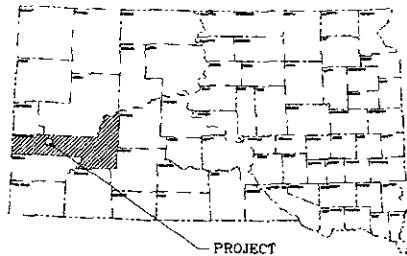


# FLANNERY SUBDIVISION

## Rapid City, South Dakota

### GRADING, STORM SEWER, WATER MAIN AND STREET CONSTRUCTION

MAY 1999



SHOWN  
 TRACT LINE ---  
 COUNTY LINE ---

**GENERAL NOTES**

1. ALL CONSTRUCTION SHALL BE DONE ACCORDING TO THE CITY OF RAPID CITY STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION 1994 EDITION AND THE CITY OF RAPID CITY UTILITY CONSTRUCTION CODE 1988 EDITION

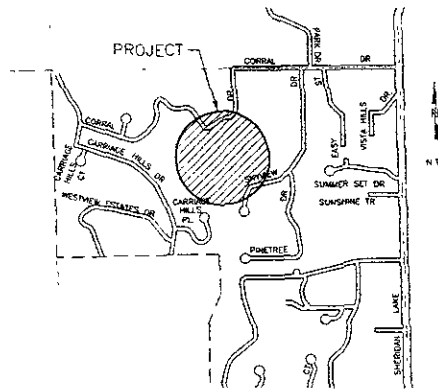
2. THE INFORMATION ON THESE DRAWINGS CONCERNING THE TYPE SIZE, AND LOCATION OF UTILITIES HAS BEEN SHOWN BASED UPON THE BEST INFORMATION AVAILABLE. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL UTILITIES PRIOR TO BEGINNING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING ALL EXISTING UTILITIES IN PLACE.

SOUTH DAKOTA ONE CALL  
1-800-781-7474

3. THE BASIS OF BEARINGS IS THE WEST LINE OF TRACT A OF THE NE OF THE NW, SECTION 21, T1N R7E BHM

4. BENCHMARK IS POINT TP B FROM CORRAL DRIVE REHABILITATION PROJECT. A 3/8" SPIKE LOCATED ON THE NORTH SIDE OF CORRAL DRIVE 3620 FEET NORTHEAST OF THE INTERSECTION OF IRELAND PLACE AND CORRAL DRIVE.

DEVELOPER KELLY FLANNERY  
 1012 E CENTRE ST  
 RAPID CITY SD 57701  
 (605) 343-0440



SECTION 21, T1N, R7E BHM

PROJECT VICINITY MAP

**INDEX OF SHEETS**

SHEET 1	TITLE PAGE, VICINITY MAP, SHEET INDEX AND GENERAL NOTES
SHEET 2	CORRAL DRIVE WATER PLAN AND PROFILE
SHEET 3	STREET PLAN AND PROFILE
SHEET 4	IRELAND PLACE STA 1+00 TO STA 6+80 STA 6+80 TO STA 12+52
SHEET 5	DUBLIN COURT STA 1+00 TO STA 4+97.58
SHEET 6	EMERGENCY ACCESS STA 1+00 TO STA 6+72.25
SHEET 7	EROSION CONTROL PLAN
SHEETS 8-9	CROSS SECTIONS



**ENGINEER'S CERTIFICATION**

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A QUALY REGISTERED ENGINEER UNDER THE LAWS OF SOUTH DAKOTA.

Dan Paul Ferber  
 DAN FERBER, P.E.  
 REGISTRATION NUMBER 4783

REVIEWED BY CITY ENGINEERING DIVISION  
 Kelly A. ... 5/16/99  
 ... 5-16-99  
 ... 5/17/99  
 ...  
 SHEETS 99-246  
 5-16-99

CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FROM THE CITY ENGINEERING DIVISION BEFORE STARTING ANY OF THE PROPOSED PUBLIC IMPROVEMENTS.

**FERBER ENGINEERING COMPANY**

CONSULTING ENGINEERS  
 5421 E. 10TH ROAD  
 RAPID CITY, SD 57702  
 (605) 345-3311

WATER RESOURCES  
 TRANSPORTATION  
 CIVIL ENGINEERING

P 1 - CD STA 1+00.00  
 E = 8118.472  
 C = 10431.237  
 P 2 - CD STA 1+75.76  
 E = 8133.478  
 C = 10482.316  
 P 3 - CD STA 2+00.25  
 E = 8077.527  
 C = 10549.779  
 P 4 - CD STA 2+47.64  
 E = 8028.622  
 C = 10637.080  
 P 5 - CD STA 3+04.88  
 E = 8224.702  
 C = 10847.262  
 P 6 - CD STA 3+75.76  
 E = 8262.813  
 C = 11047.089  
 P 7 - CD STA 4+00.25  
 E = 8300.829  
 C = 11247.089  
 P 8 - CD STA 4+30.85  
 E = 8391.754  
 C = 11478.782  
 P 9 - CD STA 4+70.24  
 E = 8438.42  
 C = 11678.782  
 P 10 - CD STA 5+00.00  
 E = 8519.76  
 C = 11908.825  
 P 11 - CD STA 5+30.85  
 E = 8597.254  
 C = 12158.782

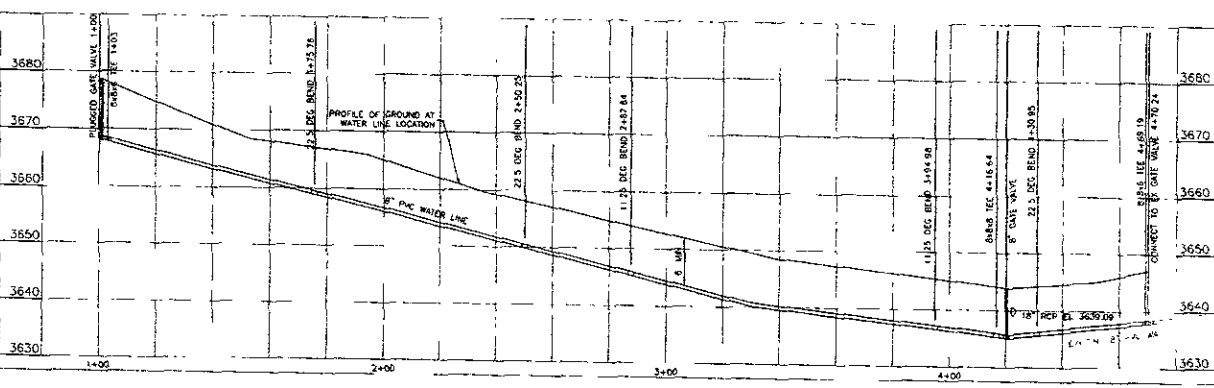
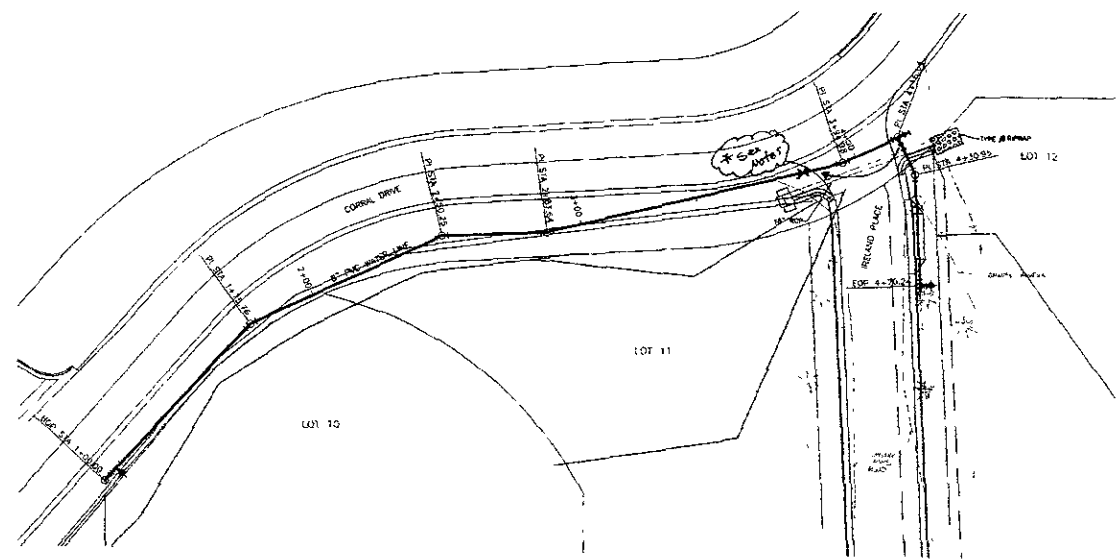
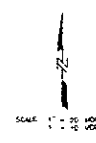
P 12 - CD STA 5+70.24  
 E = 8672.56  
 C = 12427.089  
 P 13 - CD STA 6+00.00  
 E = 8742.56  
 C = 12627.089  
 P 14 - CD STA 6+30.85  
 E = 8812.56  
 C = 12827.089  
 P 15 - CD STA 6+70.24  
 E = 8882.56  
 C = 13027.089  
 P 16 - CD STA 7+00.00  
 E = 8952.56  
 C = 13227.089  
 P 17 - CD STA 7+30.85  
 E = 9022.56  
 C = 13427.089  
 P 18 - CD STA 7+70.24  
 E = 9092.56  
 C = 13627.089  
 P 19 - CD STA 8+00.00  
 E = 9162.56  
 C = 13827.089  
 P 20 - CD STA 8+30.85  
 E = 9232.56  
 C = 14027.089  
 P 21 - CD STA 8+70.24  
 E = 9302.56  
 C = 14227.089  
 P 22 - CD STA 9+00.00  
 E = 9372.56  
 C = 14427.089  
 P 23 - CD STA 9+30.85  
 E = 9442.56  
 C = 14627.089  
 P 24 - CD STA 9+70.24  
 E = 9512.56  
 C = 14827.089  
 P 25 - CD STA 10+00.00  
 E = 9582.56  
 C = 15027.089

REVIEWED BY CITY ENGINEERING DIVISION  
 DATE: 5-24-99  
 DRAWN BY: [Signature]  
 CHECKED BY: [Signature]  
 APPROVED BY: [Signature]  
 COMMENTS: [Signature]  
 DESIGNED BY: [Signature]  
 DATE: [Signature]

\*Notes: 1) Use C900 Class 200 Pipe  
 2) Max Unk to Sta 3+81.2  
 (Changes agreed to by Ferber  
 via phone 5-24-99)

STA 1+00.00 TO STA 4+70.24 INSTALL 370 LF OF 8" PVC WATER LINE  
 STA 1+00.00 TO STA 4+70.24 SIZED PERTALOX AND WALD-EXPLORER AREA 1250 S.F.  
 STA 1+00.00 INSTALL 8" GATE VALVE W/10' CHD  
 STA 1+00.00 INSTALL 1 8" x 1/2" Tee  
 STA 1+03.00 - 0 + 10 3 4" INSTALL PVC HYDROMAT PVC VALVE  
 STA 1+75.76 INSTALL 22.5' 8" BEND  
 STA 2+00.25 INSTALL 22.5' 8" BEND

STA 2+03.84 INSTALL 1.25' 8" BEND  
 STA 2+04.00 INSTALL 1.25' 8" BEND  
 STA 4+16.64 INSTALL 8" GATE VALVE AND 8" GATE VALVE ON EAST SIDE PLUG END  
 STA 4+20.25 INSTALL 8" GATE VALVE  
 STA 4+30.85 INSTALL 22.5' 8" BEND  
 STA 4+39.88 REMOVE EXISTING FIRE HYDRANT CONNECT NEW 8" x 1/2" Tee INSTALL NEW 8" GATE VALVE AND REINSTALL EXISTING FIRE HYDRANT  
 STA 4+70.24 CONNECT TO EXISTING 8" GATE VALVE

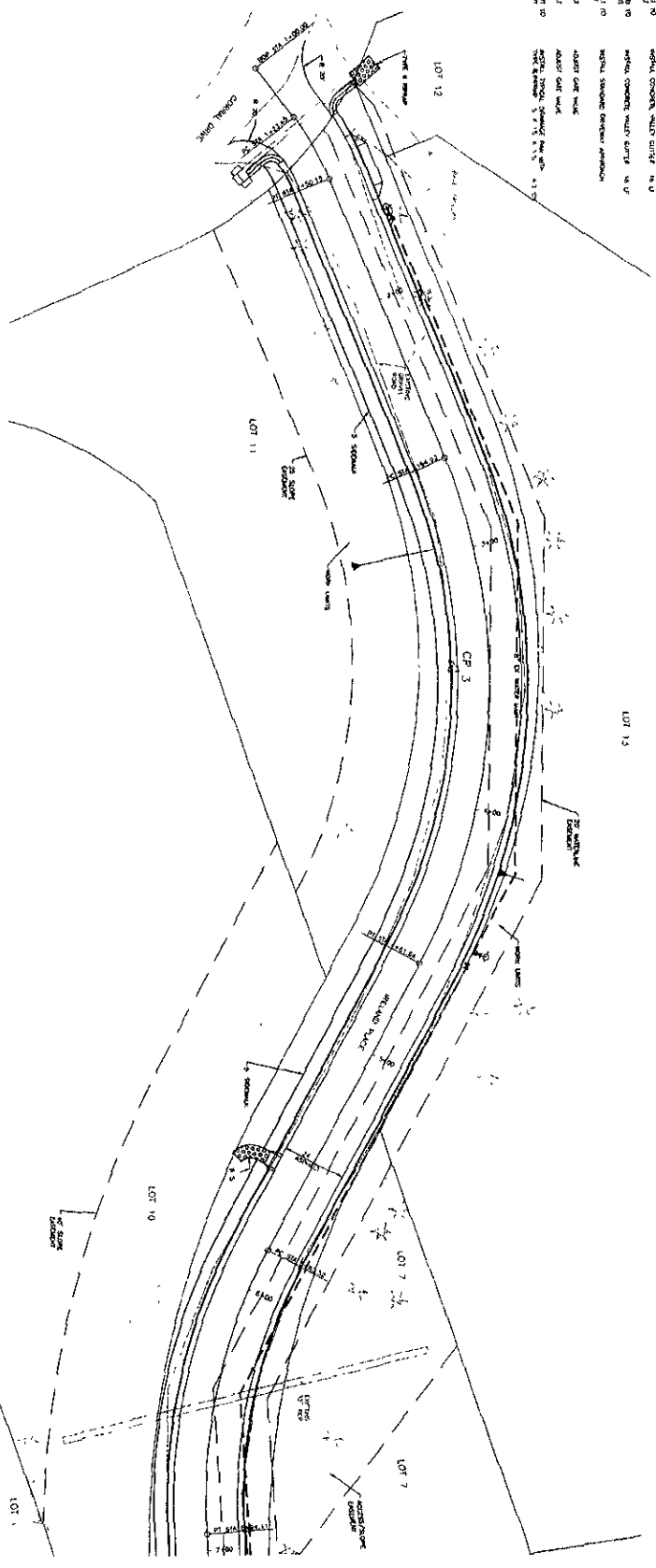
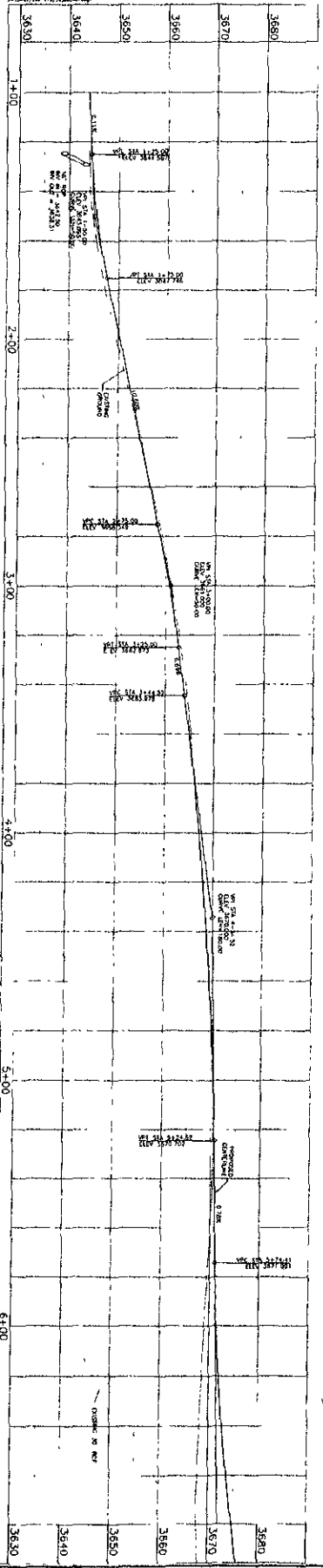


REVISION: [Table with 3 columns: NO., DATE, DESCRIPTION]  
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 NO. 99 DATE 5/27/99 DESCRIPTION 150' CORRAL DRIVE  
 NO. 100 DATE 5/27/99 DESCRIPTION 150' CORRAL DRIVE

CALL MAY 14 1999 AM  
 SCALE 1"=20' HOR  
 SCALE 1"=10' VER  
 DRAWN: CNK  
 CHECKED: DPH  
 APPROVED: DPH

FERBER ENGINEERING COMPANY  
 CONSULTING ENGINEERS  
 1000 N. 10TH ST. SUITE 200  
 RAYNO, IA 50474  
 PHONE: (515) 314-5911  
 FAX: (515) 314-5911  
 \* WATER RESOURCES \*  
 \* TRANSPORTATION \*  
 \* CIVIL ENGINEERING \*

FLANNERY SUBDIVISION  
 WATER LINE PLAN AND PROFILE STA 1+00 TO STA 4+70.24  
 CORRAL DRIVE  
 PROJECT NO. J98-119  
 SHEET NO. 2/9



CONTRACT NUMBER: 2000-0000  
 DATE: 2/2/00  
 SCALE: 1"=40' HOR, 1"=10' VER

DATE: MAY 14 1999  
 NO. 2/2/00  
 SCALE: 1"=20 HOR, 1"=10 VER  
 DRAWN: DRS  
 CHECKED: JVD  
 APPROVED: DPF

REVIEWED BY CITY ENGINEERING DIVISION  
 DATE: 2/2/00  
 SCALE: 1"=20 HOR, 1"=10 VER

DATE: 2/2/00  
 NO. 2/2/00  
 SCALE: 1"=20 HOR, 1"=10 VER

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 SCALE: 1"=20 HOR, 1"=10 VER

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 SCALE: 1"=20 HOR, 1"=10 VER

DATE: 2/2/00  
 NO. 2/2/00  
 SCALE: 1"=20 HOR, 1"=10 VER

**FLANNERY SUBDIVISION**

PLAN AND PROFILE STA 1+00 TO STA 6+80  
 IRELAND PLACE

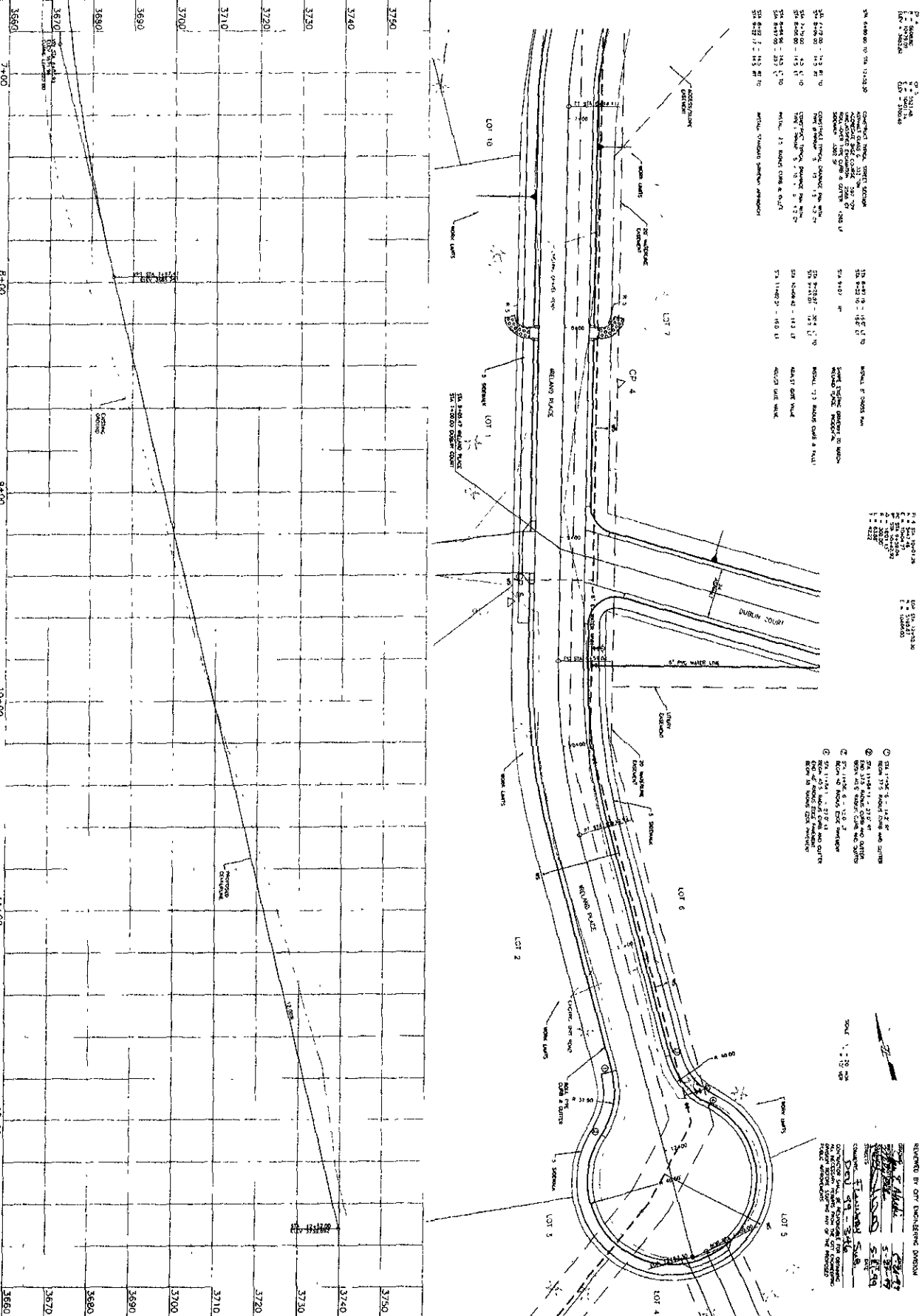
**FERBER ENGINEERING COMPANY**

CONSULTING ENGINEERS  
 3471 SYRACUSE ROAD  
 RAPID CITY, SD 57108  
 (605) 342-3411

DATE	NO.	DATE	REVISION	APPROV.
MAY 14 1999	2/2/00	2/2/00	1"=20 HOR, 1"=10 VER	D. R. S.
				J. V. D.
				D. P. F.

SHEET NO. 3/9

PROJECT NO. 99-119



3680  
 3690  
 3700  
 3710  
 3720  
 3730  
 3740  
 3750

7.00  
 8.00  
 9.00  
 10.00

3680  
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3680  
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FLANNERY SUBDIVISION  
 PLAN AND PROFILE STA 6+80 STA 12+52  
 IRELAND PLACE

**FERBER ENGINEERING COMPANY**  
 CONSULTING ENGINEERS  
 347 E. 12TH ST.  
 RAPID CITY, SD 57202  
 (605) 342-0100

DATE MAY 14, 1999  
 SCALE 1"=20' HOR  
 1"=10' VERT  
 DRAWN DRS  
 CHECKED JWB

REVISIONS  
 NO. DATE DESCRIPTION  
 1 5/14/99 GUY ROBERTS

SCALE 1"=20' HOR  
 1"=10' VERT

1. 10' WALKWAY 1' SIDEWALK  
 2. 10' WALKWAY 1' SIDEWALK  
 3. 10' WALKWAY 1' SIDEWALK  
 4. 10' WALKWAY 1' SIDEWALK  
 5. 10' WALKWAY 1' SIDEWALK

1. 10' WALKWAY 1' SIDEWALK  
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 5. 10' WALKWAY 1' SIDEWALK

80' STA 1+00 = STA 8+00 AT MAIN ROAD  
 N = 500.00  
 E = 1043.75

OF E  
 P = 202.48  
 E = 1260.14  
 ELEV = 370.10

STA 2+28.0 TO STA 4+07.17  
 CONSTRUCT TYPICAL STREET SECTION  
 CONCRETE CLASS C, 256 MM  
 FLEXIBLE BASE COURSE 425 MM  
 MECHANICAL EQUIPMENT 375 CM  
 ROLL-OVER TYPE CURB AND GUTTER 740 LF  
 SCHEDULE 1812 3'

STA 1-30.37 = 49.4 MI  
 STA 1-30.37 = 89.1 MI TO  
 STA 1-40.6 = 20.0 MI

STA 3-22.05 = 14.5 LT TO  
 STA 3-29.02 = 7.5 LT

STA 3-22.88 TO STA 3-29.05  
 CONSTRUCT 4' ASPHALT TURNOVER  
 CONCRETE CLASS C, 256 MM  
 FLEXIBLE BASE COURSE 44 MM

STA 3+54.47 = 76.1 MI  
 STA 3+47.82 = 25.6 MI TO  
 STA 4+09.17 = 20.0 MI

STA 4+09.16 = 16.00 FT  
 STA 4+01.6 = 16.0 RT

STA 4+05.34 = 16.0 MI  
 STA 4+07.17 = 14.5 MI PL  
 STA 3+02.17 = 29.9 FT

STA 4+07.17 = 14.5 MI TO  
 STA 5+02.17 = 20.0 LT MI

STA 5+03.17 = 96.3 MI TO 20.0 FT  
 STA 5+03.17 = 20.0 RT

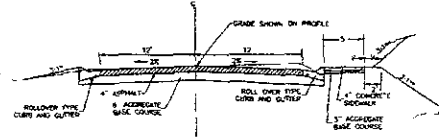
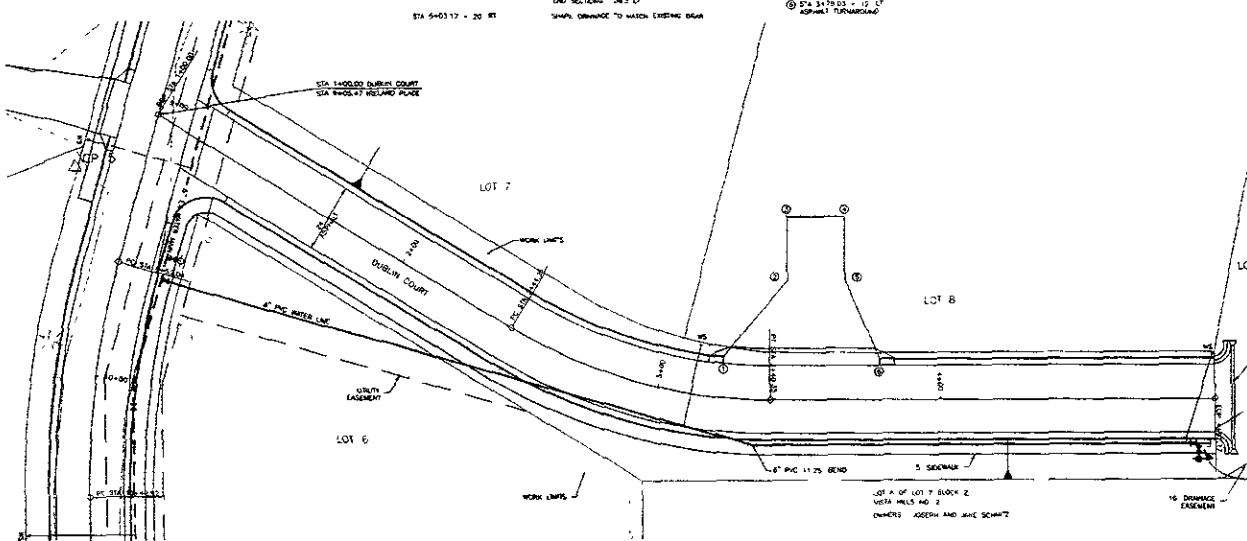
INSTALL 6" PVC 11.25' BEND 1 EACH  
 INSULATE 6" PVC WATERLINE 48 LF  
 WRENCH 6" GATE VALVE 1 EACH  
 INSTALL 6" 1/2" x 6" 1/2" GATE VALVE  
 AND 7/8" WRENCH ASSEMBLY 1 EACH  
 INSTALL 6" FLEX 1 EACH  
 INSTALL CONCRETE WALKER GUTTER 9.1 FT  
 INSTALL 6" CMP WITH TWO FLANGED  
 END SECTIONS 24.2 LF  
 SUMP, CONDUIT TO MATCH EXISTING WORK

- ① STA 3+22.05 = 12.2' ASPHALT TURNOVER
- ② STA 3+27.10 = 40.1' ASPHALT TURNOVER
- ③ STA 3+27.10 = 44.5' ASPHALT TURNOVER
- ④ STA 3+27.12 = 84.0' LT ASPHALT TURNOVER
- ⑤ STA 3+27.15 = 42.1' ASPHALT TURNOVER
- ⑥ STA 3+29.02 = 12.2' ASPHALT TURNOVER

EDP STA 4+07.17  
 P = 500.00  
 E = 1060.23

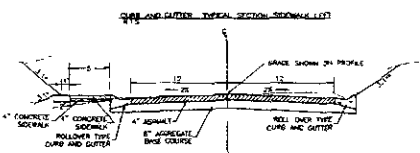
\* Notes: Use C90  
 Class 200 Pipe.  
 2) Plf F.H. on end of  
 line and eliminate  
 tee, valve and cap.  
 Changes agreed to by  
 Ferrer via phone  
 5-21-99

REVISION BY CITY ENGINEERING DIVISION  
 DRAWN BY J. Mendis  
 CHECKED BY J. Mendis  
 DATE 5-21-99  
 COMMENTS: FLANAGAN & SONS  
 DATE 5-21-99  
 CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FROM THE CITY ENGINEERING DIVISION BEFORE STARTING ANY OF THE PROPOSED PUBLIC IMPROVEMENTS.



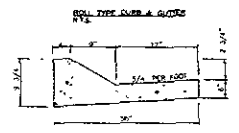
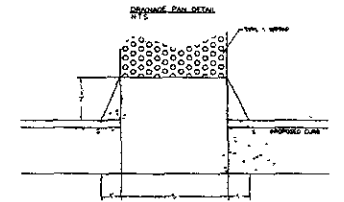
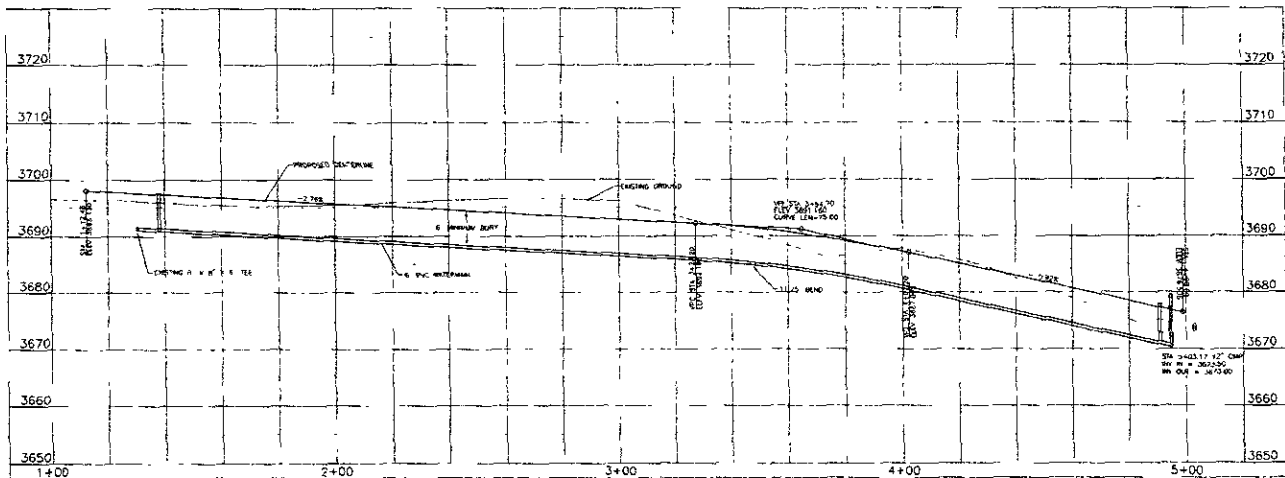
IRVING PLACE STA 1+12.0 TO STA 8+41  
 7.1 STA 1+40 TO STA 8+00

DUBLIN COURT STA 2+28.0 TO STA 4-37.00  
 2.1 STA 1+25.53 TO STA 4+09.00



MELAND PLACE STA 9+43.0 TO STA 12+52.30  
 2.1 STA 10+00 TO STA 12+52.30

See Notes



ALL CURB & GUTTER SHALL HAVE A 20 DAY COMPRESSIVE STRENGTH OF NOT LESS THAN 4000 P.S.I. & ARE OTHERWISE NOTED ON PLANS.  
 ALL DESIGN DETAILS ARE SHOWN OF CURB ELEVATIONS UNLESS OTHERWISE INDICATED ON PLANS.  
 EXPANSION JOINT FILLER IS TO BE PLACED IN THE CURB & GUTTER AT EACH JOINT OF A MANHOLE. IT SHALL BE PLACED AS FOR DETAIL.  
 CONTRACTION JOINTS SHALL BE PLACED IN THE CURB & GUTTER AT 3' INTERVALS ON WATER MAINS OR CONCRETE PARALLEL.

DATE MAY 14, 1999  
 SCALE 1" = 10' HORIZ  
 SCALE 1" = 10' VERT  
 DRAWN BY J. MENDIS  
 CHECKED BY J. MENDIS  
 APPROVED BY

FERRER ENGINEERING COMPANY  
 CONSULTING ENGINEERS  
 1850 CHERRY STREET  
 IRVING, TEXAS 75038  
 PHONE 972-441-5511  
 FAX 972-441-5512  
 WWW.FERRER-ENG.COM  
 E-MAIL: INFO@FERRER-ENG.COM

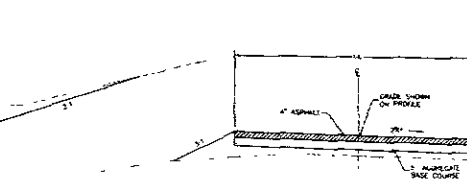
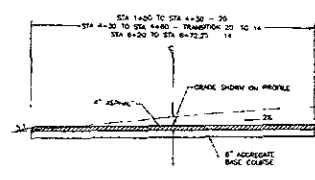
• WATER RESOURCES  
 • SUBSTATION  
 • CIVIL ENGINEERING

FLANNERY SUBDIVISION  
 DUBLIN COURT PLAN AND PROFILE STA 1+00 TO 4+07.19  
 TYPICAL SECTIONS AND DETAILS

PROJECT NO  
 988-119

SHEET NO  
 5/9

NO. STA 1+00 N = 3186.52 E = 10412.88 Elev = 3746.27	CP 7 N = 3180.61 E = 10366.81 Elev = 3746.27	P1 STA 3+28.70 N = 4123.03 E = 10404.84 PC STA 3+29.88 PT STA 3+41.22 L = 108.14 E = 70.00 S = 134.36 I = 69.92	P2 STA 3+28.34 N = 4079.81 E = 10351.70 PC STA 3+29.88 PT STA 3+41.22 L = 107.78 E = 70.00 S = 134.36 I = 69.92	P3 STA 4+41.70 N = 5007.81 E = 10613.11 PC STA 4+42.70 PT STA 4+47.71 L = 107.78 E = 70.00 S = 134.36 I = 69.92	P4 STA 3+42.69 N = 5007.81 E = 10613.11 PC STA 4+42.70 PT STA 4+47.71 L = 107.78 E = 70.00 S = 134.36 I = 69.92	CP 8 N = 5007.26 E = 10612.25 Elev = 3736.94
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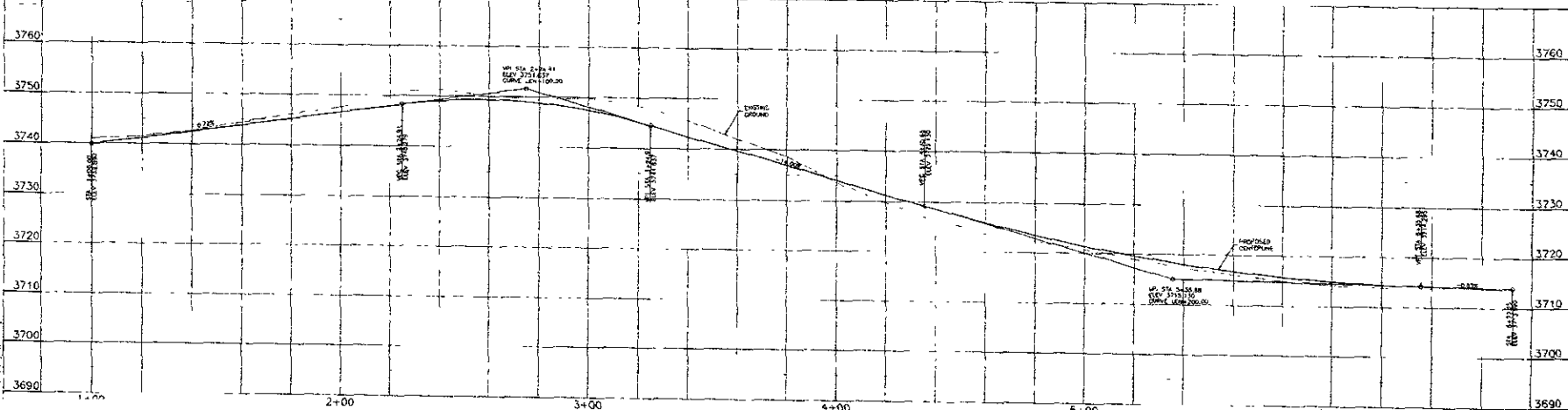
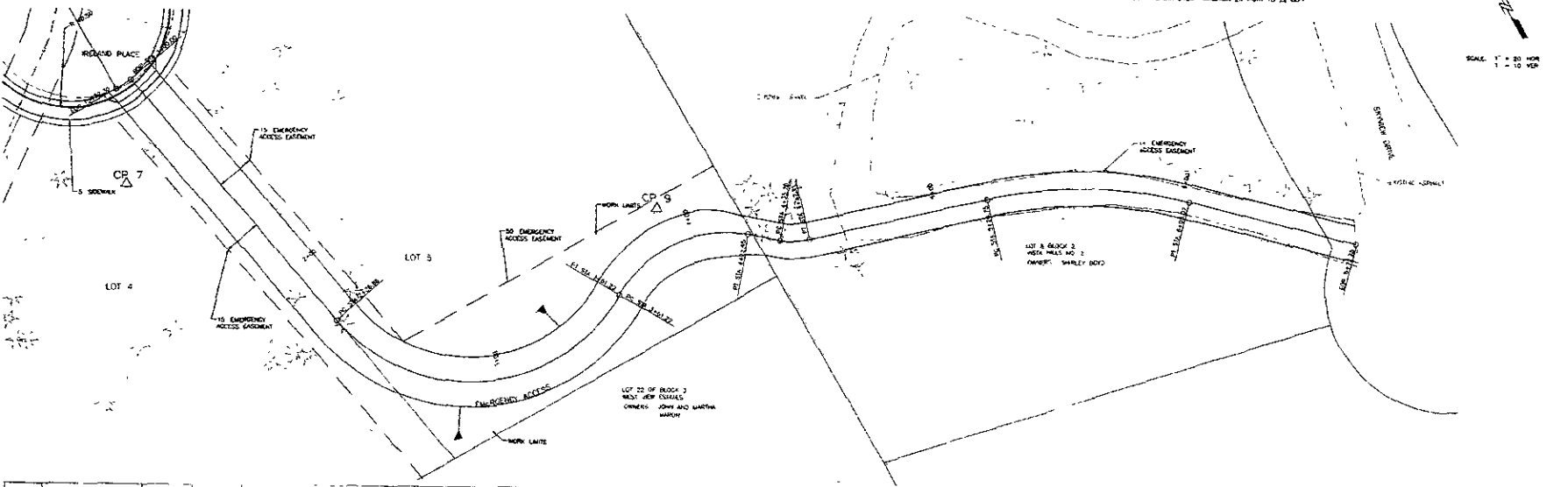
TOP STA 6+72.25  
N = 5483.57  
E = 10602.23

REVIEWED BY CITY ENGINEERING DIVISION  
 DATE: 5-28-99  
 DRAWN BY: [Signature]  
 CHECKED BY: [Signature]  
 PROJECT: [Signature]  
 COMMENTS: [Signature]  
 CONTRACT: FLANNERY SUB  
 DATE: 09-25-94  
 CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FROM THE CITY ENGINEERING DIVISION BEFORE STARTING ANY OF THE PROPOSED PUBLIC IMPROVEMENTS.

STA 1+00 TO STA 4+72.25  
 CONSTRUCT NORMAL EMERGENCY ACCESS SECTION  
 APPROXIMATE LENGTH = 300' MIN.  
 APPROXIMATE ROAD CROSSING 137' MIN.  
 UNDESIGNED ELEVATION 75' MIN.

EMERGENCY ACCESS TYPICAL SECTION 25' LEFT  
 N15  
 STA 1+00 TO STA 4+40  
 STA 4+40 TO STA 4+72.25  
 STA 1+00 TO STA 3+00 = 30'

EMERGENCY ACCESS TYPICAL SECTION 25' RIGHT  
 N15  
 STA 4+40 TO STA 4+72.25  
 STA 4+72.25 TO STA 6+00  
 STA 4+72.25 TO STA 5+00 = 27.75'  
 STA 5+00 TO STA 6+00 = 30'



DATE: MAY 14 1999  
 SCALE: 1" = 40' HOR  
 SCALE: 1" = 10' VER  
 DRAWN BY: [Signature]  
 CHECKED BY: [Signature]  
 APPROVED BY: [Signature]

FLANNERY SUBDIVISION  
 EMERGENCY ACCESS STA 1+00 TO STA 6+72.25

PROJECT NO.  
 J98-119

SHEET NO.  
 6/9

FERBER ENGINEERING COMPANY  
 CONSULTING ENGINEERS  
 1000 N. 10TH ST. SUITE 200  
 RALPH, WY 82503  
 (307) 343-5111

WATER RESOURCES  
 TRANSPORTATION  
 CIVIL ENGINEERING

NOT TO SCALE UNLESS OTHERWISE NOTED TO CONTRACT THE ENGINEER'S

THESE PLANS SHOW THE WORK LIMITS REQUIRED TO CONSTRUCT THE ENGINEER'S

WORK AND IS TO BE CONFORMED TO.

**NOTES:**

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES AND AGENCIES OF JURISDICTION.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES AND AGENCIES OF JURISDICTION.
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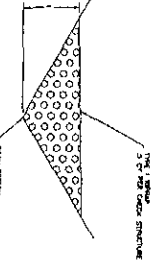
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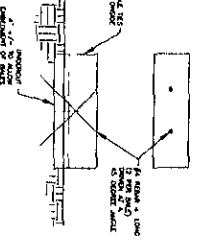
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Typical Linear Check Structure Details

Channel Width	12' to 20'
Channel Depth	2' to 4'
Channel Slope	1:1 to 2:1
Channel Material	Gravel or Riprap
Channel Length	10' to 20'
Channel Spacing	30' to 50'
Channel Structure	3' or 4' x 2.5' or 3' x 2.5' or 3' x 2.5' or 3' x 2.5'



TYPICAL TYPE LINEAR CHECK STRUCTURE

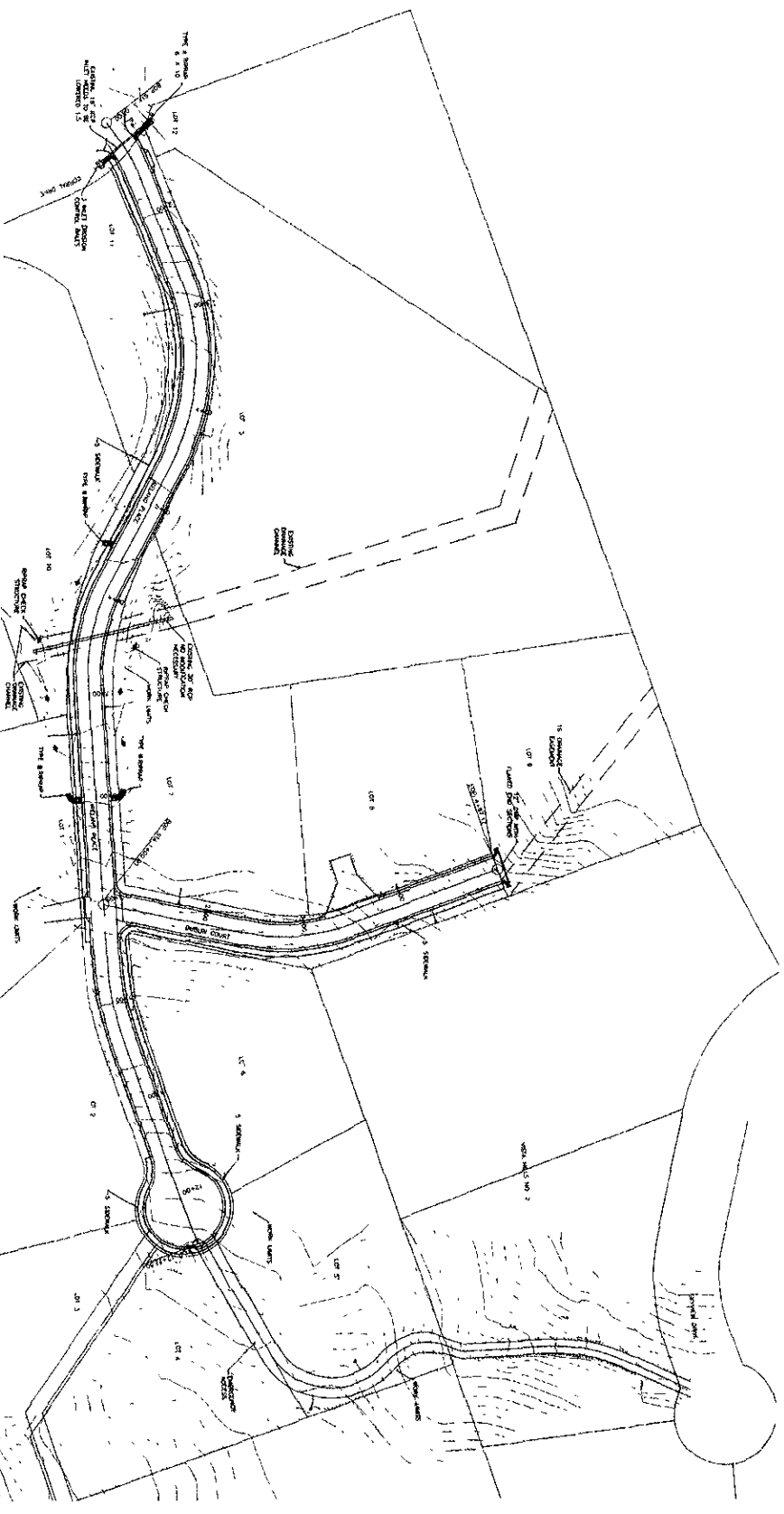


TYPICAL BALE INSTALLATION

Scale 1" = 50' HOR



REVIEWED BY: GUY CHAMBERLAIN, P.E.  
 DATE: 5/14/99  
 DRAWN BY: JRV  
 CHECKED BY: JRV  
 APPROVED BY: JRV



FLANNERY SUBDIVISION  
 EROSION CONTROL PLAN

FERBER ENGINEERING COMPANY  
 CONSULTING ENGINEERS  
 5471 STINGER ROAD  
 RAPID CITY, SD 57205  
 (605) 342-2222

DATE	MAY 14, 1999	NO.	02/99	DESIGNER	ADD. WORKING SHEETS	APPROVED
SCALE	1"=50' HOR	DRAWN BY	JRV	CHECKED BY	JRV	
		APPROVED BY	JRV			

7/8

