

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
451E1008	8" PVC Sewer Pipe	582	FT
451E5051	Trench 6' to 8' Deep	124	FT
451E5052	Trench 8' to 10' Deep	174	FT
451E5053	Trench 10' to 12' Deep	127	FT
451E5054	Trench 12' to 14' Deep	126	FT
451E5055	Trench 14' to 16' Deep	41	FT
671E1048	48" Manhole	2	Esch
671E5610	Extra Depth for 48" Manhole	4.8	FT

PROJECT NOTE

CONSTRUCTION OF THE SANITARY SEWER FOR THIS PROJECT WILL TAKE PLACE CONCURRENTLY WITH THE EXTENSION OF EAST NORTH STREET BY THE SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION. (PROJECT P 2016(19)71)

SPECIFICATIONS TO BE USED

ALL UTILITY WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF RAPID CITY STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION 2004 EDITION WITH ALL CURRENT UPDATES

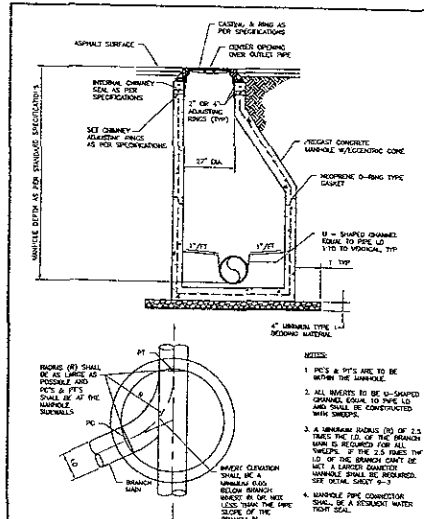
CONSTRUCTION STAKING

FERBER ENGINEERING COMPANY, INC WILL BE RESPONSIBLE FOR SETTING THE NECESSARY CENTERLINE AND GRADE STAKES FOR THE PROJECT. CONSTRUCTION STAKES WILL BE PROVIDED IN ACCORDANCE WITH SECTION 201 OF THE STANDARD SPECIFICATIONS.

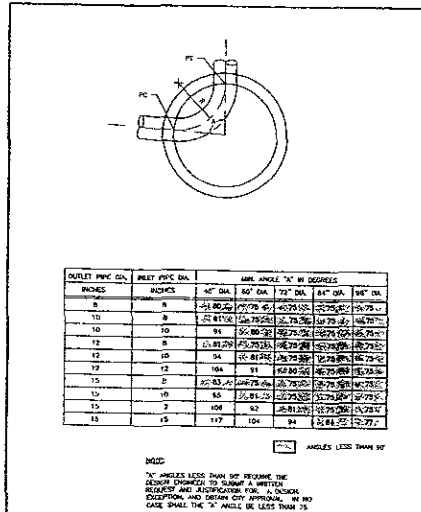
THE CONTRACTOR SHALL NOTIFY FERBER ENGINEERING COMPANY, INC. AT LEAST 48 HOURS BEFORE CONSTRUCTION STAKES ARE REQUIRED

TRENCH CHECK DAM

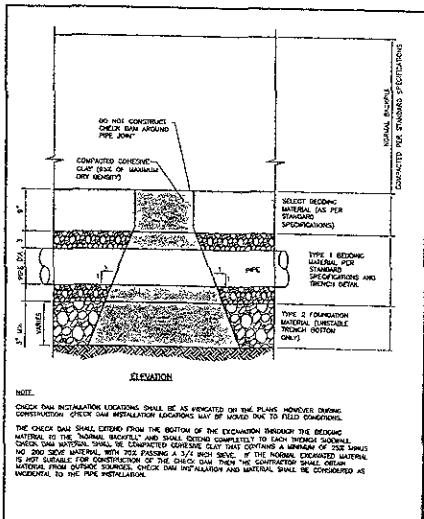
CONTRACTOR SHALL PLACE WITHIN THE TRENCH A COMPACTED COHESIVE CLAY CHECK DAM. CHECK DAM LOCATIONS SHALL BE AS INDICATED ON THE PROFILE DURING CONSTRUCTION. CHECK DAM LOCATIONS MAY BE MOVED DUE TO FIELD CONDITIONS. THE CHECK DAM SHALL EXTEND FROM THE BOTTOM OF THE EXCAVATION THROUGH THE BEDDING MATERIAL TO THE BACKFILL AND SHALL EXTEND COMPLETELY TO EACH TRENCH SIDEWALL. THE CHECK DAM IS USED AS A MEANS TO PREVENT THE CONVEYANCE OF WATER THROUGH THE TRENCH BEDDING. COMPACTED COHESIVE CLAY SHALL CONSIST OF MATERIAL THAT CONTAINS A MINIMUM OF 25% MINUS NO. 200 SIEVE MATERIAL WITH 70% PASSING A 3/4 INCH SIEVE AND A PI OF 10%. THE MATERIAL SHALL CONSIST OF CLAY, SILTY SAND OR SILTY CLAY. IF THE NORMAL EXCAVATED MATERIAL IS NOT SUITABLE FOR CONSTRUCTION OF THE CHECK DAM THEN THE CONTRACTOR SHALL OBTAIN MATERIAL FROM OUTSIDE SOURCES. CHECK DAM INSTALLATION AND MATERIAL SHALL BE CONSIDERED AS INCIDENTAL TO THE PVC SEWER OR WATER PIPE INSTALLATION.



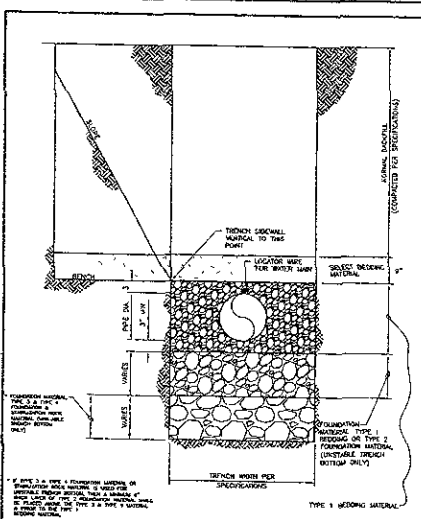
CITY OF RAPID CITY PUBLIC WORKS DEPARTMENT
STANDARD MANHOLE DETAIL WITH MONOLITHIC BASE (48" & 60")
DATE: 11-20-03
SEC 9-1



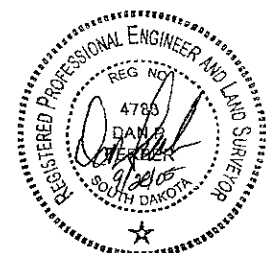
CITY OF RAPID CITY PUBLIC WORKS DEPARTMENT
MINIMUM INVERT ANGLES FOR SANITARY MANHOLES
DATE: 11-20-03
SEC 9-3



CITY OF RAPID CITY PUBLIC WORKS DEPARTMENT
TYPICAL TRENCH CHECK DAM DETAIL FOR WATER & SEWER MAINS
DATE: 11-15-02
SEC 11-2



CITY OF RAPID CITY PUBLIC WORKS DEPARTMENT
TRENCH DETAIL FOR WATER & SEWER MAIN
DATE: 11-20-03
SEC 11-3

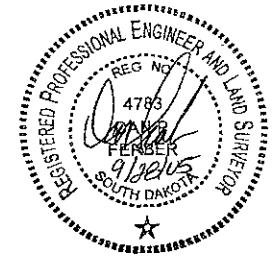
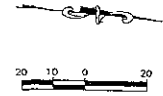


SANITARY SEWER NOTES

STA 79+81.90 - 22.00' LT TO INSTALL 318 LF 8" PVC SANITARY SEWER
 STA 83+00.00 - 0.00 RT
 STA 83+00.00 - 0.00' RT INSTALL SANITARY SEWER MANHOLE 221
 4.8 VF EXTRA MANHOLE DEPTH
 STA 83+00.00 - 0.00 RT TO INSTALL 274 LF 8" PVC SANITARY SEWER
 STA 85+75.00 - 0.00 RT

FMLC INC.	PROJECT	SHEET NO	TOTAL SHEETS
	EAST NORTH STREET EXTENSION SANITARY SEWER	3	8

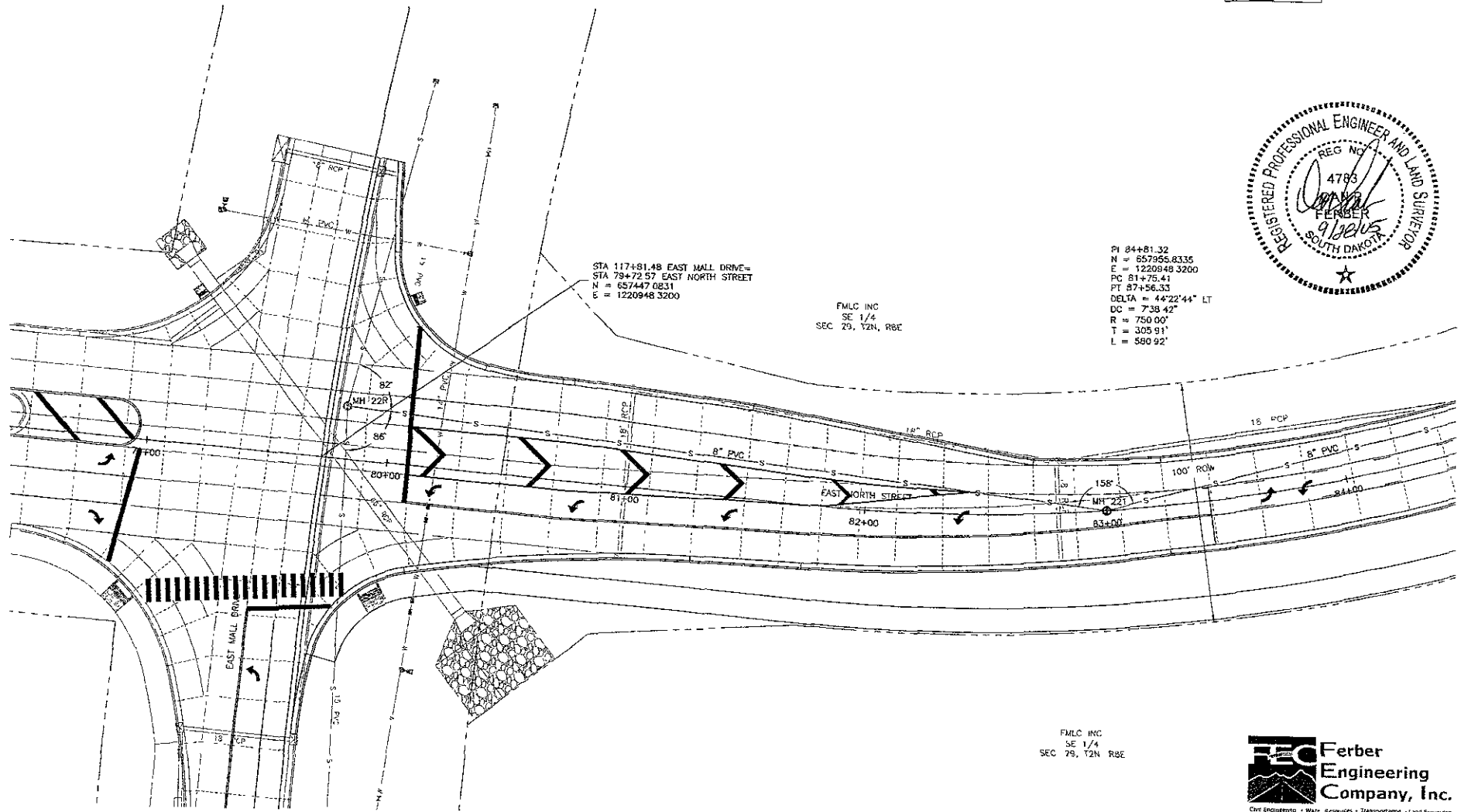
PLOTTING DATE: 09-23-05



STA 117+81.48 EAST MALL DRIVE=
 STA 79+72.57 EAST NORTH STREET
 N = 657447.0831
 E = 1220948.3200

FMLC INC
 SE 1/4
 SEC 29, T2N, R8E

PI 84+81.32
 N = 657955.8335
 E = 1220948.3200
 PC 81+75.41
 PT 87+56.33
 DELTA = 44°22'44" LT
 DC = 7°38'42"
 R = 750.00'
 T = 305.91'
 L = 560.92'

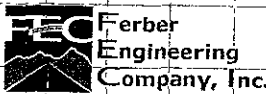
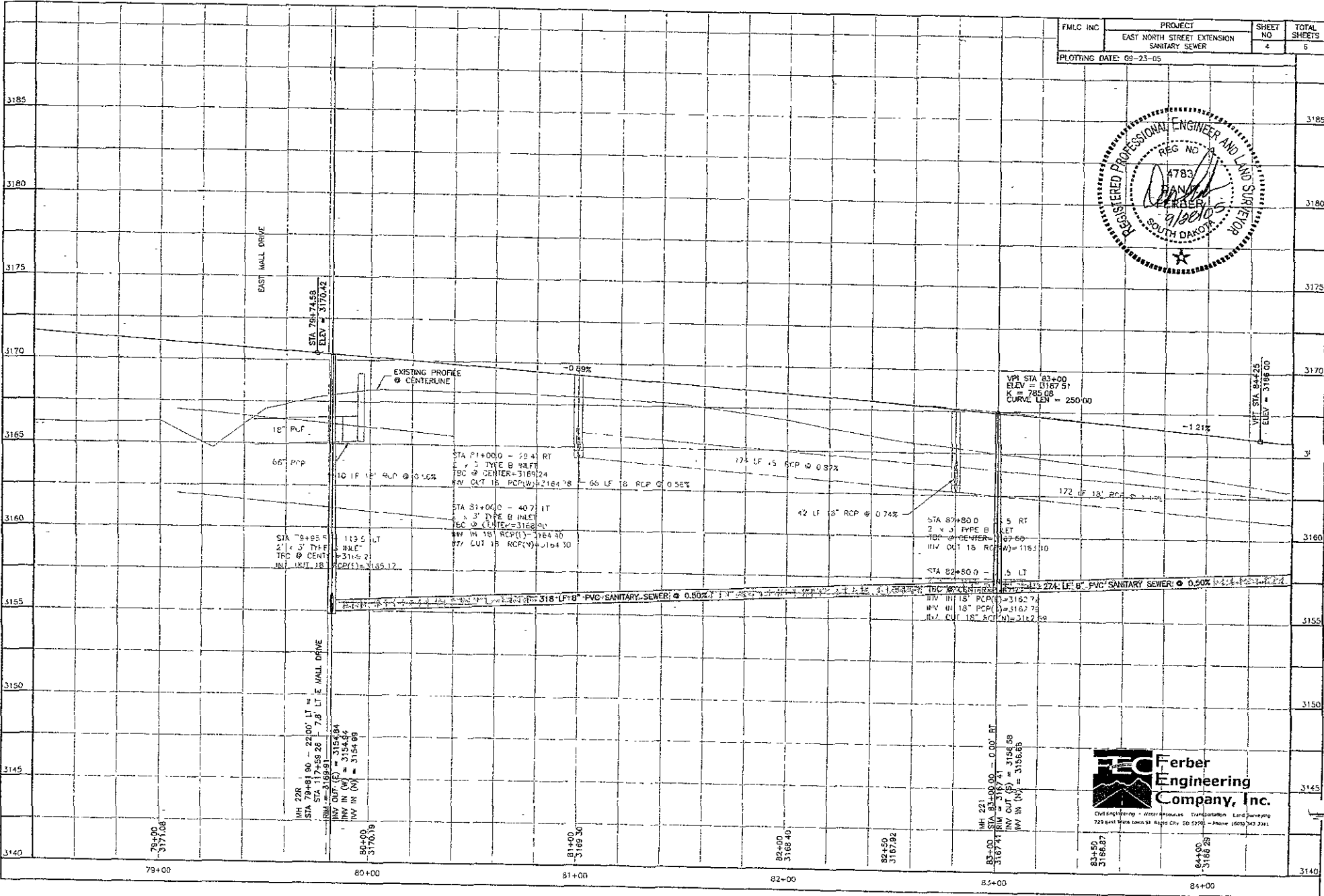
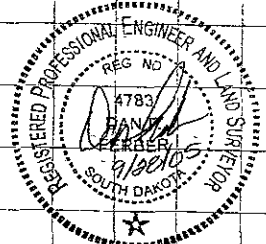


FMLC INC
 SE 1/4
 SEC 29, T2N, R8E

FEC Ferber Engineering Company, Inc.
 Civil Engineering • Water Resources • Transportation • Land Surveying
 729 East Waterfront Dr. Rapid City, SD 57701 • Phone (605) 341-5311

09-23-05 J:\Projects\05-05\Sump Street Extension_Sewer\05-0501.dwg

FMLC INC	PROJECT	SHEET NO	TOTAL SHEETS
	EAST NORTH STREET EXTENSION SANITARY SEWER	4	6
PLOTING DATE: 09-23-05			



Civil Engineering - Water Resources - Transportation - Land Surveying
 729 East Moretown St. Rapid City, SD 57702 - Phone (605) 743-2341

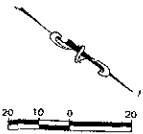
09-23-05 J:\SR062\05-063\North Street Extension Sewer\05-10SR062.dwg

SANITARY SEWER NOTES

STA 86+75.00 - 0+00 RT
 INSTALL SANITARY SEWER MANHOLE 222
 0.1 WF EXTRA MANHOLE DEPTH

FMLC INC.	PROJECT	SHEET NO	TOTAL SHEETS
	EAST NORTH STREET EXTENSION SANITARY SEWER	5	6

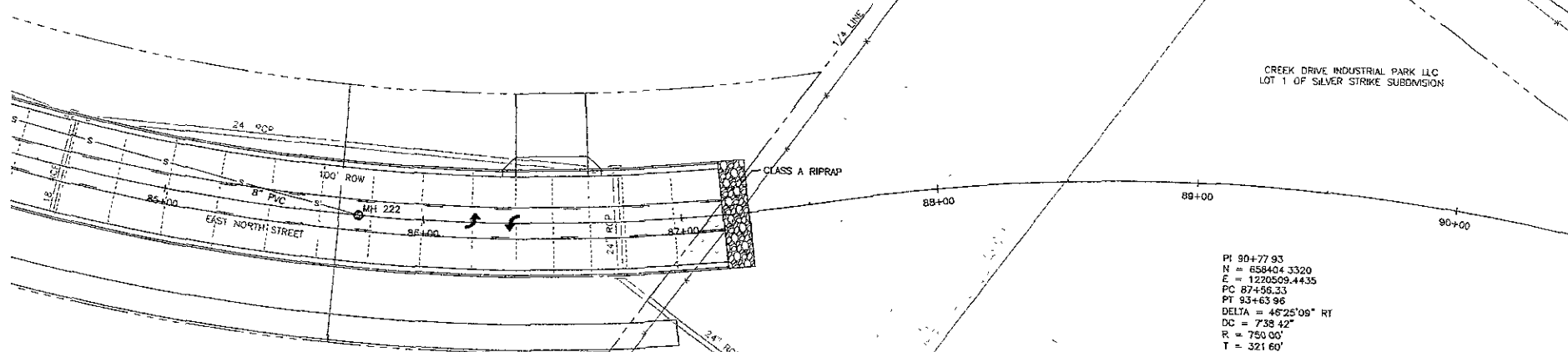
PLOTTING DATE 09-23-05



PI 84+81.32
 N = 657955.8335
 E = 1220943.3200
 PC 81+75.41
 PT 87+56.33
 DELTA = 44°22'44" LT
 DC = 7'38.42"
 R = 750.00'
 T = 305.91'
 L = 580.92'

FMLC INC
 SE 1/4
 SEC 29, T2N, R8E

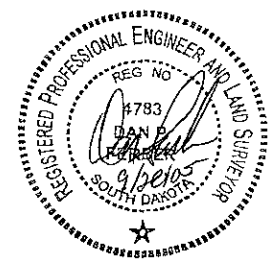
CREEK DRIVE INDUSTRIAL PARK LLC
 LOT 1 OF SILVER STRIKE SUBDIVISION



FMLC INC
 SE 1/4
 SEC 29, T2N, R8E

PI 90+77.93
 N = 658404.3320
 E = 1220509.4435
 PC 87+56.33
 PT 93+63.96
 DELTA = 46°25'09" RT
 DC = 7'38.42"
 R = 750.00'
 T = 321.60'
 L = 607.63'

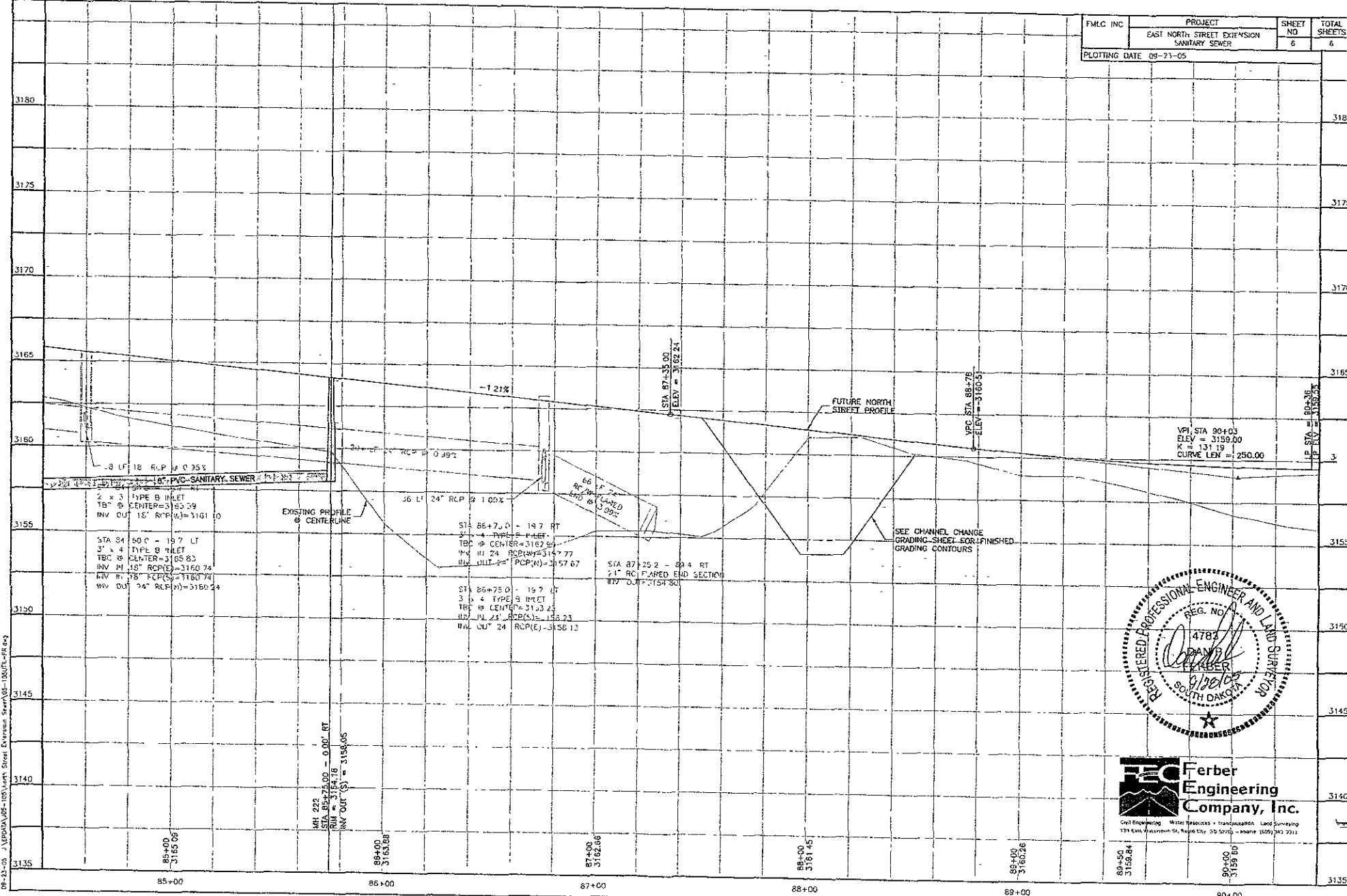
CREEK DRIVE INDUSTRIAL PARK LLC
 LOT 1 OF SILVER STRIKE SUBDIVISION



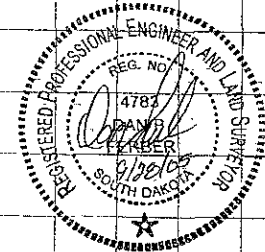
Civil Engineering • Water Resources • Transportation • Land Surveying
 729 East Weirview St. Rapid City, SD 57701 • Phone: (605) 743-3311

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FMLC INC	PROJECT	SHEET NO 6	TOTAL SHEETS 6
	EAST NORTH STREET EXTENSION SANITARY SEWER		
PLOTTING DATE 09-23-05			



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Ferber Engineering Company, Inc.
 Civil Engineering Water Resources Transportation Land Surveying
 178 East Franklin St., Rapid City, SD 57701 - Phone: 605.343.7211

85+50 3156.84
 86+00 3160.26
 86+50 3163.68
 87+00 3167.10
 87+50 3170.52
 88+00 3173.94
 88+50 3177.36
 89+00 3180.78
 89+50 3184.20
 90+00 3187.62