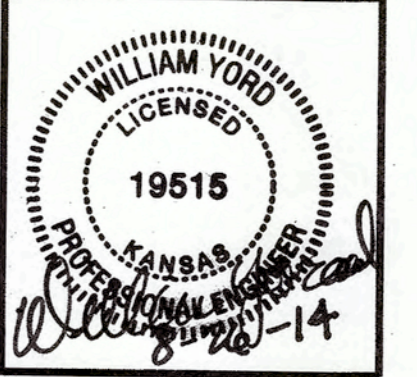


NO.	DATE	BY	REVISION
1 <td>8/28/14 <td>BY <td>REVISION FOR PERMIT</td> </td></td>	8/28/14 <td>BY <td>REVISION FOR PERMIT</td> </td>	BY <td>REVISION FOR PERMIT</td>	REVISION FOR PERMIT
2 <td>7/24/14 <td>BY <td>ORIGINAL SUBMITTAL</td> </td></td>	7/24/14 <td>BY <td>ORIGINAL SUBMITTAL</td> </td>	BY <td>ORIGINAL SUBMITTAL</td>	ORIGINAL SUBMITTAL
3 <td></td> <td>BY <td>REVISION</td> </td>		BY <td>REVISION</td>	REVISION

Renaissance Infrastructure Consulting
5015 NW CANAL STREET, SUITE 100
RIVERSIDE MO, 64150
816.800.0950
WWW.RIC-CONSULT.COM



PROJECT BENCHMARK:
Chiseled square cut, center front face of inlet
East side of Greenwich Road, 342 feet +/-
South of East 27th Street intersection of
East 27th Street and Greenwich Road
Project Elevation = 1377.42
KDOT Elevation = 1378.05
(Project Elevation is -0.63 feet from KDOT)

WATER LINE TO SERVE WICHITA DESTINATION DEVELOPMENT PH.1 AN ADDITION TO WICHITA, SEDGWICK COUNTY, KANSAS 1837 PPW (607853) CITY OF WICHITA, KANSAS Gary Janzen, P.E., City Engineer

- Utility Service & Installation Contacts**
- | | |
|---|---|
| Kansas Gas Service
Attn: Tim Hamlin
(316) 832-3121 | Wichita Water & Sewer
Attn: Greg Lolley
(316) 268-4334 |
| Westar Energy
Attn: Becky Thompson
(316) 261-6320 | AT&T
Attn: Jason Edwards
(316) 268-2008 |
| Black Hills Energy
Attn: Daryl Keller
(316) 941-1654 | Cox Communications
Attn: Mark Henderson
(316) 260-7745 |
| NuStar Energy L.P.
Attn: Renee Davis
(316) 721-7059 | |

- Utility Emergency Contacts**
- | | |
|---|---|
| Kansas One-Call
(316) 687-2470 | AT&T
1-555-1212 |
| Cox Communications
(316) 262-4270
(316) 263-2061 | City of Wichita Water Department
(316) 268-4908 |
| Westar Energy/
Kansas Gas & Electric Company
(800) 482-4950 | City of Wichita Sewer Department
(316) 268-4071 |
| | Aquila Natural Gas
(316) 941-1608
(800) 303-0357 |

AS BUILTS

Contractor: Mies Construction 4/7/2015	Project Inspector: Larry Gann KEMILLER ENGINEERING PA 117 E. Lewis, Wichita, KS 67202 (316)264-0242
---	--

Jet stream PVC
c-900
Star fittings
Pratt valves

PREPARED FOR:
Wichita Destination Developers, Inc.
Attn: Michael J. Boyd, President
1707 N. Waterfront Parkway
Wichita, Kansas 67206

KANSAS ONE-CALL:
1-800-DIG-SAFE
(1-800-344-7233)

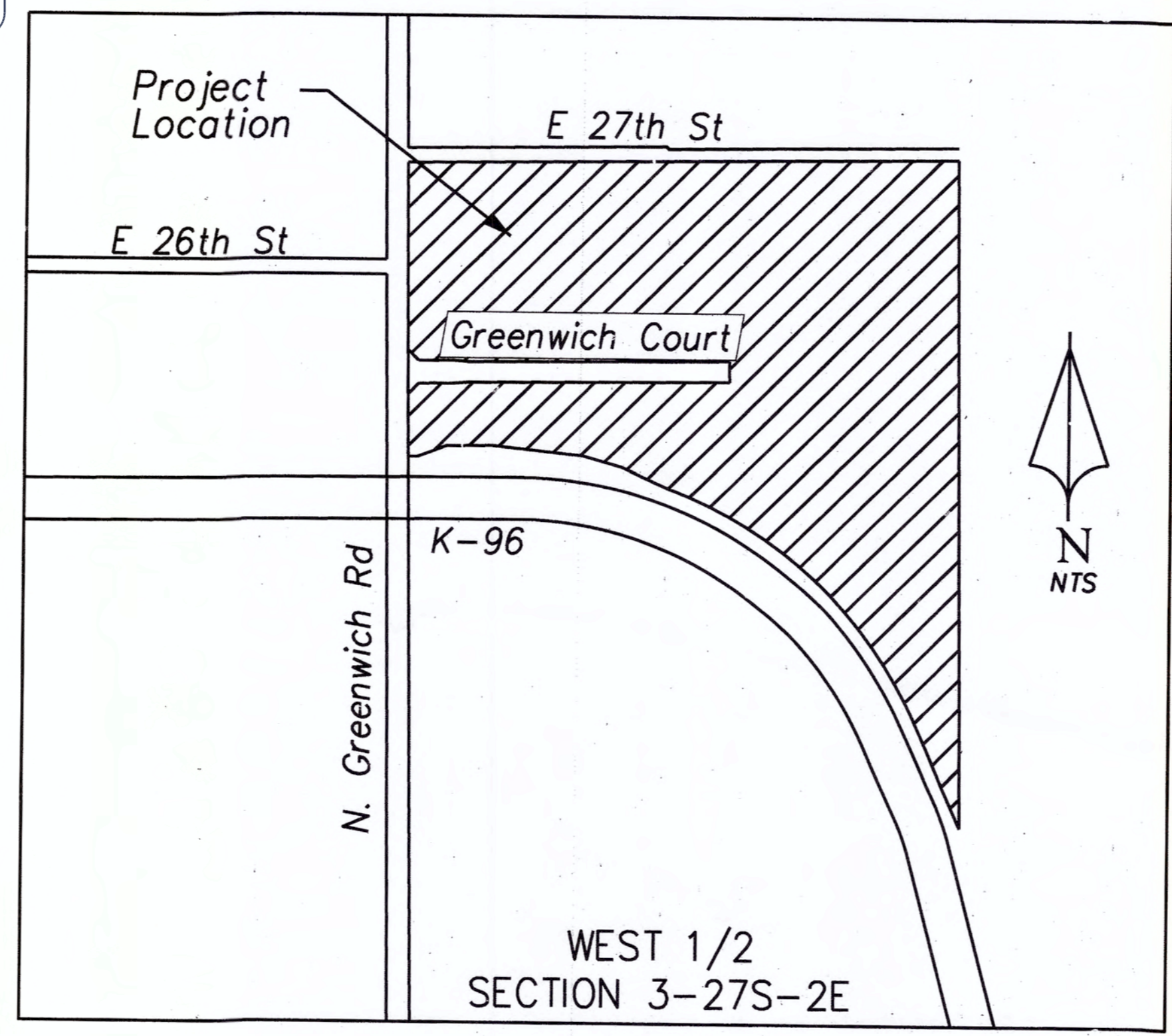


Protect yourselves and your property against underground utility damage and liability.

Find out where the underground utility lines might be buried before you dig.
Anyone digging in Kansas must call before digging. The person who is doing the work is responsible for calling KOC. If the owner contracts with a professional excavator to do the excavation then the professional excavator is responsible for calling KOC.

You (the digger) will need to provide information about the work site when you call. This is a FREE service.

CALL BEFORE YOU DIG
IT'S THE LAW.



LOCATION MAP

Medical Practice Association Properties, LLC, a Kansas Limited Liability Company

Aaron Ryan
Aaron Ryan, Manager

Wichita Destination Developers, INC., a Kansas corporation

Michael J. Boyd
Michael J. Boyd, President

INDEX OF SHEETS

1	Title Sheet
Final Plat	Wichita Destination Development Final Plat
2	General Notes & Quantities
3	General Layout
4-6	Water Line A Plan & Profile
7	Water Line B Plan & Profile
8-10	Water Details
11	Erosion and Sediment Control
12-13	Erosion Details

APPROVED AS NOTED
BY CITY ENGINEER OF WICHITA,
BY WICHITA WATER & SEWER DEPARTMENT,
& BY WICHITA FIRE DEPARTMENT

Public Works *Rebecca Anil 9/24/14*
Water & Sewer *Drew Todd 9/3/14*
Fire *BSW 9-5-14*

NOTE TO CONTRACTORS
Public Property:
Inspection and testing for the waterline is to be provided by a Licensed Consulting Engineering Firm under contract with the Owner/Developer. Said inspection to be in accordance with the City of Wichita standard construction engineering practices and certified by a Professional Engineer Licensed in the state of Kansas. No work shall be performed in dedicated easements or public right-of-way by the Contractor without such inspection nor shall any work be commenced without written authorization by the City Engineer. All Construction and Materials shall comply with the City of Wichita Specifications and Standards (on file and available in the City Engineer's Office).

Private Property:
Installation and testing for the fire protection line is to be performed by a City of Wichita licensed fire protection contractor in accordance with the fire codes as adopted by the City of Wichita. All material and construction practices for the fire protection line shall comply with the fire codes as adopted by the City of Wichita (Available from the City of Wichita Fire Department). The Contractor shall not commence work without notification and approval of the Wichita Fire Department. Inspection of the fire protection line is to be provided by a licensed Engineering Firm under contract with the Owner/Developer and the Fire Department. The contractor shall not start work until the project inspector is assigned to the project and present on the site. Any work done without inspection will be required to be uncovered for inspection.

LEGEND

— Existing Section Line	⊕ Existing Power Pole
— Existing Right-of-Way Line	⊙ Existing Light Pole
— Existing Lot Line	⊙ Existing Traffic Manhole
— Existing Easement Line	⊙ Existing Water Valve
— Existing Curb & Gutter	⊙ Existing Sign
— Existing Sidewalk	⊙ Existing Gas Line Meter
— Existing Storm Sewer	⊙ Existing Gas Valve
⊙ Existing Storm Structure	⊙ Existing Traffic Signal Pole
— Existing Waterline	⊙ Existing Bollard
— Existing Gas Main	⊙ Existing Gas Riser
— Existing Underground Cable	⊙ Existing Cable Box
- - - Existing Underground Power	⊙ Existing Fire Hydrant
— Existing Overhead Power	— Proposed Right-of-Way
— Existing Sanitary Sewer	— Proposed Property Line
⊙ Existing Sanitary Manhole	— Proposed Lot Line
— Existing Contour Major	— Proposed Easement
— Existing Contour Minor	— Proposed Curb & Gutter
⊙ Existing Tree	— Proposed Sidewalk
⊙ Existing Bush	— Proposed Contour Major
⊙ Existing Electrical Box	— Proposed Contour Minor

August 2014

GENERAL NOTES:

1. Contractor will be required to provide notice to utility companies a minimum of twenty-four (24) hours prior to any excavation.

2. Exist. utilities and their locations, as shown on the plans, represent the best information attainable for design. Location information has been obtained from the various utility companies and is either from company record drawings or company-provided field locations. The Contractor will be required to work around existing utilities which do not conflict with proposed constructions.

3. The Contractor to verify utility locations prior to construction of this project.

4. Utility service and installation shall be coordinated with the respective utility owner. See title sheet for utility service and installation contacts.

5. All lawn/turf areas disturbed by construction of proposed improvements shall be restored with the same grass as existing. Restoration of disturbed areas shall include, but not limited to, soil preparation, fertilizing, seeding, mulching (all seeded areas, outside the limits of erosion mat placement), and/or reseeding, and installation of erosion control mat. All seeding work shall be in accordance with the City of Wichita Standard Specifications and the City of Wichita Administrative Regulations No. AR 6.5 which governs cleanup and respiration or replacement following construction. All cost for the soil preparation, seeding and mulching (all seeded areas, outside the limits of erosion mat placement) shall be paid for through the lump sum bid item for "Seeding." All seeded areas within eight feet of the back of new curb shall be covered with an approved erosion mat, which shall be paid for by the measured quantity bid item "Back of Curb Protection (8' wide)."

6. Traffic affected by the construction of this project shall be handled in accordance with the latest edition of the Manual on Uniform Traffic Control Devices.

7. It is the contractor's responsibility to visit this site to better understand the extent of site clearing and restoration to be performed. Site Clearing and Restoration shall include all costs for removal of items which a pay item is not provided.

8. The contractor shall be responsible for preserving property irons. The contractor will be required to re-establish any property irons which are damaged or destroyed by the construction operations. Such irons shall be re-established by a licensed land surveyor in accordance with state laws.

9. Properties within the project limits may have underground sprinkler systems in public right-of-way which conflict with new construction. Contractor will be required to remove such improvements should they not be removed by their owner at the time of construction of the project. The contractor will be required to salvage all sprinkler heads and/or valves and give such material to owner. Portions of underground sprinkler systems not in conflict with new construction shall be protected from damage and shall remain in place. All work in connection with underground sprinkler systems shall be considered as subsidiary to the contract pay items for work.

10. Cuts made in paved surfaces on public property will be repaired by the City's Contractor and charged against the contractor. Unit Repair prices are available from the city at 268-4418. A surcharge may be applicable. Call 268-4418 for details. Repair costs to be paid prior to release of utility service if utilities are effected.

11. All construction will be completed in accordance with City of Wichita standard specifications and special provisions.

12. Fire hydrants to be installed in accordance with future construction/development.

13. All 12" Valve Assemblies shall be installed with butterfly valves unless otherwise directed by the engineer.

14. 2" Water services must be paid for prior to installation. Allow 21 working days after payment for water services to be installed.

Water Main Quantities		
Item	Quantity	Unit
12" PVC Water Main Pipe	1,558	LF
Erosion Sediment Fence	1,900	LF
Sand Backfill	304	CY
Remove Blow-off	1	EA
12" Valve Assembly	4	EA
12" Anchored Valve Assembly	1	EA
12" x 12" Tee	1	EA
12" Plug	2	EA
12" x 22.5° DI CL Bend	4	EA
2-2" Conduit - Irrigation	540	LF
2" Blow-off Assembly	2	EA

QUANTITIES ARE FOR INFORMATION ONLY. CONTRACTOR TO VERIFY ALL QUANTITIES PRIOR TO CONSTRUCTION.

THRUST BLOCKS ARE CONSIDERED SUBSIDIARY TO OTHER ITEMS.

ROADWAY BASELINE TABLE		
STATION	NORTHING	EASTING
10+00.00	1702585.65	1685981.12
27+00.00	1702601.71	1687681.04

WATER LINE A		
STATION	NORTHING	EASTING
1+00.00	1,702,529.14	1,686,027.36
1+80.00	1,702,529.14	1,686,107.36
1+80.98	1,702,529.15	1,686,108.34
2+12.97	1,702,541.67	1,686,137.78
5+39.90	1,702,544.76	1,686,464.70
7+38.05	1,702,546.63	1,686,662.84
15+87.04	1,702,554.65	1,687,511.78
16+00.98	1,702,560.10	1,687,524.61
16+27.94	1,702,560.36	1,687,551.57

WATER LINE B		
STATION	NORTHING	EASTING
1+00.00	1702549.49	1686965.87
2+10.06	1702659.54	1686964.83

NO.	BY	DATE	REVISION
4.	VZ	10/15/14	QUANTITIES UPDATED
3.	VZ	10/10/14	WATER LINE A REIGNED
2.	VZ	10/10/14	QUANTITIES UPDATED
1.	VZ	8/28/14	REVISED FOR PERMIT ORIGINAL SUBMITTAL

Renaissance Infrastructure Consulting
BIG, BOLD, 0950
WWW.RIC-CONSULT.COM
5015 NW CANAL STREET, SUITE 100
RIVERSIDE MO, 64150

WILLIAM YORD
LICENSED
19515
KANSAS
PROFESSIONAL ENGINEER
10/15/2014

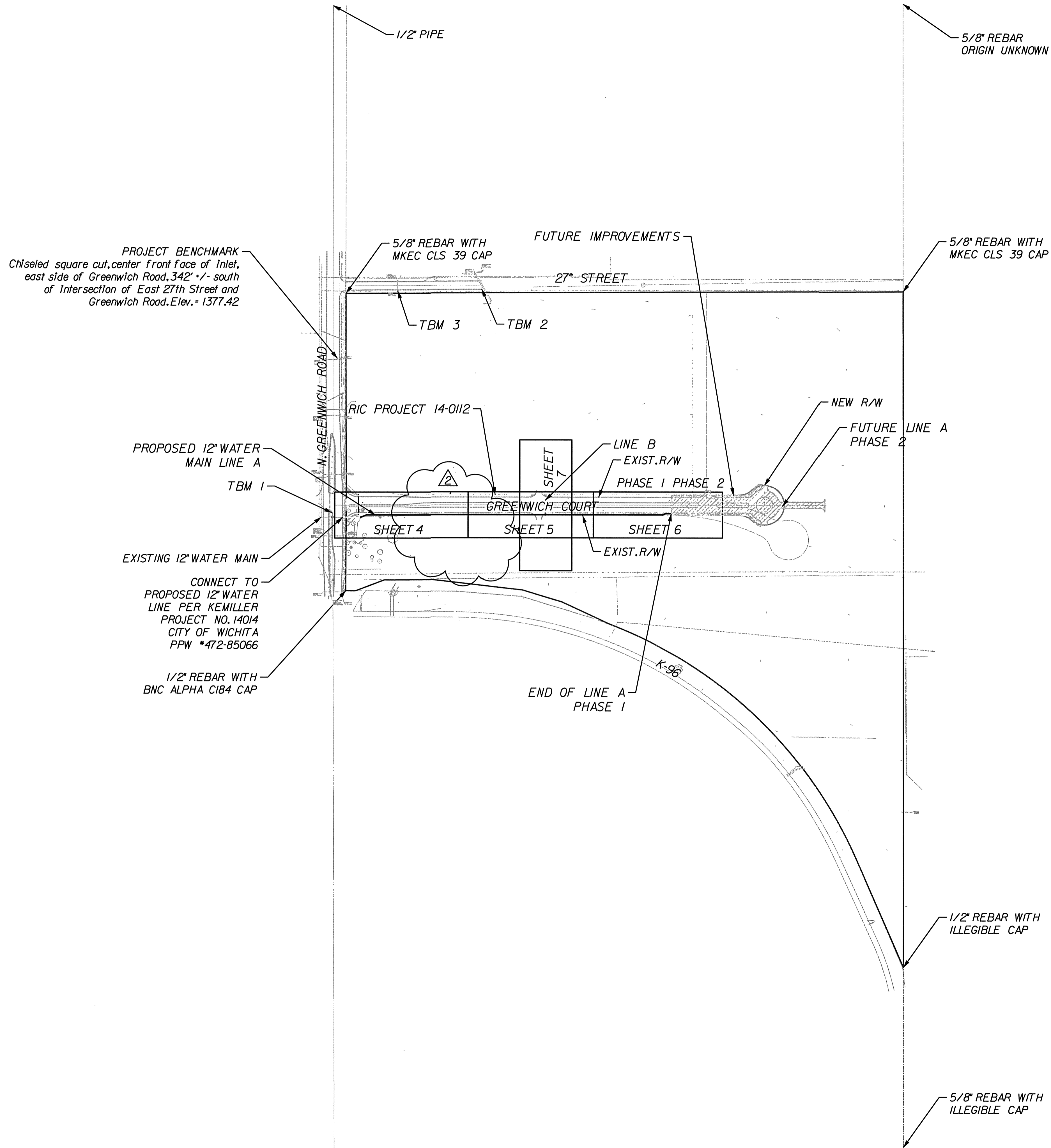
TEMPORARY BENCHMARKS:

TBM 1: Chiseled Square cut on E. Curb of island in center of Greenwich Road. Approximately 60' S. of intersection of westbound ramp to K-96. RIC Project Datum Elev. = 1373.08

TBM 2: Chiseled Square cut on south curb of 27th Street approximately 690 feet east of intersection of Greenwich Road. RIC Project Datum Elev. = 1378.40

TBM 3: Chiseled Square cut on south side of 27th Street approximately 330 feet east of intersection of Greenwich Road. RIC Project Datum Elev. = 1378.36

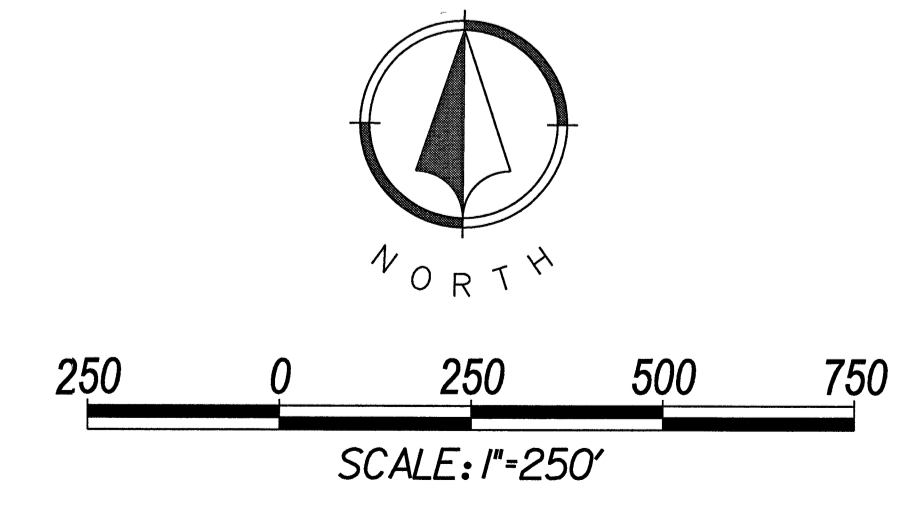
10/10/2014
 Z:\RIC Design\2014\14-0112 Wichita K96 Destination.dwg\Sheets\14-0112 Water\14-0112 4 Water General Layout.dgn



NO.	BY	CD	DATE	REVISION
2.	VZ	BY	10/20/14	REALIGNED WATER MAIN AND REMOVED PROPOSED R/W
1.	VZ	BY	8/28/14	REVISED FOR PERMIT
	VZ	BY	7/31/14	ORIGINAL SUBMITTAL

Renaissance Infrastructure Consulting
 5015 NW CANAL STREET, SUITE 100, RIVERSIDE MO, 64150
 816.800.0950
 WWW.RIC-CONSULT.COM

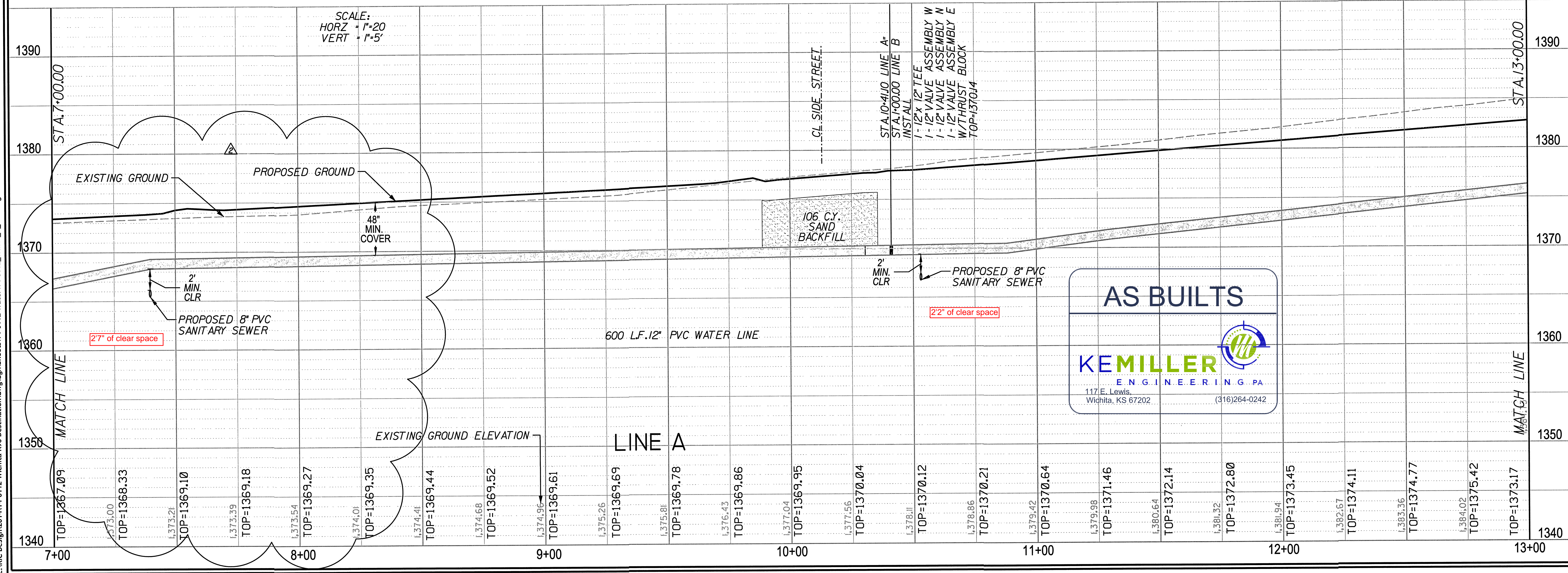
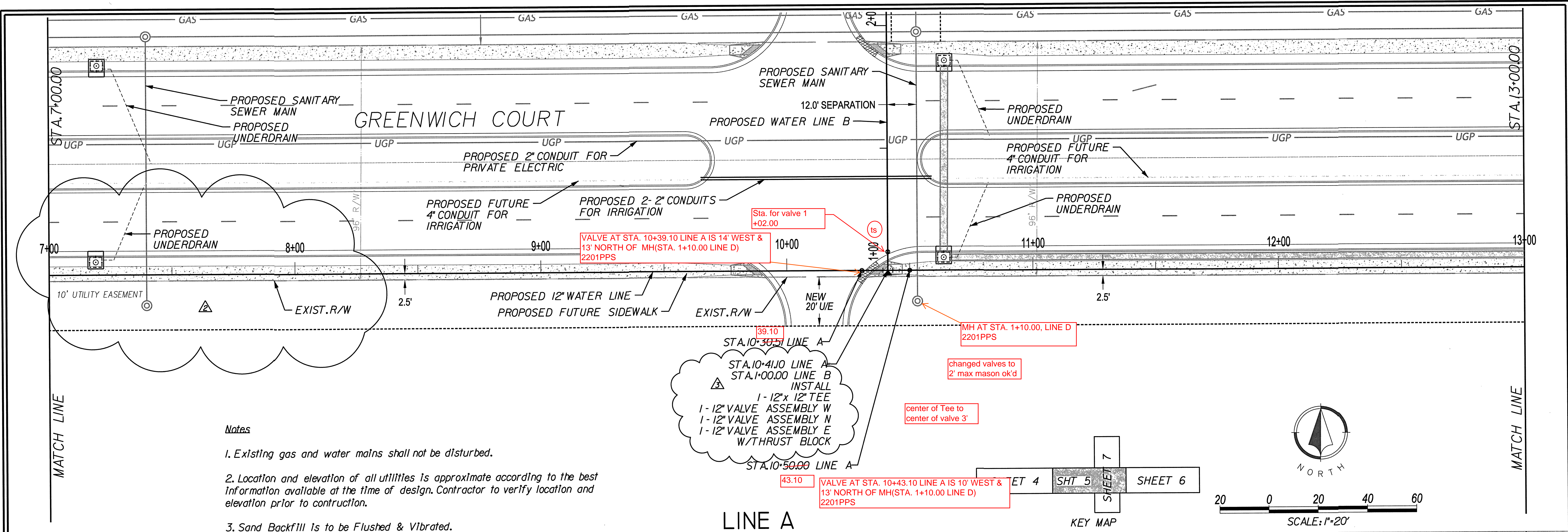
WILLIAM YORD
 LICENSED PROFESSIONAL ENGINEER
 KANSAS
 1915
 10-10-2014

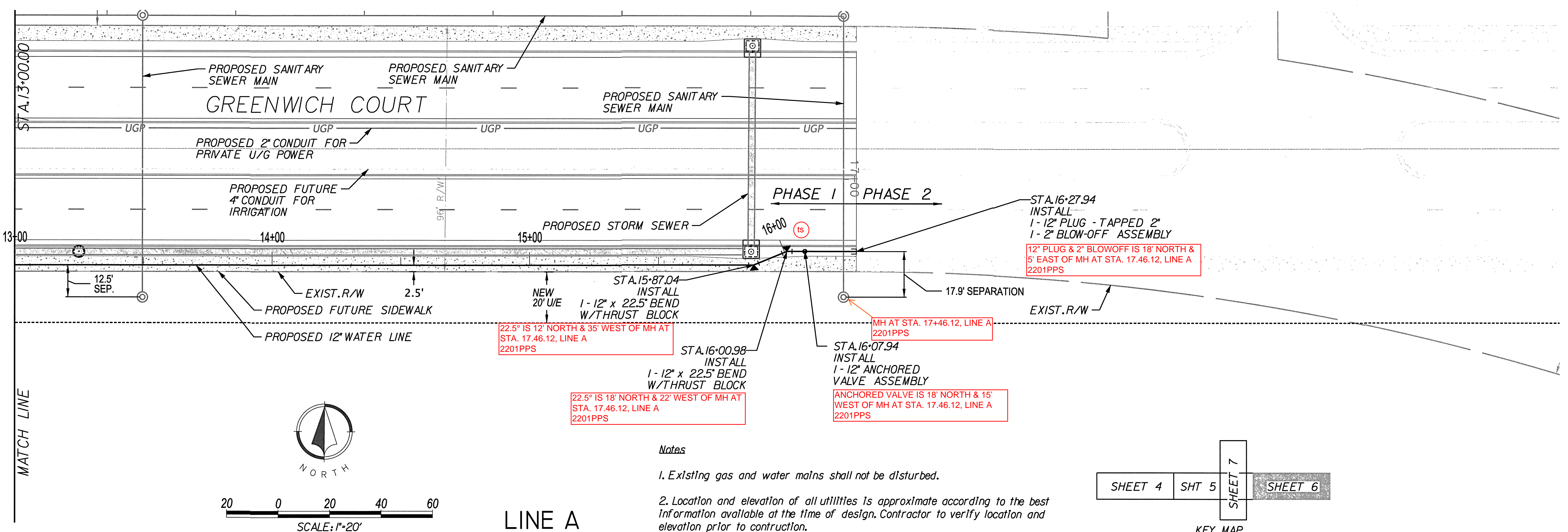


1.	REVISED STATION ELEVATION	10/20/14
2.	AMENDED WATER LINE ALIGNMENT AND PROFILE	10/20/14
3.	REVISED FOR PERMIT	8/26/14
4.	ORIGINAL SUBMITTAL	7/27/14
5.	REVISION	DATE

Renaissance Infrastructure Consulting
5015 NW CANAL STREET, SUITE 100
RIVERSIDE, MO. 64150
www.ri-consult.com
916-800-0950

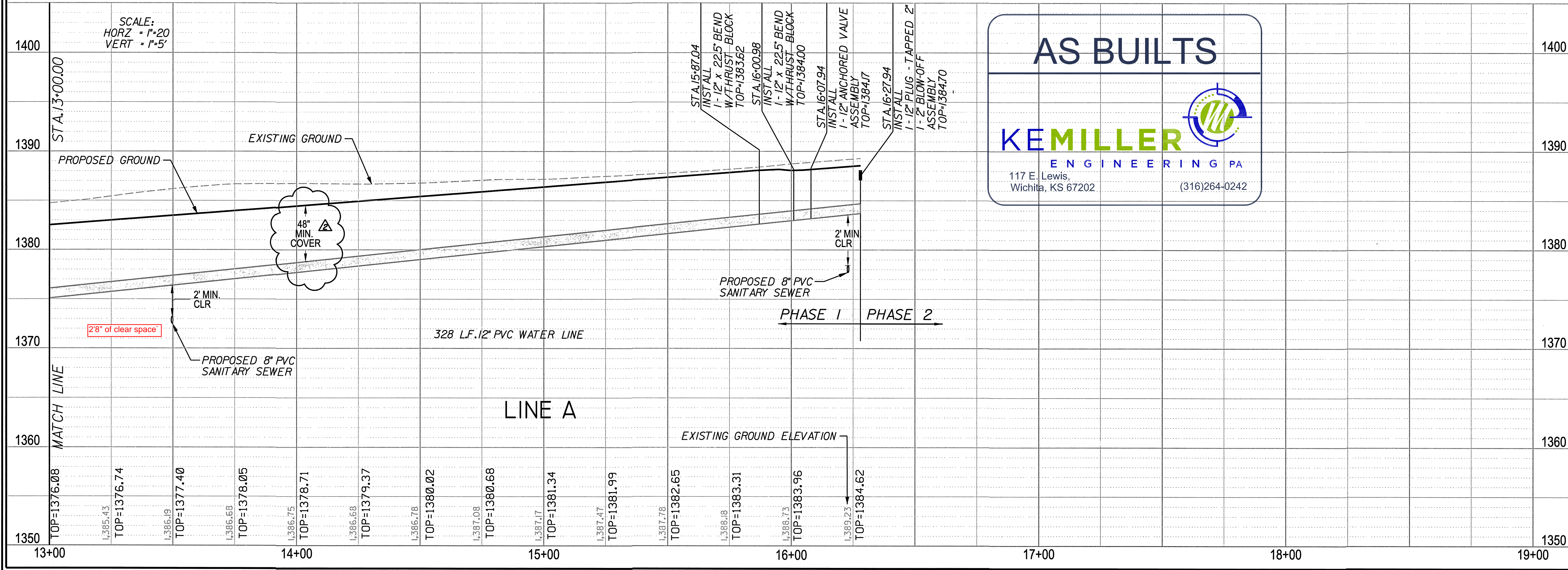
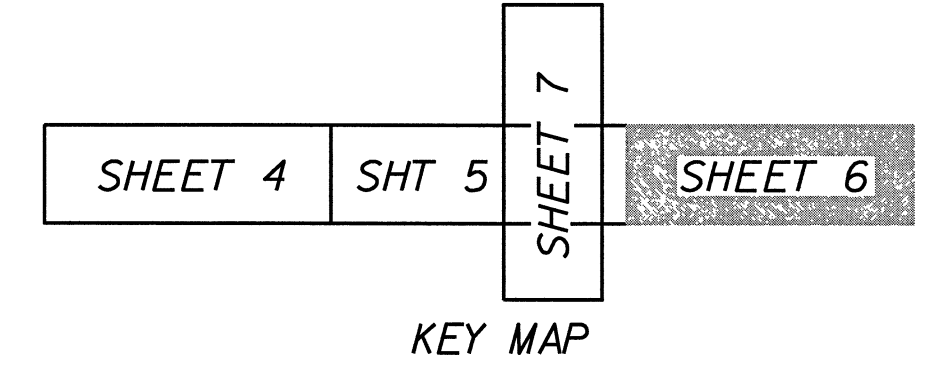
WILLIAM YORD
LICENSED PROFESSIONAL ENGINEER
KANSAS
19515
10-10-2014



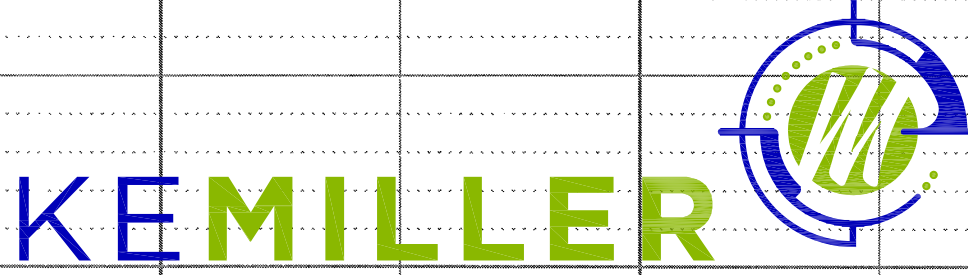


Notes

- Existing gas and water mains shall not be disturbed.
- Location and elevation of all utilities is approximate according to the best information available at the time of design. Contractor to verify location and elevation prior to construction.



AS BUILTS



KEMILLER ENGINEERING PA
117 E. Lewis,
Wichita, KS 67202 (316)264-0242

NO.	BY	DATE	REVISION
2	BY	10/20/14	REVISED NOTE TO 48" INSTEAD OF 12"
1	BY	8/28/14	REVISED FOR PERMIT ORIGINAL SUBMITTAL

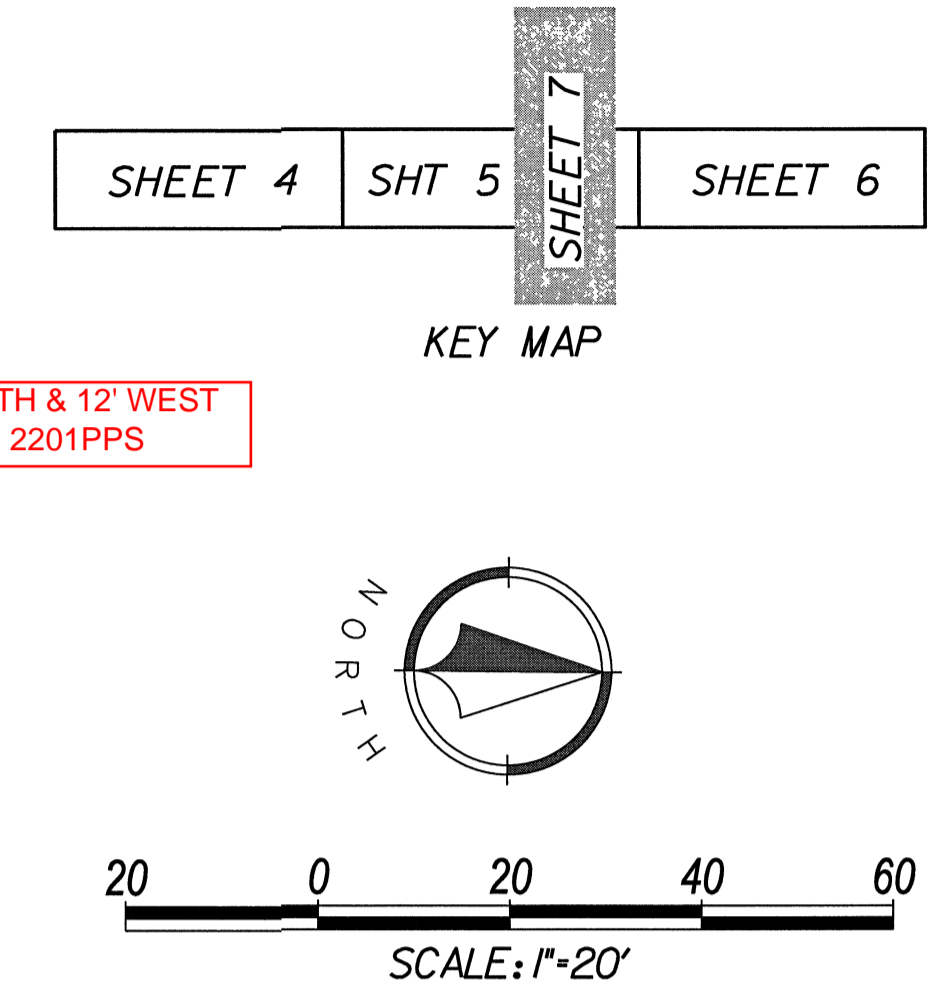
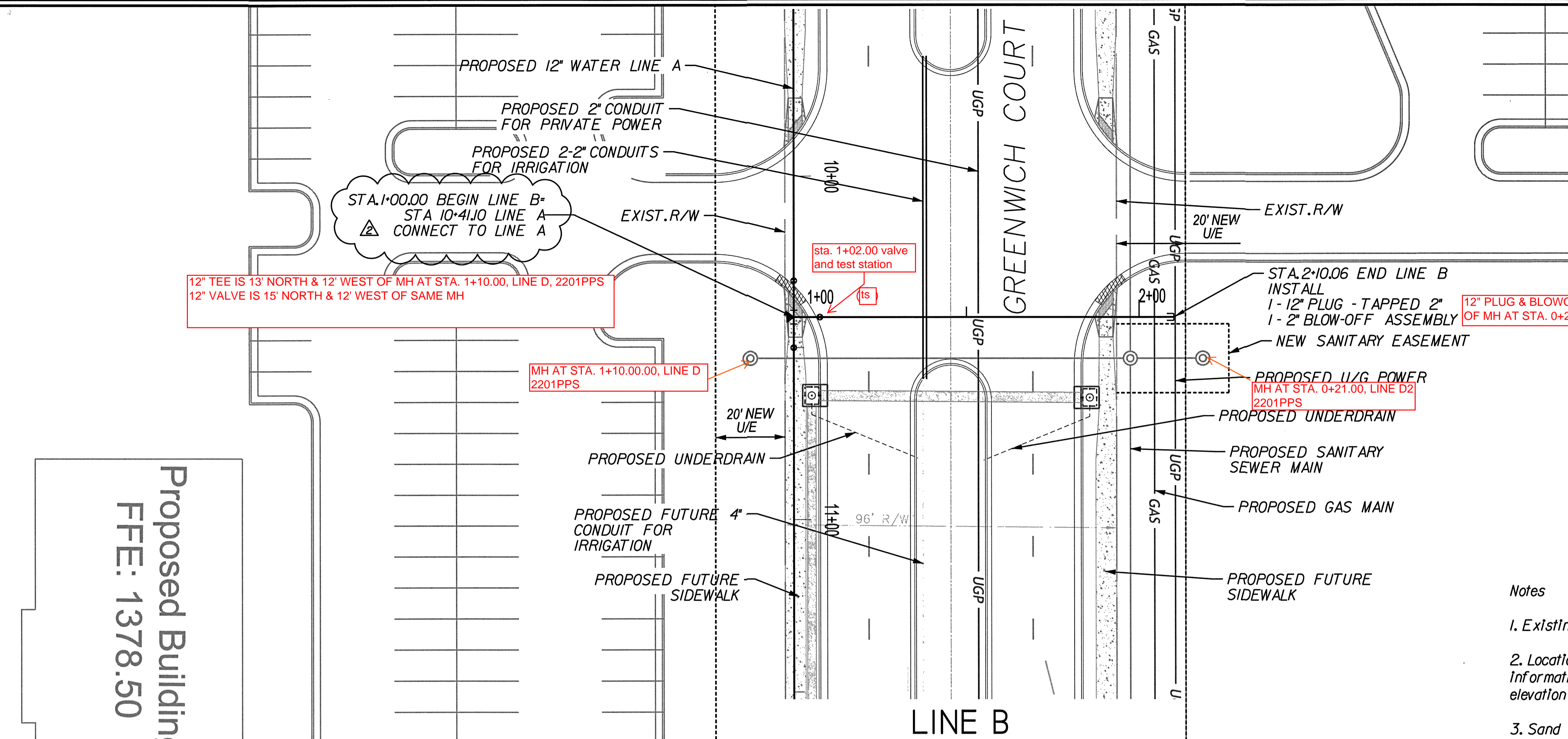
Renaissance Infrastructure Consulting



5015 NW CANAL STREET, SUITE 100
RIVERSIDE, MO. 64150
816.800.0950
WWW.RIC-CONSULT.COM

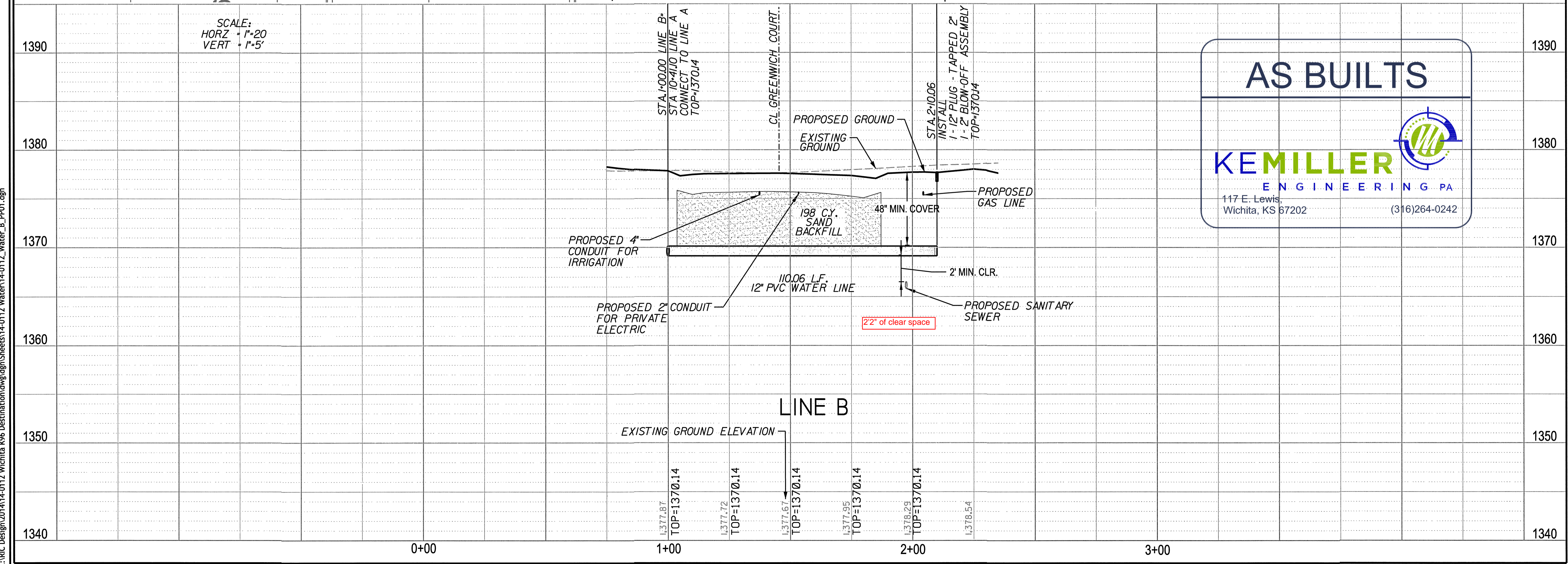
WILLIAM YORD
LICENSED PROFESSIONAL ENGINEER
19515
10-16-2014

10/10/2014 Z:\RIC Design\2014\14-0112 Wichita 196 Destination\dwg\14-0112 Water\14-0112_Water_A_PPO3.dgn



- Notes
- Existing gas and water mains shall not be disturbed.
 - Location and elevation of all utilities is approximate according to the best information available at the time of design. Contractor to verify location and elevation prior to construction.
 - Sand Backfill is to be Flushed & Vibrated.

SCALE:
HORZ = 1"=20'
VERT = 1"=5'



AS BUILTS

KEMILLER
ENGINEERING PA
117 E. Lewis,
Wichita, KS 67202 (316)264-0242

NO.	BY	DATE	REVISION
2	VZ	10/20/14	REVISED STATION EQUATION
1	VZ	8/26/14	REVISED FOR PERMIT ORIGINAL SUBMITTAL

Renaissance Infrastructure Consulting

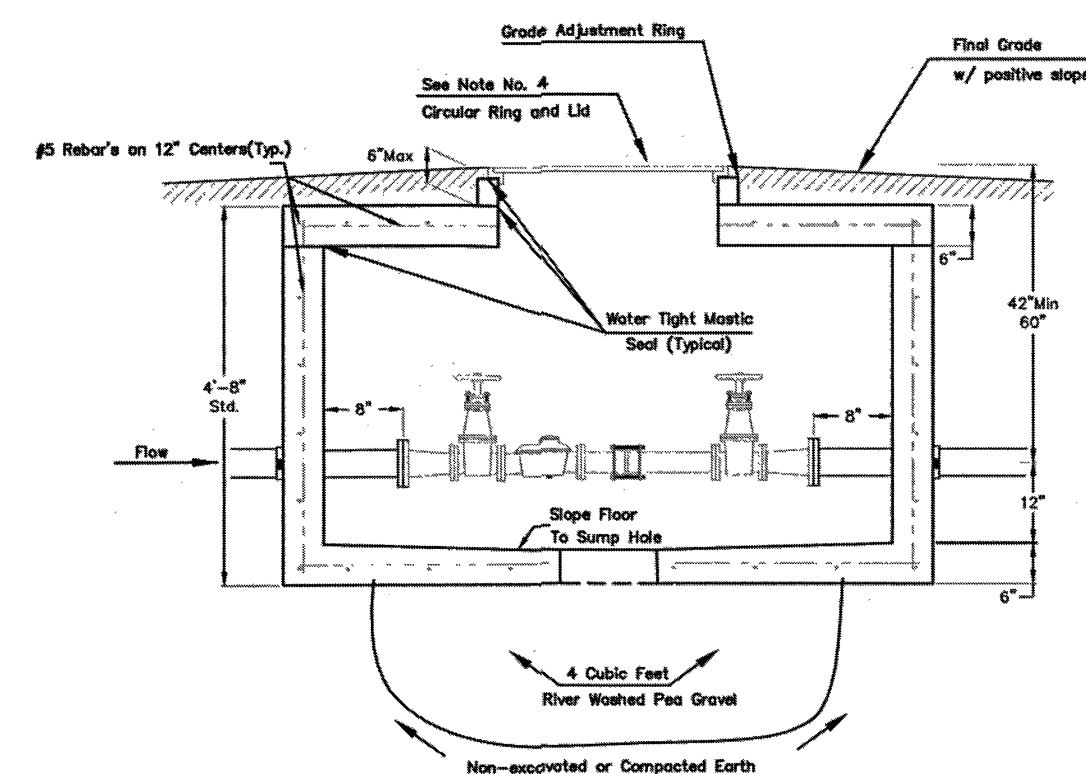
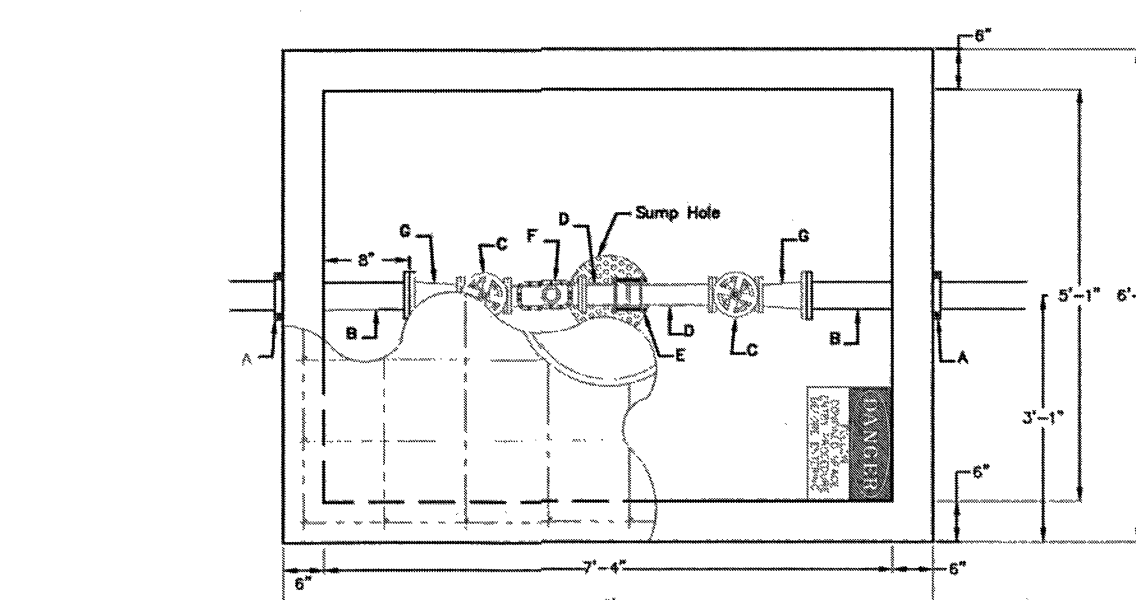
5015 NW CANAL STREET, SUITE 00
RIVERSIDE MO, 64150
816.500.0950
WWW.RIC-CONSULT.COM

WILLIAM VOND
LICENSED PROFESSIONAL ENGINEER
KANSAS
19515
10-10-2014

10/10/2014 Z:\VIC Design\2014\14-0112 Wichita 196 Destination\dwg\gpm\Sheets\14-0112_Water\14-0112_Water_B_PP01.dgn

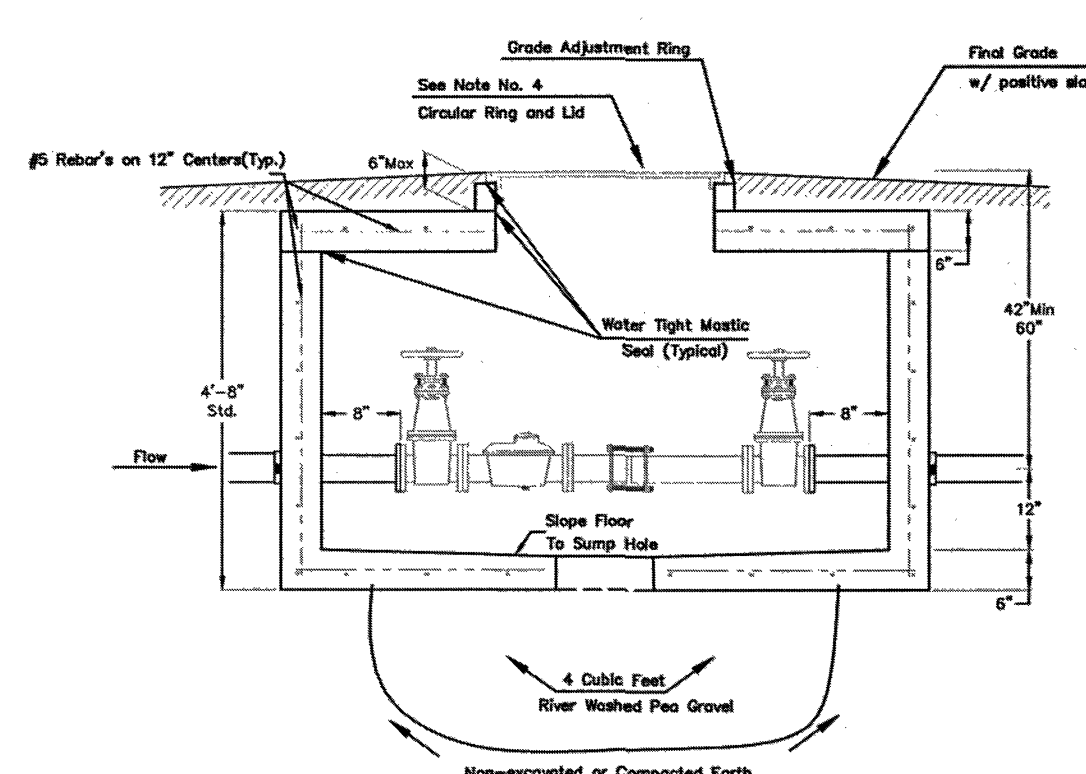
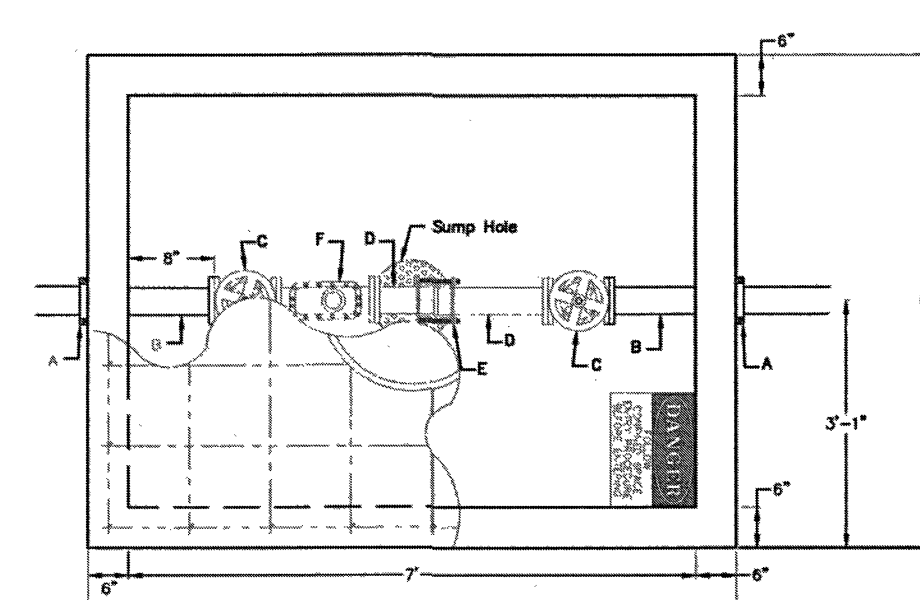
Notes For All Services - 3" thru 12":

- When the standard vault dimensions are not applicable, such as when additional space is required for special pipe, fittings, additional meters, etc. the design engineer shall design a vault with the required dimensions for Public Works and Utilities approval.
- The vault shall be poured concrete, cement blocks (voids to be completely filled with 2500 P.S.I. concrete), or approved precast structure (such as Clutter Inc. vaults approved 8/1/2000). The intent of these details shall not be limited by drawings or standards of precast structures.
- Vault location to be determined by Public Works and Utilities prior to construction and approved by Department's field supervisor prior to installation. A final inspection will be required for acceptance. Vault location standards include but not limited to: not to be located where subjected to vehicular loads, not to be located in any right-of-way or utility easement, and must be located on the property being served.
- The manhole ring and lid shall be Neenah R-6034 Frame with Type "C" Solid Lid and Drop Down Handle or US Foundry APS-30x30 (Aluminum). Where applicable the standard 10" Public Works and Utilities pattern meter reading lid and ring shall be located directly above water meter register. All meter registers shall have an approved lid directly vertical above. All joints of concrete to concrete or metal to concrete in the construction of the vault shall have an approved water tight mastic joint seal.
- Any fittings or appurtenances required to achieve proper elevation of pipe through the vault shall be provided by the contractor and appropriately noted on as-builts submitted by the inspecting engineer. Such fittings shall be a minimum of 2' from the exterior wall of vault.
- For all domestic services larger than 3" the contractor shall provide an outlet flange connection as shown 8" from the inside wall. Inlet and outlet wall sleeves shall be provided and installed by the contractor and shall be in alignment with one another. The inlet and outlet pipe shall be ductile iron pipe, cement lined, Class 150 per Standard Specifications and shall be continuous through vault wall and joint no less than 2' from the exterior wall of vault. Flanges of inlet and outlet pipes shall be in proper alignment and bolt pattern shall be rotated in such a way that valves and other fittings shall be in their proper vertical alignment when installed.
- For all services 4" and larger the contractor shall install a mega lug, restrained joint, or approved equal on the exterior walls of the vault, which shall be manufactured of ductile iron conforming to ASTM A 536-80, heat treated to a minimum hardness of 370 BHN and have a working pressure of at least 250 P.S.I. For all services smaller than 4" the contractor shall install an approved vault clamp on the exterior walls of the vault.
- All valves, meters, assemblies, and fittings shall be provided with sufficient concrete or other approved supports to the vault floor.
- The "Confined Space Warning" sign shall be fastened to the top of all vaults. If necessary for landscaping or site considerations, the sign may be fastened to the lid if it does not impede access to the handle. Acceptable materials: Aluminum 73415HH, Plastic 73439HH, or S.A. Vinyl 73463HH.
- All meters shall have an electronic read register compatible with the current City of Wichita meter reading system. All detector meters shall be an 5/8 cubic foot Badger meter with ERT register or approved equal. Gallon meters shall not be accepted.
- Additional Notes For Fire Services:
 - A post indicator valve (PIV) is an option for the outlet valve and may be requested by the architect or owner. The PIV is not required by City of Wichita ordinance.
 - When Siamese connections are required by the Wichita Fire Department, refer to the current City Code Section 15.
 - If due to any reason the completed vault retains ground or drainage water in excess of 4" in depth from the floor of the vault, the property owner shall be responsible for providing and installing an appropriate automatic sump pump or approved equal, as well as any other appurtenances required to make such system function as intended.
 - The property owner is responsible for completing an "Application for Private Fire Protection" prior to final acceptance of the project.



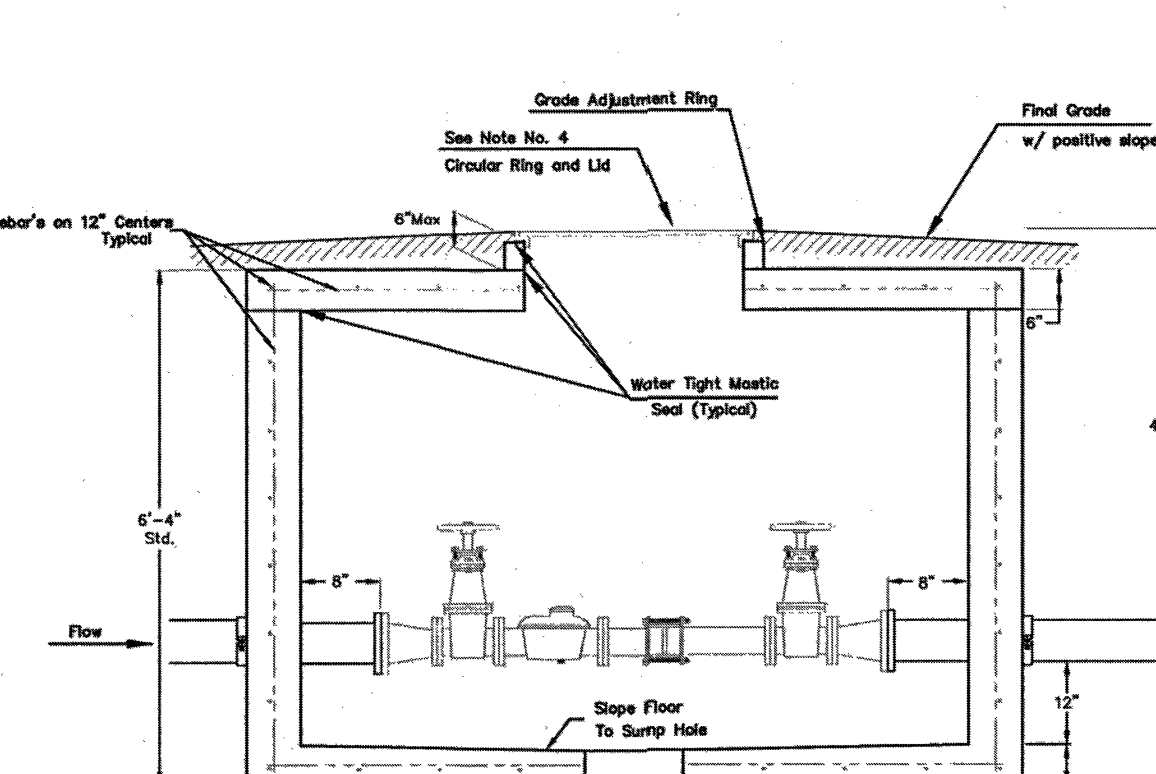
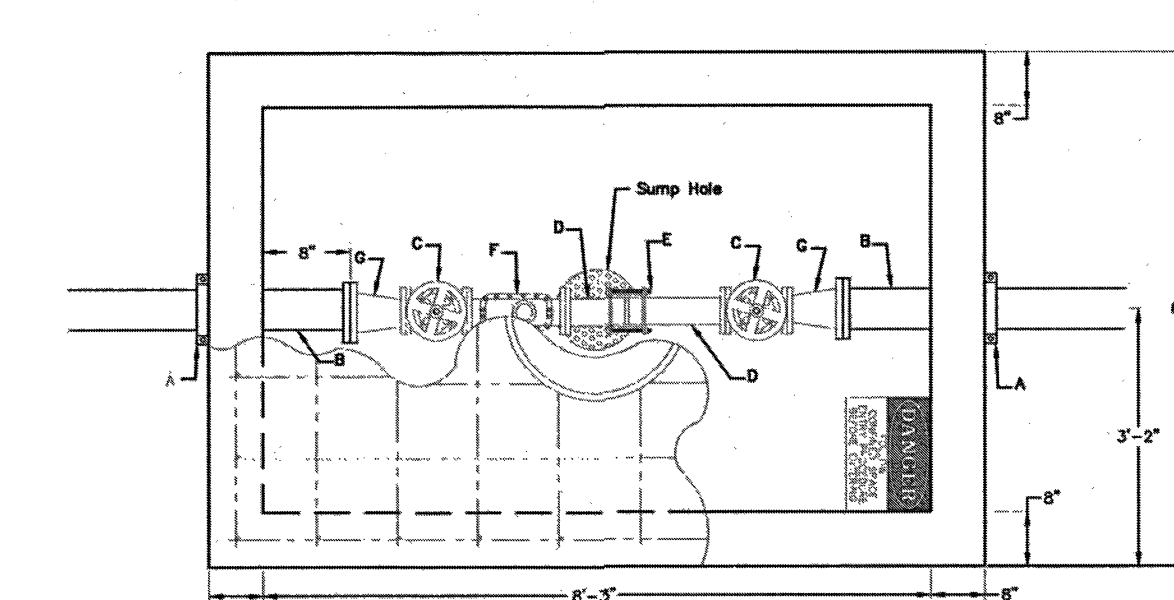
- A - 4" Vault Clamp
- B - Min. 3' Piece of 4" FL x PE DiCL Pipe
- C - 3" Flange Non-rising Stem Gate Wheel Valve
- D - 3" FL x PE Pipe
- E - 4" Flex Coupling
- F - 3" Badger Recordall II Turbo Cubic Foot Meter with ERT Register or Sensus W-3500R Cubic Foot Meter with AMR Register.
- G - 3" x 4" FL Reducer

3" Domestic Service



- A - 4" Vault Clamp
- B - Min. 3' Piece of 4" FL x PE DiCL Pipe
- C - 4" Flange Non-rising Stem Gate Wheel Valve
- D - 4" FL x PE Pipe
- E - 4" Flex Coupling
- F - 4" Badger Recordall II Turbo Cubic Foot Meter with ERT Register or Sensus W-1000DR Cubic Foot Meter with AMR Register.
- G - 3" x 4" FL Reducer

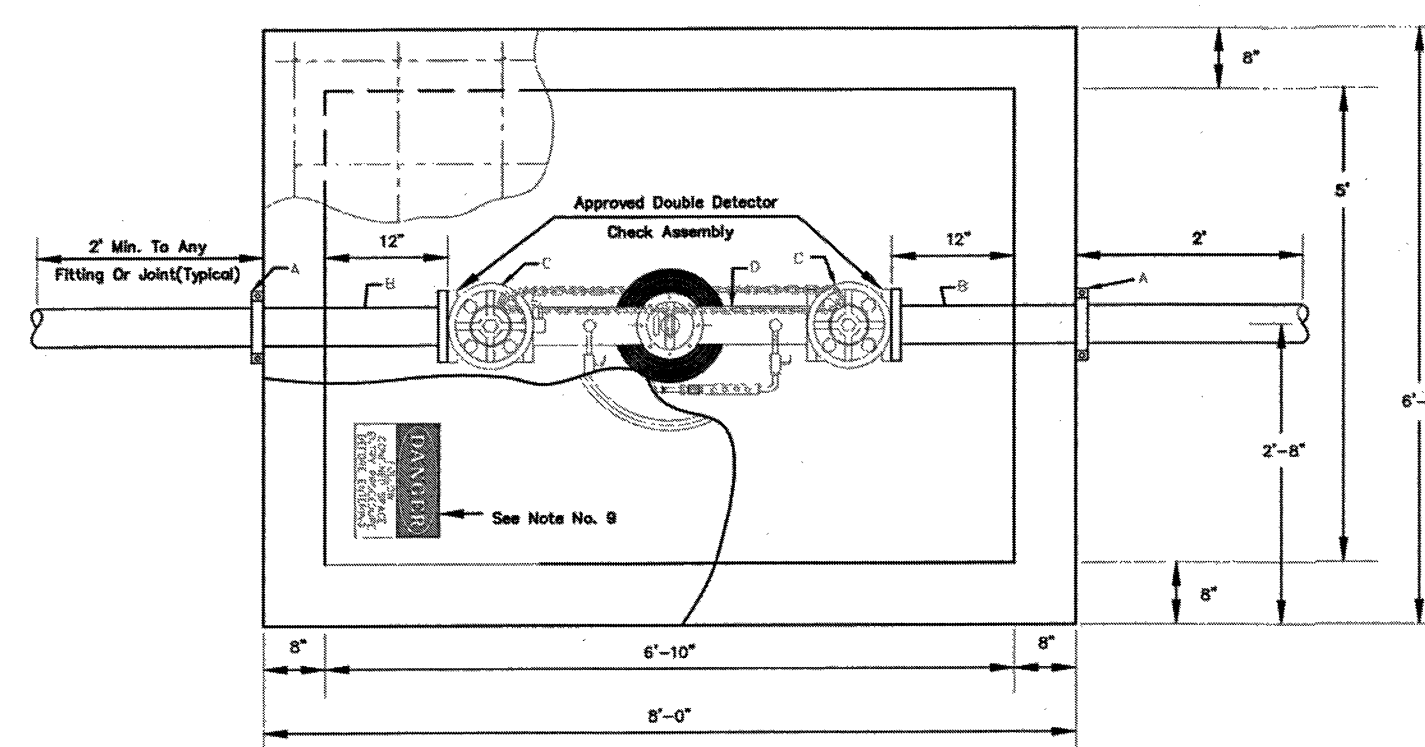
4" Domestic Service



- A - 6" Mega Lug (See Note 7)
- B - Min. 3' Piece of 6" FL x PE DiCL Pipe
- C - 4" Flange Non-rising Stem Gate Wheel Valve
- D - 4" FL x PE Pipe
- E - 4" Flex Coupling
- F - 4" Badger Recordall II Turbo Cubic Foot Meter with ERT Register or Sensus W-1000DR Cubic Foot Meter with AMR Register.
- G - 6" x 4" Flange Reducer

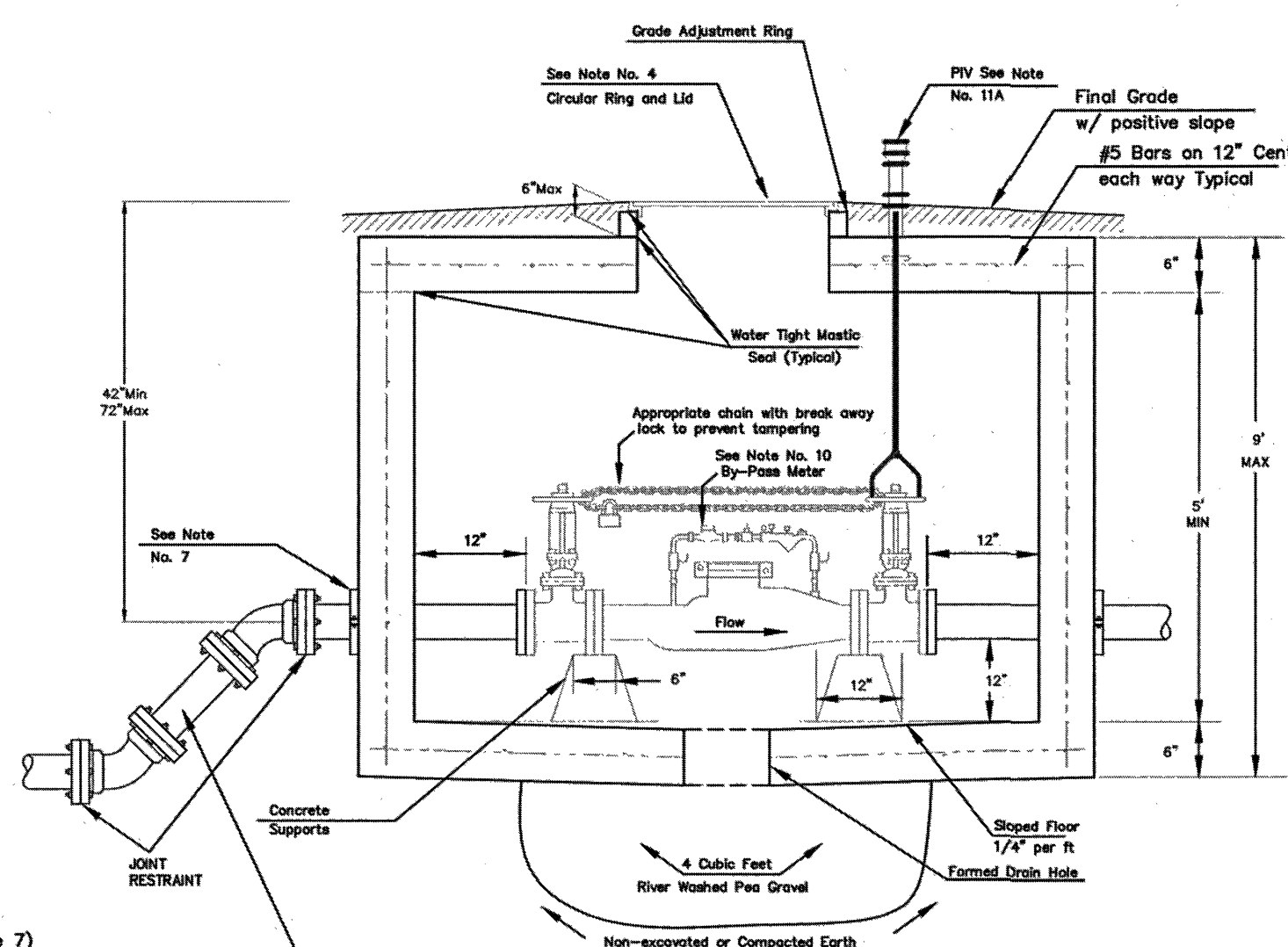
6" Domestic Service
with 4" meter

NOTE:
INSPECTOR FROM PUBLIC WORKS AND UTILITIES TO BE CONTACTED
24 HOURS PRIOR TO INSTALLATION TO SET VAULT.
CONTACT: 316-219-8928 OR 316-219-8929



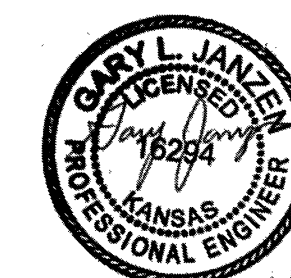
NOTE:
Domestic Services larger than 6" shall be custom designed by Engineer.

4" thru 8" Fire Service



- A - Mega Lug (See Note 7)
- B - Min. 3'-8" Piece of FL x PE DiCL Pipe
- C - Flange Gate Valve, Wheel Operated
- D - Ames Model 3001S3 or approved equal with metered (cubic foot) by-pass assembly

Use 45 degree fittings as necessary to keep depth of vault within 76 inch maximum. All fittings should be mega lug, restrained joint or approved equal.



CITY OF WICHITA
PUBLIC WORKS & UTILITIES ENGINEERING DIVISION

STANDARD VAULT DETAILS AND METER ASSEMBLIES

CITY ENGINEER
GARY JANZEN, P.E.

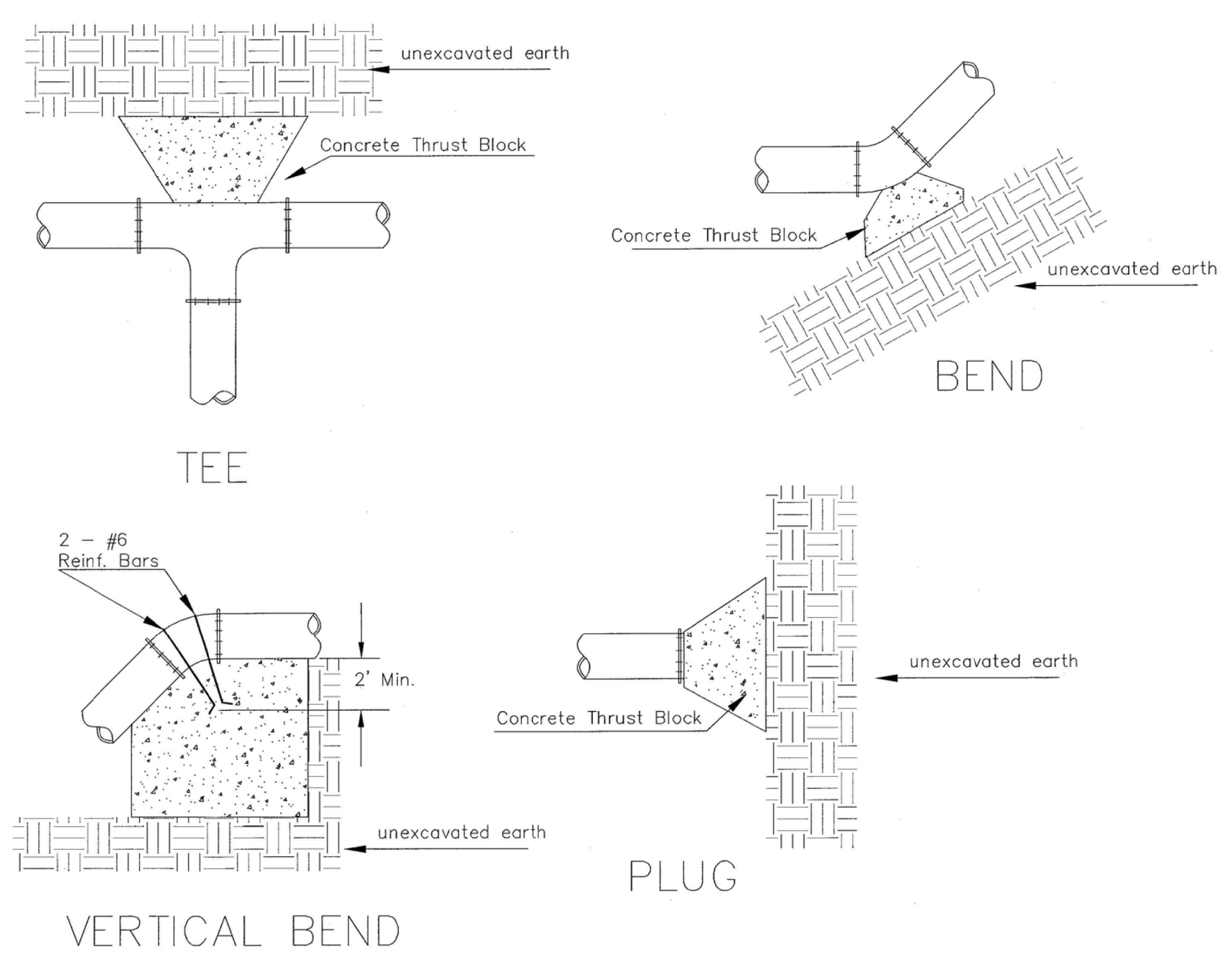
PROJECT NUMBER OCA NUMBER DATE
12/2011

CITY ENGINEER'S OFFICE
CITY HALL - SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202-1620
(316) 268-4501

SHEET
_ of _

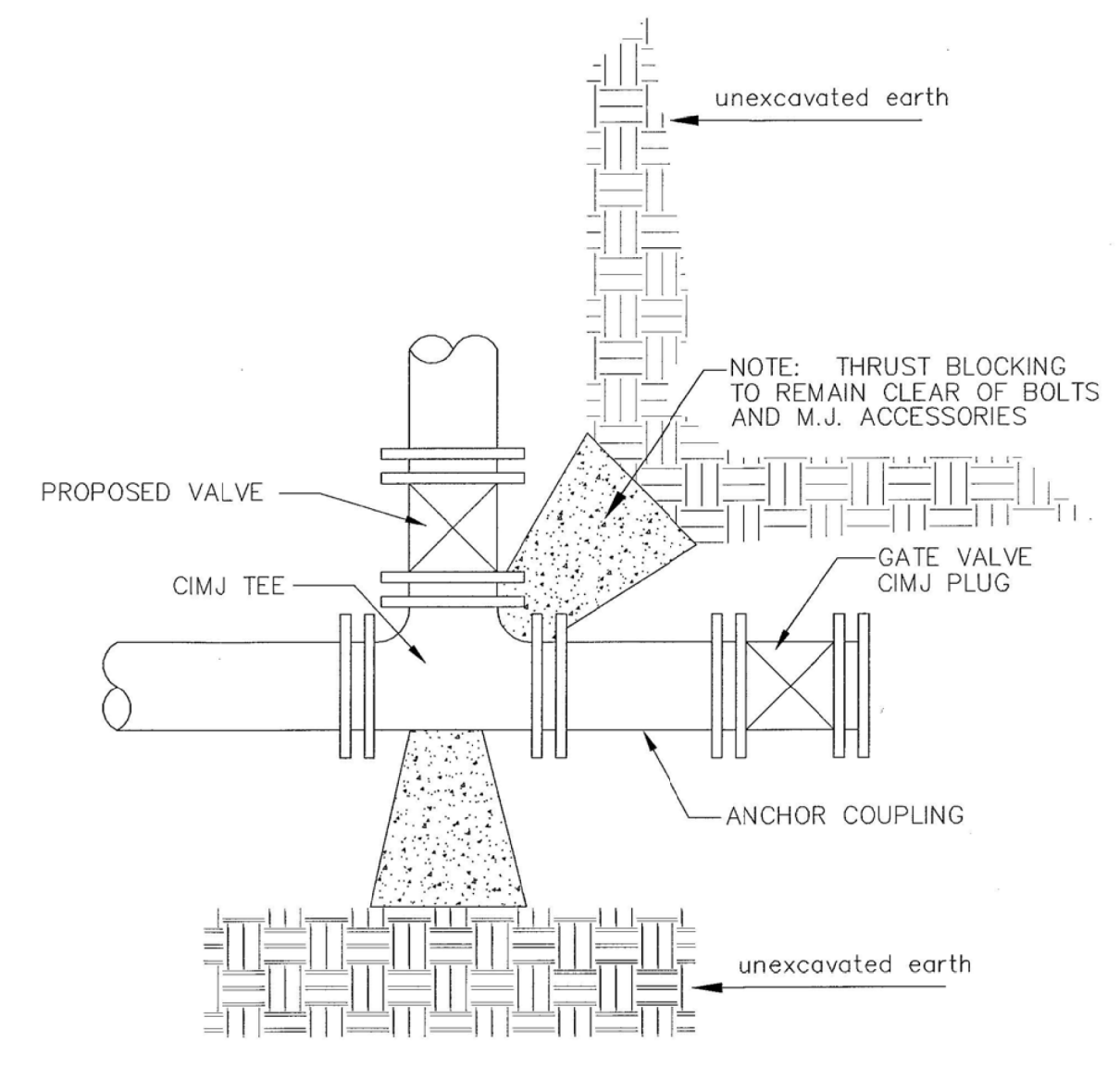
WL-103

NO.	BY	DATE	REVISION
1	VZ	8/28/14	REVISED FOR PERMIT ORIGINAL SUBMITTAL



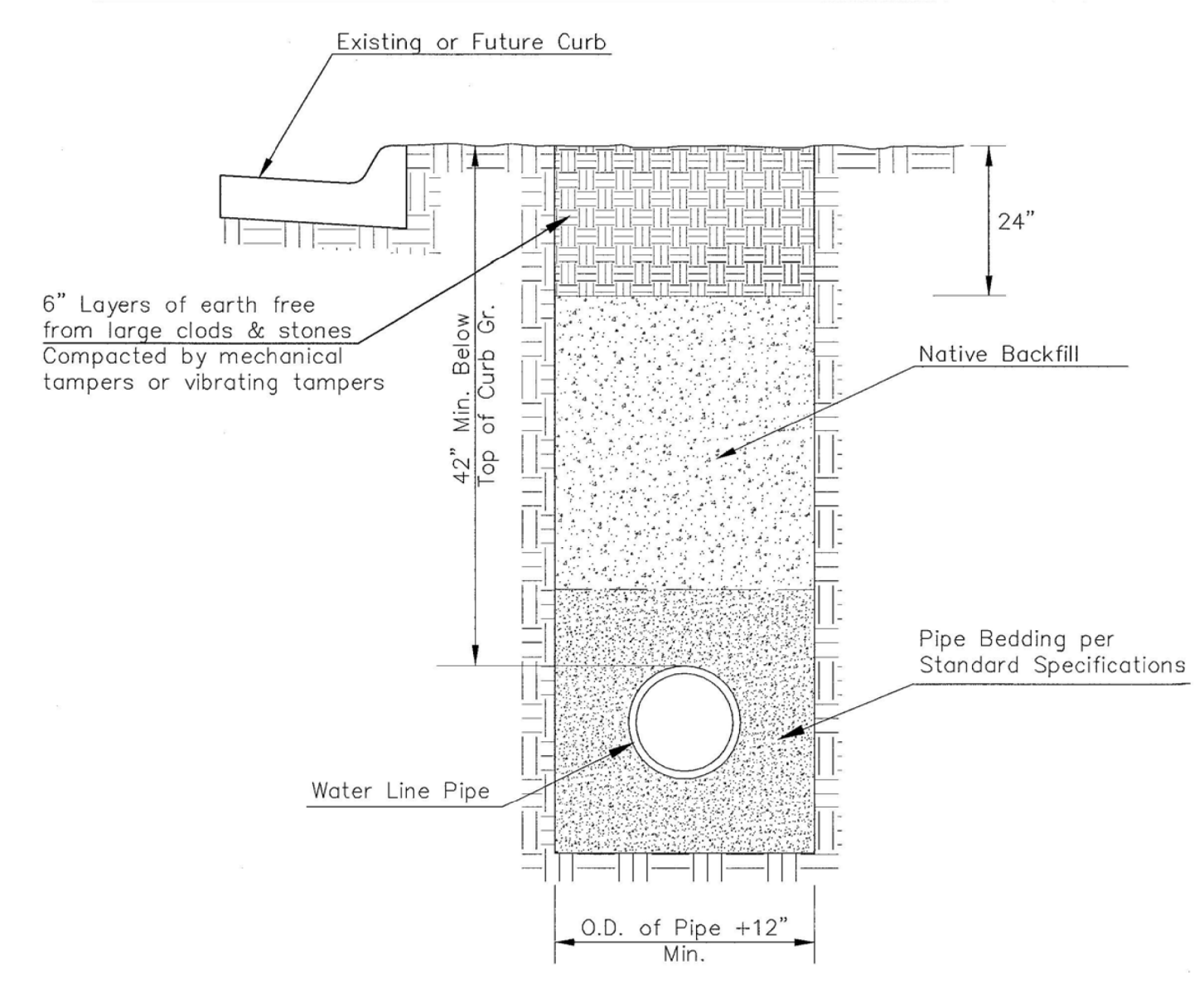
PIPE SIZE	THRUST AT FITTINGS IN TONS-AT 150#/IN ² P					
	PLUG	90°	45°	22 1/2°	11 1/4°	TEE
6"	2.8	3.95	2.15	1.09	.55	2.8
8"	4.9	6.95	3.75	1.90	.96	4.9
12"	11.4	16.1	8.75	4.45	2.25	11.4
16"	20.15	28.5	15.4	7.85	3.95	20.15
20"	31.15	44.0	23.85	12.15	6.10	31.15
24"	44.55	63.0	34.1	17.4	8.75	44.55

TYPICAL THRUST BLOCKS

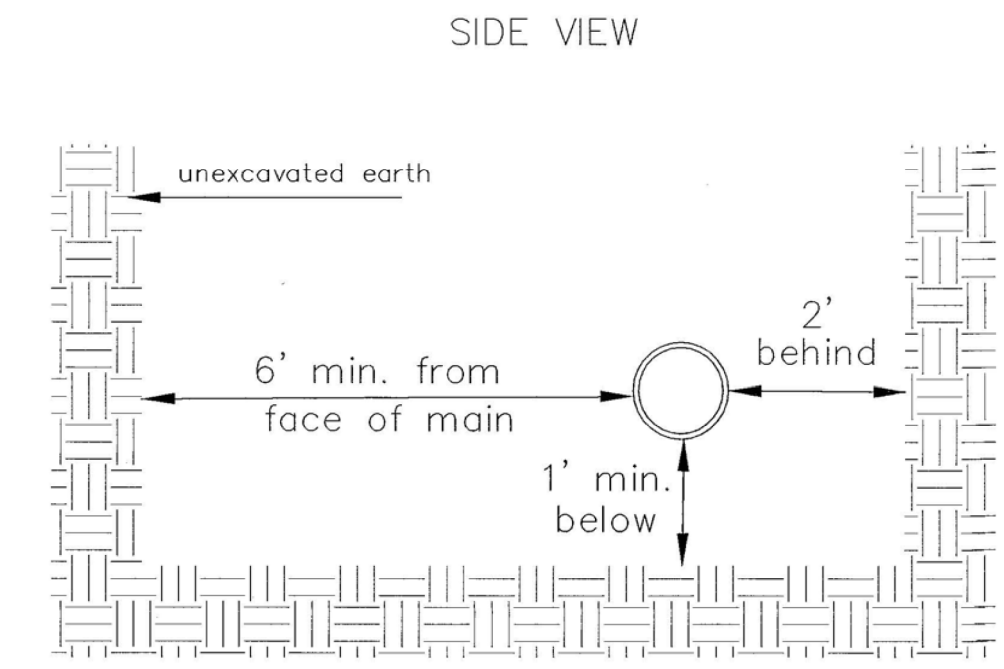


KEY BLOCK DETAIL

* PLANS GOVERN
UNLESS OTHERWISE NOTED ON PLANS



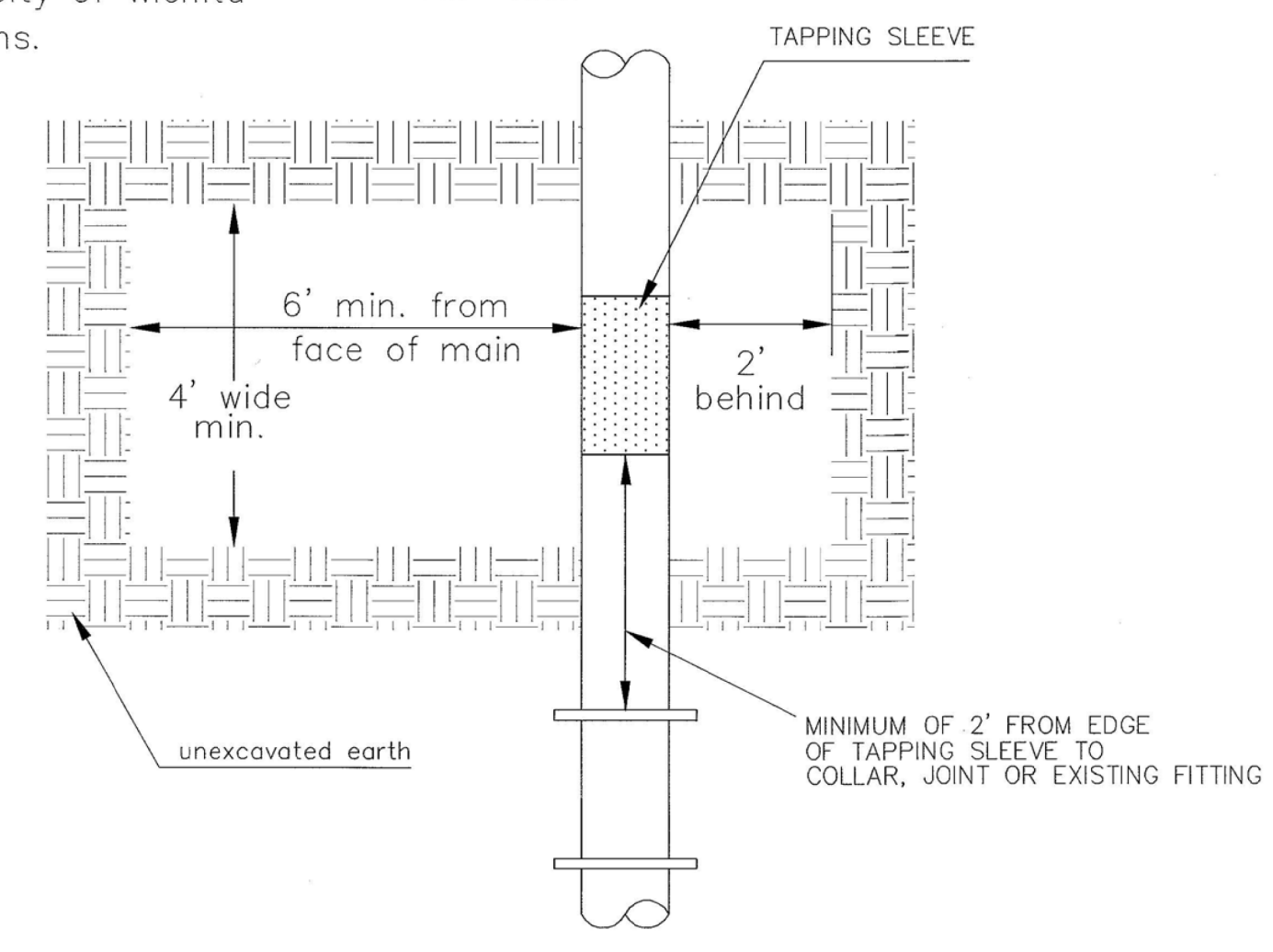
TRENCH COMPACTION IN ROAD RIGHT-OF-WAY



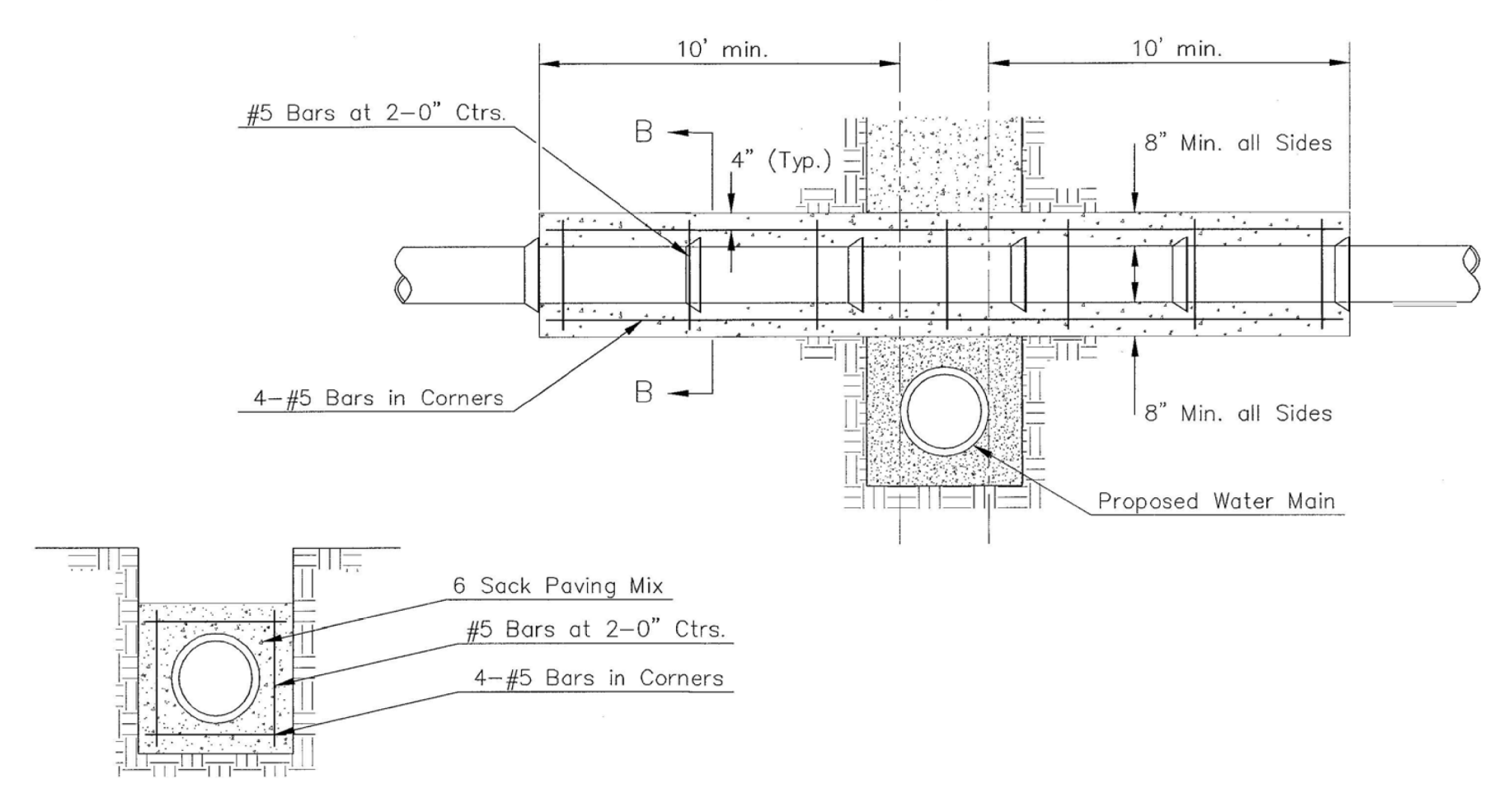
SIDE VIEW

TOP VIEW

Note: When shoring is required it is to be per The City of Wichita Standard Specifications.



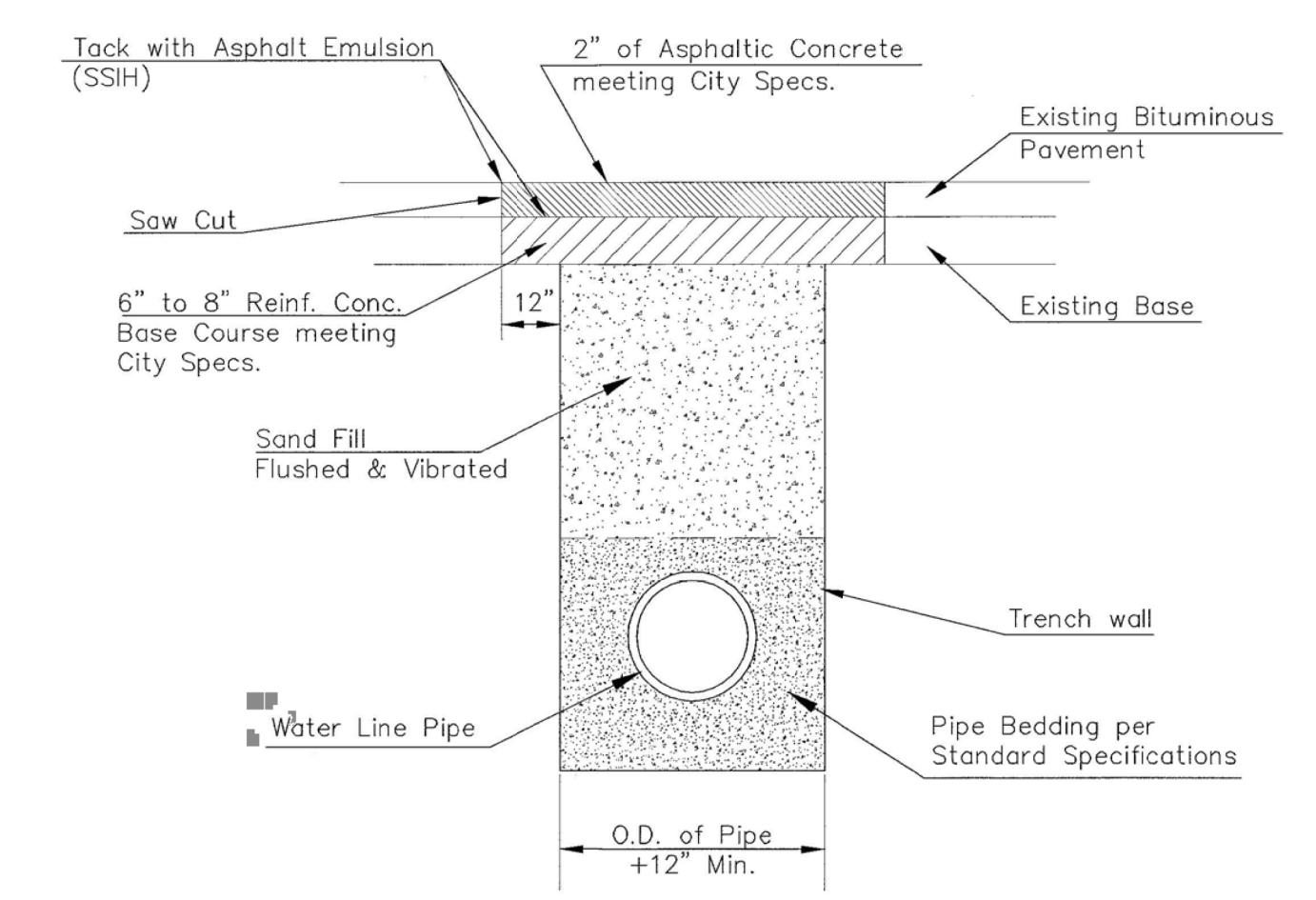
EXCAVATION FOR WET TAP



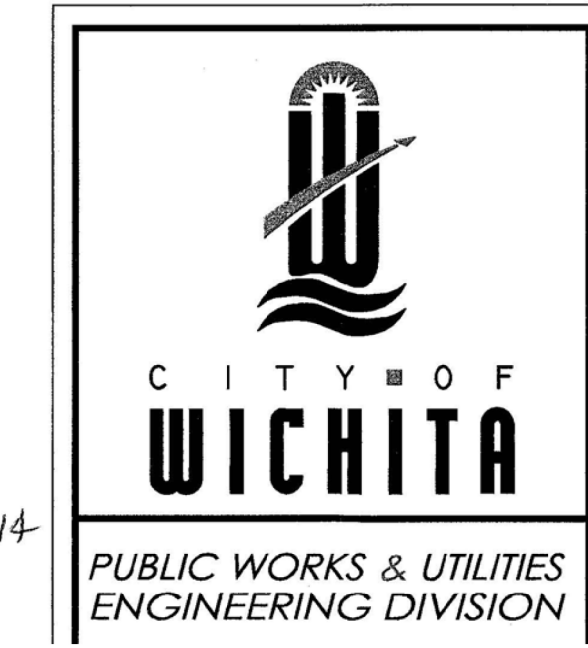
SECTION B-B

Note: Encasement to begin and end at a Bell on Sanitary Sewer Pipe.

REINFORCED CONCRETE ENCASEMENT OF SANITARY SEWER



PAVEMENT REPLACEMENT & TRENCH COMPACTION UNDER EXISTING AND PROPOSED CITY ROADS



MISCELLANEOUS WATER DETAILS
CITY ENGINEER
GARY JANZEN, P.E.

PROJECT NUMBER	OCA NUMBER	DATE
		04/201

CITY ENGINEER'S OFFICE
CITY HALL - SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202-1620
(316) 268-4501

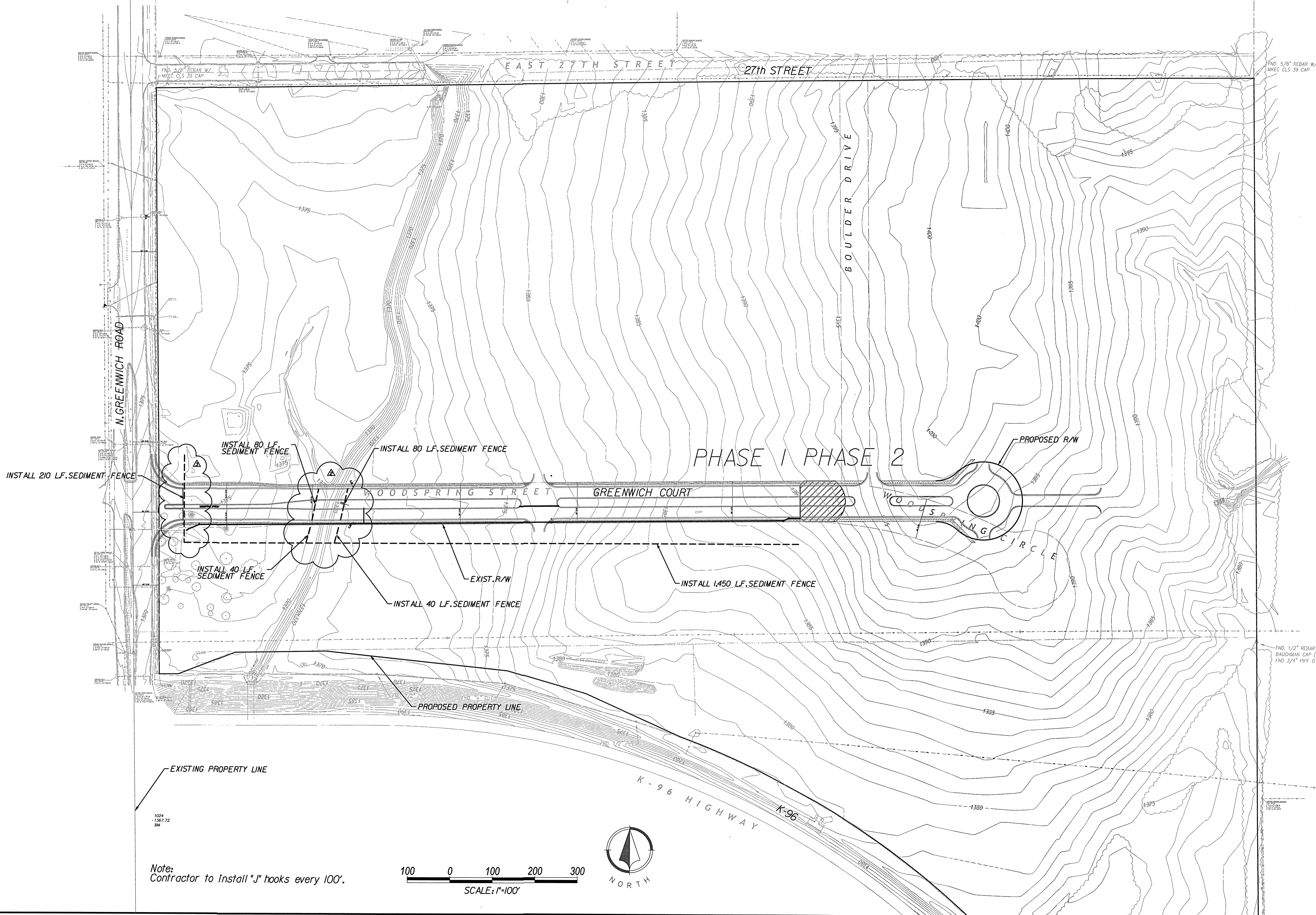
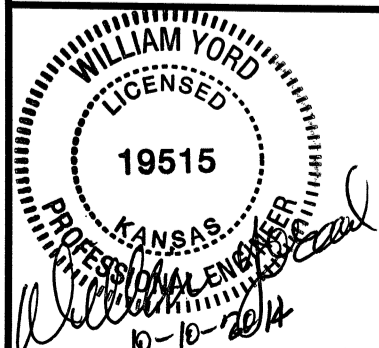
Renaissance Infrastructure Consulting
5015 NW CANAL STREET, SUITE 100
RIVERSIDE MO, 64150
816.800.0950
WWW.RIC-CONSULT.COM

NO.	BY	DATE	REVISION
1.	VZ	8/26/14	REVISED FOR PERMIT
	VZ	7/29/14	ORIGINAL SUBMITTAL

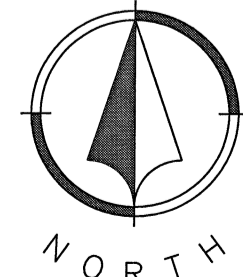
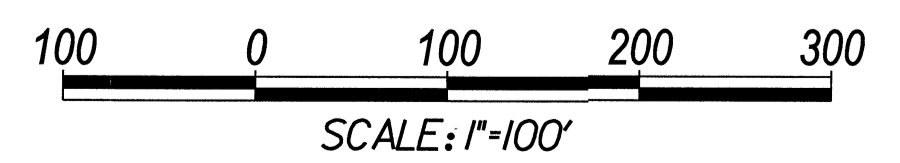
10/10/2014
Z:\RIC Design\2014\14-0112 Wichita K96 Destination\dwg\dgn\Sheets\14-0112 Water\14-0112 Water Erosion Control.dgn

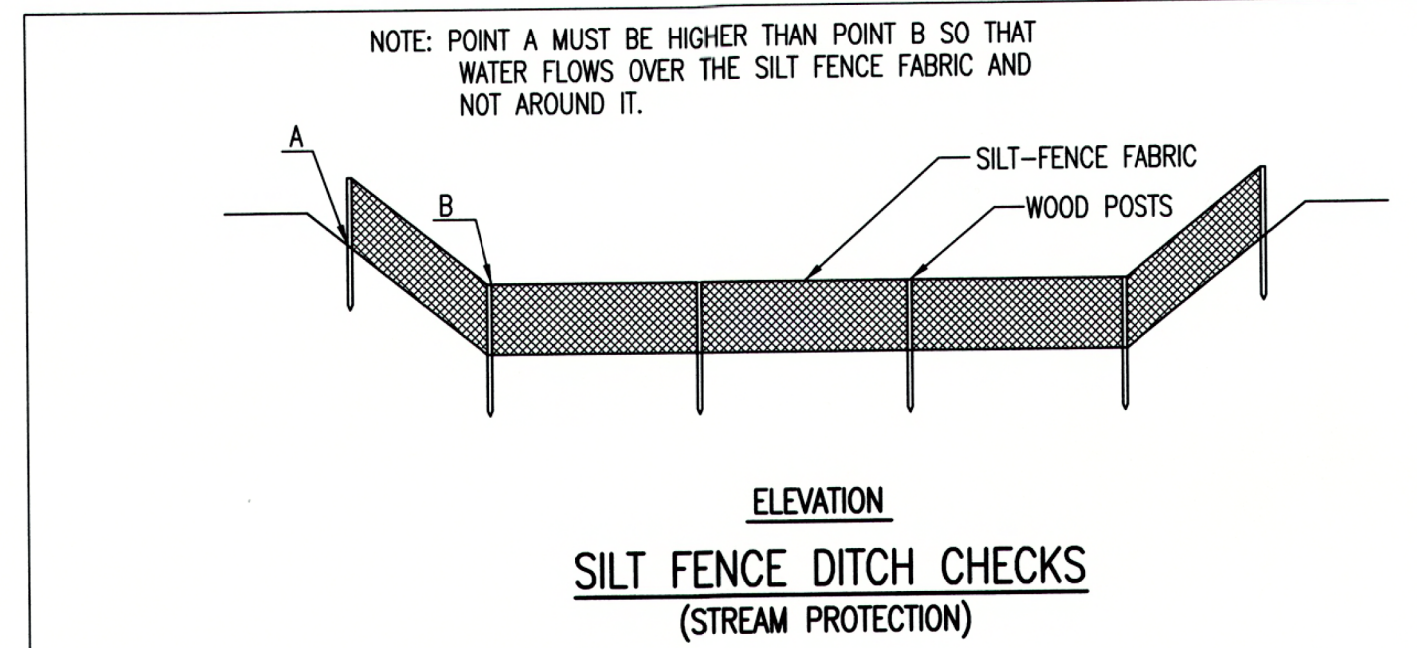
3.	VZ	BY	10/20/14	RELOCATED SILT FENCE TO EAST SIDE OF EXISTING ENTRANCE	
2.	VZ	BY	10/10/14	ADDED SILT FENCE TO PROTECT CHANNEL	
1.	VZ	BY	8/26/14	REVISED FOR PERMIT	
	VZ	BY	7/31/14	ORIGINAL SUBMITTAL	
	NO.	BY	CD	DATE	REVISION

Renaissance Infrastructure Consulting
 5015 NW CANAL STREET, SUITE 100
 RIVERSIDE MO, 64150
 816.800.0950
 WWW.RIC-CONSULT.COM



Note: Contractor to install "J" hooks every 100'.





ELEVATION
SILT FENCE DITCH CHECKS
(STREAM PROTECTION)

MATERIAL SPECIFICATION:

SILT FENCE FABRIC SHOULD CONFORM TO THE AASHTO M288 96 SILT FENCE SPECIFICATION. THE POSTS USED TO SUPPORT THE SILT FENCE FABRIC SHOULD BE A HARDWOOD MATERIAL WITH THE FOLLOWING MINIMUM DIMENSIONS: 2" SQUARE (NOMINAL) BY 4' LONG. SILT FENCE FABRIC SHOULD BE ATTACHED TO THE WOODEN POSTS WITH STAPLES, WIRE, ZIP TIES, OR NAILS.

PLACEMENT:

PLACE SILT FENCE IN DITCHES WHERE IT IS UNLIKELY THAT IT WILL BE OVERTOPPED. WATER SHOULD FLOW THROUGH A SILT FENCE DITCH CHECK, NOT OVER IT. SILT FENCE DITCH CHECKS OFTEN FAIL WHEN OVERTOPPED. SILT FENCE CHECKS SHOULD BE PLACED PERPENDICULAR TO THE FLOWLINE OF THE DITCH. THE SILT FENCE SHOULD EXTEND FAR ENOUGH SO THAT THE GROUND LEVEL AT THE ENDS OF THE FENCE IS HIGHER THAN THE TOP OF THE LOW POINT OF THE FENCE. THIS PREVENTS WATER FROM FLOWING AROUND THE CHECK. SILT FENCE DITCH CHECKS SHOULD NOT BE PLACED IN DITCHES WHERE HIGH FLOWS ARE EXPECTED. ROCK CHECKS SHOULD BE USED INSTEAD. SILT FENCE SHOULD BE PLACED IN DITCHES WITH SLOPES OF 6% OR LESS. FOR SLOPES STEEPER THAN 6%, ROCK CHECKS SHOULD BE USED.

THE FOLLOWING TABLE PROVIDES CHECK SPACING FOR A GIVEN DITCH GRADE:

DITCH CHECK DITCH GRADE (%)	SPACING CHECK SPACING (FEET)
0.5	200
1.0	200
2.0	100
3.0	65
4.0	50
5.0	40
6.0	30

PROPER INSTALLATION METHOD:

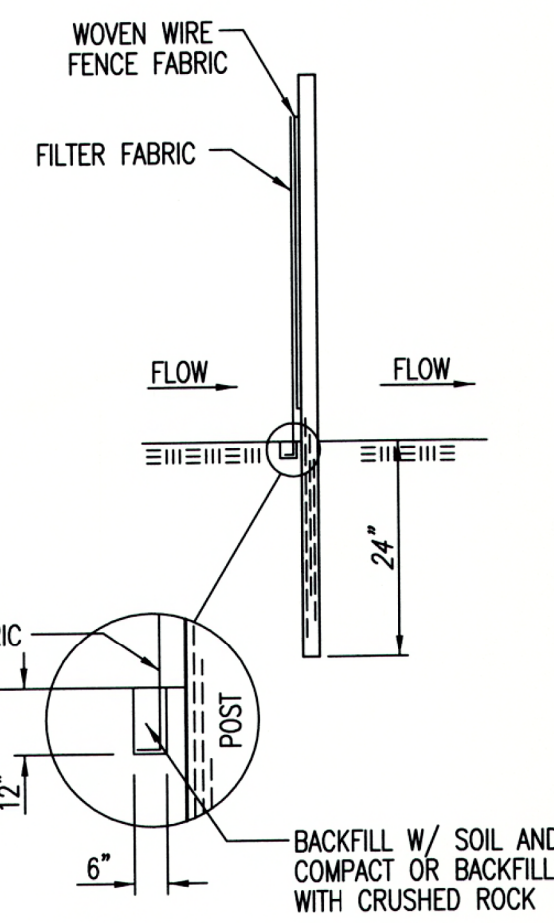
EXCAVATE A TRENCH PERPENDICULAR TO THE DITCH FLOWLINE THAT IS AT LEAST 12" DEEP BY 6" WIDE. EXTEND THE TRENCH IN A STRAIGHT LINE ALONG THE ENTIRE LENGTH OF THE PROPOSED DITCH CHECK. PLACE THE SOIL ON THE UPSTREAM SIDE OF THE TRENCH FOR LATER USE. ROLL OUT A CONTINUOUS LENGTH OF SILT FENCE FABRIC ON THE DOWNSTREAM SIDE OF THE TRENCH. PLACE THE EDGE OF THE FABRIC IN THE TRENCH STARTING AT THE TOP UPSTREAM EDGE OF THE TRENCH. LINE TWO SIDES OF THE TRENCH WITH THE FABRIC AS SHOWN ON DETAIL. BACKFILL OVER THE FABRIC IN THE TRENCH WITH THE EXCAVATED SOIL AND COMPACT. AFTER FILLING THE TRENCH, APPROXIMATELY 24" TO 36" OF SILT FENCE FABRIC SHOULD REMAIN EXPOSED. LAY THE EXPOSED SILT FENCE ON THE UPSTREAM SIDE OF THE TRENCH TO CLEAR AN AREA FOR DRIVING IN THE POSTS. JUST DOWNSTREAM OF THE TRENCH, DRIVE POSTS INTO THE GROUND TO A DEPTH OF AT LEAST 24". PLACE POSTS NO MORE THAN 4' APART. ATTACH THE SILT FENCE TO THE ANCHORED POST WITH STAPLES, WIRE, ZIP TIES, OR NAILS.

LIST OF COMMON PLACEMENT/INSTALLATION MISTAKES TO AVOID:

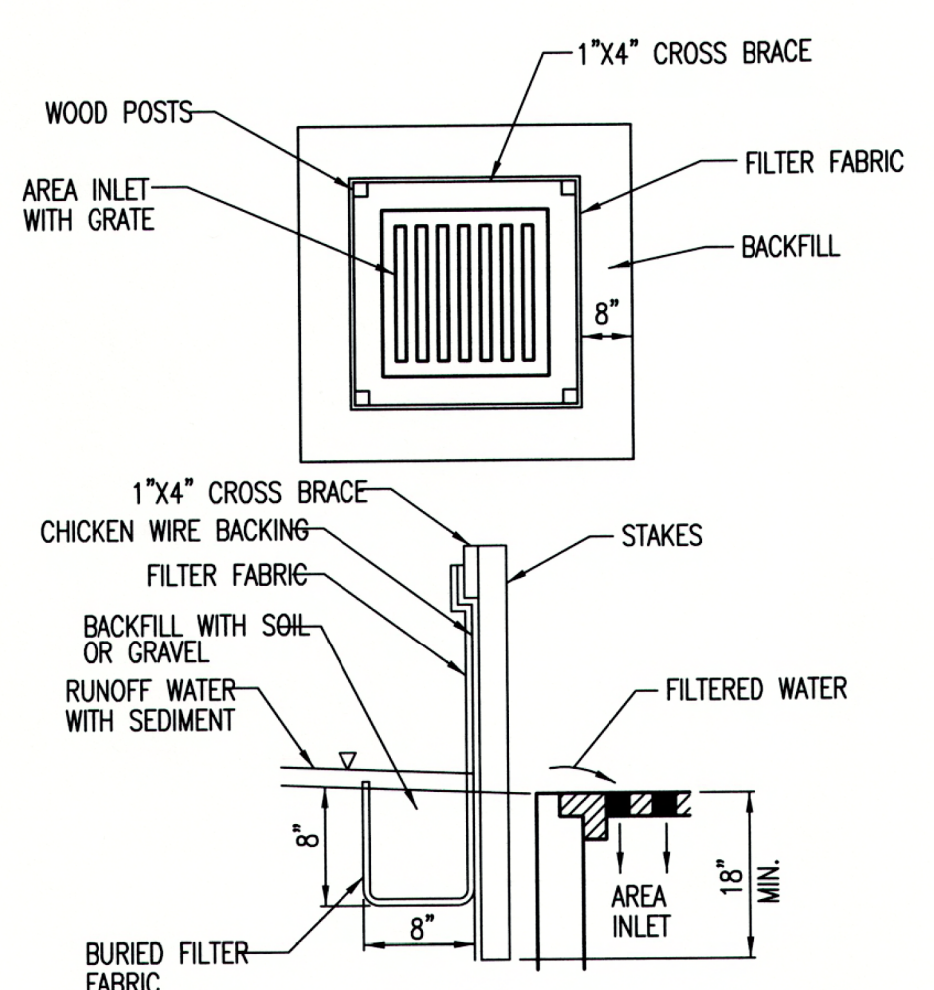
WATER SHOULD FLOW THROUGH A SILT FENCE DITCH CHECK—NOT OVER IT. PLACE SILT FENCE IN DITCHES WHERE IT IS UNLIKELY THAT IT WILL BE OVERTOPPED. SILT FENCE INSTALLATIONS QUICKLY DETERIORATE WHEN WATER OVERTOPS THEM. DO NOT PLACE SILT FENCE POSTS ON THE UPSTREAM SIDE OF THE SILT FENCE FABRIC. IN THIS CONFIGURATION, THE FORCE OF THE WATER IS NOT RESTRICTED BY THE POSTS, BUT ONLY BY THE STAPLES (WIRE, ZIP TIES, NAILS, ETC.). THE SILT FENCE WILL RIP AND FAIL. DO NOT PLACE A SILT FENCE DITCH CHECK DIRECTLY IN FRONT OF A CULVERT OUTLET. IT WILL NOT STAND UP TO THE CONCENTRATED FLOW. DO NOT PLACE SILT FENCE DITCH CHECKS IN DITCHES THAT WILL LIKELY EXPERIENCE HIGH FLOWS. THEY WILL NOT STAND UP TO CONCENTRATED FLOW. FOLLOW PRESCRIBED DITCH CHECK SPACING GUIDELINES. IF SPACING GUIDELINES ARE EXCEEDED, EROSION WILL OCCUR BETWEEN THE DITCH CHECKS. DO NOT ALLOW WATER TO FLOW AROUND THE DITCH CHECK. MAKE SURE THAT THE DITCH CHECK IS LONG ENOUGH SO THAT THE GROUND LEVEL AT THE ENDS OF THE FENCE IS HIGHER THAN THE LOW POINT ON THE TOP OF THE FENCE. DO NOT PLACE SILT FENCE DITCH CHECKS IN CHANNELS WITH SHALLOW SOILS UNDERLAIN BY ROCK. IF THE CHECK IS NOT ANCHORED SUFFICIENTLY, IT WILL WASH OUT.

INSPECTION AND MAINTENANCE:

SILT FENCE DITCH CHECKS SHOULD BE INSPECTED EVERY 7 DAYS AND WITHIN 24 HOURS OF A RAINFALL OF 1/2" OR MORE. THE FOLLOWING IS A LIST OF QUESTIONS THAT SHOULD BE ADDRESSED DURING EACH INSPECTION:
 DOES WATER FLOW AROUND THE DITCH CHECK?
 DOES WATER FLOW UNDER THE DITCH CHECK?
 DOES THE SILT FENCE SAG EXCESSIVELY?
 HAS THE SILT FENCE TORN OR BECOME DETACHED FROM THE POSTS?
 DOES SEDIMENT NEED TO BE REMOVED FROM BEHIND THE DITCH CHECK?



ANCHOR TRENCH DETAIL



SILT FENCE BARRIERS FOR AREA INLETS
(INLET PROTECTION)

MATERIAL SPECIFICATION:

SILT FENCE FABRIC SHOULD CONFORM TO THE AASHTO M288 96 SILT FENCE SPECIFICATION. THE WIRE OR POLYMERIC MESH BACKING USED TO HELP SUPPORT THE SILT FENCE FABRIC SHOULD CONFORM TO THE AASHTO M288 96 SILT FENCE SPECIFICATION. THE POSTS USED TO SUPPORT THE SILT FENCE FABRIC SHOULD BE A HARDWOOD MATERIAL WITH THE FOLLOWING MINIMUM DIMENSIONS: 2" SQUARE (NOMINAL) BY 4' LONG. THE MATERIAL USED TO FRAME THE TOPS OF THE POSTS SHOULD BE 1" BY 4" BOARDS. SILT FENCE FABRIC AND SUPPORT BACKING SHOULD BE ATTACHED TO THE WOODEN POSTS AND FRAME WITH STAPLES, WIRE, ZIP TIES, OR NAILS.

PLACEMENT:

PLACE A SILT FENCE DROP INLET BARRIER IN A LOCATION WHERE IT IS UNLIKELY TO BE OVERTOPPED. WATER SHOULD FLOW THROUGH SILT FENCE, NOT OVER IT. SILT FENCE BARRIERS FOR AREA INLETS OFTEN FAIL WHEN REPEATEDLY OVERTOPPED. WHEN USED AS A BARRIER FOR AREA INLETS, SILT FENCE FABRIC AND POSTS MUST BE SUPPORTED AT THE TOP BY A WOODEN FRAME. WHEN A SILT FENCE BARRIER FOR AREA INLETS IS LOCATED NEAR AN INLET THAT HAS STEEP APPROACH SLOPES, THE STORAGE CAPACITY BEHIND THE BARRIER IS DRAMATICALLY REDUCED. TIMELY REMOVAL OF SEDIMENT MUST OCCUR FOR A BARRIER TO OPERATE PROPERLY IN THIS LOCATION.

PROPER INSTALLATION METHOD:

EXCAVATE A TRENCH AROUND THE PERIMETER OF THE AREA INLET THAT IS AT LEAST 8" DEEP BY 8" WIDE. DRIVE POSTS TO A DEPTH OF AT LEAST 18" AROUND THE PERIMETER OF THE AREA INLET. THE DISTANCE BETWEEN POSTS SHOULD BE 4' OR LESS. IF THE DISTANCE BETWEEN TWO ADJACENT CORNER POSTS IS MORE THAN 4', ADD ANOTHER POST(S) BETWEEN THEM. CONNECT THE TOPS OF ALL THE POSTS WITH A WOODEN FRAME MADE OF 1" BY 4" BOARDS. USE NAILS OR SCREWS FOR FASTENING. ATTACH THE WIRE OR POLYMERIC-MESH BACKING TO THE OUTSIDE OF THE POST/FRAME STRUCTURE WITH STAPLES, WIRE, ZIP TIES, OR NAILS. ROLL OUT A CONTINUOUS LENGTH OF SILT FENCE FABRIC LONG ENOUGH TO WRAP AROUND THE PERIMETER OF THE AREA INLET. ADD MORE LENGTH FOR OVERLAPPING THE FABRIC JOINT. PLACE THE EDGE OF THE FABRIC IN THE TRENCH, STARTING AT THE OUTSIDE EDGE OF THE TRENCH. LINE ALL THREE SIDES OF THE TRENCH WITH THE FABRIC. BACKFILL OVER THE FABRIC IN THE TRENCH WITH THE EXCAVATED SOIL AND COMPACT. AFTER FILLING THE TRENCH, APPROXIMATELY 24" TO 36" OF SILT FENCE FABRIC SHOULD REMAIN EXPOSED. ATTACH THE SILT FENCE TO THE OUTSIDE OF THE POST/FRAME STRUCTURE WITH STAPLES, WIRE, ZIP TIES, OR NAILS. THE JOINT SHOULD BE OVERLAPPED TO THE NEXT POST.

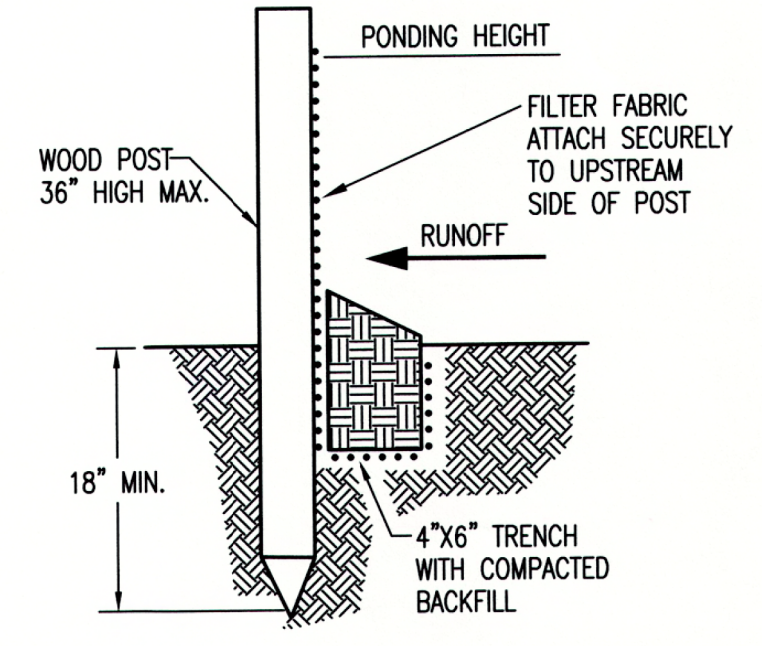
NOTE: WHEN A SILT FENCE BARRIER FOR AREA INLET IS PLACED IN A SHALLOW MEDIAN DITCH, MAKE SURE THAT THE TOP OF THE BARRIER IS NOT HIGHER THAN THE PAVED ROAD. IN THIS CONFIGURATION, WATER MAY SPREAD ONTO THE ROADWAY CAUSING A HAZARDOUS CONDITION.

LIST OF COMMON PLACEMENT/INSTALLATION MISTAKES TO AVOID:

WATER SHOULD FLOW THROUGH A SILT FENCE BARRIER FOR AREA INLET—NOT OVER IT. PLACE A SILT FENCE BARRIER FOR AREA INLET IN A LOCATION WHERE IT IS UNLIKELY TO BE OVERTOPPED. SILT FENCE BARRIER FOR AREA INLETS OFTEN FAIL WHEN REPEATEDLY OVERTOPPED. DO NOT PLACE POSTS ON THE OUTSIDE OF THE SILT FENCE BARRIER FOR AREA INLET. IN THIS CONFIGURATION, THE FORCE OF THE WATER IS NOT RESTRICTED BY THE POSTS, BUT ONLY BY THE STAPLES (WIRE, ZIP TIES, NAILS, ETC.). THE SILT FENCE WILL RIP AND FAIL. DO NOT INSTALL SILT FENCE BARRIER FOR AREA INLETS WITHOUT FRAMING THE TOP OF THE POSTS. THE CORNER POSTS AROUND AREA INLETS ARE STRESSED IN TWO DIRECTIONS WHEREAS A NORMAL SILT FENCE IS ONLY STRESSED IN ONE DIRECTION. THIS ADDED STRESS REQUIRES MORE SUPPORT.

INSPECTION AND MAINTENANCE:

SILT FENCE BARRIER FOR AREA INLETS SHOULD BE INSPECTED EVERY 7 DAYS AND WITHIN 24 HOURS OF A RAINFALL OF 1/2" OR MORE. THE FOLLOWING IS A LIST OF QUESTIONS THAT SHOULD BE ADDRESSED DURING EACH INSPECTION:
 DOES WATER FLOW UNDER THE SILT FENCE?
 DOES THE SILT FENCE SAG EXCESSIVELY?
 HAS THE SILT FENCE TORN OR BECOME DETACHED FROM THE POSTS?
 DOES SEDIMENT NEED TO BE REMOVED FROM BEHIND THE AREA INLET BARRIER?



SILT FENCE BARRIERS

MATERIAL SPECIFICATION:

SILT FENCE FABRIC SHOULD CONFORM TO THE AASHTO M288 96 SILT FENCE SPECIFICATION. THE POSTS USED TO SUPPORT THE SILT FENCE FABRIC SHOULD BE A HARDWOOD MATERIAL WITH THE FOLLOWING MINIMUM DIMENSIONS: 2" SQUARE (NOMINAL) BY 4' LONG. SILT FENCE FABRIC SHOULD BE ATTACHED TO THE WOODEN POSTS WITH STAPLES, WIRE, ZIP TIES, OR NAILS.

PLACEMENT:

A SLOPE BARRIER SHOULD BE USED AT THE TOE OF A SLOPE WHEN A DITCH DOES NOT EXIST. THE SLOPE BARRIER SHOULD BE PLACED ON NEARLY LEVEL GROUND 5' TO 10' AWAY FROM THE TOE OF A SLOPE. THE BARRIER IS PLACED AWAY FROM THE TOE OF THE SLOPE TO PROVIDE ADEQUATE STORAGE FOR SETTLING OUT SEDIMENT. WHEN PRACTICABLE, SILT FENCE SLOPE BARRIERS SHOULD BE PLACED ALONG CONTOURS TO AVOID A CONCENTRATION OF FLOW. SILT FENCE SLOPE BARRIERS CAN ALSO BE PLACED ALONG RIGHT-OF-WAY FENCE LINES TO KEEP SEDIMENT FROM CROSSING ONTO ADJACENT PROPERTY. WHEN PLACED IN THIS MANNER, THE SLOPE BARRIER WILL NOT LIKELY FOLLOW CONTOURS.

PROPER INSTALLATION METHOD:

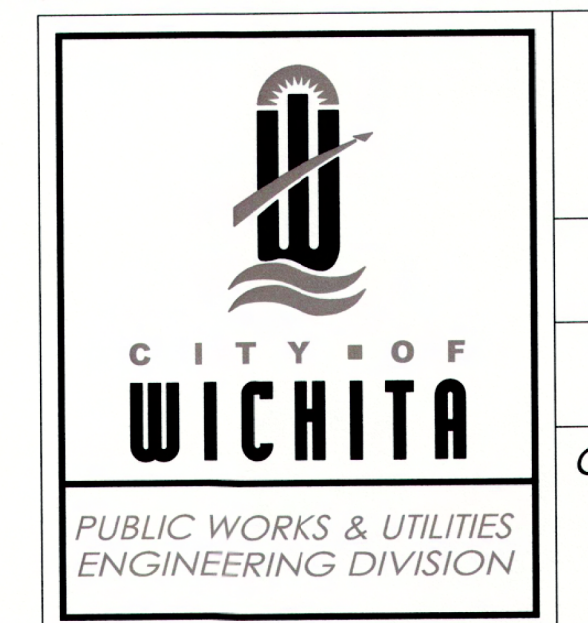
EXCAVATE A TRENCH THE LENGTH OF THE PLANNED SLOPE BARRIER THAT IS 6" DEEP BY 4" WIDE. MAKE SURE THAT THE TRENCH IS EXCAVATED ALONG A SINGLE CONTOUR. WHEN PRACTICABLE, SLOPE BARRIERS SHOULD BE PLACED ALONG CONTOURS TO AVOID A CONCENTRATION OF FLOW. PLACE THE SOIL ON THE UPSLOPE SIDE OF THE TRENCH FOR LATER USE. ROLL OUT A CONTINUOUS LENGTH OF SILT FENCE FABRIC ON THE DOWNSLOPE SIDE OF THE TRENCH. PLACE THE EDGE OF THE FABRIC IN THE TRENCH STARTING AT THE TOP UPSLOPE EDGE. LINE ALL THREE SIDES OF THE TRENCH WITH THE FABRIC. BACKFILL OVER THE FABRIC IN THE TRENCH WITH THE EXCAVATED SOIL AND COMPACT. AFTER FILLING THE TRENCH, APPROXIMATELY 24" TO 36" OF SILT-FENCE FABRIC SHOULD REMAIN EXPOSED. LAY THE EXPOSED SILT FENCE UPSLOPE OF THE TRENCH TO CLEAR AN AREA FOR DRIVING IN THE POSTS. JUST DOWNSLOPE OF THE TRENCH, DRIVE POSTS INTO THE GROUND TO A DEPTH OF AT LEAST 18". PLACE POSTS NO MORE THAN 4' APART. ATTACH THE SILT FENCE TO THE ANCHORED POST WITH STAPLES, WIRE, ZIP TIES, OR NAILS.

LIST OF COMMON PLACEMENT/INSTALLATION MISTAKES TO AVOID:

WHEN PRACTICABLE, DO NOT PLACE SILT FENCE SLOPE BARRIERS ACROSS CONTOURS. SLOPE BARRIERS SHOULD BE PLACED ALONG CONTOURS TO AVOID A CONCENTRATION OF FLOW. WHEN THE FLOW CONCENTRATES, IT OVERTOPS THE BARRIER AND THE SILT FENCE SLOPE BARRIER QUICKLY DETERIORATES. DO NOT PLACE SILT-FENCE POSTS ON THE UPSLOPE SIDE OF THE SILT FENCE FABRIC. IN THIS CONFIGURATION, THE FORCE OF THE WATER IS NOT RESTRICTED BY THE POSTS, BUT ONLY BY THE STAPLES (WIRE, ZIP TIES, NAILS, ETC.). THE SILT FENCE WILL RIP AND FAIL. DO NOT PLACE SILT FENCE SLOPE BARRIERS IN AREAS WITH SHALLOW SOILS UNDERLAIN BY ROCK. IF THE BARRIER IS NOT SUFFICIENTLY ANCHORED, IT WILL WASH OUT. SILT FENCE SLOPE BARRIERS MUST BE DUG INTO THE GROUND—SILT FENCE AT GROUND LEVEL DOES NOT WORK BECAUSE WATER WILL FLOW UNDERNEATH.

INSPECTION AND MAINTENANCE:

SILT FENCE SLOPE BARRIERS SHOULD BE INSPECTED EVERY 7 DAYS AND WITHIN 24 HOURS OF A RAINFALL OF 1/2" OR MORE. THE FOLLOWING IS A LIST OF QUESTIONS THAT SHOULD BE ADDRESSED DURING EACH INSPECTION:
 ARE THERE ANY POINTS ALONG THE SLOPE BARRIER WHERE WATER IS CONCENTRATING?
 DOES WATER FLOW UNDER THE SLOPE BARRIER?
 DO THE SILT FENCES SAG EXCESSIVELY?
 HAS THE SILT FENCE TORN OR BECOME DETACHED FROM THE POSTS?
 DOES SEDIMENT NEED TO BE REMOVED FROM BEHIND THE SLOPE BARRIER?



SILT FENCE DITCH CHECK AND BARRIER DETAILS

CITY ENGINEER
GARY JANZEN, P.E.

PROJECT NUMBER: _____ OCA NUMBER: _____ DATE: _____

CITY ENGINEER'S OFFICE
CITY HALL - SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202-1620
(316) 268-4501

SHEET _____

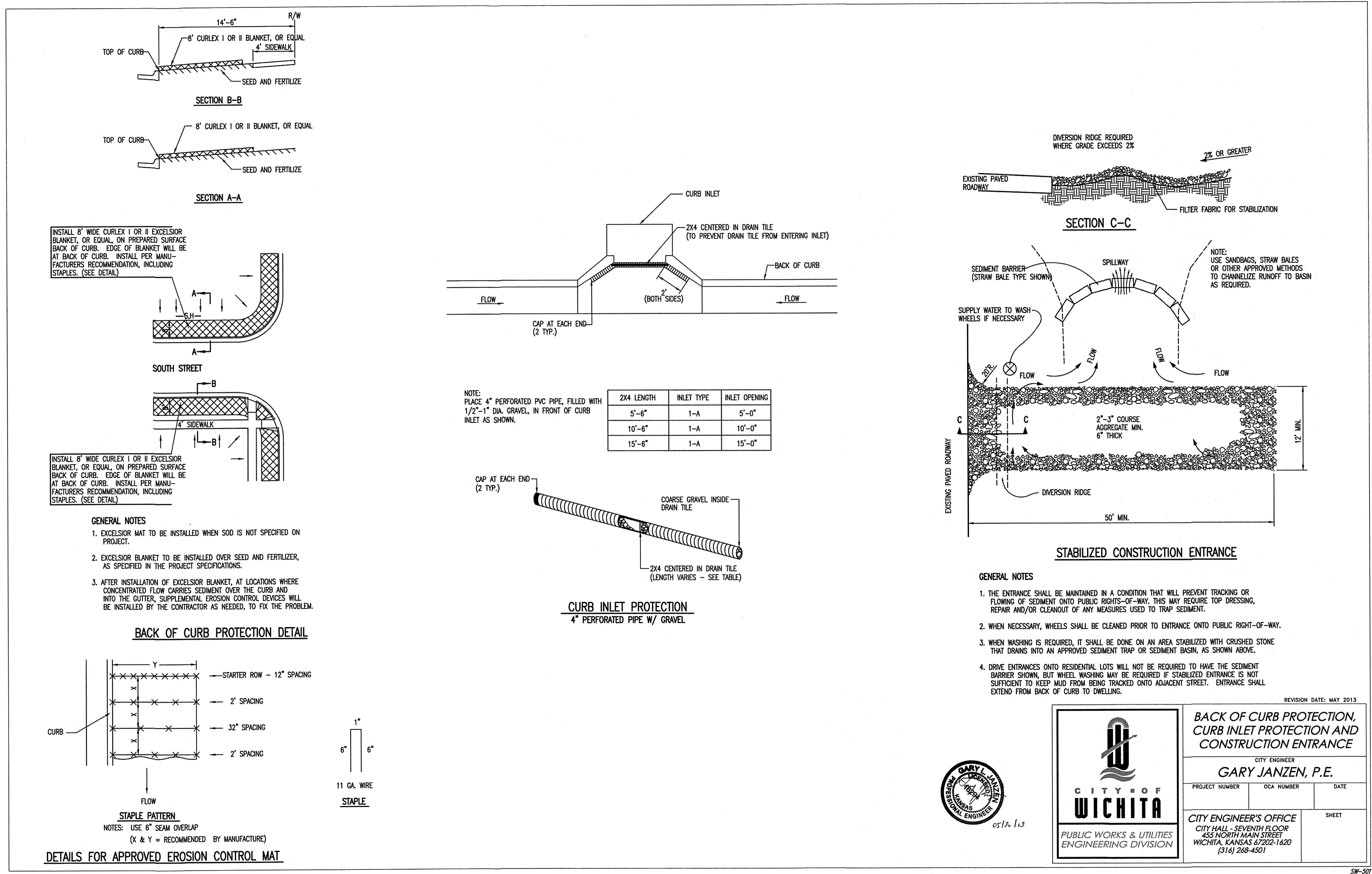
SW-502

NO.	BY	DATE	REVISION
1.	VZ	8/26/14	REVISED FOR PERMIT
	VZ	7/31/14	ORIGINAL SUBMITTAL

Renaissance Infrastructure Consulting
 5015 NW CANAL STREET, SUITE 100
 RIVERSIDE MO, 64150
 816.800.0950
 WWW.RIC-CONSULT.COM

NO.	BY	DATE	REVISION
1.	VZ BY	8/26/14	REVISED FOR PERMIT
	VZ BY	7/23/14	ORIGINAL SUBMITTAL

Renaissance Infrastructure Consulting
 501 E. NW CANAL STREET, SUITE 1000
 RIVERSIDE, MO. 64108
 816.800.0050
 WWW.RIC-CONSULT.COM



10/10/2014 Z:\RIC Design\2014\14-0112 Wichita 1696 Destination\dwg\sign\Sheets\14-0112 Water\14-0112 Water Erosion Details-2.dgn

SW-501