STORM SEWER IMPROVEMENTS
to serve
WICHITA DESTINATION DEVELOPMENT
CITY OF WICHITA, KANSAS

Gary Janzen, P.E., City Engineer
0260 PPD (607861)

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: Shane Price
(316) 261-6315

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

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

City of Wichita Sewer Department
(316) 268-4071

Westar Energy/
Kansas Gas & Electric Company
(800) 482-4950

Aquila Natural Gas
(316) 941-1608
(800) 303- 0357

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)

ONE CALL KANSAS

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

Find out where the underground utility lines might be buried before you dig.

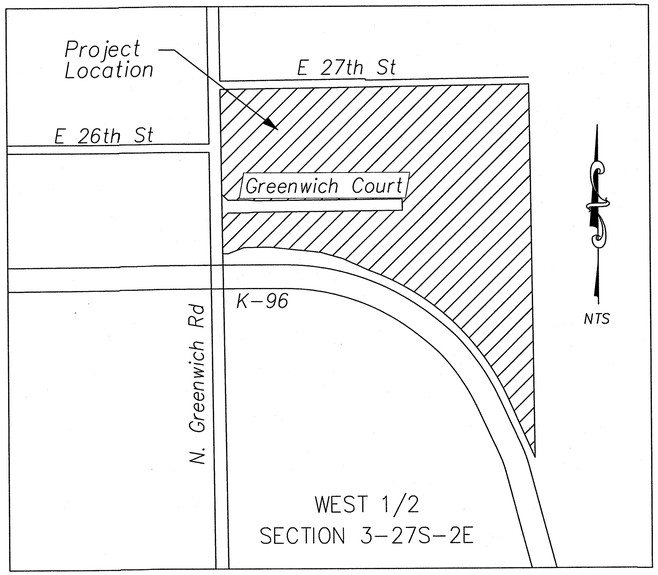
Anyone digging in Kansas must call before digging. The person who is doing the work is responsible for calling KOC. If the owner contracts with a professional excavator to do the excavation then the professional excavator is responsible for calling KOC.

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.

LEGEND

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



LOCATION MAP

GRADING AND LAND DISTURBANCE PLANS
INDEX OF SHEETS

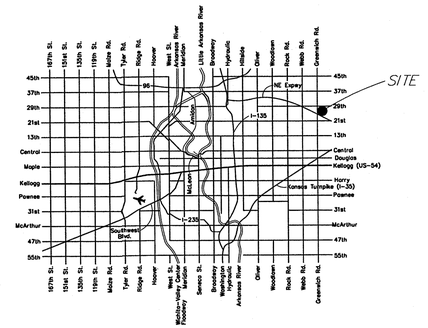
00	Title Sheet
01	General Layout
02	Grading Plan Northwest Site
03	Grading Plan Southwest Site
04	Grading Plan Northeast Site
05	Grading Plan Mid-East Site
06	Grading Plan Southeast Site
07	Erosion Control Plan Pre Construction Western Site Area
08	Erosion Control Plan Pre Construction Eastern Site Area
09	Erosion Control Plan Construction Phase One Western Site Area
10	Erosion Control Plan Construction Phase One Eastern Site Area
11	Erosion Control Plan Phase Two Western Site Area
12	Erosion Control Plan Phase Two Eastern Site Area
13	Erosion Control Plan Phase Three Western Site Area
14	Erosion Control Plan Phase Three Eastern Site Area
15	Drainage Area Map
16	Sediment Basin Plan Basins 1-4 Plan
17	Sediment Basin Plan Basin 5 Plan
18	Erosion and Sediment Control Details
19	Erosion and Sediment Control Details
20	Erosion and Sediment Control Details
21	Sediment Basin Details
22	Sediment Basin Details

AS BUILTS

Contractor: Mies Construction
11/18/2015

Project Inspector: Larry Gann
KEMILLER ENGINEERING PA
117 E. Lewis, Wichita, KS 67202 (316)264-0242

March 2015



INDEX OF SHEETS

1	Title Sheet
Final Plat	Wichita Destination Development Final Plat
2	General Notes & Quantities
3	General Layout
4	Drainage Area Map
5-10	Greenwich Court Storm Sewer Plan & Profile
11-13	8'x3' RCB Bypass System Plan & Profile
14	Proposed 4' Special Ditch
15	Pond Calculations
16-19	Pond Details
20-28	Storm Sewer Special Details
29-36	Standard Details
37	Erosion & Sediment Control
38-39C	Erosion Details

Stormwater Certification:
New Development or Redevelopment

These construction plans were prepared in accordance with the current Stormwater Management Regulations as set forth in the City of Wichita's Stormwater Management Ordinance 16.32 and the policies/guidelines presented in the Wichita/Sedgwick County Stormwater Manual.

Disturbed Area: 4,560,732 sq. ft.
Water Quality Treatment: Detention Pond
Downstream Channel Protection: Detention Pond
Detention:
Outlet structures on this project have staged outlets to meet applicable requirements

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)

APPROVED AS NOTED
BY WICHITA PUBLIC WORKS ENGINEERING
AND STORMWATER DIVISION

Engineering Rebecca Hueil 5/12/2015
Stormwater 05/12/15

NOTE TO CONTRACTORS

Installation, inspection and testing for this project 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 Licensed Professional Engineer 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).

An approved copy of these plans signed by City staff are required on-site.

SHEET
1 of 39

RIC PROJECT NO. 14-0112
WICHITA DESTINATION DEVELOPMENT
GREENWICH COURT DRAINAGE PLANS

Title Sheet

NO.	BY	DATE	REVISION
0.	CD	7/9/2014	ORIGINAL SUBMITTAL
1.	VZ	8/4/2014	UPDATED ACCORDING TO CITY OF WICHITA COMMENTS
2.	VZ	11/18/14	REMOVAL OF ROUNDABOUT & ADDITION OF TEMP CULVERTS
3.	VZ	1/19/15	FINAL PLANS UPDATED FOLLOWING COMMENTS FROM THE CITY
4.	VZ	3/23/15	UPDATED FOLLOWING CITY COMMENTS
5.	VZ	4/23/15	UPDATED DETAILS PER CITY COMMENTS - FINAL FOR CONSTRUCTION

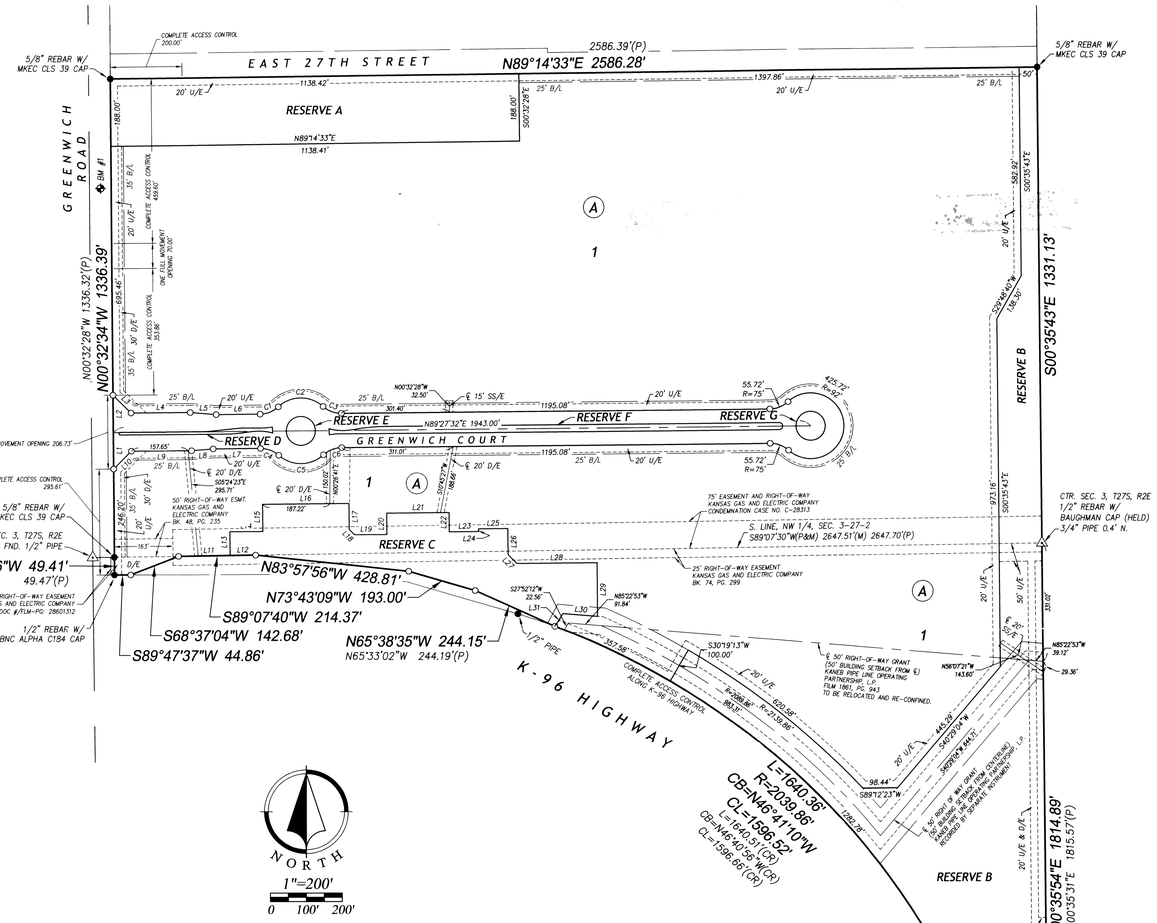
Renaissance Infrastructure Consulting
5015 NW CANAL STREET, SUITE 100
RIVERSIDE MO, 64150
816.800.0950
www.ric-consult.com

WILLIAM T. FORD
LICENSED
19515
4/23/2015
PROFESSIONAL ENGINEER
KANSAS

4/23/2015
Z:\RIC Design\2014\14-0112 Wichita K96 Destination\dwg\dgn\Sheets\14-0112 Public Storm Sewer\New Set 2-20-15\14-0112 Title Sheet.dgn

PC-152 2f

FINAL PLAT
WICHITA DESTINATION DEVELOPMENT
AN ADDITION TO WICHITA, SEDGWICK COUNTY, KANSAS
A REPLAT OF ALL OF K96 AND GREENWICH NORTH ADDITION

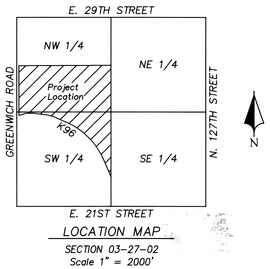


NOTES:

Basis of Bearings: Kansas South Zone, U.S. State Plane, NAD 83.

All bearings and distances shown on this plat are measured unless otherwise noted.

BENCHMARK:
Chiseled square cut, center front face of curb inlet, east side of Greenwich Road, 342'± south of intersection of East 27th Street and Greenwich Road.
Elev.=1377.42 (NAVD 88)



LOCATION MAP
SECTION 03-27-02
Scale 1" = 2000'

Legend:

- △ FOUND SECTION CORNER AS NOTED
- ● FOUND MONUMENT AS NOTED
- ○ SET 1/2" X 24" REBAR WITH RIC KSCLS 234 CAP
- ⊕ BENCHMARK
- U/E UTILITY EASEMENT
- D/E DRAINAGE EASEMENT
- SS/E SANITARY SEWER EASEMENT
- B/L BUILDING SETBACK LINE
- (M) MEASURED
- (P) PLATTED
- L LENGTH OF CURVE
- R RADIUS OF CURVE
- CL CHORD LENGTH
- CB CHORD BEARING

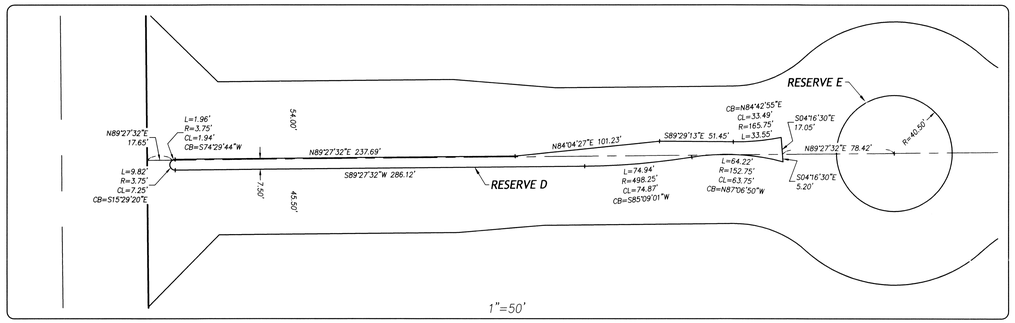
Minimum Pad Elevations	
Lot No.	Elevation
1	1374.50

Line Table		
Line #	Direction	Length
L1	N00°32'34"W	102.36'
L2	N00°32'34"W	104.37'
L3	S45°32'28"E	70.52'
L4	N89°27'32"E	164.25'
L5	S85°22'10"E	72.11'
L6	N89°27'32"E	123.11'
L7	N89°27'32"E	132.38'
L8	N85°09'27"E	60.00'
L9	N89°27'32"E	166.97'
L10	N44°27'32"E	70.51'
L11	S89°07'40"W	143.00'
L12	N89°07'40"E	71.37'
L13	S00°52'20"E	66.14'
L14	N89°27'32"E	92.50'
L15	N00°32'28"W	75.50'
L16	N89°27'32"E	240.41'

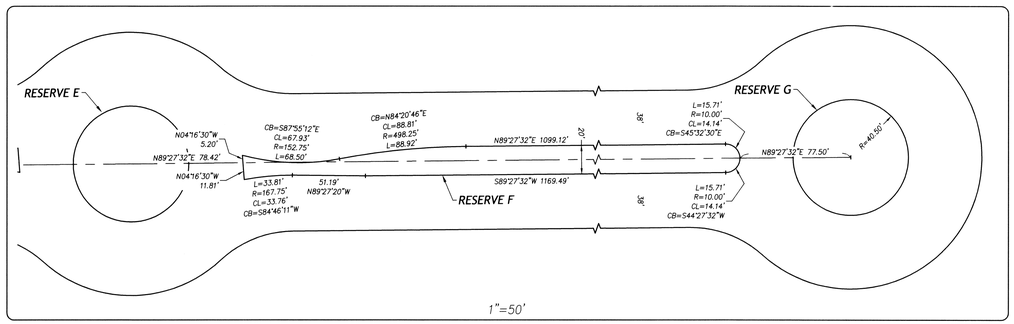
Line Table		
Line #	Direction	Length
L17	S00°32'28"E	72.50'
L18	S45°32'28"E	21.21'
L19	N89°27'32"E	90.00'
L20	N00°32'28"W	59.50'
L21	N89°27'32"E	174.00'
L22	S00°32'28"E	53.50'
L23	N89°27'32"E	81.26'
L24	N00°32'28"W	7.50'
L25	N89°27'32"E	81.24'
L26	S00°32'28"E	72.50'
L27	S45°32'28"E	35.36'
L28	N89°27'32"E	223.00'
L29	S00°32'28"E	150.59'
L30	N85°22'53"W	95.75'
L31	S32°31'45"W	42.36'

Curve Table			
Curve #	Length	Radius	Chord
C1	55.716	75.000	N68°10'38"E 54.44'
C2	136.689	92.000	S89°27'32"W 124.46'
C3	55.716	75.000	S69°15'34"E 54.44'
C4	55.716	75.000	N69°15'34"W 54.44'
C5	136.689	92.000	N89°27'32"E 124.46'
C6	55.716	75.000	S68°10'38"W 54.44'

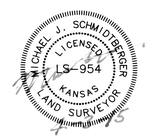
Lot Areas		
Lot #	Sq. Ft.	Ac.
1	3,364,626	77.241
RESERVE A	214,022	4.913
RESERVE B	612,416	14.059
RESERVE C	149,150	3.424
RESERVE D	3,944	0.091
RESERVE E	5,153	0.118
RESERVE F	24,390	0.560
RESERVE G	5,153	0.118



RESERVE D & E DETAIL



RESERVE F & G DETAIL



SHEET 1 OF 1

WICHITA DESTINATION DEVELOPMENT
14-0112

Prepared For:
Wichita Destination Developers, Inc.
1707 N. Waterfront Parkway
Wichita, KS 67206
(316) 685-5341

Date of Preparation:
May 28, 2014

Renaissance Infrastructure Consulting
1138 W. Cambridge Circle Drive
Kansas City, Kansas 66103
913.317.9500
www.ric-consult.com

PC 251-9B

FINAL PLAT
WICHITA DESTINATION DEVELOPMENT
AN ADDITION TO WICHITA, SEDGWICK COUNTY, KANSAS
A REPLAT OF ALL OF K96 AND GREENWICH NORTH ADDITION

CERTIFICATE OF SURVEY

I, Michael J. Schmidtberger, a registered land surveyor in Kansas, do hereby certify that I have been in responsible charge of surveying and platting of "WICHITA DESTINATION DEVELOPMENT" an addition to Wichita, Sedgwick County, Kansas, into Lots, Reserves and Streets the same being accurately set forth in the accompanying plat and described herein:

A replat of all of Lots 1 thru 7 inclusive, Block 1, Lots 1 thru 8 inclusive, Block 2, Reserves A, B, C, D, E, F and G, K96 AND GREENWICH NORTH ADDITION, an addition to Wichita, Sedgwick County, Kansas, together with WOODSPRING ST, WOODSPRING CIR., and BOULDER DR. platted rights-of way.

All lots, blocks, streets, easements, setbacks, and access controls, together with all other public dedications or rights-of-way within the above described property are hereby vacated and replatted by virtue of K.S.A. 12-512b, as amended.

I hereby certify that the details of this plat are correct to the best of my knowledge and belief this 3rd day of April 2015.

MICHAEL J. SCHMIDTBERGER LICENSED LS-954 KANSAS LAND SURVEYOR

Michael Schmidtberger, Kansas LS-954
Renaissance Infrastructure Consulting
1138 W. Cambridge Circle Drive
Kansas City, Kansas 66103

OWNER'S CERTIFICATE

Know all men by these presents that we the undersigned property owner of the land above set forth in the Registered Land Surveyor's Certificate, has caused the same to be surveyed and platted into Lots, Blocks, Reserves, and Streets the same to be known as "WICHITA DESTINATION DEVELOPMENT," a replat K96 AND GREENWICH NORTH ADDITION, an addition to Wichita, Sedgwick County, Kansas.

This plat shall conform to the recitals of CUP DP-333.

Easements for the construction and maintenance of public utilities, drainage and sanitary sewer, as indicated on the accompanying plat are hereby granted to the public.

All streets are hereby dedicated to and for the use of the public.

A drainage plan has been developed for this plat. All drainage easements, rights-of-way, or reserves shall remain at established grades or as modified with the approval of the applicable City or County Engineer, and unobstructed to allow for the conveyance of stormwater.

All abutters rights of access to or from Greenwich Road, over and across the west line of "WICHITA DESTINATION DEVELOPMENT", are hereby granted to the appropriate governing body as indicated hereon. All abutters rights of access to or from Kansas Highway 96, over and across the south line of "WICHITA DESTINATION DEVELOPMENT", are hereby granted to the appropriate governing body as indicated hereon. Access controls are dedicated to and for the use of the public.

Lot 1, Block A, is required to adhere to the minimum pad elevation as shown on the "Minimum Pad Elevations" table.

Reserves "A", "B", "C", "D", "E", "F", and "G" are platted for monuments, signs, landscaping, berming, sidewalks, irrigation, open space, pavement, utilities confined by easements, and walls provided that they do not inhibit the conveyance of surface drainage. Reserves "A", "B", "C" are also platted for drainage, drives, and parking. Reserves "D", "E", "F" and "G" shall allow for public access across said reserves, at various locations for driveways, as approved by the City Engineer. The Reserves shall be owned and maintained by the Lot owner's association, provided however, that the undersigned or Lot owner's association as the undersigned successors in interest may, at its discretion deed parcels of said Reserves "A", "B", and "C" to an owner (s) of an adjoining lot subject to the obligation to maintain such deeded parcel in compliance with the provisions hereof and in compliance with the maintenance covenants of any applicable restrictive covenants or regulations.

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

Aaron Ryan, Manager

STATE OF KANSAS)
) SS
COUNTY OF SEDGWICK)

This instrument was acknowledged before me on 9th day of April, 2015, by Aaron Ryan, Manager, Medical Practice Association Properties, LLC, a Kansas Limited Liability Company.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal; the day and year last above written.

CAROL M SCHULZE NOTARY PUBLIC STATE OF KANSAS My Appt Exp 5/5/2017

Carol M. Schulze, Notary Public
Notary Public: Carol M. Schulze
My Term Expires: May 5, 2017

Wichita Destination Developers, Inc., a Kansas Corporation

Michael J. Boyd, President

STATE OF KANSAS)
) SS
COUNTY OF SEDGWICK)

This instrument was acknowledged before me on 8th day of APRIL, 2015, by, Michael J. Boyd, President, Wichita Destination Developers, Inc., a Kansas Corporation.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal; the day and year last above written.

RUTH A GLAZE NOTARY PUBLIC STATE OF KANSAS My Appt Exp: 12-24-16

, Notary Public Ruth A. Glaze
Notary Public:
My Term Expires: 12-24-16

WDDMBB, LLC, a Kansas limited liability company

Michael J. Boyd, President

STATE OF KANSAS)
) SS
COUNTY OF SEDGWICK)

This instrument was acknowledged before me on 8th day of April, 2015, by, Michael J. Boyd, President, WDDMBB, LLC, a Kansas limited liability company.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal; the day and year last above written.

RUTH A GLAZE NOTARY PUBLIC STATE OF KANSAS My Appt Exp: 12-24-16

, Notary Public Ruth A Glaze
Notary Public:
My Term Expires: 12-24-16

PLANNING COMMISSION CERTIFICATE

STATE OF KANSAS)
) SS
CITY OF WICHITA)

This plat of "WICHITA DESTINATION DEVELOPMENT" has been submitted to and approved by the Wichita-Sedgwick County Metropolitan Area Planning Commission, Wichita, Kansas.

Dated this 24 day of July, 2014

WICHITA-SEDGWICK COUNTY METROPOLITAN AREA PLANNING COMMISSION

, Chairman
~~Don Klausmeyer~~ Matthew J. Goolsby

, Secretary
John L. Schlegel

SEAL

GOVERNING BODY CERTIFICATE

STATE OF KANSAS)
) SS
CITY OF WICHITA)

The dedications shown on this plat are hereby accepted and this plat is hereby approved by the governing body of the City of Wichita, Kansas.

Dated this 12 day of May, 2015 ~~2014~~

At the direction of the City Council;

, Mayor
~~Carl Brewer~~ Jeff Longwell

, City Clerk
Karen Sublett

TRANSFER RECORD

Entered on transfer record this 5th day of June, 2015

, County Clerk
Kelly B. Arnold

CLERK OF SEDGWICK COUNTY SEDGWICK COUNTY KANSAS

REGISTER OF DEEDS CERTIFICATE

STATE OF KANSAS)
) SS
COUNTY OF SEDGWICK)

This is to certify that this instrument was filed for record in the Register of Deeds office this 5th day of June, 2015 at 9:02:37 o'clock A.M; and is duly recorded.

, Register of Deeds
Bill Meek

, Deputy
Tonya E. Buckingham

Sedgwick County Register of Deeds - Bill Meek
Doc.#/Flm-Pg: 29531226
Receipt #: 1936855 Recording Fee: $48.00
Pages Recorded: 2
Cashier: jpagel Authorized By:
Date Recorded: 06/05/2015 09:02:37 AM

COUNTY SURVEYOR

Reviewed in accordance with K.S.A. 58-2005 this _____ day of _____, 2014.

TRICIA L. ROBELLO LS-1246 SURVEYOR

Tricia L. Robello, LS #1246
Deputy County Surveyor
Sedgwick County, Kansas

WICHITA DESTINATION DEVELOPMENT 14-0112

Prepared For:
Wichita Destination Developers, Inc.
1707 N. Waterfront Parkway
Wichita, KS 67206
(316) 685-5341

Date of Preparation:
May 28, 2014

Renaissance Infrastructure Consulting
1138 W. Cambridge Circle Drive
Kansas City, Kansas 66103
913.317.9500
WWW.RIC-CONSULT.COM

GENERAL NOTES:

1. The Contractor shall comply with all applicable safety regulations. All construction shall be completed following current City Standard Specifications and Special Provisions.

2. Contractor will be required to provide notice to utility companies a minimum of seventy-two (72) hours prior to any excavation, as follows:

Kansas One-Call	1-316-687-2470

The Contractor must notify the following in case of an emergency:

AT&T	1-800-246-8464
Black Hills Energy	1-800-694-8989
City of Wichita Water	1-316-268-4555
City of Wichita Sewer	1-316-268-4073
City of Wichita Stormwater	1-316-268-4090
City of Wichita Traffic	1-316-268-4034
Cox Communications	1-888-249-3530
Kansas Gas Service	1-888-482-4950
Westar Energy	1-800-544-4857

3. Utility service lines, poles, etc. are to be adjusted as necessary by others prior to construction unless the plans specifically call for their adjustment by the Contractor or unless the plans specifically identify a utility to be adjusted by its owner during construction. Existing utilities and their location, as shown on the plans, represent the best information obtainable for design. The Contractor will be required to work around existing utilities within the right-of-way which do not conflict with proposed construction.

4. Rubble from the removal of miscellaneous structures and excess excavation which is to be wasted shall be disposed of on sites to be provided by the Contractor. These sites shall be approved by the Engineer as to suitability, appearance and site location. Locations, in the opinion of the Engineer, that will leave an unsightly appearance will not be approved.. All disposal sites must be approved by the Kansas Department of Health and Environment. Material either stockpiled or disposed of in a flood plain would require a Kansas State Board of Agriculture permit. Any material buried or stockpiled beyond approved construction limits would require additional archeological investigations unless buried in a previously approved borrow location.

5. Trees and shrubs in public right-of-way which are in direct conflict with proposed new construction shall be removed by the Contractor with the Engineer's approval. Trees and shrubs which are not in direct conflict with proposed new construction shall be saved and protected from damage.

6. The Contractor shall give all property owners and/or tenants of developed property abutting the construction of this project a minimum of ten (10) days notice prior to start of construction.

7. 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 his construction operations. Such irons shall be re-established by a licensed land surveyor in accordance with state laws.

8. The Water Distribution Division shall field locate water valves one time during construction when requested by the Contractor. It shall be the Contractor's responsibility to preserve such field locations during the construction process. Water valves, valve boxes or fire hydrants damaged during construction shall be repaired by Contractor at his own expense. Valves boxes and water meters within the project limits shall be adjusted to match field grades.

9. The Contractor shall notify the consultant engineer and Tom Mason with the City at 316-268-4574 with the anticipated construction start date and notify them of project completion. Staking and inspection for this project will be the responsibility of the Contractor.

10. If traffic is impacted by construction, a traffic control plan must be submitted and approved by the City Traffic Engineer, Brian Coon at traffic@wichita.gov before construction can begin. The Contractor shall be responsible for all traffic control measures to facilitate construction. All construction zone markings and signage shall conform to the latest version of the Manual on Uniform Traffic Control Devices (MUTCD) as published by the US Dept. of Transportation, Federal Highway Administration. All costs associated with construction markings and signage shall be the Contractors responsibility.

11. All elevations shown are U.S.G.S. Datum (NAVD 88).

12. All areas disturbed during construction that will not be under proposed pavement shall be restored to match existing conditions.

13. A portion of excess excavated material shall be mounded around manholes which extend more than one (1) foot above the existing ground. Such mound shall be constructed with new development a six (6) foot diameter flat top with 4 to 1 side slopes down to the original ground. The elevation of the flat top of the mound shall be 0.4 foot below the top of the manhole.

14. Geotechnical report available upon request.

15. Contractor shall limit the extent of trench openings overnight and weekends to less than 50 feet.

16. Contractor shall provide positive drainage away from all manhole covers.

17. City maintenance of storm sewer ends at right-of-way or easement line.

18. Any sidewalk, drive approach, or street pavement removed to construct project must have a pavement cut permit and be replaced by the City contractor. Permits can be obtained by calling 316-268-4501 or 316-268-4480.

19. The inspection firm shall submit to the City Stormwater Maintenance Division a digital copy of the CCTV inspection of the conduits and structures following construction. The digital file formation shall be compatible with the City input template. A copy of the template is available upon request at 316-268-4090.

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

ROADWAY BASELINE TABLE		
STATION	NORTHING	EASTING
10+00.00	1,702,585.65	1,685,981.12
27+00.00	1,702,601.71	1,687,681.04

BYPASS SYSTEM BASELINE TABLE		
STATION	NORTHING	EASTING
10+00.00	1,702,195.11	1,686,276.87
10+20.51	1,702,215.46	1,686,279.42
10+87.48	1,702,214.82	1,686,212.45
11+23.48	1,702,214.48	1,686,176.45
12+26.22	1,702,213.51	1,686,073.72
12+39.22	1,702,222.59	1,686,064.42
15+06.41	1,702,489.77	1,686,061.89
15+34.70	1,702,509.96	1,686,081.70
16+89.98	1,702,665.23	1,686,080.24
17+18.26	1,702,685.04	1,686,060.05
24+29.05	1,703,395.81	1,686,053.34
24+64.73	1,703,421.27	1,686,078.32

STORM SYSTEM LINE A		
STATION	NORTHING	EASTING
0+00.00	1,702,337.66	1,686,947.70
0+45.20	1,702,382.07	1,686,956.13
0+48.20	1,702,385.02	1,686,956.68
0+51.20	1,702,387.96	1,686,957.24
2+19.10	1,702,552.92	1,686,988.59
2+21.10	1,702,554.92	1,686,988.57
2+23.60	1,702,554.94	1,686,991.07
4+80.18	1,702,557.36	1,687,247.64
4+82.18	1,702,557.38	1,687,249.64
4+84.18	1,702,557.40	1,687,251.64
7+40.76	1,702,559.82	1,687,508.21
7+43.26	1,702,559.85	1,687,510.71
7+45.26	1,702,561.85	1,687,510.69
8+21.77	1,702,638.35	1,687,510.42
8+23.77	1,702,640.35	1,687,510.40

STORM SYSTEM LINE B		
STATION	NORTHING	EASTING
0+00.00	1,702,556.92	1,686,988.55
0+76.50	1,702,633.42	1,686,988.42
0+78.50	1,702,635.42	1,686,988.40

STORM SYSTEM LINE C		
STATION	NORTHING	EASTING
0+00.00	1,702,368.90	1,686,643.75
0+31.41	1,702,400.31	1,686,643.76
0+34.41	1,702,403.31	1,686,643.76
0+37.41	1,702,406.31	1,686,643.78
1+76.41	1702545.303	1686644.994
1+78.41	1702547.2	1686644.361
1+80.41	1702549.097	1686643.727
2+62.70	1702631.389	1686643.692
2+64.70	1702633.231	1686644.469

6.

Drainage Quantities			
Item	Quantity	Unit	Comments
15 inch RCP	397	LF	*Note: All storm pipes shall be Reinforced Concrete Pipes (RCP), Class 3 Wall B O-Ring Pipe
18 inch RCP	73	LF	
30 inch RCP	153	LF	
36 inch RCP	193	LF	
42 inch RCP	353	LF	
48 inch RCP	214	LF	
24 inch x 38 inch Elliptical RCP	282	LF	
19 inch x 30 inch Elliptical RCP	216	LF	
42 inch RCP Flared End Section	3	EA	
Type 1 5'x3' Curb Inlet	1	EA	
Type 1 5'x4' Curb Inlet	5	EA	
Type 1 5'x5' Curb Inlet	1	EA	
Type 1 10'x4' Curb Inlet	2	EA	
6.5'x4' Reinforced Concrete Manhole	1	EA	
Special Type 1 6'x4' Curb Inlet	1	EA	
Special Type 1 6'x6' Curb Inlet	1	EA	
Special Type 2 Curb Inlet Double/Line	1	EA	
4' Diameter Manhole	10	EA	
6' Diameter Manhole	1	EA	
8'x3' Reinforced Concrete Box	1341	LF	
8' x 3' x 45° Bend	7	EA	*ASTM C-850
8'x3' RCB Outlet (Concrete Wingwalls)	35	CY	
Pond Outlet Structures	5	EA	Concrete outlet on KDOT R/W
KDOT Woven Wire Type B Fence	357	LF	
KDOT Concrete Ditch Lining	500	SY	
KDOT Light 18" Stone	2,000	SY	
Sediment Fence	3,151	LF	
Curb Inlet Protection	12	EA	
Pavement Underdrain	1,200	LF	

STORM SYSTEM LINE D		
STATION	NORTHING	EASTING
0+00.00	1,702,550.99	1,686,247.84
0+02.50	1,702,551.02	1,686,250.34
1+40.57	1,702,552.84	1,686,388.40
1+43.07	1,702,553.04	1,686,390.89
1+45.57	1702553.231	1686393.385
2+32.56	1702548.627	1686480.248
2+35.56	1702547.416	1686482.992
2+38.56	1702550.161	1686484.203
3+22.20	1702633.801	1686484.155
3+24.20	1702635.685	1686483.485

STORM SYSTEM LINE E		
STATION	NORTHING	EASTING
0+00.00	1,702,555.53	1,686,390.70
0+72.45	1,702,627.98	1,686,390.75
0+74.45	1,702,629.98	1,686,390.79

STORM SYSTEM LINE F		
STATION	NORTHING	EASTING
0+00.00	1702215.458	1686279.423
0+14.11	1702229.505	1686278.094
3+35.03	1702548.994	1686247.856
3+37.03	1702550.994	1686247.837
3+39.03	1702552.994	1686247.818
4+15.03	1702628.998	1686247.837
4+16.53	1702630.498	1686247.823

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 NAVD88

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 NAVD88

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 NAVD88

SHEET 2 of 39

RIC PROJECT NO. 14-0112
WICHITA DESTINATION DEVELOPMENT
GREENWICH COURT DRAINAGE PLANS

GENERAL NOTES AND QUANTITIES

NO.	BY	DATE	REVISION
6.	VZ	6/24/15	UPDATED QTY'S FOR PRIVATE DEVELOPMENT REVISIONS
5.	VZ	4/23/15	UPDATED GENERAL NOTES PER CITY COMMENTS
4.	VZ	3/31/15	UPDATED FOLLOWING CITY COMMENTS
3.	VZ	1/19/15	FINAL PLANS UPDATED FOLLOWING COMMENTS FROM THE CITY
2.	VZ	11/19/14	REMOVAL OF ROUNDABOUT & ADDITION OF TEMP CULVERTS
1.	VZ	8/4/2014	UPDATED ACCORDING TO CITY OF WICHITA COMMENTS
	VRK	7/30/2014	ORIGINAL SUBMITTAL

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

CURTIS R. TALCOTT LICENSED PROFESSIONAL ENGINEER KANSAS 16174 6/24/15

6/24/2015
Z:\RIC Design\2014\14-0112 Wichita I96 Destination\dwg\dgn\Sheets\14-0112 Public Storm Sewer\New Set 2-20-15\14-0112 1 Strom General Notes & Quantities.dgn

RIC PROJECT NO. 14-0112
WICHITA DESTINATION DEVELOPMENT

GREENWICH COURT DRAINAGE PLANS

Storm Sewer
General Layout

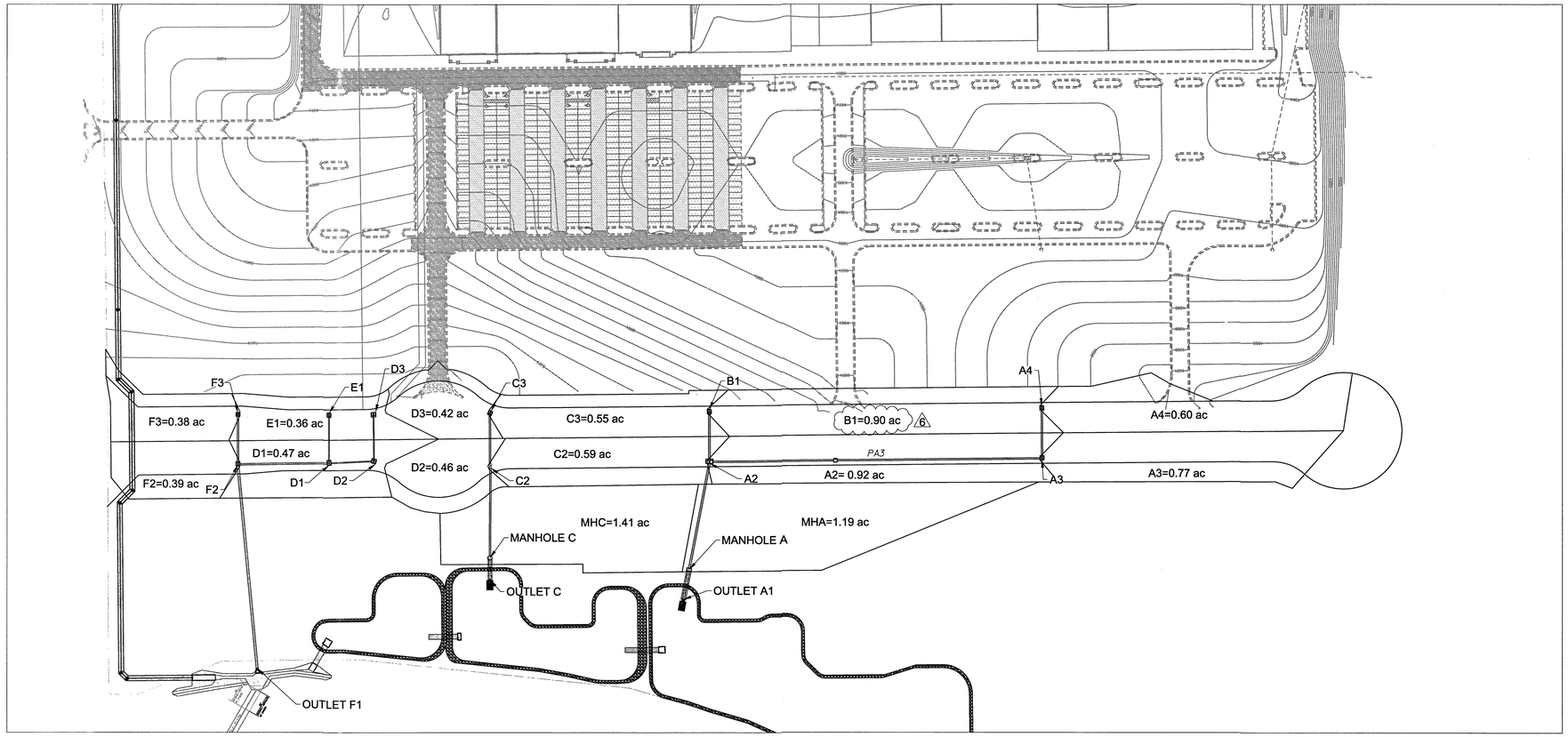
TBM 1
PROPOSED 8' x 3' RCB
Project BM
N. GREENWICH ROAD
TBM 3
PROPOSED STORM SEWER LINE F
EXISTING 2 - 6'x3' RCB
PRIVATE STORM SYSTEM BY OTHERS
PROPOSED STORM SEWER LINE E
PROPOSED STORM SEWER LINE D
PRIVATE STORM SYSTEM BY OTHERS
PROPOSED STORM SEWER LINE C
FUTURE ENTRANCE FOR PRIVATE DEVELOPMENT BY OTHERS
TBM 2
PRIVATE STORM SYSTEM BY OTHERS
PROPOSED STORM SEWER LINE B
K-96
27th STREET
PROPOSED PRIVATE DEVELOPMENT BY OTHERS
PRIVATE STORM SYSTEM BY OTHERS
PROPOSED STORM SEWER LINE A
FUTURE ENTRANCE FOR PRIVATE DEVELOPMENT BY OTHERS
GREENWICH COURT
END OF PROPOSED IMPROVEMENTS
ROADWAY PHASE 2
FUTURE ENTRANCE FOR PRIVATE DEVELOPMENT BY OTHERS
NORTH
100 0 100 200 300
SCALE: 1"=100'

NO.	BY	DATE	REVISION
6.	VZ	TC	6/24/15	UPDATED FOR PRIVATE DEVELOPMENT REVISIONS
4.	VZ	BY	3/31/15	UPDATED FOLLOWING CITY COMMENTS
3.	VZ	BY	1/19/15	FINAL PLANS UPDATED FOLLOWING COMMENTS FROM THE CITY
2.	VZ	BY	11/18/14	REMOVAL OF ROUNDABOUT & ADDITION OF TEMP CULVERTS
1.	VZ	BY	8/4/2014	UPDATED ACCORDING TO CITY OF WICHITA COMMENTS
	VZ	BY	7/3/2014	ORIGINAL SUBMITTAL

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15774
6-24-15
KANSAS
PROFESSIONAL ENGINEER

6/24/2015
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HYDRAULICS CALCULATIONS

CI - CURB INLET DI - DROP INLET
GI - GRATE INLET ES - END SECTION
FI - FIELD INLET RCMH - REINFORCED CONCRETE MANHOLE
JB - JUNCTION BOX MH - MANHOLE

	5 Year Intensity Constants			100 Year Intensity Constants		
	"a"	"b"	"m"	"a"	"b"	"m"
	31.881	4.67	0.6817	34.955	2.35	0.5721

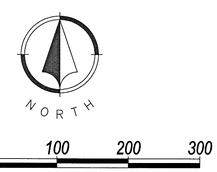
Structure Information				ACCUMULATIVE HYDROLOGY											PIPE CALCULATIONS							
Description	Structure Number	Type	Incremental Area	Accumulated Area	Runoff Coefficient C	(C x A)	Accumulated CxA	Inlet Time	Travel Time	Time to Concentration T_c	Frequency Factor	5 Year I (in/hr)	100 Year I (in/hr)	5 Year Q_A (cfs)	100 Year Q_A (cfs)	Pipe Length (ft.)	Pipe Slope %	Pipe Diameter	Pipe Capacity	Velocity of Water in Pipe	Upper Invert Elevation	Lower Invert Elevation	REMARKS
Line A/B																							
	P-A4	15" RCP	0.60	0.60	0.84	0.50	0.50	15.00	0.00	15.00	1.00	4.18	6.83	1.8	3.4	76.50	1.62	15.00	8.2	6.7	1382.94	1381.70	
	P-A3	15" RCP	0.77	1.37	0.84	0.65	1.15	15.00	0.19	15.19	1.00	4.16	6.79	4.0	7.8	319.30	1.78	15.00	8.6	7.0	1381.50	1375.81	
Drainage area accounts for future inflow from development north of Greenwich Court	P-A2.5	36" RCP	9.01	10.38	0.90	8.11	9.26	0.00	0.76	17.20	1.00	3.89	6.38	34.3	59.1	192.67	0.81	36.00	60.0	8.5	1374.06	1372.50	
	P-A2	48" RCP	3.01	13.39	0.85	2.56	11.82	15.00	0.38	17.58	1.00	3.85	6.31	42.8	74.6	167.90	1.20	48.00	157.6	12.5	1371.75	1369.73	
Drainage area accounts for future inflow from development south of Greenwich Court	P-MHA	48" RCP	1.19	14.58	0.90	1.07	12.89	15.00	0.22	17.80	1.00	3.82	6.27	46.5	80.8	45.20	1.62	48.00	182.8	14.6	1369.73	1369.00	
Drainage area accounts for future inflow from development north of Greenwich Court	P-B1	30" RCP	2.09	2.09	0.88	1.83	1.83	15.00	0.00	15.00	1.00	4.18	6.83	7.0	12.5	76.50	1.19	30.00	44.7	9.1	1372.68	1371.97	
Line C																							6
	P-C3	30"x19" Elliptical RCP	0.55	0.55	0.84	0.46	0.46	15.00	0.00	15.00	1.00	4.18	6.83	1.6	3.2	79.99	0.60	24.00	17.5	5.6	1369.65	1369.17	30"x19" Elliptical RCP equivalent circular diameter = 24"
	P-C2	38"x24" Elliptical RCP	0.59	1.14	0.84	0.50	0.96	15.00	0.24	15.24	1.00	4.15	6.78	3.4	6.5	143.20	0.71	30.00	34.6	7.0	1369.17	1368.15	38"x24" Elliptical RCP equivalent circular diameter = 30"
Drainage area accounts for future inflow from development north & south of Greenwich Court	P-MHC	42" RCP	5.01	6.15	0.89	4.45	5.41	15.00	0.34	17.50	1.00	3.86	6.32	19.9	34.2	31.41	0.48	42.00	69.7	7.2	1368.15	1368.00	
Line D/E/F																							6
Drainage area accounts for future inflow from development north of Greenwich Court	P-D3	30"x19" Elliptical RCP	2.37	2.37	0.89	2.11	2.11	15.00	0.00	15.60	1.00	4.10	6.70	8.2	14.1	71.24	0.49	24.00	15.8	4.3	1367.64	1367.29	30"x19" Elliptical RCP equivalent circular diameter = 24"
	P-D2	30"x19" Elliptical RCP	0.46	2.83	0.84	0.39	2.50	15.00	0.28	15.88	1.00	4.06	6.64	9.4	16.6	64.74	0.54	24.00	17.2	4.5	1367.29	1366.94	30"x19" Elliptical RCP equivalent circular diameter = 24"
	P-D1	30" RCP	0.47	3.66	0.84	0.39	3.19	15.00	0.24	16.12	1.00	4.03	6.59	11.7	21.1	138.07	0.20	30.00	18.8	3.2	1366.94	1366.66	
Drainage area accounts for future inflow from development north of Greenwich Court	P-F3	30" RCP	3.85	3.85	0.89	3.44	3.44	15.00	0.00	15.10	1.00	4.17	6.81	13.6	23.4	76.00	0.61	30.00	32.0	6.5	1367.46	1367.00	
Drainage area accounts for future inflow from development south of Greenwich Court	P-F2	42" RCP	0.39	7.90	0.84	0.33	6.96	15.00	0.19	16.10	1.00	4.03	6.60	26.0	45.9	320.93	0.23	42.00	48.6	5.1	1366.45	1365.70	
	P-E1	18" RCP	0.36	0.36	0.84	0.30	0.30	15.00	0.00	15.00	1.00	4.18	6.83	1.1	2.1	72.45	0.32	18.00	5.9	3.4	1367.61	1367.38	

HYDROLOGY CALCULATIONS

CI - CURB INLET DI - DROP INLET
GI - GRATE INLET ES - END SECTION
FI - FIELD INLET RCMH - REINFORCED CONCRETE MANHOLE
JB - JUNCTION BOX MH - MANHOLE

	5 Year Intensity Constants			100 Year Intensity Constants		
	"a"	"b"	"m"	"a"	"b"	"m"
	31.881	4.67	0.6817	34.955	2.35	0.5721

Structure Information			Area (ac.) A	Runoff Coefficient C		Runoff Coefficient C		Time to Concentration T_c	5 Year T_c/k	100 Year T_c/k	K	5 Year I (in/hr)	100 Year I (in/hr)	5 Year Q_A (cfs)	100 Year Q_A (cfs)	Gutter Flow Upstream Bypass	Total Flow	Remarks
Description	Structure Number	Structure Type		5 Year		100 Year												
Line A-E	A4	CI	0.60	0.71		0.84		15.00	0.43	0.50	1.00	4.18	6.83	1.8	2.9		2.9	
	A3	CI	0.77	0.71		0.84		15.00	0.55	0.65	1.00	4.18	6.83	2.3	3.7		3.7	
Drainage area accounts for future inflow from development north of Greenwich Court	A2.5	RCMH	9.01	0.86		0.9		15.00	7.75	8.11	1.00	4.18	6.83	32.4	52.9		52.9	
	A2	CI	0.92	0.71		0.84		15.00	0.65	0.77	1.00	4.18	6.83	2.7	4.5		4.5	
Drainage area accounts for future inflow from development north of Greenwich Court	B1	CI	2.09	0.71		0.84		15.00	1.49	1.76	1.00	4.18	6.83	6.2	10.1		10.1	
Drainage area accounts for future inflow from development south of Greenwich Court	MHA	RCMH	1.19	0.87		0.9		15.00	1.04	1.07	1.00	4.18	6.83	4.3	7.1		7.1	
	A1	ES	--	--		--		--	--	--	--	--	--	--	--		--	
Line C																		
	C3	CI	0.55	0.71		0.84		15.00	0.39	0.46	1.00	4.18	6.83	1.6	2.7		2.7	
Drainage area accounts for future inflow from development south of Greenwich Court	C2	CI	0.59	0.71		0.84		15.00	0.42	0.50	1.00	4.18	6.83	1.8	2.9		2.9	
	MHC	MH	1.41	0.87		0.9		15.00	1.23	1.27	1.00	4.18	6.83	5.1	8.4		8.4	
	C1	ES	--	--		--		--	--	--	--	--	--	--	--		--	
Line D/E/F																		
Drainage area accounts for future inflow from development north of Greenwich Court	D3	CI	2.37	0.71		0.84		15.00	1.68	1.99	1.00	4.18	6.83	7.0	11.5		11.5	
	D2	CI	0.46	0.71		0.84		15.00	0.33	0.39	1.00	4.18	6.83	1.4	2.2		2.2	
	D1	CI	0.47	0.71		0.84		15.00	0.33	0.39	1.00	4.18	6.83	1.4	2.3		2.3	
	E1	CI	0.36	0.71		0.84		15.00	0.26	0.30	1.00	4.18	6.83	1.1	1.7		1.7	
Drainage area accounts for future inflow from development north of Greenwich Court	F3	CI	3.85	0.71		0.84		15.00	2.73	3.23	1.00	4.18	6.83	11.4	18.7		18.7	
	F2	CI	0.39	0.71		0.84		15.00	0.28	0.33	1.00	4.18	6.83	1.2	1.9		1.9	
	F1	ES	--	--		--		--	--	--	--	--	--	--	--		--	



100 0 100 200 300

SCALE: 1"=100'

SHEET 4 of 39

RIC PROJECT NO. 14-0112
WICHITA DESTINATION DEVELOPMENT
GREENWICH COURT DRAINAGE PLANS

DRAINAGE AREA MAP & DRAINAGE DATA SHEET

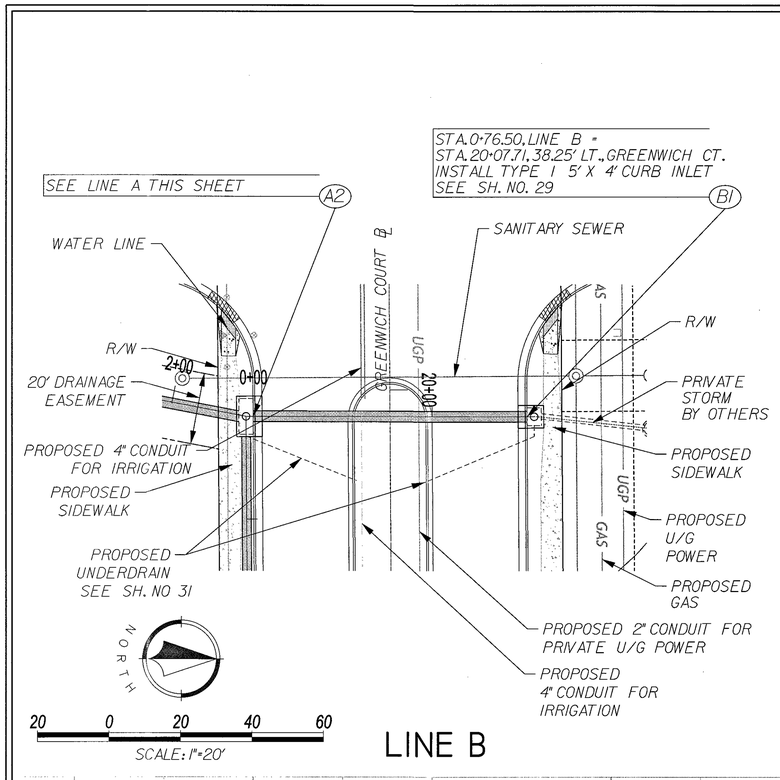
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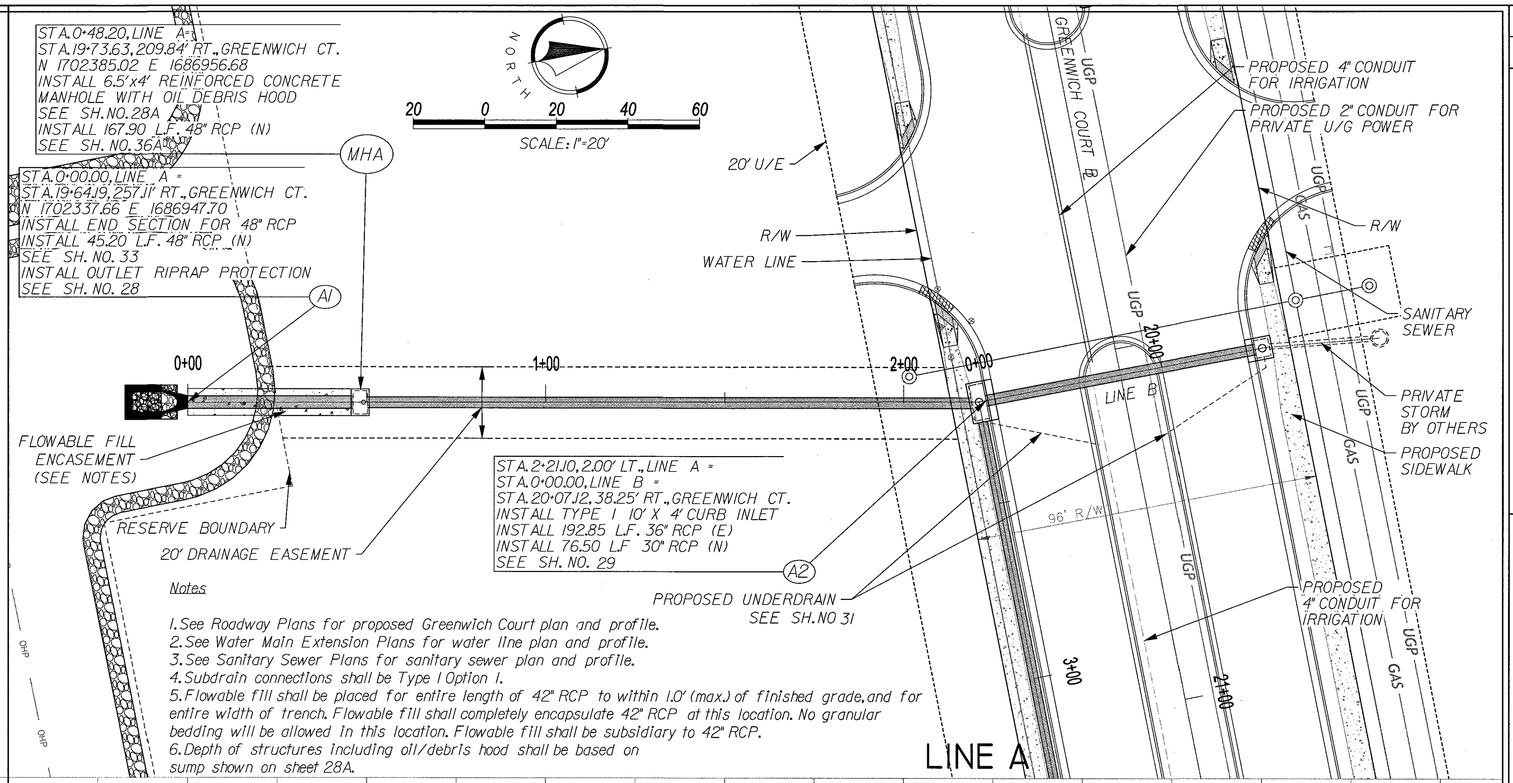
NO.	BY	DATE	REVISION
6.	VZ	7/1/15	UPDATED DRAINAGE AREA B1
5.	VZ	TC 6/24/15	UPDATED FOR PRIVATE DEVELOPMENT REVISIONS
4.	VZ	BY 3/31/15	UPDATED FOLLOWING CITY COMMENTS
3.	VZ	BY 1/19/15	FINAL PLANS UPDATED FOLLOWING COMMENTS FROM THE CITY
2.	VZ	BY 11/28/14	REMOVAL OF ROUNDABOUT & ADDITION OF TEMP CULVERTS
1.	VZ	BY 9/4/2014	UPDATED ACCORDING TO CITY OF WICHITA COMMENTS
	VZ	BY 7/9/2014	ORIGINAL SUBMITTAL
	BY	QD DATE	REVISION

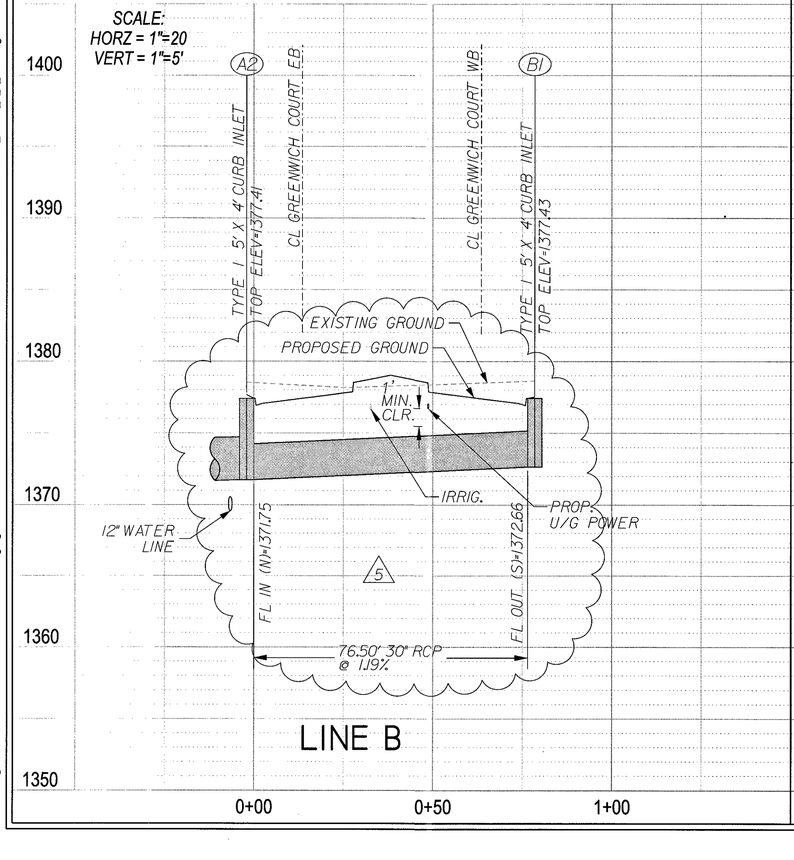
Renaissance Infrastructure Consulting
5015 NW CANAL STREET, SUITE 100 816.800.0950
RIVERSIDE MO, 64150 WWW.RIC-CONSULT.COM

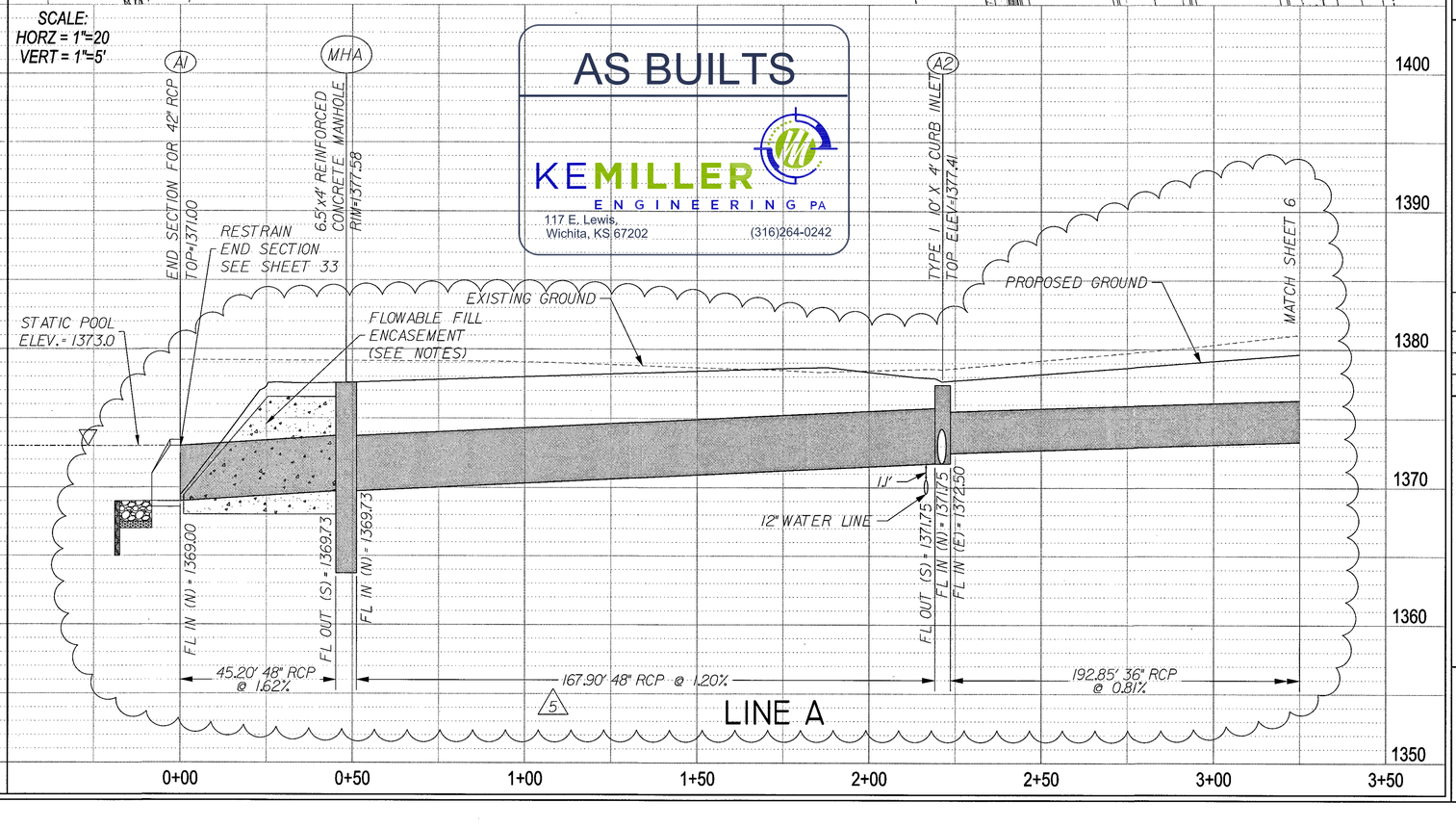
CURTIS R. TALCOTT
LICENSED
15174
7/01/15
KANSAS
PROFESSIONAL ENGINEER

7/1/2015
Z:\RIC Design\2014\14-0112 Wichita \06 Destination\dwg\dgn\Sheets\14-0112 Public Storm Sewer\New Set 2.20-15\14-0112 2 Storm Sewer-Drainage Area Map.dgn









AS BUILTS

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

SHEET
5 of 39

RIC PROJECT NO. 14-0112
WICHITA DESTINATION DEVELOPMENT
GREENWICH COURT DRAINAGE PLANS

GREENWICH COURT
STORM SEWER
PLAN AND PROFILE
LINE A & B

NO.	BY	DATE	REVISION
5.	VZ	6/24/15	PROFILES UPDATED. PIPE SIZES CHANGED.
4.	VZ	3/31/15	UPDATED FOLLOWING CITY COMMENTS
3.	VZ	1/19/15	FINAL PLANS UPDATED FOLLOWING COMMENTS FROM THE CITY
2.	VZ	11/18/14	REMOVAL OF ROUNDABOUT & ADDITION OF TEMP CULVERTS
1.	VZ	8/4/2014	UPDATED ACCORDING TO CITY OF WICHITA COMMENTS
	VZ	7/3/2014	ORIGINAL SUBMITTAL

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15174
6/24/15
KANSAS
PROFESSIONAL ENGINEER

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Z:\RIC Design\2014\14-0112 Wichita K96 Destination\dwg\dgn\Sheets\14-0112 Public Storm Sewer\New Set 2-20-15\14-0112 5 Greenwich Ct_Storm_A_B_PP01.dgn

RIC PROJECT NO. 14-0112
WICHITA DESTINATION DEVELOPMENT
GREENWICH COURT DRAINAGE PLANS

GREENWICH COURT
STORM SEWER
PLAN AND PROFILE
LINE A

20' SANITARY EASEMENT
PRIVATE STORM SEWER BY OTHERS
PROPOSED GAS LINE
PROPOSED U/G POWER
SANITARY SEWER
PRIVATE STORM SEWER BY OTHERS
PROPOSED FUTURE ENTRANCE FOR PRIVATE DEVELOPMENT BY OTHERS
20' GENERAL UTILITY EASEMENT
PROPOSED SIDEWALK
R/W
UGP
GAS

STA.8+21.77, LINE A =
STA.25+29.73, 38.25' LT., GREENWICH CT.
INSTALL TYPE I 5' X 4' CURB INLET
SEE SH. NO. 29
A4

STA.4+18.48, LINE A =
STA.22+04.50, 40.25' RT. GREENWICH CT.
INSTALL 5'x5' REINFORCED
CONCRETE MANHOLE
INSTALL 319.81 L.F. 15" RCP (E)
SEE SH. NO. 34
A2.5
6

PROPOSED SANITARY SEWER
PROPOSED 2" CONDUIT FOR PRIVATE U/G POWER
PROPOSED UNDERDRAIN SEE SH. NO 31
PROPOSED 4" CONDUIT FOR IRRIGATION
96' R/W
20' UTILITY EASEMENT
R/W
PROPOSED SIDEWALK
WATER LINE
A3 SEE SH. NO. 5
20' DRAINAGE EASEMENT
A3

STA.7+45.26 LINE A =
STA.25+29.28, 38.25' RT., GREENWICH CT.
INSTALL TYPE I 5' X 4' CURB INLET
INSTALL 76.50 L.F. 15" RCP (N)
SEE SH. NO. 29

20+00 21+00 22+00 23+00 24+00 25+00 8+00
3+00 4+00 5+00 6+00 7+00
0+00 2+00

NORTH
20 0 20 40 60
SCALE: 1"=20'

LINE A

Notes

1. See Roadway Plans for proposed Greenwich Place plan and profile.
2. See Water Main Extension Plans for water line plan and profile.
3. See Sanitary Sewer Plans for sanitary sewer plan and profile.
4. Subdrain connections shall be Type I Option 1.

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

AS BUILTS

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MATCH SHEET 5
A2.5
5'x5' REINFORCED CONCRETE MANHOLE TOP ELEV=1381.55
6
EXISTING GROUND
PROPOSED GROUND
A3
TYPE I 5' X 4' CURB INLET TOP ELEV=1387.52
CL GREENWICH COURT EB
CL GREENWICH COURT WB
A4
TYPE I 5' X 4' CURB INLET TOP ELEV=1387.53
1' MIN CLR
IRRIG.
PROP. U/G POWER
4.3'
8" SANITARY SEWER
FL OUT (W)=1374.06
FL IN (E)=1375.81
FL OUT (W)=1381.50
FL IN (N)=1381.70
FL OUT (S)=1382.94
SEE SHEET 5
319.81' 15" RCP @ 1.78%
76.50' 15" RCP @ 1.62%

1400 1390 1380 1370 1360 1350
3+00 3+50 4+00 4+50 5+00 5+50 6+00 6+50 7+00 7+50 8+00 8+50

LINE A

NO.	BY	DATE	REVISION
6.	VZ	7/1/15	CHANGE A2.5 FROM 4' DIA. MH TO 5'x5' ROMH
5.	VZ	6/24/15	UPDATED PROFILE, CHANGED PIPE SIZES, MOVED A2.5
4.	VZ	3/31/15	UPDATED FOLLOWING CITY COMMENTS
3.	VZ	1/19/15	FINAL PLANS UPDATED FOLLOWING COMMENTS FROM THE CITY
2.	VZ	11/19/14	REMOVAL OF ROUNDABOUT & ADDITION OF TEMP CULVERTS
1.	VZ	8/4/2014	UPDATED ACCORDING TO CITY OF WICHITA COMMENTS
	VZ	7/3/2014	ORIGINAL SUBMITTAL

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KANSAS
7/01/15

7/1/2015
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ST A. 0+34.41, LINE C =
ST A. 16+60.88, 188.59' RT., GREENWICH CT.
N 1702403.31 E 1686643.76
INSTALL 6' DIA. MANHOLE
WITH OIL DEBRIS HOOD
SEE SH. NO. 28A
INSTALL 143.20 L.F. 38"x24" RCEP (N)
SEE SH. NO. 34

MHC

ST A. 0+00.00, LINE C =
ST A. 16+60.55, 223.00' RT., GREENWICH CT.
N 1702368.90 E 1686643.75
INSTALL END SECTION FOR 42" RCP
INSTALL 31.41 L.F. 42" RCP(N)
SEE SH. NO. 33
INSTALL OUTLET RIPRAP PROTECTION
SEE SH. NO. 28

C1

0+00

FLOWABLE FILL ENCASEMENT (SEE NOTES)

RESERVE BOUNDARY

PROPOSED UNDERDRAIN SEE SH. NO 31

ST A. 1+77.61, LINE C =
ST A. 16+63.05, 42.42' RT., GREENWICH CT.
INSTALL TYPE 2 CURB INLET DOUBLE LINE
INSTALL 79.99 L.F. 30"x19" RCEP (N)
SEE SH. NO. 29

C2

1+00

20' DRAINAGE EASEMENT

UTILITY EASEMENT

PROPOSED 4" CONDUIT FOR IRRIGATION

PROPOSED SIDEWALK

R/W

2+00

16+00

17+00

YIELD YIELD

GREENWICH COURT EB

R/W

WATER LINE

96' R/W

20' GENERAL UTILITY E

UGP

GAS

R/W

PROPOSED GAS LINE

SANITARY SEWER

PROPOSED FUTURE ENTRANCE FOR PRIVATE DEVELOPMENT BY OTHERS

PROPOSED UNDERGROUND POWER

PRIVATE STORM SYSTEM BY OTHERS

C3

ST A. 2+59.60, LINE C =
ST A. 16+62.97, 39.48' LT., GREENWICH CT.
INSTALL TYPE I 5' X 4' CURB INLET
SEE SH. NO. 29

PROPOSED UNDERDRAIN SEE SH. NO 31

PROPOSED 4" CONDUIT FOR IRRIGATION

PROPOSED 2" CONDUIT FOR PRIVATE U/G POWER

R/W

Notes

1. See Roadway Plans for proposed Greenwich Court plan and profile.
2. See Water Main Extension Plans for water line plan and profile.
3. See Sanitary Sewer Plans for sanitary sewer plan and profile.
4. Subdrain connections shall be Type I Option 1.
5. Flowable fill shall be placed for entire length of 42" RCP to within 1.0' (max.) of finished grade, and for entire width of trench. Flowable fill shall completely encapsulate 42" RCP at this location. No granular bedding will be allowed in this location. Flowable fill shall be subsidiary to 42" RCP.
6. Depth of structures including oil/debris hood shall be based on sump shown on sheet 28A.

NORTH

20 0 20 40 60

SCALE: 1"=20'

LINE C

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

FLOWABLE FILL ENCASEMENT (SEE NOTES)

C1

MHC

C2

C3

FLARED END SECTION FOR 42" RCP RIM=1369.00

6' DIA. MANHOLE RIM=1374.00

TYPE 2 CURB INLET DOUBLE LINE TOP ELEV=1373.23

CL GREENWICH COURT EB

CL GREENWICH COURT WB

TYPE I 5' X 4' CURB INLET TOP ELEV=1373.23

RESTRAIN END SECTION SEE SHEET 33

STATIC POOL ELEV.= 1370.0

PROPOSED GROUND

EXISTING GROUND

1' MIN CLR

1.1'

12" WATER LINE

PROP. U/G POWER

FUTURE IRRIG

FL IN (N)=1368.00

FL OUT (S)=1368.15

FL IN (N)=1368.15

FL OUT (S)=1369.17

FL IN (N)=1369.17

FL OUT (S)=1369.65

31.41 L.F. 42" RCP @ 0.48%

143.20 L.F. 38"x24" ELLIPTICAL PIPE @ 0.71%

79.99 L.F. 30"x19" ELLIPTICAL RCP @ 0.60%

6

SEE NEW PAGE 7

1390 1380 1370 1360 1350 1340

0+00 0+50 1+00 1+50 2+00 2+50 3+00

LINE C

SHEET 7 of 39

RIC PROJECT NO. 14-0112
WICHITA DESTINATION DEVELOPMENT
GREENWICH COURT DRAINAGE PLANS

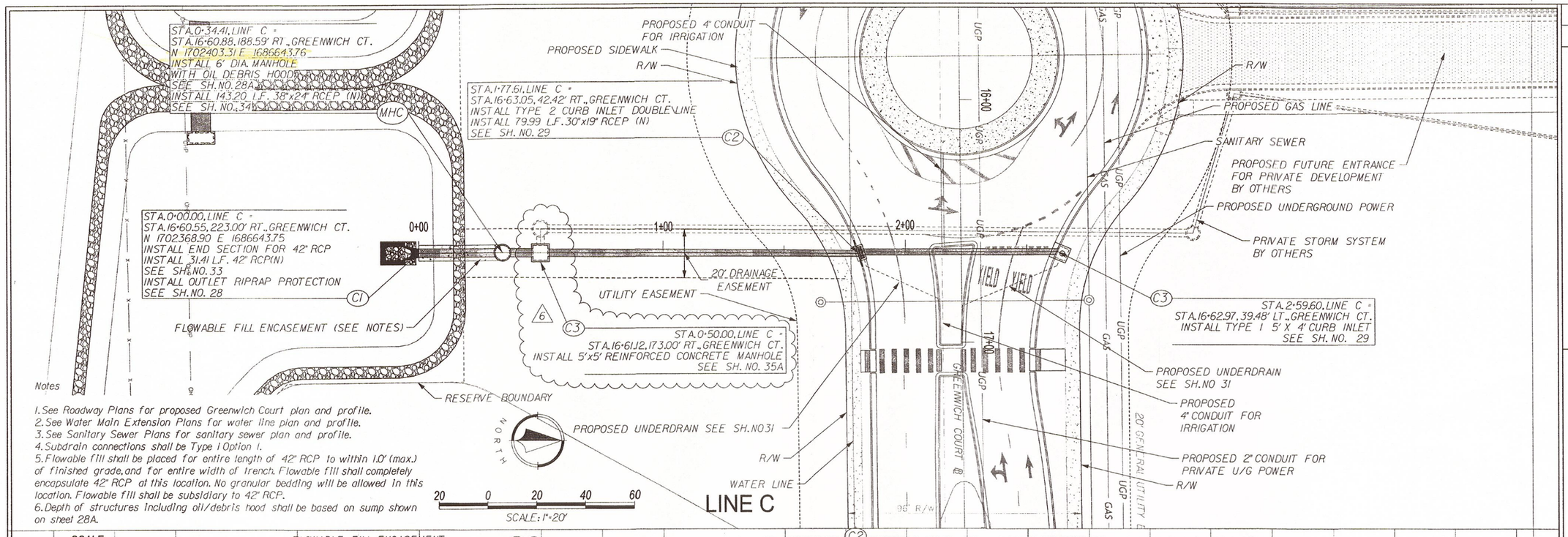
GREENWICH COURT
STORM SEWER
PLAN AND PROFILE
LINE C

NO.	BY	DATE	REVISION
6.	VZ	7/1/15	UPDATED ELLIPTICAL PIPE SIZE CALLOUT
5.	VZ	6/24/15	UPDATED PROFILE. CHANGED PIPE SIZE OUT OF C2
4.	VZ	3/31/15	UPDATED FOLLOWING CITY COMMENTS
3.	VZ	1/19/15	FINAL PLANS UPDATED FOLLOWING COMMENTS FROM THE CITY
2.	VZ	11/18/14	REMOVAL OF ROUNDABOUT & ADDITION OF TEMP CULVERTS
1.	VZ	8/4/2014	UPDATED ACCORDING TO CITY OF WICHITA COMMENTS
	VZ	7/9/2014	ORIGINAL SUBMITTAL

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RIVERSIDE, MO. 64150
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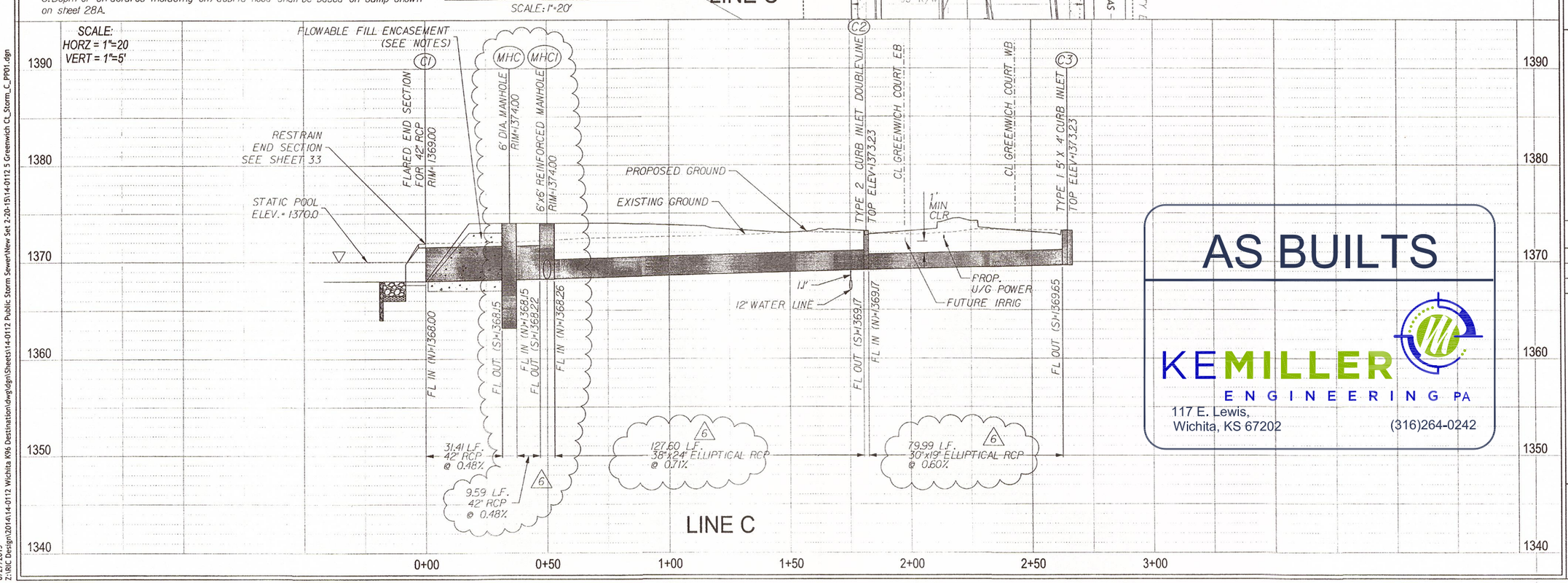
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7/01/15
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7/1/2015
Z:\RIC Design\2014\14-0112 Wichita K96 Destination\dwg\dgn\Sheets\14-0112 Public Storm Sewer\New Set 2-20-15\14-0112 5 Greenwich Ct_Storm_C_PP01.dgn



Notes

1. See Roadway Plans for proposed Greenwich Court plan and profile.
2. See Water Main Extension Plans for water line plan and profile.
3. See Sanitary Sewer Plans for sanitary sewer plan and profile.
4. Subdrain connections shall be Type I Option 1.
5. Flowable fill shall be placed for entire length of 42" RCP to within 1.0' (max.) of finished grade, and for entire width of trench. Flowable fill shall completely encapsulate 42" RCP at this location. No granular bedding will be allowed in this location. Flowable fill shall be subsidiary to 42" RCP.
6. Depth of structures including oil/debris hood shall be based on sump shown on sheet 28A.



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NO.	BY	DATE	REVISION
6.	VZ	7/1/15	UPDATED ELLIPTICAL PIPE SIZE CALLOUT
5.	VZ	TC 6/24/15	UPDATED PROFILE. CHANGED PIPE SIZE OUT OF C2
4.	VZ	BY 3/31/15	UPDATED FOLLOWING CITY COMMENTS
3.	VZ	BY 1/19/15	FINAL PLANS UPDATED FOLLOWING COMMENTS FROM THE CITY
2.	VZ	BY 11/18/14	REMOVAL OF ROUNDABOUT & ADDITION OF TEMP CULVERTS
1.	VZ	BY 8/4/2014	UPDATED ACCORDING TO CITY OF WICHITA COMMENTS
	VZ	BY 7/3/2014	ORIGINAL SUBMITTAL

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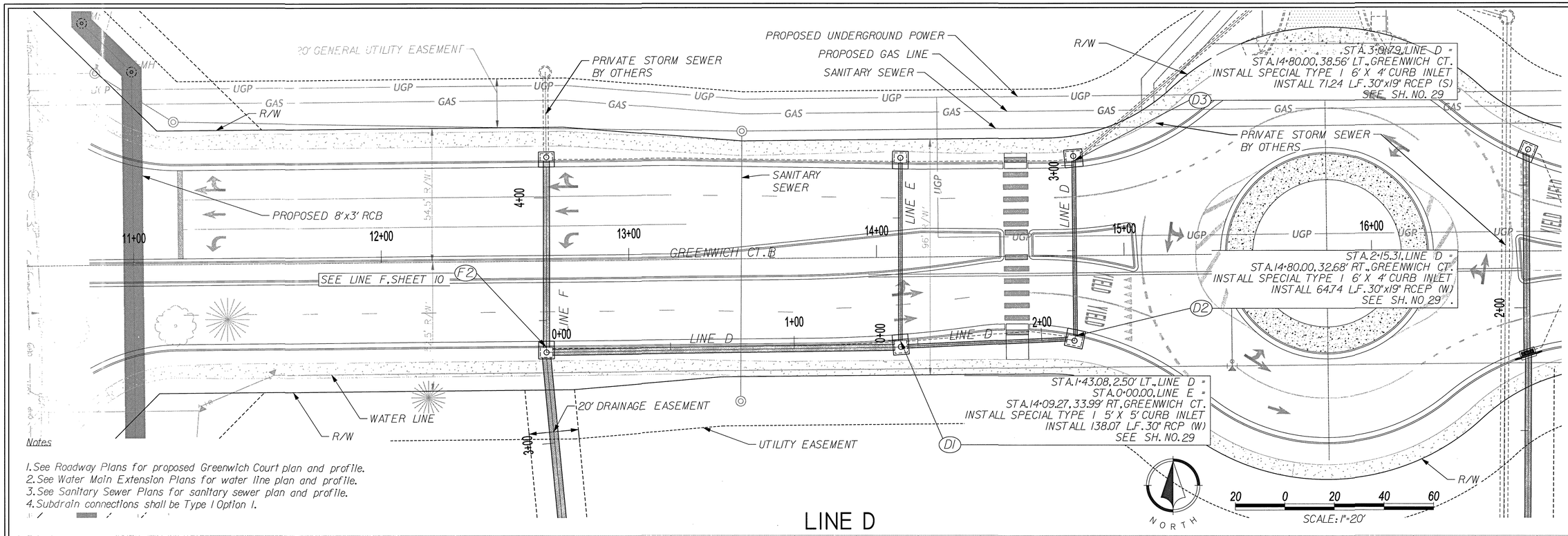
Sheet 7 of 39

RIC PROJECT NO. 14-0112
WICHITA DESTINATION DEVELOPMENT

GREENWICH COURT DRAINAGE PLANS

Greenwich Court
Storm Sewer
Plan and Profile
Line C

8/27/2015
2:\RIC Design\2014\14-0112 Wichita K96 Destination\dwgdgn\Sheets\14-0112 Public Storm Sewer\New Set 2-20-15\14-0112 S Greenwich Ct_Storm_C_PP01.dgn

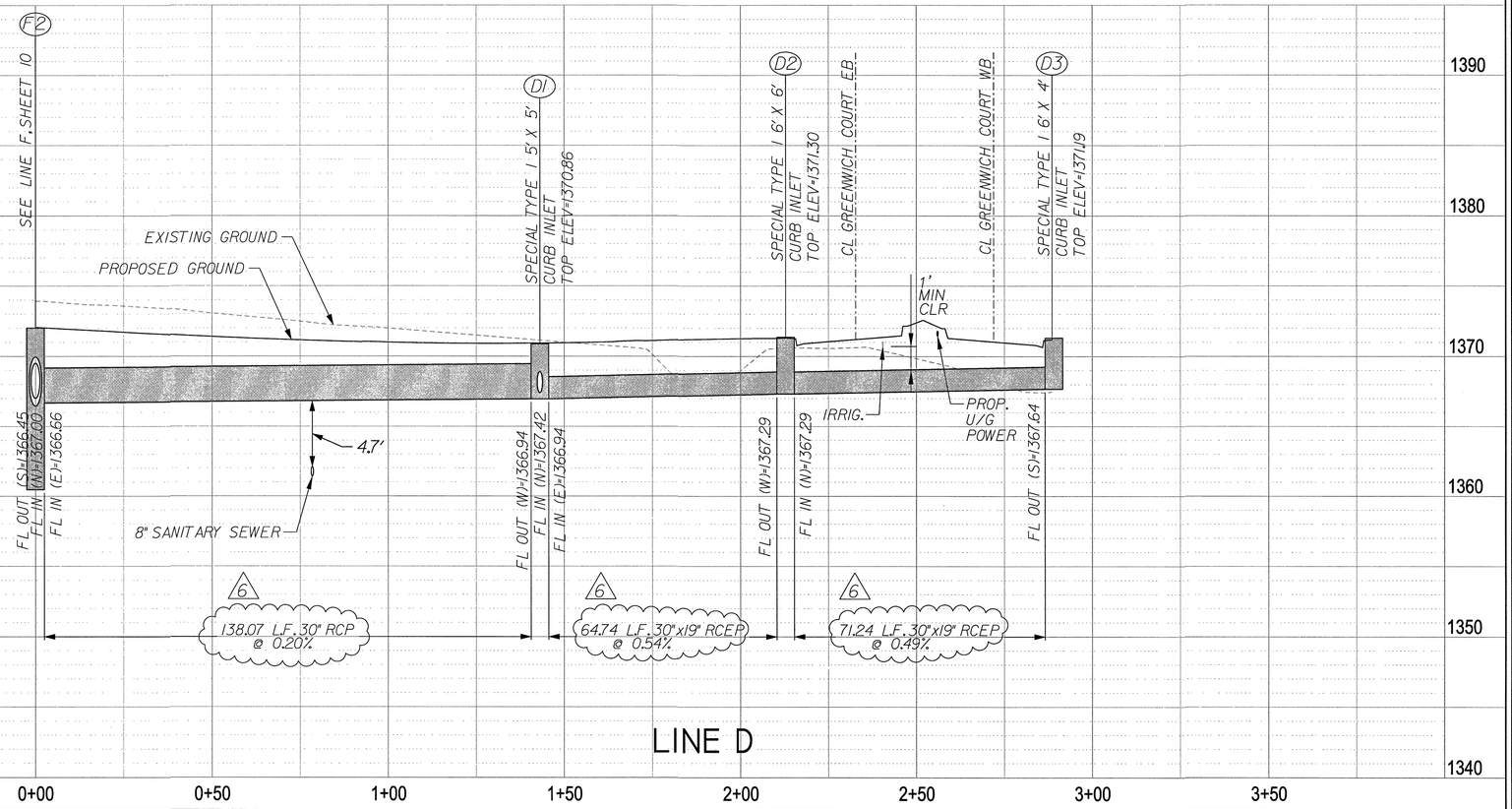


Notes

1. See Roadway Plans for proposed Greenwich Court plan and profile.
2. See Water Main Extension Plans for water line plan and profile.
3. See Sanitary Sewer Plans for sanitary sewer plan and profile.
4. Subdrain connections shall be Type I Option 1.

LINE D

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



LINE D

AS BUILTS

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SHEET 8 of 39

RIC PROJECT NO. 14-0112
WICHITA DESTINATION DEVELOPMENT
GREENWICH COURT DRAINAGE PLANS

GREENWICH COURT
STORM SEWER
PLAN AND PROFILE
LINE D

NO.	BY	DATE	REVISION
6.	VZ	7/1/15	UPDATED PIPE SIZE CALLOUTS. CHANGED PIPE FROM D1 TO 30"
5.	VZ	6/24/15	UPDATED PROFILE, CHANGED PIPE SIZES
4.	VZ	3/31/15	UPDATED FOLLOWING CITY COMMENTS
3.	VZ	1/19/15	FINAL PLANS UPDATED FOLLOWING COMMENTS FROM THE CITY
2.	VZ	11/18/14	REMOVAL OF ROUNDABOUT & ADDITION OF TEMP CULVERTS
1.	VZ	8/4/2014	UPDATED ACCORDING TO CITY OF WICHITA COMMENTS
	VZ	7/3/2014	ORIGINAL SUBMITTAL

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7/1/2015
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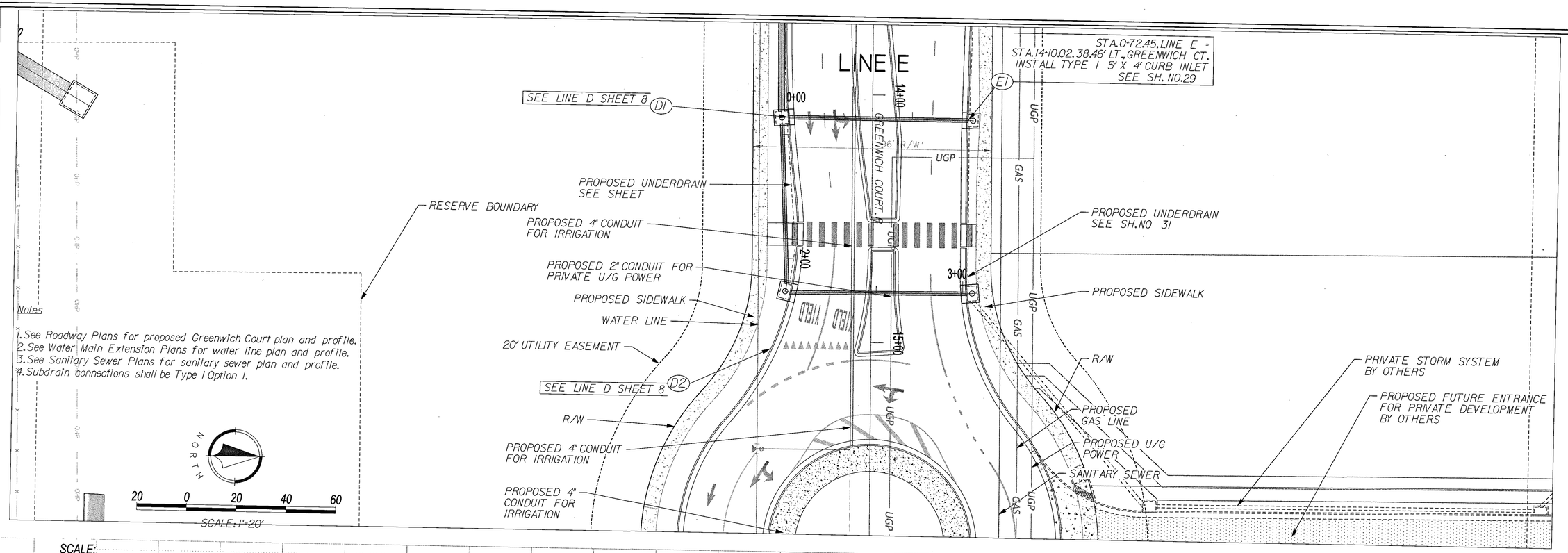
RIC PROJECT NO. 14-0112
WICHITA DESTINATION DEVELOPMENT

GREENWICH COURT DRAINAGE PLANS

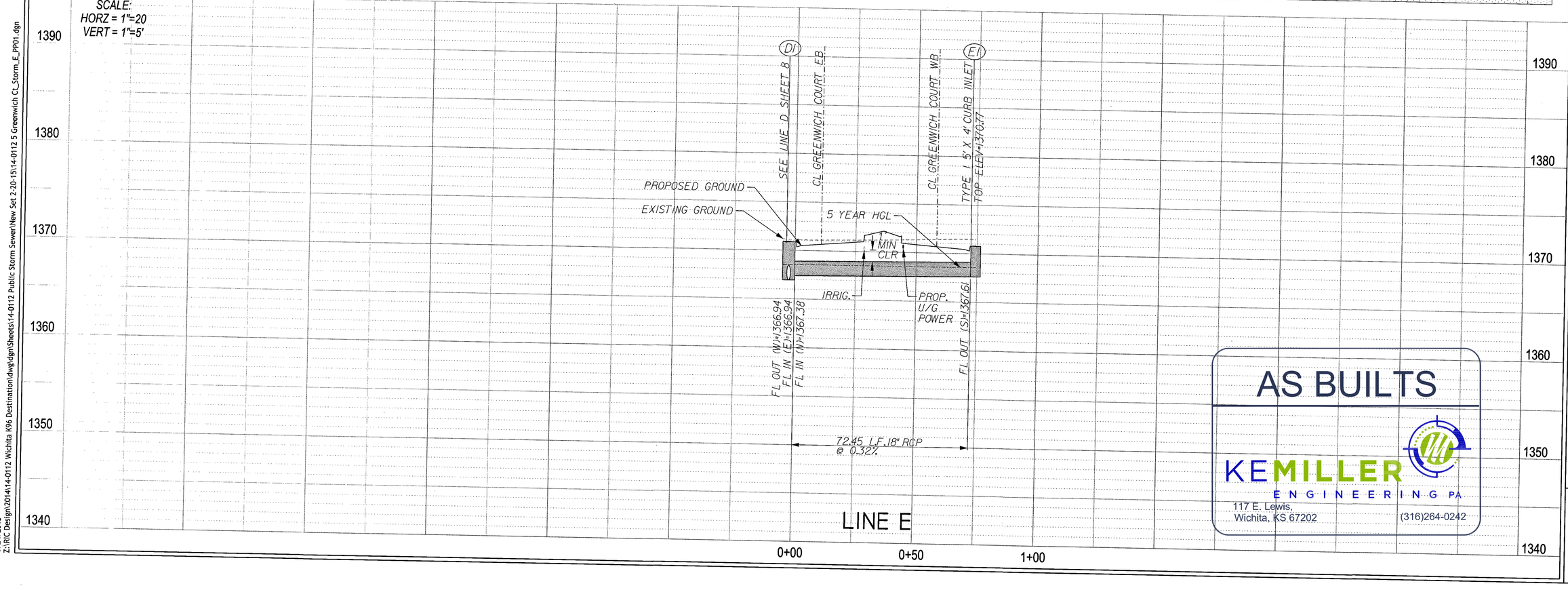
GREENWICH COURT
STORM SEWER
PLAN AND PROFILE
LINE E

Notes

1. See Roadway Plans for proposed Greenwich Court plan and profile.
2. See Water Main Extension Plans for water line plan and profile.
3. See Sanitary Sewer Plans for sanitary sewer plan and profile.
4. Subdrain connections shall be Type I Option I.



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



AS BUILTS

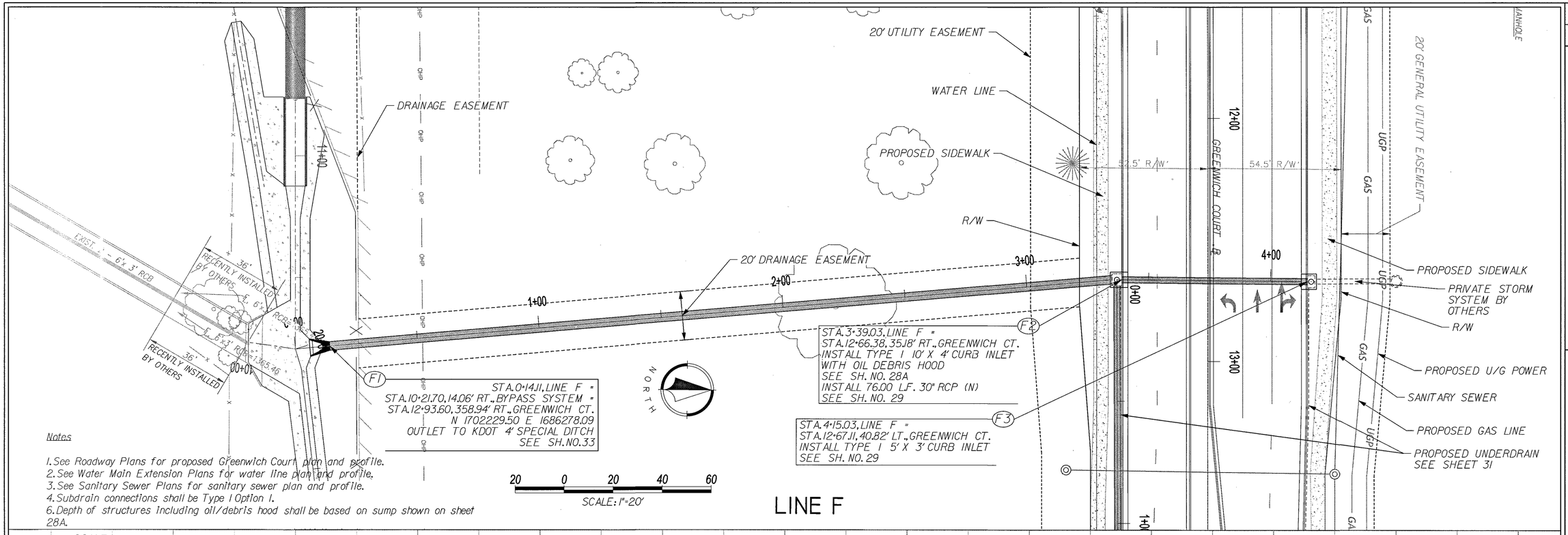
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NO.	BY	DATE	REVISION
5.	VZ	4/29/15	UPDATED FOR PRIVATE DEVELOPMENT REVISIONS
4.	VZ	3/31/15	UPDATED FOLLOWING CITY COMMENTS
3.	VZ	1/15/15	FINAL PLANS UPDATED FOLLOWING COMMENTS FROM THE CITY
2.	VZ	11/28/14	REMOVAL OF ROUNDABOUT & ADDITION OF TEMP CULVERTS
1.	VZ	8/4/2014	UPDATED ACCORDING TO CITY OF WICHITA COMMENTS
	VZ	7/3/2014	ORIGINAL SUBMITTAL

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6/24/2015
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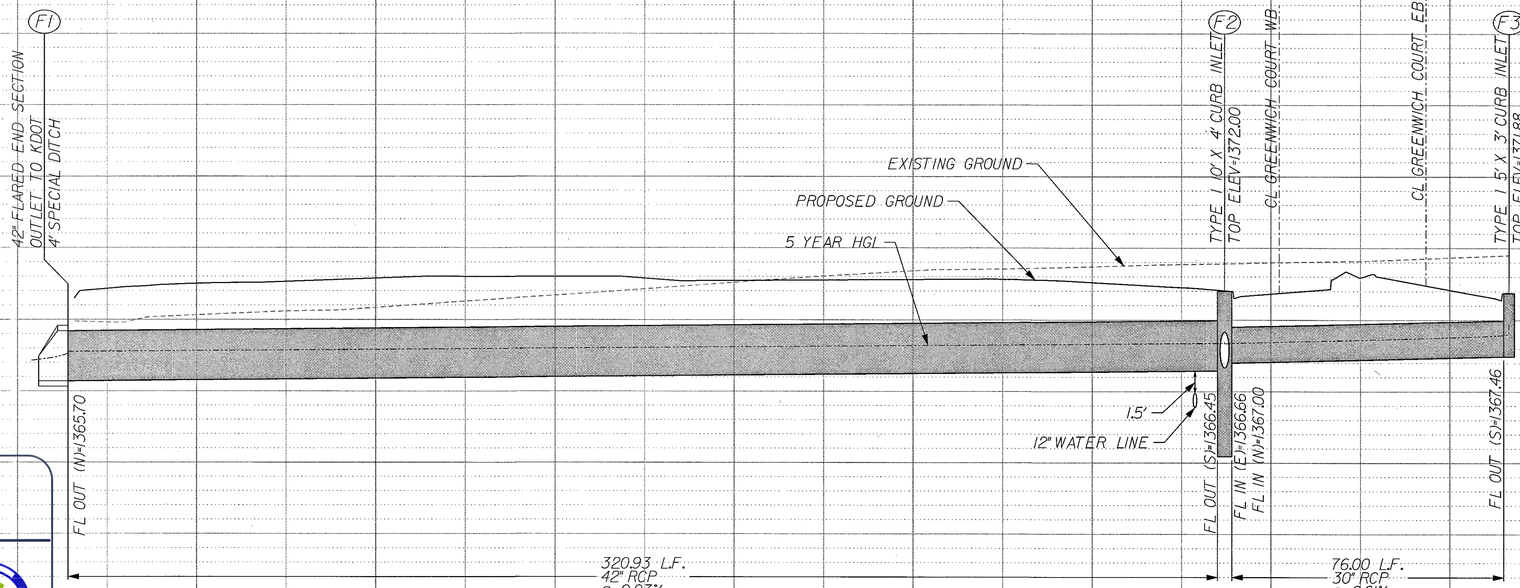


LINE F

Notes

1. See Roadway Plans for proposed Greenwich Court plan and profile.
2. See Water Main Extension Plans for water line plan and profile.
3. See Sanitary Sewer Plans for sanitary sewer plan and profile.
4. Subdrain connections shall be Type I Option I.
6. Depth of structures including oil/debris hood shall be based on sump shown on sheet 28A.

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



LINE F

AS BUILTS

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SHEET
10 of 39

RIC PROJECT NO. 14-0112
WICHITA DESTINATION DEVELOPMENT

GREENWICH COURT DRAINAGE PLANS

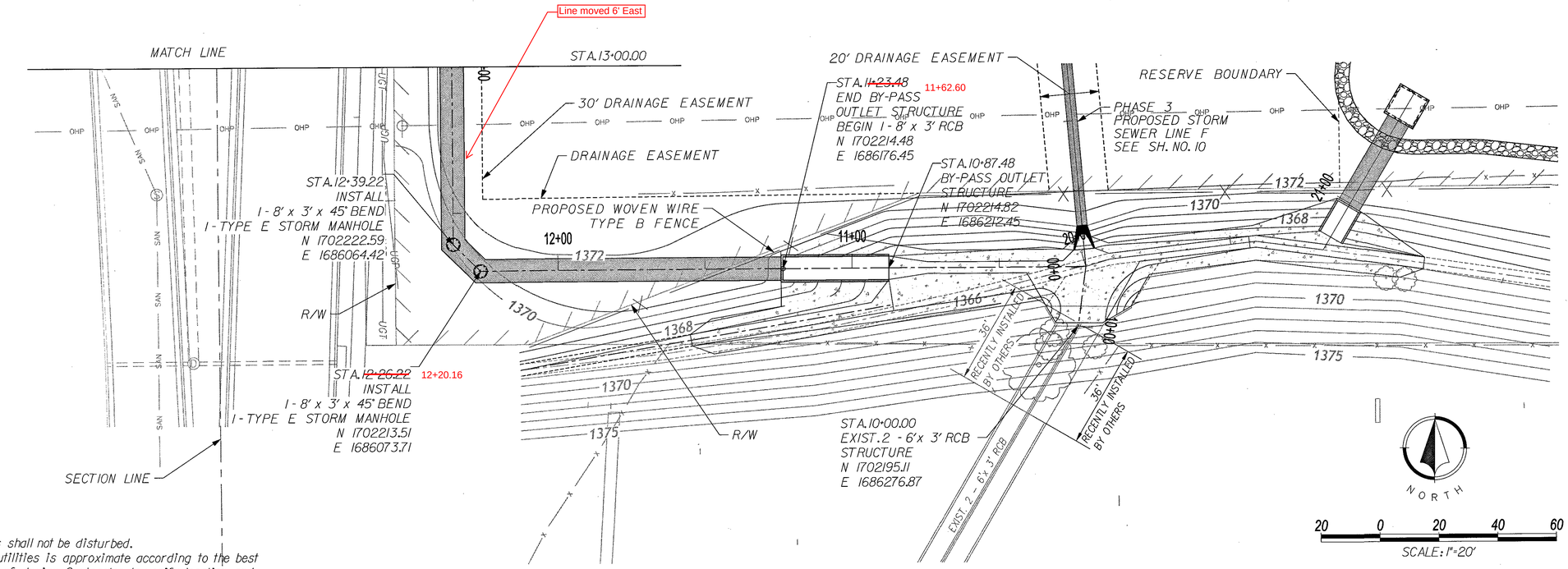
GREENWICH COURT
STORM SEWER
PLAN AND PROFILE
LINE F

NO.	BY	DATE	REVISION
			ORIGINAL SUBMITTAL
5.	VZ	7/9/2014	UPDATED ACCORDING TO CITY OF WICHITA COMMENTS
4.	VZ	8/4/2014	REMOVAL OF ROUNDABOUT & ADDITION OF TEMP CULVERTS
3.	VZ	11/18/14	FINAL PLANS UPDATED FOLLOWING COMMENTS FROM THE CITY
2.	VZ	1/19/15	UPDATED FOLLOWING CITY COMMENTS
1.	VZ	3/31/15	UPDATED FOR PRIVATE DEVELOPMENT REVISIONS
	TC	4/28/15	

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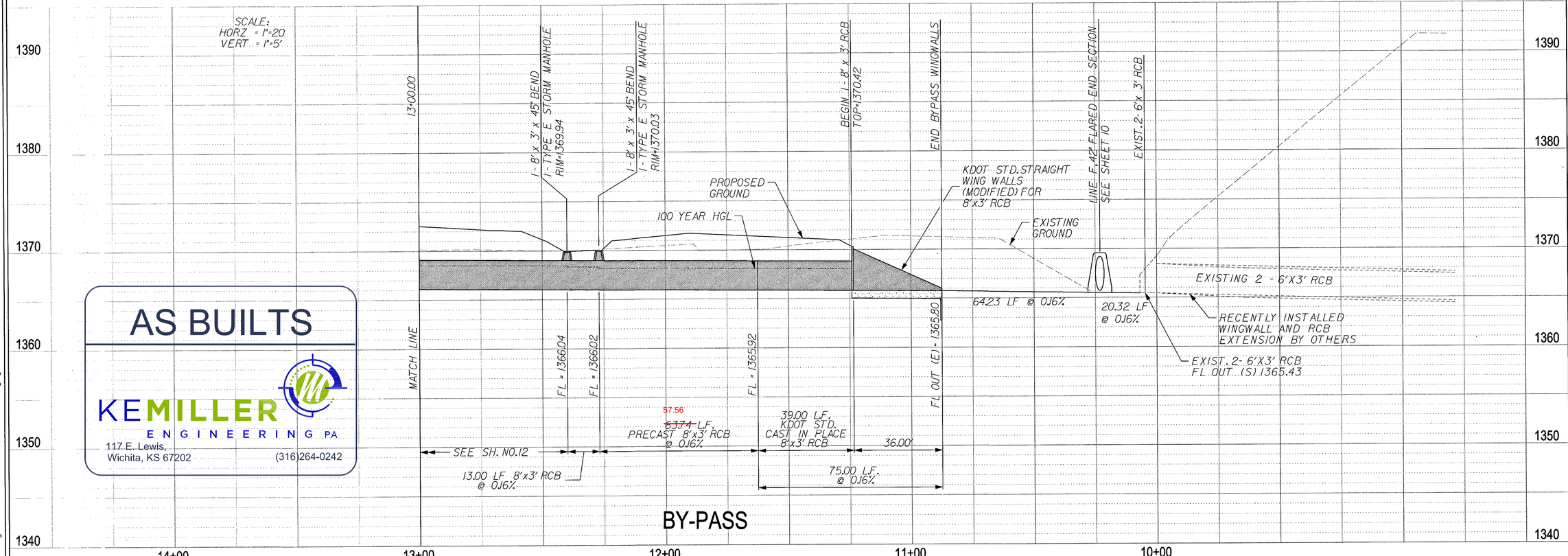
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3/24/15
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KANSAS

6/24/2015
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Notes

1. Existing gas and water mains shall not be disturbed.
2. 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 contruction.



AS BUILTS

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6/24/2015
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SHEET
11 of 39

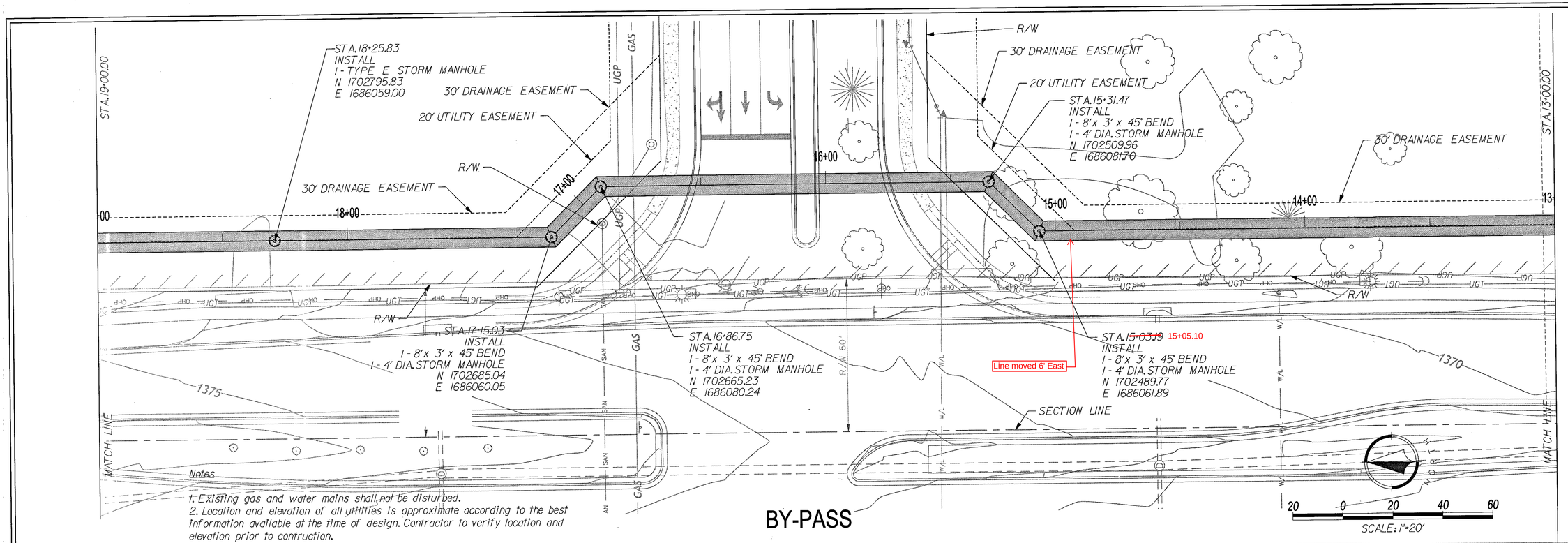
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WICHITA DESTINATION DEVELOPMENT
GREENWICH COURT DRAINAGE PLANS

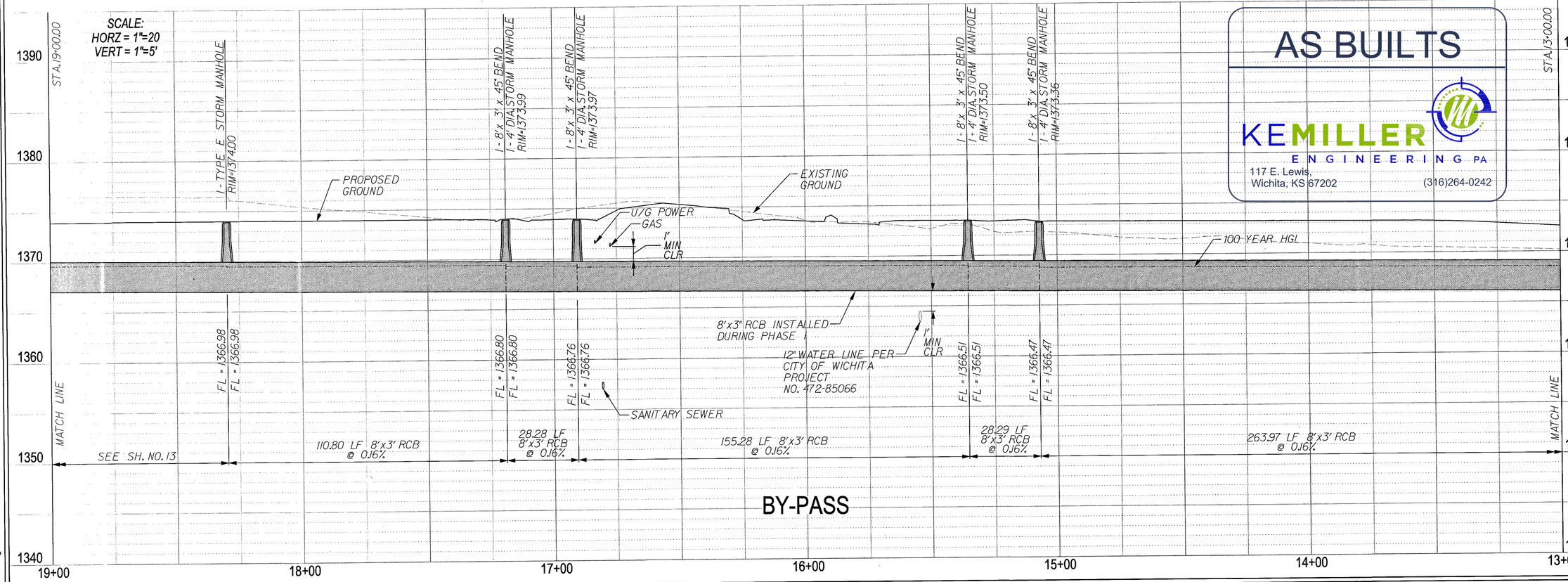
8'x3' RCB Bypass
System Plan & Profile
STA. 10+00.00 to
STA. 13+00.00

NO.	BY	DATE	REVISION
	VZ	4/26/2015	UPDATED FOR PRIVATE DEVELOPMENT REVISIONS
5.	VZ	4/26/15	UPDATED FOR PRIVATE DEVELOPMENT REVISIONS
4.	VZ	3/31/15	UPDATED FOLLOWING CITY COMMENTS
3.	VZ	1/19/15	FINAL PLANS UPDATED FOLLOWING COMMENTS FROM THE CITY
2.	VZ	11/18/14	REMOVAL OF ROUNDABOUT & ADDITION OF TEMP CULVERTS
1.	VZ	8/4/2014	UPDATED ACCORDING TO CITY OF WICHITA COMMENTS
	VZ	7/3/2014	ORIGINAL SUBMITTAL

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SHEET
12 of 39

RIC PROJECT NO. 14-0112
WICHITA DESTINATION DEVELOPMENT
GREENWICH COURT DRAINAGE PLANS

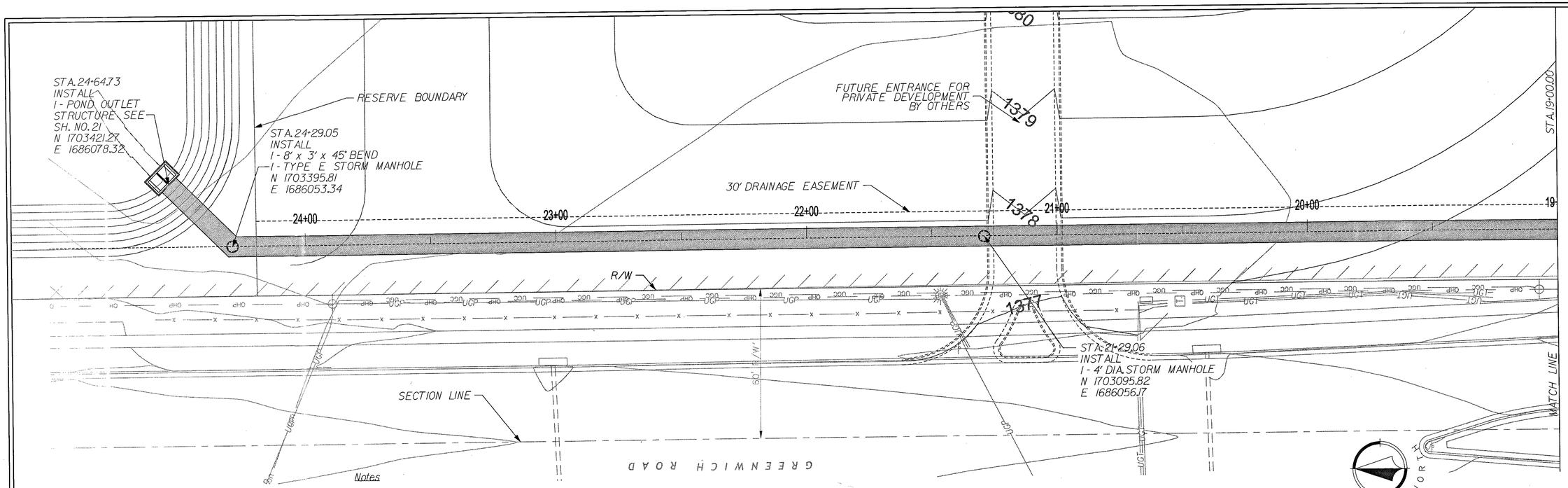
8'x3' RCB Bypass
System Plan & Profile
STA. 13+00.00 to
STA. 19+00.00

NO.	BY	DATE	REVISION
	VZ	7/3/2014	ORIGINAL SUBMITTAL
5.	VZ	4/28/15	UPDATED FOR PRIVATE DEVELOPMENT REVISIONS
4.	VZ	3/31/15	UPDATED FOLLOWING CITY COMMENTS
3.	VZ	1/15/15	FINAL PLANS UPDATED FOLLOWING COMMENTS FROM THE CITY
2.	VZ	11/19/14	REMOVAL OF ROUNDABOUT & ADDITION OF TEMP CULVERTS
1.	VZ	8/4/2014	UPDATED ACCORDING TO CITY OF WICHITA COMMENTS

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6/24/15

6/24/2015
Z:\RIC Design\2014\14-0112 Wichita (K96 Destination\dwg\dgn\Sheets\14-0112 Public Storm Sewer\New Set 2-20-15\14-0112 Bypass - PP02.dgn



Notes

1. Existing gas and water mains shall not be disturbed.
2. 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 contruction.

BY-PASS



BY-PASS

AS BUILTS

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

SHEET
13 of 39

RIC PROJECT NO. 14-0112
WICHITA DESTINATION DEVELOPMENT
GREENWICH COURT DRAINAGE PLANS

8'x 3' RCB Bypass
System Plan & Profile
STA. 19+00.00 to
STA. 24+64.73

NO.	BY	DATE	REVISION
1.	VZ	6/24/15	UPDATED FOR PRIVATE DEVELOPMENT REVISIONS
2.	VZ	3/31/15	UPDATED FOLLOWING CITY COMMENTS
3.	VZ	1/15/15	FINAL PLANS UPDATED FOLLOWING COMMENTS FROM THE CITY
4.	VZ	11/19/14	REMOVAL OF ROUNDABOUT & ADDITION OF TEMP CULVERTS
5.	VZ	8/4/2014	UPDATED ACCORDING TO CITY OF WICHITA COMMENTS
	VZ	7/3/2014	ORIGINAL SUBMITTAL
NO.	BY	DATE	REVISION

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6/24/2015
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RIC PROJECT NO. 14-0112
WICHITA DESTINATION DEVELOPMENT
GREENWICH COURT DRAINAGE PLANS

Proposed 4' Special Ditch

K-96 STA.465+75.08,175.85' LT.=
BYPASS SYSTEM STA.10+87.48,0.00' RT.
END 8'x3' RCB WING WALLS

K-96 STA.465+39.08,175.85' LT.=
BYPASS SYSTEM STA.11+23.48,0.00' RT
OUTSIDE FACE 8'x3' RCB

K-96 STA.465+18.57,175.73' LT.=
BYPASS SYSTEM STA.11+43.99,0.00' RT
8'x3' RCB

K-96 STA.465+85.48,140.00' LT.=
BYPASS SYSTEM STA.10+76.73,24.54' RT.
WOVEN WIRE TYPE B FENCE
WITH CORNER POST

K-96 STA.465+85.48
201.68' LT.

20' DRAINAGE EASEMENT

PROPOSED STORM
SEWER LINE F
SEE SH. NO. 10

RESERVE BOUNDARY

K-96 STA.466+50,179.00' LT.=
POND 1 OUTLET STA.20+08.60,0.00' RT
PI 4' SP.DT.W/CONC.LINING

EXIST.R/W

K-96 STA.467+99.84
204.18 LT.

30' DRAINAGE
EASEMENT

EXIST.R/W

K-96 STA.467+99.84,203.18' LT.=
END WOVEN WIRE TYPE B FENCE
WITH CORNER POST

K-96 STA.467.35,203.42' LT =
POND 1 OUTLET STA.21+06.45,0.00' RT

K-96 STA.467+54,177.60' LT.=
END 4' SP.DT.W/CONC.LINING

K-96 STA.467+25,186.00' LT.=
POND 1 OUTLET STA.20+86.74 RT

K-96 STA.467+00,183.00' LT.=
POND 1 OUTLET STA.20+58.60,0.00' RT
PI 4' SP.DT.W/CONC LINING

EXIST.R/W

K-96 STA.464+07.42
150.12' LT.

SECTION LINE

K-96 STA.464+52.42
150.12' LT.

EXISTING R/W

RECENTLY INSTALLED
BY OTHERS

EXIST 2 - 6'x 3' RCB

K-96 STA.465+08,150.90' LT.=
BYPASS SYSTEM STA.11+54.88,24.18' LT
BEGIN 4'xSP.DT.W/CONC.DT.LINING

K-96 STA.464+52.42,149.12' LT.=
BYPASS SYSTEM STA.12+09.91,26.16' LT.
BEGIN WOVEN WIRE TYPE B FENCE
WITH CORNER POST

K-96 STA.466+42.00,175.85' LT.=
BYPASS SYSTEM STA.10+20.51,0.00' LT.=
STORM SEWER LINE ND STA.0+00.00,0.00' LT.=
POND 1 OUTLET STA.20+00.00,0.00' LT.
PI 4' SP.DT.W/CONC.LINING

K-96 STA.465+87.08,175.85' LT.=
BYPASS SYSTEM STA.10+74.30,0.00' LT.
BEGIN 4' SP.DT.W/CONC.LINING

K-96 STA.464+50,141.00' LT.=
BYPASS SYSTEM STA.12+12.85,33.97 LT.
BEGIN 4'x SP.DT.
MATCH ℄ EXIST.SP.DT.LT.

K-96 STA.465+73.50,163.00' LT.=
BYPASS SYSTEM STA.10+86.23,12.57' LT.
END 4' SP.DT.W/CONC.DT.LINING

AS BUILTS

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NORTH

20 0 20 40 60

SCALE: 1"=20'

NO.	BY	DATE	REVISION
4.	VZ	3/31/15	UPDATED FOLLOWING CITY COMMENTS
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1.	VZ	8/4/2014	UPDATED ACCORDING TO CITY OF WICHITA COMMENTS
	VZ	7/3/2014	ORIGINAL SUBMITTAL

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4/3/2015
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Project Narrative

The site is a 106.9 acre tract proposed for commercial development as the *WICHITA DESTINATION DEVELOPMENT* located on undeveloped land bounded by E 27th St on the north, Kansas State Highway K-96 on the south, N Greenwich Rd on the west and residential property and property proposed for development on the east. The subject site and adjacent property have been the subject of several previous drainage studies including a *PRELIMINARY DRAINAGE REPORT FOR K-96 & GREENWICH NORTH*, Wichita, Sedgwick County, Kansas dated March 2013 as revised April 2013 by MKEC Engineering Consultants, Inc. The drainage area designations, conditions and limitations identified in the previous studies were incorporated into the design of drainage control elements for this project.

The eastern 44.2 acres of the tract is the downstream sub-drainage basin (Sub-Basin B) of a 128.5 acre watershed (East Basin), which is drained by two 48" RCP culverts under Kansas Highway K-96. The western 62.7 acres is the downstream sub-drainage basin (Sub-Basin E) of a 215.6 acre watershed (West Basin), which is drained by twin 6'x3' RCP culverts under K-96. The allowable peak discharges to the K96 culverts from the site during the 100-year (1%) storm event after development is limited by their capacities without flooding adjacent property and streets. Those discharges are 207.6cfs for the eastern twin 48" culverts and 226.8cfs for the western twin 6'x3' culverts. The discharges entering the site from adjacent properties in the upstream portions of the East and West Basins are approximately 296.6cfs and 210.5cfs respectively. Therefore, 100-year storm releases from the proposed development in conjunction with the offsite flows must be severely restricted in order not to exceed the aforementioned culvert capacity limits. To accomplish this and to provide 85% probability water quality treatment and downstream 1-year storm channel protection, three permanent pool retention ponds (Ponds 1, 2 and 3) and two extended dry detention basins (Ponds 4 and 5) are proposed.

Ponds 1, 2 and 3 operate in series and are tributary to 1.34, 7.41 and 20.95 acres respectively totaling 29.70 acres of onsite Sub-Basin E's 62.7 acres. Extended dry detention basin Pond 5 detains the runoff from 21.75 acres of Sub-Basin E plus the unrestrained runoff from 28.16 acres of offsite developed property Sub-Basin C. The detention and treatment of runoff from Sub-Basin C is used to offset the unrestrained release of runoff from 9.27 acres of Sub-Basin E.

Extended dry detention Pond 4 treats and detains the runoff from the 44.2 acres of Sub-Basin B plus offsite detained flow from the 44.5 acres of GBC Area A and the 31.7 acres of the Fairmont residential development Area C.

Stage-Storage-Discharge Summary Table

Stage (Elevation)	Storage (ac-ft)	Discharge (cfs)
Pond 1		
1369	0.0	0.0
1370	0.3	1.2
1371	0.6	1.8
1372	1.0	102.2
1373	1.4	281.5
Pond 2		
1370	0.0	0.0
1371	0.6	1.0
1372	1.3	47.8
1373	2.1	161.7
1374	2.9	317.0
Pond 3		
1373	0.0	0.0
1374	1.4	0.5
1375	2.8	0.7
1376	4.4	36.5
1377	6.1	164.0
Pond 4		
1372	0.0	0.0
1373	0.2	0.5
1374	1.4	0.7
1375	5.2	2.1
1376	10.7	95.1
1377	18.0	161.6
1378	24.8	206.2
Pond 5		
1368	0.0	0.0
1369	0.6	1.1
1370	2.5	1.6
1371	5.5	2.0
1372	8.9	16.6
1373	12.8	26.5
1374	16.7	34.3
1375	20.7	117.7
1376	25.1	169.4

WATER QUALITY SUSPENDED SOLIDS REMOVAL

West Sub- Basin

The 49.91 acres of Areas C + E-1 drain to Pond 5 an Extended Dry Detention Basin. TSS Removal = (0.6)(49.91) = 29.95.

The 9.79 acres of Area E-2 and 1.48 acres of Area E-6 drain directly to the culverts under K-96. TSS Removal = 0. These areas are offset by removing TSS from the 28.16 acres of offsite Area C tributary to Pond 5.

The 20.95 acres of Area E-5 drain to Permanent Pond 3. TSS Removal = (0.8)(20.95) = 16.76.

The 7.41 acres of Area E-4 drain to Permanent Pond 2. TSS Removal = (0.8)(7.41) + (0.8)(4.2) = 9.28.

The 1.34 acres of Area E-3 drain to Permanent Pond 1. TSS Removal = (0.8)(1.34) + (0.8)(2.33) = 2.94

Average Removal for Sub-Basin = (29.95+0+16.76+9.28+2.94)/(49.91+1.34+7.41+20.95) = 74%

East Sub-Basin

The 47.1 acres of Area B drain to the Onsite Reservoir an Extended Dry Detention Basin. TSS Removal = 60%

Because TSS removal for the East and West Drainage Basins fail to meet the required 80%, other methods of enhancing removal may be necessary.

Water Quality Volume (WQv) and Water Quality Flow Calculations

(85% Depth (P) = 1.20 inches, Rainfall Coefficient (Rv)= 0.60)

Drainage Basin	Area	WQ Vol Required	WQ Vol Provided	Peak Inflow	Peak Outflow	Inflow Centroid Time	Outflow Centroid Time	Delta Time
		West Sub-Basin						
ID	(ac)	(ac-ft)	(ac-ft)	(cfs)	(cfs)	(hours)	(hours)	(hours)
E-1 (N Pond 5)	21.75	1.31	4.3	46.0*	1.8	12.38***	46.15***	33.77
E-2 (Free Flow)	9.79	0.59	0	9.8	9.8**	NA	NA	
E-3 (S Pond 1	1.34	0.08	0.2	1.9	0.7	NA	NA	
E-4 (S Pond 2)	7.41	0.44	0.3	3.4	0.6	NA	NA	
E-5 (S Pond 3)	20.95	1.26	1.4	20.1	0.5	NA	NA	
E-6 (Old PL - New K96 R/W)	1.48	0.09	0	0.6	0.6	NA	NA	
Offsite C	28.16	1.22	Pond 5	Pond 5	Pond 5			
Totals	90.88	4.99	6.2	81.8	14			

*Includes: E-1 - 20.8 cfs; C - 24.1 cfs; Other Offsite Basins - 1.1 cfs

**Area E-2 and E-6 untreated flow is compensated for by treating runoff from offsite Area C.

***Inflow centroid is based on combined areas C and E-1 85% hydrographs. Outflow centroid is based on Pond 5 outflow hydrograph.

				East Sub-Basin				
Area B	47.1	2.83	3.1	40.3	0.8	12.38	39.88	27.5

Channel Protection Volume (CPv) and Channel Protection Flow Calculations

(1-Year 24 Hour Storm P = 2.80 Inches; CN = 88; Impervious Area = 85%)

Drainage Basin	Area	CP Vol Provided	Peak Inflow	Peak Outflow	Inflow Centroid Time	Outflow Centroid Time	Delta Time
		West Sub-Basin					
ID	(ac)	(ac-ft)	(cfs)	(cfs)	(hours)	(hours)	(hours)
E-1 (Pond 5)	21.75	8.9	116.7*	16	12.41***	36.08***	23.67
E-2 (Free Flow)	9.79**	0	24.2	24.2	NA	NA	
E-3 (S Pond 1	1.34	0.5	4.8	1.7	12.35***	38.26***	25.91
E-4 (S Pond 2)	7.41	0.8	14.2	2.2	12.34***	40.63***	28.28
E-5 (S Pond 3)	20.95	3.6	49.6	1.7	12.34***	43.1***	30.76
E-6 (Old PL - New K96 R/W)	1.48	0	2.7	2.7			
Offsite C	28.16	Pond 5	Pond 5	Pond 5			
Totals	90.88	13.8	212.2	48.5			

*Includes: E-1 - 51.7 cfs; C - 59.5 cfs; Other Offsite Basins - 5.5 cfs

**Area E-2 undetained runoff from 9.27 acres is compensated for by detaining Area C runoff from 28.16 acres.

*** Pond 5 inflow centroid is derived from combined areas C and E-1 1-year hydrograhs, outflow centroid is based on N. reservoir outflow hydrograph. Pond 1 inflow hydrograph is derived from combined areas E-3, E-4 and E-5, outflow centroid is based on Pond 1 hydrograph. Pond 2 inflow hydrograph is derived from combined areas E-4 and E-5, outflow centroid is based on Pond 2 hydrograph. Pond 3 inflow hydrograph is derived from outflow centroid is based on Pond 3 hydrograph.

				East Sub-Basin			
Area B	47.1	7.3	99.5	3.7	12.41	37.27	24.86

East Sub-Basin CPv model does not include offsite flows, which are detained by offsite reservoirs.

East Basin Existing Discharges

(Area B = 47.1 ac, CN = 84, Impervious = 0%)

Element	Return Period Storm Q (cfs)					
	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
Det. A	73.3	107.3	128	155.1	182.8	193.1
Frmt Res	9.7	26.5	46.7	72.4	95.8	103.5
Area B	75.3	114.9	139.3	172.1	204.9	217.2
K96	155.2	232.5	282.4	378.1	469.7	501.3

East Basin Development Detained Discharges

(Area B = 47.1 ac, CN = 88, Impervious = 85%)

Element	Return Period Storm Q (cfs)					
	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
Det. A	73.3	107.3	128	155.1	182.8	193.1
Frmt Res	9.7	26.5	46.7	72.4	95.8	103.5
Area B	129.5	174.7	201.8	238	274.1	287.6
K96	95	130.4	151.7	176	198.2	206.2

West Basin Existing Discharges

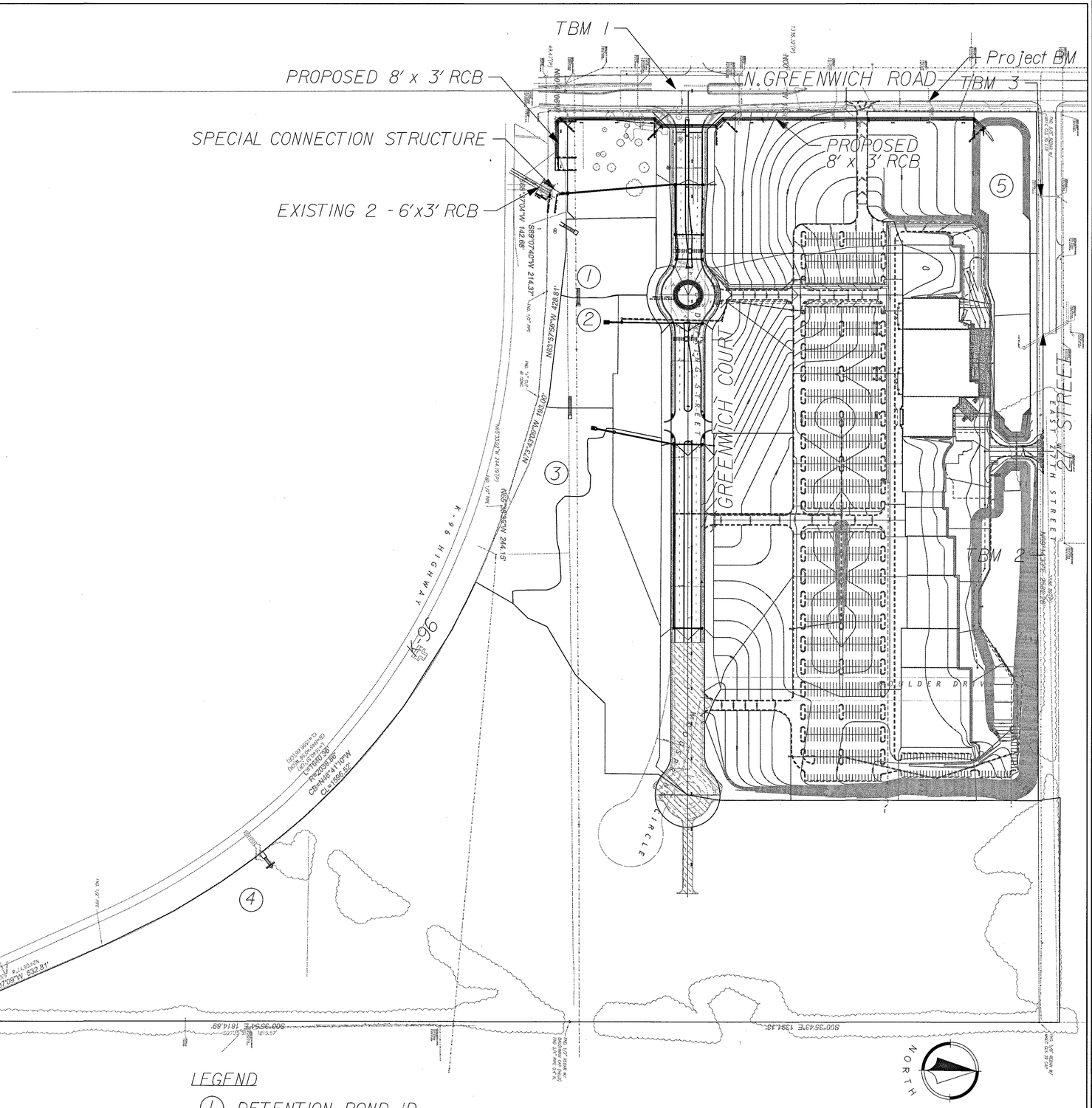
(Area B = 47.1 ac, CN = 84, Impervious = 0%)

Element	Return Period Storm Q (cfs)					
	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
Area C	77.4	104.4	120.6	142.3	163.9	171.9
Junct. 1	86	125.4	148.1	174.6	200.8	210.5
Area E	84.3	129	156.2	192.7	229.3	243
K96	162.7	245.7	293.2	354.5	415.4	438.1

West Basin Development Detained Discharges

(Area B = 47.1 ac, CN = 88, Impervious = 85%)

Element	Return Period Storm Q (cfs)					
	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
Area C	77.4	104.4	120.6	142.3	163.9	171.9
Junct. 1	86.0	125.4	148.1	174.6	200.8	210.5
Area E-1	67.1	90.5	104.5	123.2	141.9	148.9
Pond 5	24.6	34.6	49.0	71.5	105.2	119.4
Pond 1	13.3	46.6	67.9	99.5	126.4	137.3
Area E-2	31.5	42.4	49.0	57.8	66.6	69.9
Area E-6	3.8	5.5	6.5	7.9	9.2	9.8
K96	38.3	82.6	112.8	154.8	198.4	224.9



SHEET 15 of 39

RIC PROJECT NO. 14-0112
WICHITA DESTINATION DEVELOPMENT
GREENWICH COURT DRAINAGE PLANS

STORM SEWER GENERAL LAYOUT

NO.	BY	DATE	REVISION
4.	VZ	BY	3/31/15	UPDATED FOLLOWING CITY COMMENTS
3.	VZ	BY	1/19/15	FINAL PLANS UPDATED FOLLOWING COMMENTS FROM THE CITY
2.	VZ	BY	11/26/14	REMOVAL OF ROUNDABOUT & ADDITION OF TEMP CULVERTS
1.	VZ	BY	9/4/2014	UPDATED ACCORDING TO CITY OF WICHITA COMMENTS
	VZ	BY	7/9/2014	ORIGINAL SUBMITTAL

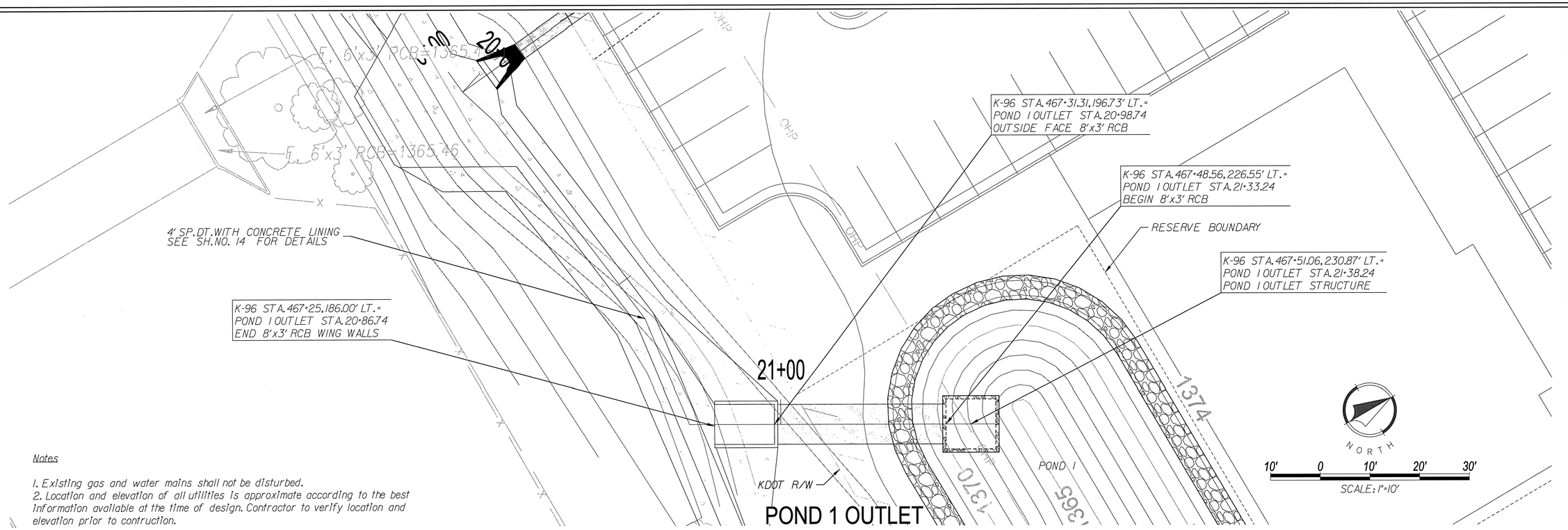
Renaissance Infrastructure Consulting
5015 NW CANAL STREET, SUITE 100 816.800.0950
RIVERSIDE MO, 64150 WWW.RIC-CONSULT.COM

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6/24/2015
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RIC PROJECT NO. 14-0112
WICHITA DESTINATION DEVELOPMENT
GREENWICH COURT DRAINAGE PLANS

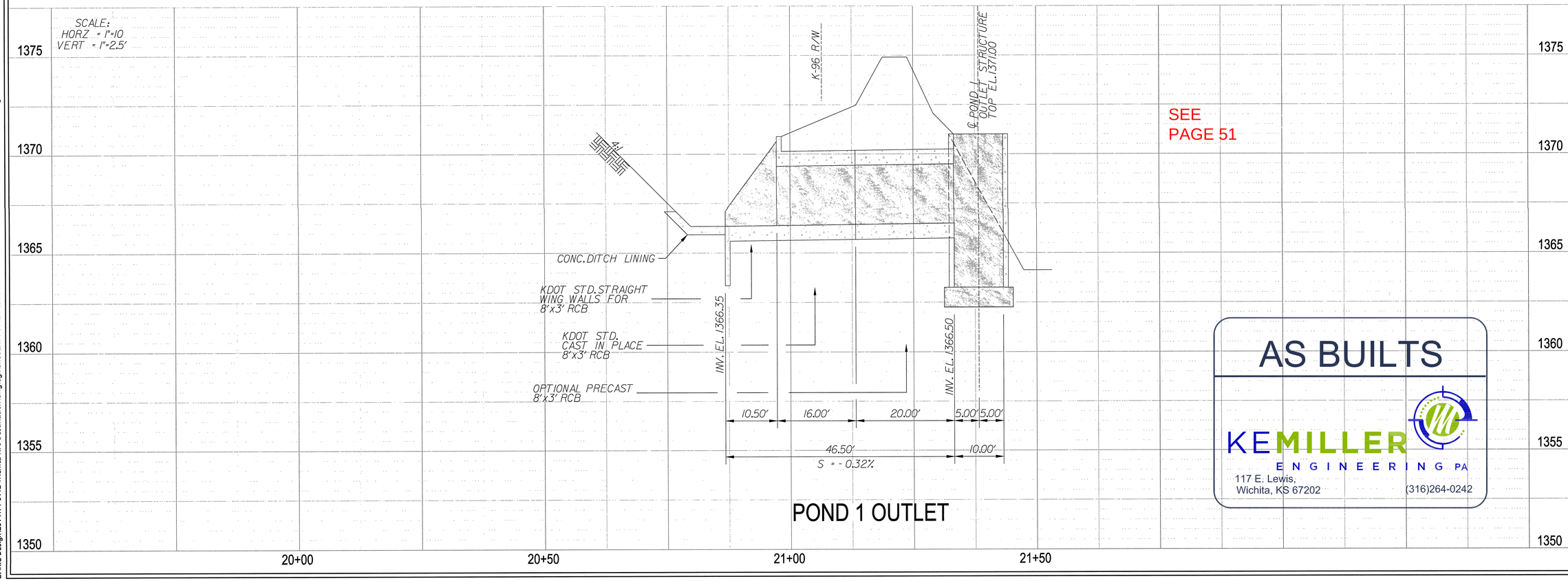
Pond 1 Outlet
Plan & Profile



POND 1 OUTLET

Notes

1. Existing gas and water mains shall not be disturbed.
2. 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 contruction.



POND 1 OUTLET

SEE
PAGE 51

AS BUILTS

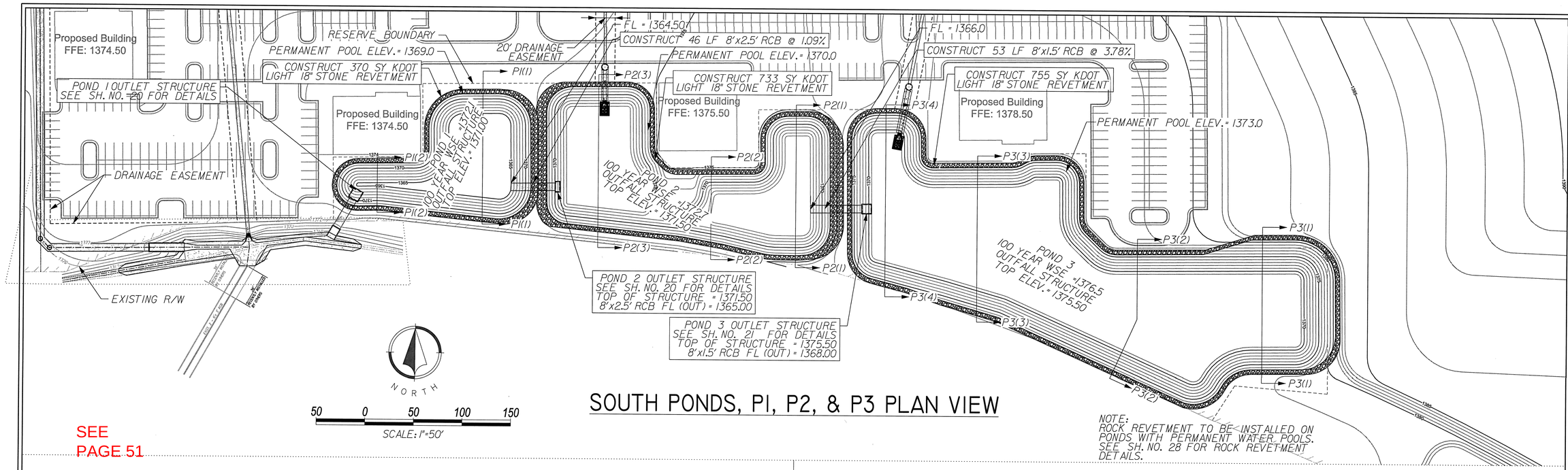
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117 E. Lewis,
Wichita, KS 67202
(316)264-0242

NO.	BY	DATE	REVISION
	VZ	7/3/2014	ORIGINAL SUBMITTAL
1.	VZ	8/4/2014	UPDATED ACCORDING TO CITY OF WICHITA COMMENTS
2.	VZ	11/18/14	REMOVAL OF ROUNDABOUT & ADDITION OF TEMP CULVERTS
3.	VZ	1/15/15	FINAL PLANS UPDATED FOLLOWING COMMENTS FROM THE CITY
4.	VZ	3/31/15	UPDATED FOLLOWING CITY COMMENTS

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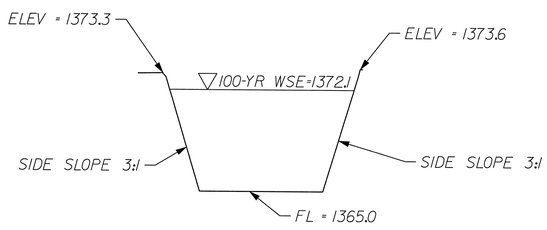
4/3/2015
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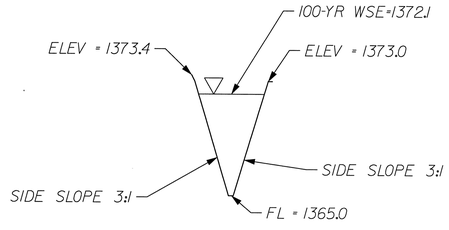
SOUTH PONDS, PI, P2, & P3 PLAN VIEW

SEE PAGE 51

NOTE:
ROCK REVETMENT TO BE INSTALLED ON PONDS WITH PERMANENT WATER POOLS. SEE SH. NO. 28 FOR ROCK REVETMENT DETAILS.

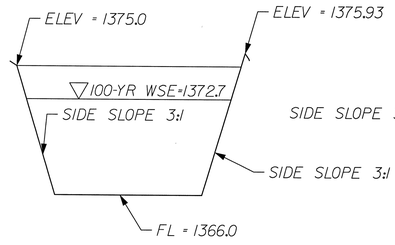


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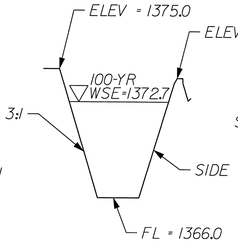


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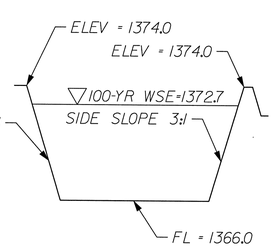
POND 1 CROSS SECTIONS



SECTION P2(1) - P2(1)

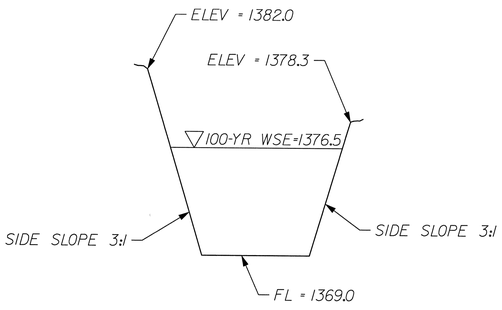


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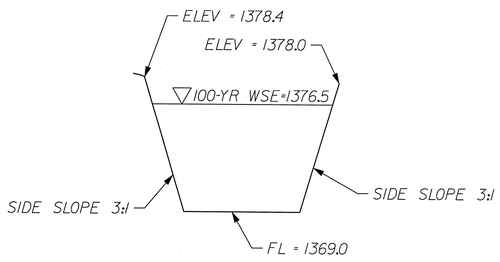


SECTION P2(3) - P2(3)

POND 2 CROSS SECTIONS

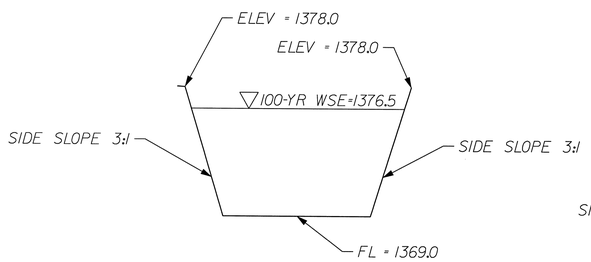


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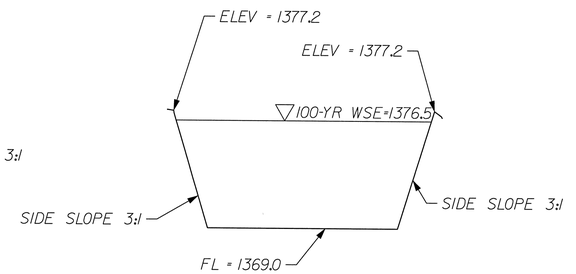


SECTION P3(2) - P3(2)

POND 3 CROSS SECTIONS



SECTION P3(3) - P3(3)



SECTION P3(4) - P3(4)

SOUTH PONDS, PI, P2, & P3 CROSS SECTIONS

(NOT TO SCALE)

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RIC PROJECT NO. 14-0112
WICHITA DESTINATION DEVELOPMENT
GREENWICH COURT DRAINAGE PLANS

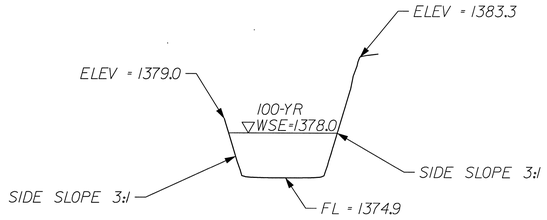
South Ponds Details

NO.	BY	DATE	REVISION
4.	VZ	3/31/15	UPDATED FOLLOWING CITY COMMENTS
3.	VZ	1/19/15	FINAL PLANS UPDATED FOLLOWING COMMENTS FROM THE CITY
2.	VZ	11/19/14	REMOVAL OF ROUNDABOUT & ADDITION OF TEMP. CULVERTS
1.	VZ	8/4/2014	UPDATED ACCORDING TO CITY OF WICHITA COMMENTS
	VZ	7/3/2014	ORIGINAL SUBMITTAL

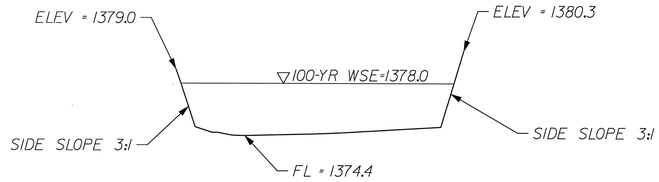
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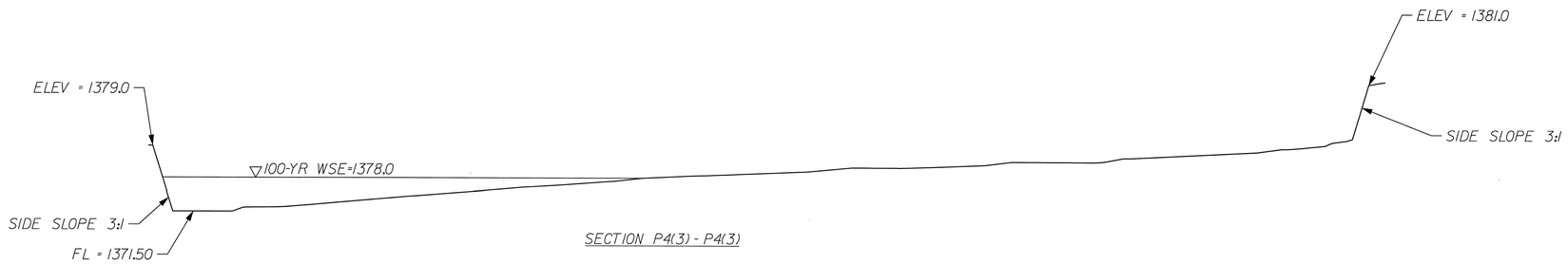
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SECTION P4(1) - P4(1)

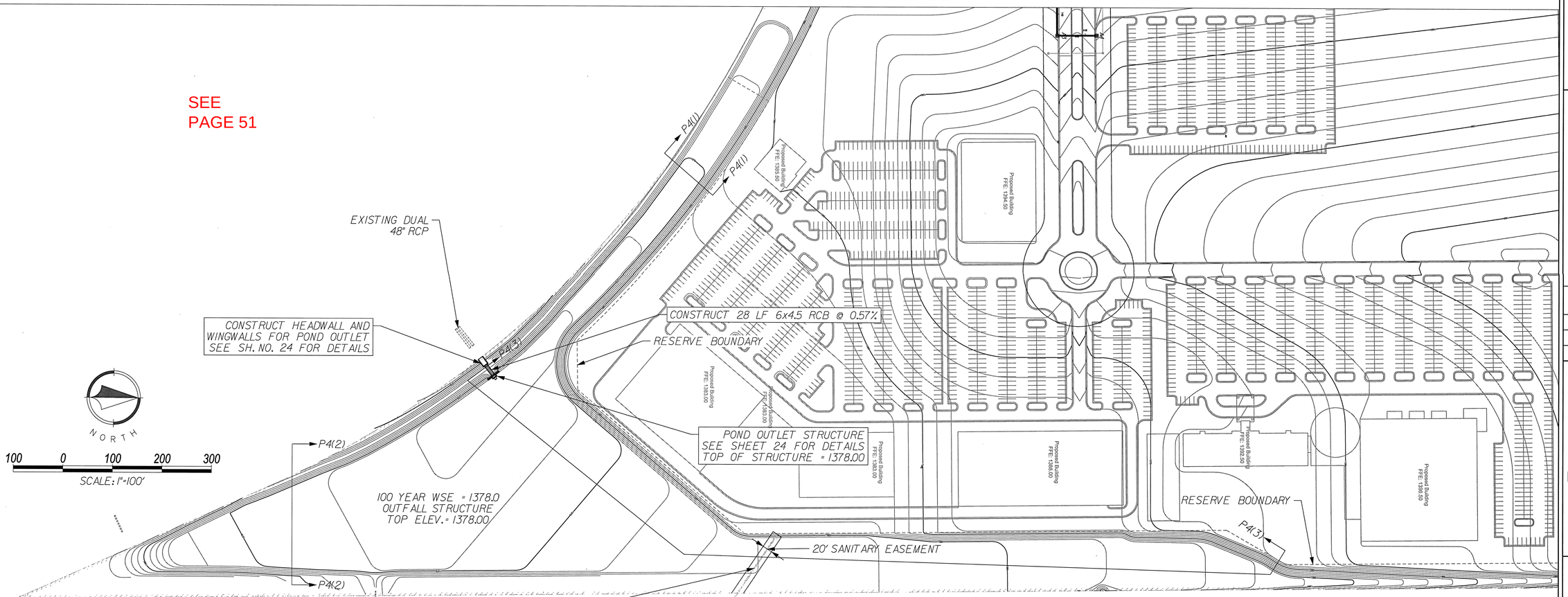


SECTION P4(2) - P4(2)



SECTION P4(3) - P4(3)

EAST POND, P4 CROSS SECTIONS



EAST POND, P4 PLAN VIEW

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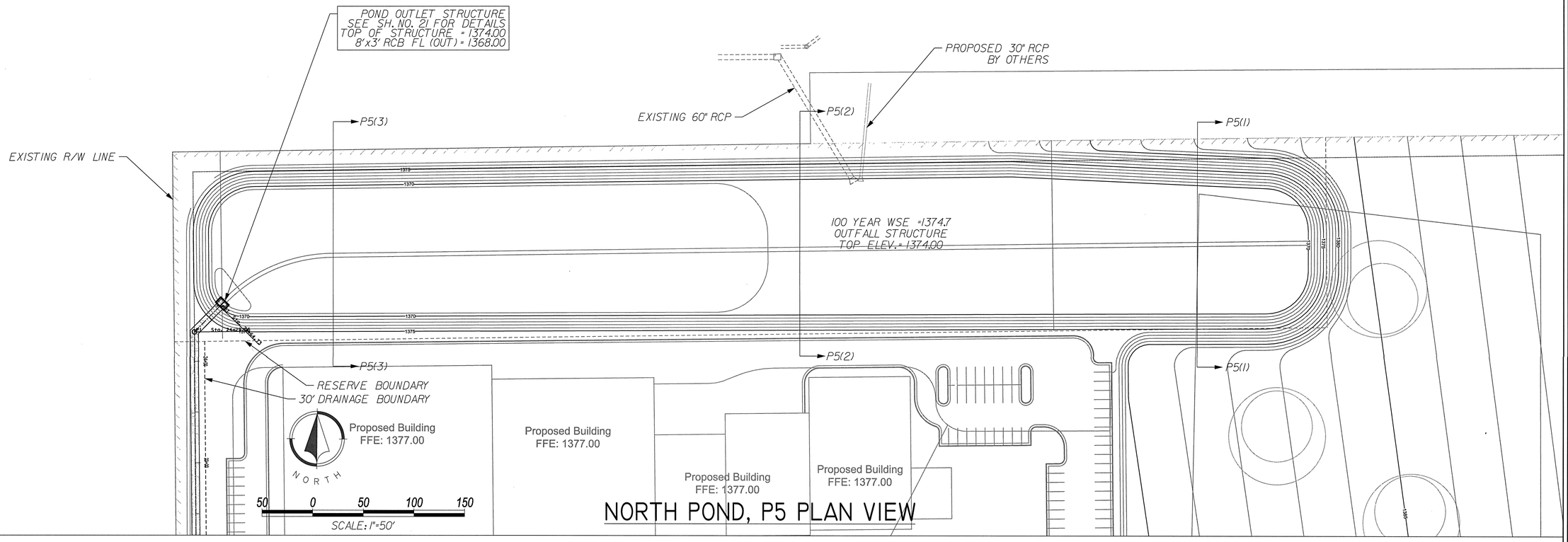
RIC PROJECT NO. 14-0112
WICHITA DESTINATION DEVELOPMENT
GREENWICH COURT DRAINAGE PLANS

East Pond
Detail, P4

NO.	BY	DATE	REVISION
4.	VZ	3/31/15	UPDATED FOLLOWING CITY COMMENTS
3.	VZ	1/19/15	FINAL PLANS UPDATED FOLLOWING COMMENTS FROM THE CITY
2.	VZ	11/18/14	REMOVAL OF ROUNDABOUT & ADDITION OF TEMP CULVERTS
1.	VZ	8/4/2014	UPDATED ACCORDING TO CITY OF WICHITA COMMENTS
	VZ	7/3/2014	ORIGINAL SUBMITTAL

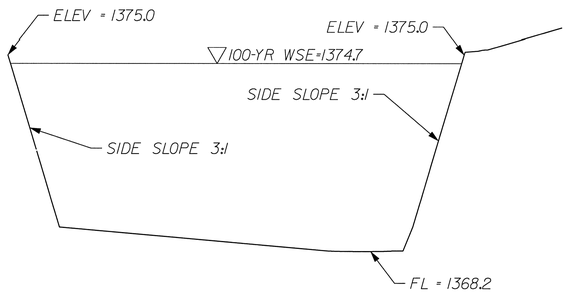
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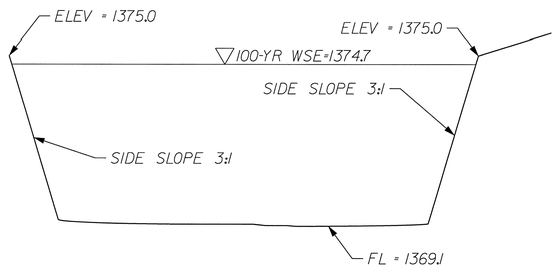


NORTH POND, P5 PLAN VIEW

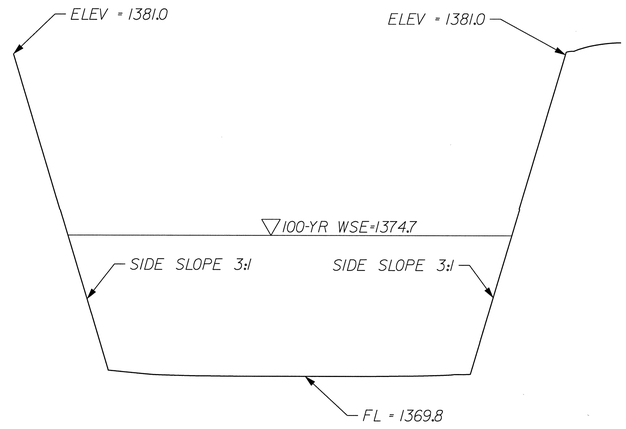
SEE
PAGE 51



SECTION P5(3) - P5(3)



SECTION P5(2) - P5(2)



SECTION P5(1) - P5(1)

NORTH POND, P5 CROSS SECTIONS

(NOT TO SCALE)

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RIC PROJECT NO. 14-0112
WICHITA DESTINATION DEVELOPMENT
GREENWICH COURT DRAINAGE PLANS

North Pond
Detail, P5

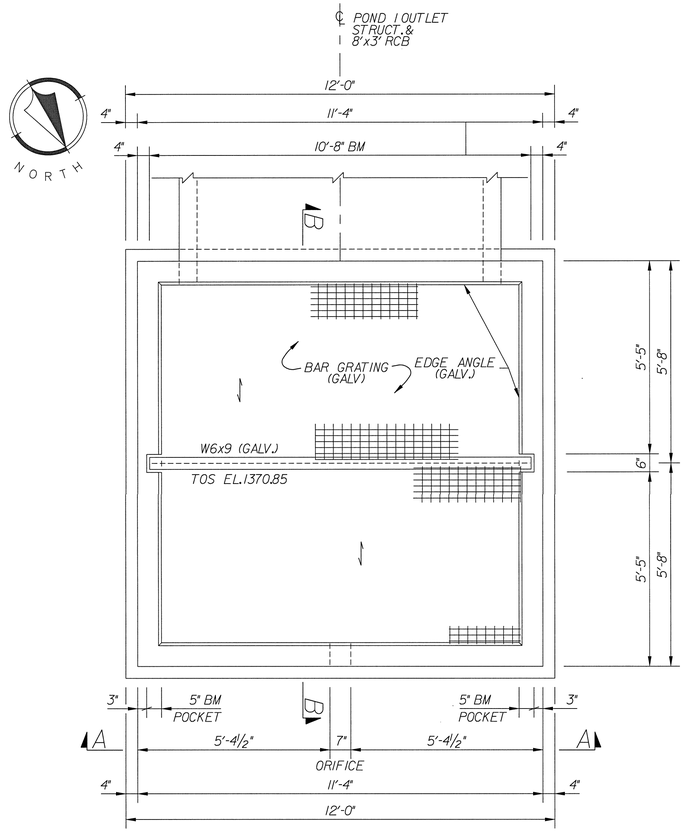
NO.	BY	DATE	REVISION
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1.	VZ	8/4/2014	UPDATED ACCORDING TO CITY OF WICHITA COMMENTS
2.	VZ	11/18/14	REMOVAL OF ROUNDABOUT & ADDITION OF TEMP CULVERTS
3.	VZ	1/19/15	FINAL PLANS UPDATED FOLLOWING COMMENTS FROM THE CITY
4.	VZ	3/31/15	UPDATED FOLLOWING CITY COMMENTS

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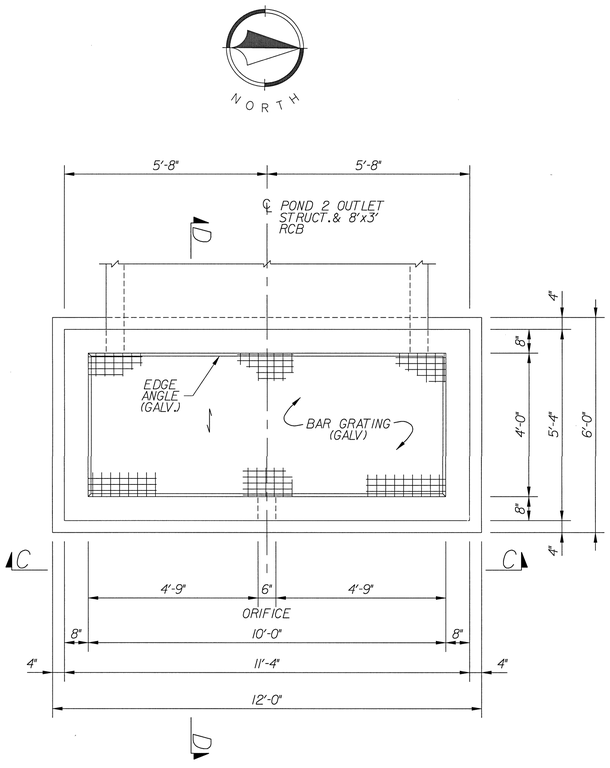
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4/3/2015

4/3/2015
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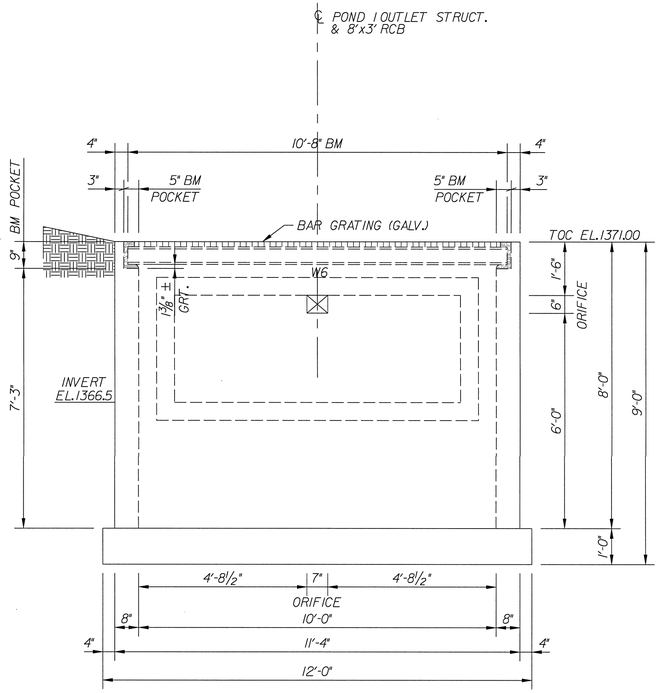
NOTE:
FOR CONCRETE GENERAL NOTES AND TYPICAL DETAILS, SEE SH.NO. 27



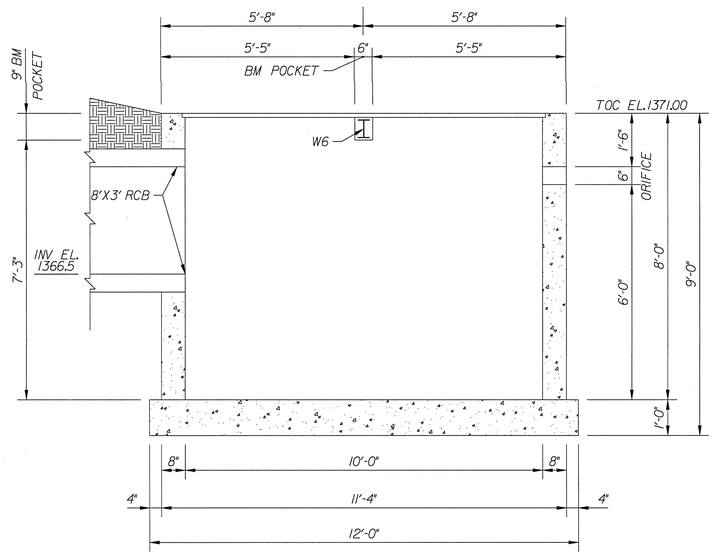
PLAN - POND 1 OUTLET STRUCTURE



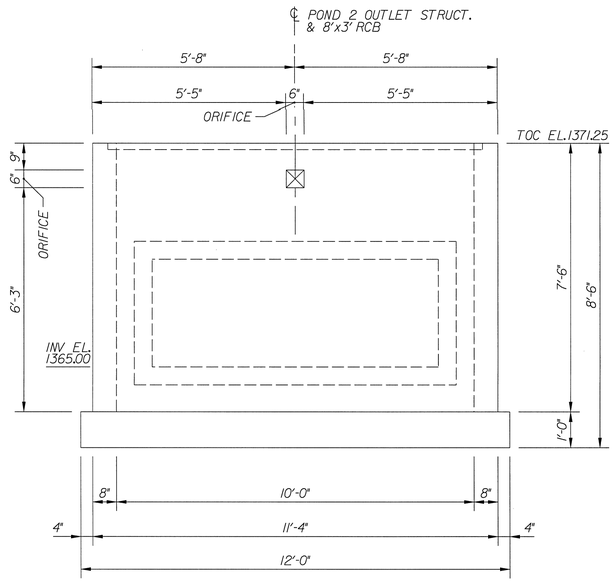
PLAN - POND 2 OUTLET STRUCTURE



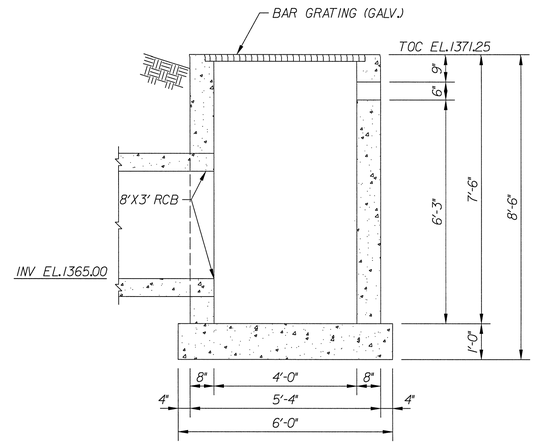
SECTION A-A



SECTION B-B



SECTION C-C



SECTION D-D

RIC PROJECT NO. 14-0112
WICHITA DESTINATION DEVELOPMENT
GREENWICH COURT DRAINAGE PLANS

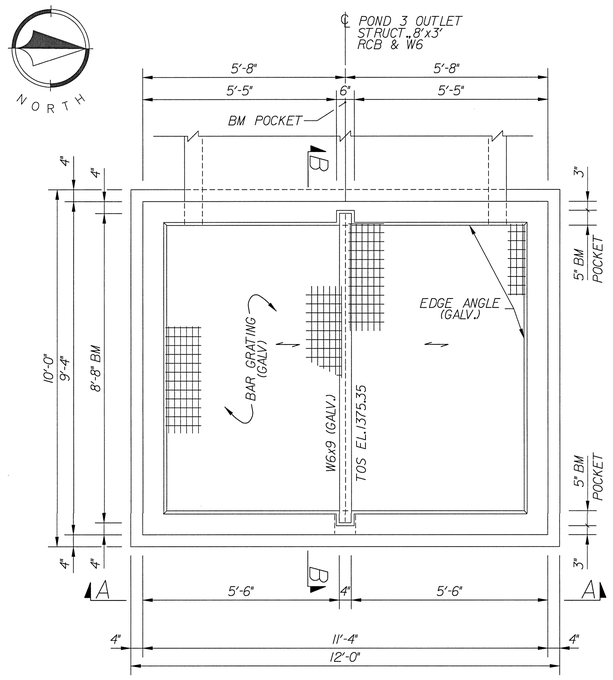
Storm Special Details

NO.	BY	DATE	REVISION
	VZ	7/3/2014	ORIGINAL SUBMITTAL
1.	VZ	8/4/2014	UPDATED ACCORDING TO CITY OF WICHITA COMMENTS
2.	VZ	11/18/14	REMOVAL OF ROUNDABOUT & ADDITION OF TEMP CULVERTS
3.	VZ	1/19/15	FINAL PLANS UPDATED FOLLOWING COMMENTS FROM THE CITY
4.	VZ	3/31/15	UPDATED FOLLOWING CITY COMMENTS

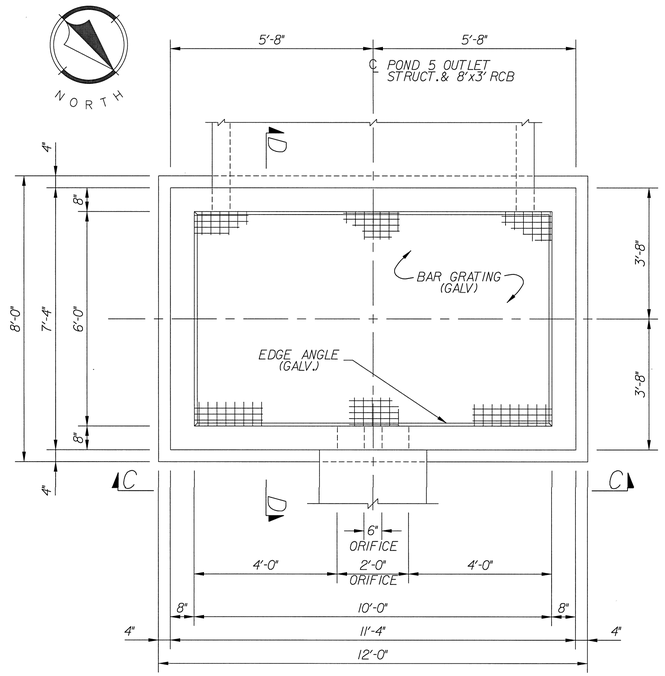
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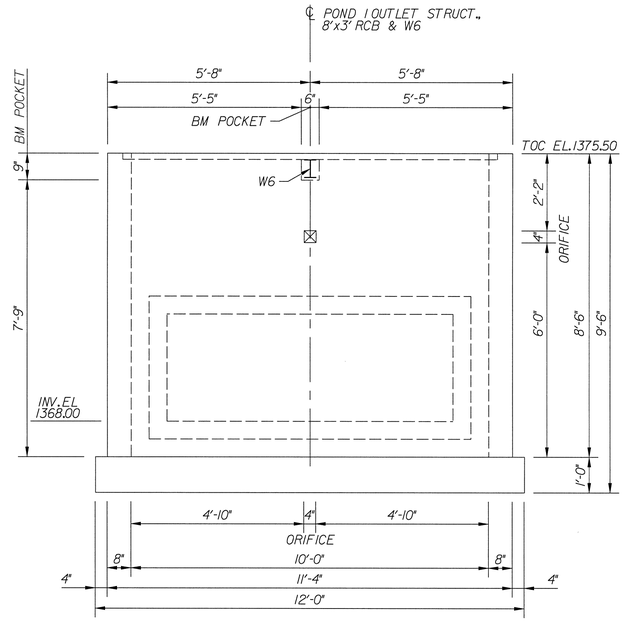
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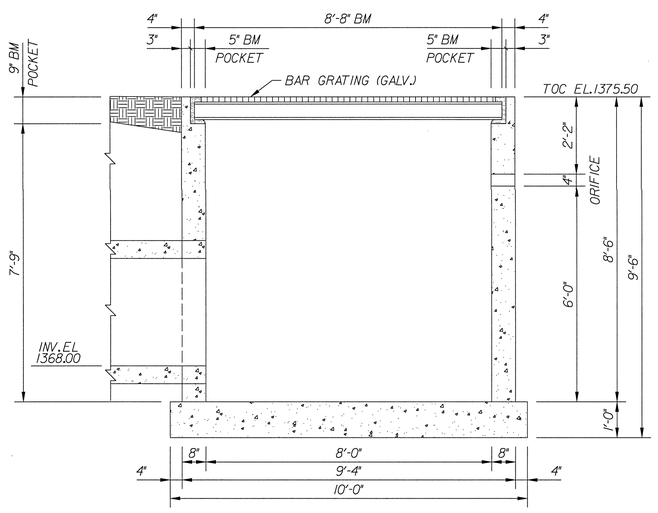
PLAN - POND 3 OUTLET STRUCT.



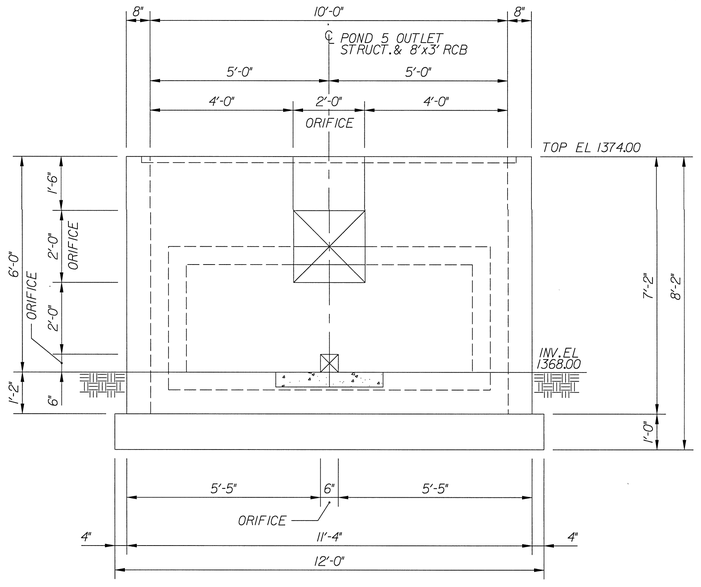
PLAN - POND 5 OUTLET STRUCT.



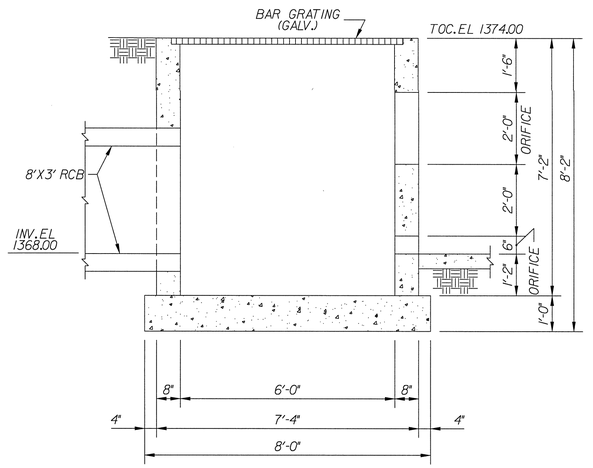
SECTION A-A



SECTION B-B



SECTION C-C



SECTION D-D

NOTE:
FOR CONCRETE GENERAL NOTES AND TYPICAL DETAILS, SEE SH. NO. 27

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RIC PROJECT NO. 14-0112
WICHITA DESTINATION DEVELOPMENT
GREENWICH COURT DRAINAGE PLANS

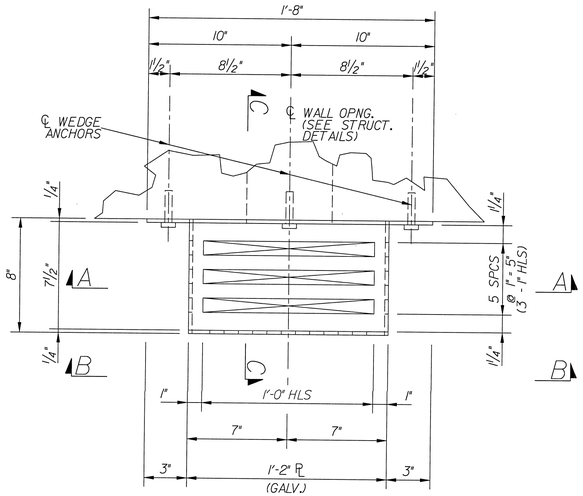
Storm Special Details

NO.	BY	DATE	REVISION
			ORIGINAL SUBMITTAL
1.	VZ	BY 6/4/2014	UPDATED ACCORDING TO CITY OF WICHITA COMMENTS
2.	VZ	BY 11/18/14	REMOVAL OF ROUNDABOUT & ADDITION OF TEMP CULVERTS
3.	VZ	BY 1/19/15	FINAL PLANS UPDATED FOLLOWING COMMENTS FROM THE CITY
4.	VZ	BY 3/31/15	UPDATED FOLLOWING CITY COMMENTS

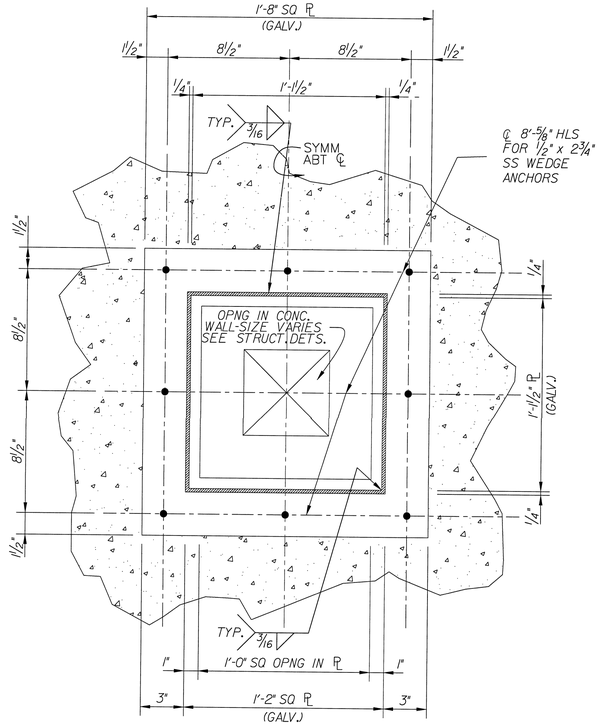
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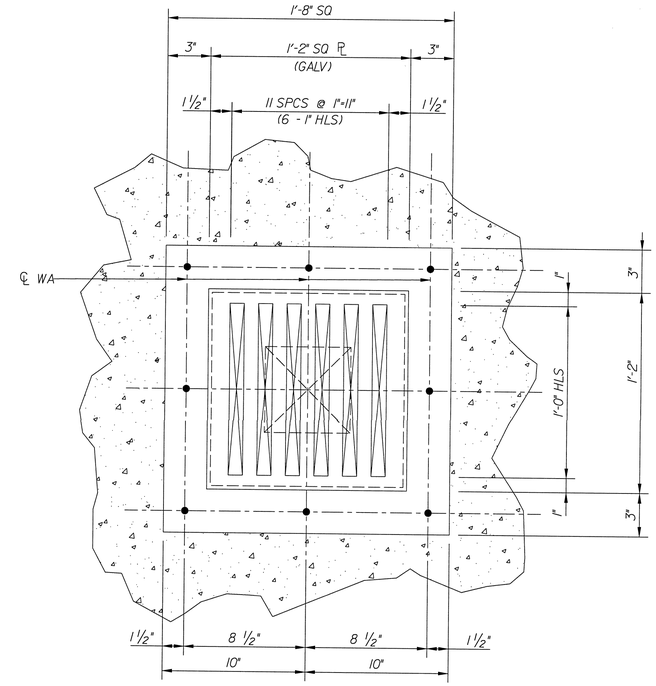
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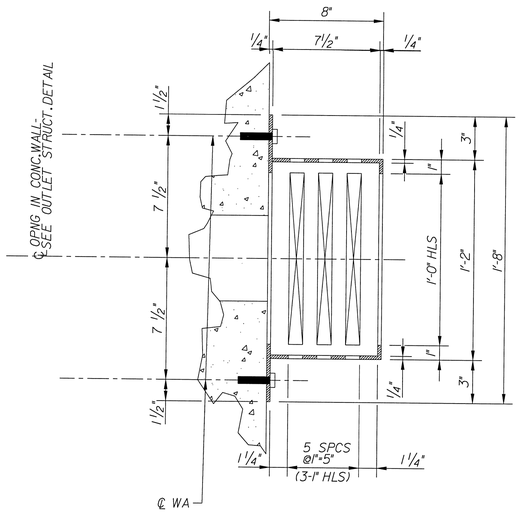
HOOD PLAN ~ PONDS 1,2 & 3
(TOP & BOT)



SECTION A-A



SECTION B-B



SECTION C-C

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RIC PROJECT NO. 14-0112
WICHITA DESTINATION DEVELOPMENT
GREENWICH COURT DRAINAGE PLANS

Storm Special Details

NO.	BY	DATE	REVISION
		7/3/2014	ORIGINAL SUBMITTAL
1.	VZ	8/4/2014	UPDATED ACCORDING TO CITY OF WICHITA COMMENTS
2.	VZ	11/19/14	REMOVAL OF ROUNDABOUT & ADDITION OF TEMP CULVERTS
3.	VZ	1/19/15	FINAL PLANS UPDATED FOLLOWING COMMENTS FROM THE CITY
4.	VZ	3/31/15	UPDATED FOLLOWING CITY COMMENTS

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HOOD PLAN - PONDS 4 & 5

SECTION A-A

SECTION B-B

SECTION C-C

NO.	BY	DATE	REVISION
1.	VZ	BY	7/2/2014	ORIGINAL SUBMITTAL
2.	VZ	BY	8/4/2014	UPDATED ACCORDING TO CITY OF WICHITA COMMENTS
3.	VZ	BY	11/18/14	REMOVAL OF ROUNDABOUT & ADDITION OF TEMP CULVERTS
4.	VZ	BY	1/19/15	FINAL PLANS UPDATED FOLLOWING COMMENTS FROM THE CITY
	VZ	BY	9/25/15	UPDATED FOLLOWING CITY COMMENTS

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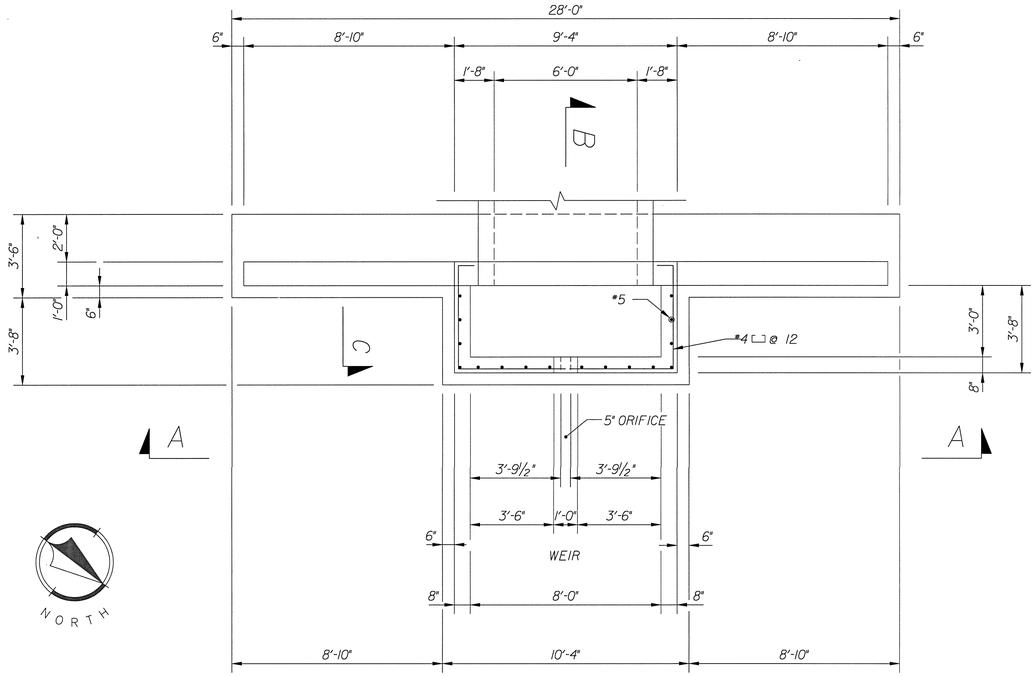
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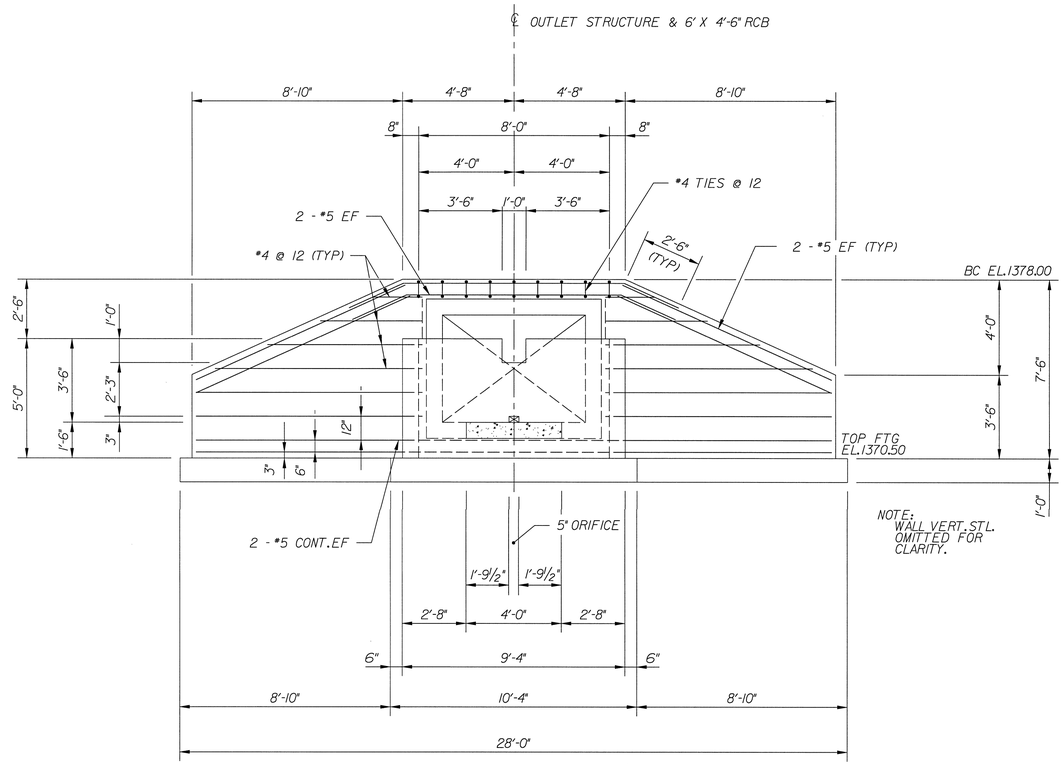
RIC PROJECT NO. 14-0112
WICHITA DESTINATION DEVELOPMENT
GREENWICH COURT DRAINAGE PLANS

Storm Special Details

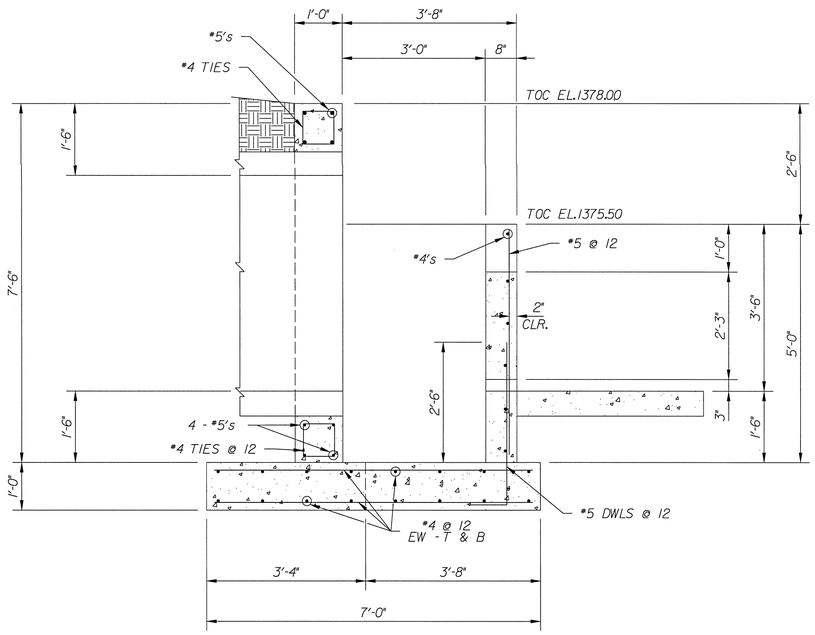
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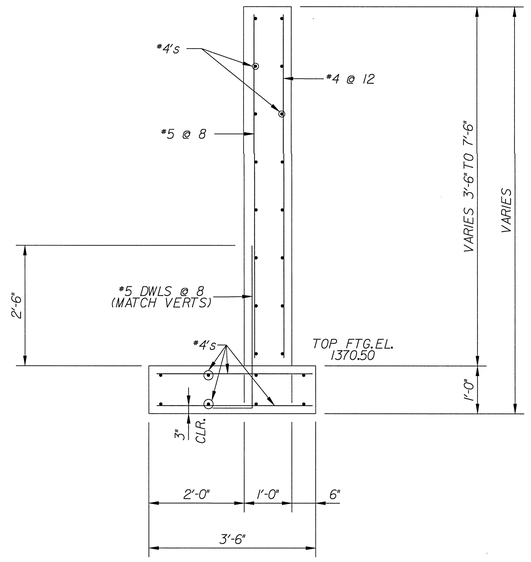
PLAN - POND 4 OUTFALL STRUCTURE



SECTION A-A



SECTION B-B



SECTION C-C

NOTE:
FOR CONCRETE GENERAL NOTES AND TYPICAL DETAILS, SEE SH.NO. 27

SHEET
24 of 39

RIC PROJECT NO. 14-0112
WICHITA DESTINATION DEVELOPMENT
GREENWICH COURT DRAINAGE PLANS

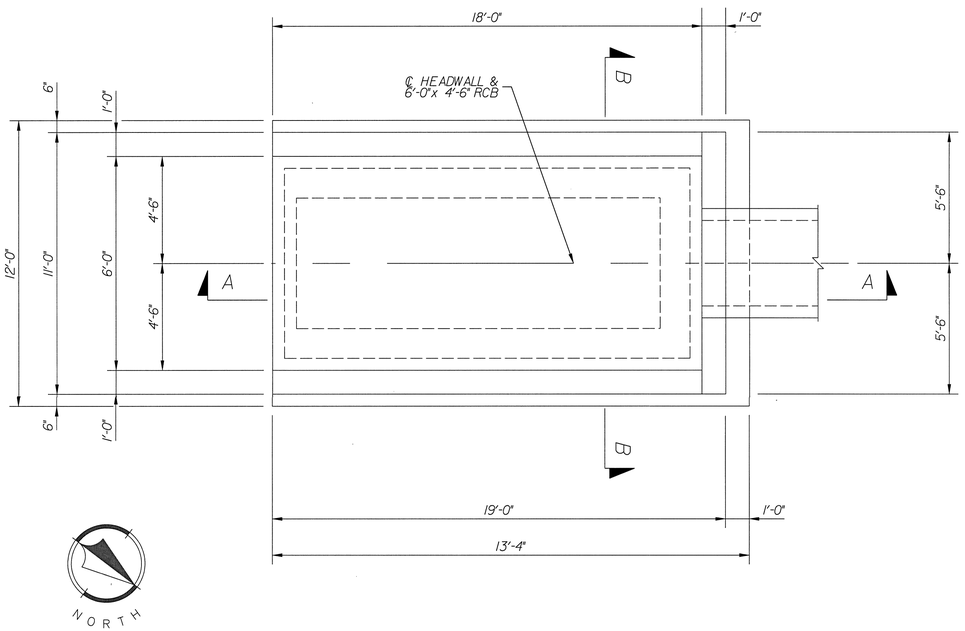
Storm Special Details

NO.	BY	DATE	REVISION
4.	VZ	3/31/15	UPDATED FOLLOWING CITY COMMENTS
3.	VZ	1/19/15	FINAL PLANS UPDATED FOLLOWING COMMENTS FROM THE CITY
2.	VZ	11/18/14	REMOVAL OF ROUNDABOUT & ADDITION OF TEMP CULVERTS
1.	VZ	8/4/2014	UPDATED ACCORDING TO CITY OF WICHITA COMMENTS
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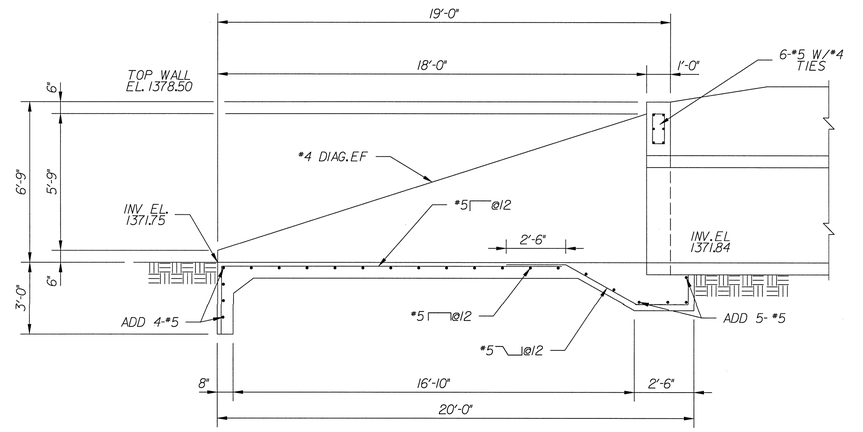
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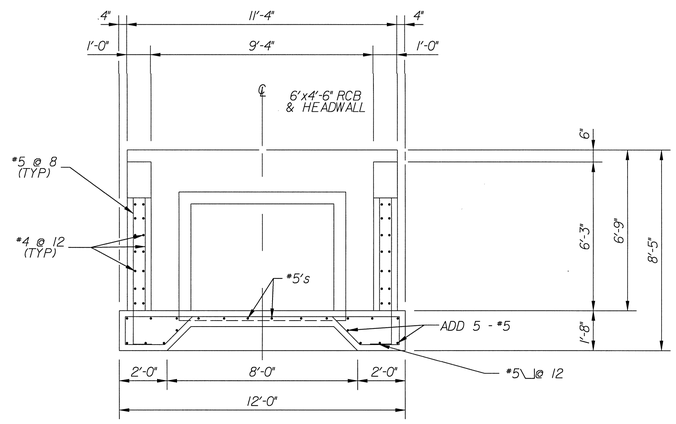
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PLAN - POND 4 OUTLET HEAD AND WINGWALL



SECTION A-A



SECTION B-B

NOTE:
FOR CONCRETE GENERAL NOTES AND TYPICAL DETAILS, SEE SH. NO. 27

SHEET
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RIC PROJECT NO. 14-0112
WICHITA DESTINATION DEVELOPMENT
GREENWICH COURT DRAINAGE PLANS

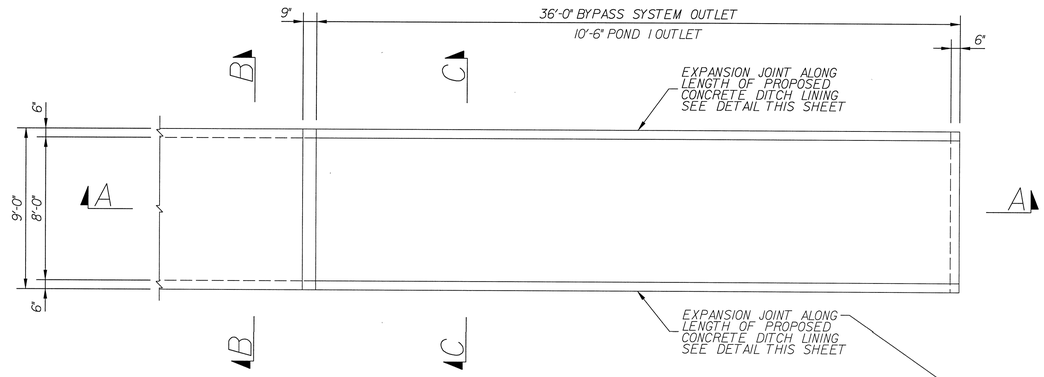
Storm Special Details

NO.	BY	DATE	REVISION
	VZ	7/3/2014	ORIGINAL SUBMITTAL
1.	VZ	8/4/2014	UPDATED ACCORDING TO CITY OF WICHITA COMMENTS
2.	VZ	11/18/14	REMOVAL OF ROUNDABOUT & ADDITION OF TEMP CULVERTS
3.	VZ	1/19/15	FINAL PLANS UPDATED FOLLOWING COMMENTS FROM THE CITY
4.	VZ	3/31/15	UPDATED FOLLOWING CITY COMMENTS

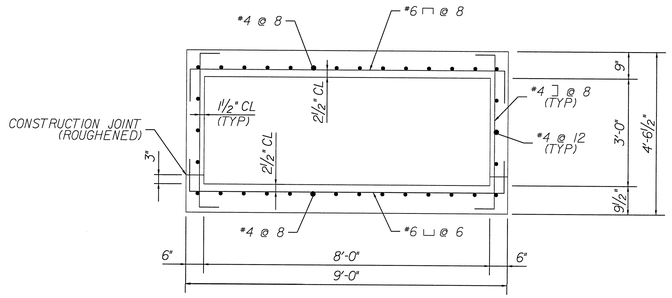
Renaissance Infrastructure Consulting
5015 NW CANAL STREET, SUITE 100
RIVERSIDE MO, 64150
816.800.0950
WWW.RIC-CONSULT.COM

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PROFESSIONAL ENGINEER

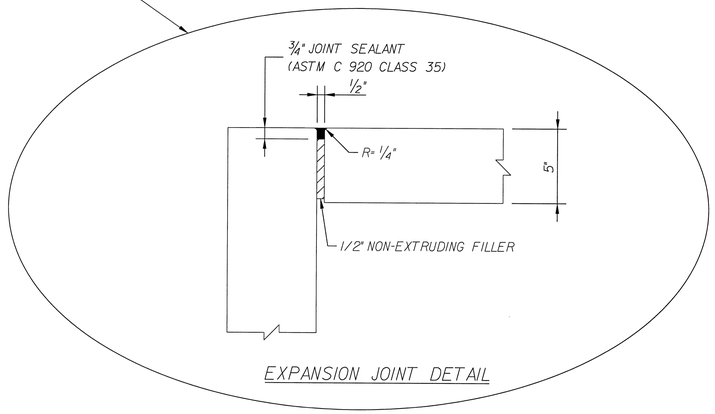
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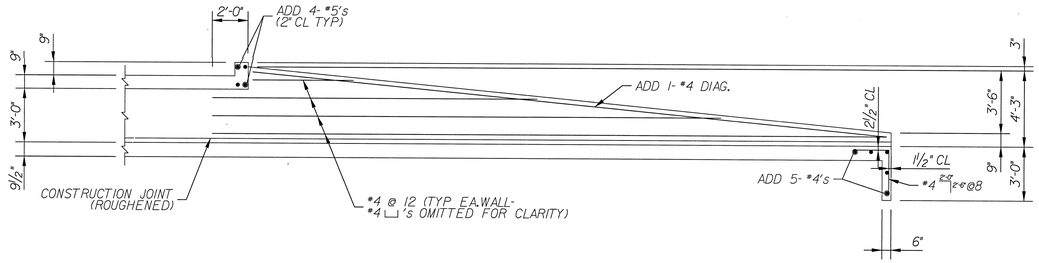
PLAN - TYP. CAST-IN PLACE RCB OUTLET



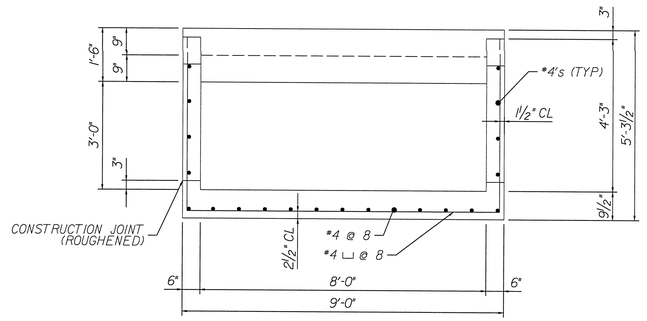
SECTION B-B



EXPANSION JOINT DETAIL



SECTION A-A



SECTION C-C

NOTE:
FOR CONCRETE GENERAL NOTES AND TYPICAL DETAILS, SEE SH. 27

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RIC PROJECT NO. 14-0112
WICHITA DESTINATION DEVELOPMENT
GREENWICH COURT DRAINAGE PLANS

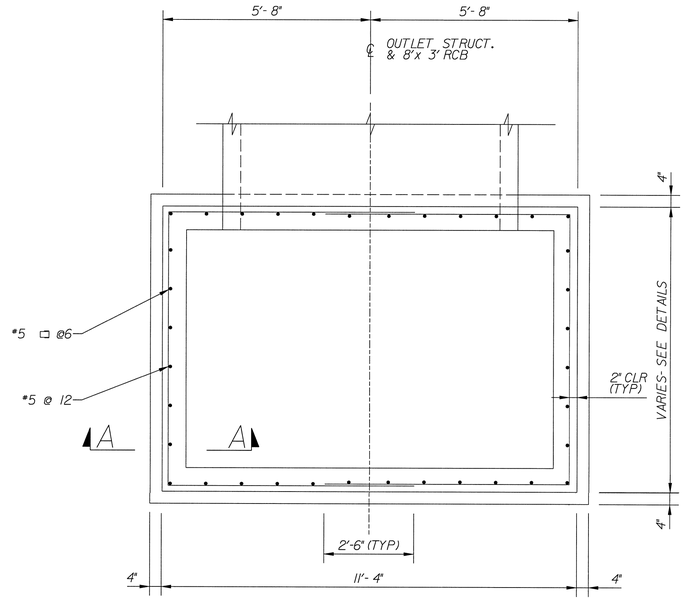
Storm Special Details

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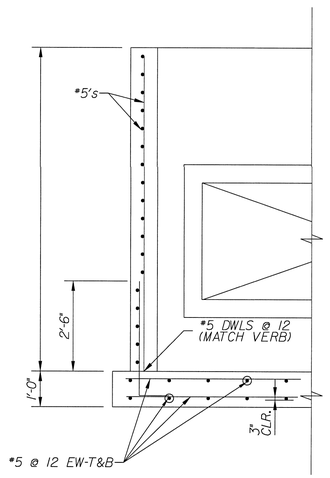
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TYPICAL REINFORCEMENT PLAN
OUTLET STRUCTURES 1,2,3,& 5



SECTION A-A

GENERAL NOTES:

1. STRUCTURAL CONCRETE SHALL BE AIR ENTRAINED WITH A 28 DAY COMPRESSIVE STRENGTH OF 4000 PSI IN ACCORDANCE WITH THE PROVISIONS OF THE KANSAS DEPARTMENT OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR CONCRETE GRADE 4.0 (AE).

2. REINFORCING STEEL SHALL BE ASTM A615, GRADE 60. REINFORCEMENT SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AT LEAST TWO WEEKS PRIOR TO FABRICATION. ALL REINFORCING STEEL SHALL BE DETAILED AND PLACED IN CONFORMANCE WITH THE CURRENT EDITION OF "BUILDING CODE REQUIREMENTS FOR STRUCUTRAL CONCRETE" (ACI 318) AND THE "MANUAL OF STANDARD PRACTICE FOR REINFORCED CONCRETE STRUCTURES' CONCRETE REINFORCING INSTITUTE (CRSI).

3. CONCRETE SHALL BE MIXED AND PLACED IN ACCORDANCE WITH ACI 350.06.

4. STANDARD COVERAGE OF REINFORCING SHALL BE 2 INCHES IN WALLS AND 3" FOR BOTTOM STEEL ON SLABS EXPOSED TO THE EARTH UNLESS NOTED OTHERWISE ON THE PLANS.

5. EXCEPT WHERE NOTED OTHERWISE ON THE PLANS, SUPPLY 4'-0"LONG (MIN.), 2'-0"IN EACH DIRECTION OR 30 BAR DIAMETERS CORNER BARS AT CORNERS OF SLABS AND FOOTINGS. MATCH SIZE AND SPACING OF HORIZONTAL BARS.

6. CALCIUM CHLORIDE SHALL NOT BE ADDED TO CONCRETE, ALTHOUGH OTHER ACCELERATING AGENTS MAY BE USED WITH THE APPROVAL OF THE ENGINEER.

7. REINFORCING STEEL SHALL BE CONTINUOUS, EXCEPT WHERE NOTED OTHERWISE ON THE PLANS. REINFORCING STEEL SHALL BE EMBEDDED OR LAPPED TO DEVELOP THE FULL TENSILE CAPACITY OF THE BAR. LAPS SHALL BE CLASS B. LENGTHS SPECIFICALLY DETAILED ON THE DRAWINGS SHALL GOVERN OVER SCHEDULE LENGTHS. STANDARD HOOKS SHALL BE PROVIDED WHERE HOOKED BARS ARE SHOWN ON THE PLANS.

8. THE SMALLER BAR LAP LENGTH SHALL BE USED WHEN SPLICING DIFFERENT SIZE BARS.

9. THE CONTRACTOR MAY USE MECHANICAL SPLICES IN LIEU OF LAP SPLICES. MECHNICAL SPLICES SHALL DEVELOP 125% OF THE BARS YIELD STRENGTH. BUTT WELDED SPLICES WILL NOT BE PERMITTED.

10. ALL CORNERS SHALL BE CHAMFERED 1 INCH.

11. ALL WALL TO FOOTING INTERFACES AND WALL JOINTS SHALL BE ROUGHENED TO AN AMPLITUDE OF ¼INCH.

12. STRUCTURAL STEEL WIDE FLANGE SHAPES AND PLATES SHALL CONFORM TO ASTM A36 AND SHALL BE HOT DIP GALVANIZED.

13. BAR GRATING PANELS SHALL BE 19-W-4 13/4" X 3/16" AND SHALL BE FABRICATED FROM STEEL CONFORMING TO ASTM A-1011. PANELS SHALL BE TRIMMED AND BANDED AND HOT DIP GALVANIZED.

14. WEDGE ANCHORS FOR USE IN THE NEW SLAB TO EXISITNG SLAB CONNECTION SHALL BE STRONG BOLT ANCHORS AS MANUFACTURED BY SIMPSON STRONG TIE ANCHOR SYSTEMS OR APPROVED EQUAL (EQUIVALENT STRENGTH DOCUMENTATION SHALL BE PROVIDED FOR ALTERNATES).

15. OUTFALL STRUCTURE BEAM POCKETS SHALL BE FLOODED WITH NON-SHRINK EPOXY GROUT AFTER BAR GRATING SUPPORT BEAMS ARE SET.

16. PRECAST RCB TO CAST-IN-PLACE RCB CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH KDOT STANDARD DRAWING BR031 "PRECAST CONCRETE BOX CULVERT DETAILS", WITH A MINIMUM OF 12 INCHES OF EXPOSED REINFORCING STEEL EXTENDING FROM THE END OF THE PRECAST SECTION.

17. THE CONCRETE DITCH LINING SHALL CONFORM TO KDOT STANDARD DRAWING RD502 "DITCH LINING", EXCEPT AS GEOMETRY IS MODIFIED ON THE PLANS.

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RIC PROJECT NO. 14-0112
WICHITA DESTINATION DEVELOPMENT
GREENWICH COURT DRAINAGE PLANS

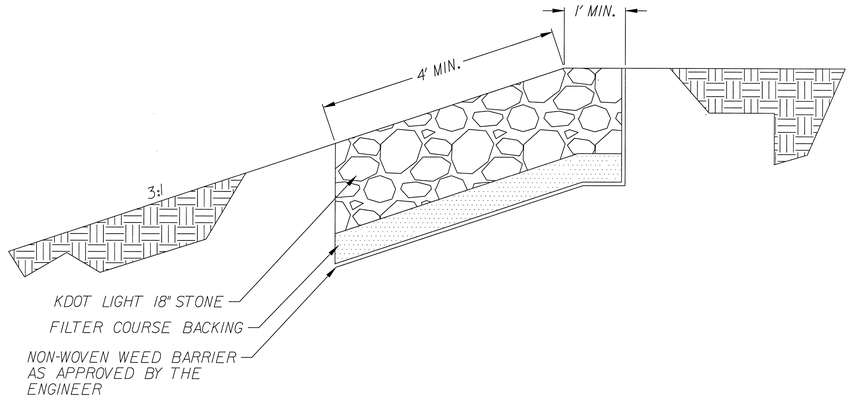
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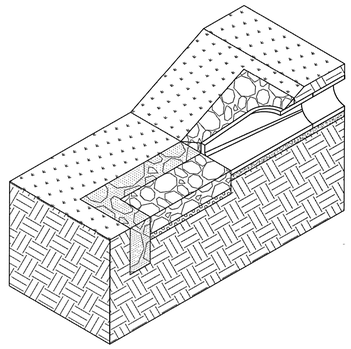
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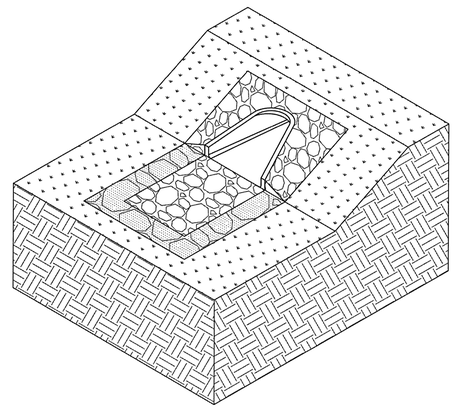
JAMES V. GAGNE III
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KANSAS
PROFESSIONAL ENGINEER

4/3/2015
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ROCK REVETMENT DETAIL (PONDS 1,2,& 3)





GRADATION REQUIREMENTS:

1. *Heavy Stone Riprap: Heavy stone riprap shall be constructed twenty-four inches (24") in thickness and shall be placed on a stone filter course backing having a thickness of nine inches (9"). Stone used in riprap shall meet the required quality requirements and the following size requirements.*

Weight of Individual Pieces	Minimum Percent Larger Than
1,000 lbs	0%
500 lbs	50%
75 lbs	90%

Filter course backing for heavy stone riprap shall be produced from the stone meeting the quality requirements of stone for riprap and shall have the following size requirements

Sieve Size	Percent Retained
6"	0%
5"	5-25%
2"	40-60%
3/8"	75-95%

2. *Light Stone Riprap: Light stone riprap shall be constructed eighteen inches (18") in thickness and shall be placed on a stone filter course backing having a thickness of six inches (6"). Stone used in riprap shall meet the required quality requirements and the following size requirements.*

Weight of Individual Pieces	Minimum Percent Larger Than
500 lbs	0%
250 lbs	50%
125 lbs	70%
10 lbs	90%

Filter course backing for heavy stone riprap shall be produced from the stone meeting the quality requirements of stone for riprap and shall have the following size requirements

Sieve Size	Percent Retained
4"	0%
2"	10-40%
1"	25-60%
3/8"	55-85%
#4	70-95%

INSTALLATION OF STONE RIPRAP:

Stone riprap shall be placed on a prepared bedding layer so as to produce a reasonably well-graded mass with a minimum percentage of void. Stone riprap shall be placed to it's full course thickness in one operation without displacing the bedding. Placing stone riprap by dumping into chutes or any other method likely to cause segregation will not be permitted. Placement of stone on the slope and in toe trenches shall be accomplished by controlled dumping directly in place.

Bulldozing of stone from the upper banks will not be permitted. use of a drag line or similar equipment operated from the top of the bank to pull stone into position on the upper slope will be permitted. Stone riprap may be placed below water, providing it is placed by skip or another approved method which will prevent segregation. Larger stones should be distributed and the entire mass of stones in their final position should be stable and free of pockets of small stones and clusters of larger of larger ones; rearrangement of individual pieces by hand may be required to obtain the results described above. A tolerance of plus three inches (3") from the lines and grades shown on the continuous over an area greater than 100 square feet. Hand placing of riprap stones shall be necessary to produce reasonably true surfaces and close fit of stones. The larger spaces between the stones shall be fitted with spalls of suitable size, rammed thoroughly in place. The spaces between stones shall be fitted with smaller rock, carefully hand placed in such a manner to obtain a tight surface.

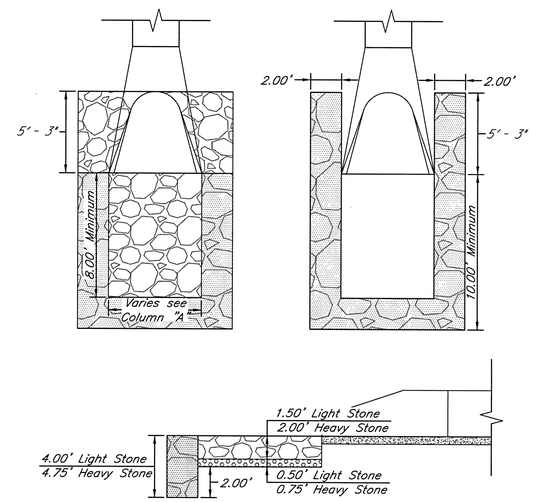
Toewalls shall be installed along all unprotected edges of edges of stone riprap construction. Such toewalls shall be constructed using the same size stone specified for t he riprap with the toewall thickness being the same thickness as specified for the riprap without the filter course backing. The toewalls shall extend a minimum distance of 2' below the bottom of the filter course backing material and they shall be constructed perpendicular to the top surface of the riprap construction. Toewall construction shall be grouted in place for the full depth from the bottom of the toewall to the top surface of the riprap for the full thickness of the toewall to the top surface of riprap for the full thickness of the toewall.

When specified, all riprap placed within the limits of a dimension of 10' from pipe ends, pipe end sections and headwall structures, as measured from the outside edges of such pipe ends or structures, shall be grouted in place. Other area shall be grouted when indicated by the plans. When grouted stone riprap is required, the spaces between the riprap stones shall be filled with water to form a plastic mix. The grout mixture shall be poured and broomed into the voids around the rock until all such voids are completely filled. Grouted stone riprap will be cured in the same manner as specified in the standard specifications for concrete pavement.

GROUTED TOEWALL

STONE RIPRAP

FILTER COURSE BACKING



SHEET
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RIC PROJECT NO. 14-0112
WICHITA DESTINATION DEVELOPMENT
GREENWICH COURT DRAINAGE PLANS

Storm Special Details

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QD	BY	DATE	REVISION

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www.ric-consult.com

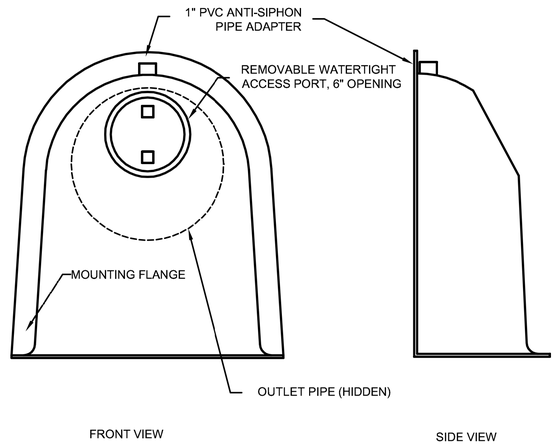
WILLIAM V. RICE LICENSED 19515 4/3/2015 PROFESSIONAL ENGINEER

4/3/2015
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RIC PROJECT NO. 14-0112
WICHITA DESTINATION DEVELOPMENT
GREENWICH COURT DRAINAGE PLANS

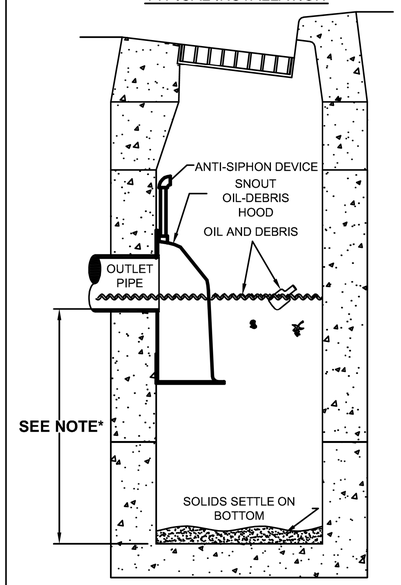
Standard Details

CONFIGURATION DETAIL



SNOUT OIL-WATER-DEBRIS SEPARATOR

TYPICAL INSTALLATION

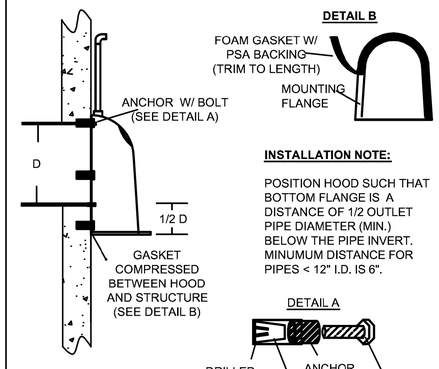


NOTES:

1. ALL HOODS AND TRAPS FOR CATCH BASINS AND WATER QUALITY STRUCTURES SHALL BE AS MANUFACTURED BY:
   BEST MANAGEMENT PRODUCTS, INC.
   53 MT. ARCHER RD.
   LYME, CT 06371
   (860) 434-0277, (860) 434-3195 FAX
   TOLL FREE: (800) 504-8008 OR (888) 354-7585
   WEB SITE: www.bmpinc.com
   OR PRE-APPROVED EQUAL
2. ALL HOODS SHALL BE CONSTRUCTED OF A GLASS REINFORCED RESIN COMPOSITE WITH ISO GEL COAT EXTERIOR FINISH WITH A MINIMUM 0.125" LAMINATE THICKNESS.
3. ALL HOODS SHALL BE EQUIPPED WITH A WATERTIGHT ACCESS PORT, A MOUNTING FLANGE, AND AN ANTI-SIPHON VENT AS DRAWN. (SEE CONFIGURATION DETAIL)
4. THE SIZE AND POSITION OF THE HOOD SHALL BE DETERMINED BY OUTLET PIPE SIZE AS PER MANUFACTURER'S RECOMMENDATION.
5. THE BOTTOM OF THE HOOD SHALL EXTEND DOWNWARD A DISTANCE EQUAL TO 1/2 THE OUTLET PIPE DIAMETER WITH A MINIMUM DISTANCE OF 6" FOR PIPES <12" I.D.
6. THE ANTI-SIPHON VENT SHALL EXTEND ABOVE HOOD BY MINIMUM OF 3" AND A MAXIMUM OF 24" ACCORDING TO STRUCTURE CONFIGURATION.
7. THE SURFACE OF THE STRUCTURE WHERE THE HOOD IS MOUNTED SHALL BE FINISHED SMOOTH AND FREE OF LOOSE MATERIAL.
8. THE HOOD SHALL BE SECURELY ATTACHED TO STRUCTURE WALL WITH 3/8' STAINLESS STEEL BOLTS AND OIL-RESISTANT GASKET AS SUPPLIED BY MANUFACTURER. (SEE INSTALLATION DETAIL)
9. INSTALLATION INSTRUCTIONS SHALL BE FURNISHED WITH MANUFACTURER SUPPLIED INSTALLATION KIT.
   INSTALLATION KIT SHALL INCLUDE:
   A. INSTALLATION INSTRUCTIONS
   B. PVC ANTI-SIPHON VENT PIPE AND ADAPTER
   C. OIL-RESISTANT CRUSHED CELL FOAM GASKET WITH PSA BACKING
   D. 3/8" STAINLESS STEEL BOLTS
   E. ANCHOR SHIELDS

US Patent # 6126817

INSTALLATION DETAIL



HOOD SPECIFICATION FOR CATCH BASINS AND WATER QUALITY STRUCTURES

DESCRIPTION	DATE	SCALE
OIL- DEBRIS HOOD SPECIFICATION AND INSTALLATION (TYPICAL)	09/08/00	NONE
	DRAWING NUMBER	SP-SN

NOTE*:

SUMP DEPTH SHALL BE ACCORDING TO THE FOLLOWING, AS MEASURED FROM FLOWLINE OF STRUCTURE OUTLET PIPE:

MHA: 72"

MHC: 60"

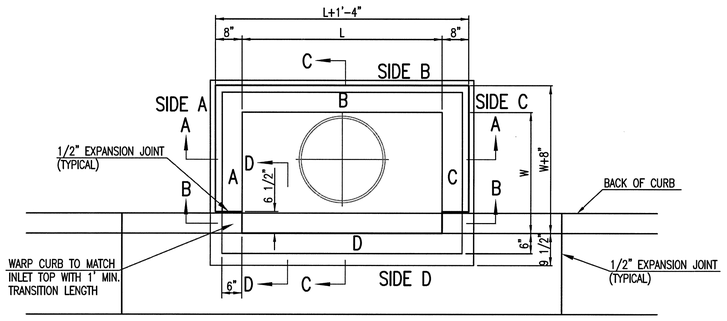
F2: 72"

PAYMENT SHALL BE SUBSIDIARY TO STRUCTURES MHA, MHC, AND F2

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TOP VIEW

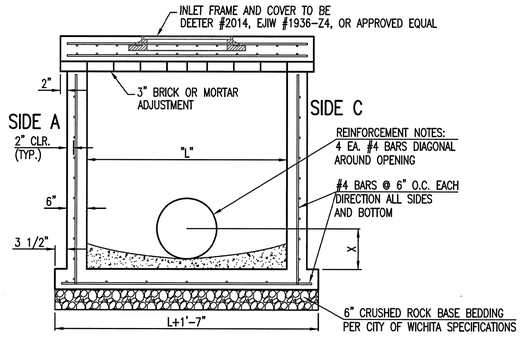
BAR SCHEDULE		
INLET OPENING	B1 BARS	SPACING
5'-0"	#4	4"
10'-0"	#6	3.5"

PRECAST CURB INLET WIDTHS				
W	PRE-CAST TOP SIZE			PIPE DIA.**
	WIDTH	LENGTH	TOP	
3'-0"	W+8"	L+1'-4"	7 1/2"	21" & SMALLER
4'-0"	W+8"	L+1'-4"	7 1/2"	24" & 30"
5'-0"	W+8"	L+1'-4"	7 1/2"	36" & 42"
6'-0"	W+8"	L+1'-4"	7 1/2"	48" & 54"
7'-0"	W+8"	L+1'-4"	7 1/2"	60" & 66"

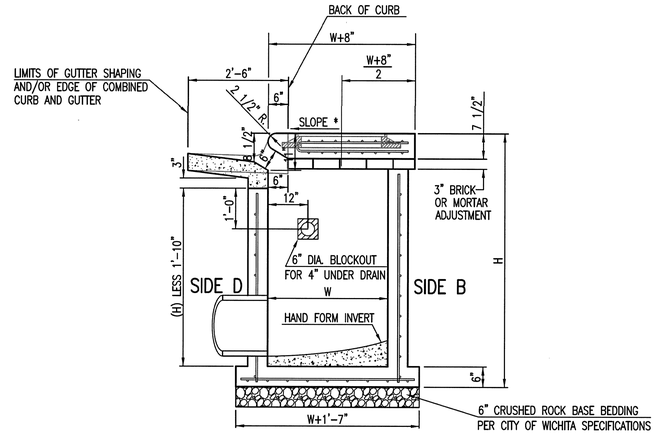
** FOR PIPES PERPENDICULAR TO INLET WALL

GENERAL NOTES

1. CONCRETE TOPS TO BE INSTALLED ON THIN MORTAR CUSHION TO INSURE FULL SUPPORT ALONG BRICK. CONCRETE TOPS MAY BE CAST IN PLACE OR PRECAST. CONCRETE USED FOR INLET CONSTRUCTION SHALL CONFORM TO CITY OF WICHITA SPECIFICATIONS FOR CONCRETE PAVEMENT MIX.
2. CONTRACTOR SHALL HAVE THE OPTION OF CONSTRUCTING 8" BRICK MASONRY WALLS BETWEEN THE CONCRETE INLET BASE AND TOP OF THIS INLET WHEN W=5'-0" AND H=7'-0" OR LESS.
3. INLET INVERT SHALL BE SHAPED WITH 8 SACK SAND MIX CONCRETE TO CREATE FLOW CHANNELS AND TO INCREASE HYDRAULIC EFFICIENCY SUCH THAT THE INLET WILL BE SELF CLEANING BETWEEN ALL INLET AND/OR OUTLET PIPES.
4. THE ENDS OF ALL PIPES INSTALLED IN INLETS SHALL BE CUT OFF FLUSH WITH THE INSIDE FACE OF THE INLET WALL.
5. INLET FRAME AND COVER TO BE DEETER #2014, EJIW #1936 Z4, OR APPROVED EQUAL, SEE SW-303.
6. CONTRACTOR SHALL REMOVE LIFTING HOOKS AFTER INSTALLATION. RECESSES IN INLET WALL SHALL BE GROUTED FLUSH TO THE INLET WALL WITH HYDRAULIC CEMENT AFTER THE INLET IS IN PLACE. LIFTING HOLES THRU THE INLET WALL WILL NOT BE ACCEPTED.

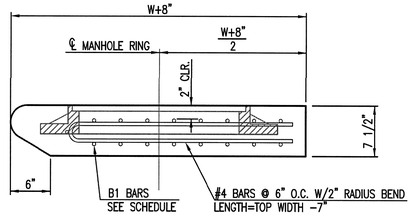


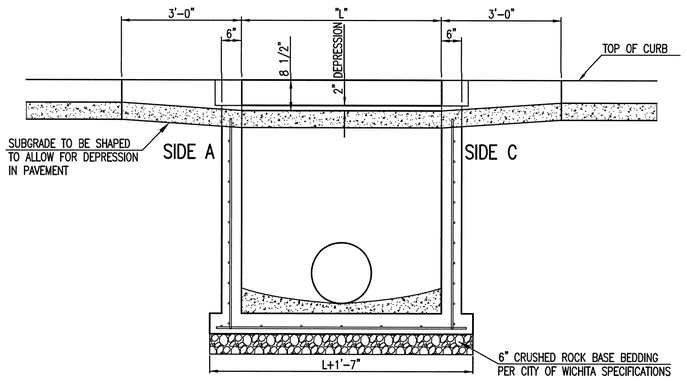
SECTION "A-A"



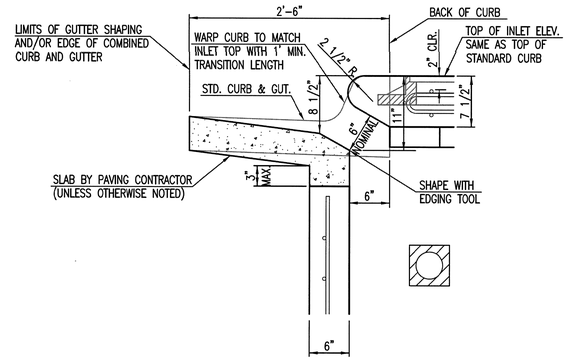
SECTION "C-C"

NOTES:
* SLOPE OF INLET TOP TO MATCH SIDEWALK OR PARKING SLOPES WITHIN LIMITS INDICATED.





SECTION "B-B"



SECTION "D-D"

CITY OF WICHITA
PUBLIC WORKS & UTILITIES
ENGINEERING DIVISION

STANDARD TYPE 1
CURB INLET
5'-0" OR 10'-0" OPENING

CITY ENGINEER
GARY JANZEN, P.E.

PROJECT NUMBER	OCA NUMBER	DATE
		11/2010

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

SHEET

SW-101

SHEET
29 of 39

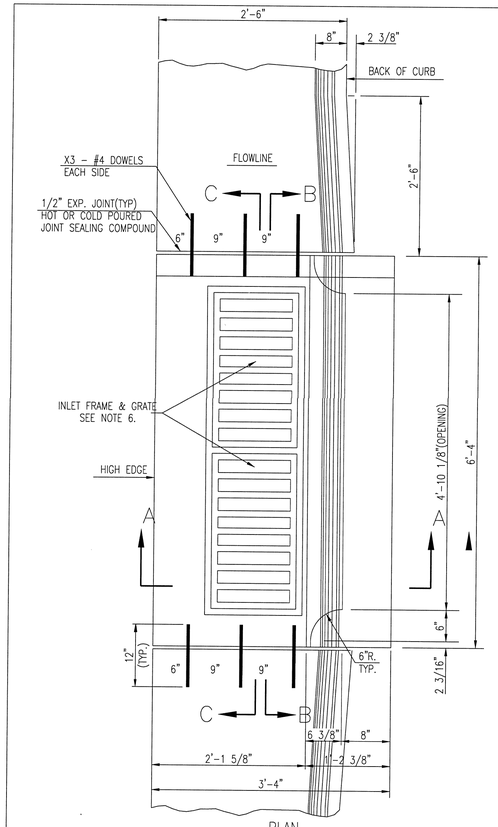
RIC PROJECT NO. 14-0112
WICHITA DESTINATION DEVELOPMENT
GREENWICH COURT DRAINAGE PLANS

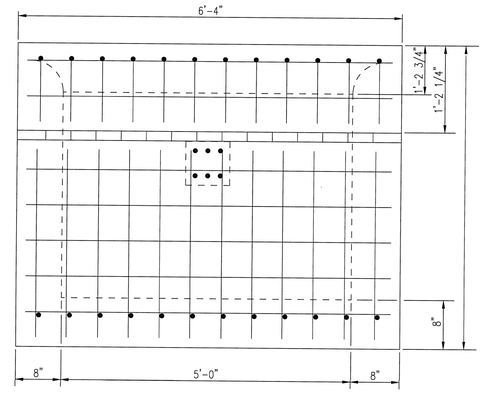
Standard Details

NO.	BY	DATE	REVISION
	VZ	7/9/2014	ORIGINAL SUBMITTAL
1.	VZ	8/4/2014	UPDATED ACCORDING TO CITY OF WICHITA COMMENTS
2.	VZ	11/18/14	REMOVAL OF ROUNDABOUT & ADDITION OF TEMP CULVERTS
3.	VZ	1/19/15	FINAL PLANS UPDATED FOLLOWING COMMENTS FROM THE CITY
4.	VZ	3/31/15	UPDATED FOLLOWING CITY COMMENTS

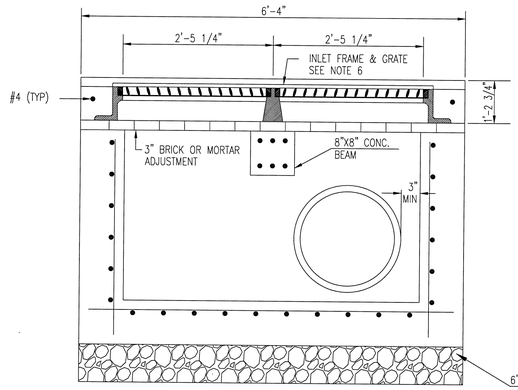
Renaissance Infrastructure Consulting
5015 NW Canal Street, Suite 100
Riverside MO, 64150
816.800.0950
www.ric-consult.com

4/3/2015
Z:\RIC Design\2014\14-0112 Wichita K96 Destination\dwg\dgn\Sheets\14-0112 Public Storm Sewer\New Set 2.20-15\14-0112 Storm Details-1.dgn

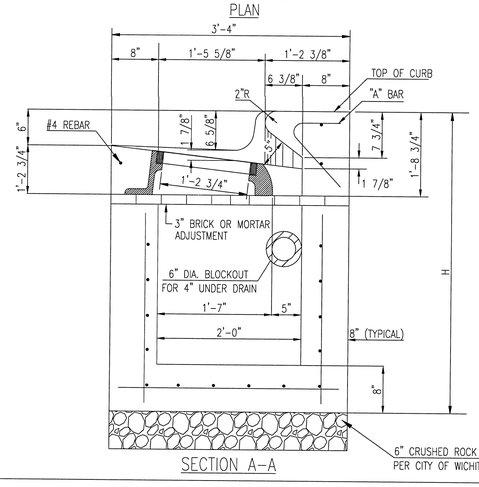




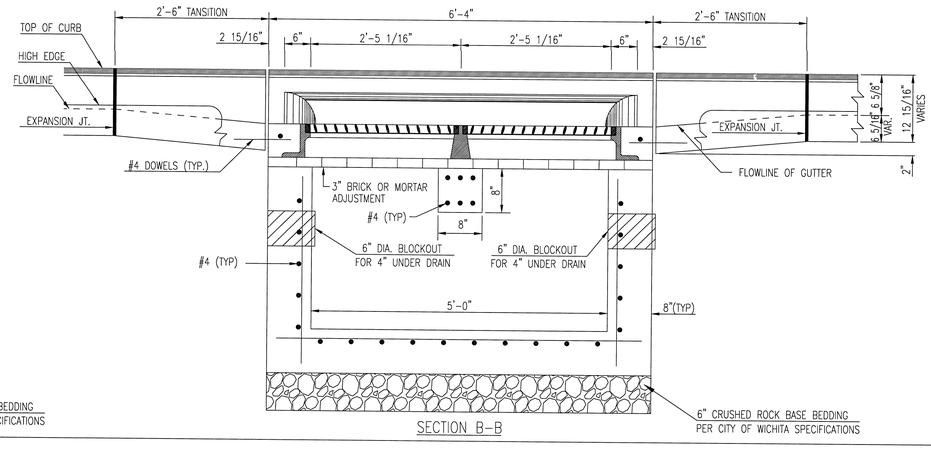
REAR WALL



SECTION C-C



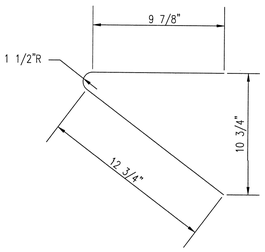
SECTION A-A



SECTION B-B

GENERAL NOTES

1. USE THE CONCRETE MIX SPECIFIED FOR THE CITY OF WICHITA CONCRETE PAVEMENT THROUGHOUT. ALL EXPOSED EDGES SHALL BE FINISHED WITH AN EDGING TOOL. REINFORCING BARS SHALL BE BENT AROUND PIPE.
2. INLET INVERT SHALL BE SHAPED WITH 8 SACK MIX CONCRETE TO CREATE FLOW CHANNELS AND TO INCREASE HYDRAULIC EFFICIENCY SUCH THAT THE INLET WILL BE SELF CLEANING BETWEEN ALL INLET AND/OR OUTLET PIPES.
3. ALL BARS ARE #4 WITH 6" SPACING AND SHALL HAVE A MINIMUM CLEARANCE OF 1 1/2 INCHES UNLESS OTHERWISE NOTED ON THE PLANS.
4. WHEN DIRECTED BY THE ENGINEER, A SMALL OPENING MAY BE REQUIRED IN THE BACK OF THE INLET IN ORDER TO DRAIN A LOW AREA. REINFORCING BARS WILL EXTEND THROUGH THE OPENINGS. NO DEDUCTIONS IN CONCRETE QUANTITIES WILL BE MADE FOR THESE OPENINGS.
5. NO DEDUCTIONS WILL BE MADE IN PAY LENGTH OF CURB, GUTTER, OR CURB AND GUTTER THROUGH THE INLET AREA.
6. USE DEETER FOUNDRY, INC. CASTING NO. 2442/43 OR EJIW 7600Z LEFT SIDE, 7600 RIGHT SIDE IN INLET FRAME AND GRATE WITH STYLE H GRATE. INLET FRAME TO BE PROOF LOAD TESTED TO 40,000 LBS. ON UNSUPPORTED SIDE.
7. REINFORCING BARS SHALL BE CUT OR BENT AROUND PIPES. NO DEDUCTION IN CONCRETE QUANTITIES SHALL BE MADE FOR PIPE OPENINGS.
8. THE VANES OF THE GRATE SHALL BE ORIENTED WITH RESPECT TO THE FLOW ARROWS SHOWN ON THE PLANS.
9. CONTRACTOR SHALL REMOVE LIFTING HOOKS AFTER INSTALLATION. RECESSES IN INLET WALL SHALL BE GROUTED FLUSH TO THE INLET WALL WITH HYDRAULIC CEMENT AFTER THE INLET IS IN PLACE. LIFTING HOLES THRU THE INLET WALL WILL NOT BE ACCEPTED.



BENDING DIAGRAM

CITY OF WICHITA
PUBLIC WORKS & UTILITIES ENGINEERING DIVISION

STANDARD DOUBLE TYPE II CURB INLET

CITY ENGINEER
GARY JANZEN, P.E.

PROJECT NUMBER	OCA NUMBER	DATE
		11/2010

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

SHEET: *SW-106*

SHEET
30 of 39

RIC PROJECT NO. 14-0112
WICHITA DESTINATION DEVELOPMENT
GREENWICH COURT DRAINAGE PLANS

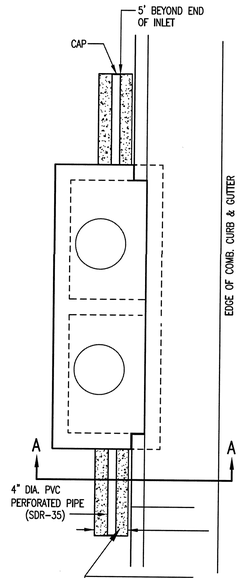
Standard Details

NO.	BY	DATE	REVISION
1.	VZ	7/3/2014	ORIGINAL SUBMITTAL
	BY		UPDATED ACCORDING TO CITY OF WICHITA COMMENTS
2.	VZ	8/4/2014	REMOVAL OF ROUNDABOUT & ADDITION OF TEMP CULVERTS
3.	VZ	11/19/14	FINAL PLANS UPDATED FOLLOWING COMMENTS FROM THE CITY
4.	VZ	1/19/15	UPDATED FOLLOWING CITY COMMENTS
	BY	3/31/15	

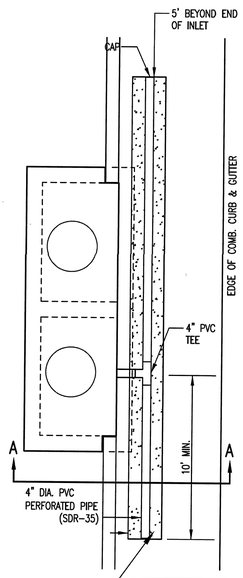
Renaissance Infrastructure Consulting
5015 NW CANAL STREET, SUITE 100 RIVERSIDE MO, 64150
816.800.0950
WWW.RIC-CONSULT.COM

4/3/2015
Z:\RIC Design\2014\14-0112 Wichita K96 Destination\dwg\dgn\Sheets\14-0112 Public Storm Sewer\New Set 2-20-15\14-0112 Storm Details-1A.dgn

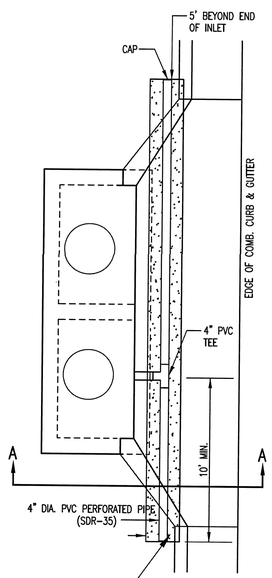
PAVEMENT UNDERDRAIN SHALL BE INSTALLED ON ALL CURB INLETS.



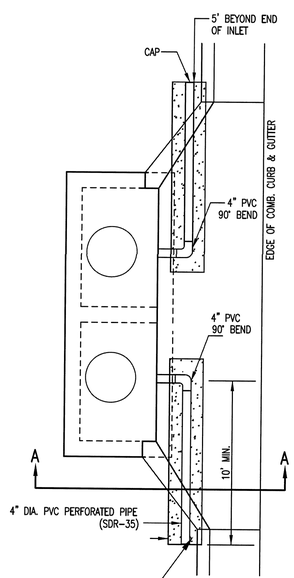
TYPE 1
OPTION 1



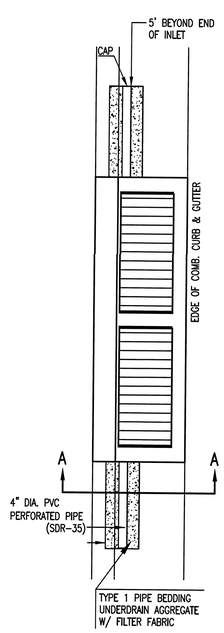
TYPE 1
OPTION 2



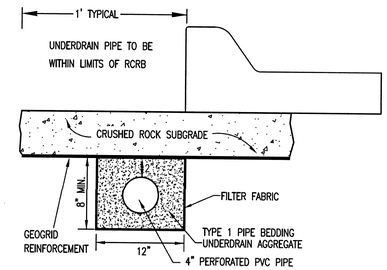
TYPE 1-A INLET
OPTION 1



TYPE 1-A INLET
OPTION 2



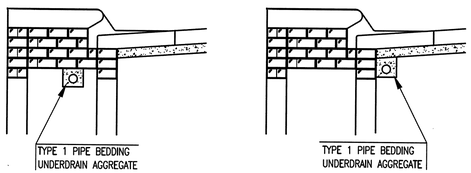
TYPE 2



SECTION A-A (TYPICAL)

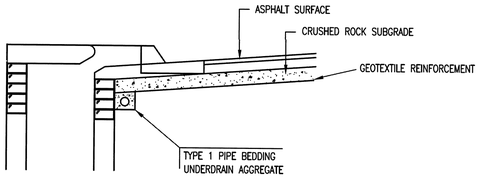
GENERAL NOTES

1. PAVEMENT CONTRACTOR WILL BE REQUIRED TO INSTALL SDR 35, 4" PERFORATED DRAIN PIPE AND TEE AS INDICATED IN THE DETAILS.
2. WHEN SWS CONSTRUCTED BY SEPARATE PROJECT, SWS CONTRACTOR SHALL INSTALL SDR 35, 4" DRAIN PIPE STUB ONLY THROUGH WALLS OF CURB INLETS AND CAP TO ALLOW FUTURE CONNECTION OF TEE AND ADDITIONAL DRAIN PIPE BY OTHERS.
2. UNDERDRAIN PIPE SHALL BE PAID AS A MEASURED QUANTITY BY THE LINEAL FOOT.



(MIN. 16 PERFORATIONS PER LIN. FT. @ 1/4" DIA.)
PERFORATIONS TO BE ON BOTTOM HALF

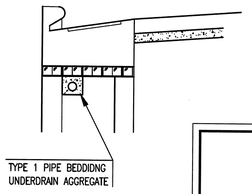
SECTION A-A



SECTION A-A

PAVEMENT UNDERDRAIN DETAIL

BID ITEM TO BE PROVIDED PER 4" PERFORATED UNDERDRAIN PIPE.



SECTION A-A

CITY OF WICHITA
PUBLIC WORKS & UTILITIES
ENGINEERING DIVISION

CURB INLET
PAVEMENT UNDERDRAIN
DETAIL

CITY ENGINEER
GARY JANZEN, P.E.

PROJECT NUMBER	OCA NUMBER	DATE
		10/2012

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

SHEET

SW-111

SHEET
31 of 39

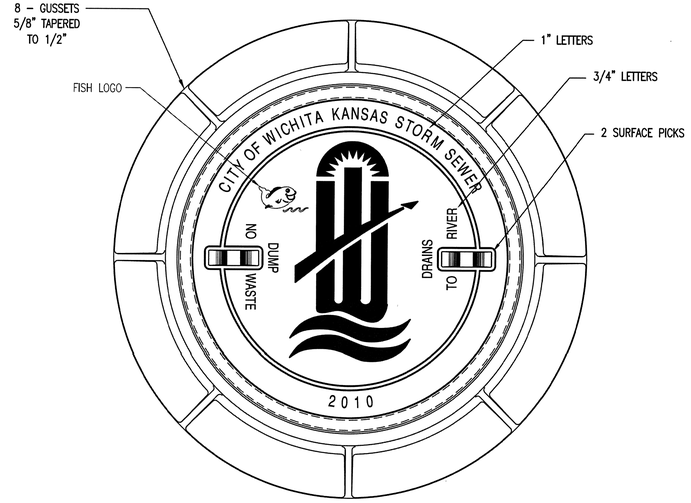
RIC PROJECT NO. 14-0112
WICHITA DESTINATION DEVELOPMENT
GREENWICH COURT DRAINAGE PLANS

Standard Details

NO.	BY	DATE	REVISION
4.	VZ	3/31/15	UPDATED FOLLOWING CITY COMMENTS
3.	VZ	1/19/15	FINAL PLANS UPDATED FOLLOWING COMMENTS FROM THE CITY
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1.	VZ	8/4/2014	UPDATED ACCORDING TO CITY OF WICHITA COMMENTS
	VZ	7/3/2014	ORIGINAL SUBMITTAL

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5015 NW Canal Street, Suite 100 Riverside MO, 64150
816.800.0950 www.ric-consult.com

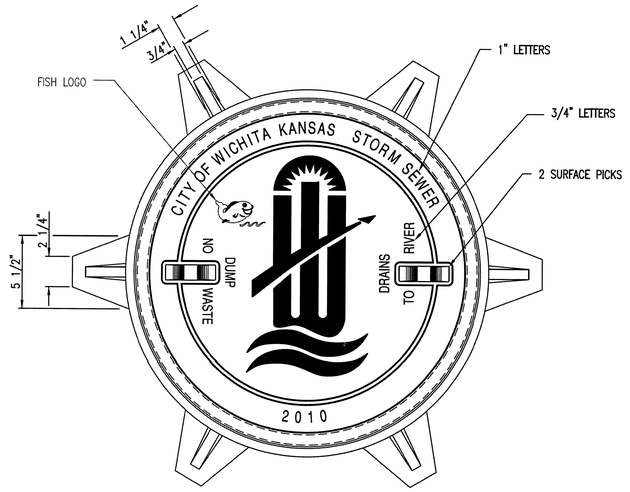
4/3/2015
Z:\RIC Design\2014\14-0112 Wichita K96 Destination\dwg\dgn\Sheets\14-0112 Public Storm Sewer\New Set 2-20-15\14-0112 Storm Details-2.dgn



MANHOLE FRAME

DEETER #1261 OR EJIW #1936-Z1

NOTE:
1. FURNISHED WITH MACHINED HORIZONTAL BEARING SURFACE.
2. COVER TO BE DEETER #1261 OR EJIW #1936A.



INLET FRAME

DEETER #2014 OR EJIW #1936-Z4

NOTE:
1. FURNISHED WITH MACHINED HORIZONTAL BEARING SURFACES.
2. NOT TO BE USED UNDER PAVEMENT.
3. COVER TO BE DEETER #1261 OR EJIW #1936A.

CITY OF WICHITA
PUBLIC WORKS & UTILITIES
ENGINEERING DIVISION

MANHOLE/INLET FRAME AND COVER (STORM SEWER)

CITY ENGINEER
GARY JANZEN, P.E.

PROJECT NUMBER	OCA NUMBER	DATE
		11/2010

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

SHEET

SW-303

SHEET
32 of 39

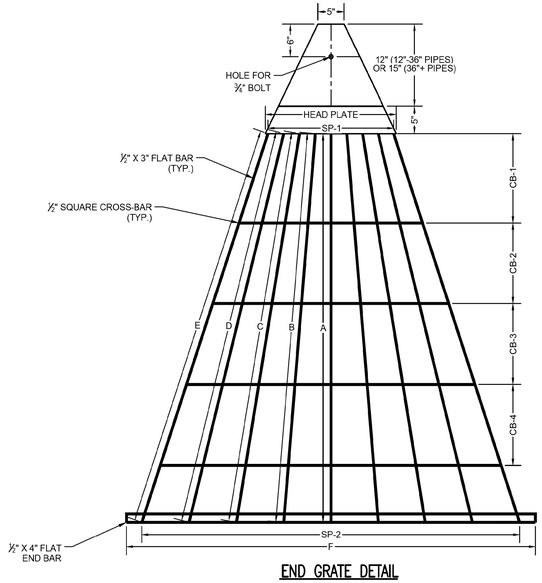
RIC PROJECT NO. 14-0112
WICHITA DESTINATION DEVELOPMENT
GREENWICH COURT DRAINAGE PLANS

Standard Details

NO.	BY	DATE	REVISION
4.	VZ	3/31/15	UPDATED FOLLOWING CITY COMMENTS
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	VZ	7/31/2014	ORIGINAL SUBMITTAL

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5015 NW CANAL STREET, SUITE 100
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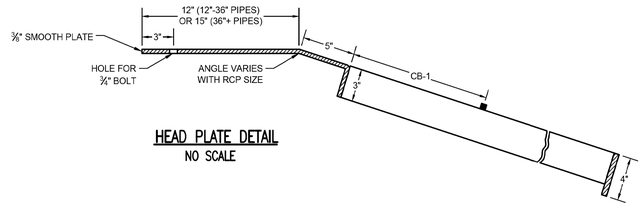
END GRATE DETAIL

NO SCALE

NOTE: GRATE TO BE USED AS DIRECTED BY THE CITY OF WICHITA.

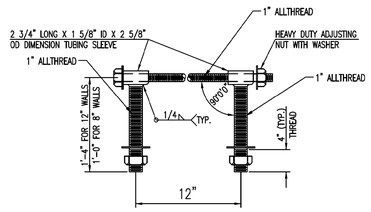
GRATE DIMENSIONS

PIPE SIZE	HEAD PLATE	A	B	C	D	E	F	CB-1	CB-2	CB-3	CB-4	SP-1	SP-2
12"	13"	19¼"	19⅜"	–	–	–	27"	10⅜"	–	–	–	3@4"	3@6"
15"	13"	23½"	25¼"	–	–	–	34"	10¾"	–	–	–	3@4"	3@8"
18"	13"	25"	26⅛"	–	–	–	40"	12⅞"	–	–	–	3@4"	3@9"
24"	17"	41½"	42½"	43½"	–	–	53"	12"	15"	–	–	4@4"	4@9"
30"	19"	51½"	52½"	53½"	–	–	65"	16¼"	11¾"	12"	–	2@3"+3@4"	5@9"
36"	21"	60½"	61½"	62½"	–	–	78"	18⅝"	14¼"	16"	–	2@2"+4@4"	6@9"
42"	22"	65½"	66½"	67⅜"	68¾"	–	86"	13⅜"	12⅝"	13"	11¾"	7@3"	7@9"
48"	25"	70⅞"	71"	71¾"	73"	74½"	90"	16¼"	14¾"	14¾"	14¾"	8@3"	8@9"
54"	26"	71¾"	73"	74½"	74¾"	76¾"	96"	6⅞"	20⅞"	17⅞"	15⅝"	4@2¾"+5@3"	9@9"
60"	28"	61⅛"	61¾"	62¾"	64½"	66⅝"	102"	12"	12"	11½"	13"	2@2"+8@3"	10@9"



HEAD PLATE DETAIL

NO SCALE

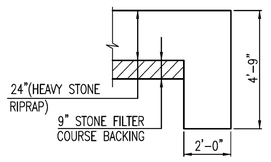


HEAVY DUTY (H.D.) COUPLER(≥36")

NO SCALE

NOTES

1. BOLTS TO BE A-36 1 1/2" DIAMETER.
2. BOLTS, NUTS, WASHERS AND SLEEVES TO BE ZINC PLATED.
3. WASHERS TO BE 3 1/2" O.D. X 7 GAUGE.
4. SHIP WITH NUTS AND WASHERS PLACED ON BOLTS.



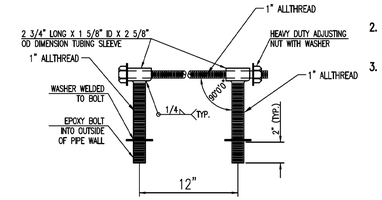
TYPICAL SECTION THRU TOEWALL

NO SCALE

NOTES

1. ALL RIPRAP FOR THIS PROJECT SHALL BE NATURAL STONE. NEITHER BROKEN CONCRETE, FABRIC ENVELOPE, NOR PREMIXED DRY PACKAGED CONCRETE BAG ALTERNATES WILL BE ALLOWED, UNLESS INDICATED OTHERWISE.
2. TOEWALLS SHALL BE INSTALLED ALONG ALL UNPROTECTED EDGES OF STONE RIPRAP.
3. GROUTING OF THE SURFACE OF THE RIPRAP SHALL NOT BE PERFORMED, UNLESS INDICATED OTHERWISE. GROUTING OF THE TOEWALLS SHALL BE PERFORMED PER CITY SPECIFICATIONS.

HEAVY STONE RIPRAP DETAILS

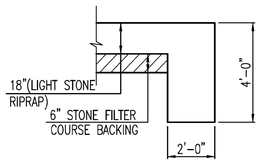


HEAVY DUTY (H.D.) COUPLER(≤30")

NO SCALE

NOTES

1. BOLTS TO BE A-36 1 1/2" DIAMETER.
2. BOLTS, NUTS, WASHERS AND SLEEVES TO BE ZINC PLATED.
3. WASHERS TO BE 3 1/2" O.D. X 7 GAUGE.
4. SHIP WITH NUTS AND WASHERS PLACED ON BOLTS.



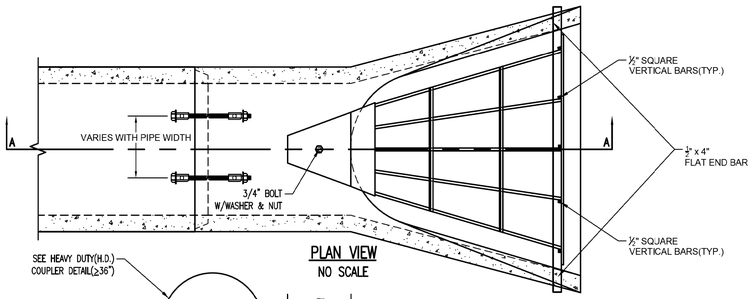
TYPICAL SECTION THRU TOEWALL

NO SCALE

NOTES

1. ALL RIPRAP FOR THIS PROJECT SHALL BE NATURAL STONE. NEITHER BROKEN CONCRETE, FABRIC ENVELOPE, NOR PREMIXED DRY PACKAGED CONCRETE BAG ALTERNATES WILL BE ALLOWED, UNLESS INDICATED OTHERWISE.
2. TOEWALLS SHALL BE INSTALLED ALONG ALL UNPROTECTED EDGES OF STONE RIPRAP.
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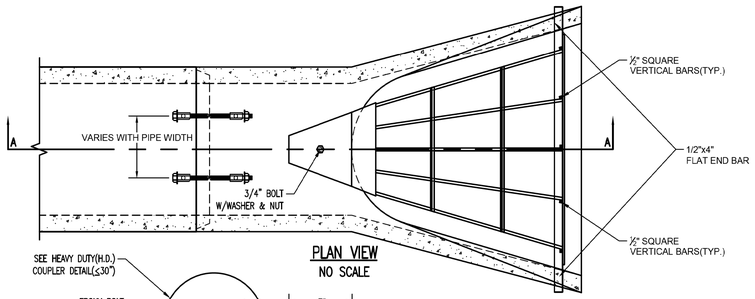
LIGHT STONE RIPRAP DETAILS



PLAN VIEW

NO SCALE

SECTION A-A



PLAN VIEW

NO SCALE

SECTION A-A

CITY OF WICHITA

PUBLIC WORKS & UTILITIES
ENGINEERING DIVISION

END SECTION, PIPE RESTRAINT COUPLER & END GRATE

CITY ENGINEER

GARY JANZEN, P.E

PROJECT NUMBER	OCA NUMBER	DATE
___-_____	_____	01/2015

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

DESIGN	DRAWN

SHEET

_ of _

NO.	BY	DATE	REVISION
5.	VZ	4/23/15	DETAIL UPDATED PER CITY COMMENTS
4.	VZ	3/31/15	UPDATED FOLLOWING CITY COMMENTS
3.	VZ	1/15/15	FINAL PLANS UPDATED FOLLOWING COMMENTS FROM THE CITY
2.	VZ	11/26/14	REMOVAL OF ROUNDABOUT & ADDITION OF TEMP CULVERTS
1.	VZ	8/4/2014	UPDATED ACCORDING TO CITY OF WICHITA COMMENTS
	VZ	7/3/2014	ORIGINAL SUBMITTAL

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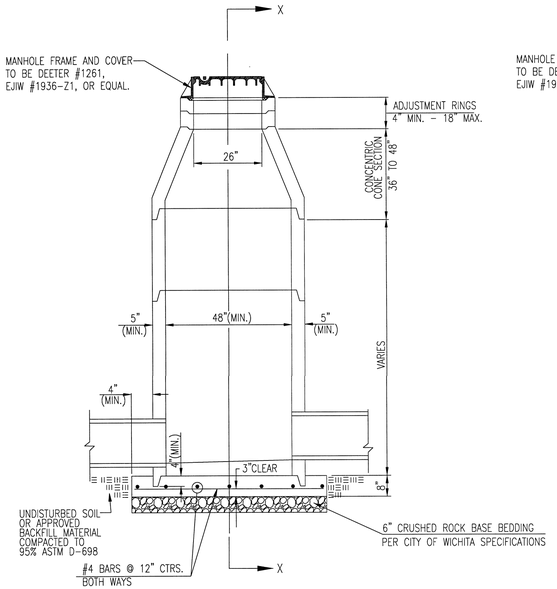
SHEET
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RIC PROJECT NO. 14-0112
WICHITA DESTINATION DEVELOPMENT
GREENWICH COURT DRAINAGE PLANS

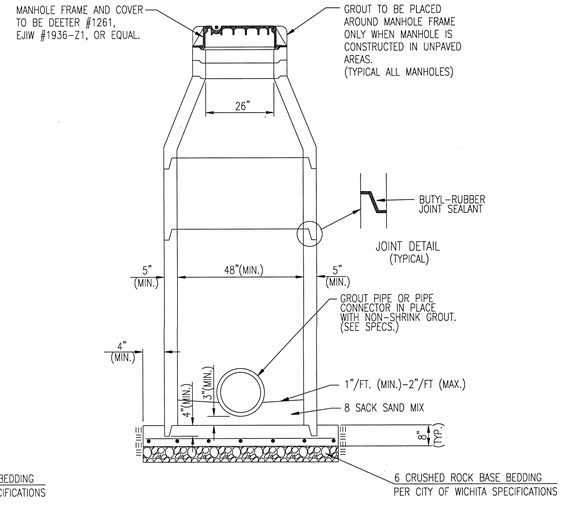
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Plot Scale 1:1 03-10-2015 8:13:58 AM by CARLOS CERVANTES
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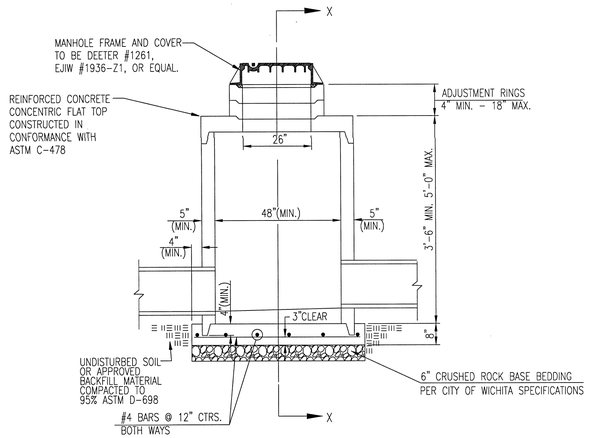
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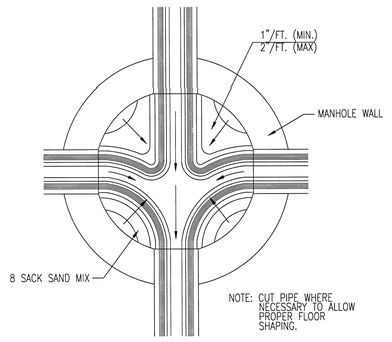
PRECAST
STANDARD MANHOLE
TYPE "A"



SECTION X-X
(TYPICAL)



PRECAST
SHALLOW MANHOLE
TYPE "B"



TYPICAL MANHOLE
FLOOR SHAPING

GENERAL NOTES

1. IF, IN THE OPINION OF THE ENGINEER, THE MANHOLE SUBGRADE APPEARS UNSTABLE, THE CONTRACTOR WILL HAVE THE OPTION TO COMPACT SUBGRADE AS SHOWN OR INCREASE THE THICKNESS OF THE MANHOLE BASE AS DIRECTED BY THE ENGINEER.
2. STEEL REINFORCING WILL BE REQUIRED IN ALL MANHOLE BASES.
3. ALL MANHOLE CONSTRUCTION SHALL BE WATER TIGHT.
4. TOP OF MANHOLE FLOOR SLAB SHALL BE AT LEAST 3 INCHES BELOW THE FLOW LINE OF THE OUTLET PIPE TO INSURE SUFFICIENT MINIMUM THICKNESS OF SHAPED INVERT.
5. ALL PRECAST CONCRETE MANHOLE SECTIONS SHALL CONFORM TO THE LATEST REVISION OF ASTM C-478 AS MODIFIED BY THE SPECIFICATIONS.
6. CONCRETE USED FOR MANHOLE CONSTRUCTION SHALL CONFORM TO CITY OF WICHITA SPECIFICATIONS FOR CONCRETE PAVEMENT MIX.
7. PRECAST MANHOLES SHALL BE SET AT LEAST 4 INCHES INTO MANHOLE BASE.
8. MANHOLES WITH PIPE SIZES 24" AND LARGER SHALL HAVE 5 FOOT INSIDE DIAMETER (MIN.)
9. MANHOLES WITH PRECAST BASES MAY BE USED AT THE CONTRACTORS OPTION. THESE MANHOLES SHALL HAVE AN 8" MINIMUM BASE THICKNESS AND SHALL BE PLACED ON AN 8" MIN. CRUSHED ROCK BASE. PIPES SHALL BE ENCASED WITH CRUSHED ROCK TO AT LEAST 3 FEET FROM THE MANHOLE WALL.
10. CONTRACTOR SHALL REMOVE LIFTING HOOKS AFTER INSTALLATION. RECESSES IN MANHOLE WALL SHALL BE GROUTED FLUSH TO THE MANHOLE WALL WITH HYDRAULIC CEMENT AFTER THE MANHOLE IS IN PLACE. LIFTING HOLES THRU THE MANHOLE WALL WILL NOT BE ACCEPTED.
11. THE ENDS OF ALL PIPES IN MANHOLES SHALL BE CUT OFF FLUSH WITH THE INSIDE FACE OF THE MANHOLE WALL.
12. MANHOLE INVERT SHALL BE SHAPED WITH 8 SACK SAND MIX CONCRETE TO CREATE FLOW CHANNELS AND TO INCREASE HYDRAULIC EFFICIENCY SUCH THAT THE MANHOLE WILL BE SELF CLEANING BETWEEN ALL INLET AND/OR OUTLET PIPES.
13. MANHOLE FRAME AND COVER TO BE DEETER #1261, EJIW #1936-Z1, OR APPROVED EQUAL, SEE SW-303.
14. FOR FLAT GRATED INLET APPLICATION, GRATE TO BE DEETER #1933, EJIW #1205 MDI, OR APPROVED EQUAL.
15. FOR BEEHIVE GRATE APPLICATION, GRATE TO BE DEETER #4495, EJIW #120545, OR APPROVED EQUAL.

CITY OF WICHITA
PUBLIC WORKS & UTILITIES
ENGINEERING DIVISION

PRECAST CONCRETE MANHOLE (STORM SEWER)

CITY ENGINEER
GARY JANZEN, P.E.

PROJECT NUMBER	OCA NUMBER	DATE
		11/2010

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

SHEET

SW-301

SHEET
34 of 39

RIC PROJECT NO. 14-0112
WICHITA DESTINATION DEVELOPMENT
GREENWICH COURT DRAINAGE PLANS

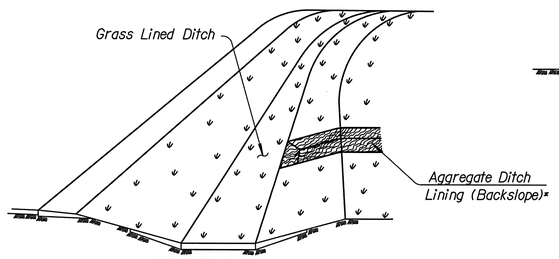
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NO.	BY	DATE	REVISION
	VZ	7/3/2014	ORIGINAL SUBMITTAL
1.	VZ	8/4/2014	UPDATED ACCORDING TO CITY OF WICHITA COMMENTS
2.	VZ	11/18/14	REMOVAL OF ROUNDABOUT & ADDITION OF TEMP CULVERTS
3.	VZ	1/19/15	FINAL PLANS UPDATED FOLLOWING COMMENTS FROM THE CITY
4.	VZ	3/31/15	UPDATED FOLLOWING CITY COMMENTS

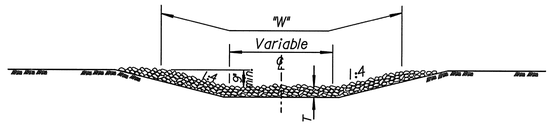
Renaissance Infrastructure Consulting
5015 NW CANAL STREET, SUITE 100
RIVERSIDE MO, 64150
816.800.0950
WWW.RIC-CONSULT.COM

4/3/2015
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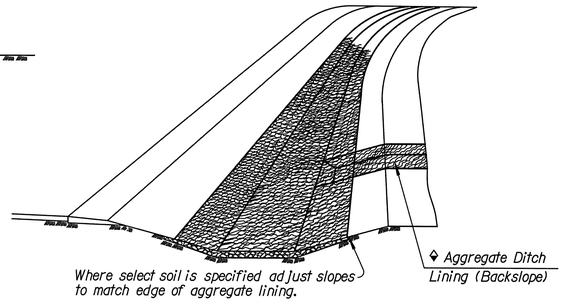
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS				



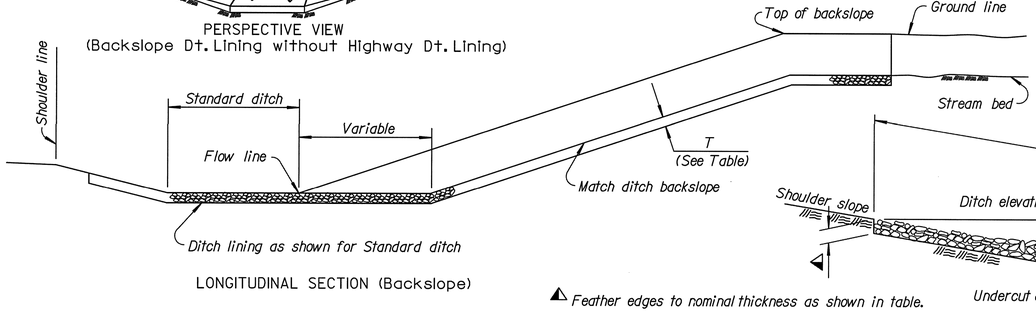
PERSPECTIVE VIEW
(Backslope Dt. Lining without Highway Dt. Lining)



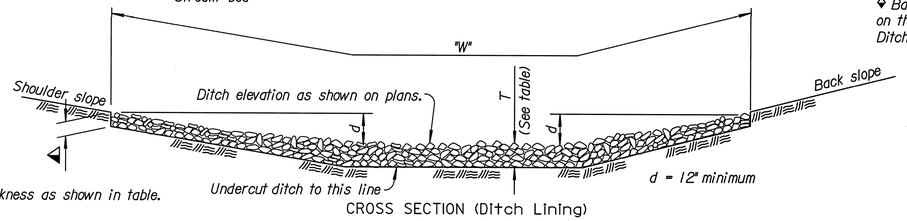
CROSS SECTION (Backslope)



PERSPECTIVE VIEW



LONGITUDINAL SECTION (Backslope)



CROSS SECTION (Ditch Lining)

▲ Feather edges to nominal thickness as shown in table.

GENERAL NOTE

All work and materials required for this construction shall be paid for by the ton of "Aggregate Ditch Lining (D_{50})".

Dumped aggregate shall be spread in reasonable conformity with the ditch section as shown and as directed by the Engineer.

Aggregate Ditch Lining shall be measured and paid for by the ton in the vehicle at the location designated by the Engineer and shall be full compensation for excavation for undercutting, furnishing, hauling, placing and maintaining the material as specified to complete the work.

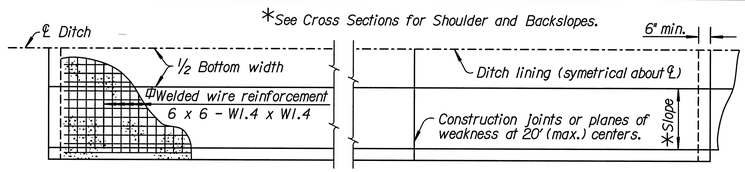
The weight of the aggregate is based on a standard density of 120 PCF. When the standard density of the material is more or less than 120 PCF, the thickness may vary correspondingly.

♦ Backslope aggregate ditch lining, constructed as indicated on this sheet, shall be paid for by the ton of "Aggregate Ditch Lining (D_{50})."

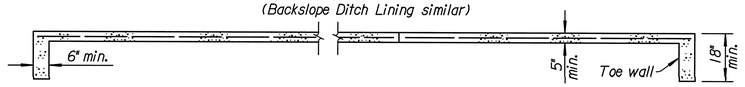
			QUANTITIES FOR TYPICAL 10' DITCH with 6:1 shoulder slope & 4:1 backslope			
			Approx. Excavation per Station (cu.yd.)			
D_{50}	T	▲	d = 1.0	d = 2.0	d = 3.0	d = 4.0
4"	12"	8"	68	99	130	161
6"	18"	12"	102	148	195	241

Note: Quantities provided for information only.

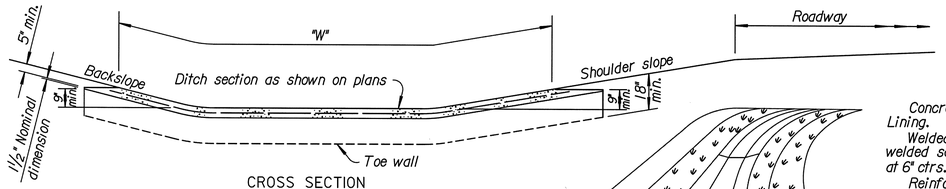
AGGREGATE DITCH LINING (D_{50})



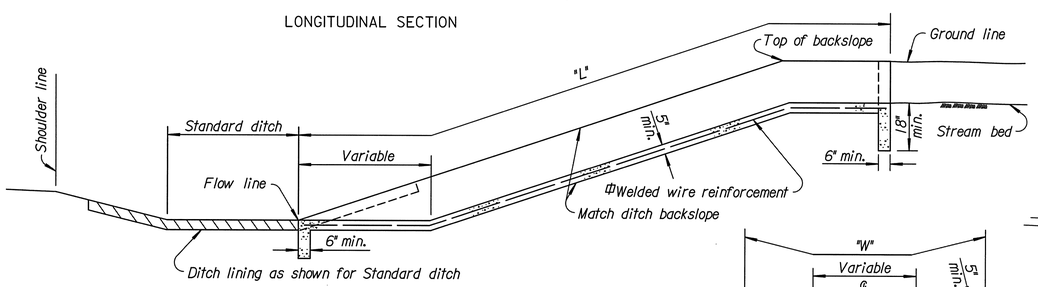
HALF PLAN
(Backslope Ditch Lining similar)



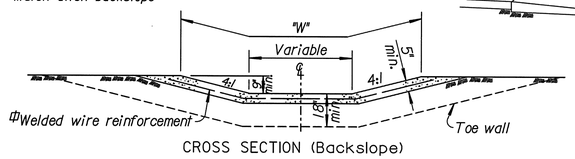
LONGITUDINAL SECTION



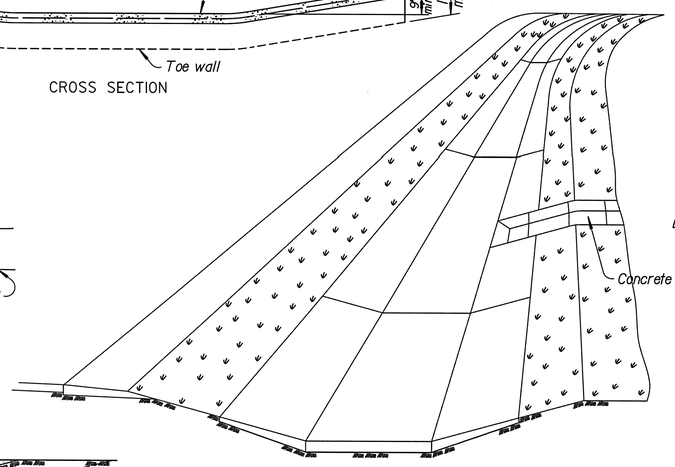
CROSS SECTION



LONGITUDINAL SECTION (Backslope)



CROSS SECTION (Backslope)



PERSPECTIVE VIEW

GENERAL NOTE

Concrete Grade 3.0 shall be used in Concrete Ditch Lining.

Welded wire reinforcement shall be of the electrically welded square mesh type with No. W1.4 wires spaced at 6" ctrs. each way.

Reinforcement as shown is included in the unit price bid for "Concrete Ditch Lining".

Measurements of Concrete Ditch Lining shall be in sq. yds. of outside surface area. Add 1'-6" times "W" for each toewall.

The exact location and dimensions may be adjusted, if required, by the Engineer at the time of construction.

Longitudinal construction joints may be constructed at the Contractor's option.

Φ Welded wire can be substituted with macro fiber reinforcement. See Standard Specifications for macro fiber and application rate requirements.

CONCRETE DITCH LINING

NO.	DATE	REVISIONS	BY	APP'D
9	8-1-12	Revised General Note	S.W.K.	J.O.B.
8	3-20-08	Rev. agg. edge thickness and quant.	S.W.K.	J.O.B.
7	11-07-07	Revised aggregate to 120 PCF	S.W.K.	J.O.B.
6	3-22-05	Changed conc. grade, reinforcing	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

DITCH LINING

RD502

FHWA APPROVAL	9-10-12	APP'D. James O. Brewer	
DESIGNED	DETAILED	QUANTITIES	TRACED Bowser
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK. King

KDOT Graphics Certified 04-25-2014

KDOT Graphics Certified

NO.	BY	DATE	REVISION
4.	VZ	9/25/15	UPDATED FOLLOWING CITY COMMENTS
3.	VZ	3/19/15	FINAL PLANS UPDATED FOLLOWING COMMENTS FROM THE CITY
2.	VZ	11/18/14	REMOVAL OF ROUNDABOUT & ADDITION OF TEMP CULVERTS
1.	VZ	8/4/2014	UPDATED ACCORDING TO CITY OF WICHITA COMMENTS
	VZ	7/2/2014	ORIGINAL SUBMITTAL

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

RIC PROJECT NO. 14-0112
WICHITA DESTINATION DEVELOPMENT
GREENWICH COURT DRAINAGE PLANS

Standard Details

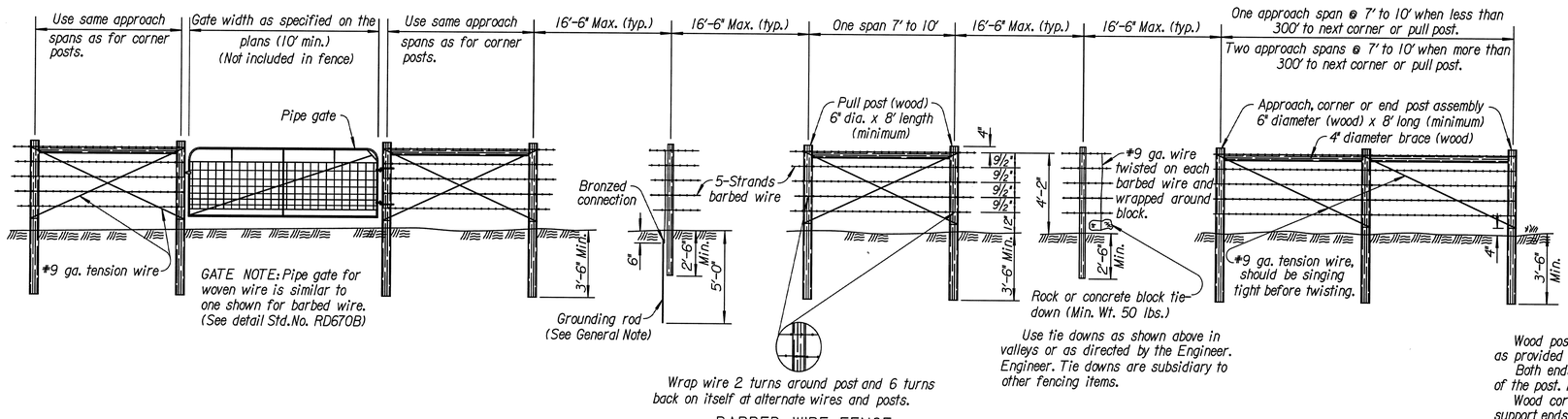
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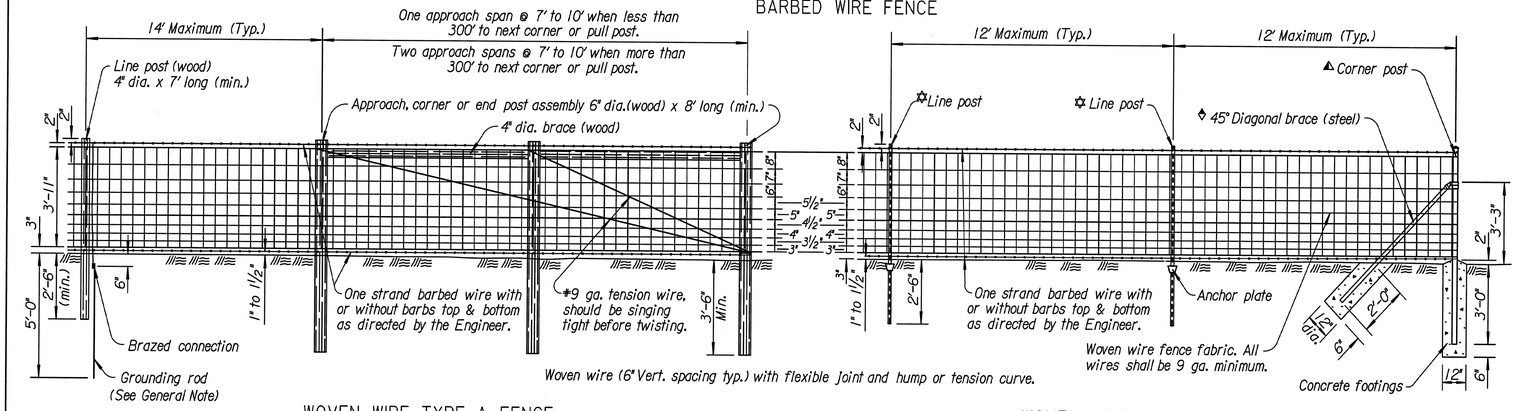
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KANSAS				

RIC PROJECT NO. 14-0112
WICHITA DESTINATION DEVELOPMENT
GREENWICH COURT DRAINAGE PLANS

KDOT Fence Details



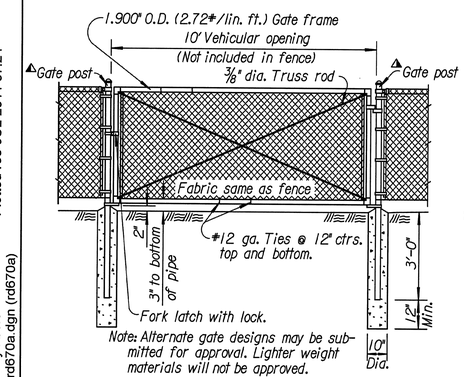
BARBED WIRE FENCE



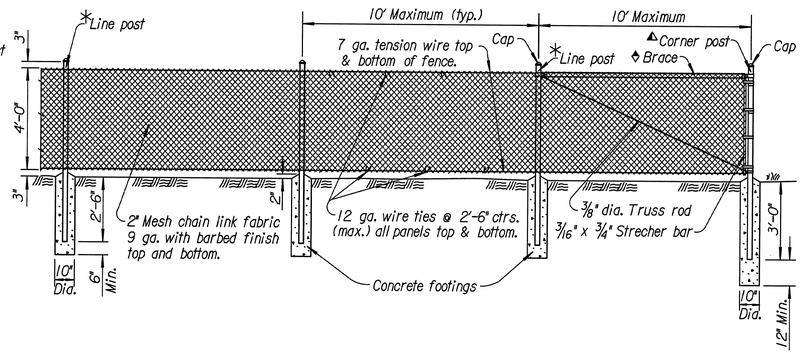
WOVEN WIRE TYPE A FENCE

Pull post assembly for woven wire with wood posts is similar to barbed wire pull post assembly detail.

WOVEN WIRE TYPE B FENCE



DETAIL of GATE, HINGE & SPECIFICATIONS



CHAIN LINK FENCE

(STEEL)

✡ Steel line post 7'-0" length
Studded T (1.33#/lin. ft.)
U (1.33#/lin. ft.)
H (2.27#/lin. ft.)

♦ Brace
1.660" O.D., 0.111" Th. (1.84#/lin. ft.) pipe (Group 1C) or 1.660" O.D., 0.140" Th. (2.27#/lin. ft.) pipe (Group 1A) or 1⅜"x1¼" Brace rail (See Alt. Details)

✳ Line post 7'-0" length.
2.375" O.D., 0.154" Th. (3.65#/lin. ft.) pipe (Group 1A) or 2.375" O.D., 0.130" Th. (3.12#/lin. ft.) pipe (Group 1C) or 1⅝"x1⅞" C Post (2.28#/lin. ft.)

▲ End, corner, gate, or pull post 7'-6" length.
(A120) 2.875" O.D., 0.203" Th. (5.79#/lin. ft.) pipe (Group 1A) or 2.875" O.D., 0.160" Th. (4.64#/lin.ft.) pipe (Group 1C)

GENERAL NOTE

Wood posts and braces shall be given a preservative treatment as provided in the KDOT Standard Specifications.

Both ends of all wood posts shall be cut normal to the axis of the post. Pointed posts will not be permitted.

Wood corner, end, pull and approach posts shall be notched to support ends of wood braces. Wood braces shall be toenailed to the posts with 2-10d nails in each end of the brace.

When wood posts are used, both ends of all tension wires shall be wrapped around the posts twice and stapled in place.

When wood posts are used the fence shall be grounded by a ⅝" diameter galvanized or copper coated rod five feet long, driven vertically until the top is six inches below the ground surface. A #6 solid copper conductor shall be securely fastened to each element of the fence by use of clamps or other suitable device. Grounding rod shall be installed at intervals of 175' maximum.

In lieu of using the galvanized or copper coated rod as described above the contractor may, at his option, use a steel line post at intervals not to exceed each eighth post.

The galvanized or copper coated rod shall be used where power lines pass over the fence.

All steel posts, braces, fittings, and gate frames shall be galvanized and/or coated in accordance with the Standard Specifications.

Steel posts shall be provided with fasteners prevent slippage of the wire strands.

Outside diameters shown for tubular steel posts, bracing and gate frames are nominal. Weight tolerances shall be as shown in the KDOT Standard Specifications.

Posts may be set by driving or digging. If by digging, the posts shall be set in the center of the hole and the soil tamped securely on all sides.

Pull post assembly shall be used at sharp breaks in vertical grade or at approximately 330' centers (Woven & Chain link) or 1320' centers (Barbed wire) on straight runs or as directed by the Engineer.

Concrete used in fence installation shall conform to the requirements of the KDOT Standard Specifications.

Woven wire, chain link fabric, barbed wire and tension wire shall be either zinc coated (galvanized) or aluminum coated.

Minimum strength of barbed wire and tension wire shall be as provided in the KDOT Standard Specifications.

Use #9 gauge galvanized staples 1½" to 1¾" long, or #9 gauge galvanized Ring-shank staples 1½" to 1¾" long.

Alternate gate designs may be submitted for approval. Lighter weight materials will not be approved.

Padlocks for gates shall be furnished by the State.

No Wood Posts are allowed for new or reconstruction fence installations on the State Highway System. Shop drawings for steel gate post assembly designs are to be submitted to the State Road Office, Bureau of Design for approval prior to construction.

NO.	DATE	REVISIONS	BY	APP'D
9	11-30-09	Rev. post listing, wood po. restrict.	S.W.K.	J.O.B.
8	11-08-05	Revised brace dimension	S.W.K.	J.O.B.
7	11-02-04	Added assembly to end post label	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

HIGHWAY FENCE
BARBED, WOVEN, & CHAIN LINK

RD670A

FHWA APPROVAL	12-16-09	APP'D. James O. Brewer	
DESIGNED	DETAILED	QUANTITIES	TRACED Bowser
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK. King

KDOT Graphics Certified 07-06-2011

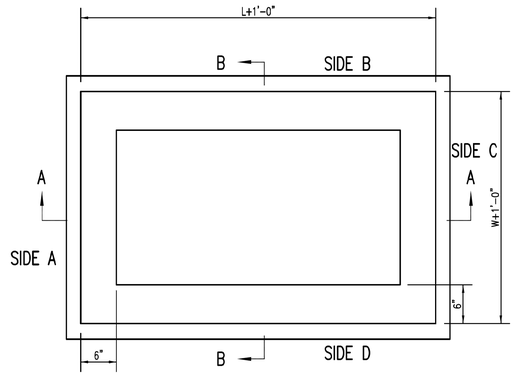
KDOT Graphics Certified

NO.	BY	DATE	REVISION
4.	VZ	3/31/15	UPDATED FOLLOWING CITY COMMENTS
3.	VZ	1/19/15	FINAL PLANS UPDATED FOLLOWING COMMENTS FROM THE CITY
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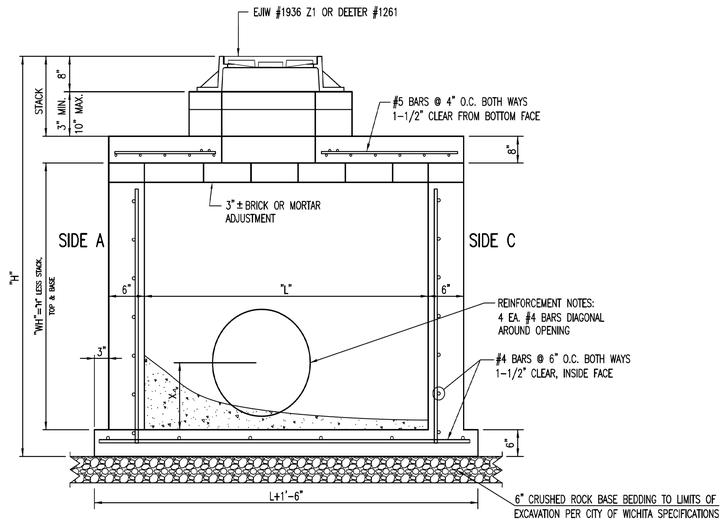
Renaissance Infrastructure Consulting
5015 NW CANAL STREET, SUITE 100
RIVERSIDE MO. 64150
816.800.0950
WWW.RIC-CONSULT.COM

Drawn By : bert
File : rd670a.dgn (rd670a)
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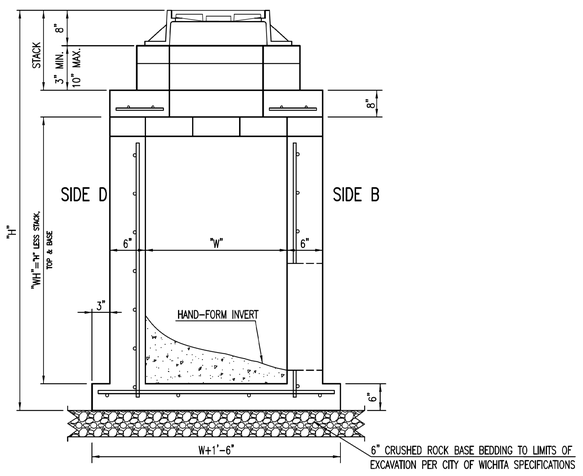
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TOP VIEW



SECTION "A-A"



SECTION "B-B"

GENERAL NOTES

1. GRATE FRAME TO BE INSTALLED ON THIN MORTAR CUSHION TO INSURE FULL SUPPORT ALONG BRICK. CONCRETE USED FOR INLET CONSTRUCTION SHALL CONFORM TO CITY OF WICHITA SPECIFICATIONS FOR CONCRETE PAVEMENT MIX.
2. INLET INVERT SHALL BE SHAPED WITH 8 SACK SAND MIX CONCRETE TO CREATE FLOW CHANNELS AND TO INCREASE HYDRAULIC EFFICIENCY SUCH THAT THE INLET WILL BE SELF CLEANING BETWEEN ALL INLET AND/OR OUTLET PIPES.
3. THE ENDS OF ALL PIPES INSTALLED IN INLETS SHALL BE CUT OFF FLUSH WITH THE INSIDE FACE OF THE INLET WALL.
4. INLET FRAME AND GRATE TO BE DEETER #1261, EJIW #1936-Z1 OR APPROVED EQUAL, SEE SW-303.
5. CONTRACTOR SHALL REMOVE LIFTING HOOKS AFTER INSTALLATION. RECESSES IN MANHOLE WALL SHALL BE GROUTED FLUSH TO THE MANHOLE WALL WITH HYDRAULIC CEMENT AFTER THE MANHOLE IS IN PLACE. LIFTING HOLES THRU THE MANHOLE WALL WILL NOT BE ACCEPTED.

REVISED: MARCH 2015

CITY OF WICHITA
PUBLIC WORKS & UTILITIES
ENGINEERING DIVISION

REINFORCED CONCRETE MANHOLE (STORM SEWER)

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-302

SHEET
36A of 39

RIC PROJECT NO. 14-0112
WICHITA DESTINATION DEVELOPMENT
GREENWICH COURT DRAINAGE PLANS

Standard Details

NO.	BY	DATE	REVISION
4.	VZ	3/31/15	UPDATED FOLLOWING CITY COMMENTS
3.	VZ	1/15/15	FINAL PLANS UPDATED FOLLOWING COMMENTS FROM THE CITY
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1.	VZ	8/4/2014	UPDATED ACCORDING TO CITY OF WICHITA COMMENTS
	VZ	7/3/2014	ORIGINAL SUBMITTAL

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

6/24/2015
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RIC PROJECT NO. 14-0112
WICHITA DESTINATION DEVELOPMENT
GREENWICH COURT DRAINAGE PLANS

STORM EROSION CONTROL

27th STREET

FND. 5/8" REBAR W/ MKEC CLS 39 CAP

FUTURE PRIVATE DEVELOPMENT BY OTHERS

N. GREENWICH ROAD

GREENWICH COURT

INSTALL CURB INLET PROTECTION

NEW R/W

EXIST. R/W

INSTALL 1,620 LF. SEDIMENT FENCE

INSTALL 153 LF. SEDIMENT FENCE

INSTALL 407 LF. SEDIMENT FENCE

INSTALL 586 LF. SEDIMENT FENCE

INSTALL 265 LF. SEDIMENT FENCE

PROPOSED PROPERTY LINE

EXISTING PROPERTY LINE

FND. 1/2" REBAR W/ BAUGHMAN CAP (HELD)
FND 3/4" PIPE 0.4' W

K-96 HWY

1024
1367.72
BM

Notes

1. Contractor to install "J" hooks every 100'.

2. Redistribute topsoil and seed and mulch all disturbed areas. Stabilization is required for any disturbed area where the land disturbance activity has ceased for more than fourteen (14) days.

100 0 100 200 300
SCALE: 1"=100'

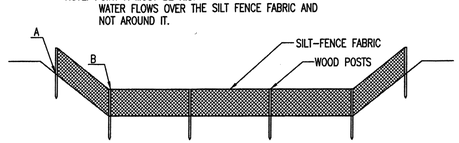
NORTH

NO.	BY	DATE	REVISION
6.	VZ	TC	6/24/15	UPDATED FOR PRIVATE DEVELOPMENT REVISIONS
5.	VZ	BY	3/31/15	UPDATED FOLLOWING CITY COMMENTS
4.	VZ	BY	1/19/15	FINAL PLANS UPDATED FOLLOWING COMMENTS FROM THE CITY
3.	VZ	BY	11/18/14	REMOVAL OF ROUNDABOUT & ADDITION OF TEMP CULVERTS
2.	VZ	BY	8/4/2014	UPDATED ACCORDING TO CITY OF WICHITA COMMENTS
1.	VZ	BY	7/3/2014	ORIGINAL SUBMITTAL

Renaissance Infrastructure Consulting
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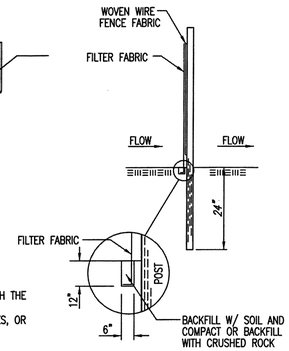
CURTIS R. TALCOTT
LICENSED
PROFESSIONAL ENGINEER
KANSAS
15174
6/24/15

6/24/2015
Z:\RIC Design\2014\14-0112 Wichita K96 Destination\dwg\dgn\Sheets\14-0112 Public Storm Sewer\New Set 2-20-15\14-0112 Storm Erosion Control.dgn



ELEVATION

SILT FENCE DITCH CHECKS
(STREAM PROTECTION)



ANCHOR TRENCH DETAIL

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 DITCH 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.

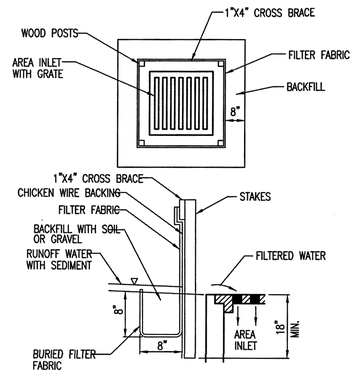
LIST OF COMMON PLACEMENT/INSTALLATION MISTAKES TO AVOID:

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?



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 DRASTICALLY 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.

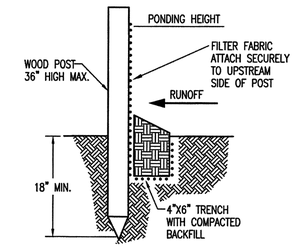
LIST OF COMMON PLACEMENT/INSTALLATION MISTAKES TO AVOID:

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 RESISTED 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?

GARY L. JANZEN LICENSED PROFESSIONAL ENGINEER KANSAS
05/24/13

REVISION DATE: MAY 2013

CITY OF WICHITA
PUBLIC WORKS & UTILITIES ENGINEERING DIVISION

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

SHEET 38 of 39

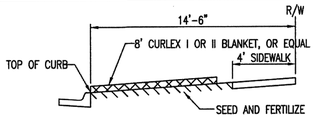
RIC PROJECT NO. 14-0112
WICHITA DESTINATION DEVELOPMENT
GREENWICH COURT DRAINAGE PLANS

Sediment & Erosion Control Standard Details

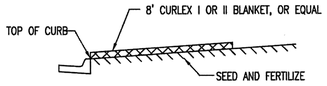
NO.	BY	DATE	REVISION
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1.	VZ	8/4/2014	UPDATED ACCORDING TO CITY OF WICHITA COMMENTS
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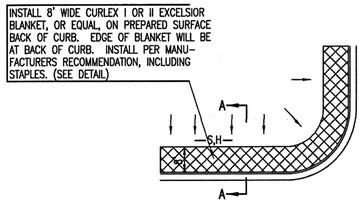
4/3/2015
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SECTION B-B



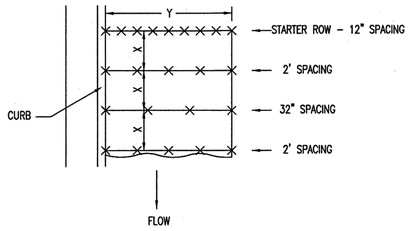
SECTION A-A



GENERAL NOTES

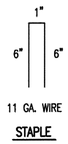
1. EXCELSIOR MAT TO BE INSTALLED WHEN SOD IS NOT SPECIFIED ON PROJECT.
2. EXCELSIOR BLANKET TO BE INSTALLED OVER SEED AND FERTILIZER, AS SPECIFIED IN THE PROJECT SPECIFICATIONS.
3. AFTER INSTALLATION OF EXCELSIOR BLANKET, AT LOCATIONS WHERE CONCENTRATED FLOW CARRIES SEDIMENT OVER THE CURB AND INTO THE GUTTER, SUPPLEMENTAL EROSION CONTROL DEVICES WILL BE INSTALLED BY THE CONTRACTOR AS NEEDED, TO FIX THE PROBLEM.

BACK OF CURB PROTECTION DETAIL



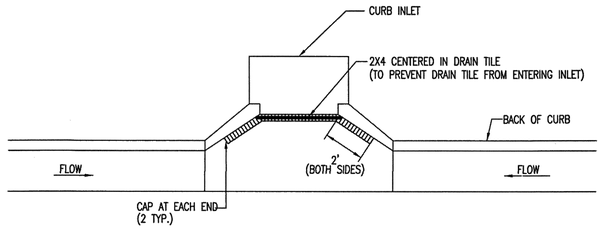
STAPLE PATTERN

NOTES: USE 6" SEAM OVERLAP
(X & Y = RECOMMENDED BY MANUFACTURE)



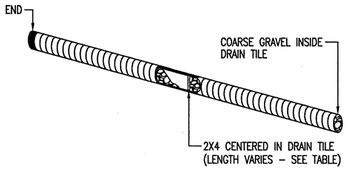
STAPLE

DETAILS FOR APPROVED EROSION CONTROL MAT

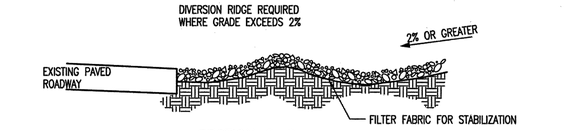


NOTE:
PLACE 4" PERFORATED PVC PIPE, FILLED WITH 1/2"-1" DIA. GRAVEL, IN FRONT OF CURB INLET AS SHOWN.

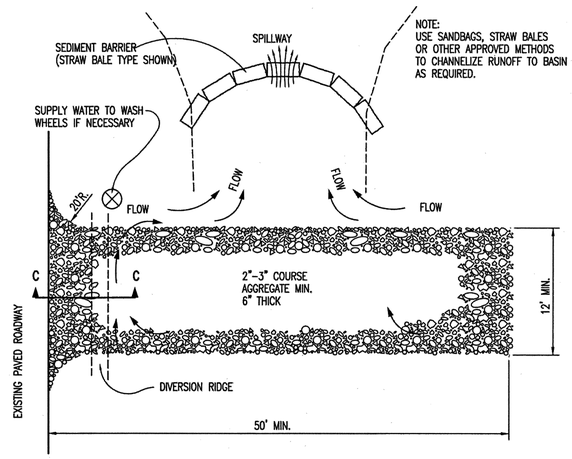
2X4 LENGTH	INLET TYPE	INLET OPENING
5'-6"	1-A	5'-0"
10'-6"	1-A	10'-0"
15'-6"	1-A	15'-0"



CURB INLET PROTECTION
4" PERFORATED PIPE W/ GRAVEL



SECTION C-C



STABILIZED CONSTRUCTION ENTRANCE

GENERAL NOTES

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN, AS SHOWN ABOVE.
4. DRIVE ENTRANCES ONTO RESIDENTIAL LOTS WILL NOT BE REQUIRED TO HAVE THE SEDIMENT BARRIER SHOWN, BUT WHEEL WASHING MAY BE REQUIRED IF STABILIZED ENTRANCE IS NOT SUFFICIENT TO KEEP MUD FROM BEING TRACKED ONTO ADJACENT STREET. ENTRANCE SHALL EXTEND FROM BACK OF CURB TO DWELLING.

REVISION DATE: MAY 2013

GARY L. JANZEN — No. 14004 — KANSAS — PROFESSIONAL ENGINEER
05/12/13

CITY OF WICHITA
PUBLIC WORKS & UTILITIES
ENGINEERING DIVISION

BACK OF CURB PROTECTION, CURB INLET PROTECTION AND CONSTRUCTION ENTRANCE

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-501

SHEET
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RIC PROJECT NO. 14-0112
WICHITA DESTINATION DEVELOPMENT
GREENWICH COURT DRAINAGE PLANS

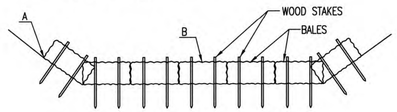
Sediment & Erosion Control Standard Details

NO.	BY	DATE	REVISION
4.	VZ	3/31/15	UPDATED FOLLOWING CITY COMMENTS
3.	VZ	1/19/15	FINAL PLANS UPDATED FOLLOWING COMMENTS FROM THE CITY
2.	VZ	11/18/14	REMOVAL OF ROUNDABOUT & ADDITION OF TEMP CULVERTS
1.	VZ	8/4/2014	UPDATED ACCORDING TO CITY OF WICHITA COMMENTS
	VZ	7/3/2014	ORIGINAL SUBMITTAL
NO.	BY	DATE	REVISION

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4/3/2015
Z:\RIC Design\2014\14-0112 Wichita K96 Destination\dwg\dgn\Sheets\14-0112 Public Storm Sewer\New Set 2-20-15\14-0112 Storm Erosion Details-2.dgn

NOTE: POINT A MUST BE HIGHER THAN POINT B SO THAT WATER FLOWS OVER THE BALES AND NOT AROUND THEM.



STRAW BALE DITCH CHECKS

MATERIAL SPECIFICATION:

BALE DITCH CHECKS MAY BE CONSTRUCTED OF WHEAT STRAW, OAT STRAW, PRAIRIE HAY, OR BROMEGRASS HAY THAT IS FREE OF WEEDS DECLARED NOXIOUS BY THE KANSAS STATE BOARD OF AGRICULTURE.
THE STAKES USED TO ANCHOR THE BALES SHOULD BE A HARDWOOD MATERIAL WITH THE FOLLOWING MINIMUM DIMENSIONS: 2" SQUARE (NOMINAL) BY 4' LONG.
OPTIONAL: THE DOWNSTREAM SCOUR APRON SHOULD BE CONSTRUCTED OF A DOUBLE-NETTED STRAW EROSION-CONTROL BLANKET AT LEAST 6' WIDE.
OPTIONAL: THE METAL LANDSCAPE STAPLES USED TO ANCHOR THE EROSION-CONTROL BLANKET SHOULD BE AT LEAST 8" LONG.

PLACEMENT:

BALE DITCH CHECKS SHOULD BE PLACED PERPENDICULAR TO THE FLOWLINE OF THE DITCH.
THE DITCH CHECK SHOULD EXTEND FAR ENOUGH SO THAT THE GROUND LEVEL AT THE ENDS OF THE CHECK IS HIGHER THAN THE TOP OF THE LOWEST CENTER BALE. THIS PREVENTS WATER FROM FLOWING AROUND THE CHECK.
STRAW BALE DITCH CHECKS SHOULD NOT BE PLACED IN DITCHES WHERE HIGH FLOWS ARE EXPECTED. ROCK CHECKS SHOULD BE USED INSTEAD.
BALES 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 GRADE (%)	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 4" DEEP AND A BALE'S WIDTH 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-IT WILL BE USED LATER.
OPTIONAL: ON THE DOWNSTREAM SIDE OF THE TRENCH, ROLL OUT A LENGTH OF EROSION-CONTROL BLANKET (SCOUR APRON) EQUAL TO THE LENGTH OF THE TRENCH. PLACE THE UPSTREAM EDGE OF THE EROSION-CONTROL BLANKET ALONG THE BOTTOM UPSTREAM EDGE OF THE TRENCH. THE EROSION CONTROL BLANKET SHOULD BE ANCHORED IN THE TRENCH WITH ONE ROW OF 8" LANDSCAPE STAPLES PLACED ON 18" CENTERS. THE REMAINDER OF THE EROSION-CONTROL BLANKET (THE PORTION THAT IS NOT LYING IN THE TRENCH) WILL SERVE AS THE DOWNSTREAM SCOUR APRON. THIS SECTION OF THE BLANKET SHOULD BE ANCHORED TO THE GROUND WITH 8" LANDSCAPE STAPLES PLACED AROUND THE PERIMETER OF THE BLANKET ON 18" CENTERS. THE REMAINDER OF THE BLANKET SHOULD BE ANCHORED USING TWO EVENLY SPACED ROWS OF 8" LANDSCAPE STAPLES ON 18" CENTERS PLACED PERPENDICULAR TO THE FLOWLINE OF THE DITCH.
PLACE THE BALES IN THE TRENCH, MAKING SURE THAT THEY ARE BUTTED TIGHTLY. TWO STAKES SHOULD BE DRIVEN THROUGH EACH BALE ALONG THE CENTERLINE OF THE DITCH CHECK, APPROXIMATELY 6" TO 8" IN FROM THE BALE ENDS. STAKES SHOULD BE DRIVEN AT LEAST 12" INTO THE GROUND.
ONCE ALL THE BALES HAVE BEEN INSTALLED AND ANCHORED, PLACE THE EXCAVATED SOIL AGAINST THE UPSTREAM SIDE OF THE CHECK AND COMPACT IT. THE COMPACTED SOIL SHOULD BE NO MORE THAN 3" TO 4" DEEP AND EXTEND UPSTREAM NO MORE THAN 24".

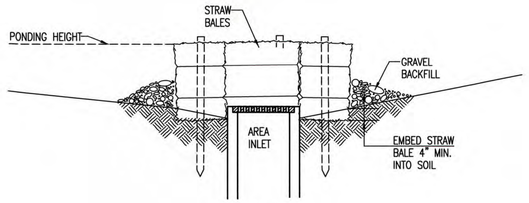
LIST OF COMMON PLACEMENT/INSTALLATION MISTAKES TO AVOID:

DO NOT PLACE A BALE DITCH CHECK DIRECTLY IN FRONT OF A CULVERT OUTLET. IT WILL NOT STAND UP TO THE CONCENTRATED FLOW.
DO NOT PLACE BALE 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 CHECK IS HIGHER THAN THE TOP OF THE LOWEST CENTER BALE.
DO NOT PLACE BALE DITCH CHECKS IN CHANNELS WITH SHALLOW SOILS UNDERLAIN BY ROCK. IF THE CHECK IS NOT ANCHORED SUFFICIENTLY, IT WILL WASH OUT.
BALE DITCH CHECKS MUST BE DUG INTO THE GROUND. BALES AT GROUND LEVEL DO NOT WORK BECAUSE THEY ALLOW WATER TO FLOW UNDER THE CHECK.

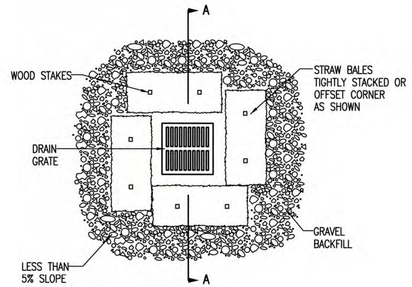
INSPECTION AND MAINTENANCE:

BALE 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 WATER FLOW THROUGH SPACES BETWEEN ABUTTING BALES?
ARE ANY BALES AND/OR SCOUR APRONS (OPTIONAL) DISLODGED?
ARE BALES DECOMPOSING DUE TO AGE AND/OR WATER DAMAGE?
DOES SEDIMENT NEED TO BE REMOVED FROM BEHIND THE DITCH CHECK?



SECTION A-A



STRAW BALE BARRIERS FOR AREA INLETS
(INLET PROTECTION)

MATERIAL SPECIFICATION:

BALE AREA INLET BARRIERS SHOULD BE CONSTRUCTED OF WHEAT STRAW, OAT STRAW, PRAIRIE HAY, OR BROMEGRASS HAY THAT IS FREE OF WEEDS DECLARED NOXIOUS BY THE KANSAS STATE BOARD OF AGRICULTURE.
THE STAKES USED TO ANCHOR THE BALES SHOULD BE A HARDWOOD MATERIAL WITH THE FOLLOWING MINIMUM DIMENSIONS: 2" SQUARE (NOMINAL) BY 4' LONG.
TWINE SHOULD BE USED TO BIND BALES. THE USE OF WIRE BINDING IS PROHIBITED BECAUSE IT DOES NOT BIODEGRADE READILY.

PLACEMENT:

BALE AREA INLET BARRIERS SHOULD BE PLACED DIRECTLY AROUND THE PERIMETER OF A DROP INLET.
WHEN A BALE AREA INLET BARRIER IS LOCATED NEAR AN INLET THAT HAS STEEP APPROACH SLOPES, THE STORAGE CAPACITY BEHIND THE BARRIER IS DRASTICALLY 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 4" DEEP BY A BALE'S WIDTH WIDE.
PLACE THE BALES IN THE TRENCH, MAKING SURE THAT THEY ARE BUTTED TIGHTLY. SOME BALES MAY NEED TO BE SHORTENED TO FIT INTO THE TRENCH AROUND THE AREA INLET. TWO STAKES SHOULD BE DRIVEN THROUGH EACH BALE, APPROXIMATELY 6" TO 8" IN FROM THE BALE ENDS.
STAKES SHOULD BE DRIVEN AT LEAST 12" INTO THE GROUND.
ONCE ALL THE BALES HAVE BEEN INSTALLED AND ANCHORED, PLACE THE EXCAVATED SOIL AGAINST THE RECEIVING SIDE OF THE BARRIER AND COMPACT IT. THE COMPACTED SOIL SHOULD BE NO MORE THAN 3" TO 4" DEEP.
NOTE: WHEN A BALE AREA INLET BARRIER 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.

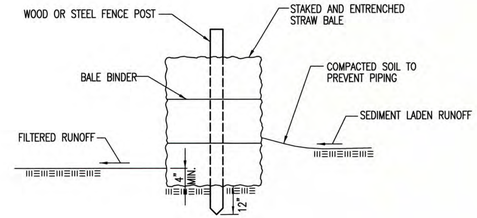
LIST OF COMMON PLACEMENT INSTALLATION MISTAKES TO AVOID:

BALES SHOULD BE PLACED DIRECTLY AGAINST THE PERIMETER OF THE AREA INLET. THIS ALLOWS OVERTOPPING WATER TO FLOW DIRECTLY INTO THE INLET INSTEAD OF ONTO NEARBY SOIL CAUSING SCOUR.
BALE AREA INLET BARRIERS MUST BE DUG INTO THE GROUND. BALES AT GROUND LEVEL DO NOT WORK BECAUSE THEY ALLOW WATER TO FLOW UNDER THE BARRIER.

INSPECTION AND MAINTENANCE:

BALE AREA INLET BARRIERS SHOULD BE INSPECTED EVERY 7 DAYS AND WITHIN 24 HOURS OF A RAINFALL 1/2" OR MORE. THE FOLLOWING IS A LIST OF QUESTIONS THAT SHOULD BE ADDRESSED DURING EACH INSPECTION:

DOES WATER FLOW UNDER THE AREA INLET BARRIER?
DOES WATER FLOW THROUGH SPACES BETWEEN ABUTTING BALES?
ARE ANY BALES DISLODGED?
ARE BALES DECOMPOSING DUE TO AGE AND/OR WATER DAMAGE?
DOES SEDIMENT NEED TO BE REMOVED FROM BEHIND THE AREA INLET BARRIER?



STRAW BALE BARRIERS

MATERIAL SPECIFICATION:

BALE SLOPE BARRIERS MAY BE CONSTRUCTED OF WHEAT STRAW, OAT STRAW, PRAIRIE HAY, OR BROMEGRASS HAY THAT IS FREE OF WEEDS DECLARED NOXIOUS BY THE KANSAS STATE BOARD OF AGRICULTURE.
THE STAKES USED TO ANCHOR THE BALES SHOULD BE A HARDWOOD MATERIAL WITH THE FOLLOWING MINIMUM DIMENSIONS: 2" SQUARE (NOMINAL) BY 4' LONG.
TWINE SHOULD BE USED TO BIND BALES. THE USE OF WIRE BINDING IS PROHIBITED BECAUSE IT DOES NOT BIODEGRADE READILY.

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, BALE SLOPE BARRIERS SHOULD BE PLACED ALONG CONTOURS TO AVOID A CONCENTRATION OF FLOW.
BALE 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 4" DEEP AND A BALE'S WIDTH 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.
PLACE THE BALES IN THE TRENCH, MAKING SURE THAT THEY ARE BUTTED TIGHTLY. TWO STAKES SHOULD BE DRIVEN THROUGH EACH BALE ALONG THE CENTERLINE OF THE DITCH CHECK, APPROXIMATELY 6" TO 8" IN FROM THE BALE ENDS. STAKES SHOULD BE DRIVEN AT LEAST 12" INTO THE GROUND.
ONCE ALL THE BALES HAVE BEEN INSTALLED AND ANCHORED, PLACE THE EXCAVATED SOIL AGAINST THE UPSLOPE SIDE OF THE CHECK AND COMPACT IT. THE COMPACTED SOIL SHOULD BE NO MORE THAN 3" TO 4" DEEP.

LIST OF COMMON PLACEMENT/INSTALLATION MISTAKES TO AVOID:

WHEN PRACTICAL, DO NOT PLACE BALE SLOPE BARRIERS ACROSS CONTOURS. SLOPE BARRIERS SHOULD BE PLACED ALONG CONTOURS TO AVOID A CONCENTRATION OF FLOW. CONCENTRATED FLOW OVER A SLOPE BARRIER CREATES A SCOUR HOLE ON THE DOWNSLOPE SIDE OF THE BARRIER. THE SCOUR HOLE EVENTUALLY UNDERMINES THE BALES AND THE BARRIER FAILS.
DO NOT PLACE BALE SLOPE BARRIERS IN AREAS WITH SHALLOW SOILS UNDERLAIN BY ROCK. IF THE BARRIER IS NOT ANCHORED SUFFICIENTLY, IT WILL WASH OUT.
BALE SLOPE BARRIERS MUST BE DUG INTO THE GROUND. BALES AT GROUND LEVEL DO NOT WORK BECAUSE THEY ALLOW WATER TO FLOW UNDER THE BARRIER.

INSPECTION AND MAINTENANCE:

BALE 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?
DOES WATER FLOW THROUGH SPACES BETWEEN ABUTTING BALES?
ARE ANY BALES DISLODGED?
ARE BALES DECOMPOSING DUE TO AGE AND/OR WATER DAMAGE?
DOES SEDIMENT NEED TO BE REMOVED FROM BEHIND THE SLOPE BARRIER?

REVISION DATE: MAY 2013

GARY L. JANZEN LICENSED PROFESSIONAL ENGINEER 16294 KANSAS 05/24/13

CITY OF WICHITA
PUBLIC WORKS & UTILITIES ENGINEERING DIVISION

STRAW BALE 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-503

NO.	BY	DATE	REVISION
5.	VZ	4/23/15	DETAIL ADDED PER CITY COMMENTS
4.	VZ	3/31/15	UPDATED FOLLOWING CITY COMMENTS
3.	VZ	1/19/15	FINAL PLANS UPDATED FOLLOWING COMMENTS FROM THE CITY
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RIVERSIDE MO, 64150
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SHEET
39A of 39

RIC PROJECT NO. 14-0112
WICHITA DESTINATION DEVELOPMENT
GREENWICH COURT DRAINAGE PLANS

Sediment & Erosion Control Standard Details

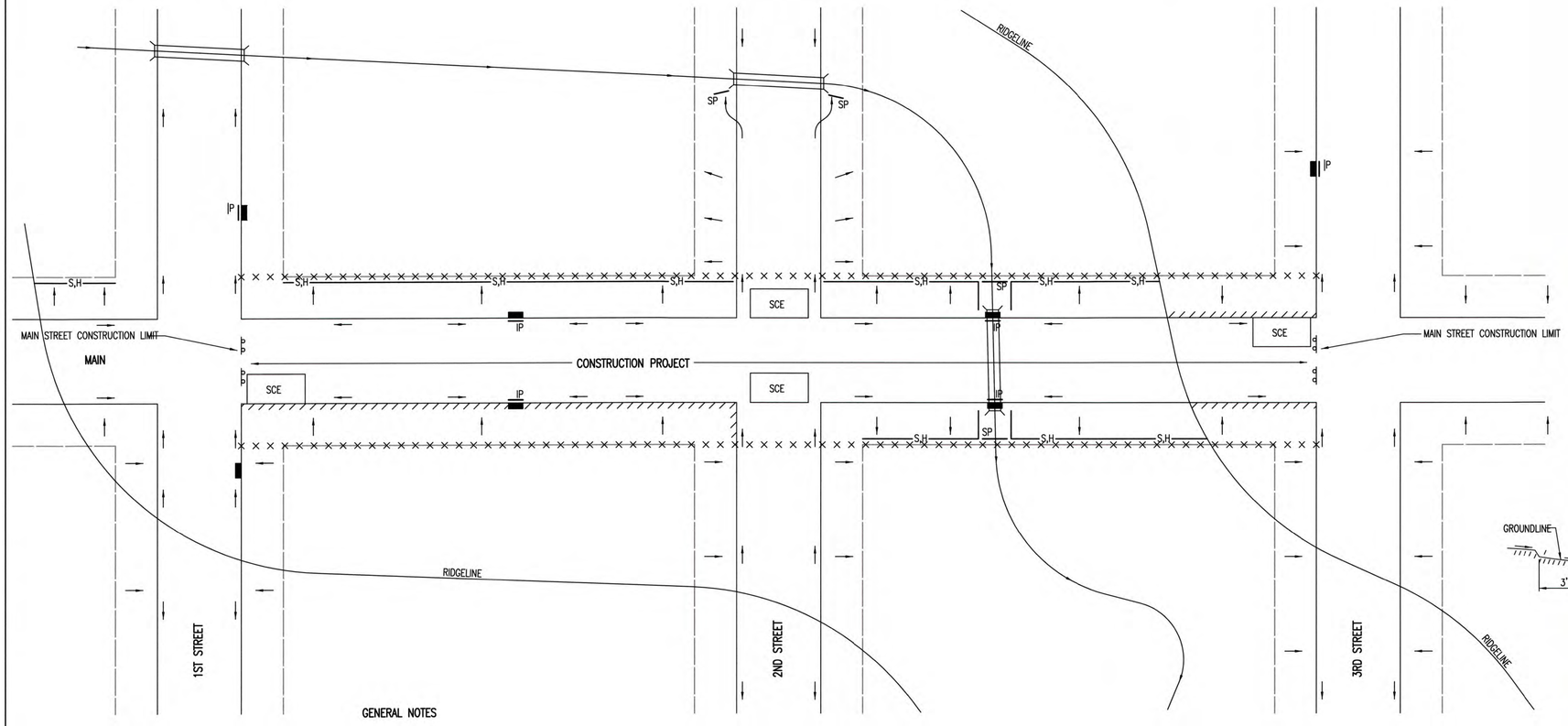
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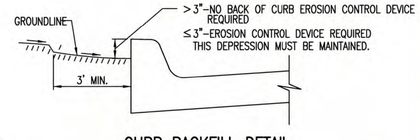
RIC PROJECT NO. 14-0112
WICHITA DESTINATION DEVELOPMENT
GREENWICH COURT DRAINAGE PLANS

Sediment & Erosion Control Standard Details

GENERAL NOTES

1. THIS SHEET IS INTENDED TO PROVIDE GUIDELINES AS TO WHAT TYPES OF EROSION CONTROL DEVICES WILL BE INSTALLED DURING THE CONSTRUCTION PROCESS. CONTRACTORS ARE EXPECTED TO BID PROJECTS ACCORDINGLY.
2. EROSION CONTROL DEVICES MUST BE MAINTAINED BY THE CONTRACTOR THROUGHOUT THE CONSTRUCTION PROCESS AND UNTIL THE DISTURBED EARTH IS RESTABILIZED.
3. IF THE PROJECT WILL DISTURB 1 ACRE OR MORE, A FEDERAL/STATE NPDES STORMWATER PERMIT IS REQUIRED. A DETAILED STORMWATER POLLUTION PREVENTION PLAN, IS REQUIRED. THE EROSION CONTROL DEVICES SHOWN ON THIS SHEET ARE CONSIDERED TO BE THE MINIMUM TO BE SHOWN IN THE POLLUTION PREVENTION PLAN.
4. FOR PROJECTS DISTURBING LESS THAN 1 ACRE, CONTRACTORS ARE ENCOURAGED TO PREPARE STORMWATER POLLUTION PREVENTION PLANS PRIOR TO CONSTRUCTION. EROSION CONTROL DEVICES MUST BE USED ON ALL PROJECTS.
5. FAILURE TO USE AND MAINTAIN EROSION CONTROL DEVICES IS A VIOLATION OF SECTION 16.32 OF THE CITY CODE AND WILL SUBJECT THE CONTRACTOR TO THE PENALTIES PROVIDED FOR THEREIN.
6. THE APPLICATION OF EROSION CONTROL DEVICES SHOWN ON THIS SHEET IS FOR SITUATIONS NORMALLY ENCOUNTERED. FROM TIME TO TIME, SITUATIONS WILL ARISE THAT MAY REQUIRE A DIFFERENT DEVICE OTHER THAN THOSE SHOWN. EROSION CONTROL DEVICES, OTHER THAN THOSE SHOWN, MAY BE UTILIZED AS LONG AS THEY ARE EFFECTIVE AND MAINTAINED.





CURB BACKFILL DETAIL

THIS IS A TEMPORARY MEASURE ONLY, WHEN APPROVED BY THE PROJECT ENGINEER. THE DIRT GRADE BEHIND THE CURB SHALL BE BROUGHT TO THE TOP OF CURB, WITH TEMPORARY EROSION CONTROL MAT OR PERMANENT VEGETATION PLACED, PRIOR TO THE COMPLETION OF ALL PROJECTS.

LEGEND

- R-O-W LIMITS
- DRAINAGE FLOW PATH
- R/W LIMIT WITHIN CONSTRUCTION LIMIT
- STORM WATER INLETS
- IP — INLET PROTECTION
- S,H — SILT FENCE OR HAY BALE BARRIER
- SP — STREAM PROTECTION
- SCE — STABILIZED CONSTRUCTION ENTRANCE
- BACK OF CURB PROTECTION

GENERAL NOTES

1. THE INTENT OF ALL EROSION CONTROL DEVICES IS TO KEEP ALL SEDIMENT CONFINED TO THE CONSTRUCTION SITE, AND OUT OF ALL UNDERGROUND PIPES, DITCHES, LAKES, AND OTHER DRAINAGE FACILITIES, AND OFF OF STREETS.
2. THE POINT OF COMPLIANCE IS GENERALLY THE RIGHT-OF-WAY LINES WITHIN THE LIMITS OF CONSTRUCTION.
3. EROSION CONTROL DEVICES WILL BE REQUIRED AT ALL POINTS ALONG THE PROJECT WHERE DISTURBED EARTH CAN DRAIN ONTO PRIVATE PROPERTY.
4. INLET PROTECTION DEVICES WILL BE REQUIRED WHEREVER WATER CAN DRAIN OFF THE PROJECT SITE INTO AN INLET, INCLUDING ANY SIDE STREET INLETS.
5. EROSION CONTROL DEVICES SHALL BE INSTALLED AT CREEK CROSSINGS SO AS TO PREVENT SEDIMENT FROM ENTERING THEREIN.
6. STABILIZED CONSTRUCTION ENTRANCES SHALL BE PROVIDED, AS NEEDED, TO PREVENT MUD FROM TRACKING ONTO STREETS NOT UNDER CONSTRUCTION AND ON STREETS WITHIN THE PROJECT LIMITS IF TRAFFIC IS BEING MAINTAINED THROUGH THE PROJECT.
7. ANY MUD TRACKED ONTO STREETS MUST BE REMOVED AT THE END OF EACH WORK DAY.
8. THE CONTACTOR WILL BE REQUIRED TO PLACE EROSION CONTROL DEVICES BACK OF CURB, WHENEVER WATER CAN DRAIN OVER CURB, TO KEEP ERODED SOIL OUT OF THE GUTTERLINES, IN ACCORDANCE WITH THE FOLLOWING:
   A. THE DEVICE REQUIRED WILL BE APPROVED EROSION CONTROL MAT LISTED ON THE CITY'S APPROVED MATERIAL LIST. SAID BLANKET SHALL BE PLACED OVER THE APPROPRIATE SEED AND FERTILIZER, AS SPECIFIED IN THE PROJECT SPECIFICATIONS. (SEE SOIL EROSION BMP's – BACK OF CURB SEDIMENT BARRIER DETAILS)
   B. THIS DEVICE SHALL BE INSTALLED IMMEDIATELY WHENEVER THE CURB IS BACKFILLED TO WITHIN 3" OF THE TOP OF CURB. (SEE CURB BACKFILL DETAIL) OTHER BMP'S MAY BE REQUIRED AT LOCATIONS WHERE CONCENTRATED FLOW CARRIES SEDIMENT OVER THE CURB.
   C. ADDITIONALLY, OTHER EROSION CONTROL DEVICES (HAY BALES, SILT FENCE, ETC.) WILL BE INSTALLED AT LOCATIONS OF CONCENTRATED FLOW RESULTING IN SEDIMENT OVERRUNNING THE MAT.
   D. SHOULD THE PROJECT PLANS SPECIFY THAT THE RIGHT-OF-WAY IS TO BE SODDED, THE EXCELSIOR MAT WILL NOT BE REQUIRED SO LONG AS THE SOD IS PLACED WITHIN 48 HOURS AFTER CURB BACKFILL REACHES A HEIGHT OF 3" OR LESS FROM TOP OF CURB. (SEE CURB BACKFILL DETAIL)

GARY L. JANZEN — LICENSED — 18294 — PROFESSIONAL ENGINEER — KANSAS
05/2/15

REVISION DATE: 2013

CITY OF WICHITA
PUBLIC WORKS & UTILITIES ENGINEERING DIVISION

STREET IMPROVEMENT PROJECTS

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-504

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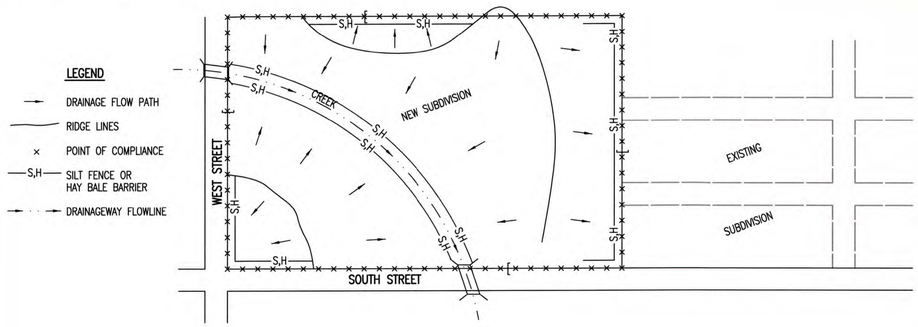
Renaissance Infrastructure Consulting
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Riverside MO, 64150

4/23/2015
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RIC PROJECT NO. 14-0112
WICHITA DESTINATION DEVELOPMENT
GREENWICH COURT DRAINAGE PLANS

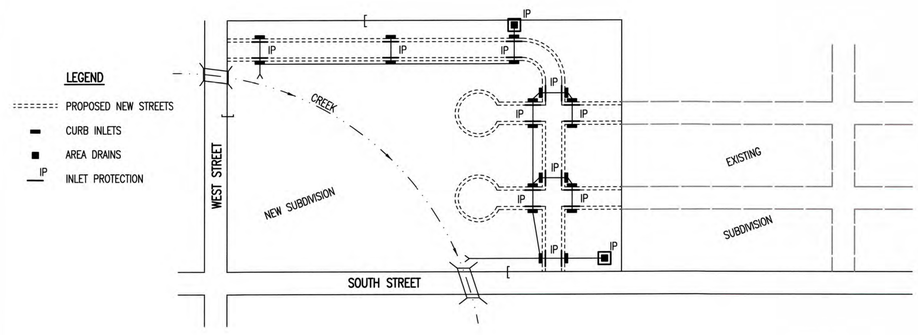
Sediment & Erosion Control Standard Details

PHASE 1 – INITIAL EARTHWORK AND UTILITIES (EXCEPT STORM SEWER)



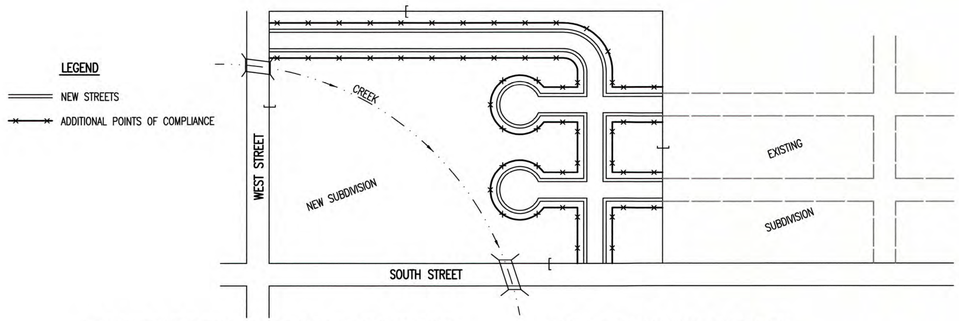
1. DURING THIS PHASE OF SUBDIVISION CONSTRUCTION, THE POINTS OF COMPLIANCE ARE THE PERIMETER BOUNDARIES AND ANY DRAINAGE WAYS OR STORM SEWERS DRAINING THROUGH OR FROM THE SITE. SHOULD LAKES BE CONSTRUCTED WITHIN THE SUBDIVISION THAT WILL DISCHARGE DURING STORMS, THEY ARE ALSO A POINT OF COMPLIANCE.
2. HAY BALES OR SILT FENCE MUST BE CONSTRUCTED ALONG THE PROPERTY LINE WHERE ON SITE WATER CAN DRAIN OFF THE PROPERTY. THESE EROSION CONTROL DEVICES WILL ALSO BE INSTALLED ALONG ANY DRAINAGE DITCH OR LAKE THAT CAN DISCHARGE.
3. SHOULD SILT OR SEDIMENT ENTER THE DITCHES OR STREETS ON THE ADJACENT BOUNDARY STREETS, APPROPRIATE EROSION CONTROL DEVICES WILL BE PLACED WITHIN THE SUBDIVISION TO PREVENT THIS.
4. ANY MUD TRACKED ONTO ADJACENT STREETS WILL BE REMOVED WITHIN 48 HOURS OR BY FRIDAY AT 6:00 PM, WHICHEVER IS EARLIER.
5. CONTRACTORS WORKING WITHIN THE SITE WILL NOT BE REQUIRED TO USE INDIVIDUAL EROSION CONTROL DEVICES AS LONG AS THOSE SPECIFIED ABOVE ARE IN PLACE AND EFFECTIVE. CONTRACTORS WORKING ON THE BOUNDARY LINE STREETS OR ON ADJACENT PROPERTIES TO EXTEND UTILITIES ARE EXPECTED TO USE EROSION CONTROL DEVICES AT THEIR WORK LOCATIONS, AS NEEDED.
6. UTILIZE STABILIZED CONSTRUCTION ENTRANCE AT ENTRANCE AND EXIT ONTO ANY EXISTING PUBLIC STREETS.
7. IF THE INITIAL EARTH WORK AND UTILITIES ARE DONE AS PART OF A PUBLIC IMPROVEMENT PROJECT, THESE EROSION CONTROL DEVICES WILL BE INSTALLED BY THE CONTRACTOR AS SPECIFIED IN THE INDIVIDUAL PROJECT CONTRACTS. THE CONTRACTOR WILL MAINTAIN THE DEVICES UNTIL COMPLETION OF THE CONTRACT, AT WHICH TIME THE DEVELOPER WILL ASSUME MAINTENANCE RESPONSIBILITIES. IF THESE CONTRACTS ARE NOT PUBLIC IMPROVEMENT PROJECTS, THE DEVELOPER WILL BE RESPONSIBLE FOR INSTALLING AND MAINTAINING THESE DEVICES.
8. WITHIN 14 DAYS OF COMPLETION OF EARTHWORK ACTIVITIES IN ANY GIVEN AREA, THAT AREA SHALL BE TEMPORARILY OR PERMANENTLY SEEDED AND MULCHED.

PHASE 2 – INSTALLATION OF STORM SEWER



1. DURING THIS PHASE OF SUBDIVISION DEVELOPMENT, ALL EROSION CONTROL DEVICES REQUIRED IN PHASE 1 SHALL REMAIN IN PLACE AND BE MAINTAINED.
2. AS NEW STORM SEWERS, WITH INLETS, ARE INSTALLED, THE STORM SEWERS MUST NOW BE PROTECTED SO ALL NEW INLETS BECOME POINTS OF COMPLIANCE.
3. AREA DRAINS – AS SOON AS WATER CAN FLOW INTO THESE DRAINS, HAY BALE OR SILT FENCE PROTECTION WILL BE INSTALLED AROUND THEM.
4. CURB OPENING INLETS – AS SOON AS WATER CAN FLOW INTO THESE DRAINS, INLET PROTECTION DEVICES MUST BE INSTALLED. IF WATER CANNOT FLOW INTO CURB INLETS UNTIL STREET CONSTRUCTION IS COMPLETE, THEN STREET CONTRACTOR WILL INSTALL INLET PROTECTION. SEE PHASE 3 – STREET CONSTRUCTION.
5. THE STORM SEWER CONTRACTOR WILL BE RESPONSIBLE FOR INSTALLING THESE DEVICES.
6. THE SUBDIVISION DEVELOPER WILL MAINTAIN THESE EROSION CONTROL DEVICES ONCE INSTALLED.
7. ALL DISTURBED GROUND WILL BE FINAL GRADED AND TEMPORARILY OR PERMANENTLY SEEDED WITHIN 14 DAYS IF COMPLETION OF WORK IN ANY GIVEN PART OF THE SUBDIVISION.
8. ONCE ALL DISTURBED GROUND DRAINING TO AN INLET HAS BEEN RESTABILIZED WITH GRASS OR SOD, THE SUBDIVISION DEVELOPER WILL BE RESPONSIBLE FOR PERMANENTLY REMOVING THE INLET PROTECTION.

PHASE 3 – STREET CONSTRUCTION

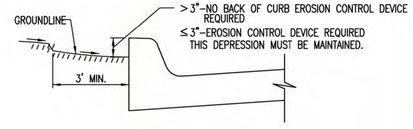


1. DURING THIS PHASE OF SUBDIVISION CONSTRUCTION, NEW STREETS ARE INSTALLED. ALL EROSION CONTROL DEVICES INSTALLED DURING PHASE 1 AND 2 MUST STILL BE MAINTAINED. THE POINT OF COMPLIANCE NOW SHIFTS TO THE BACK OF CURB ALONG EACH STREET.
2. CURB OPENING INLET PROTECTION:
   A. SUMP AREAS – INLET PROTECTION SHALL BE PROVIDED WHEN STREET SUBGRADE WORK IS COMPLETED.
   B. NON-SUMP LOCATIONS – PROVIDE INLET PROTECTION AS SOON AS BASE COURSE ASPHALT IS INSTALLED, BEFORE THE SURFACE COURSE LIFT.
3. EROSION CONTROL DEVICES WILL BE REQUIRED BACK OF CURB WHEREVER WATER CAN FLOW OVER THE CURB AND THE CURB HAS BEEN BACKFILLED TO WITHIN 3" OR LESS OF THE TOP OF CURB (SEE CURB BACKFILL DETAIL). FOR CURBS NOT YET ENTIRELY BACKFILLED (3" OR MORE BELOW TOP OF CURB), ADDITIONAL DEVICES WILL BE REQUIRED AT POINTS WHERE WATER BREAKS OVER CURB WHICH COULD RESULT IN THE PLACEMENT OF SEDIMENT IN THE GUTTER.
4. SEE DETAIL SHEET FOR BACK OF CURB PROTECTION.
5. THE BACK OF CURB PROTECTION SPECIFIED ON THIS PLAN MAY HAVE TO BE SUPPLEMENTED WITH HAY BALE OR SILT FENCE EROSION CONTROL DEVICES AT LOCATIONS WHERE CONCENTRATED FLOW RESULTS IN SEDIMENT BEING CARRIED OVER THE EXCELSIOR MATS.
6. THE STREET CONTRACTOR WILL BE RESPONSIBLE FOR INSTALLING BACK OF CURB EROSION CONTROL DEVICES.
7. THE INDIVIDUAL LOT OWNERS WILL BE RESPONSIBLE FOR MAINTAINING THE BACK OF CURB EROSION CONTROL DEVICES IN FRONT OF THEIR LOTS UNTIL SUCH TIME AS ADJACENT DISTURBED EARTH IS STABILIZED WITH GRASS OR SOD.

GENERAL NOTES

1. THE INTENT OF ALL EROSION CONTROL DEVICES IS TO PREVENT ERODED SOIL FROM ENTERING DITCHES, STORM SEWERS, LAKES, STREETS OR ANY OTHER OTHER DRAINAGE FEATURE.
2. THIS SHEET IS INTENDED TO PROVIDE GUIDELINES AS TO WHAT TYPE OF EROSION CONTROL DEVICES WILL BE INSTALLED DURING THE CONSTRUCTION PROCESS. CONTRACTORS ARE EXPECTED TO BID PROJECTS ACCORDINGLY.
3. EROSION CONTROL DEVICES SHALL BE MAINTAINED DURING THE CONSTRUCTION PROCESS TO REMAIN EFFECTIVE. MAINTENANCE SHALL BE AS INDICATED ON SOIL EROSION BMP'S DETAIL SHEETS.
4. PERSONS DESTROYING EROSION CONTROL DEVICES SHALL BE RESPONSIBLE FOR IMMEDIATELY REPAIRING THEM OR INSTALLING SUITABLE REPLACEMENT DEVICES.
5. THE DEVELOPMENT OF ANY SUBDIVISION THAT DISTURBS 1 ACRE OR MORE WILL REQUIRE A FEDERAL/STATE NPDES STORMWATER PERMIT. THE PREPARATION OF A STORMWATER POLLUTION PREVENTION PLAN IS REQUIRED. EROSION CONTROL DEVICES ARE REQUIRED. THE DETAILS SHOWN ON THIS SHEET ARE THE MINIMUM STANDARDS TO BE SHOWN ON POLLUTION PREVENTION PLANS.
6. FOR SUBDIVISIONS SMALLER THAN 1 ACRE, SOIL EROSION DEVICES ARE REQUIRED. ALSO, DEVELOPERS AND CONTRACTORS ARE ENCOURAGED TO DEVELOP POLLUTION PREVENTION PLANS FOR EACH PROJECT PRIOR TO CONSTRUCTION.
7. FAILURE TO USE AND MAINTAIN SOIL EROSION DEVICES IS A VIOLATION OF SECTION 16.32 OF THE CITY CODE AND WILL SUBJECT THE SUBDIVISION DEVELOPER AND CONTRACTORS TO THE PENALTIES PROVIDED THEREIN.
8. THE APPLICATION OF EROSION CONTROL DEVICES SHOWN ON THIS SHEET IS FOR SITUATIONS NORMALLY ENCOUNTERED. FROM TIME TO TIME, SITUATIONS WILL ARISE THAT MAY REQUIRE DEVICES OTHER THAN THAT SHOWN. EROSION CONTROL DEVICES, OTHER THAN THOSE SHOWN, MAY BE UTILIZED SO LONG AS THEY ARE EFFECTIVE AND MAINTAINED.
9. A STABILIZED EARTH SURFACE IS DEFINED AS ONE THAT IS HARD SURFACED WITH CONCRETE, ASPHALT, OR THE LIKE, OR ONE ON WHICH 70% OF THE GRASS HAS GERMINATED ON THE ENTIRE SURFACE.

SEE DETAIL SHEET FOR BACK OF CURB PROTECTION DETAIL



CURB BACKFILL DETAIL (STREET CONSTRUCTION ONLY)

THIS IS A TEMPORARY MEASURE ONLY, WHEN APPROVED BY THE PROJECT ENGINEER. THE DIRT GRADE BEHIND THE CURB SHALL BE BROUGHT TO THE TOP OF CURB, WITH TEMPORARY EROSION CONTROL MAT OR PERMANENT VEGETATION PLACED, PRIOR TO THE COMPLETION OF ALL PROJECTS.

REVISION DATE: MAY 2013

GARY L. JANZEN LICENSED PROFESSIONAL ENGINEER 16294 KANSAS
05/13/13

CITY OF WICHITA
PUBLIC WORKS & UTILITIES ENGINEERING DIVISION

SUBDIVISION DEVELOPMENT PROCESS

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

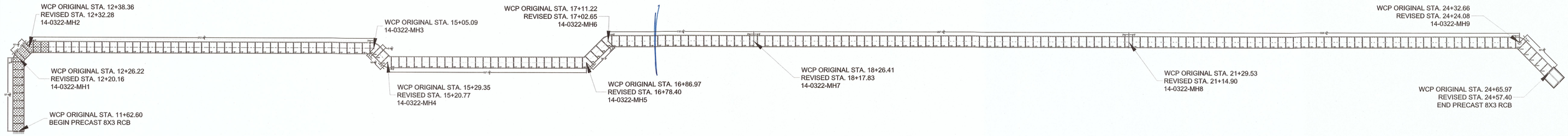
SHEET

SW-505

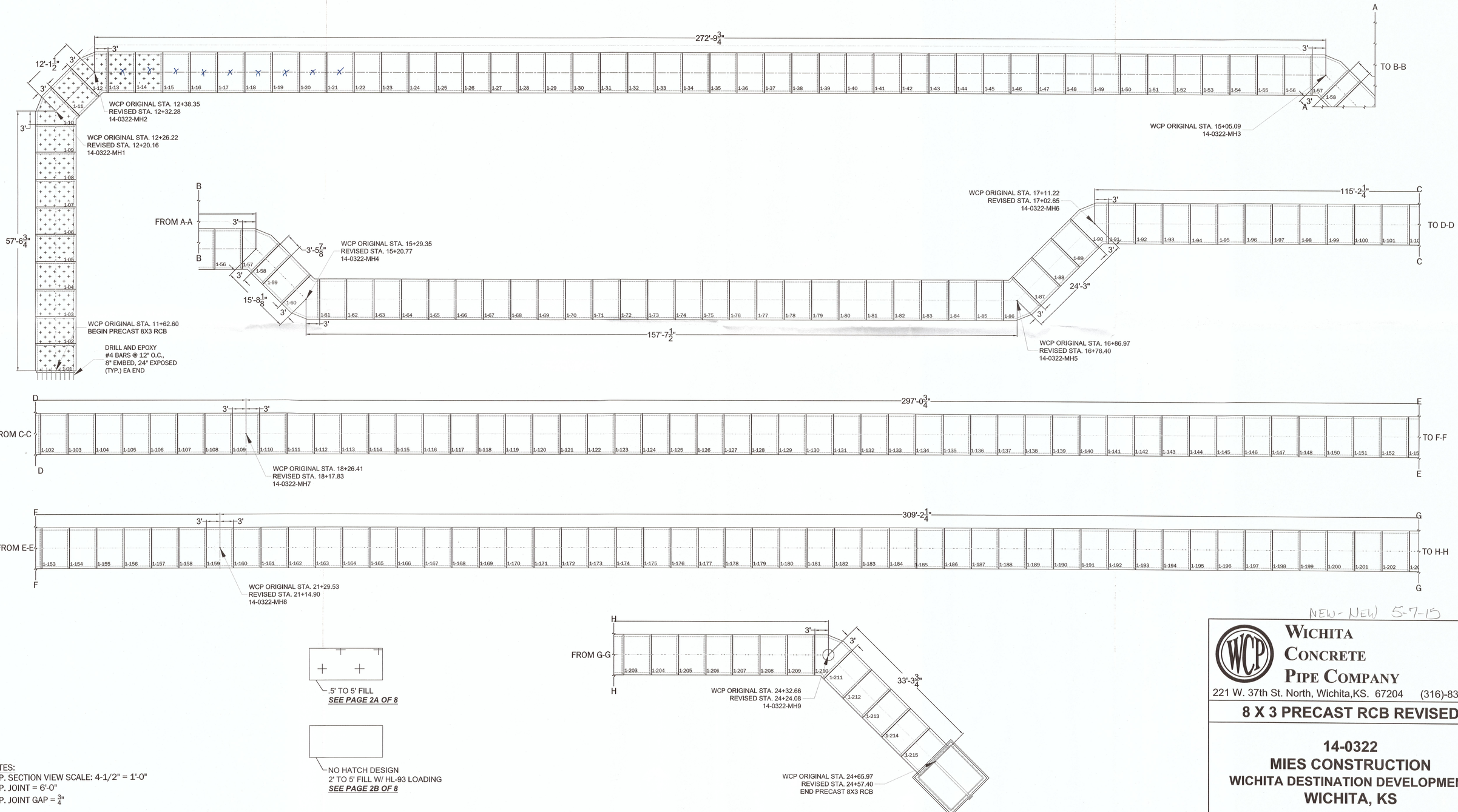
NO.	BY	DATE	REVISION
5.	VZ	4/23/15	DETAIL ADDED PER CITY COMMENTS
4.	VZ	3/31/15	UPDATED FOLLOWING CITY COMMENTS
3.	VZ	1/19/15	FINAL PLANS UPDATED FOLLOWING COMMENTS FROM THE CITY
2.	VZ	11/18/14	REMOVAL OF ROUNDABOUT & ADDITION OF TEMP CULVERTS
1.	VZ	8/4/2014	UPDATED ACCORDING TO CITY OF WICHITA COMMENTS
	VZ	7/3/2014	ORIGINAL SUBMITTAL

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

4/23/2015
Z:\RIC Design\2014\14-0112 Wichita K96 Destination\dwg\dgn\Sheets\14-0112 Public Storm Sewer\New Set 2-20-15\14-0112 Storm Erosion Details-5.dgn



OVERALL LAYOUT
SCALE: N.T.S.



NOTES:
-TYP. SECTION VIEW SCALE: 4-1/2" = 1'-0"
-TYP. JOINT = 6'-0"
-TYP. JOINT GAP = 3/4"

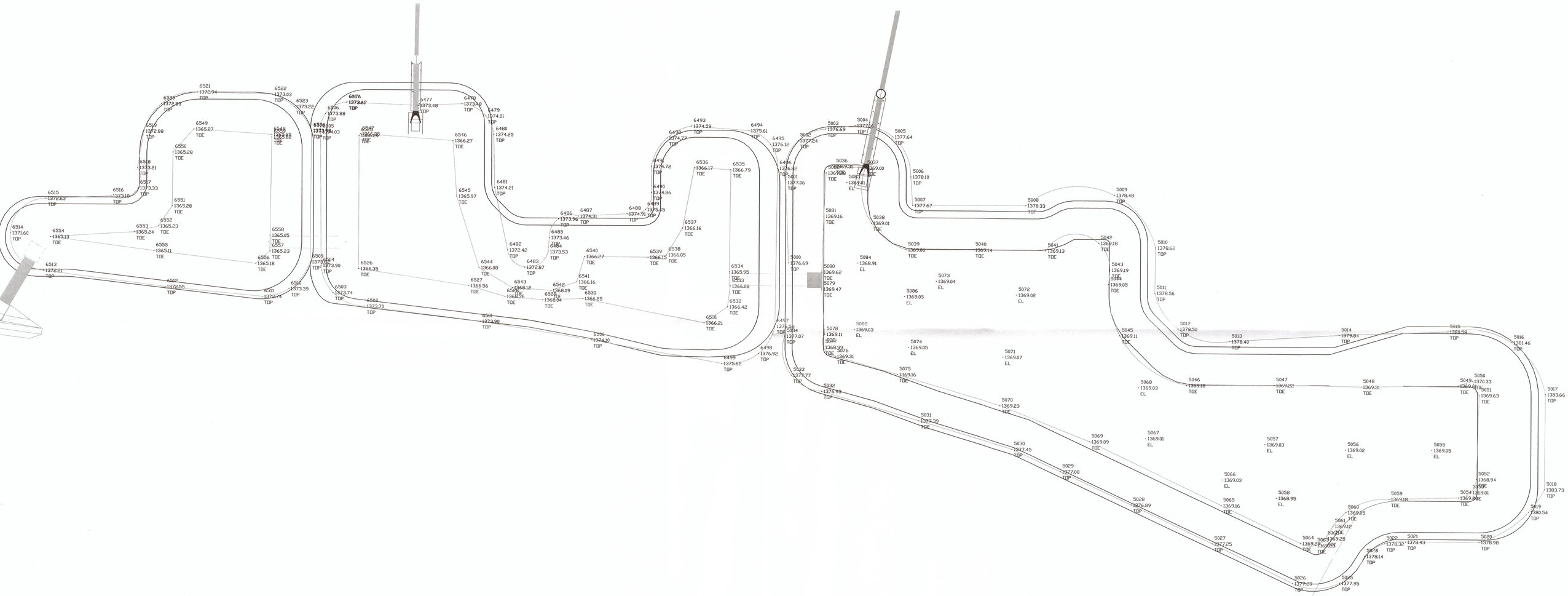
NEW - NEW 5-7-15

WICHITA CONCRETE PIPE COMPANY
221 W. 37th St. North, Wichita,KS. 67204 (316)-838-8651

8 X 3 PRECAST RCB REVISED

14-0322
MIES CONSTRUCTION
WICHITA DESTINATION DEVELOPMENT
WICHITA, KS

14-0322 8X3 LARGE PLAN SHEET REVISED 05/05/15 DBH


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Wichita/Sedgwick County
Stormwater As-Built Certification Form

A completed copy of this form must be submitted with all as-built plans.

Submit completed form(s) to City of Wichita Engineering 455 N. Main 7th floor Wichita Ks. 67202 or to Sedgwick County Stormwater Management 1144 S. Seneca Wichita Ks. 67213

Project Name: WICHITA DESTINATION DEVELOPMENT

Project Number/OCA: 0260 PPD (607861)

Contractor: Mies

ENGINEER'S CERTIFICATION OF COMPLETION

To the City Engineer, City of Wichita, Kansas or County Engineer, Sedgwick County, Kansas

I, Kirk Miller of K.E. Miller Engineering, P.A. , being a licensed engineer in the State of Kansas, do hereby certify that the above described improvements have been completed in substantial conformance with the approved plans and specifications, and do hereby recommend acceptance of same by the City of Wichita and/or Sedgwick County, Kansas, for use by the public for the purposes for which they were intended.

KIRK E. MILLER LICENSED 11263 11/12/15 KANSAS PROFESSIONAL ENGINEER

Professional Engineer Seal/Signature

K.E. Miller Engineering, P.A.
Consulting Engineering Firm