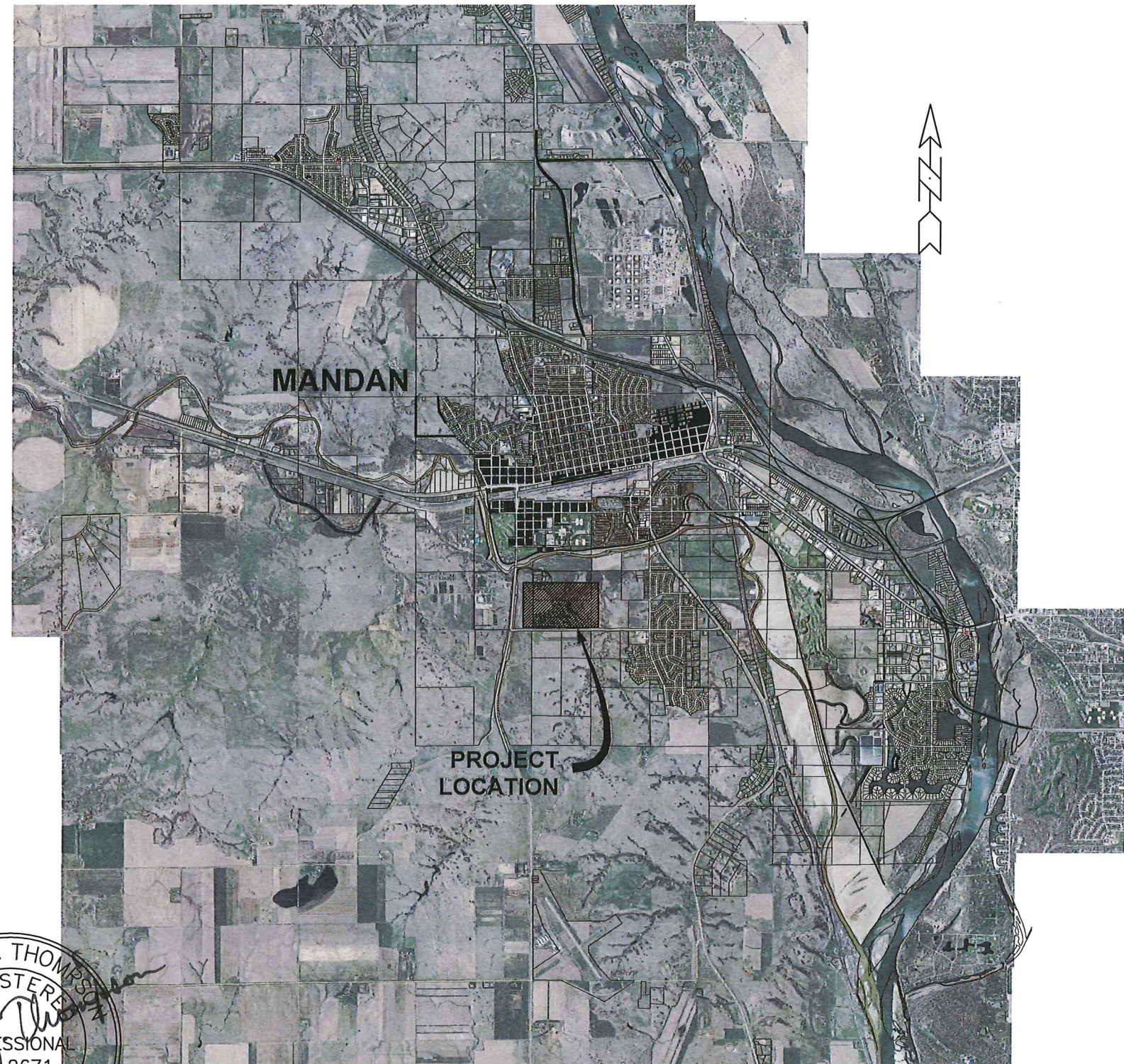


WATER & SEWER IMPROVEMENTS KEIDEL'S SOUTH HEART TERRACE 1ST ADDITION PHASE II ASBUILT

JANUARY, 2013

INDEX OF ASBUILT DRAWINGS

SHEET NO.	TITLE
1	TITLE SHEET
2	PROJECT LAYOUT
3	KEIDEL TRAIL WATER & SEWER
4	KEIDEL TRAIL WATER & SEWER CONT.
5	DETAILS

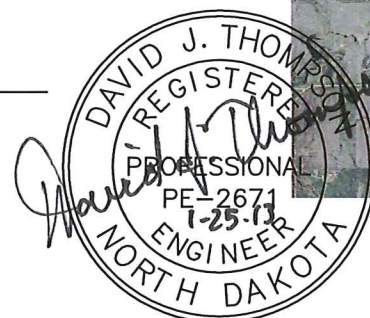


PREPARED BY:
TOMAN ENGINEERING

David J. Thompson, P.E.
DAVID J. THOMPSON, RPE-2671

DATE: 1-25-13

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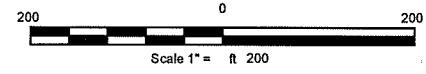
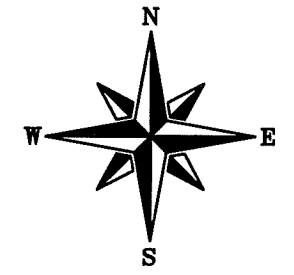
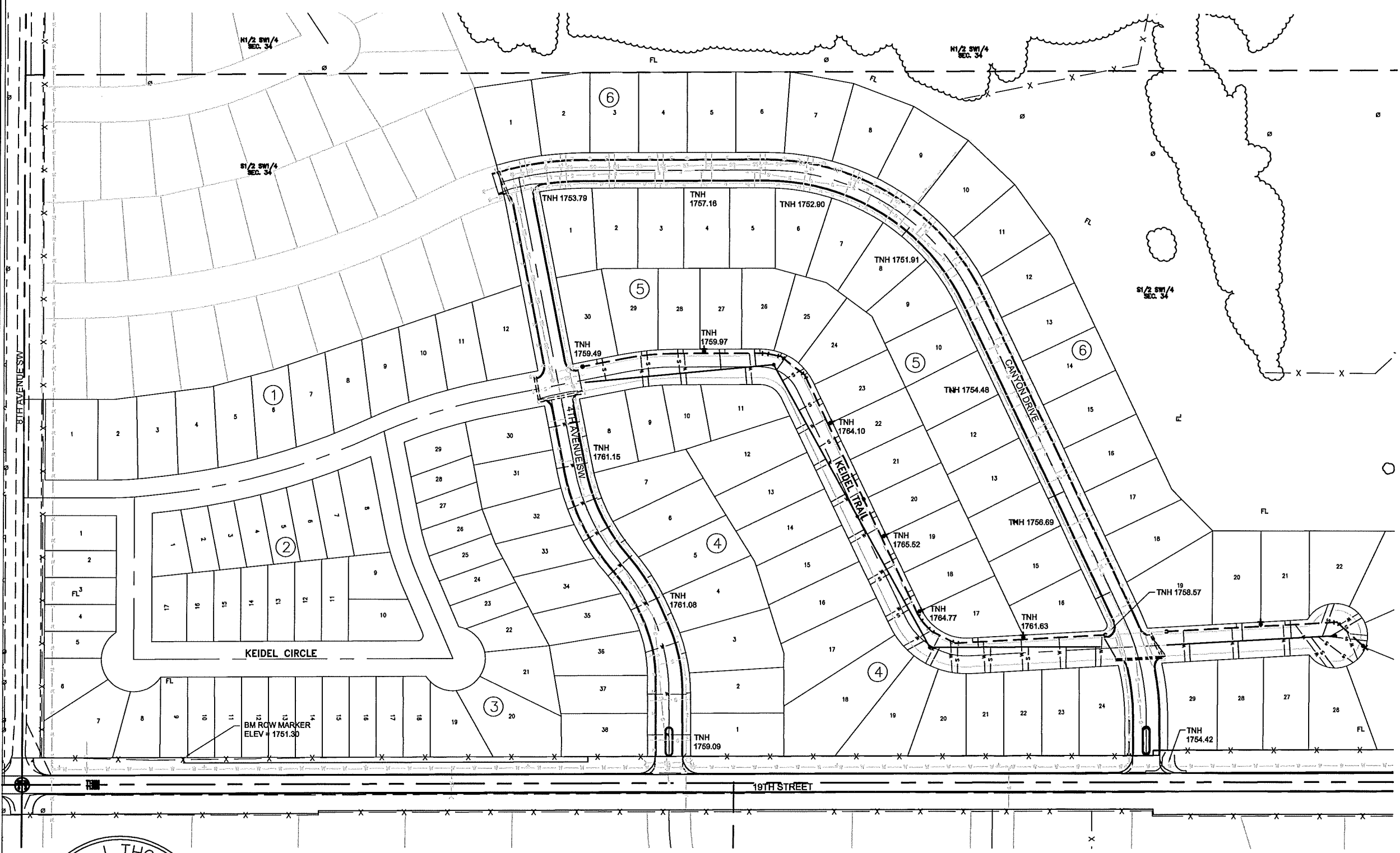


PROJECT:
WATER & SEWER IMPROVEMENTS
KEIDEL'S SOUTH HEART TERRACE 1ST ADDITION
PHASE II AS-BUILT

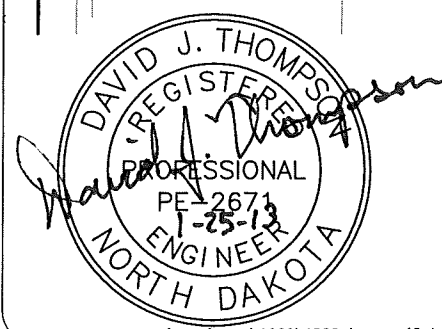
NO	DESCRIPTION	BY	DATE

SHEET NUMBER
1
OF 5 SHEETS

PROJECT LAYOUT ASBUILT



- LEGEND**
- EXISTING MANHOLE
 - EXISTING SANITARY CLEANOUT
 - 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
 - S — EXISTING SANITARY SEWERMAIN
 - W — EXISTING WATERMAIN
 - OH — EXISTING OVERHEAD POWER LINE
 - E — EXISTING UNDERGROUND ELECTRIC
 - EXISTING CURB & GUTTER
 - SS — EXISTING STORM SEWER
 - G — EXISTING GAS LINE
 - T — EXISTING TELEPHONE CABLE
 - ⊕ INSTALLED FIRE HYDRANT
 - ⊕ INSTALLED GATE VALVE
 - INSTALLED SANITARY SEWER MANHOLE
 - PROPOSED STREET SIGN
 - ✱ PROPOSED STREET LIGHT
 - PROPOSED JUNCTION BOX
 - PROPOSED STORM SEWER MANHOLE
 - PROPOSED CATCH BASIN
 - // — PROPOSED UNDERGROUND ELECTRIC
 - PROPOSED CURB & GUTTER
 - W — INSTALLED WATERMAIN
 - W — INSTALLED WATER SERVICE
 - S — INSTALLED SANITARY SEWERMAIN
 - S — INSTALLED SANITARY SERVICE
 - // — PROPOSED ELECTRIC CONDUIT
 - // — PROPOSED STORM SEWER
- TNH 1759.49 TOP NUT HYDRANT & BENCH MARK ELEVATION



AVOID CUTTING UNDERGROUND UTILITY LINES IN YOUR AREA

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PROJECT: WATER & SEWER IMPROVEMENTS
 KEIDEL'S SOUTH HEART TERRACE 1ST ADDITION
 PHASE II AS-BUILT

NO	DESCRIPTION	BY	DATE

SHEET NUMBER

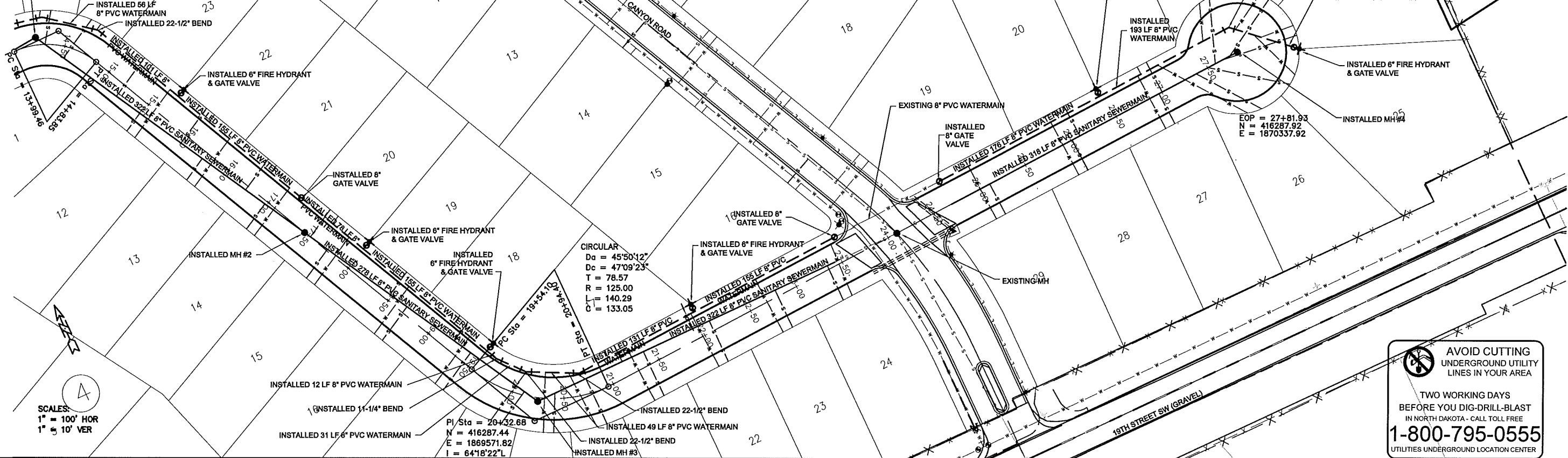
2

OF 5 SHEETS

KEIDEL TRAIL WATER & SEWER CONT. ASBUILT

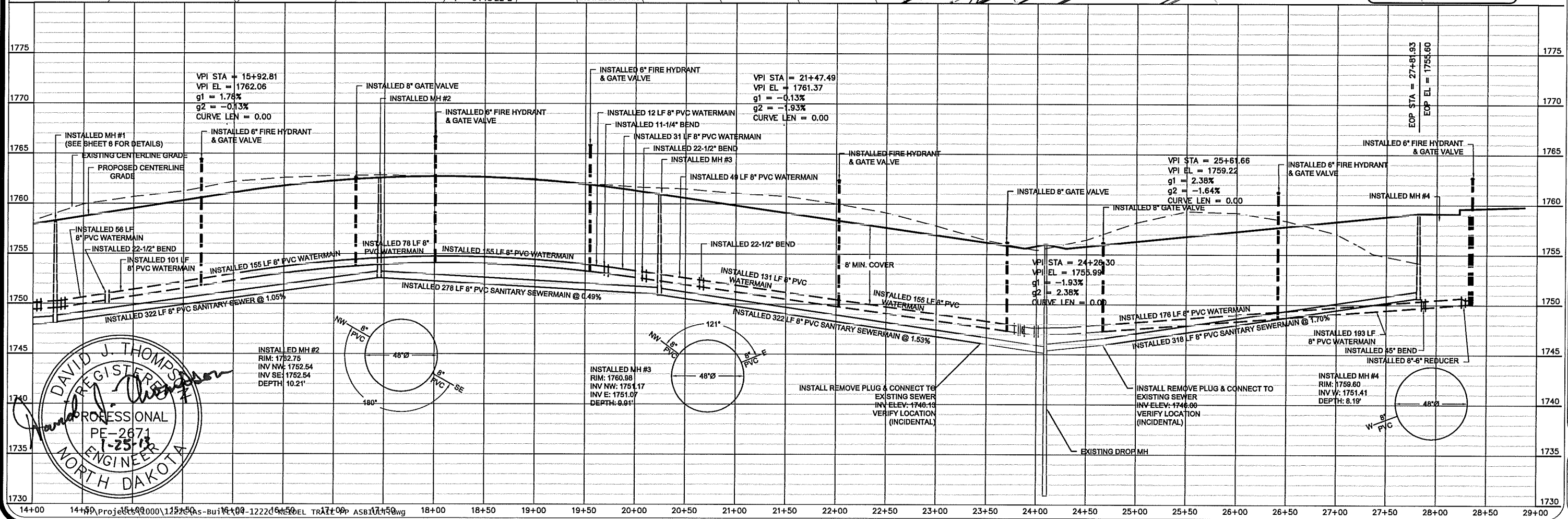
PI Sta = 14+46.75
 N = 416824.46
 E = 1869313.02
 I = 64°28'11"R

INSTALLED MH #1
 (SEE SHEET 6 FOR DETAILS)



SCALES:
 1" = 100' HOR
 1" = 10' VER

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 UTILITIES UNDERGROUND LOCATION CENTER



DAVID J. THOMPSON
 REGISTERED PROFESSIONAL ENGINEER
 PE-2671
 1-25-13
 NORTH DAKOTA

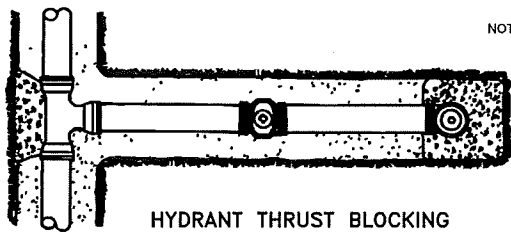
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PROJECT:
**WATER & SEWER IMPROVEMENTS
 KEIDEL'S SOUTH HEART TERRACE 1ST ADDITION
 PHASE II AS-BUILT**

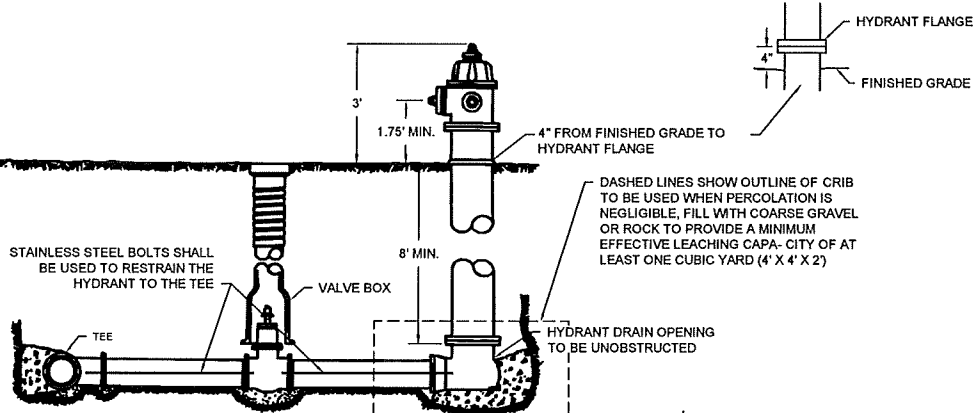
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SHEET NUMBER
4
 OF 5 SHEETS

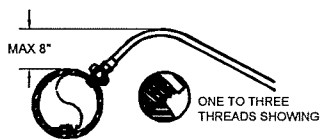
DETAILS ASBUILT



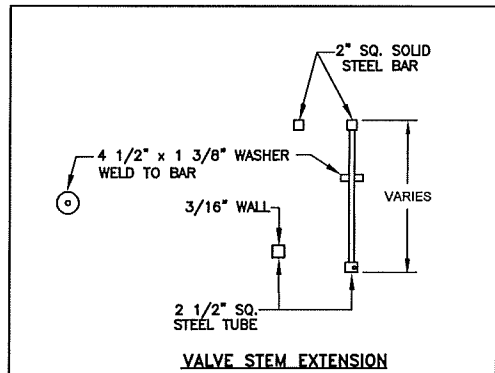
- NOTES:
- (1) PIPE DEFLECTIONS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION
 - (2) BEDDING REQUIREMENTS SHALL BE AS INDICATED HEREON UNLESS MODIFIED IN THE SPECIFICATION
 - (3) CONCRETE FOR THRUST BLOCKS SHALL HAVE MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3,000 P.S.I. AND MAX. SLUMP OF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



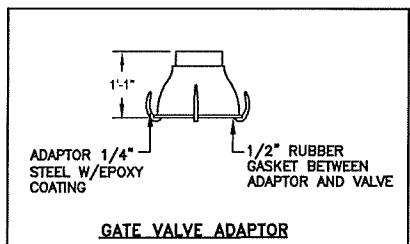
LAYOUT OF FIRE HYDRANT & VALVE



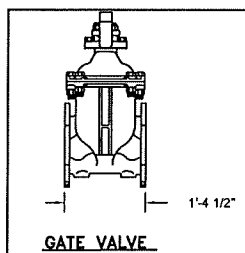
SERVICE LINE CORPORATION COCK DIRECT TAP POSITION



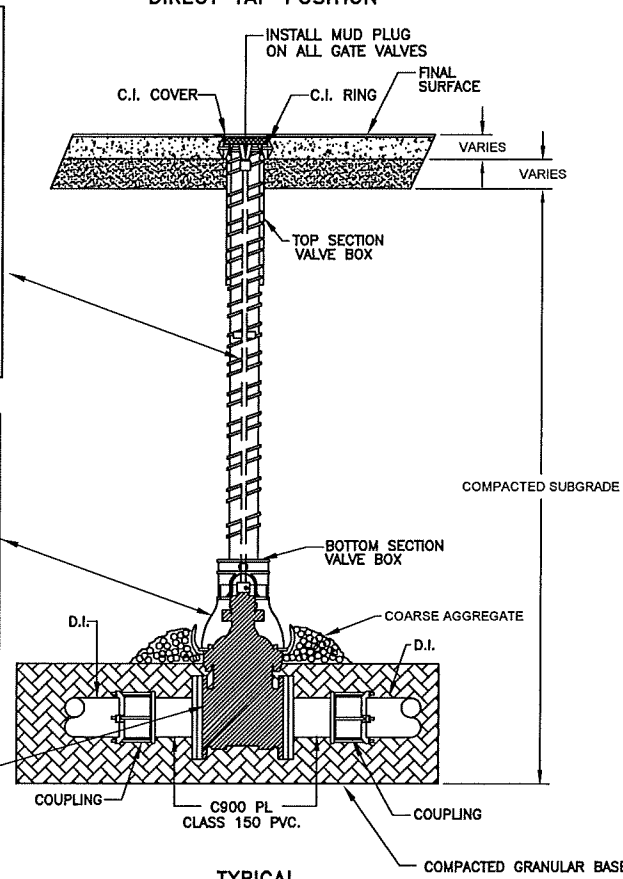
VALVE STEM EXTENSION



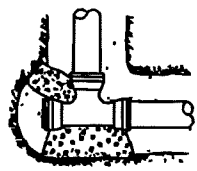
GATE VALVE ADAPTOR



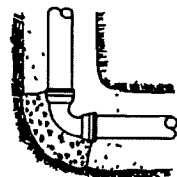
GATE VALVE



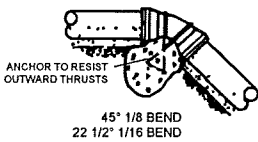
TYPICAL GATE VALVE ASSEMBLY (SIDE VIEW) NOT TO SCALE



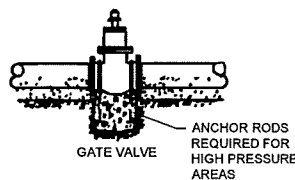
TEE & PLUG



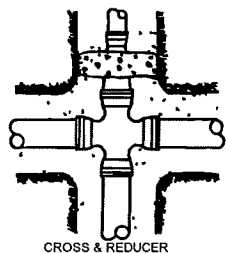
90° 1/4 BEND



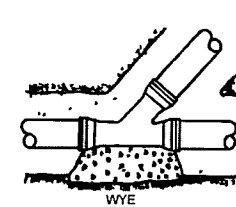
ANCHOR TO RESIST OUTWARD THRUSTS



ANCHOR RODS REQUIRED FOR HIGH PRESSURE AREAS

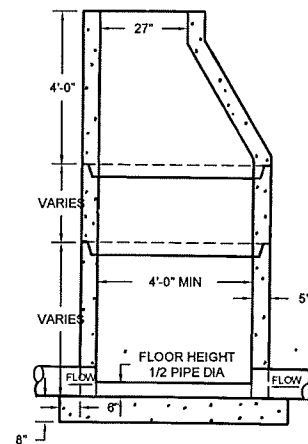


CROSS & REDUCER



WYE

THRUST BLOCK DETAILS



TYPICAL MANHOLE NON-INTEGRAL

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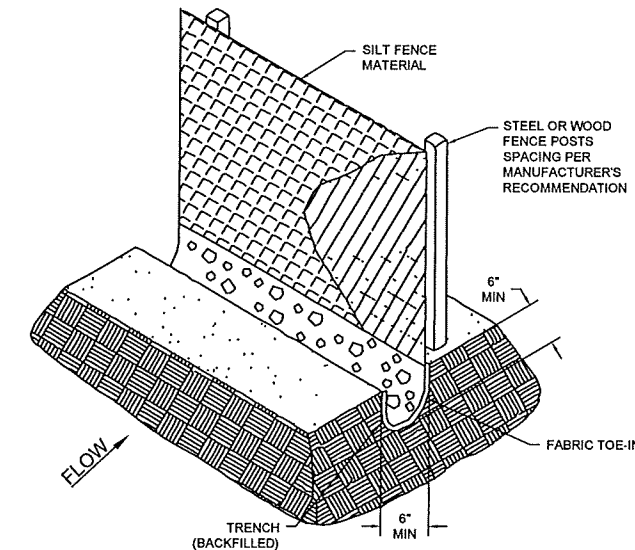
MANHOLES ARE TO BE MANUFACTURED IN ACCORDANCE WITH ASTM SPECIFICATION C-478-73

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 8" 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.



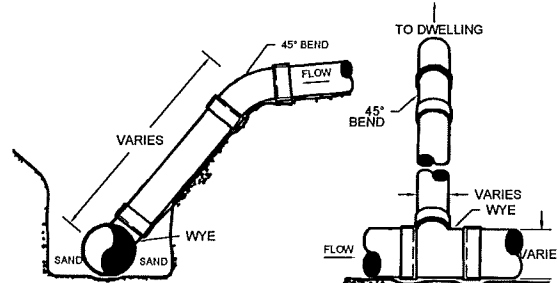
SILT FENCE



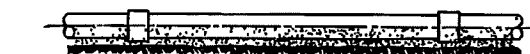
MAXIMUM SIZE OF OUTLET RECOMMENDED WITH SERVICE CLAMPS (INCHES)

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"

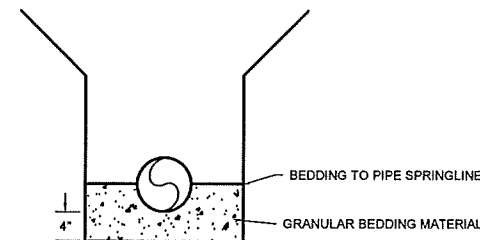
SADDLES FOR PVC WATERMAIN



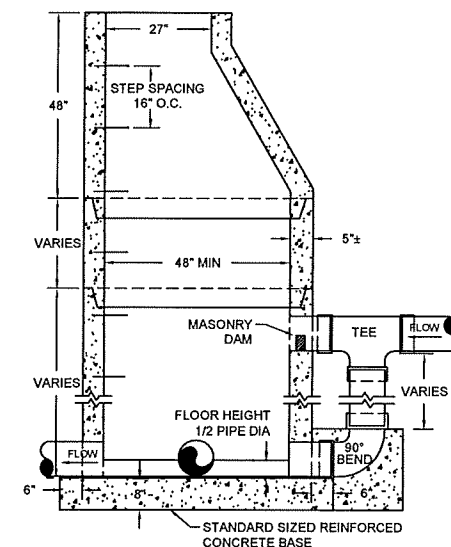
WYE AND RISER DETAILS



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



WATERMAIN & SEWERMAIN BEDDING & INSULATION DETAIL



TYPICAL DROP OR JUNCTION MANHOLE



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SHEET NUMBER
5
 OF 5 SHEETS