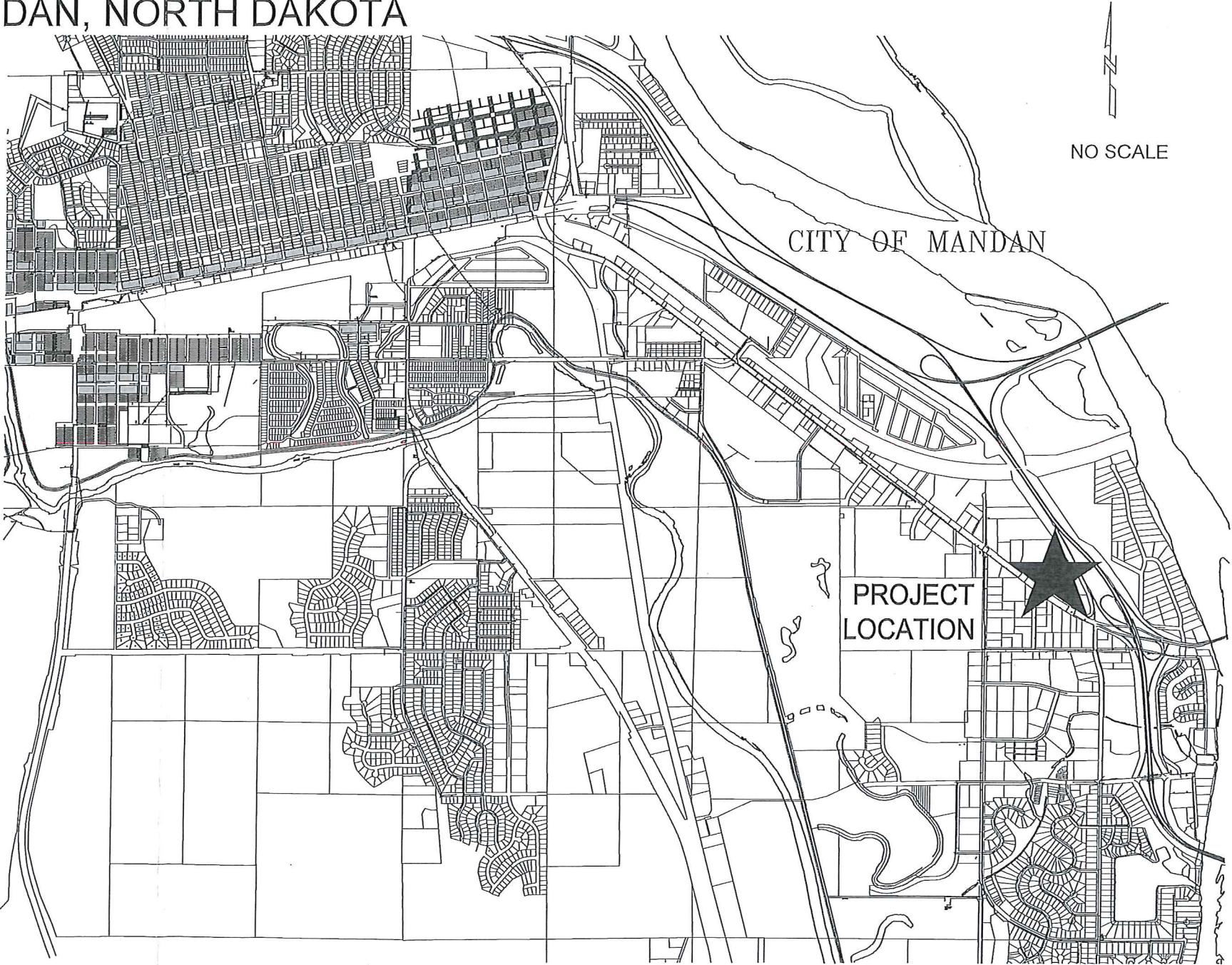


MIDWAY 14TH ADDITION
 WATER & SEWER IMPROVEMENTS PHASE II
 CITY PROJECT NO. 2015-02
 MANDAN, NORTH DAKOTA

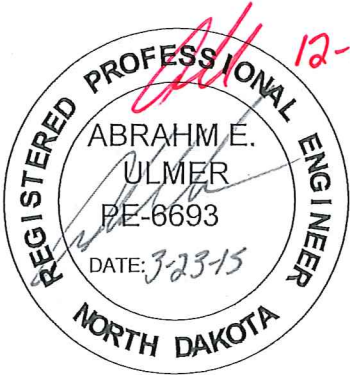
ASBUILT

INDEX OF DRAWINGS

SHT NO	TITLE
1	TITLE SHEET
2	PROJECT LAYOUT
3	ACTION DRIVE SE (PHASE II)
4	CONSTRUCTION DETAILS



DESIGN ENGINEER'S CERTIFICATE
 I, ABRAHM E. ULMER, A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF NORTH DAKOTA, HEREBY CERTIFY THAT THE PLANS FOR MIDWAY 14TH ADDITION - PHASE II, WATER & SEWER IMPROVEMENTS, CITY PROJECT NO. 2015-02, MANDAN, NORTH DAKOTA WERE PREPARED UNDER MY SUPERVISION AND ARE COMPLETE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

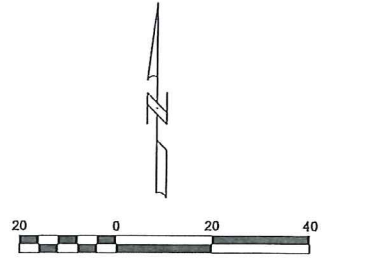
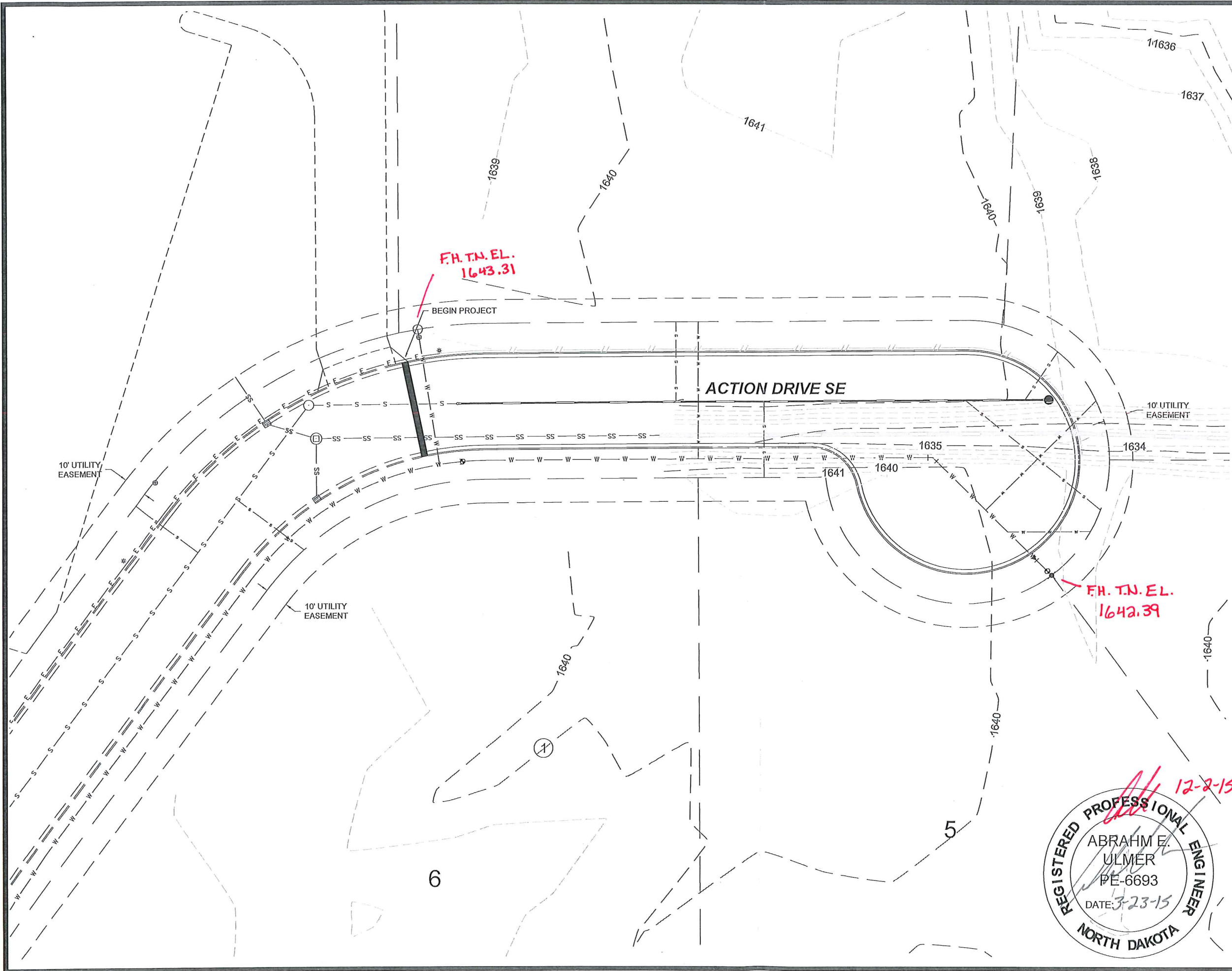


ABRAHM E. ULMER, P.E.
 REGISTERED PROFESSIONAL ENGINEER
 NORTH DAKOTA REGISTRATION NO. 6693

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

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 Phone: 701-663-6483 * Fax: 701-663-0923
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TITLE SHEET
 MIDWAY 14TH ADDITION
 ACTION DRIVE SE *As-built*
 WATER & SEWER IMPROVEMENT PHASE II
 CITY PROJECT NO. 2015-02
 MANDAN, NORTH DAKOTA
 SHEET 1 OF 4 MARCH, 2015



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

LEGEND

- EXISTING MANHOLE
- EXISTING TELEPHONE PEDESTAL
- ☆ EXISTING STREET LIGHT
- ⌘ EXISTING UTILITY POLE
- ← EXISTING ANCHOR POLE
- EXISTING ELECTRICAL BOX
- ⊙ EXISTING TREE
- ⊙ EXISTING FIRE HYDRANT
- ⊙ EXISTING GATE VALVE
- ⊙ EXISTING SIGN
- - - - EXISTING SANITARY SEWERMAIN
- - - - EXISTING WATERMAIN
- - - - EXISTING ELECTRIC LINE
- ===== EXISTING CURB & GUTTER
- - - - EXISTING STORM SEWER
- - - - EXISTING GAS LINE
- - - - EXISTING CABLE TV
- - - - EXISTING FENCE
- 1810 EXISTING CONTOUR
- PROPOSED FIRE HYDRANT
- ⊙ PROPOSED GATE VALVE
- ⊙ PROPOSED CURB STOP
- PROPOSED SANITARY SEWER MANHOLE
- - - - PROPOSED WATERMAIN
- - - - PROPOSED WATER SERVICE
- - - - PROPOSED SANITARY SEWERMAIN
- - - - PROPOSED SANITARY SERVICE
- ⊙ PROPOSED STREET SIGN
- ☆ PROPOSED STREET LIGHT
- PROPOSED JUNCTION BOX
- ⊙ PROPOSED STORM SEWER MANHOLE
- ⊙ PROPOSED 2' X 3' CATCH BASIN
- ⊙ PROPOSED FLARED END SECTION
- ===== PROPOSED STORM SEWER
- ===== PROPOSED CURB & GUTTER

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 EXCAVATION

12-2-15

REGISTERED PROFESSIONAL ENGINEER
 ABRAHM E. ULMER
 PE-6693
 DATE: 3-23-15
NORTH DAKOTA

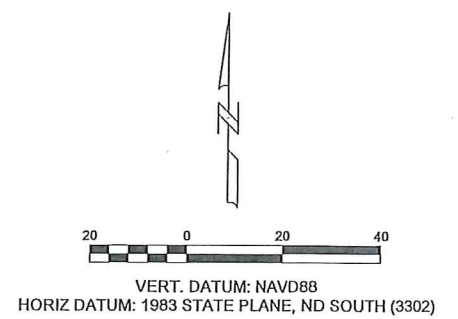
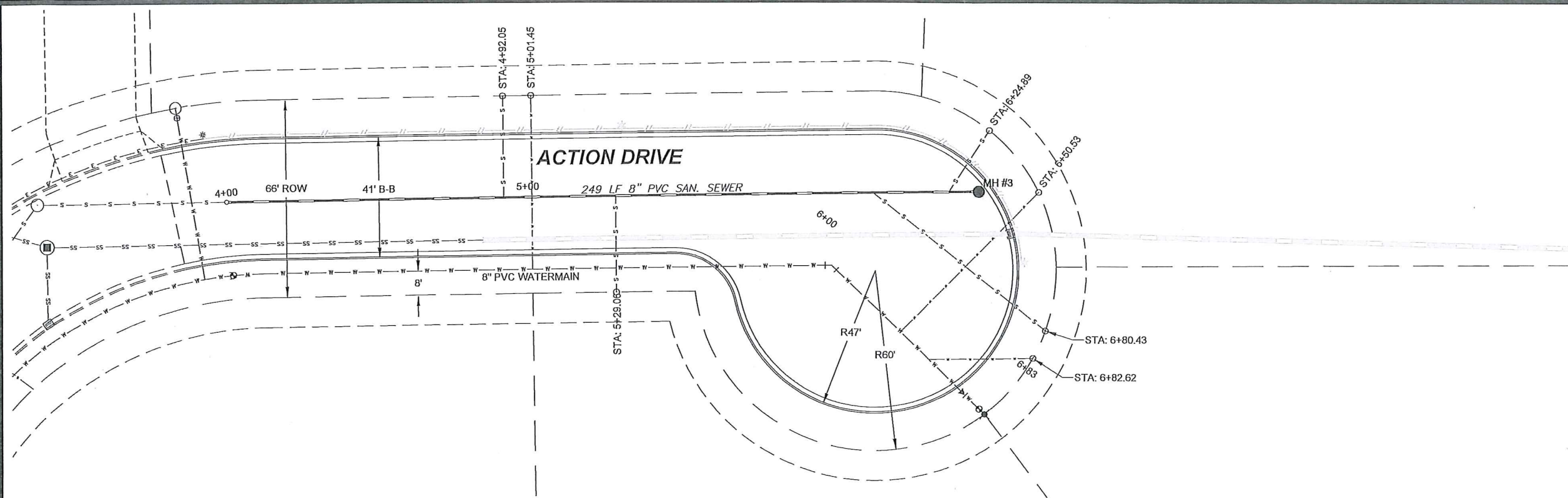
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PROJECT LAYOUT
 MIDWAY 14TH ADDITION - PHASE II
 ACTION DRIVE SE As-built

WATER & SEWER IMPROVEMENT PHASE II
 CITY PROJECT NO. 2015-02
 MANDAN, NORTH DAKOTA
 SHEET 2 OF 4

MARCH, 2015

BY OTHERS



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.
3. LOWER WATERMAIN FROM STA. 4+00 TO 6+75 TO AVOID HIGH SPOT. SHALL BE CONSIDERED INCIDENTAL TO WATERMAIN INSTALLATION.

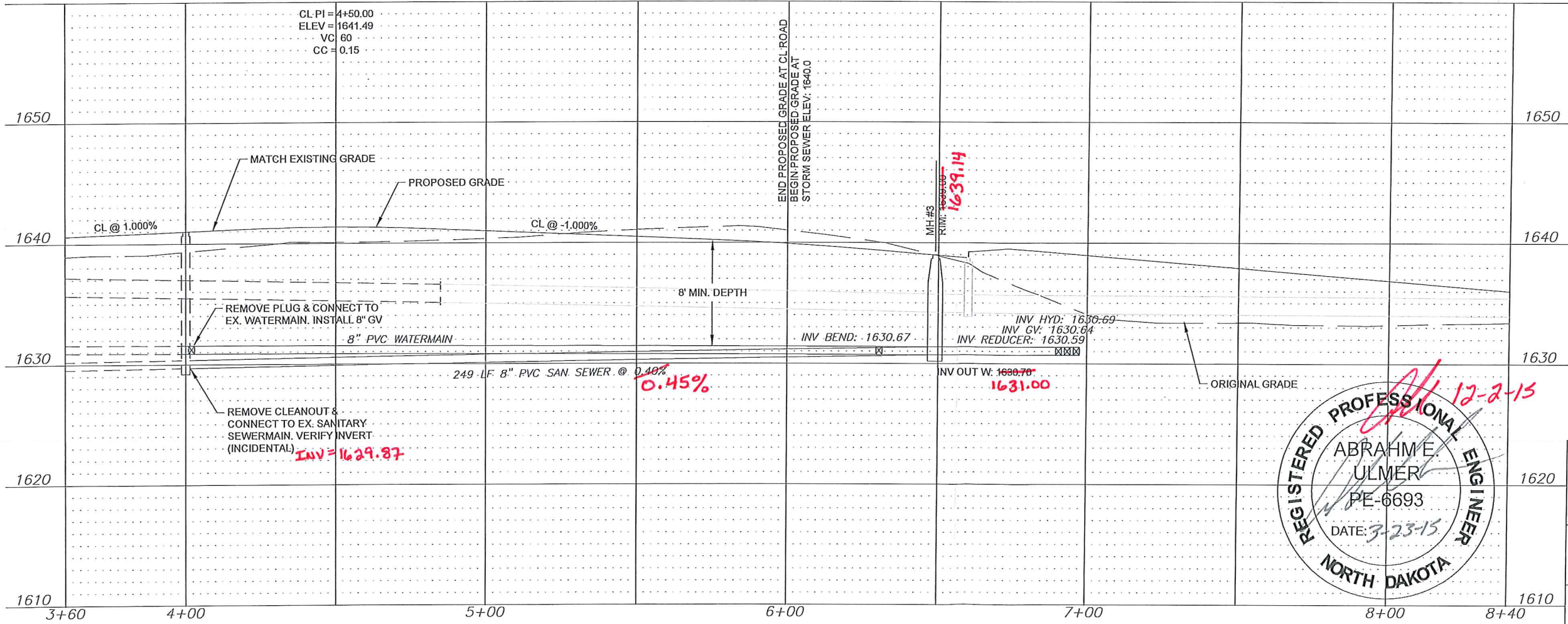
Begin Watermain Quantities
 Sta 4+00.00
 Remove Plug
 Connect to Ex WM ✓
 8" GV & BOX

Begin Sanitary Sewermain Quantities
 Sta 4+00.00
 Remove Cleanout
 Connect to Existing ✓
 Sanitary Sewermain

Sta 6+13.96
 8" 45° Bend ✓

Sta 6+34.44
 MH #3 ✓

Sta 6+75.46
 8"x6" Reducer ✓
 6 LF 6" WM ✓
 6" Fire Hydrant
 & 6" Gate Valve ✓

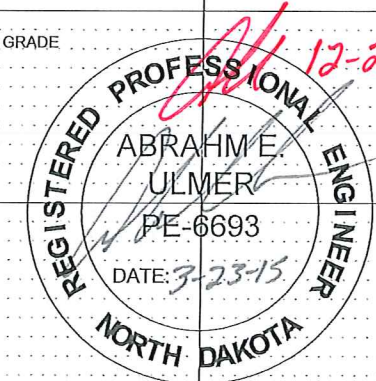


APPROXIMATE QUANTITIES

Spec No.	Sanitary Sewermain Items	Quantity
801-4.2	8" Sanitary Sewermain	249 LF
801-4.51	8"x6" Wye Branch	4 Ea
801-4.60	Bedding Material	75 Ton
1205-4.1	Manhole	1 Ea
1209-4.2	6" Sanitary Sewer Pipe	165 LF
1209-4.7	6" - 45° Bend	4 Ea

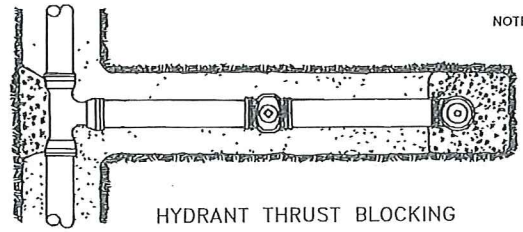
Spec No.	Watermain Items	Quantity
801-4.60	Bedding Material	80 Ton
901-4.10	6" Watermain	6 LF
901-4.11	8" Watermain	269 LF
901-4.51	6" Gate Valve & Box	1 Ea
901-4.52	8" Gate Valve & Box	1 Ea
901-4.70	6" Hydrant	1 Ea
1209-4.15	2" Water Service Pipe	158 LF
1209-4.44	2" Water Service Connection	3 Ea
1209-4.54	2" Curb Stop & 2-1/4" Box	3 Ea

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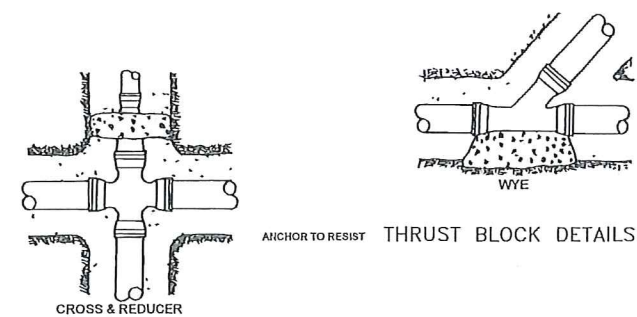
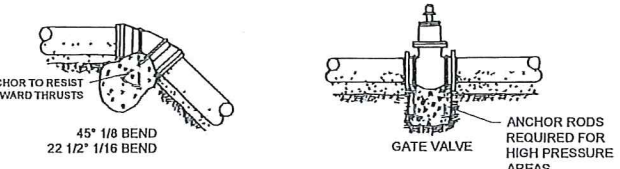
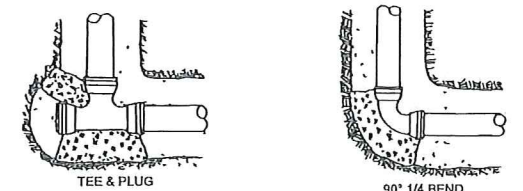

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ACTION DRIVE PLAN & PROFILE
 PHASE II TO END OF PROJECT
 MIDWAY 14TH ADDITION
As-built

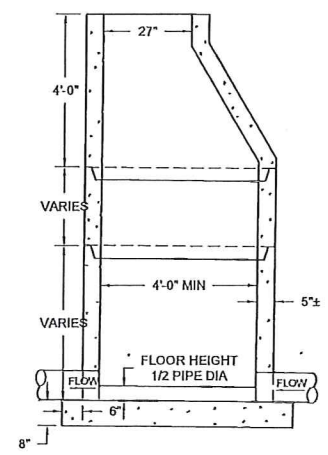


HYDRANT THRUST BLOCKING

- 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



THRUST BLOCK DETAILS



TYPICAL MANHOLE NON-INTEGRAL

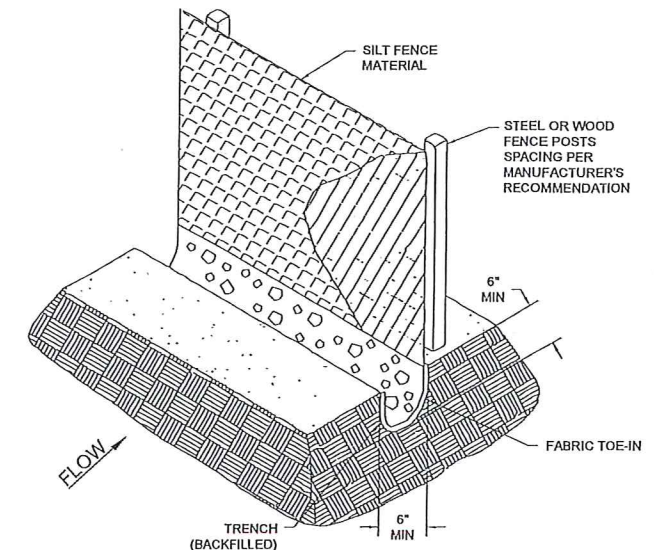
MANHOLES ARE TO BE MANUFACTURED IN ACCORDANCE WITH ASTM SPECIFICATION C-478-73

ALL MANHOLES ARE TO HAVE ECCENTRIC CONES

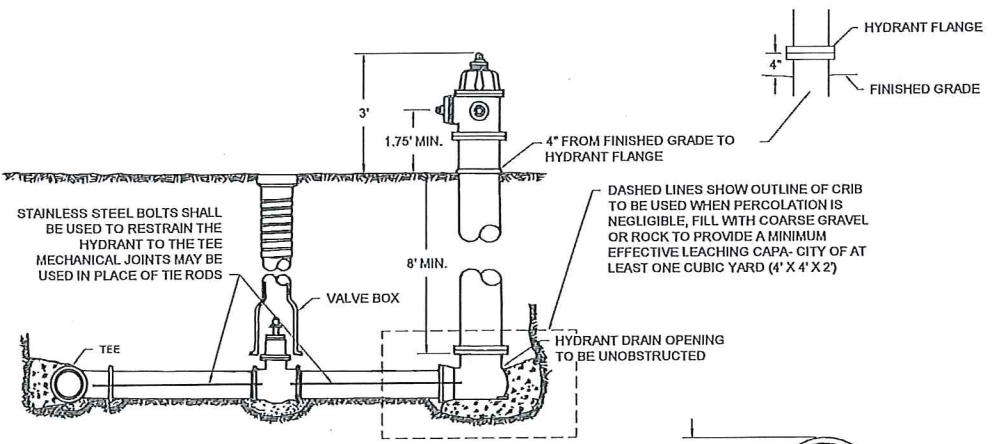
ALL MANHOLE SECTION JOINTS TO BE SEALED WITH KENT SEALER

MANHOLE FLOORS SHALL SLOPE 1/2" PER FOOT

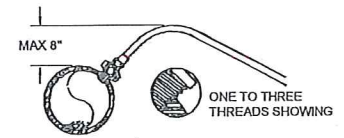
- NOTES:
1. SILT FENCE FABRIC SHALL BE ONE OF THE FOLLOWING
 - A. BURLAP; AASHTO M182
 - B. POLYPROPYLENE FABRIC; ASTM D4397
 - C. NYLON NETTING REINFORCED FABRIC
 - D. PREMANUFACTURED SILT FENCE MEETING EQUAL PROPERTIES OF ABOVE.
 2. SILT FENCE FABRIC SHALL HAVE A MINIMUM BURSTING STRENGTH 150 PSI
 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.



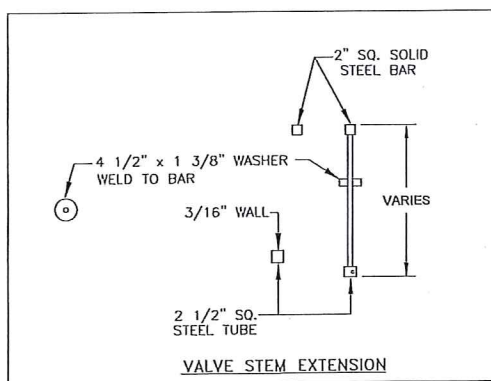
SILT FENCE



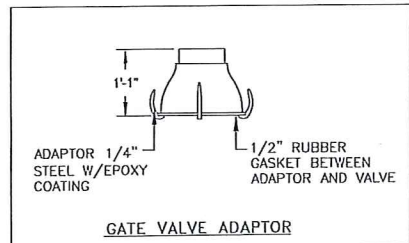
LAYOUT OF FIRE HYDRANT & VALVE



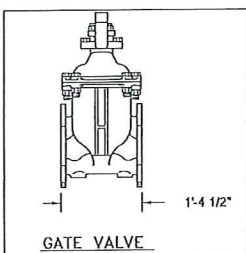
SERVICE LINE CORPORATION COCK DIRECT TAP POSITION



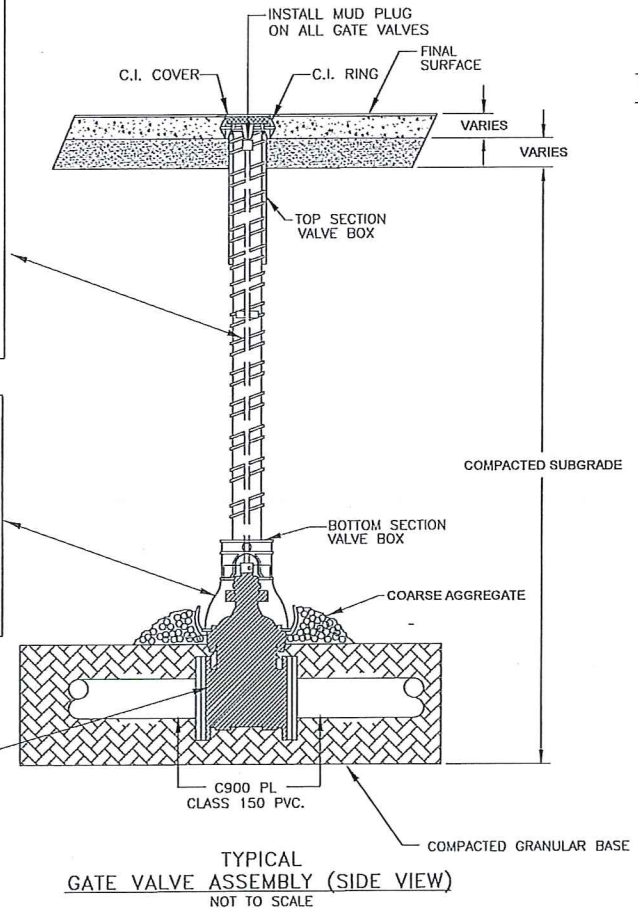
VALVE STEM EXTENSION



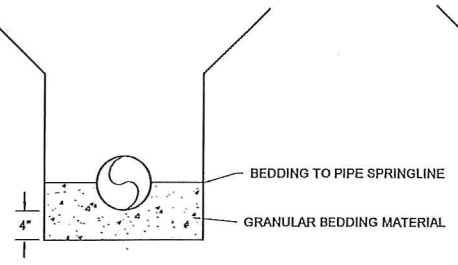
GATE VALVE ADAPTOR



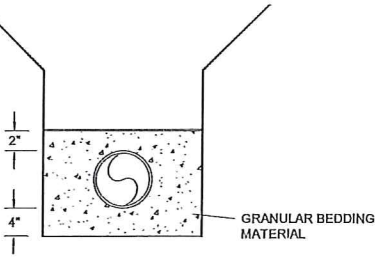
GATE VALVE



TYPICAL GATE VALVE ASSEMBLY (SIDE VIEW) NOT TO SCALE

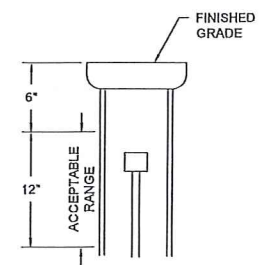


SEWERMAIN BEDDING DETAIL



WATERMAIN BEDDING DETAIL

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



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

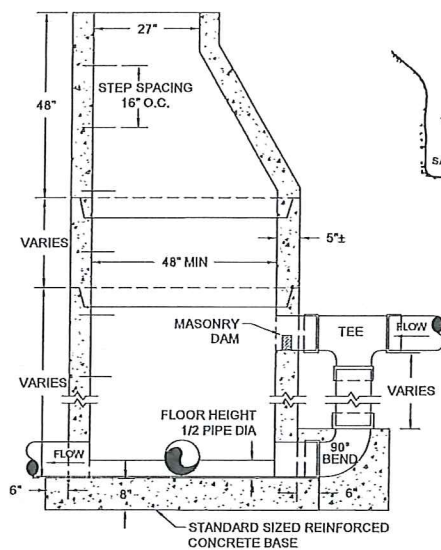
VALVE STEM DETAIL

MAXIMUM SIZE OF OUTLET RECOMMENDED WITH SERVICE CLAMPS (INCHES)

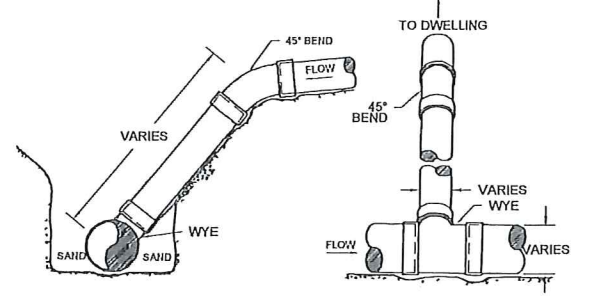
NOMINAL PIPE SIZE	(CLASSES 100-150-200) DOUBLE STRAP
4"	1"
6"	1 1/2"
8"	2"
10"	2"
12"	2"
14"	2"
16"	2"

SADDLES FOR PVC WATERMAIN

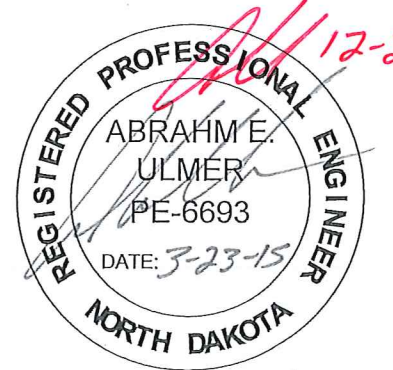
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TYPICAL DROP OR JUNCTION MANHOLE



WYE AND RISER DETAILS



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CONSTRUCTION DETAILS
BEGIN PHASE II TO END OF PROJECT
MIDWAY 14TH ADDITION
As-built
WATER & SEWER IMPROVEMENT PHASE II
CITY PROJECT NO. 2015-02
MANDAN, NORTH DAKOTA
SHEET 4 OF 4
MARCH, 2015