

Appendix B
Design Documents for Proposed Action Alternative

CITY OF EDMOND, OKLAHOMA

DRAINAGE UTILITY

CONSTRUCTION PLANS FOR

WILLOWOOD ADDITION

CHANNEL IMPROVEMENTS

DRAWING INDEX

- 1 - COVER SHEET
- 2 - SUMMARY OF PAY QUANTITIES AND CONSTRUCTION NOTES
- 3 - DRAINAGE AREA MAP
- 4 - HYDROLOGIC COEFFICIENTS
- 5 - STORMWATER POLLUTION PREVENTION PLAN
- 6 - EROSION CONTROL PLAN
- 7 - GEOMETRIC LAYOUT
- 8 - PLAN & PROFILE - SHEET 1
- 9 - PLAN & PROFILE - SHEET 2
- 10 - PLAN & PROFILE - SHEET 3
- 11 - PLAN & PROFILE - SHEET 4
- 12 - PLAN & PROFILE - WEST STORM SEWER
- 13 - PLAN & PROFILE - EAST STORM SEWER
- 14 - PLAN & PROFILE - EAST & WEST 2' PAVED DITCHES
- 15 - SANITARY SEWER RELOCATIONS
- 16 - WATER LINE RELOCATIONS
- 17 - PAVING PLAN
- 18 - TRAFFIC CONTROL PLAN
- 19 - DRAINAGE CHANNEL DETAILS - SHEET 1
- 20 - DRAINAGE CHANNEL DETAILS - SHEET 2
- 21 - DRAINAGE CHANNEL DETAILS - SHEET 3
- 22 - DRAINAGE CHANNEL DETAILS - SHEET 4
- 23 - DRAINAGE CHANNEL DETAILS - SHEET 5
- 24 - INLET NO. 1 - PLAN AND DETAILS
- 25 - INLET NO. 2 - PLAN AND DETAILS
- 26 - INLET NO. 3 - PLAN AND DETAILS
- 27 - INLET NO. 4 - PLAN AND DETAILS
- 28 - INLET NO. 5 - PLAN AND DETAILS
- 29 - INLET NO. 6 - PLAN AND DETAILS
- 30 - CROSS SECTIONS - SHEET 1
- 31 - CROSS SECTIONS - SHEET 2
- 32 - CROSS SECTIONS - SHEET 3
- 33 - CROSS SECTIONS - SHEET 4
- 34 - CITY OF EDMOND STANDARDS - SHEET 1
- 35 - CITY OF EDMOND STANDARDS - SHEET 2
- 36 - CITY OF EDMOND STANDARDS - SHEET 3
- 37 - CITY OF EDMOND STANDARDS - SHEET 4

O.D.O.T. STANDARDS

- RCB1-1 SBI-3 TSC1-2
- RCB2-1 SMD-2 TSC2-2
- RCB3-1 SPI-3

Prepared By:
MESHEK & ASSOCIATES, P.L.C.

PRELIMINARY

Date: OCT 4 2010

This document is preliminary
in nature and is not a final,
signed and sealed document.

WILLIAM T. MESHEK, P.E., PLS
MESHEK & ASSOCIATES, INC.

DATE

Reviewed By:

STEVEN E. MANEK, P.E.
DIRECTOR OF ENGINEERING

DATE

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C.A. 1487 Expires: 6-30-2011
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918-392-5620

DRAWING REFERENCE LEGEND

- REFERS TO A SECTION
- REFERS TO A DETAIL
- REFERS TO A PROFILE OR ELEVATION
- SECTION, DETAIL OR PROFILE NUMBER
SHEET NUMBER ON WHICH IT IS LOCATED

1 **DETAIL DESCRIPTION**
SCALE: 1"=XX'

SYMBOL LEGEND

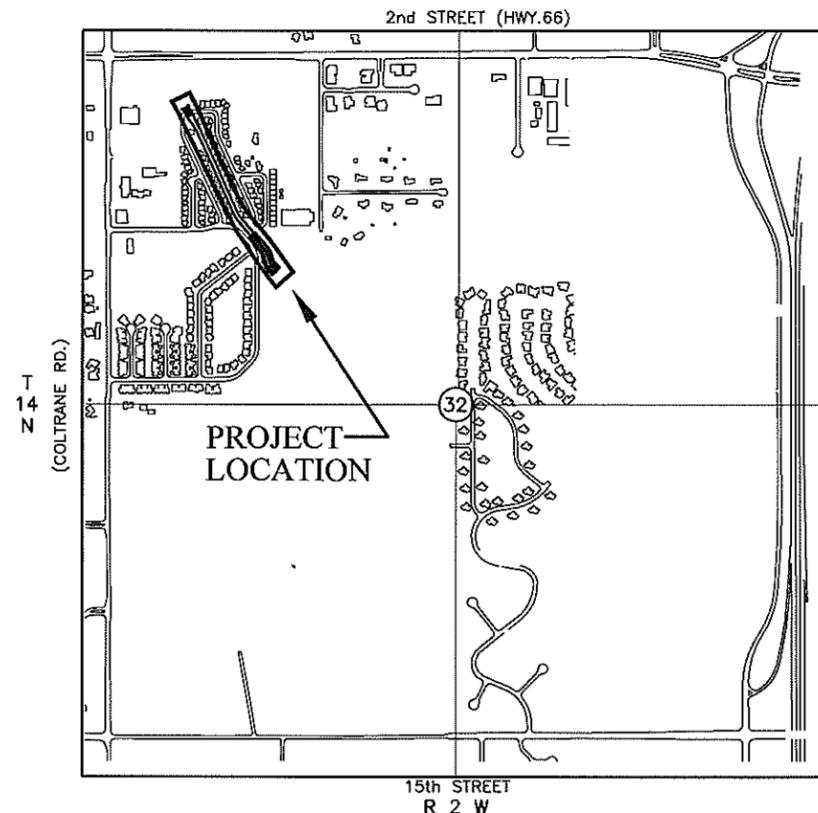
<ul style="list-style-type: none"> - Electric Meter - Electric Box - Electric Transformer - Fire Hydrant - Gas Meter - Gas Valve - Guy Anchor - Irrigation Control Valve - Junction Box - Light Pole - Mailbox - Power Pole - Sign - Sanitary Sewer Cleanout - Sanitary Sewer Manhole - Storm Water Manhole - Sprinkler Head - Traffic Signal - Traffic Signal Box - Telephone Pedestal - Water Meter - Water Valve 	<ul style="list-style-type: none"> - Deciduous Tree - Coniferous Tree - Bush - Fence Line (All Types) - Overhead Electric - Underground Electric - Underground Cable Television - Underground Fiber Optic - Underground Telephone - Natural Gas Line - Stormwater Line - Sanitary Sewer Line - Water Line - Bench Mark - Survey Control Point Found - Survey Control Point Set
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APPLICABLE SPECIFICATIONS:

THE OKLAHOMA DEPARTMENT OF TRANSPORTATION (O.D.O.T.) STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION) AND THE CITY OF EDMOND STANDARD SPECIFICATIONS SHALL BE USED FOR THE TECHNICAL SPECIFICATIONS.

HORIZONTAL AND VERTICAL CONTROL NOTES:

HORIZONTAL DATUM: OKLAHOMA STATE PLANE COORDINATE SYSTEM NAD 1983 (1993)
VERTICAL DATUM: NAVD 1988
SCALE FACTOR: 0.99992022
COORDINATES GIVEN IN PLANS ARE NOT REFLECTED IN THE FILED PLAT DOCUMENT



LOCATION MAP



GENERAL NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL PUBLIC AND PRIVATE FACILITIES INCLUDING BUT NOT LIMITED TO, UTILITIES, STREETS, STORM SEWER CHANNELS, SERVICE LINES AND FENCES. ALL KNOWN UTILITIES HAVE BEEN SHOWN ON THE DRAWINGS. BEFORE COMMENCING ANY EXCAVATION THE CONTRACTOR SHALL NOTIFY THE OKIE ONE CALL SYSTEM OF HIS INTENT TO EXCAVATE BY CALLING 1-800-522-6543 AND HAVE THE UTILITIES LOCATED PRIOR TO EXCAVATING. UTILITIES IN THE VICINITY OF EXCAVATION WORK SHALL BE EXPOSED BY THE CONTRACTOR, WITH THE UTILITY OWNER PRESENT PRIOR TO BEGINNING THE WORK.
2. ALL CONSTRUCTION AND MATERIALS SHALL BE IN STRICT ACCORDANCE WITH THE CITY OF EDMOND STANDARDS AND SPECIFICATIONS FOR CONSTRUCTION, UNLESS OTHERWISE NOTED ON THESE PLANS, ODOT STANDARDS AND SPECIFICATIONS SHALL BE USED WHERE THE CITY OF EDMOND SPECIFICATIONS ARE NOT AVAILABLE.
3. DEMOLITION: THE SITE DEMOLITION SHALL INCLUDE THE REMOVAL OF THE EXISTING CULVERTS, STRUCTURES, OR OTHER ITEMS NECESSARY TO COMPLETE THE WORK ACCORDING TO THE DRAWINGS. PAYMENT FOR DEMOLITION ITEMS SHALL BE INCLUDED IN THOSE ITEMS NOTED IN THE PAY ITEM NOTES.
4. THE CONTRACTOR SHALL INSTALL AND MAINTAIN SAFETY FENCING FOR THE PROTECTION OF WORKMEN AND THE PUBLIC. THE CONTRACTOR SHALL PERFORM ALL OPERATIONS ACCORDING TO THE REQUIREMENTS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT (OSHA) AS PUBLISHED IN THE CODE OF FEDERAL REGULATIONS, PART 1926, LATEST EDITION. ALL OPEN EXCAVATIONS SHALL BE FENCED AND HAVE WARNING LIGHTS ON BARRICADES TO WARN OF THE HAZARD. THE CONTRACTOR SHALL MAINTAIN TEMPORARY YARD FENCING. COST SHALL BE INCLUDED THE RELATED SPECIFIC ITEMS IN THE SUMMARY OF PAY QUANTITIES OR INCLUDED IN THE PRICE BID FOR OTHER ITEMS OF WORK. THE CONTRACTOR SHALL INSTALL AND MAINTAIN A TEMPORARY 4' FENCE TO PROTECT CHILDREN AND PETS. CONTRACTOR SHALL SUBMIT A PROPOSED LAYOUT FOR CITY APPROVAL.
5. ALL REINFORCING STEEL SHALL BE GRADE 60.
6. ALL CLASS A CONCRETE SHALL BE AIR ENTRAINED.
7. STRUCTURAL CONCRETE SHALL HAVE ALL EXPOSED CORNERS OR EDGES CHAMFERED WITH A 3/4-INCH CHAMFER UNLESS OTHERWISE NOTED.
8. ALL FLAT CONCRETE FINISHING SHALL CONSIST OF A BURLAP DRAG OR MEDIUM BROOM FINISH. ALL CONCRETE WALLS SHALL BE RUBBED TO A UNIFORM TEXTURED FINISH.
9. NO FLYASH ALLOWED IN CONCRETE. SUBMIT CERTIFIED MIX DESIGN.
10. THE CONTRACTOR SHALL NOT REMOVE OR DISTURB ANY TREE WHICH IS OUTSIDE THE EASEMENT. THE CONTRACTOR SHALL PRESERVE ANY TREE WITHIN THE WORK AREA WHICH DOES NOT PRESENT A DETRIMENT TO THE WORK OR A SAFETY HAZARD.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION STAKING, LAYOUT, AND AS-BUILT SURVEYS. SURVEYING SHALL BE PERFORMED BY A SURVEYOR LICENSED IN THE STATE OF OKLAHOMA. CONTRACTOR SHALL MAINTAIN ONE SET OF AS-BUILT DRAWINGS ON SITE AT ALL TIMES.
12. THE LIMITS OF WORK ARE DEFINED BY THE TEMPORARY EASEMENT OR PERMANENT EASEMENT LINES SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL KEEP ALL CONSTRUCTION ACTIVITIES WITHIN THESE LIMITS. ACCESS TO AREAS OUTSIDE THE LIMITS OF CONSTRUCTION SHALL BE NEGOTIATED BY THE CONTRACTOR WITH THE PROPERTY OWNERS. WHEN PRIVATE PROPERTY IS USED, SUPPLY A WRITTEN AGREEMENT BETWEEN CONTRACTOR AND LAND OWNER TO THE CITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR GRADING AND DRAINAGE OF SOIL DEPOSIT AREAS OUTSIDE THE LIMITS OF CONSTRUCTION.
13. ALL ROADWAY REPAIR SHALL BE A MINIMUM THICKNESS OF 6-INCHES OF PC CONCRETE ON 6-INCHES OF AGGREGATE BASE, OVER A COMPACTED SUBGRADE. COMPACTION SHALL BE 95% STANDARD PROCTOR DENSITY AT 2% OPTIMUM MOISTURE CONTENT. ROADWAYS DAMAGED BY THE CONSTRUCTION SHALL BE REPAIRED AT THE CONTRACTORS EXPENSE.
14. WORK REQUIRED FOR THE COMPLETION OF THE PROJECT BUT NOT SPECIFICALLY NOTED SHALL BE INCLUDED IN THE PRICE BID FOR OTHER ITEMS OF WORK.
15. CONTRACTOR SHALL MAINTAIN ACCESS ON LONSDALE DR. ACROSS ROB AT ALL TIMES.
16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PUMPING TO CONTROL SURFACE OR GROUNDWATER ENCOUNTERED DURING THE EXECUTION OF THE WORK. THE EXTENT OF THE GROUND WATER IS UNKNOWN. THE CONTRACTOR SHOULD SATISFY HIMSELF WITH THE CONDITIONS AS THEY EXIST. THE CONSTRUCTION OF ANY TEMPORARY BERMS, DIKES, PIPELINES, DITCHES OR OTHER SUCH FACILITIES SHALL BE IN STRICT ACCORDANCE WITH THE LOCAL, STATE AND FEDERAL REQUIREMENTS ON SUCH FACILITIES. NO ADDITIONAL PAYMENT SHALL BE MADE FOR WATER DIVERSION OR PUMPING.
17. THE CONTRACTOR SHALL SUPPLY TRAFFIC CONTROL PLAN FOR APPROVAL, BEFORE COMMENCING THE WORK.
18. TESTING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF TESTING BY AN INDEPENDENT TESTING LAB AS FOLLOWS:

SOILS: STANDARD PROCTOR AND DENSITY TEST OF EVERY 8" LIFT
CONCRETE: 4 CYLINDERS FOR EACH CONTINUOUS PLACEMENT OF 50 CUBIC YARD OR MORE. UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.
19. THE CONTRACTOR SHALL MAINTAIN THE PROJECT AREAS FREE OF DUST AND DEBRIS ON THE ROADWAYS AT ALL TIMES. THIS WILL INCLUDE WATER TO CONTROL DUST, STREET CLEANUP AND PROPER WASHWATER CONTAINMENT OR STREET SWEEPING TO ELIMINATE SOIL ON THE PAVEMENT, AND REMOVAL OF OTHER WASTE MATERIALS. COST SHALL BE INCLUDED IN RELATED ITEMS OF WORK.

20. CONTRACTOR SHALL VERIFY LOCATION OF DEPTH ON ALL EXISTING UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. REPAIR OF ANY UTILITY OR SERVICE LINE WHICH ARE CUT OR DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
21. ALL DUCTILE IRON PIPE SHALL CONFORM TO APPLICABLE AWWA STANDARDS. THICKNESS REQUIRED SHALL BE CLASS 51.
22. ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED THROUGHOUT DURATION OF WORK. SEDIMENT REMOVED DURING CONSTRUCTION SHALL BE DISPOSED OF OFF-SITE BY CONTRACTOR. DISPOSAL SITE TO BE APPROVED BY CITY ENGINEER. COST OF ITEMS SHALL INCLUDE MATERIALS, INSTALLATION AND CONTINUED MAINTENANCE OF EACH. CONTRACTOR SHALL APPLY FOR AND OBTAIN THE OKR10 PERMIT FROM THE ODEQ IN HIS NAME. CONTRACTOR SHALL FOLLOW THE STORM WATER POLLUTION PREVENTION PLAN.
23. ALL DISTURBED AREAS SHALL BE SOLID SLAB SODDED EXCEPT WHERE HYDROMULCH IS DETAILED. ALL QUANTITIES IN EXCESS OF PLAN QUANTITY SHALL BE PAID BY CONTRACTOR AT HIS EXPENSE. CONTRACTOR SHALL TAKE WHATEVER STEPS NECESSARY TO RE-ESTABLISH SOD AND ESTABLISH HYDROMULCH GROWTH AT INCIDENTAL EXPENSE.
24. CONTRACTOR SHALL PROVIDE THE CITY ENGINEER WITH SURVEY CUT SHEETS PRIOR TO EXCAVATION OF TRENCHES.
25. TESTING AND FLUSHING AND MANDREL TESTING OF PVC PIPE - THE CONTRACTOR SHALL FURNISH ALL MATERIALS, EQUIPMENT, TOOLS AND LABOR REQUIRED TO PERFORM TESTING OF THE NEW SEWER SHALL BE INCLUDED IN THE PRICE BID FOR OTHER ITEMS OF WORK, NO SEPARATE PAYMENT SHALL BE MADE. FAILED TESTS SHALL BE RETESTED AFTER REPAIRS ARE COMPLETED WITHOUT ADDITIONAL COMPENSATION.
26. BEDDING AND BACKFILL SHALL BE IN ACCORDANCE WITH CITY OF EDMOND STANDARD, SHEET 34.
27. THE CONTRACTOR SHALL NOT OPERATE ANY VALVES, HYDRANTS OR OTHER FACILITIES.
28. ALL WATER LINES SHALL BE PRESSURE AND LEAKAGE TESTED AND DISINFECTED IN ACCORDANCE WITH THE REQUIREMENTS OF OKLAHOMA ADMINISTRATIVE CODE (OAC) TITLE 252, CHAPTER 626, PUBLIC WATER SUPPLY CONSTRUCTION STANDARDS 252:626-19-2 (5) AND (6). PRESSURE AND LEAKAGE TESTING SHALL BE IN ACCORDANCE WITH AWWA C600. ALL NEW, CLEANED OR REPAIRED WATER LINES SHALL BE DISINFECTED IN ACCORDANCE WITH OAC 252:63D. PUBLIC WATER SUPPLY OPERATION.
29. ALL WATER AND SANITARY SEWER LINES INSTALLED WITHIN CASING PIPE SHALL BE SUPPORTED BY MEANS OF PERMANENTLY ATTACHED CASING SPACERS. CASING SPACERS SHALL BE PROJECTION TYPE, NONMETALLIC OR OTHERWISE INSULATED SPACERS. SPACERS SHALL BE "RACI" SPACER TYPES F & G, OR AN APPROVED EQUAL. ALL CASING ENDS SHALL BE SEALED UTILIZING A MODULAR MECHANICAL SEAL. ALL JOINTS WITHIN CASING SHALL BE RESTRAINED.
30. WHERE NO ITEM IS LISTED FOR WORK OR MATERIALS WHICH IS INTENDED BY OR REQUIRED BY THE PLANS AND/OR THE SPECIFICATIONS, THAT WORK AND/OR MATERIAL WILL BE CONSIDERED INCIDENTAL, WITH COST TO BE INCLUDED UNDER ITEMS OF WORK OR PAY.

PAY ITEM NOTES:

1. INCLUDES THE REMOVAL AND DISPOSAL OF TREES, BRUSH, WEEDS, BROKEN CONCRETE, ROCKS, MISCELLANEOUS DEBRIS AND R.O.W. RESTORATION.
2. PRICE SHALL INCLUDE THE COST OF EXCAVATION, PLACEMENT, COMPACTION AND DISPOSAL OF WASTE SOIL.
3. PRICE INCLUDES FINE GRADING, FERTILIZING AND WATERING.
4. PRICE INCLUDES GRADING AND COMPACTION.
5. PRICE SHALL INCLUDE REINFORCING STEEL AND CLASS "A" CONCRETE.
6. PRICE SHALL INCLUDE ALL MATERIALS, LABOR AND SUPERVISION FOR THE COMPLETE CONSTRUCTION OF THE STRUCTURES AS SHOWN IN THE PLANS OR DIRECTED BY THE ENGINEER.
7. TENSAR GEOGRID BX40 INSTALLED WITH MINIMUM 2' OVERLAPS.
8. PRICE SHALL INCLUDE ALL EROSION & SEDIMENT CONTROL MEASURES TO COMPLY WITH THE SP3 AND EROSION CONTROL PLAN. (SEE SHEETS 5 & 6)
9. ALL SANITARY SEWER DIP WILL BE EPOXY LINED.
10. COST INCLUDES ALL WATERING, FERTILIZING AND REPLACEMENT OF DEAD SOO UNTIL AN ACCEPTABLE STAND HAS BEEN ESTABLISHED.
11. ALL REINFORCING STEEL TO BE GRADE 60.
12. ALL SURVEYING TO BE PERFORMED BY A SURVEYOR LICENSED IN THE STATE OF OKLAHOMA.
13. ADJUSTMENT AS SHOWN IN DETAIL "4" ON SHEET 19. INCLUDES ALL LABOR AND MATERIALS FOR COMPLETE INSTALLATION.
14. PRICE BID INCLUDES ALL POSTS, TOP RAIL AND FASTENERS FOR COMPLETE INSTALLATION.

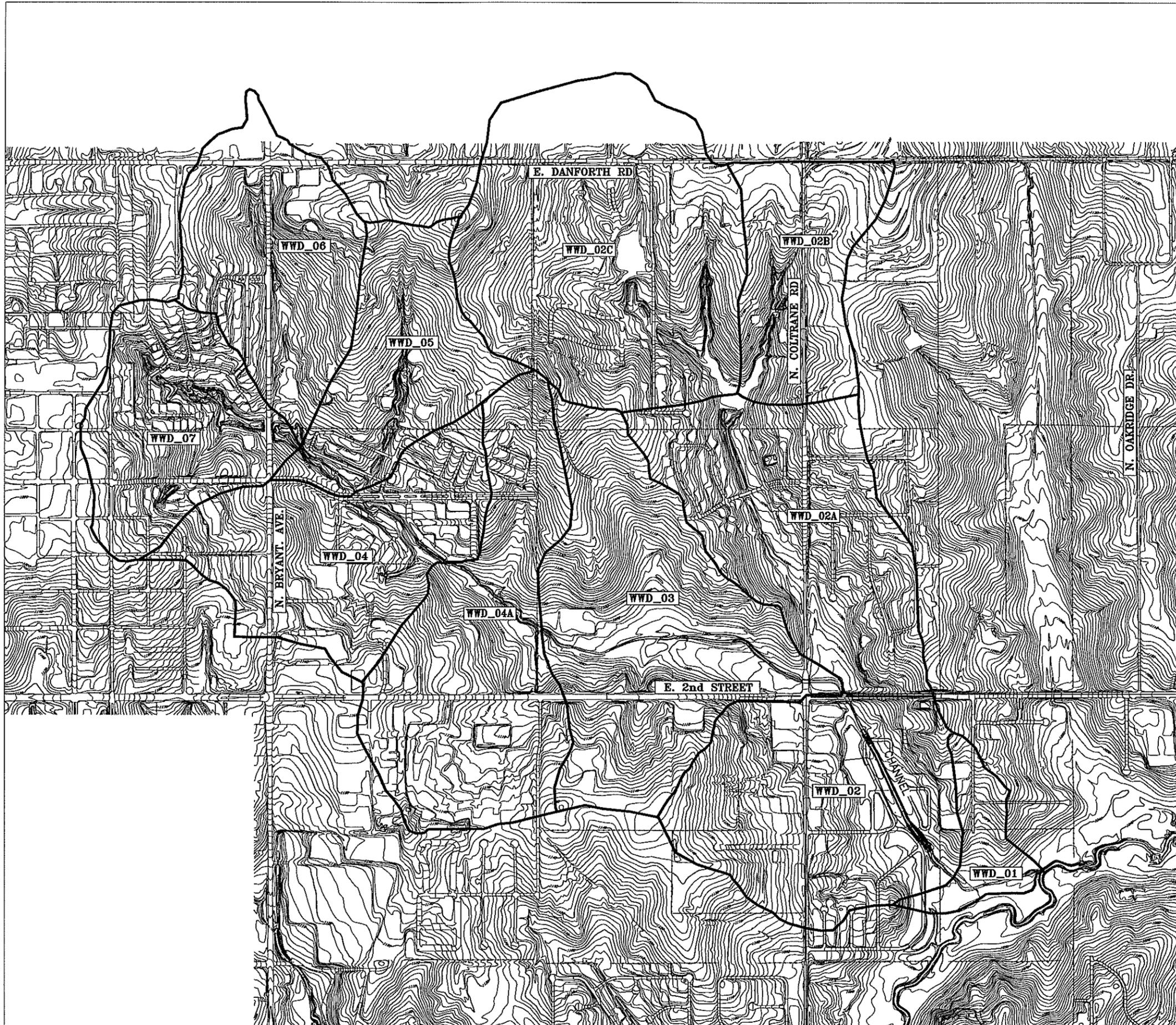
CHANNELIZATION QUANTITIES					
ITEM	ITEM NO.	DESCRIPTION	PAY NOTES	UNIT	QUANTITY
1	201	CLEARING AND GRUBBING	1	LS	1
2	202(C)	UNCLASSIFIED EXCAVATION	2	CY	10,500
3	223	EROSION AND SEDIMENT CONTROL	8	LS	1
4	230(A)	SOLID SLAB SOD	10	SY	5,548
5	232(A)	SEEDING, METHOD (A) (HYDROMULCH)	3	AC.	0.30
6	303	AGGREGATE BASE		CY	60
7	325	SEPARATOR FABRIC		SY	5,540
8	411(A)	ASPHALT CONCRETE TYPE A		TON	82
9	411(C)	ASPHALT CONCRETE TYPE B		TON	41
10	501 (A)	STRUCTURAL EXCAVATION, UNCLASSIFIED		CY	68
11	501 (G)	CONCRETE LOW STRENGTH MATERIAL BACKFILL		CY	50
12	509(B)	CLASS "A" CONCRETE		CY	2,709
13	509(D)	CLASS "C" CONCRETE		CY	46
14	511	REINFORCING STEEL	11	LB	270,747
15	601	12" TYPE I-A RIPRAP		CY	24
16	601(H)	24" TYPE IV GROUTED RIPRAP		CY	395
17	609	INTERGAL 6" CURB BARRIER		LF	280
18	610(B)	CLASS "A" CONCRETE (4' SIDEWALK)		SY	125
19	611	INLET NO.1	5,6	LS	1
20	611	INLET NO.2	5,6	LS	1
21	611	INLET NO.3	5,6	LS	1
22	611	INLET NO.4	5,6	LS	1
23	611	INLET NO.5	5,6	LS	1
24	611	INLET NO.6	5,6	LS	1
25	613(B)	8" N-12 HDPE PIPE (WALL DRAIN, PERF. & NON-PERF.)		LF	2,300
26	613(B)	36" RCP CL. III		LF	208
27	613(B)	42" RCP CL. III		LF	16
28	613(B)	34"x53" HERCP CL.III		LF	166
29	613(B)	38"x60" HERCP CL.III		LF	8
30	613(S)	TRENCH EXCAVATION		CY	700
31	613(T)	STANDARD BEDDING MATERIAL		CY	315
32	613(X)	10'x10' ASTM C850 PRECAST CONCRETE BOX		LF	320
33	622(A)	2" STL. PIPE HANDRAIL		LF	270
34	624(D)	4' CHAIN LINK FENCE (VINYL COATED BLACK)	14	LF	610
35	624SP	6' WOOD FENCE	14	LF	1,700
36	641	MOBILIZATION		LS	1
37	642	STAKING	12	LS	1
38	701.06	1-1/2" CLEAN CRUSHED STONE (NO.57)		CY	1,789
39	712.03	FILTER FABRIC		SY	3,000
40	713.03	FILTER BLANKET	4	CY	1,552
41	880	TRAFFIC CONTROL		LS	1
42	SPECIAL	GEO GRID	7	SY	4,680
43	SPECIAL	42" FLAP GATE (INLET NO.6)		EA	1

WATER AND SANITARY SEWER RELOCATION QUANTITIES					
ITEM	ITEM NO.	DESCRIPTION		UNIT	QUANTITY
44	WS202(A)	EXCAVATION AND BACKFILL		CY	550
45	WS615	PIPE, DUCTILE IRON, 8" AWWA C151, CLASS 51 (SAN. SEWER)	9	LF	72
46	WS615	PIPE, DUCTILE IRON, 18" AWWA C151, CLASS 51 (RELOCATION)	9	LF	93
47	WS616	PIPE, DUCTILE IRON, 8" AWWA C151, CLASS 51 (WATER)		LF	253
48	WS617	8" 11.25 DEGREE BEND (RJ)		EA	2
49	WS619	8" 45 DEGREE BEND (RJ)		EA	14
50	WS620	8" SOLID SLEEVE (RJ)		EA	4
51	WS611	4' ID MANHOLE (4' DEPTH) COMPLETE		EA	4
52	WS611	ADDITIONAL DEPTH, 4' ID MANHOLE		VF	28
53	WS611	ADJUST EXISTING MANHOLE TO GRADE W/ NEW SEALED	13	EA	5

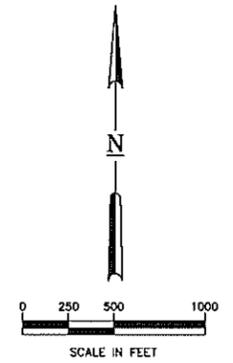
**WILLOWOOD ADDITION
CHANNEL IMPROVEMENT
SUMMARY OF PAY QUANTITIES
AND CONSTRUCTION NOTES
CITY OF EDMOND, OKLAHOMA
DRAINAGE UTILITY**

PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, P.L.C.
1437 S. Boulder Ave., Suite 1080 Tulsa, OK 74119 (918) 392-5620

REVISION	BY	DATE	PLAN SCALE	DRAWN	MBA	6/08	REVIEWED BY:
				DESIGNED	WTM	6/08	
				CHECKED	JKM	6/08	
			PROFILE SCALE	FIELD MNGR.			
			HORIZONTAL:	SECT. MNGR.			
				PROJ. MNGR.			
			VERTICAL:	RECOMMENDED			
				DEPUTY DIRECTOR			DIRECTOR OF ENGINEERING
			FILE:	DRAWING:			DATE: 2/09



- LEGEND**
- EXISTING INTERMEDIATE CONTOUR
 - EXISTING INDEX CONTOUR
 - EXISTING PAVEMENT
 - DRAINAGE BASIN



**WILLOWOOD ADDITION
CHANNEL IMPROVEMENT
DRAINAGE AREA MAP
CITY OF EDMOND, OKLAHOMA
DRAINAGE UTILITY**

PLANS AND ESTIMATES PREPARED BY:
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1437 S. Boulder Ave., Suite 1080 Tulsa, OK 74119 (918) 392-5620

REVISION	BY	DATE	PLAN SCALE:	DESIGNED	WBA	8/08	REVIEWED BY:
			1"=500'	CHECKED	WTM	8/08	
			PROFILE SCALE:	FIELD MNGR.			
			HORIZONTAL:	SECT. MNGR.			
			VERTICAL:	PROJ. MNGR.			
				RECOMMENDED			
				DEPUTY DIRECTOR			DIRECTOR OF ENGINEERING
			FILE:	DRAWING:			DATE: 2/09
			ATLAS PAGE NO.				SHEET 3 OF 37 SHEETS

N:\07EDM01\DRAWINGS\DA-MAP.DWG

STORMWATER POLLUTION PREVENTION PLAN

SITE DESCRIPTION

PROJECT LIMITS: NW/4, SECTION 32, T 14 N, R 2 W, BEING LOCATED IN OKLAHOMA COUNTY, WILLOWOOD ADDITION, EDMOND, OK.

PROJECT DESCRIPTION: GRADING, DRAINAGE, SURFACING & EROSION CONTROL FOR THE CITY OF EDMOND, OK.

- SUGGESTED SEQUENCE OF CONSTRUCTION:
1. CLEAR AND GRUB AREA
 2. EXCAVATE FOR UTILITIES AND PROP. ROADWAY
 3. PILE STORE TOP SOIL.
 4. STABILIZE DENUDED AREAS AND STOCKPILES WITHIN 14 DAYS OF LAST CONSTRUCTION ACTIVITY IN CONSTRUCTION ZONE.
 5. INSTALL SEDIMENT FILTERS AND SILTATION SCREENS IN AREAS AS THEY BECOME DISTURBED.
 6. INSTALL UTILITIES, STORM SEWERS, WATER & SANITARY SEWER RELOCATIONS.
 7. COMPLETE ROADWAY, AND DITCH GRADING
 8. CONSTRUCT DRAINS AND PAVEMENT.
 9. COMPLETE FINAL GRADING AND INSTALL PERMANENT SODDING.

TOTAL AREA TO BE DISTURBED: APPROX. 2 ACRES
 NDTE: THIS AREA IS TO BE CALCULATED AS "R/W TO R/W" FOR THE EXTENDS OF THE PROJECT, INCLUDING AND INCIDENTAL CONSTRUCTION.

WEIGHTED RUNOFF COEFFICIENT: 0.45 RUNOFF COEFFICIENT
 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 BASED ON THE ANTICIPATED FUTURE LAND USE.

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

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. SEE SHEET NUMBER(S) SHEET 3

EROSION AND SEDIMENT CONTROLS

SOIL STABILIZATION PRACTICES

- TEMPORARY SEEDING
- PERMANENT SODDING, SPRIGGING OR SEEDING
- 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 DAMPEDED FOR DUST CONTROL
- LOADED HAUL TRUCKS TO BE COVERED WITH TARPAULIN
- EXCESS DIRT ON ROAD REMOVED DAILY
- STABILIZED CONSTRUCTION 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 13 mm (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 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 (SWPPP) is required to comply with the National Pollution Discharge Elimination System (NPDES) regulations. This plan is developed prior to the work by the contractor and is available on the job site along with copies of the Notice of Intent (NOI) forms that have been filed with EPA. The basic goal for 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 DDOT Standard Specifications for Highway Construction:

- 103.05 Bonding Requirements
- 104.08 Final Cleaning Up
- 106.06 Storage of Materials
- 107.01 Laws To Be Observed
- 107.15 Contractor's Responsibility for Work
- 220.01 & 220.03 Temporary Erosion and Sediment Control

In addition:

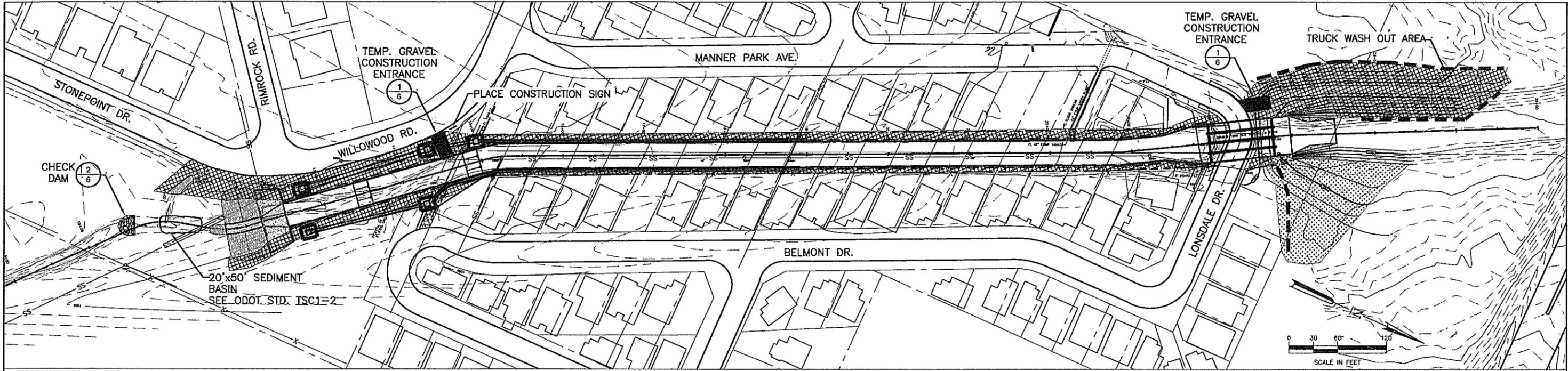
- "EPA - Final NPDES General Permits for Storm Water Discharges From Construction Sites: Notices"
- Federal Register, Latest Edition

**WILLOWOOD ADDITION
CHANNEL IMPROVEMENT
STORMWATER POLLUTION
PREVENTION PLAN**

**CITY OF EDMOND, OKLAHOMA
DRAINAGE UTILITY**

PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, P.L.C.
1437 S. Boulder Ave., Suite. 1080 Tulsa, OK 74119 (918) 392-5620

REVISION	BY	DATE	PLAN SCALE	DRAWN	MBA	8/08	REVIEWED BY:
				DESIGNED	WTM	8/08	
				CHECKED	JKM	8/08	
			PROFILE SCALE	FIELD MNGR.			
			HORIZONTAL:	SECT. MNGR.			
				PROJ. MNGR.			
			VERTICAL:	RECOMMENDED			
				DEPUTY DIRECTOR			DIRECTOR OF ENGINEERING
			FILE:	DRAWING:			DATE: 2/09
							SHEET 5 OF 37 SHEETS



TEMPORARY EROSION CONTROL MEASURES

TEMPORARY VEGETATION TO CONTROL EROSION SHALL BE USED IN AREAS WHERE THE SOIL IS LEFT EXPOSED FOR A PERIOD OF TIME. (NO LONGER THAN 2 WEEKS AFTER GRADING HAS FINISHED)

1. PRIOR TO SEEDING, NEEDED EROSION CONTROL PRACTICES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, BERMS, DIKES, STRAW BALES, ETC., SHALL BE INSTALLED.
2. TEMPORARY VEGETATIVE COVER SHOULD BE APPLIED PRIOR TO THE COMPLETION OF FINAL GRADING OF THE SITE.
3. IF THE AREA TO BE SEEDED HAS BEEN RECENTLY LOOSENEED TO THE EXTENT THAT AN ADEQUATE SEEDBED EXISTS, NO ADDITIONAL TREATMENT IS REQUIRED. HOWEVER IF THE AREA TO BE SEEDED IS PACKED, CRUSTED, AND/OR HARD, THE TOP LAYER OF SOIL SHALL BE LOOSENEED BY DISCING OR OTHER SUITABLE MEANS.
4. FERTILIZER SHALL BE APPLIED AT A RATE OF 600 POUNDS PER ACRE OR 15 POUNDS PER 1000 SQUARE FOOT USING 10-20-10 OR EQUAL.
5. SEEDING OPTIONS ARE AS FOLLOWS:

PLANT	ACRE	QUANTITY PER 1000 S.F.	PLANTING DATE	DEPTH
ANNUAL	40 LBS	0.90 LBS	09/15 TO 11/30	1/4 IN.
ELBON RYE	2 BU.	3.00 LBS	08/15 TO 11/30	2 IN.
WHEAT	2 BU.	3.00 LBS	08/15 TO 11/30	2 IN.
OATS	3 BU.	2.50 LBS	08/15 TO 11/30	2 IN.
SORGHUM	60 LBS	1.40 LBS	03/01 TO 09/15	2 IN.
SUDAN	40 LBS	0.90 LBS	04/01 TO 09/15	2 IN.

6. SEEDS SHALL BE DRILLED OR BROADCAST BY AN APPROVED METHOD UNIFORMLY.
7. SEEDING IMPLEMENTS SHALL BE USED AT RIGHT ANGLES TO THE GENERAL SLOPE TO MINIMIZE EROSION.
8. 1 TO 3 MONTHS AFTER PLANTING, THE SEEDED SITE SHALL BE TOP DRESSED WITH 8 POUNDS PER 1000 SQUARE FEET OR 350 POUNDS PER ACRE OF 33-0-0.
9. AREAS WHICH DO NOT DEVELOP A SUFFICIENT COVER SHALL BE REPLANTED.
10. THE SEEDED AREA SHALL BE WATERED UNTIL THE GROWTH IS AT LEAST 1.5".

LEGEND

- — — — — EXISTING INDEX CONTOUR
- - - - - EXISTING INTERMEDIATE CONTOUR
- x — — — — — PROPOSED 4' CHAIN LINK FENCE
- - - - - TEMPORARY SILT FENCE
- SEMI-CIRCLE WITH 'S' SEEDMENT FILTER
- GRID PATTERN SOLID SLAB BERMUDA SOD
- DOTTED PATTERN HYDROMULCH SEEDING
- - - - - LIMITS OF DISTURBED AREA

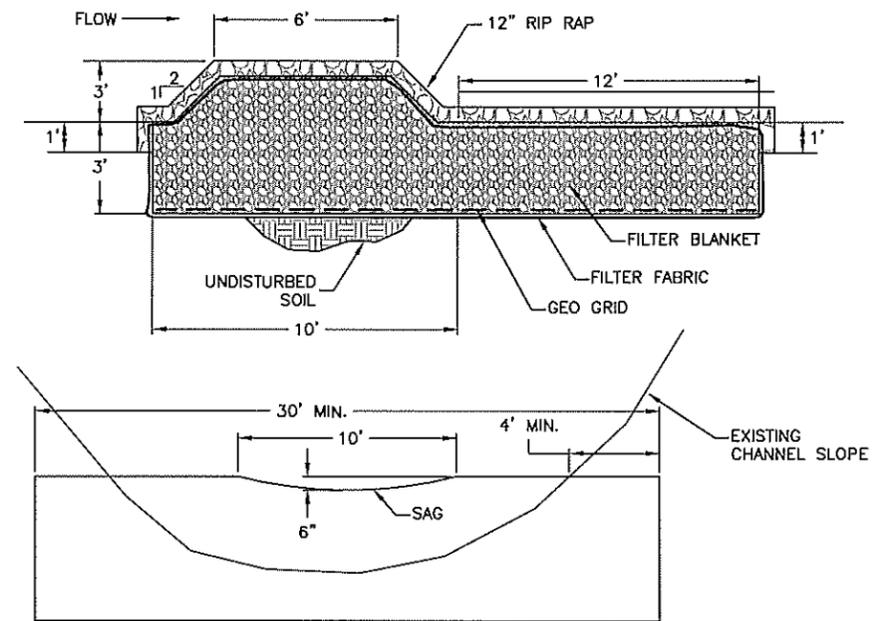
PERMANENT EROSION CONTROL MEASURES

BERMUDA GRASS, KENTUCKY 31, TALL FESCUE AND WEEPING LOVEGRASS ARE SOME OF THE TYPES OF PERMANENT VEGETATION THAT MAY BE EFFECTIVELY USED TO CONTROL

1. PRIOR TO SEEDING, NEEDED EROSION CONTROL PRACTICES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, BERMS, DIKES, STRAW BALES, ETC., SHALL BE INSTALLED.
2. THE SUBGRADE SHALL BE LOOSENEED EVENLY TO A DEPTH OF 2 TO 3 INCHES AND 10-20-10 FERTILIZER (10 POUNDS PER 1000 SQUARE FOOT OR 450 POUNDS PER ACRE) SHALL BE MIXED WITH THE LOOSENEED SURFACE SOIL BY DISCING OR OTHER SUITABLE MEANS.
3. SOILS KNOWN TO BE HIGHLY ACIDIC SHALL BE LIME TREATED.
4. SEEDING OPTIONS ARE AS FOLLOWS:

TYPE	LBS. PER 1,000 SQ. FT.	LBS. PER ACRE	DEPTH
BERMUDA GRASS, HULLED	0.50	22	1/2 IN.
BERMUDA GRASS, UNHULLED	0.75	33	1/2 IN.
FESCUE KY31	1.00	44	1/2 IN.
OLD WORLD BLUE STEM	0.14	6.1	1/2 IN.
RYE	5.00	45	1/2 IN.
WINTER WHEAT	5.00	45	1/2 IN.
LOVE GRASS	2.00	30	1/2 IN.

5. SEEDS SHALL BE BROADCAST OR HYDRUALLY SPREAD UNIFORMLY.
6. SEEDING SHALL BE ACCOMPLISHED BY AN APPROVED HYDRAULIC METHOD
7. MULCH SHALL BE USED IN ALL SEEDED AREAS.
8. THE AREA SHALL BE WATERED DAILY OR AS OFTEN AS NECESSARY TO MAINTAIN ADEQUATE SOIL MOISTURE UNTIL THE PLANTS GROW 1/2 TO 1 INCH.
9. PREPARE GRADED AREAS BY REMOVING ROOTS, ROCKS AND OTHER DEBRIS. SCARIFY SOIL AND PLACE SOD IN ACCORDANCE TO THE CITY OF EDMOND SPECIFICATIONS.
10. REMOVE TEMPORARY SEDIMENT CONTROL MEASURES AS SOON AS SOD IS PLACED.
11. REPLACE ALL GRASS WHICH BECOMES DISCOLORED OR DIES WITHIN THE CURRENT GROWING SEASON.



2 CHECK DAM DETAIL

NOTE: WIDTH OF DAM TO EXTEND TO NOT LESS THAN 4 FT. INTO THE CREEK BANK. CONSTRUCT A 10' WIDE 6" SAG AT THE CENTER LINE OF CHECK DAM.

SEE CITY OF EDMOND STANDARD EC-01 SHEET 37 (TEMP. GRAVEL CONSTRUCTION ENTRANCE)

1 TEMP. GRAVEL CONSTRUCTION ENTRANCE
NOT TO SCALE

(2 REQUIRED)

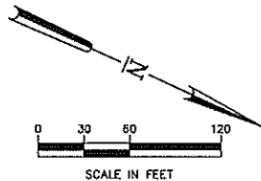
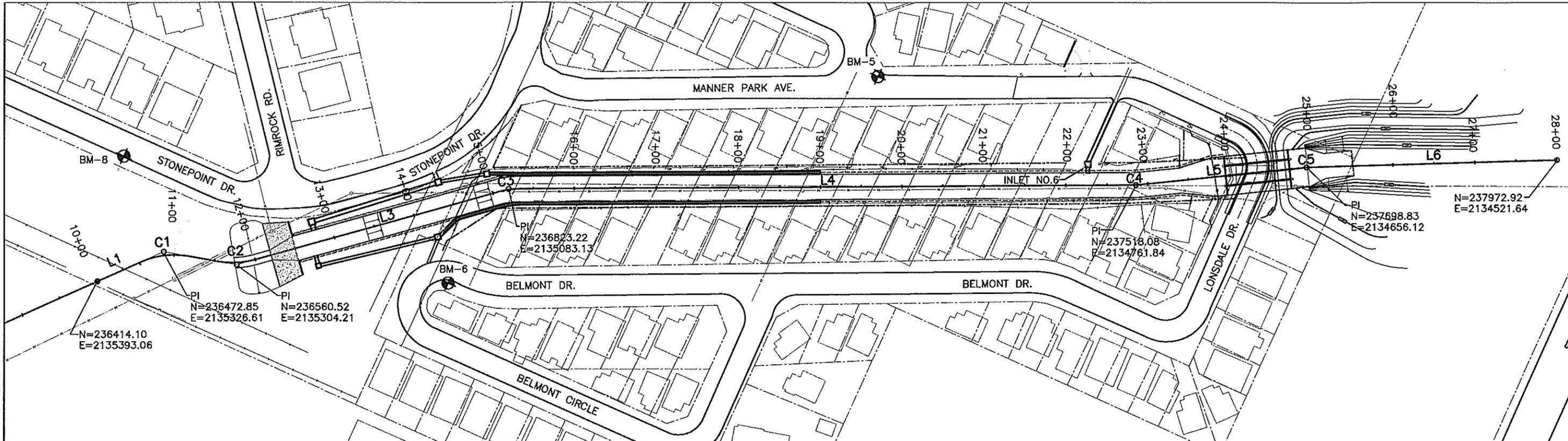
WILLOWOOD ADDITION CHANNEL IMPROVEMENT
EROSION CONTROL PLAN
CITY OF EDMOND, OKLAHOMA DRAINAGE UTILITY

PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, P.L.C.
1437 S. Boulder Ave., Suite 1080 Tulsa, OK 74119 (918) 392-5620

REVISION	BY	DATE	PLAN SCALE	DRAWN	MBA	6/08	REVIEWED BY:
			1"=50'	DESIGNED	WTM	6/08	
				CHECKED	JKM	6/08	
			PROFILE SCALE	FIELD MNGR.			
			HORIZONTAL:	SECT. MNGR.			
			VERTICAL:	PROJ. MNGR.			
				RECOMMENDED			
			FILE:	DEPUTY DIRECTOR			DIRECTOR OF ENGINEERING
			DRAWING:				DATE: 2/09
			ATLAS PAGE NO.				SHEET 6 OF 37 SHEETS

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NOTE:
ONLY PI COORDINATES ARE SHOWN ALONG MAIN
CHANNEL ALIGNMENT. FOR STRUCTURE
COORDINATES SEE DETAIL SHEETS.

SURVEY CONTROL

B.M. ID	Northing	Easting	Elevation	Description
BM-3	236717.89	2134130.57	1093.01	"X" ON CURB
BM-4	236723.29	2134734.13	1059.25	"X" IN FL
BM-5	237176.40	2134771.81	1058.01	"X" IN FL
BM-6	236803.57	2135218.13	1070.00	"X" ON CURB
BM-7	237365.80	2134980.75	1062.07	"X" ON SIDEWALK
BM-8	236380.13	2135240.84	1050.78	"X" IN FL

LINE TABLE

LINE	BEARING	DISTANCE
L1	N 48°31'09" W	57.95'
L2	N 14°19'42" W	36.86'
L3	N 40°04'56" W	307.09'
L4	N 24°48'55" W	747.32'
L5	N 30°19'28" W	200.93'
L6	N 26°08'01" W	301.64'

CURVE TABLE

CURVE	RADIUS	ARC LENGTH	DELTA ANGLE
C1	100'	59.6745'	34°11'28"
C2	100'	44.9492'	25°45'14"
C3	100'	26.6459'	15°16'01"
C4	100'	9.6152'	5°30'33"
C5	100'	7.3144'	4°11'27"

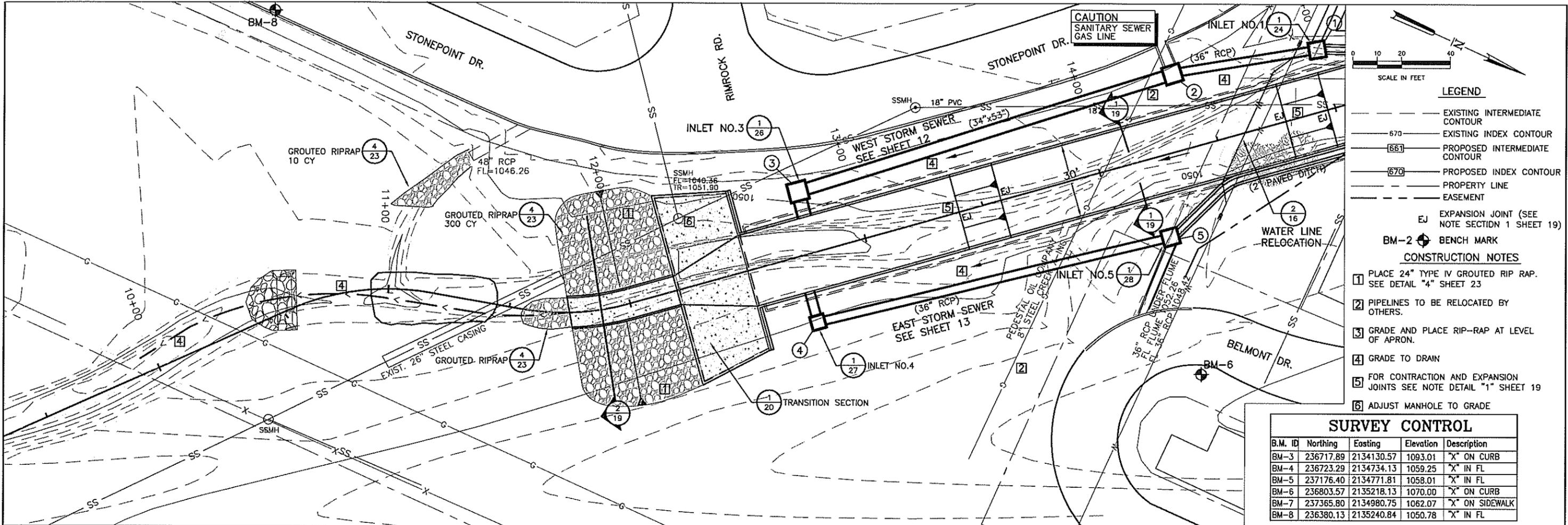
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**WILLOWood ADDITION
CHANNEL IMPROVEMENT**
GEOMETRIC DATA
**CITY OF EDMOND, OKLAHOMA
DRAINAGE UTILITY**

PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, P.L.C.
1437 S. Boulder Ave., Suite 1080 Tulsa, OK 74119 (918) 392-5820

REVISION	BY	DATE	PLAN SCALE	DRAWN	MBA	6/08	REVIEWED BY:
			1"=20'	DESIGNED	WTM	6/08	
				CHECKED	JKM	6/08	
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			HORIZONTAL:	SECT. MNGR.			
			1"=20'	PROJ. MNGR.			
			VERTICAL:	RECOMMENDED			
			1"=5'	DEPUTY DIRECTOR			DIRECTOR OF ENGINEERING
			FILE:	DRAWING:			DATE: 2/09
			ATLAS PAGE NO.				SHEET 7 OF 37 SHEETS



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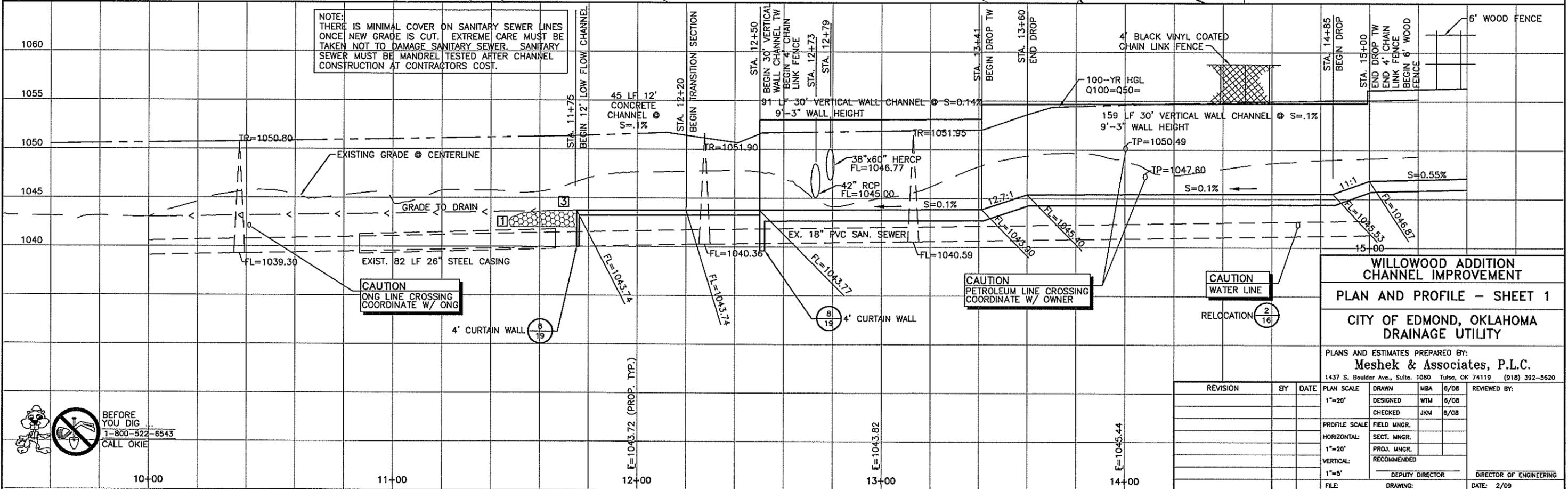
- EXISTING INTERMEDIATE CONTOUR
- 670 EXISTING INDEX CONTOUR
- 667 PROPOSED INTERMEDIATE CONTOUR
- 670 PROPOSED INDEX CONTOUR
- PROPERTY LINE
- EASEMENT
- EJ EXPANSION JOINT (SEE NOTE SECTION 1 SHEET 19)
- BM-2 BENCH MARK

CONSTRUCTION NOTES

- PLACE 24" TYPE IV GROUDED RIP RAP. SEE DETAIL "4" SHEET 23
- PIPELINES TO BE RELOCATED BY OTHERS.
- GRADE AND PLACE RIP-RAP AT LEVEL OF APRON.
- GRADE TO DRAIN
- FOR CONTRACTION AND EXPANSION JOINTS SEE NOTE DETAIL "1" SHEET 19
- ADJUST MANHOLE TO GRADE

SURVEY CONTROL

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BM-4	236723.29	2134734.13	1059.25	"X" IN FL
BM-5	237176.40	2134771.81	1058.01	"X" IN FL
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BM-8	236380.13	2135240.84	1050.78	"X" IN FL



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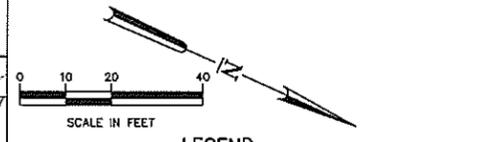
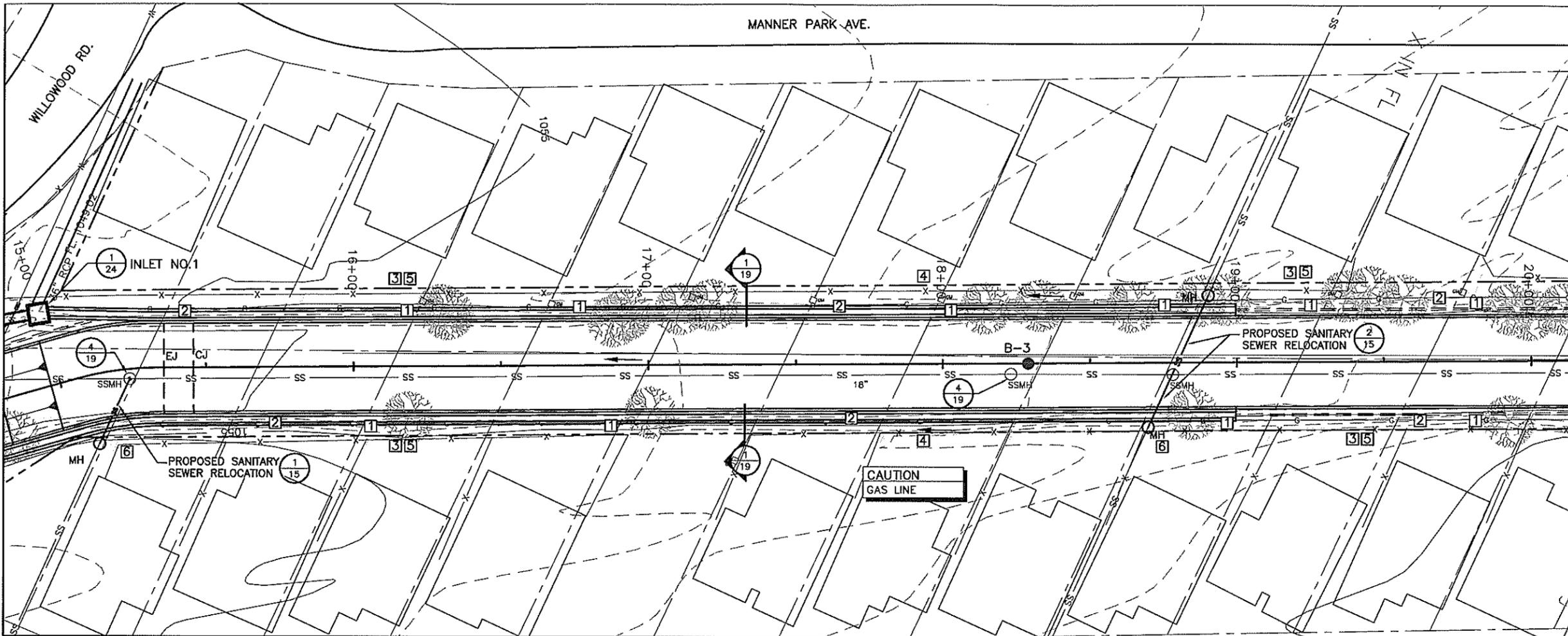
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11+00

12+00

13+00

14+00

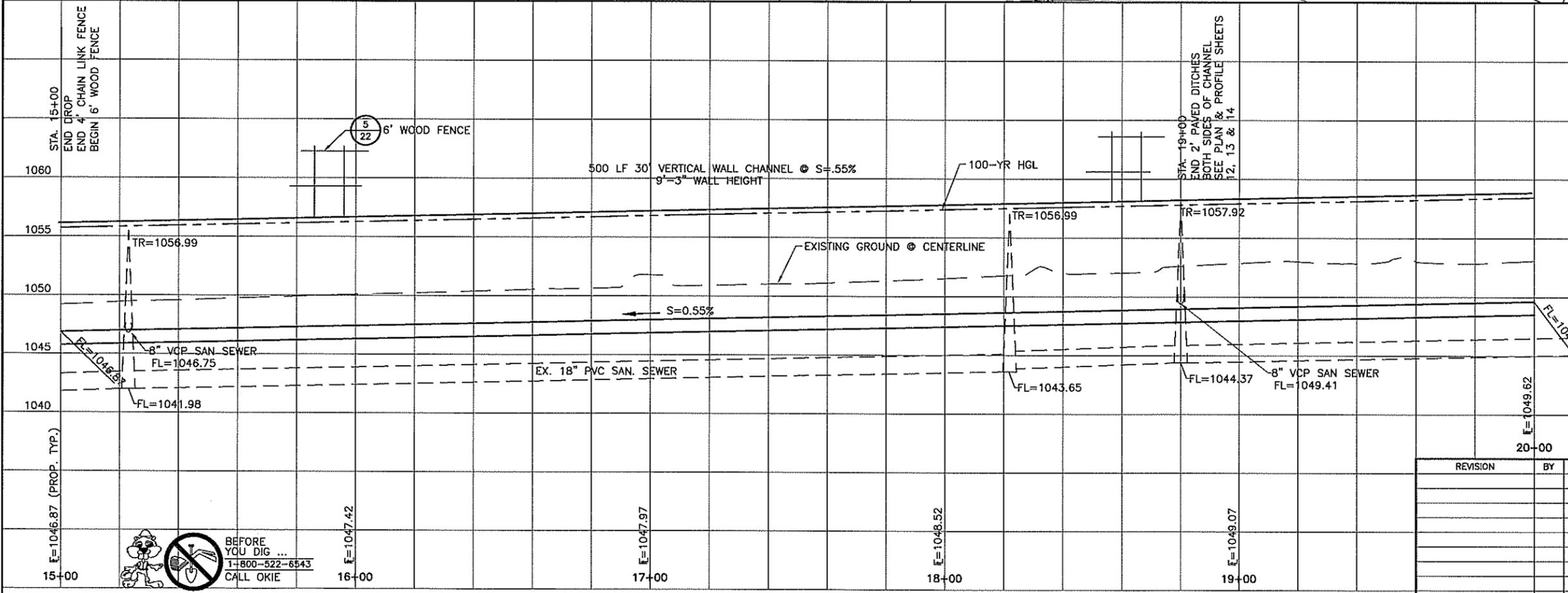


- LEGEND**
- - - - - EXISTING INTERMEDIATE CONTOUR
 - - - - - EXISTING INDEX CONTOUR
 - [66] - - - PROPOSED INTERMEDIATE CONTOUR
 - [67] - - - PROPOSED INDEX CONTOUR
 - - - - - PROPERTY LINE
 - - - - - EASEMENT
 - EJ EXPANSION JOINT
 - CJ CONTRACTION JOINT
 - BM-2 BENCH MARK
 - B-3 BORING LOCATION

- CONSTRUCTION NOTES**
- [1] REMOVE ALL TREES WITHIN CONSTRUCTION ZONE.
 - [2] GAS LINE TO BE RELOCATED BY OTHERS
 - [3] REMOVE EXISTING FENCE
 - [4] GRADE TO DRAIN
 - [5] TIE IN CROSS FENCES TO NEW FENCE ON WALL.
 - [6] RELOCATE SANITARY SEWER. SEE DETAIL PROFILE

SURVEY CONTROL

B.M. ID	Northing	Eastng	Elevation	Description
BM-3	236717.89	2134130.57	1093.01	"X" ON CURB
BM-4	236723.29	2134734.13	1059.25	"X" IN FL
BM-5	237176.40	2134771.81	1058.01	"X" IN FL
BM-6	236803.57	2135218.13	1070.00	"X" ON CURB
BM-7	237365.80	2134980.75	1062.07	"X" ON SIDEWALK
BM-8	236380.13	2135240.84	1050.78	"X" IN FL



NOTE:
THERE IS A LACK OF COVER ON SANITARY SEWER LINES ONCE NEW GRADE IS CUT. EXTREME CARE MUST BE TAKEN NOT TO DAMAGE SANITARY SEWER. SANITARY SEWER MUST BE MANDREL TESTED AFTER CHANNEL CONSTRUCTION AT CONTRACTORS COST.

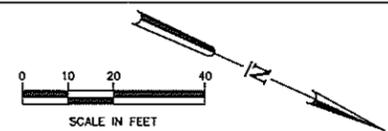
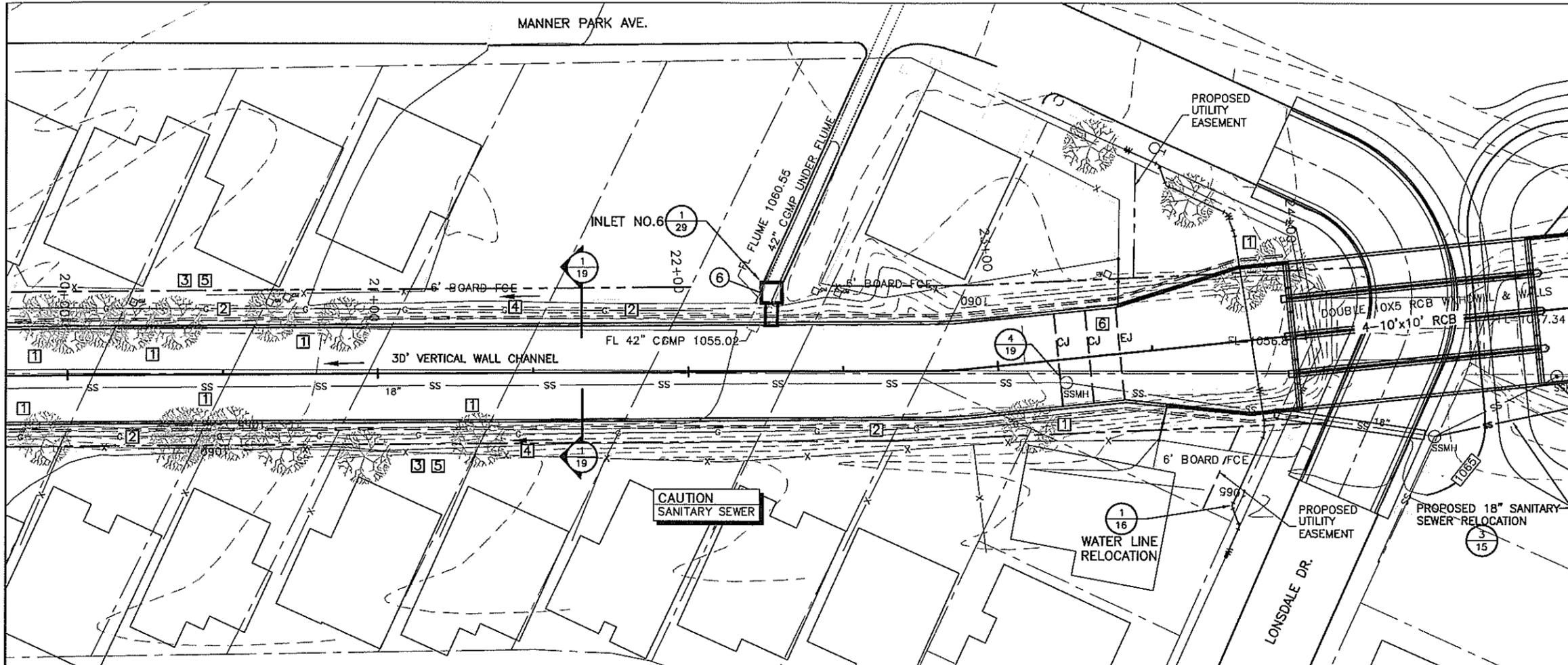
**WILLOWOOD ADDITION
CHANNEL IMPROVEMENT
PLAN AND PROFILE - SHEET 2
CITY OF EDMOND, OKLAHOMA
DRAINAGE UTILITY**

PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, P.L.C.
1437 S. Boulder Ave., Suite 1080 Tulsa, OK 74119 (918) 392-5820

REVISION	BY	DATE	PLAN SCALE	DRAWN	MBA	8/08	REVIEWED BY:
			1"=20'	DESIGNED	WTM	8/08	
				CHECKED	JKM	8/08	
			PROFILE SCALE	FIELD MNGR.			
			HORIZONTAL:	SECT. MNGR.			
			1"=20'	PROJ. MNGR.			
			VERTICAL:	RECOMMENDED			
			1"=5'				
			FILE:	DRAWING:			DIRECTOR OF ENGINEERING
							DATE: 2/09

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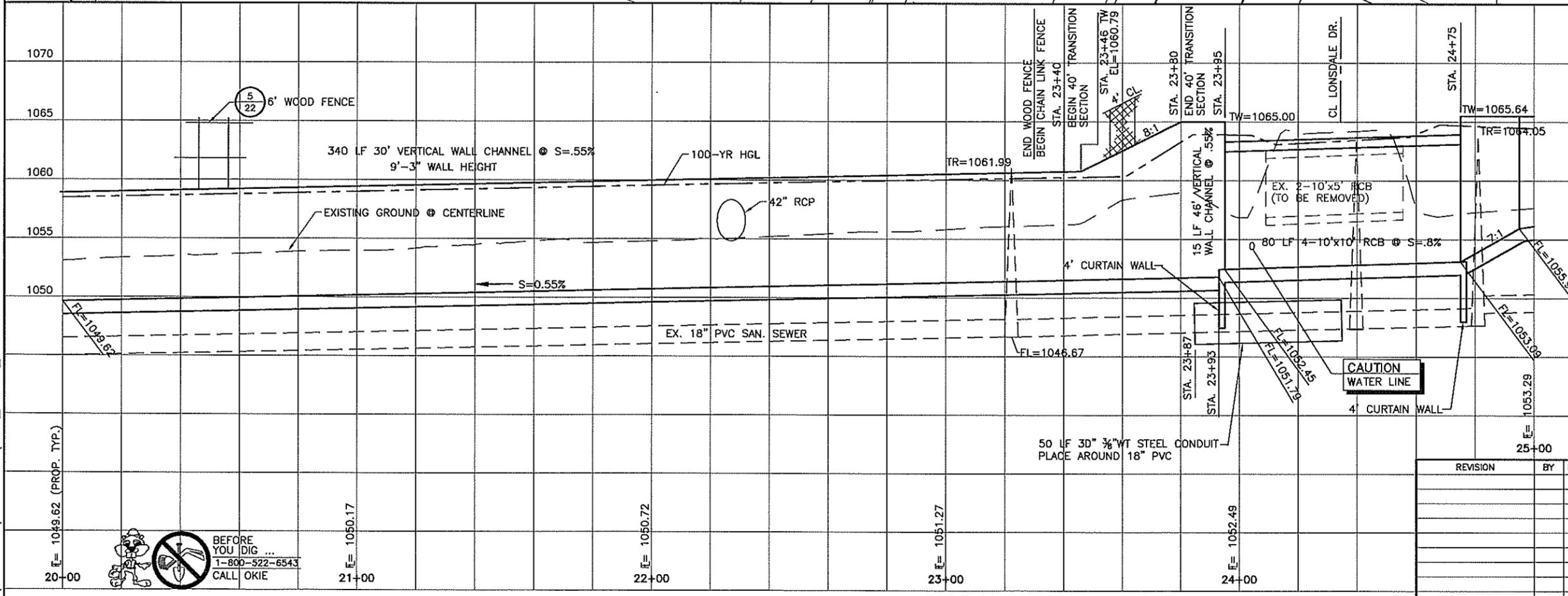


- LEGEND**
- EXISTING INTERMEDIATE CONTOUR
 - EXISTING INDEX CONTOUR
 - PROPOSED INTERMEDIATE CONTOUR
 - PROPOSED INDEX CONTOUR
 - PROPERTY LINE
 - EASEMENT
 - EJ EXPANSION JOINT
 - CJ CONTRACTION JOINT
 - BM-2 BENCH MARK

- CONSTRUCTION NOTES**
- 1 REMOVE TREES WITHIN CONSTRUCTION ZONE.
 - 2 GAS LINE TO BE RELOCATED BY OTHERS.
 - 3 REMOVE EXISTING FENCE
 - 4 GRADE TO DRAIN
 - 5 TIE IN CROSS FENCES TO NEW FENCE ON WALL.
 - 6 FOR CONTRACTION AND EXPANSION JOINTS SEE NOTE DETAIL "1" SHEET 19

SURVEY CONTROL

B.M. ID	Northing	Eastng	Elevation	Description
BM-3	236717.89	2134130.57	1093.01	"X" ON CURB
BM-4	236723.29	2134734.13	1059.25	"X" IN FL
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BM-6	236803.57	2135218.13	1070.00	"X" ON CURB
BM-7	237365.80	2134980.75	1062.07	"X" ON SIDEWALK
BM-8	236380.13	2135240.84	1050.78	"X" IN FL



NOTE: THERE IS A LACK OF COVER ON SANITARY SEWER LINES ONCE NEW GRADE IS CUT. EXTREME CARE MUST BE TAKEN NOT TO DAMAGE SANITARY SEWER. SANITARY SEWER MUST BE MANDREL TESTED AFTER CHANNEL CONSTRUCTION AT CONTRACTORS COST.

**WILLOWOOD ADDITION
CHANNEL IMPROVEMENT
PLAN AND PROFILE -- SHEET 3
CITY OF EDMOND, OKLAHOMA
DRAINAGE UTILITY**

PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, P.L.C.
1437 S. Boulder Ave., Suite 1080 Tulsa, OK 74119 (918) 392-5620

REVISION	BY	DATE

PLAN SCALE	DRAWN	MBA	8/08	REVIEWED BY:
1"=20'	DESIGNED	WTM	8/08	
	CHECKED	JKM	8/08	

PROFILE SCALE	FIELD MNGR.	SECT. MNGR.	PROJ. MNGR.	RECOMMENDED
HORIZONTAL:				
1"=20'				
VERTICAL:				
1"=5'				

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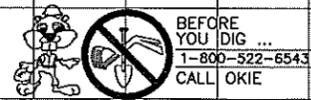
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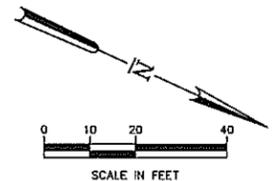
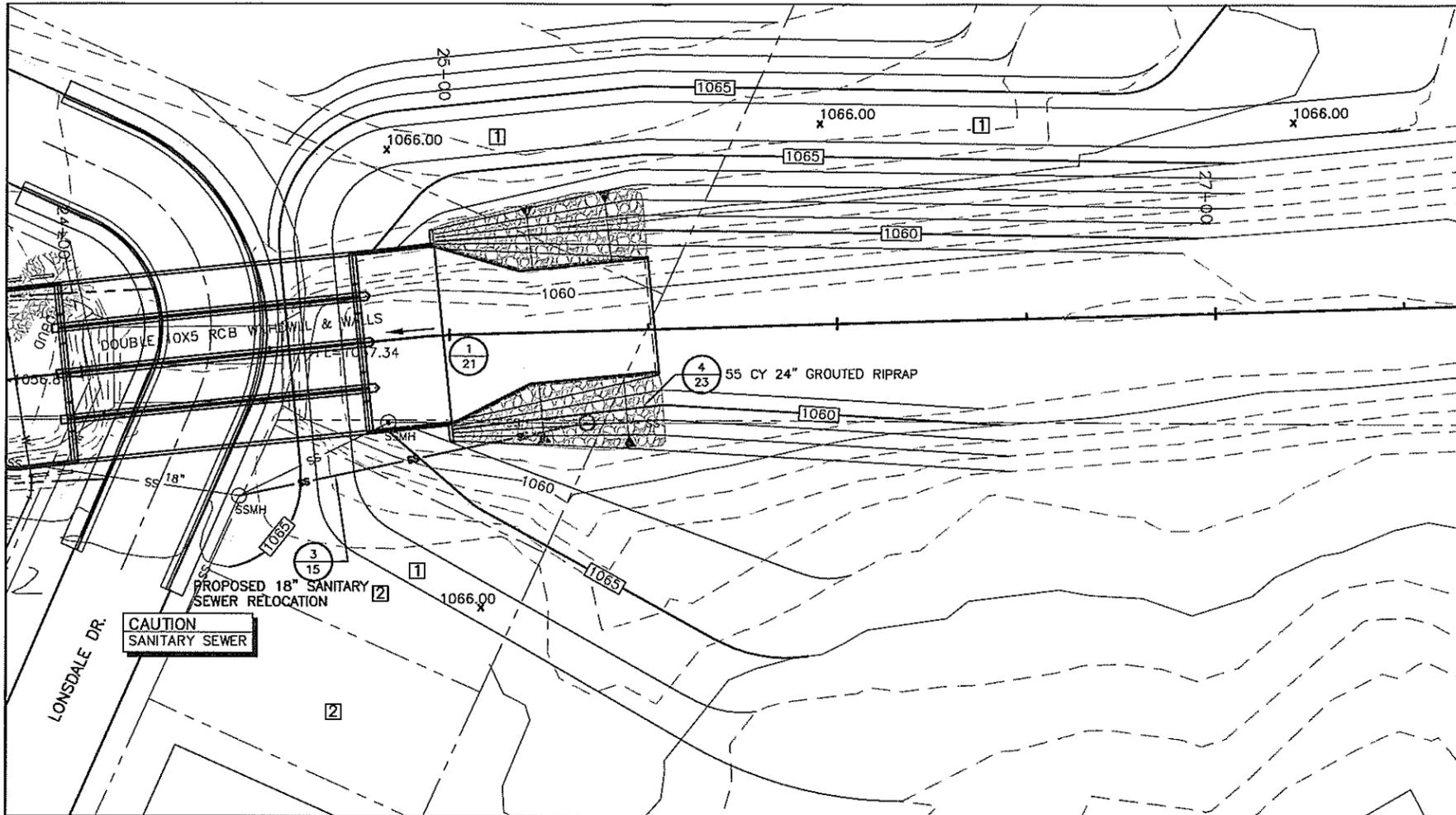
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LEGEND

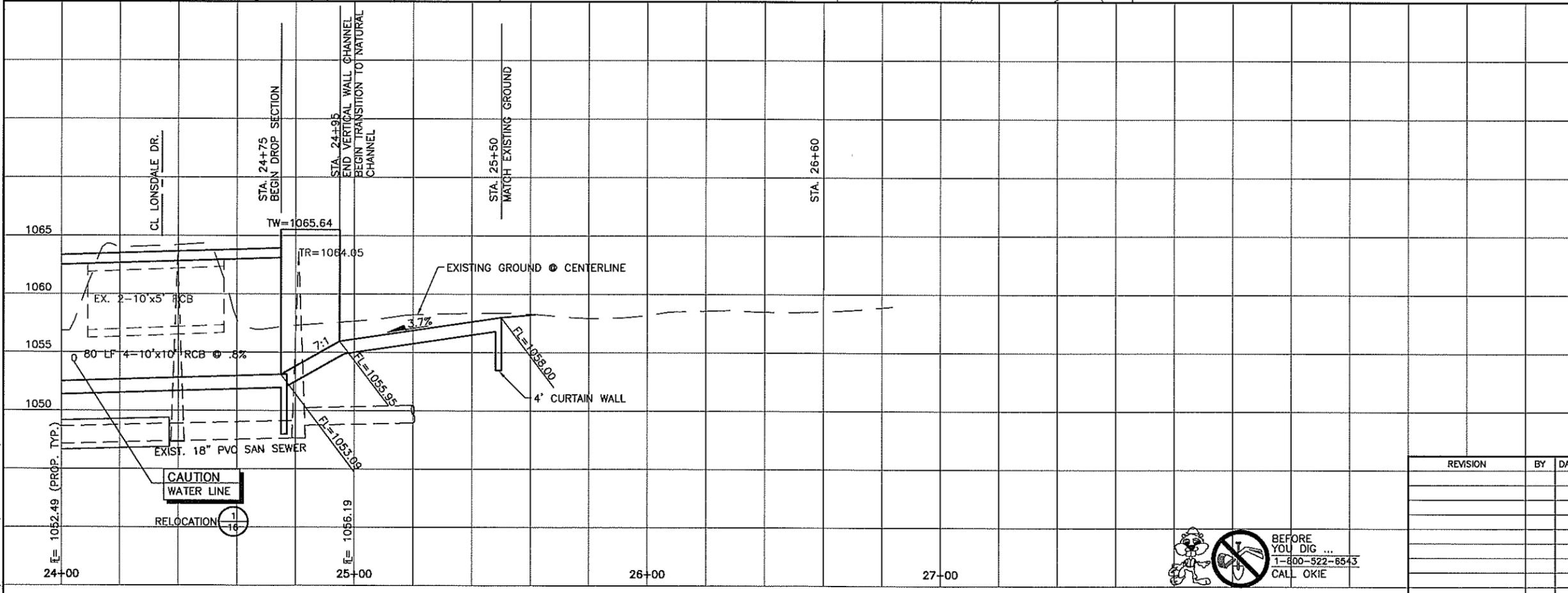
- - - - - EXISTING INTERMEDIATE CONTOUR
- 670 --- EXISTING INDEX CONTOUR
- PROPOSED INTERMEDIATE CONTOUR
- 670 — PROPOSED INDEX CONTOUR
- PROPERTY LINE
- x 1066.0D SPOT ELEVATION

- CONSTRUCTION NOTES**
- 1 GRADE TO 1066.0D WITH A TOP WIDTH OF 10'.
 - 2 FILL LOTS AND GRADE TO DRAIN INTO LONSDALE DR.

SURVEY CONTROL

B.M. ID	Northing	Easting	Elevation	Description
BM-3	236717.89	2134130.57	1093.01	"X" ON CURB
BM-4	236723.29	2134734.13	1059.25	"X" IN FL
BM-5	237176.40	2134771.81	1058.01	"X" IN FL
BM-6	236803.57	2135218.13	1070.00	"X" ON CURB
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BM-8	236380.13	2135240.84	1050.78	"X" IN FL

NOTE:
 THERE IS A LACK OF COVER ON SANITARY SEWER LINES ONCE NEW GRADE IS CUT. EXTREME CARE MUST BE TAKEN NOT TO DAMAGE SANITARY SEWER. SANITARY SEWER MUST BE MANDREL TESTED AFTER CHANNEL CONSTRUCTION AT CONTRACTORS COST.



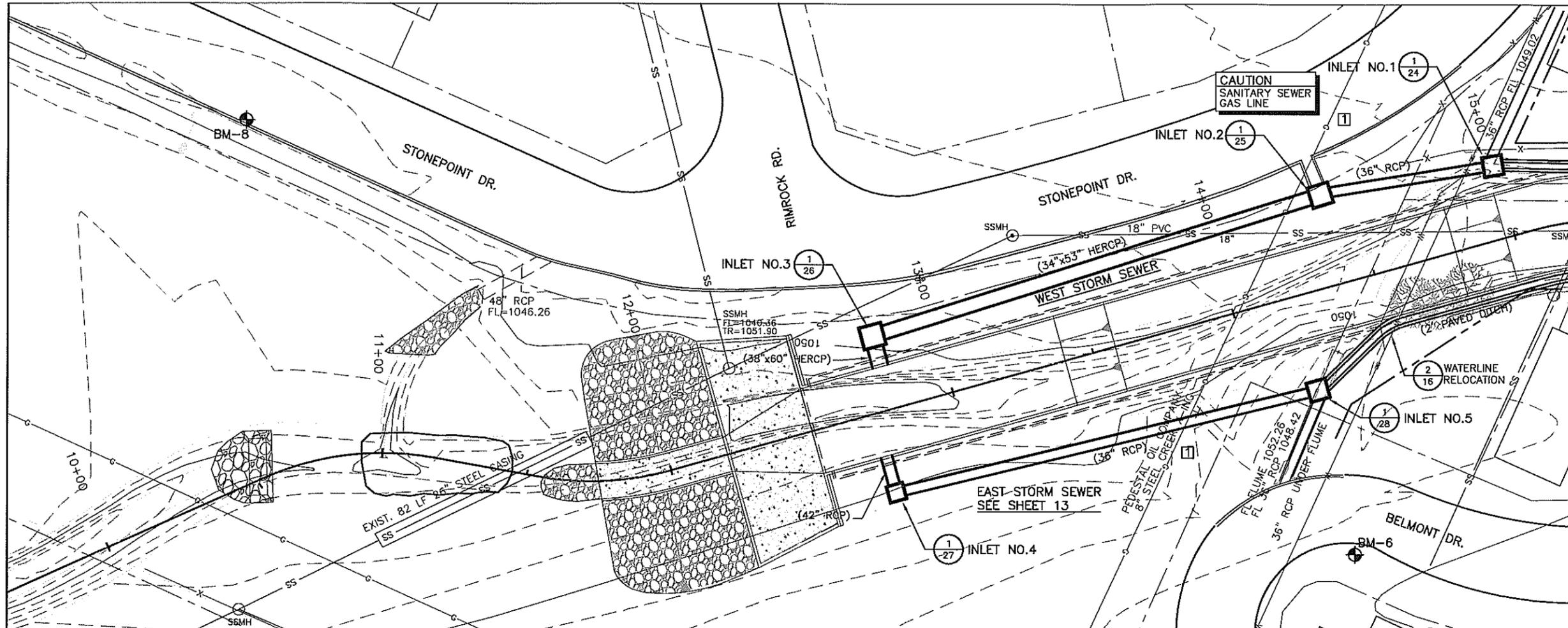
**WILLOWOOD ADDITION
 CHANNEL IMPROVEMENT
 PLAN AND PROFILE - SHEET 4
 CITY OF EDMOND, OKLAHOMA
 DRAINAGE UTILITY**

PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, P.L.C.
 1437 S. Boulder Ave., Suite 1080 Tulsa, OK 74119 (918) 392-5620

REVISION	BY	DATE	PLAN SCALE	DRAWN	MBA	6/08	REVIEWED BY:
			1"=20'	DESIGNED	WTM	6/08	
				CHECKED	JKM	6/08	
			PROFILE SCALE	FIELD MNGR.			
			HORIZONTAL:	SECT. MNGR.			
			1"=20'	PRJ. MNGR.			
			VERTICAL:	RECOMMENDED			
			1"=5'	DEPUTY DIRECTOR			DIRECTOR OF ENGINEERING
			FILE:	DRAWING:			DATE: 2/09
			ATLAS PAGE NO.				SHEET 11 OF 37 SHEETS



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SCALE IN FEET
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LEGEND

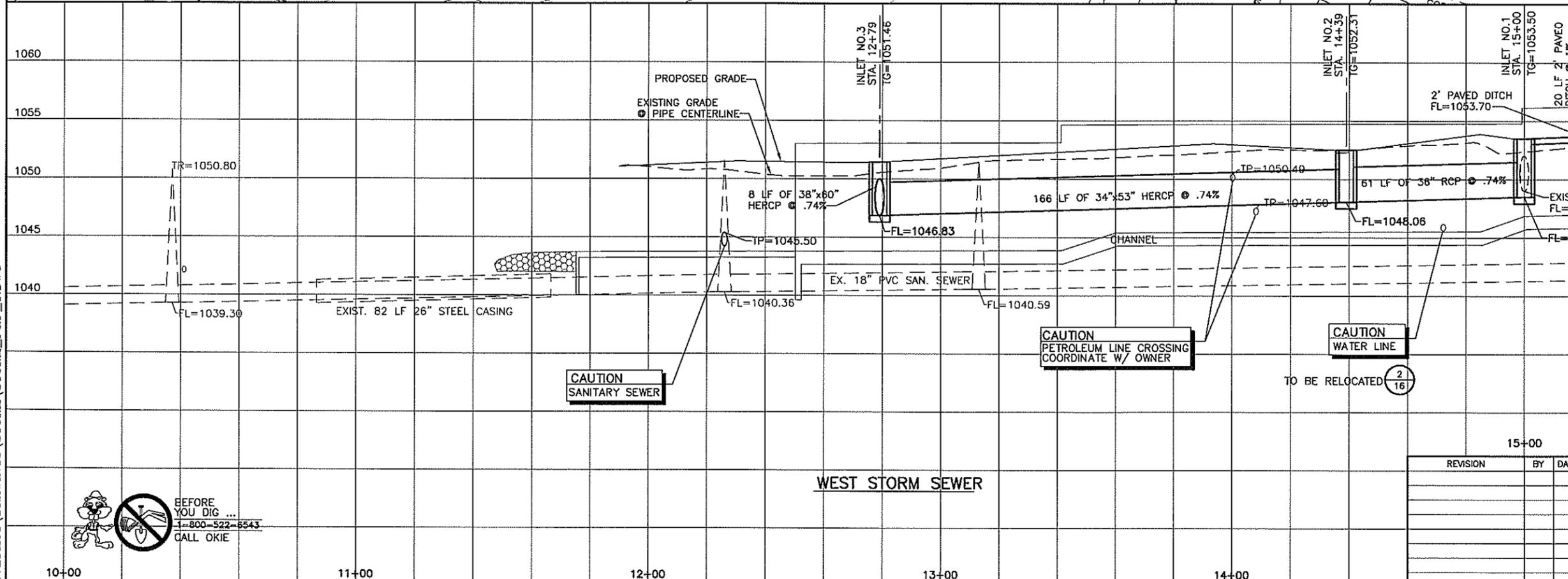
- EXISTING INTERMEDIATE CONTOUR
- 670 EXISTING INDEX CONTOUR
- 661 PROPOSED INTERMEDIATE CONTOUR
- 670 PROPOSED INDEX CONTOUR
- PROPERTY LINE
- EASEMENT

CONSTRUCTION NOTES

1 PIPE LINES TO BE RELOCATED BY OTHERS.

SURVEY CONTROL

B.M. ID	Northing	Eastng	Elevation	Description
BM-3	236717.89	2134130.57	1093.01	"X" ON CURB
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BM-7	237365.80	2134980.75	1062.07	"X" ON SIDEWALK
BM-8	236380.13	2135240.84	1050.78	"X" IN FL



MATCH LINE SEE SHEET 14
STA. 15+20

Elevation	Description
1060	
1055	
1050	
1045	
1040	

WILLOWood ADDITION CHANNEL IMPROVEMENT PLAN AND PROFILE WEST STORM SEWER CITY OF EDMOND, OKLAHOMA DRAINAGE UTILITY

PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, P.L.C.
1437 S. Boulder Ave., Suite 1080 Tulsa, OK 74119 (918) 392-5820

REVISION	BY	DATE

PLAN SCALE	DRAWN	MBA	2/09	REVIEWED BY:
1"=20'	DESIGNED	WTM	2/09	
	CHECKED	JKM	2/09	

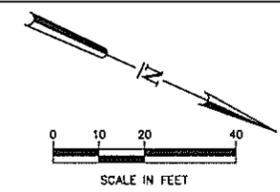
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HORIZONTAL:				
1"=20'				
VERTICAL:				
1"=5'				

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DIRECTOR OF ENGINEERING

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MANNER PARK AVE.



- LEGEND**
- - - - - EXISTING INTERMEDIATE CONTOUR
 - - - - - EXISTING INDEX CONTOUR
 - [66] - - - - - PROPOSED INTERMEDIATE CONTOUR
 - [67] - - - - - PROPOSED INDEX CONTOUR
 - — — — — PROPERTY LINE
 - - - - - EASEMENT

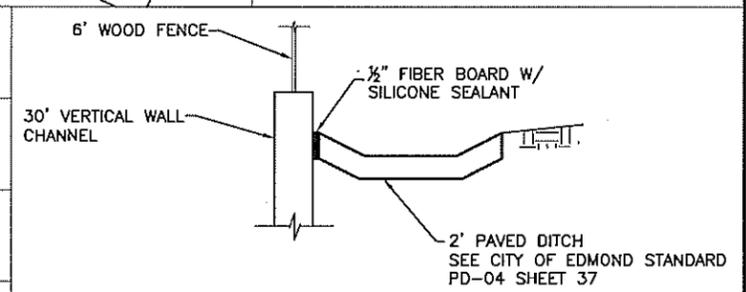
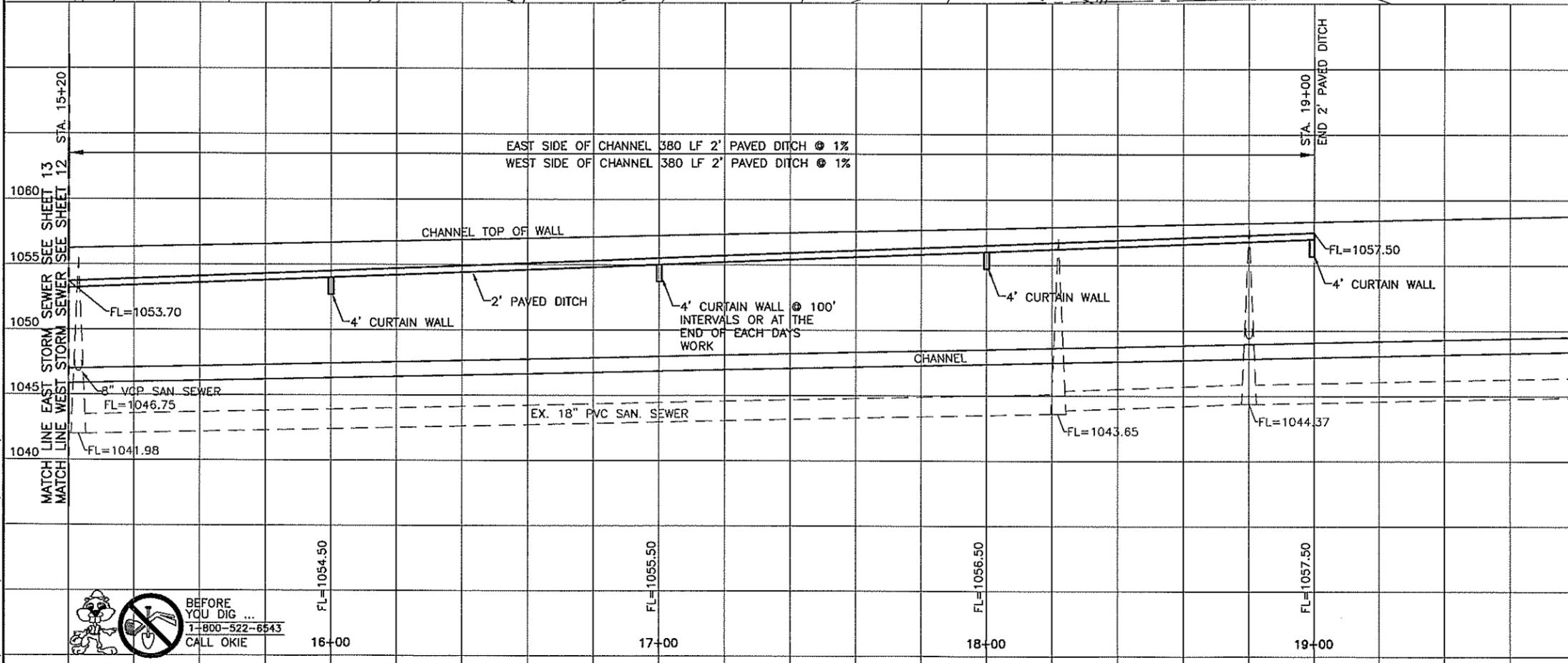
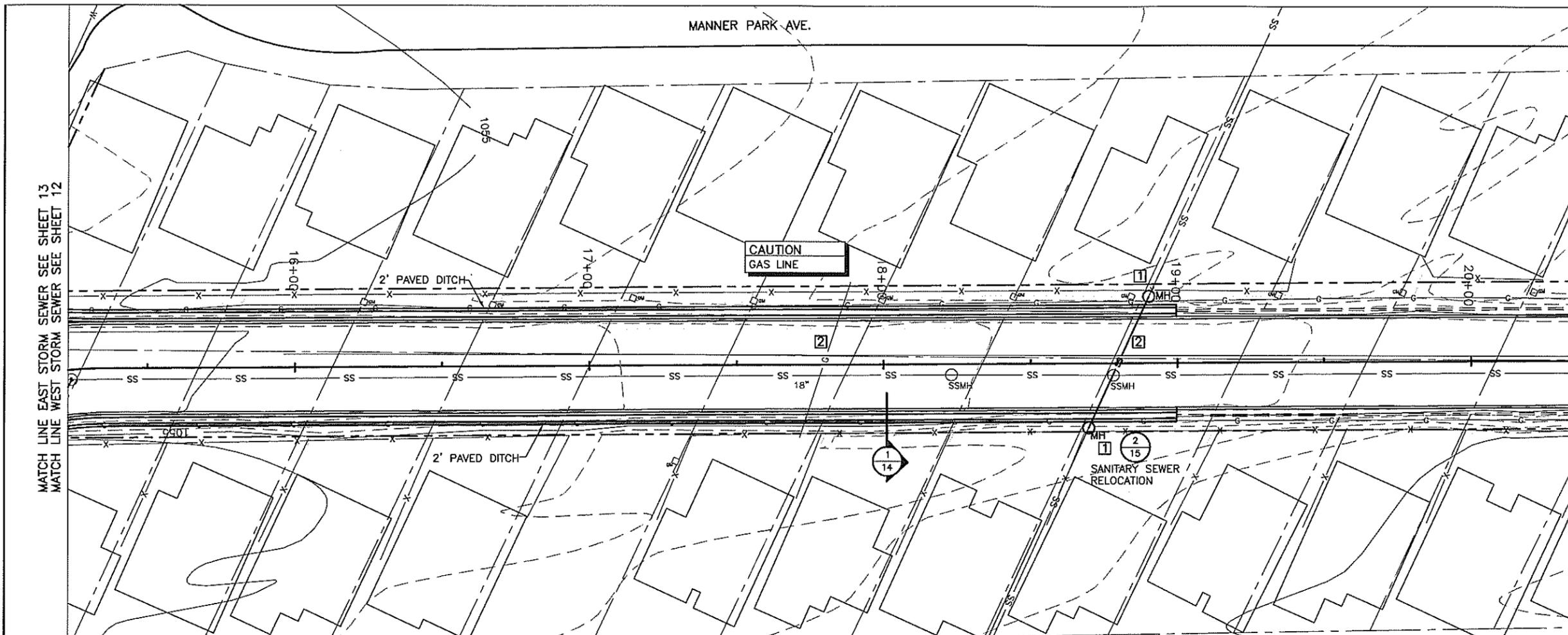
- CONSTRUCTION NOTES**
- [1] PROTECT SANITARY SEWER MANHOLE.
 - [2] TO BE RELOCATED

- BENCH MARK**
- BM-2

SURVEY CONTROL

B.M. ID	Northing	Easting	Elevation	Description
BM-3	236717.89	2134130.57	1093.01	"X" ON CURB
BM-4	236723.29	2134734.13	1059.25	"X" IN FL
BM-5	237176.40	2134771.81	1058.01	"X" IN FL
BM-6	236803.57	2135218.13	1070.00	"X" ON CURB
BM-7	237365.80	2134980.75	1062.07	"X" ON SIDEWALK
BM-8	236380.13	2135240.84	1050.78	"X" IN FL

MATCH LINE EAST STORM SEWER SEE SHEET 13
MATCH LINE WEST STORM SEWER SEE SHEET 12



**WILLOWOOD ADDITION
CHANNEL IMPROVEMENT
PLAN AND PROFILE
EAST & WEST 2' PAVED DITCHES
CITY OF EDMOND, OKLAHOMA
DRAINAGE UTILITY**

PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, P.L.C.
1437 S. Boulder Ave., Suite. 1080 Tulsa, OK 74119 (918) 392-5620

REVISION	BY	DATE	PLAN SCALE	DRAWN	MBA	2/09	REVIEWED BY:
			1"=20'	DESIGNED	WTM	2/09	
				CHECKED	JKM	2/09	
			PROFILE SCALE	FIELD MNGR.			
			HORIZONTAL:	SECT. MNGR.			
			1"=20'	PROJ. MNGR.			
			VERTICAL:	RECOMMENDED			
			1"=5'	DEPUTY DIRECTOR			
			FILE:	DRAWING:			DIRECTOR OF ENGINEERING
			ATLAS PAGE NO.				DATE: 2/09

3:\07EDMO1\DRAWINGS\STORM\STORM_P&P_3.DWG



FL=1054.50
16+00

FL=1055.50
17+00

FL=1056.50
18+00

FL=1057.50
19+00

TESTING OF MANHOLES: ALL MANHOLES WILL BE TESTED USING THE VACUUM TEST METHOD, FOLLOWING THE MANUFACTURER'S RECOMMENDATIONS FOR PROPER AND SAFE PROCEDURES. THE VACUUM TESTER SHALL BE AS MANUFACTURED BY CHERNE INDUSTRIES OR APPROVED EQUAL.

ALL PIPES FOR VACUUM TESTING ENTERING THE MANHOLE SHALL BE INSTALLED AT THE TDP ACCESS POINT OF THE MANHOLE.

A VACUUM OF 10 INCHES OF MERCURY (HG) (5.0 PSI) SHALL BE DRAWN ON THE MANHOLE AND THE TIME SHALL BE MEASURED FOR THE VACUUM TO DROP TO 9 INCHES OF MERCURY (HG) (4.5 PSI) THE MANHOLE SHALL PASS THE TEST IF THE TIME MEASUREMENT EXCEEDS THE VALUES INDICATED IN THE FOLLOWING TABLE:

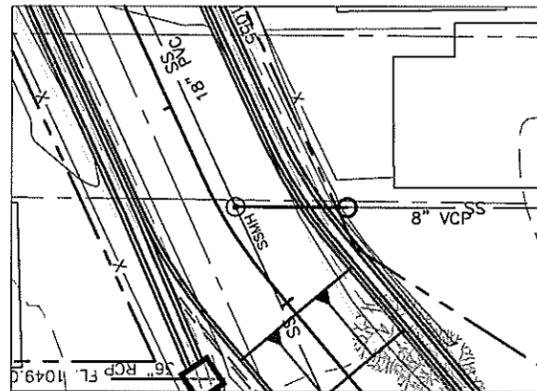
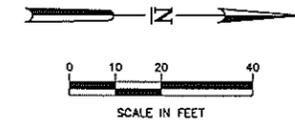
DEPTH - FEET	VACUUM TEST TIMETABLE				
	MANHOLE DIAMETER - INCHES				
	48 INCHES	60 INCHES	72 INCHES	96 INCHES	144 INCHES
4	10 SEC.	13 SEC.	16 SEC.	19 SEC.	21 SEC.
8	20 SEC.	26 SEC.	32 SEC.	38 SEC.	44 SEC.
12	30 SEC.	39 SEC.	48 SEC.	57 SEC.	65 SEC.
16	40 SEC.	52 SEC.	64 SEC.	76 SEC.	88 SEC.
20	50 SEC.	65 SEC.	80 SEC.	95 SEC.	110 SEC.
24	60 SEC.	78 SEC.	96 SEC.	114 SEC.	132 SEC.
+ EACH 2'	+5 SEC.	+6.5 SEC.	+8.0 SEC.	+9.5 SEC.	+11 SEC.

MANHOLE DEPTHS SHALL BE ROUNDED TO THE NEAREST FOOT. INTERMEDIATE VALUES SHALL BE INTERPOLATED. FOR DEPTHS ABOVE 24 FEET, ADD THE VALUES LISTED ON THE LAST LINE OF THE TABLE FOR EACH 2 FEET OF ADDITIONAL DEPTH.

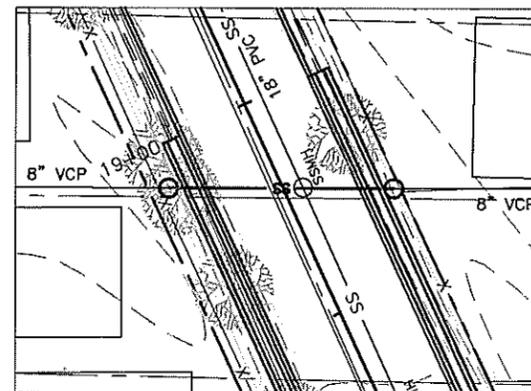
IF THE MANHOLE FAILS THE VACUUM TEST, THE CONTRACTOR SHALL PERFORM ALL NECESSARY REPAIRS AND REPEAT THE TEST PROCEDURES UNTIL SATISFACTORY RESULTS ARE OBTAINED. ALL TESTING SHALL BE DONE IN THE PRESENCE OF CITY OF EDMOND INSPECTOR.

ALL REPAIRS AND TESTING ARE THE RESPONSIBILITY OF THE CONTRACTOR AND WILL BE PERFORMED AT NO ADDITIONAL COST TO THE OWNER. CONTRACTOR TO PROVIDE A CERTIFIED TEST REPORT TO THE ENGINEER UPON COMPLETION OF THE TESTS.

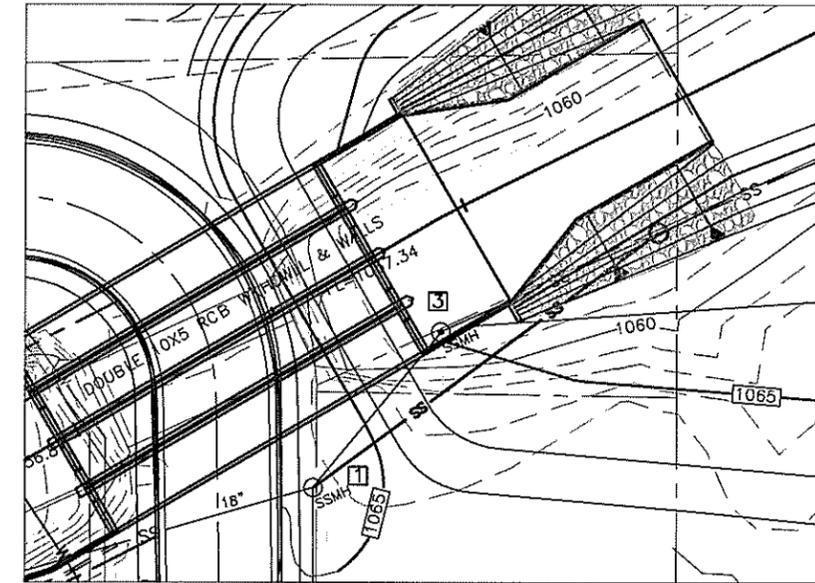
NO PAYMENT WILL BE MADE FOR ANY MANHOLES WHICH HAVE NOT PASSED THE VACUUM TEST.



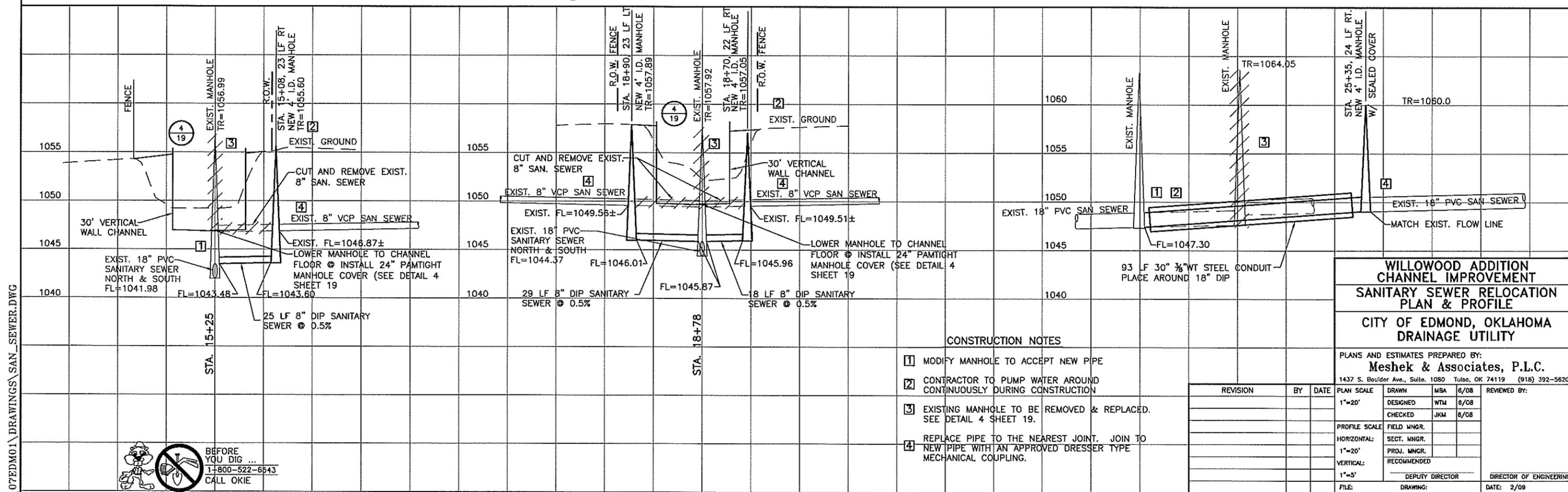
1 SANITARY SEWER RELOCATION
SCALE: 1"=20'-0"



2 SANITARY SEWER RELOCATION
SCALE: 1"=20'-0"



3 SANITARY SEWER RELOCATION
SCALE: 1"=20'-0"

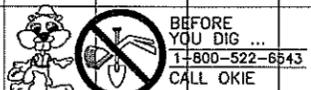


- CONSTRUCTION NOTES**
- 1 MODIFY MANHOLE TO ACCEPT NEW PIPE
 - 2 CONTRACTOR TO PUMP WATER AROUND CONTINUOUSLY DURING CONSTRUCTION
 - 3 EXISTING MANHOLE TO BE REMOVED & REPLACED. SEE DETAIL 4 SHEET 19.
 - 4 REPLACE PIPE TO THE NEAREST JOINT. JOIN TO NEW PIPE WITH AN APPROVED DRESSER TYPE MECHANICAL COUPLING.

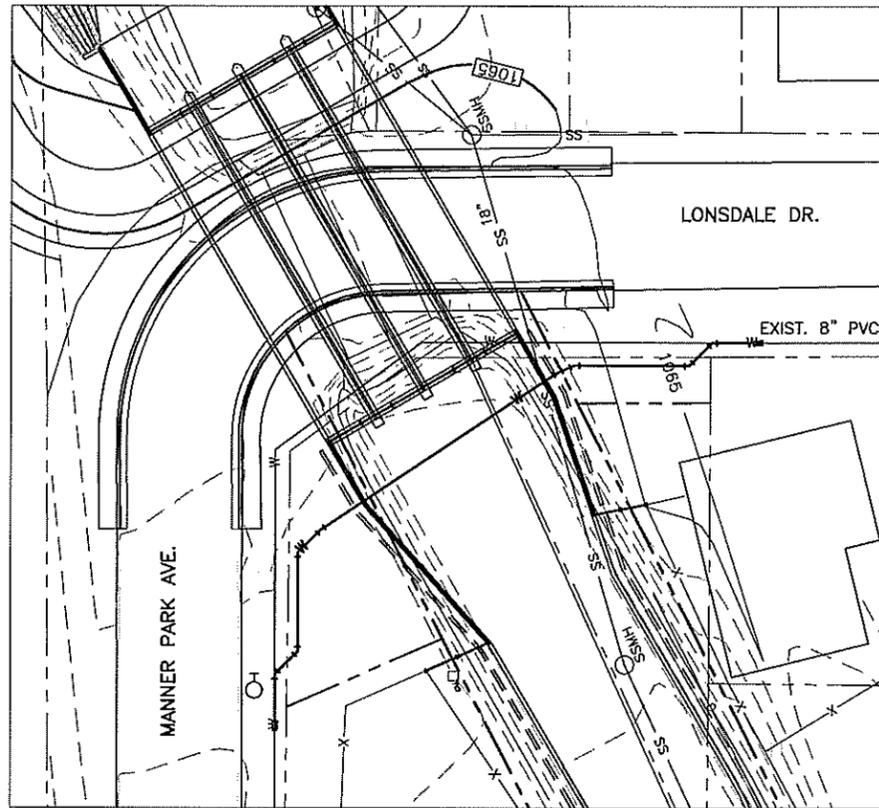
**WILLOWOOD ADDITION
CHANNEL IMPROVEMENT
SANITARY SEWER RELOCATION
PLAN & PROFILE
CITY OF EDMOND, OKLAHOMA
DRAINAGE UTILITY**

PLANS AND ESTIMATES PREPARED BY:
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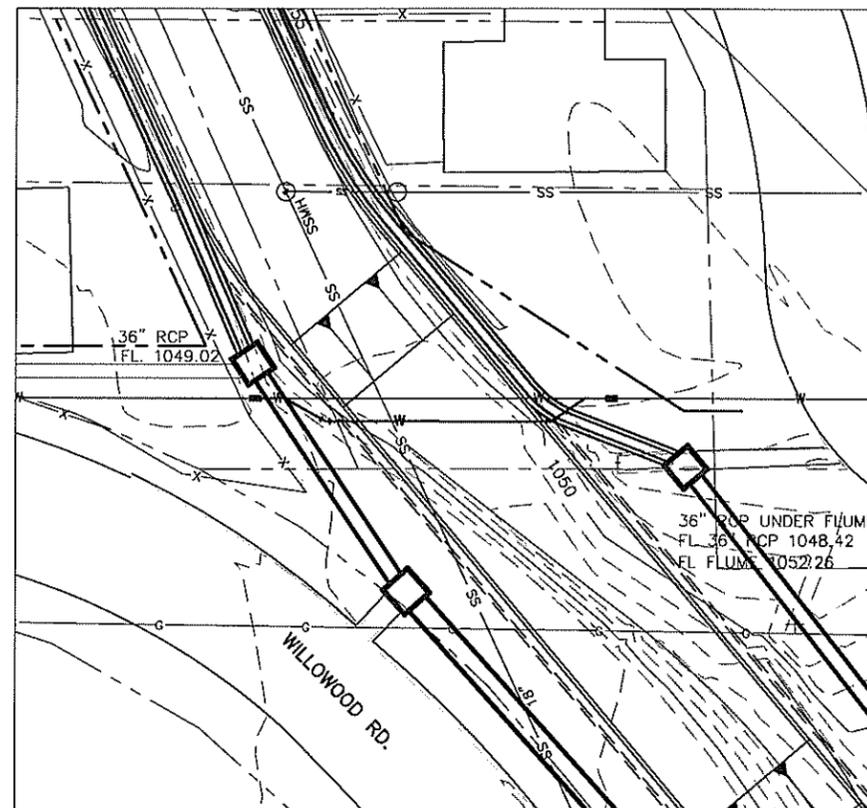
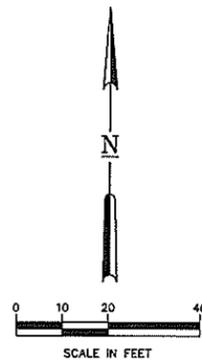
REVISION	BY	DATE	PLAN SCALE	DRAWN	MBA	6/08	REVIEWED BY:
			1"=20'	DESIGNED	WTM	6/08	
				CHECKED	JKM	6/08	
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			HORIZONTAL:	SECT. MNGR.			
			1"=20'	PROJ. MNGR.			
			VERTICAL:	RECOMMENDED			
			1"=5'	DEPUTY DIRECTOR			DIRECTOR OF ENGINEERING
			FILE:	DRAWING:			DATE: 2/09
			ATLAS PAGE NO.				SHEET 15 OF 37 SHEETS



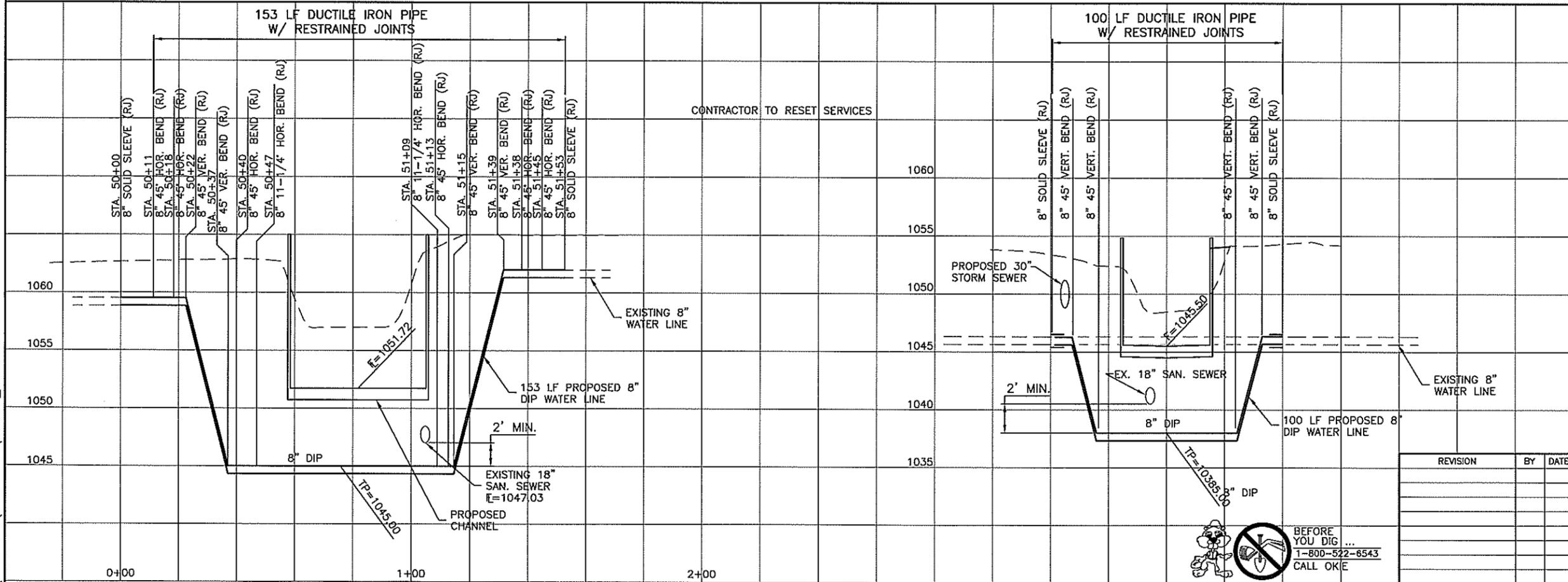
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1 WATER LINE RELOCATION
SCALE: 1"=20'-0"



2 WATER LINE RELOCATION
SCALE: 1"=20'-0"



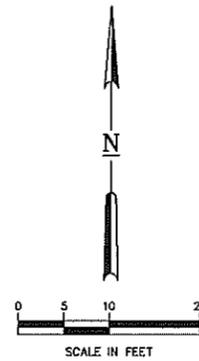
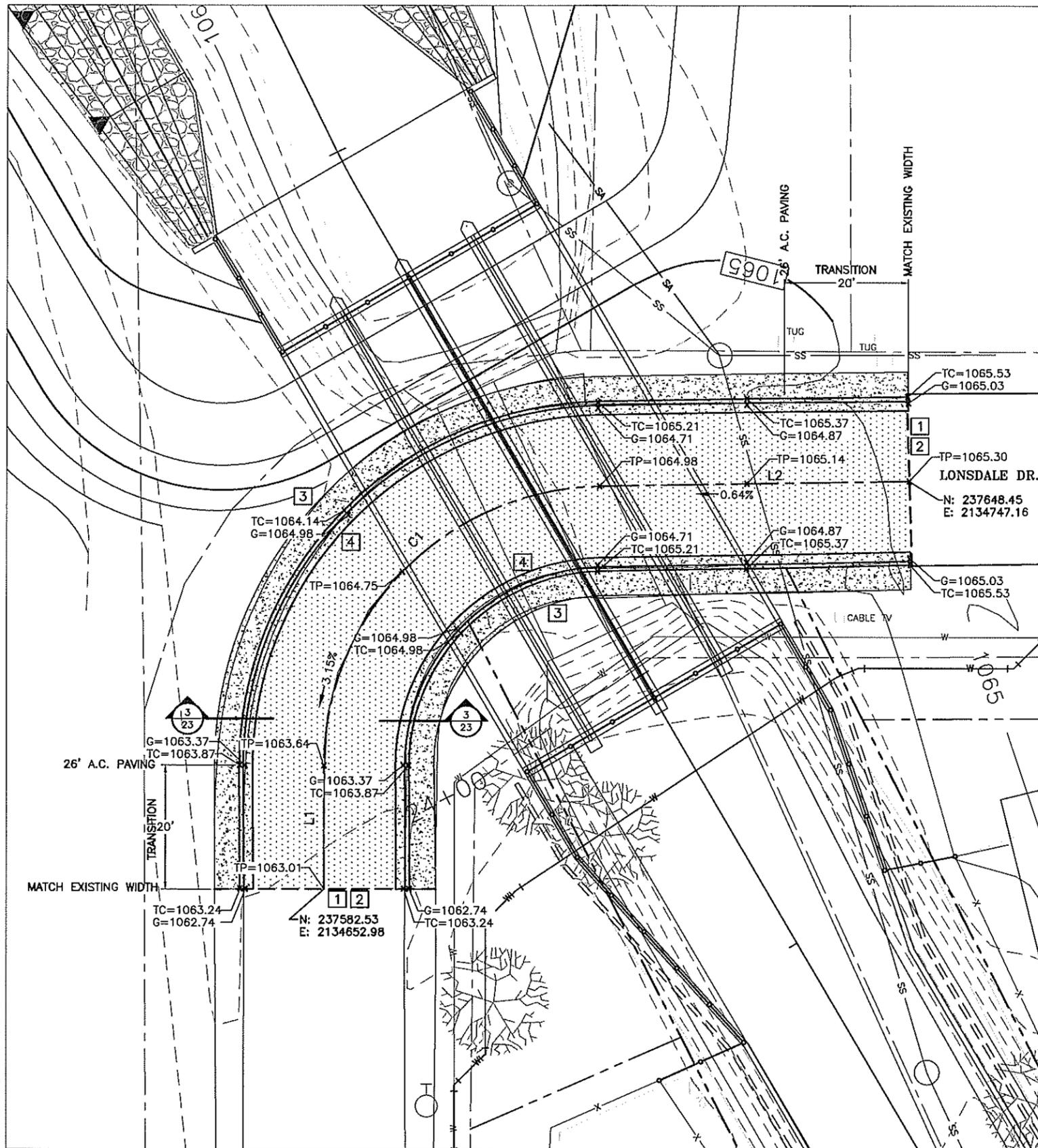
**WILLOWOOD ADDITION
CHANNEL IMPROVEMENT
WATER LINE RELOCATION
PLAN & PROFILE**
CITY OF EDMOND, OKLAHOMA
DRAINAGE UTILITY

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				CHECKED	JKM	8/08	
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			HORIZONTAL:	SECT. MNGR.			
			VERTICAL:	RECOMMENDED			
			1"=5'	DEPUTY DIRECTOR			DIRECTOR OF ENGINEERING
			FILE:	DRAWING:			DATE: 2/09
			ATLAS PAGE NO.				SHEET 16 OF 37 SHEETS



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- LEGEND**
- EXISTING INTERMEDIATE CONTOUR
 - 670 --- EXISTING INDEX CONTOUR
 - 661 --- PROPOSED INTERMEDIATE CONTOUR
 - 670 --- PROPOSED INDEX CONTOUR
 - PROPERTY LINE
 - EASEMENT
 - *TP=1065.30 TOP OF PAVEMENT ELEVATION
 - *G=1065.03 GUTTER ELEVATION
 - *TC=1065.53 TOP OF CURB ELEVATION
 - BM-2 BENCH MARK

- PROPOSED ASPHALT PAVEMENT
- PROPOSED CONCRETE SIDEWALK
PROPOSED CONCRETE CURB & GUTTER

- CONSTRUCTION NOTES**
- 1 SAWCUT EXISTING PAVEMENT.
 - 2 MATCH ELEVATION OF EXISTING PAVEMENT.
 - 3 CONSTRUCT 4' CONCRETE SIDEWALK.
 - 4 CONSTRUCT 2'-8" ROLLED CURB AND GUTTER.

LINE	BEARING	DISTANCE
L1	N 00°03'17" W	20'
L2	N 88°59'44" E	50'

CURVE	RADIUS	ARC LENGTH	DELTA ANGLE
C1	45.0000'	69.9400'	89°03'02"

SURVEY CONTROL

B.M. ID	Northing	Eastng	Elevation	Description
BM-3	236717.89	2134130.57	1093.01	"X" ON CURB
BM-4	236723.29	2134734.13	1059.25	"X" IN FL
BM-5	237176.40	2134771.81	1058.01	"X" IN FL
BM-6	236803.57	2135218.13	1070.00	"X" ON CURB
	237365.80	2134980.75	1062.07	"X" ON SIDEWALK
	236380.13	2135240.84	1050.78	"X" IN FL

**WILLOWOOD ADDITION
CHANNEL IMPROVEMENT
PAVING PLAN
CITY OF EDMOND, OKLAHOMA
DRAINAGE UTILITY**

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1437 S. Boulder Ave., Suite. 1080 Tulsa, OK 74119 (918) 392-5620

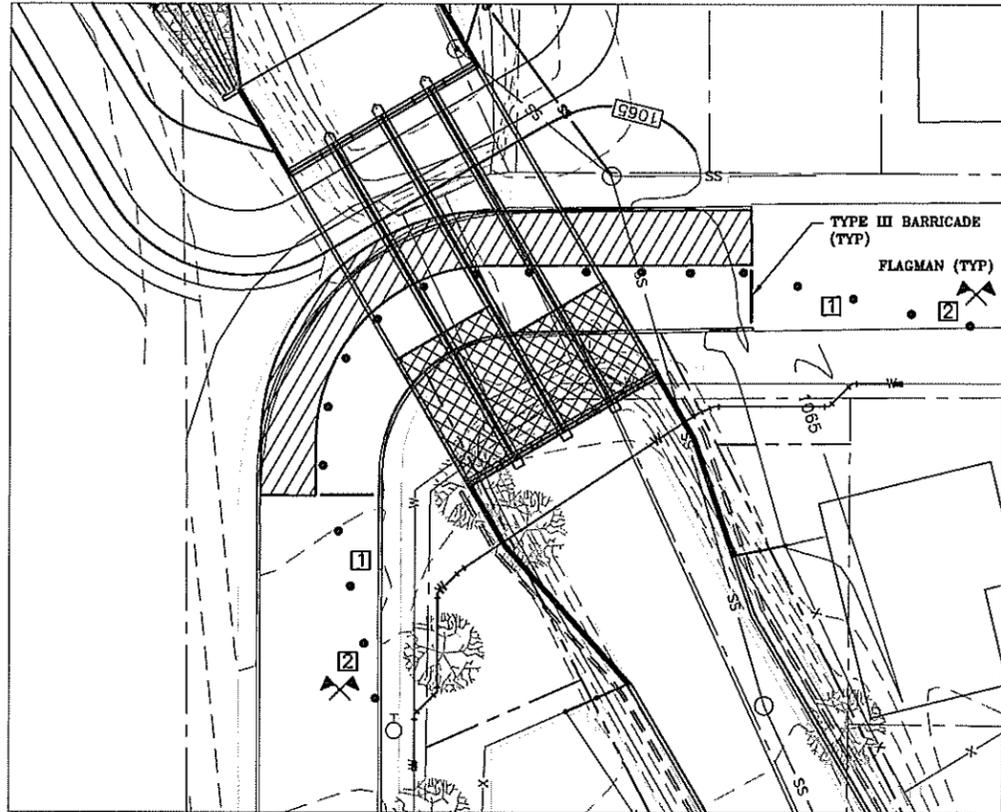
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				CHECKED	JKM	6/08	
			PROFILE SCALE	FIELD MNGR.			
			HORIZONTAL:	SECT. MNGR.			
			VERTICAL:	PROJ. MNGR.			
				RECOMMENDED			
				DEPUTY DIRECTOR			DIRECTOR OF ENGINEERING
			FILE:	DRAWING:			DATE: 2/09
			ATAS PAGE NO.				SHEET 17 OF 37 SHEETS

SCALE: 1"=10'

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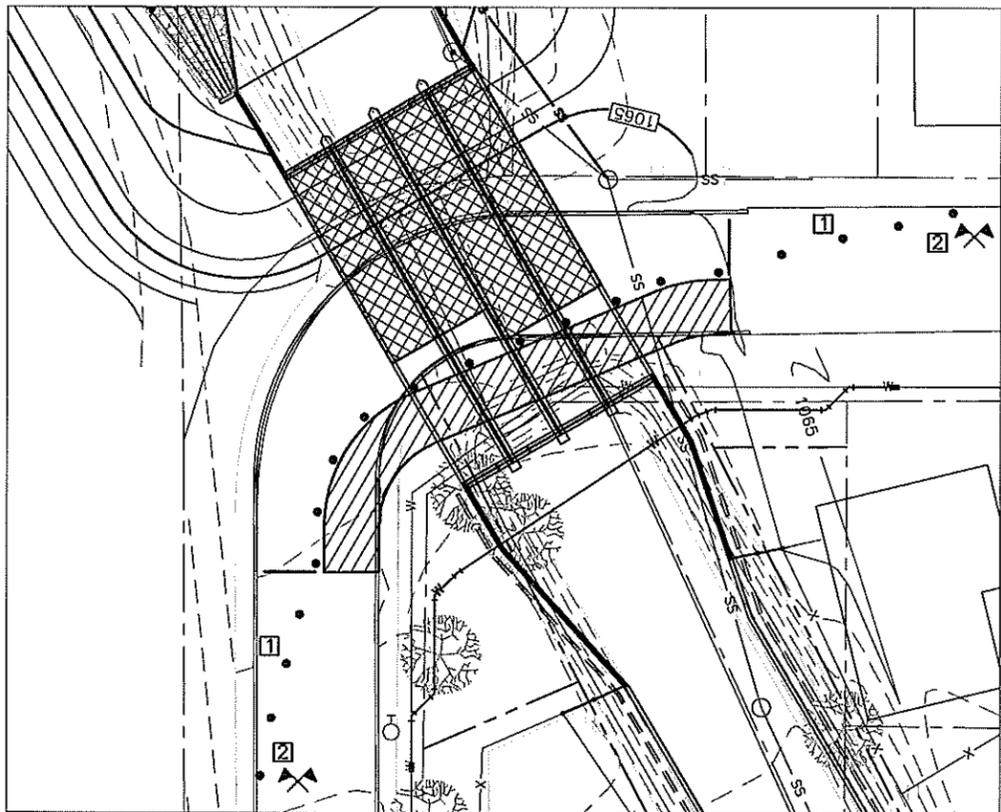


PHASE I

PHASE I

CLOSE NORTH/EAST BOUND TRAFFIC LANE TO CONSTRUCT RCB CULVERTS TO THE APPROXIMATE EXTENT SHOWN. CONSTRUCT 12' DETOUR ROAD AND POST FLAGMEN TO STOP AND DIRECT TRAFFIC.

NOTE:
STREET TO REMAIN OPEN TO AT LEAST ONE LANE AT ALL TIMES. CONTRACTOR TO PROVIDE TRAFFIC CONTROL DEVICES TO PROVIDE SAFE TRAVEL.



PHASE II

PHASE II

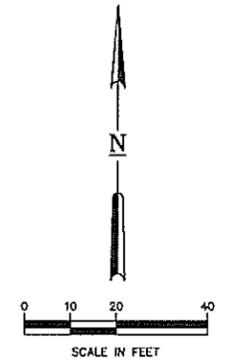
CLOSE SOUTH/WEST BOUND TRAFFIC LANE TO CONSTRUCT RCB CULVERTS TO THE APPROXIMATE EXTENT SHOWN. CONSTRUCT 12' DETOUR ROAD AND POST FLAGMEN TO STOP AND DIRECT TRAFFIC.

LEGEND

	EXISTING PAVEMENT
	PROPOSED PAVEMENT
	PROPOSED DETOUR ROAD
	APPROXIMATE RCB CULVERT TO BE CONSTRUCTED IN EACH PHASE
	DRUM W/ TYPE "C" LIGHT
	TYPE III BARRICADE WITH 2 TYPE "A" LIGHTS

CONSTRUCTION NOTES

- 1 50' TRANSITION ZONE TO MOVE TRAFFIC TO A SINGLE LANE.
- 2 FLAGMAN TO REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETED.



SURVEY CONTROL

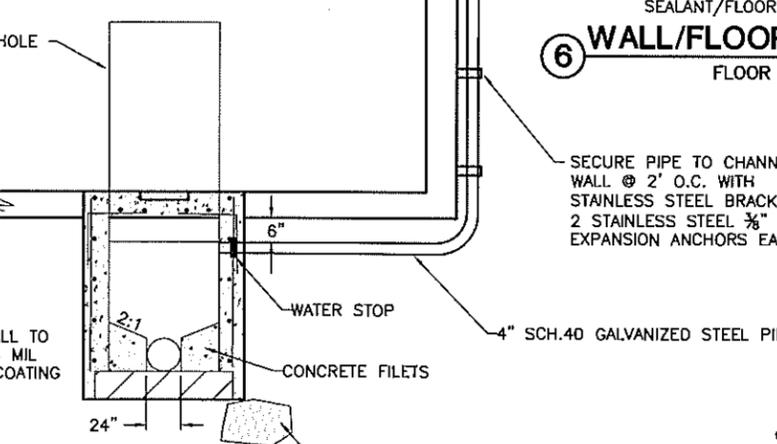
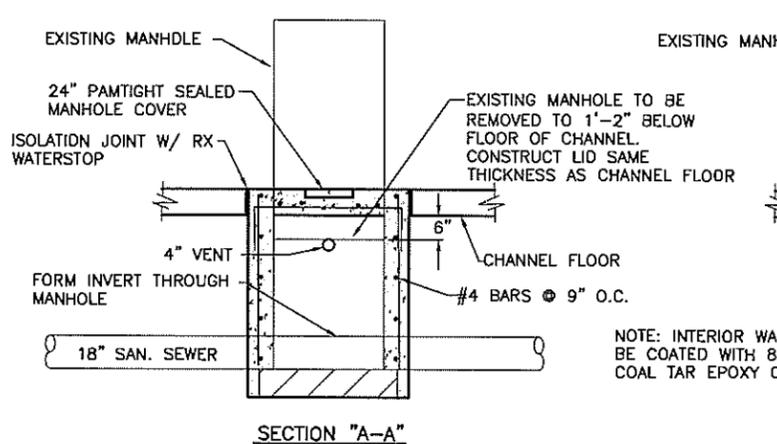
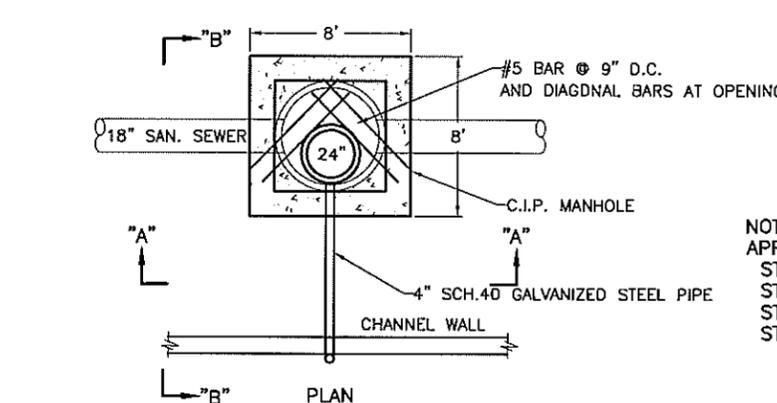
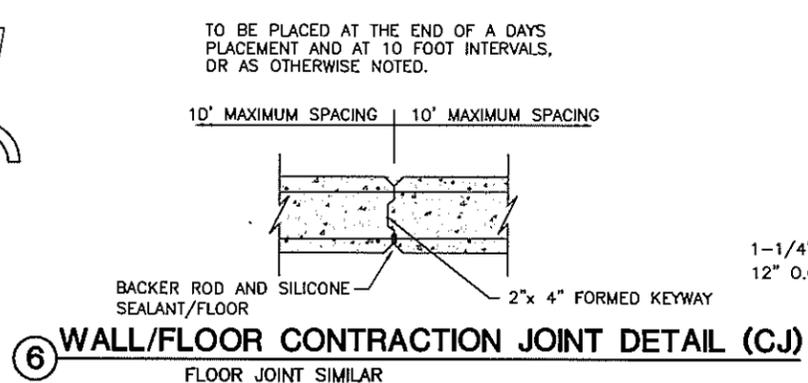
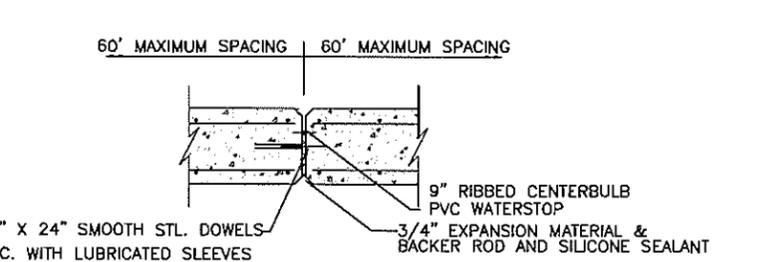
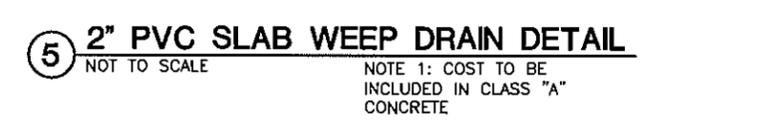
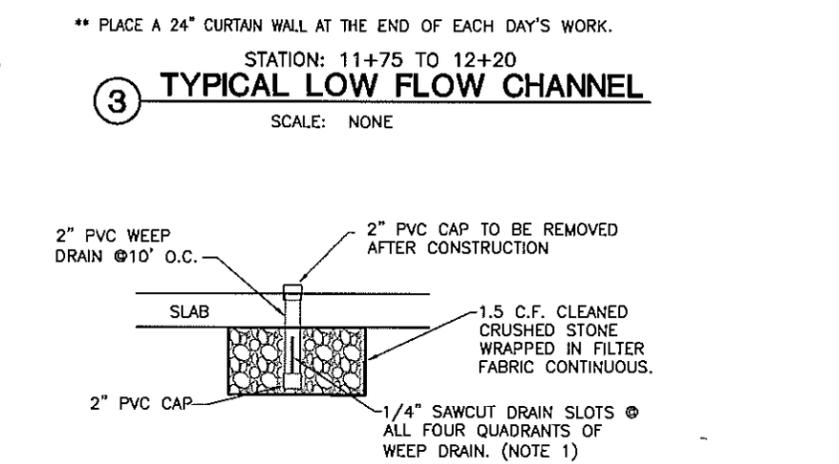
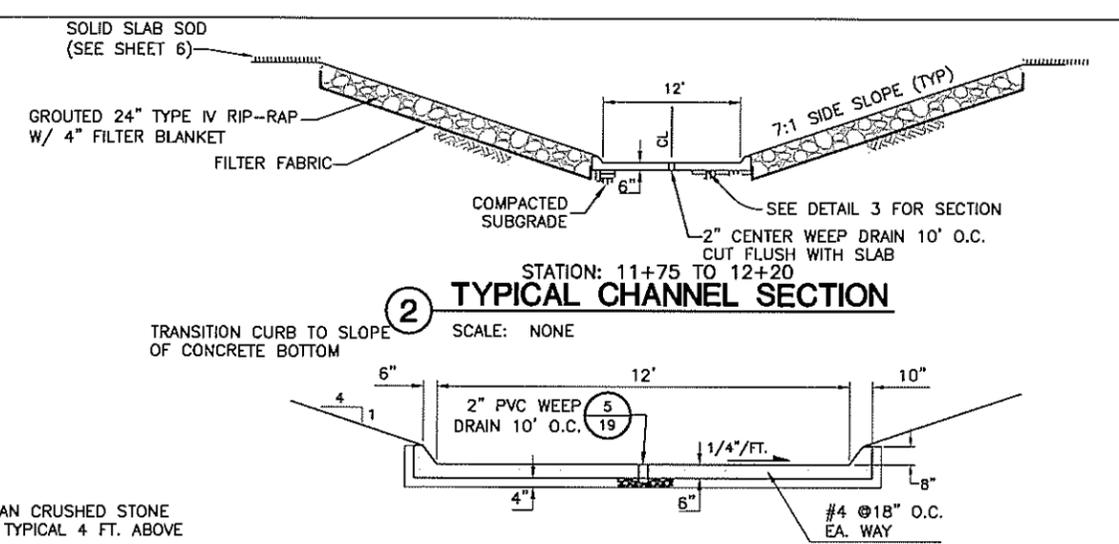
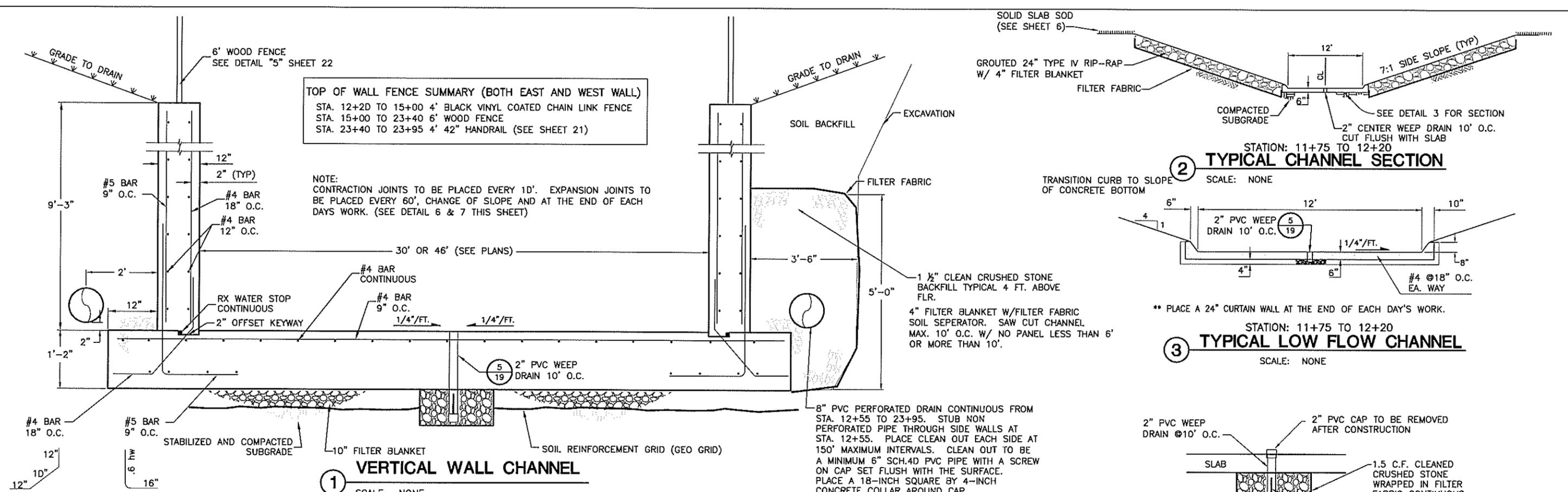
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BM-4	236723.29	2134734.13	1059.25	"X" IN FL
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BM-6	236803.57	2135218.13	1070.00	"X" ON CURB
	237365.80	2134980.75	1062.07	"X" ON SIDEWALK
	236380.13	2135240.84	1050.78	"X" IN FL

**WILLOWOOD ADDITION
CHANNEL IMPROVEMENT
TRAFFIC CONTROL PLAN
CITY OF EDMOND, OKLAHOMA
DRAINAGE UTILITY**

PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, P.L.C.
1437 S. Boulder Ave., Suite 1080 Tulsa, OK 74119 (918) 392-5620

REVISION	BY	DATE	PLAN SCALE	DRAWN	MBA	6/08	REVIEWED BY:
			1"=20'	DESIGNED	WTM	6/08	
				CHECKED	JKM	6/08	
			PROFILE SCALE	FIELD MNGR.			
			HORIZONTAL:	SECT. MNGR.			
			VERTICAL:	PROJ. MNGR.			
				RECOMMENDED			
				DEPUTY DIRECTOR			DIRECTOR OF ENGINEERING
			FILE:	DRAWING:			DATE: 2/09
			ATLAS PAGE NO.				SHEET 18 OF 37 SHEETS



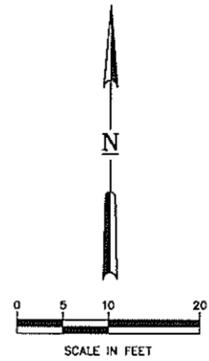
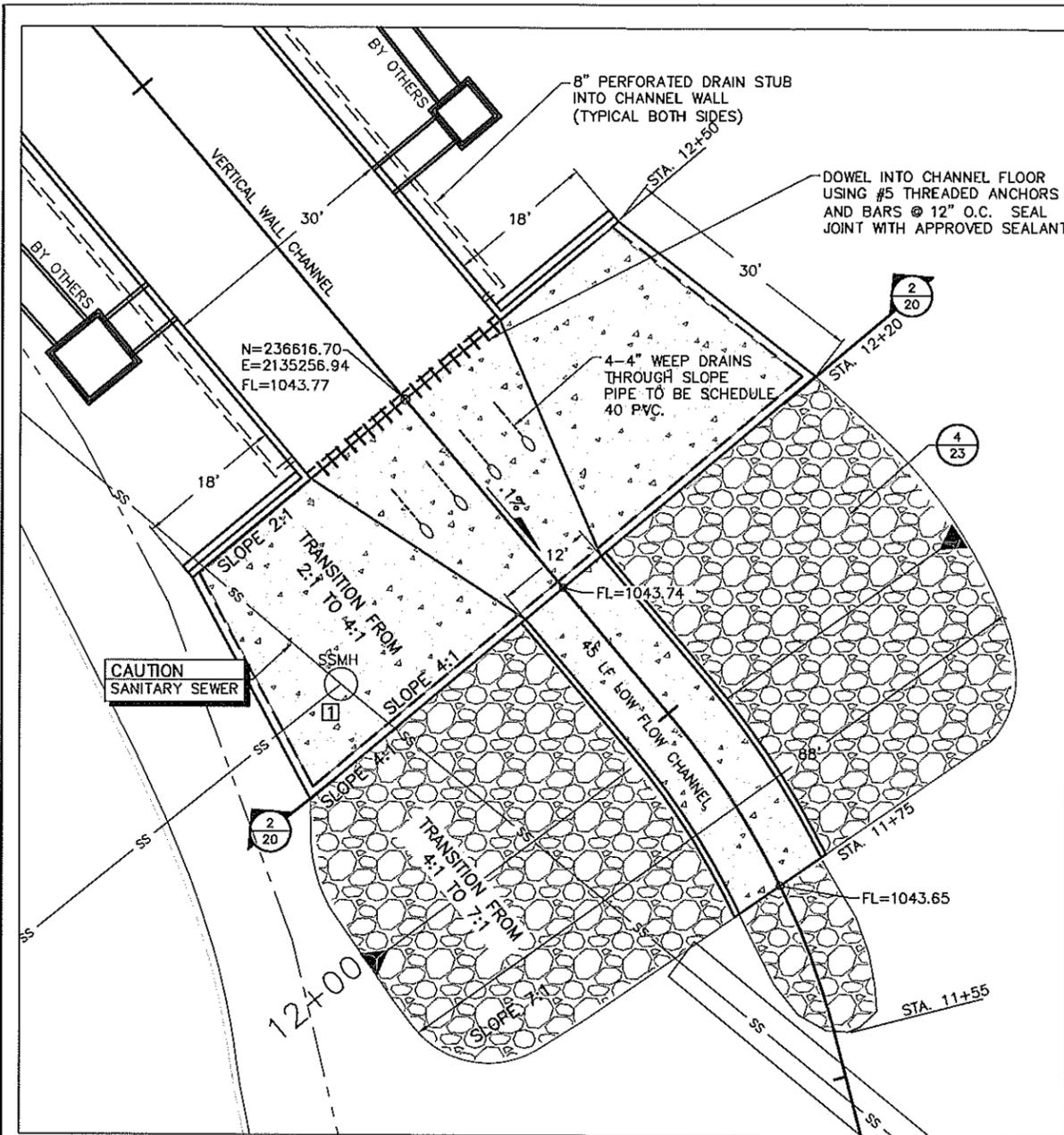


WILLOWOOD ADDITION CHANNEL IMPROVEMENT DRAINAGE CHANNEL DETAILS SHEET 1
 CITY OF EDMOND, OKLAHOMA DRAINAGE UTILITY

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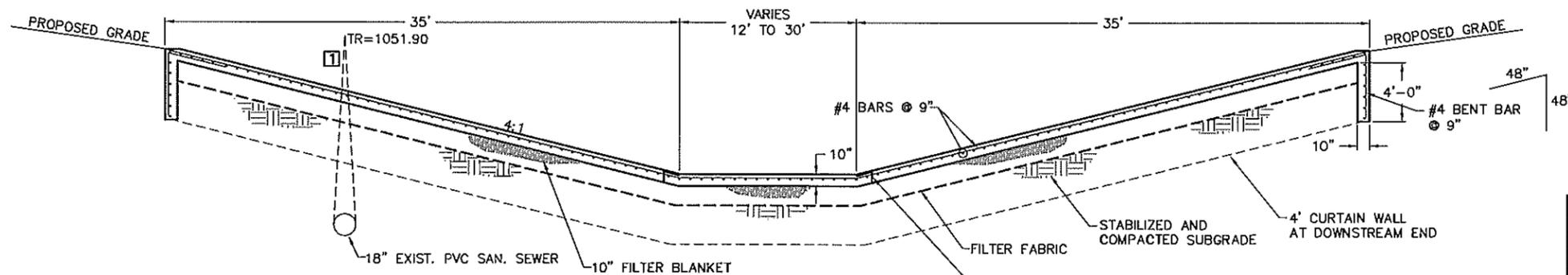
REVISION	BY	DATE	PLAN SCALE	DRAWN	MBA	6/08	REVIEWED BY:
				DESIGNED	WTM	6/08	
				CHECKED	JKM	6/08	
				PROFILE SCALE	FIELD MNGR.		
				HORIZONTAL:	SECT. MNGR.		
				VERTICAL:	PRGJ. MNGR.		
					RECOMMENDED		
					DEPUTY DIRECTOR		DIRECTOR OF ENGINEERING
				FILE:	DRAWING:		DATE: 2/09
							SHEET 18 OF 37 SHEETS

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CONSTRUCTION NOTES
 1 ADJUST MANHOLE TO GRADE

1 CHANNEL TRANSITION SECTION
 SCALE: 1"=10'



2 TRANSITION SECTION
 SCALE: 1"=5'

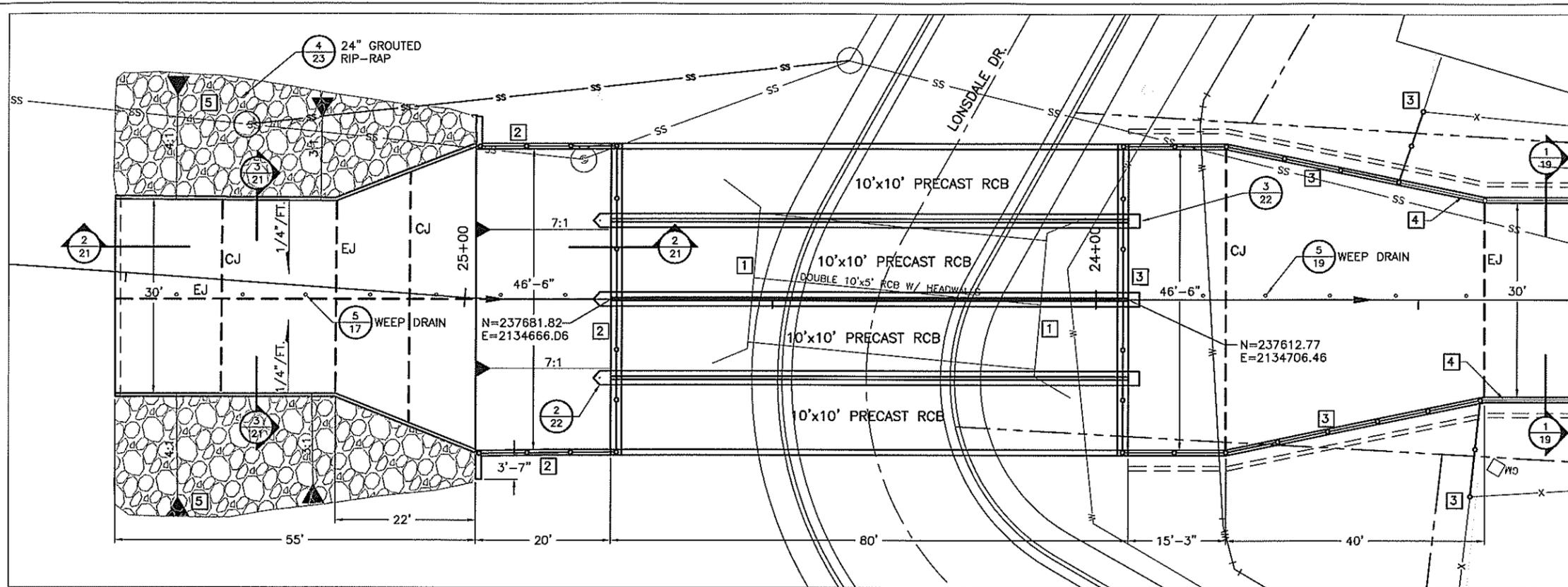
**WILLOWOOD ADDITION
 CHANNEL IMPROVEMENT
 DRAINAGE CHANNEL DETAILS
 SHEET 2**
 CITY OF EDMOND, OKLAHOMA
 DRAINAGE UTILITY

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			HORIZONTAL:	SECT. MNGR.			
			VERTICAL:	PROJ. MNGR.			
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				DEPUTY DIRECTOR			DIRECTOR OF ENGINEERING
			FILE:	DRAWING:			DATE: 2/09
			ATLAS PAGE NO.				SHEET 20 OF 37 SHEETS

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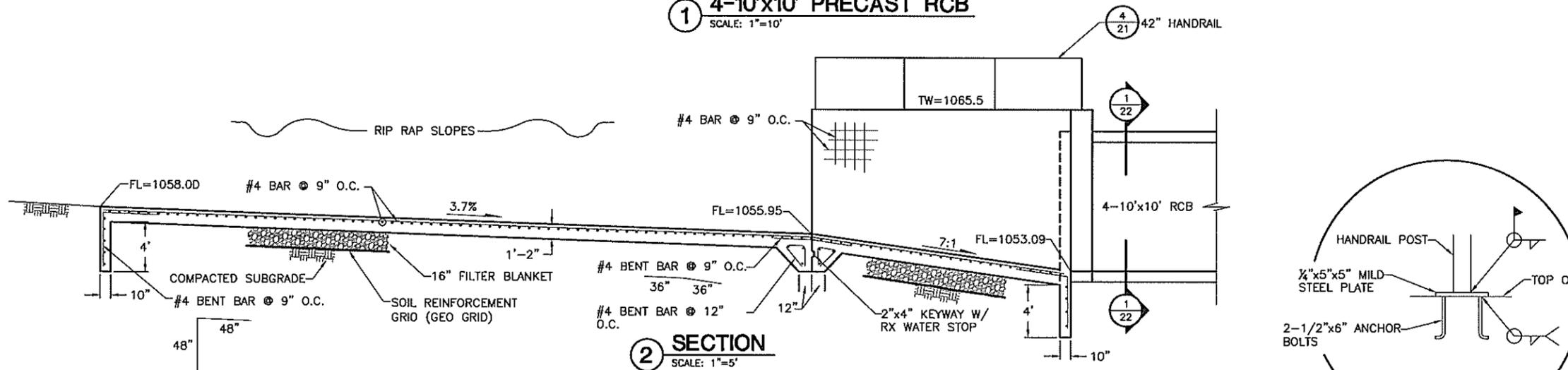




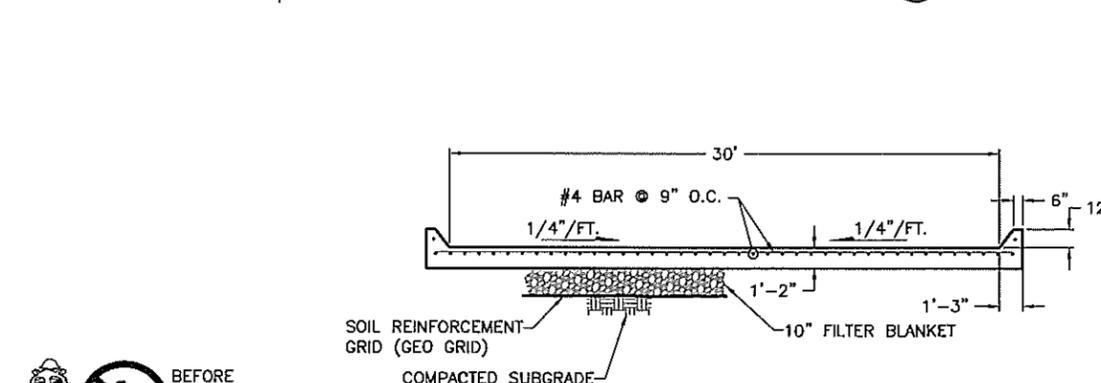
- CAST IN PLACE CONCRETE NOTES:**
1. ALL CONCRETE SHALL BE CLASS A, AS DESIGNATED IN SECTION 509 OF THE ODOT SPECIFICATIONS, LATEST EDITION.
 2. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 3/4" UNLESS OTHERWISE NOTED.
 3. CLEAR DISTANCES FROM CAST-IN-PLACE CONCRETE SURFACES TO REINFORCING SHALL BE 3" UNLESS OTHERWISE NOTED.
 4. ALL EXPOSED CAST IN PLACE CONCRETE SURFACES SHALL HAVE ALL VOIDS FILLED, BURRS AND FINS REMOVED AND BE RUBBED AND FINISHED AND PREPARED FOR PAINTING IN ACCORDANCE WITH THE SPECIFICATIONS.
 5. NO FLYASH ALLOWED IN CONCRETE. SUBMIT CERTIFIED MIX DESIGN.

PLAN

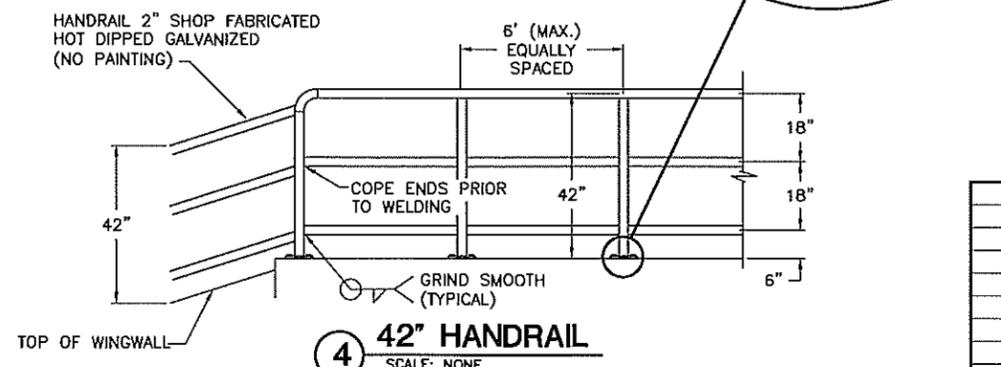
1 4-10'x10' PRECAST RCB
SCALE: 1"=10'



2 SECTION
SCALE: 1"=5'



3 SECTION
SCALE: 1"=5'



4 42" HANDRAIL
SCALE: NONE

- CONSTRUCTION NOTES:**
- 1 REMOVE EXISTING DOUBLE 10'x5' RCB W/ HEADWALLS.
 - 2 CONSTRUCT 42" HANDRAIL ON TOP OF WALL
 - 3 CONSTRUCT 42" HANDRAIL ON TOP OF WALL AND TIE TO EXISTING FENCE W/ WOOD FENCE (MATCH EXISTING)
 - 4 CONSTRUCT 6" WOOD FENCE ON TOP OF WALL. SEE DETAIL "5" SHEET 22.
 - 5 CONSTRUCT 110 CY OF 24" GROUTED RIP-RAP.

**WILLOWOOD ADDITION
CHANNEL IMPROVEMENT
DRAINAGE CHANNEL DETAILS
SHEET 3**

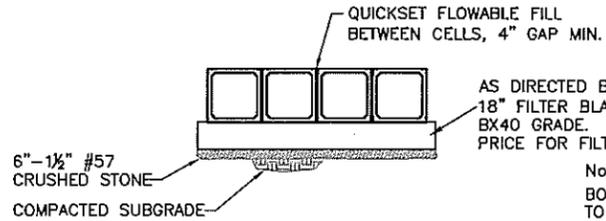
**CITY OF EDMOND, OKLAHOMA
DRAINAGE UTILITY**

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				RECOMMENDED			
				DEPUTY DIRECTOR			DIRECTOR OF ENGINEERING
			FILE:	DRAWING:			DATE: 2/09
			ATLAS PAGE NO.				SHEET 21 OF 37 SHEETS

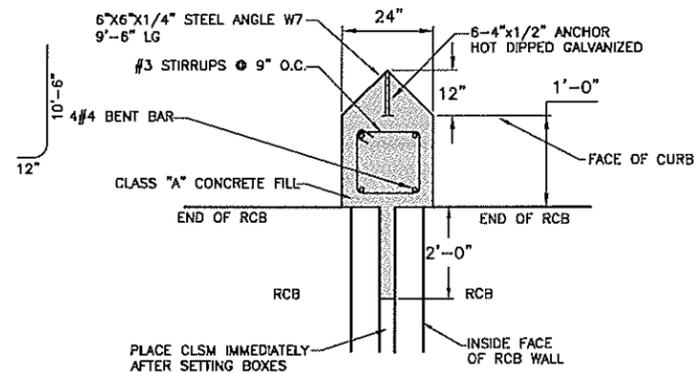
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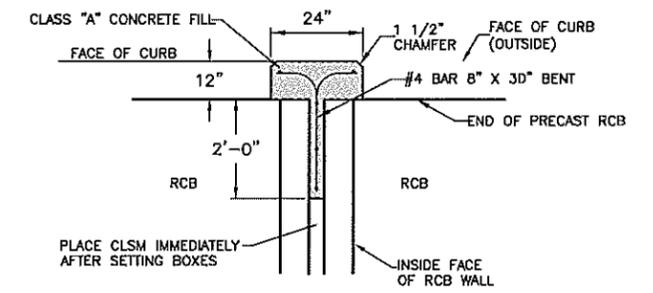


1 SECTION
SCALE: NONE

Note:
BOX CULVERT SECTION SHALL BE FABRICATED TO CARRY HS20 LOADING, ASTM CB50. PROVIDE A FLEXIBLE COMPRESSION GASKET AT EACH JOINT AND EXTERIOR JOINT WRAP. CAST IN PLACE CONCRETE MAY BE SUBSTITUTED IF CERTIFIED DRAWINGS PROVIDED BY THE CONTRACTOR ARE APPROVED. GROUT ALL LIFT HOLES WITH NON SHRINK GROUT.



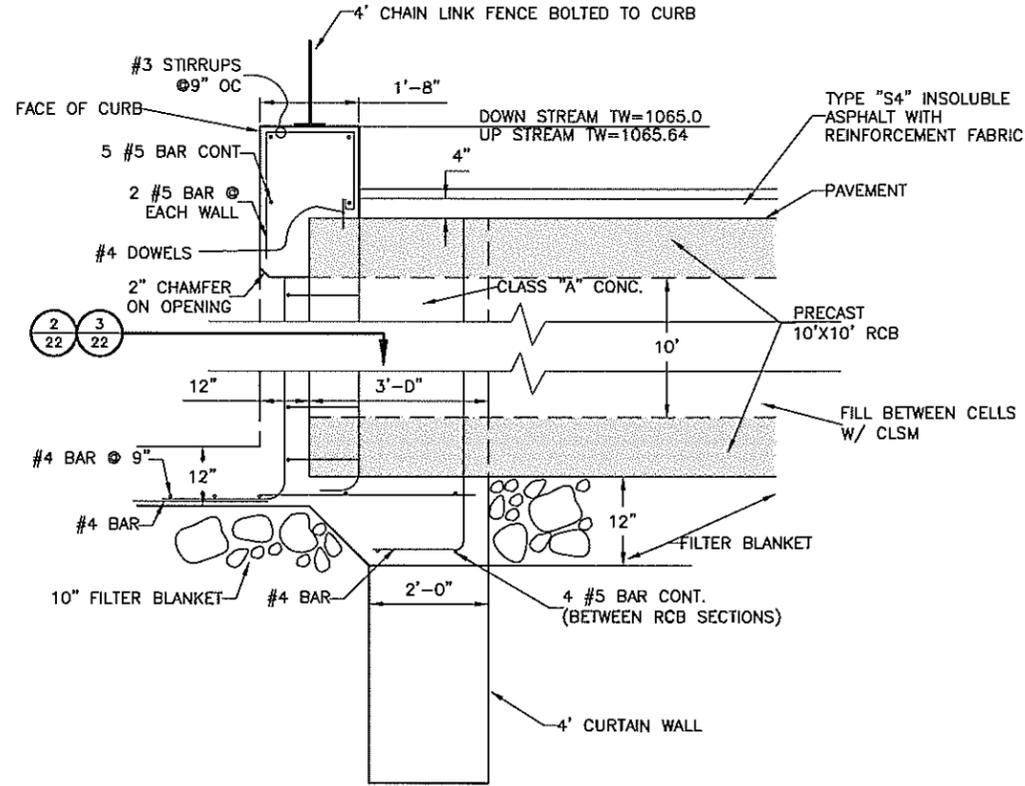
2 PLAN RCB END CAP UPSTREAM
SCALE: NONE



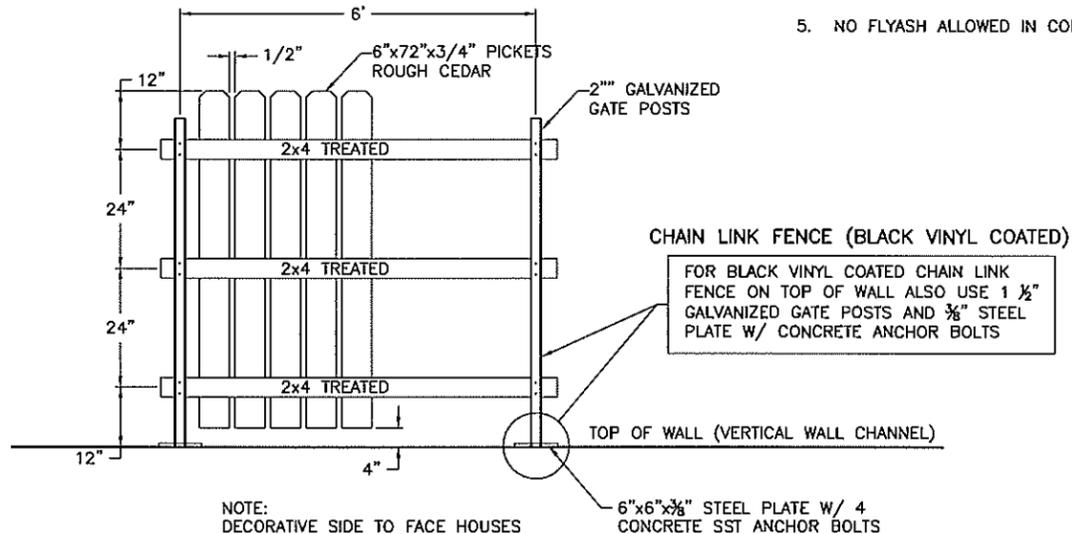
3 PLAN RCB END CAP DOWNSTREAM
SCALE: NONE

CAST IN PLACE CONCRETE NOTES:

1. ALL CONCRETE SHALL BE CLASS A, AS DESIGNATED IN SECTION 509 OF THE ODOT SPECIFICATIONS, LATEST EDITION.
2. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 3/4" UNLESS OTHERWISE NOTED.
3. CLEAR DISTANCES FROM CAST-IN-PLACE CONCRETE SURFACES TO REINFORCING SHALL BE 3" UNLESS OTHERWISE NOTED.
4. ALL EXPOSED CAST IN PLACE CONCRETE SURFACES SHALL HAVE ALL VOIDS FILLED, BURRS AND FINIS REMOVED AND BE RUBBED AND FINISHED AND PREPARED FOR PAINTING IN ACCORDANCE WITH THE SPECIFICATIONS.
5. NO FLYASH ALLOWED IN CONCRETE. SUBMIT CERTIFIED MIX DESIGN.



4 RCB END TREATMENT
SCALE: NONE



5 6' WOOD FENCE
SCALE: NONE

**WILLOWOOD ADDITION
CHANNEL IMPROVEMENT
DRAINAGE CHANNEL DETAILS
SHEET 4**

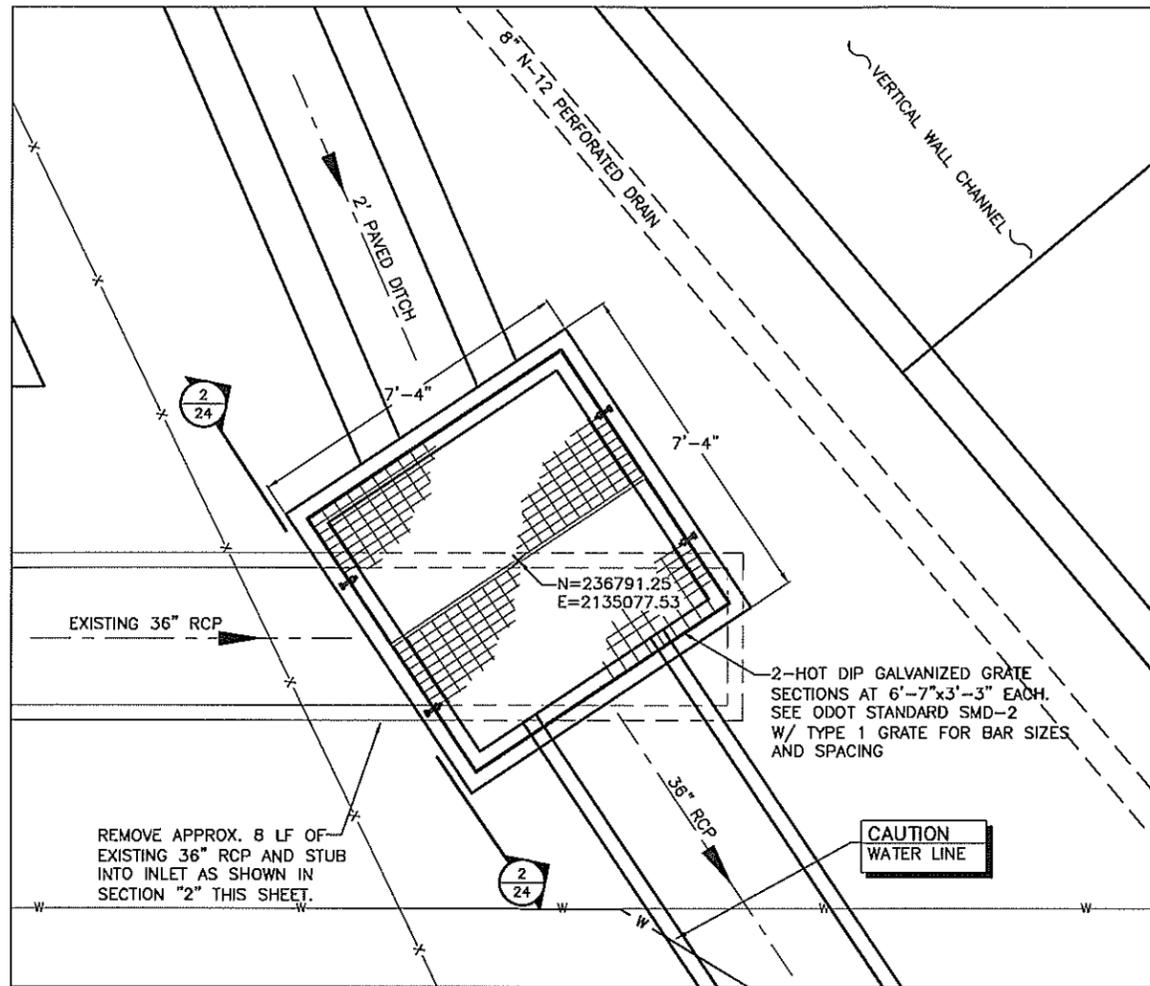
**CITY OF EDMOND, OKLAHOMA
DEPARTMENT OF PUBLIC WORKS**

PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, P.L.C.
20 West Second Street Sand Springs, Oklahoma 74063 (918) 241-2803

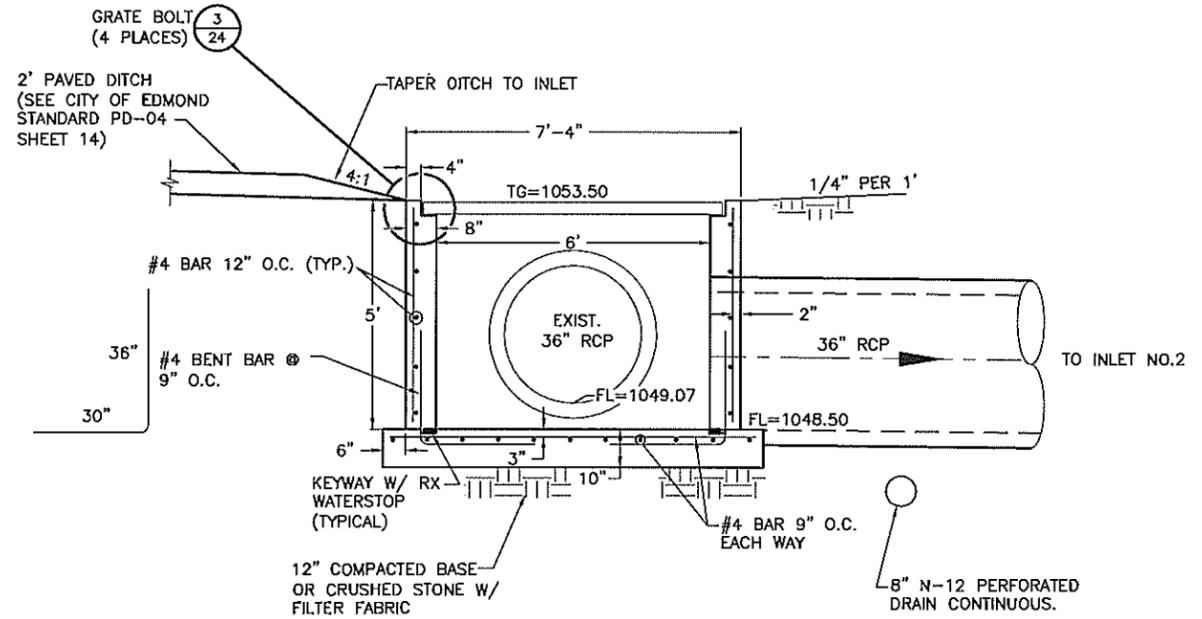
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				DESIGNED	WTM	6/08	
				CHECKED	JKM	6/08	
			PROFILE SCALE	FIELD INGR.			
			HORIZONTAL:	SECT. INGR.			
			VERTICAL:	PROJ. INGR.			
				RECOMMENDED			
				DEPUTY DIRECTOR			
			FILE:	DRAWING:			PUBLIC WORKS DIRECTOR
			ATLAS PAGE NO.	DATE:	2/09		

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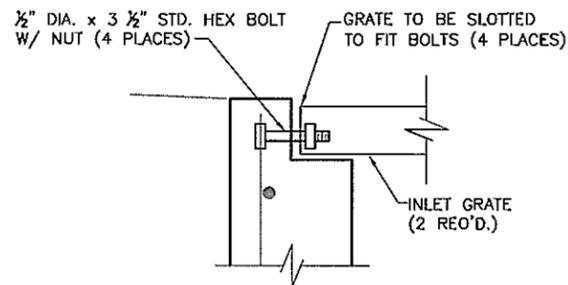


1 INLET NO. 1
SCALE: 1/2" = 1'-0"



2 SECTION
SCALE: 1/2" = 1'-0"

- CAST IN PLACE CONCRETE NOTES:**
1. ALL CONCRETE SHALL BE CLASS A, AS DESIGNATED IN SECTION 509 OF THE ODOT SPECIFICATIONS, LATEST EDITION.
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 5. NO FLYASH ALLOWED IN CONCRETE. SUBMIT CERTIFIED MIX DESIGN.



3 GRATE BOLT
SCALE: NONE

NOTE: BACKFILL AROUND INLET W/ CLSM

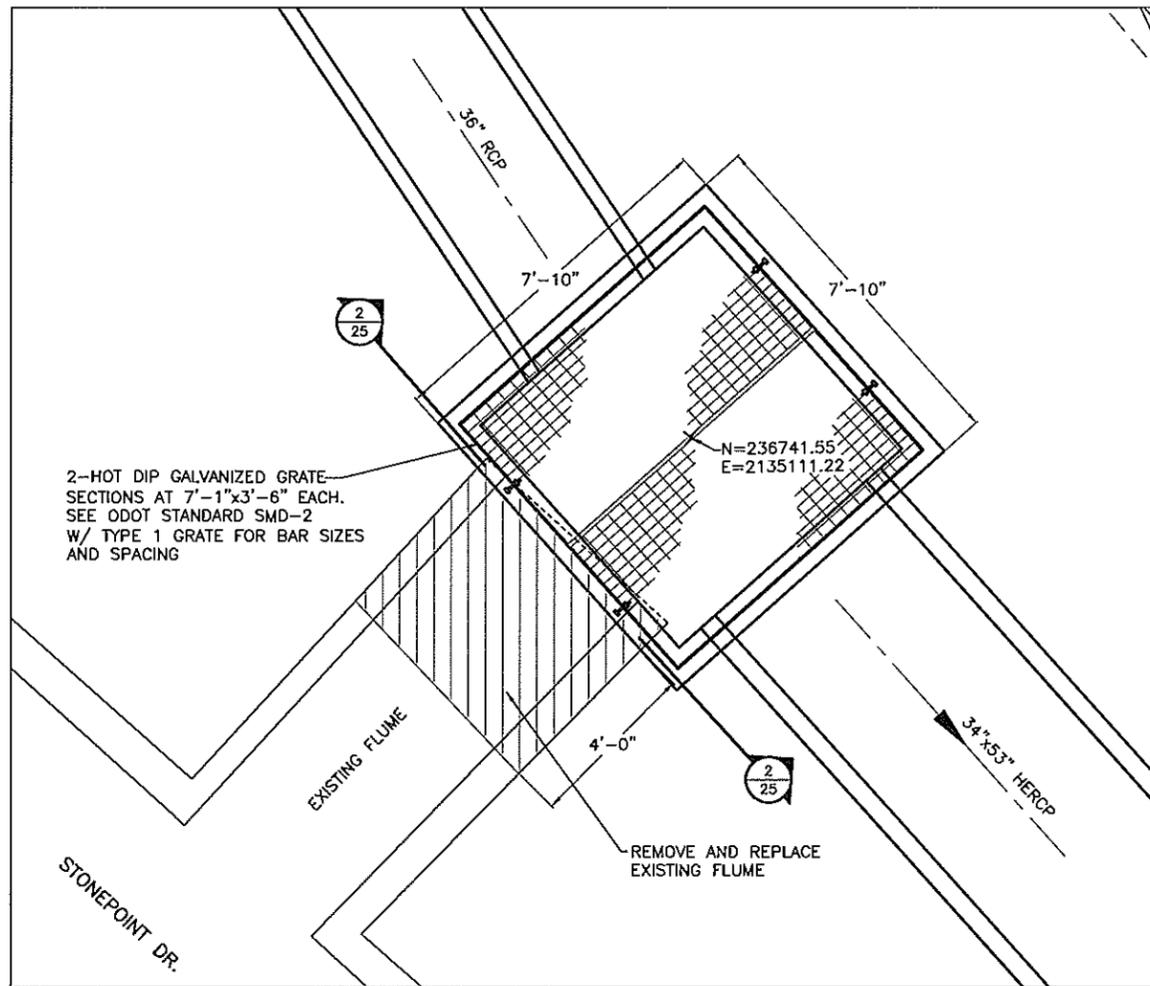
**WILLOWOOD ADDITION
CHANNEL IMPROVEMENT
INLET NO.1
PLAN AND DETAILS
CITY OF EDMOND, OKLAHOMA
DRAINAGE UTILITY**

PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, P.L.C.
1437 S. Boulder Ave., Suite 1080 Tulsa, OK 74119 (918) 392-5620

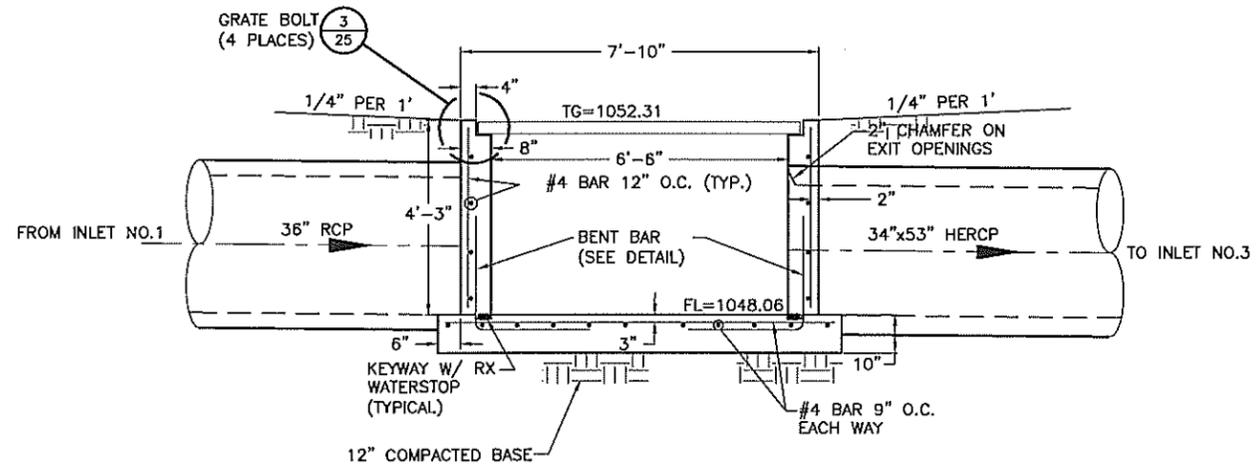
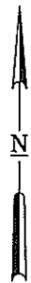
REVISION	BY	DATE	PLAN SCALE	DRAWN	MBA	1/09	REVIEWED BY:
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				CHECKED	JKM	1/09	
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			HORIZONTAL:	SECT. MNGR.			
			VERTICAL:	PROJ. MNGR.			
				RECOMMENDED			
			FILE:	DEPUTY DIRECTOR			DIRECTOR OF ENGINEERING
			DRAWING:				DATE: 2/09
			ATLAS PAGE NO.				SHEET 24 OF 37 SHEETS

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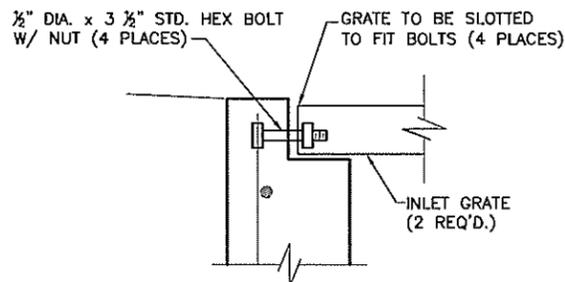
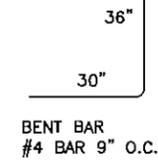


1 INLET NO. 2
SCALE: 1/2" = 1'-0"



NOTE: BACKFILL AROUND INLET W/ CLSM

2 SECTION
SCALE: 1/2" = 1'-0"



3 GRATE BOLT
SCALE: NONE

CAST IN PLACE CONCRETE NOTES:

1. ALL CONCRETE SHALL BE CLASS A, AS DESIGNATED IN SECTION 509 OF THE ODOT SPECIFICATIONS, LATEST EDITION.
2. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 3/4" UNLESS OTHERWISE NOTED.
3. CLEAR DISTANCES FROM CAST-IN-PLACE CONCRETE SURFACES TO REINFORCING SHALL BE 3" UNLESS OTHERWISE NOTED.
4. ALL EXPOSED CAST IN PLACE CONCRETE SURFACES SHALL HAVE ALL VOIDS FILLED, BURRS AND FINES REMOVED AND BE RUBBED AND FINISHED AND PREPARED FOR PAINTING IN ACCORDANCE WITH THE SPECIFICATIONS.
5. NO FLYASH ALLOWED IN CONCRETE. SUBMIT CERTIFIED MIX DESIGN.

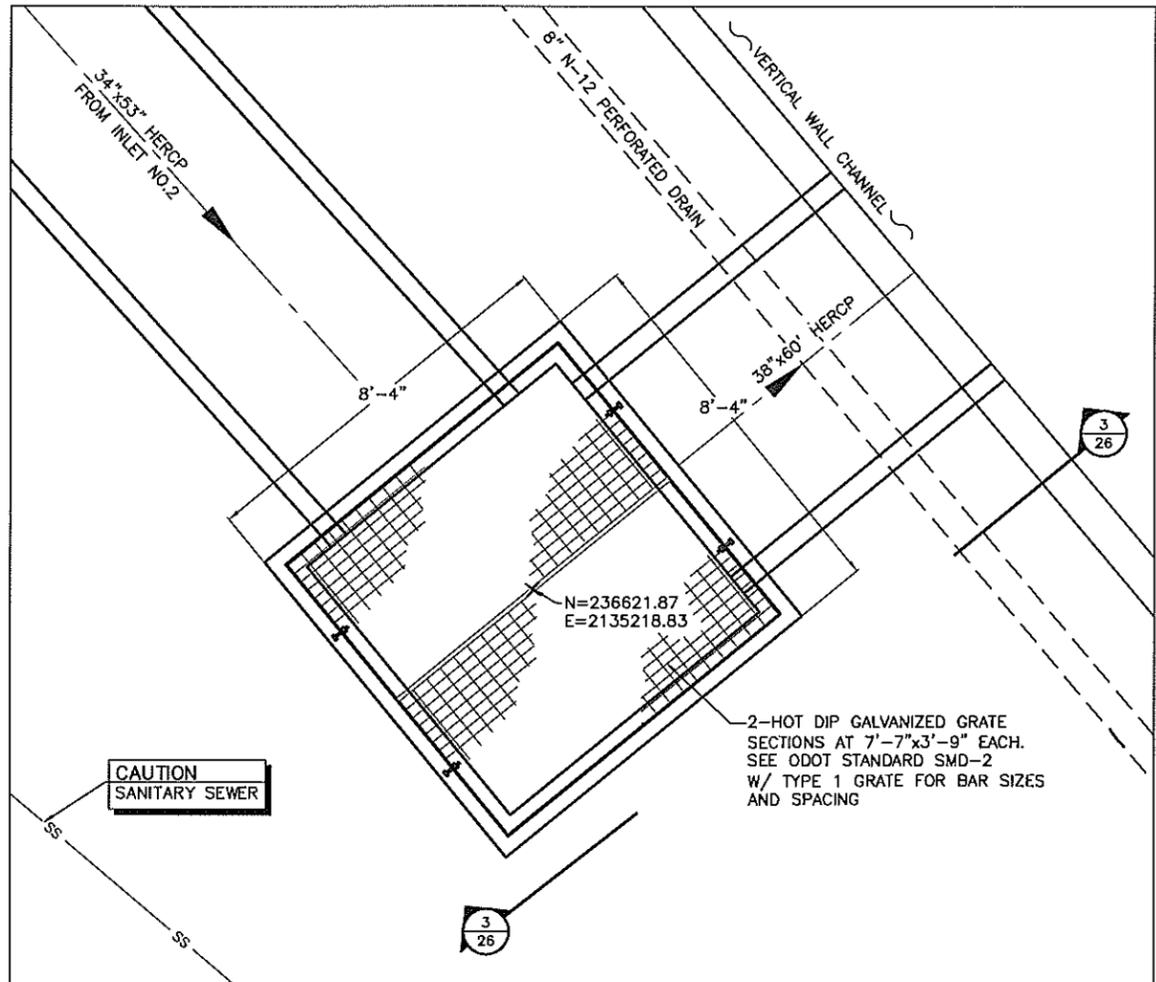
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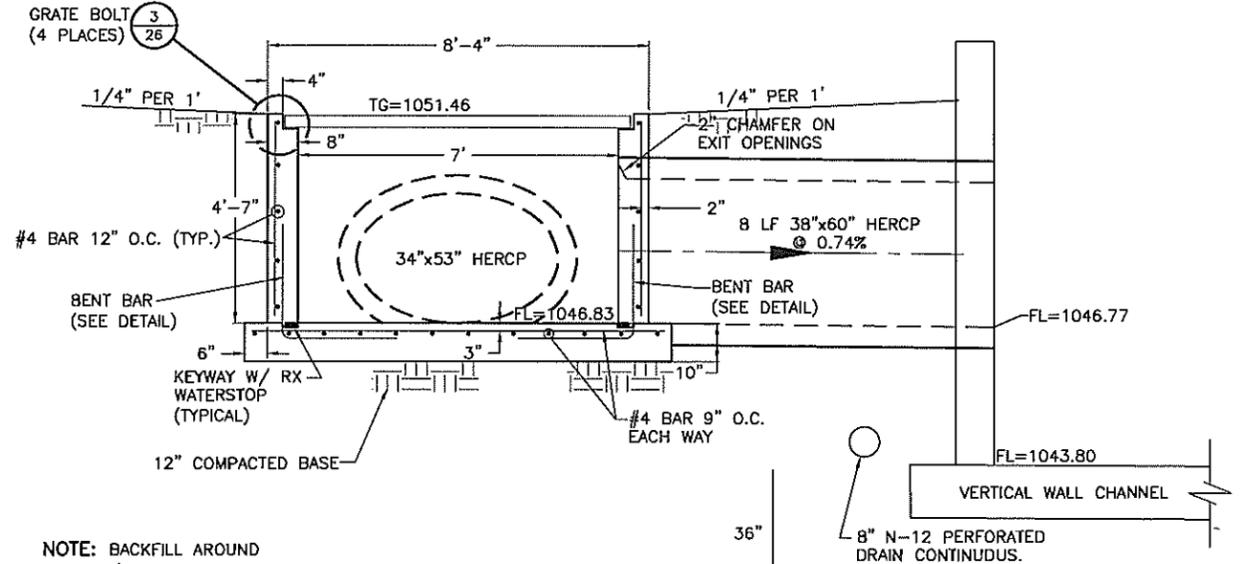
**WILLOWOOD ADDITION
CHANNEL IMPROVEMENT
INLET NO.2
PLAN AND DETAILS
CITY OF EDMOND, OKLAHOMA
DRAINAGE UTILITY**

PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, P.L.C.
1437 S. Boulder Ave., Suite. 1080 Tulsa, OK 74119 (918) 392-5820

REVISION	BY	DATE	PLAN SCALE	DRAWN	MBA	1/09	REVIEWED BY:
			AS NOTED	DESIGNED	WTM	1/09	
				CHECKED	JKM	1/09	
			PROFILE SCALE	FIELD MNGR.			
			HORIZONTAL:	SECT. MNGR.			
				PROJ. MNGR.			
			VERTICAL:	RECOMMENDED			
			FILE:	DEPUTY DIRECTOR			DIRECTOR OF ENGINEERING
			ATLAS PAGE NO.	DRAWING:			DATE: 2/09



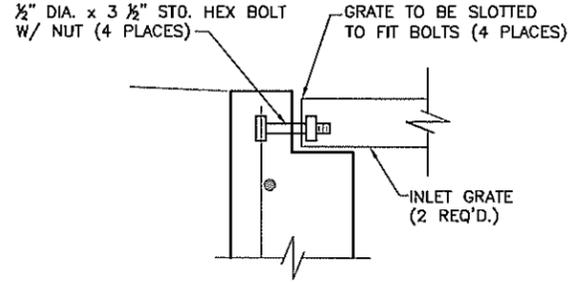
1 INLET NO. 3
SCALE: 1/2" = 1'-0"



2 SECTION
SCALE: 1/2" = 1'-0"

NOTE: BACKFILL AROUND INLET W/ CLSM

- CAST IN PLACE CONCRETE NOTES:
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 5. NO FLYASH ALLOWED IN CONCRETE. SUBMIT CERTIFIED MIX DESIGN.



3 GRATE BOLT
SCALE: NONE

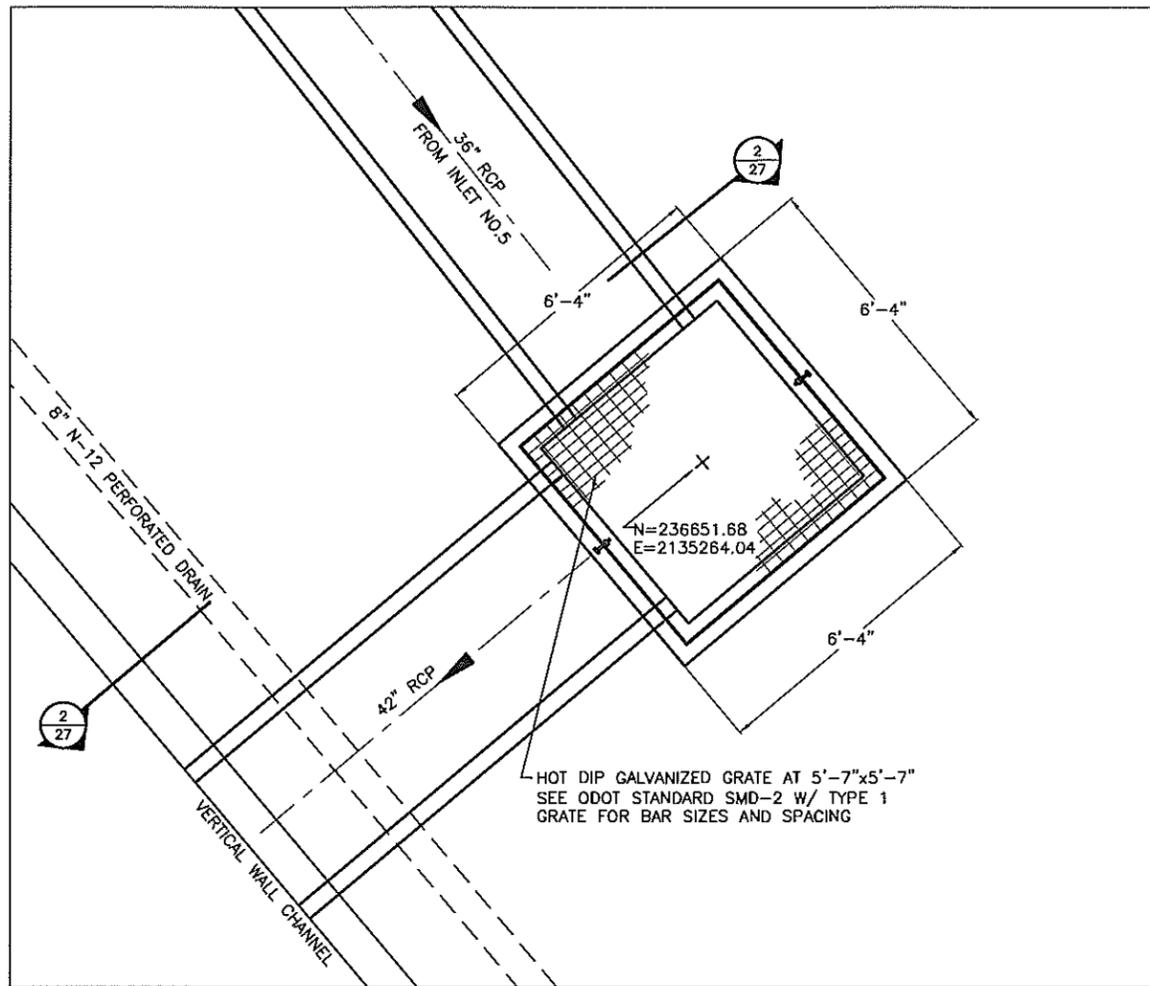
WILLOWOOD ADDITION
CHANNEL IMPROVEMENT
INLET NO.3
PLAN AND DETAILS
CITY OF EDMOND, OKLAHOMA
DRAINAGE UTILITY

PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, P.L.C.
1437 S. Boulder Ave., Suite. 1080 Tulsa, OK 74119 (918) 392-5620

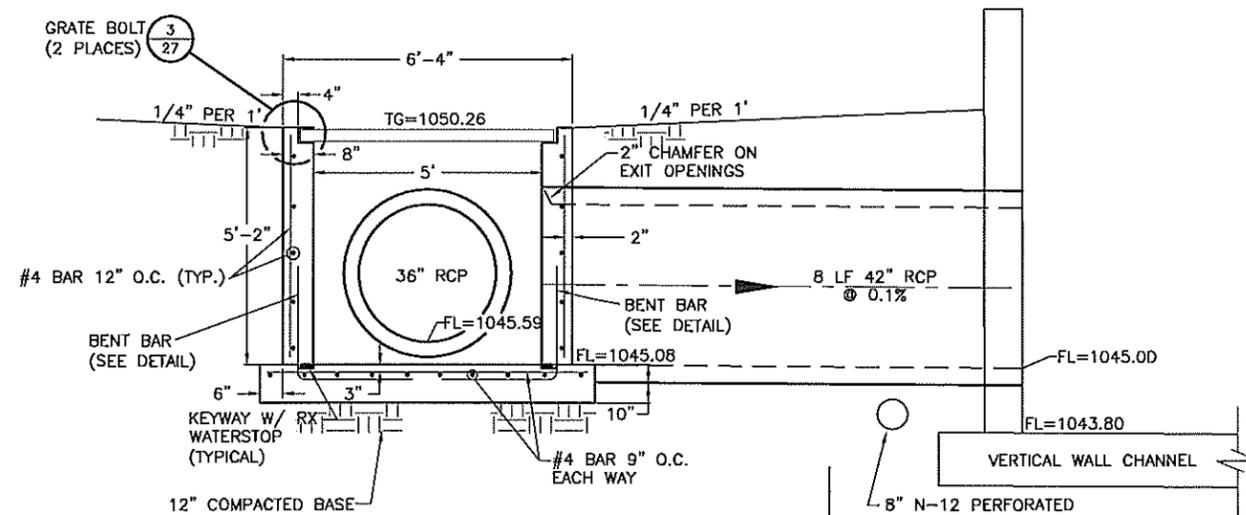
REVISION	BY	DATE	PLAN SCALE	DRAWN	MBA	1/09	REVIEWED BY:
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			PROFILE SCALE	FIELD MNGR.			
			HORIZONTAL:	SECT. MNGR.			
			VERTICAL:	PROJ. MNGR.			
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				DEPUTY DIRECTOR			
			FILE:	DRAWING:			DIRECTOR OF ENGINEERING
			ATLAS PAGE NO.				DATE: 2/09
							SHEET 26 OF 37 SHEETS

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1 INLET NO. 4
SCALE: 1/2" = 1'-0"

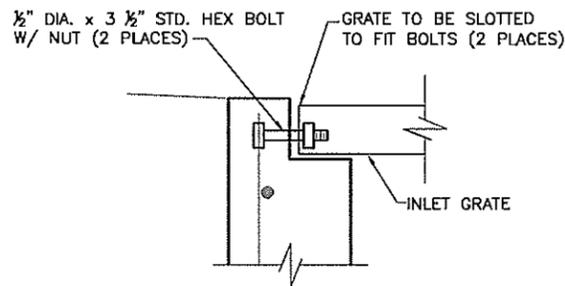


2 SECTION
SCALE: 1/2" = 1'-0"

BENT BAR
#4 BAR 9" O.C.

CAST IN PLACE CONCRETE NOTES:

1. ALL CONCRETE SHALL BE CLASS A, AS DESIGNATED IN SECTION 509 OF THE ODOT SPECIFICATIONS, LATEST EDITION.
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5. NO FLYASH ALLOWED IN CONCRETE. SUBMIT CERTIFIED MIX DESIGN.



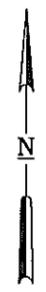
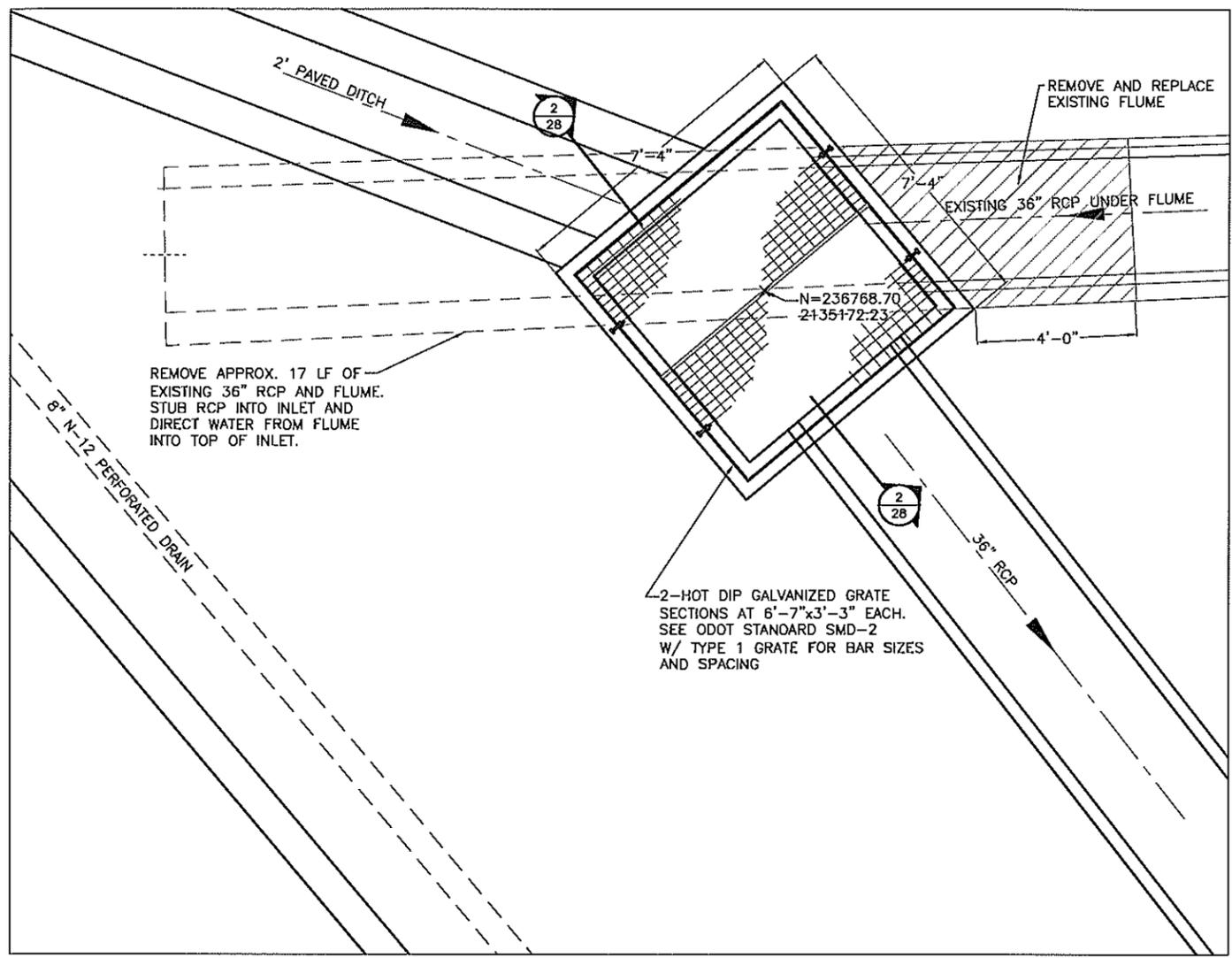
3 GRATE BOLT
SCALE: NONE

**WILLOWOOD ADDITION
CHANNEL IMPROVEMENT
INLET NO.4
PLAN AND DETAILS
CITY OF EDMOND, OKLAHOMA
DRAINAGE UTILITY**

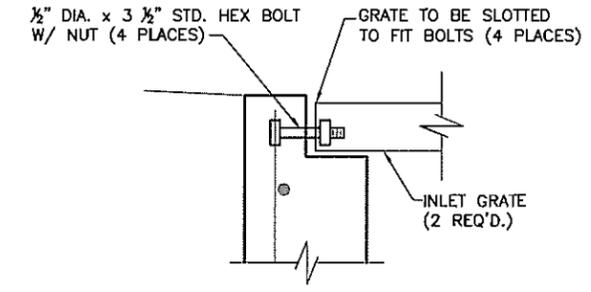
PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, P.L.C.
1437 S. Boulder Ave., Suite 1080 Tulsa, OK 74119 (918) 392-5620

REVISION	BY	DATE	PLAN SCALE	DRAWN	MBA	1/09	REVIEWED BY:
			AS NOTED	DESIGNED	WTM	1/09	
				CHECKED	JKM	1/09	
			PROFILE SCALE	FIELD MNGR.			
			HORIZONTAL:	SECT. MNGR.			
				PRQJ. MNGR.			
			VERTICAL:	RECOMMENDED			
				DEPUTY DIRECTOR			DIRECTOR OF ENGINEERING
			FILE:	DRAWING:			DATE: 2/09
			ATLAS PAGE NO.				SHEET 27 OF 35 SHEETS



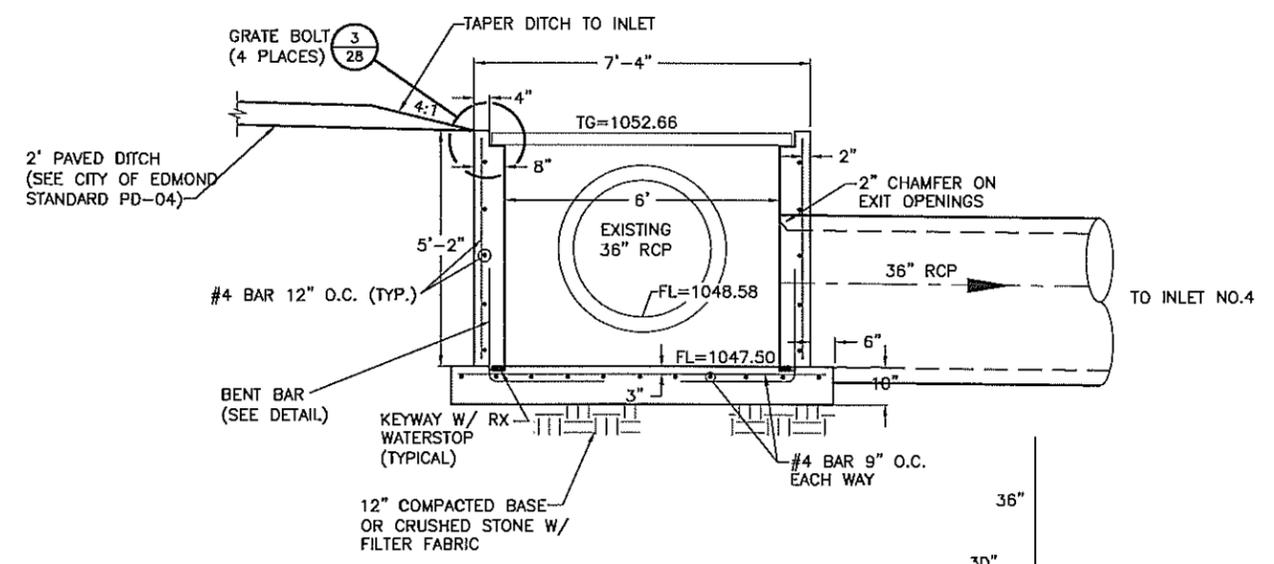


- CAST IN PLACE CONCRETE NOTES:**
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 5. NO FLYASH ALLOWED IN CONCRETE. SUBMIT CERTIFIED MIX DESIGN.



3 GRATE BOLT
SCALE: NONE

1 INLET NO. 5
SCALE: 1/2" = 1'-0"



2 SECTION
SCALE: 1/2" = 1'-0"

**WILLOWOOD ADDITION
CHANNEL IMPROVEMENT
INLET NO.5
PLAN AND DETAILS
CITY OF EDMOND, OKLAHOMA
DRAINAGE UTILITY**

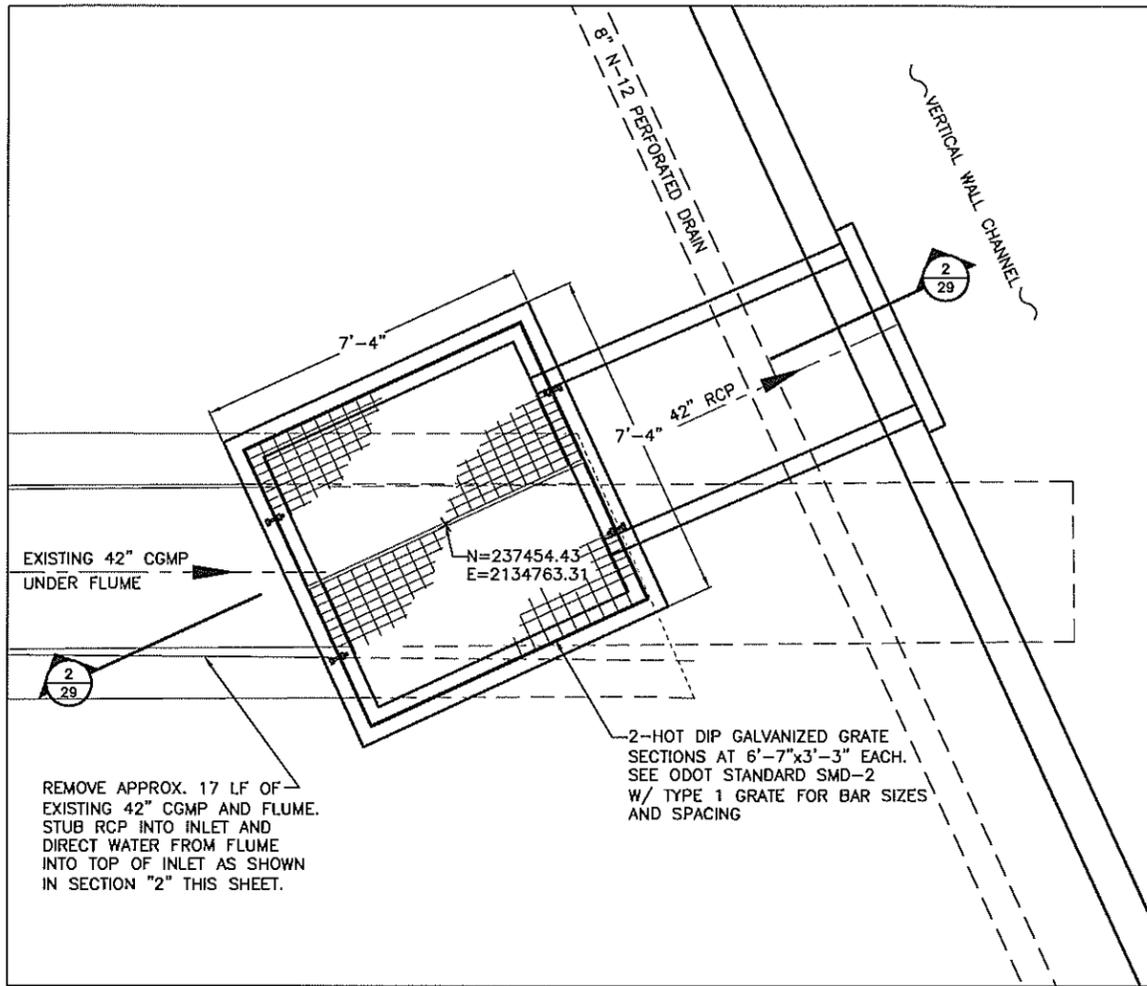
PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, P.L.C.
1437 S. Boulder Ave., Suite 1080 Tulsa, OK 74119 (918) 392-5820

REVISION	BY	DATE	PLAN SCALE	DRAWN	MBA	1/09	REVIEWED BY:
			AS NOTED	DESIGNED	WTM	1/09	
				CHECKED	JKM	1/09	
			PROFILE SCALE	FIELD MNGR.			
			HORIZONTAL:	SECT. MNGR.			
			VERTICAL:	PROJ. MNGR.			
				RECOMMENDED			
			FILE:	DEPUTY DIRECTOR			DIRECTOR OF ENGINEERING
			ATLAS PAGE NO.	DRAWING:			DATE: 2/09

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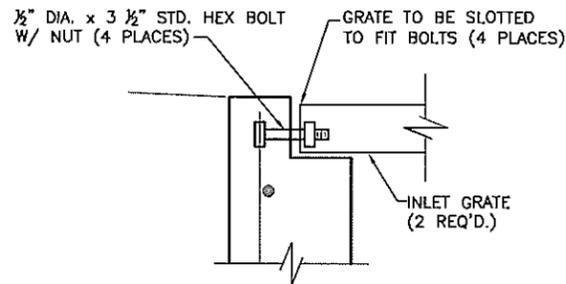
NOTE: BACKFILL AROUND INLET W/ CLSM



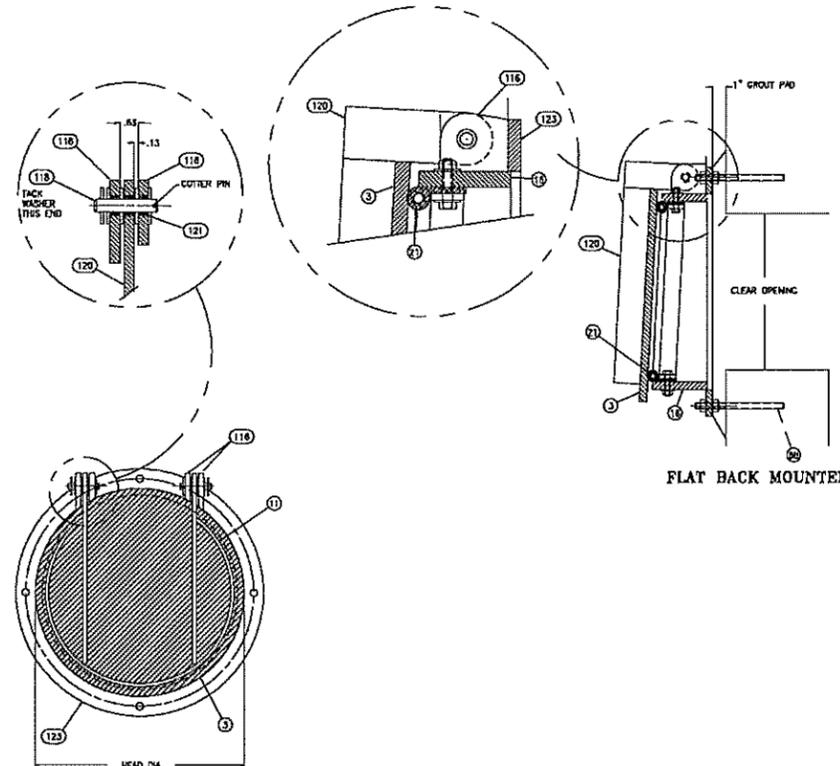
REMOVE APPROX. 17 LF OF EXISTING 42" CGMP AND FLUME. STUB RCP INTO INLET AND DIRECT WATER FROM FLUME INTO TOP OF INLET AS SHOWN IN SECTION "2" THIS SHEET.

2--HOT DIP GALVANIZED GRATE SECTIONS AT 6'-7"x3'-3" EACH. SEE ODOT STANDARD SMD-2 W/ TYPE 1 GRATE FOR BAR SIZES AND SPACING

1 INLET NO. 6
SCALE: 1/2" = 1'-0"

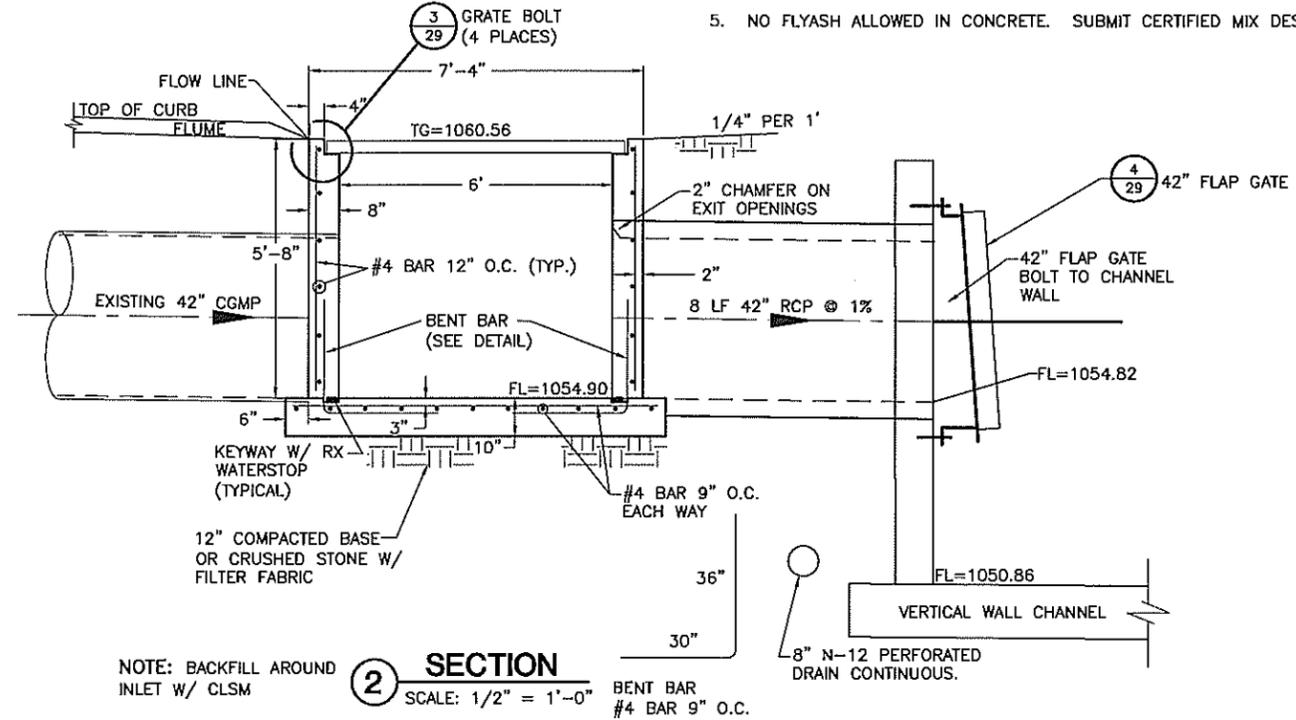


3 GRATE BOLT
SCALE: NONE



(MD GH-39 FLAP GATE OR EQUAL)

4 42" FLAP GATE
SCALE: NONE



NOTE: BACKFILL AROUND INLET W/ CLSM

2 SECTION
SCALE: 1/2" = 1'-0"

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5. NO FLYASH ALLOWED IN CONCRETE. SUBMIT CERTIFIED MIX DESIGN.

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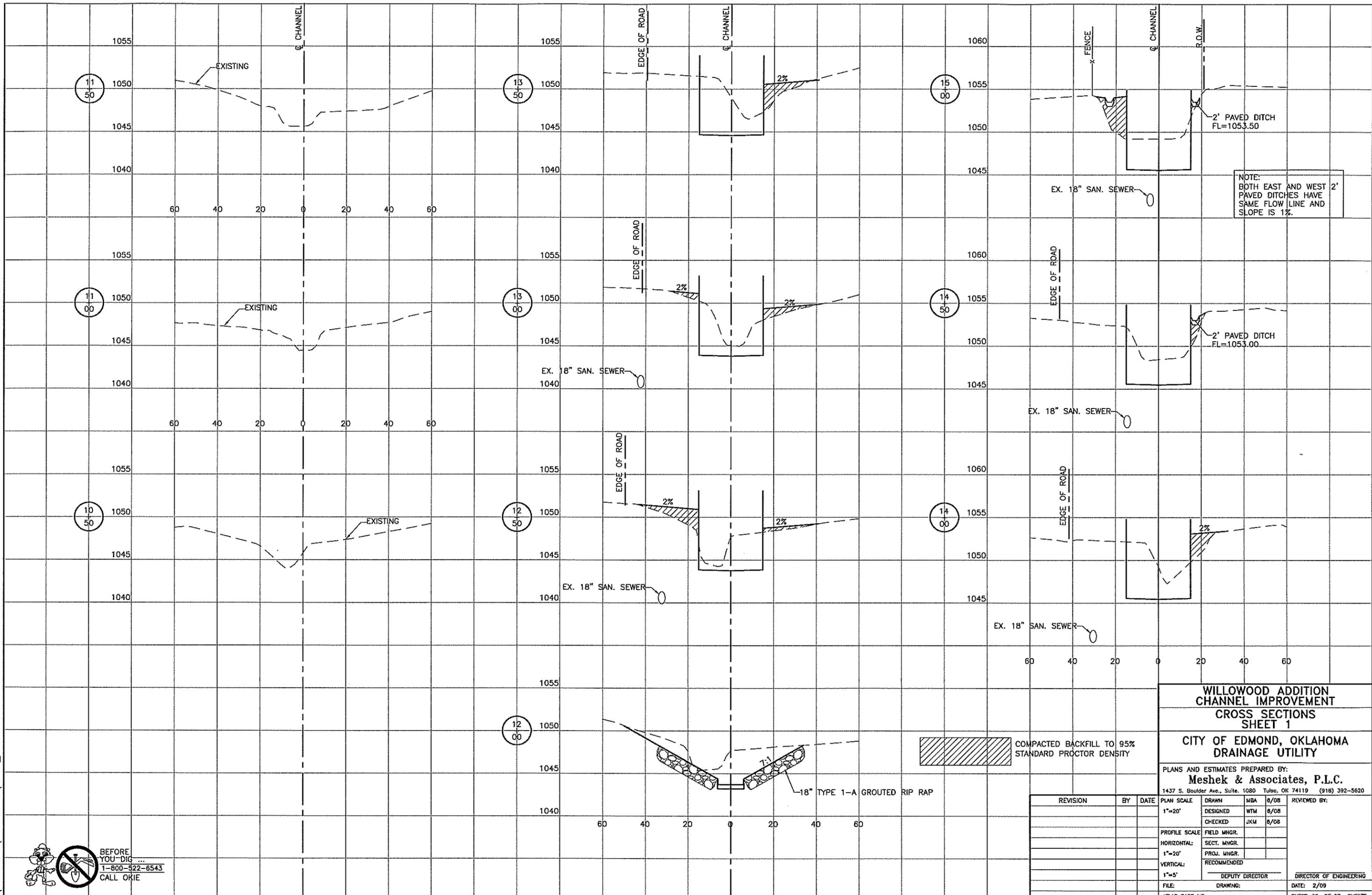


**WILLOWOOD ADDITION
CHANNEL IMPROVEMENT
INLET NO.6
PLAN AND DETAILS
CITY OF EDMOND, OKLAHOMA
DRAINAGE UTILITY**

PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, P.L.C.
1437 S. Boulder Ave., Suite 1080 Tulsa, OK 74119 (918) 392-5620

REVISION	BY	DATE	PLAN SCALE	DRAWN	MBA	1/09	REVIEWED BY:
			AS NOTED	DESIGNED	WTM	1/09	
				CHECKED	JKM	1/09	
			PROFILE SCALE	FIELD MNGR.			
			HORIZONTAL:	SECT. MNGR.			
			VERTICAL:	PROJ. MNGR.			
				RECOMMENDED			
			FILE:	DEPUTY DIRECTOR			DIRECTOR OF ENGINEERING
			DRAWING:				DATE: 2/09
			ATLAS PAGE NO.				SHEET 29 OF 37 SHEETS

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NOTE:
BOTH EAST AND WEST 2'
PAVED DITCHES HAVE
SAME FLOW LINE AND
SLOPE IS 1%.

**WILLOWOOD ADDITION
CHANNEL IMPROVEMENT
CROSS SECTIONS
SHEET 1**

**CITY OF EDMOND, OKLAHOMA
DRAINAGE UTILITY**

PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, P.L.C.
1437 S. Boulder Ave., Suite. 1080 Tulsa, OK 74119 (918) 392-5620

REVISION	BY	DATE	PLAN SCALE	DRAWN	MBA	8/08	REVIEWED BY:
			1"=20'	DESIGNED	WTM	8/08	
				CHECKED	JKM	8/08	
			PROFILE SCALE	FIELD MNGR.			
			HORIZONTAL:	SECT. MNGR.			
			1"=20'	PRQJ. MNGR.			
			VERTICAL:	RECOMMENDED			
			1"=5'	DEPUTY DIRECTOR			DIRECTOR OF ENGINEERING
			FILE:	DRAWING:			DATE: 2/09
			ATLAS PAGE NO.				SHEET 30 OF 37 SHEETS

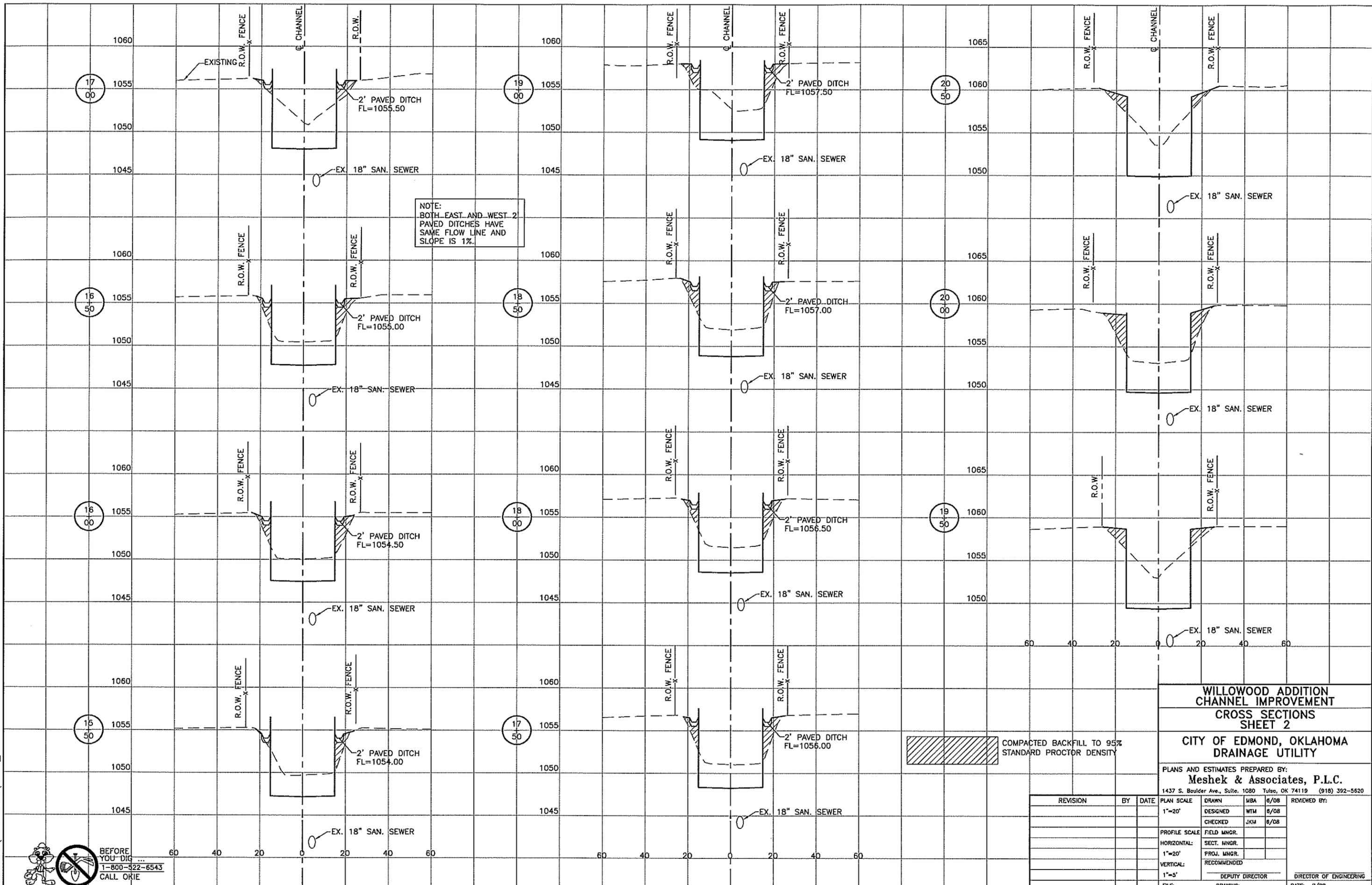


3:\07EDM01\DRAWINGS\XSEC_2.DWG



BEFORE YOU DIG ...
1-800-322-6543
CALL OKIE

NOTE:
BOTH EAST AND WEST 2'
PAVED DITCHES HAVE
SAME FLOW LINE AND
SLOPE IS 1%.

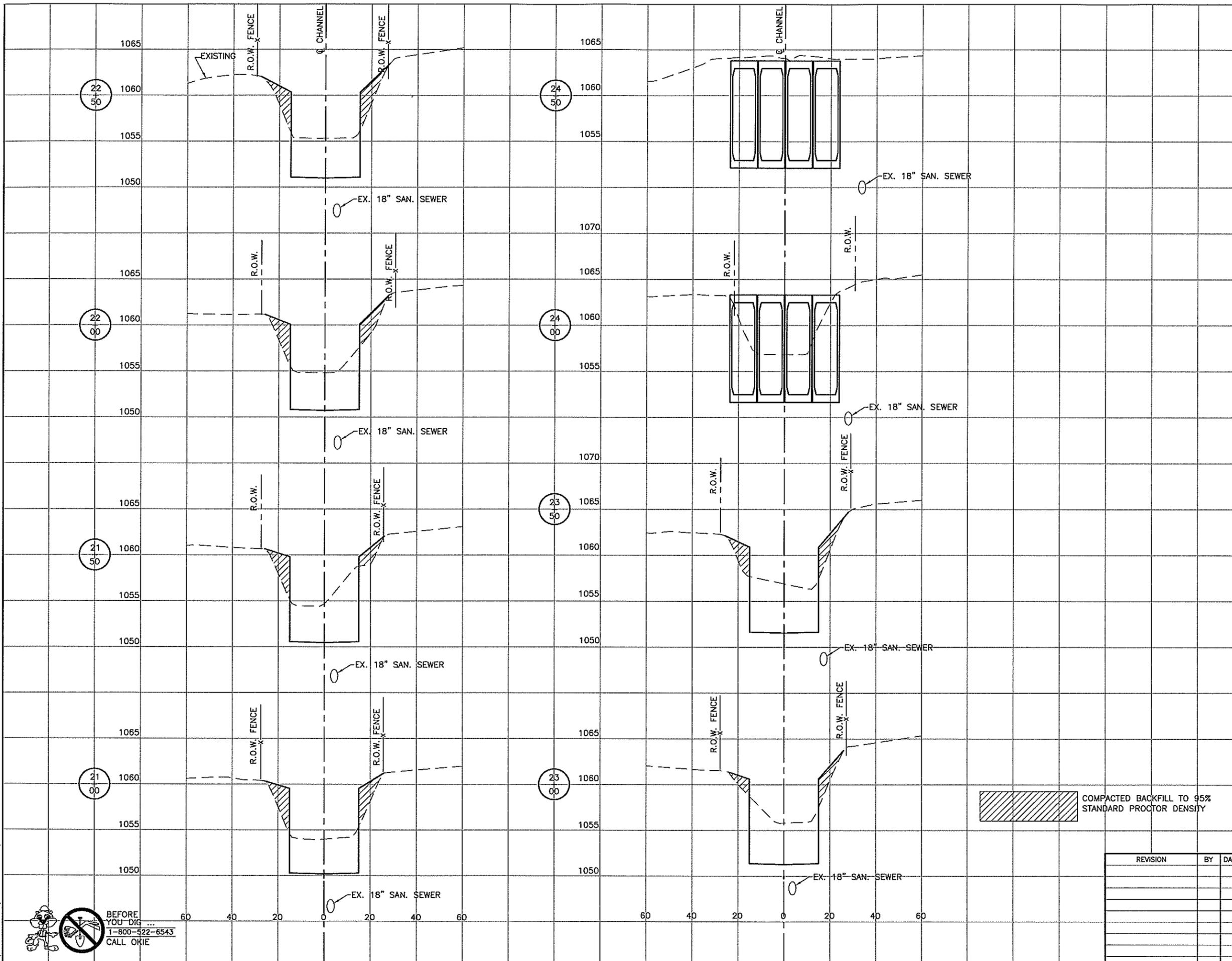


WILLOWOOD ADDITION
CHANNEL IMPROVEMENT
CROSS SECTIONS
SHEET 2
CITY OF EDMOND, OKLAHOMA
DRAINAGE UTILITY

PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, P.L.C.
1437 S. Boulder Ave., Suite 1080 Tulsa, OK 74119 (918) 392-5820

REVISION	BY	DATE	PLAN SCALE	DRAWN	MBA	6/08	REVIEWED BY:
			1"=20'	DESIGNED	WTM	6/08	
				CHECKED	JKM	6/08	
			PROFILE SCALE	FIELD MNGR.			
			HORIZONTAL:	SECT. MNGR.			
			1"=20'	PROJ. MNGR.			
			VERTICAL:	RECOMMENDED			
			1"=5'		DEPUTY DIRECTOR		DIRECTOR OF ENGINEERING
			FILE:	DRAWING:			DATE: 2/09
			ATLAS PAGE NO.				SHEET 31 OF 37 SHEETS

3:\07EDM01\DRAWINGS\XSEC_3.DWG



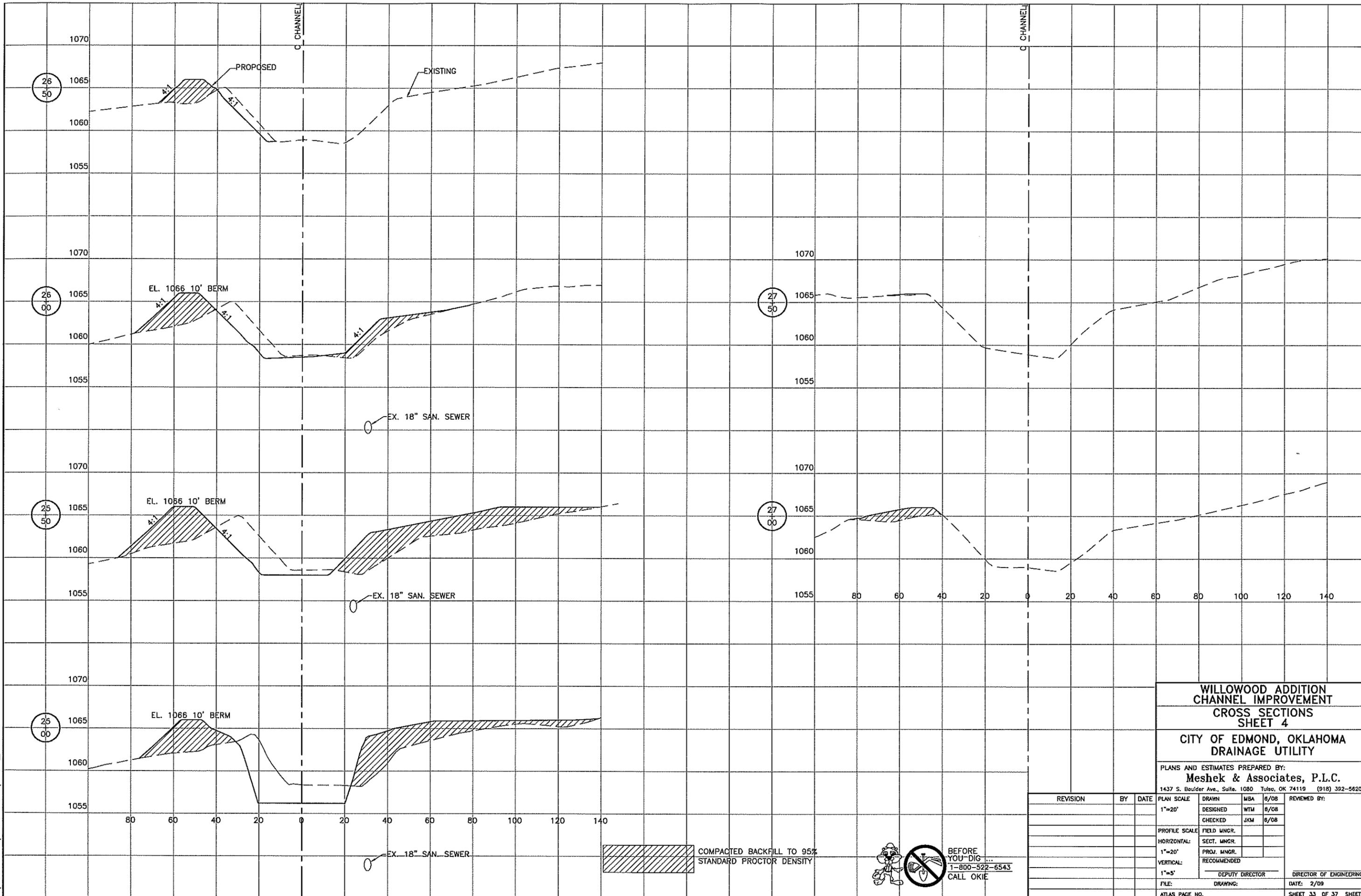
COMPACTED BACKFILL TO 95% STANDARD PROCTOR DENSITY

**WILLOWOOD ADDITION
CHANNEL IMPROVEMENT
CROSS SECTIONS
SHEET 3**
CITY OF EDMOND, OKLAHOMA
DRAINAGE UTILITY

PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, P.L.C.
1437 S. Boulder Ave., Suite 1080 Tulsa, OK 74119 (918) 392-5620

REVISION	BY	DATE	PLAN SCALE	DRAWN	MBA	6/08	REVIEWED BY:
			1"=20'	DESIGNED	WTM	6/08	
				CHECKED	JKM	6/08	
			PROFILE SCALE	FIELD MNGR.			
			HORIZONTAL:	SECT. MNGR.			
			1"=20'	PROJ. MNGR.			
			VERTICAL:	RECOMMENDED			
			1"=5'	DEPUTY DIRECTOR			DIRECTOR OF ENGINEERING
			FILE:	DRAWING:			DATE: 2/09
			ATLAS PAGE NO.				SHEET 32 OF 37 SHEETS

S:\07EDM01\DRAWINGS\XSEC_3.DWG

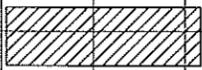


**WILLOWOOD ADDITION
CHANNEL IMPROVEMENT
CROSS SECTIONS
SHEET 4**

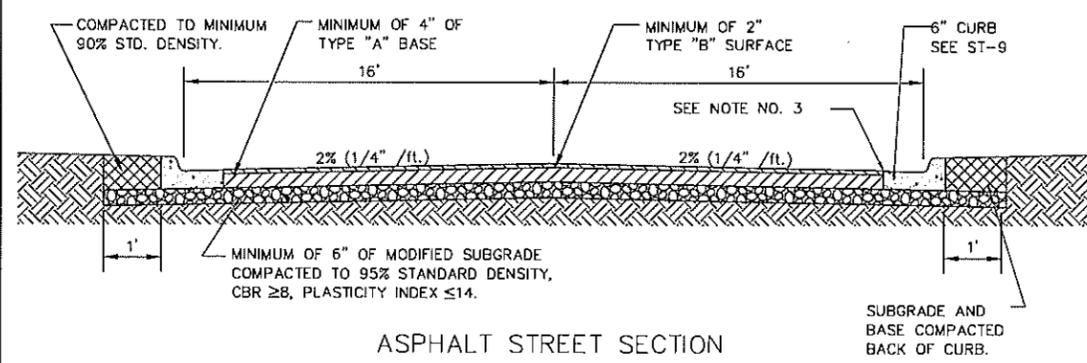
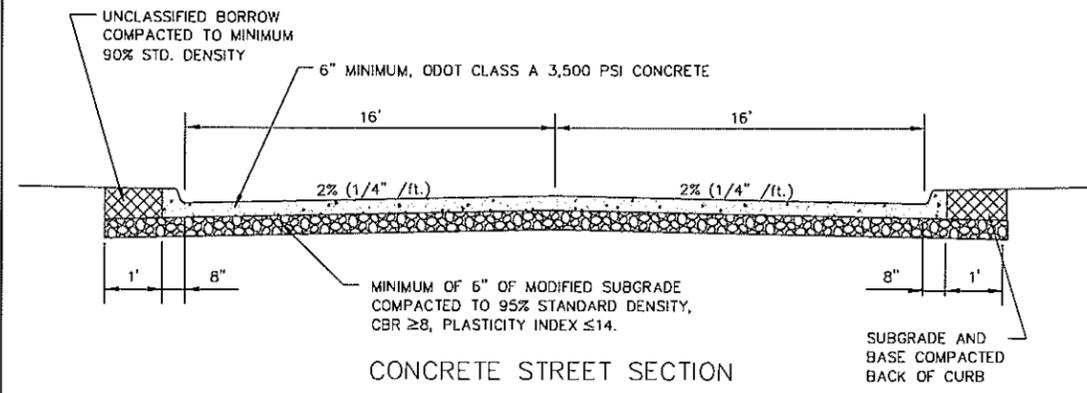
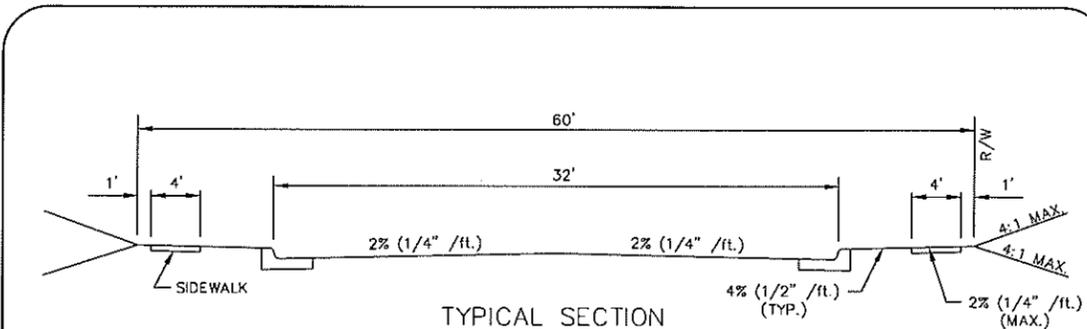
**CITY OF EDMOND, OKLAHOMA
DRAINAGE UTILITY**

PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, P.L.C.
1437 S. Boulder Ave., Suite 1080 Tulsa, OK 74119 (918) 392-5620

REVISION	BY	DATE	PLAN SCALE	DRAWN	MBA	6/08	REVIEWED BY:
			1"=20'	DESIGNED	WTM	8/08	
				CHECKED	JKM	8/08	
			PROFILE SCALE	FIELD MNGR.			
			HORIZONTAL:	SECT. MNGR.			
			1"=20'	PROJ. MNGR.			
			VERTICAL:	RECOMMENDED			
			1"=5'	DEPUTY DIRECTOR			DIRECTOR OF ENGINEERING
			FILE:	DRAWING:			DATE: 2/09
			ATLAS PAGE NO.				SHEET 33 OF 37 SHEETS

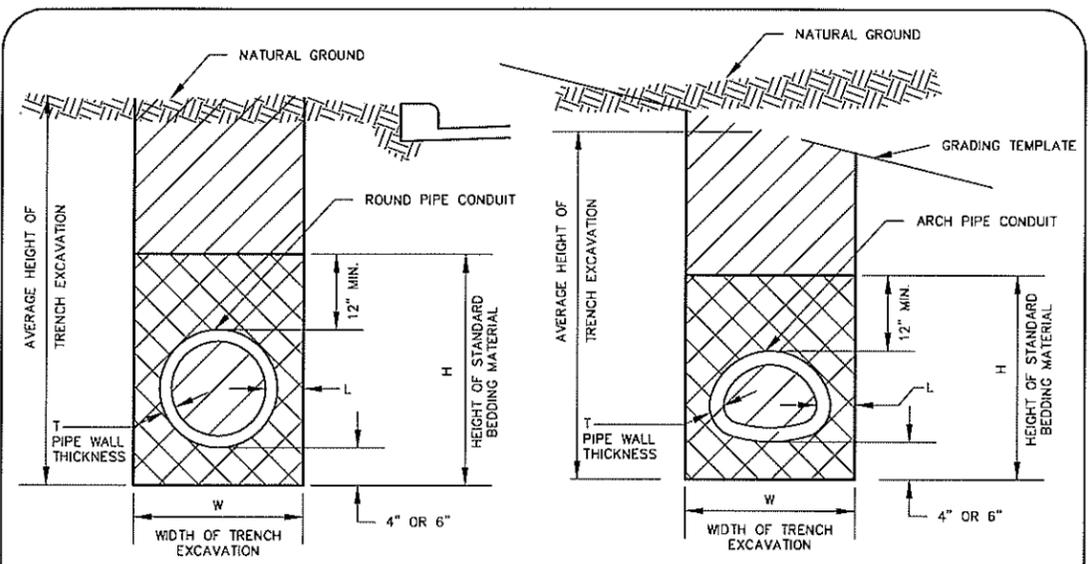
 COMPACTED BACKFILL TO 95% STANDARD PROCTOR DENSITY



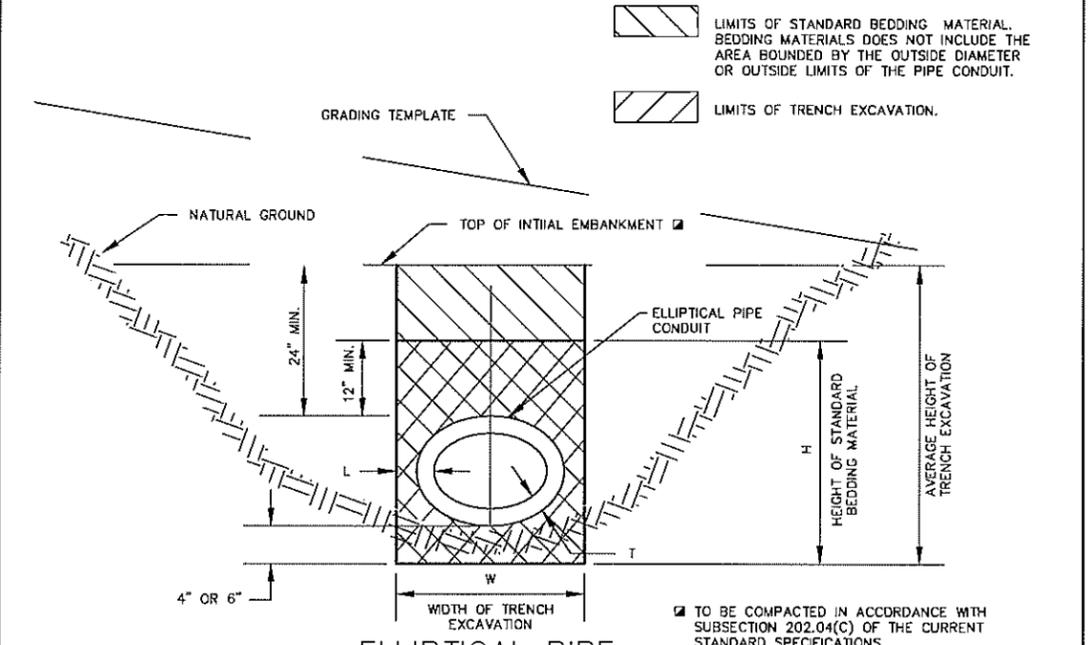


- NOTES:
- PAVING SECTION SHOWN IS MINIMUM ALLOWED. STREET PAVING SHALL BE DESIGNED IN ACCORDANCE WITH THE AASHTO METHOD
 - DOWELS REQUIRED FOR PCC PAVING 8" THICK, OR GREATER.
 - ASPHALT SURFACE SHALL BE 1/4" ABOVE EDGE OF CONCRETE GUTTER.

CITY OF EDMOND ENGINEERING DEPARTMENT CONSTRUCTION STANDARDS	COLLECTOR STREET WITH CURB	STREETS
		SPECIFICATION NO. 411 & 414 ST-03 PAGE 36



ROUND PIPE
TRENCH EXCAVATION IN CUT SECTIONS



ELLIPTICAL PIPE
TRENCH EXCAVATION IN EMBANKMENT SECTIONS

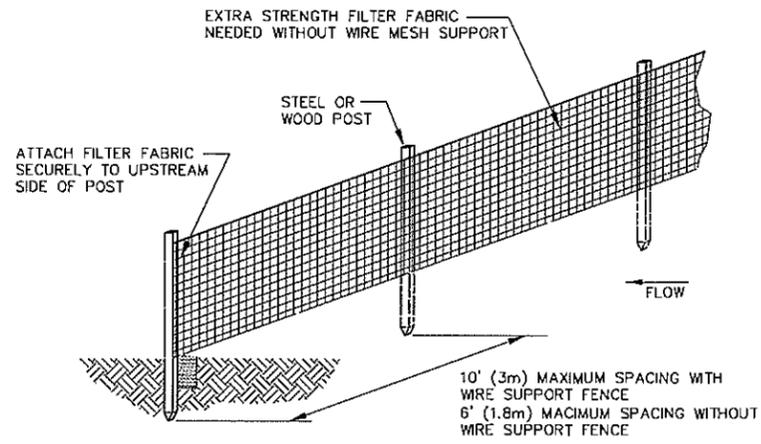
CITY OF EDMOND ENGINEERING DEPARTMENT CONSTRUCTION STANDARDS	TRENCH EXCAVATION CUT SECTIONS	STORM SEWER
		SPECIFICATION NO. 611 PI-02 PAGE 108

WILLOWOOD ADDITION
CHANNEL IMPROVEMENT
CITY OF EDMOND STANDARDS
SHEET 1
CITY OF EDMOND, OKLAHOMA
DRAINAGE UTILITY

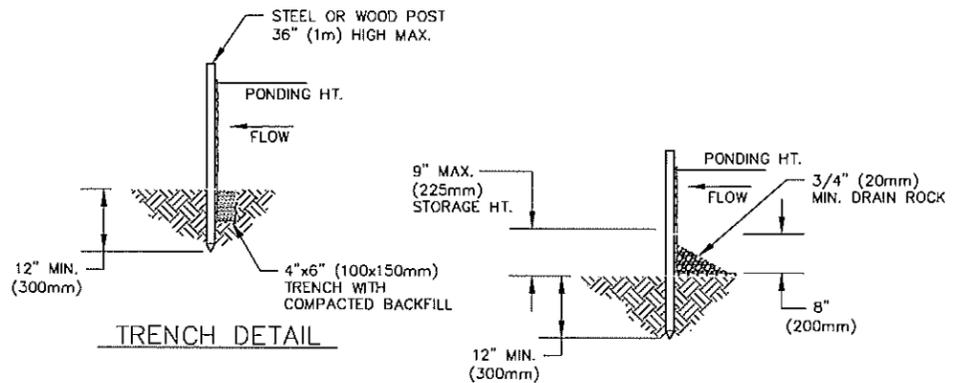
PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, P.L.C.
1437 S. Boulder Ave., Suite. 1060 Tulsa, OK 74119 (918) 392-5620

REVISION	BY	DATE	PLAN SCALE	DRAWN	MBA	6/08	REVIEWED BY:
				DESIGNED	WTM	6/08	
				CHECKED	JKM	6/08	
			PROFILE SCALE	FIELD MNGR.			
			HORIZONTAL:	SECT. MNGR.			
			VERTICAL:	PROJ. MNGR.			
				RECOMMENDED			
				DEPUTY DIRECTOR			DIRECTOR OF ENGINEERING
			FILE:	DRAWING:			DATE: 2/09

5:\07EDM01\DRAWINGS\STANDARDS-1.DWG



10' (3m) MAXIMUM SPACING WITH WIRE SUPPORT FENCE
6' (1.8m) MAXIMUM SPACING WITHOUT WIRE SUPPORT FENCE



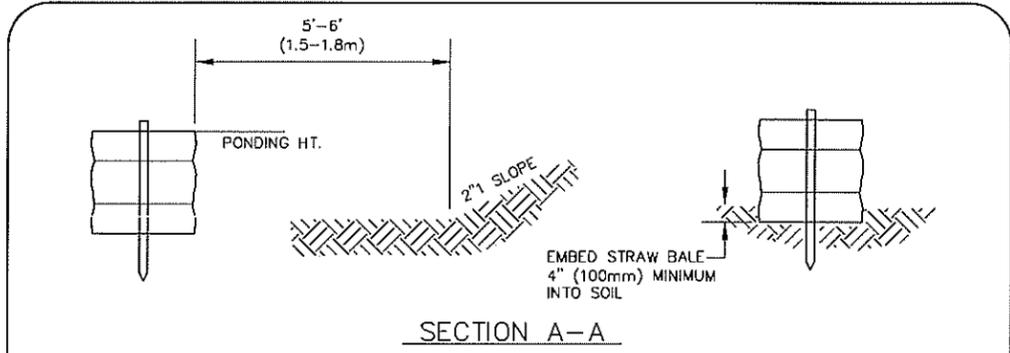
INSTALLATION WITHOUT TRENCHING

- NOTE
1. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.
 2. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY. 9" (225mm) MAXIMUM RECOMMENDED STORAGE HEIGHT.
 3. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.

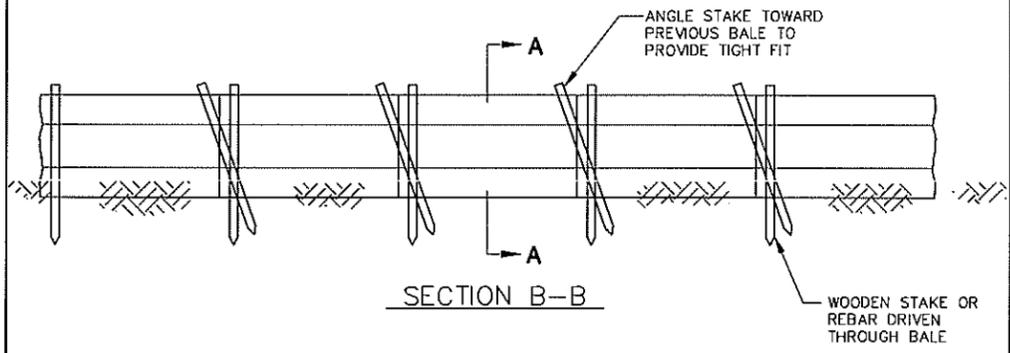
REVISIONS	NO.	DATE	ITEM CHANGED

CITY OF EDMOND
ENGINEERING DEPARTMENT
CONSTRUCTION STANDARDS

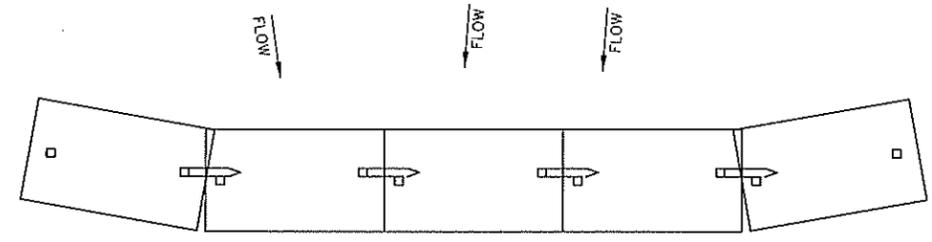
SILT FENCE
SPECIFICATION NO.
EC-03 PAGE 156



SECTION A-A



SECTION B-B



PLAN

- NOTE
1. THE STRAW BALES SHALL BE PLACED ON SLOPE CONTOUR.
 2. BALES TO BE PLACED IN A ROW WITH THE ENDS TIGHTLY ABUTTING.
 3. KEY IN BALES TO PREVENT EROSION OR FLOW UNDER BALES.

REVISIONS	NO.	DATE	ITEM CHANGED

CITY OF EDMOND
ENGINEERING DEPARTMENT
CONSTRUCTION STANDARDS

STRAW BALE DIKE
SPECIFICATION NO.
EC-02 PAGE 155

E:\07EDM01\DRAWINGS\STANDARDS-3.DWG

**WILLOWOOD ADDITION
CHANNEL IMPROVEMENT
CITY OF EDMOND STANDARDS
SHEET 3**

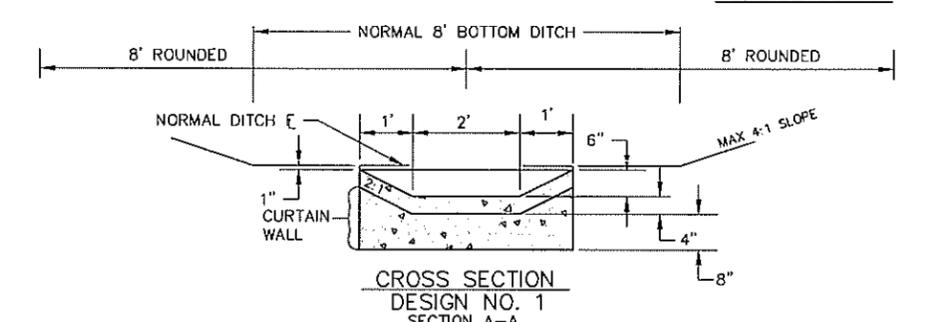
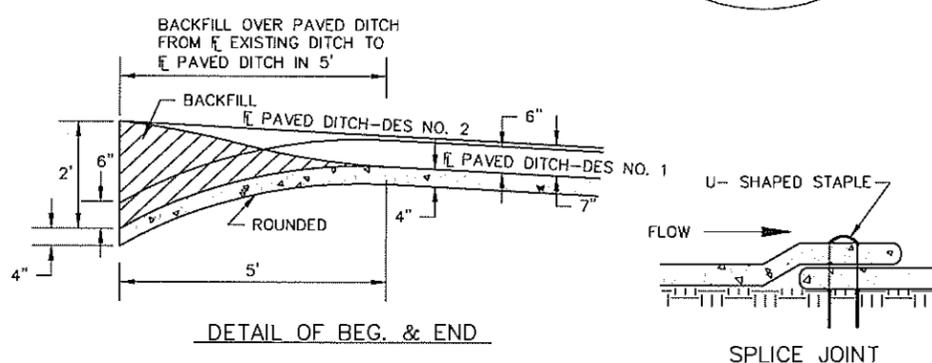
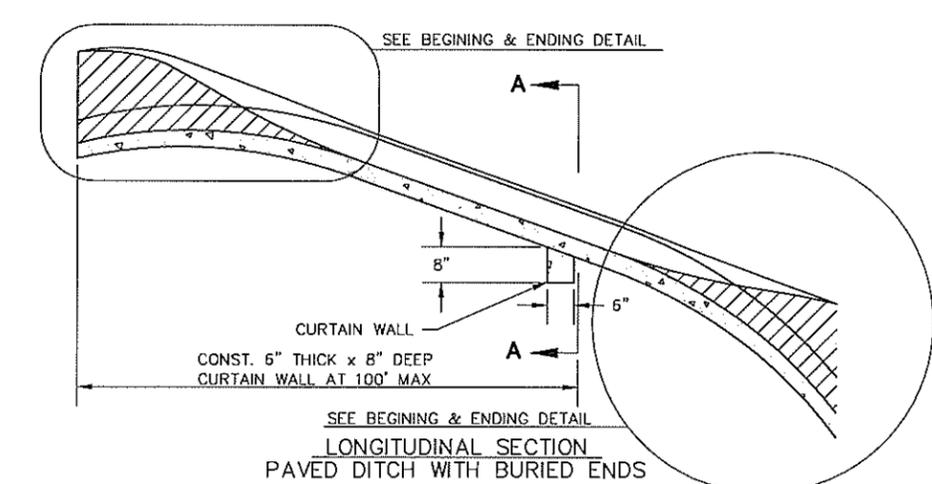
**CITY OF EDMOND, OKLAHOMA
DRAINAGE UTILITY**

PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, P.L.C.
1437 S. Boulder Ave., Suite. 1080 Tulsa, OK 74119 (918) 392-5620

REVISION	BY	DATE	PLAN SCALE	DRAWN	MBA	6/08	DESIGNED	WTM	6/08	CHECKED	JKM	6/08	PROFILE SCALE	FIELD MNGR.	HORIZONTAL:	SECT. MNGR.	PROJ. MNGR.	RECOMMENDED	DEPUTY DIRECTOR	DIRECTOR OF ENGINEERING	

FILE: DRAWING: DATE: 2/09
ATLAS PAGE NO. SHEET 36 OF 37 SHEETS

S:\07EDM01\DRAWINGS\STORM\STANDARDS-1.DWG

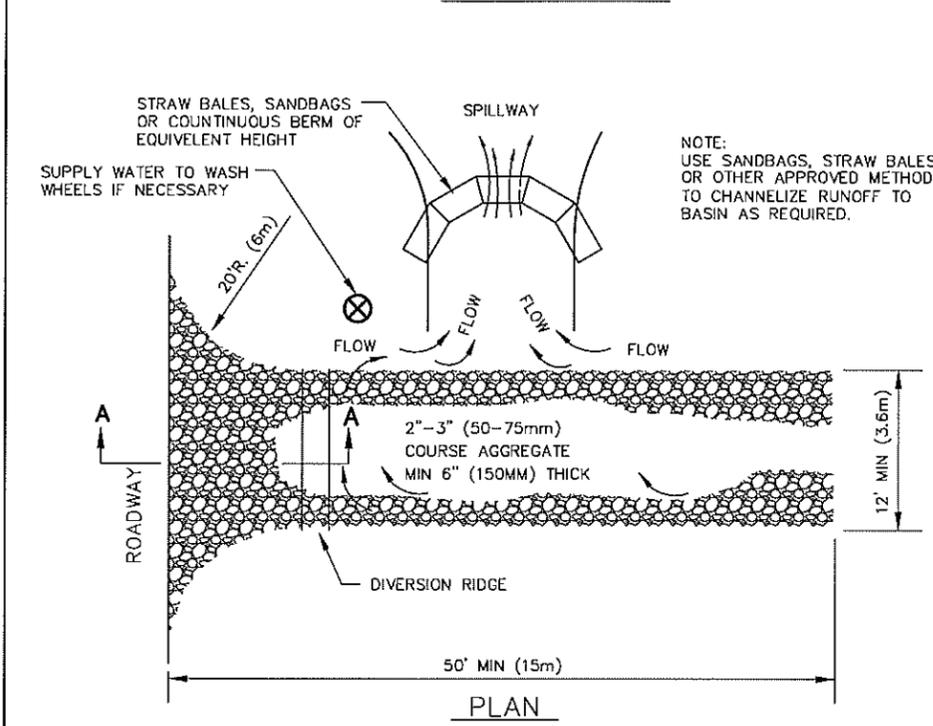
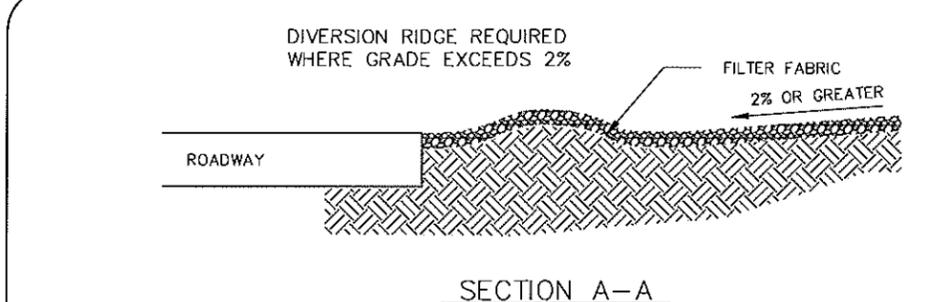


REVISIONS	NO.	DATE	ITEM CHANGED

CITY OF EDMOND
ENGINEERING DEPARTMENT
CONSTRUCTION STANDARDS

SECTION WITH BURIED ENDS

STORM SEWER
SPECIFICATION NO. 511
PD-04 PAGE 144



NOTES:
1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

REVISIONS	NO.	DATE	ITEM CHANGED

CITY OF EDMOND
ENGINEERING DEPARTMENT
CONSTRUCTION STANDARDS

TEMP. GRAVEL CONSTRUCTION ENTRANCE

STORM SEWER
SPECIFICATION NO.
EC-01 PAGE 154

WILLOWOOD ADDITION CHANNEL IMPROVEMENT
CITY OF EDMOND STANDARDS SHEET 4
CITY OF EDMOND, OKLAHOMA DRAINAGE UTILITY

PLANS AND ESTIMATES PREPARED BY:
Meshek & Associates, P.L.C.
1437 S. Boulder Ave., Suite 1080 Tulsa, OK 74110 (918) 392-5620

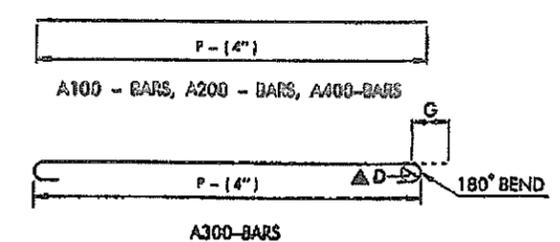
REVISION	BY	DATE	PLAN SCALE	DRAWN	MBA	2/09	DESIGNED	WTM	2/09	CHECKED	JKM	2/09	PROFILE SCALE	FIELD MNGR.	HORIZONTAL:	SECT. MNGR.	PROJ. MNGR.	RECOMMENDED	DEPUTY DIRECTOR	DIRECTOR OF ENGINEERING	

FILE: DRAWING: DATE: 2/09
ATLAS PAGE NO. SHEET 37 OF 37 SHEETS

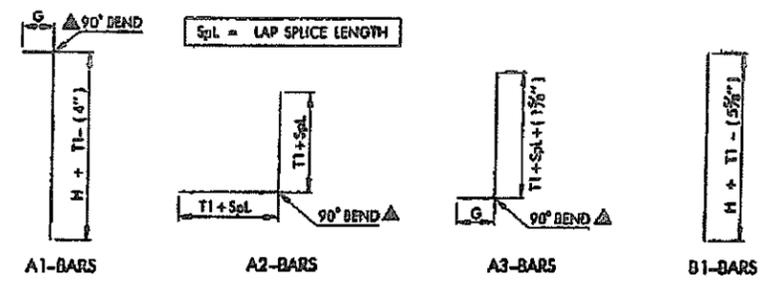
DATA TABLE - ONE CELL REINFORCED CONCRETE BOX

DESIGN NUMBER	FILL	SPAN	HEIGHT	AREA SQ. FT.	DIMENSIONS					REINFORCING STEEL																				CLASS A CONCRETE C.Y./L.F.	REINF. STEEL LBS./L.F.	DESIGN NUMBER										
					T1	T1+1	T2	V	P	A1-BARS			A2-BARS			A3-BARS			B1-BARS			C1-BARS			A100-BARS			A200-BARS					A300-BARS			A400-BARS						
					(in.)	(in.)	(in.)	(ft.)	(ft.)	SIZE (#)	SPC. (in.)	L (ft.)	SIZE (#)	SPC. (in.)	L (ft.)	SIZE (#)	SPC. (in.)	L (ft.)	SIZE (#)	SPC. (in.)	L (ft.)	SIZE (#)	SPC. (in.)	NO.	SIZE (#)	SPC. (in.)	L (ft.)	SIZE (#)	SPC. (in.)				L (ft.)	SIZE (#)	SPC. (in.)	L (ft.)	SIZE (#)	SPC. (in.)	L (ft.)	SIZE (#)	SPC. (in.)	L (ft.)
55	18' < to 20'	8'	3'	24	14	15	10	5.42	9.67	5	6	4.67	5	6	6.67	4	6	3.64	4	6	3.70	4	18	44	7	6	9.33	8	6	9.33	5	6	10.50	5	6	9.33	1.051	224.601	55			
56			4'	32	15	16	10	6.58	9.67	5	6	5.75	5	6	6.83	4	6	3.72	4	6	4.78	4	18	48	8	7	9.33	8	6	9.33	5	6	10.50	5	6	9.33	1.172	240.219	56			
57			5'	40	15	16	10	7.58	9.67	5	6	6.75	5	6	6.83	5	9	4.39	5	9	5.78	4	18	48	8	6	9.33	8	6	9.33	5	6	10.50	5	6	9.33	1.234	256.955	57			
58			6'	48	15	16	12	8.58	10.00	5	6	7.75	5	6	6.83	4	7	3.72	4	7	6.78	4	18	52	7	6	9.67	8	6	9.67	5	6	10.83	5	6	9.67	1.401	252.431	58			
59			7'	56	15	16	12	9.58	10.00	5	6	8.75	5	6	6.83	4	7	3.72	4	7	7.78	4	18	56	7	6	9.67	8	6	9.67	5	6	10.83	5	6	9.67	1.475	261.529	59			
60			8'	64	15	16	12	10.58	10.00	5	6	9.75	5	6	6.83	4	8	3.72	4	8	8.78	4	18	56	7	6	9.67	8	6	9.67	5	6	10.83	5	6	9.67	1.549	264.459	60			
61			3'-10'	10'	4'	40	12	13	11	6.08	11.83	6	6	5.67	6	6	7.67	5	9	4.14	5	9	4.33	4	18	56	6	6	11.50	7	6	11.50	5	6	12.67	5	6	11.50	1.184	272.444	61	
62					5'	50	12	13	10	7.08	11.67	5	6	6.50	5	6	6.33	4	6	3.47	4	6	5.33	4	18	56	6	6	11.33	7	6	11.33	5	6	12.50	5	6	11.33	1.209	243.979	62	
63					6'	60	12	13	12	8.08	12.00	5	6	7.50	5	6	6.33	4	6	3.47	4	6	6.33	4	18	60	6	6	11.67	7	6	11.67	5	6	12.83	5	6	11.67	1.370	257.184	63	
64					7'	70	12	13	12	9.08	12.00	5	6	8.50	5	6	6.33	4	6	3.47	4	6	7.33	4	18	64	6	6	11.67	7	6	11.67	5	6	12.83	5	6	11.67	1.444	266.657	64	
65	8'	80			12	13	12	10.08	12.00	5	6	9.50	5	6	6.33	4	6	3.47	4	6	8.33	4	18	64	6	6	11.67	7	6	11.67	5	6	12.83	5	6	11.67	1.518	273.467	65			
66	9'	90			13	14	12	11.25	12.00	5	6	10.58	5	6	6.50	4	6	3.55	4	6	9.61	4	18	68	6	6	11.67	8	6	11.67	5	6	12.83	5	6	11.67	1.667	298.966	66			
67	10'	100			13	14	12	12.25	12.00	6	7	11.75	6	7	7.83	5	9	4.22	5	9	10.61	4	18	72	7	7	11.67	8	6	11.67	6	7	13.00	6	7	11.67	1.741	355.829	67			
68	4'	40			12	13	11	6.08	11.83	6	6	5.67	6	6	7.67	5	8	4.14	5	8	4.33	4	18	56	7	7	11.50	7	6	11.50	6	7	12.83	6	7	11.50	1.184	282.411	68			
69	5'	50			12	13	11	7.08	11.83	6	6	6.67	6	6	7.67	4	7	3.47	4	7	5.33	4	18	56	7	7	11.50	7	6	11.50	6	7	12.83	6	7	11.50	1.252	280.993	69			
70	6'	60			13	14	12	8.25	12.00	5	6	7.58	5	6	6.50	4	6	3.55	4	6	6.61	4	18	60	7	6	11.67	8	6	11.67	5	6	12.83	5	6	11.67	1.444	285.794	70			
71	7'	70	13	14	12	9.25	12.00	5	6	8.58	5	6	6.50	4	6	3.55	4	6	7.61	4	18	64	7	6	11.67	8	6	11.67	5	6	12.83	5	6	11.67	1.519	295.267	71					
72	8'	80	14	15	12	10.42	12.00	5	6	9.67	5	6	6.67	4	6	3.64	4	6	8.70	4	18	64	7	6	11.67	8	6	11.67	5	6	12.83	5	6	11.67	1.667	303.536	72					
73	9'	90	14	15	12	11.42	12.00	5	6	10.67	5	6	6.67	4	6	3.64	4	6	9.70	4	18	68	7	6	11.67	8	6	11.67	5	6	12.83	5	6	11.67	1.741	313.009	73					
74	10'	100	14	15	12	12.42	12.00	6	6	11.83	6	6	8.00	4	6	3.64	4	6	10.70	4	18	72	7	6	11.67	9	6	11.67	6	6	13.00	6	6	11.67	1.815	404.812	74					
75	4'	40	13	14	12	6.25	12.00	6	6	5.75	6	6	7.83	5	8	4.22	5	8	4.61	4	18	56	7	6	11.67	8	6	11.67	6	6	13.00	6	6	11.67	1.296	329.365	75					
76	5'	50	14	15	11	7.42	11.83	6	7	6.83	6	7	8.00	5	8	4.30	5	8	5.70	4	18	56	7	6	11.50	8	6	11.50	6	7	12.83	6	7	11.50	1.399	315.180	76					
77	6'	60	14	15	12	8.42	12.00	6	8	7.83	6	8	8.00	4	6	3.64	4	6	6.70	4	18	60	7	6	11.67	8	6	11.67	6	8	13.00	6	8	11.67	1.519	303.779	77					
78	7'	70	14	15	12	9.42	12.00	6	8	8.83	6	8	8.00	4	6	3.64	4	6	7.70	4	18	64	7	6	11.67	8	6	11.67	6	8	13.00	6	8	11.67	1.593	313.607	78					
79	8'	80	14	15	12	10.42	12.00	5	6	9.67	5	6	6.67	4	6	3.64	4	6	8.70	4	18	64	8	7	11.67	9	6	11.67	5	6	12.83	5	6	11.67	1.667	326.296	79					
80	9'	90	14	15	12	11.42	12.00	6	7	10.83	6	7	8.00	4	6	3.64	4	6	9.70	4	18	68	8	7	11.67	9	6	11.67	6	7	13.00	6	7	11.67	1.741	373.058	80					
81	10'	100	14	15	12	12.42	12.00	6	6	11.83	6	6	8.00	4	6	3.64	4	6	10.70	4	18	72	8	7	11.67	9	6	11.67	6	6	13.00	6	6	11.67	1.815	410.624	81					
82	4'	40	15	16	12	6.58	12.00	6	6	5.92	6	6	8.17	5	7	4.39	5	7	4.78	4	18	56	8	6	11.67	9	6	11.67	6	6	13.00	6	6	11.67	1.444	368.936	82					
83	5'	50	15	16	11	7.58	11.83	6	7	6.92	6	7	8.17	5	8	4.39	5	8	5.78	4	18	56	8	6	11.50	9	6	11.50	6	7	12.83	6	7	11.50	1.471	348.036	83					
84	6'	60	15	16	12	8.58	12.00	6	8	7.92	6	8	8.17	5	8	4.39	5	8	6.78	4	18	60	8	6	11.67	9	6	11.67	6	8	13.00	6	8	11.67	1.592	343.872	84					
85	7'	70	15	16	12	9.58	12.00	6	7	8.92	6	7	8.17	5	8	4.39	5	8	7.78	4	18	64	8	6	11.67	9	6	11.67	6	7	13.00	6	7	11.67	1.667	372.769	85					
86	8'	80	15	16	12	10.58	12.00	6	7	9.92	6	7	8.17	4	6	3.72	4	6	8.78	4	18	64	8	6	11.67	9	6	11.67	6	7	13.00	6	7	11.67	1.741	373.071	86					
87	9'	90	15	16	12	11.58	12.00	6	6	10.92	6	6	8.17	4	6	3.72	4	6	9.78	4	18	68	8	6	11.67	9	6	11.67	6	6	13.00	6	6	11.67	1.815	410.011	87					
88	10'	100	16	17	12	12.75	12.00	6	6	12.00	6	6	8.33	4	6	3.80	4	6	10.86	4	18	72	8	6	11.67	9	6	11.67	6	6	13.00	6	6	11.67	1.963	423.211	88					
89	4'	40	16	17	12	6.75	12.00	6	6	6.00	6	6	8.33	5	7	4.47	5	7	4.86	4	18	56	8	6	11.67	9	6	11.67	6	6	13.00	6	6	11.67	1.519	370.991	89					
90	5'	50	16	17	12	7.75	12.00	6	6	7.00	6	6	8.33	5	8	4.47	5	8	5.86	4	18	56	9	6	11.67	9	6	11.67	6	6	13.00	6	6	11.67	1.593	392.957	90					
91	6'	60	16	17	12	8.75	12.00	6	8	8.00	6	8	8.33	5	8	4.47	5	8	6.86	4	18	60	9	6	11.67	9	6	11.67	6	8	13.00	6	8	11.67	1.667	362.441	91					
92	7'	70	17	18	12	9.92	12.00	6	7	9.08	6	7	8.50	5	8	4.55	5	8	7.95	4	18	64	9	6	11.67	9	6	11.67	6	7	13.00	6	7	11.67	1.815	393.313	92					
93	8'	80	17	18	12	10.92	12.00	6	7	10.08	6	7	8.50	4	6	3.89	4	6	8.95	4	18	64	9	6	11.67	9	6	11.67	6	7	13.00	6	7	11.67	1.889	393.455	93					
94	9'	90	17	18	12	11.92	12.00	6	6	11.08	6	6	8.50	4	6	3.89	4	6																								

DESCRIPTION	REVISIONS	DATE
DESIGNED BY: WALTER 1999 SPEC, R-54CE		1st 7/99
BY: LARRY D. LARSON, DRA/VALDES		1st 8/00

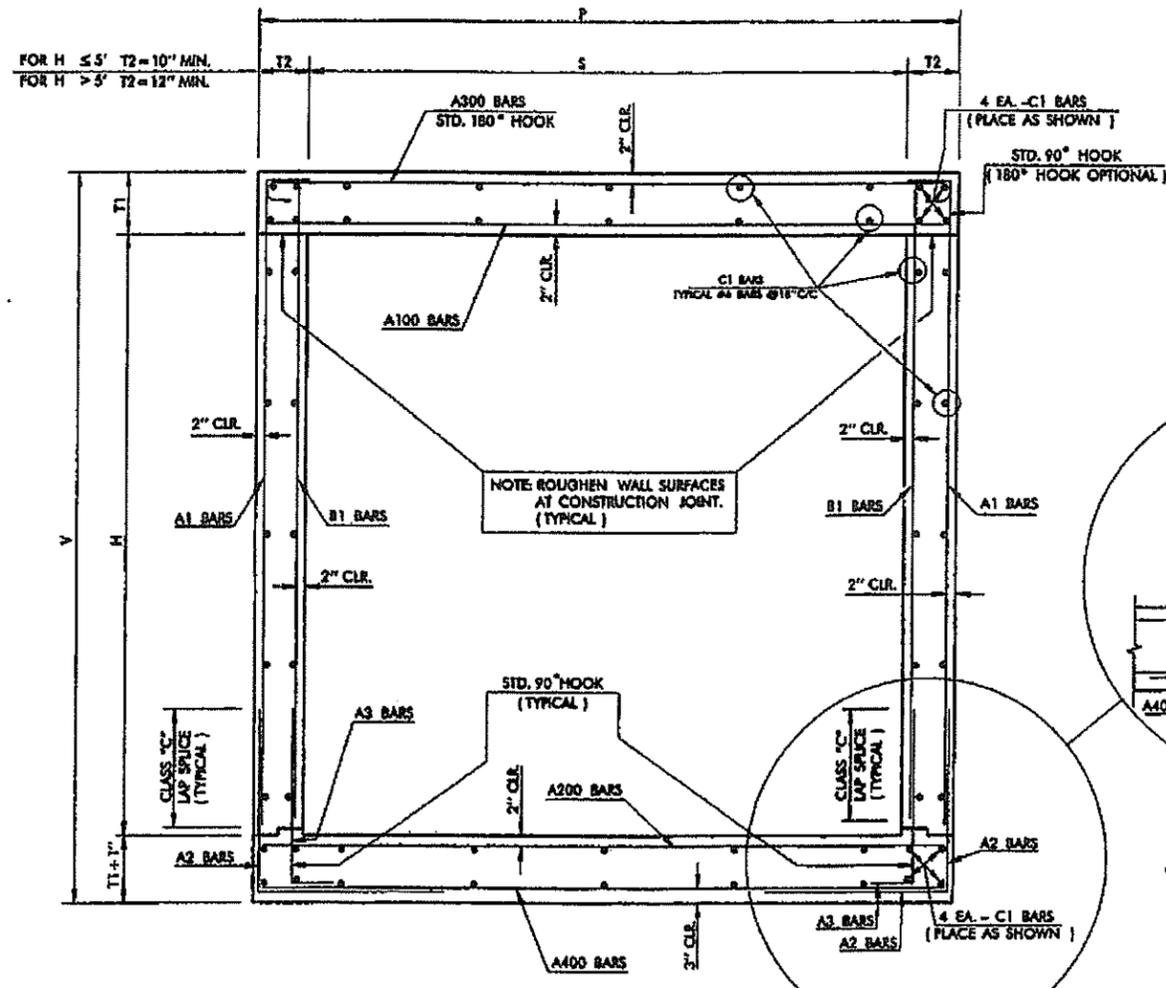


▲ MIN. D = 6d FOR #3 THROUGH #8 STEEL
 ▲ MIN. D = 8d FOR #9 THROUGH #11 STEEL
 ▲ MIN. D = 10d FOR #14 AND #18 STEEL
 WHERE d = NOMINAL STEEL DIAMETER

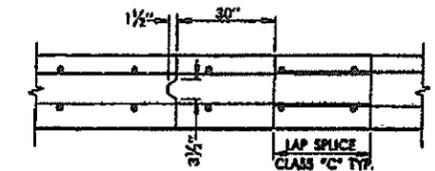


BAR NO.	DIAM. D	LAP SPlice LENGTH	ACI STANDARD HOOKS	
		CLASS "C"	160° HOOKS	90° HOOKS
#3	2 1/4"	15"	5"	6"
#4	3"	20"	6"	8"
#5	3 1/2"	24"	7"	10"
#6	4 1/4"	34"	8"	12"
#7	5 1/4"	46"	10"	14"
#8	6"	60"	11"	16"
#9	9"	75"	15"	19"
#10	10"	95"	17"	22"
#11	11"	117"	19"	24"

CLASS "C" TENSION LAP SPICES ARE BASED ON 1.7 x d (DEVELOPMENT LENGTH), AASHTO R.32
 STANDARD HOOKS ARE BASED ON CRITERIA SET BY THE CONCRETE REINFORCING STEEL INSTITUTE.

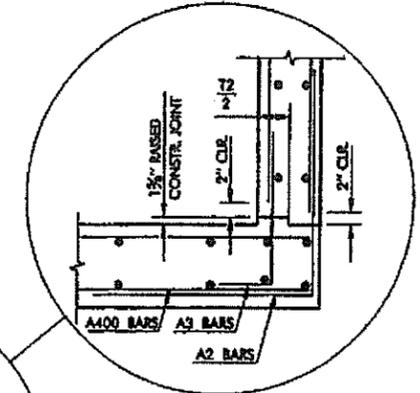


TYPICAL SECTION
 SINGLE CELL REINFORCED CONCRETE BOX CULVERT



THE MAXIMUM SPACING OF THE CONSTRUCTION JOINT SHALL BE 100'-0" LONGITUDINAL REINFORCING STEEL SHALL EXTEND THROUGH THE JOINT A MINIMUM OF 30" AND THE LONGITUDINAL STEEL IN THE ADJOINING SECTION SHALL BE LAPPED WITH A CLASS C SPICE.

WHEN NO CONSTRUCTION JOINTS ARE INDICATED ON THE PLANS, THE CONSTRUCTION JOINT MAY BE USED WHEN THE BARREL LENGTH EXCEEDS 60 FEET.



DESIGN DATA	
CONCRETE (CLASS A)	f'c = 3 KSI
REINFORCING STEEL	fy = 60 KSI
LOADING:	HS20
DESIGNED BASED ON LOAD FACTOR DESIGN (LFD)	

- ### GENERAL NOTES
- ALL CONSTRUCTION AND MATERIAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE 1999 ENGLISH STANDARD SPECIFICATIONS.
 - ALL CONCRETE EDGES SHALL HAVE A 1 1/2" CHAMFER UNLESS OTHERWISE SHOWN OR NOTED. ALL CHAMFER STRIPS SHALL BE SIZED LUMBER.
 - ALL REINFORCING STEEL SHALL BE GRADE 60 AND HAVE A 2" MINIMUM CLEARANCE UNLESS OTHERWISE SHOWN ON THE PLANS.
 - REINFORCING STEEL IN BOTTOM SLAB SHALL BE SUPPORTED ON BAR CHAIRS. CHAIRS SHALL BE SUPPORTED ON TIMBER PLANKS OR CLASS C CONCRETE STRIPS SPACED AT 4.0 FOOT CENTERS. THE TOP CHAIR SUPPORTS SHALL BE AT THE ELEVATION OF THE BOTTOM OF THE FOOTING.
 - REINFORCING STEEL IN THE TOP SLAB SHALL BE SUPPORTED ON SLAB SPACERS.
 - REINFORCING STEEL IN THE WALLS SHALL BE HELD IN PLACE BY METAL CHAIRS. MAXIMUM SPACING OF CHAIRS SHALL BE ON 6.0 FOOT CENTERS.
 - COST OF METAL CHAIRS, WOOD PLANKS OR CONCRETE STRIPS SHALL BE INCLUDED ON OTHER ITEMS OF WORK.
 - FOR DETAILS OF ONE CELL R.C.B. WINGS AND HEADWALLS, SEE ENGLISH ROADWAY STANDARD RC31H-1 OR STANDARD RC31H-1.
 - THE QUANTITY FOR REINFORCING STEEL DOES NOT INCLUDE LAP SPICES OF C1 BARS IN THE LENGTH OF THE BARREL. THE NUMBER OF SPICES USED IS TO BE DETERMINED BY THE CONTRACTOR. COST OF ADDITIONAL REINFORCING STEEL FOR SPICES TO BE INCLUDED IN THE BID PRICE FOR REINFORCING STEEL.

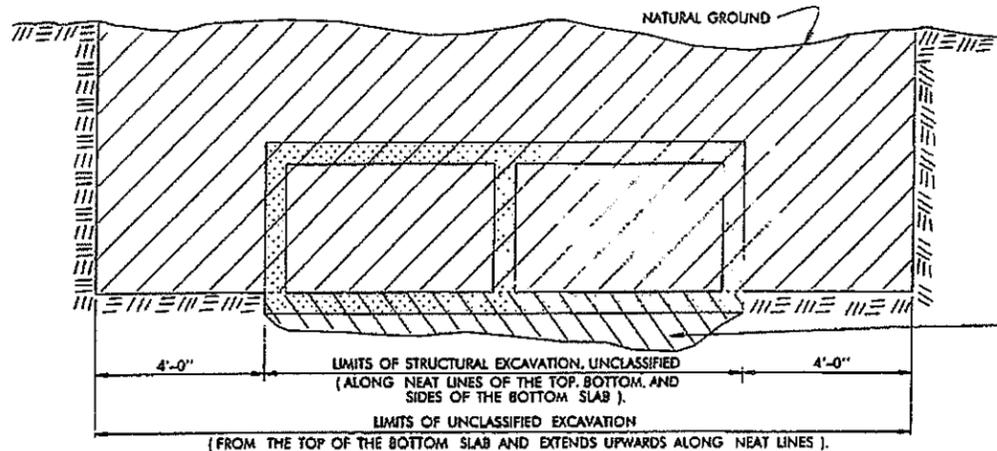
BASIS OF PAYMENT		
ITEM NO.	ITEM	UNIT
509.06 (B)	CLASS A CONCRETE	C.Y.
511.06 (A)	REINFORCING STEEL	LBS.

APPROVED BY ROADWAY ENGINEER *C. M. Alvarado* DATE *8/18/00*

OKLAHOMA DEPT. OF TRANSPORTATION
 ROADWAY STANDARD (ENGLISH)
 SINGLE CELL REINFORCED CONCRETE
 BOX CULVERTS FOR SPANS 3' TO 10'
 AND FILLS 3' TO 20'

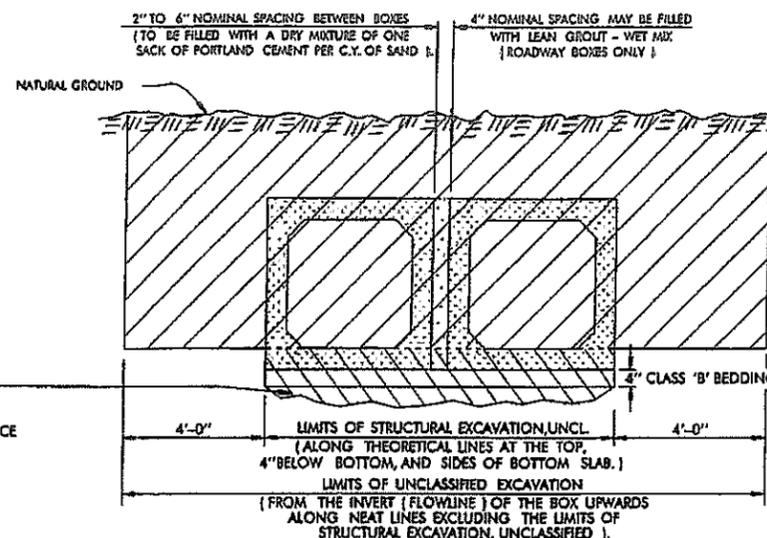
1999 SPECIFICATIONS TYPICAL SECTION RC33-1 01E
 R-54CE

DESCRIPTION	REVISIONS	DATE
FD-150E W/ENGLISH 1999 SPECS.		7/99
Revised With Unmodified Base.		10/3/07



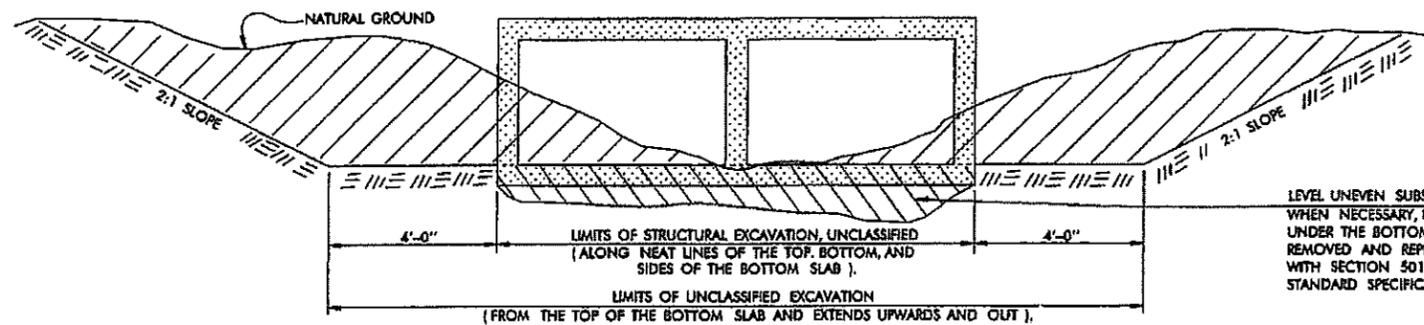
REQUIREMENTS FOR UNCLASSIFIED AND STRUCTURAL EXCAVATION OF R.C.B. STORM SEWERS

LEVEL UNEVEN SUBSURFACE AND WHEN NECESSARY, UNSTABLE MATERIAL UNDER THE BOTTOM SLAB SHALL BE REMOVED AND REPLACED IN ACCORDANCE WITH SECTION 501.05 OF THE CURRENT STANDARD SPECIFICATIONS.



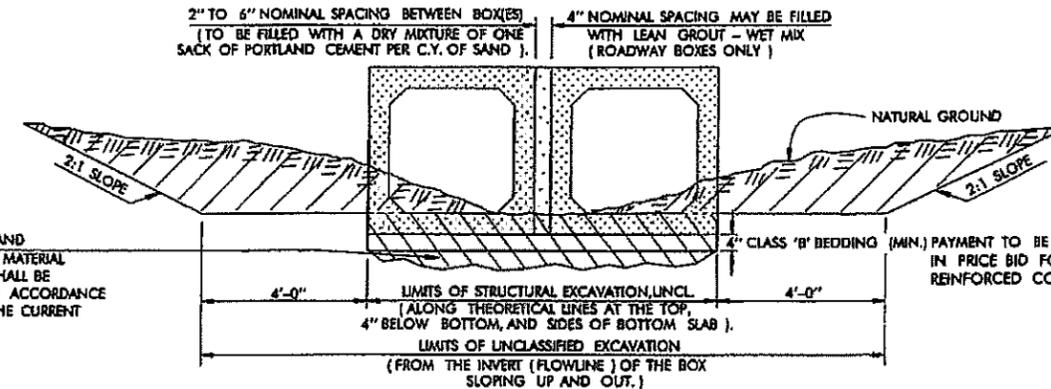
REQUIREMENTS FOR EXCAVATION OF PRECAST R.C.B. STORM SEWERS

PAYMENT TO BE INCLUDED IN PRICE BID FOR PRECAST REINFORCED CONCRETE BOX.



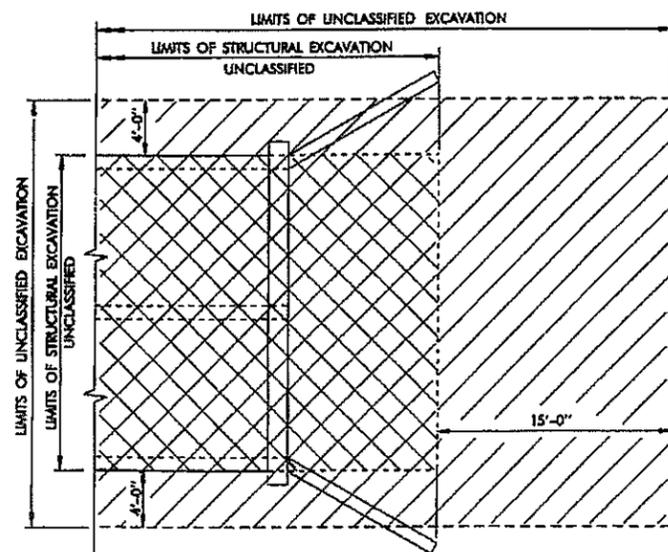
REQUIREMENTS FOR UNCLASSIFIED AND STRUCTURAL EXCAVATION OF R.C.B. CULVERTS OF ROADWAY AND BRIDGE CLASSIFICATION

LEVEL UNEVEN SUBSURFACE AND WHEN NECESSARY, UNSTABLE MATERIAL UNDER THE BOTTOM SLAB SHALL BE REMOVED AND REPLACED IN ACCORDANCE WITH SECTION 501.05 OF THE CURRENT STANDARD SPECIFICATIONS.



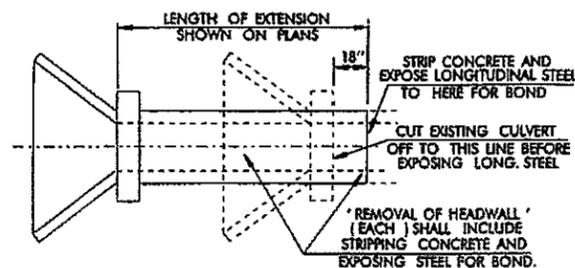
REQUIREMENTS FOR EXCAVATION OF PRECAST R.C.B. CULVERTS OF ROADWAY AND BRIDGE CLASSIFICATION.

PAYMENT TO BE INCLUDED IN PRICE BID FOR PRECAST REINFORCED CONCRETE BOX.

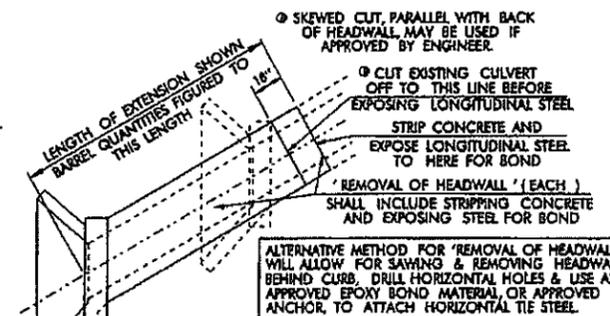


PLAN VIEW

 LIMITS OF UNCLASSIFIED EXCAVATION
 LIMITS OF STRUCTURAL EXCAVATION (UNCLASSIFIED)



ALTERNATE METHOD FOR EXTENDING 0° SKEWED BOXES



ALTERNATE METHOD FOR EXTENDING NON-0° SKEWED BOXES

GENERAL NOTES

1. PAYMENT FOR CAST-IN-PLACE REINFORCED CONCRETE BOXES WILL BE IN CUBIC YARDS OF CLASS A OR CLASS AA CONCRETE AND POUNDS OF REINFORCING STEEL, IN ACCORDANCE WITH THE PROVISIONS OF SECTION 509 & 511 OF THE 1999 ENGLISH STANDARD SPECIFICATIONS.
2. PAYMENT FOR PRECAST CONCRETE BOX CULVERTS WILL BE MADE BASED ON THE UNIT PRICES BID FOR ITEMS AND QUANTITIES OF A CAST-IN-PLACE BOX OF THE LENGTH REQUIRED AS DETERMINED BY FIELD MEASUREMENTS FOR THE CONSTRUCTION, IN ACCORDANCE WITH SECTION 508.05 OF THE 1999 ENGLISH STANDARD SPECIFICATIONS.

BASIS OF PAYMENT

ITEM NO.	ITEM	UNIT
202.06(A)	UNCLASSIFIED EXCAVATION	C. Y.
501.06(A)	STRUCTURAL EXCAVATION, UNCLASSIFIED	C. Y.

APPROVED BY ROADWAY ENGINEER *Timothy A. Regala* DATE 3/1/07

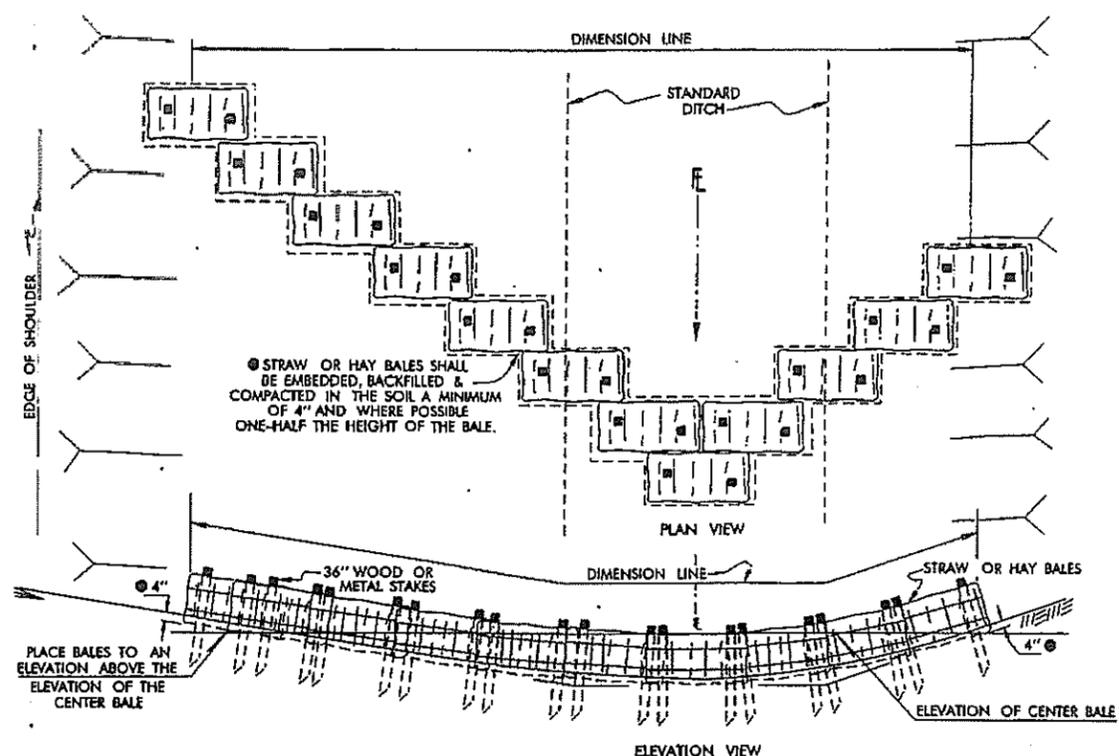
OKLAHOMA DEPT. OF TRANSPORTATION
ROADWAY STANDARD (ENGLISH)
REINFORCED CONCRETE BOX
INSTALLATION

1999 SPECIFICATIONS

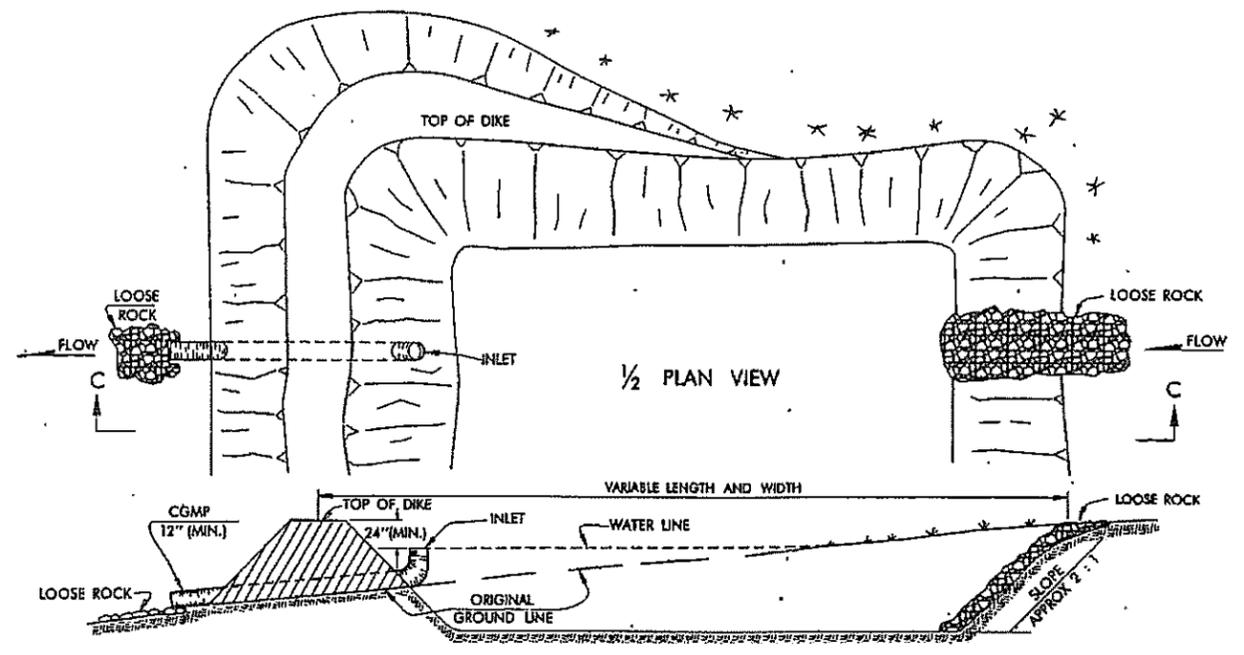
SBI-3 02E

R-75E

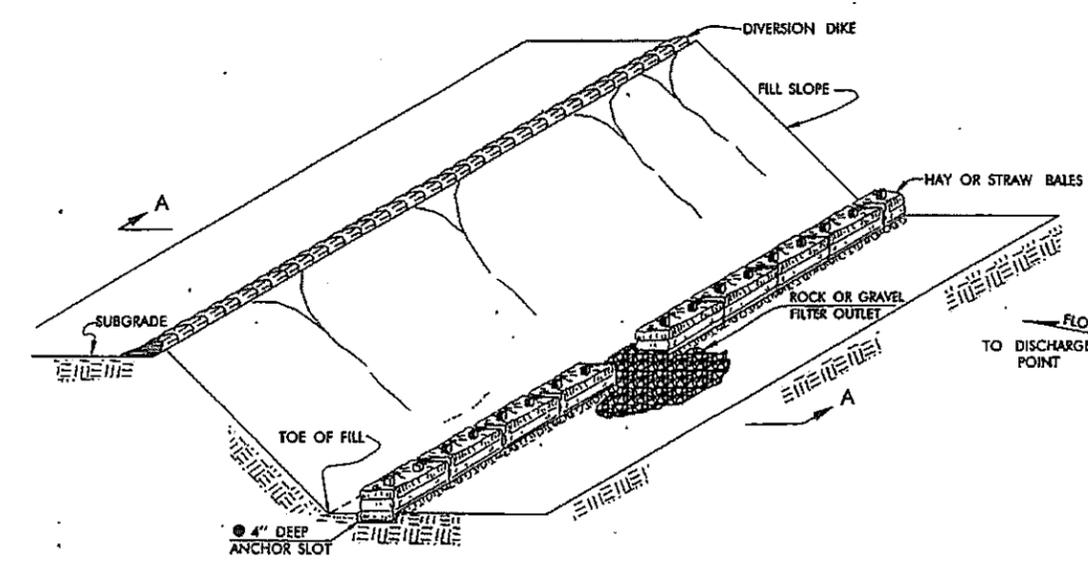
DESCRIPTION	REVISIONS	DATE
RE-ISSUE W/ENGLISH 1999 SPECS.		7/99



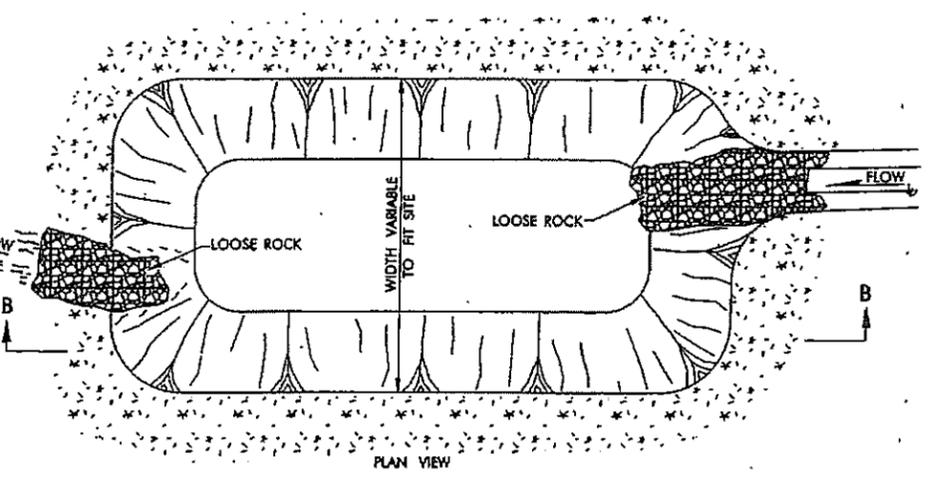
BALE BARRIER (TYPE I)



SECTION C-C
SEDIMENT BASIN (TYPE I)



SECTION A-A
BALE BARRIER (TYPE II)



SECTION B-B
SEDIMENT BASIN (TYPE II)

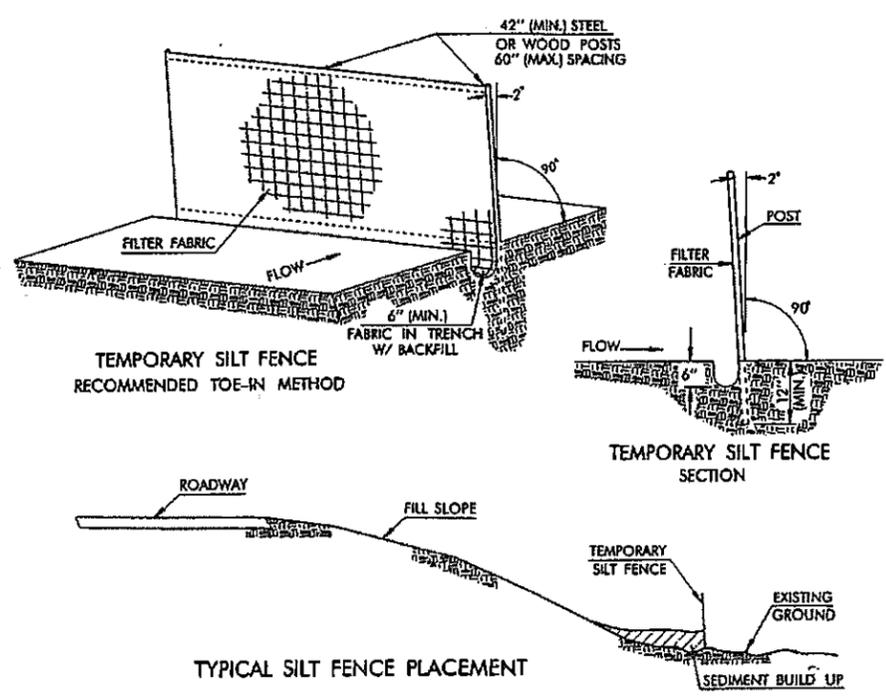
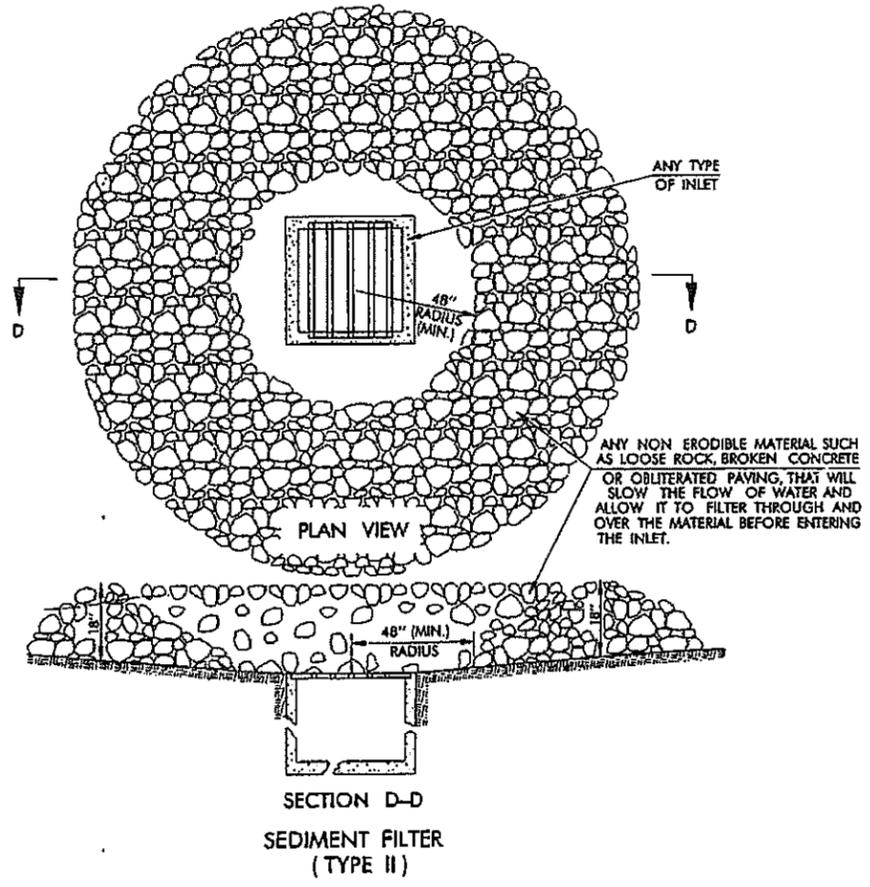
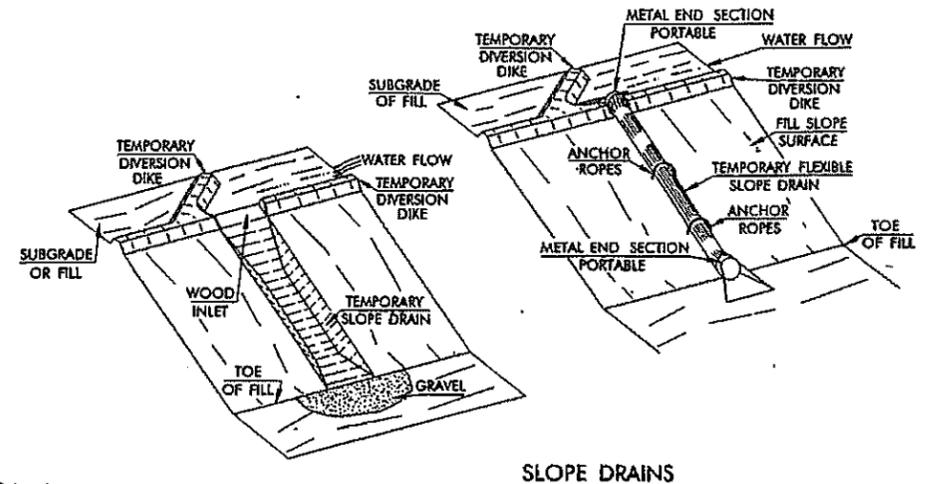
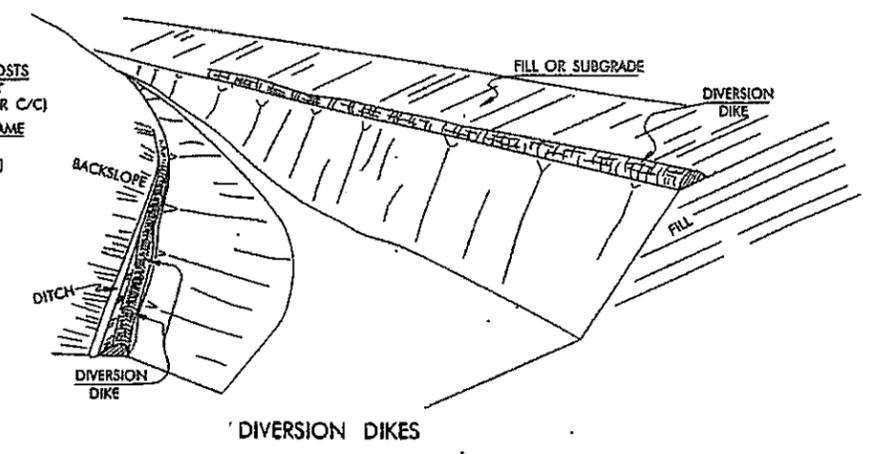
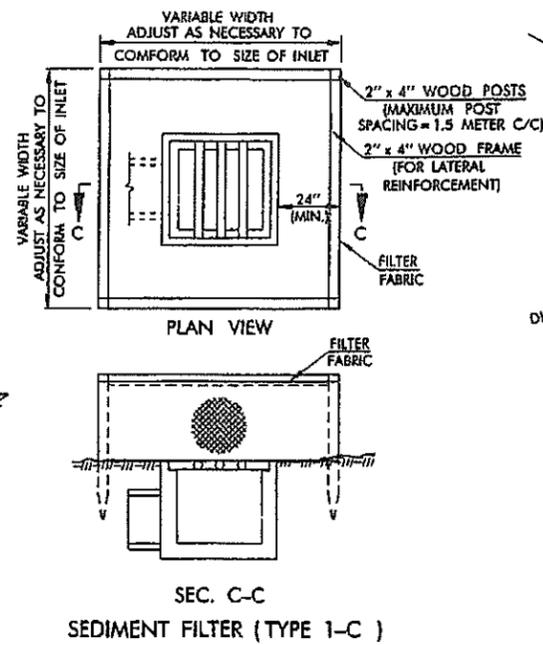
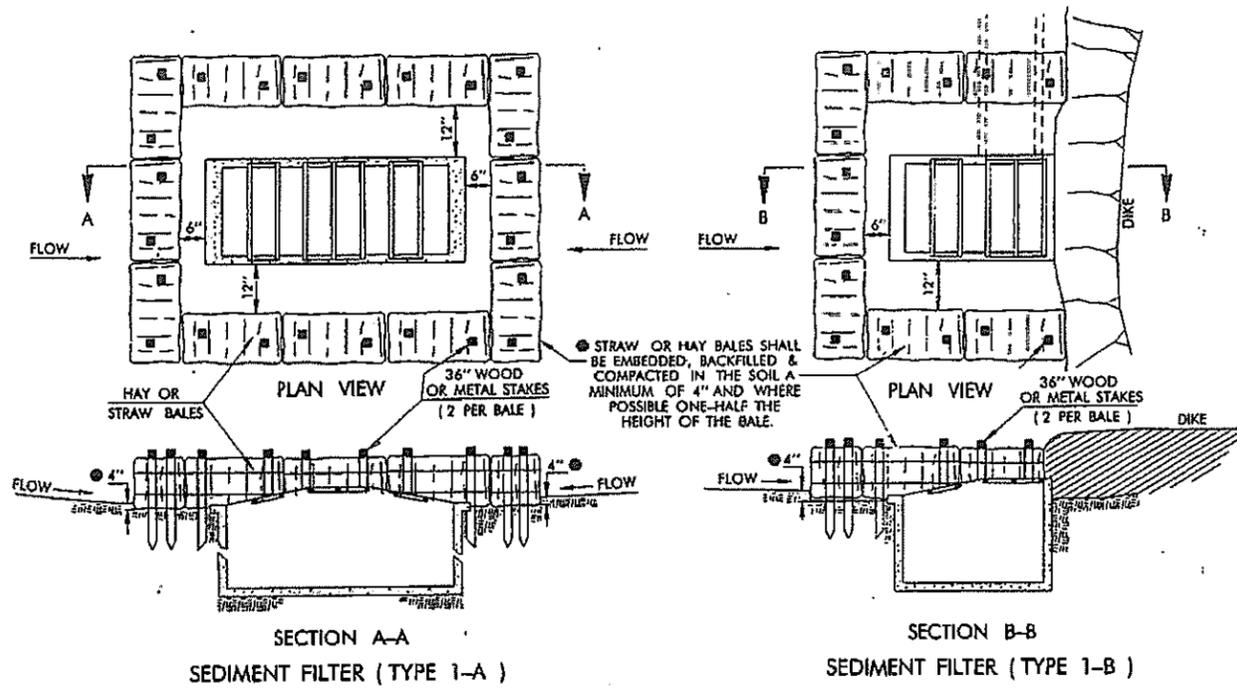
GENERAL NOTES
ALL CONSTRUCTION AND MATERIAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE 1999 ENGLISH STANDARD SPECIFICATIONS.

BASIS OF PAYMENT		
ITEM NO.	ITEM	UNIT
222.06	TEMPORARY BALE BARRIER	L.F.
224.06	TEMPORARY SEDIMENT FILTER	EA.
225.06	TEMPORARY SEDIMENT BASIN	EA.
226.06	TEMPORARY SEDIMENT REMOVAL	CU. YD.

APPROVED BY ROADWAY ENGINEER *C. M. Sankowski* DATE 9/1/99

OKLAHOMA DEPT. OF TRANSPORTATION
ROADWAY STANDARD (ENGLISH)
TEMPORARY SEDIMENT CONTROLS

DESCRIPTION	REVISIONS	DATE
RE-ISSUE W/ENGLISH 1999 SPECS. Add Type 1-C Sediment Filter		10/27/99



- GENERAL NOTES**
1. ALL CONSTRUCTION AND MATERIAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE 1999 ENGLISH STANDARD SPECIFICATIONS.
 2. COST OF TEMPORARY DIVERSION DIKES TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS OF WORK.

BASIS OF PAYMENT		
ITEM NO.	ITEM	UNIT
221.06	TEMPORARY SLOPE DRAIN	L.F.
223.06	TEMPORARY SILT FENCE	L.F.
224.06	TEMPORARY SEDIMENT FILTER	EA.
226.06	TEMPORARY SEDIMENT REMOVAL	CU. FT.

APPROVED BY ROADWAY ENGINEER *C. M. Schenk* DATE 7/1/99

OKLAHOMA DEPT. OF TRANSPORTATION
ROADWAY STANDARD (ENGLISH)
TEMPORARY SEDIMENT CONTROLS

1999 SPECIFICATIONS