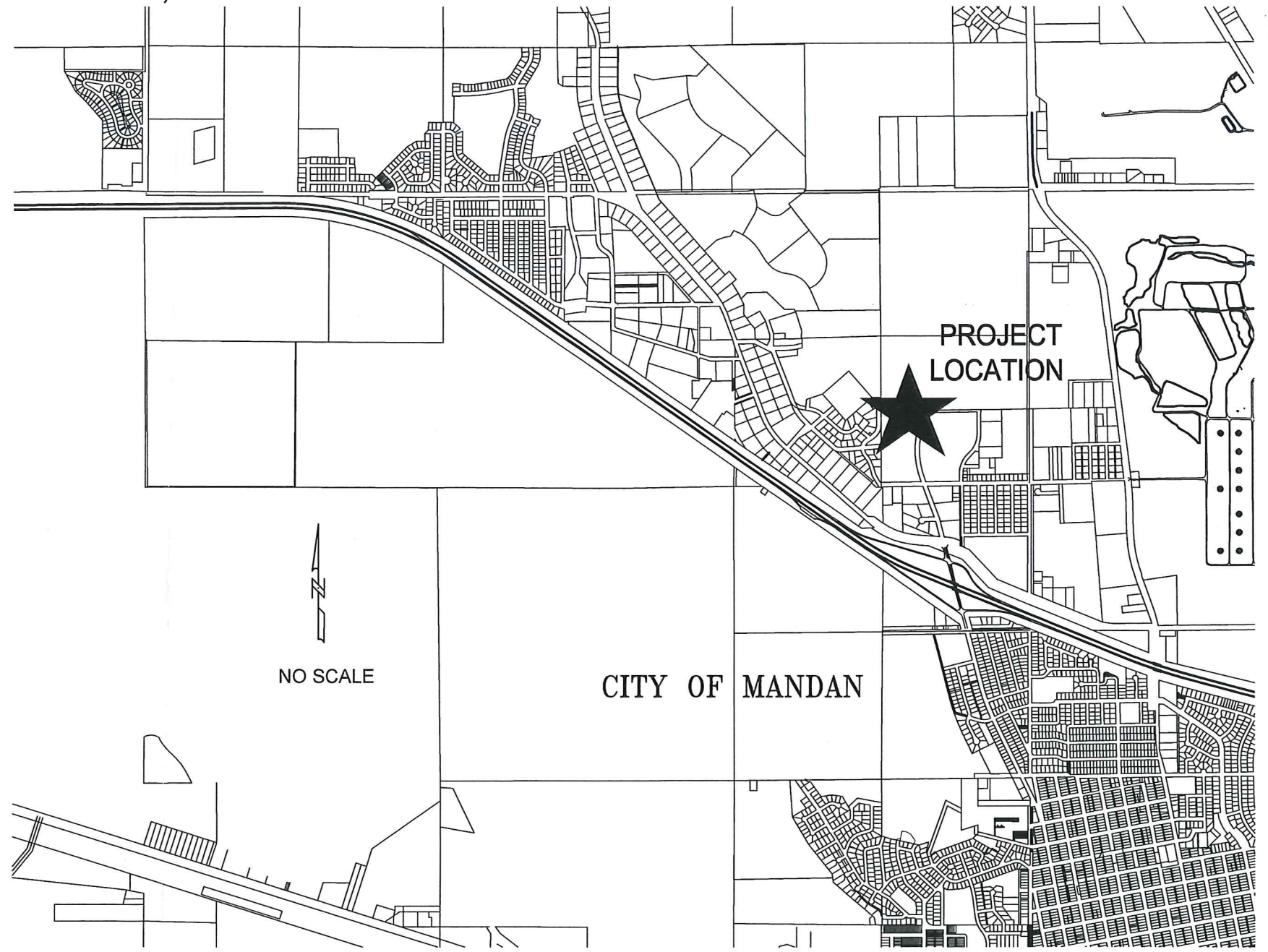


# MISSOURI VALLEY ADDITION REPLAT WATER IMPROVEMENTS CITY PROJECT NO. 2014-19 MANDAN, NORTH DAKOTA

## INDEX OF DRAWINGS

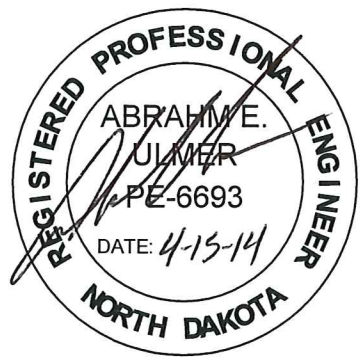
SHT NO	TITLE
1	TITLE SHEET
2	31ST STREET NW
3	WATER DETAILS



NO SCALE

### DESIGN ENGINEER'S CERTIFICATE

I, ABRAHM E. ULMER, A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF NORTH DAKOTA, HEREBY CERTIFY THAT THE PLANS FOR MISSOURI VALLEY ADDITION REPLAT WATER IMPROVEMENTS, CITY PROJECT NO. 2014-19, MANDAN, NORTH DAKOTA WERE PREPARED UNDER MY SUPERVISION AND ARE COMPLETE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.



ABRAHM E. ULMER, P.E.  
REGISTERED PROFESSIONAL ENGINEER  
NORTH DAKOTA REGISTRATION NO. 6693

**CAUTION**  
UTILITY LOCATIONS ARE APPROXIMATE. CONTRACTOR IS RESPONSIBLE FOR VERIFYING LOCATION PRIOR TO EXCAVATION

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501 1st Street NW, Mandan, ND 58554  
Phone: 701-663-6483 \* Fax: 701-663-0923  
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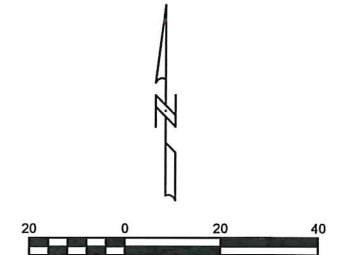
TITLE SHEET  
MISSOURI VALLEY ADDITION REPLAT  
MANDAN, ND

WATER IMPROVEMENTS  
CITY PROJECT NO. 2014-19

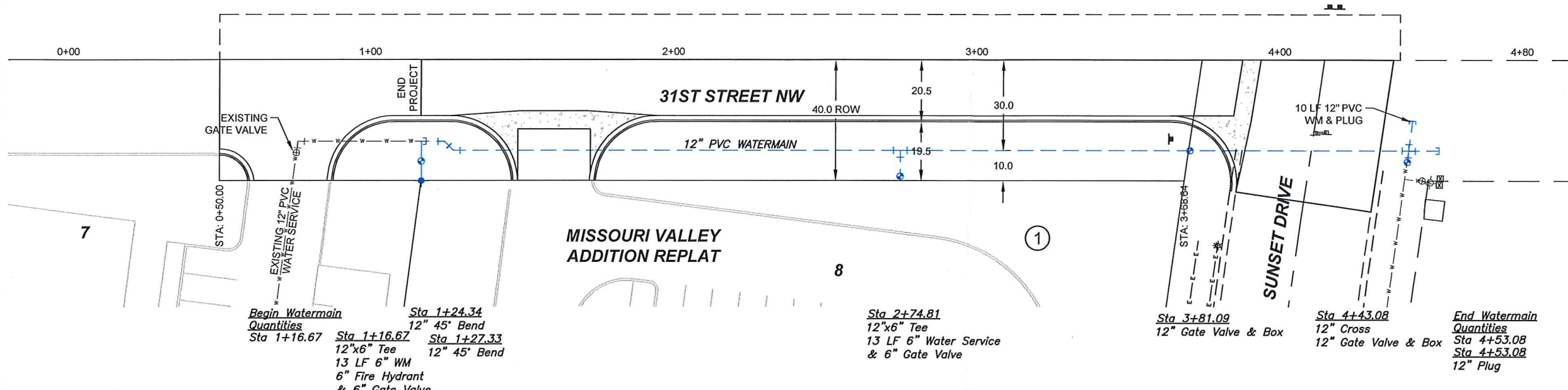
H:\Projects\1000\1269\Title Sheet.dwg, 3/20/2014 8:39:50 AM, Andra, 1:2



NW1/4  
SE1/4



VERT. DATUM: NAVD88 (GEOID 03)  
HORIZ DATUM: 1983 STATE PLANE, ND SOUTH (3302)

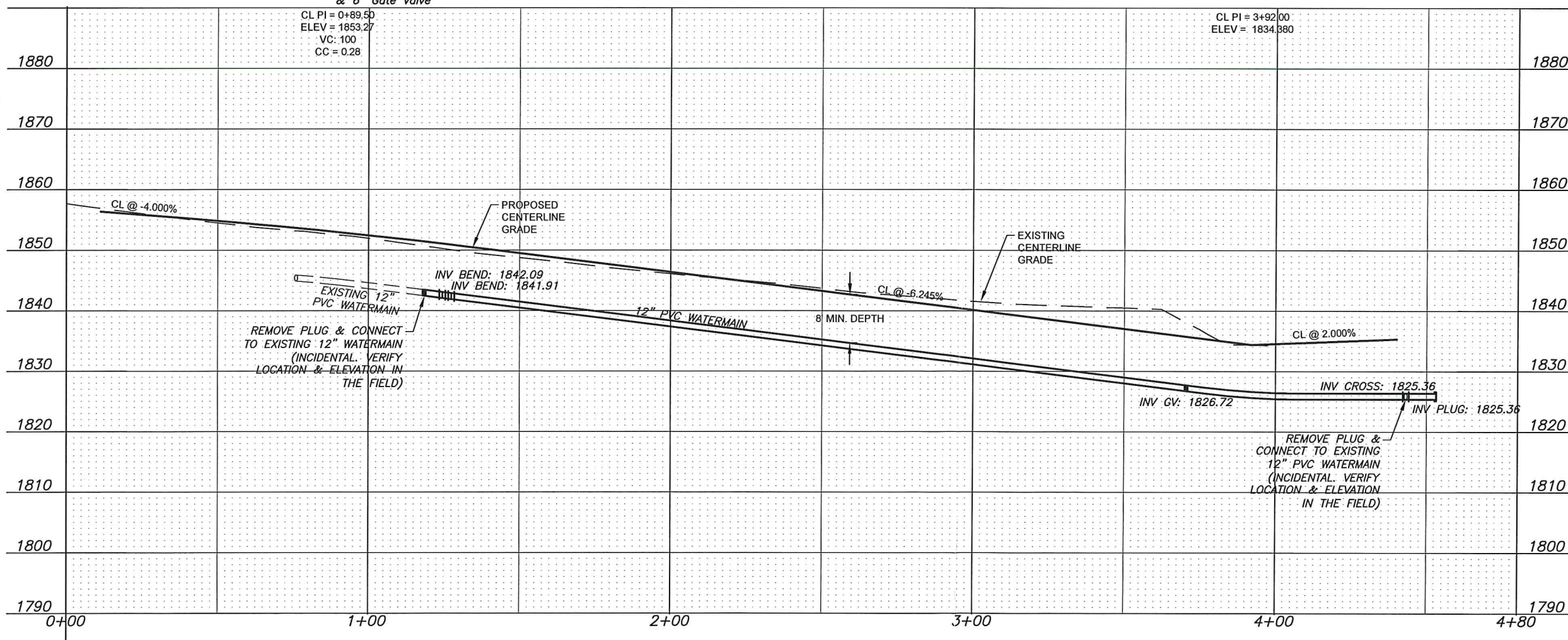


1. GRADING OF SITE WILL BE COMPLETED BY OTHERS PRIOR TO CONSTRUCTION.
2. BACKFILL SHALL BE CLASS 'A' PER CITY OF MANDAN SPECIFICATIONS. MOISTURE REQUIREMENTS SHALL BE NO MORE THAN 3% ABOVE OR 2% BELOW OPTIMUM MOISTURE AS DETERMINED BY ASTM-D-1557.

<b>Begin Watermain Quantities</b> Sta 1+16.67	<b>Sta 1+16.67</b> 12"x6" Tee 13 LF 6" WM 6" Fire Hydrant & 6" Gate Valve	<b>Sta 1+24.34</b> 12" 45° Bend	<b>Sta 1+27.33</b> 12" 45° Bend	<b>Sta 2+74.81</b> 12"x6" Tee 13 LF 6" Water Service & 6" Gate Valve	<b>Sta 3+81.09</b> 12" Gate Valve & Box	<b>Sta 4+43.08</b> 12" Cross 12" Gate Valve & Box	<b>End Watermain Quantities</b> Sta 4+53.08 12" Plug
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**APPROXIMATE QUANTITIES**

Spec No.	Watermain Items	Quantity
801-4.60	Bedding Material	135 Ton
901-4.10	6" Watermain	26 LF
901-4.13	12" Watermain	351 LF
901-4.51	6" Gate Valve & Box	2 Ea
901-4.59	12" Gate Valve & Box	2 Ea
901-4.70	6" Hydrant	1 Ea



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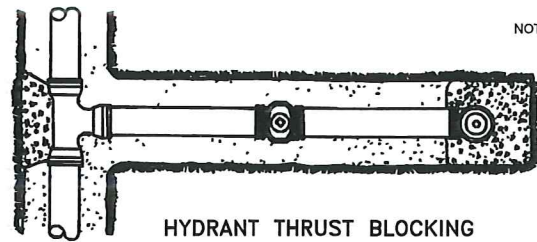
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**31ST STREET NW**  
MISSOURI VALLEY ADDITION REPLAT  
MANDAN, ND

WATER IMPROVEMENTS  
CITY PROJECT NO. 2014-19  
SHEET 2 OF 3

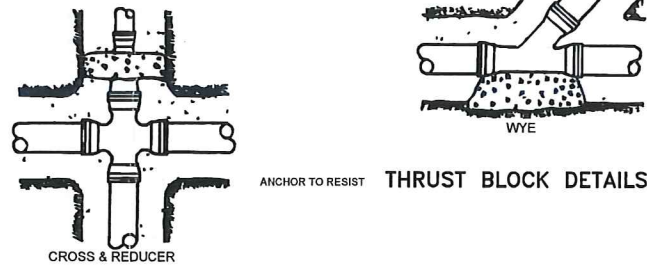
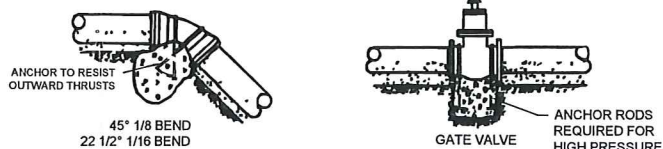
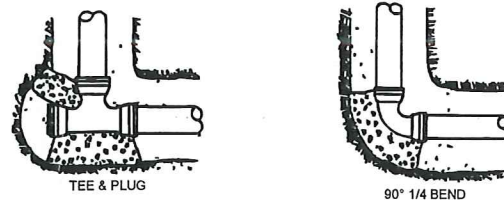
MARCH, 2014



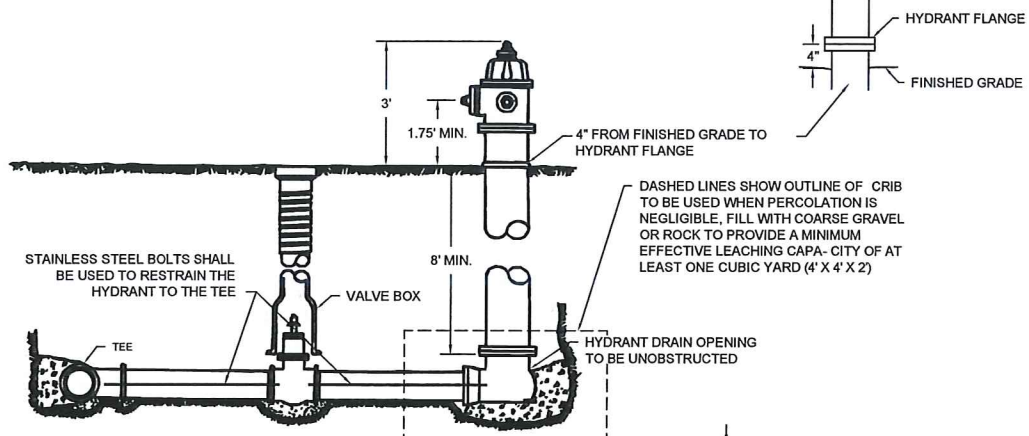


HYDRANT THRUST BLOCKING

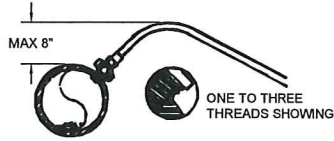
- NOTES:
- (1) PIPE DEFLECTIONS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION
  - (2) BEDDING REQUIREMENTS SHALL BE AS INDICATED HEREON UNLESS MODIFIED IN THE SPECIFICATION
  - (3) CONCRETE FOR THRUST BLOCKS SHALL HAVE MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3,000 P.S.I. AND MAX. SLUMP OF 3 INCHES AT TIME OF PLACEMENT



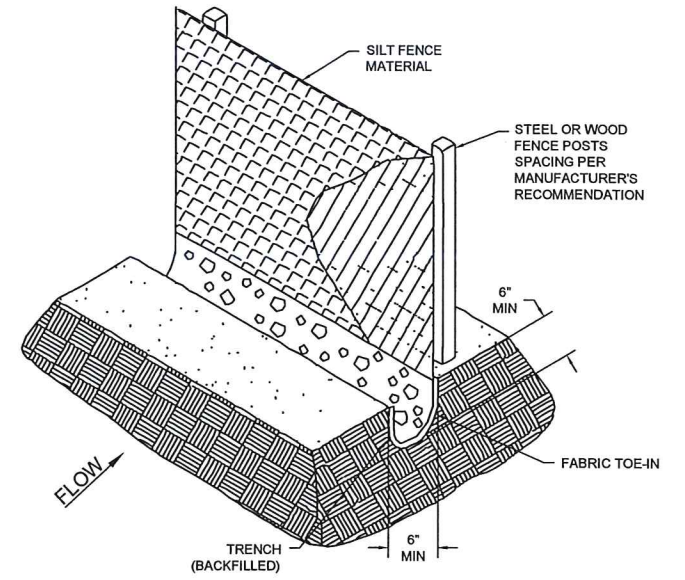
- NOTES:
1. SILT FENCE FABRIC SHALL BE ONE OF THE FOLLOWING  
A. BURLAP: AASHTO M182  
B. POLYPROPYLENE FABRIC: ASTM D4397  
C. NYLON NETTING REINFORCED FABRIC  
D. PREMANUFACTURED SILT FENCE MEETING EQUAL PROPERTIES OF ABOVE.
  2. SILT FENCE FABRIC SHALL HAVE A MINIMUM BURSTING STRENGTH 150 PSI
  3. SILT FENCE FABRIC SHALL HAVE EDGES TREATED TO PREVENT UNRAVELING.
  4. MINIMUM HEIGHT OF THE SILT FENCE TO BE 2'-6" WITH A MINIMUM OF 6" CLEARANCE BETWEEN THE TOP OF THE SILT FENCE AND THE TOP OF THE POSTS.
  5. INSTALL THE POSTS ON SLIGHT ANGLE TOWARDS THE ANTICIPATED RUNOFF SURFACE.



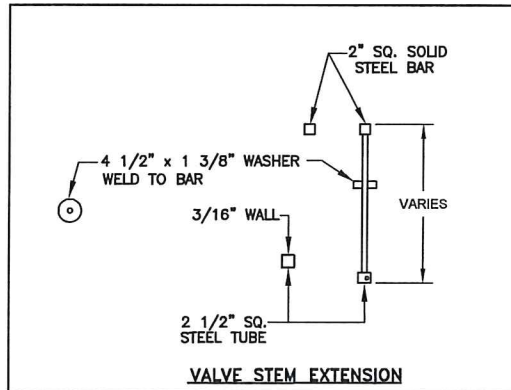
LAYOUT OF FIRE HYDRANT & VALVE



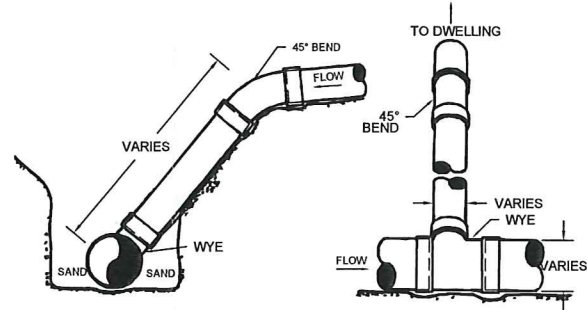
SERVICE LINE CORPORATION COCK DIRECT TAP POSITION



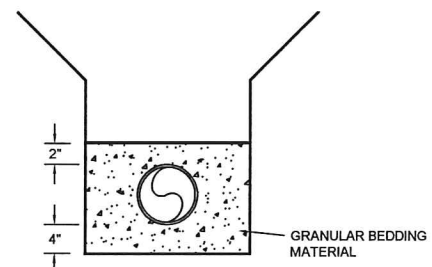
SILT FENCE



VALVE STEM EXTENSION

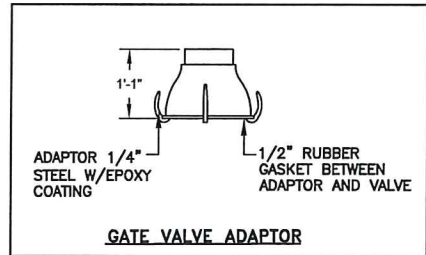


WYE AND RISER DETAILS

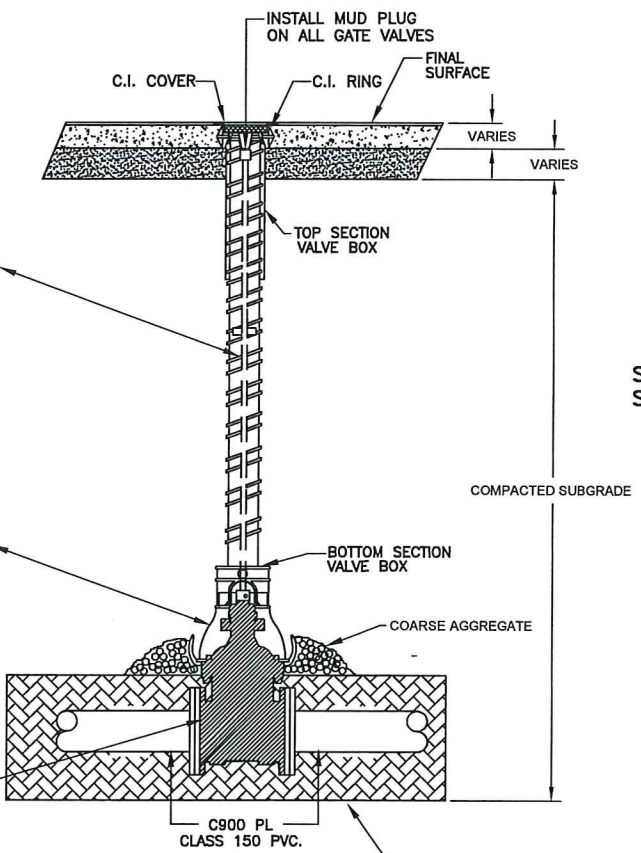


WATERMAIN BEDDING DETAIL

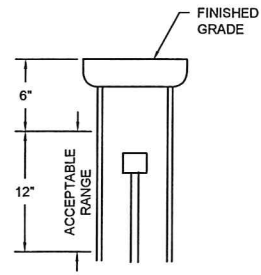
SAND CUSHION BEDDING—SUPPORT ENTIRE LENGTH OF PIPE SPECIAL COMPACTION REQUIRED TO PIPE SPRING LINE



GATE VALVE ADAPTOR



TYPICAL GATE VALVE ASSEMBLY (SIDE VIEW) NOT TO SCALE



NOTE: VALVE STEM MUST BE IN RANGE OF 6" - 18" BELOW FINISHED GRADE.

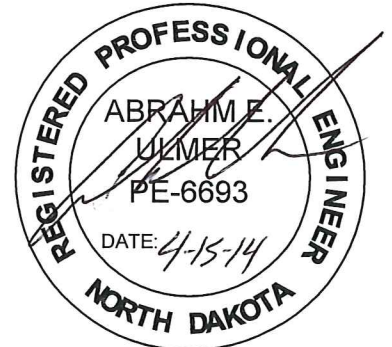
VALVE STEM DETAIL



MAXIMUM SIZE OF OUTLET RECOMMENDED WITH SERVICE CLAMPS (INCHES)

NOMINAL PIPE SIZE	(CLASSES 100-150-200) DOUBLE STRAP
4"	1"
6"	1 1/2"
8"	2"
10"	2"
12"	2"
14"	2"
16"	2"

SADDLES FOR PVC WATERMAIN



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