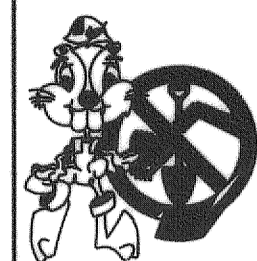


**SURVEY CONTROL DATA**

VERTICAL CONTROL: ADS CAP "BA41" ELEV = 792.44 (NGVD 1929)  
 TOPOGRAPHIC INFORMATION SHOWN HEREIN WAS PROVIDED BY THE CITY OF BROKEN ARROW.

**BEFORE YOU DIG! CALL OKIE 1-800-522-6543**



UTILITIES LOCATION SHOWN ON PLAN AND PROFILE WERE OBTAINED FROM INFORMATION PROVIDED BY UTILITY SYSTEM OWNER IN CONJUNCTION WITH EXISTING PHYSICAL FEATURES VISIBLE AT THE TIME OF THE TOPOGRAPHIC SURVEY. LOCATIONS MUST BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

**UTILITY CONTACTS**

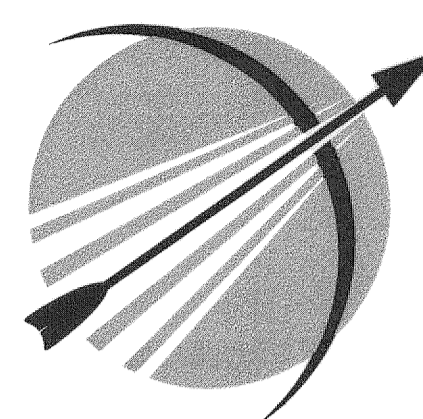
City of Broken Arrow, Oklahoma City Engineer, Tom Hendrix P.E. 485 N. Poplar, Ave Broken Arrow, Oklahoma 74012 (918) 259-7000 ext. 5414 (918) 259-8453 (Fax)	City of Broken Arrow, Oklahoma Water & Sewer, Paul Rhodes 485 N. Poplar, Ave Broken Arrow, Oklahoma 74012 (918) 259-7000 x7373 (918) 251-3383 (Fax)
City of Broken Arrow, Oklahoma Street/Stormwater, Steve Arant P.E. 485 N. Poplar, Ave Broken Arrow, Oklahoma 74012 (918) 259-7000 x7373 (918) 251-3383 (Fax)	Oklahoma Natural Gas (New Const.) Attn.: Doyle Goins 5854 East 15th Street Tulsa, Oklahoma 74112 (918) 831-8292 (918) 831-8249 (Fax)
Cox Communications Attn.: Craig Irons 4340 S. Mingo Rd. Tulsa, OK 74145 (918) 459-3635 (918) 669-4869 (Fax)	Oklahoma Natural Gas (Existing Const.) Attn.: Mike Pelfrey P.O. Box 871 Tulsa, Oklahoma 74102 (918) 451-3814 (918) 451-0899 (Fax)
Windstream Communication Attn.: George White 2300 South 1st Place Broken Arrow, Oklahoma 74012 (918) 451-3431 (918) 451-1865 (Fax)	AEP / PSO Attn.: Jim Wilson 5223 S Garnett Tulsa, OK 74149 (918) 599-2912 (918) 247-8466 (Fax)

**CONVENTIONAL SYMBOLS**

---	SECTION LINES
—	PROPOSED ROAD
---	RIGHT-OF-WAY LINES - NEW
---	RIGHT-OF-WAY LINES - EXISTING
x	FENCES
—	OVERHEAD ELECTRIC LINES
—	OVERHEAD TELEPHONE LINES
—	SANITARY SEWERS
—	GAS LINES
—	WATER LINES
—	UNDERGROUND TELEPHONE LINES
—	UNDERGROUND ELECTRIC
—	UNDERGROUND CABLE TELEVISION LINES
—	STORM SEWER

CITY OF BROKEN ARROW STANDARD CONSTRUCTION SPECIFICATIONS, AUGUST 19, 1999, AND CURRENT OKLAHOMA STANDARD SPECIFICATION FOR HIGHWAY CONSTRUCTION, APPROVED BY THE DEPARTMENT OF TRANSPORTATION, SEPTEMBER 21, 1999 SHALL GOVERN ALL CONSTRUCTION

THESE PLANS AND DRAWINGS ARE NOT TO BE CHANGED IN ANY FORM OR MANNER WHATSOEVER WITHOUT FIRST OBTAINING THE EXPRESS WRITTEN PERMISSION AND CONSENT OF HRAOK, INC., ANY CHANGES MADE FROM THESE PLANS WITHOUT CONSENT OF HRAOK, INC. ARE UNAUTHORIZED, AND SHALL RELIEVE HRAOK, INC. OF RESPONSIBILITY FOR ALL CONSEQUENCES ARISING OUT OF SUCH CHANGES.

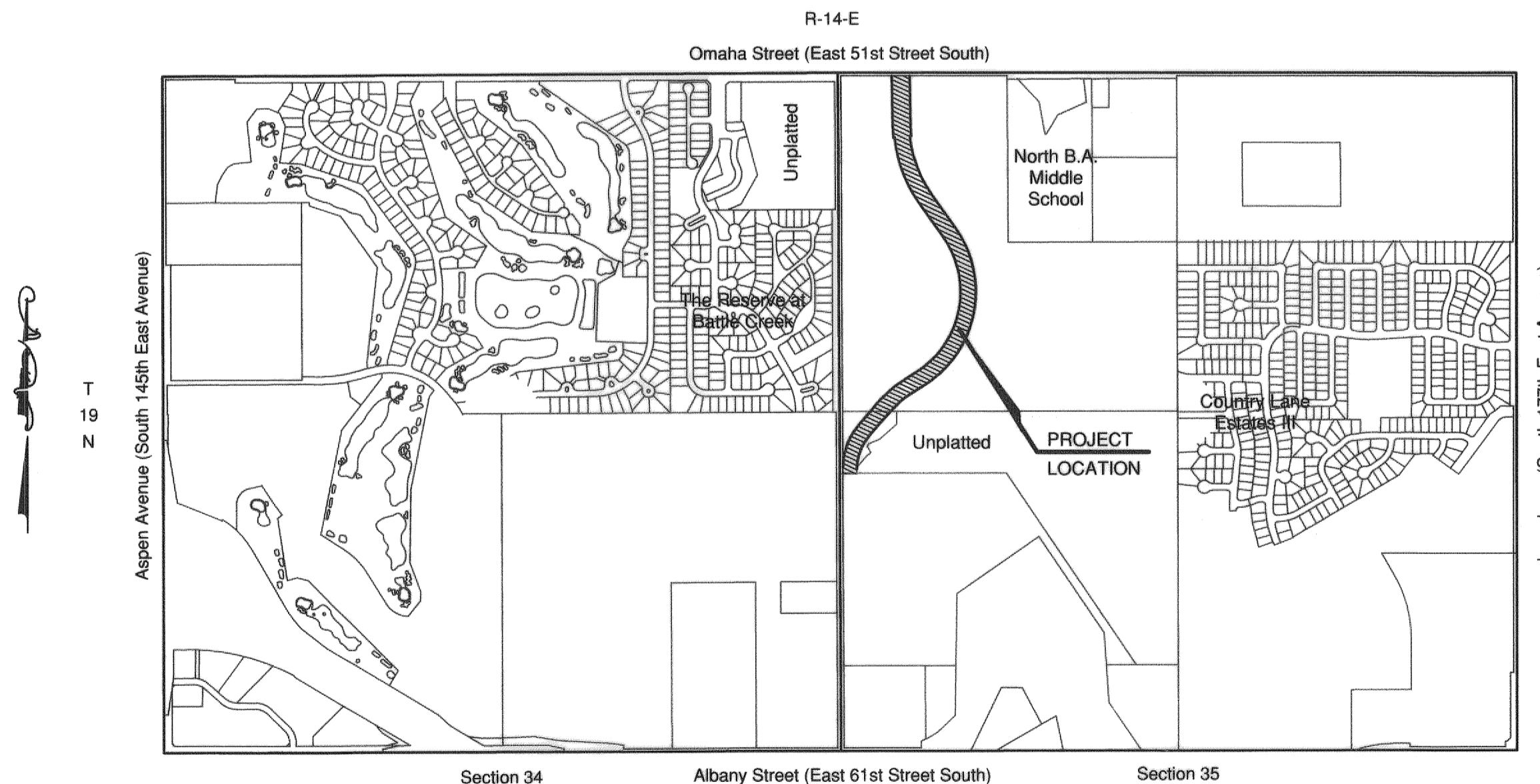


**CITY OF BROKEN ARROW**  
*Where opportunity lives*

PLAN OF PROPOSED  
**ELM PLACE EXTENSION**  
**FAA SITE TO OMAHA STREET**  
**STREET AND DRAINAGE IMPROVEMENTS**  
 SECTION 35, TOWNSHIP 19 NORTH, RANGE 14 EAST  
 PROJECT NUMBER ST.0611  
**TULSA COUNTY**

**DESIGN CRITERIA**

PROJECT LENGTH.....3352.17 FT. (0.63 MI.)  
 DESIGN SPEED.....40 MPH



**INDEX OF SHEETS**

DESCRIPTION	SHEET
COVER SHEET	1
TYPICAL SECTIONS AND DETAILS	2
QUANTITIES, PAY NOTES AND GENERAL NOTES	3
SURVEY AND GEOMETRIC DATA	4
PLAN AND PROFILES	5-7
STORM SEWER PROFILES	8
PAVEMENT MARKING	9
WATERLINE PROFILE	10-11
STORM WATER POLLUTION PREVENTION PLAN	12
EROSION CONTROL PLAN	13
DETAIL SHEETS	14-16
CROSS SECTIONS	17-19

**CITY OF BROKEN ARROW COUNCIL**

MAYOR	WADE McCALEB
VICE MAYOR	MIKE LESTER
MEMBER	RICHARD CARTER
MEMBER	CRAIG THURMOND
MEMBER	PHILIP TUCKER

**APPROVED**

DATE \_\_\_\_\_  
 DAVID L. WOODEN, P.E.  
 ASSISTANT CITY MANAGER

**RECOMMENDED FOR APPROVAL**

DATE \_\_\_\_\_  
 KENNETH D. SCHWAB, P.E., C.F.M.  
 DIRECTOR OF ENGINEERING & CONSTRUCTION

DATE \_\_\_\_\_  
 STEVE ARANT, P.E.  
 DIRECTOR OF STREETS & STORMWATER

*[Signature]*  
 ENGINEER OF RECORD  
 BARRICK ROSENBAUM, P.E.



DATE: 3/13/2009

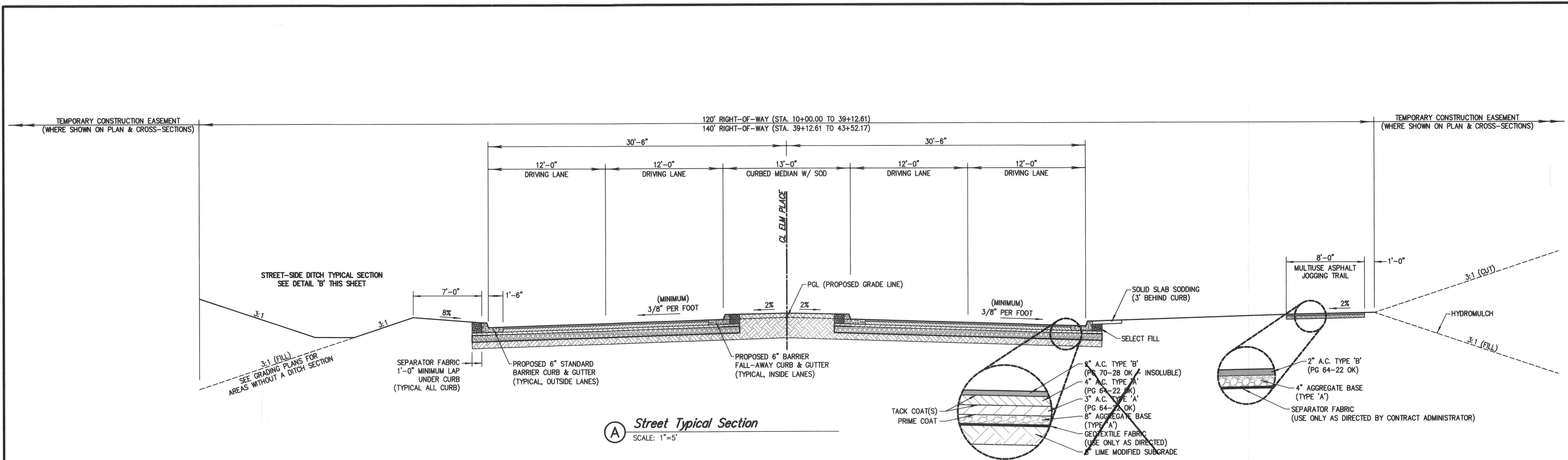
**HRAOK, Inc**

1913 WEST TACOMA - SUITE A VOICE: (918) 258-3737  
 BROKEN ARROW, OKLAHOMA 74012 FAX: (918) 258-2554  
 CA# 3643 EXP. DATE: 6-30-2009

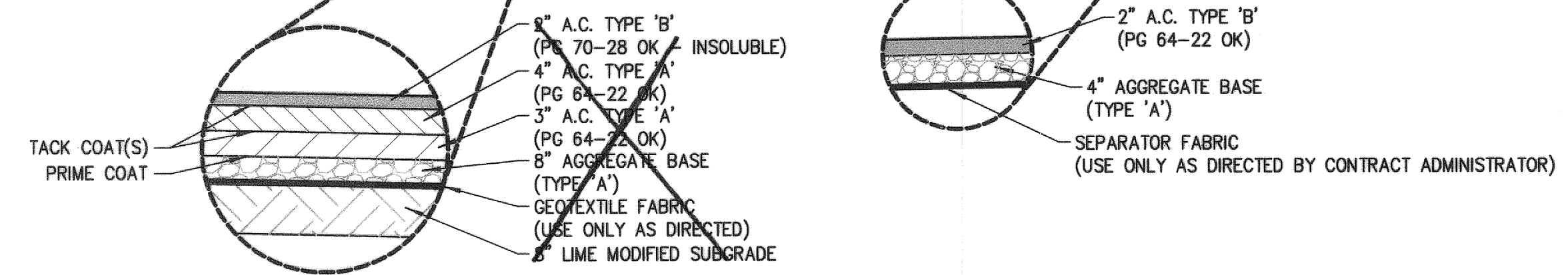
**RECORD PLANS**

To the best of my knowledge, from the information available, these "Record Plans" are in substantial compliance with the field construction.  
 By: *[Signature]*  
 Date: 3/13/2009

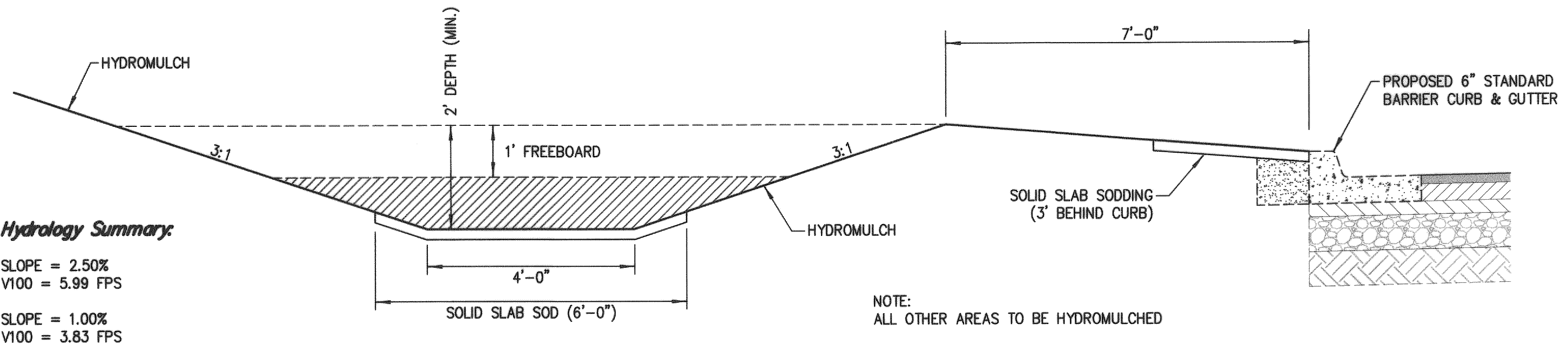
PATH: K:\11537\1-Eng Plans\  
 FILE: Cover.dwg  
 DATE: Jan 03, 2011 - 3:10PM



**A Street Typical Section**  
SCALE: 1"=5'



CONCRETE OPTION SELECTED REFER SPECS & SHEET 9a

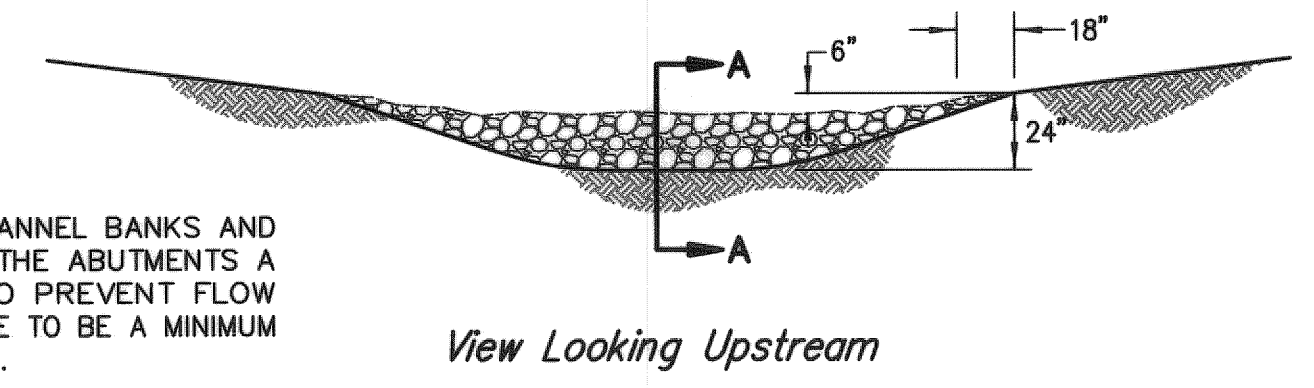


**B Street-side Ditch Typical Section**  
SCALE: 1"=2'

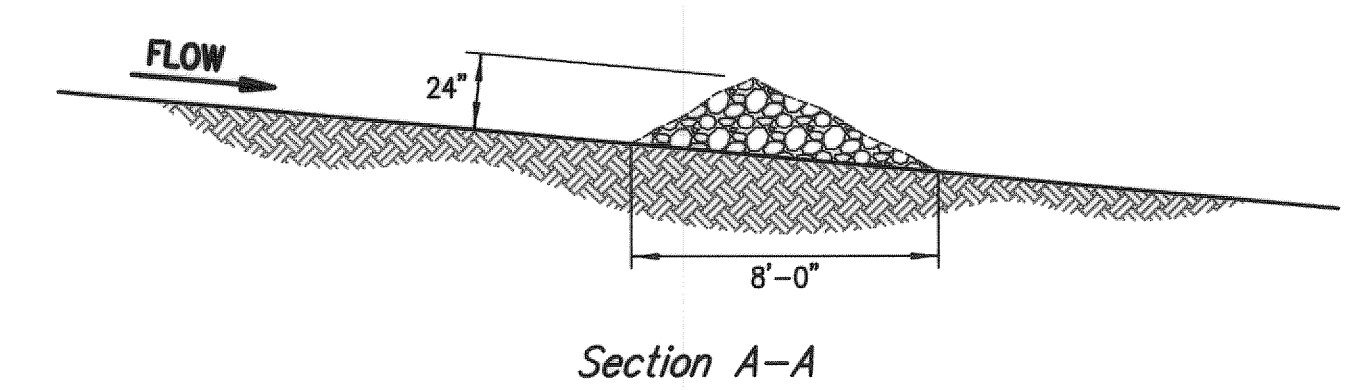
**Hydrology Summary**  
SLOPE = 2.50%  
V100 = 5.99 FPS  
SLOPE = 1.00%  
V100 = 3.83 FPS

NOTE: ALL OTHER AREAS TO BE HYDROMULCHED

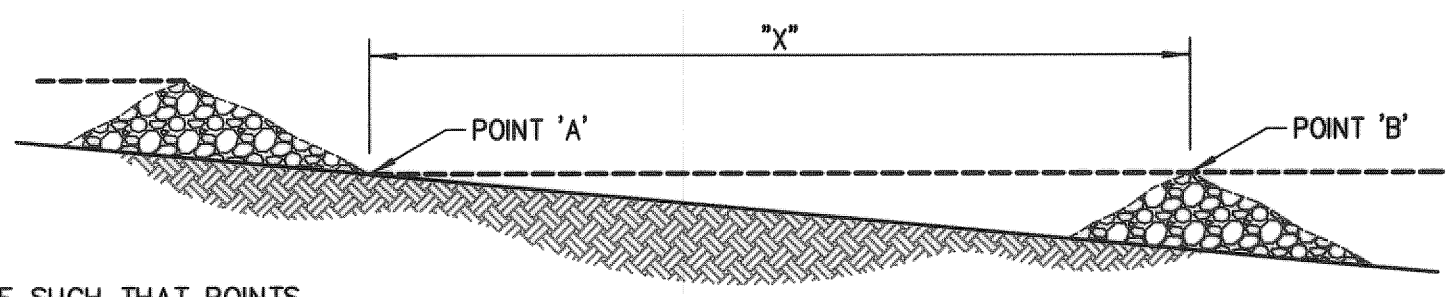
NOTE: KEY STONE INTO CHANNEL BANKS AND EXTEND IT BEYOND THE ABUTMENTS A MINIMUM OF 18" TO PREVENT FLOW AROUND DAM. STONE TO BE A MINIMUM OF 24" IN DIAMETER.



View Looking Upstream



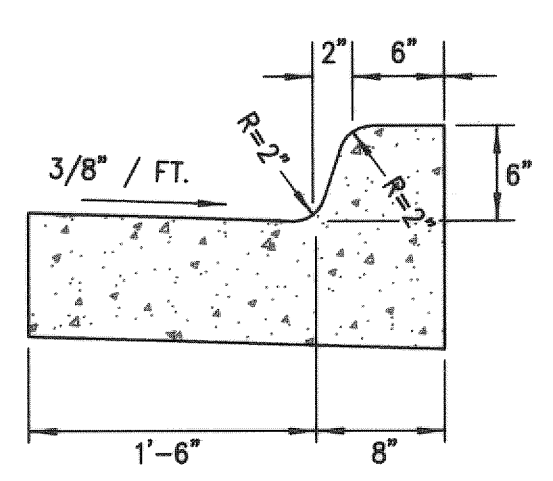
Section A-A



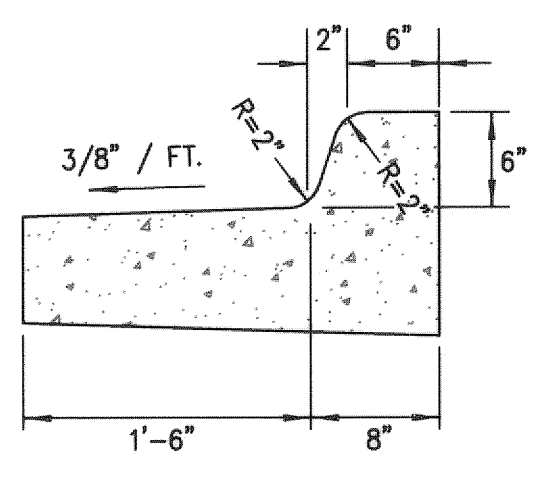
"X" = THE DISTANCE SUCH THAT POINTS 'A' AND 'B' ARE OF EQUAL ELEVATION.

Spacing Between Check Dams

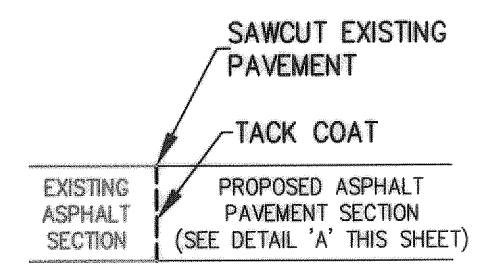
**F Rock Check Dam Details**  
SCALE: 1"=5'



**C Standard 6" Barrier Curb & Gutter**  
SCALE: 1"=1'



**D Fall-Away Barrier Curb & Gutter**  
SCALE: 1"=1'



**E Existing/New Pavement Detail**  
SCALE: NONE

**RECORD PLANS**  
To the best of my knowledge, from the information available, these Record Plans are in substantial compliance with the field construction.  
By: *[Signature]*  
Date: 1/5/2011

PATH: K:\11537\1-Eng Plans\1-Quantities & Details.dwg  
DATE: Jan 03, 2011 3:12PM

DATE	REVISIONS	<p>CITY OF <b>BROKEN ARROW</b> Where opportunity lives</p>		<p><b>HRAOK, INC</b> ENGINEERS • SURVEYORS • PLANNERS • LANDSCAPE ARCHITECTS 1913 WEST TACOMA - SUITE A VOICE: (918) 258-3737 BROKEN ARROW, OKLAHOMA 74012 FAX: (918) 258-2554 CA# 3643 EXP. DATE: 6-30-2009</p>	<p>TYPICAL SECTIONS AND DETAILS</p> <p>ELM PLACE EXTENSION - FAA SITE TO OMAHA STREET</p>	<p>ALL CONSTRUCTION TO BE IN STRICT ACCORDANCE WITH CURRENT CITY OF BROKEN ARROW STANDARD CONSTRUCTION SPECIFICATIONS AND ODOT 1999 EDITION AND APPLICABLE SUPPLEMENTS.</p>	SCALE:	DESIGN	DATE	DRAFTED	DATE
							HORZ. N/A	REVIEWED	DATE	RGM	1/13/2009
							VERT. N/A	SHEET 2			
								OF 19			PROJECT NO. ST0611

**ROADWAY BASE BID PAY QUANTITIES**

ITEM NO.	SPEC. NO.	DESCRIPTION	NOTES	UNITS	QUANTITY
1	201	RIGHT-OF-WAY CLEARING AND RESTORING	1,2,3,4	LS	1
2	202(A)	UNCLASSIFIED EXCAVATION	5,6	CY	59,845
3	202(B)	ROCK EXCAVATION	30,32	CY	10,000
4	202(C)	SELECT BORROW	30	CY	500
5	205(A)	TYPE A - SALVAGED TOPSOIL	7	CY	12,371
6	220(A)	TEMPORARY EROSION SEDIMENTATION AND STORMWATER POLLUTION PREVENTION	8	LS	1
7	220(B)	TEMPORARY EROSION CONTROL BERM	30	LF	2,275
8	230(A)	SOLID SLAB SODDING	10	SY	11,281
9	232(C)	SEEDING METHOD C	11,30	ACRE	4
10	233(A)	HYDROMULCHING	12	ACRE	10.2
11	303	TYPE "A" AGGREGATE BASE (8")		CY	4,471
12	307(A)	LIME	13	TON	500
13	307(B)	LIME TREATED SUBGRADE (8")	13,14	SY	20,018
14	325	SEPARATOR FABRIC FOR BASES	30	SY	22,426
15	407	TACK COAT	15	GAL	1,604
16	408	PRIME COAT	15	GAL	1,000
17	411(A)	TYPE 'A' ASPHALT PAVEMENT	14,16	TON	7,081
18	411(B)	TYPE 'B' ASPHALT PAVEMENT (INSOLUBLE)	14,16	TON	1,829
19	601(A)	24" TYPE I PLAIN RIPRAP (36" THICK) (COMPLETE)		SY	157
20	601(E)	FILTER FABRIC FOR RIPRAP		SY	200
21	609(B)	6" COMBINED BARRIER CURB AND GUTTER		LF	12,983
22	611(A)	BROKEN ARROW STANDARD INLET ST29 (6" THROAT)	17,18	EA	6
23	611(B)	STANDARD 30" SLOPEWALL W/ ENERGY DISSIPATOR		EA	1
24	611(B)	STANDARD 36" SLOPEWALL W/ ENERGY DISSIPATOR		EA	1
25	611(B)	STANDARD 42" SLOPEWALL W/ ENERGY DISSIPATOR		EA	1
26	611(B)	STANDARD 48" SLOPEWALL W/ ENERGY DISSIPATOR		EA	2
27	611(C)	MANHOLE 4' DIAMETER	17,18	EA	1
28	611(D)	MANHOLE 5' DIAMETER W/ LOCKING RING AND LID	17,18	EA	1
29	611(E)	8'x6' JUNCTION BOX W/ ACCESS MANHOLE	17,18	EA	1
30	611.06(E)	SPECIAL 3-WAY DROP INLET	17,18	EA	7
31	613(B)	30" RCP CLASS III	20,21	LF	116
32	613(B)	36" RCP CLASS III	20,21	LF	115
33	613(B)	42" RCP CLASS III	20,21	LF	70
34	613(B)	48" RCP CLASS III	20,21	LF	139
35	613(B)	24" HDPE PIPE	20,21	LF	73
36	613(B)	30" HDPE PIPE	20,21	LF	295
37	613(B)	42" HDPE PIPE	20,21	LF	93
38	613(B)	48" HDPE PIPE	20,21	LF	127
39	613(C)	TRENCH EXCAVATION AND BACKFILL (STORM SEWERS)		CY	1,140
40	619(B)	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	6,22,24	LS	1
41	855(A)	TRAFFIC STRIPE WHITE (PLASTIC)(4" WIDE)	26,29	LF	2,321
42	855(B)	TRAFFIC STRIPE YELLOW (PLASTIC)(4" WIDE)	26,29	LF	1,240
43	855(C)	TRAFFIC "ARROW" AND "ONLY" (PLASTIC)	26,29	EA	6
44	880(J)	CONSTRUCTION TRAFFIC CONTROL	25,27,28	LS	1
45	SPECIAL	CONTRACTOR CONSTRUCTION STAKING	23	LS	1
46	SPECIAL	21" STEEL CONDUIT FOR FUTURE SANITARY SEWER		LF	260
47	SPECIAL	PERMANENT ROCK CHECK DAM	9	EA	5

**WATERLINE BASE BID PAY QUANTITIES**

ITEM NO.	SPEC. NO.	DESCRIPTION	NOTES	UNITS	QUANTITY
48	612(G)	WATER VALVES ADJUST TO GRADE	19,30	EA	1
49	612(H)	WATER METER BOXES ADJUST TO GRADE	19,30	EA	1
50	612(H)	FIRE HYDRANTS ADJUST TO GRADE	19,30	EA	1
51	612(H)	12" C900 (COMPLETE)		LF	3,566
52	612(H)	12"x12"x6" TEE		EA	7
53	612(H)	12" 22 1/2" BEND		EA	2
54	612(H)	12" 45" BEND		EA	6
55	612(H)	6" GATE VALVE		EA	7
56	612(H)	12" GATE VALVE		EA	4
57	612(H)	VALVE BOX		EA	13
58	612(H)	3-WAY FIRE HYDRANT	31	EA	7
59	613(C)	TRENCH EXCAVATION AND BACKFILL (WATERLINE)		CY	1,648

**ALTERNATE BID ITEMS**

ITEM NO.	SPEC. NO.	DESCRIPTION	NOTES	UNITS	QUANTITY
60	610(A)	8'-0" ASPHALT JOGGING TRAIL (COMPLETE)		SY	3,042
61	610(B)	4' CONCRETE SIDEWALK (COMPLETE)		SY	73
62	610(C)	HANDICAP RAMP		EA	2

**Pay Item Notes:**

- THIS ITEM SHALL INCLUDE COST OF BRACING UTILITY POLES. CONTRACTOR SHALL CONTACT THE APPROPRIATE UTILITY COMPANY PRIOR TO BRACING TO COORDINATE THE BRACING OF THE POLE. NO ADDITIONAL PAYMENT SHALL BE MADE.
- CONTRACTOR SHALL FURNISH TEMPORARY FENCING WHERE REQUIRED. COST TO BE INCLUDED UNDER PAY ITEM "RIGHT-OF-WAY CLEARING AND RESTORING".
- THIS ITEM INCLUDES, BUT IS NOT LIMITED TO, THE REMOVAL OF ALL BUSHES, TREES AND SHRUBBERY, FENCE, DRAINAGE STRUCTURES, DRIVEWAY DRAINAGE PIPES AND THE REMOVAL OF ANY OTHER ITEM NOT PAID FOR SEPARATELY AND REQUIRED FOR A COMPLETE PROJECT. ALL ITEMS REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF BY HIM IN A MANNER ACCEPTABLE TO THE CONTRACT ADMINISTRATOR WITHOUT ADDITIONAL COST TO THE CITY.
- CLEARING OF EXISTING TREES AND SHRUBS WITHIN THE CONSTRUCTION ZONE WILL BE KEPT TO THE MINIMUM NECESSARY TO COMPLETE CONSTRUCTION.
- COST TO INCLUDE EXCAVATION AND DISPOSAL OFF-SITE BY CONTRACTOR IN A MANNER ACCEPTABLE TO THE CONTRACT ADMINISTRATOR. ALL USEABLE MATERIAL WILL BE PLACED ON-SITE IN ACCORDANCE WITH CITY SPECIFICATIONS FOR FILL PLACEMENT, AS DIRECTED BY THE CONTRACT ADMINISTRATOR. HAUL OFF WILL BE LIMITED TO UNSUITABLE SOILS.
- ALL EXCAVATION MATERIAL INCLUDING CONCRETE AND ASPHALT FROM DRIVEWAYS, PATCHES, SIDEWALK, AND PAVEMENT AND CURB REMOVAL AS NECESSARY SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF BY THE CONTRACTOR IN A MANNER ACCEPTABLE TO THE CONTRACT ADMINISTRATOR WITHOUT ADDITIONAL COST TO THE CITY.
- AREAS ON WHICH SALVAGED TOPSOIL IS TO BE REPLACED SHALL HAVE 0-46-0 FERTILIZER APPLIED, AT THE RATE OF 150 LBS. PER ACRE, JUST PRIOR TO THE REPLACEMENT OF SALVAGED TOPSOIL (COST INCLUDED IN OTHER ITEMS OF WORK).
- THIS ITEM INCLUDES THE COST OF CONSTRUCTION, MAINTENANCE AND REMOVAL OF ALL TEMPORARY MEASURES AND DEVICES TO CONTROL EROSION AND SEDIMENT WITHIN THE PROJECT LIMITS INCLUDING, BUT NOT LIMITED TO, BALE BARRIERS, SILT FENCING, BERMS, DIKES, DRAINS AND ANY OTHER ITEM NOT PAID FOR SEPARATELY BUT REQUIRED FOR EFFECTIVE AND CONTINUOUS EROSION AND SEDIMENT CONTROL.
- THIS ITEM INCLUDES THE COST OF CONSTRUCTION, MATERIALS, INCIDENTALS, ETC. AS NECESSARY TO COMPLETE THE CONSTRUCTION OF ROCK CHECK DAMS AS SHOWN ON THE PLANS AND DETAILS.
- COST OF FERTILIZING AND WATERING SHALL BE INCLUDED IN THE COST OF SOLID SLAB SODDING, SPECIFICATION NUMBER 230.06(A) FERTILIZER SHALL BE 10-20-10 APPLIED AT THE RATE OF 200 POUNDS PER 1000 SQUARE FEET. FERTILIZER SHALL BE APPLIED PER SECTION 230.04(H). WATER SHALL BE APPLIED AS NECESSARY UNTIL VEGETATION IS ESTABLISHED OR UNTIL THE WORK IS ACCEPTED AS COMPLETE. CITY TO SUPPLY WATER FROM THE NEAREST CITY OF BROKEN ARROW FIRE HYDRANT AT NO COST TO THE CONTRACTOR. THIS ITEM INCLUDES 8,000 SY TO BE USED AS DIRECTED BY THE CONTRACT ADMINISTRATOR DURING CONSTRUCTION.
- COST TO INCLUDE TEMPORARY AND PERMANENT SEEDING, FERTILIZING AND WATERING FOR ALL DISTURBED AREAS NOT SLAB SODDED. FERTILIZER SHALL BE 10-20-10 APPLIED AT THE RATE OF 150 POUNDS PER ACRE, SUPER TRIPLE PHOSPHATE (0-46-0) APPLIED AT THE RATE OF 150 POUNDS PER ACRE AND AGRICULTURAL LIMESTONE APPLIED AT THE RATE OF 400 POUNDS PER ACRE. WATER SHALL BE APPLIED AT THE RATE OF 80,000 GALS PER ACRE. TEMPORARY SEEDING SHALL BE PERENNIAL RYEGRASS (LOLIUM PERENNE) APPLIED AT THE RATE OF 90 POUNDS PER ACRE. PERMANENT SEEDING SHALL BE A MIXTURE OF 50% GUYMON BERMUDDAGRASS (CYNODON DACTYLON) AND 50% TALL FESCUE (FESTUCA ARUNDINACEA) APPLIED AT A RATE OF 175 POUNDS PER ACRE. CITY TO SUPPLY WATER FROM THE NEAREST CITY OF BROKEN ARROW FIRE HYDRANT AT NO COST TO THE CONTRACTOR.
- THE VEGETATIVE MULCH SHALL BE ANCHORED IN ACCORDANCE WITH THE "ADHESIVE SPRAY METHOD", AS SPECIFIED IN 233.04(b)1 OF THE STANDARD SPECIFICATIONS. QUANTITIES BASED ON APPLICATION RATES OF 2 TONS OF MULCH PER ACRE AND 200 GALS ASPHALT EMULSION PER ACRE.
- TO BE CALCULATED AS 7% OF DRY UNIT WEIGHT OF COMPACTED SUBGRADE. SUBGRADE TREATED EIGHT (8) INCHES DEEP (AS DIRECTED BY THE ENGINEER).
- COST OF SOIL AND PAVEMENT TESTING IS THE RESPONSIBILITY OF THE CONTRACTOR. COST TO BE INCLUDED IN THE PRICE BID FOR EARTHWORK, CONCRETE, AND ASPHALT ITEMS.
- ESTIMATED AT 0.05 GAL. PER SQ. YD. PRIOR TO DILUTION.
- ESTIMATED AT 114 LBS. PER SQ. YD. PER 1" THICK.
- PRICE FOR MANHOLES, INLETS AND OTHER DRAINAGE STRUCTURES, INCLUDING JUNCTION BOXES, SHALL BE IN PLACE INCLUDING ALL BACKFILL, AND CONNECTION OF PIPING. PRICE SHALL INCLUDE INLET HOODS, FRAMES, COVERS, PRECAST CONCRETE INLET STRUCTURES AND ANY OTHER ITEMS NOT PAID FOR SEPARATELY AND REQUIRED FOR A COMPLETE PROJECT.
- THE TOTAL COST FOR JOINT SEALING (HOT POURED RUBBERIZED ASPHALT OR SILICONE) AT ALL MANHOLE, INLETS AND VALVE BOX APRONS SHALL BE INCLUDED IN THE BID PRICE FOR THAT ITEM.
- ALL SALVAGED FITTINGS SHALL BE RETURNED TO THE CITY UTILITIES DEPARTMENT. THE COST OF REMOVING AND RETURNING FITTINGS SHALL BE INCLUDED IN PAY ITEMS "WATER VALVES ADJUST TO GRADE" AND "WATER METER BOXES ADJUST TO GRADE". NO ADDITIONAL PAYMENT SHALL BE MADE.
- HIGH DENSITY POLYETHYLENE SHALL BE ALLOWED IF NOT UNDER STREET SURFACE.
- ASTM C-76 CLASS III WALL "B" PIPE SHALL BE TONGUE IN GROOVE OMNI FLEX, NO MASTIC ALLOWED.
- IN LIEU OF FULL-DEPTH SAW CUT, THE CONTRACTOR MAY SAW A MINIMUM OF 4" DEEP AND BLADE THE REMAINING EDGE SMOOTH.

- THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE ENTIRE LAYOUT, STAKING OF OFFSETS, ESTABLISHING VERTICAL AND HORIZONTAL CONTROL AND THE LOCATION OF ALL FEATURES REQUIRED TO COMPLETE THIS PROJECT. THIS WILL INCLUDE ALL HORIZONTAL AND VERTICAL INFORMATION REQUIRED AS WELL AS ANY RIGHT-OF-WAY LOCATION.
- CONTRACTOR TO REMOVE EXISTING POLES, SIGNS, ETC. AND STORE IN A SAFE LOCATION FOR PICKUP BY CITY PERSONNEL.
- COST SHALL INCLUDE ALL SIGNS, DRUMS, BARRICADES, PAINT, REMOVABLE MARKING TAPE, FLASHERS, AND FLAG MEN INCLUDING MAINTENANCE FOR THE DURATION OF THE PROJECT INCLUDING ADJUSTMENTS IN EACH STAGE OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE THE CITY WITH A DETAILED CONSTRUCTION STAGING PLAN WITH A SCHEDULE SHOWING TIMES WHEN THE DIFFERENT STAGES WILL OCCUR.
- ALL STRIPING TO BE PLACED ON TEMPORARY SURFACES OR ON SURFACES SCHEDULED TO BE REMOVED SHALL BE DONE WITH PAINT UNLESS OTHERWISE NOTED ON THE PLANS OR STANDARD DRAWINGS. ALL FINAL OR FINISHED SURFACES SHALL BE STRIPED WITH THERMOPLASTIC STRIPE, UNLESS OTHERWISE NOTED ON PLANS. COST TO BE INCLUDED IN OTHER ITEMS OF WORK.
- CONTRACTOR TO PROVIDE TRAFFIC CONTROL AT INGRESS AND EGRESS POINTS AT ENDS OF PROJECT.
- REFLECTIVE SHEETING SHALL BE EITHER "3-M" BRAND HIGH INTENSITY SHEETING OR AN APPROVED EQUAL.
- ANY DAMAGE TO A FINISHED OR EXISTING SURFACE RESULTING FROM THE CONTRACTORS NEGLIGENCE IN THE REMOVAL OF CONSTRUCTION ZONE PAVEMENT MARKERS AND THE BITUMINOUS ADHESIVE USED IN THEIR INSTALLATION, SHALL BE REPAIRED AT THE CONTRACTORS EXPENSE AND TO THE SATISFACTION OF THE CONTRACT ADMINISTRATOR.
- TO BE USED AS DIRECTED BY THE CONTRACT ADMINISTRATOR.
- CLEAR TURN FOR FIRE HYDRANT CONNECTION NUT ON SIDE OF HYDRANT SHALL BE 18" MINIMUM (21" MAXIMUM).
- ROCK EXCAVATION TO BE DETERMINED AS ANYTHING NOT RIPPLEABLE WITH A DB STINGER OR EXCAVATED WITH A JOHN DEERE 3500LC.

**General Construction Notes:**

ALL TREES, BRUSH AND OTHER DEBRIS THAT MIGHT INTERFERE WITH THE FLOW OF WATER ARE TO BE CLEANED OUT OF THE RIGHT OF WAY AT EACH STRUCTURE - IN A MANNER APPROVED BY THE CONTRACT ADMINISTRATOR. ALL COSTS TO BE INCLUDED IN THE PRICE BID FOR OTHER ITEMS OF WORK.

ALL FLOW LINES 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 CONTRACT ADMINISTRATOR. COST OF SPRINKLING TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS OF WORK.

THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY RIGHT OF WAY FENCE AS REQUIRED. WHEN THE PORTION OF THE PROJECT THAT REQUIRED THIS FENCE IS COMPLETED, THE TEMPORARY FENCE SHALL BE REMOVED AND PERMANENT RIGHT OF WAY FENCING SHALL BE RESTORED OR INSTALLED IN A MANNER APPROVED BY THE CONTRACT ADMINISTRATOR. COSTS OF TEMPORARY FENCING SHALL BE INCLUDED IN THE PRICE BID FOR RIGHT OF WAY CLEARING AND RESTORING.

THE CONTRACTOR SHALL KEEP THE OPEN TRENCHES DRAINED. COST TO BE INCLUDED IN OTHER ITEMS OF WORK.

EXCESS ASPHALT AT JOINTS AND CRACKS IN EXISTING PAVEMENT SHALL BE REMOVED FLUSH TO TOP OF PAVING IN A MANNER APPROVED BY THE ENGINEER.

ALL EXISTING STRUCTURES SHALL BE CLEANED AND CLEARED OF ALL SEDIMENTATION AND DEBRIS. COST TO BE INCLUDED IN THE PRICE BID FOR OTHER ITEMS OF WORK.

ALTHOUGH SUCH WORK MAY NOT BE SPECIFICALLY INDICATED, FURNISH AND INSTALL ALL SUPPLEMENTARY OR MISCELLANEOUS ITEMS, APPURTENANCES AND DEVICES INCIDENTAL TO OR NECESSARY FOR A SOUND, SECURE AND COMPLETE PROJECT.

EXISTING UTILITIES AND OTHER FACILITIES HAVE BEEN SHOWN ON THE DRAWINGS BASED ON FIELD SURVEYS, EXISTING MAPS, CITY ATLASES AND OTHER DRAWINGS WITHIN THE AREA OF THE PROJECT. UTILITIES AND FACILITIES WHICH ARE NOT SPECIFICALLY LOCATED WITH ACTUAL HORIZONTAL AND VERTICAL CONTROLS ARE LOCATED APPROXIMATELY AND ACCORDING TO THE BEST AVAILABLE INFORMATION. THE CONTRACTOR SHALL DETERMINE, PRIOR TO COMMENCING THE WORK, THE EXACT LOCATION AND/OR ELEVATION OF ALL UTILITIES, PIPING, FACILITIES AND STRUCTURES WHICH MAY PERTAIN TO OR AFFECT THE CONSTRUCTION OF THE PROJECT.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE HE MAY CAUSE TO THE EXISTING UNDERGROUND UTILITIES WITHIN THE PROJECT AREA AS A RESULT OF HIS DIGGING, TRENCHING, BORING OR EXCAVATION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED, AT THE CONTRACTOR'S EXPENSE, TO THE AFFECTED UTILITY COMPANY'S SATISFACTION. PRIOR TO DIGGING NEAR UTILITIES THE CONTRACTOR SHALL CALL FOR A LIST OF ALL UNDERGROUND UTILITIES REGISTERED IN THE AREA OF CONSTRUCTION LISTED WITH THE FOLLOWING AGENCIES:

THE "OKIE" NOTIFICATION CENTER  
1-800-522-6543 1-800-522-8048 1-800-435-5456

THE TULSA COUNTY CLERK'S OFFICE 1-918-596-5000

CONFLICTS BETWEEN EXISTING UTILITIES AND PROPOSED CONSTRUCTION SHALL BE IDENTIFIED BY THE CONTRACTOR PRIOR TO COMMENCING WORK AND REPORTED TO THE CONTRACT ADMINISTRATOR. THE CONTRACTOR SHALL LOCATED OR HAVE LOCATED ALL EXISTING UNDERGROUND UTILITIES AND FACILITIES IN ADVANCE OF CONSTRUCTION AND WILL ELIMINATE

OR RESOLVE ALL CONFLICTS PRIOR TO CONSTRUCTION. CONTRACTOR SHALL GIVE THE NOTIFICATION CENTER OF THE OKLAHOMA ONE-CALL SYSTEM, INC ("OKIE") NOTICE OF ANY EXCAVATION NO SOONER THAN TEN DAYS NOR LATER THAN 48 HOURS, EXCLUDING SATURDAYS, SUNDAYS AND LEGAL HOLIDAYS, PRIOR TO COMMENCEMENT OF WORK.

CONTRACTOR SHALL FIELD VERIFY ALL CONSTRUCTION DIMENSIONS.

CONTRACTOR PROVIDE AND PRESERVE ALL CONSTRUCTION STAKING TO THE LINES, GRADES, SLOPES AND ELEVATIONS AS SHOWN ON THESE DRAWINGS.

WHERE MATERIALS ARE TRANSPORTED IN THE PROGRESSION OF THE WORK, VEHICLES SHALL NOT BE LOADED BEYOND THE LOADING CAPACITY RECOMMENDED BY THE MANUFACTURER OF THE VEHICLE OR PRESCRIBED BY AN FEDERAL, STATE OR LOCAL LAW OR REGULATION.

CONTRACTOR SHALL BE RESPONSIBLE FOR PREVENTING HIS TRUCKS FROM SCATTERING DEBRIS, MUD AND/OR SOIL ON PUBLIC ROADS. IF THIS OCCURS, THE CONTRACTOR WILL CLEAN UP DEBRIS AS REQUIRED BY THE CONTRACT ADMINISTRATOR, LOADED HAUL TRUCKS SHALL HAVE THEIR LOADS COVERED WITH TARPULIN.

AREAS OUTSIDE THE LIMITS OF CONSTRUCTION THAT ARE DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE FINE GRADED AND RESODDED PER THESE PLANS AT THE EXPENSE OF THE CONTRACTOR.

CONTRACTOR SHALL GIVE CITY OF BROKEN ARROW TRAFFIC OPERATIONS NOTICE OF ANY SAW CUTTING, EXCAVATION OR REMOVAL OF TRAFFIC SIGNS. ALL SIGNS SHALL BE HANDLED IN A MANNER SO AS TO NOT DAMAGE THE SIGN AND/OR THE POST. ALL SIGNS REMOVED DUE TO CONSTRUCTION SHALL BE REINSTALLED BY THE CONTRACTOR. ALL SIGNS WITHOUT SPECIFIC LOCATIONS INDICATED ON THE DRAWINGS WILL BE LOCATED BY THE CITY OF BROKEN ARROW.

THE CONTRACTOR SHALL DISPOSE OF ALL EXCESS, UNSATISFACTORY OR UNSUITABLE MATERIAL IN SUCH A MANNER THAT AIR POLLUTION REGULATIONS AND SOLID WASTE DISPOSAL REGULATIONS ARE NOT VIOLATED AND PRIVATE OR PUBLIC PROPERTY IS NOT INJURED OR ENDANGERED. PERMISSION IN WRITING FROM THE PROPERTY OWNER MUST BE OBTAINED BY THE CONTRACTOR IF EXCESS, UNSATISFACTORY OR UNSUITABLE MATERIAL IS PLACED ON PRIVATE PROPERTY. IN NO CASE WILL EXCESS, UNSATISFACTORY OR UNSUITABLE MATERIAL BE LEFT IN THE RIGHT-OF-WAY.

THE CONTRACTOR SHALL TAKE REASONABLE PRECAUTIONS TO PREVENT EXCESS MOISTURE FROM INCREMENT WEATHER OR OTHER SOURCES FROM ENTERING ANY STREET EXCAVATION. IF EXCESS MOISTURE DOES ENTER THE EXCAVATION THROUGH THE NEGLIGENCE OF THE CONTRACTOR AND ADJOINING PAVEMENT IS ADVERSELY AFFECTED BY THE EXCESS MOISTURE, THE CONTRACTOR SHALL REPLACE THE ADJOINING PAVEMENT AND SUBGRADE AT HIS SOLE EXPENSE.

**General Notes:**

THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY WORK ORDERS AND PERMITS FROM THE CITY OF BROKEN ARROW, INCLUDING PROVISION OF BONDS AND INSURANCE AS REQUIRED.

TOPOGRAPHIC INFORMATION SHOWN HEREIN WAS PROVIDED BY THE CITY OF BROKEN ARROW. HOWEVER, CROSS SECTIONS FOR PURPOSES OF AERIAL VERIFICATION WERE PROVIDED BY HRAOK, INC. AND A DIGITAL FILE IS INCLUDED IN CONTRACT DOCUMENTS.

ALL STREET CROSSINGS SHALL BE RECOMPACTED TO 95% STANDARD PROCTOR DENSITY. BACKFILL SHALL BE SAND TO 6" ABOVE TOP OF PIPE OR CONDUIT, THEN LIMESTONE SCREENINGS TO THE TOP OF TRENCH.

CONTRACTOR SHALL PROVIDE WATER AS REQUIRED TO OBTAIN SPECIFIED COMPACTION. COST INCLUDED IN OTHER ITEMS OF WORK.

PIPE BACKFILL SHALL BE PLACED IN LIFTS NOT EXCEEDING 8 INCHES, AND COMPACTED BY VIBRATORY PLATE OR OTHER METHOD APPROVED BY THE ENGINEER.

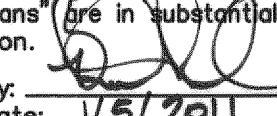
PAVING SUBGRADE SHALL BE RESTORED TO PROPER GRADE (+/-0.1 FT) AND DENSITY AFTER PIPE IS BACKFILLED.

PAVING CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR OF UNACCEPTABLE SUBGRADE AT ALL UTILITY, CABLE OR CONDUIT CROSSINGS.

PAVING SHALL CONFORM TO O.D.O.T. SPECIFICATIONS AND TO DESIGN STANDARDS OF THE CITY OF BROKEN ARROW.

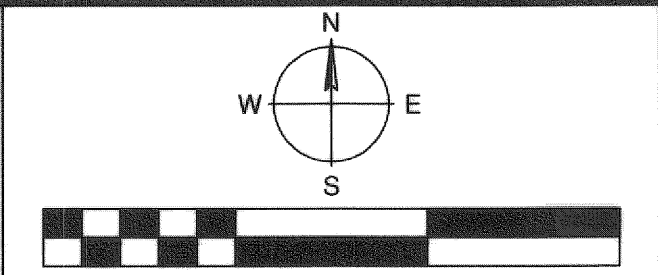
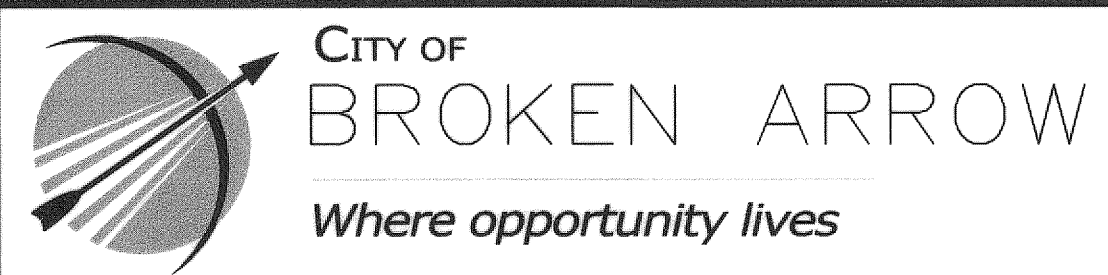
**RECORD PLANS**

To the best of my knowledge, from the information available, these Record Plans are in substantial compliance with the field construction.

By:   
Date: 1/5/2011

PATH: K:\11537\1-Eng Plans\Quantities & Details.dwg  
DATE: Jan 03, 2011 - 3:13PM

DATE	REVISIONS



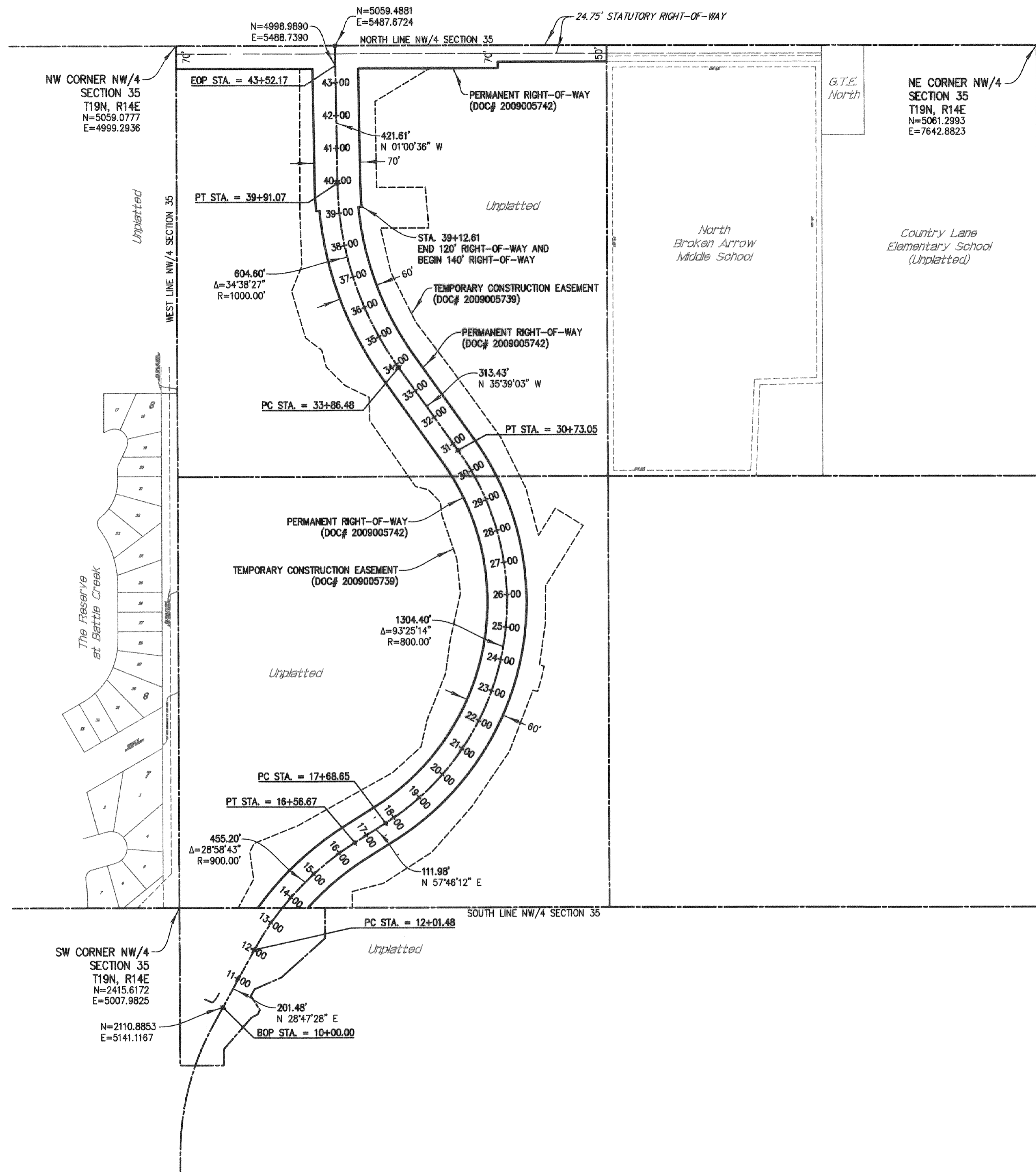
**HRAOK, Inc**  
ENGINEERS • SURVEYORS • PLANNERS • LANDSCAPE ARCHITECTS  
1913 WEST TACOMA - SUITE A VOICE: (918) 258-3737  
BROKEN ARROW, OKLAHOMA 74012 FAX: (918) 258-2554  
CA# 3643 EXP. DATE: 6-30-2009

**QUANTITIES, PAY NOTES AND GENERAL NOTES**

ELM PLACE EXTENSION - FAA SITE TO OMAHA STREET

ALL CONSTRUCTION TO BE IN STRICT ACCORDANCE WITH CURRENT CITY OF BROKEN ARROW STANDARD CONSTRUCTION SPECIFICATIONS AND ODOT 1989 EDITION AND APPLICABLE SUPPLEMENTS.

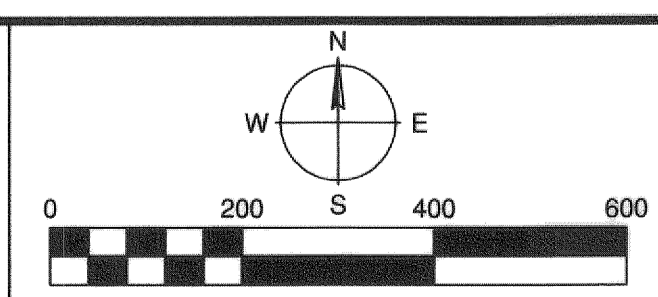
SCALE:	DESIGN	DATE	DRAFTED	DATE
HORZ. N/A				1/13/2009
VERT. N/A	REVIEWED	DATE	APPROVED	DATE
	SHEET 3		PROJECT NO.	
	OF 19		ST0611	



**RECORD PLANS**  
 To the best of my knowledge, from the information available, these Record Plans are in substantial compliance with the field construction.  
 By: *[Signature]*  
 Date: 1/5/2011

PATH: K:\11537\1-Eng Plans\ FILE: Survey Data.dwg DATE: Jan 03, 2011 3:16PM

DATE	REVISIONS



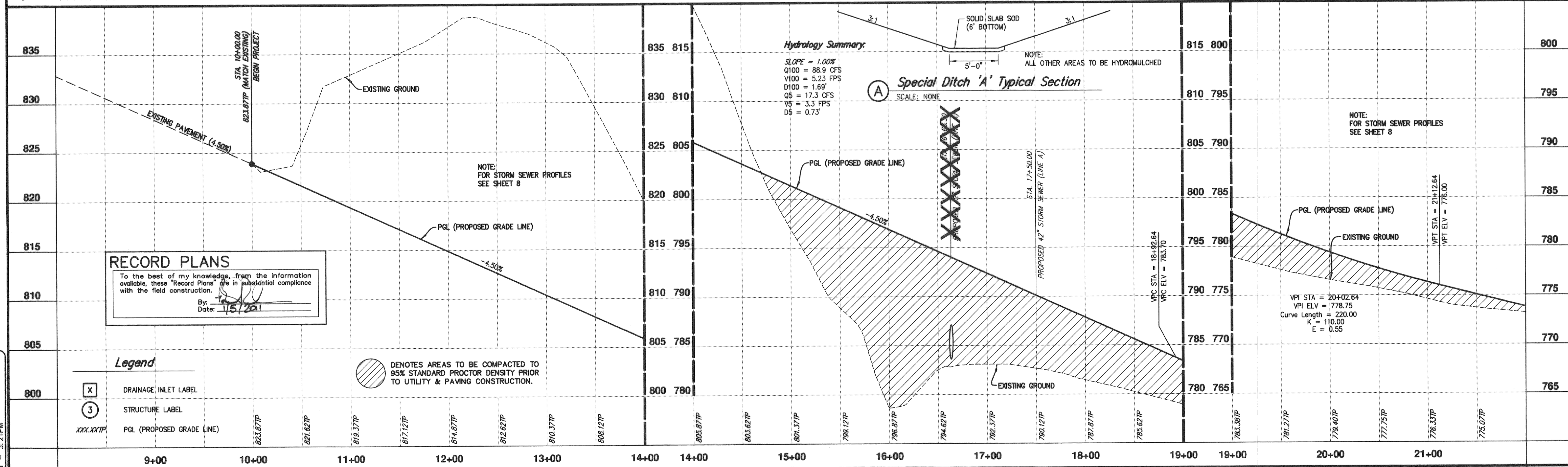
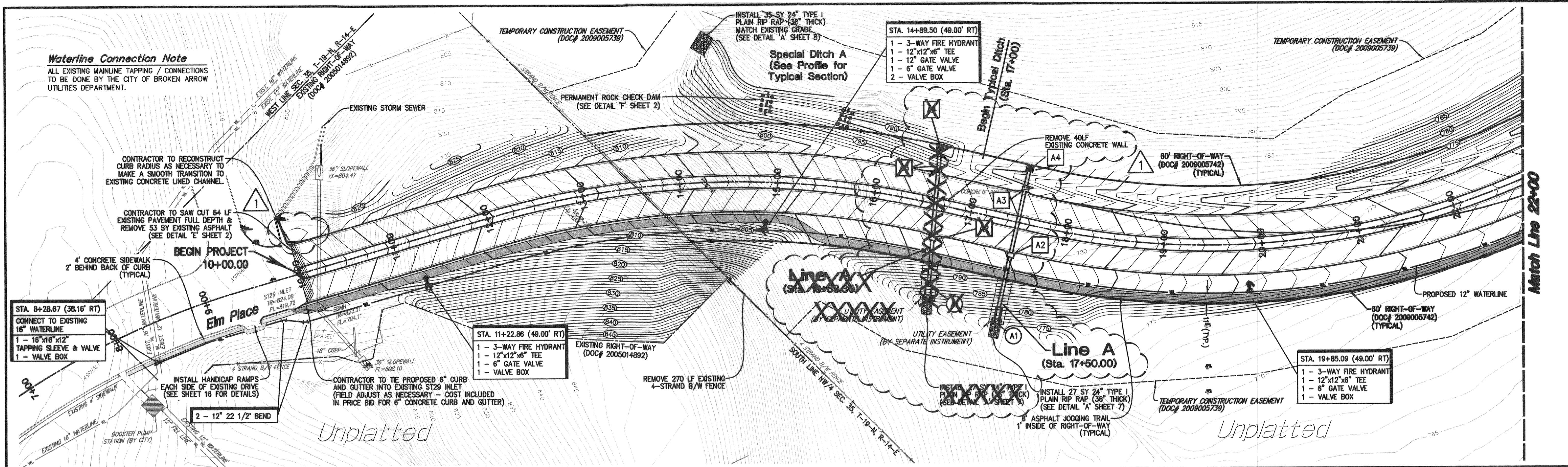
**HRAOK, Inc**  
 ENGINEERS • SURVEYORS • PLANNERS • LANDSCAPE ARCHITECTS  
 1913 WEST TACOMA - SUITE A VOICE: (918) 258-3737  
 BROKEN ARROW, OKLAHOMA 74012 FAX: (918) 258-2554  
 CA# 3643 EXP. DATE: 6-30-2009

**SURVEY AND GEOMETRIC DATA SHEET**  
**ELM PLACE EXTENSION - FAA SITE TO OMAHA STREET**

ALL CONSTRUCTION TO BE IN STRICT ACCORDANCE WITH CURRENT CITY OF BROKEN ARROW STANDARD CONSTRUCTION SPECIFICATIONS AND ODOT 1999 EDITION AND APPLICABLE SUPPLEMENTS.

SCALE: HORIZ. 1"=200' VERT. N/A	DESIGN	DATE	DRAFTED	DATE
	REVIEWED	DATE	APPROVED	DATE
SHEET 4 OF 19		PROJECT NO. ST0611		

**Waterline Connection Note**  
 ALL EXISTING MAINLINE TAPPING / CONNECTIONS TO BE DONE BY THE CITY OF BROKEN ARROW UTILITIES DEPARTMENT.

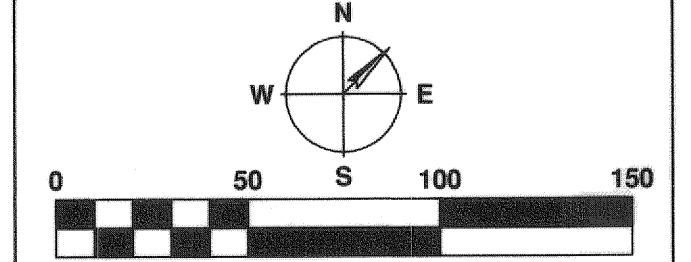


**RECORD PLANS**  
 To the best of my knowledge, from the information available, these "Record Plans" are in substantial compliance with the field construction.  
 By: [Signature]  
 Date: 1/5/20

**Legend**

X	DRAINAGE INLET LABEL
3	STRUCTURE LABEL
XXX.XXTP	PGL (PROPOSED GRADE LINE)
[Hatched Box]	DENOTES AREAS TO BE COMPACTED TO 95% STANDARD PROCTOR DENSITY PRIOR TO UTILITY & PAVING CONSTRUCTION.

PATH: K:\15371-Eng Plans\...  
 FILE: Plan & Profile.dwg  
 DATE: 03/03/2011 3:21PM

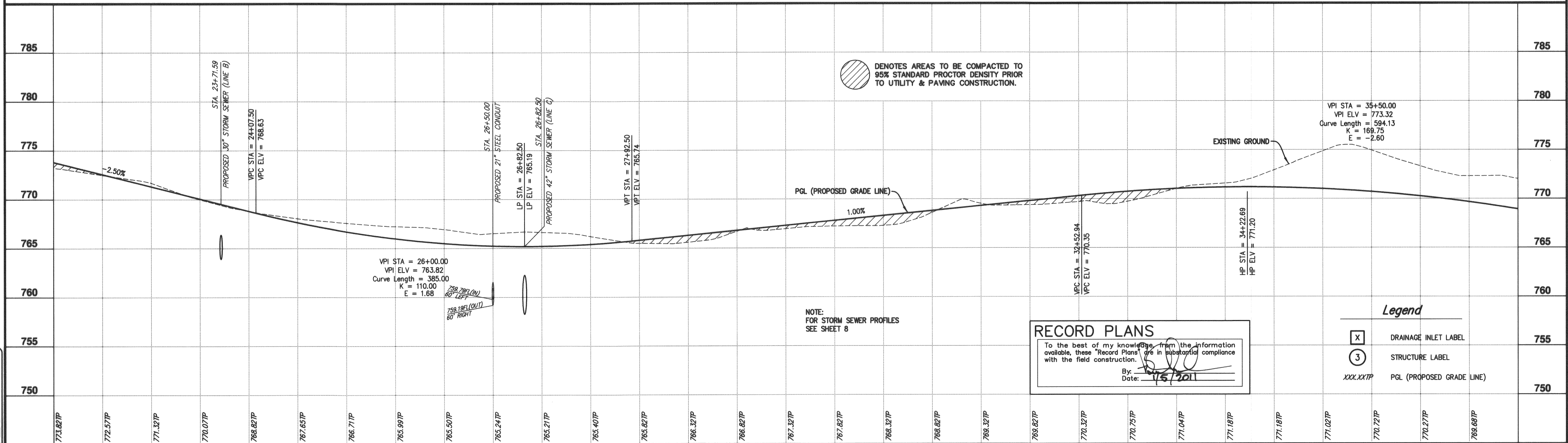
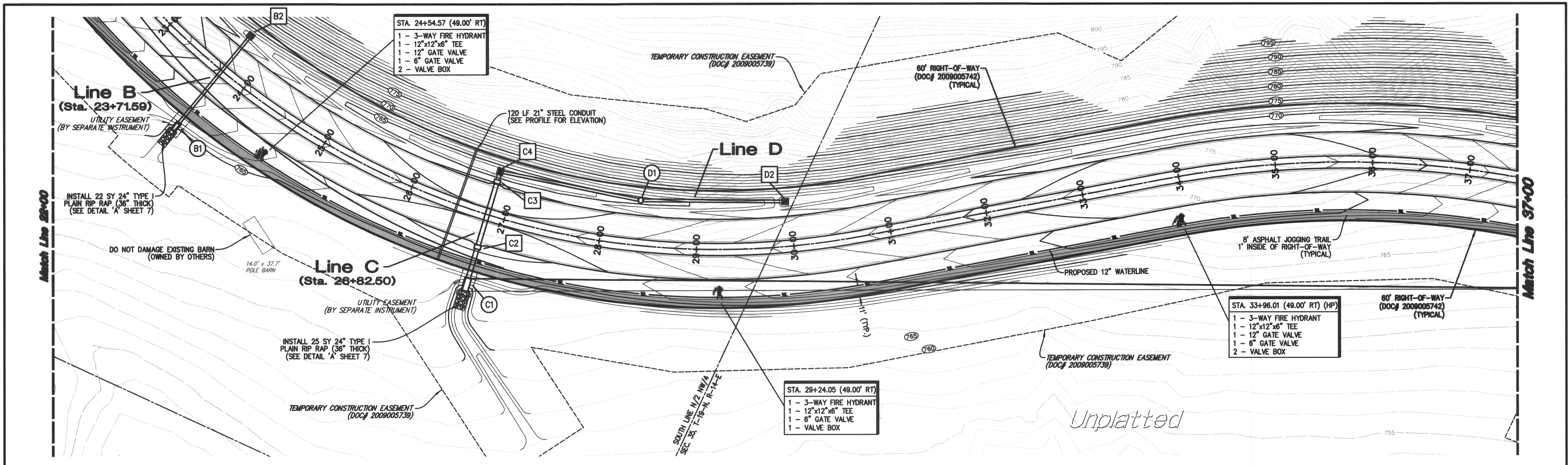


**HRAOK, Inc**  
 ENGINEERS • SURVEYORS • PLANNERS • LANDSCAPE ARCHITECTS  
 1913 WEST TACOMA - SUITE A VOICE: (918) 258-3737  
 BROKEN ARROW, OKLAHOMA 74012 FAX: (918) 258-2554  
 CA# 3643 EXP. DATE: 6-30-2009

**PLAN AND PROFILES**  
 ELM PLACE EXTENSION - FAA SITE TO OMAHA STREET

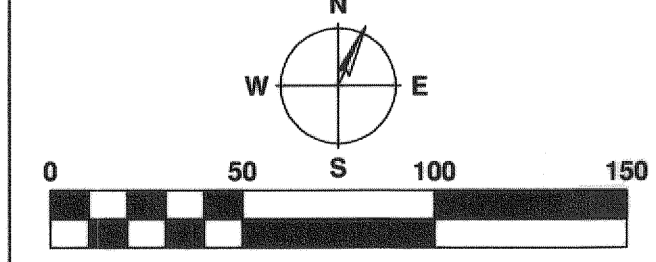
ALL CONSTRUCTION TO BE IN STRICT ACCORDANCE WITH CURRENT CITY OF BROKEN ARROW STANDARD CONSTRUCTION SPECIFICATIONS AND ODOT 1999 EDITION AND APPLICABLE SUPPLEMENTS.

SCALE:	DESIGN	DATE	DRAFTED	DATE
HORZ. 1" = 50'	REVIEWED	DATE	RGH	1/16/2009
VERT. 1" = 5'	SHEET OF	5 / 19	PROJECT NO.	ST0611



771.82TP	772.57TP	771.32TP	770.07TP	768.82TP	767.65TP	766.71TP	765.99TP	765.50TP	765.24TP	765.21TP	765.40TP	765.82TP	766.32TP	766.82TP	768.32TP	768.82TP	769.32TP	769.82TP	770.32TP	770.75TP	771.04TP	771.18TP	771.18TP	771.02TP	770.22TP	770.27TP	769.68TP
23+00	24+00	25+00	26+00	27+00	28+00	29+00	30+00	31+00	32+00	33+00	34+00	35+00	36+00														

PATH: K:\11537\1-Eng Plans\  
FILE: Plan & Profile.dwg  
DATE: Jan 03, 2011 3:22PM



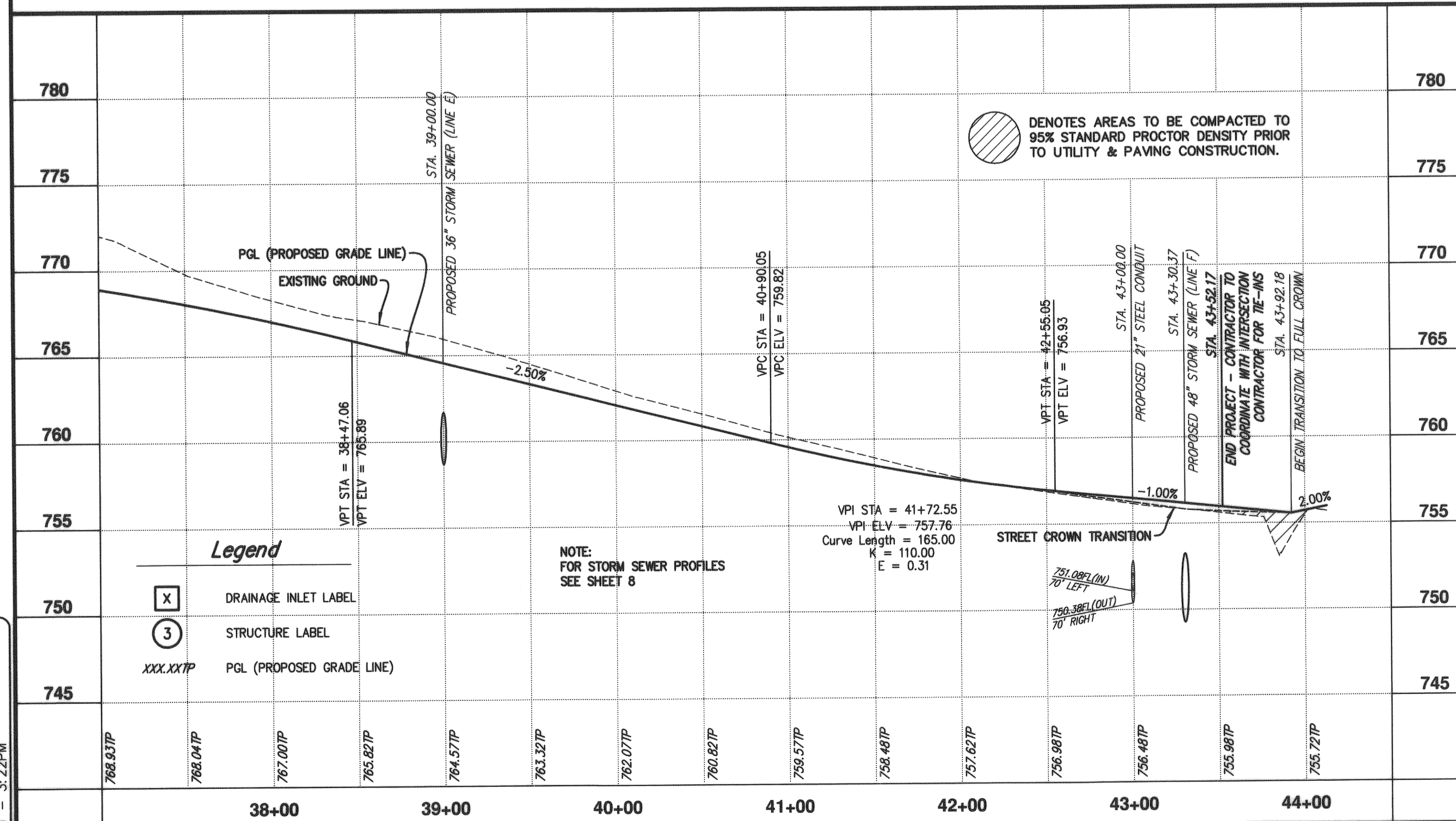
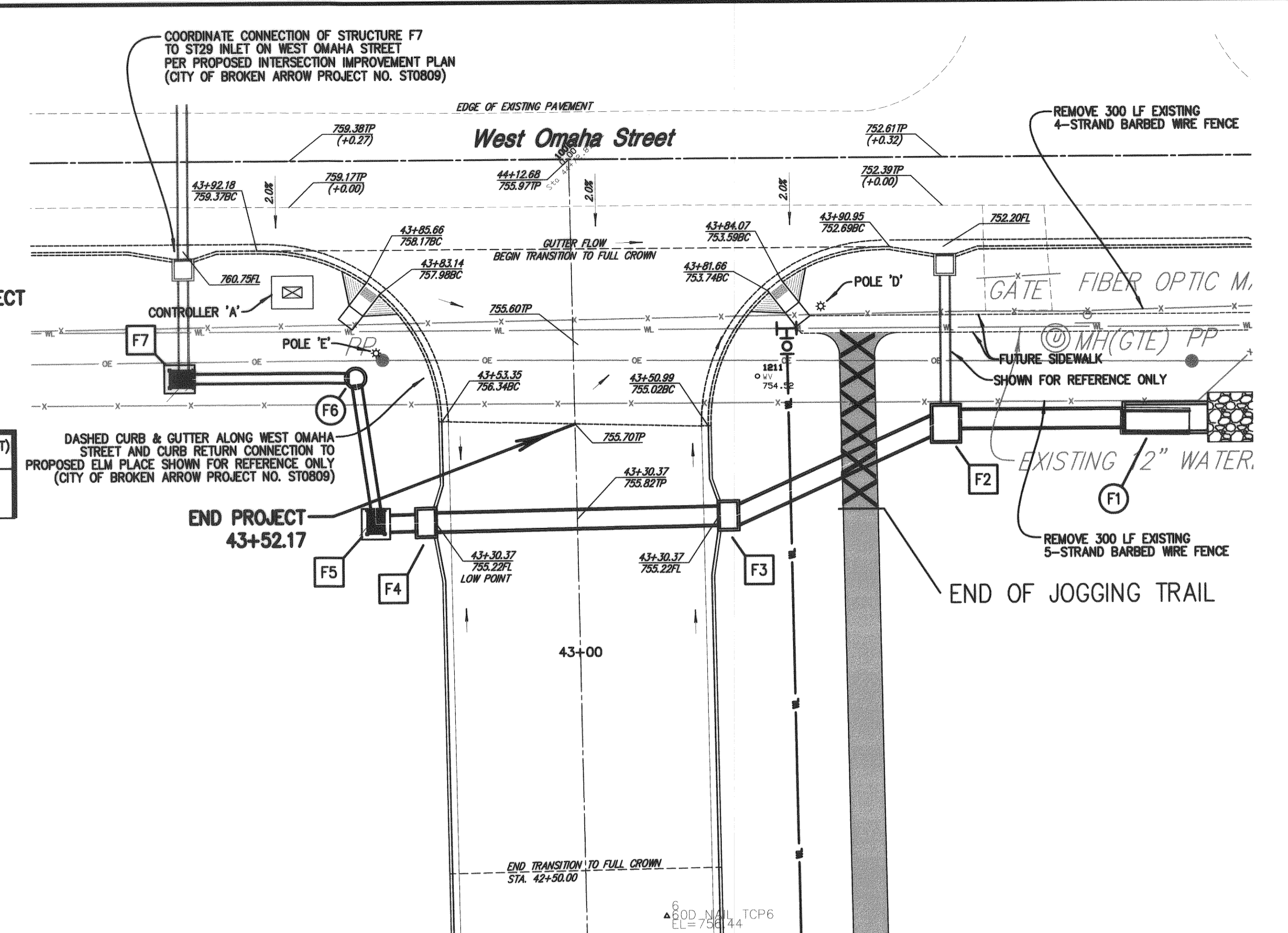
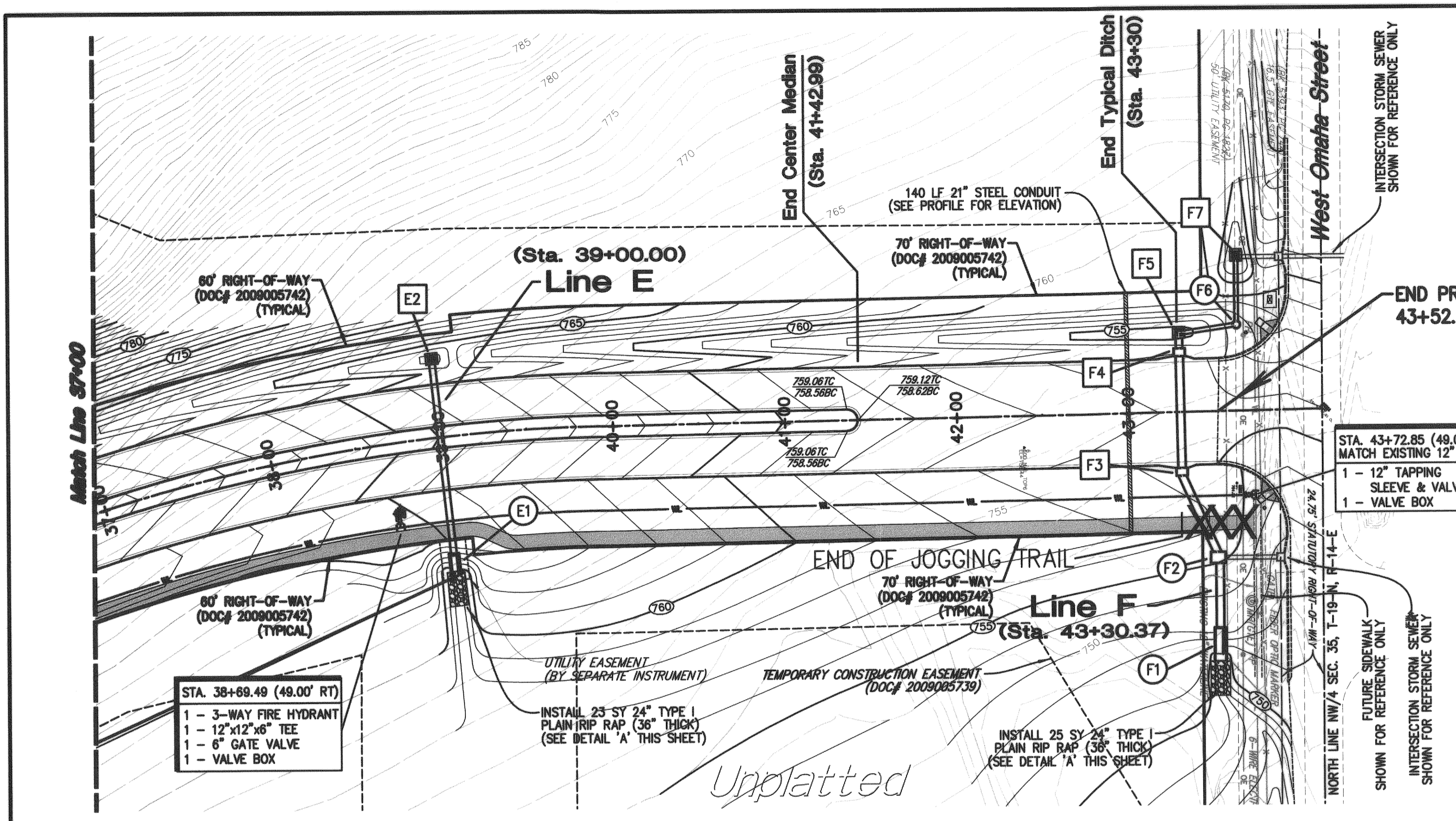
**HRAOK, Inc**  
ENGINEERS • SURVEYORS • PLANNERS • LANDSCAPE ARCHITECTS  
1913 WEST TACOMA - SUITE A VOICE: (918) 258-3737  
BROKEN ARROW, OKLAHOMA 74012 FAX: (918) 258-2554  
CA# 3643 EXP. DATE: 6-30-2009

**PLAN AND PROFILES**  
ELM PLACE EXTENSION - FAA SITE TO OMAHA STREET

ALL CONSTRUCTION TO BE IN STRICT ACCORDANCE WITH CURRENT CITY OF BROKEN ARROW STANDARD CONSTRUCTION SPECIFICATIONS AND ODOT 1999 EDITION AND APPLICABLE SUPPLEMENTS.

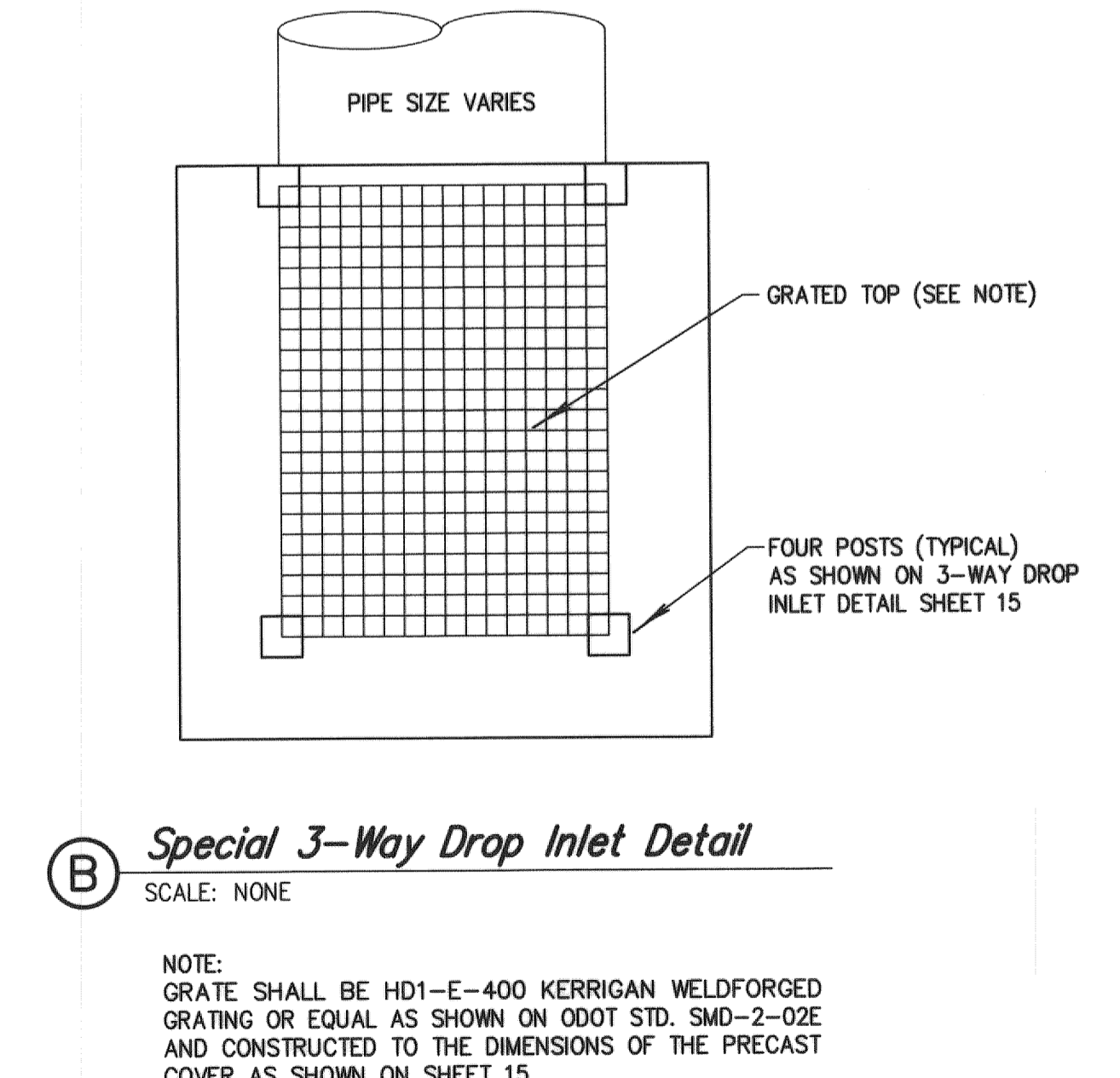
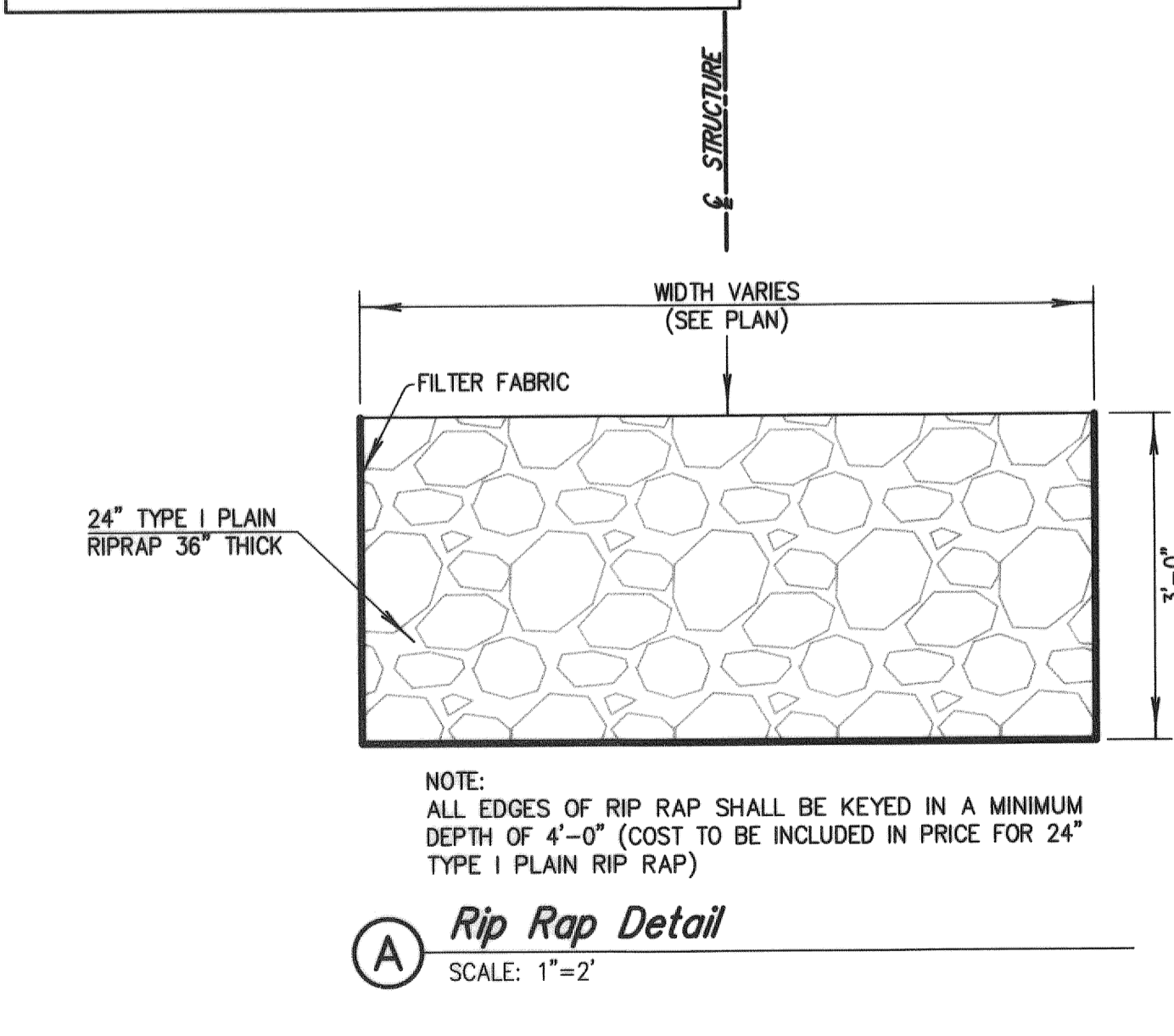
SCALE:  
HORZ. 1" = 50'  
VERT. 1" = 5'

DESIGN	DATE	DRAFTED	DATE
REVIEWED	DATE	APPROVED	DATE
SHEET 6 OF 19		PROJECT NO. ST0611	



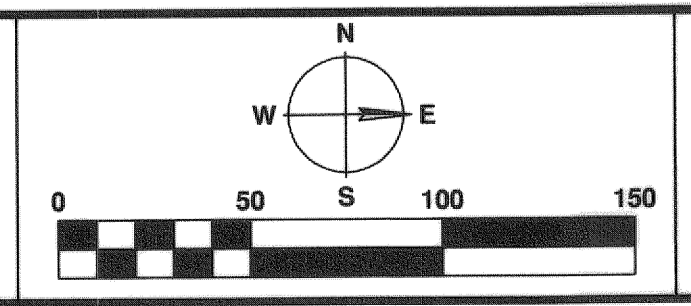
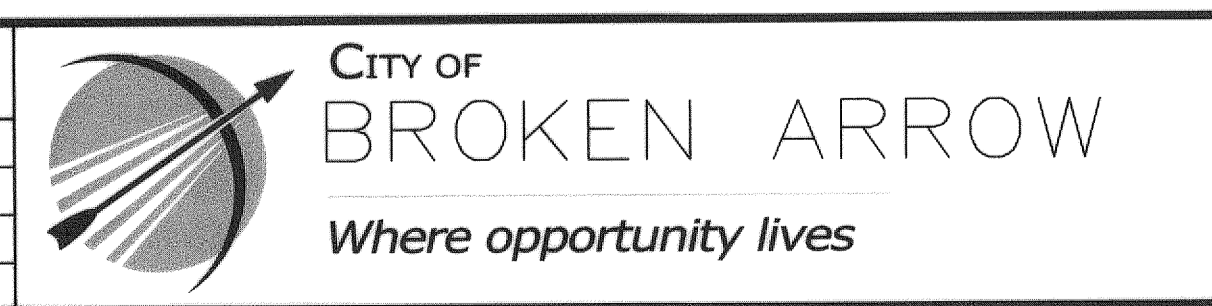
**RECORD PLANS**  
 To the best of my knowledge, from the information available, these "Record Plans" are in substantial compliance with the field construction.  
 By: [Signature]  
 Date: 1/5/2017

**Intersection Detail**  
 SCALE: 1"=20'



PATH: K:\11537\1-Eng Plans\FILE: Plan & Profile.dwg 3:22PM  
 DATE: Jan 03, 2011

DATE	REVISIONS

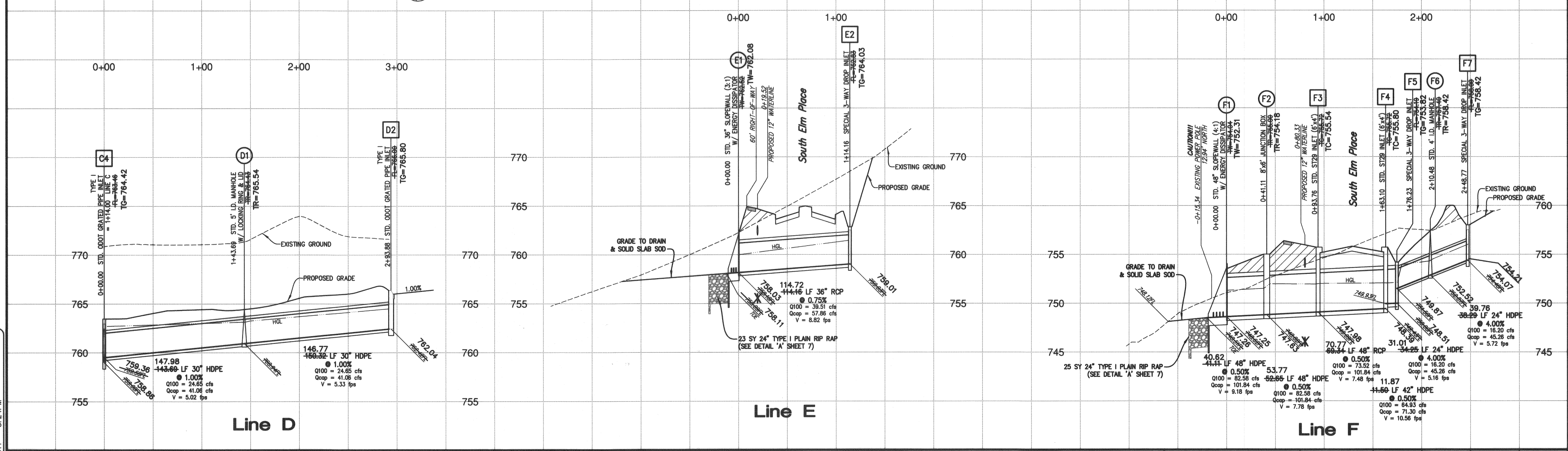
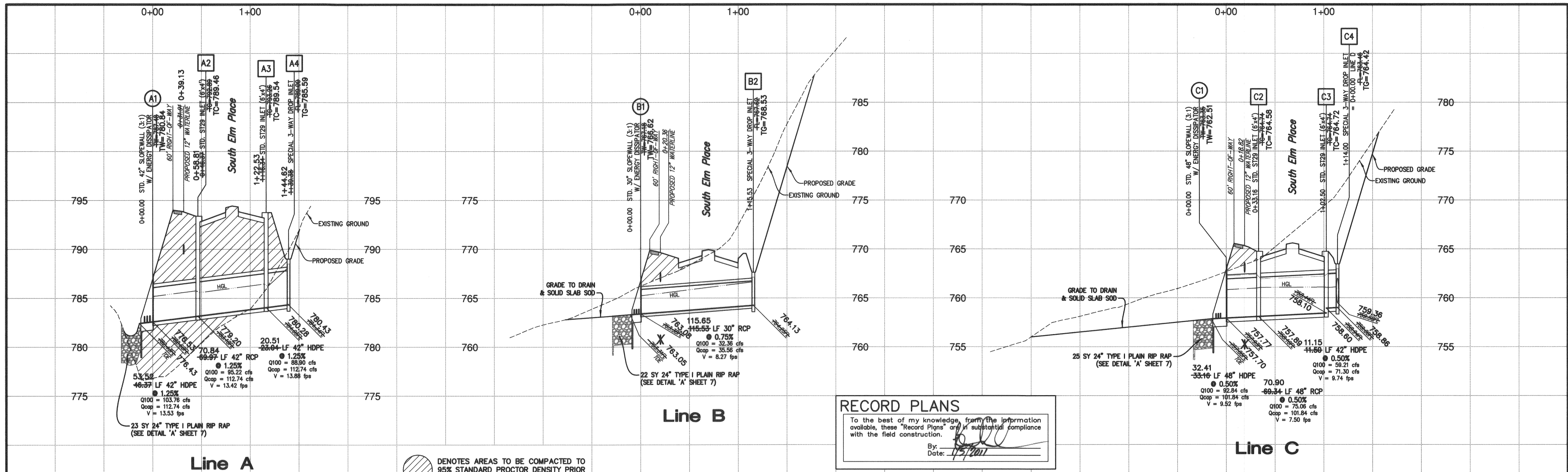


**HRAOK, Inc**  
 ENGINEERS • SURVEYORS • PLANNERS • LANDSCAPE ARCHITECTS  
 1913 WEST TACOMA - SUITE A VOICE: (918) 258-3737  
 BROKEN ARROW, OKLAHOMA 74012 FAX: (918) 258-2554  
 CA# 3643 EXP. DATE: 6-30-2009

**PLAN AND PROFILES**  
 ELM PLACE EXTENSION - FAA SITE TO OMAHA STREET

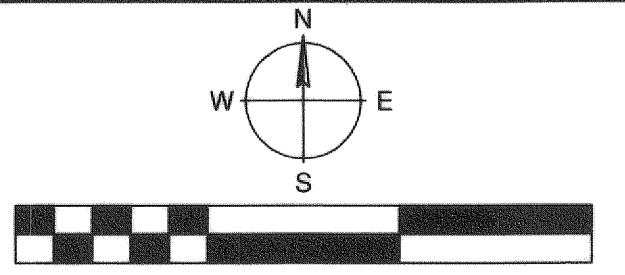
ALL CONSTRUCTION TO BE IN STRICT ACCORDANCE WITH CURRENT CITY OF BROKEN ARROW STANDARD CONSTRUCTION SPECIFICATIONS AND ODOT 1999 EDITION AND APPLICABLE SUPPLEMENTS.

SCALE:	DESIGN	DATE	DRAFTED	DATE
HORZ. 1" = 50'			RGM	1/16/2009
VERT. 1" = 5'	REVIEWED	DATE	APPROVED	DATE
	SHEET 7		PROJECT NO.	
	OF 19		ST0811	



PATH: K:\11537\1-Eng Plans\11537-1-Eng Plans.dwg  
 FILE: SD-Profiles.dwg  
 DATE: Jan 03, 2011 - 3:24PM

DATE	REVISIONS



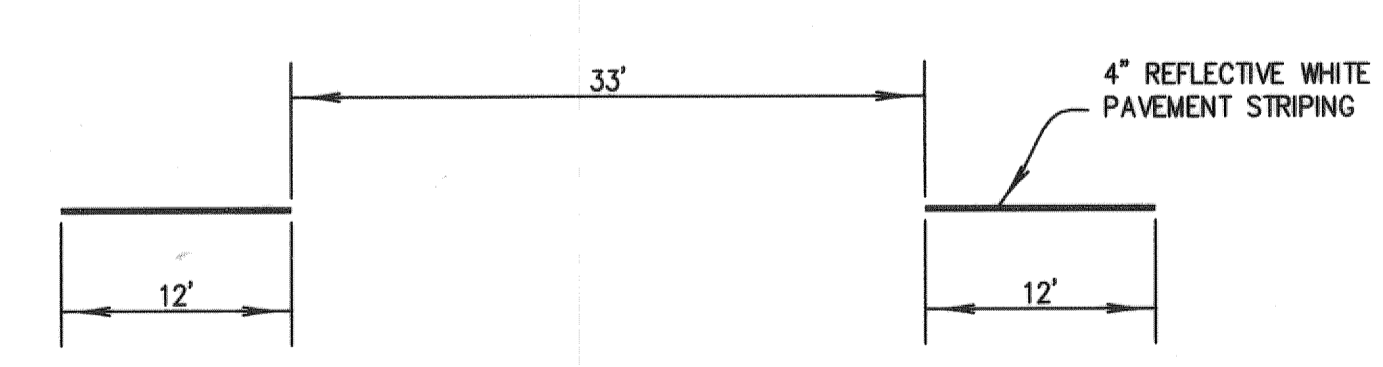
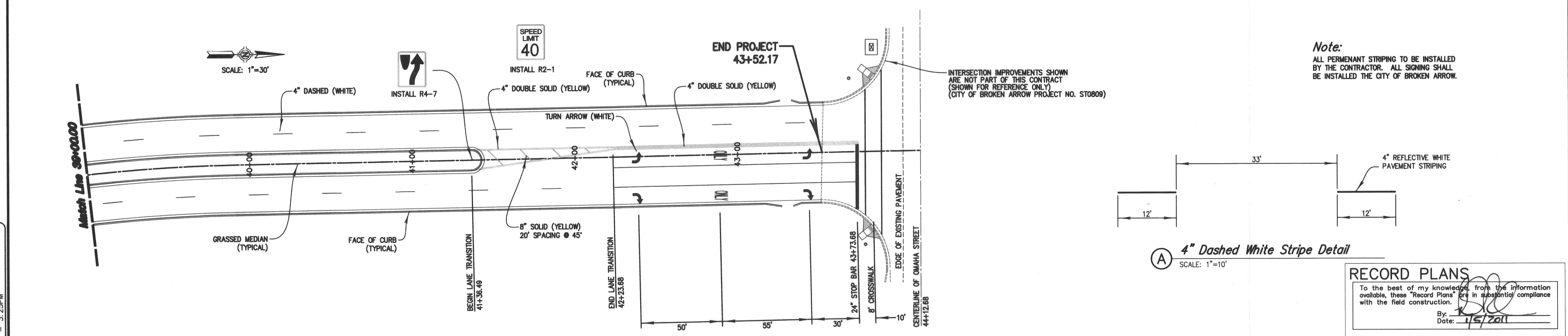
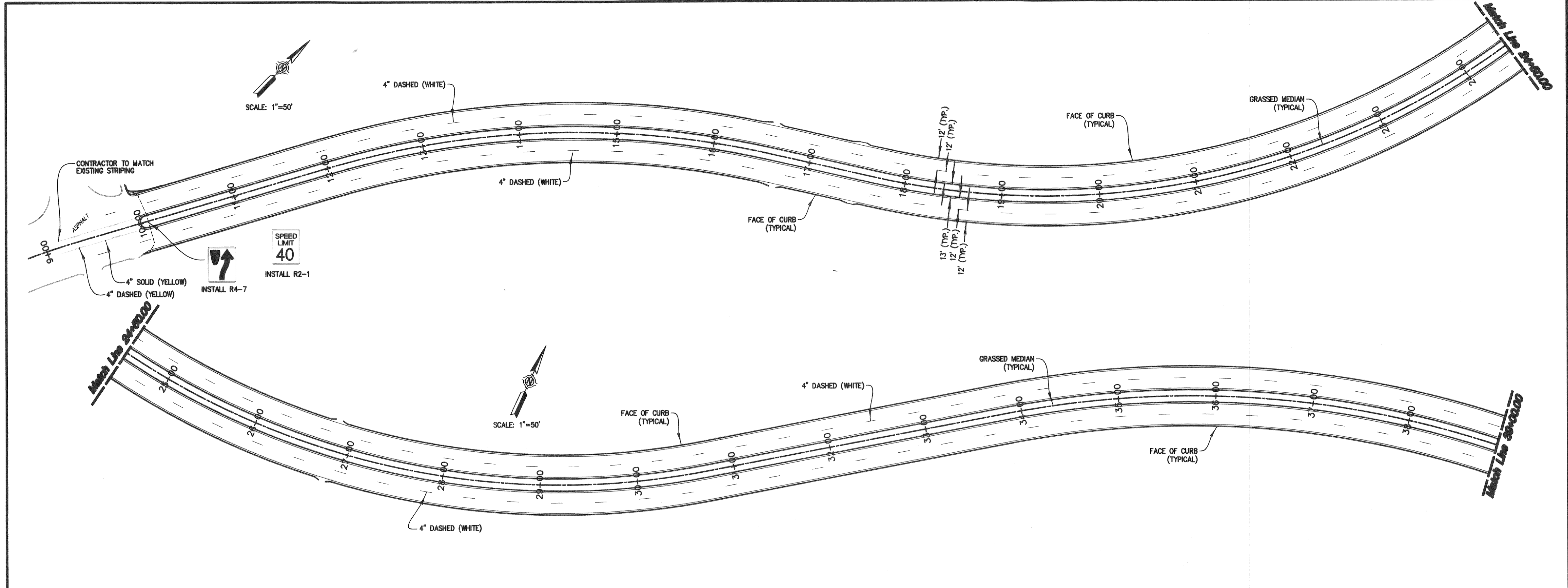
**HRAOK, Inc**  
 ENGINEERS • SURVEYORS • PLANNERS • LANDSCAPE ARCHITECTS  
 1913 WEST TACOMA - SUITE A VOICE: (918) 258-3737  
 BROKEN ARROW, OKLAHOMA 74012 FAX: (918) 258-2554  
 CA# 3643 EXP. DATE: 6-30-2009

**STORM SEWER PROFILES**  
 ELM PLACE EXTENSION - FAA SITE TO OMAHA STREET

ALL CONSTRUCTION TO BE IN STRICT ACCORDANCE WITH CURRENT CITY OF BROKEN ARROW STANDARD CONSTRUCTION SPECIFICATIONS AND ODOT 1998 EDITION AND APPLICABLE SUPPLEMENTS.

SCALE:	DESIGN	DATE	DRAFTED	DATE
HORZ. 1"=50'	REVIEWED	DATE	APPROVED	DATE
VERT. 1"=5'	SHEET 8	PROJECT NO. ST0611		
	OF 19			





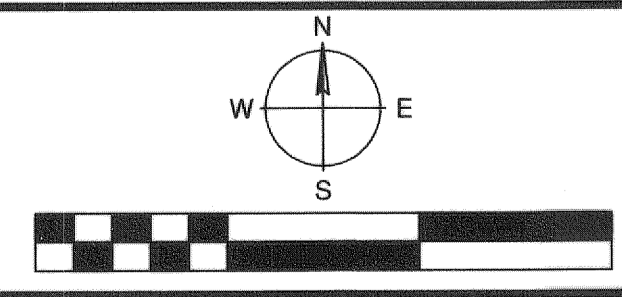
**Note:**  
 ALL PERMANENT STRIPING TO BE INSTALLED BY THE CONTRACTOR. ALL SIGNING SHALL BE INSTALLED THE CITY OF BROKEN ARROW.

INTERSECTION IMPROVEMENTS SHOWN ARE NOT PART OF THIS CONTRACT (SHOWN FOR REFERENCE ONLY) (CITY OF BROKEN ARROW PROJECT NO. ST0809)

**RECORD PLANS**  
 To the best of my knowledge, from the information available, these "Record Plans" are in substantial compliance with the field construction.  
 By: *[Signature]*  
 Date: 1/5/2011

PATH: K:\11537\1-Eng Plans\  
 FILE: PV-Marking.dwg  
 DATE: Jan 05, 2011 - 3:25PM

DATE	REVISIONS

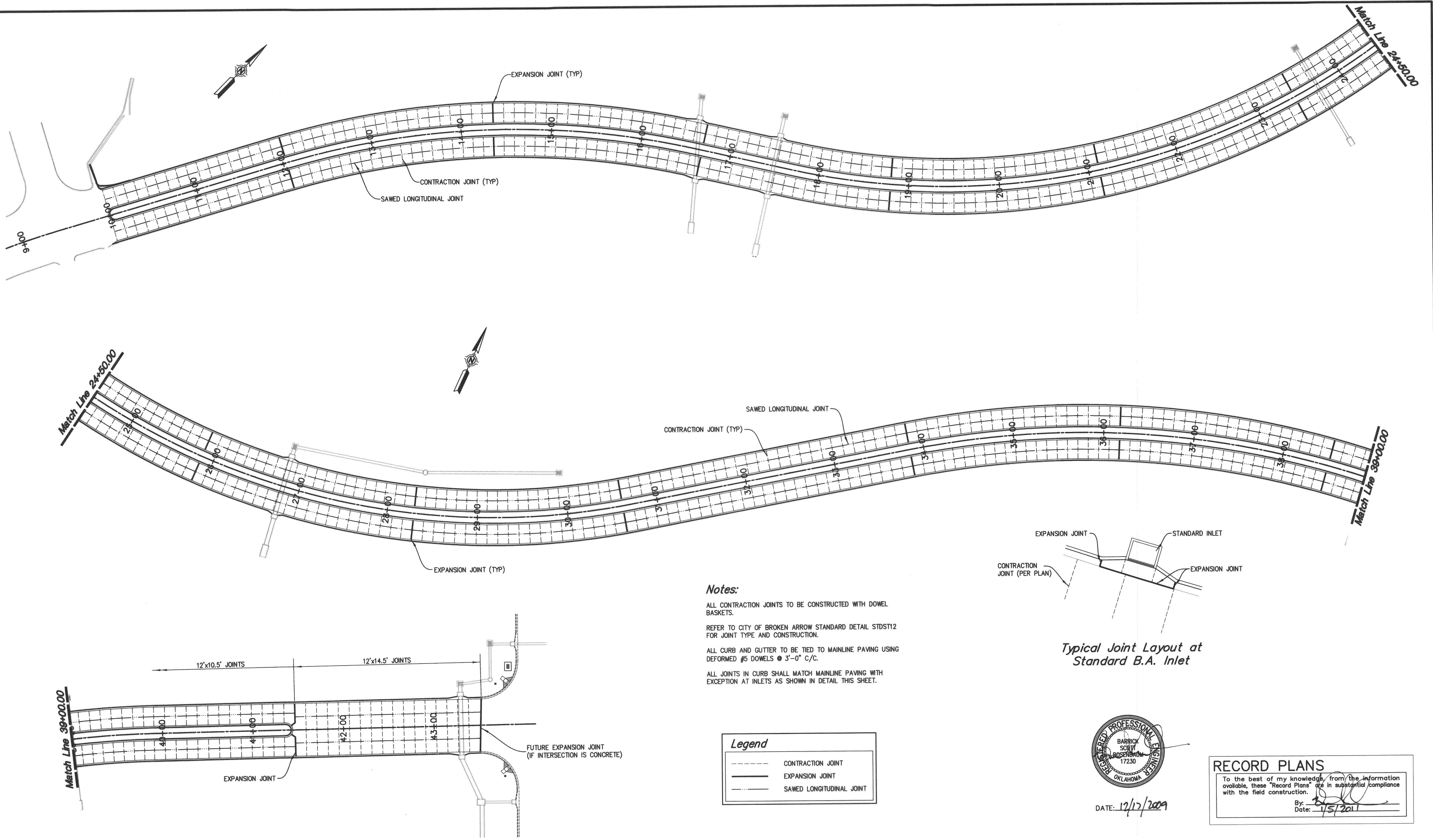


**HRAOK, INC**  
 ENGINEERS • SURVEYORS • PLANNERS • LANDSCAPE ARCHITECTS  
 1913 WEST TACOMA - SUITE A VOICE: (918) 258-3737  
 BROKEN ARROW, OKLAHOMA 74012 FAX: (918) 258-2554  
 CA# 3643 EXP. DATE: 6-30-2009

**PAVEMENT MARKING**  
 ELM PLACE EXTENSION - FAA SITE TO OMAHA STREET

ALL CONSTRUCTION TO BE IN STRICT ACCORDANCE WITH CURRENT CITY OF BROKEN ARROW STANDARD CONSTRUCTION SPECIFICATIONS AND ODOT 1999 EDITION AND APPLICABLE SUPPLEMENTS.

SCALE:	DESIGN	DATE	DRAFTED	DATE
HORZ. SEE PLAN			RGM	1/16/2009
VERT. N/A			APPROVED	
	SHEET 9		PROJECT NO.	
	OF 19		ST0611	



**Notes:**

ALL CONTRACTION JOINTS TO BE CONSTRUCTED WITH DOWEL BASKETS.

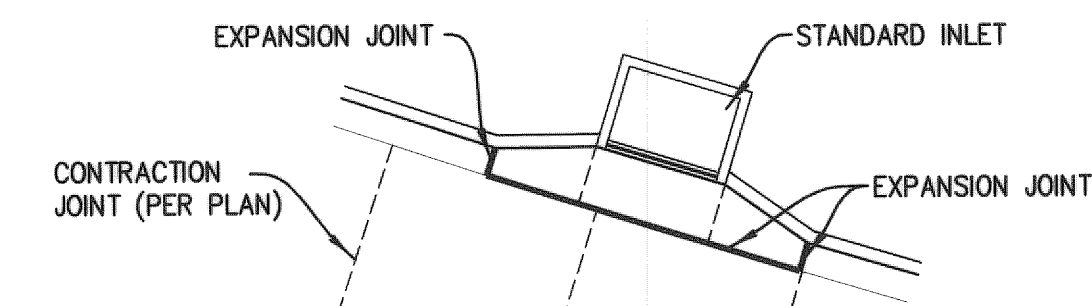
REFER TO CITY OF BROKEN ARROW STANDARD DETAIL STDST12 FOR JOINT TYPE AND CONSTRUCTION.

ALL CURB AND GUTTER TO BE TIED TO MAINLINE PAVING USING DEFORMED #5 DOWELS @ 3'-0" C/C.

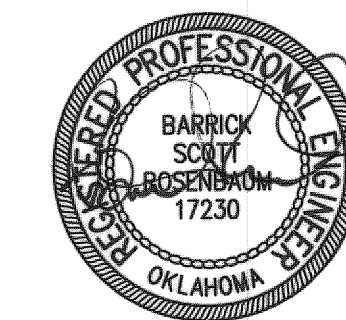
ALL JOINTS IN CURB SHALL MATCH MAINLINE PAVING WITH EXCEPTION AT INLETS AS SHOWN IN DETAIL THIS SHEET.

**Legend**

- CONTRACTION JOINT
- EXPANSION JOINT
- · - · SAWED LONGITUDINAL JOINT



*Typical Joint Layout at Standard B.A. Inlet*



DATE: 12/17/2009

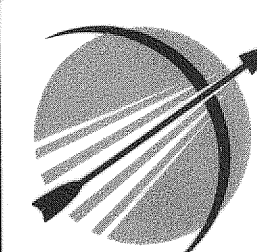
**RECORD PLANS**

To the best of my knowledge, from the information available, these "Record Plans" are in substantial compliance with the field construction.

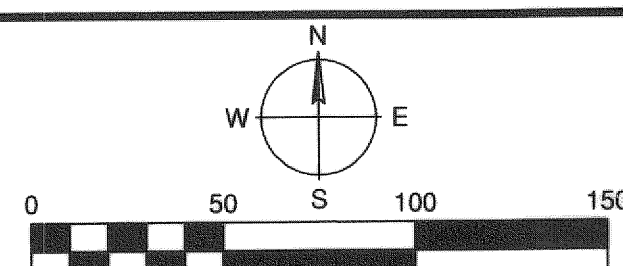
By: *[Signature]*  
Date: 1/5/2011

PATH: K:\115371-Eng\_Plans\  
FILE: PV-Const-Joints.dwg  
DATE: Jan 03, 2011 4:03PM

DATE	REVISIONS



**CITY OF BROKEN ARROW**  
*Where opportunity lives*

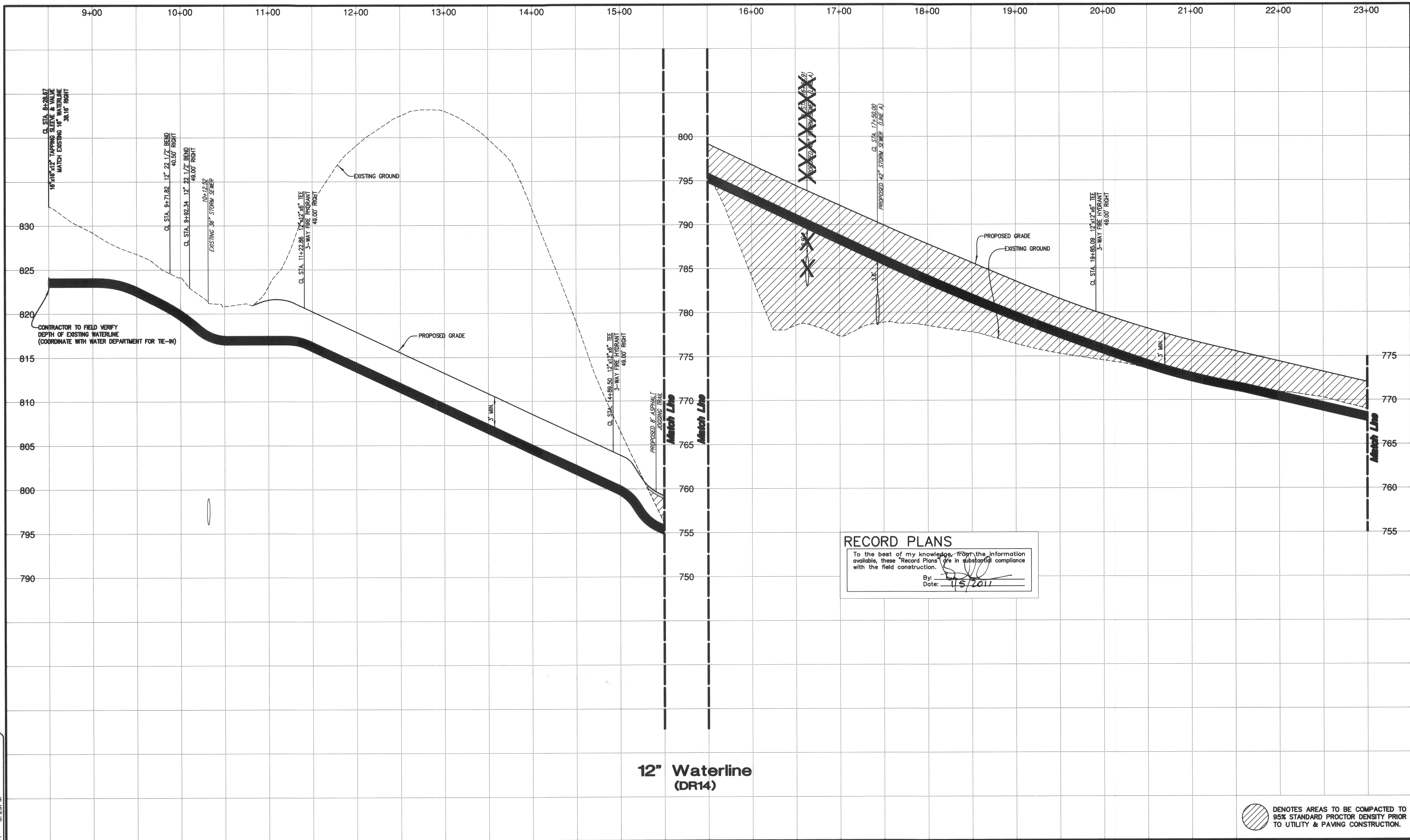


**HRAOK, Inc**  
ENGINEERS • SURVEYORS • PLANNERS • LANDSCAPE ARCHITECTS  
1913 WEST TACOMA - SUITE A VOICE: (918) 258-3737  
BROKEN ARROW, OKLAHOMA 74012 FAX: (918) 258-2554  
CA# 3643 EXP. DATE: 6-30-2011

**CONSTRUCTION JOINT LAYOUT**  
ELM PLACE EXTENSION - FAA SITE TO OMAHA STREET

ALL CONSTRUCTION TO BE IN STRICT ACCORDANCE WITH CURRENT CITY OF BROKEN ARROW STANDARD CONSTRUCTION SPECIFICATIONS AND ODOT 1999 EDITION AND APPLICABLE SUPPLEMENTS.

SCALE:	DESIGN	DATE	DRAFTED	DATE
	HORZ. 1"=50'			RWB
VERT. N/A	REVIEWED	DATE	APPROVED	DATE
SHEET 9 OF 19			PROJECT NO. ST0611	



**12" Waterline (DR14)**

**RECORD PLANS**  
 To the best of my knowledge, from the information available, these "Record Plans" are in substantial compliance with the field construction.  
 By: *[Signature]*  
 Date: 1/5/2011

PATH: K:\11537\1-Eng Plans\FILE: WL-Profiles.dwg  
 DATE: Jan 03, 2011 - 3:29PM

DATE	REVISIONS

**CITY OF  
BROKEN ARROW**  
*Where opportunity lives*

**HRAOK, INC**  
 ENGINEERS • SURVEYORS • PLANNERS • LANDSCAPE ARCHITECTS  
 1913 WEST TACOMA - SUITE A VOICE: (918) 258-3737  
 BROKEN ARROW, OKLAHOMA 74012 FAX: (918) 258-2554  
 CA# 3643 EXP. DATE: 6-30-2009

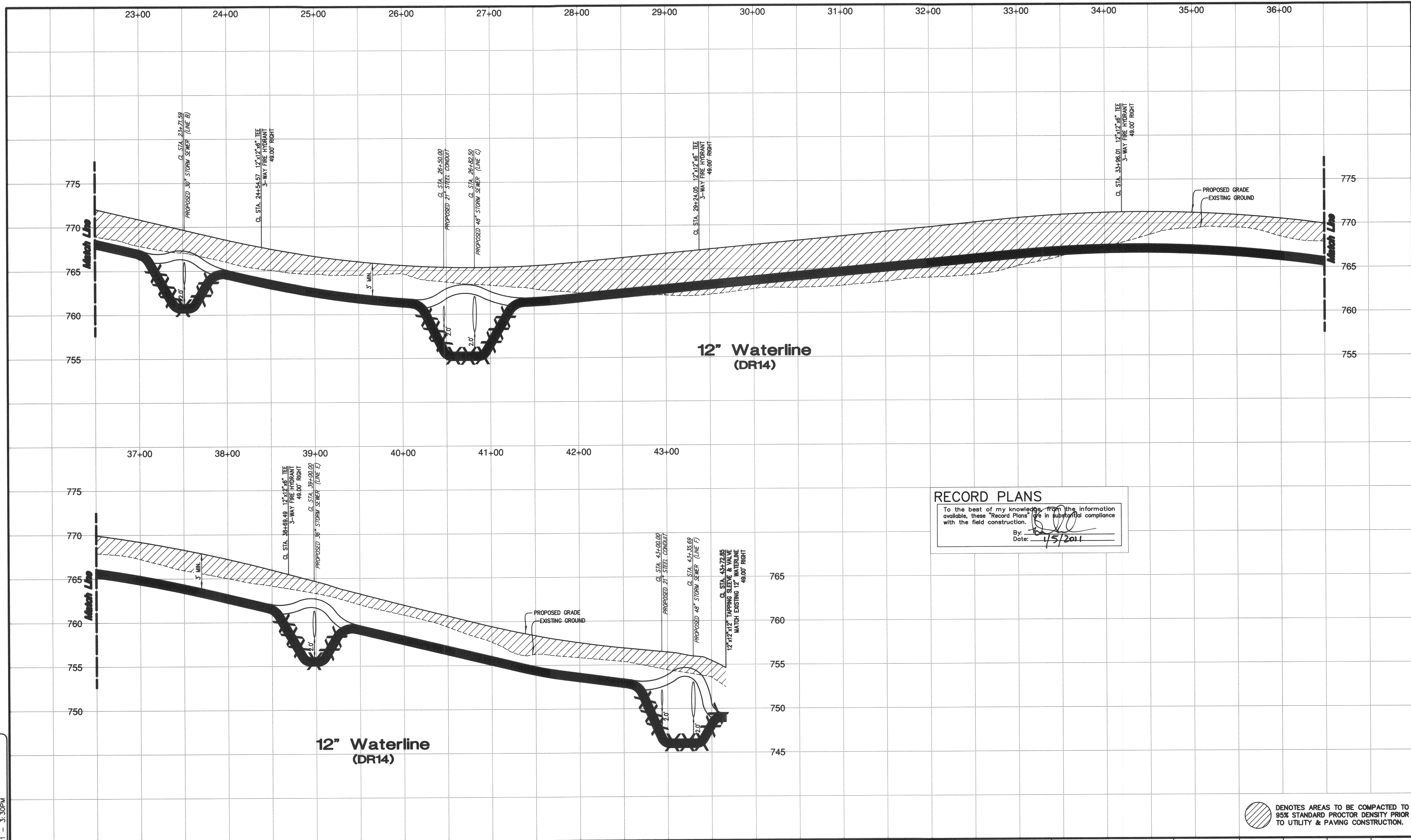
**WATERLINE PROFILE**  
 ELM PLACE EXTENSION - FAA SITE TO OMAHA STREET

ALL CONSTRUCTION TO BE IN STRICT ACCORDANCE WITH CURRENT CITY OF BROKEN ARROW STANDARD CONSTRUCTION SPECIFICATIONS AND ODOT 1999 EDITION AND APPLICABLE SUPPLEMENTS.

SCALE:  
 HORZ. 1"=50'  
 VERT. 1"=5'

DESIGN	DATE	DRAFTED	DATE
REVIEWED	DATE	APPROVED	DATE
SHEET 10	PROJECT NO. ST0611		
OF 19			

DENOTES AREAS TO BE COMPACTED TO 95% STANDARD PROCTOR DENSITY PRIOR TO UTILITY & PAVING CONSTRUCTION.

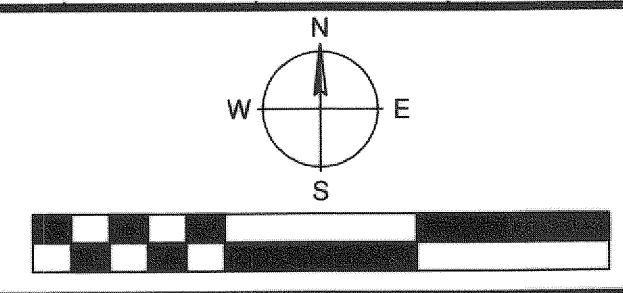


**RECORD PLANS**  
 To the best of my knowledge, from the information available, these "Record Plans" are in substantial compliance with the field construction.  
 By: *[Signature]*  
 Date: 1/5/2011

DENOTES AREAS TO BE COMPACTED TO 95% STANDARD PROCTOR DENSITY PRIOR TO UTILITY & PAVING CONSTRUCTION.

PATH: K:\11537\1-Eng Plans\  
 FILE: WL-Profiles.dwg  
 DATE: Jan 03, 2011 - 3:30PM

DATE	REVISIONS



**HRAOK, Inc**  
 ENGINEERS • SURVEYORS • PLANNERS • LANDSCAPE ARCHITECTS  
 1913 WEST TACOMA - SUITE A VOICE: (918) 258-3737  
 BROKEN ARROW, OKLAHOMA 74012 FAX: (918) 258-2554  
 CA# 3643 EXP. DATE: 6-30-2009

**WATERLINE PROFILE**  
 ELM PLACE EXTENSION - FAA SITE TO OMAHA STREET

ALL CONSTRUCTION TO BE IN STRICT ACCORDANCE WITH CURRENT CITY OF BROKEN ARROW STANDARD CONSTRUCTION SPECIFICATIONS AND ODOT 1999 EDITION AND APPLICABLE SUPPLEMENTS.

SCALE:  
 HORZ. 1"=50'  
 VERT. 1"=5'

DESIGN	DATE	DRAFTED	DATE
		RGM	1/13/2009
REVIEWED	DATE	APPROVED	DATE
SHEET OF	11 OF 19	PROJECT NO. ST0611	

# STORM WATER POLLUTION PREVENTION PLAN

## SITE DESCRIPTION

**PROJECT LIMITS:** EXTENSION OF ELM PLACE (S. 161st East AVENUE) FROM THE CURRENT END OF THE ALIGNMENT (ONE-HALF MILE N. OF ALBANY) FOR APPROXIMATELY 0.65 MILES TO AN INTERSECTION WITH OMAHA STREET.

**PROJECT DESCRIPTION:** GRADING, DRAINAGE, PAVING OF A 4-LANE DIVIDED ROADWAY WITH A RAISED MEDIAN INCLUDING AN ENCLOSED STORM SEWER SYSTEM (WHERE APPLICABLE).

**SUGGESTED SEQUENCE OF CONSTRUCTION:**  
 INSTALL TEMPORARY EROSION CONTROL DEVICES  
 PERFORM MAJOR GRADING OPERATIONS  
 CONSTRUCT STORM SEWER SYSTEM  
 PAVE ROADWAY SECTION  
 REMOVE TEMPORARY EROSION CONTROL  
 PLACE PERMANENT EROSION CONTROL

**TOTAL AREA TO BE DISTURBED:** ESTIMATED AT 9 ACRES ±

NOTE: THIS AREA IS TO BE CALCULATED AS "R/W TO R/W" FOR THE EXTENTS OF THE PROJECT. INCLUDING ANY INCIDENTAL CONSTRUCTION.

**WEIGHTED RUNOFF COEFFICIENT:**  
 0.65 RESIDENTIAL AREA (FUTURE) - 0.80 COMMERCIAL AREA (FUTURE)

NOTE: THIS SHOULD BE DETERMINED BY THE HYDRAULIC DESIGNER FOR THE PROJECT. THIS VALUE SHOULD BE THE AVERAGE "C" FACTOR USED ON THE PROJECT. IT SHOULD BE BASE ON ANTICIPATED FUTURE LAND USE.

**NAME OF RECEIVING WATERS:** UNNAMED TRIBUTARY TO ADAMS CREEK

NOTE: THIS SHOULD DESCRIBE EACH NAMED CREEK, RIVER, OR BODY OF WATER WHICH IS RECEIVING STORM WATER RUNOFF.

NOTE: THIS SHEET SHOULD BE USED IN CONJUNCTION WITH A DRAINAGE OR SITE MAP THAT ILLUSTRATES THE DRAINAGE CHARACTERISTICS AND RECEIVING WATERS FOR EACH PROJECT.

**ENDANGERED SPECIES:** THIS PROJECT IS NOT LOCATED WITHIN THE FEDERAL OR STATE LISTED SENSITIVE AREAS (I.E. ONE MILE EITHER SIDE OF THE ARKANSAS RIVER). THIS PROJECT IS NOT LIKELY TO SIGNIFICANTLY EFFECT ENDANGERED OR THREATENED SPECIES. NO FURTHER INVESTIGATION IS NECESSARY FOR THIS SITE (OKR10 PART I SECTION B, 3.E.2(b), PAGE 3)

**KEEPING PLANS CURRENT:** AS PER PART IV SECTION E.2.4.2 OF THE OPDES PERMIT OKR10 LANGUAGE (SEE CONTRACT DOCUMENTS) THE OWNER/OPERATOR OF THIS PROJECT AGREES TO UPDATE THIS STORM SEWER POLLUTION PREVENTION PLAN TO REMAIN CONSISTENT WITH ANY CHANGES APPLICABLE TO PROTECTING SURFACE WATER RESOURCES IN SEDIMENT EROSION SITE PLANS OR SITE PERMITS, OR STORM WATER MANAGEMENT SITE PLANS OR SITE PERMITS APPROVED BY STATE OR LOCAL OFFICIALS FOR WHICH THE PERMITTEE RECEIVES WRITTEN NOTICE.

## SOIL STABILIZATION PRACTICES:

- TEMPORARY SEEDING
- PERMANENT SODDING
- MULCHING
- SOIL RETENTION BLANKET
- PRESERVATION OF EXISTING VEGETATION

OTHER: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## STRUCTURAL PRACTICES:

- SILTATION SCREENS
- TEMPORARY BALE BARRIERS
- DIVERSION, INTERCEPTOR OR PERIMETER DIKES
- DIVERSION, INTERCEPTOR OR PERIMETER DITCHES
- DIVERSION DIKE AND DITCH COMBINATIONS
- PIPE SLOPE DRAINS
- PAVED DITCH AND DITCH LINER PROTECTION
- ENERGY DISSIPATING DEVICES
- TEMPORARY SEDIMENT BASINS
- TEMPORARY SEDIMENT FILTERS

## OFFSITE VEHICLE TRACKING:

- HAUL ROADS DAMPENED FOR DUST CONTROL
- LOADED HAUL TRUCKS TO BE COVERED WITH TARPAULIN
- EXCESS DIRT ON ROAD REMOVED DAILY
- STABILIZED CONSTRUCTION ENTRANCE/EXIT

## ADDITIONAL INFORMATION:

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## OTHER EROSION AND SEDIMENT CONTROLS:

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 WASTE:**  
 PROPER MANAGEMENT AND DISPOSAL OF HAZARDOUS WASTE MATERIAL 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 (SWP3) IS REQUIRED TO COMPLY WITH THE OKLAHOMA POLLUTION DISCHARGE ELIMINATION SYSTEM (OPDES) REGULATIONS. THIS PLAN IS DEVELOPED DURING THE DESIGN PHASE, CONFIRMED IN THE PRE-WORK MEETINGS AND AVAILABLE ON THE JOB SITE. 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 SUBSECTIONS OF THE 1999 ODOT STANDARD SPECIFICATIONS SHOULD BE NOTED:

SECTION 220 TEMPORARY EROSION, SEDIMENTATION, AND STORMWATER POLLUTION PREVENTION AND CONTROL

REFER TO SHEET 13 FOR PLACEMENT OF STRUCTURAL CONTROLS

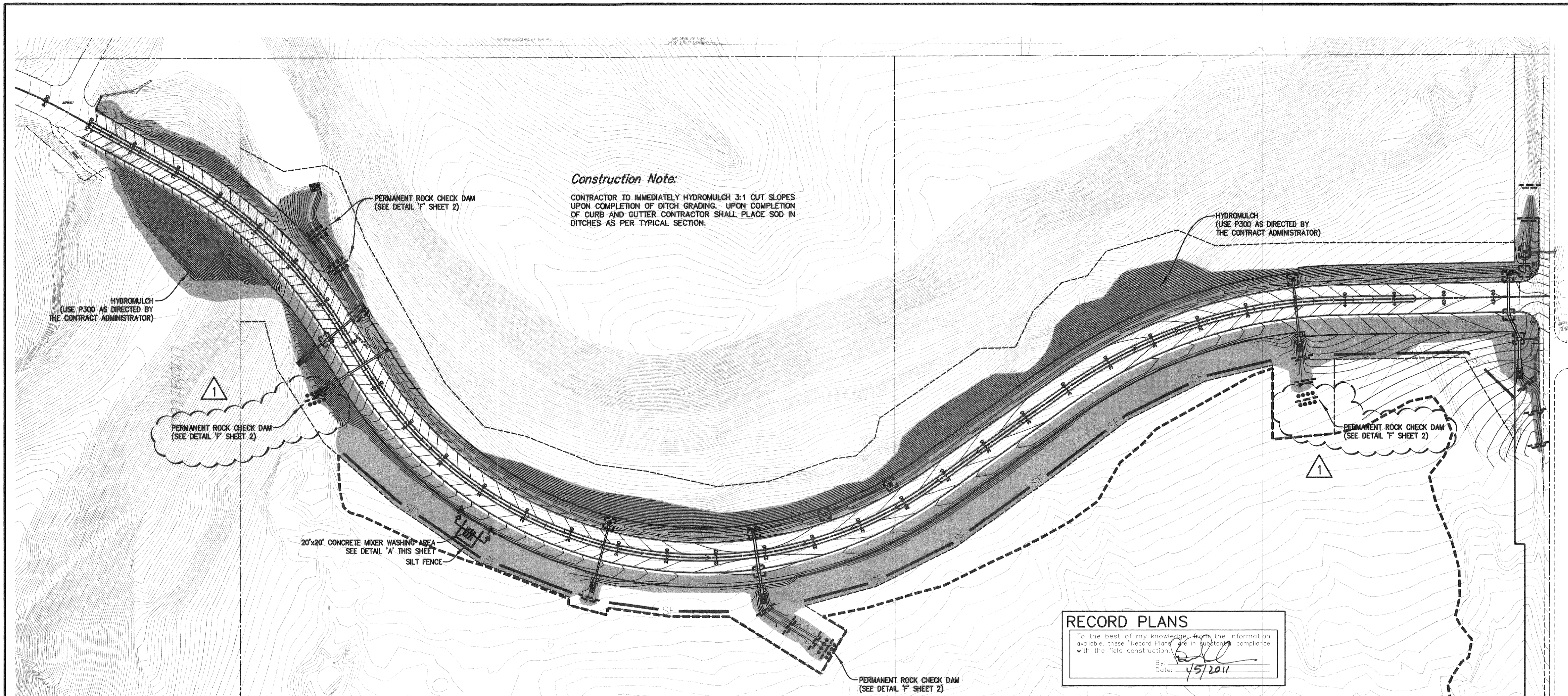
### RECORD PLANS

To the best of my knowledge, from the information available, these "Record Plans" are in substantial compliance with the field construction.

By: *[Signature]*  
 Date: 1/5/2011

PATH: K:\11537\1-Eng Plans\ FILE: SWP3.dwg DATE: Jan 03, 2011 - 3:31PM

DATE	REVISIONS	 <b>CITY OF BROKEN ARROW</b> <i>Where opportunity lives</i>		<b>HRAOK, Inc</b> ENGINEERS • SURVEYORS • PLANNERS • LANDSCAPE ARCHITECTS 1913 WEST TACOMA - SUITE A VOICE: (918) 258-3737 BROKEN ARROW, OKLAHOMA 74012 FAX: (918) 258-2554 O&A 3643 EXP. DATE: 6-30-2011	STORM WATER POLLUTION PREVENTION PLAN	ALL CONSTRUCTION TO BE IN STRICT ACCORDANCE WITH CURRENT CITY OF BROKEN ARROW STANDARD CONSTRUCTION SPECIFICATIONS AND ODOT 1999 EDITION AND APPLICABLE SUPPLEMENTS.	SCALE:	DESIGN	DATE	DRAFTED	DATE
					HORIZ. N/A		REVIEWED	DATE	RGM	1/13/2009	
		VERT. N/A	SHEET	12	PROJECT NO.						
			OF	19	ST0611						



**Construction Note:**

CONTRACTOR TO IMMEDIATELY HYDROMULCH 3:1 CUT SLOPES UPON COMPLETION OF DITCH GRADING. UPON COMPLETION OF CURB AND GUTTER CONTRACTOR SHALL PLACE SOD IN DITCHES AS PER TYPICAL SECTION.

HYDROMULCH  
(USE P300 AS DIRECTED BY  
THE CONTRACT ADMINISTRATOR)

PERMANENT ROCK CHECK DAM  
(SEE DETAIL 'F' SHEET 2)

HYDROMULCH  
(USE P300 AS DIRECTED BY  
THE CONTRACT ADMINISTRATOR)

PERMANENT ROCK CHECK DAM  
(SEE DETAIL 'F' SHEET 2)

PERMANENT ROCK CHECK DAM  
(SEE DETAIL 'F' SHEET 2)

20'x20' CONCRETE MIXER WASHING AREA  
SEE DETAIL 'A' THIS SHEET  
SILT FENCE

PERMANENT ROCK CHECK DAM  
(SEE DETAIL 'F' SHEET 2)

**RECORD PLANS**

To the best of my knowledge, for the information available, these "Record Plans" are in substantial compliance with the field construction.

By: *[Signature]*  
Date: 4/5/2011

1 NOT INSTALLED PER OWNER REPRESENTATIVE

PERMANENT COVER (SOD):

SEE TYPICAL SECTIONS  
(SHEET 2)

TEMPORARY COVER:

HYDROMULCH AS SHOWN ON  
THIS SHEET AND ALL DISTURBED  
AREAS NOT SODDED.

**Erosion Control Summary:**

DISTURBED AREA	718,776 SF (16.50 AC)
PERMANENT STABILIZATION (SOD)	47,532 SF (1.09 AC)
TEMPORARY/PERMANENT HYDROMULCH	442,158 SF (10.15 AC)
PERMANENT STABILIZATION (PAVEMENT)	229,086 SF (5.26 AC)

**Legend**

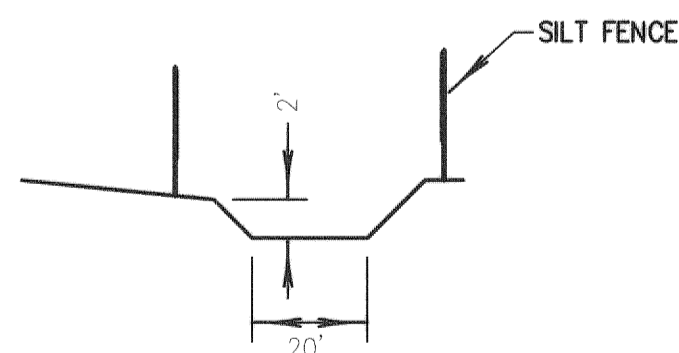
STORM INLET SEDIMENT TRAP	
SILT FENCE	
HAYBALE DITCH CHECK	
PERMANENT ROCK CHECK DAM	
HYDRO MULCH	

TOTAL: 2,275 LF SILT FENCE

**General Erosion Control Notes:**

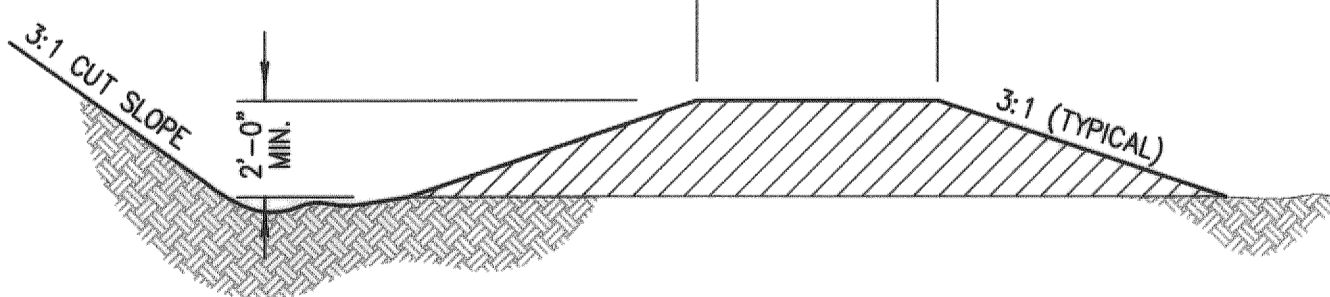
- POLLUTION PREVENTION PLAN SHALL BE ON-SITE DURING ALL CONSTRUCTION ACTIVITIES.
- OWNER SHALL BE RESPONSIBLE FOR UPDATING POLLUTION PREVENTION PLAN THROUGHOUT THE DURATION OF THE PROJECT.
- GRADING CONTRACTOR SHALL INSTALL SILT FENCE AND OTHER EROSION CONTROL PRODUCTS.
- PAVING CONTRACTOR SHALL REMOVE AND MAINTAIN ALL SILT FENCE DURING CONSTRUCTION.
- NORTH AMERICAN GREEN EROSION CONTROL PRODUCTS P.300 - PERMANENT TURF REINFORCEMENT MAT APPLY PER MANUFACTURER'S SPECIFICATIONS.
- ALTERNATE BID ITEM

NOTE:  
TEMPORARY BERM SHALL BE PLACED FOR EROSION CONTROL PROTECTION AS DIRECTED BY THE CONTRACT ADMINISTRATOR. BERM SHALL BE TEMPORARILY STABILIZED WITH HAY MULCH AND TEMPORARY SEED UNTIL FINISHED GRADING AND FINAL STABILIZATION.



**Section A-A**  
Concrete Mixer Washing and  
Backflush Location Detail

SCALE: NONE



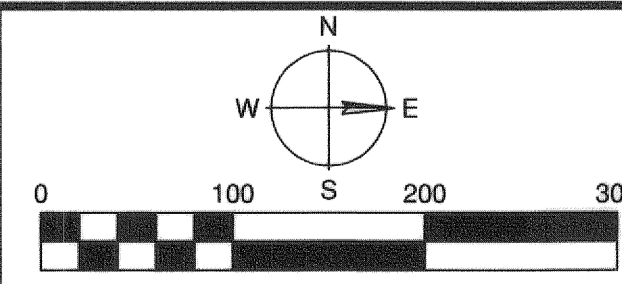
**Section B**  
Temporary Berm Detail

SCALE: NONE

PATH: K:\11537\1-Eng Plans\  
FILE: SWP3.dwg  
DATE: Jan 03, 2011 - 3:32PM

DATE	REVISIONS

**CITY OF  
BROKEN ARROW**  
Where opportunity lives



**HRAOK, Inc**  
ENGINEERS • SURVEYORS • PLANNERS • LANDSCAPE ARCHITECTS  
1913 WEST TACOMA - SUITE A VOICE: (918) 258-3737  
BROKEN ARROW, OKLAHOMA 74012 FAX: (918) 258-2554  
CA# 3643 EXP. DATE: 6-30-2011

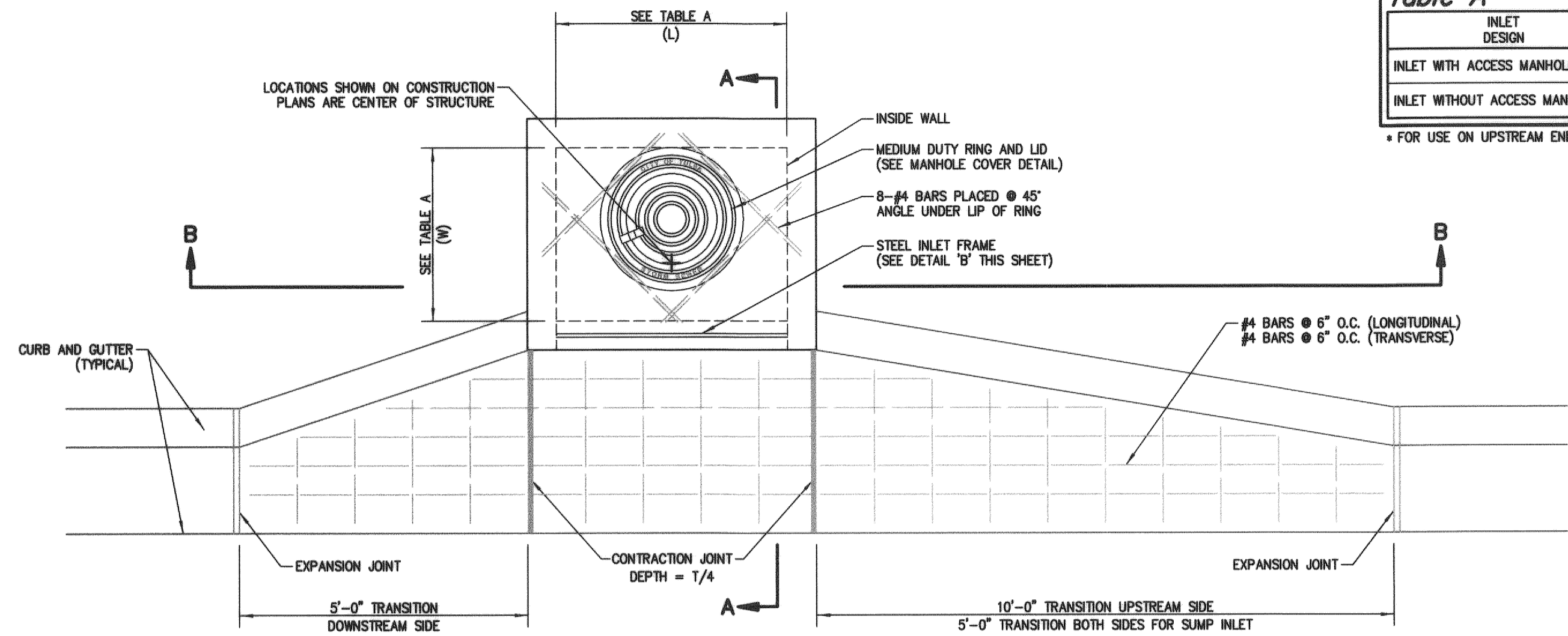
**EROSION CONTROL PLAN**  
ELM PLACE EXTENSION - FAA SITE TO OMAHA STREET

ALL CONSTRUCTION TO BE IN STRICT ACCORDANCE WITH CURRENT CITY OF BROKEN ARROW STANDARD CONSTRUCTION SPECIFICATIONS AND ODOT 1999 EDITION AND APPLICABLE SUPPLEMENTS.

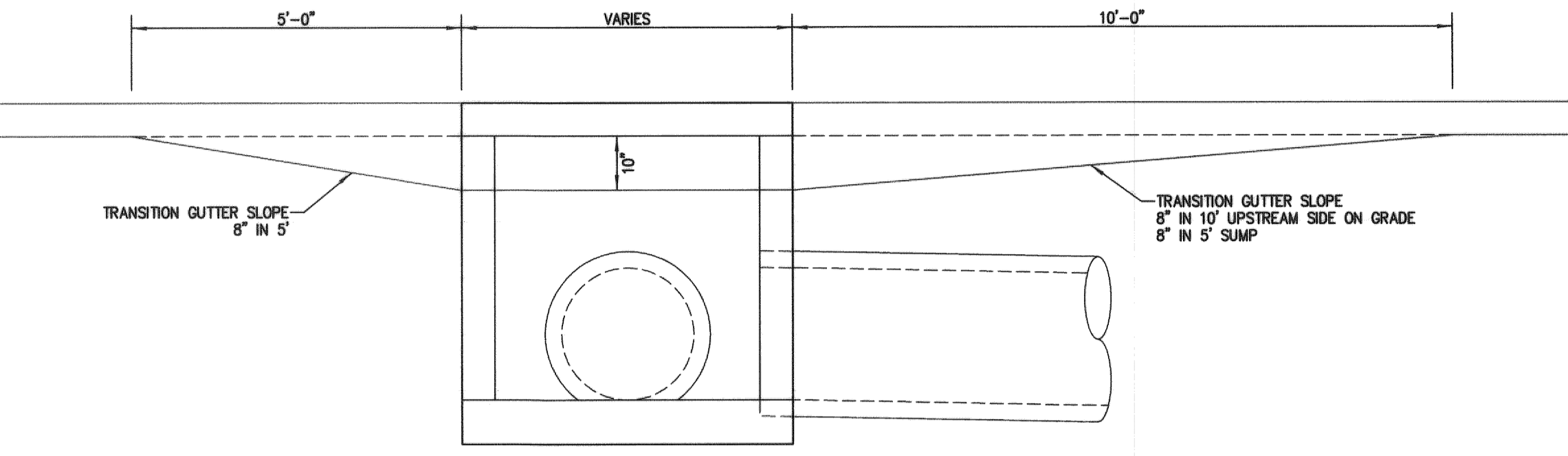
SCALE:	DESIGN	DATE	DRAFTED	DATE
HORZ. 1"=100'	REVIEWED	DATE	RGM	1/13/2009
VERT. N/A	SHEET 13	OF 19	APPROVED	DATE
			PROJECT NO.	
			ST0611	

INLET DESIGN	DIMENSION (W)	DIMENSION (L)	PIPE SIZE
INLET WITH ACCESS MANHOLE	3'-0" MIN.	4'-0"	UP TO 30"
INLET WITHOUT ACCESS MANHOLE *	2'-0"	6'-0"	30"-48"
		8'-0"	54"-60"

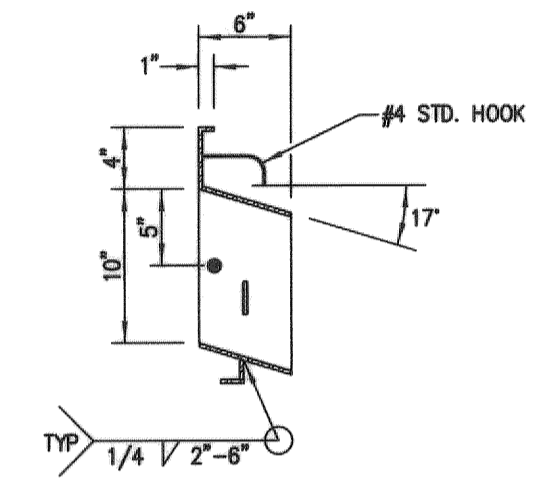
\* FOR USE ON UPSTREAM END OF A STORM SEWER LINE, UNLESS REQUIRED.



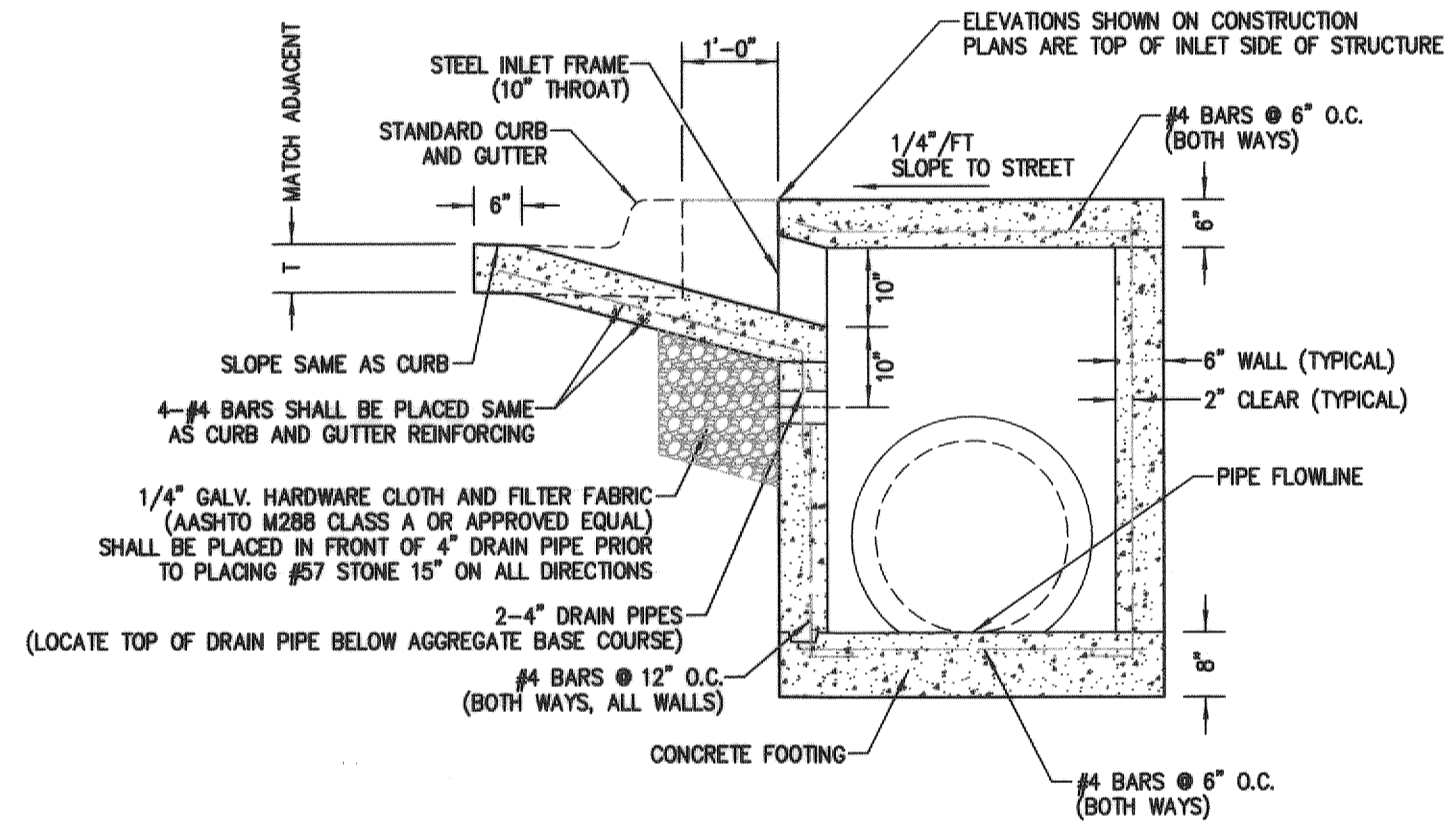
**Plan View Recessed Curb Inlet Detail**  
SCALE: 1"=2'



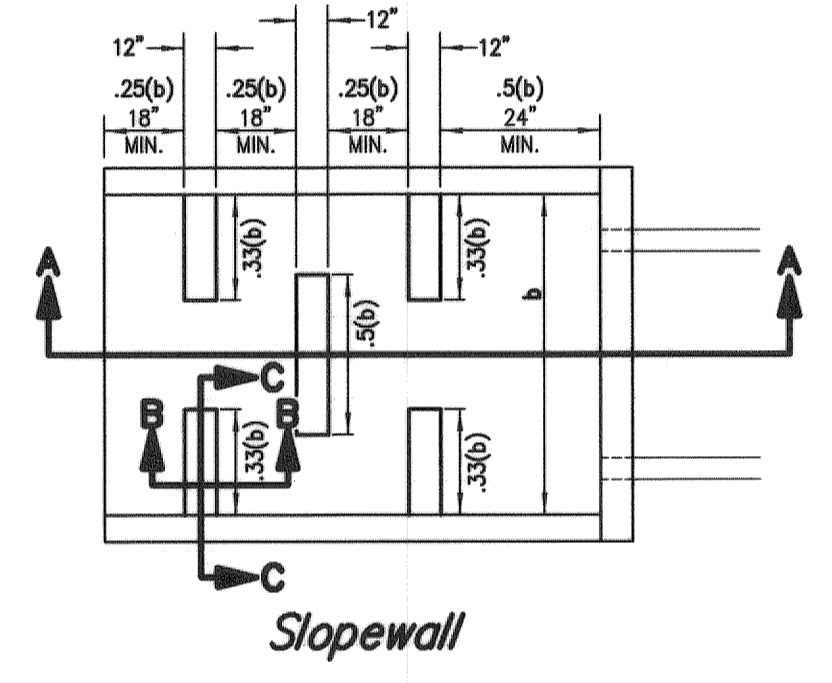
**Section B-B Recessed Curb Inlet Detail**  
SCALE: 1"=2'



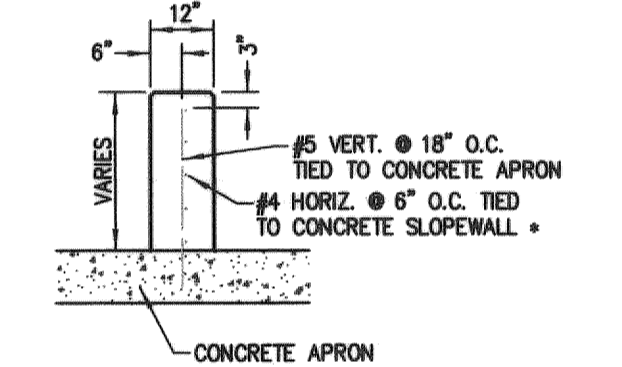
**Section C-C Steel Inlet Frame**  
SCALE: NONE



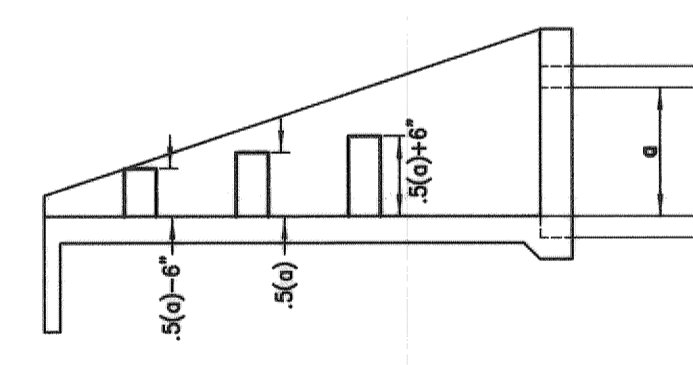
**Section A-A Recessed Curb Inlet Detail**  
SCALE: 1"=2'



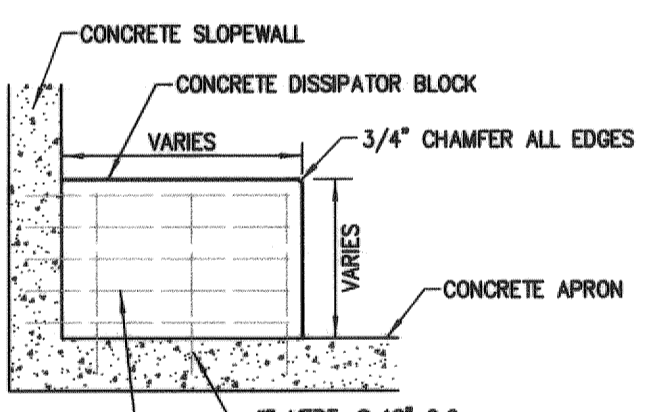
**Sloped Wall**



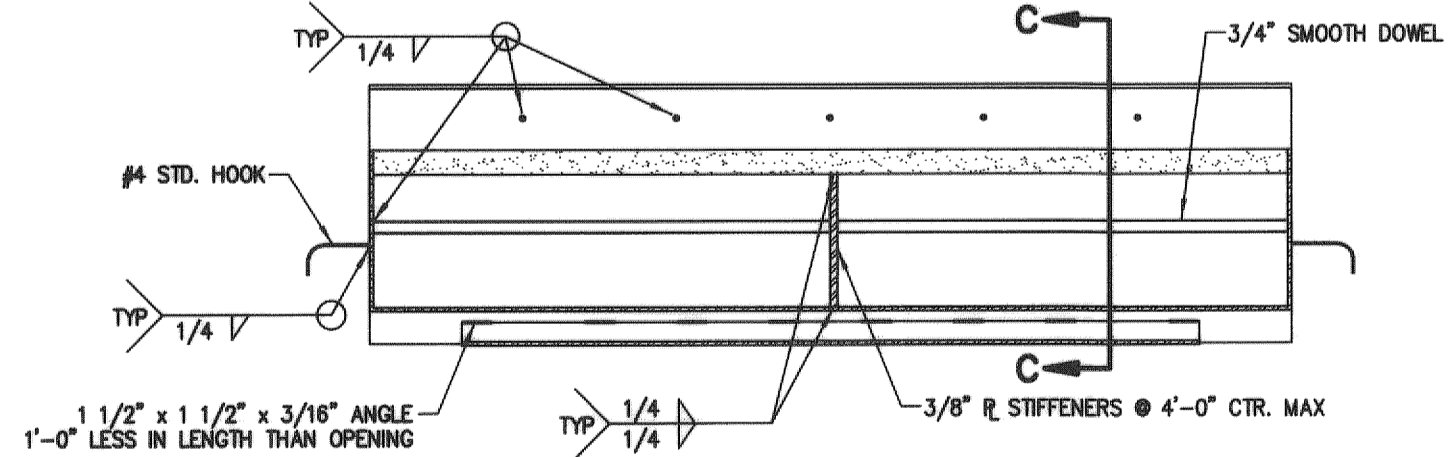
**Section B-B**



**Section A-A**



**Section C-C**



**Front View Steel Inlet Frame**  
SCALE: NONE

**Notes:**

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF BROKEN ARROW STANDARD CONSTRUCTION SPECIFICATIONS.
- THE FIRST DIMENSION LISTED IN THE CONSTRUCTION PLANS SHALL BE THE "L" DIMENSION AND THE SECOND DIMENSION SHALL BE THE "W" DIMENSION. THE MINIMUM "W" DIMENSIONS SHALL BE IN ACCORDANCE WITH THE DETAILS SHOWN.
- THE EXPANSION JOINTS SHOWN SHALL BE PERFORMED 3/4" FIBER MESH MATERIAL. FIBER MATERIAL SHALL MEET THE FOLLOWING SPECIFICATIONS: ASTM D1751 - ASSHTO M 213. FIBER MATERIAL SHALL BE W.R. MEADOWS, SEALTIGHT FIBRE EXPANSION, OR APPROVED EQUAL.
- ALL CONCRETE SHALL MEET THE CITY OF BROKEN ARROW CLASS BA1.
- ALL EXPOSED EDGES SHALL HAVE A 3/4" CHAMFER.
- INLET TOPS SHALL FOLLOW THE SLOPE OF THE TOP OF CURB LINE. INLET TOPS SHALL SLOPE 1/4" PER FOOT TO THE STREET.
- INLET TOPS THAT MEET SIDEWALKS OR OTHER CONCRETE CONSTRUCTION SHALL HAVE A CONTINUOUS EXPANSION JOINT ON ALL SIDES THAT MEET OTHER CONCRETE STRUCTURES.
- ALL STORM SEWER STRUCTURES SHALL BE CAST-IN-PLACE OR PRE-CAST.
- ALL PRE-CAST STRUCTURES WILL HAVE SHOP DRAWINGS APPROVED BY THE DIRECTOR OF ENGINEERING AND CONSTRUCTION OR HIS DESIGNEE PRIOR TO PLACEMENT.
- ALL PIPE CONNECTIONS TO PRE-CAST STRUCTURES SHALL HAVE A MINIMUM 6" THICK COLLAR OF CLASS BA1 CONCRETE ON THE EXTERIOR OF THE INLET WALL.

**Steel Inlet Frame Notes:**

- ALL WELDS SHALL BE PERFORMED IN ACCORDANCE WITH APPROPRIATE AWS SPECIFICATIONS AND PROCEDURES.
- ALL WELDS ON EXPOSED SURFACES SHALL BE DRESSED SO AS TO PROVIDE A PLEASING FINISHED APPEARANCE.
- THE ENTIRE FRAME SHALL BE HOT DIPPED ZINC COATED IN ACCORDANCE WITH ASTM A-123.

**RECORD PLANS**

To the best of my knowledge, from the information available, these Record Plans are in substantial compliance with the field construction.  
By: [Signature]  
Date: 1/5/2011

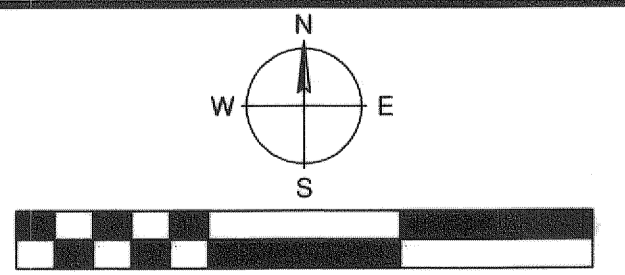
**Sloped Wall with Dissipator Detail**

BROKEN ARROW STANDARD DRAWING (ST 26)  
SCALE: NONE

- NOTES:
- CONCRETE FC' = 3000 PSI MINIMUM @ 28 DAYS, WITH 5% + 1% AIR ENTRAINMENT.
  - REINFORCING STEEL TO MEET ASTM A-615, #4 AND SMALLER GRADE 40, #5 AND LARGER GRADE 60.
  - SLOPEWALL AND HEADWALL TO BE CONSTRUCTED TO ODOT SPECIFICATIONS.
- ON ROW 2, CUT #4 HORIZ. BARS OFF 3" FROM EACH SIDE OF DISSIPATOR WALL.

PATH: K:\11537\1-Eng Plans\Quantities & Details.dwg  
DATE: Jan 03, 2011 - 3:13PM

DATE	REVISIONS

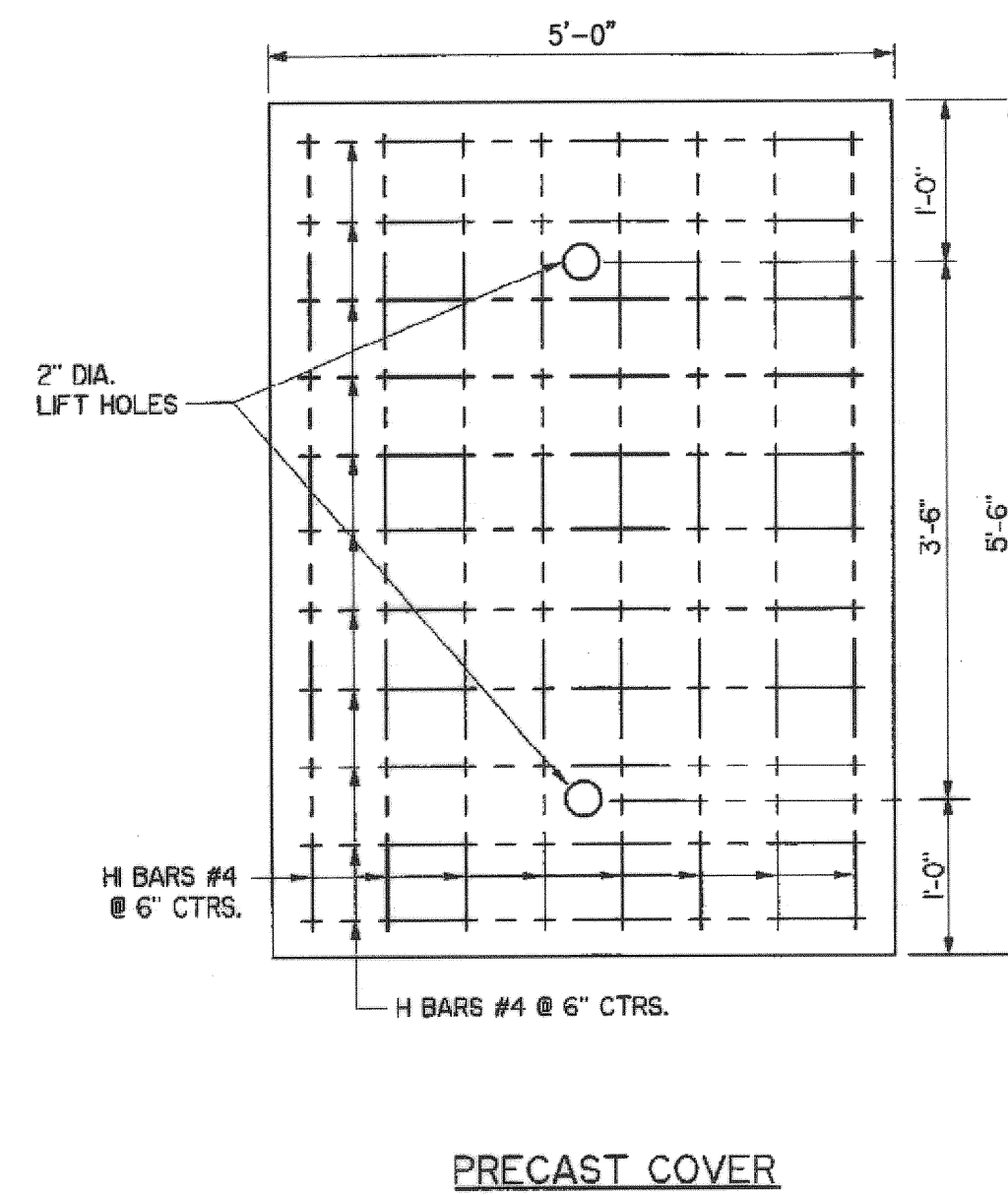
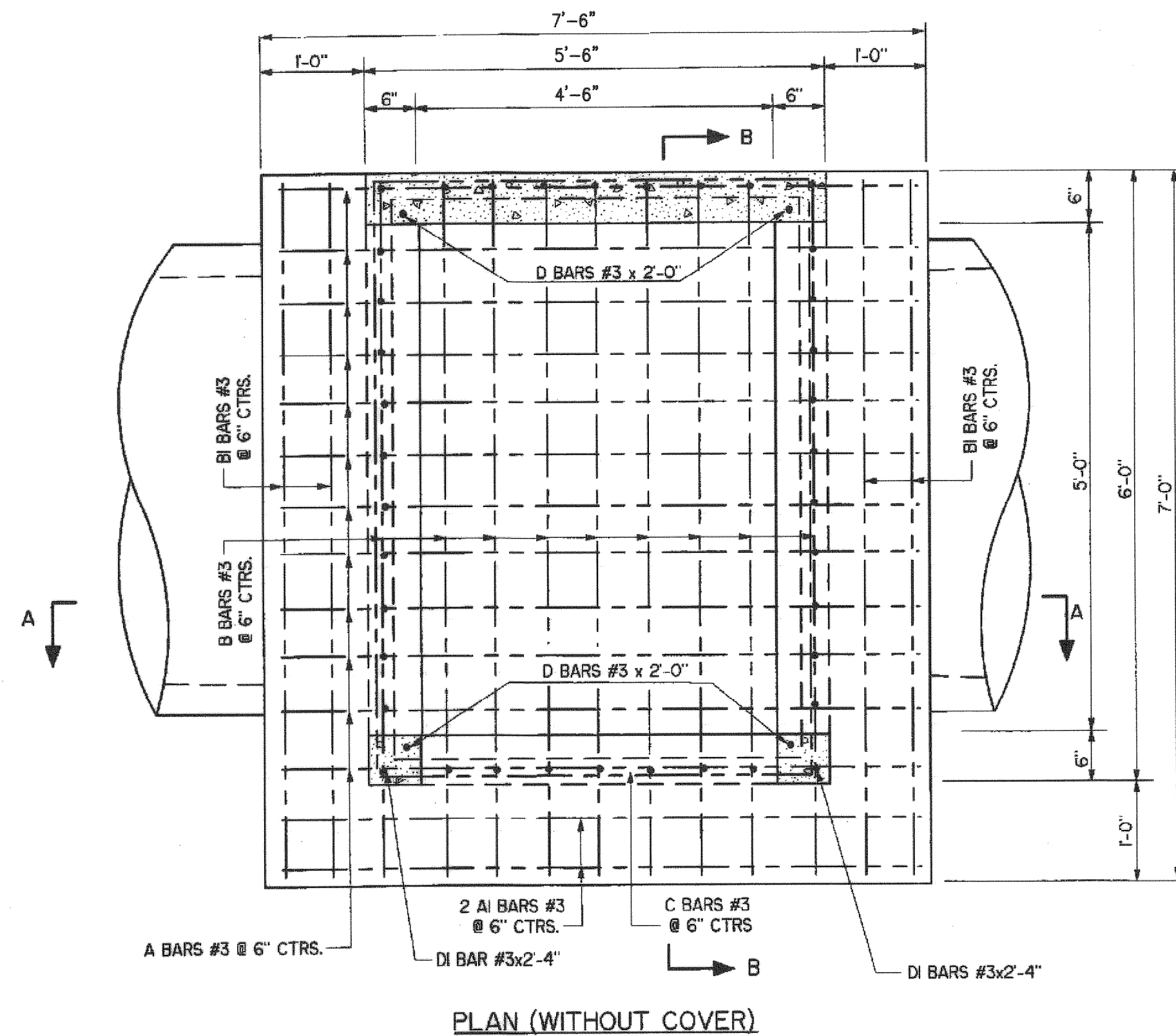


**HRAOK, Inc**  
ENGINEERS • SURVEYORS • PLANNERS • LANDSCAPE ARCHITECTS  
1913 WEST TACOMA - SUITE A VOICE: (918) 258-3737  
BROKEN ARROW, OKLAHOMA 74012 FAX: (918) 258-2554  
CA# 3643 EXP. DATE: 6-30-2009

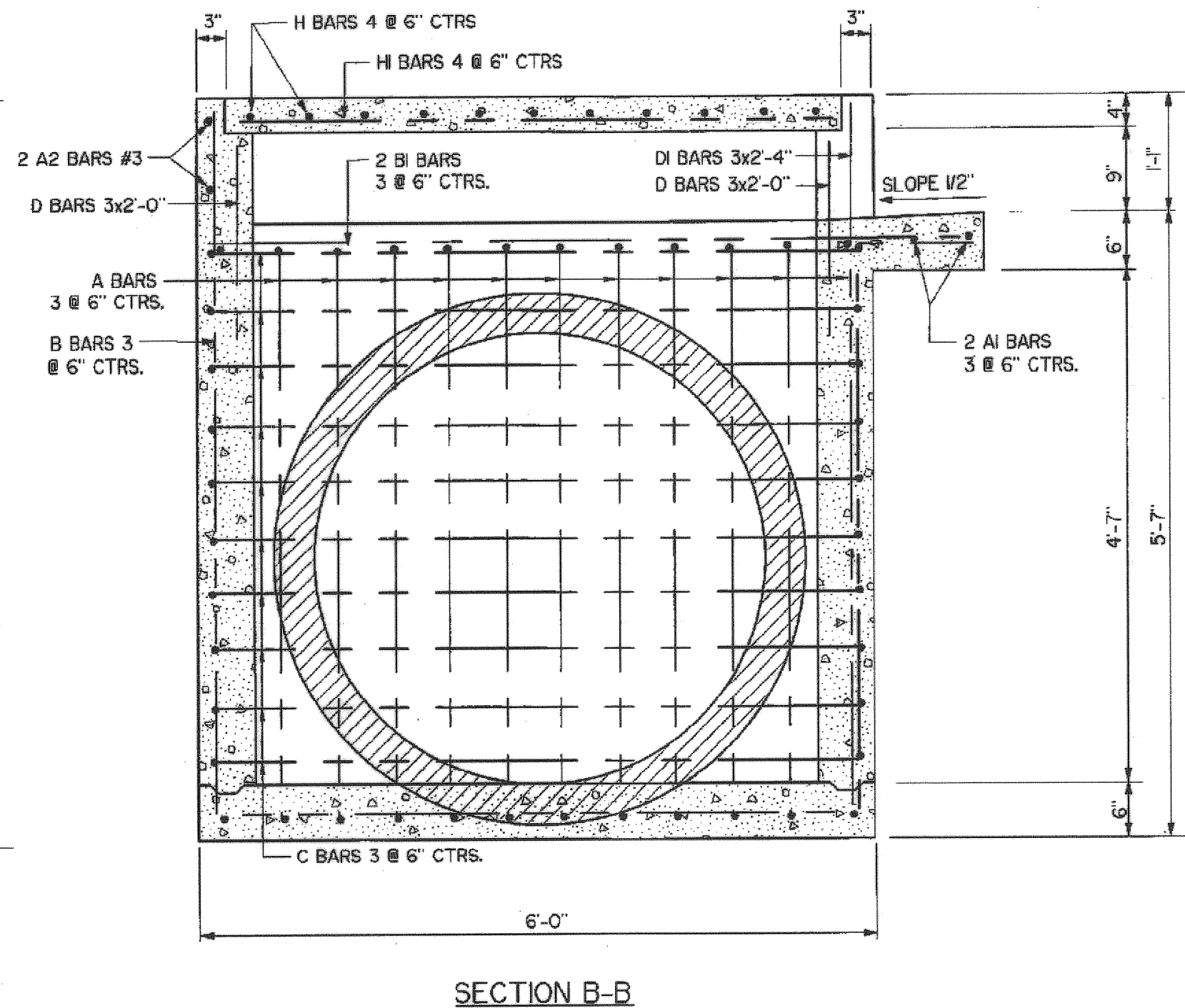
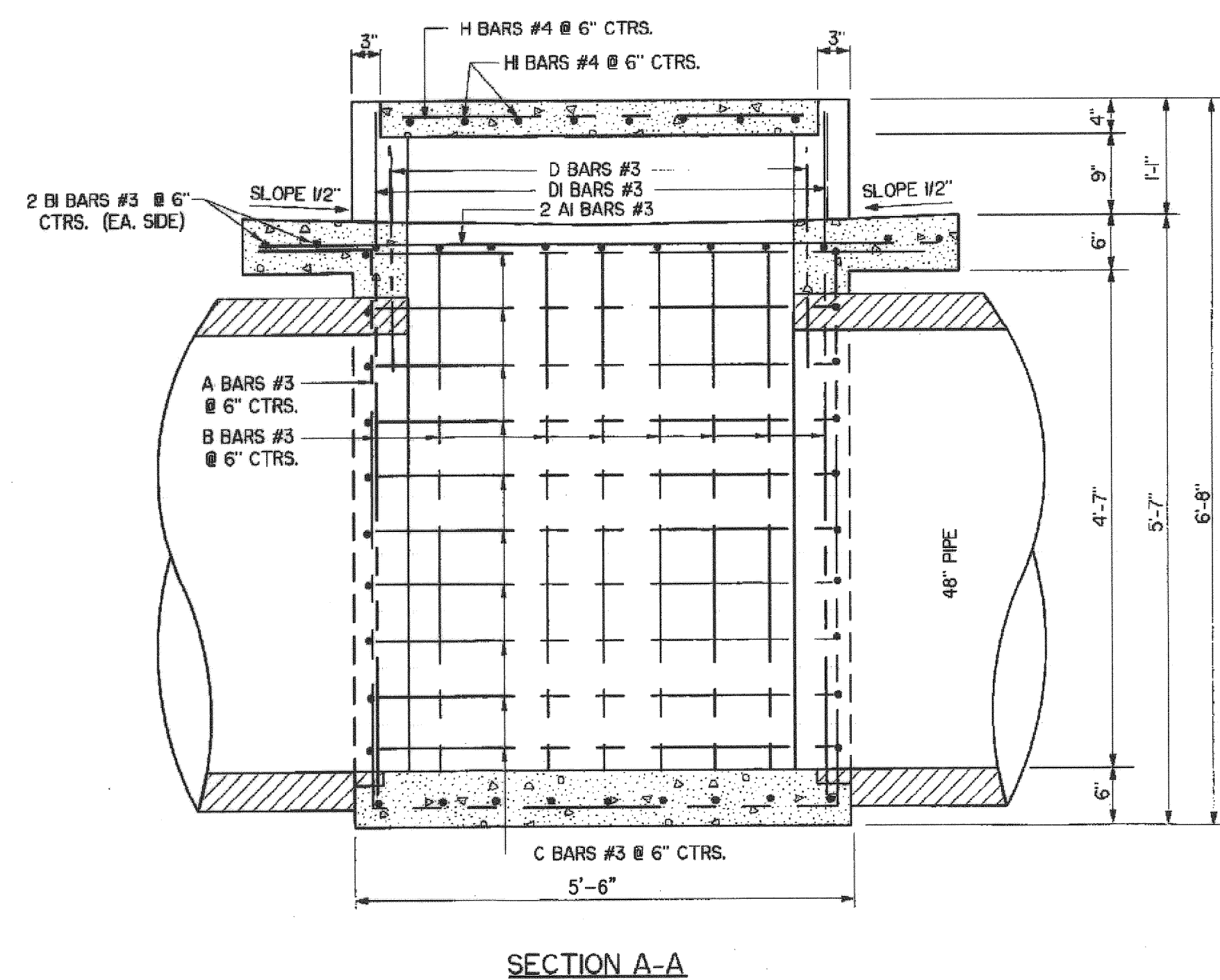
**STORM SEWER DETAILS**  
ELM PLACE EXTENSION - FAA SITE TO OMAHA STREET

ALL CONSTRUCTION TO BE IN STRICT ACCORDANCE WITH CURRENT CITY OF BROKEN ARROW STANDARD CONSTRUCTION SPECIFICATIONS AND ODOT 1999 EDITION AND APPLICABLE SUPPLEMENTS.

SCALE:	DESIGN	DATE	DRAFTED	DATE
	HORIZ. N/A			RGM
VERT. N/A	REVIEWED	DATE	APPROVED	DATE
	SHEET 14	PROJECT NO.		
	OF 19	ST0611		



REINFORCING STEEL SCHEDULE				
BARS LIST				
MARK	NO.	SIZE	TYPE	LENGTH
A	12	#3	BENT	16'-8"
AI	2	#3	STR.	6'-2"
A2	2	#3	STR.	4'-2"
B	9	#3	BENT	18'-3"
BI	4	#3	STR.	6'-3"
C	10	#3	BENT	20'-8"
D	4	#3	STR.	2'-0"
DI	2	#3	STR.	2'-4"
H	11	#4	STR.	3'-8"
HI	8	#4	STR.	5'-2"
BEND DIAGRAMS				
QUANTITIES				
FOR INLET WITH MINIMUM HEIGHT.				
CLASS "A" CONCRETE				2.16 C.Y.
GRADE 40 REINF. STEEL				282 LBS.
FOR ADDL. FOOT OF VERT. HEIGHT.				
CLASS "A" CONCRETE				.352 C.Y.
GRADE 40 REINF. STEEL				29.82 LBS.

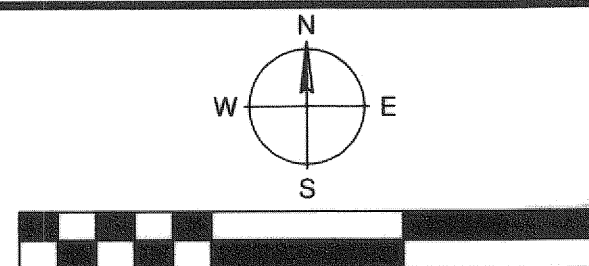


NOTE:  
FOR OPENING HEIGHTS GREATER THAN 9',  
ADD #7 HORIZONTAL BAR ACROSS OPENING.  
(SEE ODOT STD. DET 65-I-00 FOR PIPE GRATE  
DETAIL.)

**RECORD PLANS**  
To the best of my knowledge, from the information available, these "Record Plans" are in substantial compliance with the field construction.  
By: *[Signature]*  
Date: 1/5/2011

PATH: K:\11537\1-Eng Plans\Quantities & Details.dwg  
DATE: Jan 03, 2011 - 3:14PM

DATE	REVISIONS



**HRAOK, INC**  
ENGINEERS • SURVEYORS • PLANNERS • LANDSCAPE ARCHITECTS  
1913 WEST TACOMA - SUITE A VOICE: (918) 258-3737  
BROKEN ARROW, OKLAHOMA 74012 FAX: (918) 258-2554  
CA# 3643 EXP. DATE: 6-30-2009

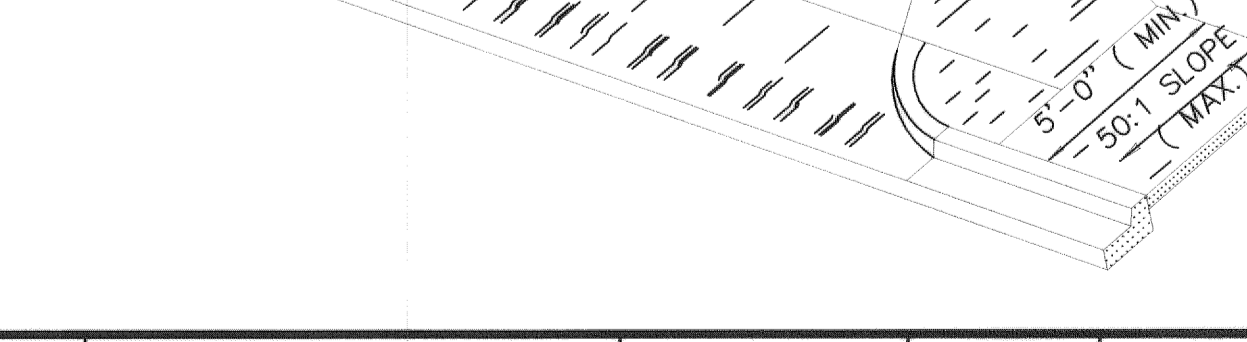
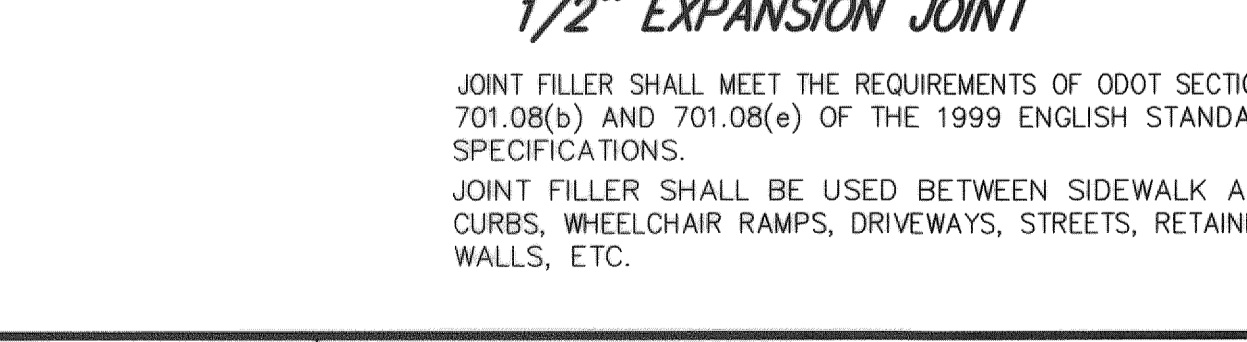
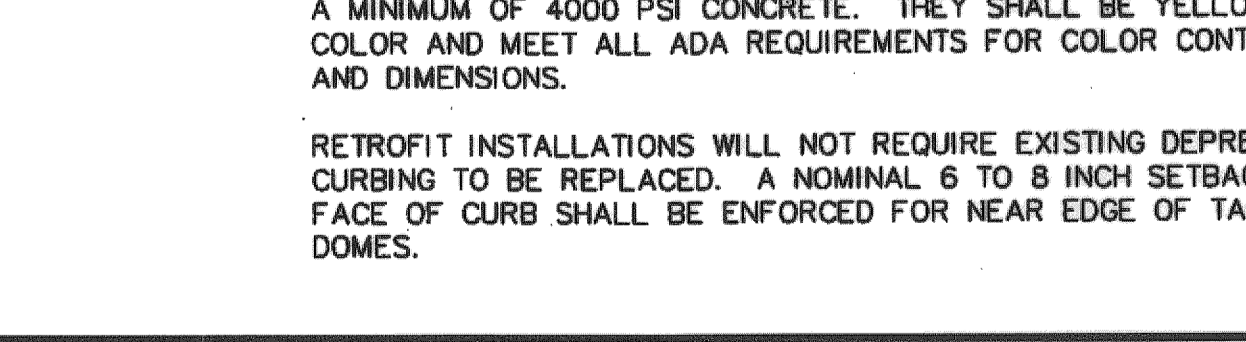
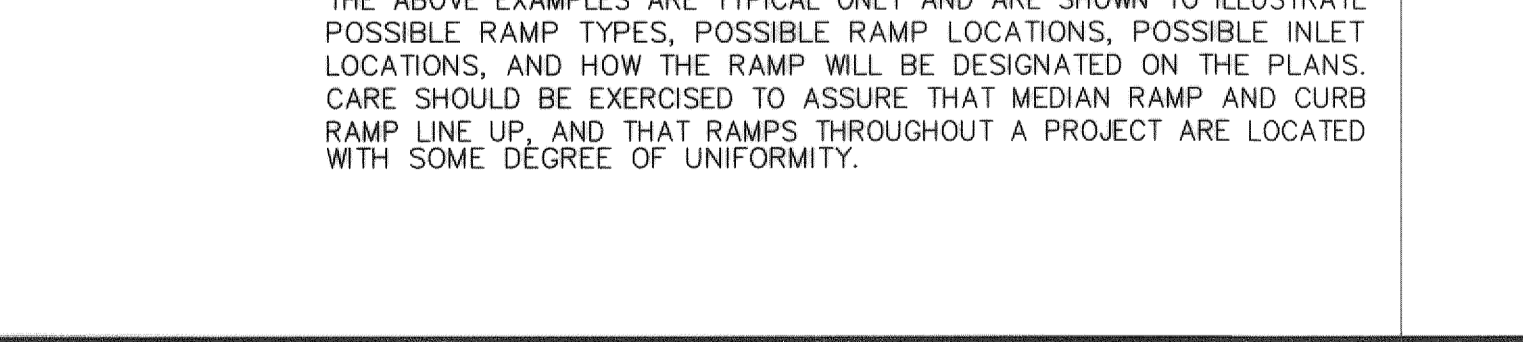
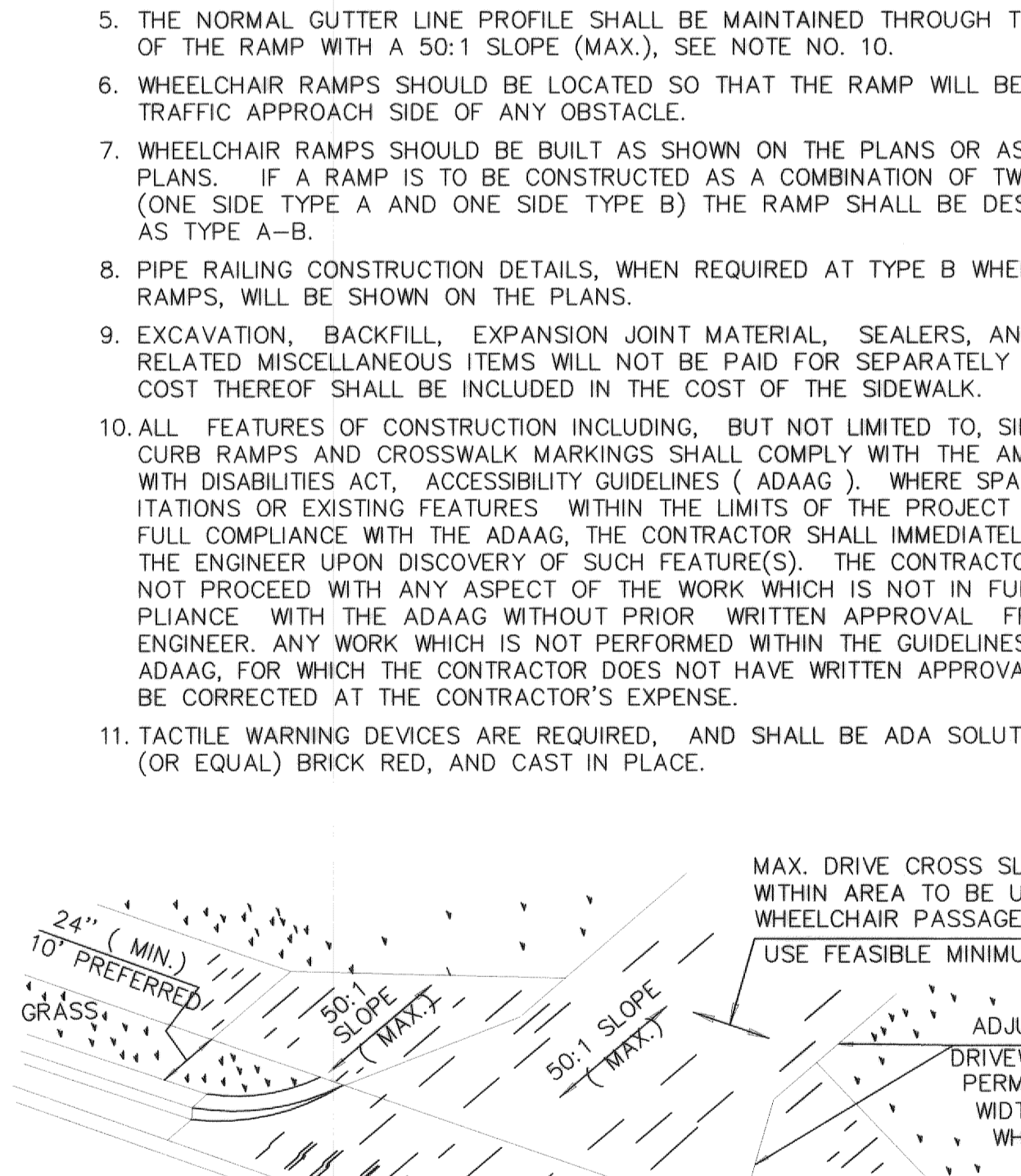
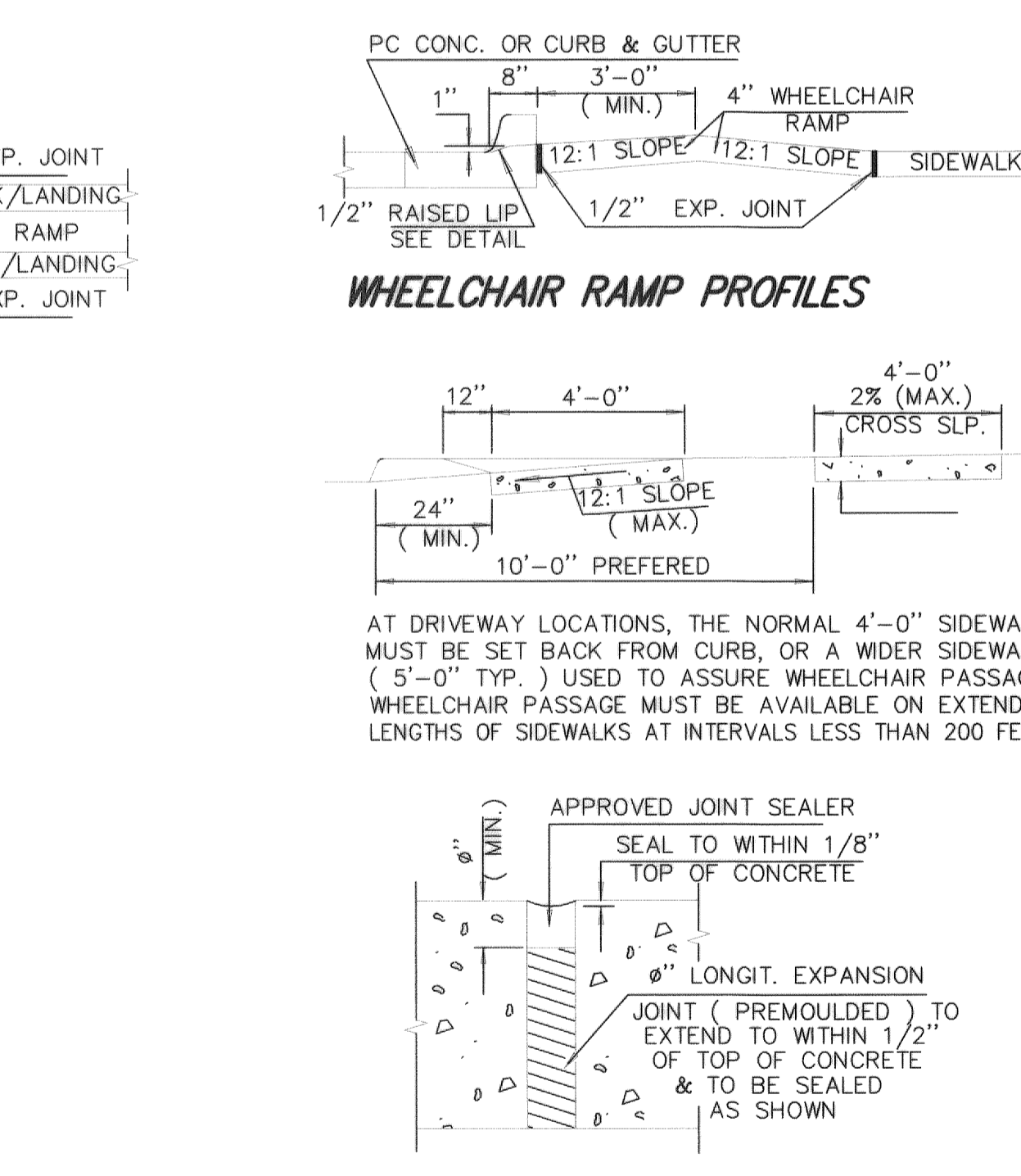
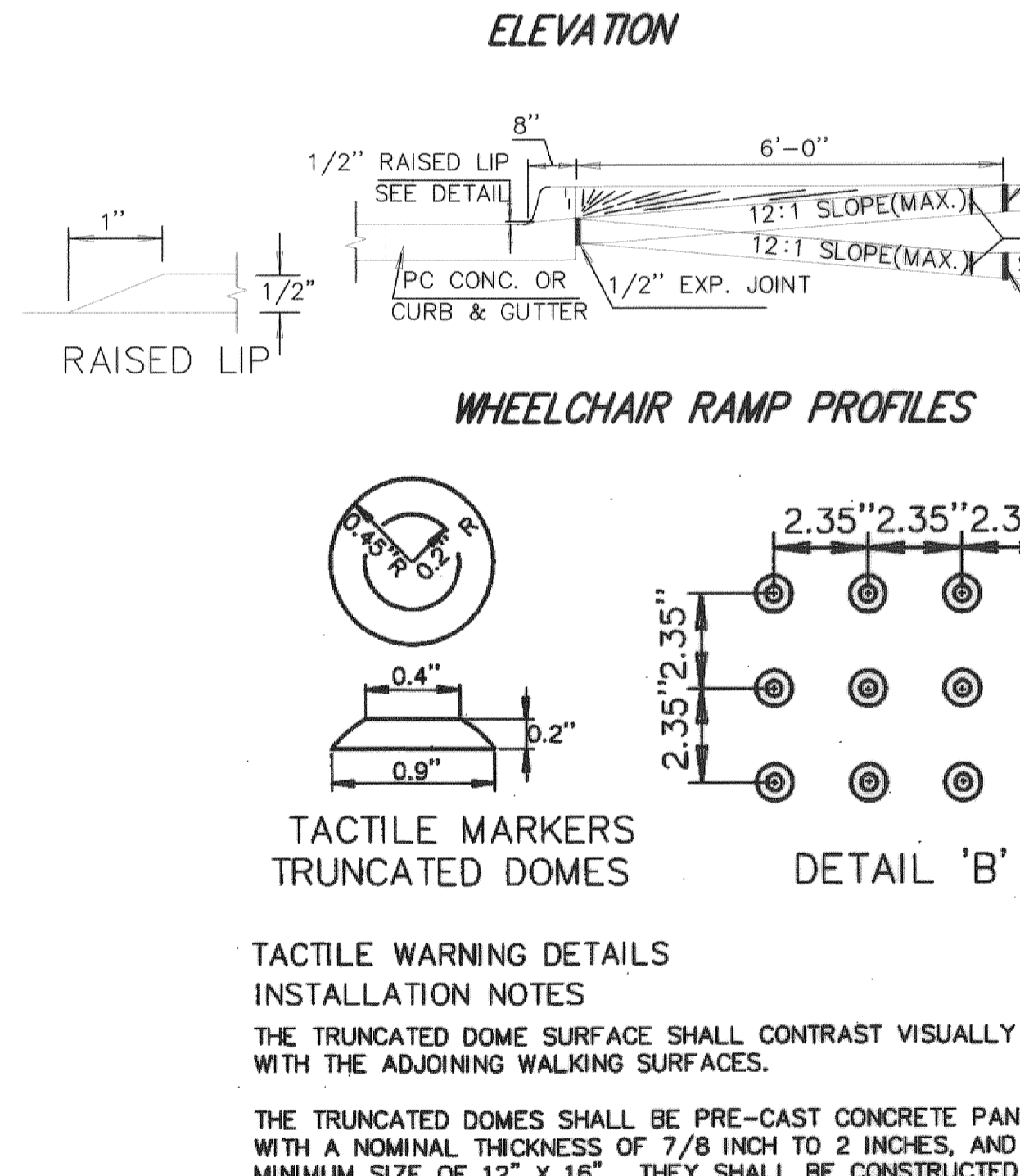
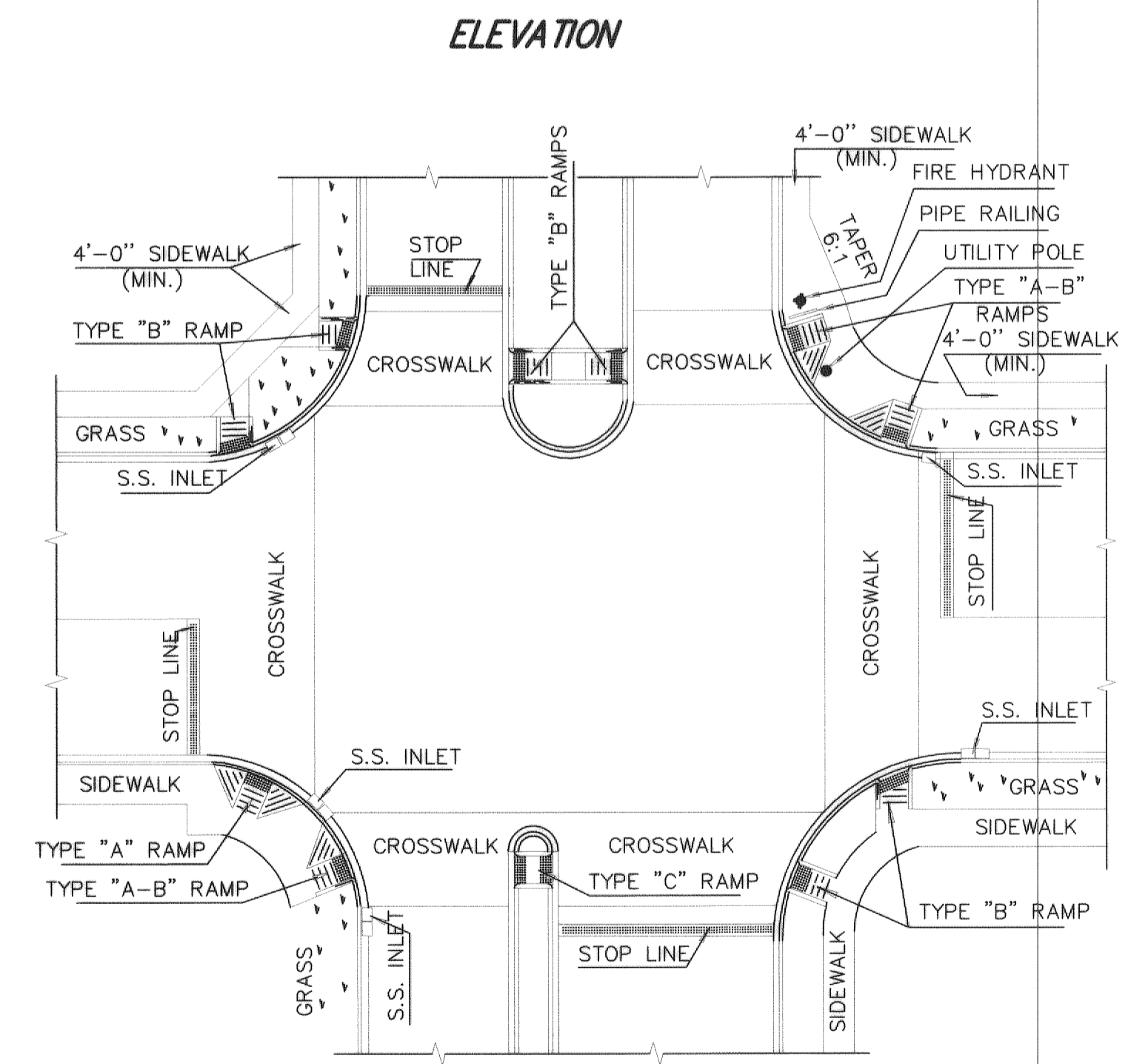
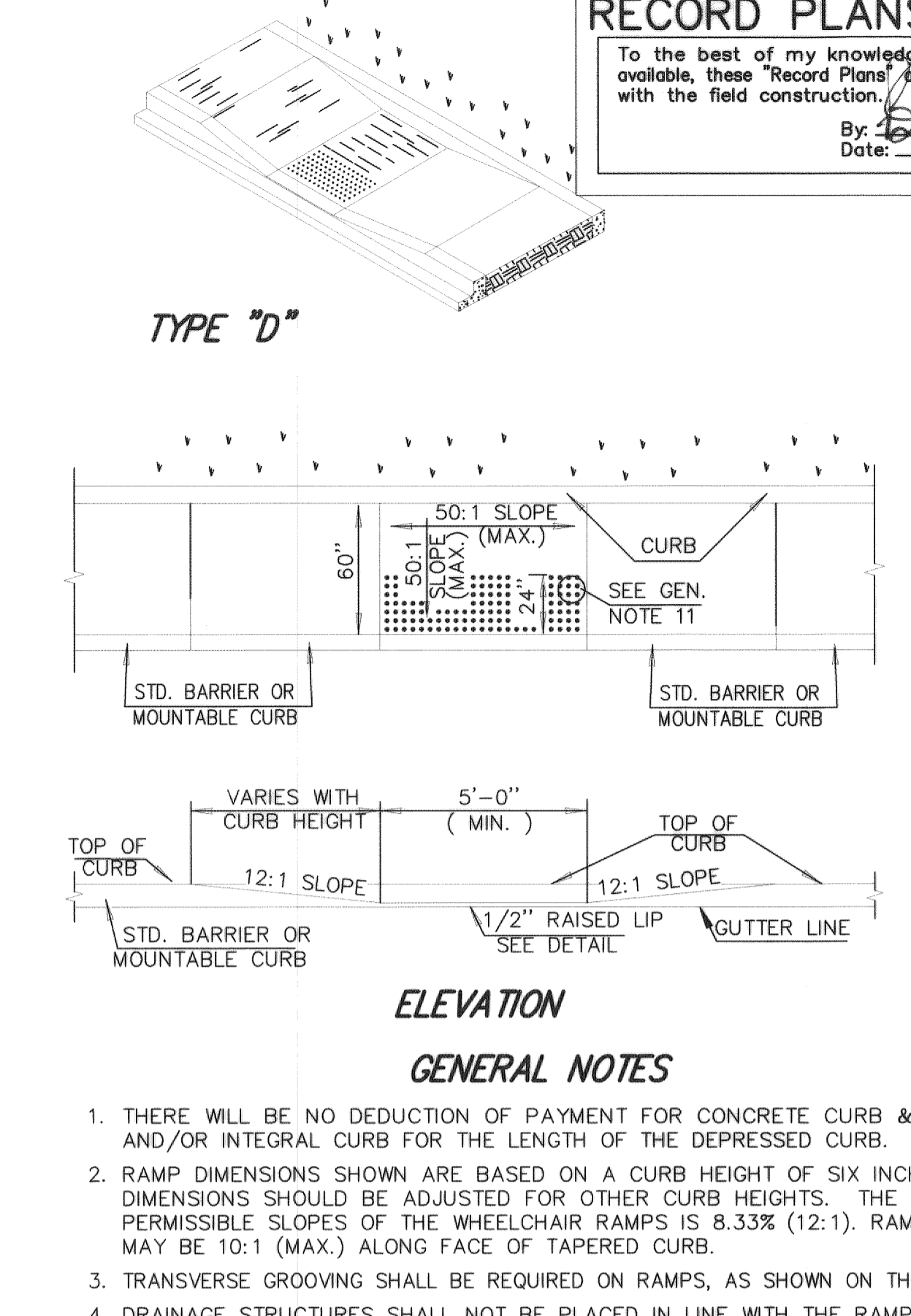
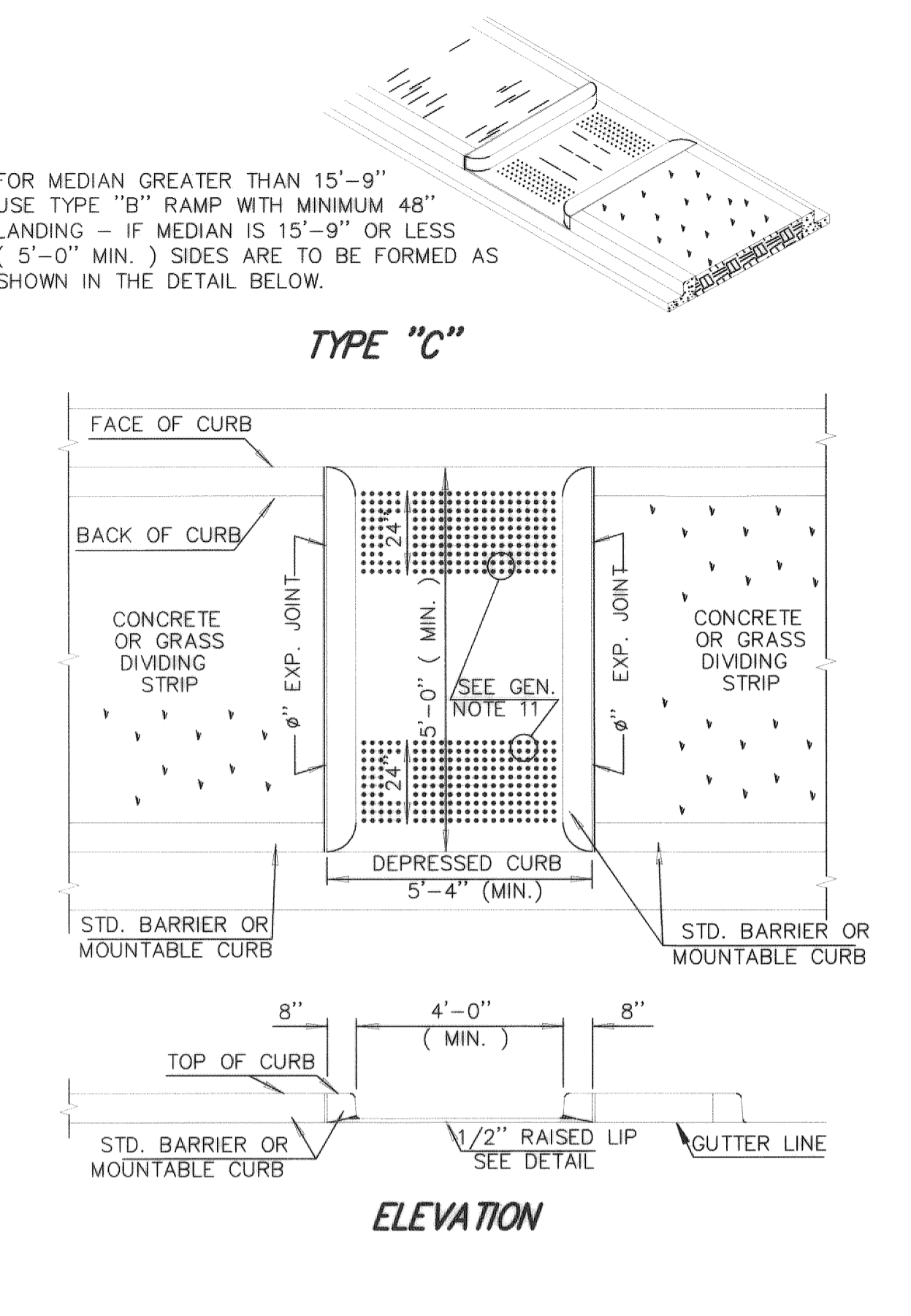
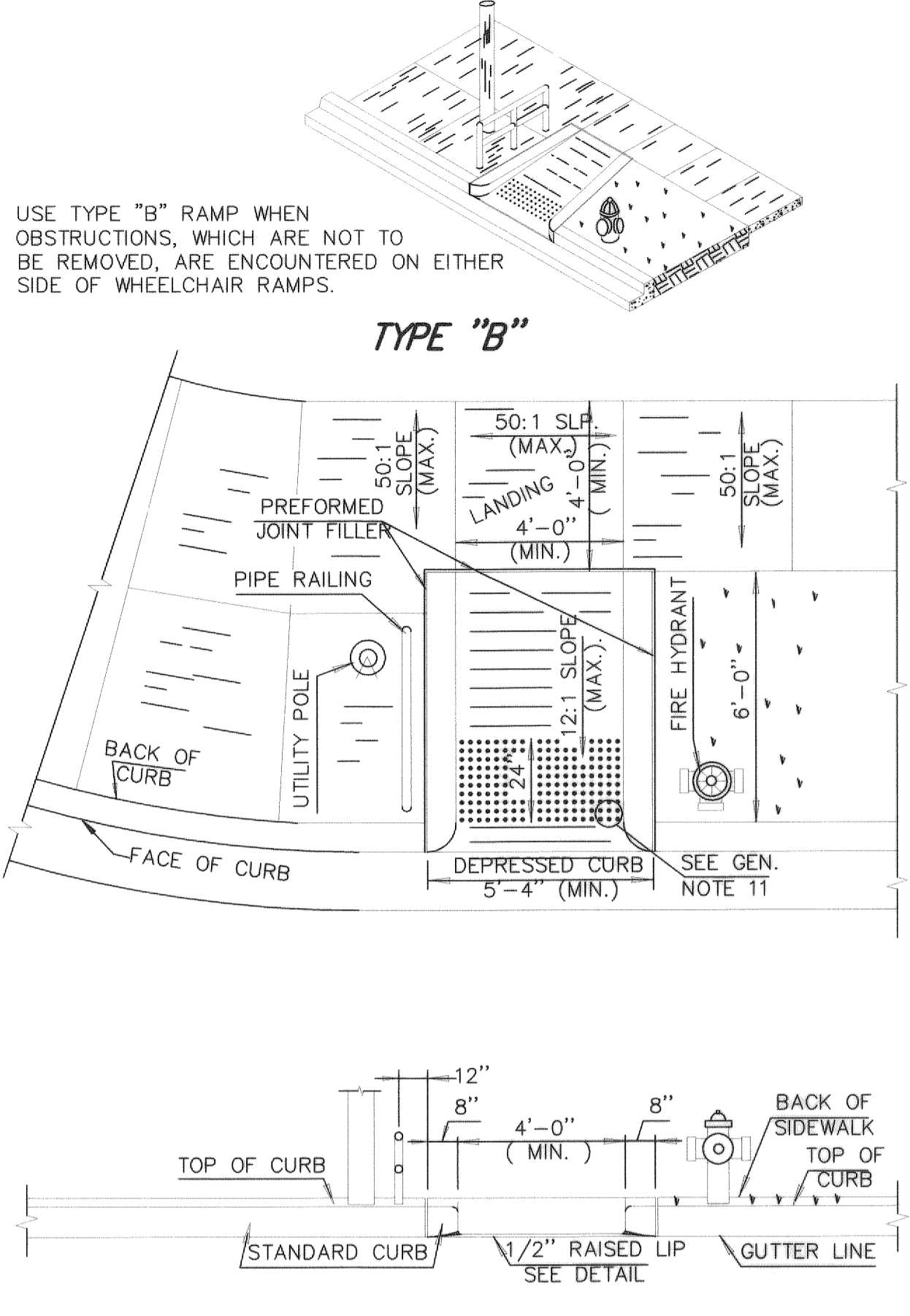
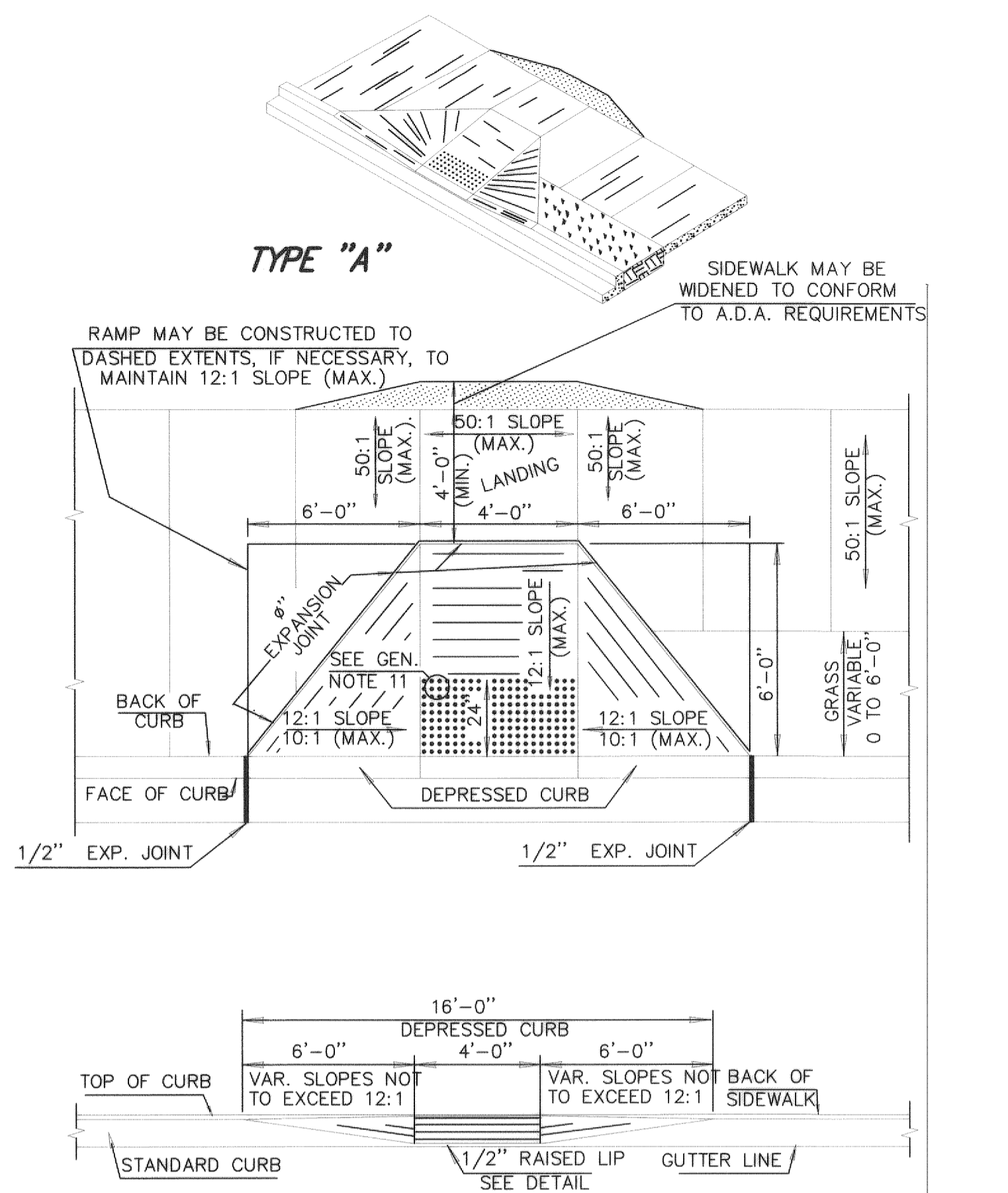
**3-WAY DROP INLET DETAILS**  
ELM PLACE EXTENSION - FAA SITE TO OMAHA STREET

ALL CONSTRUCTION TO BE IN STRICT ACCORDANCE WITH CURRENT CITY OF BROKEN ARROW STANDARD CONSTRUCTION SPECIFICATIONS AND ODOT 1999 EDITION AND APPLICABLE SUPPLEMENTS.

SCALE:	DESIGN	DATE	DRAFTED	DATE
	HORIZ. N/A			RGM
VERT. N/A	REVIEWED	DATE	APPROVED	DATE
	SHEET 15		PROJECT NO.	
	OF 19		ST0611	



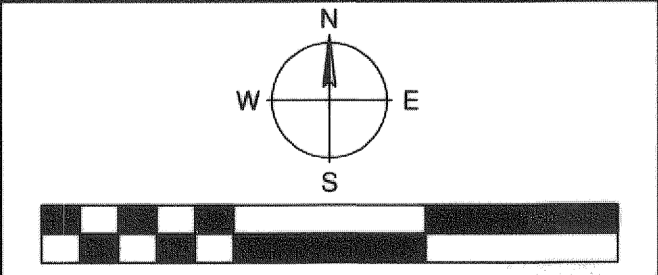
**RECORD PLANS**  
 To the best of my knowledge, from the information available, these "Record Plans" are in substantial compliance with the field construction.  
 By: *[Signature]*  
 Date: 1/19/2011



- GENERAL NOTES**
- THERE WILL BE NO DEDUCTION OF PAYMENT FOR CONCRETE CURB & GUTTER AND/OR INTEGRAL CURB FOR THE LENGTH OF THE DEPRESSED CURB.
  - RAMP DIMENSIONS SHOWN ARE BASED ON A CURB HEIGHT OF SIX INCHES. THE DIMENSIONS SHOULD BE ADJUSTED FOR OTHER CURB HEIGHTS. THE MAXIMUM PERMISSIBLE SLOPES OF THE WHEELCHAIR RAMPS IS 8.33% (12:1). RAMP SLOPE MAY BE 10:1 (MAX.) ALONG FACE OF TAPERED CURB.
  - TRANSVERSE GROOVING SHALL BE REQUIRED ON RAMPS, AS SHOWN ON THIS SHEET.
  - DRAINAGE STRUCTURES SHALL NOT BE PLACED IN LINE WITH THE RAMPS.
  - THE NORMAL GUTTER LINE PROFILE SHALL BE MAINTAINED THROUGH THE AREA OF THE RAMP WITH A 50:1 SLOPE (MAX.), SEE NOTE NO. 10.
  - WHEELCHAIR RAMPS SHOULD BE LOCATED SO THAT THE RAMP WILL BE ON THE TRAFFIC APPROACH SIDE OF ANY OBSTACLE.
  - WHEELCHAIR RAMPS SHOULD BE BUILT AS SHOWN ON THE PLANS OR AS ON THE PLANS. IF A RAMP IS TO BE CONSTRUCTED AS A COMBINATION OF TWO TYPES, (ONE SIDE TYPE A AND ONE SIDE TYPE B) THE RAMP SHALL BE DESIGNATED AS TYPE A-B.
  - PIPE RAILING CONSTRUCTION DETAILS, WHEN REQUIRED AT TYPE B WHEEL CHAIR RAMPS, WILL BE SHOWN ON THE PLANS.
  - EXCAVATION, BACKFILL, EXPANSION JOINT MATERIAL, SEALERS, AND OTHER RELATED MISCELLANEOUS ITEMS WILL NOT BE PAID FOR SEPARATELY BUT THE COST THEREOF SHALL BE INCLUDED IN THE COST OF THE SIDEWALK.
  - ALL FEATURES OF CONSTRUCTION INCLUDING, BUT NOT LIMITED TO, SIDEWALKS, CURB RAMPS AND CROSSWALK MARKINGS SHALL COMPLY WITH THE AMERICANS WITH DISABILITIES ACT, ACCESSIBILITY GUIDELINES (ADAAG), WHERE SPATIAL LIMITATIONS OR EXISTING FEATURES WITHIN THE LIMITS OF THE PROJECT PREVENT FULL COMPLIANCE WITH THE ADAAG, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER UPON DISCOVERY OF SUCH FEATURE(S). THE CONTRACTOR SHALL NOT PROCEED WITH ANY ASPECT OF THE WORK WHICH IS NOT IN FULL COMPLIANCE WITH THE ADAAG WITHOUT PRIOR WRITTEN APPROVAL FROM THE ENGINEER. ANY WORK WHICH IS NOT PERFORMED WITHIN THE GUIDELINES OF THE ADAAG, FOR WHICH THE CONTRACTOR DOES NOT HAVE WRITTEN APPROVAL, SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
  - TACTILE WARNING DEVICES ARE REQUIRED, AND SHALL BE ADA SOLUTIONS, INC (OR EQUAL) BRICK RED, AND CAST IN PLACE.

PATH: K:\11537\1-Eng Plans  
 FILE: Quantities & Details.dwg  
 DATE: Jan 03, 2011 - 3:15PM

DATE	REVISIONS

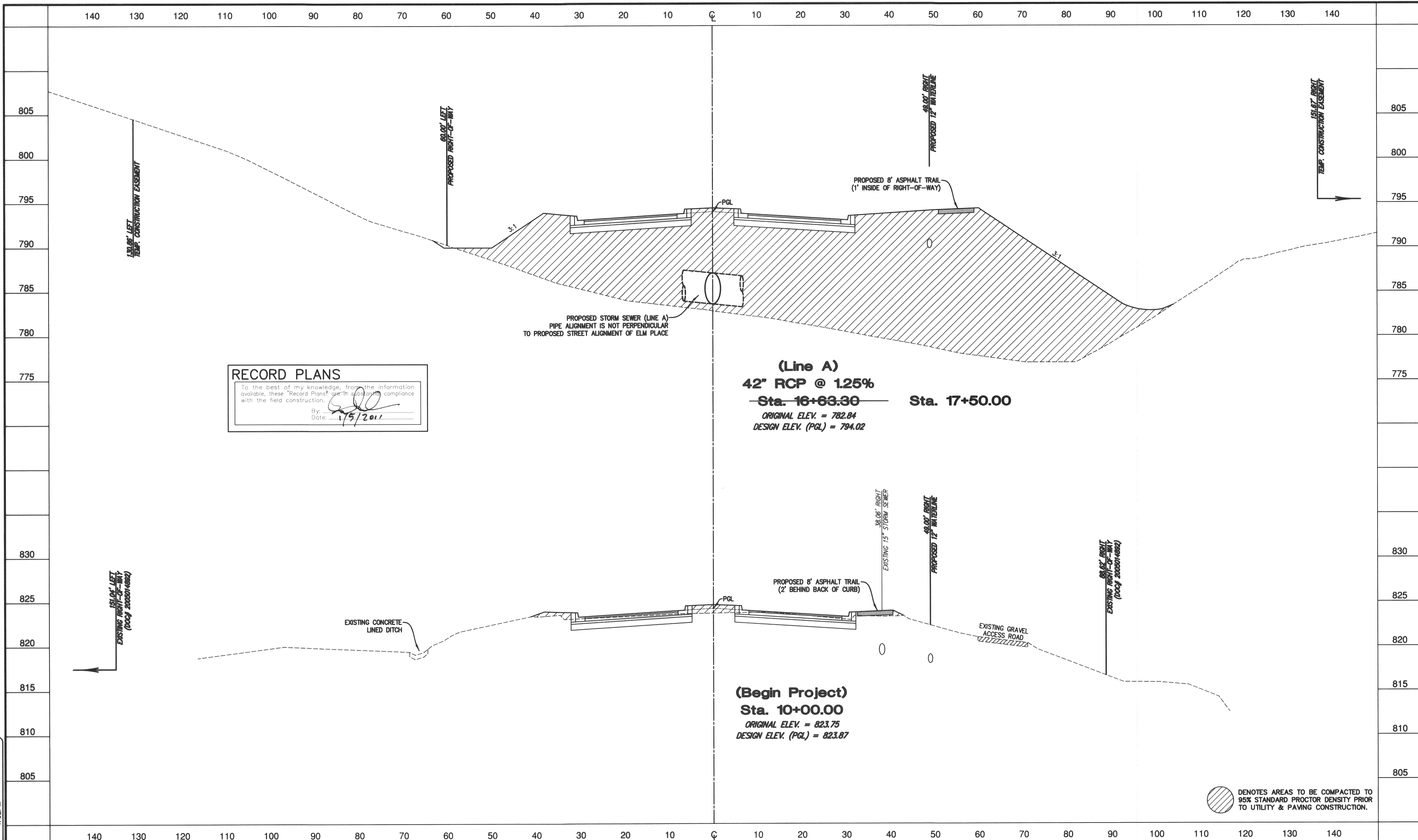


**HRAOK, INC**  
 ENGINEERS • SURVEYORS • PLANNERS • LANDSCAPE ARCHITECTS  
 1913 WEST TACOMA - SUITE A VOICE: (918) 258-3737  
 BROKEN ARROW, OKLAHOMA 74012 FAX: (918) 258-2554  
 CA# 3643 EXP. DATE: 6-30-2009

**ADA RAMP DETAILS**  
 ELM PLACE EXTENSION - FAA SITE TO OMAHA STREET

ALL CONSTRUCTION TO BE IN STRICT ACCORDANCE WITH CURRENT CITY OF BROKEN ARROW STANDARD CONSTRUCTION SPECIFICATIONS AND ODOT 1999 EDITION AND APPLICABLE SUPPLEMENTS.

SCALE:	DESIGN	DATE	DRAFTED	DATE
	HORZ. N/A			RGM
VERT. N/A	REVIEWED	DATE	APPROVED	DATE
	SHEET 16		PROJECT NO.	
	OF 19		ST0611	



**RECORD PLANS**  
 To the best of my knowledge, from the information available, these "Record Plans" are in substantial compliance with the field construction.  
 By: *G. J. [Signature]*  
 Date: 1/5/2011

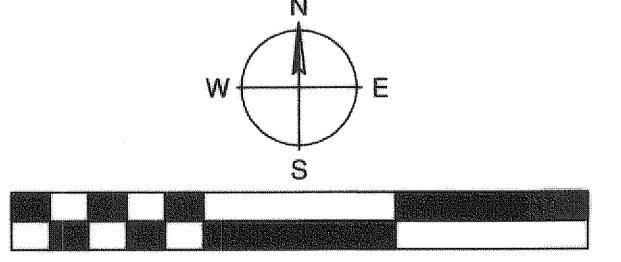
**(Line A)**  
**42" RCP @ 1.25%**  
**Sta. 16+63.30 — Sta. 17+50.00**  
 ORIGINAL ELEV. = 782.84  
 DESIGN ELEV. (PGL) = 794.02

**(Begin Project)**  
**Sta. 10+00.00**  
 ORIGINAL ELEV. = 823.75  
 DESIGN ELEV. (PGL) = 823.87

DENOTES AREAS TO BE COMPACTED TO 95% STANDARD PROCTOR DENSITY PRIOR TO UTILITY & PAVING CONSTRUCTION.

PATH: K:\11537\1-Eng Plans\  
 FILE: X-Sections.dwg  
 DATE: Jan 03, 2011 4:02PM

DATE	REVISIONS

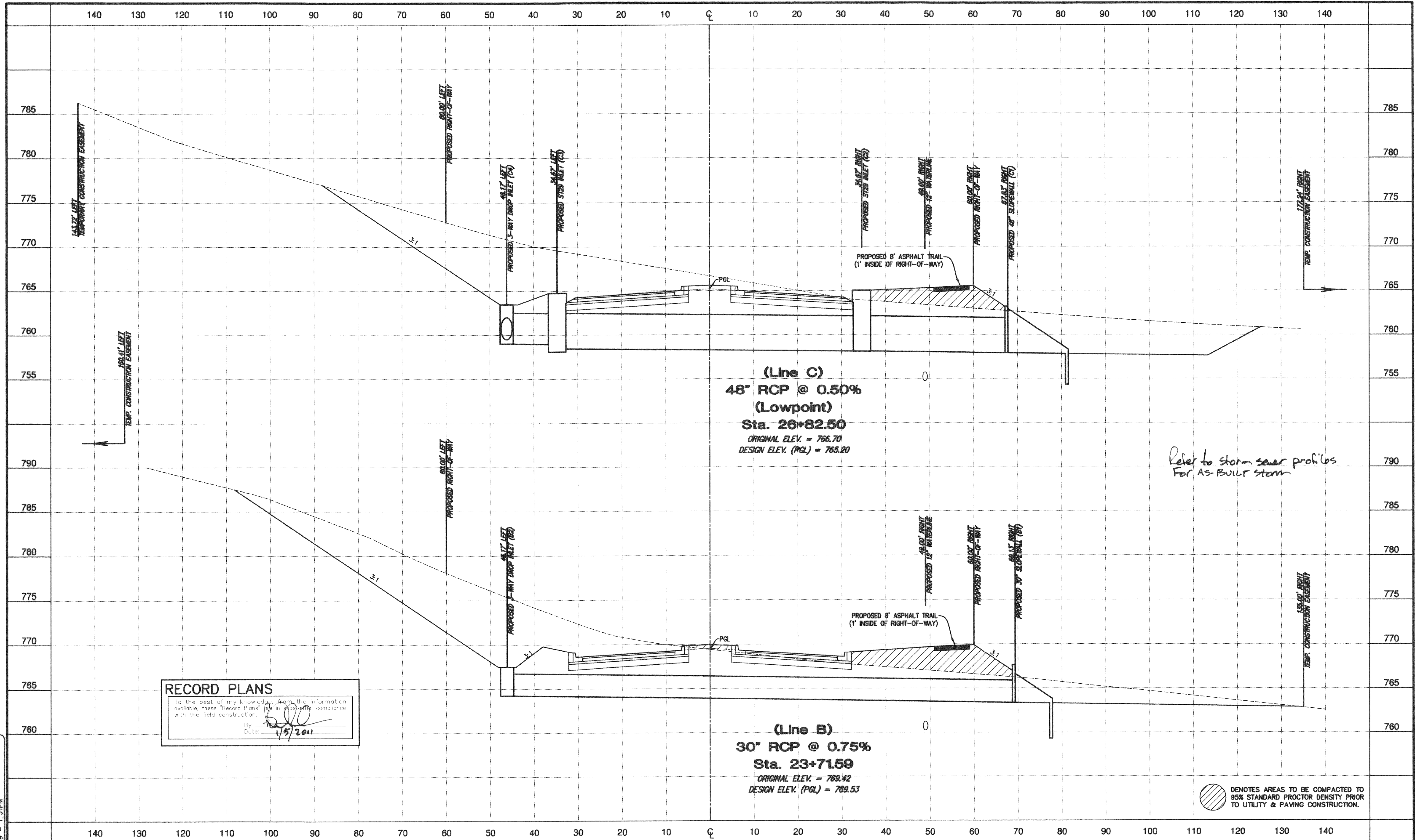


**HRAOK, Inc**  
 ENGINEERS • SURVEYORS • PLANNERS • LANDSCAPE ARCHITECTS  
 1913 WEST TACOMA - SUITE A VOICE: (918) 258-3737  
 BROKEN ARROW, OKLAHOMA 74012 FAX: (918) 258-2554  
 CA# 3643 EXP. DATE: 6-30-2011

**CROSS SECTIONS**  
 ELM PLACE EXTENSION - FAA SITE TO OMAHA STREET

ALL CONSTRUCTION TO BE IN STRICT ACCORDANCE WITH CURRENT CITY OF BROKEN ARROW STANDARD CONSTRUCTION SPECIFICATIONS AND ODOT 1999 EDITION AND APPLICABLE SUPPLEMENTS.

SCALE:	DESIGN	DATE	DRAFTED	DATE
HORZ. 1"=10'			RGM	1/13/2009
VERT. 1"=5'	REVIEWED	DATE	APPROVED	DATE
	SHEET 17	PROJECT NO.		
	OF 19	ST0611		



**(Line C)**  
**48" RCP @ 0.50%**  
**(Lowpoint)**  
**Sta. 26+82.50**  
 ORIGINAL ELEV. = 766.70  
 DESIGN ELEV. (PGL) = 765.20

**(Line B)**  
**30" RCP @ 0.75%**  
**Sta. 23+71.59**  
 ORIGINAL ELEV. = 769.42  
 DESIGN ELEV. (PGL) = 769.53

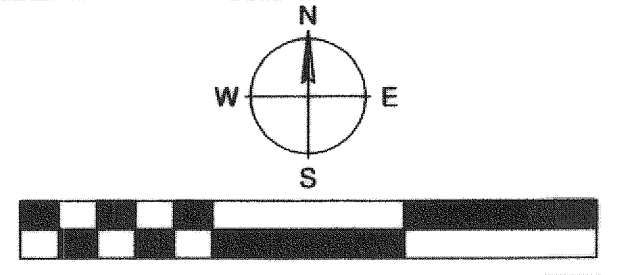
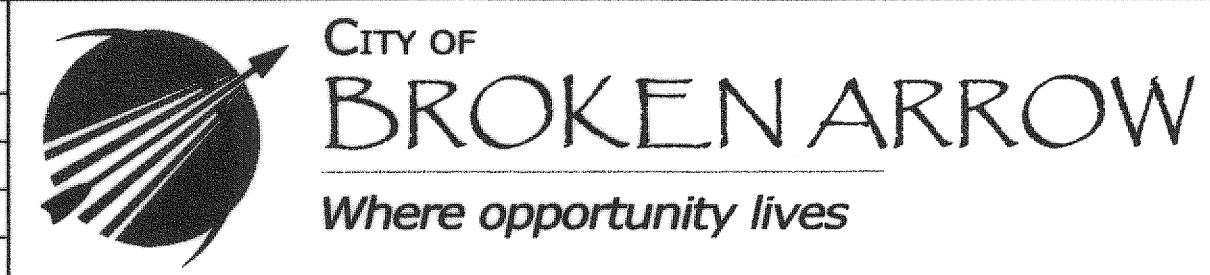
*Refer to storm sewer profiles  
 for AS-BUILT storm*

**RECORD PLANS**  
 To the best of my knowledge, from the information available, these "Record Plans" are in substantial compliance with the field construction.  
 By: *[Signature]*  
 Date: 1/5/2011

DENOTES AREAS TO BE COMPACTED TO 95% STANDARD PROCTOR DENSITY PRIOR TO UTILITY & PAVING CONSTRUCTION.

PATH: K:\11637\1-Eng Plans\1-Sections.dwg  
 FILE: X-Sections.dwg  
 DATE: Mar 16, 2009 - 1:51PM

DATE	REVISIONS

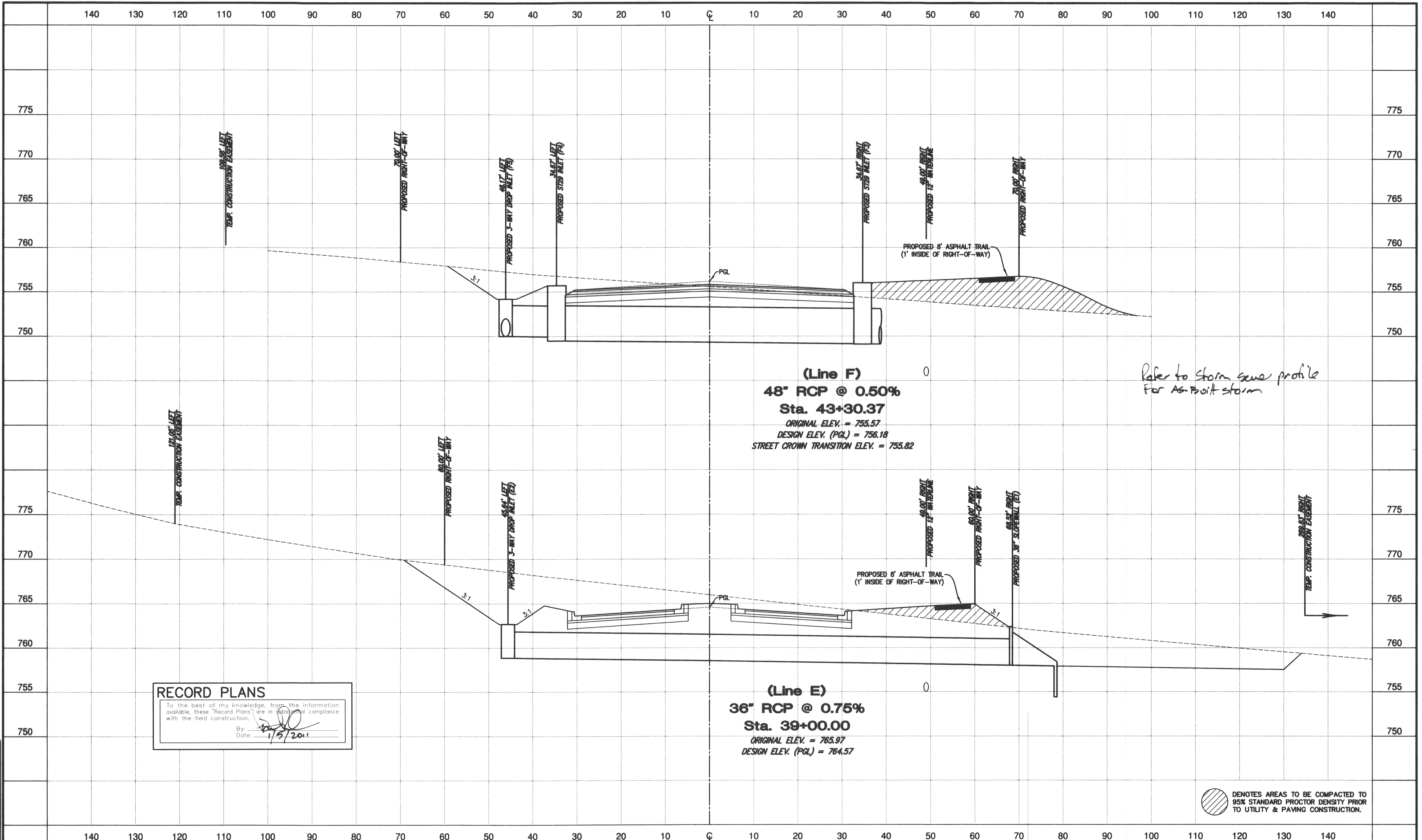


**HRAOK, Inc**  
 ENGINEERS • SURVEYORS • PLANNERS • LANDSCAPE ARCHITECTS  
 1913 WEST TACOMA - SUITE A VOICE: (918) 258-3737  
 BROKEN ARROW, OKLAHOMA 74012 FAX: (918) 258-2554  
 CA# 3643 EXP. DATE: 6-30-2009

**CROSS SECTIONS**  
 ELM PLACE EXTENSION - FAA SITE TO OMAHA STREET

ALL CONSTRUCTION TO BE IN STRICT ACCORDANCE WITH CURRENT CITY OF BROKEN ARROW STANDARD CONSTRUCTION SPECIFICATIONS AND ODOT 1989 EDITION AND APPLICABLE SUPPLEMENTS.

SCALE:	DESIGN	DATE	DRAFTED	DATE
HORIZ. 1"=10'			RGM	1/13/2009
VERT. 1"=5'	REVIEWED	DATE	APPROVED	DATE
	SHEET 18		PROJECT NO.	
	OF 19		ST0611	

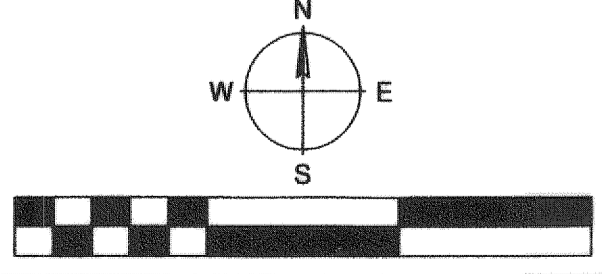


**RECORD PLANS**  
 To the best of my knowledge, from the information available, these "Record Plans" are in substantial compliance with the field construction.  
 By: *[Signature]*  
 Date: 1/5/2011

DENOTES AREAS TO BE COMPACTED TO 95% STANDARD PROCTOR DENSITY PRIOR TO UTILITY & PAVING CONSTRUCTION.

PATH: K:\11537\1-Eng Plans\X-Sections.dwg  
 FILE: X-Sections.dwg  
 DATE: Mar 16, 2009 1:51PM

DATE	REVISIONS



**HRAOK, Inc**  
 ENGINEERS • SURVEYORS • PLANNERS • LANDSCAPE ARCHITECTS  
 1913 WEST TACOMA - SUITE A VOICE: (918) 258-3737  
 BROKEN ARROW, OKLAHOMA 74012 FAX: (918) 258-2554  
 CA# 3643 EXP. DATE: 6-30-2009

**CROSS SECTIONS**  
 ELM PLACE EXTENSION - FAA SITE TO OMAHA STREET

ALL CONSTRUCTION TO BE IN STRICT ACCORDANCE WITH CURRENT CITY OF BROKEN ARROW STANDARD CONSTRUCTION SPECIFICATIONS AND ODOT 1999 EDITION AND APPLICABLE SUPPLEMENTS.

SCALE:	DESIGN	DATE	DRAFTED	DATE
HORZ. 1"=10'			RGM	1/13/2009
VERT. 1"=5'	REVIEWED	DATE	APPROVED	DATE
	SHEET 19		PROJECT NO.	
	OF 19		ST0611	