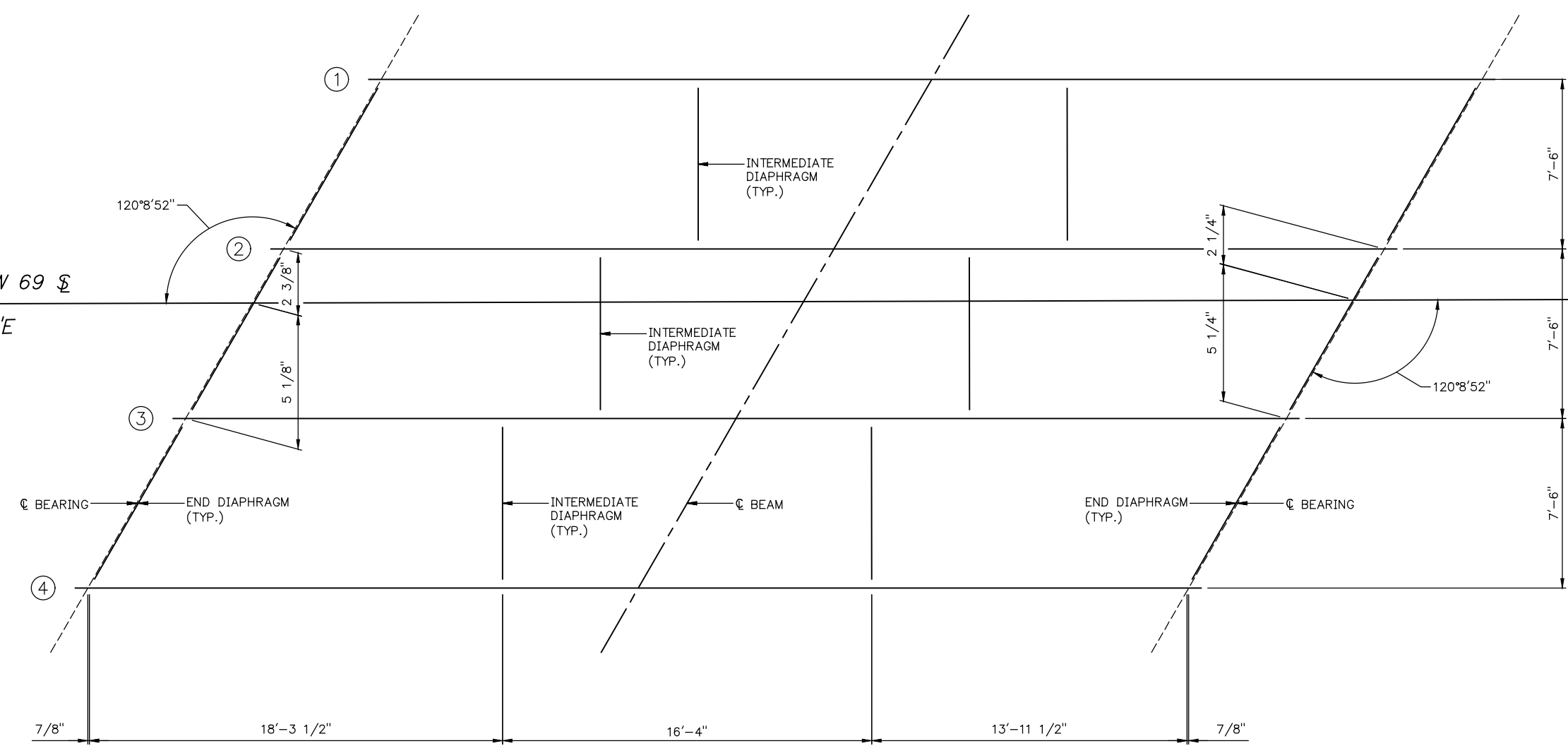
TYPICAL CROSS SECTION AND LONGITUDINAL SECTION (BRIDGE "B")

CL SURVEY STA. 314+58.28
State Job No. 28312(04) Sheet No. 33



315+00

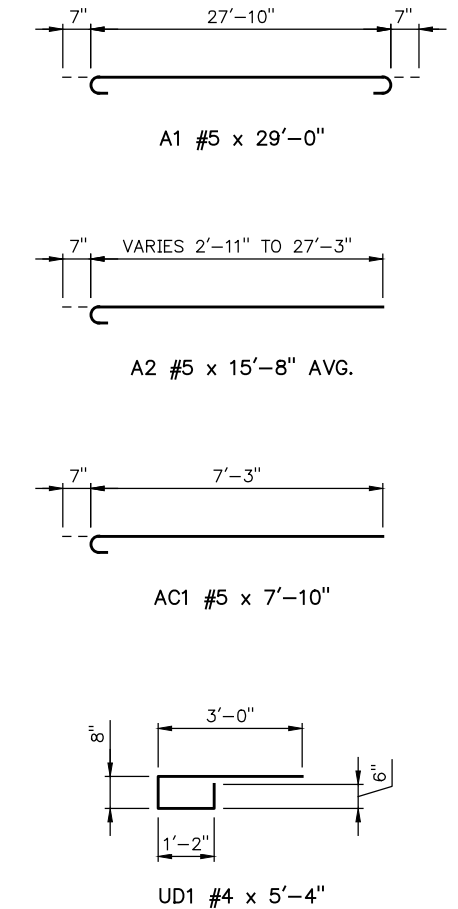
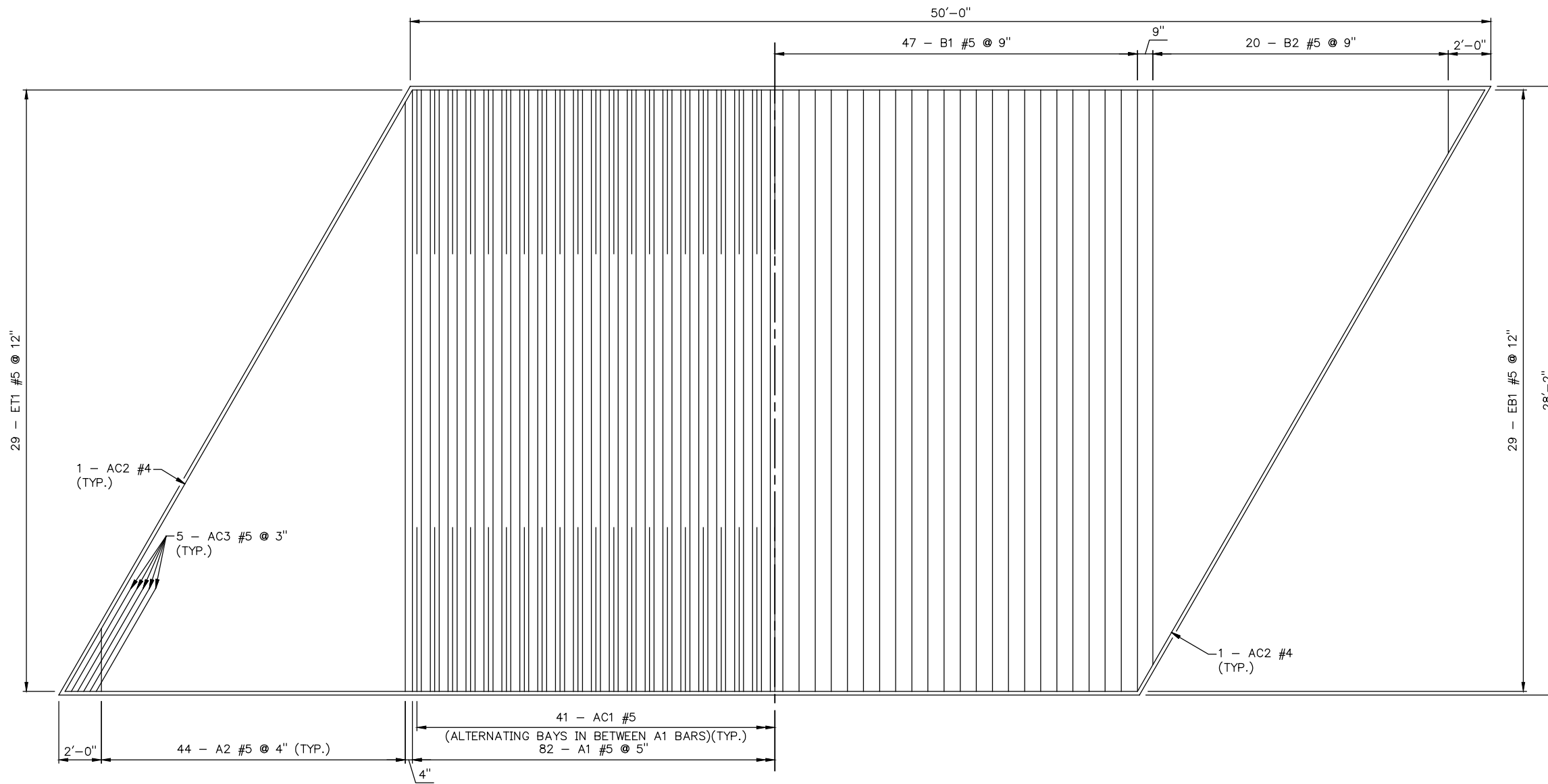
☉ SURVEY & EW 69 ☉
S89°58'02.92"E



BEAM FRAMING PLAN

**BEAM FRAMING PLAN
(BRIDGE "B")**
 ☉ SURVEY STA. 314+58.28
 State Job No. 28312(04) Sheet No. 34

LOGAN COUNTY S.H. 74D



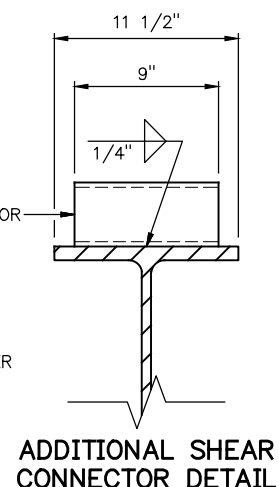
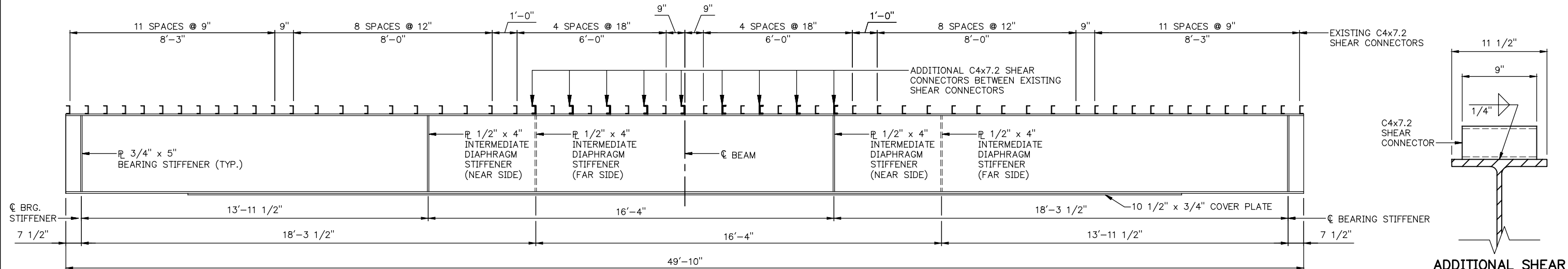
SLAB REINFORCING PLAN
NOTE: SR1 BARS NOT SHOWN FOR CLARITY

SUPERSTRUCTURE QUANTITIES		
ITEM	UNITS	TOTAL
CONCRETE RAIL (TR3)	LF	100.00
STRUCTURAL STEEL	LB	9,560.00
CLASS AA CONCRETE	CY	37.00
EPOXY COATED REINFORCING STEEL	LB	12,630.00

SUPERSTRUCTURE BAR LIST						
MARK	NO.	SIZE	FORM	LENGTH	REMARKS	
(EPOXY COATED)						
A1	83	#5	BNT.	29'-8"		
(1)	A2	122	#5	BNT.	16'-0" AVG.	3'-6" TO 28'-6"
	AC1	164	#5	BNT.	8'-2"	
	AC2	10	#4	STR.	32'-10"	
	AC3	10	#5	STR.	5'-6"	
	AD1	12	#5	STR.	7'-2"	
	AD2	8	#5	STR.	2'-4"	
	B1	47	#5	STR.	28'-6"	
(2)	B2	42	#5	STR.	15'-5" AVG.	2'-11" TO 27'-11"
	EB1	30	#5	STR.	49'-8"	
	ET1	30	#5	STR.	49'-8"	
(3)	SR1	212	#5	BNT.	3'-10"	
	UD1	60	#4	BNT.	5'-4"	

- (1) INCLUDES TWO SETS OF 61 BARS EACH.
- (2) INCLUDES TWO SETS OF 21 BARS EACH.
- (5) FOR BAR BEND DETAILS, SEE STD. TR3-2.

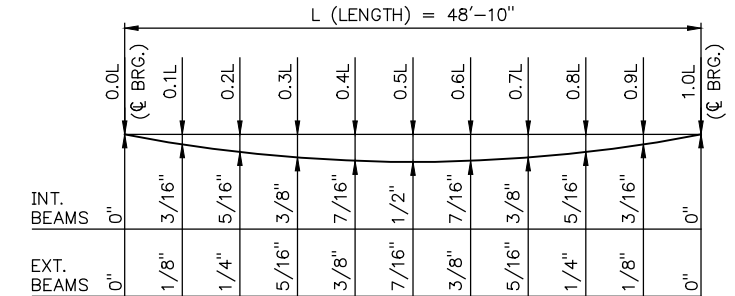
**SLAB REINFORCING PLAN
(BRIDGE "B")**
© SURVEY STA. 314+58.28
State Job No. 28312(04) Sheet No. 35



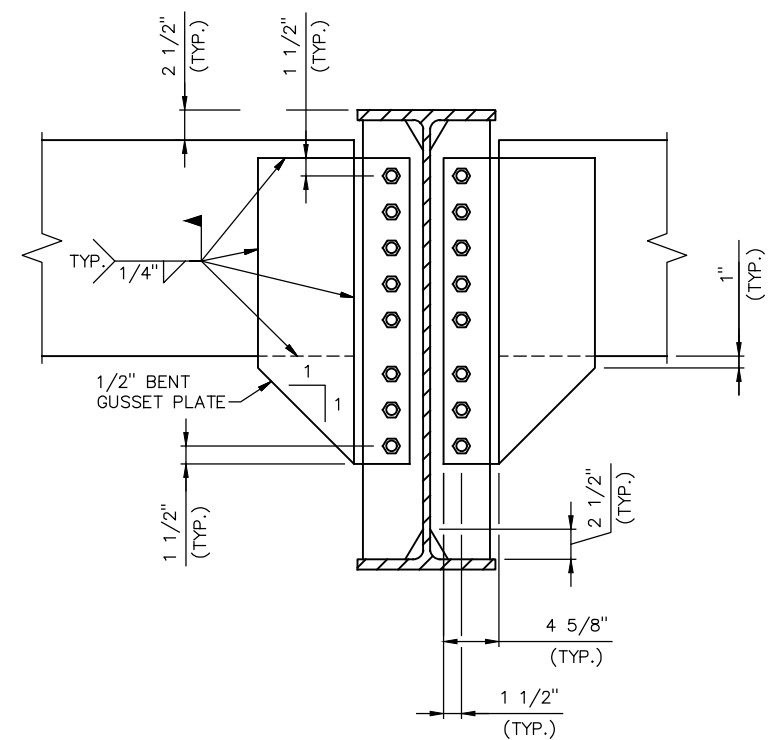
W33x130 BEAM LONGITUDINAL SECTION

NOTE: THE DEAD LOAD DEFLECTIONS SHOWN ARE DUE TO THE SLAB, DIAPHRAGMS, HAUNCH, AND TRAFFIC RAILS AND ARE THEORETICAL ONLY. (DEFLECTIONS DO NOT INCLUDE BEAM WEIGHT OR FUTURE WEARING SURFACE.) DEAD LOAD DEFLECTION SHALL BE TAKEN INTO CONSIDERATION IN FORMING AND POURING THE SLAB AND HAUNCHES.

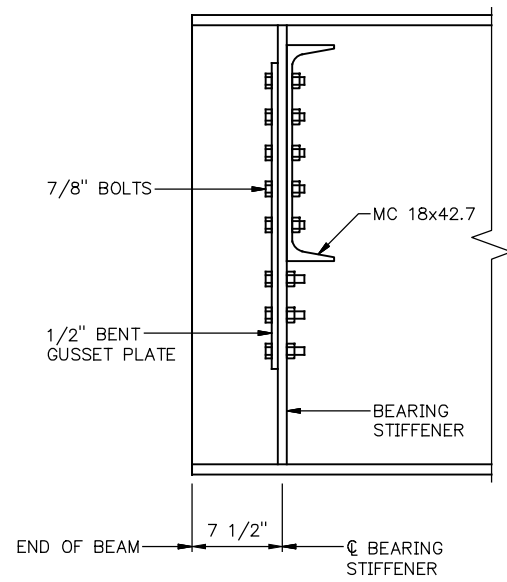
NOTE: C4x7.2 SHEAR CONNECTORS, INTERMEDIATE DIAPHRAGM STIFFENERS, BEARING STIFFENERS, AND BENT GUSSET PLATES SHALL BE COMPOSED OF NEW GRADE 36,000 PSI STRUCTURAL STEEL



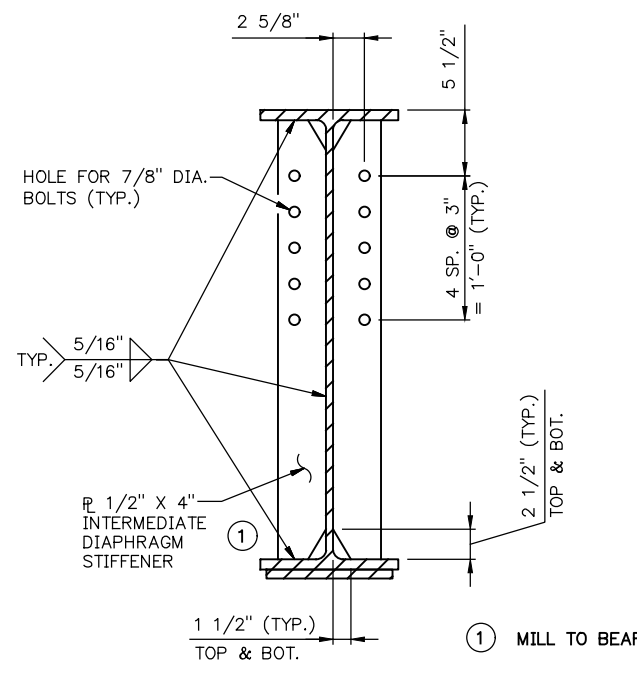
DEAD LOAD DEFLECTION DIAGRAM



DETAIL SHOWN AT INTERIOR BEAM. OMIT BOLT HOLES IN THE BEARING STIFFENER AT OUTSIDE FACE OF EXTERIOR BEAM

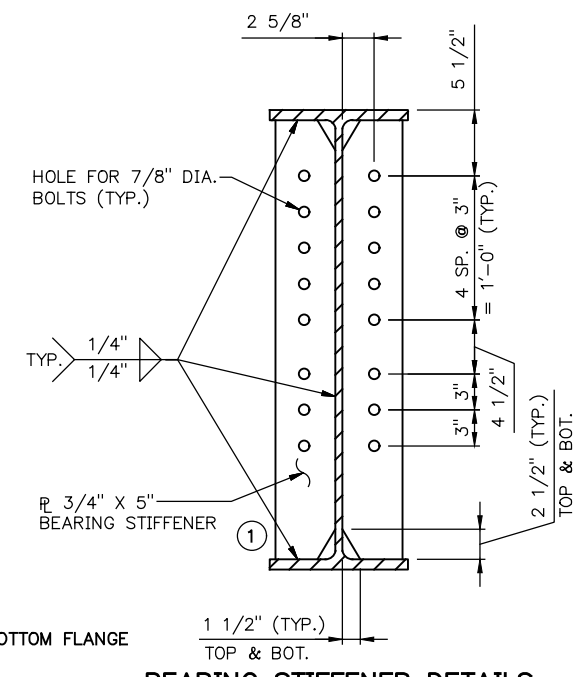


END DIAPHRAGM SECTION



INTERMEDIATE DIAPHRAGM STIFFENER DETAILS

DETAIL SHOWN AT INTERIOR BEAM. OMIT BOLT HOLES IN THE INTERMEDIATE STIFFENER AT OUTSIDE FACE OF EXTERIOR BEAM



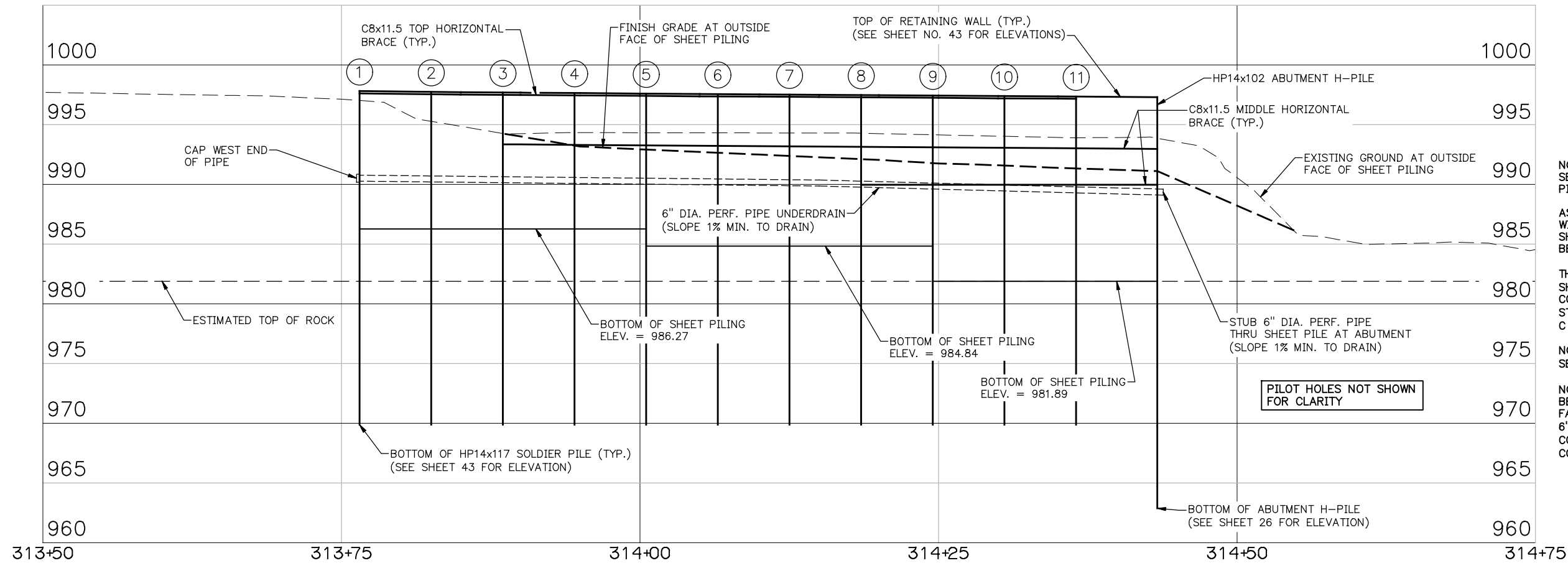
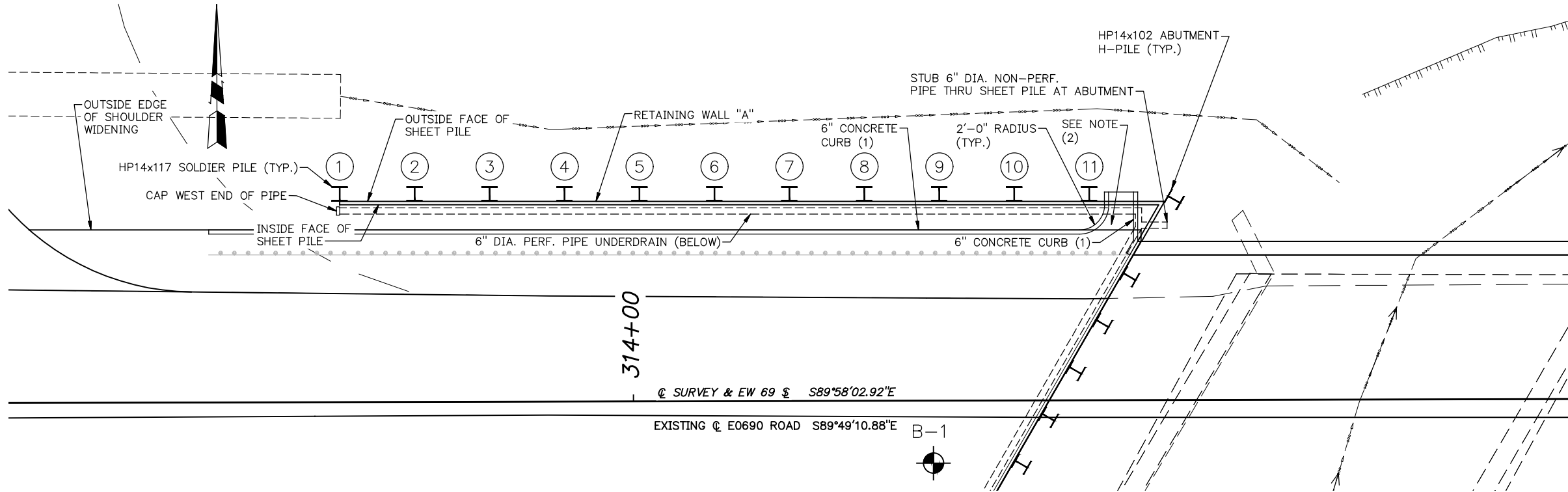
BEARING STIFFENER DETAILS

DETAIL SHOWN AT INTERIOR BEAM. OMIT BOLT HOLES IN THE BEARING STIFFENER AT OUTSIDE FACE OF EXTERIOR BEAM

BEAM DETAILS (BRIDGE "B")

ϕ SURVEY STA. 314+58.28

State Job No. 28312(04) Sheet No. 36



BM#103-3/4" IRON BAR
STA. 315+94.13 42.77' RT.
ELEV. = 997.97

BM#102-3/4" IRON BAR
STA. 313+78.23 46.33' LT.
ELEV. = 997.22

NOTES:
SEE SHEET 43 FOR SOLDIER PILE ELEVATIONS AND SHEET PILE ELEVATIONS AND LENGTHS.

ASPHALT SHOULDER WIDENING SHALL BE IN ACCORDANCE WITH THE ROADWAY PLANS AND DETAILS SHOWN ON THIS SHEET. ALL COSTS OF ASPHALT SHOULDER WIDENING SHALL BE INCLUDED IN THE ROADWAY PAY ITEMS.

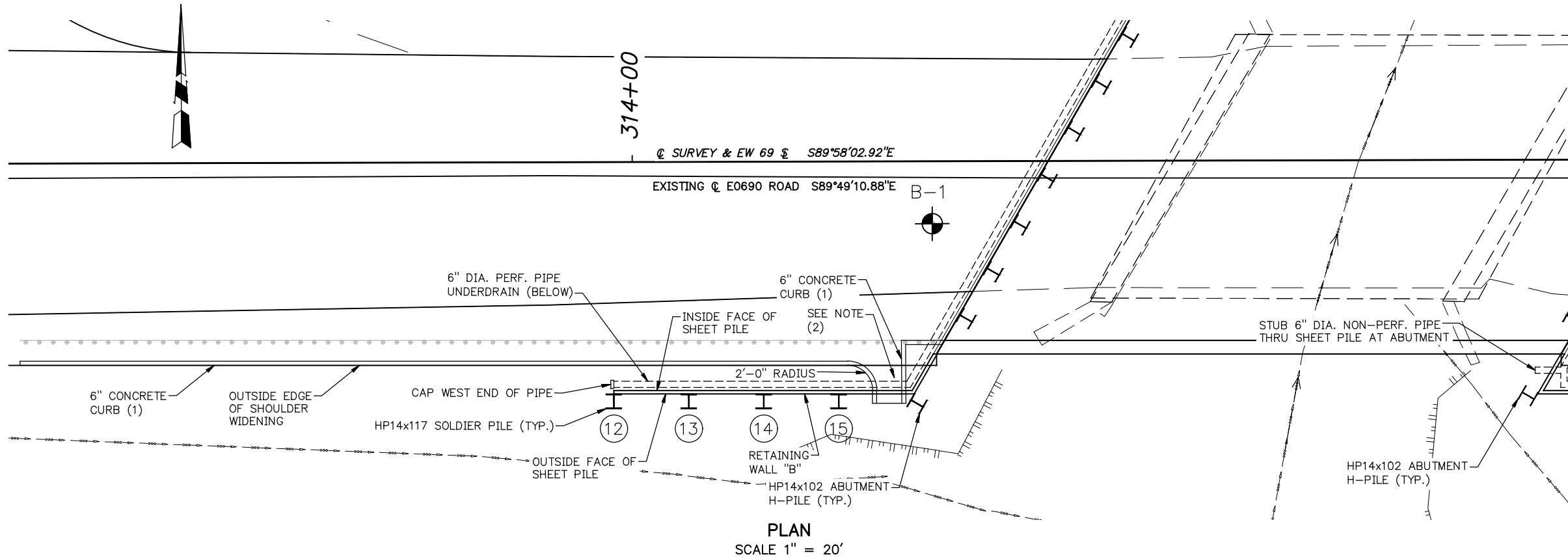
THE 6" CONCRETE CURBS SHALL BE CONSTRUCTED AS SHOWN ON THIS SHEET. ALL COSTS TO CONSTRUCT THE 6" CONCRETE CURBS INCLUDING CONCRETE AND REINFORCING STEEL SHALL BE INCLUDED IN THE PRICE BID FOR "CLASS C CONCRETE".

NOTE (1):
SEE 6" CONCRETE CURB DETAIL ON SHEET NO. 41.

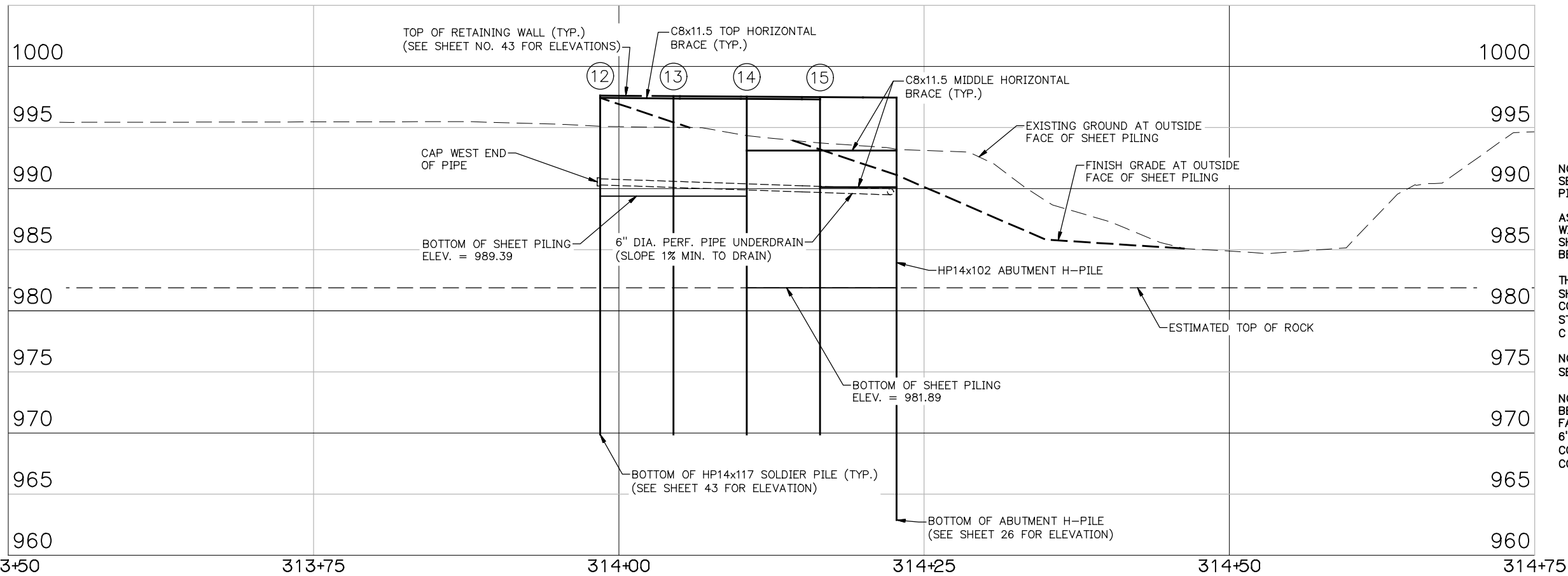
NOTE (2):
BETWEEN OUTSIDE EDGE OF ASPHALT SHOULDER AND INSIDE FACE OF SHEET PILE OF THE RETAINING WALL, CONSTRUCT 6" CONCRETE BASE OVER AREA OUTLINED BY CURBING. COST TO BE INCLUDED IN PRICE BID FOR "CLASS AA CONCRETE".

PILOT HOLES NOT SHOWN FOR CLARITY

GENERAL PLAN AND ELEVATION
(RETAINING WALL "A")



NOTE:
SEE SHEET 43 FOR SOLDIER PILE ELEVATIONS AND SHEET PILE ELEVATIONS AND LENGTHS.



BM#103-3/4" IRON BAR
STA. 315+94.13 42.77' RT.
ELEV. = 997.97

BM#102-3/4" IRON BAR
STA. 313+78.23 46.33' LT.
ELEV. = 997.22

NOTES:
SEE SHEET 43 FOR SOLDIER PILE ELEVATIONS AND SHEET PILE ELEVATIONS AND LENGTHS.

ASPHALT SHOULDER WIDENING SHALL BE IN ACCORDANCE WITH THE ROADWAY PLANS AND DETAILS SHOWN ON THIS SHEET. ALL COSTS OF ASPHALT SHOULDER WIDENING SHALL BE INCLUDED IN THE ROADWAY PAY ITEMS.

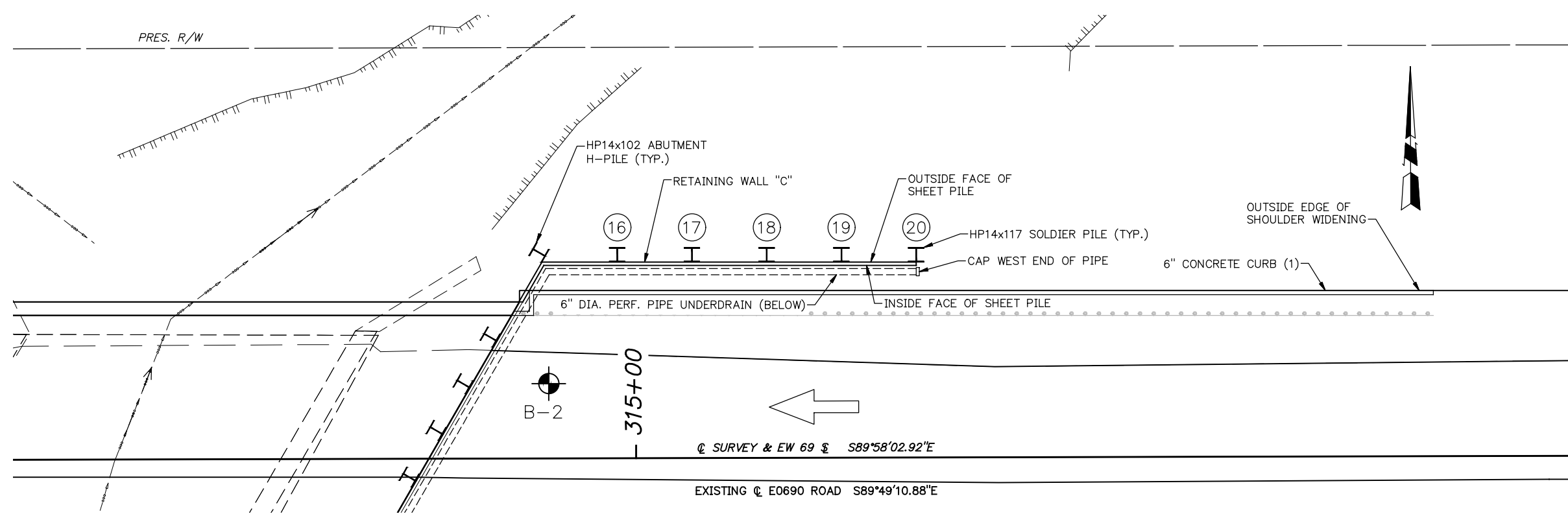
THE 6" CONCRETE CURBS SHALL BE CONSTRUCTED AS SHOWN ON THIS SHEET. ALL COSTS TO CONSTRUCT THE 6" CONCRETE CURBS INCLUDING CONCRETE AND REINFORCING STEEL SHALL BE INCLUDED IN THE PRICE BID FOR "CLASS C CONCRETE".

NOTE (1):
SEE 6" CONCRETE CURB DETAIL ON SHEET NO. 41.

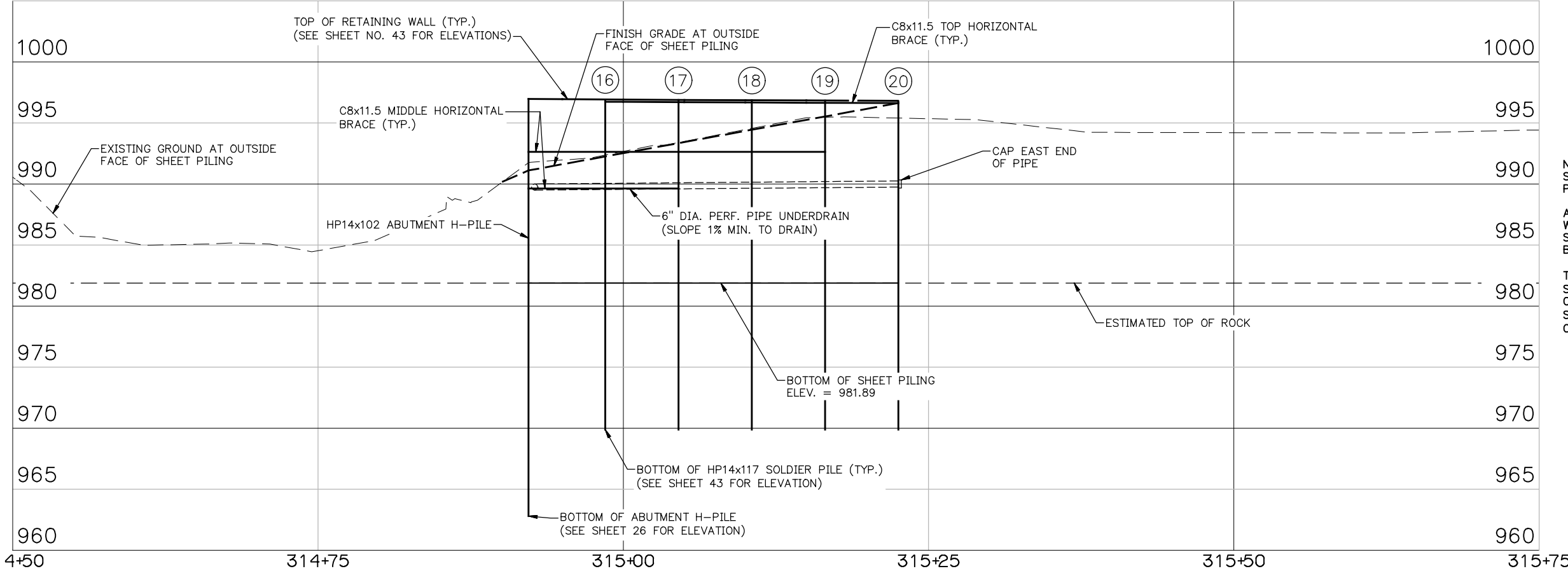
NOTE (2):
BETWEEN OUTSIDE EDGE OF ASPHALT SHOULDER AND INSIDE FACE OF SHEET PILE OF THE RETAINING WALL, CONSTRUCT 6" CONCRETE BASE OVER AREA OUTLINED BY CURBING. COST TO BE INCLUDED IN PRICE BID FOR "CLASS AA CONCRETE".

ELEVATION (OUTSIDE FACE) - RETAINING WALL
(STATIONING MEASURED ALONG OUTSIDE FACE)
SCALE HORIZ. 1" = 20'
SCALE VERT. 1" = 20'

GENERAL PLAN AND ELEVATION
(RETAINING WALL "B")



PLAN
SCALE 1" = 20'



ELEVATION (INSIDE FACE) - RETAINING WALL
(STATIONING MEASURED ALONG INSIDE FACE)
SCALE HORIZ. 1" = 20'
SCALE VERT. 1" = 20'

BM#103-3/4" IRON BAR
STA. 315+94.13 42.77' RT.
ELEV. = 997.97

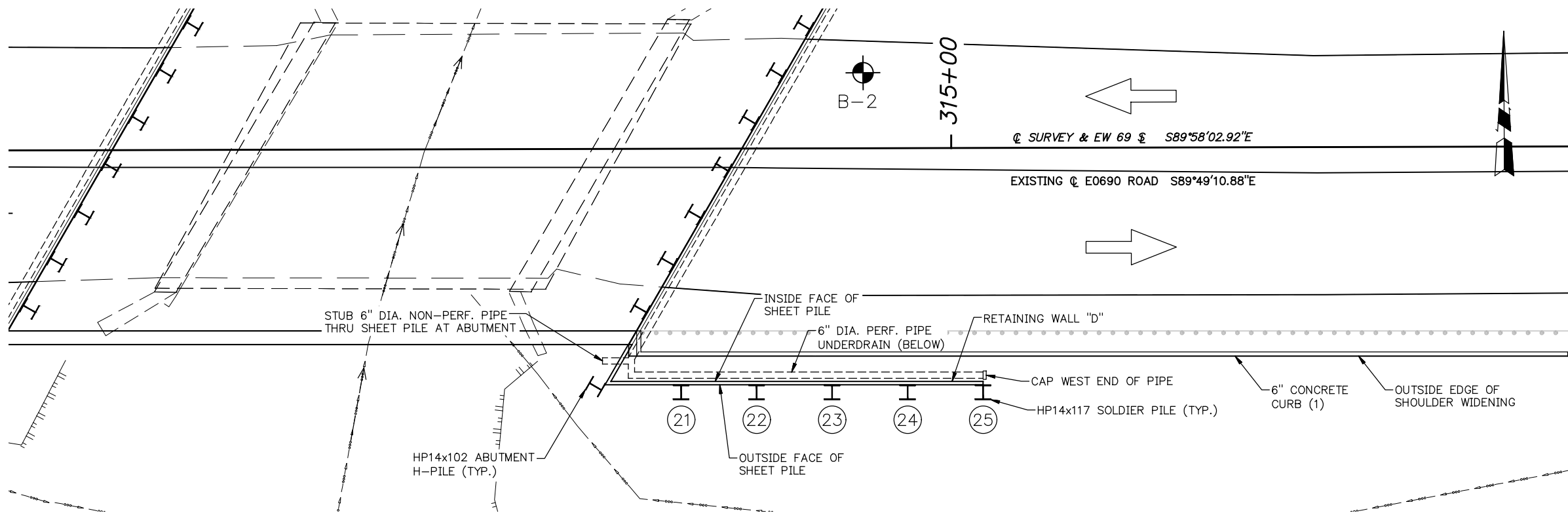
BM#102-3/4" IRON BAR
STA. 313+78.23 46.33' LT.
ELEV. = 997.22

NOTES:
SEE SHEET 43 FOR SOLDIER PILE ELEVATIONS AND SHEET PILE ELEVATIONS AND LENGTHS.

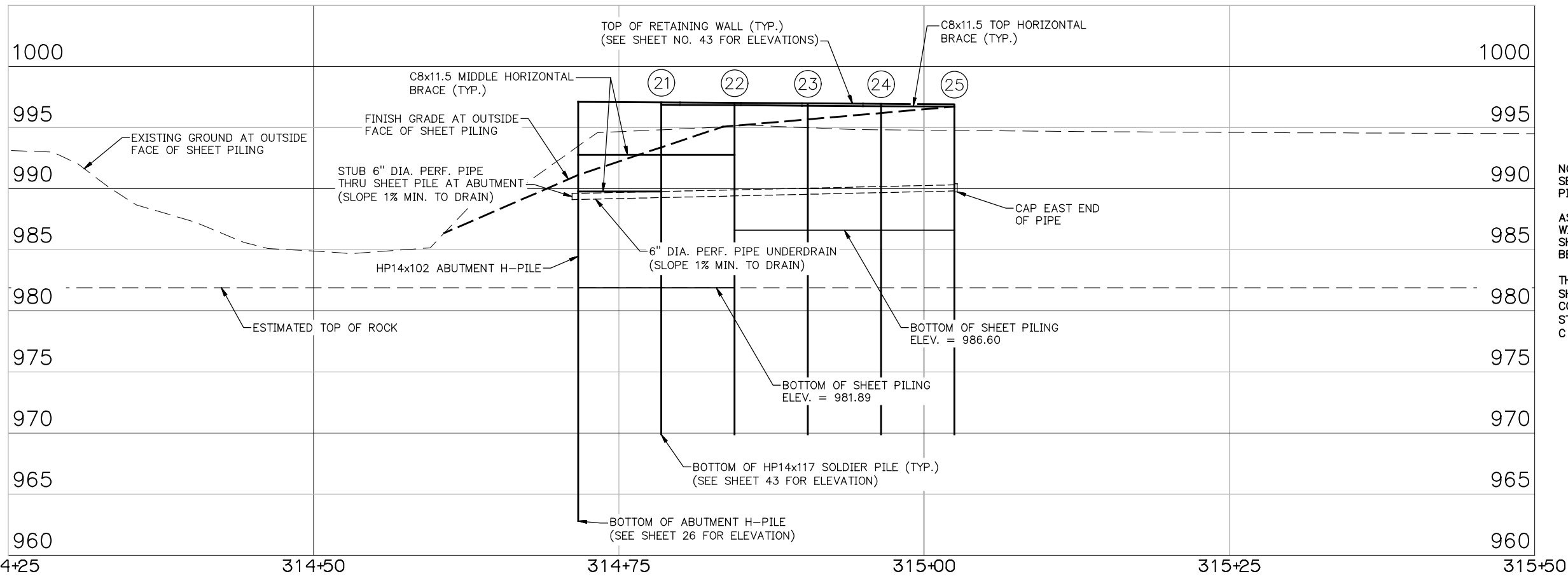
ASPHALT SHOULDER WIDENING SHALL BE IN ACCORDANCE WITH THE ROADWAY PLANS AND DETAILS SHOWN ON THIS SHEET. ALL COSTS OF ASPHALT SHOULDER WIDENING SHALL BE INCLUDED IN THE ROADWAY PAY ITEMS.

THE 6" CONCRETE CURBS SHALL BE CONSTRUCTED AS SHOWN ON THIS SHEET. ALL COSTS TO CONSTRUCT THE 6" CONCRETE CURBS INCLUDING CONCRETE AND REINFORCING STEEL SHALL BE INCLUDED IN THE PRICE BID FOR "CLASS C CONCRETE".

GENERAL PLAN AND ELEVATION
(RETAINING WALL "C")



PLAN
SCALE 1" = 20'



ELEVATION (OUTSIDE FACE) - RETAINING WALL
(STATIONING MEASURED ALONG OUTSIDE FACE)
SCALE HORIZ. 1" = 20'
SCALE VERT. 1" = 20'

BM#103-3/4" IRON BAR
STA. 315+94.13 42.77' RT.
ELEV. = 997.97

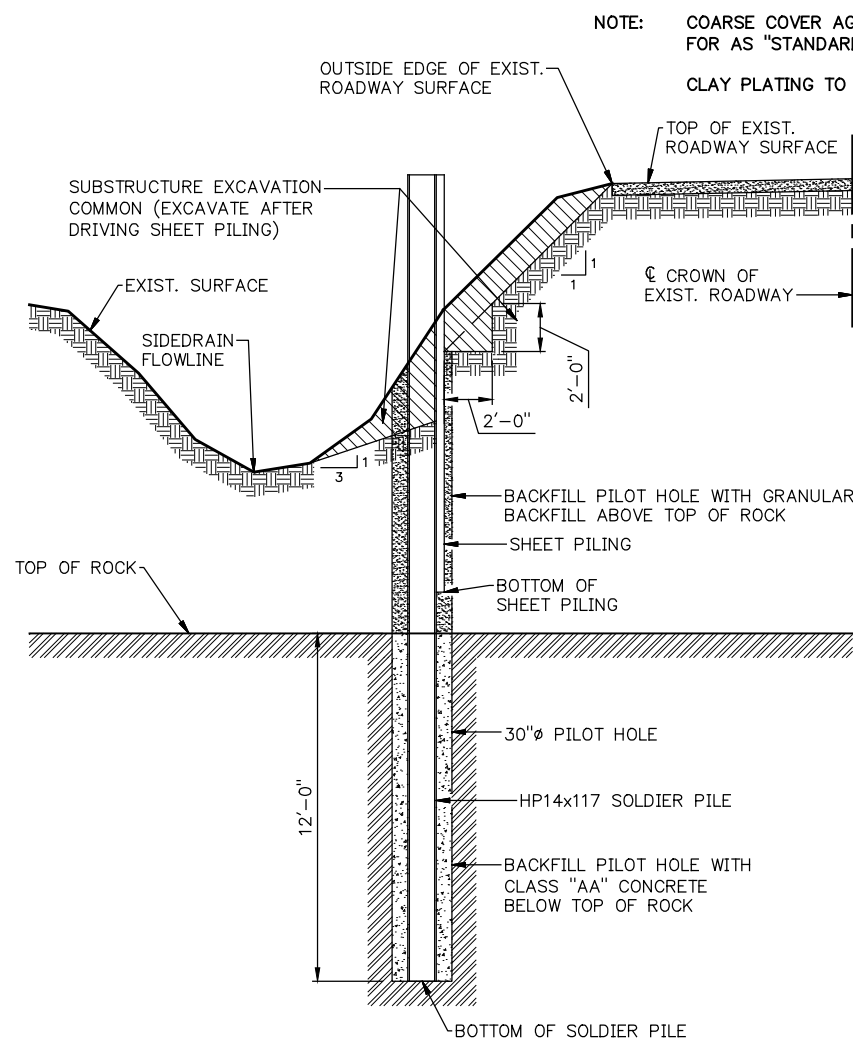
BM#102-3/4" IRON BAR
STA. 313+78.23 46.33' LT.
ELEV. = 997.22

NOTES:
SEE SHEET 43 FOR SOLDIER PILE ELEVATIONS AND SHEET PILE ELEVATIONS AND LENGTHS.

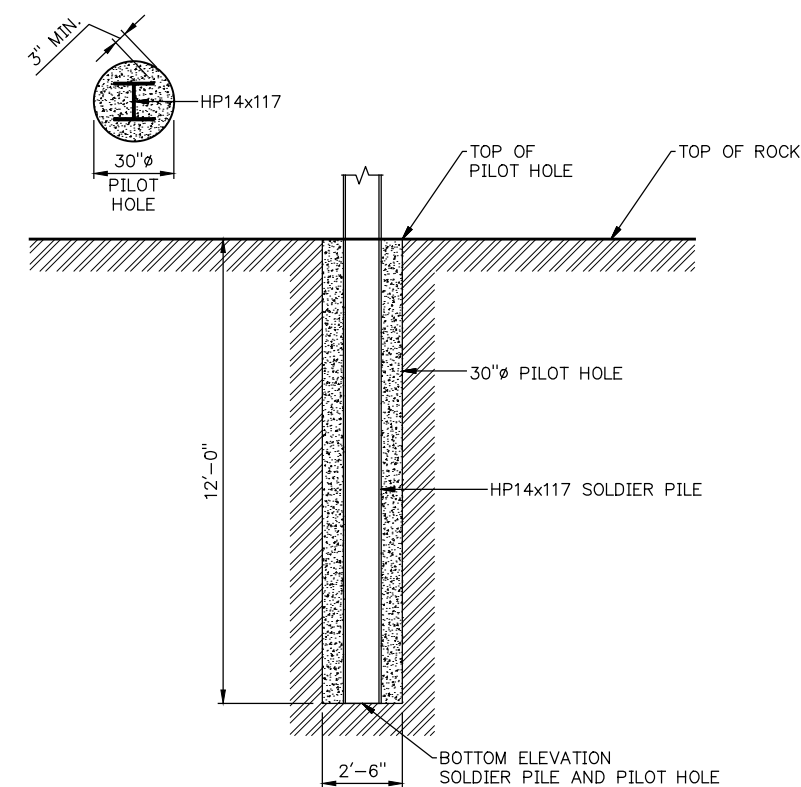
ASPHALT SHOULDER WIDENING SHALL BE IN ACCORDANCE WITH THE ROADWAY PLANS AND DETAILS SHOWN ON THIS SHEET. ALL COSTS OF ASPHALT SHOULDER WIDENING SHALL BE INCLUDED IN THE ROADWAY PAY ITEMS.

THE 6" CONCRETE CURBS SHALL BE CONSTRUCTED AS SHOWN ON THIS SHEET. ALL COSTS TO CONSTRUCT THE 6" CONCRETE CURBS INCLUDING CONCRETE AND REINFORCING STEEL SHALL BE INCLUDED IN THE PRICE BID FOR "CLASS C CONCRETE".

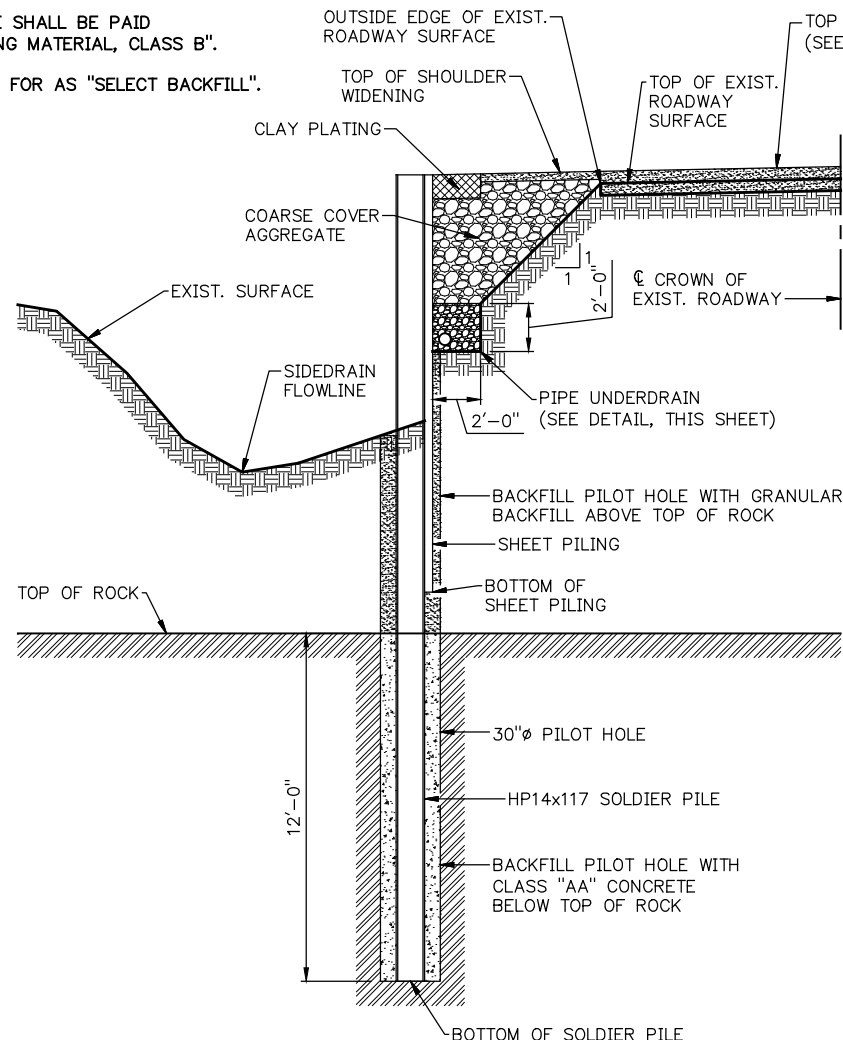
GENERAL PLAN AND ELEVATION
(RETAINING WALL "D")



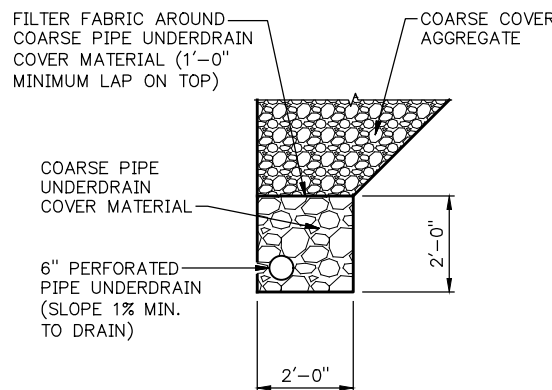
TYPICAL SECTION RETAINING WALL EXCAVATION



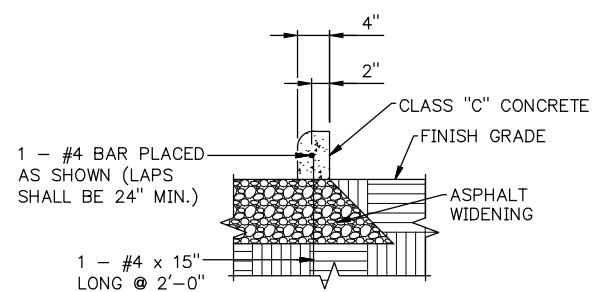
TYPICAL SECTION SOLDIER PILE FOUNDATION



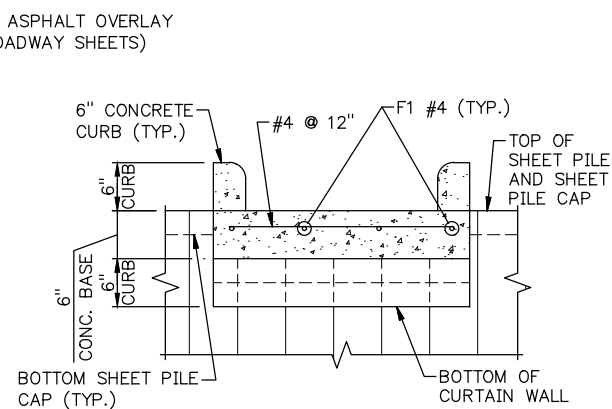
TYPICAL SECTION RETAINING WALL DRAINAGE



TYPICAL SECTION PIPE UNDERDRAIN

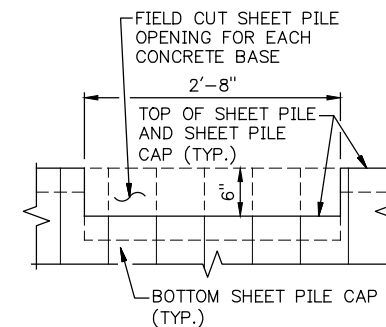


DETAIL OF 6" CONCRETE CURB (SHOWN AT OUTSIDE EDGE OF ASPHALT SHOULDER WIDENING)

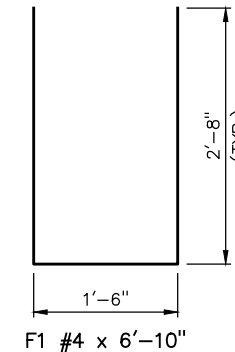


SECTION B-B

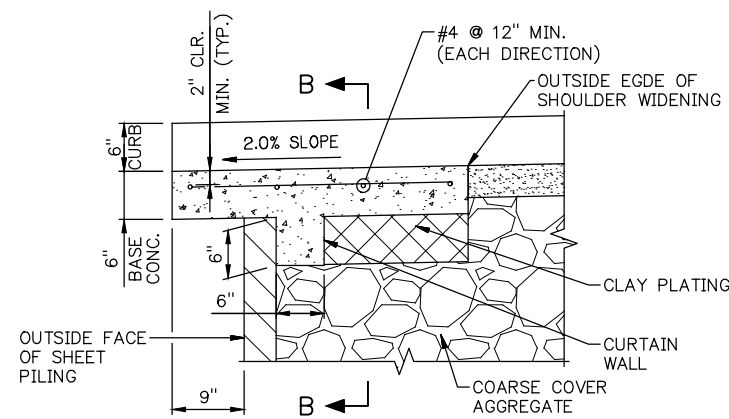
(CURB REINFORCING NOT SHOWN FOR CLARITY, SEE "DETAIL OF 6" CONCRETE CURB" FOR DETAILS)



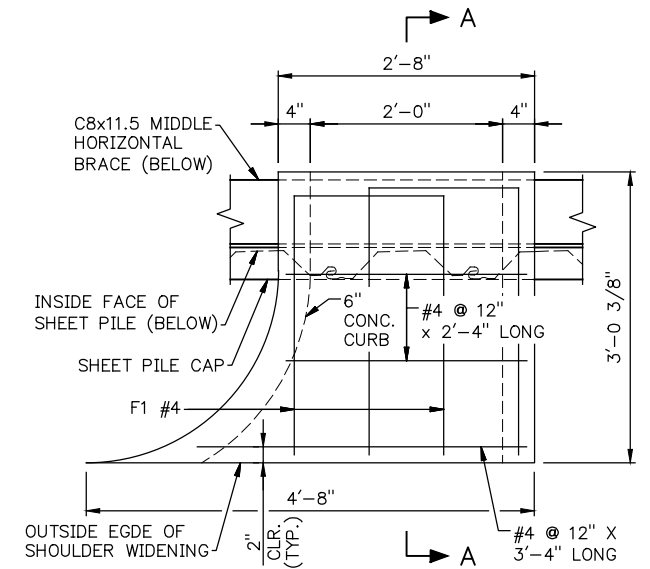
SHEET PILING CUTOUT ELEVATION



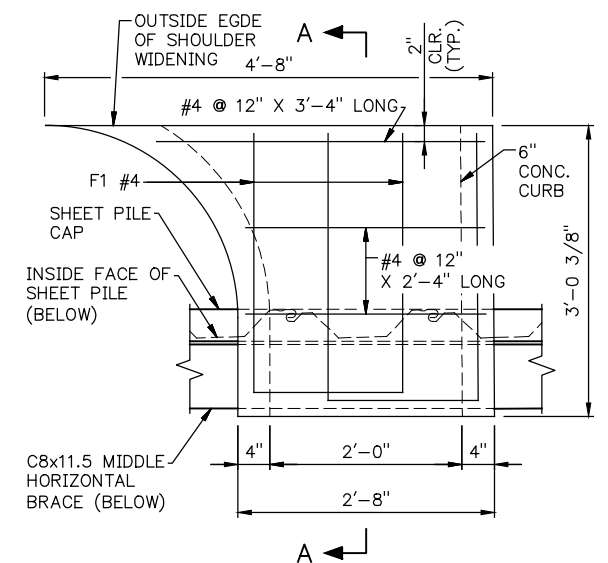
BAR BEND DETAIL



SECTION A-A

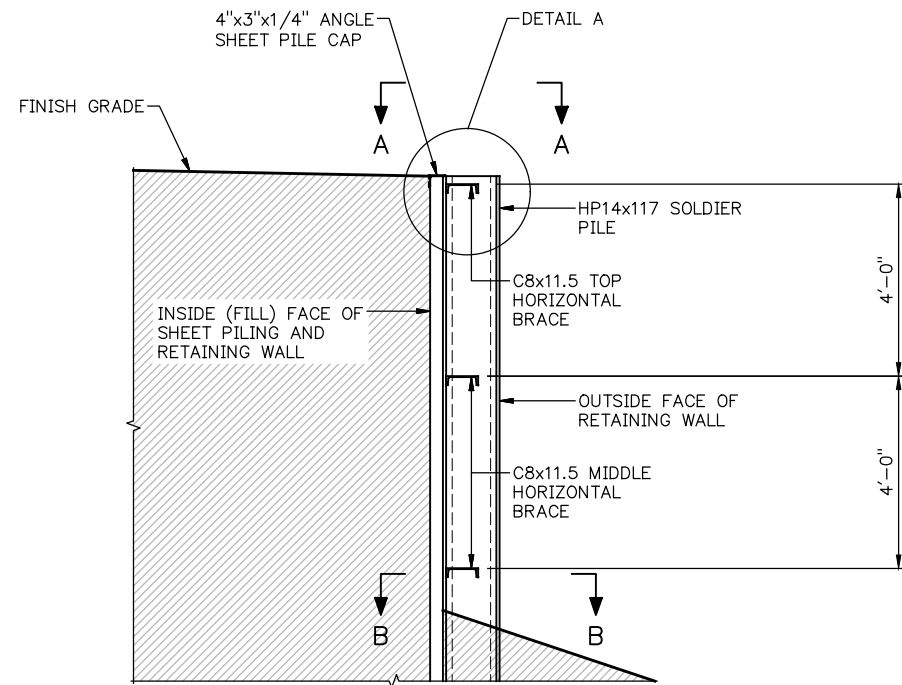


PLAN OF 6" CONCRETE BASE RETAINING WALL "A"

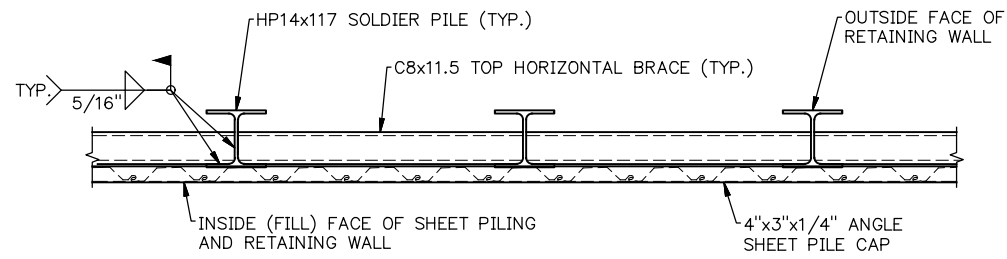


PLAN OF 6" CONCRETE BASE RETAINING WALL "B"

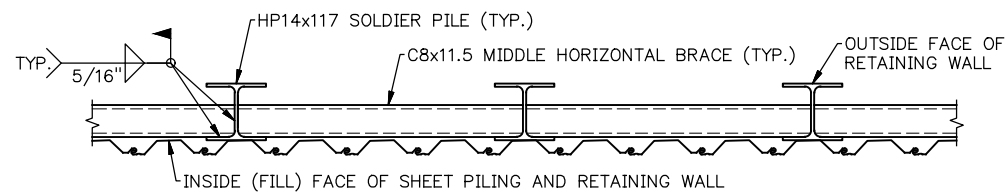
RETAINING WALL DETAILS
(SHEET 1 OF 3)



SOLDIER PILE BRACING DETAIL

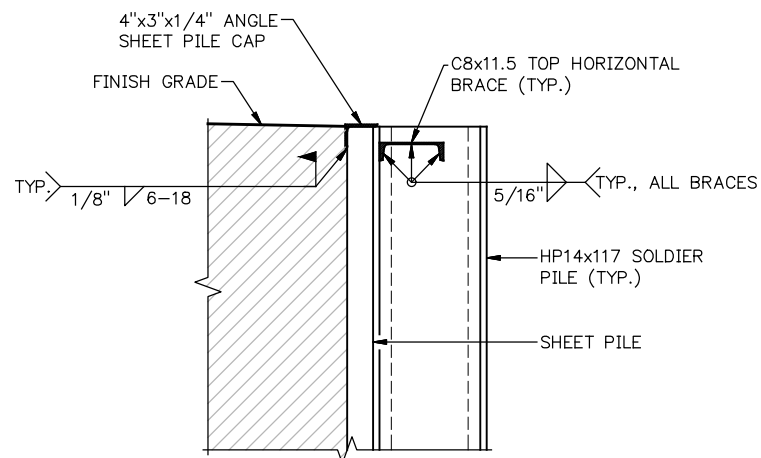


SECTION A-A

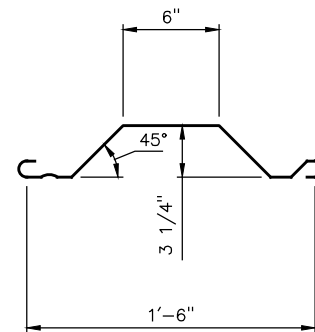


SECTION B-B

NOTE: SOLDIER PILES, C8x11.5 BRACES, AND L4x3x1/4 SHEET PILE CAP SHALL BE COMPOSED OF NEW STRUCTURAL STEEL (GR. 50).



DETAIL A



SHEET PILE SECTION

NOTES: SHEET PILING SHALL BE MADE FROM STEEL CONFORMING TO AASHTO M160 (GR. 50W). SHEET PILING SHALL BE 10 GAGE, 0.134 INCHES THICK, WEIGHING 10.80 POUNDS PER LINEAR FOOT OF PILE OR 7.2 POUNDS PER SQUARE FOOT OF WALL, SHALL HAVE A SECTION MODULUS OF 2.72 INCHES³ PER SECTION AND A MOMENT OF INERTIA OF 4.05 INCHES⁴ PER SECTION AND SHALL HAVE A MINIMUM YIELD STRENGTH OF 50,000 PSI. ALL COST FOR SHEET PILING SHALL BE PAID FOR AT THE UNIT PRICE BID PER SQUARE YARD FOR SHEET PILING IN PLACE.

RETAINING WALL "A" - SOLDIER PILE SCHEDULE									
PILE NO.	STATION	OFFSET	NORTHING	EASTING	BOTTOM OF H-PILE ELEV.	TOP OF ROCK ELEV.	TOP OF GROUND ELEV.	DEPTH INTO GROUND (FT)	TOP OF WALL ELEV.
1	313+76.52	16.66' LT.	369596.9186	2085914.1448	969.89	981.89	997.02	28.00	997.80
2	313+82.52	16.64' LT.	369596.8997	2085920.1447	969.89	981.89	995.28	26.00	997.74
3	313+88.52	16.63' LT.	369596.8808	2085926.1447	969.89	981.89	994.25	25.00	997.68
4	313+94.52	16.61' LT.	369596.8619	2085932.1447	969.89	981.89	994.33	25.00	997.64
5	314+00.52	16.60' LT.	369596.8430	2085938.1446	969.89	981.89	994.32	25.00	997.60
6	314+06.52	16.58' LT.	369596.8241	2085944.1446	969.89	981.89	994.31	25.00	997.55
7	314+12.52	16.56' LT.	369596.8053	2085950.1446	969.89	981.89	994.30	25.00	997.52
8	314+18.52	16.55' LT.	369596.7864	2085956.1446	969.89	981.89	994.28	25.00	997.47
9	314+24.52	16.53' LT.	369596.7675	2085962.1445	969.89	981.89	994.15	25.00	997.43
10	314+30.52	16.52' LT.	369596.7486	2085968.1445	969.89	981.89	994.02	25.00	997.39
11	314+36.52	16.50' LT.	369596.7297	2085974.1445	969.89	981.89	994.89	26.00	997.35

RETAINING WALL "B" - SOLDIER PILE SCHEDULE									
PILE NO.	STATION	OFFSET	NORTHING	EASTING	BOTTOM OF H-PILE ELEV.	TOP OF ROCK ELEV.	TOP OF GROUND ELEV.	DEPTH INTO GROUND (FT)	TOP OF WALL ELEV.
12	313+98.47	19.14' RT.	369561.1070	2085936.0795	969.89	981.89	995.10	26.00	997.62
13	314+04.47	19.16' RT.	369591.0881	2085942.0795	969.89	981.89	995.01	26.00	997.56
14	314+10.47	19.17' RT.	369561.0692	2085948.0795	969.89	981.89	994.34	25.00	997.53
15	314+16.47	19.19' RT.	369561.0504	2085954.0794	969.89	981.89	993.74	24.00	997.49

RETAINING WALL "C" - SOLDIER PILE SCHEDULE									
PILE NO.	STATION	OFFSET	NORTHING	EASTING	BOTTOM OF H-PILE ELEV.	TOP OF ROCK ELEV.	TOP OF GROUND ELEV.	DEPTH INTO GROUND (FT)	TOP OF WALL ELEV.
16	314+98.52	16.34' LT.	369596.5346	2086036.1442	969.89	981.89	992.36	23.00	996.92
17	315+04.52	16.33' LT.	369596.5157	2086042.1441	969.89	981.89	993.40	24.00	996.88
18	315+10.52	16.31' LT.	369596.4969	2086048.1441	969.89	981.89	994.56	25.00	996.86
19	315+16.52	16.30' LT.	369596.4780	2086054.1441	969.89	981.89	995.46	26.00	996.83
20	315+22.52	16.28' LT.	369596.4591	2086060.1440	969.89	981.89	995.40	26.00	996.81

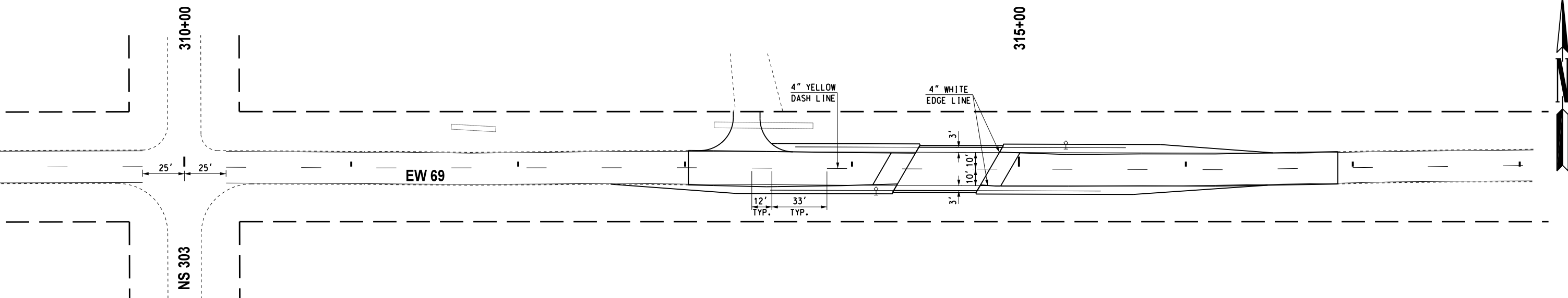
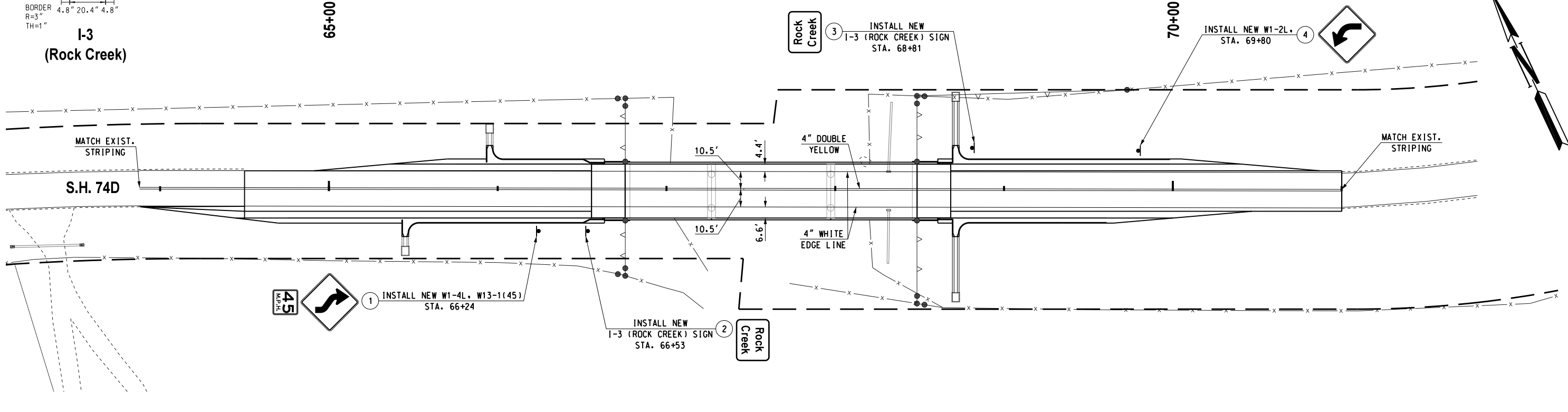
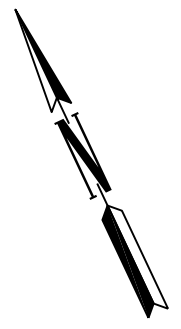
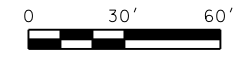
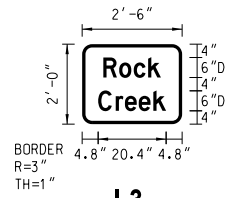
RETAINING WALL "D" - SOLDIER PILE SCHEDULE									
PILE NO.	STATION	OFFSET	NORTHING	EASTING	BOTTOM OF H-PILE ELEV.	TOP OF ROCK ELEV.	TOP OF GROUND ELEV.	DEPTH INTO GROUND (FT)	TOP OF WALL ELEV.
21	314+78.47	19.35' RT.	369560.8553	2086016.079	969.89	981.89	994.81	25.00	997.05
22	314+84.47	19.36' RT.	369560.8364	2086022.079	969.89	981.89	995.13	26.00	997.01
23	314+90.47	19.38' RT.	369560.8175	2086028.079	969.89	981.89	994.99	26.00	996.97
24	314+96.47	19.39' RT.	369560.7986	2086034.079	969.89	981.89	994.82	25.00	996.93
25	315+02.47	19.41' RT.	369560.7797	2086040.079	969.89	981.89	994.76	25.00	996.90

RETAINING WALLS - SUMMARY OF QUANTITIES											
RETAINING WALL	SUBSTRUCTURE EXCAVATION COMMON (CY)	SELECT BACKFILL (CY)	GRANULAR BACKFILL (CY)	STRUCTURAL STEEL (LB)	CLASS AA CONCRETE (CY)	PILES, FURNISHED (HP 14x117) (LF)	SHEET PILING, FURNISHED (SY)	SHEET PILING, DRIVEN (SY)	(PL) PILOT HOLES (LF)	6" PERFORATED PIPE UNDERDRAIN ROUND (LF)	STANDARD BEDDING MATERIAL, CLASS "B" (CY)
A	745.00	5.00	23.00	2030.00	24.00	352	98.00	98.00	280.00	65.00	84.00
B	132.00	2.00	10.00	600.00	8.80	128	34.00	34.00	101.00	25.00	32.00
C	242.00	3.00	11.00	910.00	11.00	160	52.00	52.00	124.00	30.00	39.00
D	91.00	3.00	12.00	700.00	11.00	160	44.00	44.00	127.00	30.00	40.00
TOTAL	1210.00	13.00	56.00	4240.00	54.80	800.00	228.00	228.00	632.00	150.00	195.00

RETAINING WALL DETAILS
(SHEET 3 OF 3)

State Job No. 28312(04) Sheet No. 43

LOGAN COUNTY S.H. 74D



TYPICAL STRIPING FOR
3 MILE OVERLAY SECTION
(FROM S.H. 74 TO NS 301)

Design	RWR	02/20/17
Drawn	CCC	02/20/17
TEC A CLEAR DIRECTION		

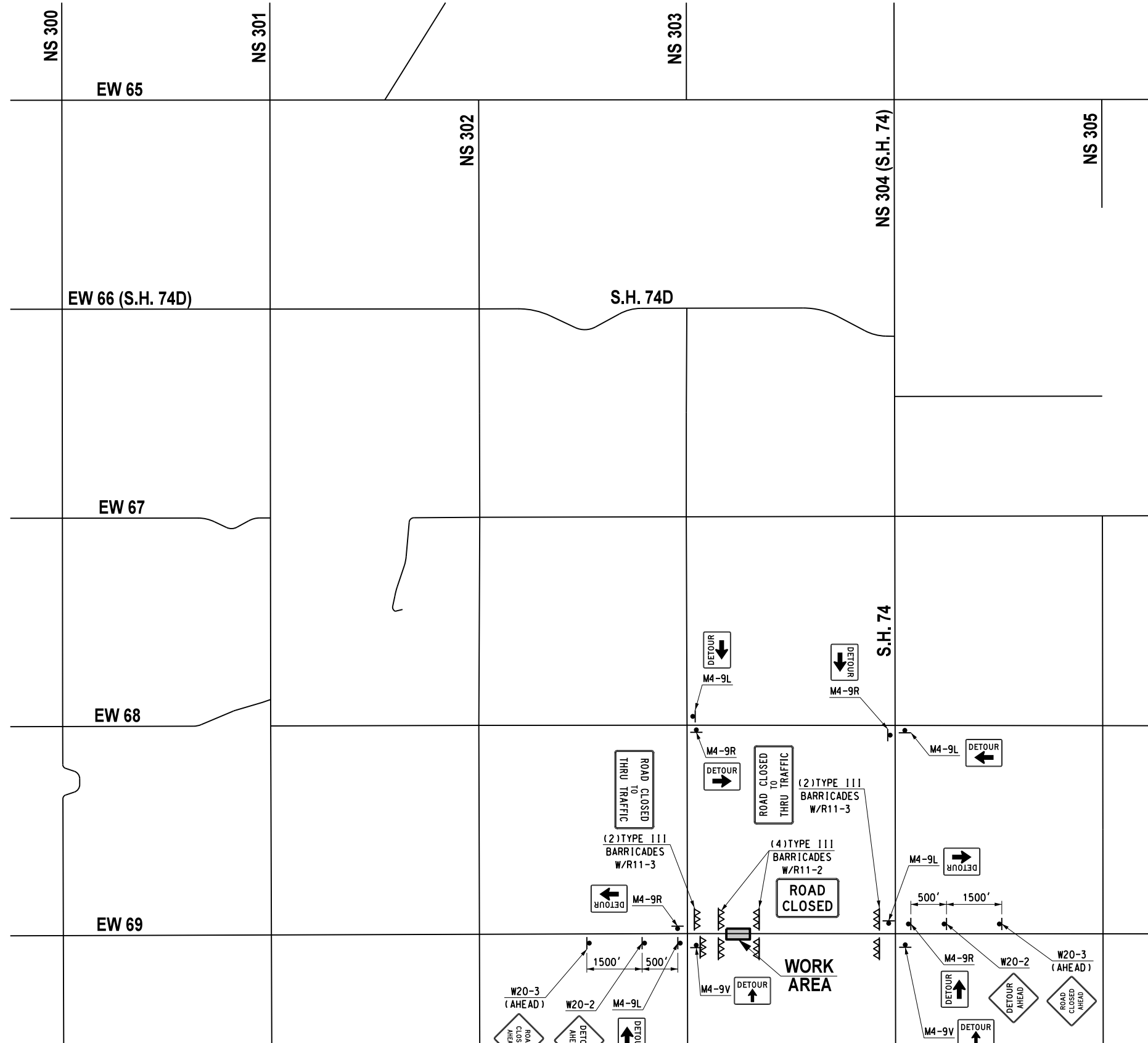
S.H. 74D & COUNTY RD. EW 69
SIGNING & STRIPING PLAN

State Job No. 28312(04) Sheet No. 44

02/20/17 G:\Projects\1-235\SH 74D Bridges east of Lovell in Logan County, OK\CAD\STRIP.dgn

S.H. 74D
LOGAN COUNTY

02/20/17 G:\Projects\17-235\SH 74D Bridges east of Lovell\In Logan County, OK\CAD\EW 69 DETOUR.dgn



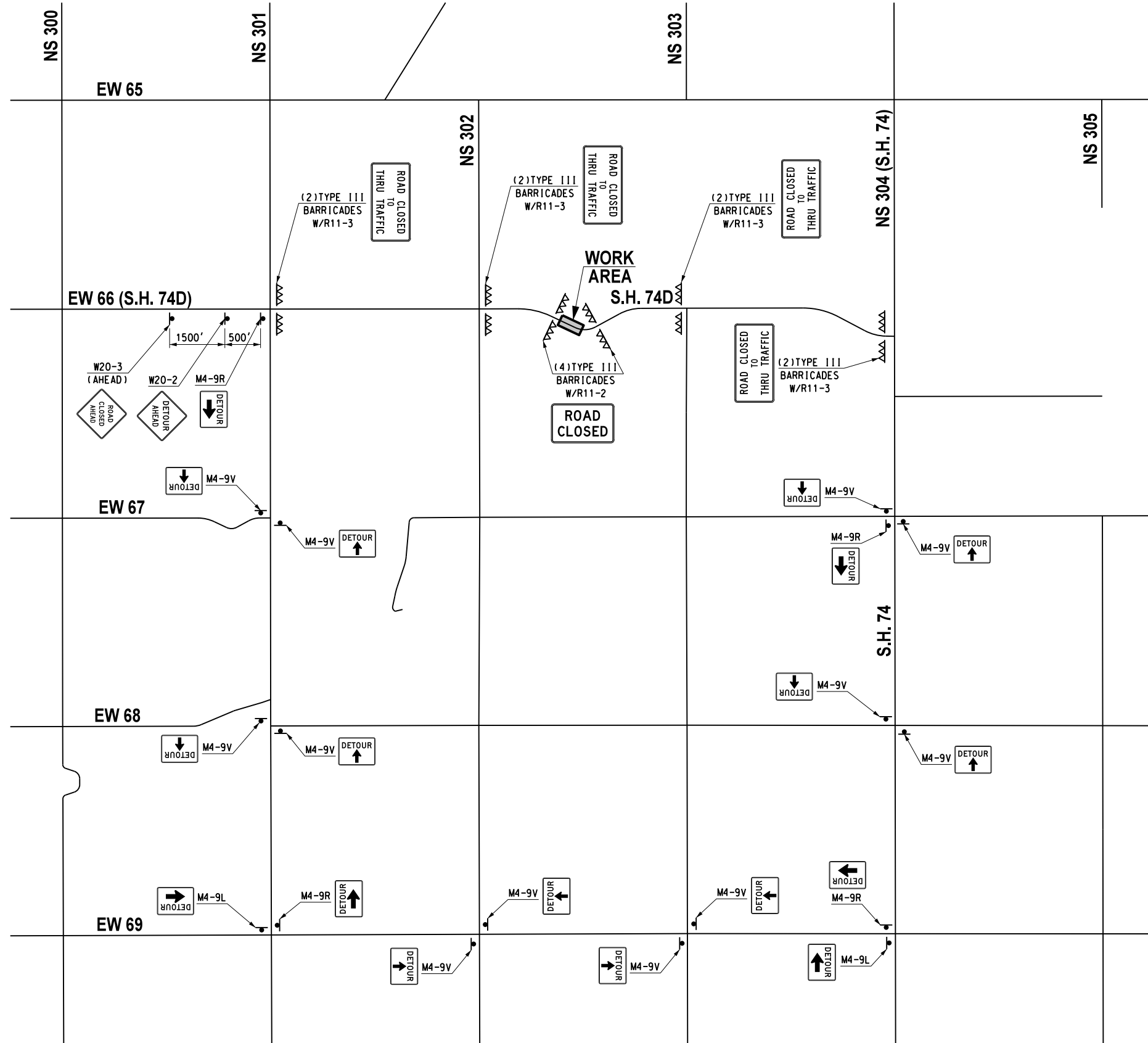
Design	RWR	02/20/17
Drawn	CCC	02/20/17
TEC A CLEAR DIRECTION		

PHASE 1
CONSTRUCTION DETOUR
EW 69 COUNTY RD. BRIDGE

State Job No. 28312(04) Sheet No. 45

LOGAN COUNTY S.H. 74D

02/20/17 G:\IP\Projects\1-235\SH 74D Bridges east of Lovell\In Logan County, OK\CAD\74D DETOUR.dgn



Design	RWR	02/20/17
Drawn	CCC	02/20/17

PHASE 2
 CONSTRUCTION DETOUR
 S.H. 74D BRIDGE
 State Job No. 28312(04) Sheet No. 46

LOGAN COUNTY S.H. 74D

OKLAHOMA DEPARTMENT OF TRANSPORTATION					
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	OKLA.				
DESCRIPTION			REVISIONS	DATE	

STATE OF OKLAHOMA
DEPARTMENT OF TRANSPORTATION

SURVEY OF
SH 74D
SWO 4938(1)
J/P NO. 28312(04)

LOGAN COUNTY

S.H. 74D, BRIDGE OVER ROCK CREEK,
1.7 MILES WEST OF S.H. 74

INDEX OF SURVEY SHEETS

- TITLE SHEET & SURVEYORS CERTIFICATION
- 2-3 HISTORICAL LETTER & WRITTEN REPORT
- ALIGNMENT REPORT
- COGO POINTS & BENCHMARK LIST
- 6-7 SURVEY DATA SHEETS
- 8-9 GEOMETRIC DATA SHEETS

SURVEY BEGAN: FEBRUARY 07, 2013.
SURVEY COMPLETED: APRIL 30, 2013.

J.L. CARROLL, PROFESSIONAL LAND SURVEYOR
BEN GENSAMER, LEAD SURVEYOR
BRIAN GENSAMER, SURVEY CREW CHIEF
MARCUS HEILMAN, CREW MEMBER
LEE HORNBACK, CREW MEMBER

EQUIPMENT:

TRIMBLE R8 GNSS GPS RTK UNITS
TRIMBLE TSC2 DATA COLLECTORS
TRIMBLE S6 TOTAL STATION
TRIMBLE ELECTRONIC LEVEL
EAGLE POINT SOFTWARE IN MICROSTATION ENVIRONMENT

STATE OF OKLAHOMA
DEPARTMENT OF TRANSPORTATION
SURVEY DIVISION

SWO 4938(1) J/P 28312(04) ; S.H. 74D CO. LOGAN

HORIZONTAL CONTROL:
 Oklahoma Coordinate System of 1927 Zone.
 Oklahoma Coordinate System of 1983 (1983) NORTH Zone.
 Oklahoma Dept. of Transportation Plane Coordinate System of 1927 Zone.
 Oklahoma Dept. of Transportation Plane Coordinate System of 1983 Zone.
 Arbitrary Coordinate System

HORIZONTAL PLANE DATUM DEFINITION:
 Oklahoma Department of Transportation coordinates were derived by multiplying the Oklahoma Coordinate Systems of 1927 or 1983 by the combined adjustment factor of 0.99994. The ODOT Coordinate System is 2350 feet above sea level.

1. Primary Control adjusted to HARN () Order
 Stations PRCO, OKAO, AND OKPR
 A) Closure before adjustment X ; Y Angles
 Trav. Length No. Angles ; 1:
 B) ; is () Order before adjustment.
 C) Method of Distance Measurement:
 Electronic () GPS () Triangulation () Chained
 Instrument used for angles

2. Secondary Control adjusted to Primary Control () Order
 Stations L-42-650 AND 651
 A) Closure before adjustment X ; Y Angles
 B) Secondary Control ; is () Order; Tied to CORS
 C) Method of Distance Measurement:
 Electronic (X) GPS () Triangulation () Chained
 Instrument used for angles Trimble R8 GNSS RTK Receiver

VERTICAL CONTROL IS 1ST order. Level Line taken from L-42-650
 (1ST order and tied to L-42-651 (1ST order. () NGVD 29 datum (X) NAVD 88 datum

ACCURACY DEFINITION:
 (1) HORIZONTAL: (3rd Order = Class I = 1:10,000'
 (3rd Order = Class II = 1:5,000'
 (1st Order = 0.017 Ft. x sqrt. of Mi.) (2nd Order = 0.035 Ft. x sqrt. of Mi.)
 (3rd Order = 0.050 Ft. x sqrt. of Mi.)

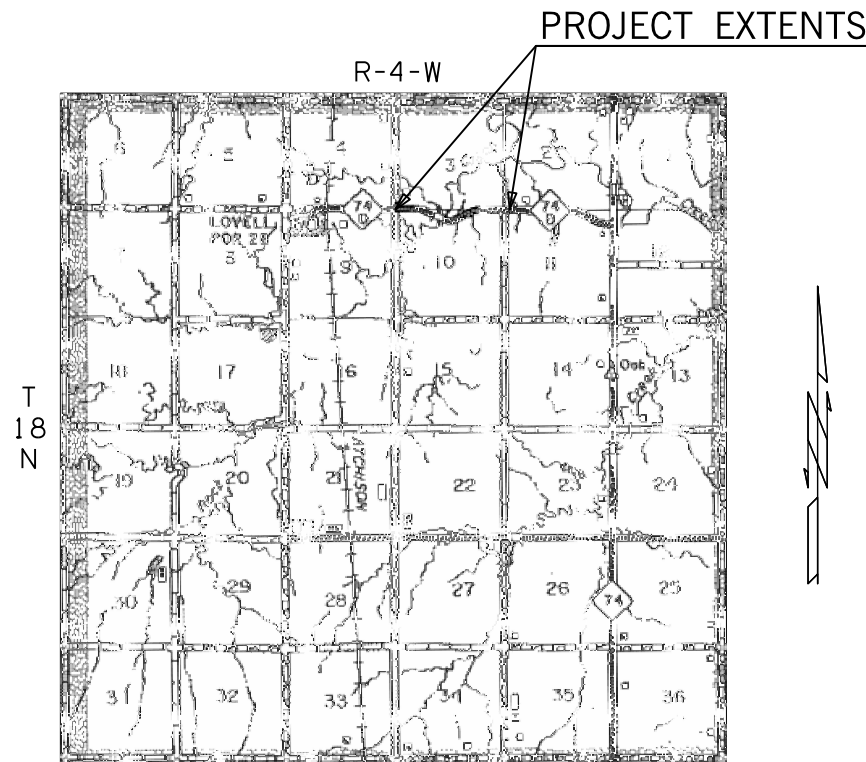
Distribution:
 Copy w/survey reports
 Copy in each Alignment
 and level book

JESSE L. CARROLL
 Professional Land Surveyor

30-Apr-13
 Date

(FORM SD #20)
 Rev. 11/03

Utility Companies	Phone Numbers
Telephone Lines: Pioneer Telephone	405-969-3303
Electric Lines: OG&E	405-553-3000
Gas Lines: Magellan Midstream Sunoco Logistics	580-234-6748 580-242-6028
Water Lines: Logan Co. RWD 3	580-935-6678



PROJECT LENGTH 5475.783 Ft. 1.04 MI.

BEGINNING STATION : 45+89.0000
 ENDING STATION : 100+64.7830

STATE OF OKLAHOMA
DEPARTMENT OF TRANSPORTATION

SWO 4938(1) Job/Piece 28312(04) Engr. Contract No. 1365-B

LAND SURVEYOR'S CERTIFICATION

I hereby certify that all land and property sub-division distances, angles, corners, and monumentation made or used in conjunction with this survey and depicted on recorded herein or hereon were recovered, established or re-established in substantial conformity with:

- Applicable instructions contained in the U.S. Government Bureau of Land Management publication "Manual of Survey Instruction";
- Its supplement, "Restoration of Lost or Obliterated Corners and Sub-division of Sections";
- "Oklahoma Minimum Standards for the Practice of Land Surveying" as adopted by the State Board of Licensure for Professional Engineers and Land Surveyors; and
- Sound land surveying practices;

including a thorough search, study, analysis and consideration of all existing records and field evidence.

I further certify that all survey monuments depicted exist and that all land survey work was done by me or under my direct supervision.

Dated this 30th day of April, 2013.

Jesse L. Carroll
 Land Surveyor
 Signature
 Jesse L. Carroll
 Date: 4-30-2013

Oklahoma Licensed Land Surveyor No. 1071

Certificate of Authorization No. 2706

THIS SURVEY MEETS THE OKLAHOMA MINIMUM STANDARDS FOR THE PRACTICE OF LAND SURVEYING AS ADOPTED BY THE OKLAHOMA STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS AND LAND SURVEYORS, MAY 17, 2010.

SPECIFICATIONS FOR SURVEYS FOR PRIMARY AND SECONDARY HIGHWAYS DATED MAY 1, 1999 GOVERN.

SDS 1 OF 9



OKLAHOMA DEPARTMENT OF TRANSPORTATION SURVEY DIVISION	
PLS	JLC
DRAWN	BJG
CHECKED	JLC
APPROVED	JLC
CREW	CARROLL

SURVEY DATA SHEET

SWO 4938 (1) PROJECT NO. 28312(04) SHEET NO. SD1

OKLAHOMA DEPARTMENT OF TRANSPORTATION					
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	OKLA.				
DESCRIPTION			REVISIONS	DATE	

SWO 4938(1), J/P 28312(04) - S.H. 74D - LOGAN COUNTY
OKLAHOMA DEPARTMENT OF TRANSPORTATION
SURVEY DIVISION

APRIL 30TH, 2013

TO: MR. LARRY RESER, CHIEF OF SURVEYS

FROM: JESSE L. CARROLL, PROFESSIONAL LAND SURVEYOR

SUBJECT: SWO 4938 (1), J/P 28312(04), S.H. 74D, BRIDGE OVER ROCK CREEK, 1.7 MILES WEST OF S.H. 74, LOGAN COUNTY.

HISTORICAL LETTER AND WRITTEN REPORT

1. SURVEY ASSIGNMENT

The above described survey was assigned to me by Mr. Larry Reser, Chief of Surveys. (EC 1365-II, T.O. #9)

2. PURPOSE OF THIS SURVEY

The purpose of this survey was to obtain data to facilitate the design of a new bridge over Rock Creek on S.H. 74D, 1.7 mile west of S.H. 74, Logan County.

3. SURVEY LIMITS

This survey began at P.O.T. Sta. 45+89.0 (NS-302 Section line) and extends easterly to P.O.T. Sta. 98+49.0 (NS-303 Section Line), as shown on SAP No. 1026 (1) plans (approximate centerline length 1.0 miles).

4. ALIGNMENT

The centerline of Survey for this project was established along and identical to the centerline of present S.H. 74D as shown on SAP No. 1026 (1) plans.

5. STATIONING

Stationing for this survey was derived by assigning Sta. 45+89.0 to the beginning of this survey at (NS-302 Section Line) and stationing was increased to the east from this point, field measured distance, to the End of Survey without equation.

SWO 4938(1) - S.H. 74D - LOGAN COUNTY
HISTORICAL LETTER & WRITTEN REPORT
PAGE 2 OF 6

6. HORIZONTAL CONTROL

- A. Horizontal Control for this survey is NAD 83 (1993) Oklahoma State Plane Coordinate System, Lambert Projection, North Zone, derived from COORS Stations PRCO, OKAO and OKPR, utilizing OPUS solutions.
- B. Primary Horizontal control was established on 2 monuments along this survey. They are 2 inch aluminum caps marked L-42-650 and L-42-651.
- C. Secondary horizontal control was established along the centerline of survey and referenced and shown on the survey data sheets of this survey.
- D. The primary control network, the secondary network and section boundaries for this survey are in compliance with NGS Second Order Class II standards for horizontal control (1: 20,000).

7. VERTICAL CONTROL

- A. Level datum for this survey is NGS, NAVD 88, taken from OPUS Solutions on Primary Control monuments L-42-650 and L-42-651. A complete line of check levels was run through the limits of this survey.
- B. The adjusted levels and vertical differences between bench marks are shown in following file: SWO4938_1_V1.dgn
- C. Accuracy - 3rd order or better before adjustment.

8. TOPOGRAPHY

Topography on this survey was obtained by utilizing the Trimble gps RTK system and Total Station technology with the TSC1 data collector for field instruments. Data was collected in the form of a Surface Feature Survey and placed in computer file SWO 4938_1_V1_SFF.dgn

9. CROSS SECTIONS

Cross sections on this survey were obtained by utilizing the Trimble gps RTK system and Total Station technology with the TSC1 data collector in the form of a DTM survey and placed in computer file 4938_1_V1_TRU.dgn

SWO 4938(1) - S.H. 74D, LOGAN COUNTY
HISTORICAL LETTER & WRITTEN REPORT
PAGE 3 OF 6

10. LAND TIES

Land ties for this survey were established for the following Sections (3&10, T18N R4W, 1M, LOGAN COUNTY, OKLAHOMA
A search was made for any trace of the original monuments and/or accessories. All filed certified corners received from the Oklahoma Department of Libraries were found and noted. The original survey and survey notes were used from the following survey:

BARRETT - PERFORMED IN JUNE 1874

L-42-559, SW/CORNER OF SECTION 10, T18N, R4W, 1M, LOGAN COUNTY, OKLAHOMA. FOUND #4 REBAR IN PLACE WITH ALUMINUM CAP STAMPED JAC. THAT FITS CORNERS FILED BY PLS 1149 & 1395. USED THIS CORNER AND FILED NEW CCR.

L-42-652, S/4 CORNER OF SECTION 10, T18N, R4W, 1M, LOGAN COUNTY, OKLAHOMA. SET #4 REBAR WITH PLS 1071 CAP HALF WAY AND ON LINE FROM CORNER FOUND 0.5 MILE EAST AND SECTION CORNER ESTABLISHED 0.5 MILE WEST. FILED NEW CCR FOR THIS CORNER LOCATION.

L-42-653, SW/CORNER OF SECTION 10, T18N, R4W, 1M, LOGAN COUNTY, OKLAHOMA. SET #4 REBAR WITH PLS 1071 CAP BY D.P.M FROM MONUMENT 0.5 MILE NORTH AND FENCES 0.5 MILE EAST, WEST AND SOUTH. FILED NEW CCR FOR THIS CORNER LOCATION.

L-42-654, W/4 CORNER OF SECTION 10, T18N, R4W, 1M, LOGAN COUNTY, OKLAHOMA. SET #3 REBAR AND PLS 1071 CAP HALF WAY AND ON LINE FROM CORNERS FOUND 0.5 MILE NORTH AND ESTABLISHED 0.5 MILE SOUTH. FILED NEW CCR FOR THIS CORNER LOCATION. ALSO FOUND BENT #4 REBAR IN PLACE PER PLS 1505 3.1 FEET SOUTH AND 18.7 FEET WEST OF OUR CORNER LOCATION.

L-42-655, NW/CORNER OF SECTION 10, T18N, R4W, 1M, LOGAN COUNTY, OKLAHOMA. FOUND MAG NAIL IN PLACE PER CCR FILED BY PLS 1505. ACCEPTED THIS CORNER AS IT APPEARS TO FIT O.D.O.T. HIGHWAY PLANS. FILED NEW CCR FOR THIS CORNER LOCATION.

PLS	JLC	OKLAHOMA DEPARTMENT OF TRANSPORTATION SURVEY DIVISION
DRAWN	BJG	
CHECKED	JLC	
APPROVED	JLC	
CREW	CARROLL	
		SURVEY DATA SHEET
		SWO 4938 (1) PROJECT NO. 28312(04) SHEET NO. 02

OKLAHOMA DEPARTMENT OF TRANSPORTATION					
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	OKLA.				
DESCRIPTION			REVISIONS	DATE	

SWO 4938(1) - S.H. 74, LOGAN COUNTY
 HISTORICAL LETTER & WRITTEN REPORT
 PAGE 4 OF 6

L-42-656, N/4 CORNER OF SECTION 10, T18N, R4W, 1M., LOGAN COUNTY, OKLAHOMA. SET #4 REBAR WITH PLS 1071 CAP HALF WAY AND ON LINE FROM CORNERS FOUND 0.5 MILES EAST AND WEST OF THIS LOCATION. FILED NEW CCR FOR THIS CORNER LOCATION.

L-42-551, NE/CORNER OF SECTION 10, T18N, R4W, 1M., LOGAN COUNTY, OKLAHOMA. FOUND #4 REBAR WITH CAP STAMPED C.A. 2054 IN PLACE PER CCR FILED BY PLS 1395. THIS CORNER FITS ODOT PLANS AS WELL AS MONUMENTS FOUND 0.5 MILES NORTH AND SOUTH OF THIS LOCATION. FILED NEW CCR FOR THIS CORNER.

L-42-554, E/4 CORNER OF SECTION 10, T18N, R4W, 1M., LOGAN COUNTY, OKLAHOMA. FOUND #4 REBAR WITH CA 2054 CAP IN PLACE PER CCR FILED BY PLS 1395. USED THIS CORNER ON OUR SURVEY AND FILED NEW CCR.

L-42-657, W/4 CORNER OF SECTION 3, T18N, R4W, 1M., LOGAN COUNTY, OKLAHOMA. FOUND #4 REBAR IN PLACE PER CCR FILED BY PLS 864. USED THIS CORNER AND FILED NEW CCR FOR THIS LOCATION.

L-42-658, NW/CORNER OF SECTION 3, T18N, R4W, 1M., LOGAN COUNTY, OKLAHOMA. SET #4 REBAR ON LINE WITH CORNERS FOUND 0.5 AND 1.0 MILES SOUTH, THE LOCATION OF THIS CORNER FITS DISTANCE TO FOUND MONUMENT 1.0 MILES NORTH OF THIS LOCATION. FILED NEW CCR FOR THIS CORNER LOCATION.

L-42-659, N/4 CORNER OF SECTION 3, T18N, R4W, 1M., LOGAN COUNTY, OKLAHOMA. SET #4 REBAR AND PLS 1071 CAP HALF WAY AND ON LINE FROM CORNER 0.5 MILES EAST AND WEST OF THIS LOCATION. FILED NEW CCR.

L-42-543, NE/CORNER OF SECTION 3, T18N, R4W, 1M., LOGAN COUNTY, OKLAHOMA. FOUND #4 REBAR IN PLACE THAT FITS CCR FILED BY PLS 1395. USED THIS CORNER AND FILED NEW CCR.

L-42-546, E/4 CORNER OF SECTION 3, T18N, R4W, 1M., LOGAN COUNTY, OKLAHOMA. FOUND #4 REBAR WITH CA 2054 CAP IN PLACE PER CCR FILED BY PLS 1395. USED THIS CORNER AND FILED NEW CCR FOR THIS LOCATION.

SWO 4938(1) - S.H. 74D - LOGAN COUNTY
 HISTORICAL LETTER & WRITTEN REPORT
 PAGE 5 OF 6

11. EXISTING RIGHT OF WAY

Existing right of way as shown on this survey was derived from establishing the centerline of survey as shown on SAP No. 1026 (1) plans for SH 74D and the location of right of way in relation to centerline of survey. A search was also made at the Logan County Clerks office for right of way documents.

12. UTILITIES

- A. All utility companies servicing this survey project were contacted through "CALL OK16"
- B. All underground utilities were located by the owning company.
- C. Information regarding type, size, ownerships, location, depth, etc. is placed in computer file SWO4938_1_V1.DGN

13. POSSIBLE HAZARDOUS WASTE

No possible hazardous waste sites were encountered.

14. DRAINAGE

Drainage areas were taken from USGS Quad maps in project area and field checked for accuracy and placed in computer file SWO4938_1_V1_DR3.DGN

15. DATE OF SURVEY

This survey began February 7th, 2013 and was completed April 30th, 2013

16. EQUIPMENT USED

Trimble RS GNSS GPS RTK units
 Trimble TSC2 data collector
 Trimble S6 Total Station
 Trimble Electronic level
 Eagle Point Software working in Micro Station environment

SWO 4938(1) - S.H. 74D, LOGAN COUNTY
 HISTORICAL LETTER & WRITTEN REPORT
 PAGE 6 OF 6

17. PERSONNEL

J.L. Carroll	Prof. Land Surveyor
B.J. Gansamer	Survey Crew Chief and Cadet person
Brian Gansamer	Survey Crew Chief
Marcus Heilman	Survey Tech
Lee Hornback	Survey Tech

18. SURVEY INFORMATION SUBMITTED

Historical letter and written report
 Form SD-1 Transmittal letter
 Form SD-7 Utilities list
 Form SD-20 Survey control data
 Form SD-22 Field to office transmittal
 Form SD-41 Surveyors certificate
 Oklahoma Department of Libraries certified corner record forms (13)
 Bench Marks and check levels list
 Cogo list

\$\$\$\$\$

OKLAHOMA DEPARTMENT OF TRANSPORTATION SURVEY DIVISION		
PLS	JLC	
DRAWN	B.J.G	
CHECKED	JLC	
APPROVED	JLC	
CREW	CARROLL	SWO 4938 (1) PROJECT NO. 28312(04) SHEET NO. 503

SURVEY DATA SHEET

Alignment Report
 Project Name: SW04938(1)
 Description: S.II. 74D
 Horizontal Alignment Name: A001
 Description: Centerline of Survey
 Style: Centerline
 Page: 1 of 3

Point	Node ID	Station	Northing-(Y)	Easting-(X)
BOP	2000	45+89.0000	385391.86194428	2080265.57505283

Direction Distance
 N89°50'31.77"E 989.7806

Point	Node ID	Station	Northing-(Y)	Easting-(X)
PC	2001	55+78.7806	385394.58864474	2081255.35193725

Point	Node ID	Station	Northing-(Y)	Easting-(X)
RP	N/A	N/A	383484.73657487	2081260.61331950

Circular Curve (CW)
 Radial In: S00°09'28.23"E
 D.O.C. Arc: 03°00'00.00"
 D.O.C. Chord: 03°00'01.23"
 Radius: 1909.8593
 Delta angle: 25°21'00.00"
 Tangent length: 429.5298
 Arc length: 845.0000
 Chord Direction: S77°28'58.23"E
 Chord length: 838.1247
 External: 47.7951
 Middle ordinate: 46.5426
 Radial Out: N25°11'31.77"E

Point	Node ID	Station	Northing-(Y)	Easting-(X)
PI	2002	60+08.3105	385395.77193637	2081684.88012332

Point	Node ID	Station	Northing-(Y)	Easting-(X)
PT	2003	64+23.7806	385212.94022913	2082073.55534716

Direction Distance
 S64°48'28.23"E 685.4700

Alignment Report
 Project Name: SW04938(1)
 Description: S.H. 74D
 Horizontal Alignment Name: A001
 Description: Centerline of Survey
 Style: Centerline
 Page: 2 of 3

Point	Node ID	Station	Northing-(Y)	Easting-(X)
PC	2004	71+09.2506	384921.16618760	2082693.82708566

Point	Node ID	Station	Northing-(Y)	Easting-(X)
RP	N/A	N/A	385439.62728389	2082937.70969397

Circular Curve (CW)
 Radial In: N25°11'31.77"E
 D.O.C. Arc: 10°00'00.00"
 D.O.C. Chord: 10°00'45.85"
 Radius: 572.9578
 Delta angle: 53°45'00.00"
 Tangent length: 290.3638
 Arc length: 537.5000
 Chord Direction: N88°19'01.77"E
 Chord length: 518.0060
 External: 69.3753
 Middle ordinate: 61.8824
 Radial Out: S28°33'28.23"E

Point	Node ID	Station	Northing-(Y)	Easting-(X)
PI	2005	73+99.6144	384797.57125198	2082956.57302833

Point	Node ID	Station	Northing-(Y)	Easting-(X)
PT	2006	76+46.7506	384936.37842181	2083211.60970824

Direction Distance
 N61°26'31.77"E 682.9172

Point	Node ID	Station	Northing-(Y)	Easting-(X)
PC	2007	83+29.6678	385262.84405753	2083811.43975980

Point	Node ID	Station	Northing-(Y)	Easting-(X)
RP	N/A	N/A	384256.34633336	2084359.23978834

Alignment Report
 Project Name: SW04938(1)
 Description: S.II. 74D
 Horizontal Alignment Name: A001
 Description: Centerline of Survey
 Style: Centerline
 Page: 3 of 3

Circular Curve (CW)
 Radial In: S28°33'28.23"E
 D.O.C. Arc: 05°00'00.00"
 D.O.C. Chord: 05°00'05.72"
 Radius: 1145.9156
 Delta angle: 28°25'02.62"
 Tangent length: 290.1463
 Arc length: 568.3479
 Chord Direction: N75°39'03.08"E
 Chord length: 562.5404
 External: 36.1620
 Middle ordinate: 35.0557
 Radial Out: N00°08'25.61"W

Point	Node ID	Station	Northing-(Y)	Easting-(X)
PI	2008	86+19.8142	385401.54725569	2084066.28540787

Point	Node ID	Station	Northing-(Y)	Easting-(X)
PT	2009	88+98.0157	385402.25848090	2084356.43084671

Direction Distance
 N89°51'34.39"E 1166.7673

Point	Node ID	Station	Northing-(Y)	Easting-(X)
EOP	2010	100+64.7830	385405.11853560	2085523.19465190

COORDINATE POINT LIST
SWO 4938(1) - J/P 28312(04)
PAGE 1 OF 2

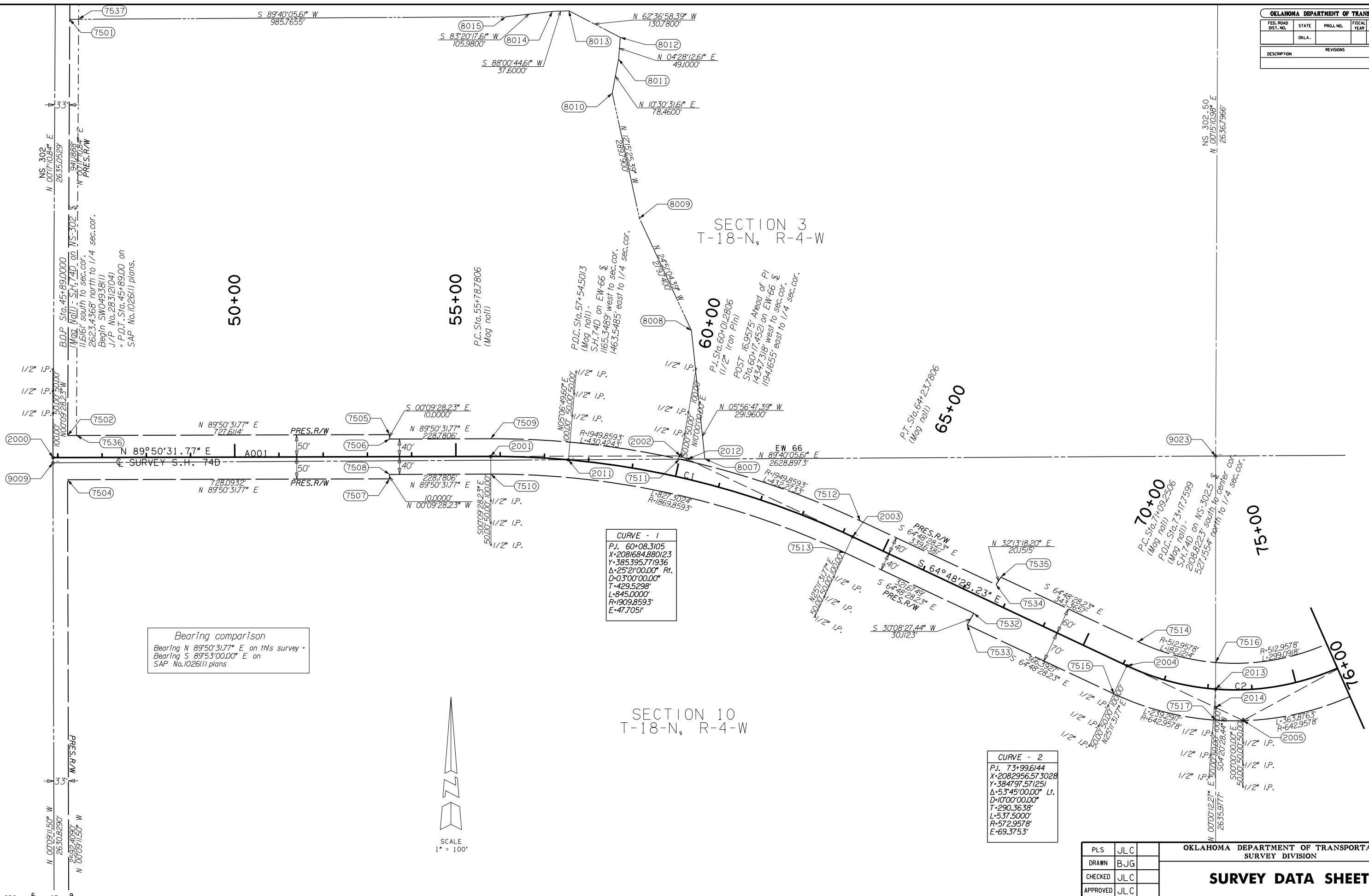
Node ID	Northing	Easting	Node ID	Northing	Easting
L-42-650	385429.21600000	2079757.05800000	7516	384928.50598317	2082894.34247672
L-42-651	385360.19100000	2085577.12500000	7517	384798.13423000	2082891.33472268
200	385604.49900000	2080293.96300000	7518	384989.07851941	2083182.92696582
201	385209.55500000	2081279.79200000	7519	384874.89497461	2083245.07290773
202	384911.19300000	2082242.86400000	7520	385315.54415513	2083782.75701737
203	385210.73200000	2083291.09700000	7521	385201.36061033	2083814.90295929
204	385192.61400000	2084457.50100000	7522	385218.92730953	2083835.34204515
2000	385391.86194428	2080265.57505283	7523	385401.76733749	2083982.08844714
2001	385394.58864474	2081255.35193725	7524	385462.25830064	2084356.28377087
2002	385395.77193637	2081684.88012332	7525	385352.25863112	2084356.55340991
2003	385212.94022913	2082073.55534716	7526	385463.03723221	2084674.05012675
2004	384921.16618760	2082693.82708566	7527	385443.03729229	2084674.09915203
2005	384797.57125198	2082956.57302833	7528	385445.03779677	2085490.20809164
2006	384936.37842181	2083211.60970824	7529	385355.03685687	2085489.93496509
2007	385262.84405753	2083811.43975980	7530	388048.92710655	2085489.04019230
2008	385401.54725569	2084066.28540787	7531	382769.40180716	2085476.55060206
2009	385402.25848090	2084356.43084671	7532	385039.82214149	2082347.60802425
2010	385405.11853560	2085523.19465190	7533	385013.78128453	2082332.48778819
2011	385386.99400582	2081430.84632841	7534	385104.56683365	2082397.91509460
2012	385388.55387988	2081700.22472500	7535	385121.61480266	2082408.65980174
2013	384868.31335185	2082894.33889668	7536	385442.00883403	2080318.82633307
2014	384826.84716861	2082894.33643042	7537	386383.24661002	2080323.53034301
2015	385403.48897687	2084858.41360942	7538	388015.60841790	2080331.68837318
7500	388015.47920360	2080311.68747764	8000	389332.77594647	2080285.27049973
7501	386383.13079237	2080303.52951443	8001	389336.97554908	2081598.53369287
7502	385441.95373531	2080298.82580794	8002	390627.12972822	2081604.60501545
7503	382749.55308441	2080305.55092746	8003	389341.17515168	2082911.79688601
7504	385341.95278751	2080298.61950435	8004	389345.36571184	2084222.23240827
7505	385443.95819791	2081026.43442246	8005	390646.69277607	2084230.43427182
7506	385433.95823586	2081026.46197099	8006	389349.55627201	2085532.66793052
7507	385343.95857737	2081026.70990780	8007	385388.78097478	2081739.44228871
7508	385353.95853942	2081026.68235927	8008	385679.16995821	2081709.19530702
7509	385434.58849296	2081255.24174312	8009	385933.00663356	2081591.63081474
7510	385354.58879653	2081255.46213138	8010	386216.19086434	2081530.10898405
7511	385368.45012819	2081682.30759644	8011	386293.33485246	2081544.41900582
7512	385249.13564182	2082090.58156517	8012	386342.28549264	2081548.24586163
7513	385176.74481643	2082056.52912915	8013	386402.43754840	2081432.12033218
7514	384975.45930664	2082719.36641268	8014	386401.13345391	2081394.54295418
7515	384857.82421538	2082664.03120414	8015	386388.83891260	2081289.27850313

COORDINATE POINT LIST
SWO 4938(1) - J/P 28312(04)
PAGE 2 OF 2

Node ID	Northing	Easting
9000	385410.69150000	2085523.22350000
9001	388049.14030000	2085522.04010000
9002	390656.47430000	2085543.34890000
9005	382769.53150000	2085509.55170000
9006	380130.28020000	2085508.52820000
9009	385380.24600000	2080265.51700000
9013	388015.26600000	2080278.68600000
9020	380118.60679327	2080279.58529646
9021	390617.34820429	2080291.69038727
9022	390636.91125215	2082917.51964364
9023	385395.46875000	2082894.37025000
9024	382749.42639664	2080272.55114823
9025	380124.44349663	2082891.05674823
9026	382759.49108757	2082894.21347146
9027	388032.23966938	2082906.01583190

SWO 4938 (1) BIN #	J/P 28312(04) RUN 1	RUN 2	MEAN DIFFER.	ADJUSTED ELEVATION	PUBLISHED ELEVATION	MARK DESCRIPTION
L-47-660					588.895	2" ALUMINUM CAP 37.25' LT STA. 40+80.42
BM 200				983.443		2" ALUMINUM CAP 212.65' LT STA. 48+17.97
BM 201				956.003		2" ALUMINUM CAP 184.03' RT STA. 50+26.28
BM 202				631.508		2" ALUMINUM CAP 200.98' LT STA. 57+26.43
BM 203				379.082		2" ALUMINUM CAP 202.86' LT STA. 78+47.77
UM 204				965.893		2" ALUMINUM CAP 203.89' RT STA. 89+88.57
L-40-861				961.856		2" ALUMINUM CAP 44.98' RT STA. 101+16.70

OKLAHOMA DEPARTMENT OF TRANSPORTATION					
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	OKLA.				
DESCRIPTION			REVISIONS	DATE	



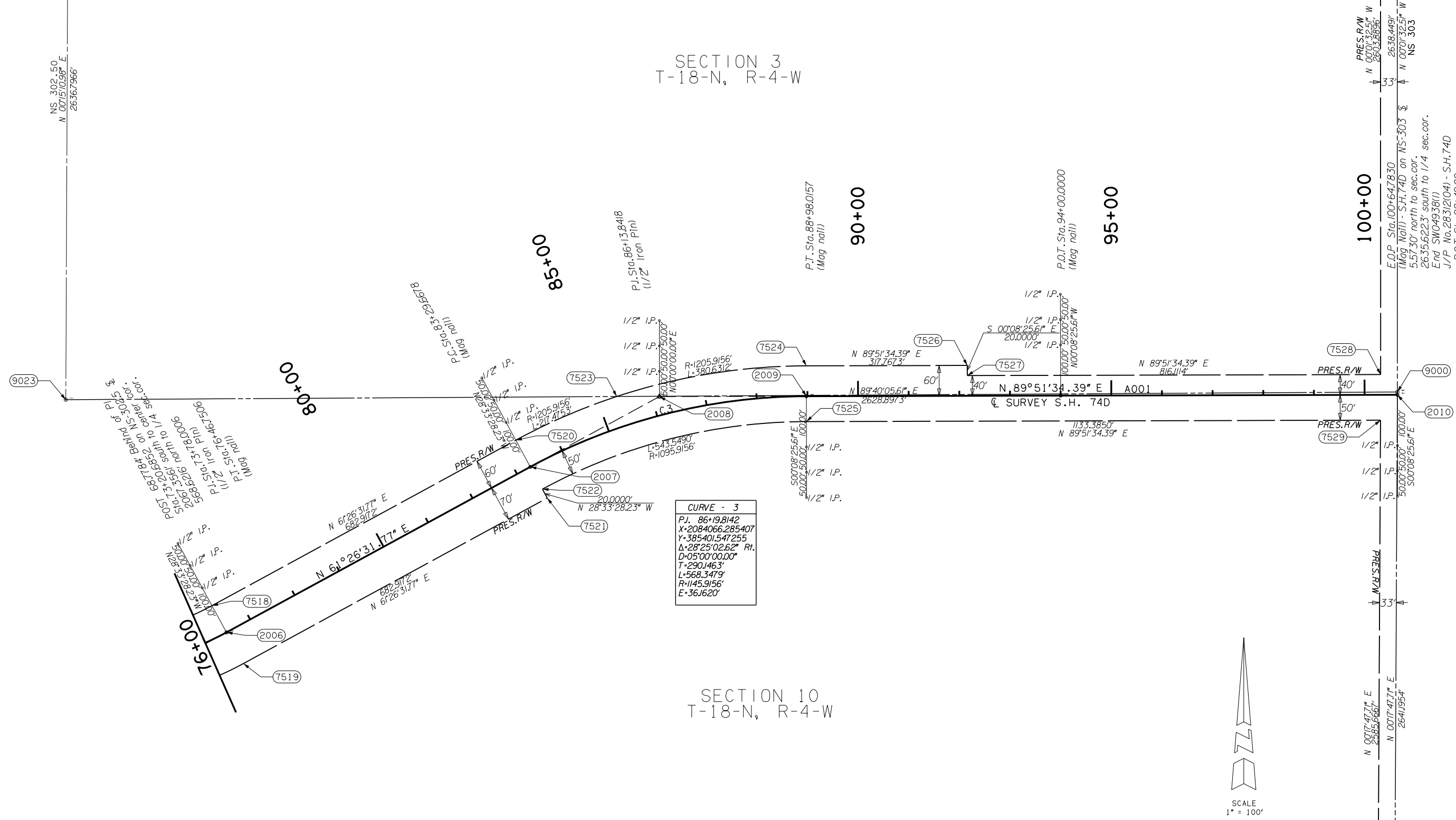
OKLAHOMA DEPARTMENT OF TRANSPORTATION SURVEY DIVISION					
SURVEY DATA SHEET					
PLS	JLC				
DRAWN	B.J.G.				
CHECKED	J.L.C.				
APPROVED	J.L.C.				
CREW	CARROLL	SWO 4938 (1)	PROJECT NO. 28312(04)	SHEET NO. S06	

SDS 6 OF 9

OKLAHOMA DEPARTMENT OF TRANSPORTATION					
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	OKLA.				
DESCRIPTION			REVISIONS	DATE	

SECTION 3
T-18-N, R-4-W

SECTION 10
T-18-N, R-4-W



PRES. R/W
 N 00°01'32.5" W
 2603.8896'
 2638.4491'
 N 00°01'32.5" W
 NS 303
 E.O.P. Sta. 100+64.7830
 (Mag Nail) - S.H. 74D on NS-303
 5.5730' north to sec. cor.
 2635.6223' south to 1/4 sec. cor.
 End SW04938(I)
 J/P No. 28312(04) - S.H. 74D
 = P.O.T. Sta. 98+49.00 on
 SAP No. 1026(I) plans.

PLS	JLC	OKLAHOMA DEPARTMENT OF TRANSPORTATION SURVEY DIVISION SURVEY DATA SHEET SWO 4938 (1) PROJECT NO. 28312(04) SHEET NO. 507
DRAWN	BJG	
CHECKED	JLC	
APPROVED	JLC	
CREW	CARROLL	

OKLAHOMA DEPARTMENT OF TRANSPORTATION					
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	OKLA.				
DESCRIPTION			REVISIONS	DATE	

L-42-659, N4 CORNER OF SECTION 3, T18N, R4W, I.M., LOGAN COUNTY, OKLAHOMA. SET #4 REBAR AND PLS 1071 CAP HALF WAY AND ON LINE FROM CORNER 0.5 MILES EAST AND WEST OF THIS LOCATION. FILED NEW CCR.

L-42-658, NWCORNER OF SECTION 3, T18N, R4W, I.M., LOGAN COUNTY, OKLAHOMA. SET #4 REBAR ON LINE WITH CORNERS FOUND 0.5 AND 1.0 MILES SOUTH. THE LOCATION OF THIS CORNER FITS DISTANCE TO FOUND MONUMENT 1.0 MILES NORTH OF THIS LOCATION. FILED NEW CCR FOR THIS CORNER LOCATION.

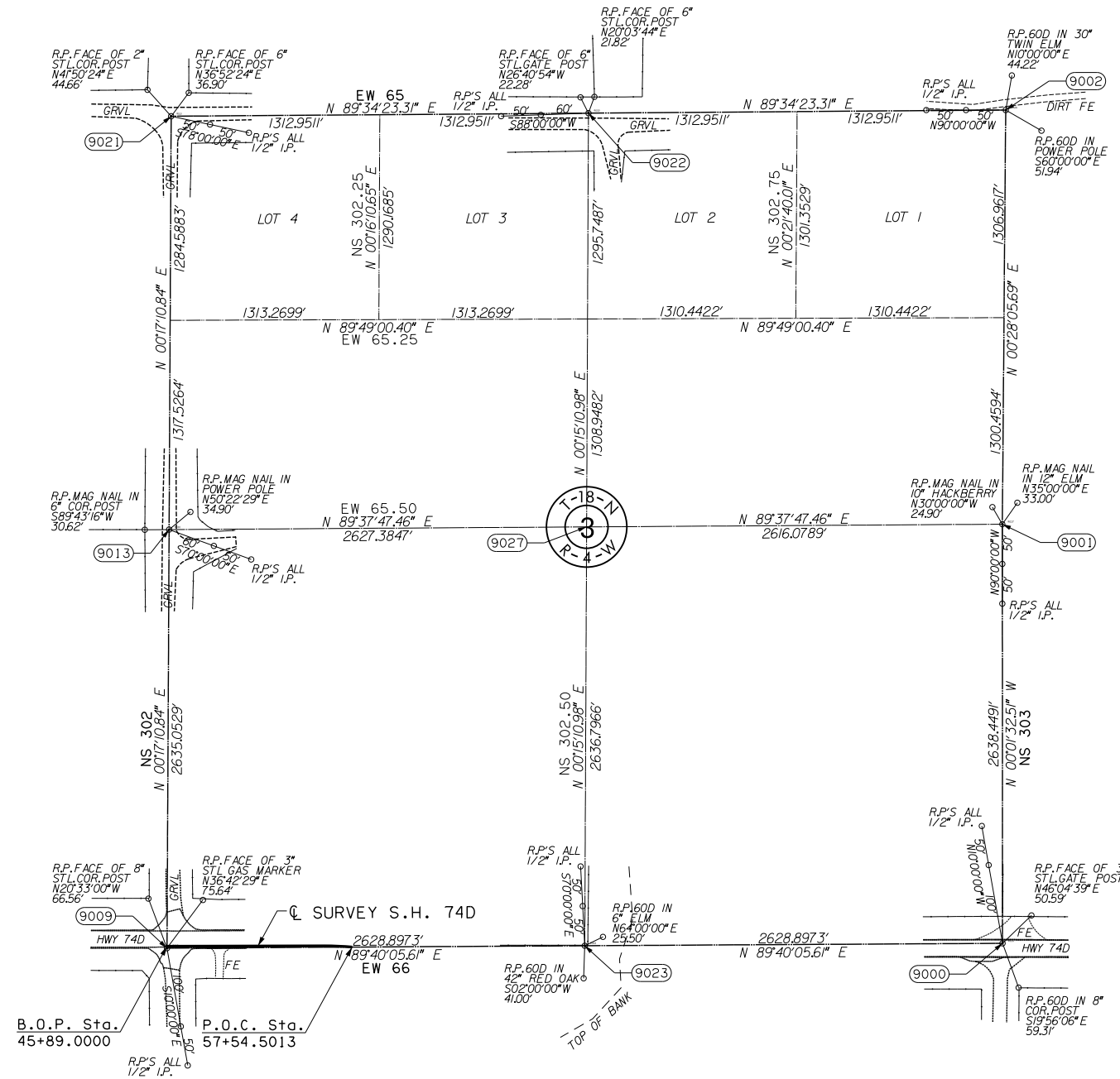
L-42-543, NECORNER OF SECTION 3, T18N, R4W, I.M., LOGAN COUNTY, OKLAHOMA. FOUND #4 REBAR IN PLACE THAT FITS CCR FILED BY PLS 1395. USED THIS CORNER AND FILED NEW CCR.

L-42-657, W4 CORNER OF SECTION 3, T18N, R4W, I.M., LOGAN COUNTY, OKLAHOMA. FOUND #4 REBAR IN PLACE PER CCR FILED BY PLS 864. USED THIS CORNER AND FILED NEW CCR FOR THIS LOCATION.

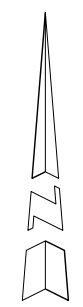
L-42-546, E4 CORNER OF SECTION 3, T18N, R4W, I.M., LOGAN COUNTY, OKLAHOMA. FOUND #4 REBAR WITH CA 2054 CAP IN PLACE PER CCR FILED BY PLS 1395. USED THIS CORNER AND FILED NEW CCR FOR THIS LOCATION.

L-42-655, SWCORNER OF SECTION 3, T18N, R4W, I.M., LOGAN COUNTY, OKLAHOMA. FOUND MAG NAIL IN PLACE PER CCR FILED BY PLS 1505. ACCEPTED THIS CORNER AS IT APPEARS TO FIT O.D.O.T. HIGHWAY PLANS. FILED NEW CCR FOR THIS CORNER LOCATION.

L-42-551, SECORNER OF SECTION 3, T18N, R4W, I.M., LOGAN COUNTY, OKLAHOMA. FOUND #4 REBAR WITH CAP STAMPED C.A. 2054 IN PLACE PER CCR FILED BY PLS 1395. THIS CORNER FITS ODOT PLANS AS WELL AS MONUMENTS FOUND 0.5 MILES NORTH AND SOUTH OF THIS LOCATION. FILED NEW CCR FOR THIS CORNER.



L-42-656, S4 CORNER OF SECTION 3, T18N, R4W, I.M., LOGAN COUNTY, OKLAHOMA. SET #4 REBAR WITH PLS 1071 CAP HALF WAY AND ON LINE FROM CORNERS FOUND 0.5 MILES EAST AND WEST OF THIS LOCATION. FILED NEW CCR FOR THIS CORNER LOCATION.



SCALE:
1" = 500'

OKLAHOMA DEPARTMENT OF TRANSPORTATION					
SURVEY DIVISION					
SURVEY DATA SHEET					
PLS	JLC				
DRAWN	BJC				
CHECKED	JLC				
APPROVED	JLC				
CREW	CARROLL	SWO 4938 (1)	STATE JOB NO. 28312(04)	SHEET NO. 508	

OKLAHOMA DEPARTMENT OF TRANSPORTATION					
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	OKLA.				
DESCRIPTION			REVISIONS	DATE	

L-42-656, N4 CORNER OF SECTION 10, T18N, R4W, I.M., LOGAN COUNTY, OKLAHOMA. SET #4 REBAR WITH PLS 1071 CAP HALF WAY AND ON LINE FROM CORNERS FOUND 0.5 MILES EAST AND WEST OF THIS LOCATION. FILED NEWW CCR FOR THIS CORNER LOCATION.

L-42-655, NWCORNER OF SECTION 10, T18N, R4W, I.M., LOGAN COUNTY, OKLAHOMA. FOUND MAG NAIL IN PLACE PER CCR FILED BY PLS 1505. ACCEPTED THIS CORNER AS IT APPEARS TO FIT O.D.O.T. HIGHWAY PLANS. FILED NEW CCR FOR THIS CORNER LOCATION.

L-42-551, NECORNER OF SECTION 10, T18N, R4W, I.M., LOGAN COUNTY, OKLAHOMA. FOUND #4 REBAR WITH CAP STAMPED C.A. 2054 IN PLACE PER CCR FILED BY PLS 1395. THIS CORNER FITS ODOT PLANS AS WELL AS MONUMENTS FOUND 0.5 MILES NORTH AND SOUTH OF THIS LOCATION. FILED NEW CCR FOR THIS CORNER.

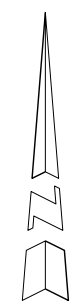
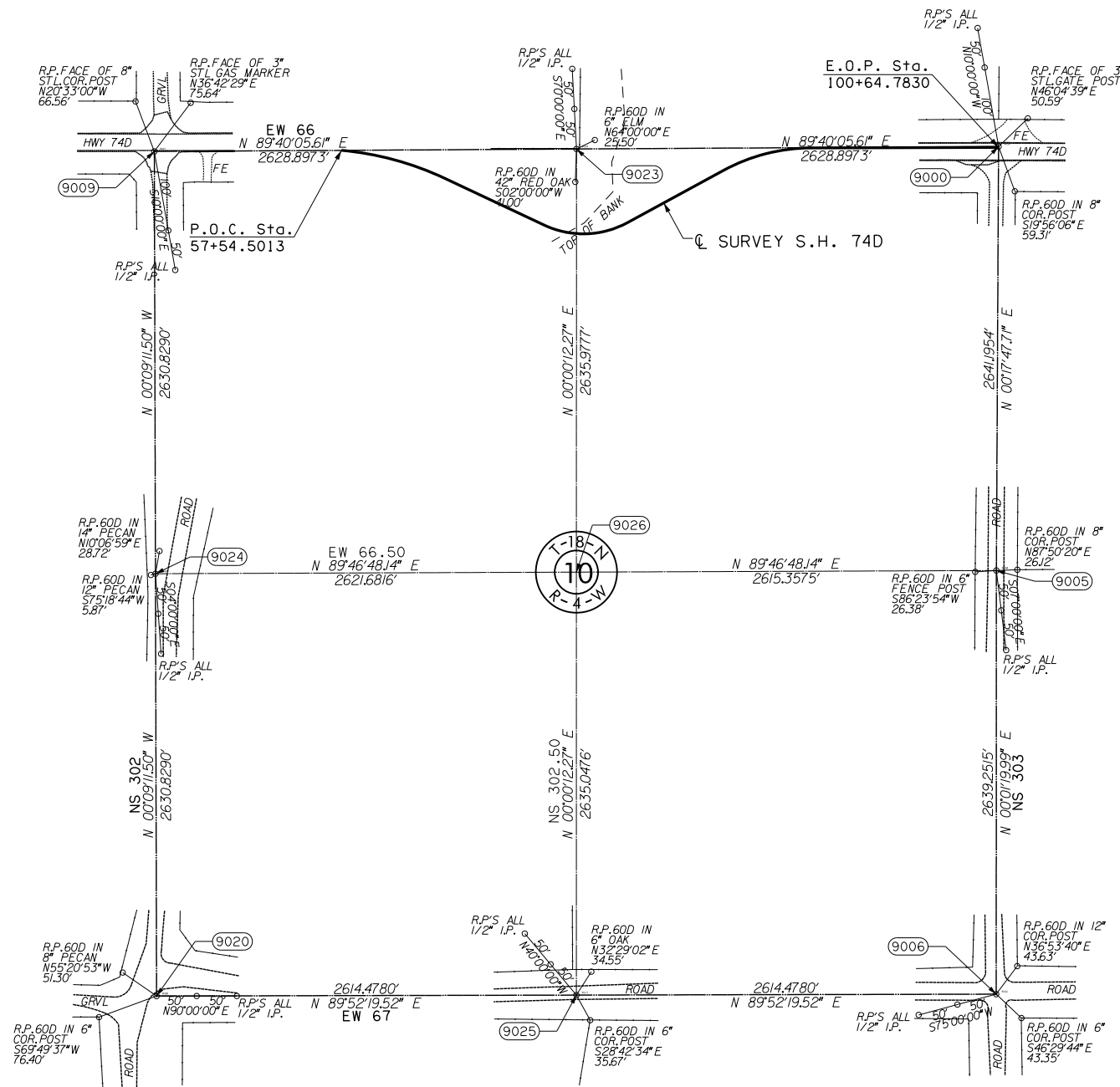
L-42-654, W4 CORNER OF SECTION 10, T18N, R4W, I.M., LOGAN COUNTY, OKLAHOMA. SET #4 REBAR AND PLS 1071 CAP HALF WAY AND ON LINE FROM CORNERS FOUND 0.5 MILE NORTH AND ESTABLISHED 0.5 MILE SOUTH. FILED NEW CCR FOR THIS CORNER LOCATION. ALSO FOUND BENT #4 REBAR IN PLACE PER PLS 1505 3.1 FEET SOUTH AND 18.7 FEET WEST OF OUR CORNER LOCATION.

L-42-554, E4 CORNER OF SECTION 10, T18N, R4W, I.M., LOGAN COUNTY, OKLAHOMA. FOUND #4 REBAR WITH CA 2054 CAP IN PLACE PER CCR FILED BY PLS 1395. USED THIS CORNER ON OUR SURVEY AND FILED NEW CCR.

L-42-653, SWCORNER OF SECTION 10, T18N, R4W, I.M., LOGAN COUNTY, OKLAHOMA. SET #4 REBAR WITH PLS 1071 CAP BY D.P.M FROM MONUMENT 0.5 MILE NORTH AND FENCES 0.5 MILE EAST, WEST AND SOUTH. FILED NEW CCR FOR THIS CORNER LOCATION.

L-42-559, SECORNER OF SECTION 10, T18N, R4W, I.M., LOGAN COUNTY, OKLAHOMA. FOUND #4 REBAR IN PLACE WITH ALUMINUM CAP STAMPED JAC. THAT FITS CCR'S FILED BY PLS 1149 & 1395. USED THIS CORNER AND FILED NEW CCR.

L-42-652, S4 CORNER OF SECTION 10, T18N, R4W, I.M., LOGAN COUNTY, OKLAHOMA. SET #4 REBAR WITH PLS 1071 CAP HALF WAY AND ON LINE FROM CORNER FOUND 0.5 MILE EAST AND SECTION CORNER ESTABLISHED 0.5 MILE WEST. FILED NEW CCR FOR THIS CORNER LOCATION.



SCALE:
1" = 50'

PLS	JLC		OKLAHOMA DEPARTMENT OF TRANSPORTATION		
DRAWN	BJC		SURVEY DIVISION		
CHECKED	JLC		SURVEY DATA SHEET		
APPROVED	JLC				
CREW	CARROLL				
			SWO 4938 (1)	STATE JOB NO. 28312(04)	SHEET NO. 509

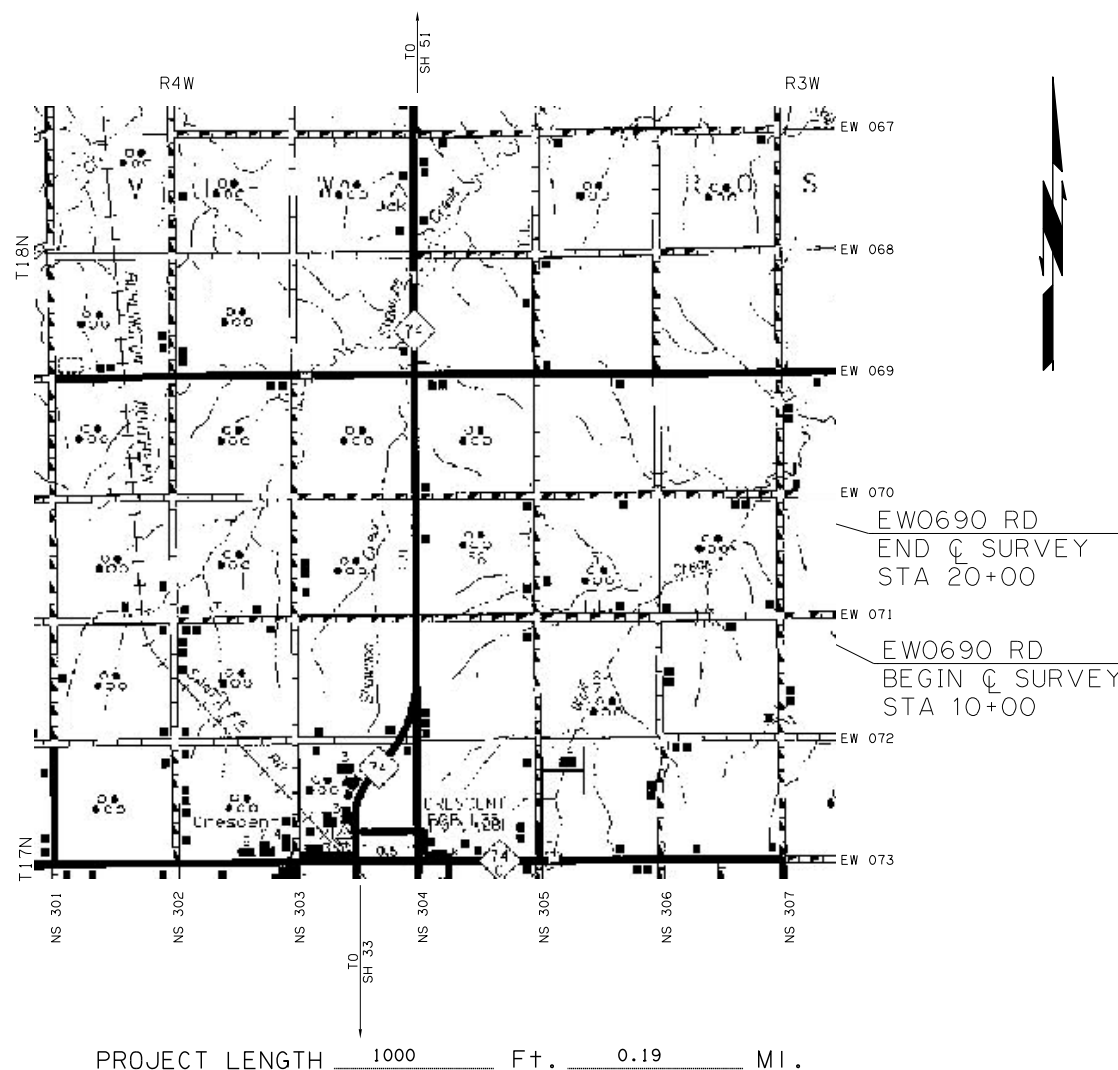
STATE OF OKLAHOMA
DEPARTMENT OF TRANSPORTATION

SURVEY OF
EW0690 ROAD
SWO 4938(1)
J/P 28312(04)
LOGAN COUNTY
BRIDGE OVER UNNAMED CREEK,
0.9 MILES WEST OF U.S.74

OKLAHOMA DEPARTMENT OF TRANSPORTATION					
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	OKLA.				
DESCRIPTION		REVISIONS		DATE	

INDEX OF SHEETS

- S1. TITLE SHEET
- S2. COGO POINTS & ALIGNMENT DATA
- S3-S4. SURVEY DATA SHEETS
- S5. LAND TIE DATA SHEETS



PROJECT LENGTH 1000 Ft. 0.19 MI.

BEGINNING STATION : 10+00.00
ENDING STATION : 20+00.00

STATE OF OKLAHOMA
DEPARTMENT OF TRANSPORTATION
SWO 4938(1) Job/Piece 28312(04) Engr. Contract No. 1500-J

LAND SURVEYOR'S CERTIFICATION

I hereby certify that all land and property sub-division distances, angles, corners, and monumentation made or used in conjunction with this survey and depicted or recorded herein or hereon were recovered, established or re-established in substantial conformity with:

- Applicable instructions contained in the U.S. Government Bureau of Land Management publication "Manual of Survey Instruction";
- Its supplement, "Restoration of Lost or Obliterated Corners and Sub-division of Sections";
- "Oklahoma Minimum Standards for the Practice of Land Surveying" as adopted by the State Board of Licensure for Professional Engineers and Land Surveyors; and
- Sound land surveying practices;

including a thorough search, study, analysis and consideration of all existing records and field evidence.

I further certify that all survey monuments depicted exist and that all land survey work was done by me or under my direct supervision.

Dated this 27 day of April, 2016.

Land Surveyor: *Spencer J. Ividen*

Spencer J. Ividen
Printed Name

Oklahoma Licensed Land Surveyor No. 1904

Certificate of Authorization No. 4151



THIS SURVEY MEETS THE OKLAHOMA MINIMUM STANDARDS FOR THE PRACTICE OF LAND SURVEYING AS ADOPTED BY THE OKLAHOMA STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS AND LAND SURVEYORS, MAY 17, 2010.

SPECIFICATIONS FOR SURVEYS FOR PRIMARY AND SECONDARY HIGHWAYS DATED MAY 1, 1999 GOVERN.

SDS 1 OF 5

Electronic File Transfer Disclaimer:

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OKLAHOMA DEPARTMENT OF TRANSPORTATION SURVEY DIVISION		
PLS	SJ	
DRAWN	R/W	
CHECKED	SJ	
APPROVED		
CREW	JVIDEN&CO.	SWO 4938(1) PROJECT NO. 28312(04) SHEET NO. SD10

SURVEY DATA SHEET

OKLAHOMA DEPARTMENT OF TRANSPORTATION					
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	OKLA.				
DESCRIPTION		REVISIONS		DATE	

Alignment PI Station Report

Alignment Name: EW0690
Station Range: Start: 10+00.00, End: 20+00.00

PI Station	Northing	Easting	Distance	Direction
10+00.00	369,580.4750'	2,085,537.6170'		
			1,000.000'	S89° 58' 02.92"E
20+00.00	369,579.9074'	2,086,537.6168'		

Alignment Name: NS3030
Station Range: Start: 10+00.00, End: 20+00.00

PI Station	Northing	Easting	Distance	Direction
10+00.00	368,580.4773'	2,085,539.7618'		
			1,000.000'	N0° 07' 22.39"W
20+00.00	369,580.4750'	2,085,537.6170'		

PT #	Northing (Y)	Easting (X)
1	369627.481	2085593.421
2	369626.593	2085915.875
3	369537.368	2086131.724
4	369536.808	2086415.302
300	369579.907369	2086537.616839
301	368580.477300	2085539.761756
7600	369547.456223	2085570.687891
7601	369613.456306	2085570.559131
7602	369612.907363	2086537.635571
7603	369546.907374	2086537.598107
7604	368580.406523	2085506.761833
7605	368580.548077	2085572.761678
7606	369547.411363	2085504.687840
7607	369613.411238	2085504.559109
7608	369608.389938	2082903.740288
7609	369542.390092	2082903.883319
7610	372218.050539	2085565.985111
7611	372218.119461	2085499.984889
8000	368261.913000	2085540.445000
8001	368257.256516	2082906.972299
9000	369580.475000	2085537.617000
9001	369578.980029	2088171.317000
9002	366943.351000	2085543.273000
9003	372218.085000	2085532.985000
9004	369575.390000	2082903.804000
9005	372215.334335	2088167.013670
9006	366941.277727	2088177.425186

BM NO.	RUN 1	RUN 2	MEAN DIFF.	ADJ. ELEV.	BM DESCRIPTION
CP 100				1007.15	Mag Nail in Headwall
BM #1	2.260	2.260	2.260	1004.89	3/4" IRON BAR
BM #2	7.670	7.670	7.670	997.22	3/4" IRON BAR
BM #3	-0.750	-0.760	-0.755	997.97	3/4" IRON BAR
BM #4	-0.550	-0.550	-0.550	998.52	3/4" IRON BAR



SCALE:
1"=100'

OKLAHOMA DEPARTMENT OF TRANSPORTATION SURVEY DIVISION			
PLS	SJ		
DRAWN	R/W		
CHECKED			
APPROVED			
CREW	JN/IDEN&CO.	SWO 4938(1)	PROJECT NO. 28312(04) SHEET NO. SD11

OKLAHOMA DEPARTMENT OF TRANSPORTATION					
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	OKLA.				
DESCRIPTION		REVISIONS		DATE	

SECTION 22
T-18-N, R-4-W

SECTION 23
T-18-N, R-4-W

SECTION 27
T-18-N, R-4-W

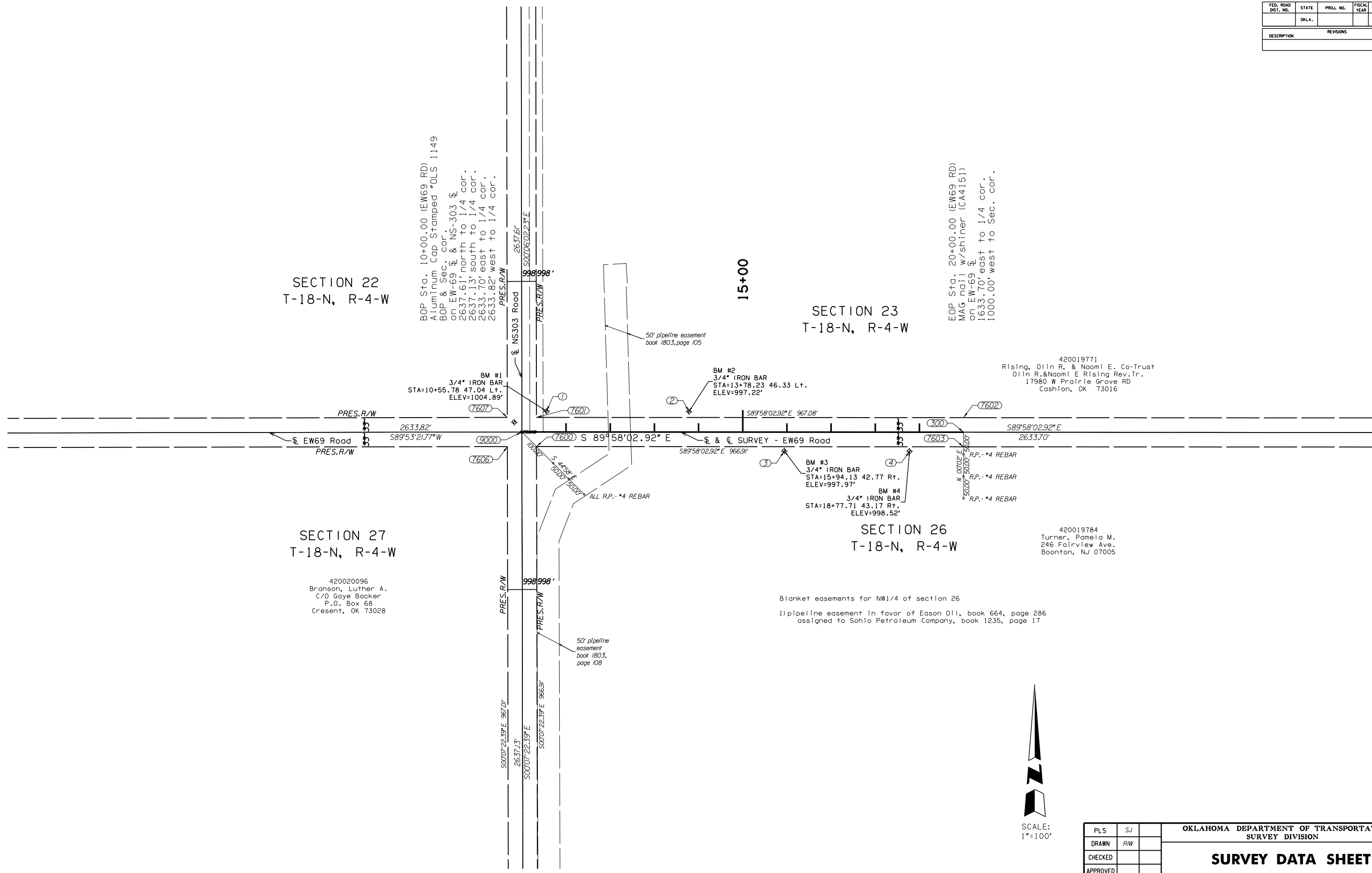
SECTION 26
T-18-N, R-4-W

BOP Sta. 10+00.00 (EW69 RD)
Aluminum Cap Stamped "OLS 1149
BOP & Sec. cor.
on EW-69 & NS-303 &
2637.61' north to 1/4 cor.
2637.13' south to 1/4 cor.
2633.70' east to 1/4 cor.
2633.82' west to 1/4 cor.

EOP Sta. 20+00.00 (EW69 RD)
MAG nail w/shiner (CA4151)
on EW-69 &
1633.70' east to 1/4 cor.
1000.00' west to Sec. cor.

420019771
Rising, Olin R. & Naomi E. Co-Trust
Olin R. & Naomi E. Rising Rev.Tr.
17980 W Prairie Grove RD
Cashion, OK 73016

420019784
Turner, Pamela M.
246 Fairview Ave.
Boonton, NJ 07005



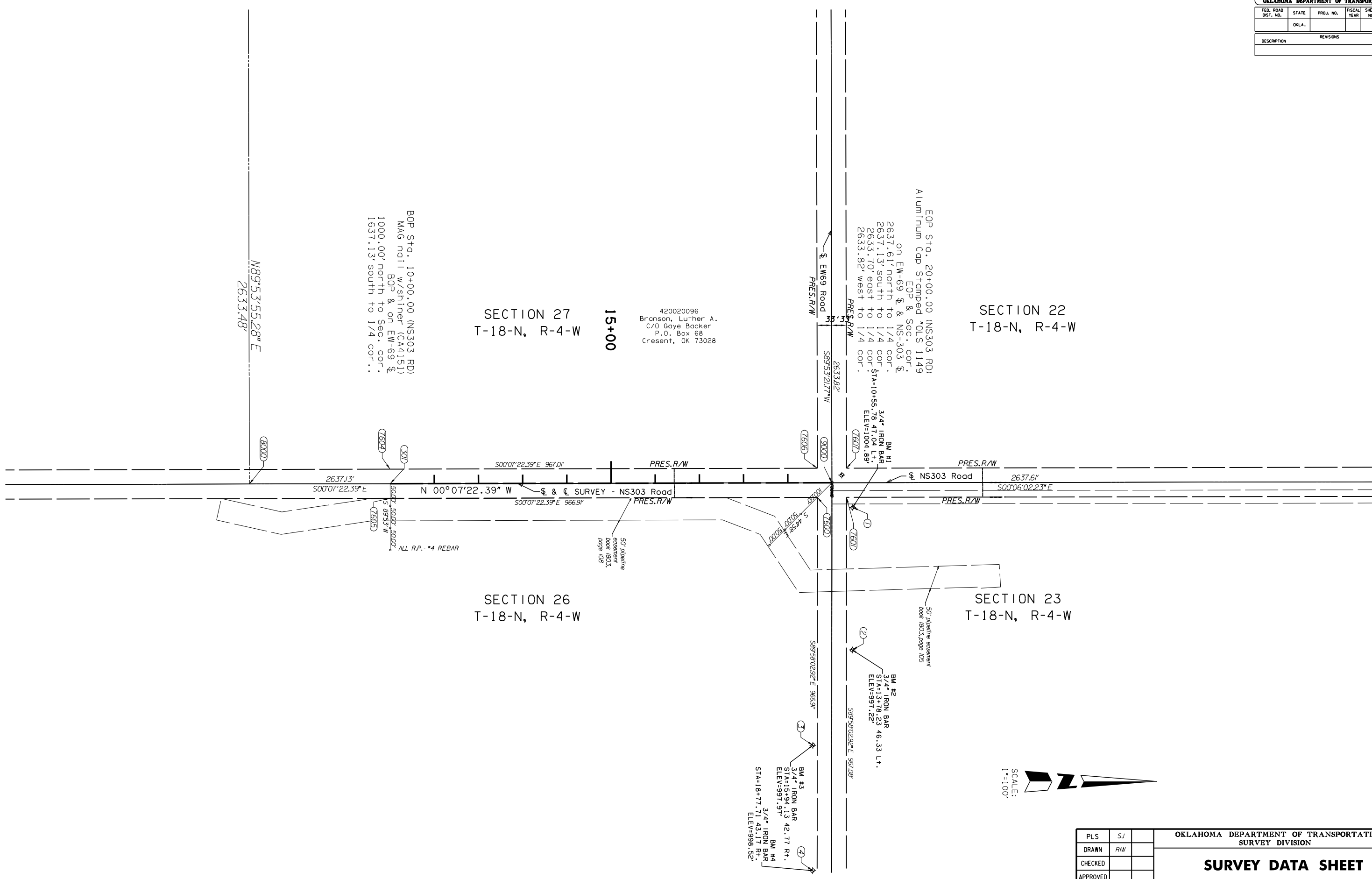
Blanket easements for NW1/4 of section 26
1) pipeline easement in favor of Eason Oil, book 664, page 286
assigned to Sohio Petroleum Company, book 1235, page 17



SCALE:
1"=100'

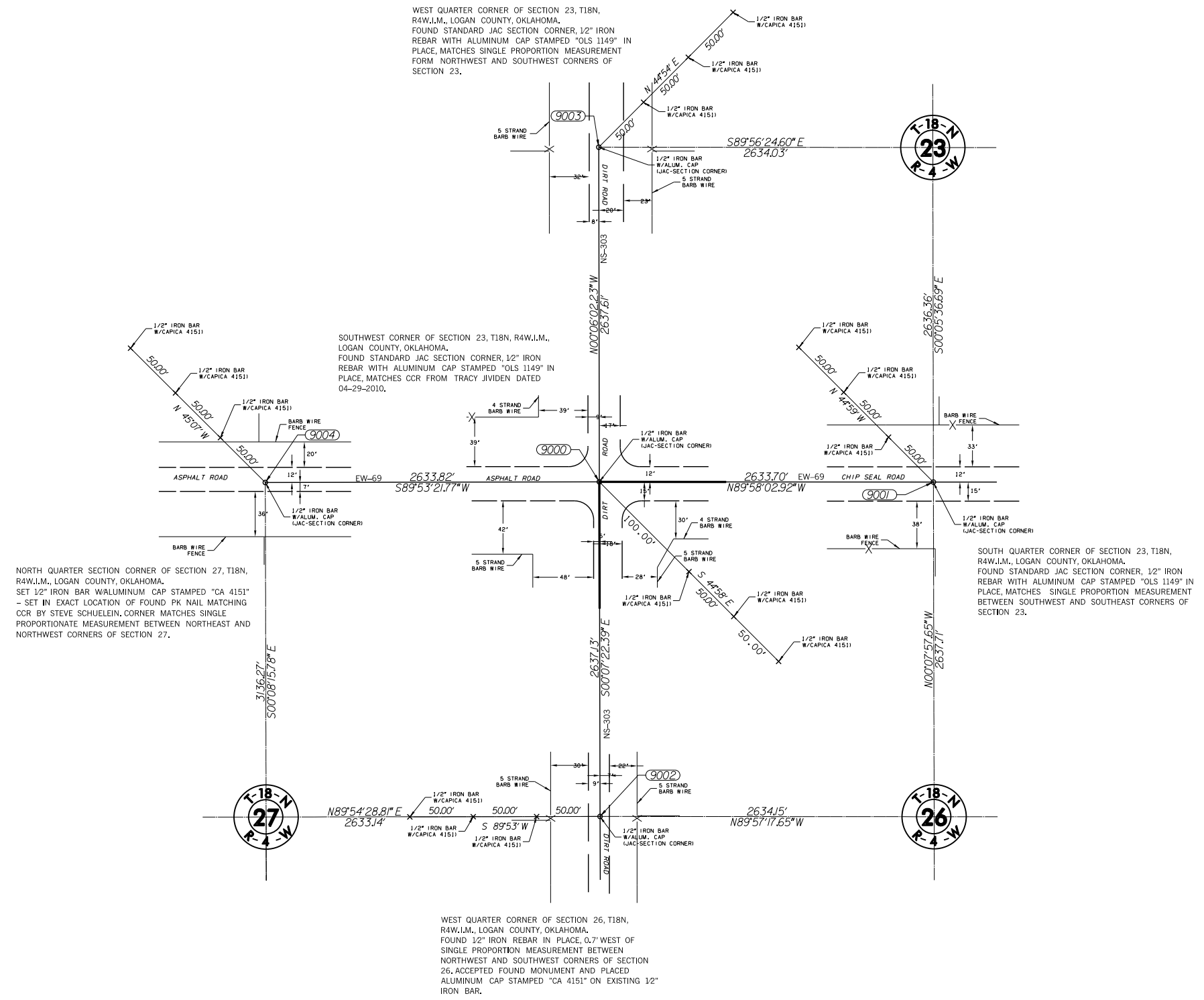
PLS	SJ	OKLAHOMA DEPARTMENT OF TRANSPORTATION SURVEY DIVISION
DRAWN	R/W	
CHECKED		
APPROVED		
CREW	JN/IDEN&CO.	SWO 4938 (1) PROJECT NO. 28312(04) SHEET NO. SD12

OKLAHOMA DEPARTMENT OF TRANSPORTATION					
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	OKLA.				
DESCRIPTION		REVISIONS		DATE	



PLS	SJ	OKLAHOMA DEPARTMENT OF TRANSPORTATION SURVEY DIVISION
DRAWN	R/W	
CHECKED		
APPROVED		
CREW	JN/IDEN&CO.	
		SURVEY DATA SHEET
		SWO 4938(1) PROJECT NO. 28312(04) SHEET NO. SD13

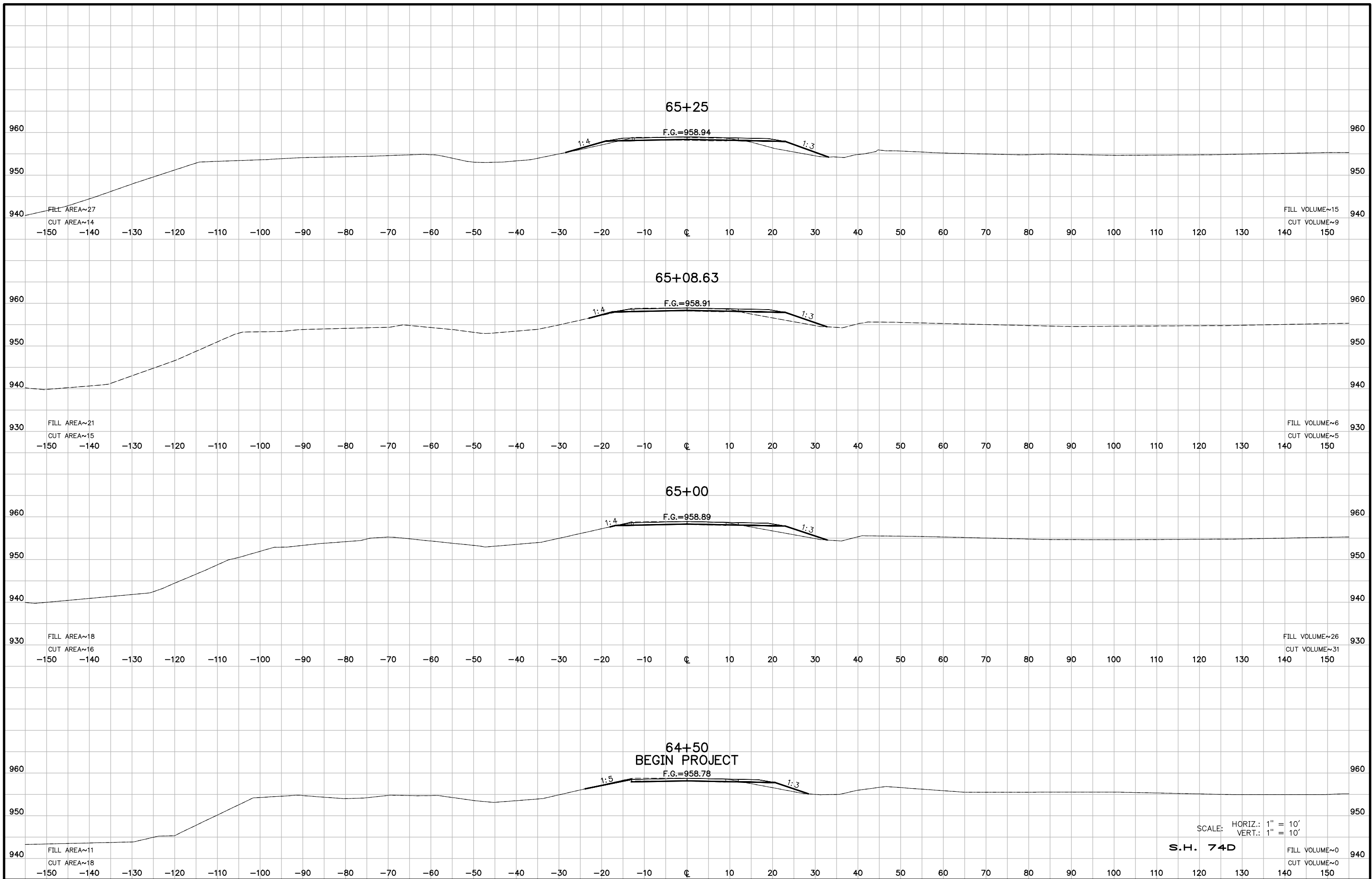
OKLAHOMA DEPARTMENT OF TRANSPORTATION				
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	TOTAL SHEETS
6	OKLA.			
DESCRIPTION		REVISIONS		DATE



SCALE:
1" = 500'

NOTE: REFERENCE'S SHOWN ARE NOT TO SCALE.

PLS	SJ	OKLAHOMA DEPARTMENT OF TRANSPORTATION SURVEY DIVISION SURVEY DATA SHEET CREW JVIDEN&CO. SWO 4938(1) PROJECT NO. 28312(04) SHEET NO. SD14
DRAWN	R/W	
CHECKED		
APPROVED		

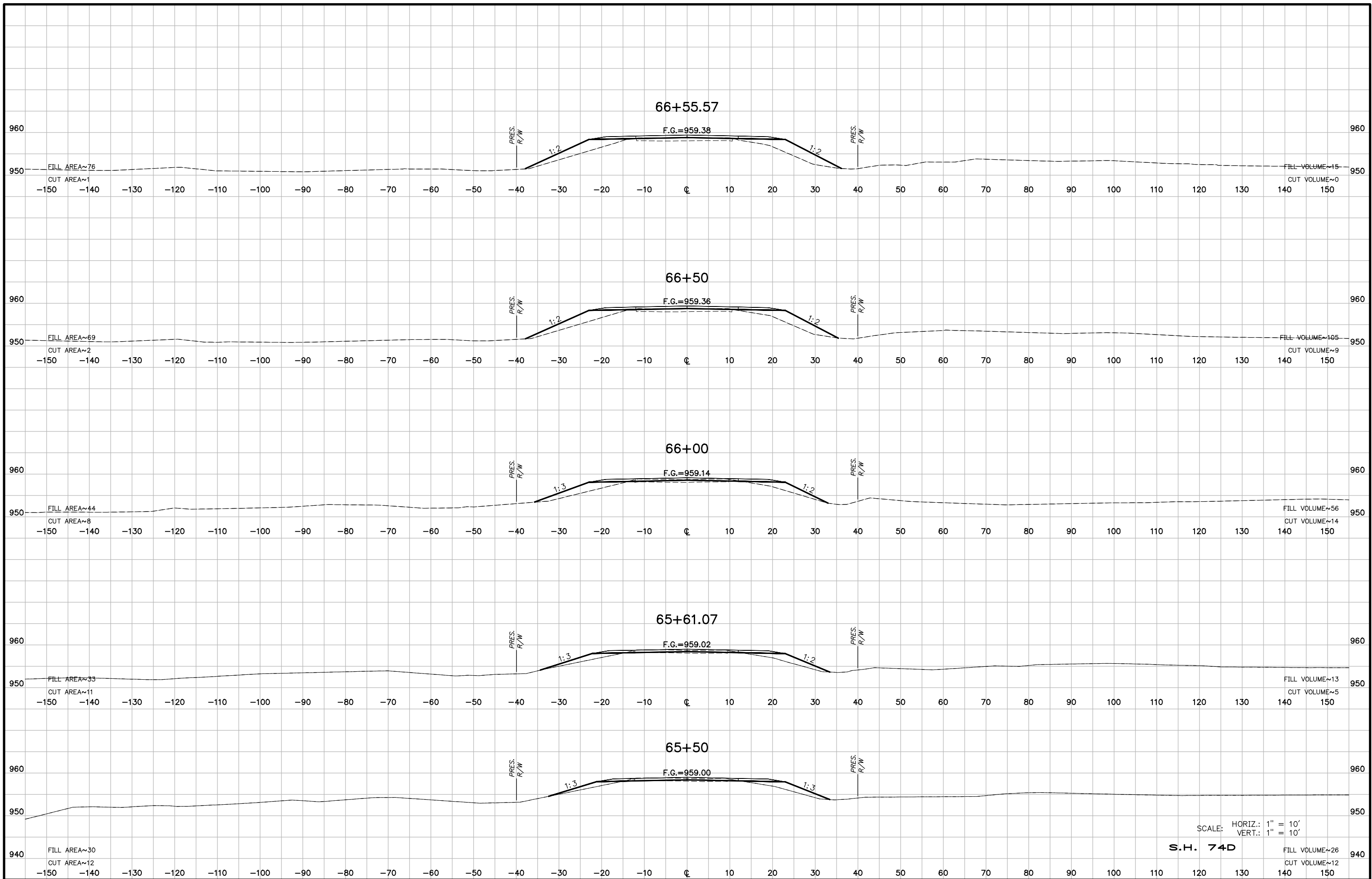


SCALE: HORIZ.: 1" = 10'
 VERT.: 1" = 10'

S.H. 74D

FILL VOLUME~0
 CUT VOLUME~0

S.H. 74D
 LOGAN COUNTY

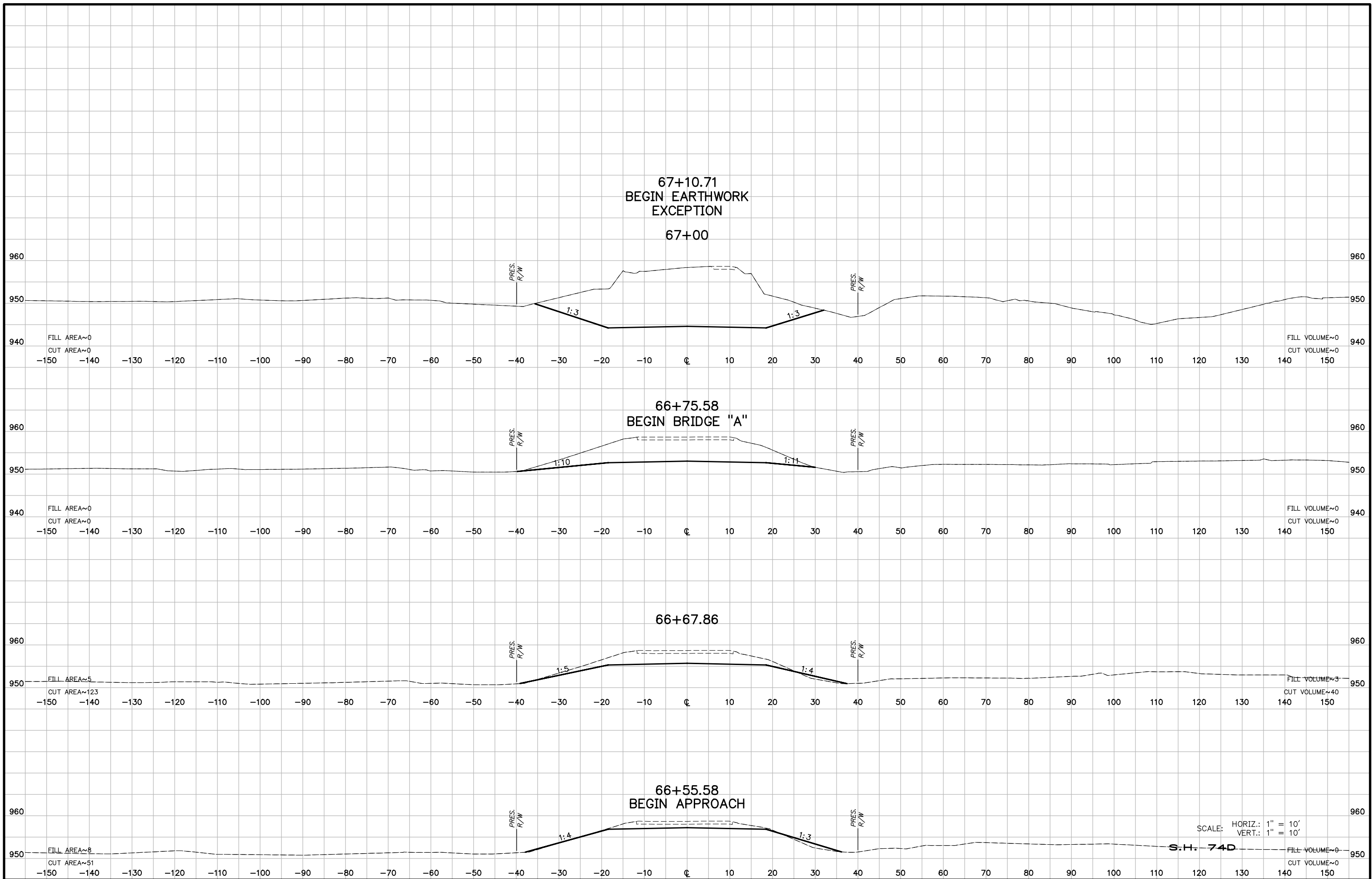


SCALE: HORIZ.: 1" = 10'
 VERT.: 1" = 10'

S.H. 74D

FILL VOLUME~26
 CUT VOLUME~12

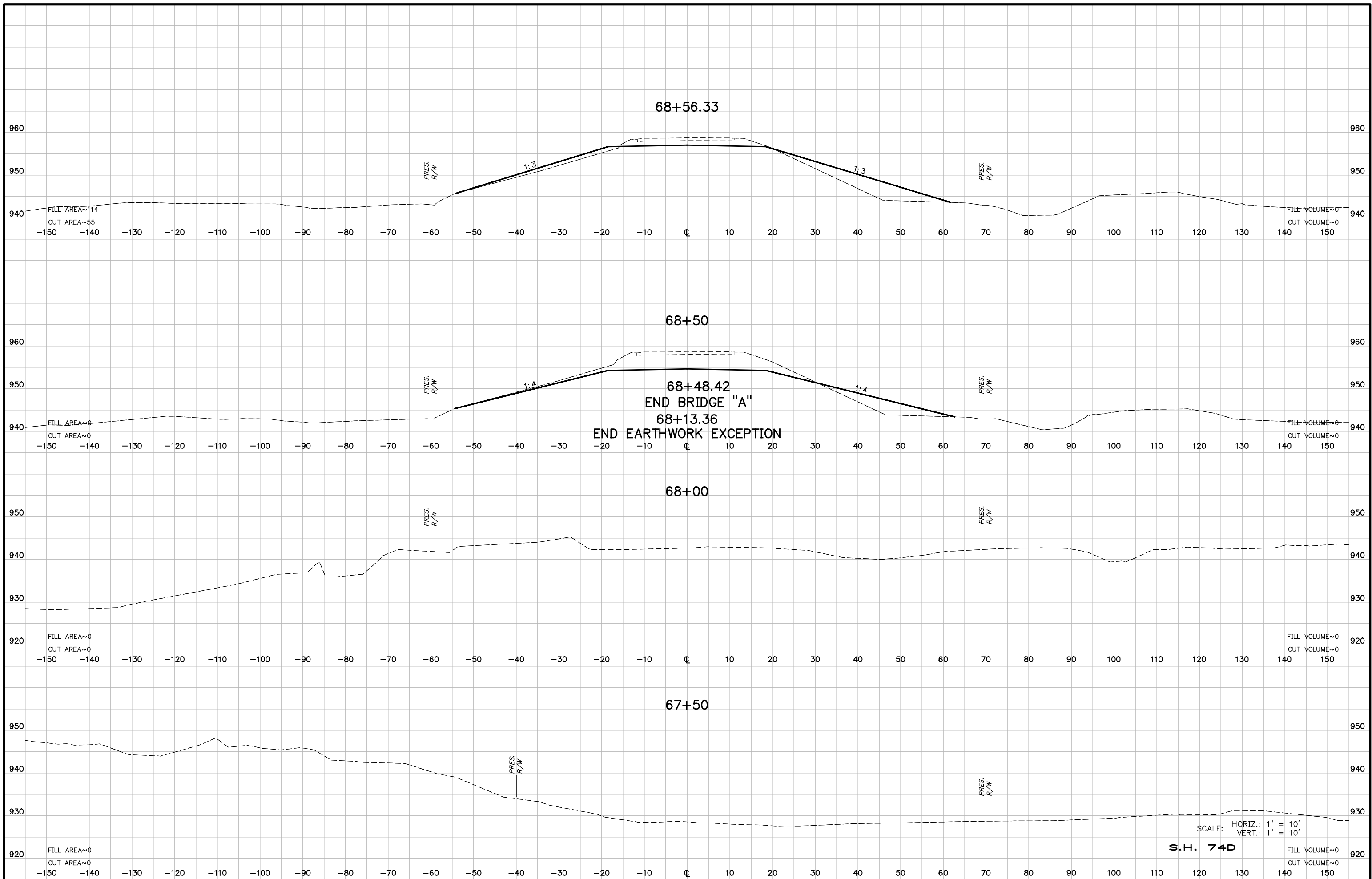
S.H. 74D
 LOGAN COUNTY



SCALE: HORIZ.: 1" = 10'
 VERT.: 1" = 10'

S.H. 74D

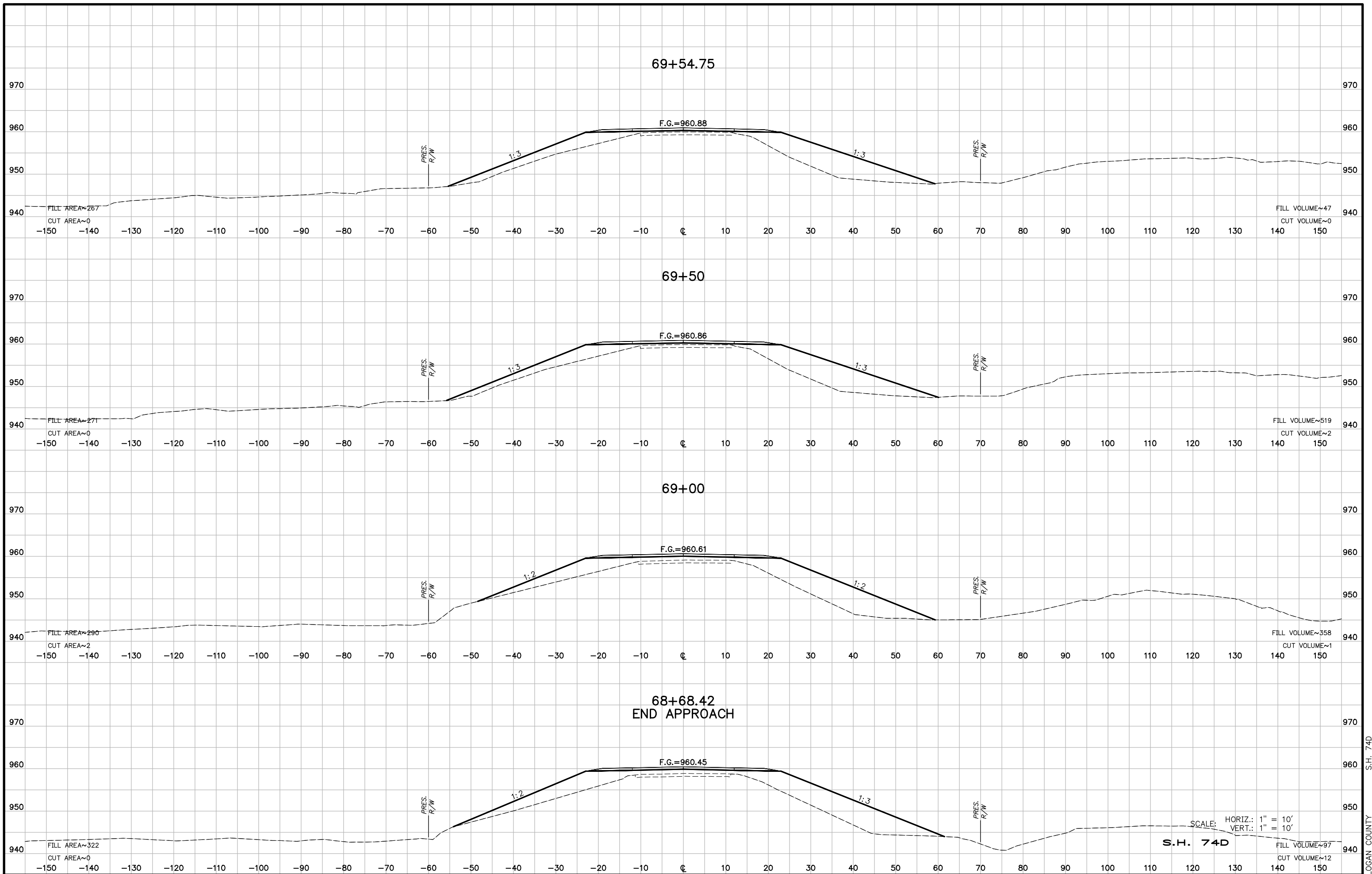
LOGAN COUNTY S.H. 74D



SCALE: HORIZ.: 1" = 10'
 VERT.: 1" = 10'

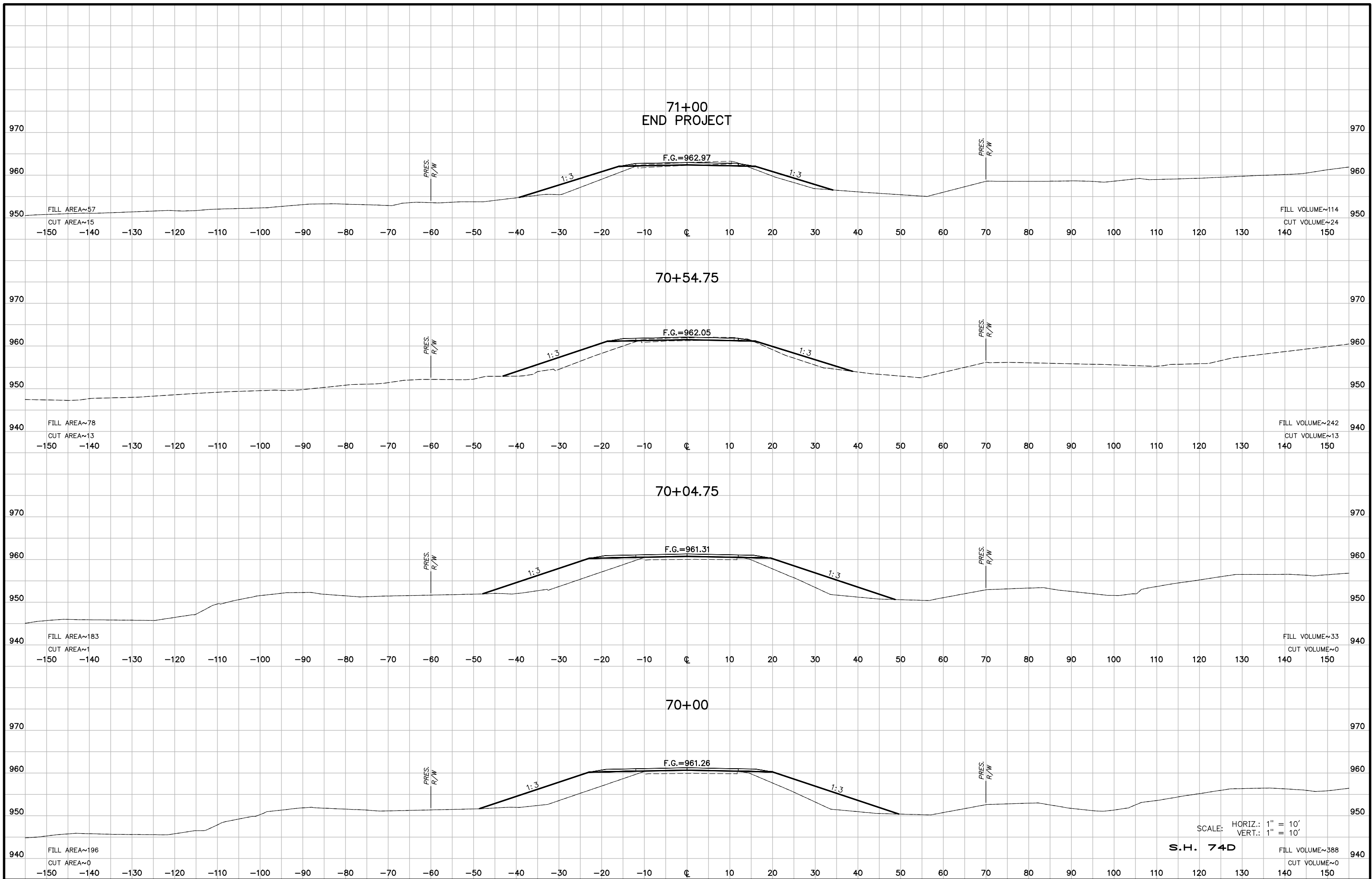
S.H. 74D

FILL VOLUME~0
 CUT VOLUME~0



SCALE: HORIZ.: 1" = 10'
VERT.: 1" = 10'

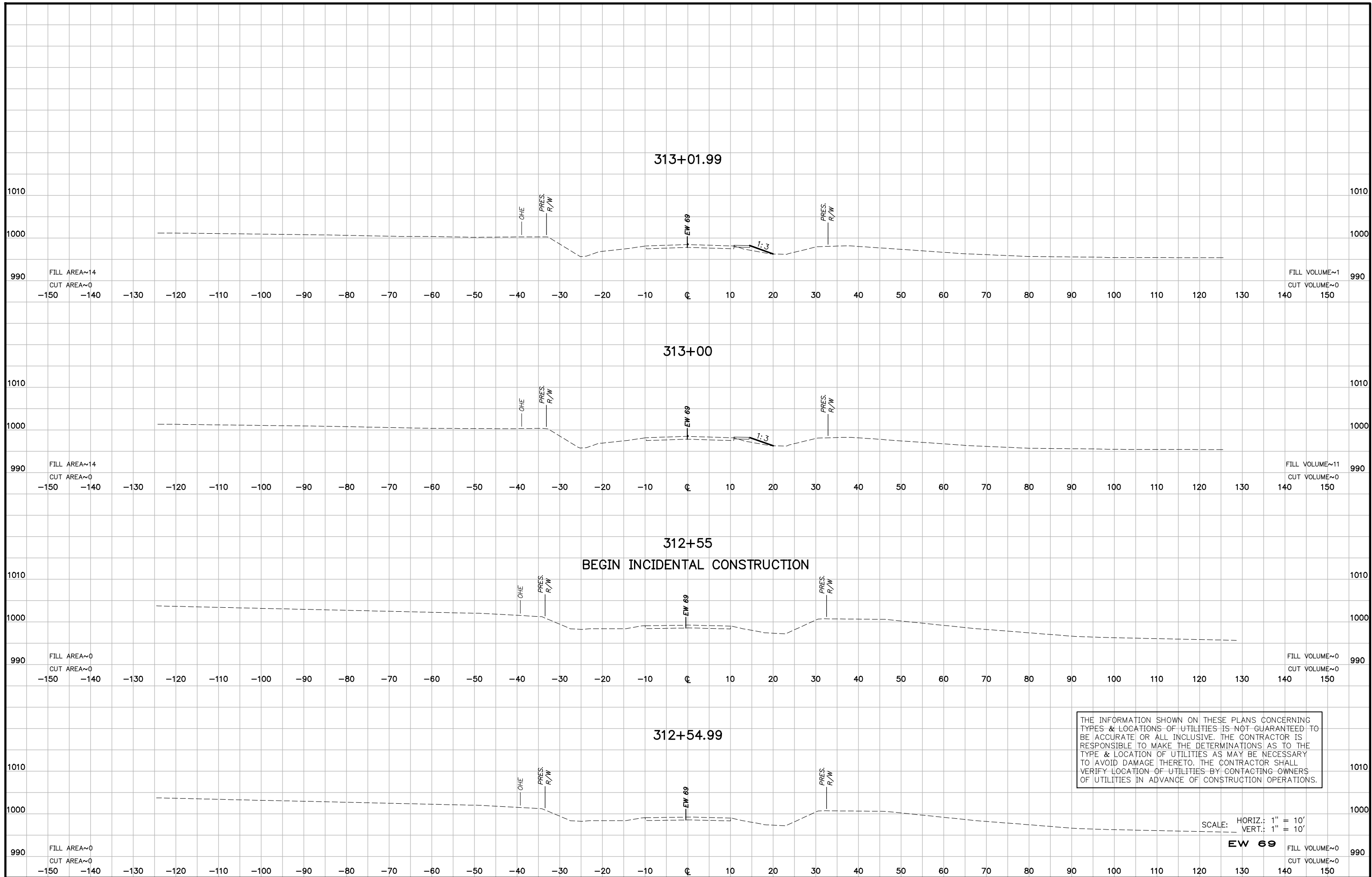
S.H. 74D



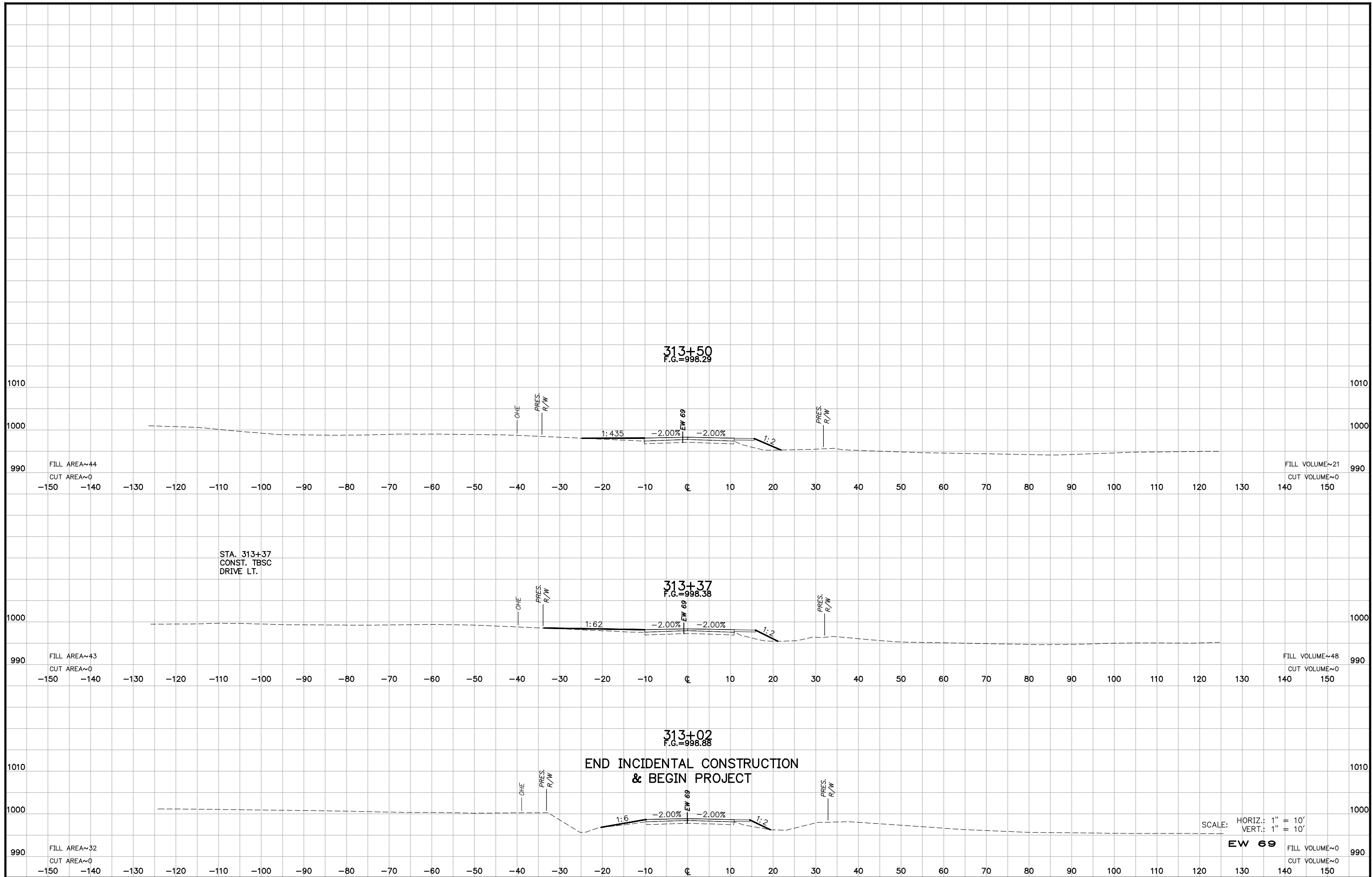
SCALE: HORIZ.: 1" = 10'
 VERT.: 1" = 10'

S.H. 74D

S.H. 74D
 LOGAN COUNTY



THE INFORMATION SHOWN ON THESE PLANS CONCERNING TYPES & LOCATIONS OF UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE TO MAKE THE DETERMINATIONS AS TO THE TYPE & LOCATION OF UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. THE CONTRACTOR SHALL VERIFY LOCATION OF UTILITIES BY CONTACTING OWNERS OF UTILITIES IN ADVANCE OF CONSTRUCTION OPERATIONS.



313+50
F.G.=998.29

313+37
F.G.=998.38

313+02
F.G.=998.88

STA. 313+37
CONST. TBSC
DRIVE LT.

END INCIDENTAL CONSTRUCTION
& BEGIN PROJECT

SCALE: HORIZ.: 1" = 10'
VERT.: 1" = 10'

EW 69

FILL AREA~44
CUT AREA~0

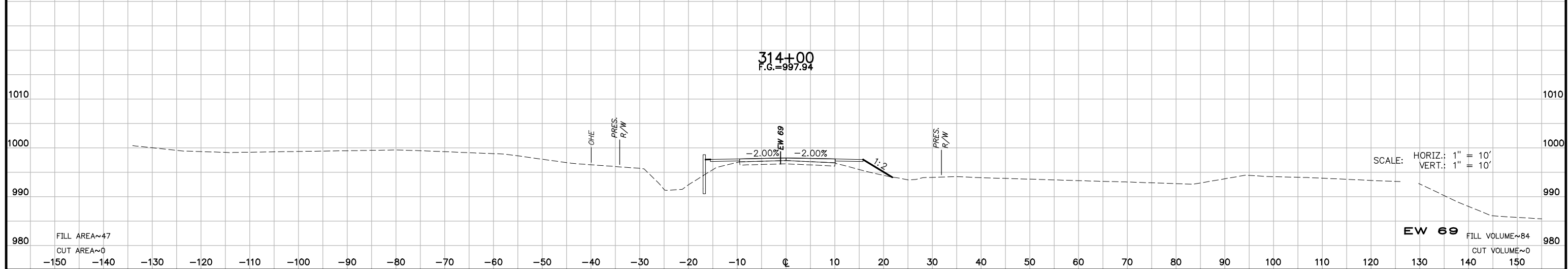
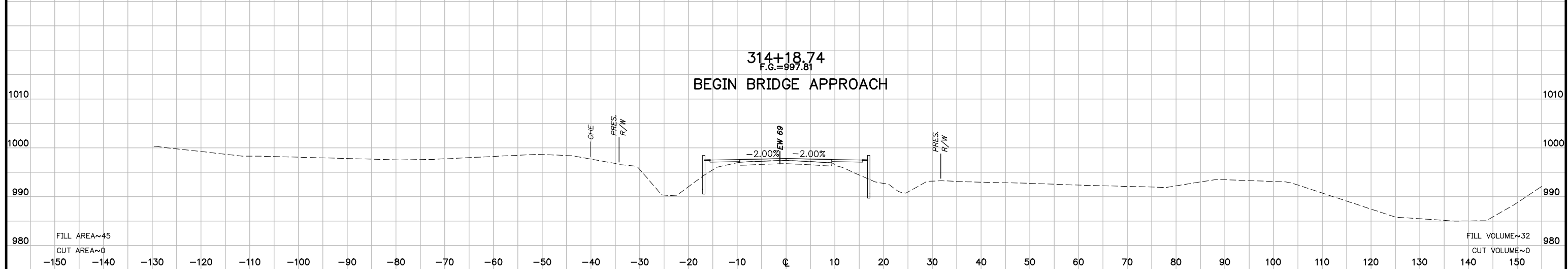
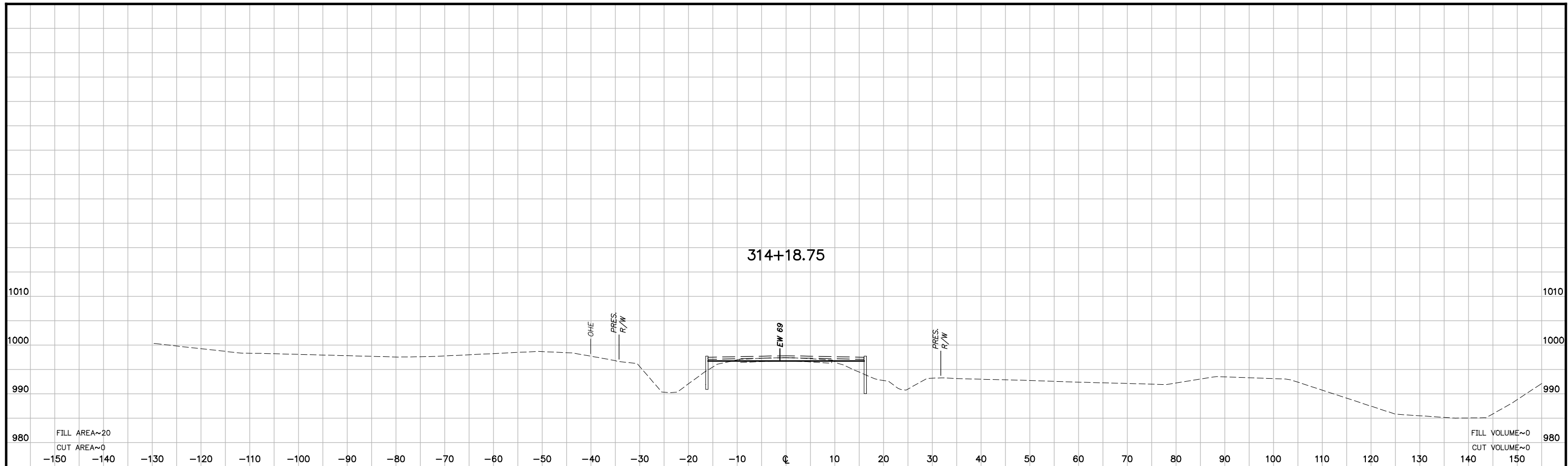
FILL VOLUME~21
CUT VOLUME~0

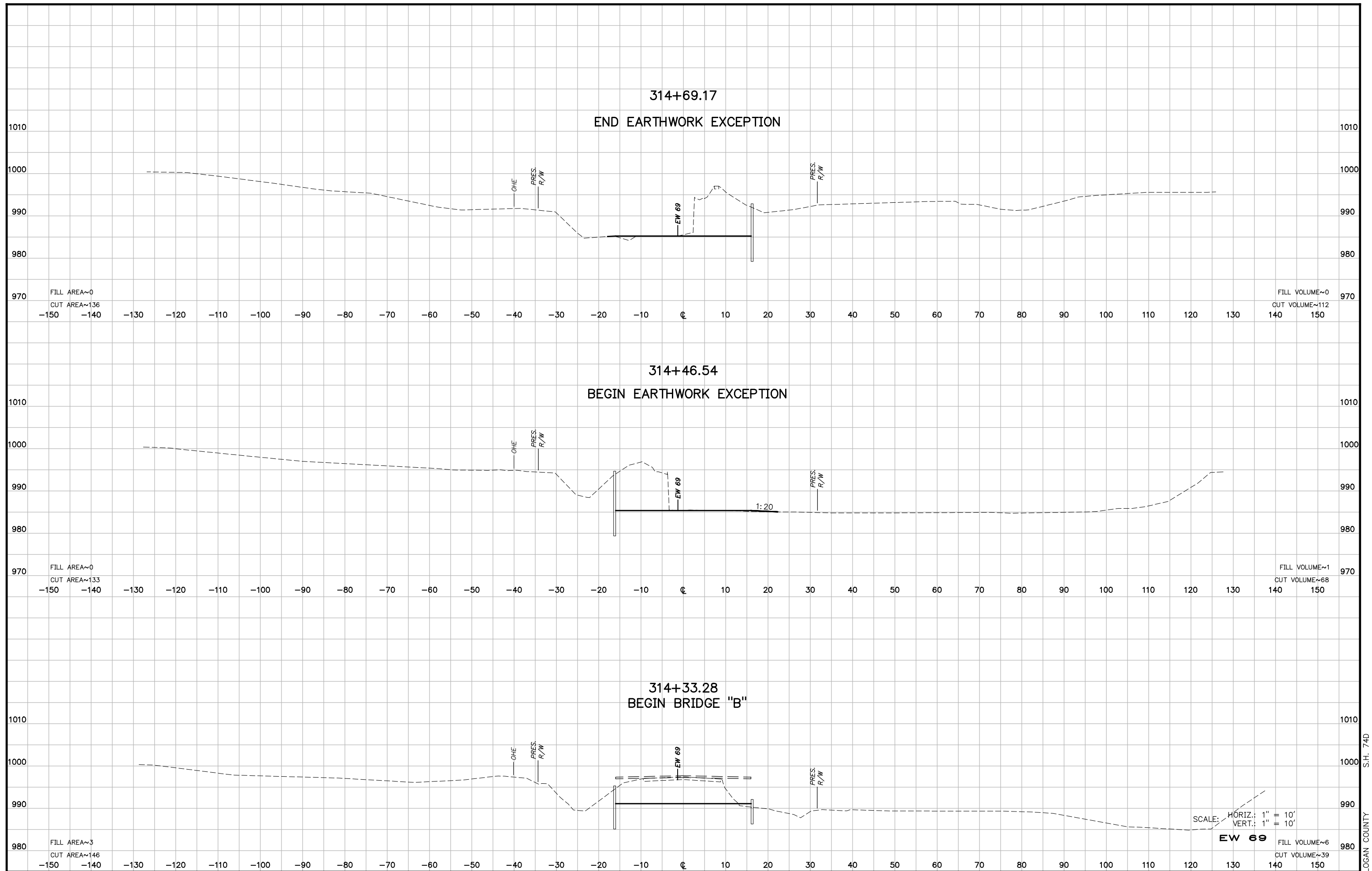
FILL AREA~43
CUT AREA~0

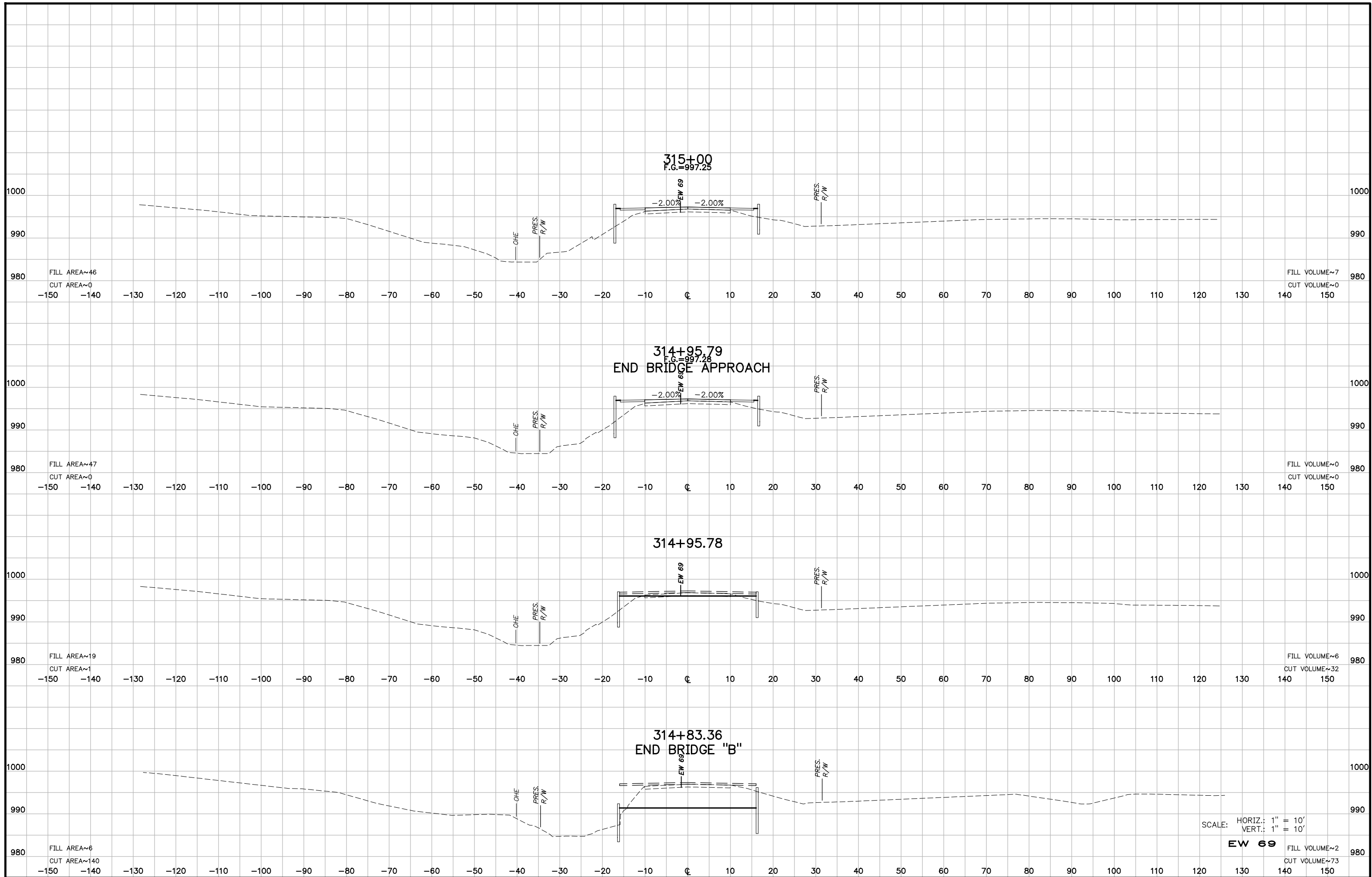
FILL VOLUME~48
CUT VOLUME~0

FILL AREA~32
CUT AREA~0

FILL VOLUME~0
CUT VOLUME~0

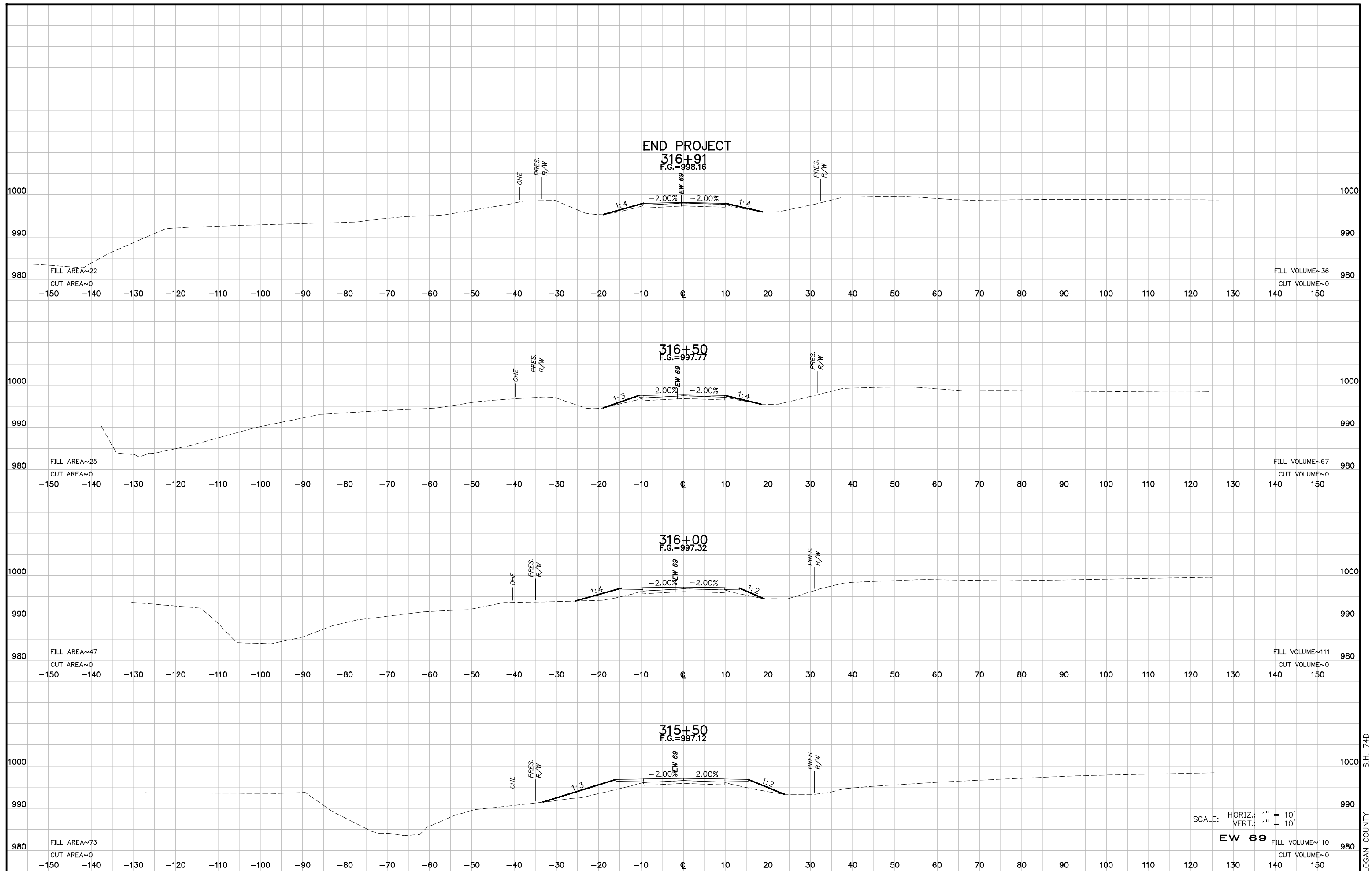






SCALE: HORIZ.: 1" = 10'
 VERT.: 1" = 10'

EW 69



SCALE: HORIZ.: 1" = 10'
VERT.: 1" = 10'

EW 69

