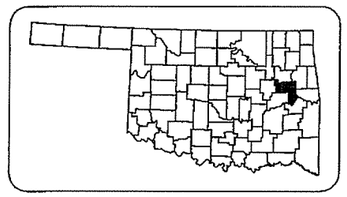
COUNTY COMMISSIONER– KENNY PAYNE
DISTRICT 3

SURVEY CONTROL DATA
SEE PLAN & PROFILE SHEET



LOCATION MAP

STATE OF OKLAHOMA
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED

COUNTY BRIDGE

STATE AID PROJECT NO. CIRB-251C(062)RB
BRIDGE & APPROACH PLANS

MUSKOGEE COUNTY

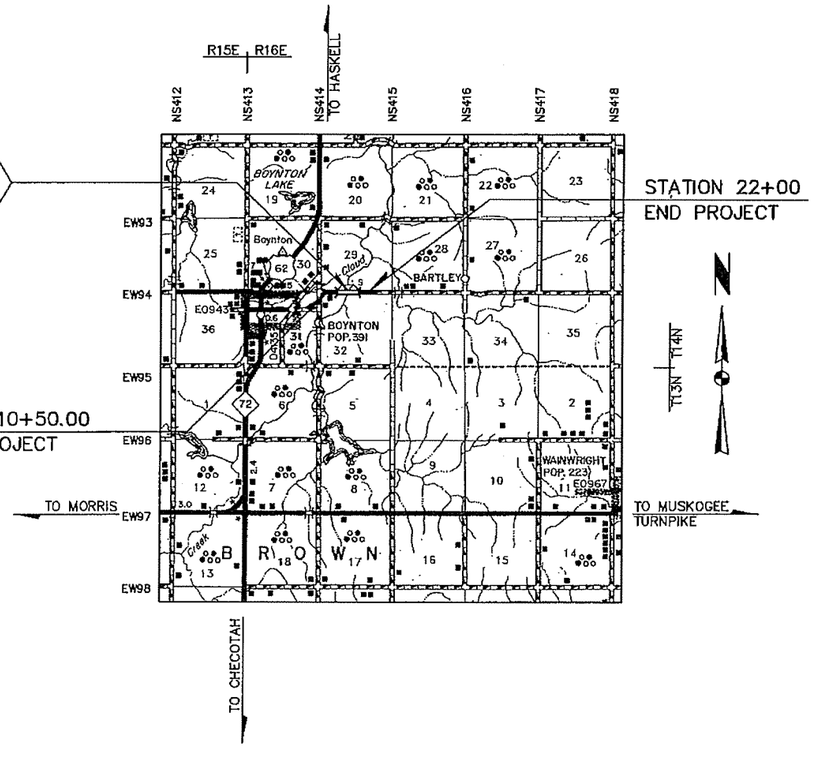
STATE JOB NO. 31162(04)

LOCATION 51E0940N4140004
LOCAL BRIDGE NO. 108
EXISTING NBI NO. 00281, NEW NBI NO. 31457
LONG.: 95°38'08"E LAT.: 35°39'12"N

INDEX OF SHEETS

DESIGN DATA

ADT 2015	=	100
ADT 2035	=	150
V	=	45 MPH



BEGIN BRIDGE STA 15+68.89
BRIDGE LENGTH = 110.22'
END BRIDGE STA 16+79.11

STATION 10+50.00
BEGIN PROJECT

STATION 22+00
END PROJECT

SCALES

PLAN	1"= 100'
PROFILE HORZ.	1"= 100'
PROFILE VERT.	1"= 10'
LAYOUT MAP	1"= 1 MILE

CONVENTIONAL SYMBOLS

- PROPOSED ROAD
- RAILROAD–Large Scale
- RAILROAD–Small Scale
- RANGE AND TOWNSHIP
- SECTION LINE
- QUARTER SECTION LINE
- FENCE
- GROUND LINE
- EXISTING ROAD
- BASE LINE
- GRADE LINES
- TELEPHONE AND TELEGRAPH
- POWER LINES
- OIL WELLS
- BUILDINGS
- DRAINAGE STRUCTURES (Existing)
- DRAINAGE STRUCTURES (New)
- RIGHT OF WAY LINES (Existing)
- RIGHT OF WAY (New)
- RIGHT OF WAY MARKERS (In Place)
- RIGHT OF WAY MARKERS (New)
- CONTROL OF ACCESS
- RIGHT OF WAY FENCE

ROADWAY LENGTH	1039.78 FT	0.196 MI
BRIDGE LENGTH	110.22 FT	0.020 MI
PROJECT LENGTH		0.216 MI

EQUATIONS NONE
EXCEPTIONS NONE

STANDARDS REQUIRED TO CONSTRUCT THIS PROJECT

ROADWAY	TRAFFIC	TRAFFIC MAINT.	BRIDGE
SSS–1–1	TCS1–1–01	GRAU1–1–00	CB26–C–SK30–ABUT–PC4–1–01E
TSC2–3–2	TCS4–1–01	GRAU2–1–00	CB26–C–SK30–ABUT–PC4–2–02E
TSD–2–0	TCS5–1–00		CB26–C–SK30–XSECT–PC234–01E
PCES–4–1	TCS6–1–02		CB26–C–SK30–LSECT–PCB–01E
SPI–4–1	TCS7–1–02		CB26–C–SK30–DKSLB–1–01E
FHTMPP–1–0	TCS9–1–01		CB26–C–SK30–DKSLB–2–01E
PUD–3–2	TCS14–1–00		CB26–C–SK30–DKSLB–BLIST–01E
RDI–3–1	DU1–1–00		CB26–C–SK30–DIA–END–PC234–01E
DC–3–2	DU2–1–00		CB26–C–SK30–SPR–QUAN–PCB–1–01E
RWF2–2–1			CB26–C–SK30–SPR–QUAN–PCB–2–01E
			CB26–C–SKO..30–PCB–IV–105–01E
			CB26–C–SKO..30–DIA–INT–PCB–01E
			CB26–C–SKO..30–BRG–PC4–01E
			CB26..32–C–SK30–WING–PC4–01E
			CB26..32–C–SK30–ABUT–MISC–01E
			CB26..32–C..I–SKO..30–PCB–DTL–1–01E
			CB26..32–C..I–SKO..30–PCB–DTL–2–01E
			CB26..32–C..I–SKO..30–GRAU–BC–00E
			HP1–2–00E
			TR3–2–01E

APPROVED
THIS 13th DAY OF June 2016
BOARD OF COUNTY COMMISIONERS
MUSKOGEE COUNTY, OKLAHOMA
CHAIRMAN
MEMBER
MEMBER
ATTEST: Dranissa Cope
COUNTY CLERK

REGISTERED PROFESSIONAL ENGINEER
TERRY L. EDDINGS
15072
OKLAHOMA

HOLLOWAY, UPDIKE & BELLEN, Inc.
818 East 31st Boulevard
Post Office Box 1345
Muskogee, Oklahoma 74402
(918) 683-7311
NO. CA 219
EXPIRES 06/17

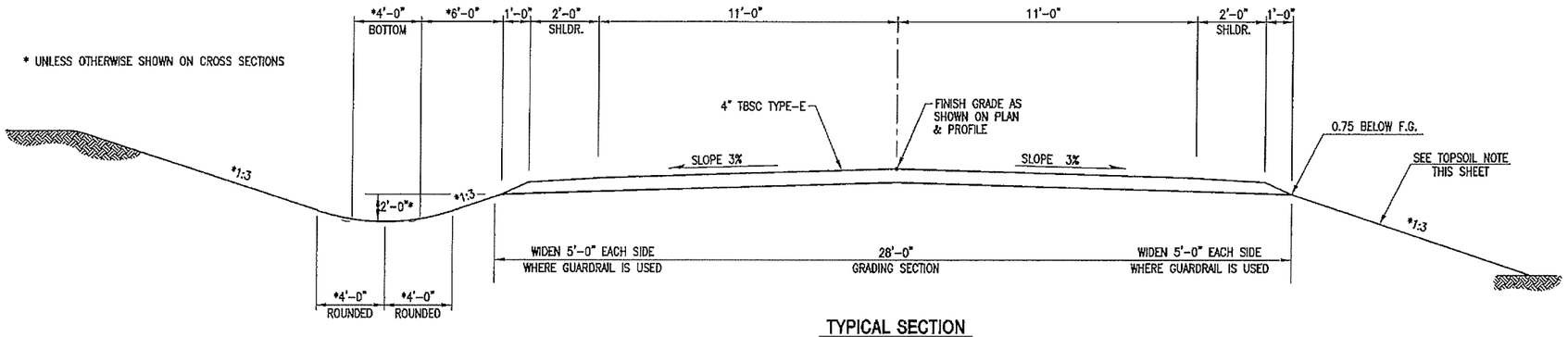
Terry Eddings 6/13/16
TERRY L. EDDINGS
PE NO 15072

OKLAHOMA DEPARTMENT OF TRANSPORTATION	DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION
DATE APPROVED	DATE APPROVED
BY	BY
CHIEF ENGINEER	DIVISION ADMINISTRATOR

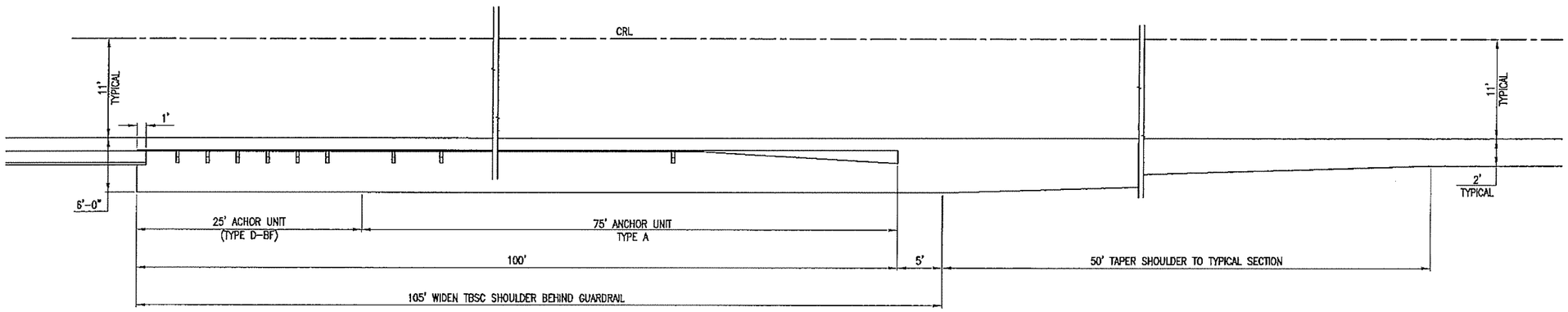
SWO | SA Project No. CIRB–251C(062)RB | Sheet No 1

2009 OKLAHOMA STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION–ENGLISH GOVERN, APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION JANUARY 04, 2010.

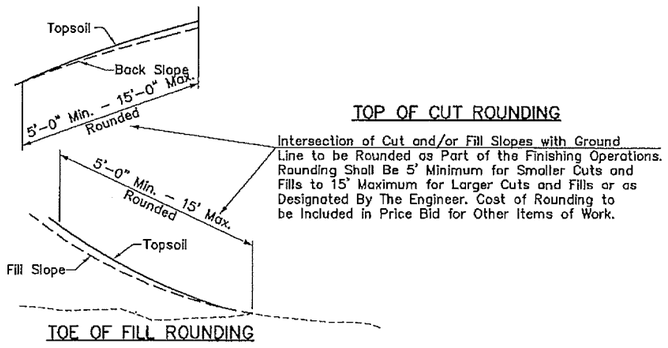
GARRY HARRISON
LOCAL GOVT COORD. DIVISION
P.E. NO. 31162(01)



TYPICAL SECTION



TYPICAL GUARD RAIL WIDENING PLAN

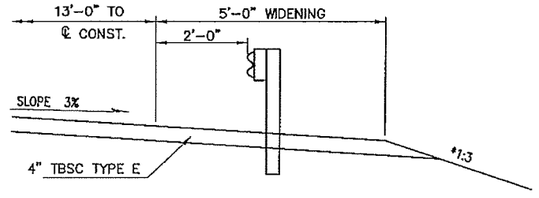


TOP OF CUT ROUNDING

Intersection of Cut and/or Fill Slopes with Ground Line to be Rounded as Part of the Finishing Operations. Rounding Shall Be 5' Minimum for Smaller Cuts and Fills to 15' Maximum for Larger Cuts and Fills or as Designated By The Engineer. Cost of Rounding to be Included in Price Bid for Other Items of Work.

TOE OF FILL ROUNDING

ROUNDING DETAIL



TYPICAL WIDENING FOR GUARDRAIL

TOPSOILING NOTE

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 SPECIFICATION. RESERVED TOPSOIL SHALL BE SPREAD FIRST ON THE COMPLETED SLOPES OF THE CUT SECTIONS AND THE REMAINDER ON THE COMPLETED FILL SLOPES OR OTHER PRIORITY AREAS LOCATED BY THE ENGINEER. ALL ADDITIONAL COSTS ASSOCIATED WITH OPERATION SHALL BE INCLUDED IN THE PAY ITEM.

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 QUANTITIES.

CLOUD CREEK	MUSKOGEE COUNTY	Design	TE 05/14
TYPICAL SECTION		Detail	RR 05/14
		Check	TE 05/14
		HOLLOWAY UPDIKE & DELLER, INC.	
STATE OF OKLAHOMA	DEPARTMENT OF TRANSPORTATION		
	State J/P No. 31162(04)	Sheet No. 2	

ROADWAY GENERAL CONSTRUCTION NOTES:

THE EXISTING ROAD SHALL REMAIN CLOSED TO THROUGH TRAFFIC DURING CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ACCESS TO ADJACENT LAND OWNERS.

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.

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.

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

THE CONTRACTOR SHALL NOTIFY THE MUSKOGEE COUNTY BOARD OF COMMISSIONERS, CED#2, AND ODOT DIVISION I OFFICE IN MUSKOGEE, IN WRITING, FOURTEEN CALENDAR DAYS PRIOR TO BEGINNING CONSTRUCTION.

EROSION CONTROL CONSTRUCTION NOTES:

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

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.

ROADWAY 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 200 C.Y. FOR DRIVEWAYS, RETURNS, DIKES, AND MISCELLANEOUS EARTHWORK.

(R-5) AN ESTIMATED QUANTITY OF 780 CY 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 TO CUT SECTIONS TO ALLOW FOR PLACEMENT OF TOPSOIL TO FINAL GRADE, SHALL BE INCLUDED IN THE PRICE BID.

(R-7) PRICE BID TO INCLUDE COST OF 18-46-0 FERTILIZER, ESTIMATED AT 150 POUNDS PER ACRE.

(R-8) PRICE BID TO INCLUDE COST OF WATERING, ESTIMATED AT 80 GALLONS PER S.Y..

(R-11) THE QUANTITIES ESTIMATED FOR TEMPORARY EROSION AND SEDIMENT CONTROL IS 1.5 ACRES.

(R-25) ESTIMATED AT 140 LBS PER CU FT.

(R-41) QUANTITY INCLUDES AN ESTIMATED 10 C.Y. TO BE USED AS DIRECTED BY THE ENGINEER.

(R-48) INCLUDED REMOVAL OF ALL EXISTING ROADWAY DRAINAGE STRUCTURES, HEADWALLS (UNLESS OTHERWISE SPECIFIED), INLETS, FENCES, AND OTHER STRUCTURES WITHIN THE RIGHT OF WAY.

(R-52) INCLUDES 2% FOR GROUND MEASUREMENT.

(R-53) ALL GATES AND GATE END POSTS FOR STRANDED WIRE FENCE (SWF) SHALL BE CONSTRUCTED AT THE SAME WIDTH AS THE EXISTING, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

(1) INCLUDES REMOVAL OF SOME HEAVY TIMBER. CLEARING AND GRUBBING TO BE THE MINIMUM AMOUNT REQUIRED FOR CONSTRUCTION AND INSTALLATION OF R/W FENCE.

(2) EXCAVATION REQUIRED TO COMPLETE THE PROJECT OR NOTED AS "UNCLASSIFIED EXCAVATION" SHALL BE CONSIDERED AS INCIDENTAL TO THE EMBANKMENT AND WILL NOT BE A PAY ITEM.

(3) QUANTITY INCLUDES 984 C.Y. TO BE USED IF EXISTING ON-SITE MATERIAL IS UNSUITABLE FOR USE IN EMBANKMENT AS DIRECTED BY THE ENGINEER.

ROADWAY PAY QUANTITY NOTES:

(4) THE CONTRACTOR MUST PROVIDE TESTING RESULTS FROM A CERTIFIED LAB THAT THE BORROW SITE IS FREE FROM DISPERSIVE CLAYS AS REQUIRED IN SECTION 202.02(A) IN THE 2009 SPEC BOOK BEFORE ANY MATERIAL CAN BE PLACED ON THE PROJECT. COST TO BE INCLUDED IN PAY ITEM FOR UNCLASSIFIED BORROW.

(5) PRICE BID INCLUDES COST OF REMOVING AND DISPOSING OF SEDIMENT ACCUMULATED BY SEDIMENTATION DEVICE. SEDIMENT SHALL BE REMOVED WHEN DEVICE IS HALF FULL.

(6) PRICE BID TO INCLUDE THE COST OF (10-20-10) FERTILIZER. ESTIMATED AT 200 LB. PER 1000 S.Y. OF SODDING.

(7) PRICE BID INCLUDES THE COST OF 4 TYPE 1 CODE 3 DELINEATORS. (AMBER COLOR)

(8) CONSTRUCTION SIGNING WILL BE INSTALLED AS DIRECTED BY THE ENGINEER AND IN ACCORDANCE WITH CHAPTER VI OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", LATEST EDITION, AND APPLICABLE O.D.O.T. STANDARD DRAWINGS. PRICE BID FOR THIS ITEM SHALL BE PAYMENT IN FULL FOR THE REMOVAL OF ALL NECESSARY CONSTRUCTION TRAFFIC CONTROL REQUIRED FOR COMPLETION OF THIS PROJECT.

(9) IN ADDITION TO THE RESPONSIBILITIES SHOWN IN THE SPECIFICATIONS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND/OR REESTABLISHING THE SURVEY CONTROL POINTS SHOWN ON THE PLANS, STAKING THE CENTERLINE OF CONSTRUCTION, CALCULATING AND STAKING HAUNCH GRADES ON BRIDGE "A", AND REESTABLISHING RIGHT-OF-WAY STAKES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND VERIFYING BENCH MARKS SHOWN ON THE PLANS AND FOR ESTABLISHING NEW BENCH MARKS AS NEEDED TO CONSTRUCT THE PROJECT.

(10) GATES SHALL BE 16' LONG TUBE GATES (PAINTED) WITH 2" STEEL TUBE SPREAD EVENLY TO PROVIDE 6 RAILS OR APPROVED EQUAL. PRICE BID TO INCLUDE HINGES, LATCHES, AND ALL OTHER HARDWARE NECESSARY FOR INSTALLATION.

ENVIRONMENTAL NOTES

NORTHERN LONG-EARED BATE NOTE:
THE NORTHERN LONG-EARED BAT, AN INSECTIVOROUS MIGRATORY BAT SPECIES PROTECTED BY THE ENDANGERED SPECIES ACT, OCCURS WITHIN THIS COUNTY. BIOLOGICAL STUDIES HAVE IDENTIFIED SUITABLE SUMMER ROOSTING OR FORAGING HABITAT WITHIN THE PROJECT'S ACTION AREA. IN ORDER TO AVOID ADVERSE IMPACTS TO NORTHERN LONG-EARED BATS THE FOLLOWING MEASURES SHALL BE TAKEN:

1. ALL REMOVAL OF LIVE OR DEAD TREES, GREATER THAN 3 INCHES DIAMETER AT BREAST HEIGHT (DBH), NECESSARY FOR CONSTRUCTION OR UTILITIES SHALL BE CONDUCTED BETWEEN NOVEMBER 16 AND MARCH 31.
2. IF REMOVAL OF TREES CANNOT BE DONE BETWEEN NOVEMBER 16 AND MARCH 31, THE LOCAL GOVERNMENT DIVISION OR THE RESIDENT ENGINEER NEEDS TO CONTACT THE ODOT BIOLOGIST AT (405) 521-2515 TO SCHEDULE A SPECIES SURVEY PRIOR TO START OF WORK. THE SURVEY CAN ONLY TAKE PLACE BETWEEN MAY 15 AND AUGUST 15. THE SURVEY AND ASSOCIATED USFWS CONSULTATION COULD TAKE 60 DAYS OR MORE TO COMPLETE. IF BATS ARE FOUND TO BE USING THE TREES FOR ROOSTING, THE TREES CANNOT BE REMOVED UNTIL NOVEMBER 16.

CLIFF SWALLOWS AND BARN SWALLOWS NOTE:
CLIFF SWALLOWS AND BARN SWALLOWS ARE SMALL COLONIAL NESTING BIRDS PROTECTED BY THE FEDERAL MIGRATORY BIRD TREATY ACT. THESE SPECIES COMMONLY USE BRIDGES AND CULVERTS FOR NESTING. THE NESTING SEASON FOR THE SWALLOWS RUNS FROM APRIL 1 TO AUGUST 31. ANY ACTIVITIES WHICH WOULD DESTROY ACTIVE NESTS OR HARM EGGS OR BIRDS WOULD VIOLATE THE MIGRATORY BIRD TREATY ACT. SWALLOW SURVEY HAS NOT BEEN CONDUCTED FOR ANY OF THE STRUCTURES WITHIN THE PROJECT EXTENT. RESPONSE OF SWALLOWS TO THE PLANNED WORK HAS NOT BEEN ASSESSED. THE RESIDENT ENGINEER WILL EVALUATE THE CONTRACTOR'S PROPOSED WORK METHODS AND CONCLUDE WHETHER THE PROPOSED WORK WOULD POSE DISRUPTION TO ANY NESTING BIRDS BEFORE WORK NEAR THE STRUCTURE IS AUTHORIZED. IF THE PROPOSED WORK WILL HARM ANY NESTING BIRDS, THE BRIDGE MAY BE NETTED PRIOR TO APRIL 1 OR THE WORK DELAYED UNTIL THE NESTING SEASON IS COMPLETE. METHODS OTHER THAN NETTING MUST BE PRE-APPROVED BY THE ODOT BIOLOGIST.

AMERICAN BURYING BEETLE (ABB) NOTE:
AMERICAN BURYING BEETLE- NO ARTIFICIAL LIGHTING SHALL BE USED DURING CONSTRUCTION. CARCASSES AND ALL FOOD TRASH SHALL BE REMOVED FROM THE PERMANENT AND TEMPORARY RIGHT-OF-WAY THROUGHOUT PROJECT ACTIVITIES.

CALL OKIE

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.

RESPONSIBILITIES OF COUNTY

1. RIGHT-OF-WAY ACQUISITION
2. RELOCATION OF UTILITIES
3. DETOUR SIGNING OUTSIDE LIMITS OF CONSTRUCTION

THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY FENCING AS REQUIRED. COST TO BE INCLUDED IN OTHER ITEMS OF WORK.

PAY QUANTITIES (ROADWAY)

ROADWAY 0100 — J/P 31162(04)

SPEC. NO.	BAMS NO.	DESCRIPTION	PAY ITEM NOTES	UNIT	QUANTITY
201(A)	0102	CLEARING AND GRUBBING	R-48,1	LSUM	1.00
202(D)	0184	UNCLASSIFIED BORROW	R-1,R-4,2,3,4	C.Y.	10000.00
205(A)	4229	TYPE A-SALVAGED TOPSOIL	R-5,R-7	LSUM	1.00
221(C)	2801	TEMPORARY SILT FENCE	5	LF	1000.00
221(F)	0100	TEMPORARY SILT DIKE	5	LF	196.00
230(A)	2806	SOLID SLAB SODDING	R-8,6	SY	8000.00
233(A)	2817	VEGETATIVE MULCHING	R-11	AC	1.50
402(E)	0225	TRAFFIC BOUND SURFACE COURSE TYPE-E	R-25	TON	740.00
509(D)	0325	CLASS C CONCRETE	R-41	CY	10.00
613(B)	0689	18" CORR. GALV. STEEL PIPE		LF	40.00
613(L)	5726	18" PREFAB. CULVERT END SECTION, ROUND		EA	2.00
623(F)	4446	GUARD RAIL ANCHOR UNIT TYPE A	7	EA	4.00
623(F)	5686	GUARD RAIL ANCHOR UNIT TYPE D-BF		EA	4.00
624(C)	4459	FENCE-STYLE SWF (5 BARBED WIRE)	R-52,R-53	LF	2380.00
624(D)	4470	GATE, GALVANIZED STEEL	10	EA	2.00
880(J)	8905	CONSTRUCTION TRAFFIC CONTROL	8	LSUM	1.00

PAY QUANTITIES (ROADWAY)

STAKING 0600 — J/P 31162(04)

SPEC. NO.	BAMS NO.	DESCRIPTION	PAY ITEM NOTES	UNIT	QUANTITY
642(B)	0096	CONSTRUCTION STAKING LEVEL II	9	LSUM	1.00

PAY QUANTITIES (ROADWAY)

CONSTRUCTION 0640 — J/P 31162(04)

SPEC. NO.	BAMS NO.	DESCRIPTION	PAY ITEM NOTES	UNIT	QUANTITY
220	2800	SWPPP DOCUMENTATION AND MANAGEMENT		LSUM	1.00
641	1399	MOBILIZATION		LSUM	1.00

CLOUD CREEK — MUSKOGEE COUNTY

SUMMARY OF PAY QUANTITIES & NOTES (ROADWAY)

Design	TE	05/14
Detail	RR	05/14
Check	TE	05/14

HOLLOWAY UPDIKE & BELLEN, INC. ENGINEERS

STATE OF OKLAHOMA — DEPARTMENT OF TRANSPORTATION — State J/P No. 31162(04) — Sheet No. 3

BRIDGE GENERAL CONSTRUCTION NOTES:

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

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 AN AXIAL LOAD RESISTANCE EQUAL TO OR GREATER THAN THE FACTORED PILE REACTION WITHOUT EXCEEDING THE LIMITATIONS SET ON THE ALLOWABLE DRIVING STRESSES IN ACCORDANCE WITH SECTION 514.03.A(2).

ABUTMENT PILING CAPACITY:
THE FACTORED REACTION FOR EACH HP 12X53 PILE AT EACH ABUTMENT IS 75.2 TONS PER PILE. DRIVE ALL PILING UNTIL AXIAL LOAD RESISTANCE IS GREATER THAN THE FACTORED REACTION OF EACH PILE. THE FOLLOWING FORMULA (GATES EQUATION) SHALL BE USED TO DETERMINE THE AXIAL LOAD RESISTANCE OF THE DRIVEN FOUNDATION PILES:

AXIAL LOAD RESISTANCE = ϕ [(0.875/E LOG10(10N))−50] (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.

CONCRETE:
PROVIDE ALL PEDESTAL CONCRETE EDGES WITH A 3/4" CHAMFER. PROVIDE ALL OTHER EXPOSED CONCRETE EDGES OF THE SUBSTRUCTURE WITH A 1 1/2" CHAMFER UNLESS OTHERWISE SHOWN OR NOTED. PROVIDE ALL EXPOSED CONCRETE EDGES OF THE SUPERSTRUCTURE WITH A 3/4" CHAMFER UNLESS OTHERWISE SHOWN OR NOTED. USE SIZED LUMBER FOR ALL CHAMFER STRIPS. PROVIDE A BURLAP OR ASTROTURF DRAG FINISH ON DECK SLAB CONCRETE. DO NOT TINE OR SAW−CUT GROOVE.

CONCRETE INTERMEDIATE DIAPHRAGMS:
ONCE THE CONCRETE HAS BEEN PLACED FOR THE CONCRETE INTERMEDIATE DIAPHRAGMS, WAIT A MINIMUM OF 24 HOURS BEFORE REMOVING THE SIDE FORMS. DO NOT REMOVE THE BOTTOM FORM FOR A MINIMUM OF 3 DAYS, OR AT THE DISCRETION OF THE ENGINEER. THIS TIME CAN BE SHORTENED IF THE CONCRETE HAS ATTAINED 80% OF THE SPECIFIED COMPRESSIVE STRENGTH. DO NOT PLACE THE CONCRETE FOR THE DECK SLAB OR APPLY OTHER MASSIVE LOADS TO THE BEAMS OR DIAPHRAGMS UNTIL THE CONCRETE IN THE DIAPHRAGMS HAS BEEN IN PLACE FOR A MINIMUM OF 10 DAYS, OR AT THE DISCRETION OF THE ENGINEER. THIS TIME MAY BE SHORTENED IF THE CONCRETE HAS ATTAINED 80% OF THE SPECIFIED COMPRESSIVE STRENGTH.

PERFORATED PIPE UNDERDRAIN:
ITEM "6" PERFORATED PIPE UNDERDRAIN − ROUND" INCLUDES 30 FEET OF PERFORATED PIPE AND 5 CUBIC YARDS OF PIPE UNDERDRAIN COVER MATERIAL FOR EACH ABUTMENT. THE INSTALLATION OF THE PERFORATED PIPE AND PIPE UNDERDRAIN MATERIAL SHALL BE SHOWN IN THE PLANS AND ON STANDARD PUD−3−(LATEST REVISION).
ALL COSTS OF THE PERFORATED PIPE UNDERDRAIN INSTALLATION INCLUDING BACKFILLING, MATERIAL, LABOR, EQUIPMENT, AND INCIDENTALS SHALL BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF "6" PERFORATED PIPE UNDERDRAIN − ROUND".

NON−PERFORATED UNDERDRAIN:
ITEM "6" NON−PERFORATED PIPE UNDERDRAIN − ROUND" INCLUDES 20 FEET OF NON−PERFORATED PIPE AND 10 CUBIC YARDS OF TRENCH EXCAVATION AND 10 CUBIC YARDS OF STANDARD BEDDING MATERIAL FOR EACH ABUTMENT. THE INSTALLATION OF THE PERFORATED PIPE AND PIPE UNDERDRAIN COVER MATERIAL SHALL BE AS SHOWN ON THE PLANS AND ON STANDARD PUD−3−(LATEST REVISION).
ALL COSTS OF THE NON−PERFORATED PIPE UNDERDRAIN INSTALLATION INCLUDING BACKFILLING, MATERIAL, LABOR, EQUIPMENT, AND INCIDENTALS SHALL BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF "6" NON−PERFORATED PIPE UNDERDRAIN − ROUND".

ROADWAY PAY QUANTITY NOTES:

(B−1) PAYMENT FOR THIS ITEM WILL BE BASED ON PLAN QUANTITY ONLY. SEE SECTION 109.01B OF THE STANDARD SPECIFICATIONS.

(1) REPLACES GRANULAR BACKFILL ON STD. CB26..32−C−SK30−ABUT−MISC−01E. COMPACT TO AT LEAST 95% OF MAXIMUM DENSITY IN ACCORDANCE WITH SUBSECTION 303.04E.

(2) ESTIMATED AT 120 LBS PER CU FT

(3) ESTIMATED AT 110 LBS PER CU FT

(4) THE ITEM "REMOVAL OF THE EXISTING BRIDGE STRUCTURE" SHALL CONSIST OF THE FOLLOWING:

REMOVAL OF THE EXISTING 98' LONG THRU TRUSS & 21' I−BEAM SPAN BRIDGE WITH TIMBER DECK AND CONCRETE PIER AND ABUTMENTS AT APPROXIMATE STA. 16+10. MATERIALS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF BY THE CONTRACTOR IN A MANNER APPROVED BY THE ENGINEER IN ACCORDANCE WITH SECTION 619.04(b)2 OF THE STANDARD SPECIFICATIONS.

PAY QUANTITIES (BRIDGE)

0200 BR A 105' TYPE IV PC BEAM 26'−0" CLR RDY w/ TR−3 SKEW 30° RF — J/P 31162(04)

SPEC. NO.	BAMS NO.	DESCRIPTION	PAY ITEM NOTES	UNIT	QUANTITY
303(A)	2100	AGGREGATE BASE TYPE A	1	CY	102.00
501(B)	1307	SUBSTRUCTURE EXCAVATION COMMON	B−1	CY	292.00
503(A)	1313	PRESTRESSED CONCRETE BEAM TYPE IV	B−1	LF	314.00
504(D)	6239	CONCRETE RAIL (TR3)	B−1	LF	316.30
506(A)	1322	STRUCTURAL STEEL	B−1	LB	690.00
507(A)	6172	WEATHERING STEEL FIXED BEARING ASSEMBLY		EA	3.00
507(B)	6176	WEATHERING STEEL EXPANSION BEARING ASSEMBLY		EA	3.00
509(A)	1326	CLASS AA CONCRETE	B−1	CY	86.10
509(B)	1328	CLASS A CONCRETE	B−1	CY	100.60
511(A)	1332	REINFORCING STEEL	B−1	LB	36,410.00
514(A)	6010	PILES, FURNISHED (HP 10X42)		LF	120.00
514(A)	6011	PILES, FURNISHED (HP 12X53)		LF	231.00
514(B)	6292	PILES, DRIVEN (HP 10X42)		LF	120.00
514(B)	6294	PILES, DRIVEN (HP 12X53)		LF	231.00
514(L)	6220	PILE SPLICE, H−PILE (NON−BIDDABLE)		EA	1.00
601(B)	1353	TYPE I−A PLAIN RIPRAP	2	TON	1,334.00
601(C)	1355	TYPE I−A FILTER BLANKET	3	TON	235.00
613(H)	6204	6" PERFORATED PIPE UNDERDRAIN, ROUND		LF	92.70
613(I)	6207	6" NON−PERF. PIPE UNDERDRAIN RND.		LF	65.00
619(D)	1397	REMOVAL OF EXISTING BRIDGE STRUCTURE	4	LSUM	1.00

CLOUD CREEK — MUSKOGEE COUNTY

SUMMARY OF PAY QUANTITIES & NOTES (BRIDGE)

Design	TE	05/14
Detail	RR	05/14
Check	TE	05/14

HOLLOWAY UPDIKE & DELLEN, INC. ENGINEERS

STATE OF OKLAHOMA — DEPARTMENT OF TRANSPORTATION

State J/P No. 31162(04) — Sheet No. 4

SUMMARY OF SURFACING

STATION TO STATION	T.B.S.C. TYPE E 402(E) TON
MAINLINE	
STA. 10+50 TO STA. 22+00	668
G.R. WIDENING	
STA. 14+38.81 TO STA. 15+43.81 LT	12.5
STA. 14+57.39 TO STA. 15+62.39 RT	12.5
STA. 16+85.61 TO STA. 17+90.61 LT	12.5
STA. 17+28.52 TO STA. 18+33.52 RT	12.5
MISCELLANEOUS USE	
TOTALS	718

SUMMARY OF DRIVES

STATION	LENGTH	TYPE	T.B.S.C. 402(E) TON
13+40	45'	22' SEC. LINE RETURN	21
		TOTALS	21

SUMMARY OF EARTHWORK

STATION TO STATION	UNCLASSIFIED EXCAVATION CY	EMBANKMENT +20% SHRINKAGE CY	UNCLASSIFIED BORROW 202(D) CY	TYPE-A SALVAGED TOPSOIL CY
STA. 10+50.00 TO STA. 15+81.50	485	4460	3975	304
STA. 16+79.00 TO STA. 22+00.00	683	5518	4835	474
TOTALS	1168		8810	778

SUMMARY OF TEMPORARY EROSION CONTROL

SINGLE STATION & STATION TO STATION ①	DESCRIPTION	TEMPORARY SILT FENCE 221(C) LF	TEMPORARY SILT DIKE 221(F) LF
12+00	LT & RT OF ROADWAY, ACROSS DITCH		28
12+75	LT & RT OF ROADWAY, ACROSS DITCH		28
14+00	LT & RT OF ROADWAY, ACROSS DITCH		28
14+50 TO 15+25	LT & RT OF ROADWAY, AROUND HEADER, ALONG TOE	286	
15+00	LT OF ROADWAY, ACROSS DITCH		21
16+85 TO 17+50	LT & RT OF ROADWAY, AROUND HEADER, ALONG TOE	240	
17+00	LT OF ROADWAY, ACROSS DITCH		21
18+00	LT & RT OF ROADWAY, ACROSS DITCH		42
20+00	LT & RT OF ROADWAY, ACROSS DITCH		28
	MISCELLANEOUS USE	474	
	TOTALS	1000	196

SUMMARY OF FENCING

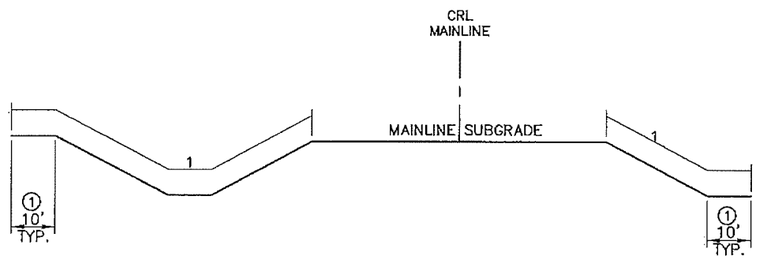
CRL STATION TO STATION	FENCE STYLE SWF (5BW) 624(C) LF	16' GATE, GALV. STEEL 624(D) EA
STA. 10+00.00 TO STA. 15+43.87 LT	560	2
STA. 10+00.00 TO STA. 15+62.40 RT	585	
STA. 16+85.61 TO STA. 22+32.44 LT	569	
STA. 17+28.57 TO STA. 23+20.33 RT	620	
TOTALS	2334	2

SUMMARY OF PERMANENT EROSION CONTROL

SINGLE STATION & STATION TO STATION	LOCATION AND DESCRIPTION	WORK AREA	SOLID SLAB SODDING 230(A) SY	VEGETATIVE MULCHING 233(A) AC
10+50 TO 22+00	LT & RT OF MAINLINE	1	7306	1.5
MISCELLANEOUS USE			694	
	TOTALS		8000	1.5

SUMMARY OF GUARDRAIL

LOCATION		ANCHOR UNITS		TOTAL PANEL LENGTH INCLUDING ANCHOR UNITS
APPROXIMATE STATION TO STATION	SIDE	TYPE A 623(F) EA.	TYPE D-BF 623(F) EA.	LF
STA. 14+38.81 TO STA. 15+43.81	LT.	1	1	100
STA. 14+57.39 TO STA. 15+62.39	RT.	1	1	100
STA. 16+85.61 TO STA. 17+90.61	LT.	1	1	100
STA. 17+28.52 TO STA. 18+33.52	RT.	1	1	100
TOTALS		4	4	400



EROSION CONTROL TYPICAL SECTIONS

1 – SOLID SLAB SODDING
VEGETATIVE MULCH SHALL BE USED FOR TEMPORARY EROSION CONTROL
①FOR DISTURBED AREAS ONLY

CLOUD CREEK	MUSKOGEE COUNTY	Design	TE 05/14
SUMMARY SHEET		Detail	RR 05/14
		Check	TE 05/14
		HOLLOWAY UPDIKE & BELLEN, INC.	
STATE OF OKLAHOMA	DEPARTMENT OF TRANSPORTATION		
	State J/P No. 31162(04)	Sheet No. 5	

STORM WATER MANAGEMENT PLAN

REVISIONS		
	DESCRIPTION	DATE
1	NOT IMPAIRED WATERS	6/28/2016

SITE DESCRIPTION

PROJECT LIMITS: LOCATED 0.3 MILES NORTH AND 1 MILE EAST OF BOYNTON ON EW94

PROJECT DESCRIPTION: GRADE, DRAIN, TBSC SURFACING, AND BRIDGE & APPROACHES.

SUGGESTED SEQUENCE OF EROSION CONTROL ACTIVITIES:

1. INSTALL TRAFFIC CONTROL.
2. CLEAR, GRUB AND STOCKPILE TOPSOIL.
3. INSTALL SEDIMENT CONTROLS AS AREAS ARE DISTURBED.
4. INSTALL BRIDGE "A".
5. GRADE ROADWAY AS SHOWN ON PLANS.
6. INSTALL VEGETATIVE MULCH AS TEMPORARY EROSION CONTROL.
7. CONSTRUCT TBSC SURFACING.
8. COMPLETE FINISH GRADING AND INSTALL PERMANENT EROSION CONTROL.

SOIL TYPE: DENNIS SILT LOAM

AREA TO BE DISTURBED: 1.5 ACRES

OFFSITE AREA TO BE DISTURBED: (FOR CONTRACTOR USE)

MAXIMUM ACRES TO BE DISTURBED AT ANY ONE TIME: (FOR CONTRACTOR USE)

LATITUDE & LONGITUDE OF CENTER OF PROJECT: LAT: 35°39'12" LONG: 95°38'08"

NAME OF RECEIVING WATERS: CLOUD CREEK

SENSITIVE WATERS OR WATERSHEDS: YES [ ] NO [X]

303(d) IMPAIRED WATERS: YES [ ] NO [X] ⚠

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
- _X_ PERMANENT SODDING, SPRIGGING OR SEEDING
- _X_ VEGETATIVE MULCHING
- ____ SOIL RETENTION BLANKET
- _X_ 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
- _X_ TEMPORARY SILT FENCE
- _X_ 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
- _X_ TEMPORARY SEDIMENT REMOVAL
- _X_ RIP RAP
- ____ INLET SEDIMENT FILTER
- ____ TEMPORARY BRUSH SEDIMENT BARRIERS
- ____ SANDBAG BERMS
- ____ TEMPORARY STREAM CROSSINGS

OFFSITE VEHICLE TRACKING:

- ____ HAUL ROADS DAMPENED FOR DUST CONTROL
- _X_ LOADED HAUL TRUCKS TO BE COVERED WITH TARPAULIN
- ____ 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, 2012.

DESIGN	TE	05/14
DRAWN	RR	####
CHECKED	TE	05/14
APPROVED		
SQUAD		

OKLAHOMA DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION

STORM WATER MANAGEMENT PLAN

STATE JOB NO. 31162(04) SHEET NO. 6

REVISED 04 / 24 / 2014

LEGEND
T.B.S.C. SURFACING

SECTION 29
T14N R16E

SECTION 32
T14N R16E

J. BRENT HOGAN

CROOCH BROTHERS, LLC

DONALD L. TILLMAN

TIMOTHY ARTHUR JONES
WENDE CHRISTINE JONES
aka ALEXES RAZEVICH
DONNA JEANNE JONES OWEN

1/16 SEC. LINE & PROP. LINE

1/4 SECTION LINE

SET 1/2" I.P.

SET 1/2" I.P. B.O.P. 10+50

SET 1/2" I.P.

SET 60D w/FLASHER E.O.P. 22+00

TAPER TO MATCH EXIST.

TAPER TO MATCH EXIST.

SPECIAL DITCH LT

SPECIAL DITCH RT

SPECIAL DITCH LT

SPECIAL DITCH RT

4' DITCH

8' DITCH

TOE OF SLOPE OR TOP OF CUT

TOE OF SLOPE OR TOP OF CUT

℄ SURVEY & CRL

R/W

STATUTORY R/W

SECTION LINE

(14' GRAVEL)

(18' GRAVEL)

CREEK

CLOUD

CAUTION NATURAL GAS LINE XING

ONEOK SIGN +11 22'L
SIGN +13 26'L

CP #2 +32 19'L
CL DBL. 16' STEEL GATE +37 25'L

TPED +59 26'L

BEGIN EXIST. BRIDGE +49 0'L
FENCE COR. +77 29'L

END EXIST. BRIDGE +71 0'R
FENCE COR. +20 28'L

CP #3 +68 24'L

ST.A 13+40
CONST. 22' TBSC
SL RETURN

BM #2

BM #3

CL 23' SWB GATE +86 23'R
FENCE COR. +97 24'R

FENCE COR. +19 24'R

BM #2 +06 18'R

FENCE COR. +44 12'R

CL EXIST BRIDGE
98' THRU TRSS & 21' I-BM SPAN
w/ TIMBER DECK, CONC. PIER &
CONC. ABUTS. +10 0'
LOW STEEL ELEV. = 589.23

FENCE COR. +00 23'R
BM #3 +00 23'R

FENCE COR. +95 27'R

FENCE COR. +24 28'R

IRON PIN SET +20 5'R
FENCE COR. +26 23'R

GAS LINE XING +28 0'R
CONC. POST SIGN +45 27'R

STATUTORY R/W IS 24.75' EACH SIDE OF SECTION LINE

PROJECT CONTROL POINT #2
1/2" IRON PIN
N= 246350.35
E= 2670611.22
ELEV= 590.19

BM2
60D NAIL IN 12" HACKBERRY TREE
STA. 14+06, 18' RT.
ELEV.= 590.29

PROJECT CONTROL POINT #3
1/2" IRON PIN
N= 246365.93
E= 2671047.08
ELEV= 587.54

BM3
60D NAIL IN 24" HACKBERRY TREE
STA. 18+00, 23' RT.
ELEV.= 589.48

PVI STA: 12+00.00
PVI ELEV: 590.02
K: 76.69
LVC: 300.00

PVI STA: 14+50.00
PVI ELEV: 597.00
K: 71.63
LVC: 200.00

PVI STA: 18+00.00
PVI ELEV: 597.00
K: 57.80
LVC: 200.00

PVI STA: 20+50.00
PVI ELEV: 588.35
K: 78.26
LVC: 300.00

LOW PT. STA: 11+35.89
LOW PT ELEV: 591.22

LOW PT. STA: 21+70.78
LOW PT ELEV: 588.86

BVCS: 10+50.00
BVCE: 591.70

BVCS: 13+50.00
BVCE: 594.21

EVCS: 15+50.00
EVCE: 597.00
BEGIN BRIDGE
STA. 15+68.89

END BRIDGE
STA. 16+79.11
BVCS: 17+00.00
BVCE: 597.00

EVCS: 19+00.00
EVCE: 593.54

EVCS: 22+00.00
EVCE: 588.91

110'-2⅝"

CRL 0.00%

2.79%

1.12%

3.46%

0.37%

CRL

FINISHED GRADE

SP. DITCH LT & RT

EXIST. GROUNDLINE ALONG CRL

SP. DITCH LT & RT

BRIDGE 'A' – ℄ STA. 16+24.00
105' TYPE IV P.C. BEAM SPANS
26'-0" CLEAR ROADWAY SK 30° RF
w/CONC TRAFFIC RAIL (TR-3)

FLOWLINE PROFILE OF CREEK

BEGIN PROJECT STA. 10+50

END PROJECT STA. 22+00

STR. S1 STA. 13+40
CONST. 18'X40' LG CGSP SD
30° LT w/PCES LT & RT

593.6 | 592.3 | 591.3 591.30 | 590.7 591.49 | 590.2 592.97 | 589.9 595.43 | 590.1 596.83 | 578.4 597.00 | 589.9 597.00 | 588.0 596.14 | 588.1 593.54 | 588.1 590.72 | 588.4 589.18 | 588.9 588.91 | 589.5

9+00 10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

610 605 600 595 590 585 580 575 570

HYDRAULIC DATA

TOTAL DRAINAGE AREA	23.20 SQ MI
UNREGULATED D.A.	12.11 SQ MI
Q25	4,770 CFS
V25	5.06 FPS
Q25 HW ELEV.	587.55
Q50	5,960 CFS
V50	5.83 FPS
Q50 HW ELEV.	588.51
Q100	7,240 CFS
V100	6.59 FPS
Q100 HW ELEV.	589.43
Q_{or} (62 YEAR)	6,400 CFS
V_{or}	6.10 FPS
HW ELEV. at	588.86

UTILITIES

TELEPHONE:
WINDSTREAM COMM.
2300 FIRST PLACE
BROKEN ARROW, OK 74012
(918) 451-3406
ROY.VARNER@WINDSTREAM.COM
ATTEN: ROY VARNER

Hub Engineers
Title & Plot: 6/17/2016 10:39 AM Plot Style: HPGSouth
G:\Civil\Projects\Roads\Muskogee\Cloud Creek\Design\Sheets\Sheet 3 Sheet.dwg

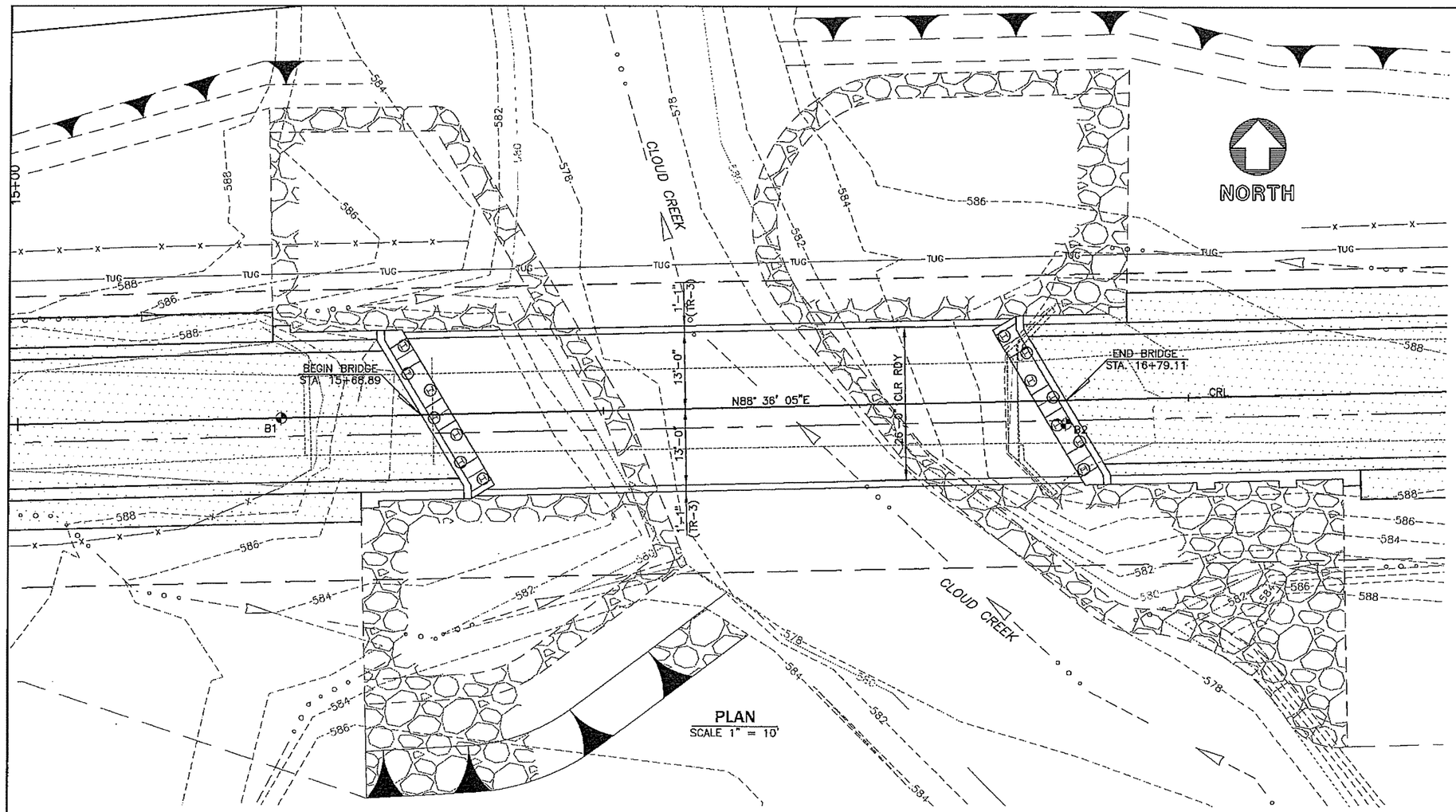
CLOUD CREEK - MUSKOGEE COUNTY STATE JOB NO. 31182(04) SHEET NO. 7

REVISION	
DESCRIPTION	DATE

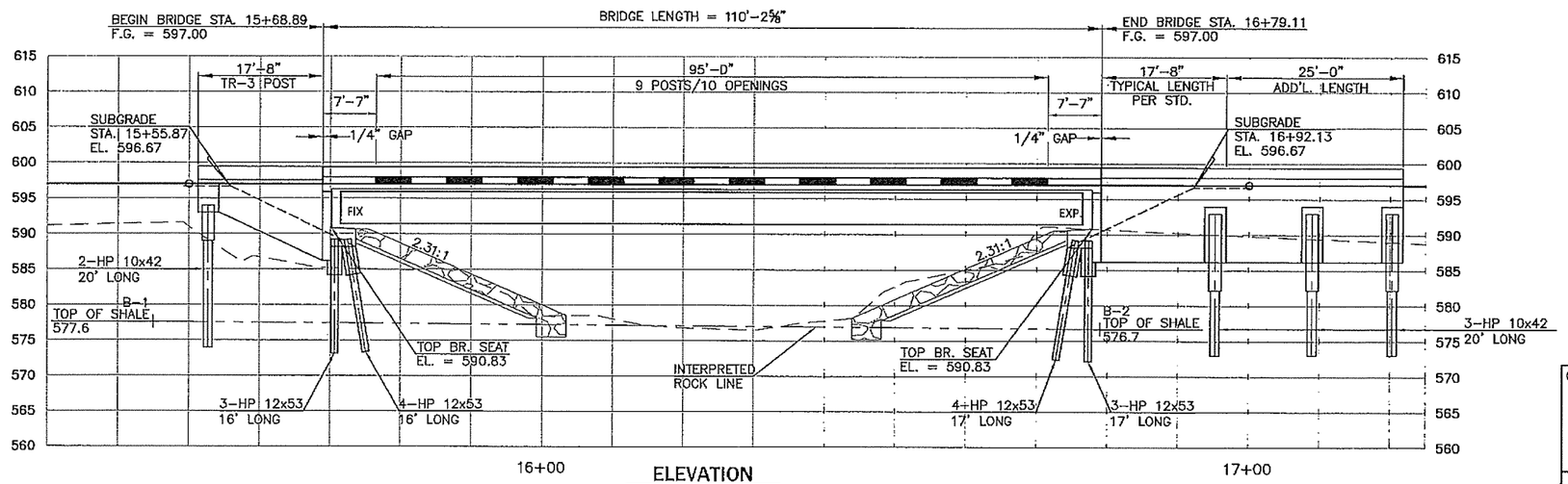
HYDRAULIC DATA

TOTAL DRAINAGE AREA 23.20 SQ MI
UNREGULATED D.A. 12.11 SQ MI

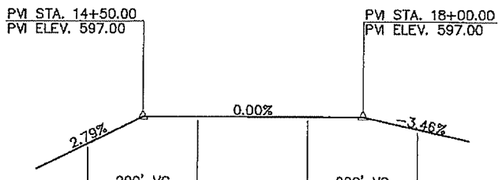
Q25	4,770 CFS
V25	5.06 FPS
Q25 HW ELEV.	587.55
Q50	5,960 CFS
V50	5.83 FPS
Q50 HW ELEV.	588.51
Q100	7,240 CFS
V100	6.59 FPS
Q100 HW ELEV.	589.43
Q_{or} (62 YEAR)	6,400 CFS
V_{or}	6.10 FPS
HW ELEV. or	588.86



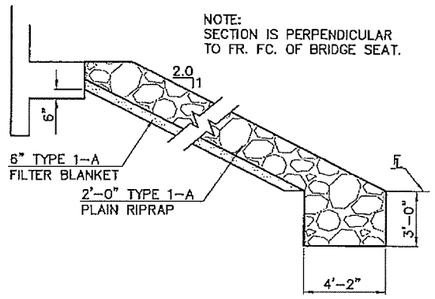
PLAN
SCALE 1" = 10'



ELEVATION
SCALE 1" = 10'



VERTICAL CURVE DATA



RIPRAP DETAIL

CLOUD CREEK — MUSKOGEE COUNTY

GENERAL PLAN & ELEVATION

105' TYPE IV P.C. BEAM SPANS
26'-0" CLEAR ROADWAY w/ TR-3 TRAFFIC RAILS
SKEW 30° RF, ℄ STA. 16+24.00

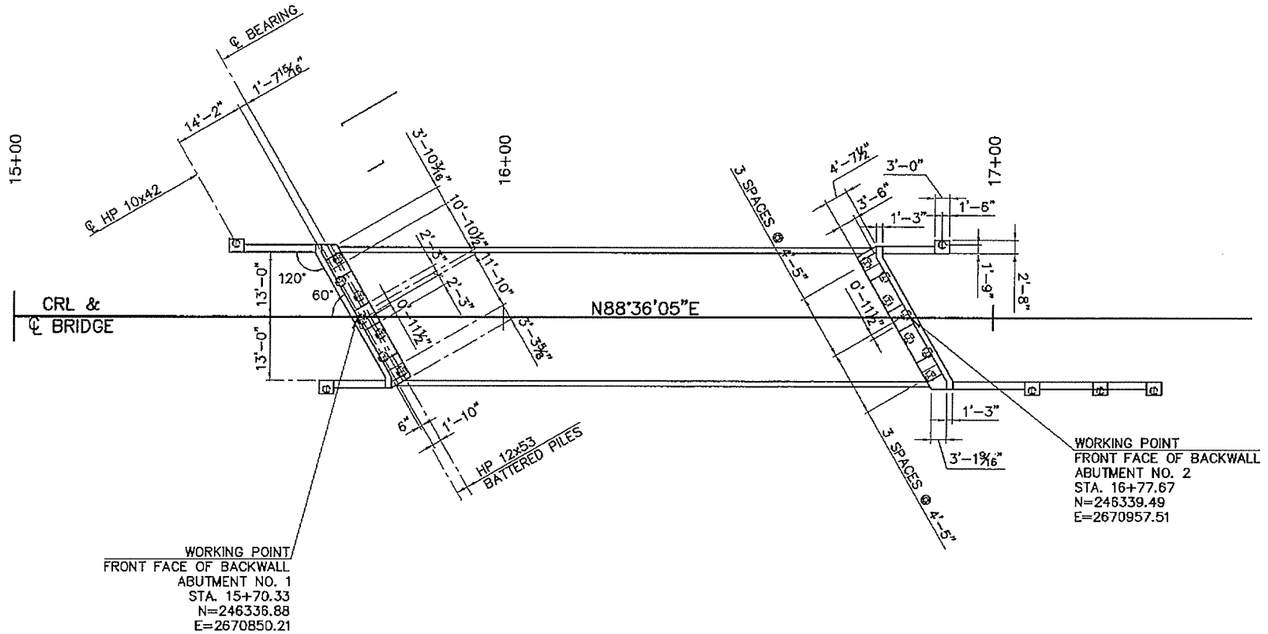
Design	TE	05/14
Detail	IS	05/14
Check	TE	05/14

HOLLOWAY UPDIKE & BELLEN, INC. ENGINEERS

STATE OF OKLAHOMA — DEPARTMENT OF TRANSPORTATION

State J/P No. 31162(04) — Sheet No. 8

REVISION		
DESCRIPTION		DATE



SUBSTRUCTURE LAYOUT

SUMMARY OF QUANTITIES

	ITEM	UNIT	ABUTS	STD. WINGS	SP. WING	WING EXT.	SUPERSTR	TOTAL
	SUBSTRUCTURE EXCAVATION, COMMON	C.Y.	140	60	38	54		292
	AGGREGATE BASE	C.Y.	102					102
	PRESTRESSED CONCRETE BEAM (TYPE IV)	L.F.					314	314
	CONCRETE RAIL (TR3)	L.F.		53.1	17.7	25	220.5	316.3
	STRUCTURAL STEEL	LBS.					690	690
	WEATHERING STEEL FIXED BEARING ASSEMBLY	EA.					3	3
	WEATHERING STEEL EXP. BEARING ASSEMBLY	EA.					3	3
	CLASS AA CONCRETE	C.Y.					86.1	86.1
	CLASS A CONCRETE	C.Y.	51.8	20.7	11.4	16.7		100.6
(4)	REINFORCING STEEL	LBS.	6,740	3,540	1,700	2,400	22,030	36,410
(1)	PILES, FURNISHED (HP 10X42)	L.F.	60		20	40		120
(2)	PILES, FURNISHED (HP 12X53)	L.F.	231					231
(1)	PILES, DRIVEN (HP 10X42)	L.F.	60		20	40		120
(2)	PILES, DRIVEN (HP 12X53)	L.F.	231					231
	PILE SPLICE, H-PILE (NON BIDDABLE)	EA.						1
	TYPE 1-A PLAIN RIPRAP	TON	1334					1334
	TYPE 1-A FILTER BLANKET	TON	235					235
	6" PERFORATED PIPE UNDERDRAIN, ROUND	L.F.	60		17.7	15		92.7
(3)	6" NON-PERF. PIPE UNDERDRAIN, ROUND	L.F.	40			25		65
	REMOVAL OF EXISTING BRIDGE STRUCTURE	L.SUM						1

BRIDGE DESIGN DATA:

CONCRETE CLASS AA	f'c = 4 K.S.I.
CONCRETE CLASS A	f'c = 3 K.S.I.
REINFORCING STEEL, AASHTO M 31 (GRADE 60)	fy = 60 K.S.I.
STRUCTURAL STEEL, AASHTO M 270 (GRADE 50W)	fy = 50 K.S.I.

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

DESIGN:
AASHTO LRFD BRIDGE DESING SPECIFICATIONS, 5th EDITION, WITH 2010 INTERIMS, EXCEPT MODIFIED BY CURRENT O.D.O.T. BRIDGE DIVISION DESIGN POLICIES.
ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE

LFD OPERATING RATING:
HS 55.0

FOUNDATION DATA

ABUTMENT (HP 12x53 PILING)

FACTORED PILE REACTION = 75.2 TON / PILE

FACTORED PILE RESISTANCE:
DRIVE PILING THROUGH THE COMPACTED FILL AND TO A POINT BEARING ON SOLID FOUNDATION MATERIAL AT THE APPROXIMATE ELEVATION SHOWN ON THE PLANS. IF A FACTORED AXIAL LOAD RESISTANCE EQUAL TO OR GREATER THAN THE FACTORED PILE REACTION IS NOT OBTAINED AT THIS ELEVATION, CONTINUE DRIVING UNTIL SUCH IS OBTAINED. THE LENGTH OF STEEL PILING SHOWN ON THE PLANS IS FOR ESTIMATING PURPOSES ONLY.

(1) TOTAL INCLUDES 40 L.F. FOR ABUTMENT NO. 1 AND 20 L.F. FOR LEFT WING ON ABUTMENT NO. 2 AND 60 L.F. FOR RIGHT WING & WING EXTENSION.

(2) TOTAL INCLUDES 112 L.F. FOR ABUTMENT NO. 1 AND 119 L.F. FOR ABUTMENT NO. 2.

(3) TOTAL INCLUDES 20 L.F. FOR ABUTMENT NO. 1 AND 40 L.F. FOR ABUTMENT NO. 2.

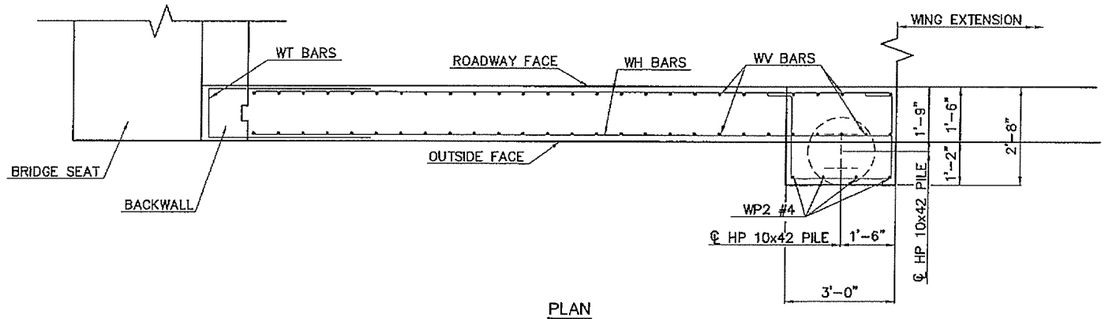
(4) TOTAL INCLUDES 1582 LBS OF SR-1 BARS IN SUPERSTRUCTURE TRAFFIC RAIL INCLUDED IN COST OF WING RAILS.

HUB Engineering, Inc. 6/13/2016 10:40 AM Plot Style: =HUB-HALF.CTB
User: kfish C:\2014\14CEDCLOUD\DESIGN\Production Plans\SUBSTR_LAYOUT.dwg

CLOUD CREEK	MUSKOGEE COUNTY	Design	TE	08/14
SUBSTRUCTURE LAYOUT & SUMMARY OF QUANTITIES		Detail	IS	08/14
		Check	TE	08/14
		HOLLOWAY UPDIKE & DELLEN, INC.		
STATE OF OKLAHOMA	DEPARTMENT OF TRANSPORTATION			
	State J/P No. 31162(04)		Sheet No. 9	

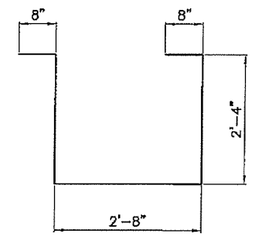
DESCRIPTION	REVISION	DATE

SUMMARY OF RIPRAP		
	FILTER	RIPRAP
ABUTMENT 1	103	601
ABUTMENT 2	132	733
TOTAL	235	1334



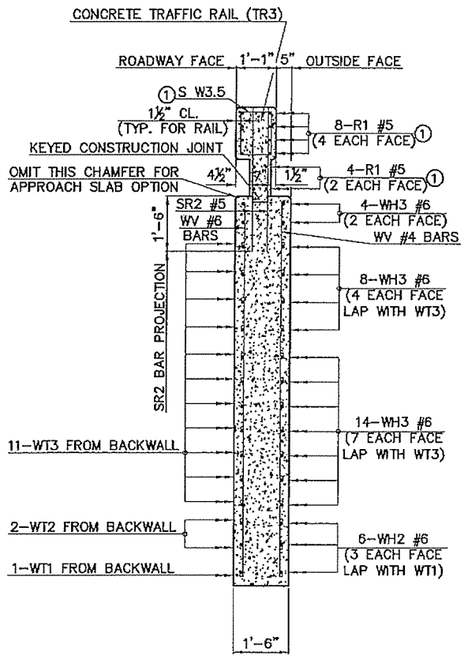
PLAN

CONCRETE TRAFFIC RAIL (TR3) NOT SHOWN
BRIDGE SEAT SHOWN WITHOUT SKEW

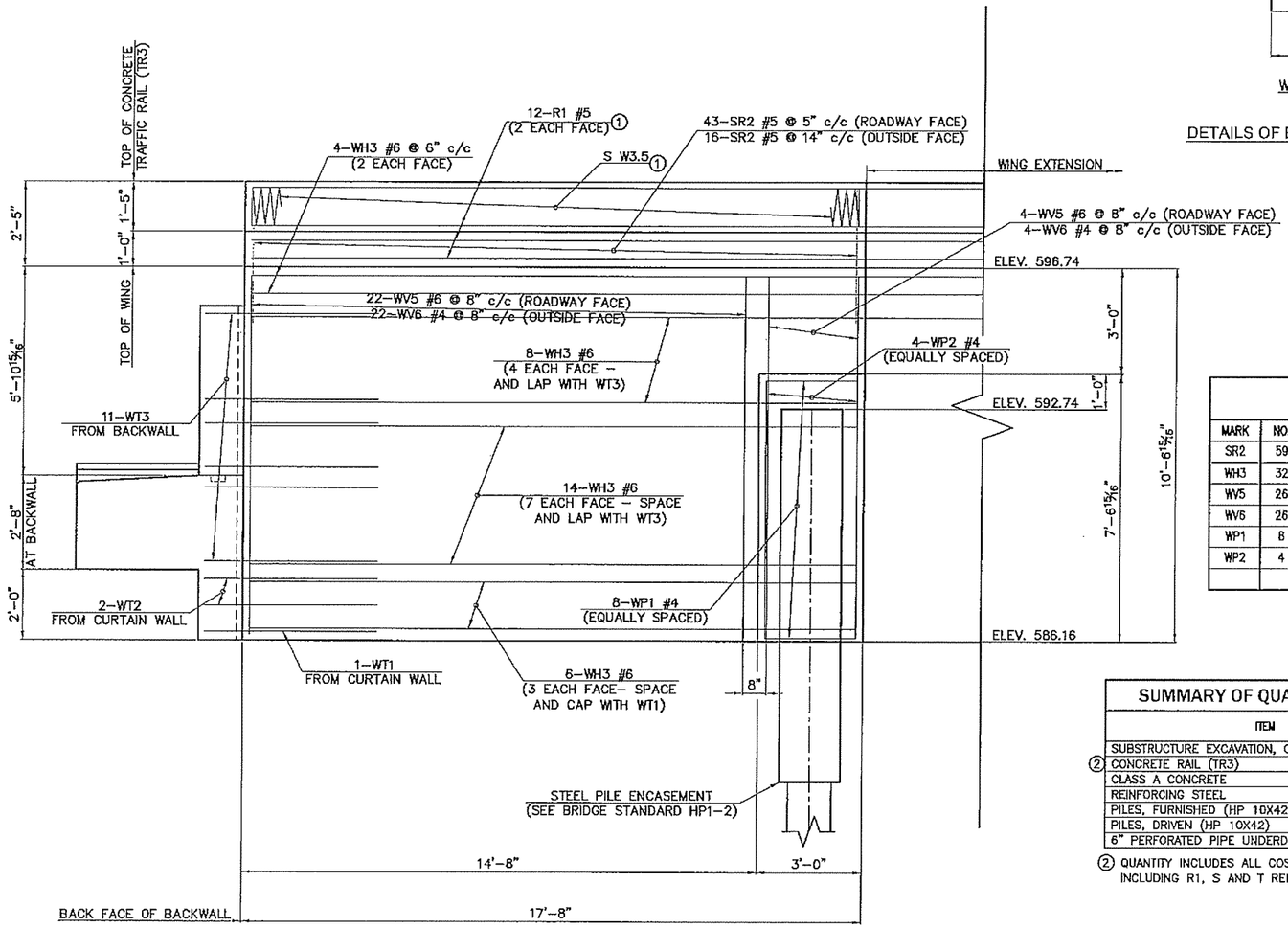


WP1 #4 X 8'-8"

DETAILS OF BENT REINFORCING STEEL



SECTION THRU WING AT BACK FACE OF BACKWALL



ELEVATION
SPECIAL WING

(1) SEE BRIDGE STANDARD TR3-2 FOR DETAILS NOT SHOWN.

BAR LIST - SPECIAL WING					
MARK	NO.	SIZE	FORM	LENGTH	LENGTH VARIATION
SR2	59	#5	STR.	3'-9"	--
WH3	32	#6	STR.	17'-4"	--
WV5	26	#6	STR.	10'-1"	--
WV6	26	#4	STR.	10'-1"	--
WP1	8	#8	BNT.	8'-8"	--
WP2	4	#4	STR.	7'-2"	--

SUMMARY OF QUANTITIES - SPECIAL WING		
ITEM	UNIT	TOTAL
SUBSTRUCTURE EXCAVATION, COMMON	C.Y.	38.00
(2) CONCRETE RAIL (TR3)	L.F.	17.70
CLASS A CONCRETE	C.Y.	11.40
REINFORCING STEEL	LBS.	1,700.00
PILES, FURNISHED (HP 10X42)	L.F.	20.00
PILES, DRIVEN (HP 10X42)	L.F.	20.00
6" PERFORATED PIPE UNDERDRAIN, ROUND	L.F.	17.70

(2) QUANTITY INCLUDES ALL COST OF CONCRETE TRAFFIC RAIL (TR3) INCLUDING R1, S AND T REINFORCING STEEL BARS AND CONCRETE.

HUB Engineers
Time of Plot: 8/13/2015 10:41 AM Plot Style: --HUB--HALF.CTB
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CLOUD CREEK — MUSKOGEE COUNTY

WING DETAILS

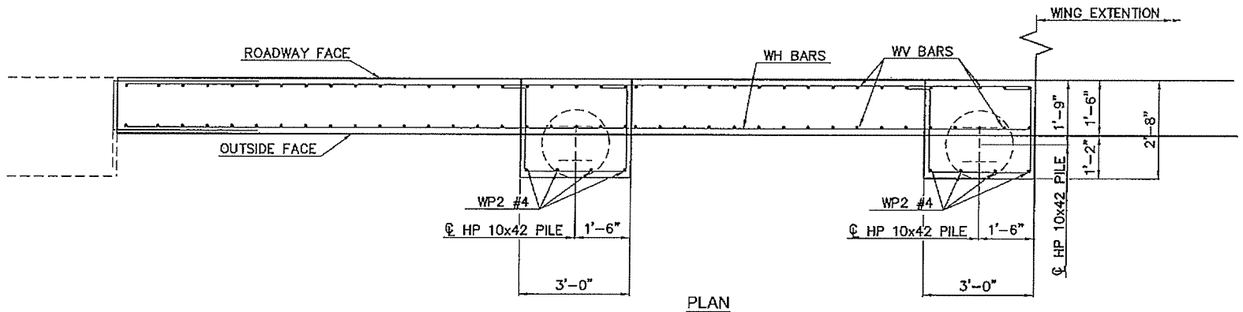
Design	TE	08/14
Detail	IS	08/14
Check	TE	08/14

HOLLOWAY UPDIKE & BELLEN, INC.

STATE OF OKLAHOMA — DEPARTMENT OF TRANSPORTATION

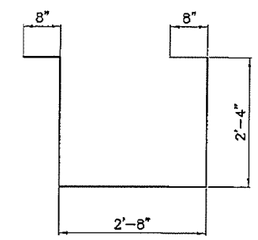
State J/P No. 31162(04) — Sheet No. 10

DESCRIPTION	REVISION	DATE



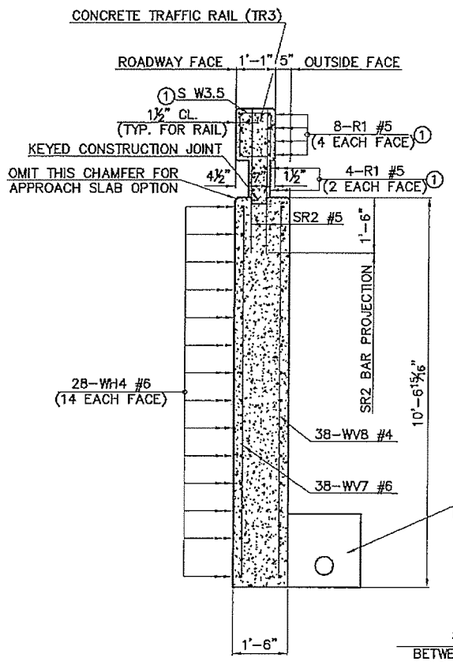
PLAN

CONCRETE TRAFFIC RAIL (TR3) NOT SHOWN
BRIDGE SEAT SHOWN WITHOUT SKEW

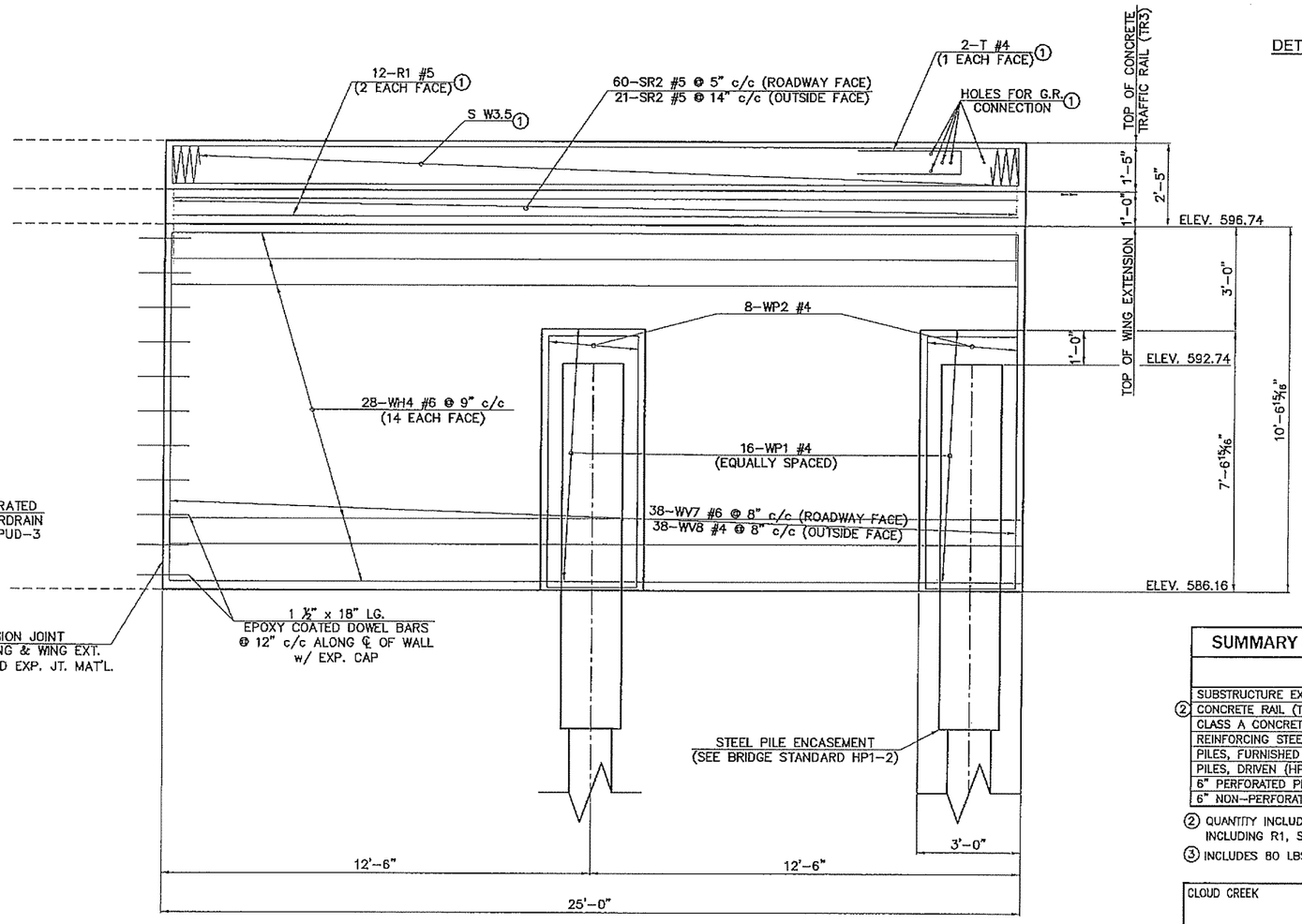


WP1 #4 X 8'-8"

DETAILS OF BENT REINFORCING STEEL



SECTION THRU WALL EXTENSION



ELEVATION
WING EXTENSION

① SEE BRIDGE STANDARD TR3-2 FOR DETAILS NOT SHOWN.

BAR LIST - WING EXTENSION

MARK	NO.	SIZE	FORM	LENGTH	LENGTH VARIATION
SR2	81	#5	STR.	3'-9"	–
WH14	28	#6	STR.	24'-8"	–
WV7	38	#6	STR.	10'-1"	–
WV8	38	#4	STR.	10'-1"	–
WP1	16	#4	BNT.	8'-8"	–
WP2	8	#4	STR.	7'-2"	–

SUMMARY OF QUANTITIES - WING EXTENSION

ITEM	UNIT	TOTAL	
SUBSTRUCTURE EXCAVATION, COMMON	C.Y.	54.00	
CONCRETE RAIL (TR3)	L.F.	25.00	②
CLASS A CONCRETE	C.Y.	16.70	
REINFORCING STEEL	LBS.	2400.00	③
PILES, FURNISHED (HP 10X42)	L.F.	40.00	
PILES, DRIVEN (HP 10X42)	L.F.	40.00	
6" PERFORATED PIPE UNDERDRAIN, ROUND	L.F.	15.00	
6" NON-PERFORATED PIPE UNDERDRAIN, ROUND	L.F.	25.00	

② QUANTITY INCLUDES ALL COST OF CONCRETE TRAFFIC RAIL (TR3) INCLUDING R1, S AND T REINFORCING STEEL BARS AND CONCRETE.

③ INCLUDES 80 LBS FOR 11- 1½" x 18" EPOXY COATED DOWEL BARS.

CLOUD CREEK — MUSKOGEE COUNTY

WING DETAILS

Design	TE	05/14
Detail	IS	05/14
Check	TE	05/14

HOLLOWAY UPDIKE & DELLEN, INC. ENGINEERS

STATE OF OKLAHOMA — DEPARTMENT OF TRANSPORTATION — State J/P No. 31162(04) — Sheet No. 11

GFAC ENGINEERING INC.
8157 E. 46th Street
Tulsa, Oklahoma 74145
Telephone: 918-622-7021

BORING NUMBER B-1

PAGE 1 OF 1

CLIENT HOLLOWAY, UPDIKE & BELLEN, Inc.
PROJECT NUMBER G2015029
DATE STARTED 5/5/15 COMPLETED 5/5/15
DRILLING CONTRACTOR GFAC Engineering
DRILLING METHOD Hollow Stem Auger 6"
LOGGED BY DLK CHECKED BY BKM
NOTES STA 15+45, on Centerline

PROJECT NAME Proposed Single Span Bridge Over Cloud Creek
PROJECT LOCATION State Job No. 31162(04), Muskogee County, OK
GROUND ELEVATION 591.6 ft HOLE SIZE 6 Inches
GROUND WATER LEVELS:
AT TIME OF DRILLING 13.00 ft / Elev 578.60 ft
AT END OF DRILLING 12.40 ft / Elev 579.20 ft
AFTER DRILLING —

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	Texas Cone Penetrometer	BLOW COUNTS (N VALUE)	Uncon. Strength (psf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		LIMESTONE AGGREGATE BASE, gray, 6 Inches											
		FILL - Gravel, Silty Sand, Sandstone Cobbles, and Brick Fragments, brown, red, and tan	AU										
		POSSIBLE FILL - Silty Sand, fine, loose, brown											
5		SILTY CLAY with sand, moist, very soft, brown	SS 1	67		2-1-1 (2)			18	23	19	4	78
			AU										
		LEAN CLAY, moist, soft to medium stiff, brown, dark brown, and tan	SS 2	100		2-2-2 (4)			25	35	19	16	91
10			AU										
		WEATHERED SHALE, very soft, brown, tan, and amber	SS 3			50 (1.00) 50 (0.38)	5-33-50/ 2.5"		10	30	20	10	81
15		SHALE, moderately hard to hard, brown, tan, gray, and olive - gray below 15 feet	TH 4										
						50 (0.31) 50 (0.13)							
20			TH 5										
						50 (0.50) 50 (0.25)							
25			TH 6										
						50 (0.38) 50 (0.06)							
30			TH 7										
						50 (0.25) 50 (0.13)							
35		Bottom of borehole at 35.1 feet.	TH 8										

GFAC ENGINEERING INC.
8157 E. 46th Street
Tulsa, Oklahoma 74145
Telephone: 918-622-7021

BORING NUMBER B-2

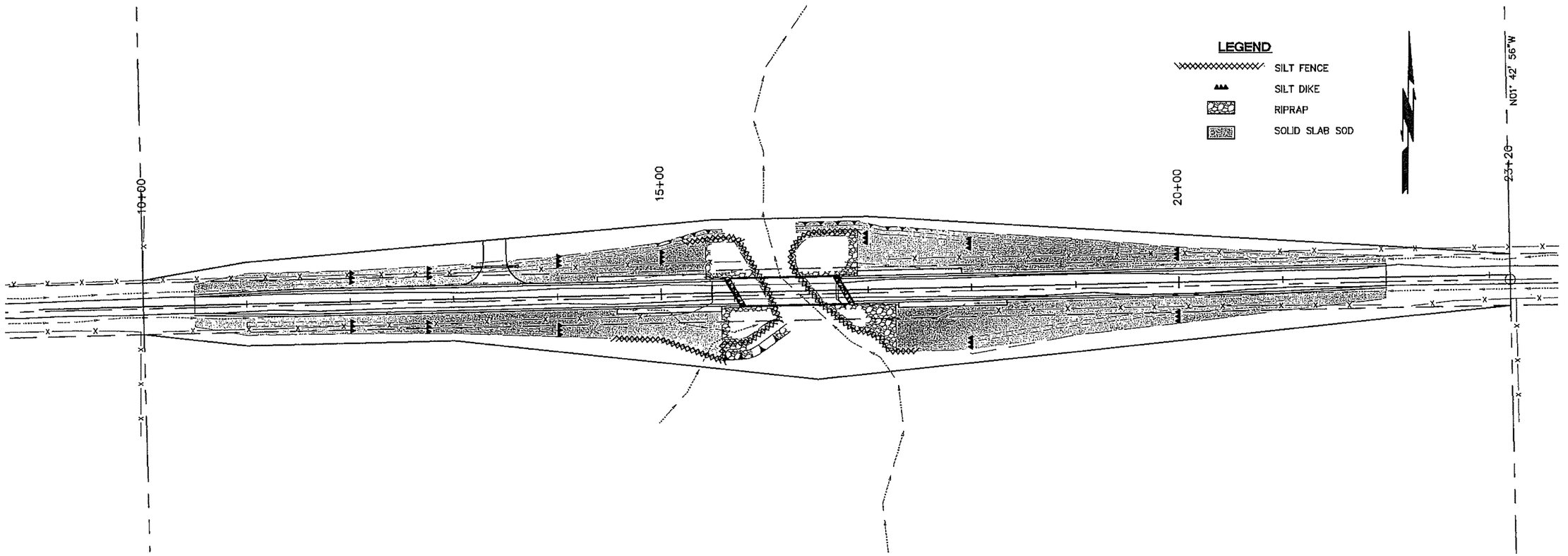
PAGE 1 OF 1

CLIENT HOLLOWAY, UPDIKE & BELLEN, Inc.
PROJECT NUMBER G2015029
DATE STARTED 5/5/15 COMPLETED 5/5/15
DRILLING CONTRACTOR GFAC Engineering
DRILLING METHOD Hollow Stem Auger 6"
LOGGED BY DLK CHECKED BY BKM
NOTES STA 18+79, 4 feet Rt of Centerline

PROJECT NAME Proposed Single Span Bridge Over Cloud Creek
PROJECT LOCATION State Job No. 31162(04), Muskogee County, OK
GROUND ELEVATION 590.7 ft HOLE SIZE 6 Inches
GROUND WATER LEVELS:
AT TIME OF DRILLING --- Dry before wash boring.
AT END OF DRILLING 11.00 ft / Elev 579.70 ft
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	Texas Cone Penetrometer	BLOW COUNTS (N VALUE)	Uncon. Strength (psf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		GRAVEL AND SILTY SAND, brown and tan, 13 Inches											
		FILL - Gravel and Cobbles, brown	AU										
		FILL - Sandy Lean Clay, moist, brown and tan											
5		- containing few lava rocks at 3.5 feet	SS 1	33		3-3-3 (6)			19				67
		LEAN CLAY with Sand, moist, soft to medium stiff, brown	AU										
10		- dark brown below 9.2 feet	SS 2	89		2-2-2 (4)			24	29	18	11	61
			AU										
		SHALEY LEAN CLAY with ferrous deposits, moist, stiff to very stiff, brown, gray, red, and amber	SS 3	100		50 (0.50) 50 (0.06)	4-20-25 (45)		15	32	21	11	58
		WEATHERED SHALE, very soft, brown and gray with ferrous staining	SS 4	100			50/ 5"		8				
15		SHALE, moderately hard to hard, brown, tan, and gray - gray below 16 feet	TH 5										
						50 (0.38) 50 (0.00)							
20			TH 6										
						50 (0.38) 50 (0.12)							
25			TH 7										
						50 (0.38) 50 (0.06)							
30			TH 8										
						50 (0.50) 50 (0.13)							
35		Bottom of borehole at 35.6 feet.	TH 9										

CLOUD CREEK	MUSKOGEE COUNTY	Design	TE 05/14
FOUNDATION REPORT		Detail	IS 05/14
		Check	TE 05/14
		HOLLOWAY UPDIKE & BELLEN, INC.	
STATE OF OKLAHOMA	DEPARTMENT OF TRANSPORTATION		
	State J/P No. 31162(04)		Sheet No. 12



CLOUD CREEK — MUSKOGEE COUNTY

SEDIMENT CONTROL PLAN

Design	TE	05/14
Detail	IS	05/14
Check	TE	05/14

HOLLOWAY UPDIKE & BELLEN, INC. ENGINEERS

STATE OF OKLAHOMA — DEPARTMENT OF TRANSPORTATION

State J/P No. 31162(04) — Sheet No. 13

HUB Engineers
Time of Plot: 6/13/2016 11:09 AM Plot Style: -HUB-HALF.CTB
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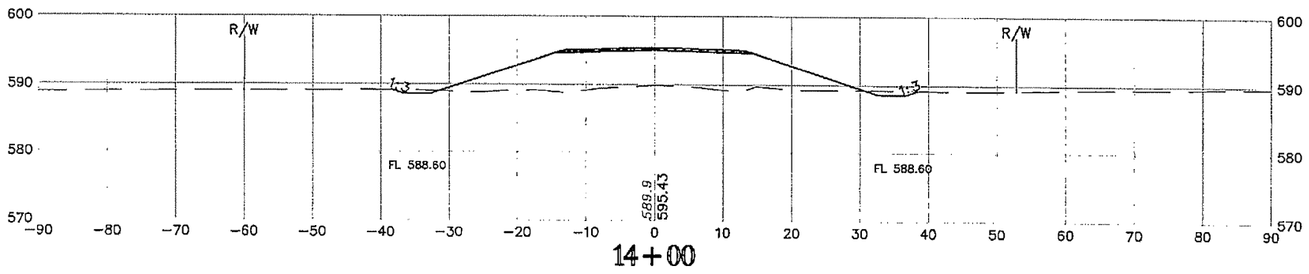
NOTE:
LOCATION OF UTILITIES ARE APPROXIMATE. DEPTH OF UTILITIES IS UNKNOWN.



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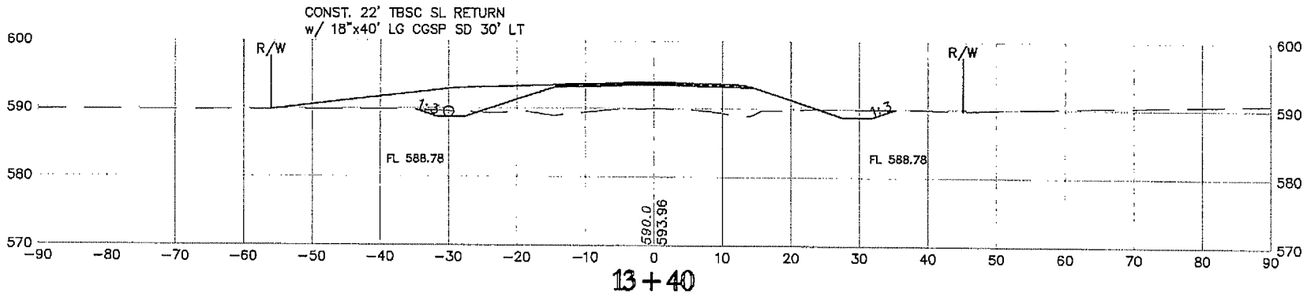

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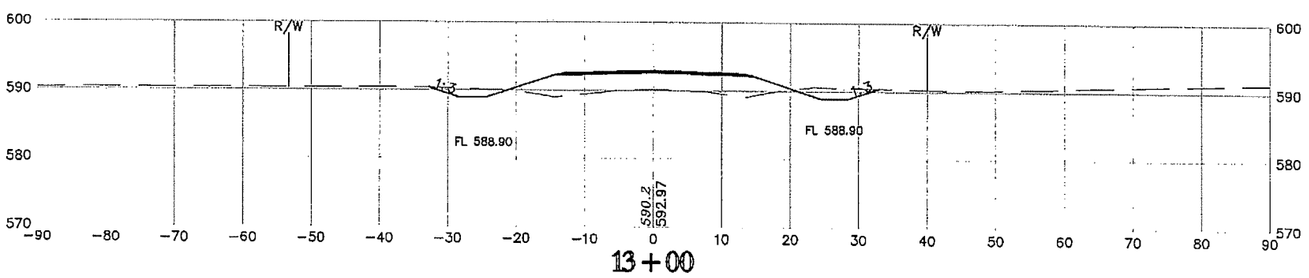

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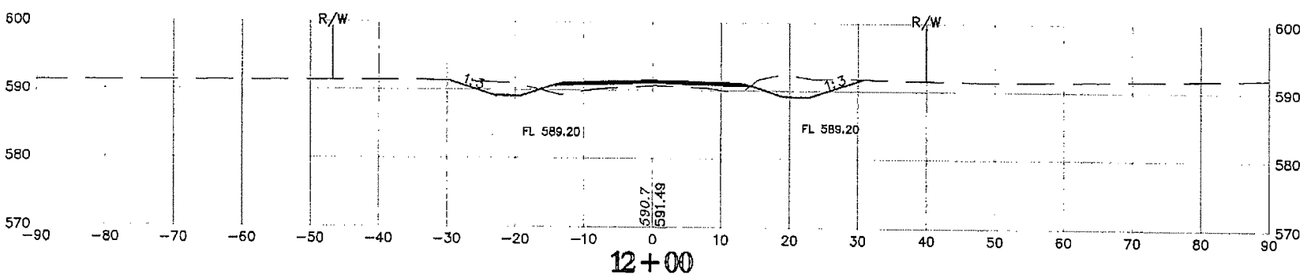

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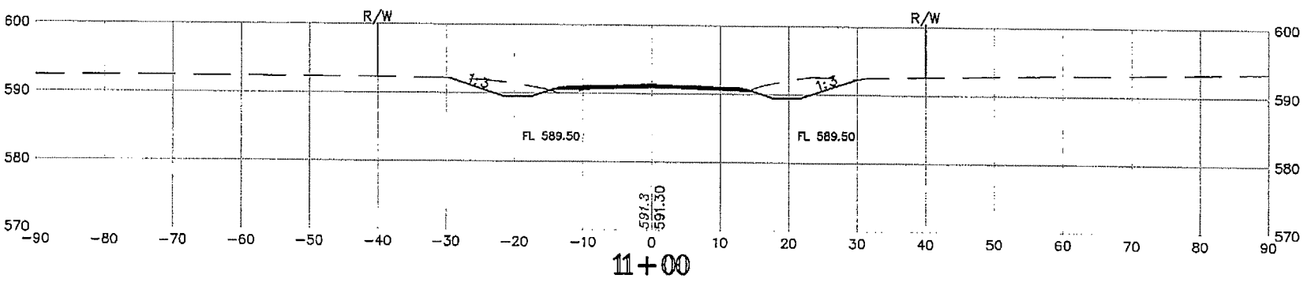

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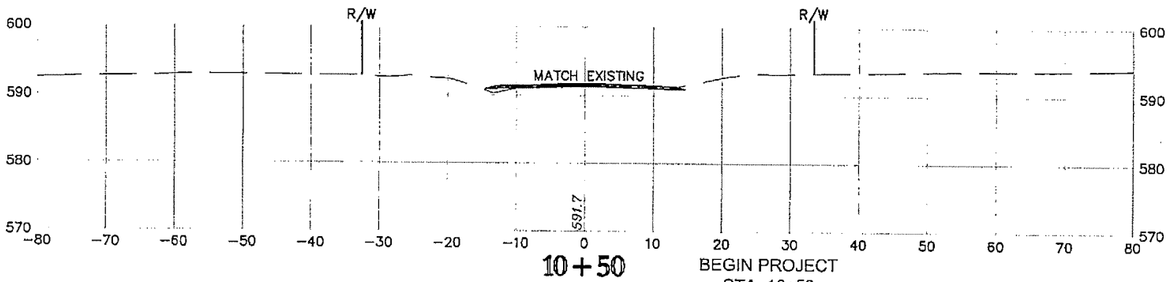

10+50

BEGIN PROJECT
STA. 10+50

CLOUD CREEK
MUSKOGEE COUNTY

CROSS SECTIONS

STATE OF OKLAHOMA
DEPARTMENT OF TRANSPORTATION
State J/P No. 31182(04)
Sheet No. X1

Design	TE	10/16
Detail	DC	10/14
Check	TE	10/14

HUB ENGINEERS, INC.

NO.	DESCRIPTION	DATE
	REVISION	

HUB Engineers
Time of Plot: 6/13/2016 11:09 AM Plot Style: -HUB-HALF.CTB
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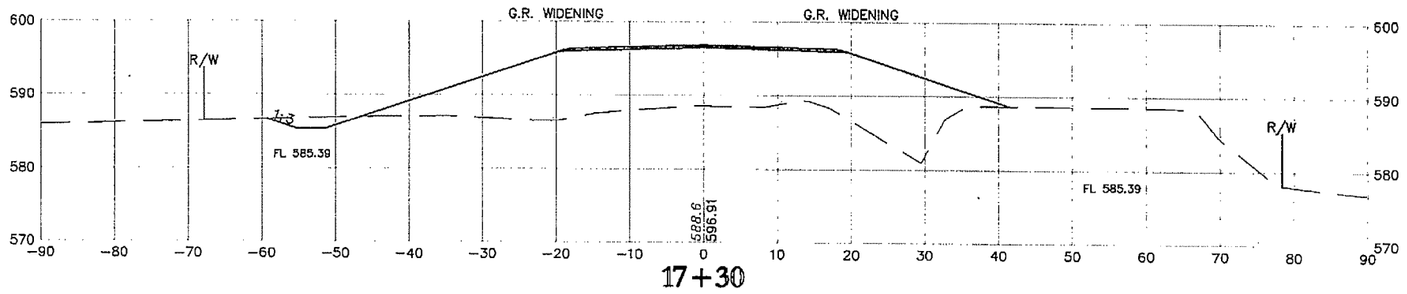
NOTE:
LOCATION OF UTILITIES ARE APPROXIMATE. DEPTH OF UTILITIES IS UNKNOWN.



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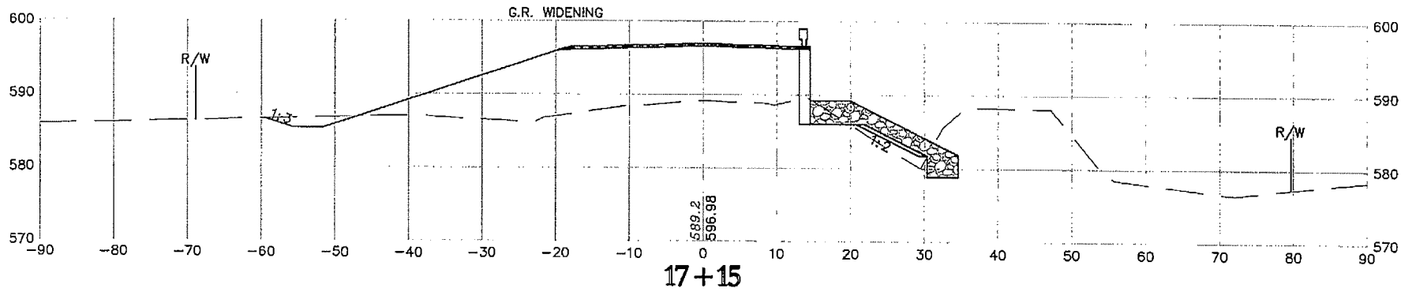

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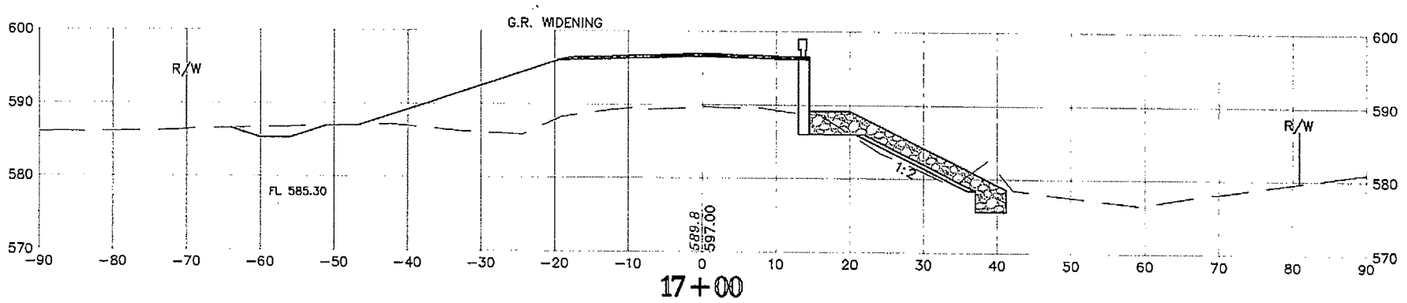

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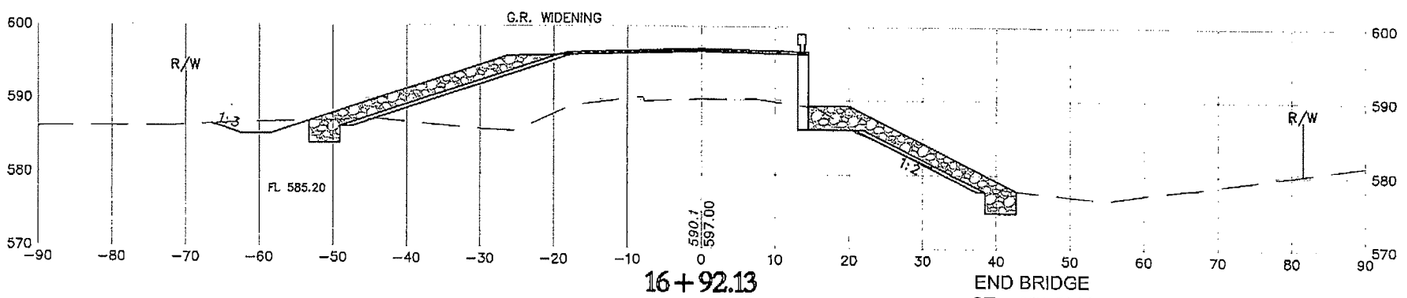
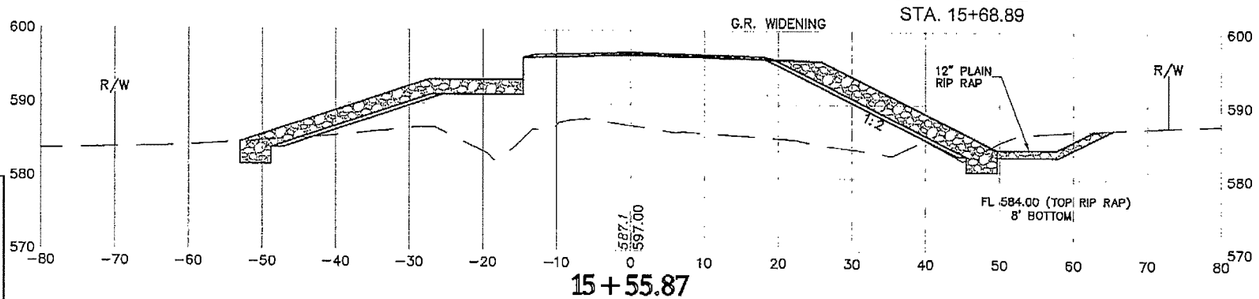


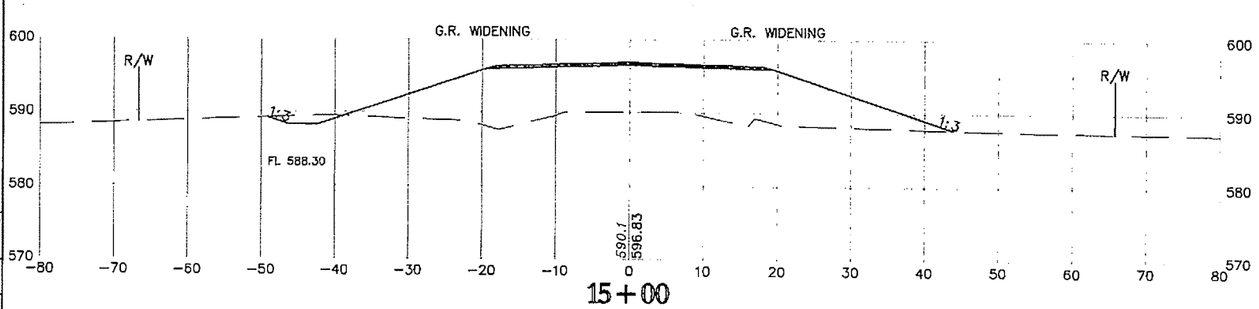
16+92.13

END BRIDGE
STA. 16+79.11

BEGIN BRIDGE
STA. 15+68.89



15+55.87



15+00

CROSS SECTIONS

STATE OF OKLAHOMA
DEPARTMENT OF TRANSPORTATION
State J/P No. 31182(04)
Sheet No. X2

CLOUD CREEK
MUSKOGEE COUNTY

Design	TE	10/14
Detail	DC	10/14
Check	TE	10/14

HOLLOWAY BEHLEN, INC.

DESCRIPTION	REVISION	DATE

HUB Engineers
Time of Plot: 6/13/2016 11:09 AM Plot Style: -HUB-HALF.CTB
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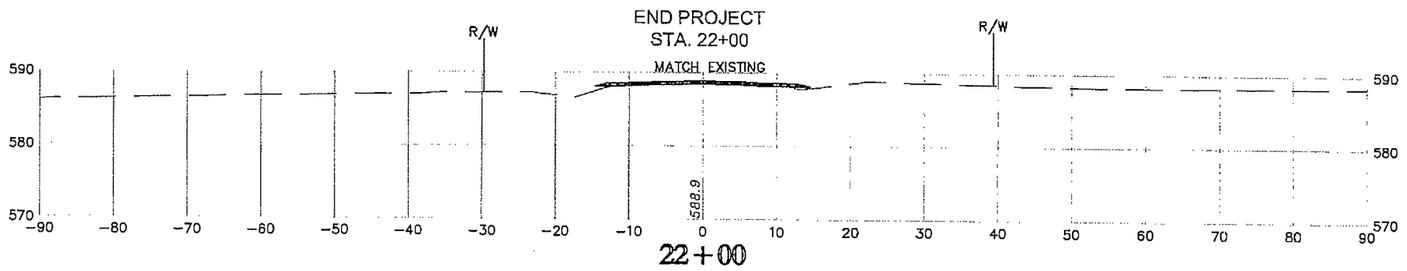
NOTE:
LOCATION OF UTILITIES ARE APPROXIMATE. DEPTH OF UTILITIES IS UNKNOWN.

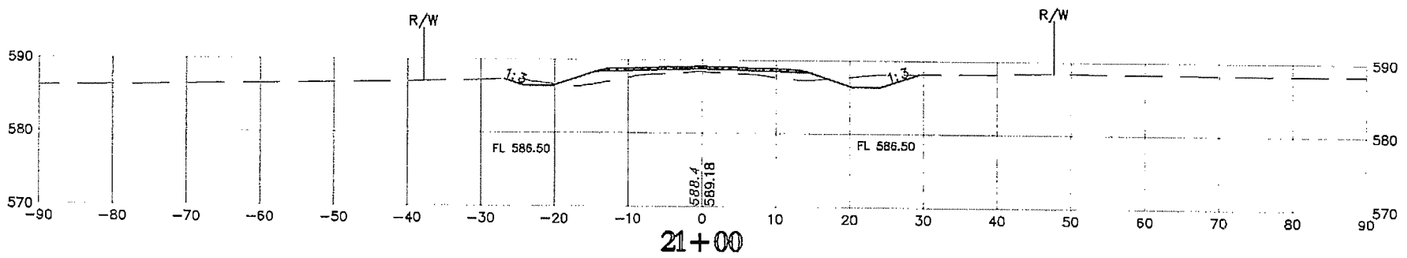
CLOUD CREEK EARTHWORK TOTAL VOLUME

STATION	FILL AREA	CUT AREA	FILL VOLUME	CUT VOLUME	CUMULATIVE FILL VOL	CUMULATIVE CUT VOL
10+50.00	0.00 SF	0.00 SF	0.00 CY	0.00 CY	0.00 CY	0.00 CY
11+00.00	2.38 SF	49.41 SF	2.21 CY	45.75 CY	2.21 CY	45.75 CY
12+00.00	21.43 SF	47.29 SF	44.09 CY	179.08 CY	46.30 CY	224.83 CY
13+00.00	96.64 SF	23.53 SF	218.65 CY	131.15 CY	264.95 CY	355.98 CY
13+40.00	148.21 SF	14.42 SF	181.37 CY	28.11 CY	446.32 CY	384.09 CY
14+00.00	249.43 SF	6.21 SF	441.82 CY	22.92 CY	888.14 CY	407.02 CY
15+00.00	427.03 SF	8.08 SF	1252.70 CY	26.47 CY	2140.84 CY	433.49 CY
15+55.87	751.15 SF	28.77 SF	1218.97 CY	38.13 CY	3359.81 CY	471.61 CY
15+81.50	0.00 SF	0.00 SF	356.52 CY	13.65 CY	3716.32 CY	485.27 CY
16+79.00	0.00 SF	0.00 SF	0.00 CY	0.00 CY	3716.32 CY	485.27 CY
16+92.13	716.10 SF	13.87 SF	174.12 CY	3.37 CY	3890.44 CY	488.64 CY
17+00.00	662.35 SF	13.87 SF	200.90 CY	4.04 CY	4091.34 CY	492.68 CY
17+15.00	560.81 SF	24.30 SF	339.77 CY	10.60 CY	4431.11 CY	503.29 CY
17+30.00	583.63 SF	23.17 SF	317.90 CY	13.19 CY	4749.01 CY	516.47 CY
18+00.00	467.86 SF	70.37 SF	1363.03 CY	121.25 CY	6112.04 CY	637.72 CY
19+00.00	241.44 SF	48.44 SF	1313.51 CY	220.02 CY	7425.55 CY	857.74 CY
20+00.00	92.49 SF	43.67 SF	618.39 CY	170.58 CY	8043.94 CY	1028.32 CY
21+00.00	26.91 SF	15.98 SF	221.11 CY	110.46 CY	8265.06 CY	1138.78 CY
22+00.00	0.00 SF	0.00 SF	49.83 CY	29.59 CY	8314.89 CY	1168.37 CY

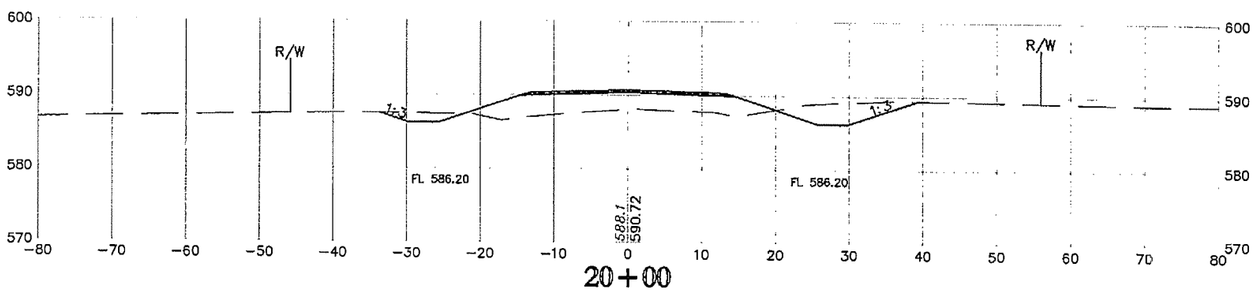
CUMULATIVE VOLUMES DO NOT INCLUDE SHRINK OR SWELL



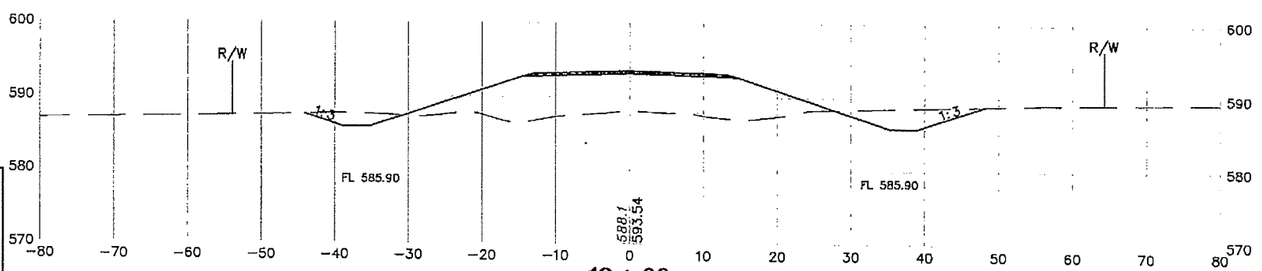
22+00



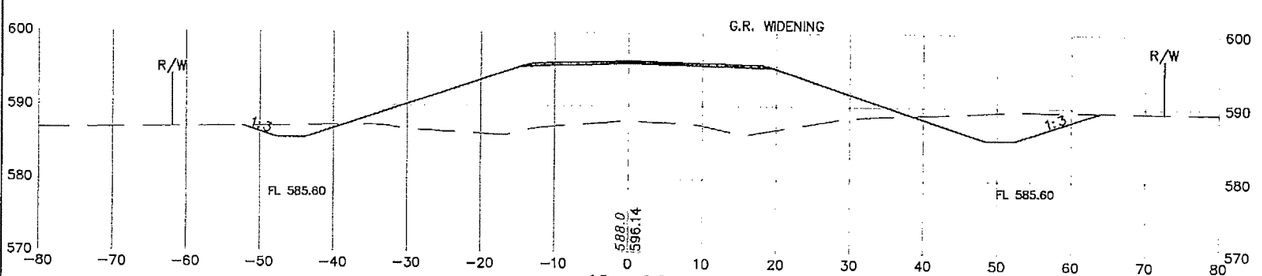
21+00



20+00



19+00



18+00

STATE OF OKLAHOMA
DEPARTMENT OF TRANSPORTATION
State J/P No. 31162(04)
Sheet No. X3

CROSS SECTIONS
CLOUD CREEK
MUSKOGEE COUNTY

	Design	Detail	Check
	TE	DC	TE
	10/14	10/14	10/14

HOLLOWAY ENGINEERING & SURVEYING, INC.

DESCRIPTION	DATE
REVISION	