

GENERAL NOTES

1. ALL ELEVATIONS SHOWN ARE BASED ON CITY OF WICHITA DATUM. (USGS-1187.4+ CITY DATUM)
 2. INTERURBAN TRAFFIC GENERATED OUTSIDE THE PROJECT AREA IS NOT TO BE CARRIED THROUGH CONSTRUCTION. LOCAL RESIDENTIAL TRAFFIC GENERATED WITHIN THE PROJECT AREA IS TO BE CARRIED THROUGH CONSTRUCTION AS FURTHER PROMULGATED BY PROJECT SPECIAL PROVISIONS.
 3. UTILITY SERVICE LINES, POLES, VALVE BOXES, METERS, ECT. ARE TO BE ADJUSTED AS NECESSARY BY OTHERS PRIOR TO CONSTRUCTION UNLESS THE PLANS SPECIFICALLY CALL FOR THEIR ADJUSTMENT BY THE CONTRACTOR OR UNLESS THE PLANS SPECIFICALLY IDENTIFY A UTILITY TO BE ADJUSTED BY ITS OWNER DURING CONSTRUCTION. EXISTING UTILITIES AND THEIR LOCATION, AS SHOWN ON THE PLANS, REPRESENT THE BEST INFORMATION OBTAINABLE FOR DESIGN. THE PLAN LOCATIONS ARE NOT GUARANTEED AND ADDITIONAL UTILITIES MAY ALSO BE ENCOUNTERED. THE CONTRACTOR WILL BE REQUIRED TO WORK AROUND EXISTING UTILITIES WITHIN THE RIGHT-OF-WAY WHICH DO NOT CONFLICT WITH PROPOSED CONSTRUCTION.
 4. RUBBLE FROM THE REMOVAL OF MISCELLANEOUS STRUCTURES AND EXCESS EXCAVATION WHICH IS TO BE WASTED SHALL BE DISPOSED OF ON SITES TO BE PROVIDED BY THE CONTRACTOR. THESE SITES SHALL BE APPROVED BY THE ENGINEER AS TO SUITABILITY, APPEARANCE AND SITE LOCATION. LOCATIONS, THAT IN THE OPINION OF THE ENGINEER, WILL LEAVE AN UNSIGHTLY APPEARANCE WILL NOT BE APPROVED.
- ALL DISPOSAL SITES MUST BE APPROVED BY THE KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT. MATERIAL EITHER STOCKPILED OR DISPOSED OF IN A FLOODPLAIN WOULD REQUIRE A KANSAS STATE BOARD OF AGRICULTURE PERMIT. ANY MATERIAL DUMPED IN WATERS OF THE UNITED STATE OR WETLANDS IS SUBJECT TO U.S. CORPS OF ENGINEERS PERMITTING REGULATIONS. ANY MATERIAL BURIED OR STOCKPILED BEYOND APPROVED CONSTRUCTION LIMITS WOULD REQUIRE ADDITIONAL ARCHAEOLOGICAL INVESTIGATIONS UNLESS BURIED IN A PREVIOUSLY APPROVED BORROW LOCATION.
5. CONTRACTOR WILL BE REQUIRED TO PROVIDE A MINIMUM ADVANCE NOTICE OF FORTY-EIGHT(48)HOURS TO UTILITY COMPANIES PRIOR TO STARTING ANY EXCAVATION AS FOLLOWS:

KANSAS ONE CALL 1-800-344-7233 OR
687-2470(LCAL WICHITA)

THE CONTRACTOR MUST NOTIFY THE FOLLOWING IN CASE OF AN EMERGENCY:

Cox Cable	262-4270 or 263-2061
Southwestern Bell Telephone	1-571-2611
Kansas Gas Service	832-3168
K&E-Electric	268-4555
Peoples Natural Gas	942-8811
City of Wichita(Water & Sewer)	268-4555

THE CONTRACTOR SHALL NOTIFY PIPELINE COMPANIES AT LEAST 24 HOURS IN ADVANCE OF ANY WORK BEING PERFORMED ACROSS AND/OR ADJACENT TO PIPELINES.

6. TREES AND SHRUBS IN PUBLIC RIGHT-OF-WAY WHICH ARE IN DIRECT CONFLICT WITH PROPOSED NEW CONSTRUCTION SHALL BE REMOVED BY THE CONTRACTOR WITH THE ENGINEERS APPROVAL. TREES AND SHRUBS WHICH ARE NOT IN DIRECT CONFLICT WITH PROPOSED NEW CONSTRUCTION SHALL BE SAVED AND PROTECTED FROM DAMAGE.

7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PRESERVING PROPERTY IRONS. THE CONTRACTOR WILL BE REQUIRED TO REESTABLISH ANY PROPERTY IRONS WHICH ARE DAMAGED OR DESTROYED BY HIS CONSTRUCTION OPERATIONS. SUCH IRONS SHALL BE REESTABLISHED BY A LICENSED LAND SURVEYOR IN ACCORDANCE WITH STATE LAWS.

8. THE CONTRACTOR SHALL GIVE ALL PROPERTY OWNERS AND/OR TENANTS OF DEVELOPED PROPERTY DIRECTLY ADJUTING THE CONSTRUCTION OF THIS PROJECT A MINIMUM OF TEN(10) DAYS ADVANCE NOTICE PRIOR TO START OF CONSTRUCTION.

9. THE CONTRACTOR SHALL ADJUST WATER VALVE BOXES, WATER METER BOXES AND FIRE HYDRANTS AS NOTED IN THE PLANS AND AS DIRECTED BY THE ENGINEER. MATERIALS, EQUIPMENT, AND LABOR REQUIRED FOR THE ADJUSTMENT OF WATER METER AND VALVE BOXES AND FIRE HYDRANTS WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED SUBSIDIARY TO OTHER ITEMS OF WORK IN THE CONTRACT. THE WATER DEPARTMENT SHALL FIELD LOCATE WATER VALVES ONE TIME DURING CONSTRUCTION WHEN REQUESTED BY THE CONTRACTOR. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO PRESERVE SUCH FIELD LOCATIONS DURING THE CONSTRUCTION PROCESS. WATER VALVES, WATER VALVE BOXES, OR FIRE HYDRANTS DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED BY THE CONTRACTOR AT HIS OWN EXPENSE.

10. THE CONTRACTOR MUST EXAMINE THE CONSTRUCTION SITE PRIOR TO BIDDING AND BE SATISFIED AS TO THE WORK SHOWN FOR COMPLETION. AFTER BIDS HAVE BEEN RECEIVED, THE CONTRACTOR SHALL NOT ASSERT THAT THERE WAS A MISUNDERSTANDING OF THE QUANTITIES OF WORK OR OF THE NATURE FOR THE WORK TO BE COMPLETED.

11. CONTRACTOR SHALL NOT START WORK ON THE PROJECT UNTIL THE PROJECT INSPECTOR IS ASSIGNED TO THE PROJECT AND IS PRESENT ON THE SITE. ANY WORK DONE WITHOUT INSPECTION WILL BE REQUIRED TO BE UNCOVERED FOR INSPECTION.

12. THE CONTRACTOR SHALL FERTILIZE, SEED, AND MULCH ALL AREAS WHICH ARE DISTURBED AS A RESULT OF THIS PROJECT. ALL COST TO BE SUBSIDIARY TO "SITE RESTORATION".

13. THE CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL IN ACCORDANCE WITH THE CURRENT ADDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) TO ENSURE A SAFE WORK ZONE FOR THE TRAVELING PUBLIC.

14. PAVEMENT REMOVAL AND/OR REPLACEMENT WILL BE MEASURED AND PAID FOR ON THE SQUARE FOOT BASIS REGARDLESS OF PAVEMENT TYPE AND/OR PAVEMENT THICKNESS. MINIMUM LIMITS OF SUCH PAVEMENT REMOVAL AND REPLACEMENT SHALL BE ONE FOOT BEYOND THE LIMITS OF EXCAVATION MADE FOR THE SEWER OR THE STRUCTURE, EXCEPT WHEN SUCH LIMITS OF REMOVAL ARE WITHIN THREE(3) FEET OF AN EXISTING JOINT. REMOVAL AND REPLACEMENT OF EXISTING PAVEMENT SHALL CONFORM TO THE APPLICABLE SECTIONS OF THE CITY OF WICHITA STANDARD SPECIFICATIONS.

15. ALL DRIVEWAY ENTRANCE AND CROSS ROAD PIPE WITHIN THE PROJECT LIMITS SHALL BE REMOVED BY THE CONTRACTOR UNLESS OTHERWISE NOTED ON THE PLANS. REMOVAL OF SUCH PIPES SHALL CONFORM TO THE APPLICABLE SECTION OF THE STANDARD SPECIFICATIONS.

16. ALL FENCE LOCATED WITHIN THE RIGHT-OF-WAY WILL BE REMOVED AND SALVAGED BY THE CONTRACTOR. ALL MATERIALS SHALL BE SALVAGED FOR THE PROPERTY OWNER. FENCE OUTSIDE THE RIGHT-OF-WAY WHICH IS REMOVED FOR CONSTRUCTION SHALL BE REPAIRED IN A CONDITION EQUAL TO OR BETTER THAN THE ORIGINAL, AT NO ADDITIONAL COST TO THE OWNER, UNLESS OTHERWISE SPECIFIED ON THE PLANS. MATERIALS NOT SALVAGED BY THE PROPERTY OWNER SHALL BE DISPOSED OF BY THE CONTRACTOR.

17. CONTRACTOR SHALL GIVE PROPERTY OWNERS ADJUTING THIS PROJECT, WHOSE YARDS WILL BE LOWER THAN THE NEW FINISHED GRADE ELEVATION AT THE RIGHT-OF-WAY LINE, AN OPPORTUNITY TO UTILIZE EXCESS EXCAVATED MATERIAL FROM THE PROJECT TO REGRADE THEIR YARDS TO DRAIN TO THE NEW PAVEMENT. CONTRACTOR WILL BE REQUIRED TO DUMP AND SPREAD THE EXCESS MATERIAL AS REQUIRED BY THE SPECIFICATIONS WHEN REQUESTED BY THE PROPERTY OWNER. THE CONTRACTOR SHALL ASCERTAIN THAT A DIRT ORDER HAS BEEN PROPERLY EXECUTED BY THE PROPERTY OWNER BEFORE ANY SUCH EXCESS MATERIAL IS DELIVERED TO SUCH PROPERTIES.

18. THE CONTRACTOR SHALL ADJUST SANITARY SEWER MANHOLES AND STORM SEWER MANHOLES FOR ELEVATION AND SLOPE AS REQUIRED TO FIT PROPOSED FINISH GRADES.

19. THE CITY OF WICHITA'S DEPARTMENT OF OPERATIONS AND MAINTENANCE WILL REMOVE AND REPLACE EXISTING STREET SIGNING AT THE BEGINNING AND END OF CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE HIS ACTIVITIES WITH THE DEPARTMENT OF OPERATIONS AND MAINTENANCE FOR TEMPORARY TRAFFIC SIGNALIZATION AND REMOVAL OF INSTALLATION OF STREET SIGNING.

20. ALL CONSTRUCTION AND MATERIALS, UNLESS OTHERWISE NOTED, TO COMPLY WITH CITY OF WICHITA SPECIFICATIONS AND STANDARDS.

21. THE COST OF CONCRETE DRIVEWAY REMOVAL SHALL INCLUDE A SAW CUT OF A MINIMUM DEPTH OF ONE FOURTH OF THE PAVEMENT THICKNESS. THE SAW CUT SHALL BE AT THE PROPERTY LINE OR THE NEAREST JOINT. THE EXACT LOCATION SHALL BE DETERMINED BY THE FIELD ENGINEER.

DRIVE & PARKING LOT IMPROVEMENTS

FOR SOUTHLAKES PARK, LOCATED EAST OF MERIDIAN AVE., BETWEEN 47TH ST. S. & 55TH ST. S., WICHITA, KANSAS

PROJECT NO.: 472 83603 (785028),

PARKS AND RECREATION DEPARTMENT

CITY OF WICHITA, KANSAS

MIKE LINDEBAK, P.E., CITY ENGINEER

JULY 2002

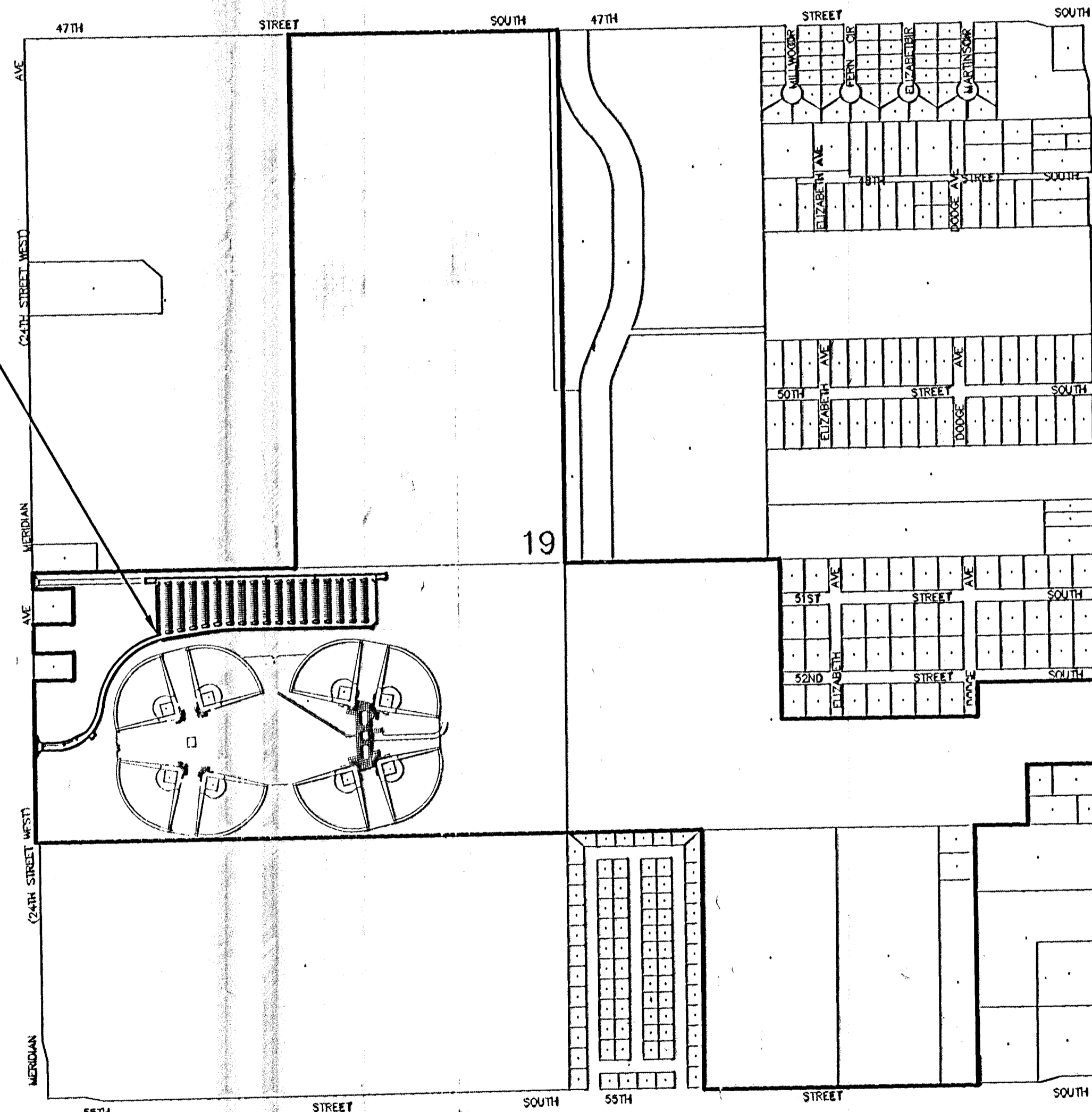
INDEX OF SHEETS

1. Title Sheet
2. Site Plan
3. Typical 24" Pavement Detail
- 4.-5. 24" Drive Paving Plans
6. Paking Lot Site Grading Plan
7. Parking Lot Control Plan No. 1
8. Parking Lot Control Plan No. 2
9. CIP Details
10. Area Inlet Detail
11. Pavement Marking Plan
12. Pavement Marking Details
13. Irrigation Sleeve Layout Plan
- 14.-16. 24" Drive Cross Sections

PROPOSED IMPROVEMENTS

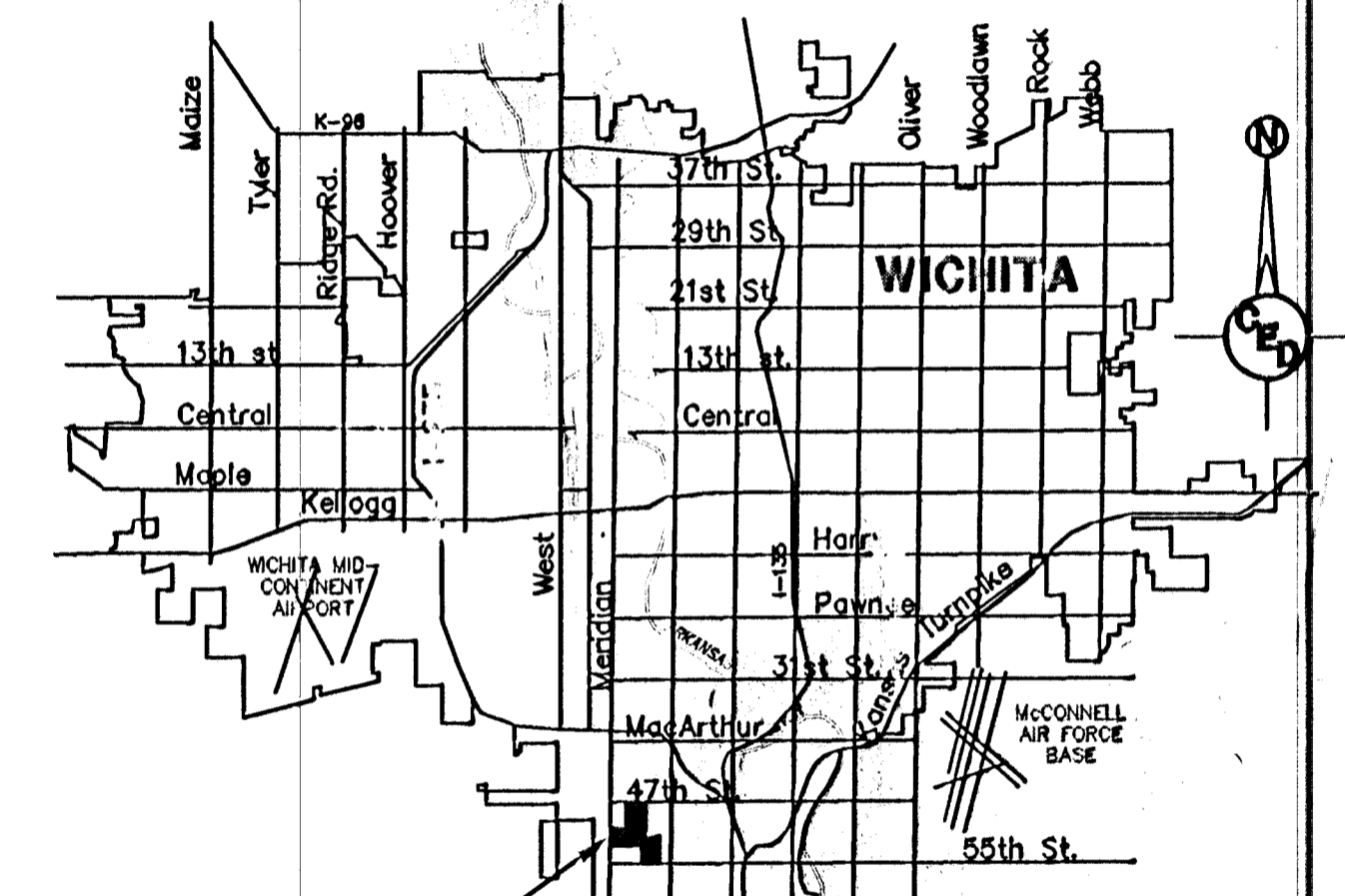
SURVEY CONTROL MONUMENTS

CM #1	N-20000.000 E-20000.000	1/2" Rebar W/ Savoy Cap
CM #2	N-19970.731 E-20778.736	1/2" Rebar W/ Savoy Cap
CM #3	N-19284.293 E-20225.224	1/2" Rebar W/ Savoy Cap
CM #4	N-19768.532 E-21362.240	1/2" Rebar W/ Savoy Cap
CM #5	N-20108.150 E-21914.570	1/2" Rebar W/ Savoy Cap



BENCHMARK #1:
City of Wichita Std. Disg 30' W. & 44' N.
of Intersection of Meridian & 51st St. S.
Elev.=88.62(City Datum)

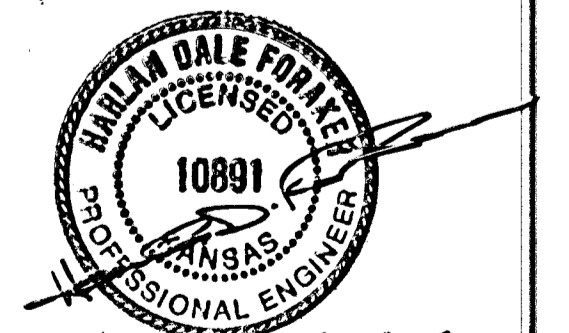
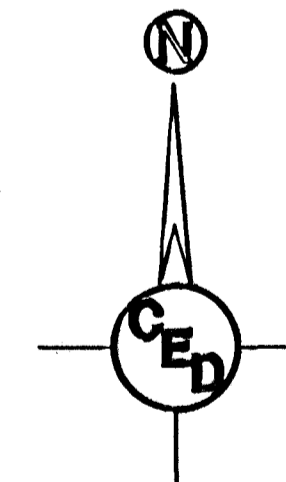
BENCHMARK #2:
"□" Cut Center of Walk 9' S. of North
Edge of Walk Between Ball Diamonds.
Elev.=87.52(City Datum)



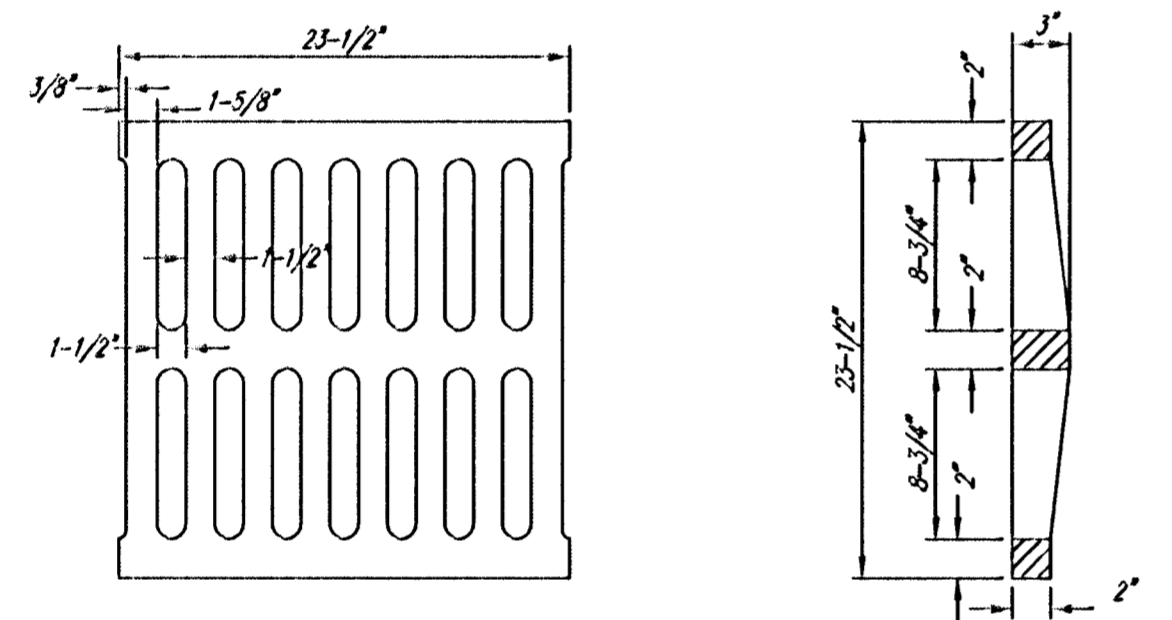
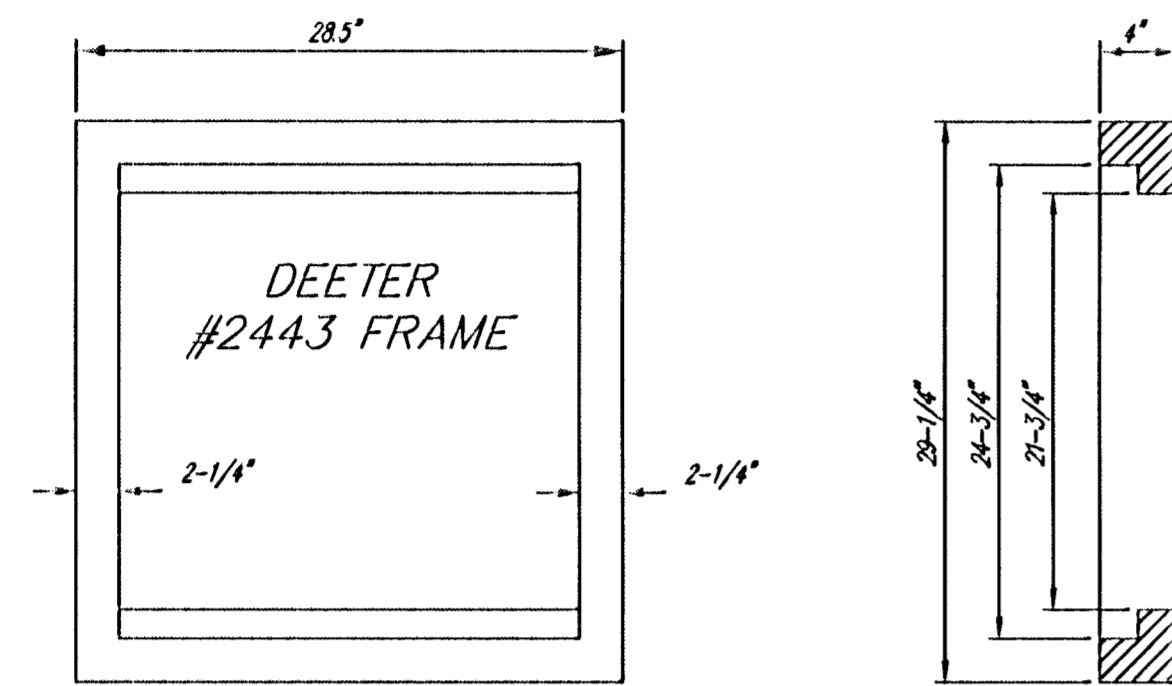
PROJECT LOCATION

LOCATION MAP

PROJECT LOCATED IN THE
S.W.1/4, SEC. 19, T.28S., R.1E,
SEDGWICK COUNTY, KANSAS



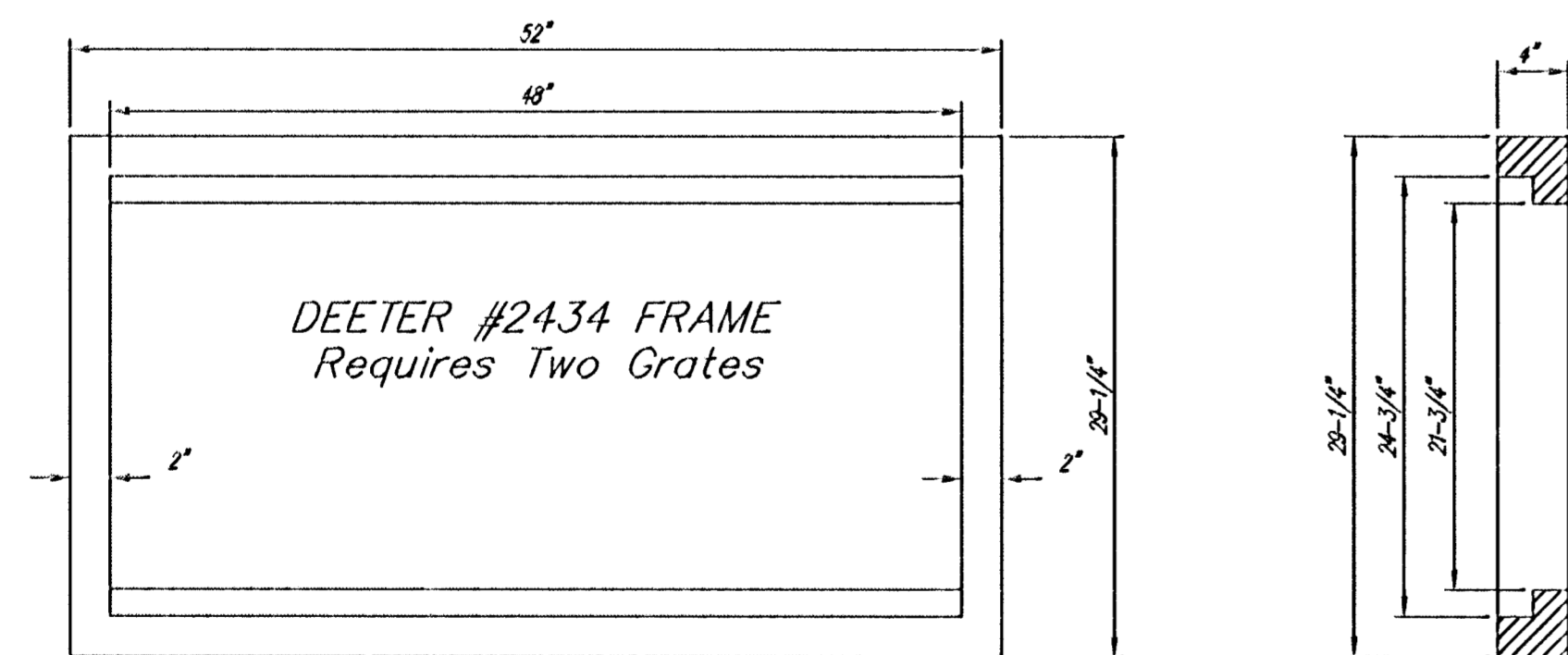
C.O.W. PROJ. NO.: 472 83603 (785028)	
CERTIFIED ENGINEERING DESIGN, P.A.	
CEED	810 WEST DOUGLAS, SUITE C WICHITA, KANSAS 67203 PH: (316) 262-8808 FAX: (316) 262-1889
SHEET 1	TOTAL 16



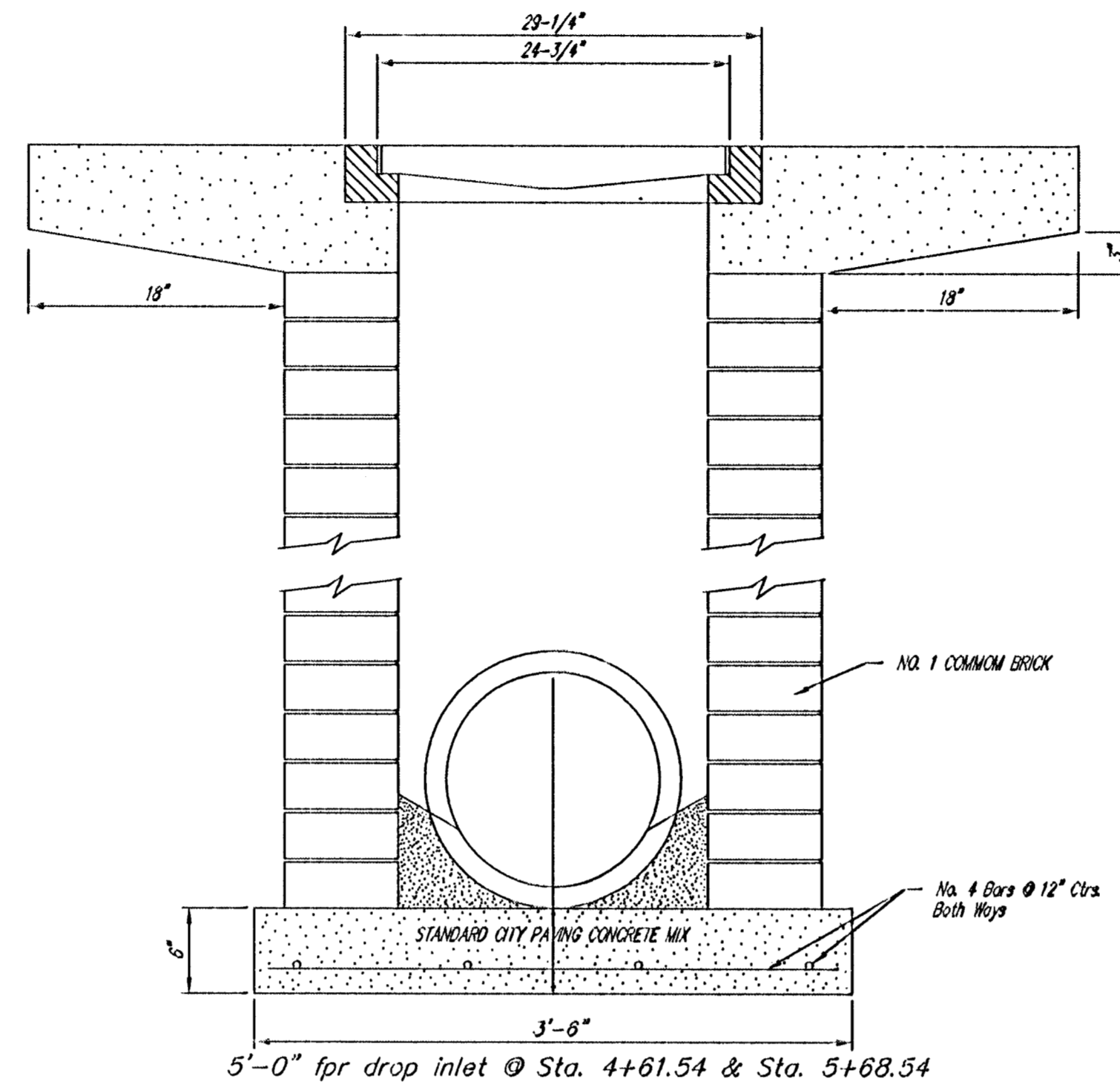
DEETER #2433 GRATE

24" x 24" Frame and Grate Detail

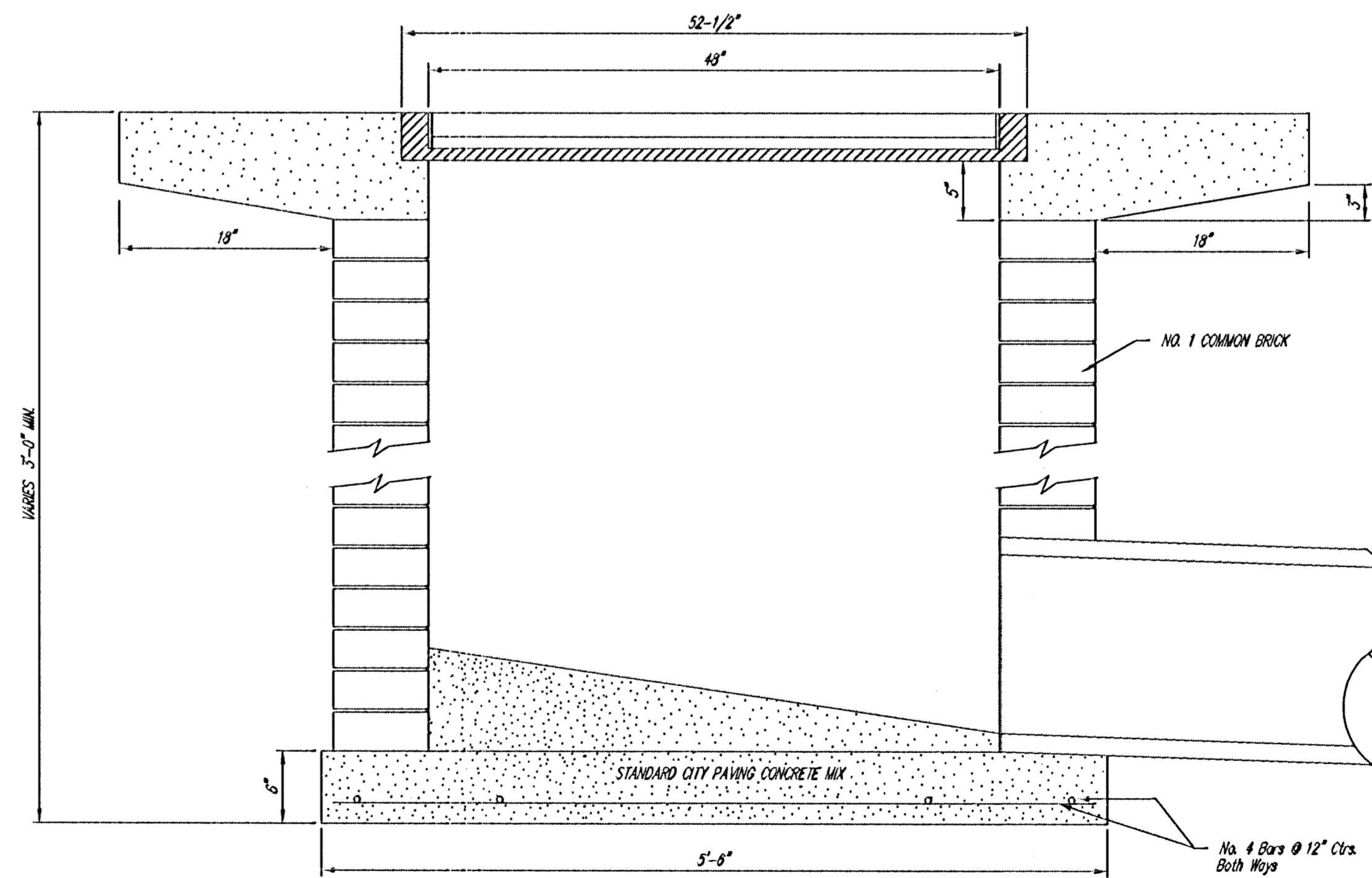
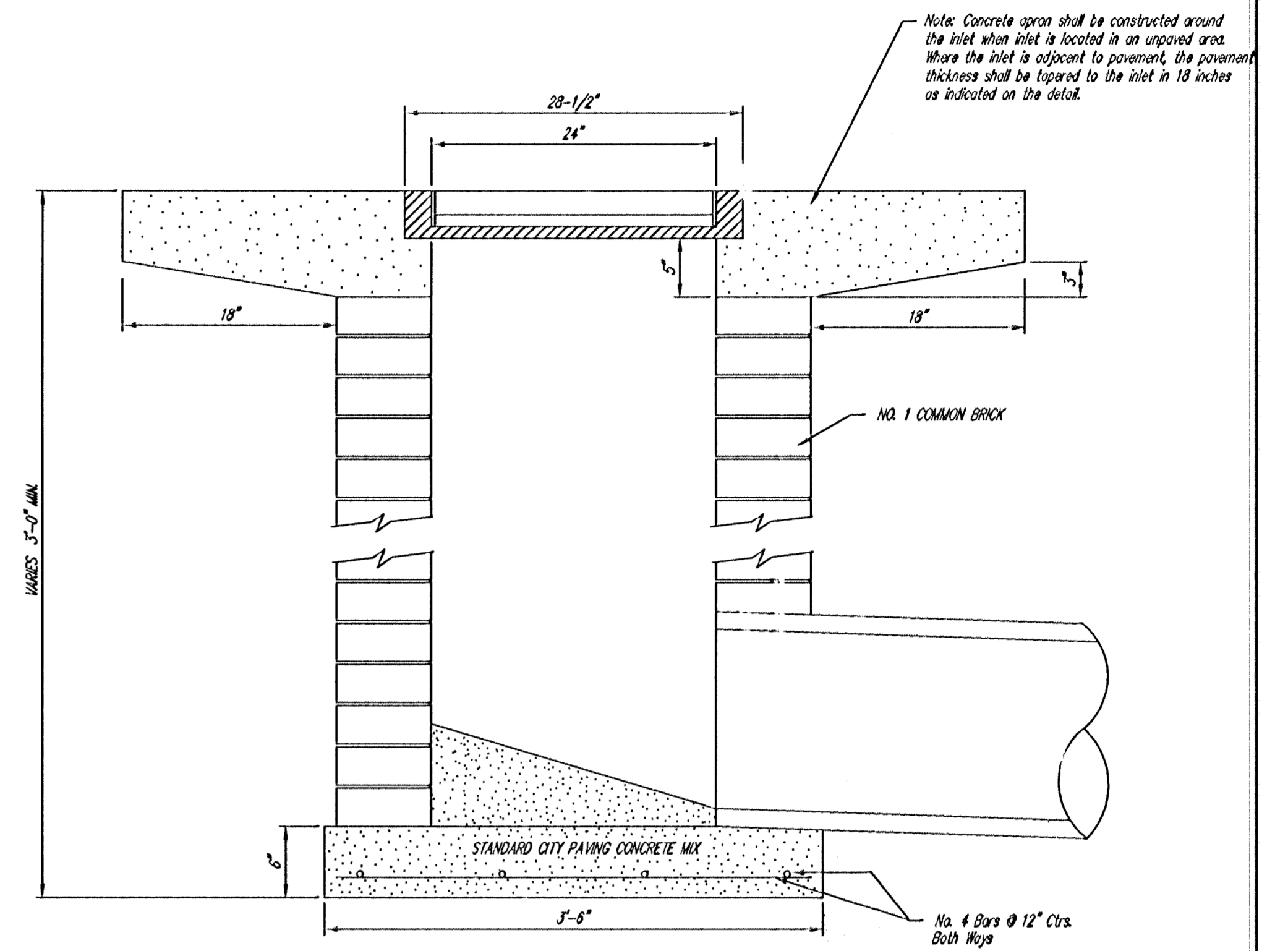
NOTE: Grates shall be imprinted on the top surface with "CITY OF WICHITA" using letters at least 1" in height. Other marking methods may be approved by the engineer.



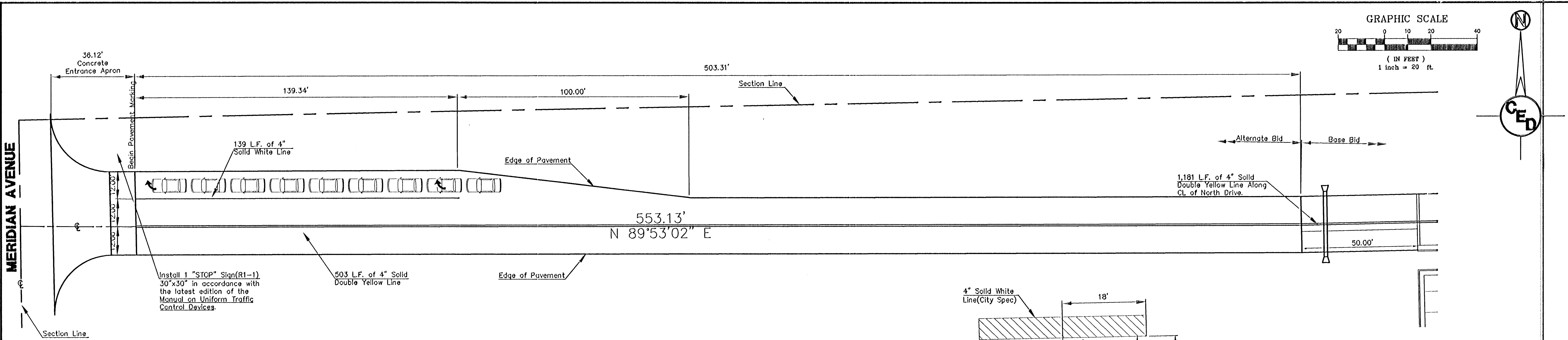
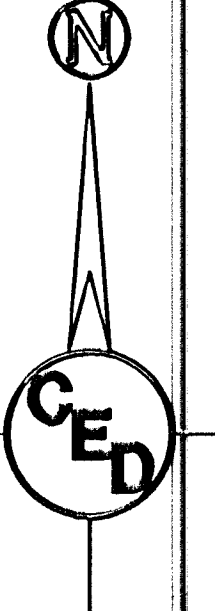
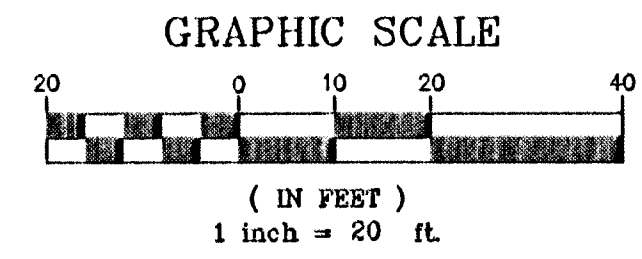
Double 24" x 24" Frame Detail



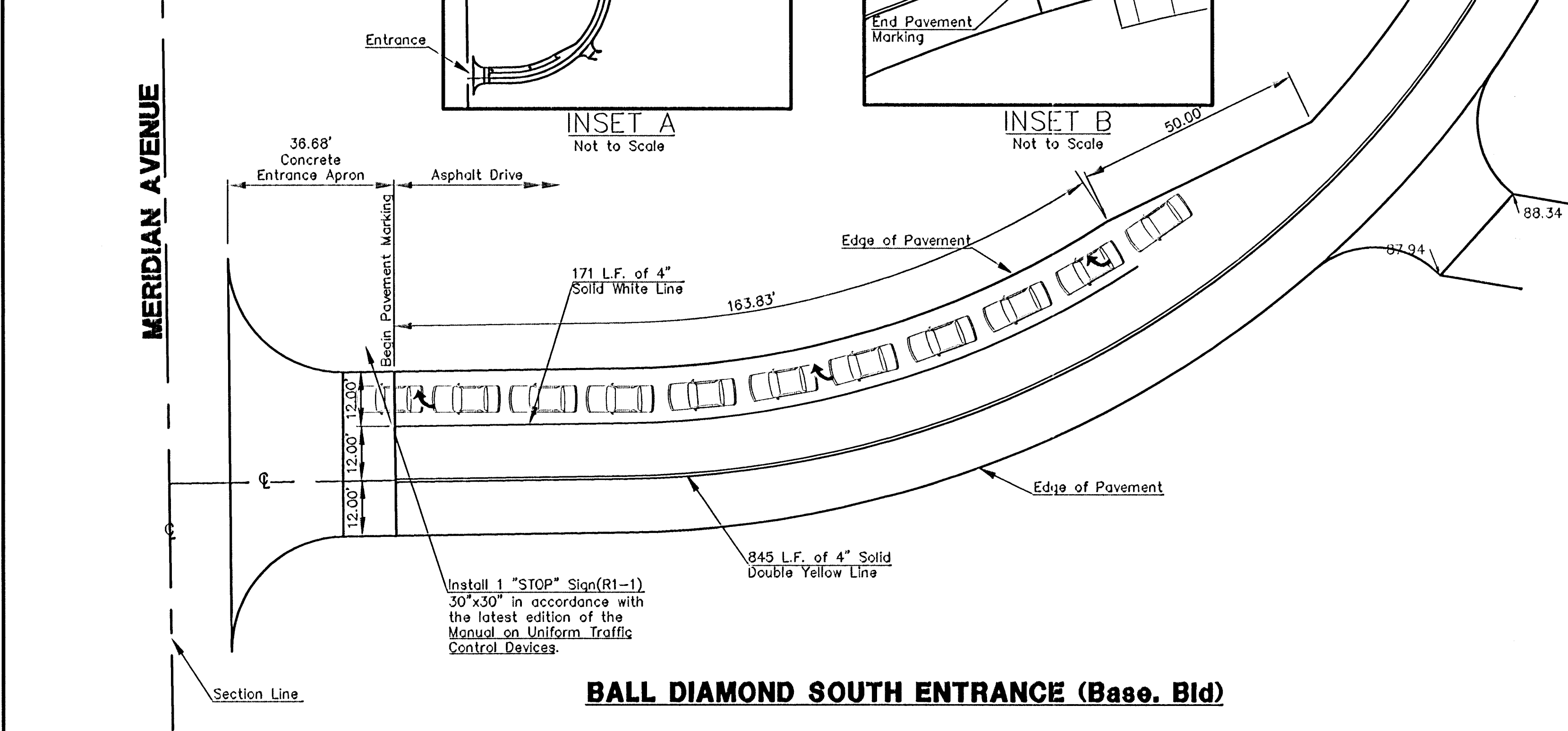
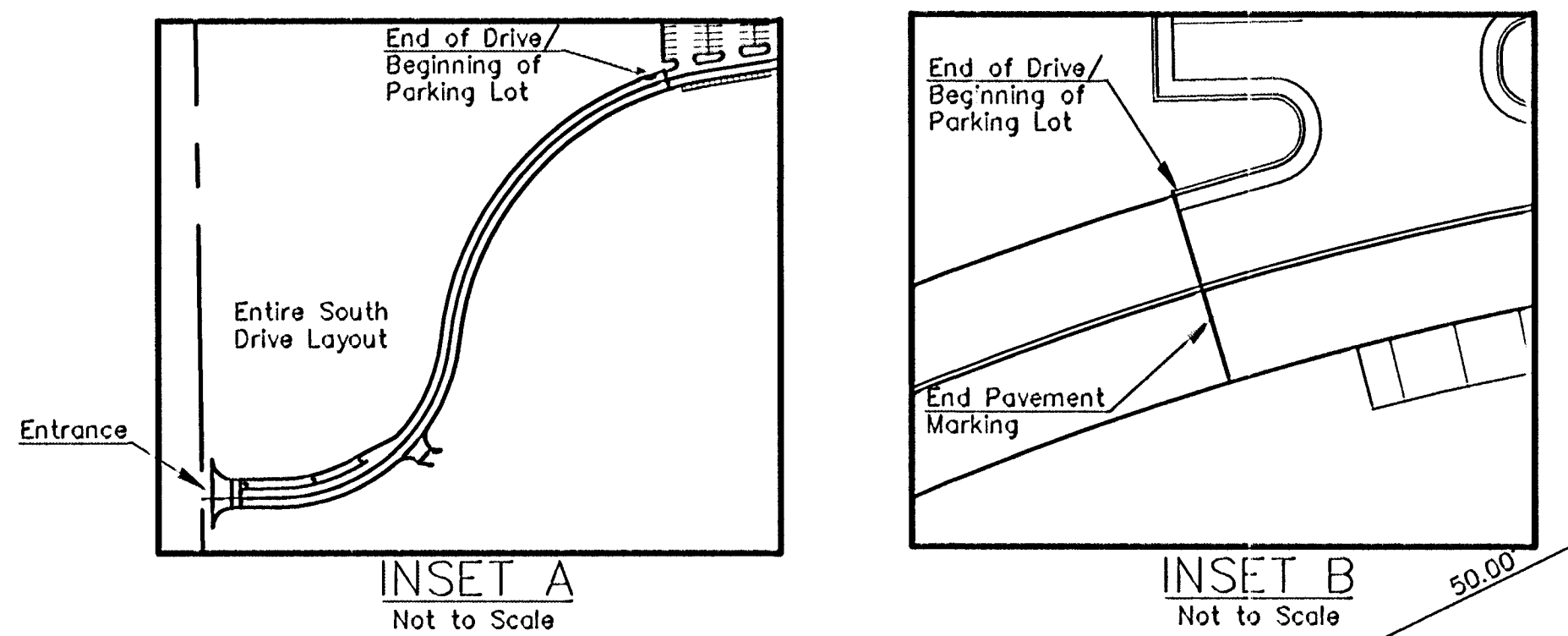
5'-0" for drop inlet @ Sta. 4+61.54 & Sta. 5+68.54



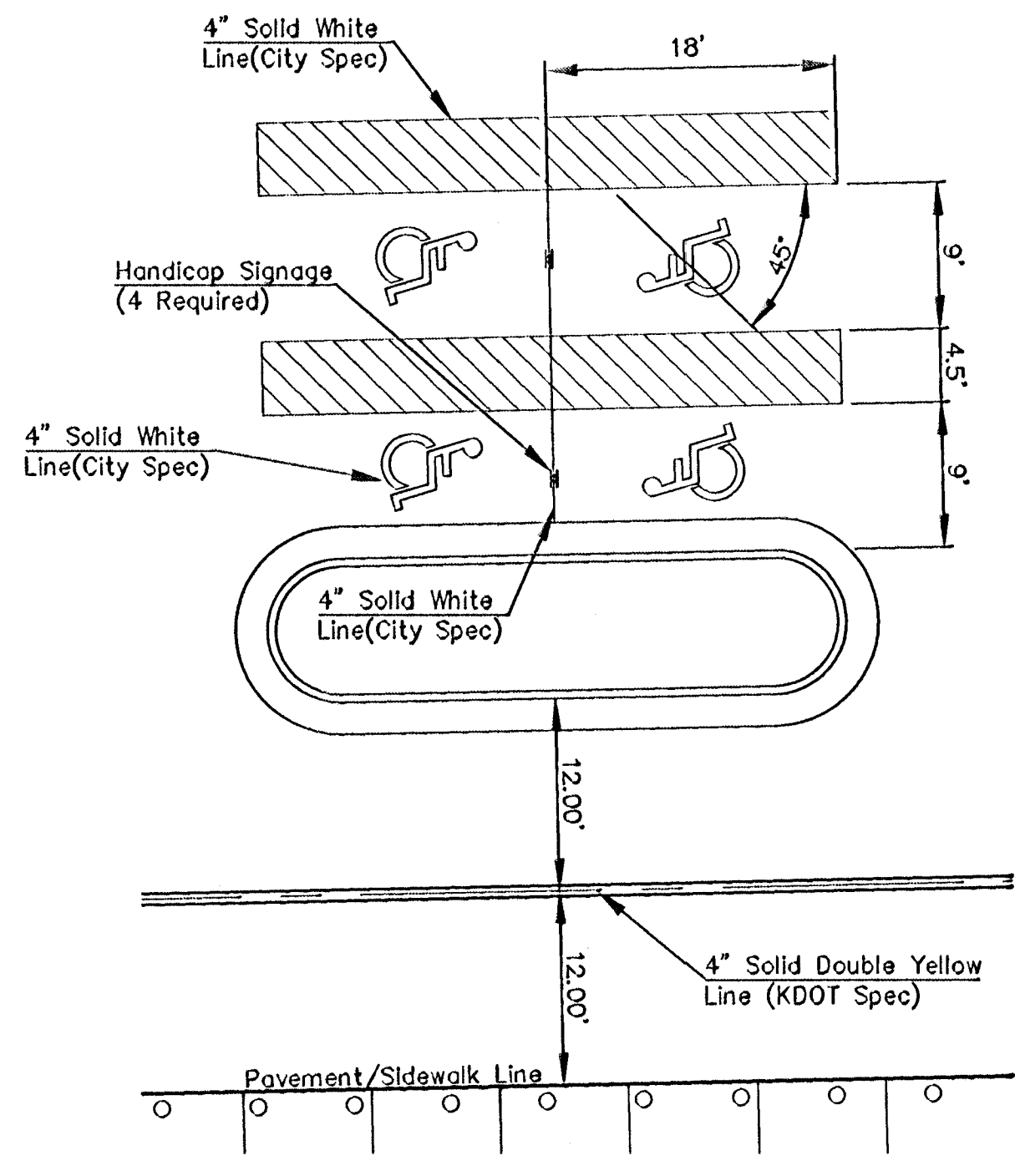
SOUTHLAKES PARK IMPROVEMENTS			
AREA INLET DETAILS			
WICHITA, KANSAS			
CED PROJ. NO.: 20020900			
CERTIFIED ENGINEERING DESIGN, P.A.			
810 WEST DOUGLAS, SUITE C			
WICHITA, KANSAS 67203			
PH. (316) 262-8808 FAX. (316) 262-1669			
DESIGNED: HDF	SCALE: NTS	SHEET	10
DRAWN: COW	DATE: 2/02	TOTAL	
CHECKED: HDF	CED FILE: areainlet.dwg	TOTAL	
		TOTAL	



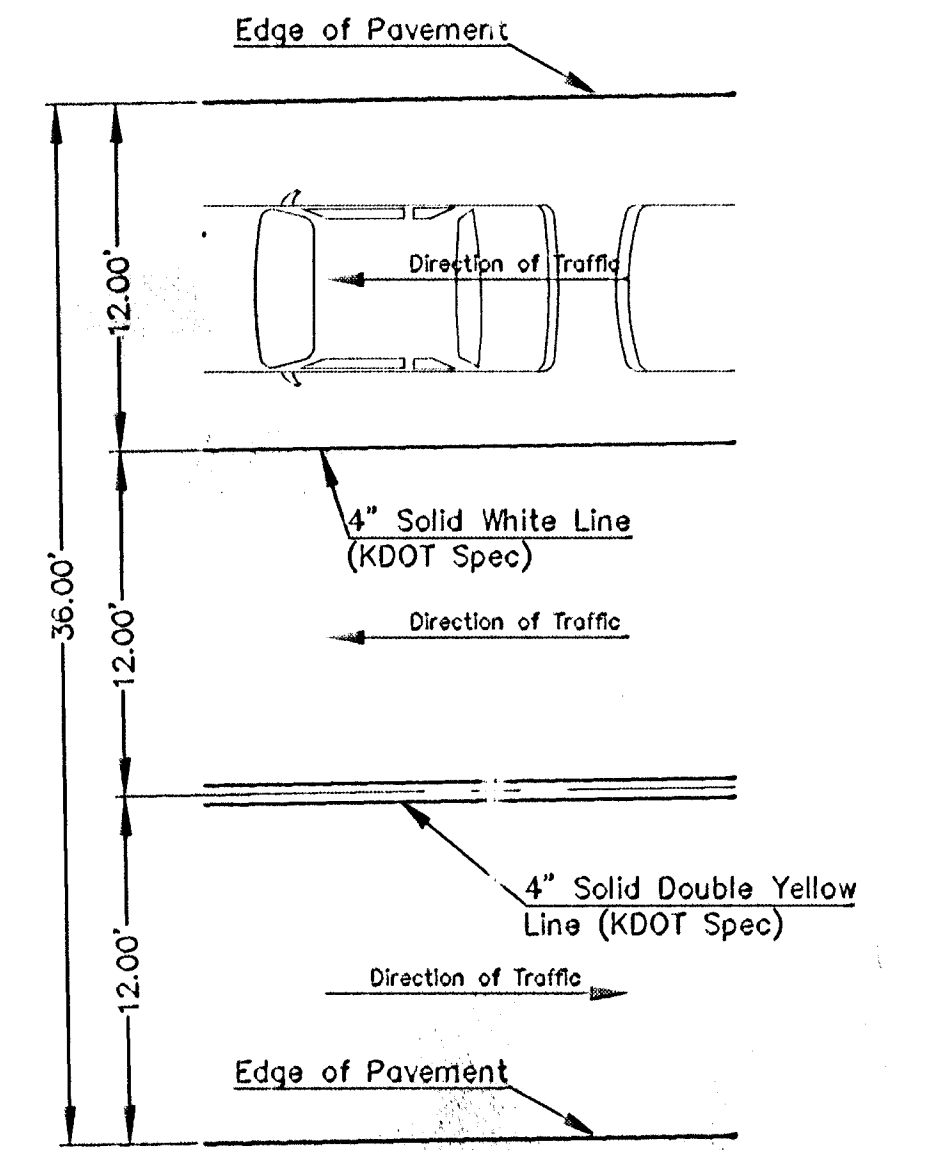
BALL DIAMOND NORTH ENTRANCE (Alt. Bid)



BALL DIAMOND SOUTH ENTRANCE (Base. Bid)



PARKING LOT PAVEMENT MARKING
Not to Scale



NO-PASSING (TWO DIRECTIONS)
Not to Scale

RECAPITULATION OF BASE BID QUANTITIES (For Information Only)

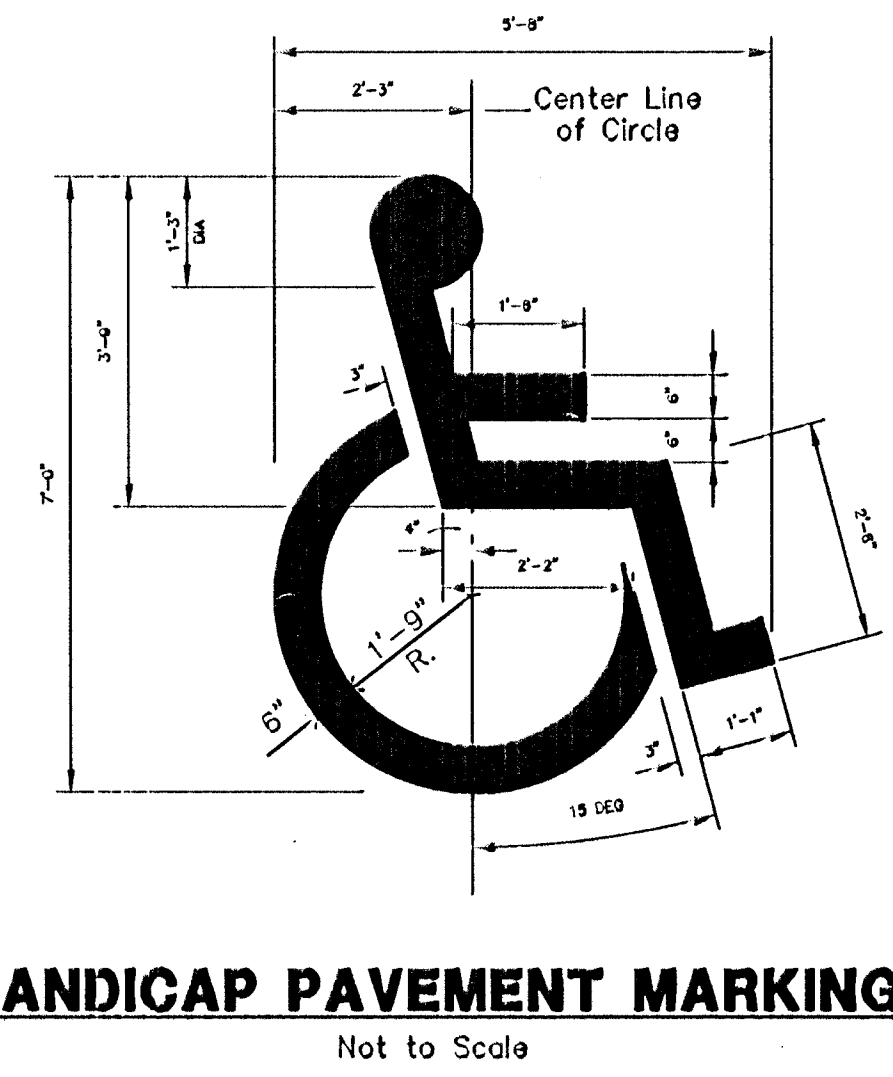
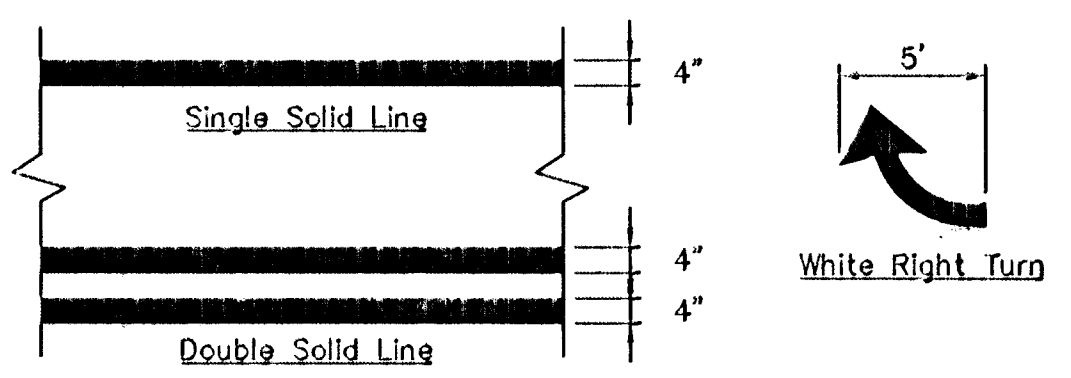
ITEM*	QUANTITY	UNITS
4" White	15,530	LIN. FT.
4" Yellow (CL Drive)	6,172	LIN. FT.
Yellow Handicap Marker	16	EACH
Yellow 4.5' x 18' Access Aisle	16	EACH
Right Turn Arrow (White)	3	EACH
Handicap Parking Signs w/Posts	4	EACH
Stop Sign(R1-1)30"x30"	1	EACH

*All Pavement Markings Shall Be Thermoplastic(90 m) in Accordance with 1990 KDOT Standard Specifications.

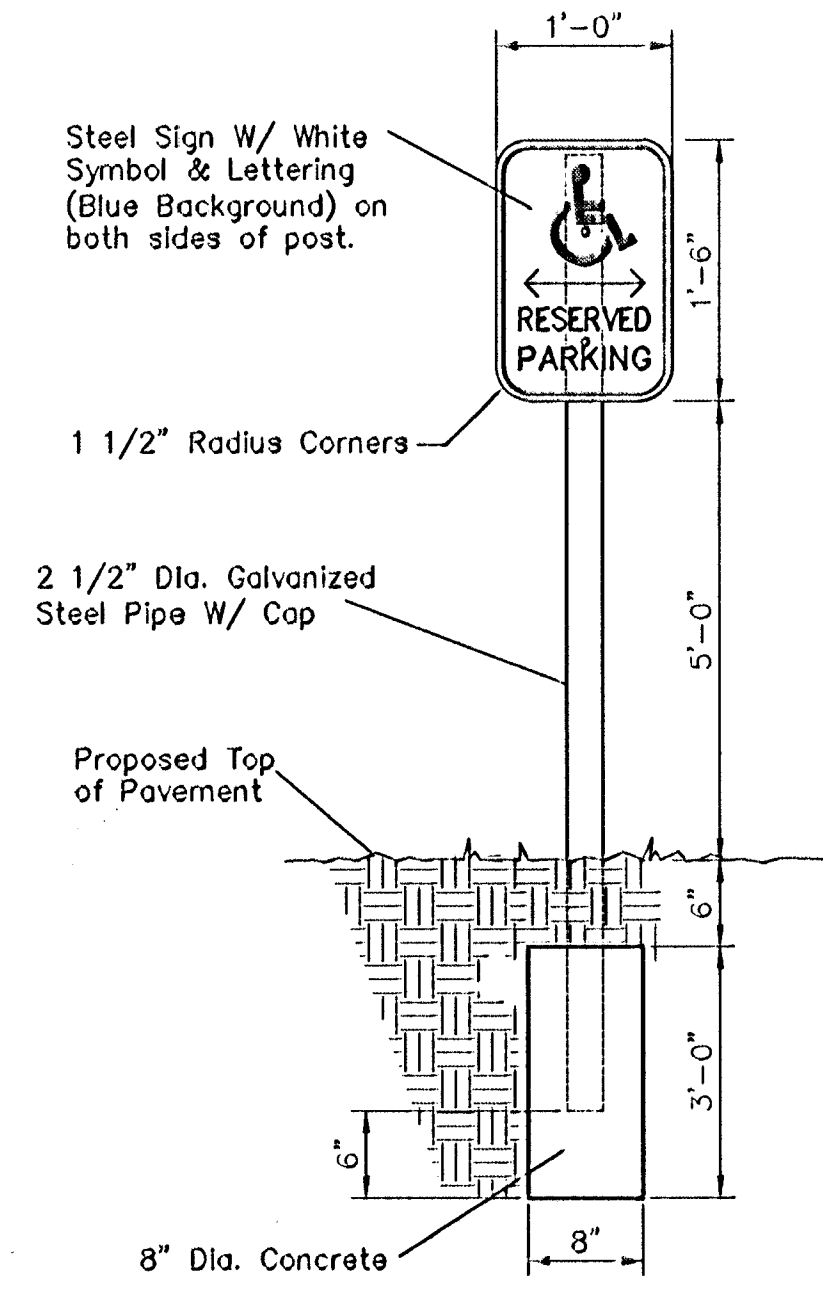
RECAPITULATION OF ALTERNATE BID QUANTITIES (For Information Only)

ITEM*	QUANTITY	UNITS
4" White (Turning Lane)	140	LIN. FT.
4" Yellow (CL Drive)	1006	LIN. FT.
White Right Arrow	2	EACH
Stop Sign(R1-1)30"x30"	1	EACH

*All Pavement Markings Shall Be Thermoplastic(90 m) in Accordance with 1990 KDOT Standard Specifications.



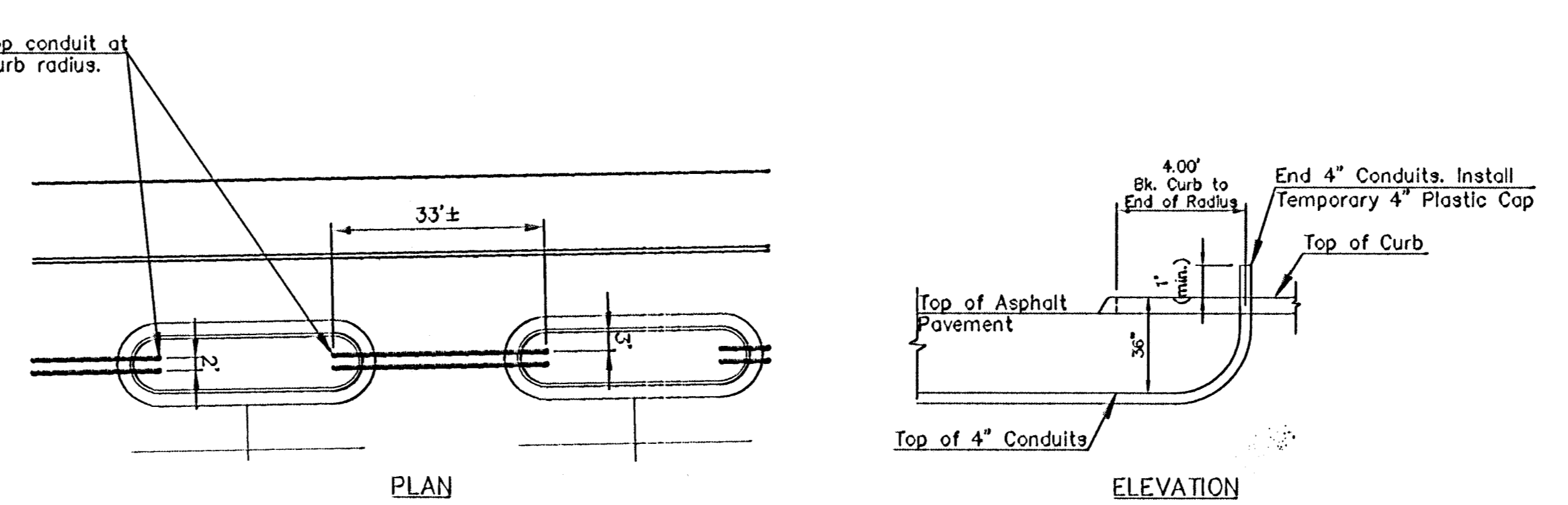
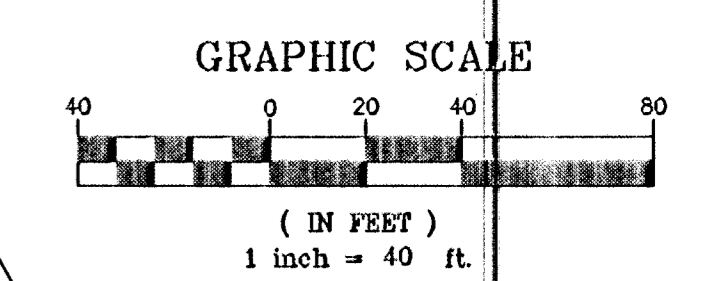
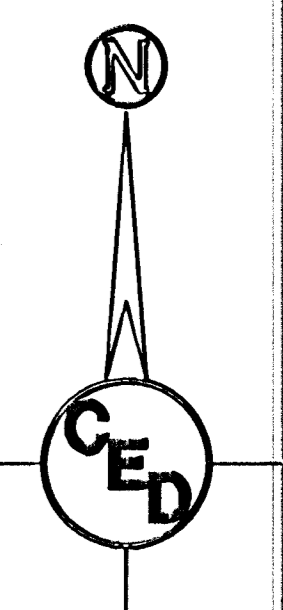
HANDICAP PAVEMENT MARKING
Not to Scale



HANDICAP SIGNAGE
Not to Scale

SOUT LAKES PARK
PAVEMENT MARKING DETAILS
 WICHITA, SEDGWICK CO., KANSAS
 CED PROJ. NO.: 20020900
CERTIFIED ENGINEERING DESIGN, P.A.
 810 WEST DOUGLAS, SUITE C
 WICHITA, KANSAS 67203
 PH.(316)262-8808 FAX.(316)262-1669

DESIGNED: HDF	SCALE: 1"=20'	SHEET
DRAWN: CKW	DATE: 7/02	12
CHECKED: HDF	CED FILE: SthLakes-Base	TOTAL 16



IRRIGATION LAYOUT DETAILS
NOTE: FOR CONDUIT LOCATIONS, SEE SURVEY CONTROL PLAN SHEETS 7-8.

Install 2-4"x40 L.F. of Polyethylene Pipe for Electrical and Irrigation conduits centered over 24' Drive (Typ.). Pipe to comply with City of Wichita Water Service Tubing Specifications. Total Pipe Length=80 L.F.

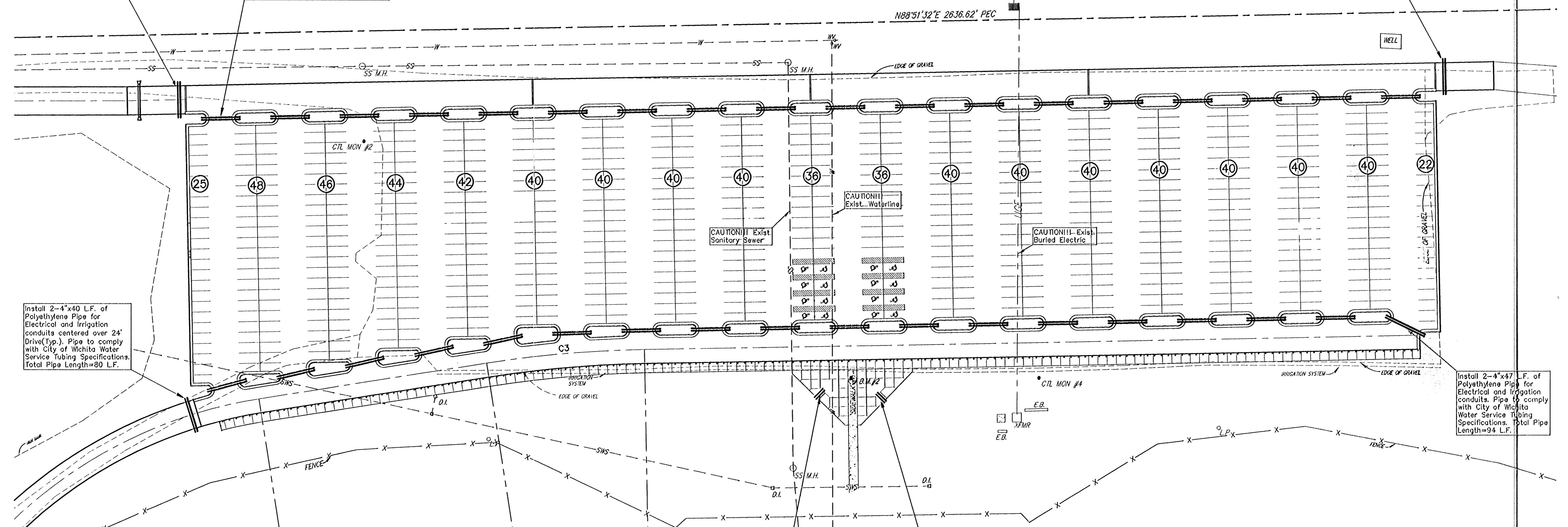
Install 2-4"x43 L.F. of Polyethylene Pipe for Electrical and Irrigation conduits between Curbed Islands (Typ.). Pipe to comply with City of Wichita Water Service Tubing Specifications. Total Pipe Length per crossing=88 L.F. Total Pipe Length for all 35 Island crossings=3,010.00 L.F.

Install 2-4"x40 L.F. of Polyethylene Pipe for Electrical and Irrigation conduits centered over 24' Drive (Typ.). Pipe to comply with City of Wichita Water Service Tubing Specifications. Total Pipe Length=80 L.F.

Install 2-4"x47 L.F. of Polyethylene Pipe for Electrical and Irrigation conduits. Pipe to comply with City of Wichita Water Service Tubing Specifications. Total Pipe Length=94 L.F.

Install 2-4"x20 L.F. of Polyethylene Pipe for Electrical and Irrigation conduits centered over 8' Walk (Typ.). Pipe to comply with City of Wichita Water Service Tubing Specifications. Total Pipe Length=40 L.F.

Install 2-4"x20 L.F. of Polyethylene Pipe for Electrical and Irrigation conduits centered over 8' Walk (Typ.). Pipe to comply with City of Wichita Water Service Tubing Specifications. Total Pipe Length=40 L.F.



CURVE TABLE (CL DRIVE DATA)

CURVE	LENGTH	RADIUS	DELTA	CHORD
C1	326.12	225.00	83°02'18"	298.32
C2	467.99	400.00	67°02'08"	441.75
C3	137.05	1000.00	7°51'10"	136.95

RECAPITULATION OF BASE BID QUANTITIES (For Information Only)

ITEM	QUANTITY	UNITS
4" Polyethylene Pipe	3,425	LIN. FT.
4" Temporary Plastic Cops	184	EACH

BENCHMARK #1:
City of Wichita Std. Disc 30' W. & 44' N. of Intersection of Meridian & 51st St. S. Elev.=98.62(City Datum)

BENCHMARK #2:
"LP" Cut Center of Walk 9' S. of North Edge of Walk Between Bull Diamonds. Elev.=97.52(City Datum)

- LEGEND**
- W = WATER MAIN
 - SS = SANITARY SEWER
 - SWS = STORM WATER SEWER
 - UGE = UNDER GROUND ELECTRIC
 - B.M. = BENCH MARK
 - E.B. = ELECTRIC BOX
 - F.H. = FIRE HYDRANT
 - WV = WATER VALVE
 - G.P. = GUARD POST
 - H.L.P. = HIGH LINE POLE
 - D.I. = 2' x 2' Area Inlet
 - LP = LIGHT POLE
 - G.P. = GATE POST
 - P.P. = POWER POLE
 - SIGN = SIGN
 - T.P. = TELEPHONE POLE
 - XTMR = ELECTRIC TRANSFORMER
 - SS M.H. = SANITARY SEWER MANHOLE

UTILITIES SHOWN REPRESENT THE BEST INFORMATION AVAILABLE FOR DESIGN. ADDITIONAL UTILITIES MAY BE PRESENT ON THIS PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION, DEPTH AND SIZE OF ALL UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE LIABLE FOR ANY DAMAGE CAUSED BY THE FAILURE TO DO SO.

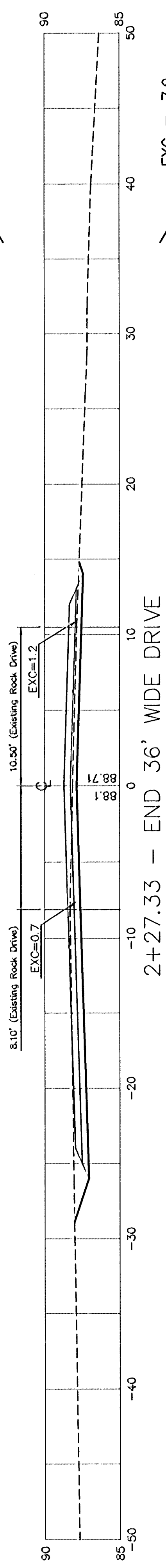
SURVY DISCLAIMER:
TOPOGRAPHIC SURVEY AND CONTOUR MAP USED IN PREPARING PLANS WAS PROVIDED BY SAVOY COMPANY, P.A., 535 S. EMPORIA, SUITE 104, WICHITA, KS. ENGINEER DOES NOT GUARANTEE SURVEY ELEVATIONS FOR ACCURACY. CONTRACTOR SHALL VERIFY ELEVATIONS AND NOTIFY ENGINEER OF ANY DISCREPANCIES.

SOUTH LAKES PARK
IRRIGATION SLEEVE LAYOUT
WICHITA, SEDGWICK CO., KANSAS
CED PROJ. NO.: 20020900

CERTIFIED ENGINEERING DESIGN, P.A.
810 WEST DOUGLAS, SUITE C
WICHITA, KANSAS 67203
PH.(316)262-8808 FAX.(316)262-1669

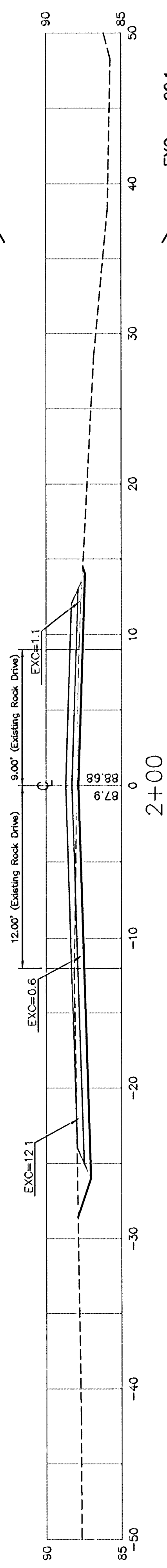
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DRAWN: CKW	DATE: 7/02	13
CHECKED: HDF	FILE: SthLakes-Base.dwg	TOTAL 16

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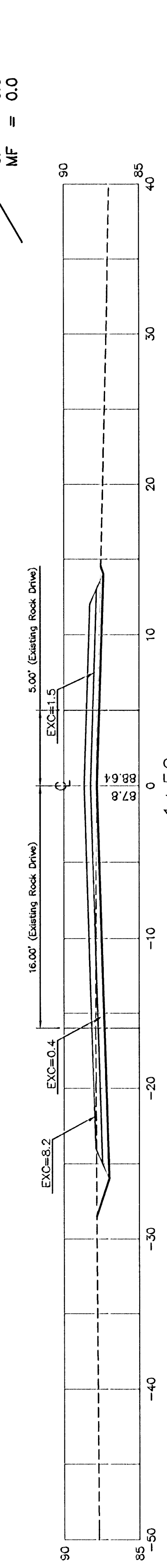


2+27.33 - END 36' WIDE DRIVE

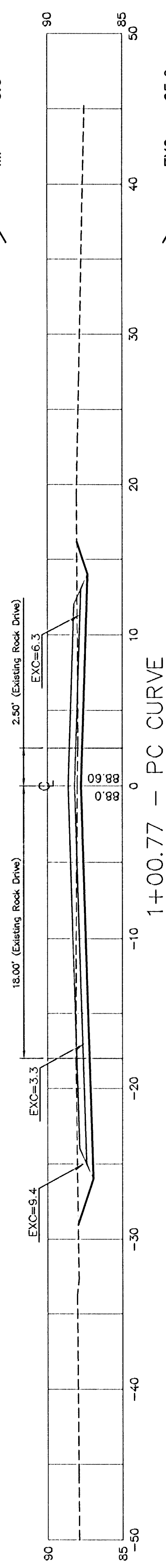
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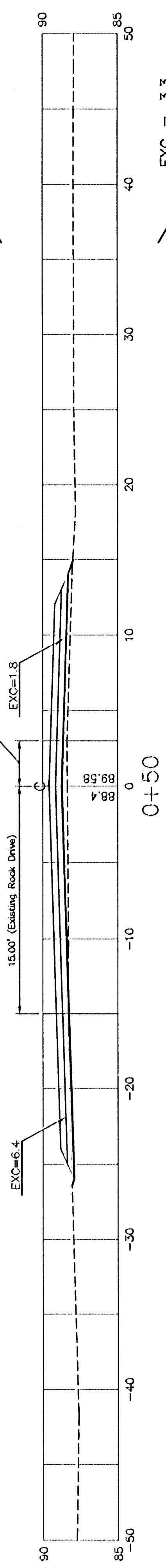


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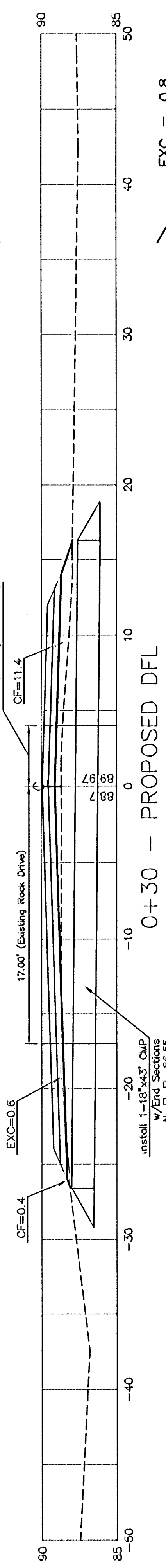


1+00.77 - PC CURVE

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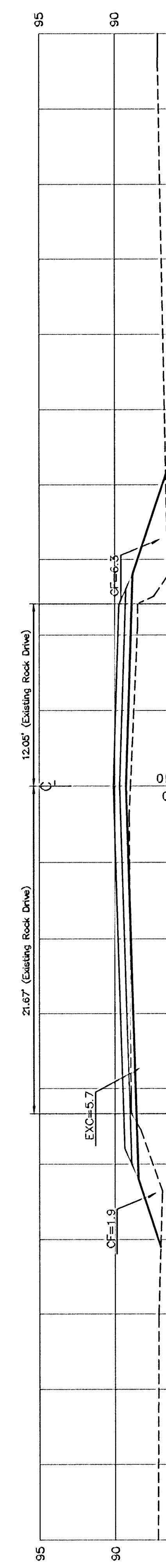
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MF = 0.0



0+30 - PROPOSED DFL

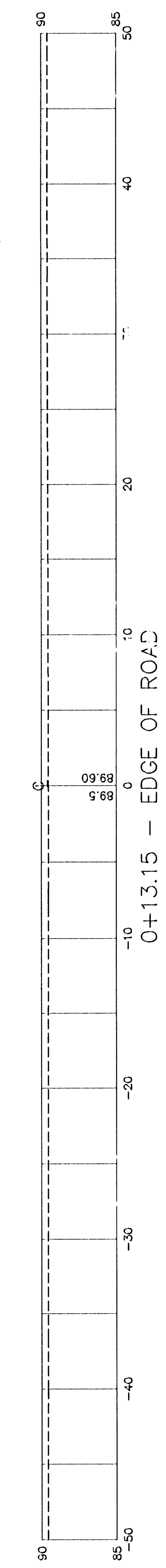
install 1'-18"x43" CMP
w/End Sections
N. FL EL=86.55
S. FL EL=86.10

EXC = 0.8
LF = 0.0
CF = 2.4
MF = 0.0

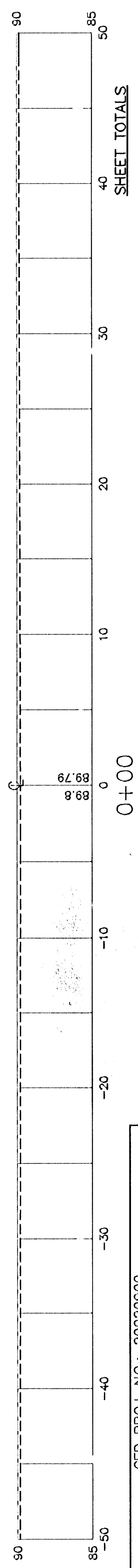


0+23.42 - EXISTING DFL

EXC = 1.0
LF = 0.0
CF = 1.5
MF = 0.0



0+13.15 - EDGE OF ROAD



0+00

SHEET TOTALS
EXCAVATION = 95.9
LOOSE FILL = 0.0
COMPACTED FILL = 8.3
MANIPULATED FILL = 0.0

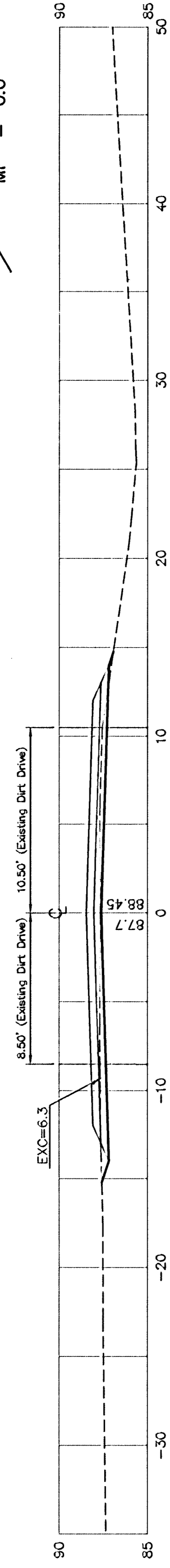
24' DRIVE

CED PROJ. NO.: 20020900
CERTIFIED ENGINEERING DESIGN, P.A.
810 WEST DOUGLAS, SUITE C
WICHITA, KANSAS 67203
PH: (316) 262-8808
FAX: (316) 267-1663

SHEET	14
TOTAL	16

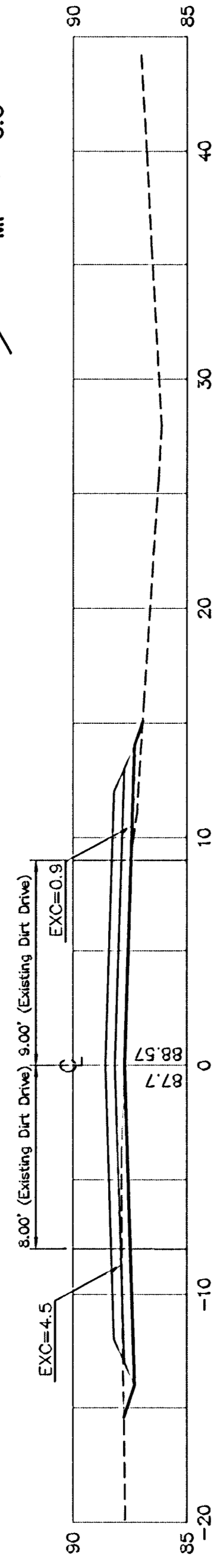


EXC = 13.1
 LF = 0.0
 CF = 0.0
 MF = 0.0



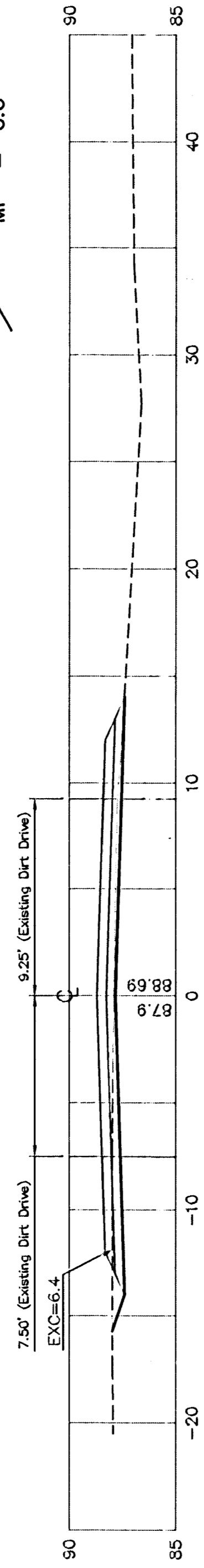
6+50

EXC = 10.8
 LF = 0.0
 CF = 0.0
 MF = 0.0



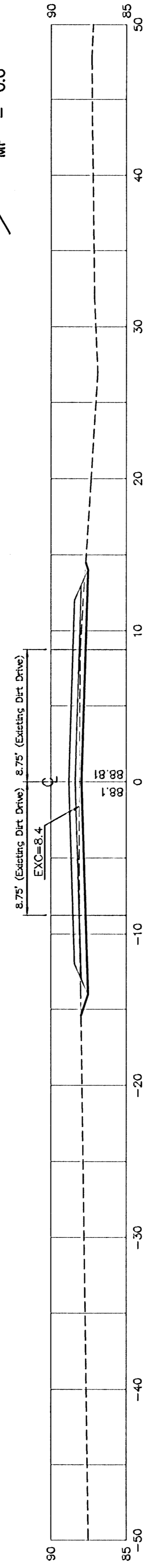
6+00

EXC = 10.9
 LF = 0.0
 CF = 0.0
 MF = 0.0



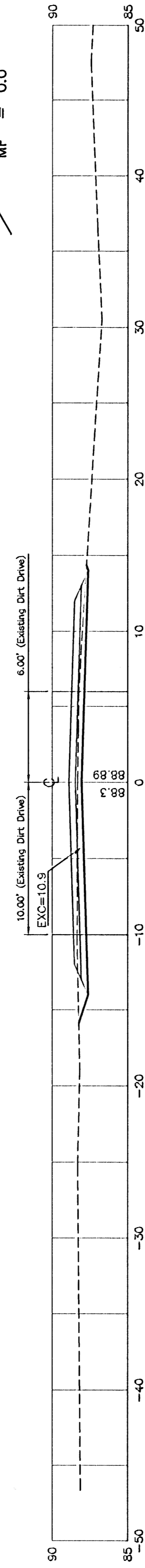
5+50

EXC = 13.7
 LF = 0.0
 CF = 0.0
 MF = 0.0



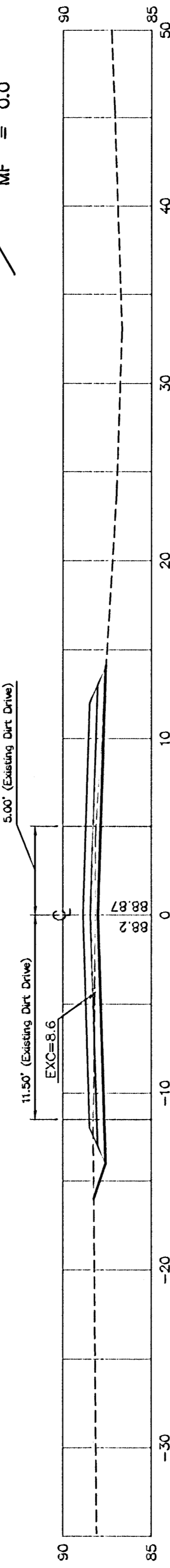
5+00

EXC = 17.9
 LF = 0.0
 CF = 0.0
 MF = 0.0



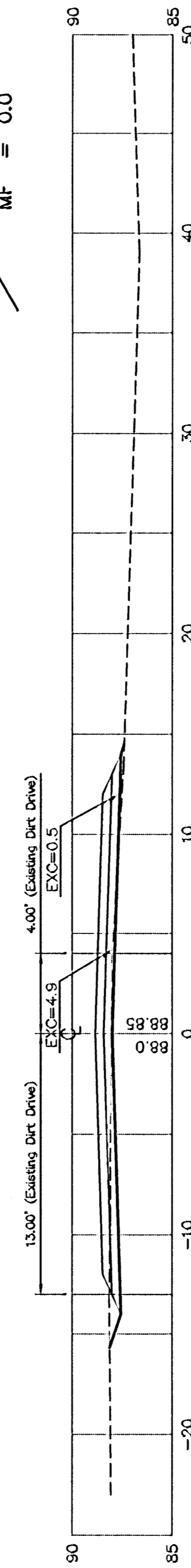
4+50

EXC = 8.3
 LF = 0.0
 CF = 0.0
 MF = 0.0



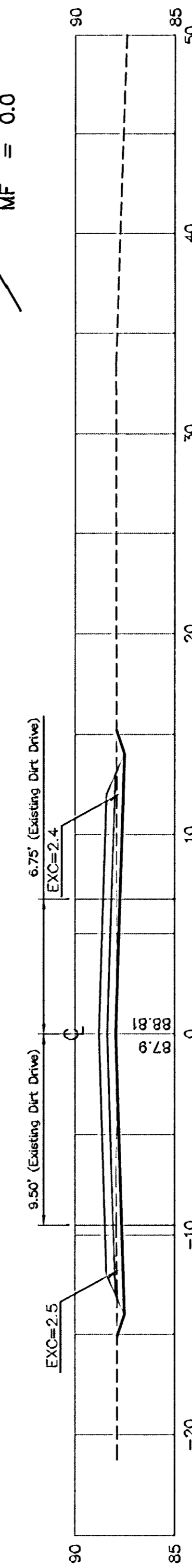
4+26.90 - PRC

EXC = 7.0
 LF = 0.0
 CF = 0.0
 MF = 0.0



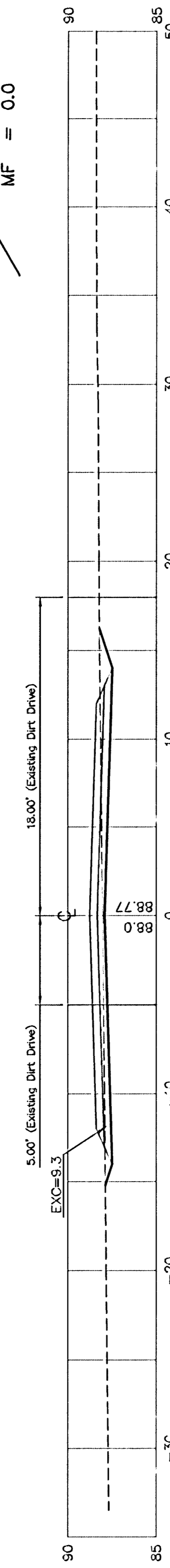
4+00

EXC = 9.5
 LF = 0.0
 CF = 0.0
 MF = 0.0



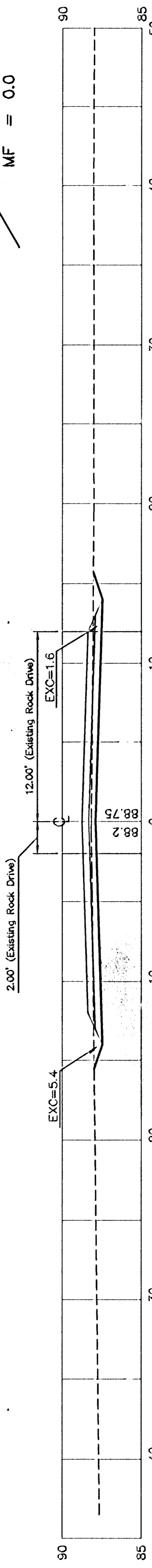
3+50

EXC = 13.1
 LF = 0.0
 CF = 0.0
 MF = 0.0



3+00

EXC = 6.0
 LF = 0.0
 CF = 0.0
 MF = 0.0



2+80.24 - BEGIN 24' WIDE DRIVE

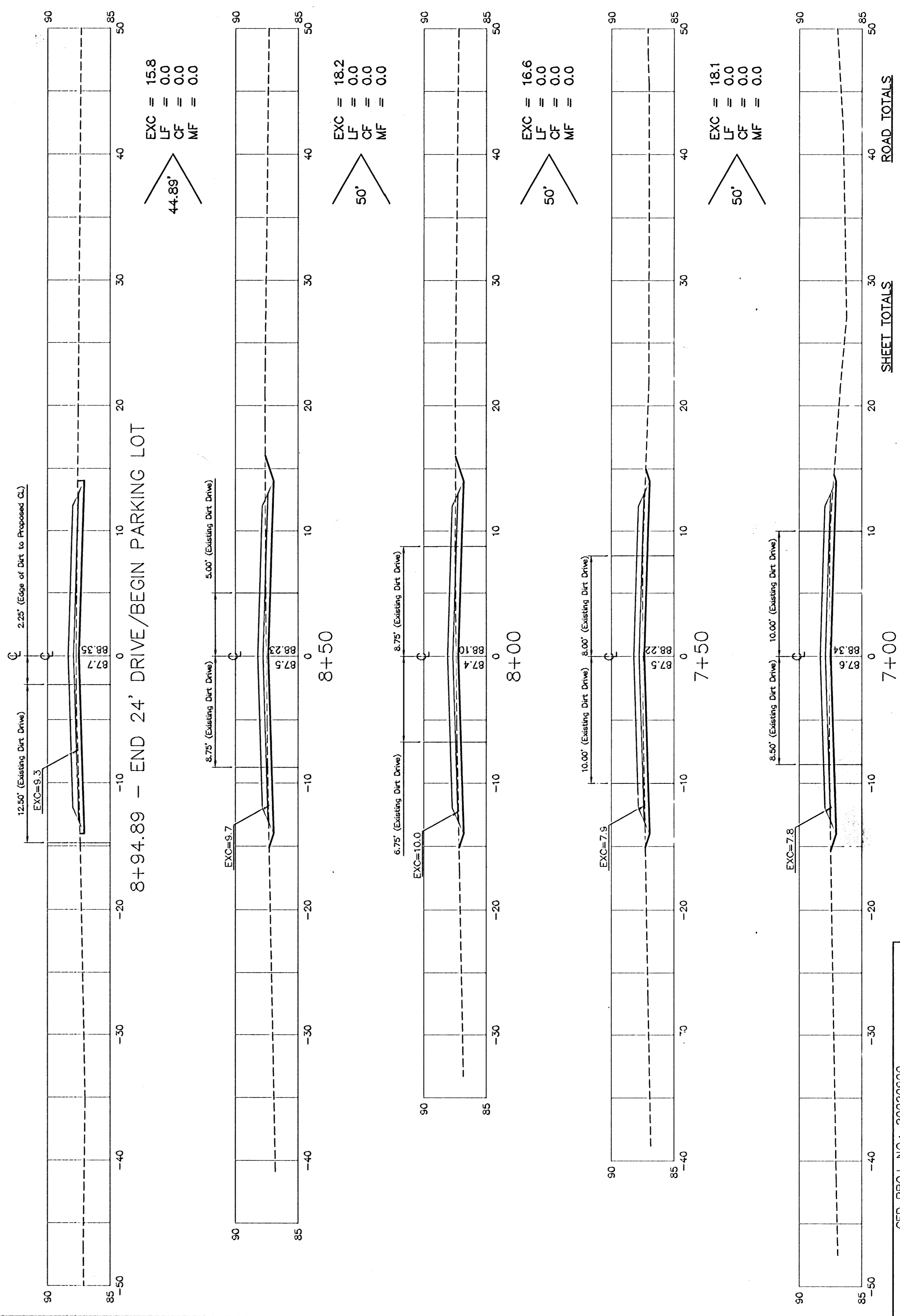
SHEET TOTALS
 EXCAVATION = 110.3
 LOOSE FILL = 0.0
 COMPACTED FILL = 0.0
 MANIPULATED FILL = 0.0

CED PROJ. NO.: 20020900
CERTIFIED ENGINEERING DESIGN, P.A.
 810 WEST DOUGLAS, SUITE C
 WICHITA, KANSAS, 67203
 PH: (316) 262-8808
 FAX: (316) 787-1869



SHEET 15
 TOTAL 16

24' DRIVE



44.89'
 EXC = 15.8
 LF = 0.0
 CF = 0.0
 MF = 0.0

50'
 EXC = 18.2
 LF = 0.0
 CF = 0.0
 MF = 0.0

50'
 EXC = 16.6
 LF = 0.0
 CF = 0.0
 MF = 0.0

50'
 EXC = 18.1
 LF = 0.0
 CF = 0.0
 MF = 0.0

SHEET TOTALS
 EXCAVATION = 68.7
 LOOSE FILL = 0.0
 COMPACTED FILL = 0.0
 MANIPULATED FILL = 0.0

ROAD TOTALS
 EXCAVATION = 274.9
 LOOSE FILL = 0.0
 COMPACTED FILL = 8.3
 MANIPULATED FILL = 0.0

CED PROJ. NO.: 20020900
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 WICHITA, KANSAS 67203
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 FAX: (316) 262-1669

SHEET	16
TOTAL	16

24' DRIVE
 24' DRIVE

PLAN LABELS DEFINITION TABLE

PM = POINT OF VERTICAL INTERSECTION

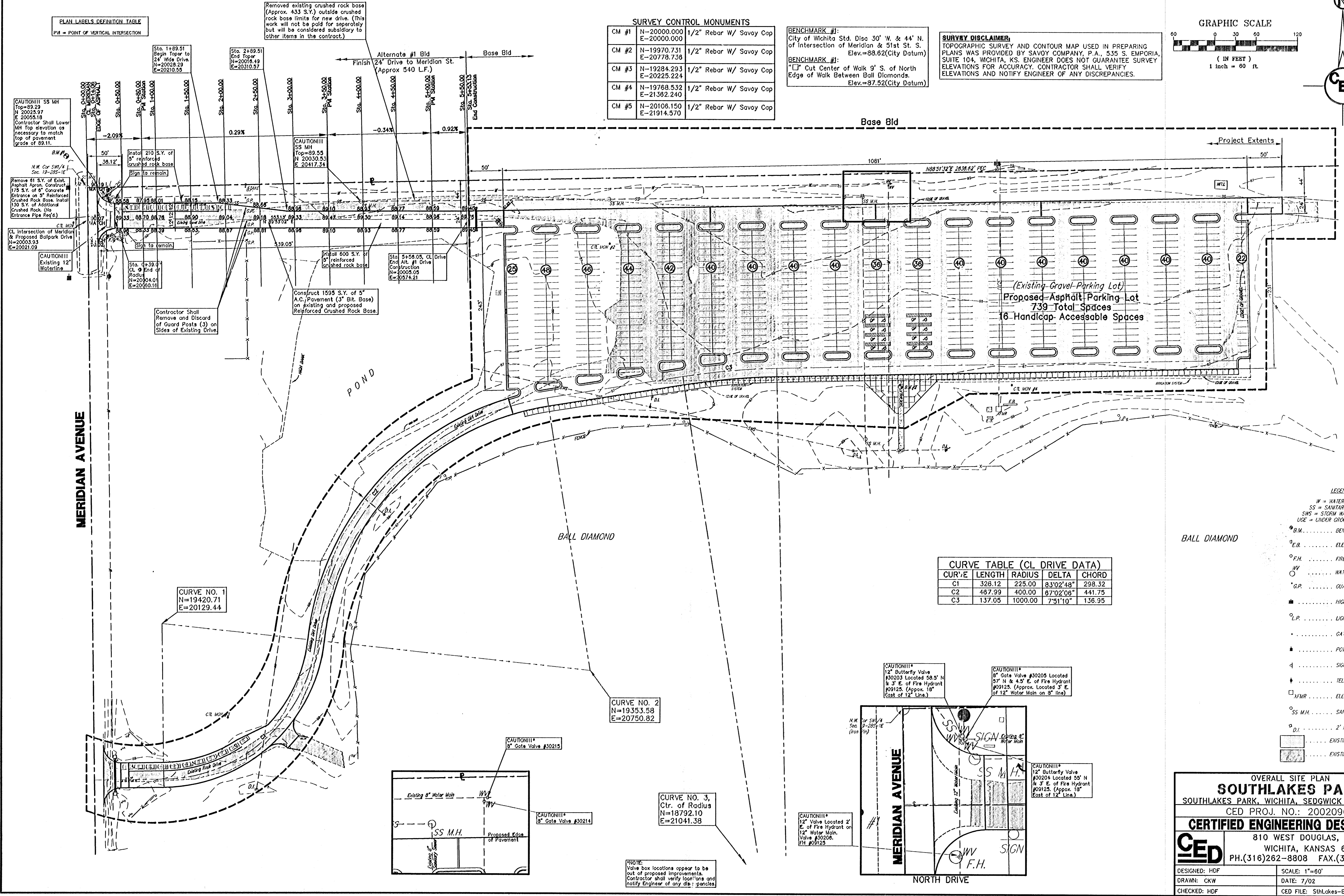
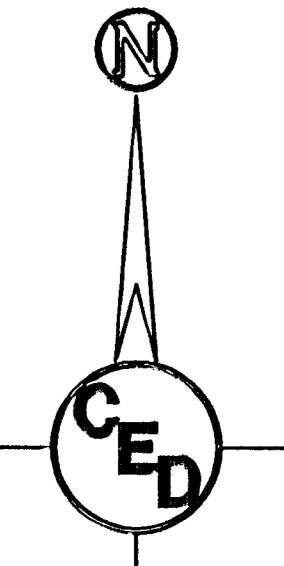
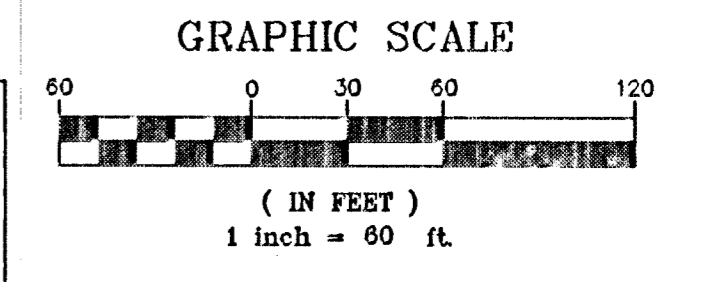
SURVEY CONTROL MONUMENTS

CM #1	N-20000.000 E-20000.000	1/2" Rebar W/ Savoy Cop
CM #2	N-19970.731 E-20778.738	1/2" Rebar W/ Savoy Cop
CM #3	N-19284.293 E-20225.224	1/2" Rebar W/ Savoy Cop
CM #4	N-19788.532 E-21392.240	1/2" Rebar W/ Savoy Cop
CM #5	N-20106.150 E-21914.570	1/2" Rebar W/ Savoy Cop

BENCHMARK #1:
City of Wichita Std. Disc 30" W. & 44" N.
of Intersection of Meridian & 51st St. S.
Elev.=88.62(City Datum)

BENCHMARK #2:
"C" Cut Center of Walk 9' S. of North
Edge of Walk Between Ball Diamonds.
Elev.=87.52(City Datum)

SURVEY DISCLAIMER:
TOPOGRAPHIC SURVEY AND CONTOUR MAP USED IN PREPARING
PLANS WAS PROVIDED BY SAVOY COMPANY, P.A., 535 S. EMPORIA,
SUITE 104, WICHITA, KS. ENGINEER DOES NOT GUARANTEE SURVEY
ELEVATIONS FOR ACCURACY. CONTRACTOR SHALL VERIFY
ELEVATIONS AND NOTIFY ENGINEER OF ANY DISCREPANCIES.



CURVE TABLE (CL DRIVE DATA)

CURVE	LENGTH	RADIUS	DELTA	CHORD
C1	326.12	225.00	83°02'48"	298.32
C2	467.99	400.00	67°02'08"	441.75
C3	137.05	1000.00	7°51'10"	136.95

- LEGEND**
- WM = WATER MAIN
 - SS = SANITARY SEWER
 - SWS = SYSTEM WATER SEWER
 - UGE = UNDER GROUND ELECTRIC
 - B.M. = BENCH MARK
 - E.B. = ELECTRIC BOX
 - F.H. = FIRE HYDRANT
 - WV = WATER VALVE
 - G.P. = GUARD POST
 - H.L.P. = HIGH LINE POLE
 - L.P. = LIGHT POLE
 - G.P. = GATE POST
 - P.P. = POWER POLE
 - SIGN = SIGN
 - T.P. = TELEPHONE POLE
 - TRF. = ELECTRIC TRANSFORMER
 - SS M.H. = SANITARY SEWER MANHOLE
 - D.I. = 2' x 2' Area Inlet
 - EXISTING DIRT DRIVE
 - EXISTING CRUSHED ROCK BASE

OVERALL SITE PLAN
SOUTHLAKES PARK
SOUTHLAKES PARK, WICHITA, SEDGWICK CO., KANSAS
CED PROJ. NO.: 20020900
CERTIFIED ENGINEERING DESIGN, P.A.
810 WEST DOUGLAS, SUITE C
WICHITA, KANSAS 67203
PH.(316)262-8808 FAX.(316)262-669

DESIGNED: HDF
DRAWN: CKW
CHECKED: HDF

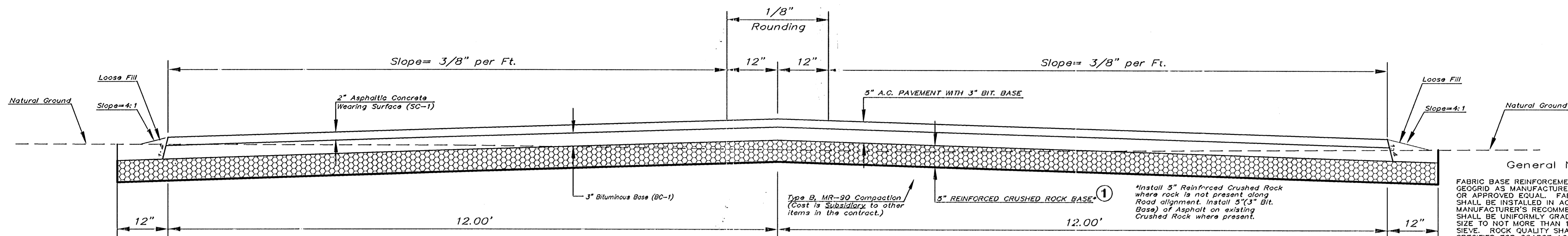
SCALE: 1"=60'
DATE: 7/02
CED FILE: SthLakes-Base.dwg

SHEET 2
TOTAL 16

NOTE:
Valve box locations appear to be
out of proposed improvements.
Contractor shall verify locations and
notify Engineer of any discrepancies.

TYPICAL PAVEMENT DETAILS

TRANSVERSE SECTION



General Notes

FABRIC BASE REINFORCEMENT SHALL BE B X 1100 GEOGRID AS MANUFACTURED BY TENSAR CORPORATION OR APPROVED EQUAL. FABRIC BASE REINFORCEMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. CRUSHED ROCK SHALL BE UNIFORMLY GRADED FROM 1-1/2\"/>

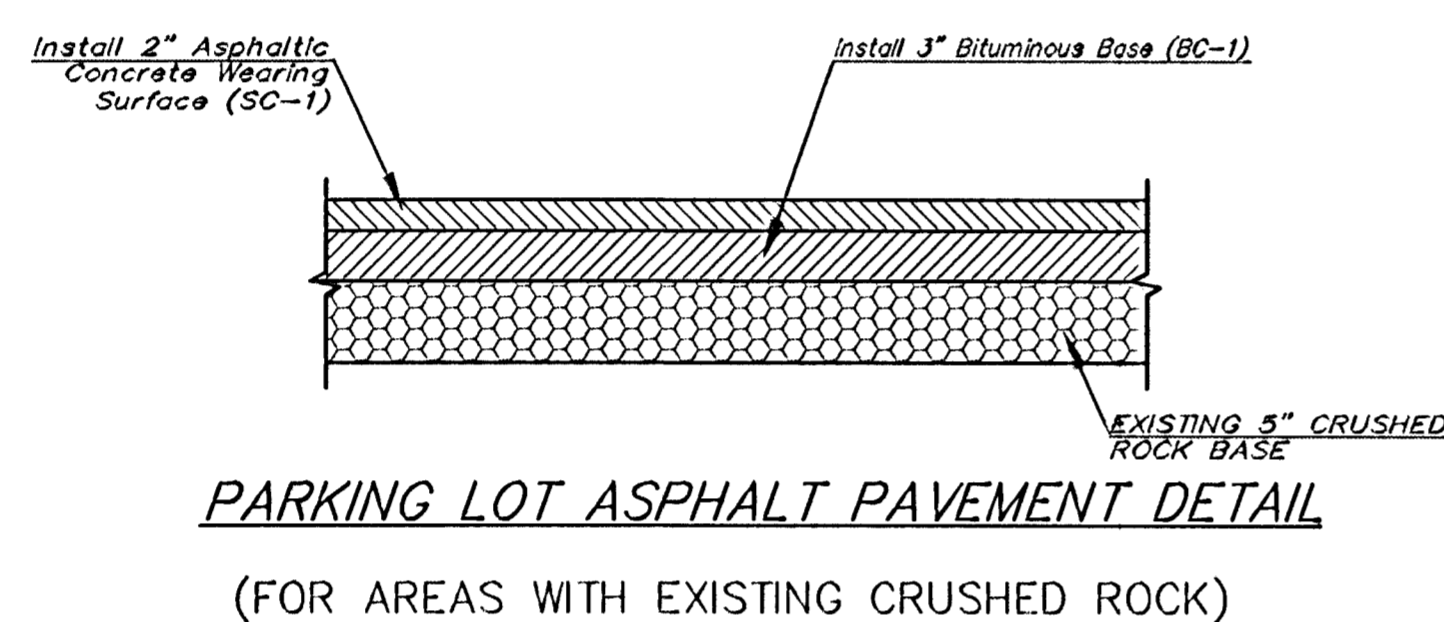
ROCK BASE IS TO BE COMPACTED AND SMOOTHED WITH A STEEL FACED ROLLER PRIOR TO PLACEMENT OF ASPHALT. TACK COAT WILL NOT BE APPLIED TO ROCK BASE.

A TACK COAT OF EMULSIFIED ASPHALT (SS-1H OR CSS-1H) SHALL BE APPLIED AT AN APPROXIMATE RATE OF 0.05 GALLONS PER SQUARE YARD BETWEEN EACH LIFT OF ASPHALTIC MATERIAL.

BITUMINOUS BASE AND ASPHALTIC CONCRETE WEARING SURFACE SHALL BE PLACED WITH A LAYDOWN MACHINE HAVING AUTOMATIC CONTROLS FOR LINE AND GRADE.

CONSTRUCTION JOINTS IN ONE LIFT SHALL BE STAGGERED A MINIMUM DISTANCE OF ONE (1) FOOT FROM JOINTS IN PRECEDING LIFTS AND PLACED SO THAT A JOINT WILL BE CONSTRUCTED ON THE CENTERLINE OF THE TOP LIFT.

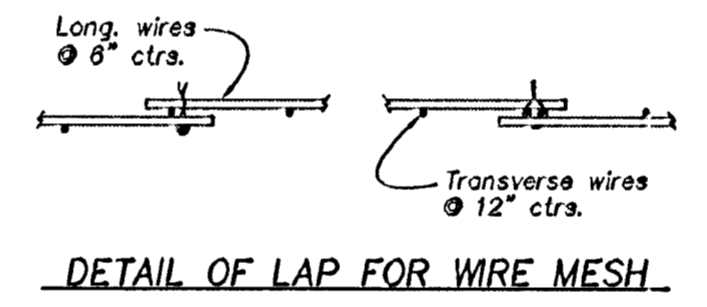
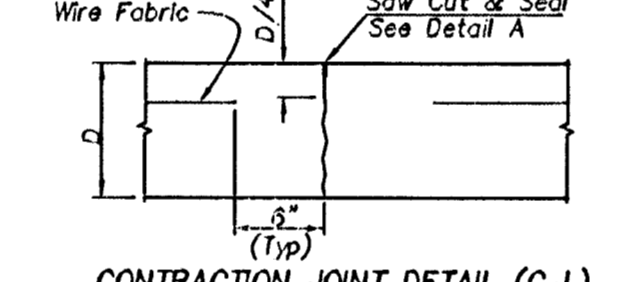
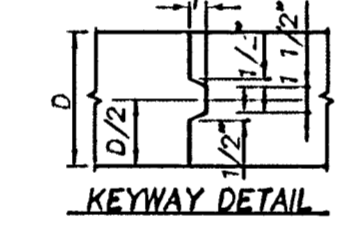
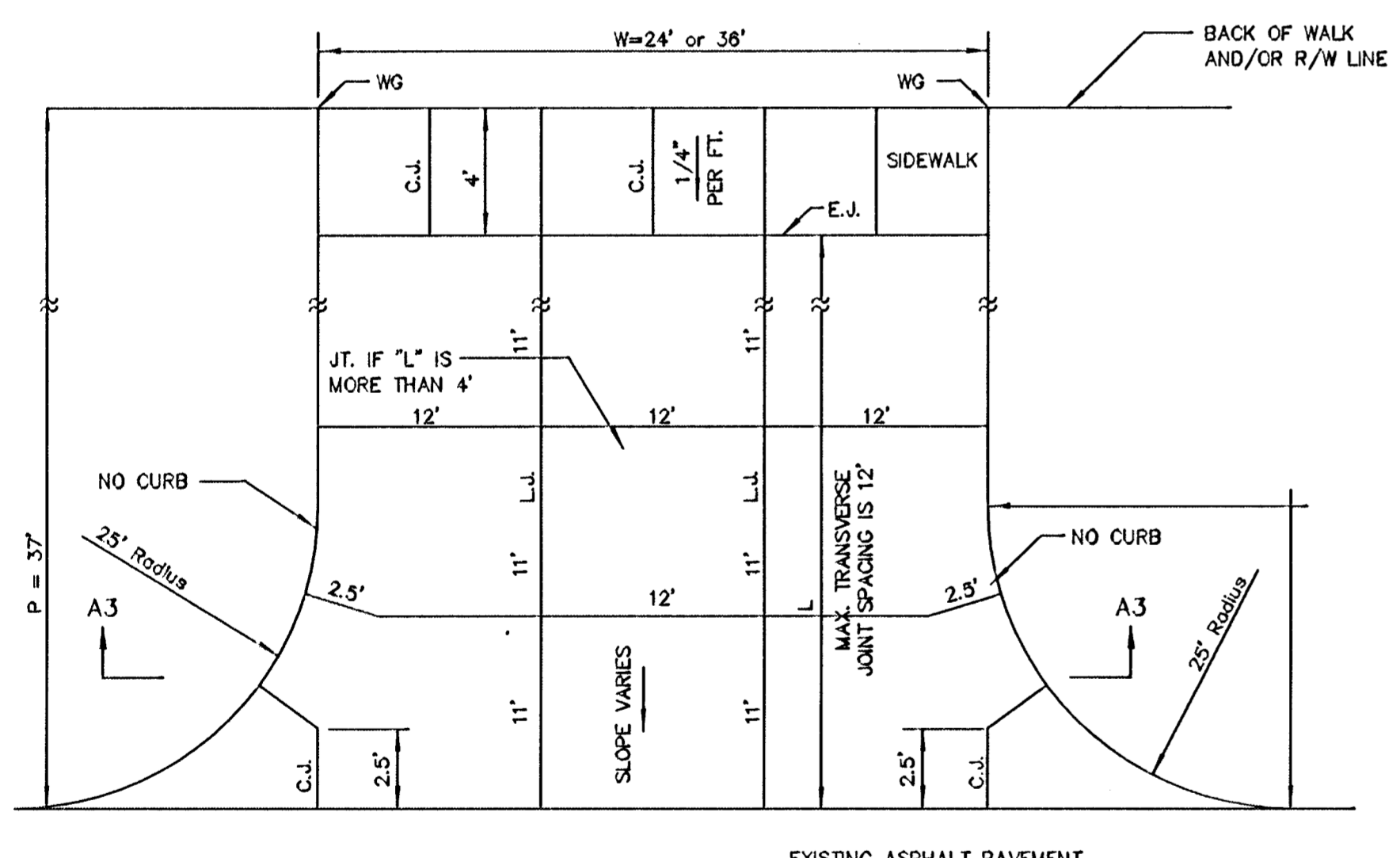
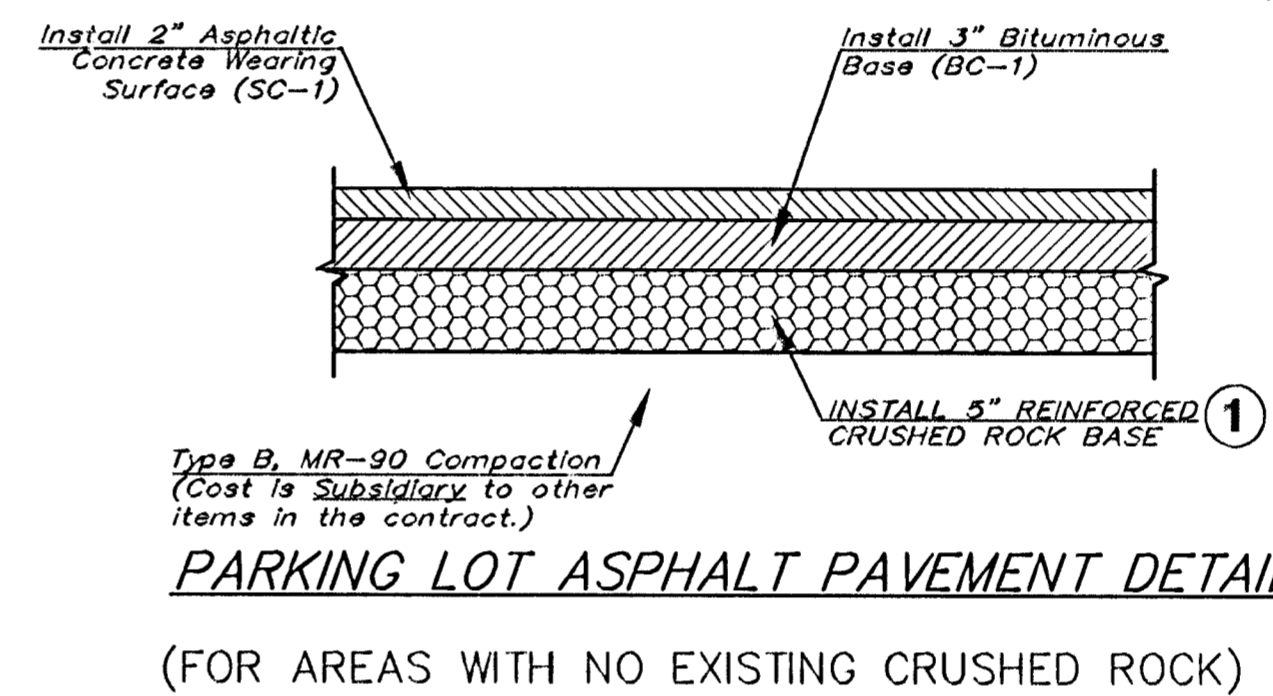
THE ASPHALTIC CONCRETE PAVEMENT BETWEEN THE COMBINED CURB AND GUTTER SHALL BE PAID AS SQUARE YARDS OF 5\"/>



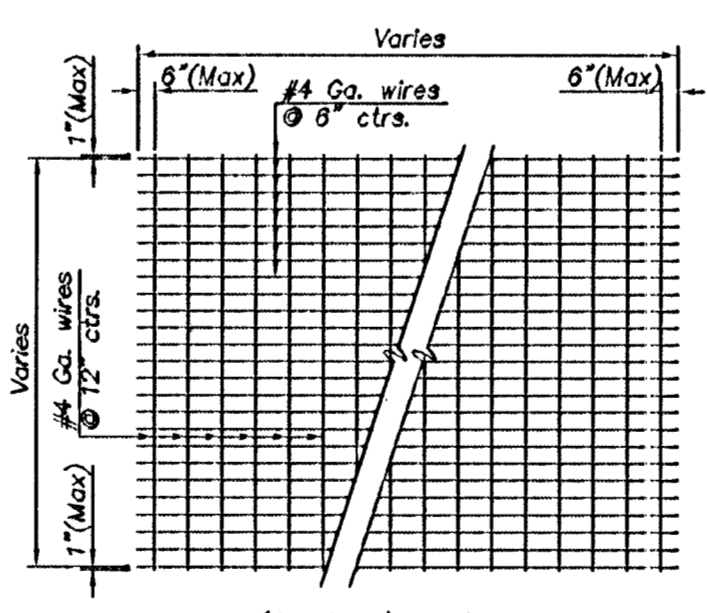
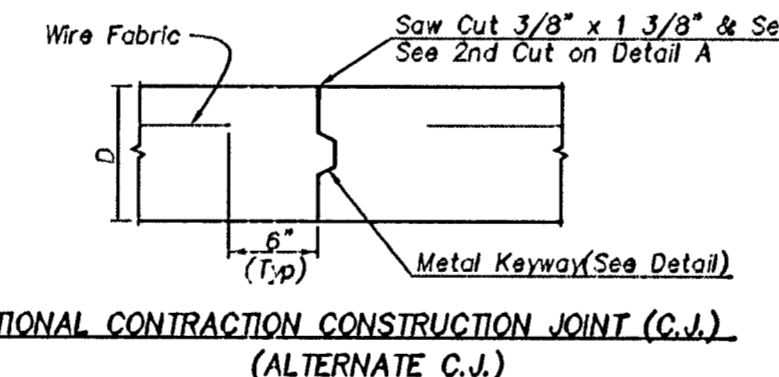
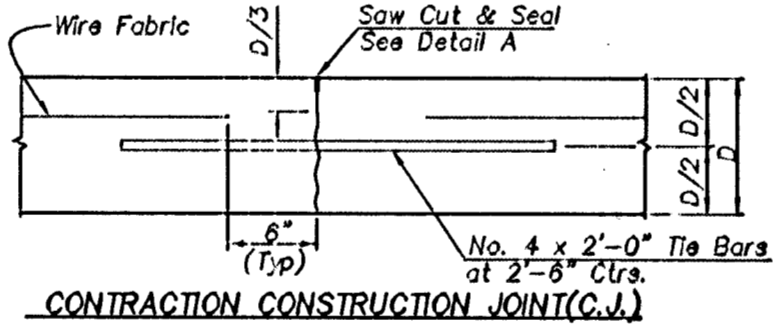
24' DRIVE PAVEMENT DETAIL

Sta. 0+13.15 to Sta. 8+94.89 (Base Bid)
Sta. 0+14.06 to Sta. 5+53.13 (Alternate #1 Bid)

1 NOTE: EXCAVATION HAS NOT BEEN COMPUTED FOR INSTALLATION OF 5\"/>



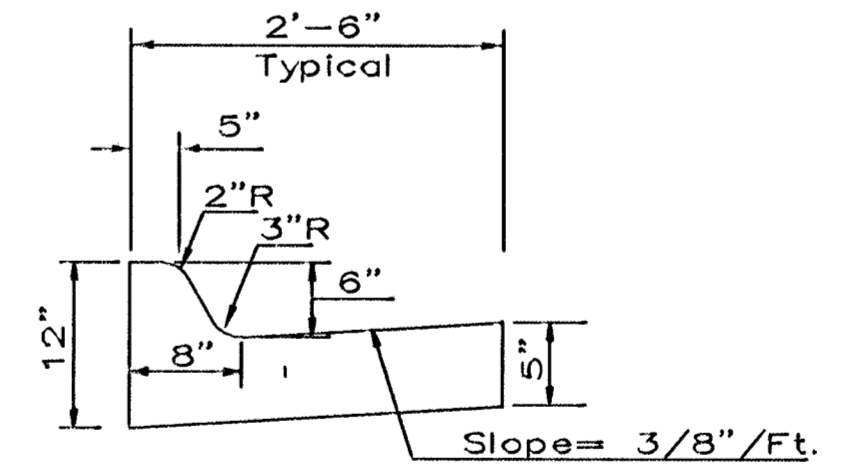
NOTE: The lap shall extend beyond the first transverse wire of each sheet.
The sheets shall be wired securely at the edges and at intervals not to exceed 2'-6\"/>



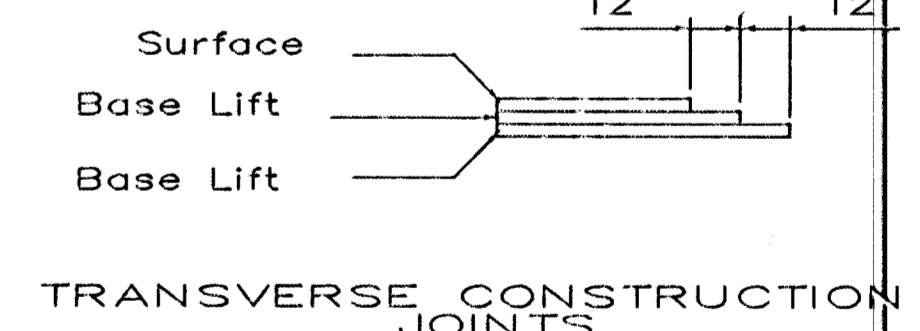
CRUSHED ROCK GRADATION REQUIREMENTS

Percent of Aggregate Retained	Gradation
1 1/2"	0
3/4"	15-60
#4	40-80
#10	74-92
P-200	4-12

Rock Quality Shall Be The Same As Specified For Coarse Aggregate For Asphalt Concrete Mixes.

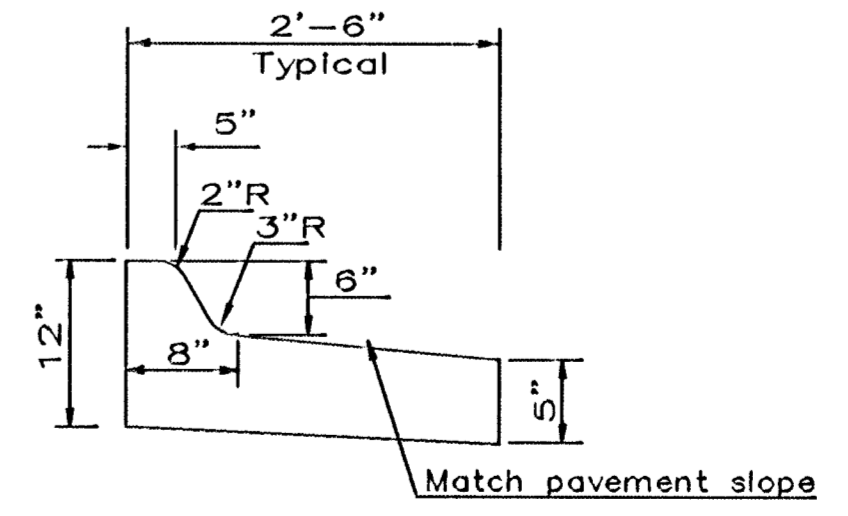


CURB & GUTTER DETAIL

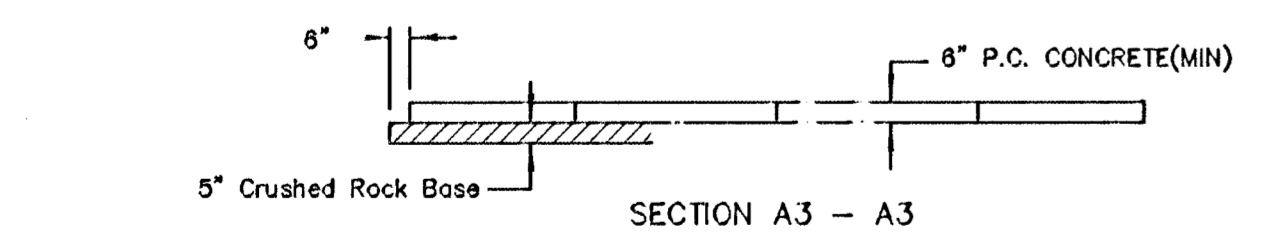


TRANSVERSE CONSTRUCTION JOINTS

Transverse construction joints shall be constructed in flexible base pavements at locations where pavement joins existing flexible base pavement as shown by the detail. All costs associated with the construction of the transverse joint shall be included in the bid price for Square Yards 5\"/>

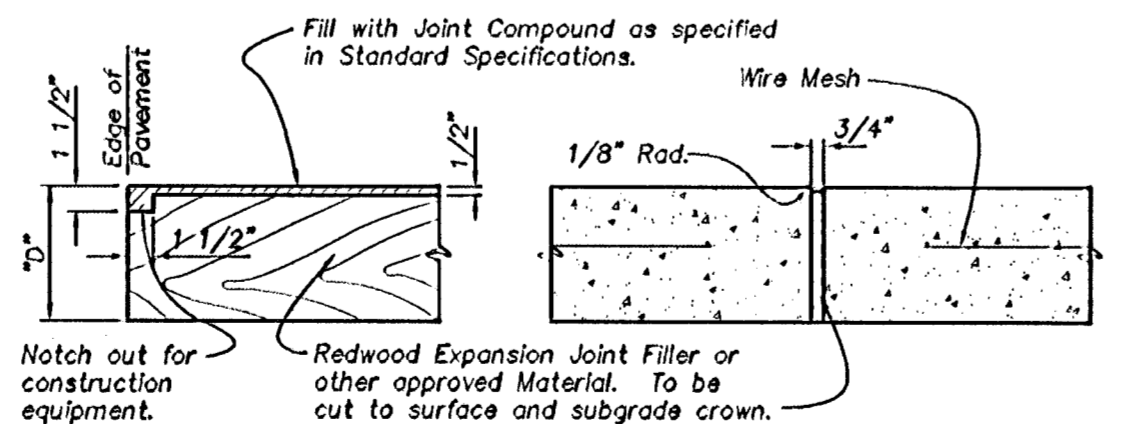


CURB & GUTTER DETAIL (INVERTED GUTTER, DRAIN AWAY)



CONCRETE ENTRANCE DETAILS

- MAIN SOUTH ENTRANCE (W=36', D=6")
- ENTRANCE @ STA. 2+86.45 (W=24', D=6")
- ALTERNATE #1 NORTH ENTRANCE (W=36', D=6")

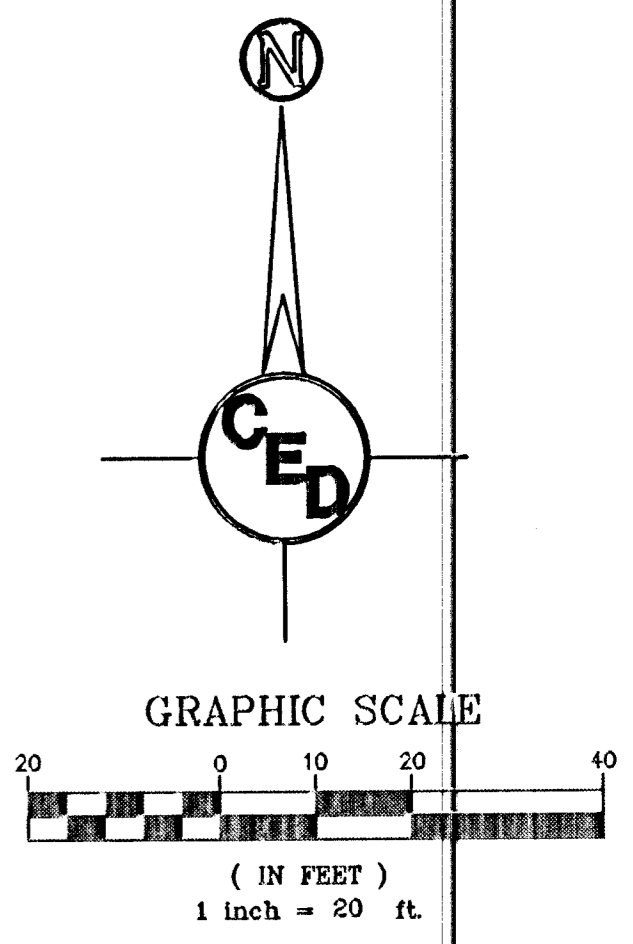


EXPANSION JOINT DETAIL

NOTE: Expansion Joint Material must be securely held in place by using Metal Stakes, Metal Pins, or by other approved methods so that when the pavement is completed the Expansion Material will be Perpendicular to the surface of the completed pavement. Concrete shall be Hand Placed on each side of the Expansion Joint Material in a manner that will preclude displacement of the Expansion Joint Material.

CITY OF WICHITA
TYPICAL PAVEMENT DETAIL
SOUTHLAKES PARK
CED PROJ. NO.: 20020900
CERTIFIED ENGINEERING DESIGN, P.A.
810 WEST DOUGLAS, SUITE C
WICHITA, KANSAS 67203
PH.(316)262-8808 FAX.(316)262-1889

DESIGNED: HDF	SCALE: NTS	SHEET
DRAWN: HDF	DATE: 7/02	3
CHECKED: HDF	CED FILE: 24Typ.dwg	TOTAL 16



GRAPHIC SCALE
 (IN FEET)
 1 inch = 20 ft.

- LEGEND
- W = WATER MAIN
 - SS = SANITARY SEWER
 - SWS = STORM WATER SEWER
 - UGE = UNDER GROUND ELECTRIC
 - B.M. BENCH MARK
 - E.B. ELECTRIC BOX
 - F.H. FIRE HYDRANT
 - WV WATER VALVE
 - G.P. GUARD POST
 - H.L.P. HIGH LINE POLE
 - L.P. LIGHT POLE
 - G.P. GATE POST
 - P.P. POWER POLE
 - SIGN SIGN
 - T.P. TELEPHONE POLE
 - TRFMR ELECTRIC TRANSFORMER
 - SS M.H. SANITARY SEWER MANHOLE
 - D.I. 2' x 2' AREA INLET
 - EXISTING DIRT DRIVE
 - EXISTING CRUSHED ROCK BASE

BENCHMARK #1:
 City of Wichita Std. Disc 30' W. & 44' N.
 of Intersection of Meridian & 51st St. S.
 Elev.=88.62(City Datum)

BENCHMARK #2:
 " " Cut Center of Walk 9' S. of North
 Edge of Walk Between Ball Diamonds.
 Elev.=87.52(City Datum)

SURVEY CONTROL MONUMENTS

CM #	N	E	Material
CM #1	N-20000.000	E-20000.000	1/2" Rebar W/ Savoy Cap
CM #2	N-19970.731	E-20778.736	1/2" Rebar W/ Savoy Cap
CM #3	N-19284.293	E-20225.224	1/2" Rebar W/ Savoy Cap
CM #4	N-19788.532	E-21382.240	1/2" Rebar W/ Savoy Cap
CM #5	N-20106.150	E-21914.570	1/2" Rebar W/ Savoy Cap

PLAN LABELS DEFINITION TABLE

PRC = REVERSE CURVE/CURVE INTERSECT
 PC = BEGINNING OF CURVE
 PT = CURVE/TANGENT INTERSECT
 PVI = POINT OF VERTICAL INTERSECTION

CURVE TABLE (CL DRIVE DATA)

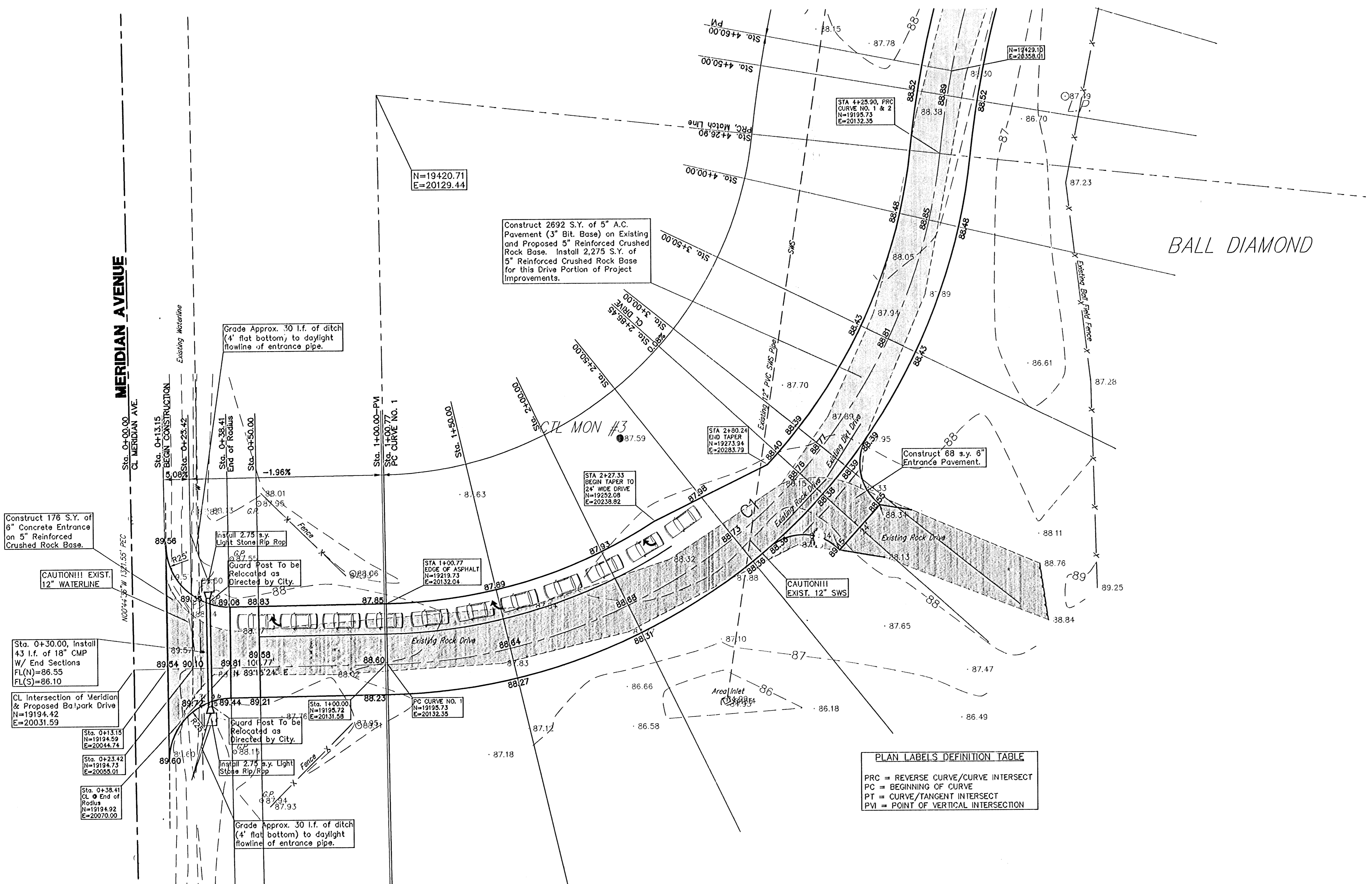
CURVE	LENGTH	RADIUS	DELTA	CHORD
C1	326.12	225.00	83°02'48"	298.32
C2	467.99	400.00	67°02'06"	441.75
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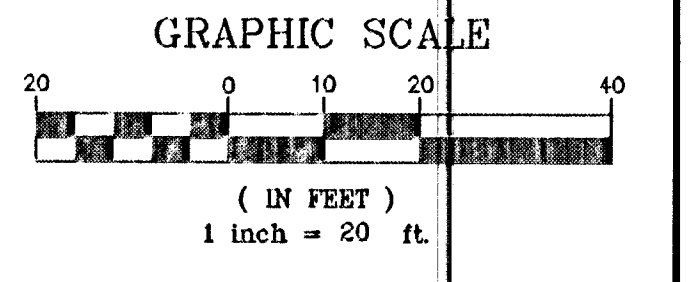
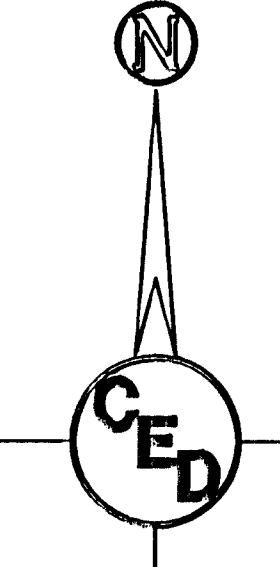
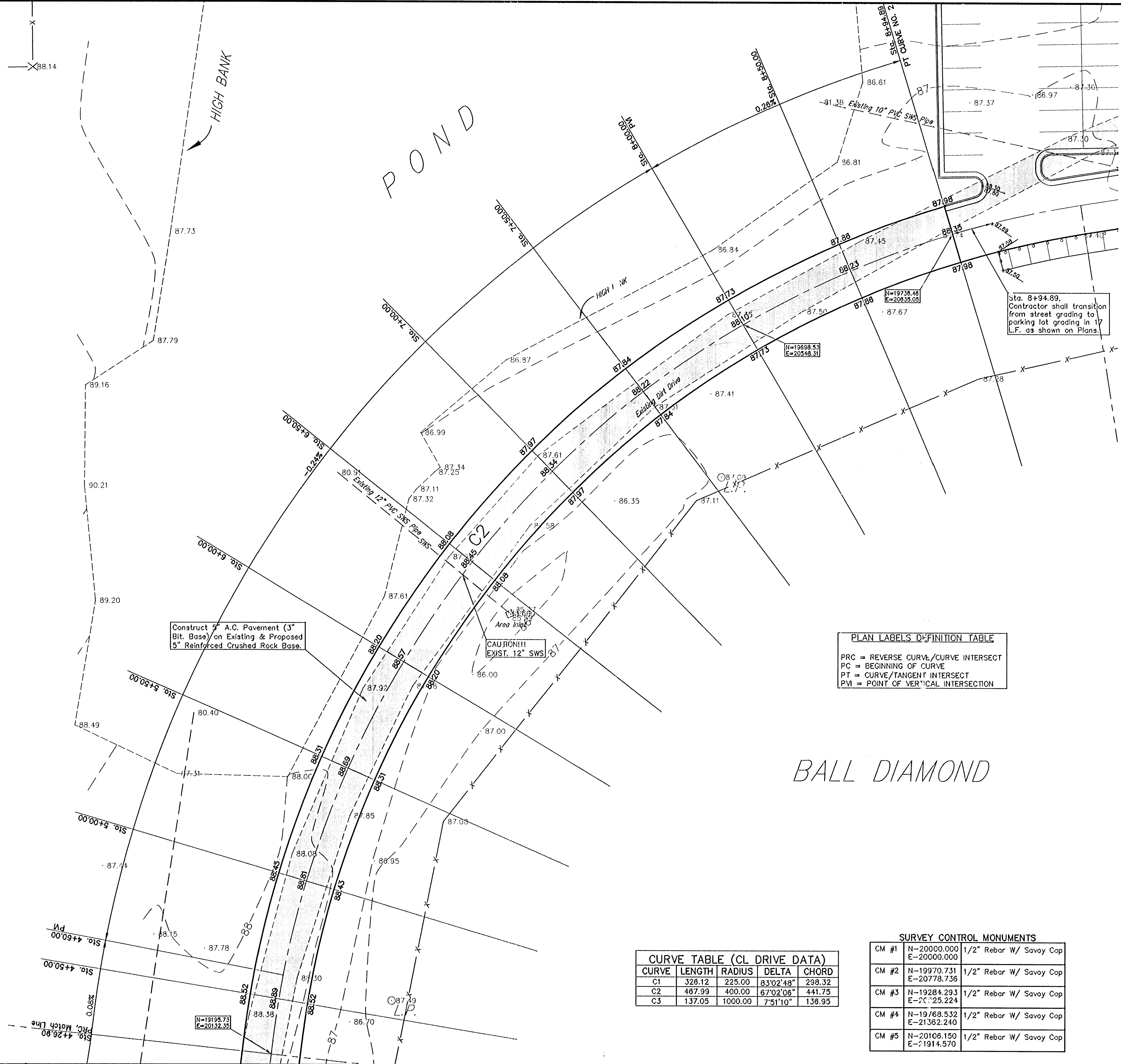
SURVEY DISCLAIMER:
 TOPOGRAPHIC SURVEY AND CONTOUR MAP USED IN PREPARING PLANS WAS PROVIDED BY SAVOY COMPANY, P.A., 535 S. EMPORIA, SUITE 104, WICHITA, KS. ENGINEER DOES NOT GUARANTEE SURVEY ELEVATIONS FOR ACCURACY. CONTRACTOR SHALL VERIFY ELEVATIONS AND NOTIFY ENGINEER OF ANY DISCREPANCIES.

UTILITIES SHOWN REPRESENT THE BEST INFORMATION AVAILABLE FOR DESIGN. ADDITIONAL UTILITIES MAY BE PRESENT ON THIS PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION, DEPTH AND SIZE OF ALL UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE LIABLE FOR ANY DAMAGE CAUSED BY THE FAILURE TO DO SO.

STREET PLAN & PROFILE FOR
SOUTHLAKES PARK
 WICHITA, SEDGWICK CO., KANSAS
 CED PROJ. NO.: 20020900
CERTIFIED ENGINEERING DESIGN, P.A.
 810 WEST DOUGLAS, SUITE C
 WICHITA, KANSAS 67203
 PH.(316)262-8808 FAX.(316)262-1669

DESIGNED: HDF SCALE: 1"=20' SHEET 4
 DRAWN: CKW DATE: 7/02
 CHECKED: HDF CED FILE: SthLakes-Bos4 TOTAL 16





- LEGEND
- W = WATER MAIN
 - SS = SANITARY SEWER
 - SWS = STORM WATER SEWER
 - UGE = UNDER GROUND ELECTRIC
- ⊙ B.M. BENCH MARK
 - ⊙ E.B. ELECTRIC BOX
 - ⊙ F.H. FIRE HYDRANT
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 - ⊙ G.P. GATE POST
 - ⊙ P.P. POWER POLE
 - ⊙ S. SIGN
 - ⊙ T.P. TELEPHONE POLE
 - ⊙ T.F. ELECTRIC TRANSFORMER
 - ⊙ S.S.M.H. SANITARY SEWER MANHOLE
 - ⊙ D.I. 2' x 2' Area Inlet
 - ▭ EXISTING DIRT DRIVE
 - ▭ EXISTING CRUSHED ROCK BASE

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 of Intersection of Meridian & 51st St. S.
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 Edge of Walk Between Ball Diamonds.
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CURVE TABLE (CL DRIVE DATA)

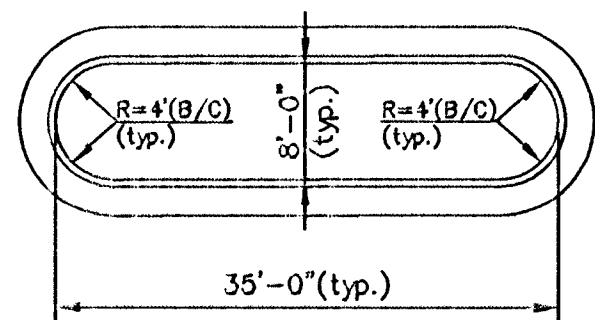
CURVE	LENGTH	RADIUS	DELTA	CHORD
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C2	487.99	400.00	67°02'06"	441.75
C3	137.05	1000.00	7°51'10"	138.95

SURVEY CONTROL MONUMENTS

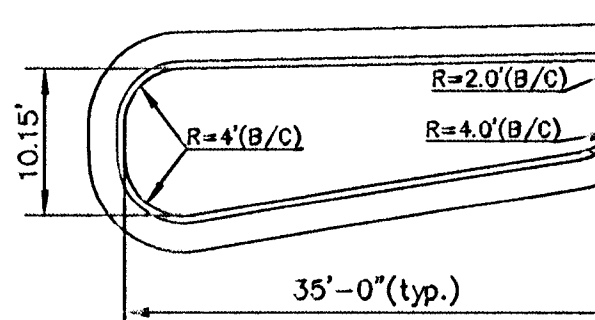
CM #1	N=20000.000 E=20000.000	1/2" Rebar W/ Savoy Cop
CM #2	N=19970.731 E=20778.736	1/2" Rebar W/ Savoy Cop
CM #3	N=19284.293 E=2125.224	1/2" Rebar W/ Savoy Cop
CM #4	N=19768.532 E=21362.240	1/2" Rebar W/ Savoy Cop
CM #5	N=20106.150 E=1914.570	1/2" Rebar W/ Savoy Cop

STREET PLAN & PROFILE FOR
SOUTHLAKES PARK
 WICHITA, SEDGWICK CO., KANSAS
 CED PROJ. NO.: 20020900
CERTIFIED ENGINEERING DESIGN, P.A.
 810 WEST DOUGLAS, SUITE C
 WICHITA, KANSAS 67203
 PH.(316)262-8808 FAX.(316)262-1669

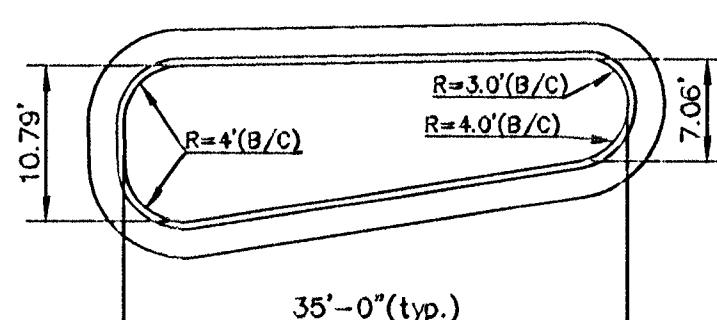
DESIGNED: HDF SCALE: 1"=20' SHEET 5
 DRAWN: CKW DATE: 7/02
 CHECKED: HDF CED FILE: SthLakes-Bose TOTAL 16



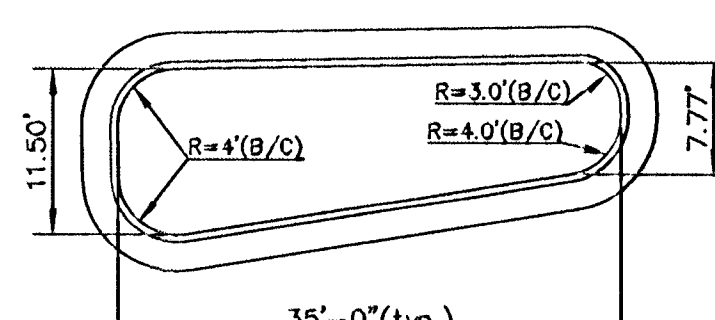
Type 1 Island Detail
28 REQUIRED
28 x 82.27 LF. of Curb
= 2,303.56 LF. Total



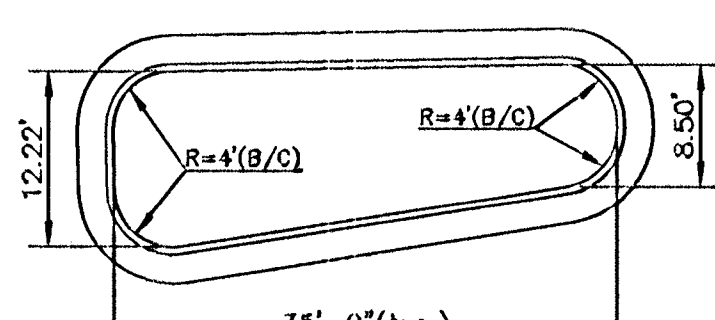
Type 2 Island Detail
1 REQUIRED
83.97 LF. of Curb



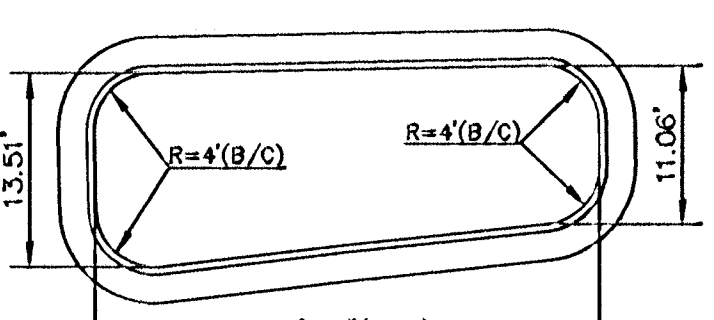
Type 3 Island Detail
1 REQUIRED
84.94 LF. of Curb



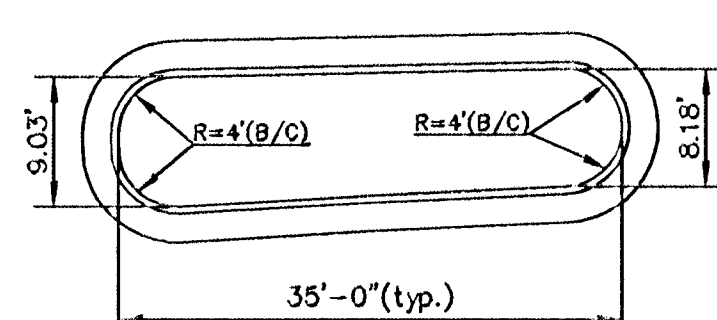
Type 4 Island Detail
1 REQUIRED
86.31 LF. of Curb



Type 5 Island Detail
1 REQUIRED
87.55 LF. of Curb



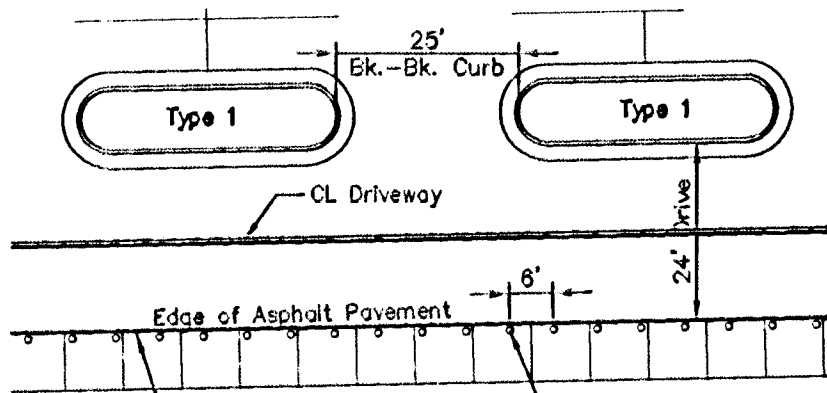
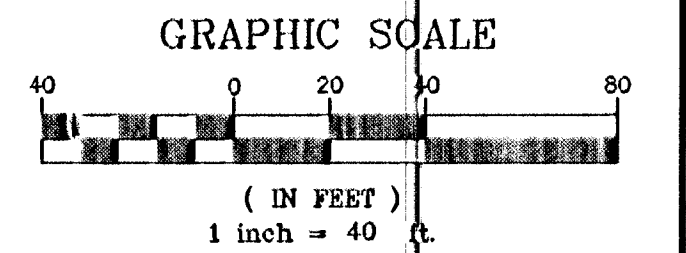
Type 6 Island Detail
1 REQUIRED
90.99 LF. of Curb



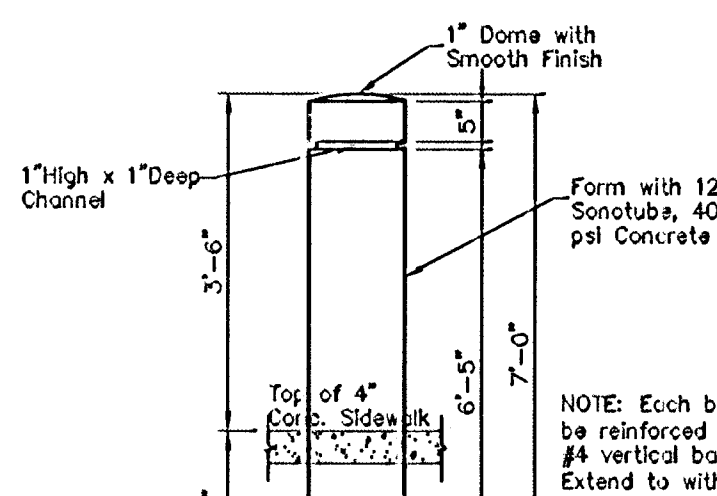
Type 7 Island Detail
1 REQUIRED
83.50 LF. of Curb

① Curb & Gutter for Island Shall be Constructed with the Gutter inverted to Ensure Drainage away from the Curb.

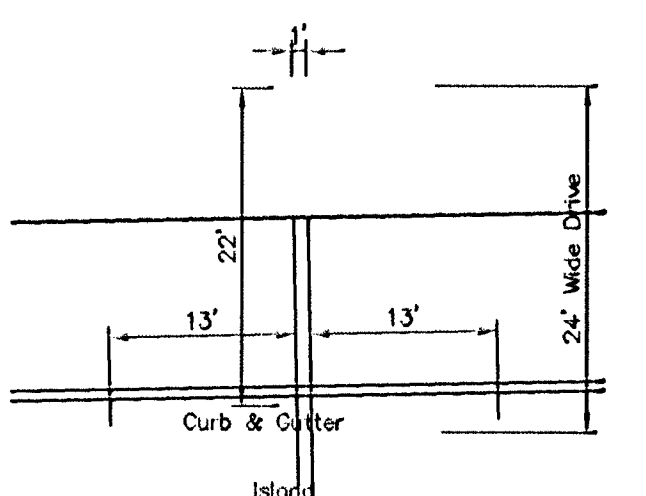
NOTE: Proposed top of pavement grades are approximately 5' above the existing crushed rock base. Contractor shall fine grade existing rock base and ensure positive sheet flow surface drainage in conformance to the grades and contours shown on this plan. Fine grading shall not be paid for separately but shall be considered Subsidiary to other items in the contract.



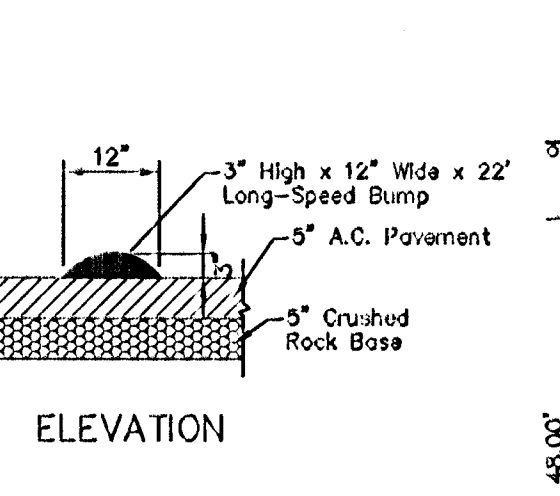
Typical Drive/Sidewalk Layout



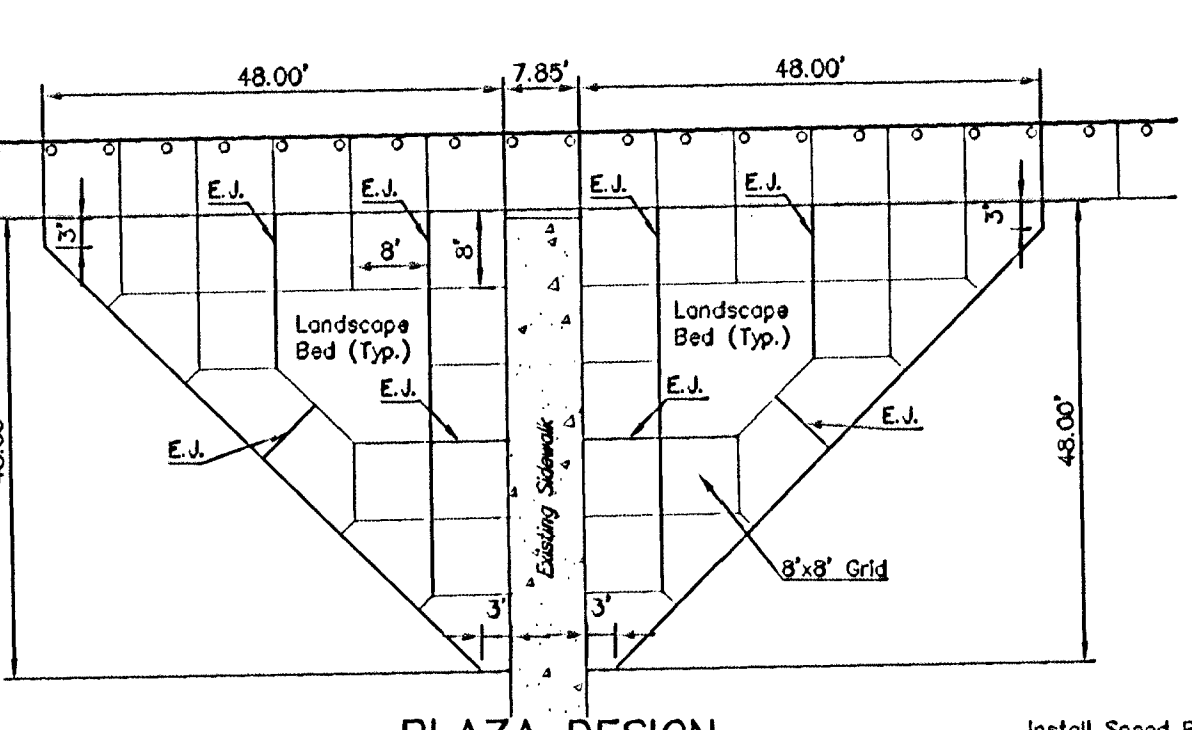
Concrete Pipe Bollard Detail
APPROX. 177 REQUIRED



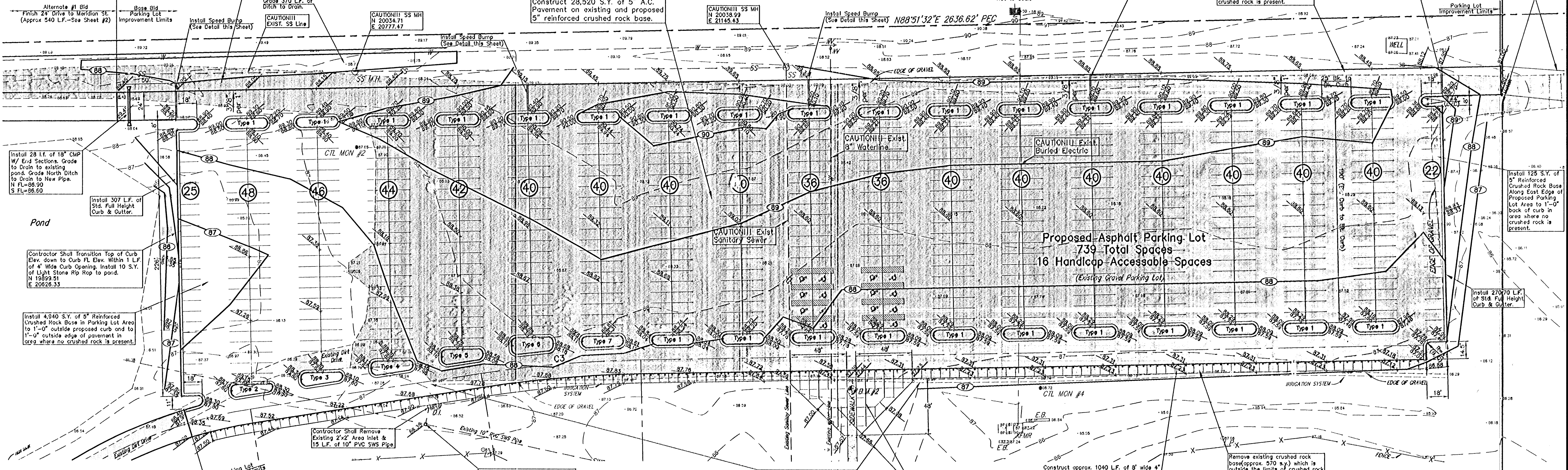
Speed Bump Detail
5 REQUIRED



ELEVATION



PLAZA DESIGN
Not to Scale



SITE GRADING NOTES

The Contractor shall provide a minimum advance notice of 48 hours to utility companies prior to starting construction as follows:

KANSAS ONE CALL 1-800-344-7233 or 687-2470 (LOCAL WICHITA)

The Contractor must notify the following in the event of an emergency:

- Cox Cables 262-4270 or 263-2061
- Southwestern Bell Telephone 1-571-2611
- Kansas Gas Service 832-3168
- K&E-Electric 268-4555
- Peoples Natural Gas 942-8811
- City of Wichita (Water & Sewer) 268-4555

The contractor shall notify pipeline companies at least 24 hours in advance of any work being performed across and/or adjacent to pipelines.

- Pavement grades shown are to the top of pavement.
- Existing elevations were provided by others. Contractor shall verify existing grades and notify Engineer of any discrepancies. Elevations are based on City Datum.
- Contractor shall be responsible for establishing and protecting Benchmarks throughout construction.
- Contractor shall strip site of topsoil (5" min.) and stockpile this material to be used in grassed areas.

- Curb at East and West ends of Parking Lot and all Landscape Islands are City of Wichita Standard Combined Curb & Gutter.
- Compaction of fill material and subgrade stabilization shall comply with Geotechnical Engineering Report.
- All soil used for overexcavation and for backfilling of excavations for basement, tank removal etc. shall be tested for compaction as required by an independent Soils Engineer's recommendations.
- The Contractor shall examine the construction site before bidding and be satisfied as to the work shown for completion. After bids have been received, the Contractor shall not assert that there was a misunderstanding of the quantities of work or of the nature of work to be completed.
- All proposed slopes and grades shall be in accordance with ADA Sec. 4.1.3(a)(1).

G SITE GRADING PLAN

- GRADING LEGEND**
- 87.23 - Existing Elevation
 - 86 - Existing Contour Elevation
 - 85 - Proposed Spot Elevation
 - 85 - Proposed Contour Elevation
 - - Proposed Drainage Flow Direction
 - - - - Proposed Ridge Line

CURVE TABLE (CL DRIVE DATA)

CURVE	LENGTH	RADIUS	DELTA	CHORD
C1	326.12	225.00	83°02'43"	298.32
C2	467.99	400.00	67°02'08"	441.75
C3	137.05	1000.00	7°31'10"	136.95

- LEGEND**
- W = WATER MAIN
 - SS = SANITARY SEWER
 - SWS = STORM WATER SEWER
 - UGE = UNDER GROUND ELECTRIC
 - B.M. = BENCH MARK
 - E.B. = ELECTRIC BOX
 - F.H. = FIRE HYDRANT
 - W.V. = WATER VALVE
 - G.P. = GUARD POST
 - H.L.P. = HIGH LINE POLE
 - D.I. = 2' x 2' Area Inlet
 - L.P. = LIG-T POLE
 - G.P. = GATE POST
 - P.P. = POWER POLE
 - S. = SIGN
 - T.P. = TELEPHONE POLE
 - T.F. = TELEPHONE TRANSFORMER
 - S.S.M.H. = SANITARY SEWER MANHOLE
 - E.D. = EXISTING DIRT DRIVE
 - C.R.B. = EXISTING CRUSHED ROCK BASE

SURVEY DISCLAIMER:
TOPOGRAPHIC SURVEY AND CONTOUR MAP USED IN PREPARING PLANS WAS PROVIDED BY SAVOY COMPANY, P.A., 535 S. EMPORIA, SUITE 104, WICHITA, KS. ENGINEER DOES NOT GUARANTEE SURVEY ELEVATIONS FOR ACCURACY. CONTRACTOR SHALL VERIFY ELEVATIONS AND NOTIFY ENGINEER OF ANY DISCREPANCIES.

UTILITIES SHOWN REPRESENT THE BEST INFORMATION AVAILABLE FOR DESIGN. ADDITIONAL UTILITIES MAY BE PRESENT ON THIS PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION, DEPTH AND SIZE OF ALL UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE LIABLE FOR ANY DAMAGE CAUSED BY THE FAILURE TO DO SO.

SOUTHLAKES PARK
PARKING LOT IMPROVEMENTS
WICHITA, SEDGWICK CO., KANSAS
CED PROJ. NO.: 20020900
CERTIFIED ENGINEERING DESIGN, P.A.
810 WEST DOUGLAS, SUITE C
WICHITA, KANSAS 67203
PH. (316) 262-8808 FAX. (316) 262-1669

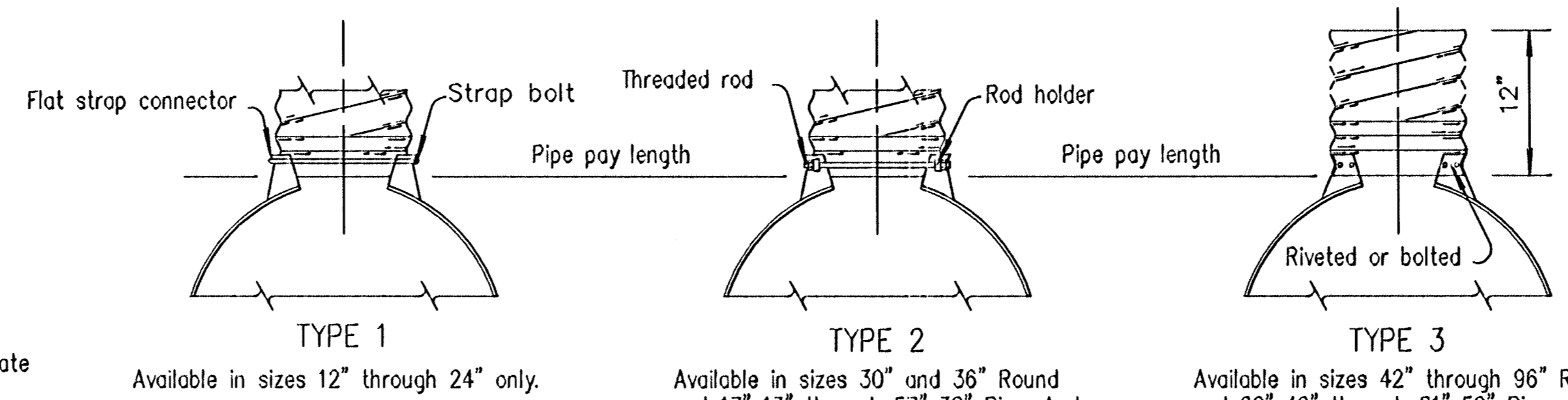
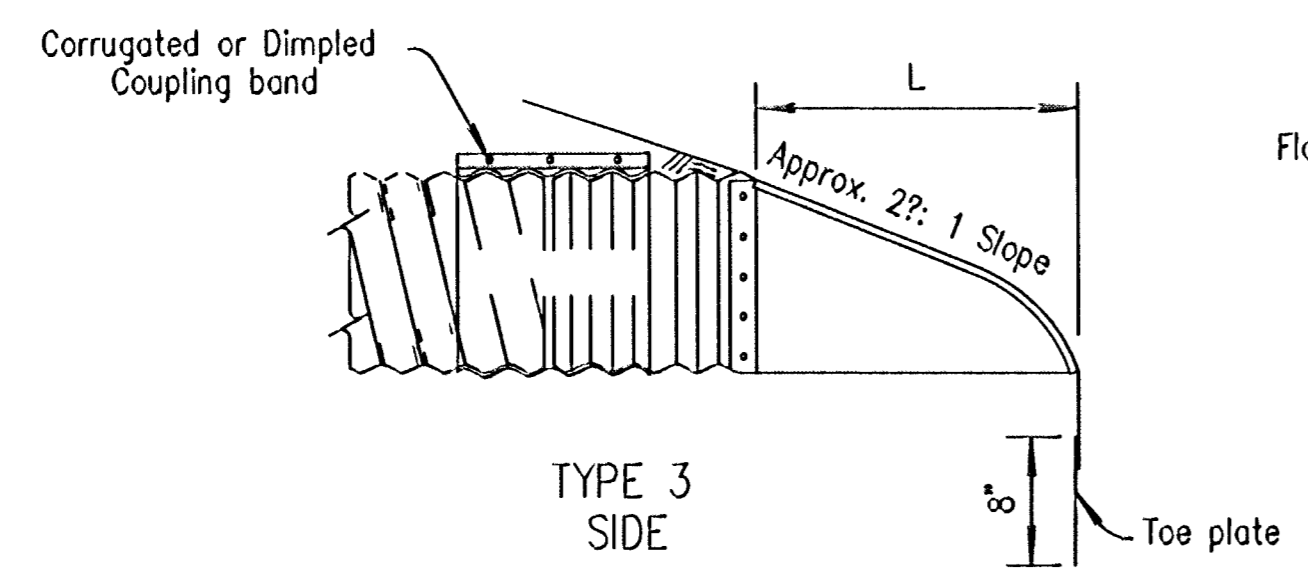
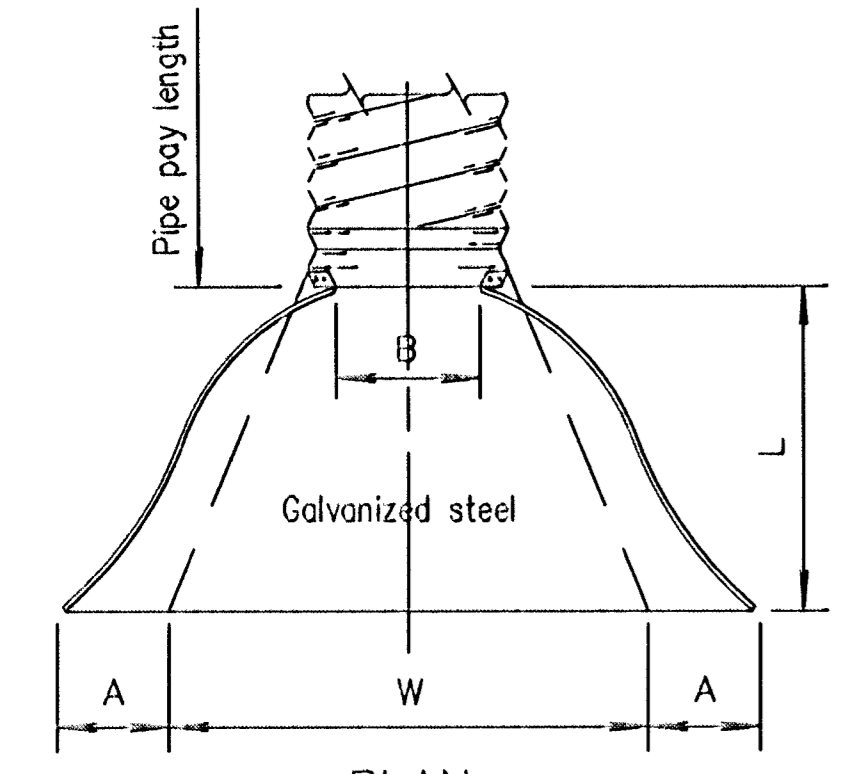
DESIGNED: HDF
DRAWN: CKW
CHECKED: HDF

SCALE: 1"=40'
DATE: 7/02
CED FILE: SthLakes-Boss.dwg

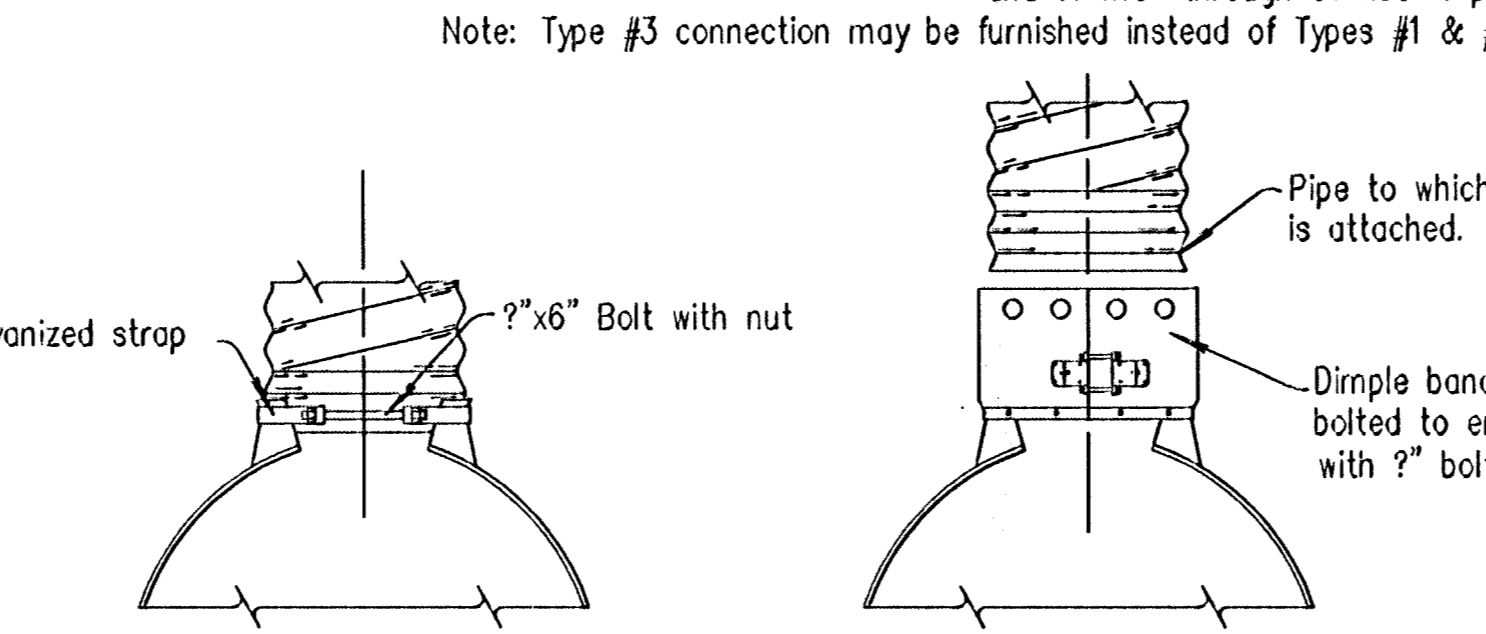
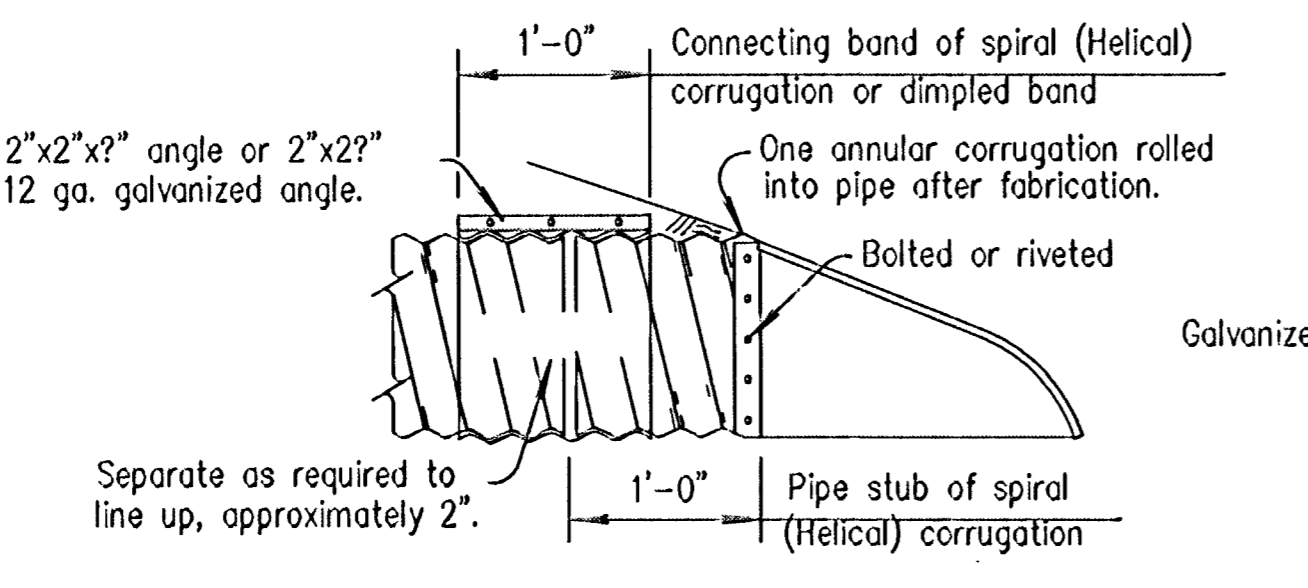
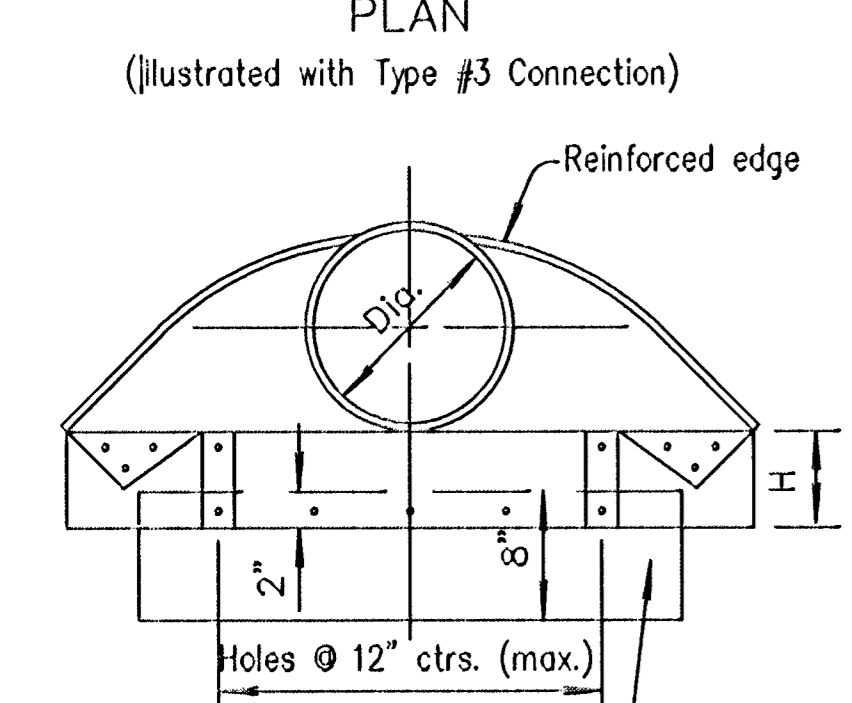
SHEET 6
TOTAL 16

Number	Northing	Eastng	Elevation	Description	Number	Northing	Eastng	Elevation	Description	Number	Northing	Eastng	Elevation	Description	Number	Northing	Eastng	Elevation	Description
6000	20017.03	20573.38	89.45	EOP	6155	19751.71	21213.51	0.00	SW-COR	6310	20001.35	21418.45	0.00	BC-RP	6465	19985.37	21754.99	86.57	G
6001	19999.04	20574.45	89.45	EOP	6156	19747.26	21209.79	87.65	SW-COR	6311	20005.42	21422.37	89.90	BC-RP	6466	20054.03	21750.89	86.50	G
6002	19994.00	20574.45	89.71	EOP/PC	6157	19747.26	21209.79	0.00	SW-COR	6312	20005.42	21422.37	0.00	BC-RP	6467	20054.03	21750.89	86.35	G
6003	19993.53	20574.45	89.70	BC-RP	6158	19750.56	21230.99	87.08	SW	6313	20000.81	21391.45	0.00	BC-RP	6468	19992.70	21809.24	86.38	G
6004	19993.81	20574.45	89.70	BC-RP	6159	19773.51	21252.19	0.00	SW-COR	6314	20008.81	21391.30	0.00	BC-RP	6469	19954.98	21805.89	86.59	G
6005	19989.80	20574.45	89.90	BC-RP	6160	19776.51	21252.19	87.23	SW-COR	6315	20004.73	21397.38	89.90	BC-RP	6470	19955.81	21779.18	86.40	G
6006	19989.81	20574.45	89.90	BC-RP	6161	19776.51	21252.19	0.00	SW-COR	6316	20004.73	21397.38	0.00	BC-RP	6471	19916.48	21745.71	86.30	G
6007	19989.81	20574.45	89.90	BC-RP	6162	19807.60	21182.21	0.00	BC-RP	6317	20032.38	21344.32	89.85	EOP	6472	19911.14	21754.05	86.31	G
6008	19985.50	20574.45	89.80	BC-COR	6163	19811.68	21186.19	88.28	BC-RP	6318	20007.88	21344.81	90.10	BC	6473	19755.56	21754.84	86.28	G
6009	19985.50	20574.45	89.80	BC-COR	6164	19811.68	21186.19	0.00	BC-RP	6319	19949.88	21344.81	89.84	BC	6474	19990.41	20671.52	0.00	CP
6010	19755.50	20574.45	89.80	BC-COR	6165	19811.68	21186.19	0.00	BC-RP	6320	20008.81	21391.30	0.00	BC-RP	6475	19994.40	20671.52	0.00	BC-RP
6011	19759.87	20574.45	0.00	BC-RP	6166	19815.33	21169.61	88.48	BC	6321	20000.15	21358.47	0.00	BC-RP	6476	19985.47	20671.52	0.00	BC-RP
6012	19756.44	20574.45	0.00	BC-RP	6167	19815.33	21169.61	0.00	BC-RP	6322	20004.23	21362.39	89.90	BC-RP	6477	19990.39	20667.52	89.00	BC-RP
6013	19756.44	20574.45	89.80	BC-RP	6168	19819.99	21151.10	88.28	BC-RP	6323	19999.41	21362.39	0.00	BC-RP	6478	20018.00	20667.52	87.25	EOP/BS
6014	19756.01	20574.45	0.00	BC-RP	6169	19819.99	21151.10	0.00	BC-RP	6324	20007.61	21362.39	89.90	BC-RP	6479	19978.26	20667.52	86.26	TOP
6015	19752.07	20574.45	0.00	BC-RP	6170	19809.26	21212.26	0.00	BC-RP	6325	20003.53	21362.39	89.90	BC-RP	6480	19989.35	20747.16	87.38	TOP
6016	19756.30	20574.45	0.00	CP	6171	19809.26	21212.26	0.00	BC-RP	6326	20003.61	21362.39	0.00	BC-RP	6481	19989.66	20807.06	89.18	TOP
6017	19756.30	20574.45	0.00	CP	6172	19816.88	21242.10	0.00	BC-RP	6327	20004.11	21362.39	0.00	BC-RP	6482	19995.34	20807.06	89.50	TOP
6018	19748.42	20574.45	88.48	BC-RP	6173	19809.26	21242.10	88.09	BC-RP	6328	20031.18	21284.33	89.85	EOP	6483	19901.04	20926.86	89.36	TOP
6019	19747.34	20574.45	87.38	EOP/PC	6174	19812.80	21242.10	0.00	CP	6329	20006.69	21284.33	90.10	BC	6484	19902.23	20926.86	89.32	TOP
6020	19736.46	20574.45	88.35	CIR-DR	6175	19816.53	21223.60	88.29	BC	6330	19999.69	21284.33	89.84	BC	6485	19903.43	21046.83	89.11	TOP
6021	19724.36	20574.45	87.38	EOP/SW	6176	19816.53	21223.60	0.00	BC-RP	6331	19998.06	21284.33	0.00	BC-RP	6486	19904.66	21106.82	89.02	TOP
6022	19729.33	20574.45	87.58	EOP/SW	6177	19812.18	21211.18	88.09	BC-RP	6332	20006.35	21284.33	0.00	BC-RP	6487	19905.82	21166.81	88.60	TOP
6023	19721.50	20574.45	87.58	SW-COR	6178	19812.18	21211.18	0.00	CP	6333	20003.03	21302.40	89.90	BC-RP	6488	19907.01	21226.80	88.60	TOP
6024	19736.81	20574.45	87.54	EOP-RP	6179	19809.46	21215.25	0.00	BC-RP	6334	20002.36	21302.40	0.00	CP	6489	19908.21	21226.80	88.60	TOP
6025	19728.30	20574.45	87.46	SW-RP	6180	19809.39	21302.24	0.00	BC-RP	6335	20002.42	21302.40	0.00	CP	6490	19909.40	21346.77	88.60	TOP
6026	19759.38	20574.45	0.00	BC-RP	6181	19817.99	21302.08	0.00	BC-RP	6336	19998.42	21271.48	0.00	BC-RP	6491	19910.60	21406.76	88.60	TOP
6027	19763.74	20574.45	0.00	BC-RP	6182	19814.07	21306.16	89.09	BC-RP	6337	20006.42	21271.48	0.00	BC-RP	6492	19911.79	21466.75	88.60	TOP
6028	19761.70	20574.45	0.00	BC-RP	6183	19813.99	21302.16	0.00	CP	6338	20002.34	21267.41	89.90	BC-RP	6493	19912.98	21526.74	88.60	TOP
6029	19767.39	20574.45	89.30	BC	6184	19817.72	21285.50	88.29	BC	6339	20029.99	21224.35	89.85	EOP	6494	19914.18	21586.72	88.60	TOP
6030	19768.13	20574.45	0.00	BC-RP	6185	19817.45	21275.09	0.00	BC-RP	6340	20005.49	21224.35	90.20	BC	6495	19915.37	21646.71	88.60	TOP
6031	19770.09	20574.45	0.00	BC-RP	6186	19813.38	21271.71	89.09	BC-RP	6341	19997.49	21224.35	89.94	BC	6496	19916.21	21686.70	88.13	TOP
6032	19768.09	20574.45	0.00	CP	6187	19813.45	21271.71	0.00	CP	6342	19997.76	21224.35	0.00	BC-RP					
6033	19767.59	20574.45	0.00	CP	6188	19810.65	21271.71	0.00	BC-RP	6343	20005.76	21224.35	0.00	BC-RP					
6034	19769.78	20574.45	88.15	BC	6189	19811.19	21262.23	0.00	BC-RP	6344	20001.84	21242.41	90.00	BC-RP					
6035	19769.50	20574.45	0.00	BC-RP	6190	19815.27	21262.23	88.09	BC-RP	6345	20001.76	21242.41	0.00	CP					
6036	19765.43	20574.45	89.19	BC	6191	19811.19	21262.23	89.09	BC-RP	6346	20001.42	21242.41	0.00	CP					
6037	19764.33	20574.45	88.10	BC	6192	19815.19	21262.15	0.00	CP	6347	19997.22	21211.50	0.00	BC-RP					
6038	19763.23	20574.45	0.00	BC-RP	6193	19819.92	21348.57	89.29	BC	6348	20005.22	21211.50	0.00	BC-RP					
6039	19765.51	20574.45	0.00	BC-RP	6194	19819.65	21335.08	0.00	BC-RP	6349	20001.44	21207.42	90.00	BC-RP					
6040	19763.31	20574.45	0.00	CP	6195	19814.57	21331.16	88.09	BC-RP	6350	20028.79	21244.36	89.35	EOP/BS					
6041	19768.30	20574.45	0.00	BC-RP	6196	19814.65	21335.16	0.00	CP	6351	20004.30	21164.85	90.60	BC					
6042	19773.32	20574.45	0.00	BC-RP	6197	19811.85	21335.22	0.00	BC-RP	6352	19996.30	21165.01	90.36	BC					
6043	19771.20	20574.45	0.00	BC-RP	6198	19812.38	21422.29	0.00	BC-RP	6353	20002.31	21165.01	0.00	BC-RP					
6044	19777.21	20574.45	88.10	BC	6199	19816.46	21426.14	88.09	BC-RP	6354	20004.36	21178.34	0.00	BC-RP					
6045	19777.32	20574.45	0.00	BC-RP	6200	19820.38	21422.06	0.00	BC-RP	6355	20000.64	21182.42	90.40	BC-RP					
6046	19780.26	20574.45	0.00	BC-RP	6201	19816.34	21422.14	0.00	CP	6356	20000.57	21178.42	0.00	CP					
6047	19777.26	20574.45	0.00	CP	6202	19820.11	21408.56	88.29	BC	6357	20004.31	21178.42	0.00	BC-RP					
6048	19777.26	20574.45	0.00	CP	6203	19814.84	21395.07	0.00	BC-RP	6358	19996.03	21151.51	0.00	BC-RP					
6049	19779.30	20574.45	87.80	BC	6204	19815.77	21391.15	89.09	BC-RP	6359	19999.35	21147.43	90.40	BC					
6050	19773.70	20574.45	88.10	BC	6205	19815.27	21391.15	89.09	BC-RP	6360	19999.03	21151.51	90.60	BC					
6051	19775.65	20574.45	0.00	BC-RP	6206	19813.04	21455.21	0.00	BC-RP	6361	20007.60	21105.02	90.30	BC					
6052	19774.21	20574.45	88.30	BC	6207	19813.58	21482.21	0.00	BC-RP	6362	20003.10	21105.02	90.30	BC					
6053	19772.80	20574.45	0.00	BC-RP	6208	19817.66	21486.13	89.09	BC-RP	6363	19995.10	21105.02	90.60	BC					
6054	19775.70	20574.45	0.00	BC-RP	6209	19817.66	21486.13	89.09	BC-RP	6364	19995.10	21105.02	90.60	BC					
6055	19772.80	20574.45	0.00	CP	6210	19817.58	21482.13	0.00	CP	6365	20003.37	21118.36	0.00	BC-RP					
6056	19778.41	20574.45	0.00	BC-RP	6211	19821.31	21468.55	88.29	BC	6366	19999.45	21122.43	90.70	BC-RP					
6057	19782.67	20574.45	0.00	BC-RP	6212	19821.04	21455.13	0.00	BC-RP	6367	19999.37	21118.44	0.00	CP					
6058	19785.70	20574.45	0.00	BC-RP	6213	19816.34	21451.13	0.00	BC-RP	6368	19999.37	21118.44	0.00	CP					
6059	19787.52	20574.45	0.00	BC-RP	6214	19817.04	21455.13	0.00	CP	6369	19994.83	21091.52	0.00	BC-RP					
6060	19787.11	20574.45	88.46	BC	6215	19814.24	21515.20	0.00	BC-RP	6370	20002.83	21091.52	0.00	BC-RP					
6061	19790.46	20574.45	0.00	BC-RP	6216	19814.77	21542.04	0.00	BC-RP	6371	19998.75	21087.44	90.70	BC-RP					
6062	19787.46	2057																	

Number	Northing	Eastng	Elevation	Description	Number	Northing	Eastng	Elevation	Description	Number	Northing	Eastng	Elevation	Description	Number	Northing	Eastng	Elevation	Description
6000	20017.03	20573.98	89.45	BCP	6153	19751.71	21213.51	0.00	BC-COR	6310	20001.35	21418.46	0.00	BC-RP	6465	19985.37	21754.99	86.57	G
6001	19993.04	20574.45	89.45	BCP	6156	19727.56	21205.79	87.65	SM-COR	6311	20005.42	21422.37	89.30	BC-RP	6466	20054.03	21750.89	86.50	G
6002	19993.03	20574.44	89.45	BCP	6157	19727.56	21205.79	87.65	SM-COR	6312	20005.42	21422.37	89.30	BC-RP	6467	20054.03	21750.89	86.50	G
6003	19993.03	20574.44	89.45	BCP	6158	19750.56	21230.99	87.08	SM	6313	20000.84	21331.41	0.00	BC-RP	6468	19982.79	21803.24	86.39	G
6004	19993.01	20638.45	0.00	BC-RP	6159	19773.51	21253.18	0.00	SM-COR	6314	20008.81	21391.30	0.00	BC-RP	6469	19954.98	21805.89	86.59	G
6005	19993.01	20638.45	0.00	BC-RP	6160	19773.51	21253.18	87.23	SM-COR	6315	20007.74	21397.38	89.30	BC-RP	6470	19955.81	21779.18	86.40	G
6006	19993.01	20638.45	0.00	BC-RP	6161	19773.51	21253.18	87.23	SM-COR	6316	20007.74	21397.38	89.30	BC-RP	6471	19955.81	21779.18	86.40	G
6007	19993.01	20638.45	0.00	BC-RP	6162	19807.60	21182.27	0.00	BC-RP	6317	20032.38	21544.32	88.85	BCP	6472	19913.14	21754.05	86.31	G
6008	19993.01	20638.45	0.00	BC-RP	6163	19811.68	21186.19	88.28	BCP	6318	20007.88	21444.81	90.10	BC	6473	19959.56	21754.84	86.28	G
6009	19993.01	20638.45	0.00	BC-RP	6164	19815.60	21182.11	0.00	BC-RP	6319	19999.88	21444.97	89.84	BC	6474	19990.47	20671.52	0.00	CP
6010	19993.01	20638.45	0.00	BC-RP	6165	19811.68	21186.19	88.28	BCP	6320	20008.14	21338.31	0.00	BC-RP	6475	19924.47	20671.44	0.00	BC-RP
6011	19993.01	20638.45	0.00	BC-RP	6166	19815.60	21182.11	88.28	BCP	6321	20000.15	21338.47	0.00	BC-RP	6476	19986.47	20671.60	0.00	BC-RP
6012	19993.01	20638.45	0.00	BC-RP	6167	19815.60	21182.11	0.00	BC-RP	6322	20004.23	21362.39	89.30	BC-RP	6477	19990.39	20671.52	89.00	BCP
6013	19993.01	20638.45	0.00	BC-RP	6168	19810.59	21151.19	88.28	BCP	6323	19999.61	21331.41	0.00	BC-RP	6478	20018.03	20623.97	87.95	BCP/SB
6014	19993.01	20638.45	0.00	BC-RP	6169	19811.68	21186.19	88.28	BCP	6324	20008.14	21338.31	0.00	BC-RP	6479	19978.26	20681.26	86.86	BCP
6015	19993.01	20638.45	0.00	BC-RP	6170	19808.26	21215.26	0.00	BC-RP	6325	20005.52	21327.39	89.30	BC-RP	6480	19983.95	20741.16	87.38	BCP
6016	19993.01	20638.45	0.00	BC-RP	6171	19809.80	21242.26	0.00	BC-RP	6326	20005.61	21331.39	0.00	CP	6481	19989.63	20807.06	88.18	BCP
6017	19993.01	20638.45	0.00	BC-RP	6172	19815.60	21186.19	88.28	BCP	6327	20005.42	21422.37	89.30	BC-RP	6482	19985.34	20866.96	88.50	BCP
6018	19993.01	20638.45	0.00	BC-RP	6173	19815.60	21186.19	88.28	BCP	6328	20031.18	21284.33	88.85	BCP	6483	19901.04	20926.38	88.35	BCP
6019	19993.01	20638.45	0.00	BC-RP	6174	19812.80	21242.18	0.00	BC-RP	6329	20006.69	21284.82	90.10	BC	6484	19902.23	20986.84	89.32	BCP
6020	19993.01	20638.45	0.00	BC-RP	6175	19816.53	21228.60	89.29	BCP	6330	19999.69	21284.98	89.84	BC	6485	19903.43	21046.83	89.11	BCP
6021	19993.01	20638.45	0.00	BC-RP	6176	19816.53	21228.60	89.29	BCP	6331	19999.69	21284.98	89.84	BC	6486	19904.62	21108.82	89.02	BCP
6022	19993.01	20638.45	0.00	BC-RP	6177	19812.11	21211.18	88.09	BCP	6332	20006.35	21298.32	0.00	BC-RP	6487	19905.82	21166.81	88.60	BCP
6023	19993.01	20638.45	0.00	BC-RP	6178	19812.26	21215.18	0.00	CP	6333	20003.03	21302.40	89.30	BC-RP	6488	19907.01	21226.80	88.60	BCP
6024	19993.01	20638.45	0.00	BC-RP	6179	19809.48	21275.25	0.00	BC-RP	6334	20002.36	21298.40	0.00	CP	6489	19909.21	21286.78	88.60	BCP
6025	19993.01	20638.45	0.00	BC-RP	6180	19809.39	21202.84	0.00	BC-RP	6335	20002.42	21298.40	0.00	CP	6490	19909.21	21286.78	88.60	BCP
6026	19993.01	20638.45	0.00	BC-RP	6181	19811.99	21302.08	0.00	BC-RP	6336	19998.42	21271.48	0.00	BC-RP	6491	19910.60	21406.76	88.60	BCP
6027	19993.01	20638.45	0.00	BC-RP	6182	19814.07	21306.16	88.09	BCP	6337	20006.42	21271.33	0.00	BC-RP	6492	19911.79	21466.75	88.60	BCP
6028	19993.01	20638.45	0.00	BC-RP	6183	19813.99	21302.16	0.00	CP	6338	20005.34	21267.41	89.30	BC-RP	6493	19912.98	21526.74	88.60	BCP
6029	19993.01	20638.45	0.00	BC-RP	6184	19817.72	21288.59	89.29	BCP	6339	20002.93	21224.33	88.35	BCP	6494	19914.18	21586.72	88.60	BCP
6030	19993.01	20638.45	0.00	BC-RP	6185	19817.45	21275.09	0.00	BC-RP	6340	20005.49	21224.83	90.20	BC	6495	19915.37	21646.71	88.60	BCP
6031	19993.01	20638.45	0.00	BC-RP	6186	19813.38	21271.17	88.09	BCP	6341	19997.49	21224.83	90.20	BC	6496	19916.21	21689.70	88.13	BCP
6032	19993.01	20638.45	0.00	BC-RP	6187	19813.45	21271.17	88.09	BCP	6342	19997.49	21224.83	90.20	BC					
6033	19993.01	20638.45	0.00	BC-RP	6188	19810.65	21335.24	0.00	BC-RP	6343	20005.42	21422.37	89.30	BC-RP					
6034	19993.01	20638.45	0.00	BC-RP	6189	19811.19	21362.23	0.00	BC-RP	6344	20001.84	21422.41	90.00	BC-RP					
6035	19993.01	20638.45	0.00	BC-RP	6190	19815.27	21366.15	88.09	BCP	6345	20001.76	21422.41	90.00	BC-RP					
6036	19993.01	20638.45	0.00	BC-RP	6191	19819.19	21362.15	0.00	CP	6346	20001.14	21422.41	90.00	BC-RP					
6037	19993.01	20638.45	0.00	BC-RP	6192	19815.19	21362.15	0.00	CP	6347	19997.22	21421.50	0.00	BC-RP					
6038	19993.01	20638.45	0.00	BC-RP	6193	19818.92	21348.57	88.29	BCP	6348	20005.22	21421.34	0.00	BC-RP					
6039	19993.01	20638.45	0.00	BC-RP	6194	19818.65	21335.08	0.00	BC-RP	6349	20001.14	21422.41	90.00	BC-RP					
6040	19993.01	20638.45	0.00	BC-RP	6195	19814.57	21311.16	88.09	BCP	6350	20002.42	21404.31	0.00	BC-RP					
6041	19993.01	20638.45	0.00	BC-RP	6196	19814.65	21335.16	0.00	CP	6351	20004.30	21404.31	0.00	BC-RP					
6042	19993.01	20638.45	0.00	BC-RP	6197	19811.85	21395.22	0.00	BC-RP	6352	19996.30	21405.01	90.36	BC					
6043	19993.01	20638.45	0.00	BC-RP	6198	19812.38	21422.22	0.00	BC-RP	6353	19999.57	21404.31	0.00	BC-RP					
6044	19993.01	20638.45	0.00	BC-RP	6199	19816.46	21422.06	88.09	BCP	6354	20000.64	21404.31	0.00	BC-RP					
6045	19993.01	20638.45	0.00	BC-RP	6200	19820.38	21422.06	0.00	BC-RP	6355	20000.64	21404.31	0.00	BC-RP					
6046	19993.01	20638.45	0.00	BC-RP	6201	19816.38	21422.06	0.00	BC-RP	6356	20000.57	21404.31	0.00	BC-RP					
6047	19993.01	20638.45	0.00	BC-RP	6202	19816.38	21422.06	0.00	BC-RP	6357	20000.57	21404.31	0.00	BC-RP					
6048	19993.01	20638.45	0.00	BC-RP	6203	19819.84	21495.07	0.00	BC-RP	6358	19996.03	21404.31	0.00	BC-RP					
6049	19993.01	20638.45	0.00	BC-RP	6204	19815.77	21391.15	88.09	BCP	6359	19999.95	21404.31	0.00	BC-RP					
6050	19993.01	20638.45	0.00	BC-RP	6205	19815.77	21391.15	88.09	BCP	6360	20000.00	21404.31	0.00	BC-RP					
6051	19993.01	20638.45	0.00	BC-RP	6206	19815.77	21391.15	88.09	BCP	6361	20000.00	21404.31	0.00	BC-RP					
6052	19993.01	20638.45	0.00	BC-RP	6207	19813.58	21482.21	0.00	BC-RP	6362	20003.10	21404.31	0.00	BC-RP					
6053	19993.01	20638.45	0.00	BC-RP	6208	19817.66	21486.13	88.09	BCP	6363	19995.10	21405.02	90.60	BC					
6054	19993.01	20638.45	0.00	BC-RP	6209	19813.58	21486.13	88.09	BCP	6364	19995.10	21405.02	90.60	BC					
6055	19993.01	20638.45	0.00	BC-RP	6210	19817.66	21486.13	88.09	BCP	6365	19999.45	21422.43	90.70	BC-RP					
6056	19993.01	20638.45	0.00	BC-RP	6211	19821.31	21468.55	88.29	BCP	6366	19999.45	21422.43	90.70	BC-RP					
6057	19993.01	20638.45	0.00	BC-RP	6212	19821.04	21455.05	0.00	BC-RP	6367	19999.37	21418.44	0.00	CP					
6058	19993.01	20638.45	0.00	BC-RP	6213	19816.26	21431.11	88.09	BCP	6368	19999.37	21418.44	0.00	CP					
6059	19993.01	20638.45	0.00	BC-RP	6214	19817.04	21455.13	0.00	BC-RP	6369	19994.83	21391.52	0.00	BC-RP					
6060	19993.01	20638.45	0.00	BC-RP	6215	19814.24	21515.20	0.00	BC-RP	6370	20002.83	21391.36	0.00	BC-RP					
6061	19993.01	20638.45	0.00	BC-RP	6216	19814.77	21442.20	0.00	BC-RP	6371	19998.76	21397.44	90.70						

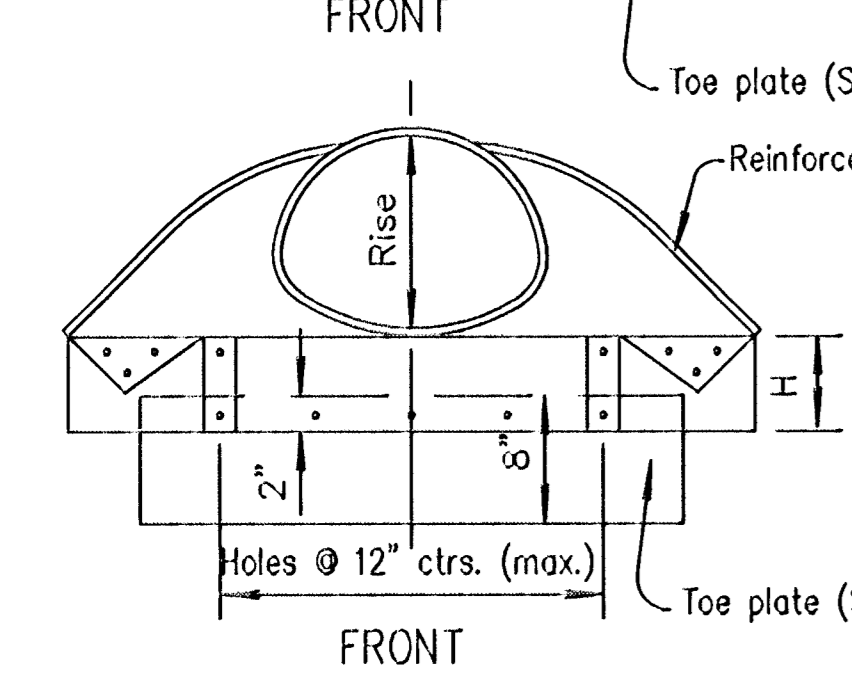


NOTE: Toe plate, where specified, to be punched to match holes in apron lip. ?" Dia. galvanized bolts to be furnished. The length of toe plate to be as follows:
W + 10" for 12" to 30" diameter pipes inclusive.
W + 20" for 36" to 84" diameter pipes inclusive.
W + 10" for pipe-arches with a rise of 13" to 29" inclusive.
W + 20" for pipe-arches with a rise of 33" to 59" inclusive.
Apron section for 12" to 24" diameter pipe inclusive, and pipe-arches with rise of 13" to 24" inclusive, to be made from one sheet. Apron sections for 30" to 42" diameter pipe inclusive, and pipe-arches with rise of 29" to 33" inclusive, may be made from up to two sheets joined by riveting or bolting on the centerline apron section. Apron section for 48" to 72" diameter pipe inclusive, and pipe-arches with rise of 33" to 63" inclusive, may be made from up to three sheets joined by riveting or bolting at equal distances from centerline. Apron sections for 78" diameter pipe and above and pipe-arches with rise 67" and above may be made from up to four sheets joined by riveting or bolting.
Corner sections, corner plate and toe plate to be same gauge as apron and each to be galvanized in accordance with the specifications.
Other approved designs may be used in lieu of type shown.

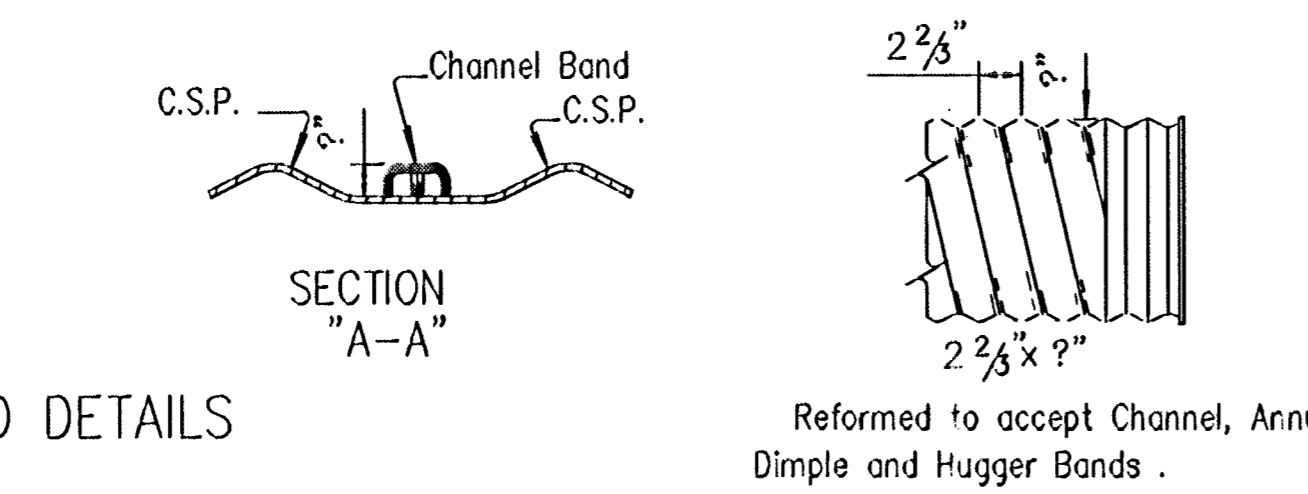
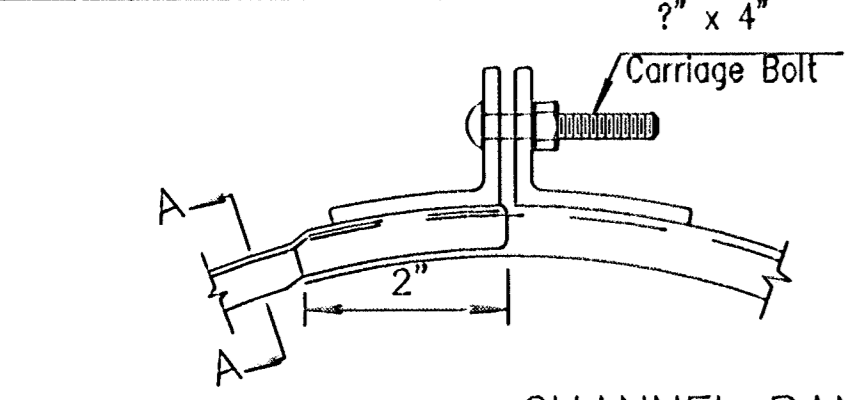
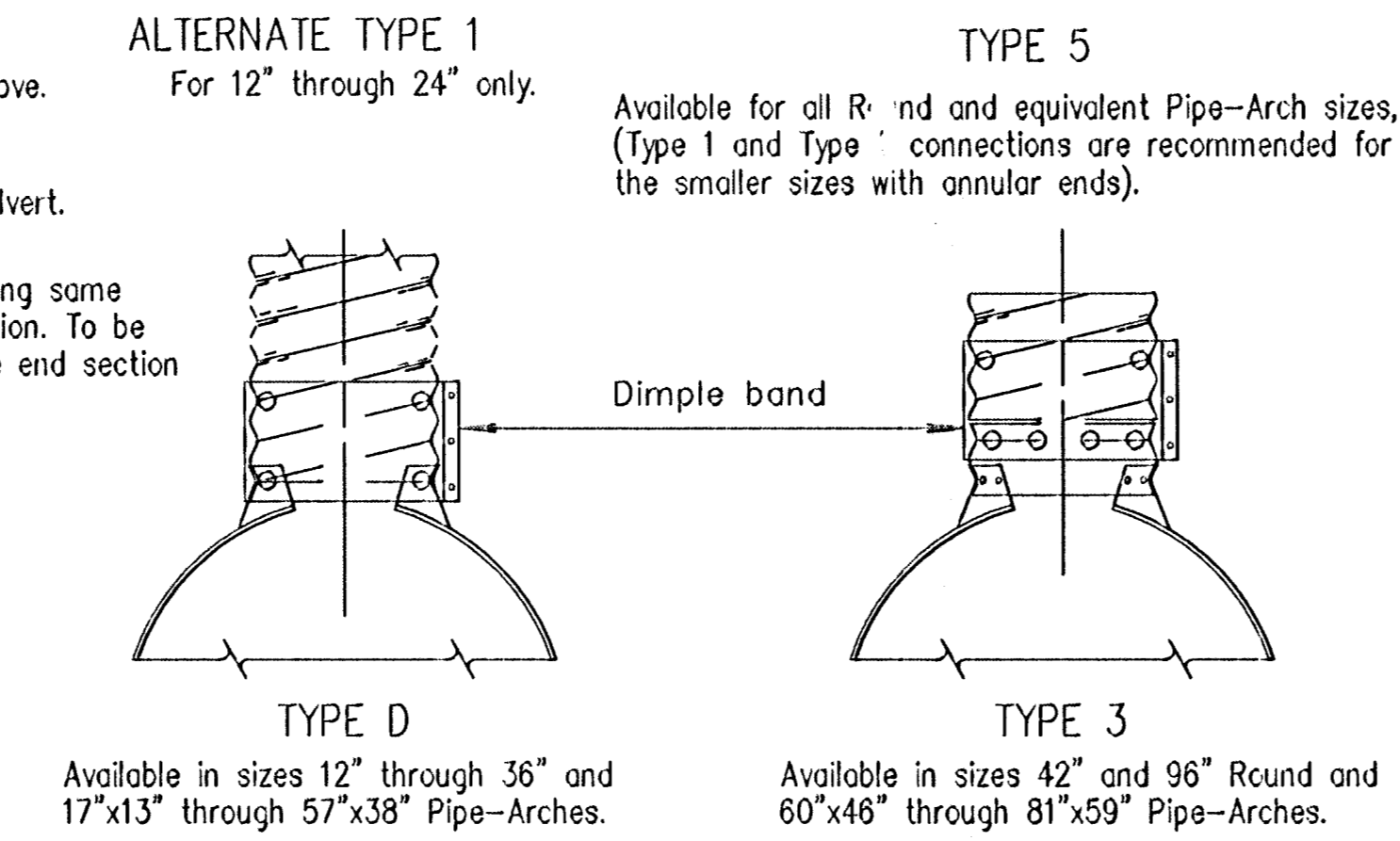


Bid Designation Sq. Ft.	Nom. W.W. Area Sq. Ft.	Pipe Arch		Min. Gauge End Sect.	Dimensions in Inches					No. Apron Panels	Slope
		Span (In.)	Rise (In.)		A 1" Tol.	B Max.	H 1" Tol.	L 1" Tol.	W 2" Tol.		
1.0	1.1	17	13	16	7	9	6	19	30	1	2%: 1
1.5	1.6	21	15	16	7	10	6	23	36	1	2%: 1
2.0	2.2	24	18	16	8	12	6	28	42	1	2%: 1
2.5	2.8	28	20	16	9	14	6	32	48	1	2%: 1
SIZES BELOW WITH ALTERNATE DIMENSIONS											
3.0 or 4.0	4.4	35	24	14	10	16	6 & 8	39	60	1	2%: 1
5.0 or 6.0	6.4	42	29	14	12	18	8 & 9	46	75	2	2%: 1
7.0 or 8.5	8.7	49	33	12	13	21	9 & 12	53	85	2	2%: 1
10.0 or 11.0	11.4	57	38	12	18	26	12	63	90	2	2%: 1
12.5 or 14.0	15.6	60	46	12	18	30 & 34	12	70	102	2	2%: 1
16.5	19.3	66	51	12 & 10	18	33	12	77	114 & 116	3	1%: 1
21.0	23.2	73	55	12 & 10	18	36	12	77	126	3	1%: 1
25.0	27.4	81	59	12 & 10	18	39	12	77	138	3	1%: 1
32.0	32.1	87	63	12 & 10	22	38	12	77	148	3	1%: 1
36.0	37.0	95	67	12 & 10	22	34	12	77	162	3	1%: 1
42.0	42.4	103	71	12 & 10	22	38	12	77	174	3	1%: 1
47.0	48.0	112	75	12 & 10	24	40	12	77	174	3	1%: 1

Pipe Dia. (In.)	Min. Gauge Ends	Dimensions in Inches					No. Apron Panels	Slope
		A 1" Tol.	B Max.	H 1" Tol.	L 1" Tol.	W 2" Tol.		
12"	16	6	6	6	21	24	1	2%: 1
15"	16	7	8	6	26	30	1	2%: 1
18"	16	8	10	6	31	36	1	2%: 1
21"	16	9	12	6	36	42	1	2%: 1
24"	16	10	13	6	41	48	1	2%: 1
30"	14	12	16	6	51	60	1	2%: 1
36"	14	14	19	6	60	72	2	2%: 1
42"	12	16	22	11	69	84	2	2%: 1
48"	12	18	27	12	78	90	2	2%: 1
54"	12	18	30	12	84	102	2	2%: 1
60"	12 & 10	18	33	12	87	114	3	2: 1
66"	12 & 10	18	36	12	87	120	3	2: 1
72"	12 & 10	18	39	12	87	126	3	2: 1
78"	12 & 10	18	42	12	87	132	3	1%: 1
84"	12 & 10	18	45	12	87	138	3	1%: 1
90"	12 & 10	18 & 24	37 & 45	11 & 12	87	38 & 144	3	1%: 1
96"	12 & 10	18 & 25	35 & 45	12	87	38 & 150	3	1%: 1



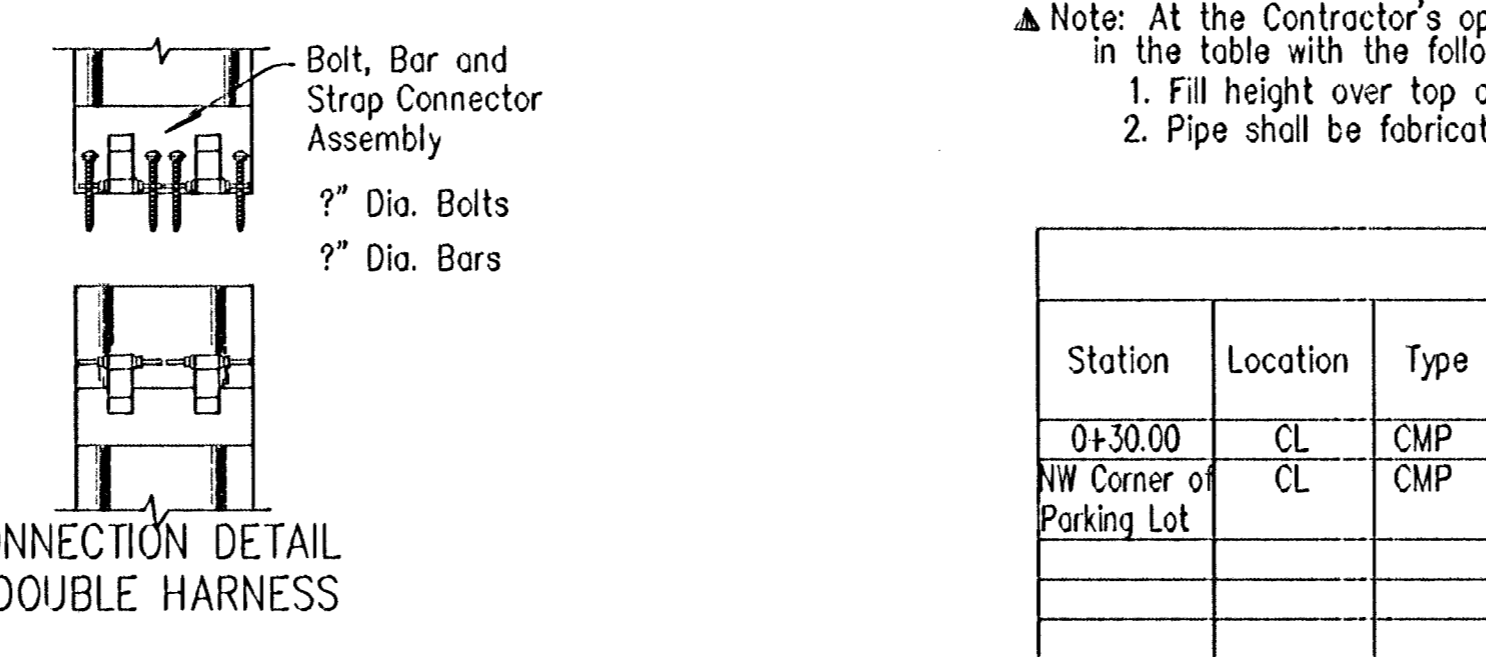
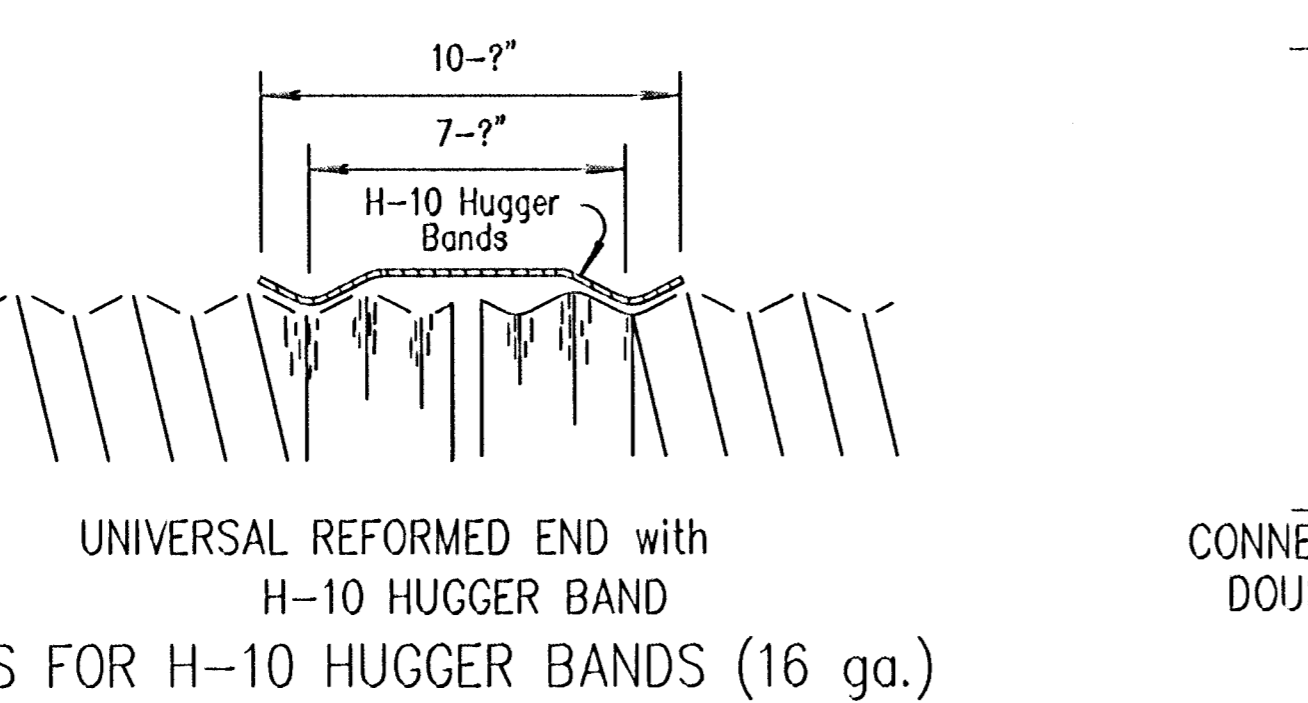
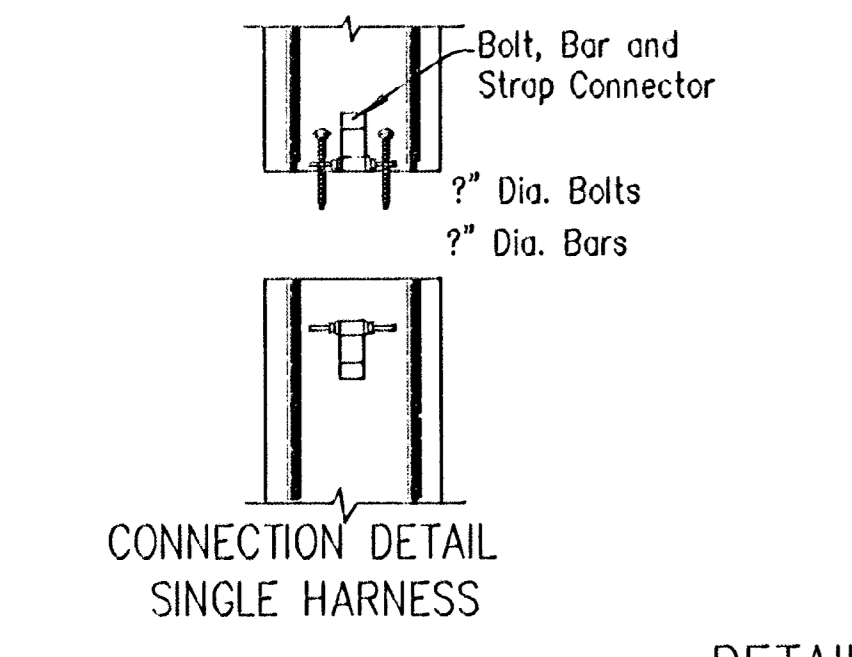
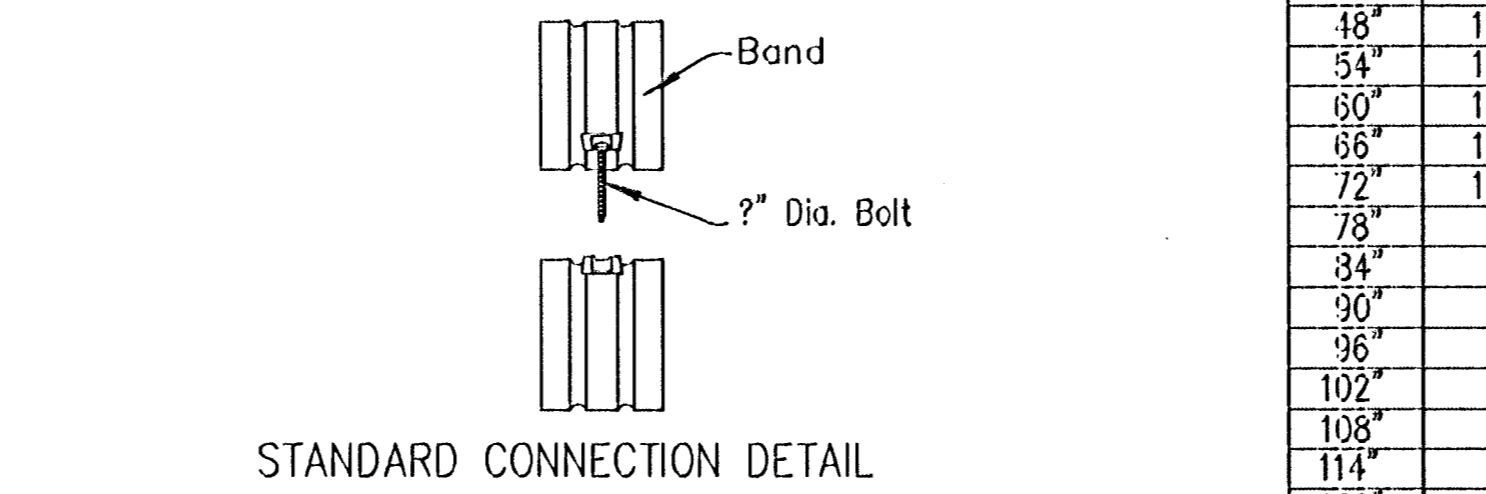
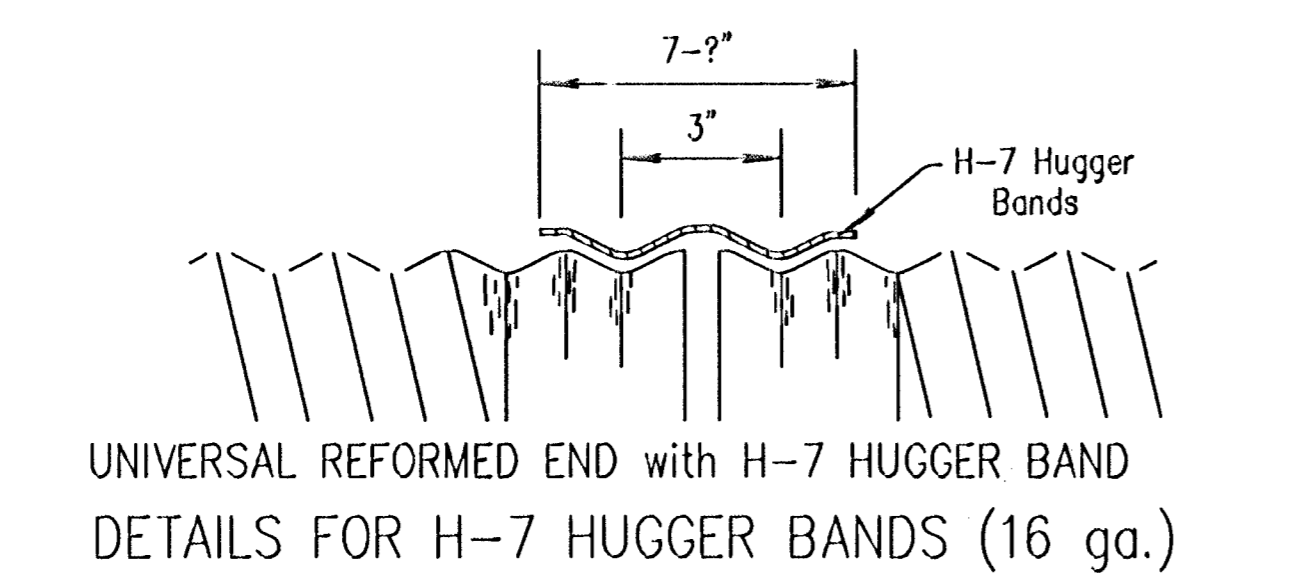
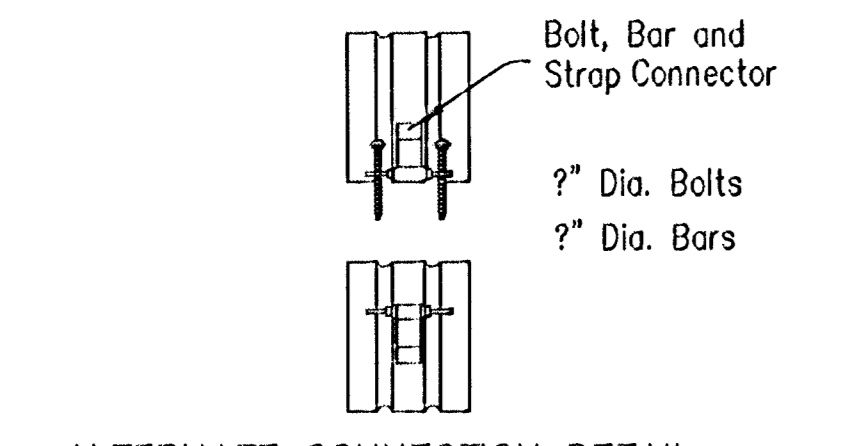
SPIRAL (HELICAL) CORRUGATION
For all sizes of round and arch culvert pipes having Spiral (Helical) corrugations, the end sections and connecting bands shall be as shown above.



Channel band couplers shall:
1. Be of two piece design.
2. Be fabricated from galvanized steel stock.
3. Be 14 ga. thickness for pipe 12 ga. or lighter. (A= ?")
4. Be 12 ga. thickness for pipe 10 ga. or heavier. (A= 1")
5. Have 2" x 2" x ?" angles securely fastened to the band ends to allow for proper tightening.

Pipe Dia. Inches	Minimum Gauge of Pipe				Bid Designation Sq. Ft.	Pipe Dimension Span & Rise	Sq. Ft.	Min. Gauge of Pipe		
	2 3/4 x ?" Corr. Steel	3 x 1" Corr. Steel	6 x 2" Corr. Steel	6 x 1" Corr. Alum.				2 3/4 x ?" Corr. Steel	3 x 1" Corr. Steel	3 x 1" Corr. Alum.
12"	16	16			1.0	17" x 13"	1.1	16	16	
15"	16	16			1.5	21" x 15"	1.6	16	16	
18"	16	16			2.0	24" x 18"	2.2	16	16	
21"	16	16			2.5	28" x 20"	2.8	14	14	
24"	14	14			3.0 or 4.0	35" x 24"	4.4	14	12	
30"	14	12			5.0 or 6.0	42" x 29"	6.4	14	12	
36"	14	12		16	7.0 or 8.5	49" x 33"	8.7	12	12	
42"	12	12	14	16	10.0 or 11.0	57" x 38"	11.4	12	10	
48"	12	10	14	16	12.5 or 14.0	60" x 46"	15.6	10	14	
54"	12	10	14	16	16.5	66" x 51"	19.3	8	14	
60"	10	8	14	12	21.0	73" x 56"	23.2		12	
66"	10	8	14	12	25.0	81" x 59"	27.4		12	
72"	10	6	14	12	32.0	87" x 63"	32.1		12	
78"	8		14	12	36.0	96" x 67"	37.0		12	
84"			12	12	42.0	103" x 71"	42.4		12	
90"			12	12	47.0	112" x 75"	48.0		12	
96"			12	12	54.0	117" x 79"	54.2		10	
102"			12	12	60.0	128" x 83"	60.5		10	
108"			10	12	67.0	137" x 87"	67.4		10	
114"			10	12	74.0	142" x 91"	74.5		10	
120"			10	12						

Note: The culverts listed on this sheet may not indicate that the culvert installed will be steel, aluminum or reinforced concrete.
-X For gauge above minimum requirements see summary of culverts.
Connection of end sections by welding will not be permitted.
All 3 piece apron sections shall have 12 gauge sides and 10 gauge center panels. Multiple panel apron sections shall have lap seams which are to be tightly jointed by galvanized rivets or bolts at equal distances from center line.
For 60" to 120" diameter pipe apron sections, reinforced edges to be supplemented by hot dipped galvanized stiffener angles. The angles to be attached by galvanized nuts and bolts.
For 73"x55" and larger pipe-arch sections, reinforced edges to be supplemented by hot dipped galvanized stiffener angles. The angles to be attached by galvanized bolts and nuts.
Angle reinforcement shall be placed under the center panel seams on 73"x55" and larger pipe arch apron sections.
All references to galvanized metal refer to steel only.
Gain in pipe length due to fit of pipe at connecting band shall not be paid for.
When Hugger Bands are used the H-7 Hugger Band may be used on circular pipes 36" diameter and smaller and pipe arches 42"x29" and smaller. The H-10 Hugger Band is required for larger size pipes.



Note: At the Contractor's option, 5"x1" corrugated steel pipe of equal gauge may be substituted for the 3"x1" corrugated steel pipe listed in the table with the following restrictions:
1. Fill height over top of pipe shall be less than 25 ft.
2. Pipe shall be fabricated with helical corrugations and lock seams or continuous welded seams.

Station	Location	Type	Size or Bid Designation Sq. Ft.	Crown Grade Elev.	Flow Line		Horizontal Roadway		Degree of Rotation	Length of Pipe		Lin. Ft. of Pipe	End Sections			
					Lt.	Rt.	Lt.	Rt.		Lt.	Rt.		Type I	Type II	Type III	
					Lt.	Rt.	Lt.	Rt.		Lt.	Rt.		Lt.	Rt.	Lt.	Rt.
0+30.00	CL	CMP	18"	-	86.55	86.10	-	-	-	26.5'	16.5'	43'	1	1	-	-
NW Corner of Parking Lot	CL	CMP	18"	-	86.90(N)	86.60(S)	-	-	-	14'	14'	28'	1	1	-	-

METAL END SECTIONS
CED PROJ. NO.: 20020900
CERTIFIED ENGINEERING DESIGN, P.A.
810 WEST DOUGLAS, SUITE C
WICHITA, KANSAS 67203
PH. (316) 262-8808 FAX. (316) 262-1669
DESIGNED: HDF SCALE: NTS SHEET 9
DRAWN: CKW DATE: 7/02
CHECKED: HDF CED FILE: CMPdetails.dwg TOTAL 16