

**GENERAL NOTES:**

1. STORM SEWER LINES AND STRUCTURES SHALL BE INSTALLED IN ACCORDANCE WITH THE MOST RECENT EDITION OF THE CITY OF WICHITA STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

2. ALL ELEVATIONS SHOWN ARE BASED ON NAVD 88 DATUM.

3. CONTRACTOR WILL BE REQUIRED TO PROVIDE A MINIMUM ADVANCE NOTICE OF TWO FULL WORKING DAYS (48 HOURS) TO UTILITY COMPANIES PRIOR TO STARTING ANY EXCAVATION AS FOLLOWS:  
 KANSAS ONE CALL 1-800-344-7233  
 OR 1-316-687-2470

THE CONTRACTOR SHALL NOTIFY THE FOLLOWING IN CASE OF AN EMERGENCY:  
 COX COMMUNICATIONS 1-316-262-4270  
 OR 1-316-263-2061  
 AT&T 1-800-870-8390  
 KANSAS GAS SERVICE 1-888-482-4950  
 WESTAR 1-800-383-1183  
 BLACK HILLS ENERGY 1-800-303-0752  
 CITY OF WICHITA (WATER & SEWER) 1-316-268-4555

THE CONTRACTOR SHALL NOTIFY PIPELINE COMPANIES AT LEAST 24 HOURS IN ADVANCE OF ANY WORK BEING PERFORMED ACROSS AND/OR ADJACENT TO PIPELINES.

4. THE CONTRACTOR SHALL NOTIFY THE INSPECTOR FOR THIS PROJECT 48 HOURS PRIOR TO BEGINNING CONSTRUCTION. THE CONTRACTOR SHALL NOT START WORK ON THE PROJECT UNTIL THE PROJECT INSPECTOR ASSIGNED TO THE PROJECT IS PRESENT ON SITE. ANY WORK DONE WITHOUT INSPECTION WILL BE REQUIRED TO BE UNCOVERED FOR INSPECTION.

5. THE CONTRACTOR SHALL GIVE ALL PROPERTY OWNERS AND/OR TENANTS OF DEVELOPED PROPERTY DIRECTLY ADJUTING THE CONSTRUCTION OF THIS PROJECT A MINIMUM OF TEN (10) DAYS ADVANCE NOTICE PRIOR TO START OF CONSTRUCTION.

6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PRESERVING EXISTING PROPERTY IRONS AND RIGHT-OF-WAY MONUMENTS. THE CONTRACTOR SHALL BE REQUIRED TO RE-ESTABLISH ANY PROPERTY IRONS OR RIGHT-OF-WAY MONUMENTS WHICH ARE DAMAGED OR DESTROYED BY HIS CONSTRUCTION OPERATIONS. SUCH IRONS OR MONUMENTS SHALL BE RE-ESTABLISHED BY A LICENSED LAND SURVEYOR IN ACCORDANCE WITH STATE LAWS.

7. TRAFFIC AFFECTED BY THE CONSTRUCTION OF THIS PROJECT SHALL BE HANDLED IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

8. THE CONTRACTOR MUST EXAMINE THE CONSTRUCTION SITE PRIOR TO BIDDING AND BE SATISFIED AS TO THE WORK SHOWN FOR COMPLETION. AFTER BIDS HAVE BEEN RECEIVED, THE CONTRACTOR SHALL NOT ASSERT THAT THERE WAS A MISUNDERSTANDING OF THE QUANTITIES OF WORK OR OF THE NATURE FOR THE WORK TO BE COMPLETED.

9. COST OF EXCAVATION, HAULING, AND DUMPING OF EXCESS EXCAVATION SHALL BE CONSIDERED SUBSIDIARY TO OTHER ITEMS OF WORK.

10. SEEDING AND FERTILIZING OF ALL AREAS DISTURBED BY THE CONSTRUCTION OF THE STORM WATER SEWER AS SHOWN ON THE PLANS SHALL BE CONSIDERED SUBSIDIARY TO OTHER ITEMS OF WORK.

11. THE CONTRACTOR SHALL RESTORE ALL DITCHES, SWALES, ROAD SHOULDERS, ENTRANCES AND BANK LINES TO THEIR ORIGINAL SLOPES AND GRADES EXCEPT AS SHOWN OTHERWISE. ALL AREAS DISTURBED BY CONSTRUCTION INCLUDING STAGING AREAS, SHALL BE REPLANTED WITH GRASS SEED AT THE APPROPRIATE RATES APPROVED BY THE ENGINEER.

12. RUBBLE FROM THE REMOVAL OF MISCELLANEOUS STRUCTURES AND EXCESS EXCAVATION WHICH IS TO BE WASTED SHALL BE DISPOSED ON SITES TO BE PROVIDED BY THE CONTRACTOR. THESE SITES SHALL BE APPROVED BY THE ENGINEER AS TO SUITABILITY, APPEARANCE AND SITE LOCATION. LOCATIONS, THAT IN THE OPINION OF THE ENGINEER, 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 FLOODPLAIN WOULD REQUIRE A KANSAS STATE BOARD OF AGRICULTURE PERMIT. ANY MATERIAL DUMPED IN WATERS OF THE UNITED STATES OR WETLANDS IS SUBJECT TO U.S. CORPS OF ENGINEERS PERMITTING REGULATIONS. ANY MATERIAL BURIED OR STOCKPILED BEYOND APPROVED CONSTRUCTION LIMITS WOULD REQUIRE ADDITIONAL ARCHAEOLOGICAL INVESTIGATIONS UNLESS BURIED IN A PREVIOUSLY APPROVED BORROW LOCATION.

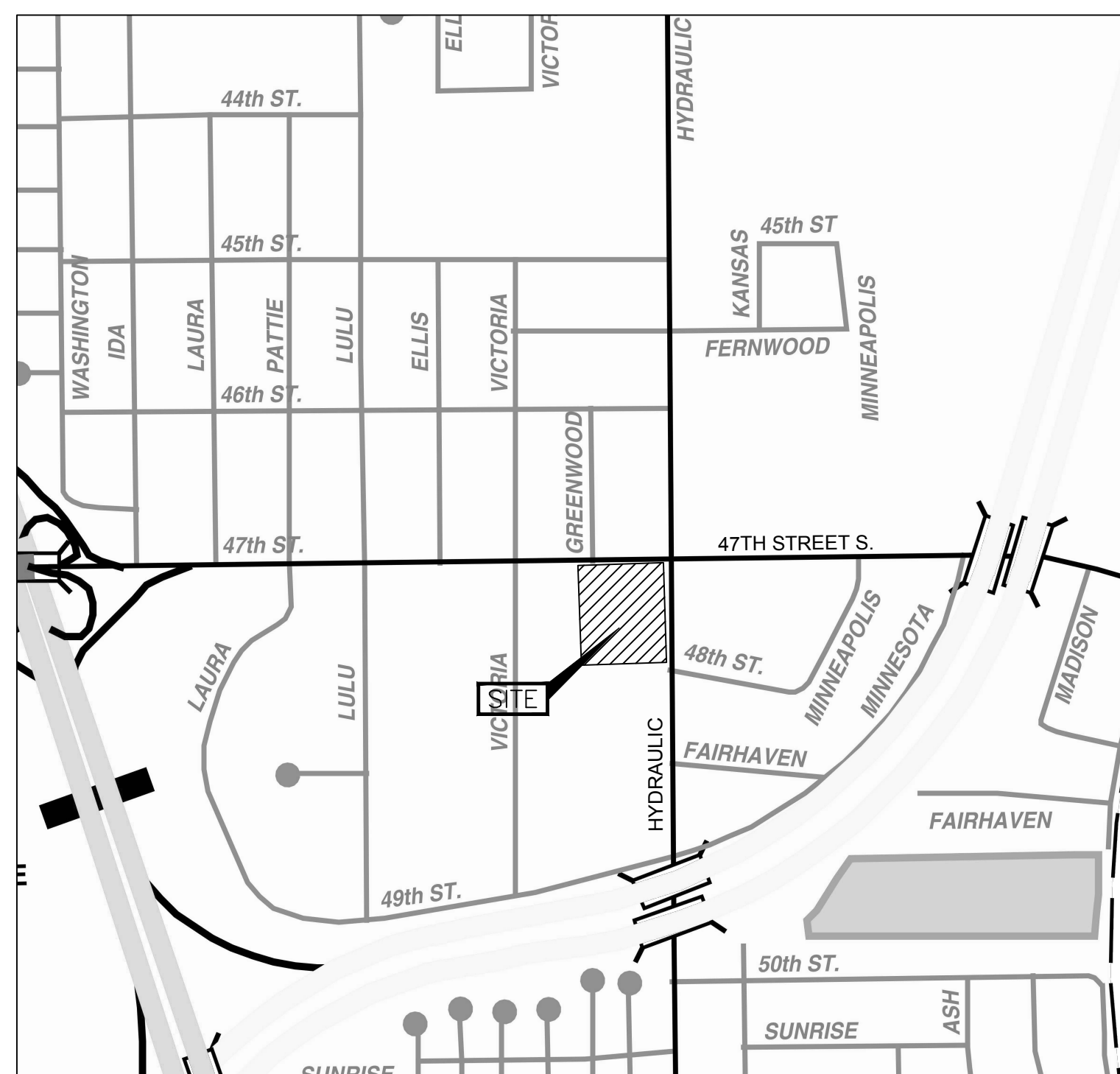
13. PAVED SURFACES OR SIDEWALK AREAS REMOVED FOR THE CONSTRUCTION OF THIS PROJECT SHALL BE REPLACED AT THE CONTRACTORS EXPENSE.

14. TREES IN CONFLICT WITH CONSTRUCTION SHALL BE REMOVED OR TRIMMED AS NECESSARY AT THE CONTRACTORS EXPENSE.

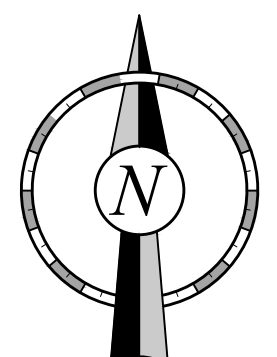
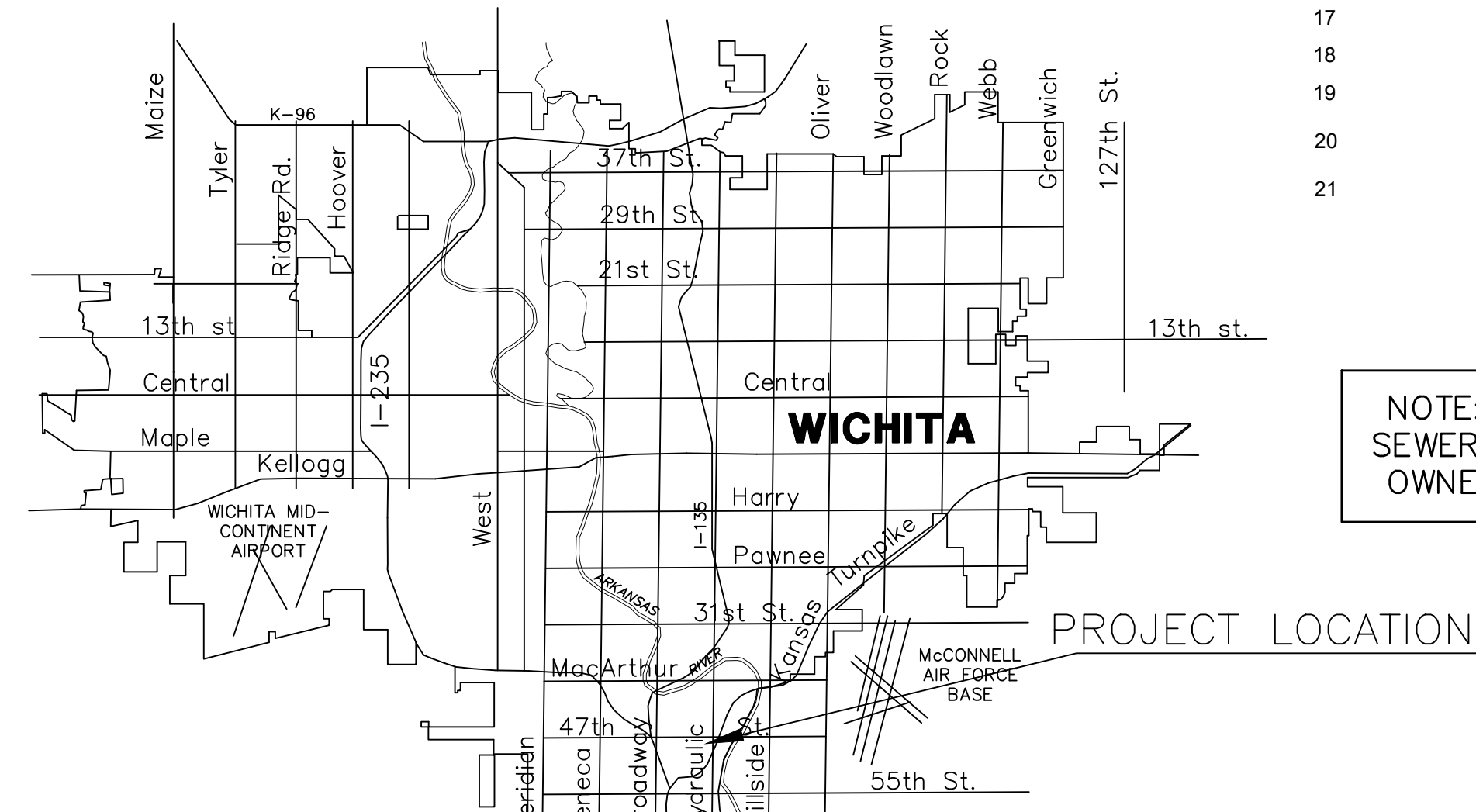
15. EXISTING UTILITIES AND THEIR LOCATION, AS SHOWN ON THE PLANS, REPRESENT THE BEST INFORMATION AVAILABLE FOR DESIGN. LOCATION INFORMATION HAS BEEN OBTAINED FROM THE VARIOUS UTILITY COMPANIES AND IS EITHER FROM COMPANY RECORD DRAWINGS OR COMPANY PROVIDED FIELD LOCATIONS. THE PLAN LOCATIONS ARE NOT GUARANTEED. ADDITIONAL EXISTING UTILITIES MAY ALSO BE ENCOUNTERED. THE CONTRACTOR WILL BE REQUIRED TO WORK AROUND EXISTING UTILITIES WHICH ARE ENCOUNTERED ON THIS PROJECT. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION DURING TRENCHING OPERATIONS TO AVOID DAMAGING THESE LINES. ANY LINES DAMAGED SHALL BE REPLACED OR REPAIRED IMMEDIATELY AS DIRECTED BY THE ENGINEER AT THE CONTRACTOR'S EXPENSE.

16. PROPERTIES WITHIN THE PROJECT LIMITS MAY HAVE UNDERGROUND SPRINKLER SYSTEMS IN THE PUBLIC RIGHT-OF-WAY WHICH CONFLICT WITH NEW CONSTRUCTION. CONTRACTOR WILL BE REQUIRED TO REMOVE SUCH IMPROVEMENTS SHOULD THEY NOT BE REMOVED BY THEIR OWNER AT THE TIME OF CONSTRUCTION OF THE PROJECT. THE CONTRACTOR WILL BE REQUIRED TO SALVAGE ALL SPRINKLER HEADS AND/OR VALVES AND GIVE SUCH MATERIAL TO THEIR OWNER. PORTIONS OF UNDERGROUND SPRINKLER SYSTEMS NOT IN CONFLICT WITH NEW CONSTRUCTION SHALL BE PROTECTED FROM DAMAGE AND SHALL REMAIN IN PLACE. ALL WORK IN CONNECTION WITH UNDERGROUND SPRINKLER SYSTEMS SHALL BE

# DRAINAGE PRIVATE PROJECT PLANS FOR QUIKTRIP STORE #0356R SW CORNER OF 47TH ST & HYDRAULIC WICHITA, SEDGWICK COUNTY, KANSAS 257 PPD (O.C.A. NO. 607861) GARY JANZEN, P.E., CITY ENGINEER OCTOBER 2014



Vicinity Map  
 Not to Scale



PROJECT LOCATED IN THE  
 NE 1/4, SEC 21, T28S, R1E,  
 WICHITA, SEDGWICK COUNTY, KANSAS

**STORMWATER COMPLIANCE:**

DISTURBED AREA = 2.87 ACRES  
 PROJECT PROPERTY AREA = 2.02 ACRES  
 DEVELOPED IMPERVIOUS AREA = 1.50 ACRES (WITHIN PROJECT PROPERTY AREA)  
 EXISTING IMPERVIOUS AREA = 1.03 ACRES (WITHIN PROJECT PROPERTY AREA)  
 DETENTION = REQUIRED  
 CHANNEL PROTECTION VOLUME = N/A (LESS THAN 5 ACRES OF DISTURBED AREA)  
 WATER QUALITY ACHIEVED BY: KRISTAR DVS-48S & DVS-60C WATER QUALITY DEVICES  
 DEVELOPEMENT COMPLIES WITH 16.32 OF CITY CODE.

CONSIDERED AS SUBSIDIARY TO THE CONTRACT PAY ITEMS OF WORK.

17. THE CONTRACTOR SHALL INSTALL DEWATERING SYSTEMS AS NECESSARY TO KEEP TRENCHES FREE OF WATER. IN NO CIRCUMSTANCE WILL PIPE BE LAID IN STANDING WATER. DEWATERING SYSTEMS SHALL REMAIN IN OPERATION UNTIL THE TRENCH HAS BEEN BACKFILLED. THE COST FOR THIS WORK SHALL BE SUBSIDIARY TO THE INSTALLATION OF THE PIPE.

18. PRIOR TO LAYING THE NEW STORM SEWER LINES THE CONTRACTOR SHALL EXPOSE AND VERIFY THE ELEVATION, GRADE AND ALIGNMENT OF THE EXISTING STORM WATER SEWER AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES FROM THE PLAN.

**BENCHMARKS:**

BM CHISELED SQUARE CUT TOP OF CURB SOUTHWEST CORNER OF 47TH STREET AND VICTORIA STREET.

ELEV.=1272.28 N.A.V.D. 88

**PPD Sheet List Table**

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6	SWS NO. 1 PLAN & PROFILE
7	SWS NO. 2 PLAN & PROFILE
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9	SWS NO. 5 PLAN & PROFILE
10	EROSION PH 1
11	EROSION PH 2
12	EROSION DETAILS 1
13	EROSION DETAILS 2
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15	EROSION DETAILS 4
16	EROSION DETAILS 5
17	WATER QUALITY DEVICE DETAIL
18	PRECAST MH DETAIL
19	TYPE 1 CURB INLET DETAIL
20	QT DRAINAGE DETAILS 1
21	REINFORCED MH DETAIL

NOTE: PROPOSED STORM SEWER WILL BE PRIVATELY OWNED AND MAINTAINED.

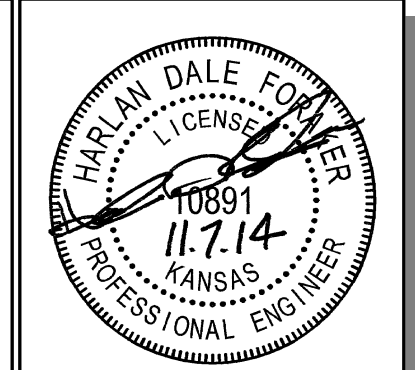
APPROVED AS NOTED  
 BY CITY ENGINEER OF WICHITA

Engineering *Rebecca Guil* 11/19/14  
 Stormwater *[Signature]* 11/19/14

**NOTE TO CONTRACTORS**

Inspection and testing for this project are 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. 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.

**AS-BUILT PLANS**  
 CONTRACTOR: NOWAK CONSTRUCTION  
 SUPERINTENDENT: TRAVIS WINNETT  
 FOREMAN: JIMMY  
 CLIENT: CITY OF WICHITA  
 INSPECTOR: CALEB WILSON, SCHWAB-EATON, P.A.  
 PDF BY: CFW 09/17/15



**QuikTrip No. 0356**  
 SWC 47TH & HYDRAULIC  
 WICHITA, SEDGWICK, KS



PROTOTYPE: P-78 (02/01/14)  
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 VERSION: 001  
 DESIGNED BY:  
 DRAWN BY: KSR  
 REVIEWED BY:

REV	DATE	DESCRIPTION

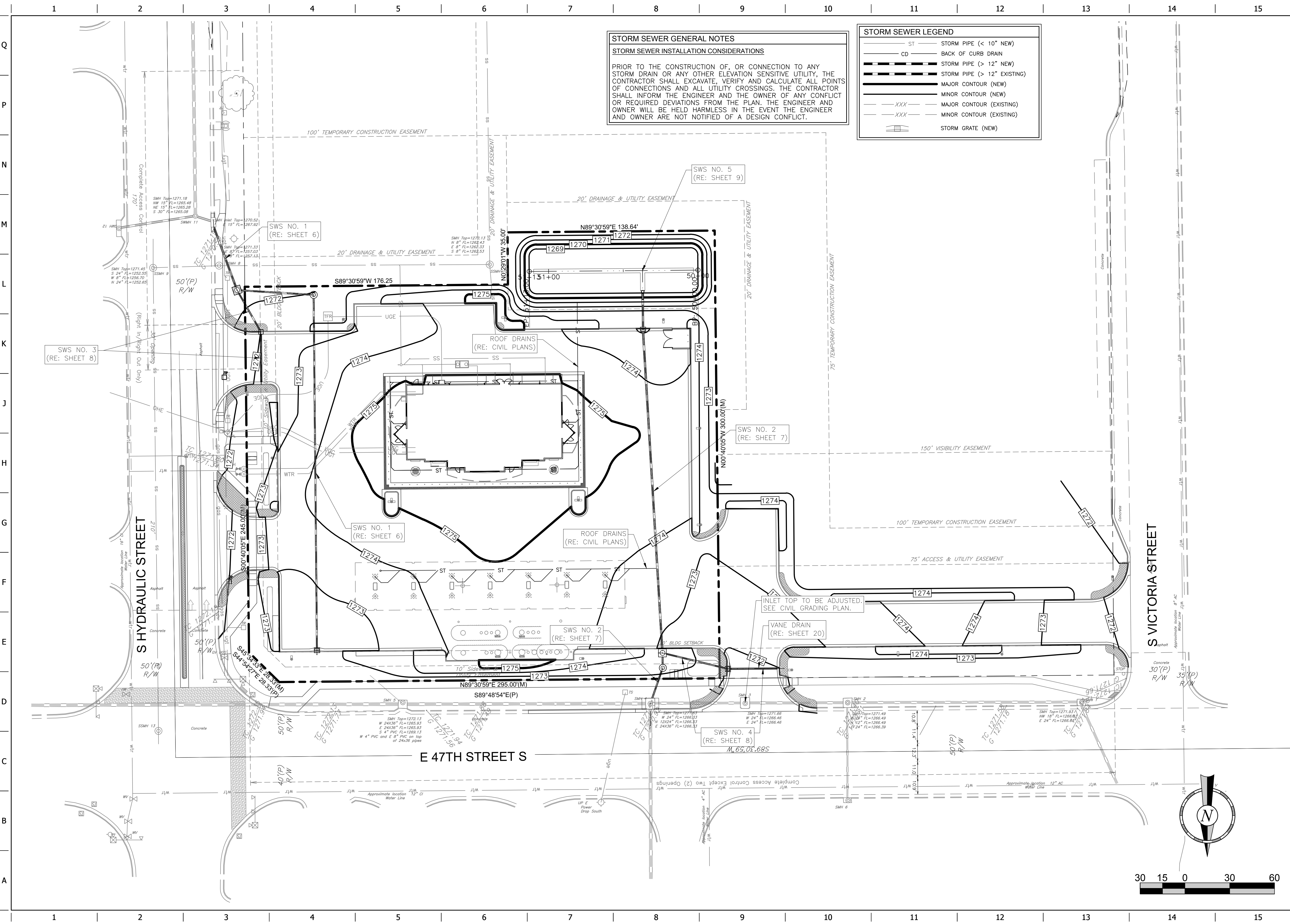
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ORIGINAL ISSUE DATE: 04/22/14

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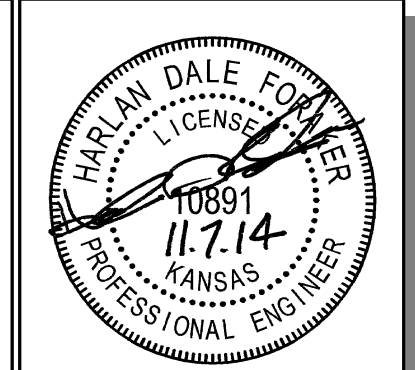
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**STORM SEWER GENERAL NOTES**  
**STORM SEWER INSTALLATION CONSIDERATIONS**  
 PRIOR TO THE CONSTRUCTION OF, OR CONNECTION TO ANY STORM DRAIN OR ANY OTHER ELEVATION SENSITIVE UTILITY, THE CONTRACTOR SHALL EXCAVATE, VERIFY AND CALCULATE ALL POINTS OF CONNECTIONS AND ALL UTILITY CROSSINGS. THE CONTRACTOR SHALL INFORM THE ENGINEER AND THE OWNER OF ANY CONFLICT OR REQUIRED DEVIATIONS FROM THE PLAN. THE ENGINEER AND OWNER WILL BE HELD HARMLESS IN THE EVENT THE ENGINEER AND OWNER ARE NOT NOTIFIED OF A DESIGN CONFLICT.

**STORM SEWER LEGEND**

ST	STORM PIPE (< 10" NEW)
CD	BACK OF CURB DRAIN
---	STORM PIPE (> 12" NEW)
---	STORM PIPE (> 12" EXISTING)
---	MAJOR CONTOUR (NEW)
---	MINOR CONTOUR (NEW)
---	MAJOR CONTOUR (EXISTING)
---	MINOR CONTOUR (EXISTING)
---	STORM GRATE (NEW)



PROJECT NO.:  
**CED**  
 CERTIFIED ENGINEERING DESIGN, P.A.  
 1935 W. MAPLE STREET  
 WICHITA, KANSAS 67213  
 PH (316)262-8808  
 FAX (316)262-1669

**QuikTrip No. 0356**  
 SWC 47TH & HYDRAULIC  
 WICHITA, SEDGWICK, KS

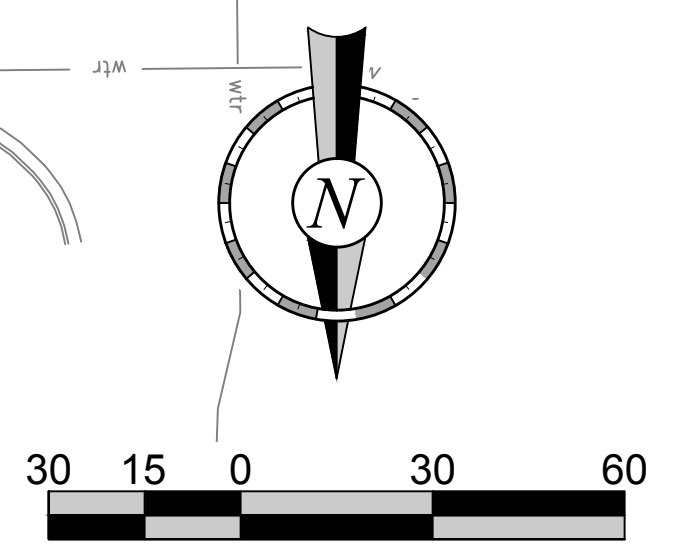


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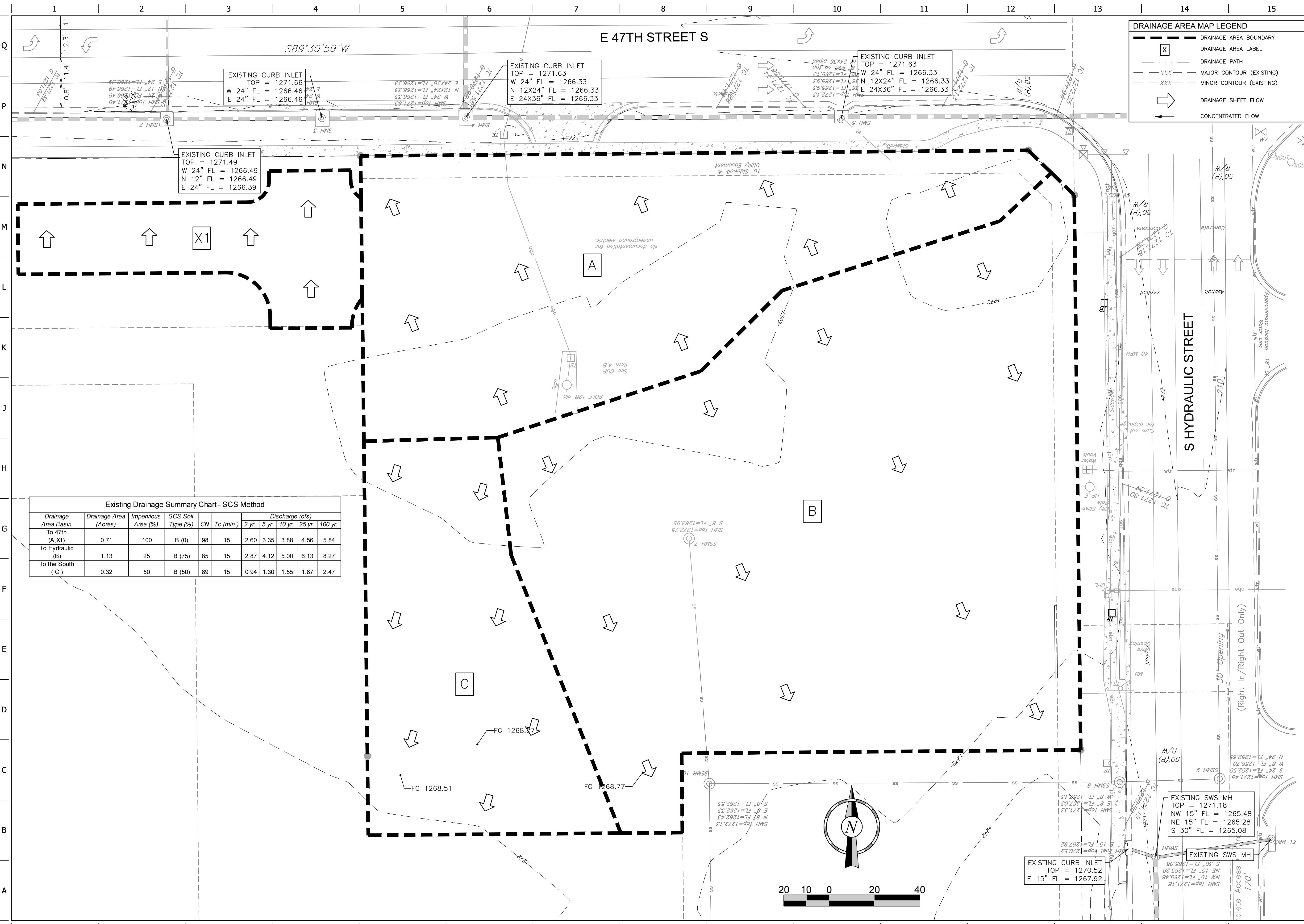
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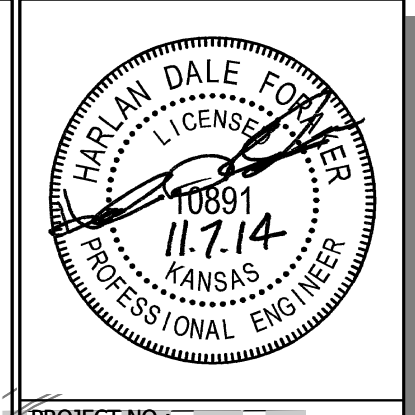


**DRAINAGE AREA MAP LEGEND**

- DRAINAGE AREA BOUNDARY
- DRAINAGE AREA LABEL
- DRAINAGE PATH
- MAJOR CONTOUR (EXISTING)
- MINOR CONTOUR (EXISTING)
- DRAINAGE SHEET FLOW
- CONCENTRATED FLOW

**Existing Drainage Summary Chart - SCS Method**

Drainage Area Basin	Drainage Area (Acres)	Impervious Area (%)	SCS Soil Type (%)	CN	Tc (min.)	Discharge (cfs)				
						2 yr.	5 yr.	10 yr.	25 yr.	100 yr.
To 47th (A, X1)	0.71	100	B (0)	98	15	2.60	3.35	3.88	4.56	5.84
To Hydraulic (B)	1.13	25	B (75)	85	15	2.87	4.12	5.00	6.13	8.27
To the South (C)	0.32	50	B (50)	89	15	0.94	1.30	1.55	1.87	2.47



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**QT**

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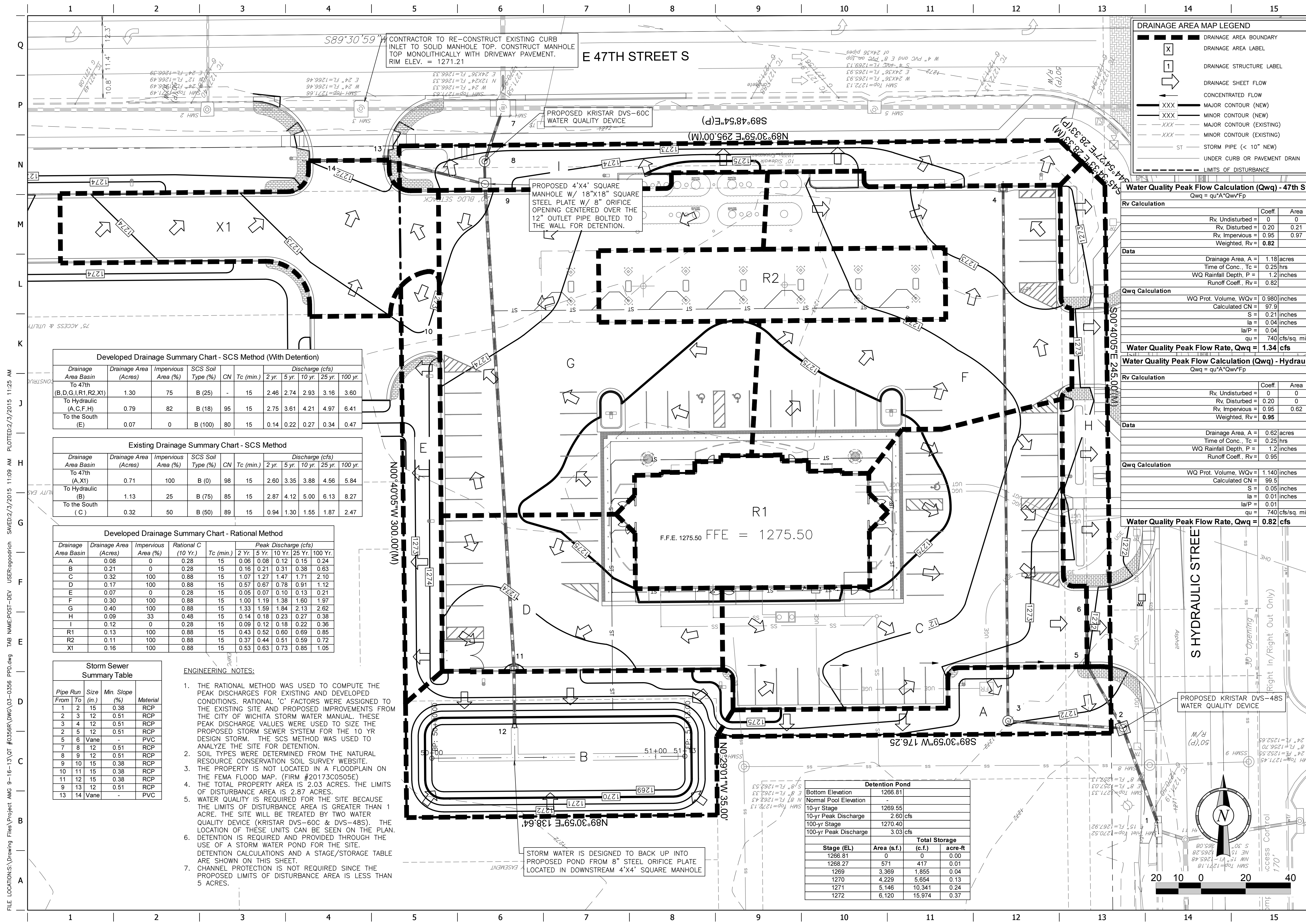
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SHEET TITLE:  
 PRE-DEV

SHEET NUMBER:  
**3**

ORIGINAL ISSUE DATE: 04/22/14



### DRAINAGE AREA MAP LEGEND

- DRAINAGE AREA BOUNDARY
- DRAINAGE AREA LABEL
- DRAINAGE STRUCTURE LABEL
- DRAINAGE SHEET FLOW
- CONCENTRATED FLOW
- MAJOR CONTOUR (NEW)
- MINOR CONTOUR (NEW)
- MAJOR CONTOUR (EXISTING)
- MINOR CONTOUR (EXISTING)
- ST UNDER PIPE (< 10" NEW)
- UNDER CURB OR PAVEMENT DRAIN
- LIMITS OF DISTURBANCE

### Water Quality Peak Flow Calculation (Qwq) - 47th St.

$Qwq = qu \cdot A \cdot Qwq \cdot Fp$

Rv Calculation	Coeff.	Area
Rv Undisturbed = 0	0	0
Rv Disturbed = 0.20	0.21	0
Rv Impervious = 0.95	0.97	0
<b>Weighted Rv = 0.82</b>		

Data

- Drainage Area, A = 1.18 acres
- Time of Conc., Tc = 0.25 hrs
- WQ Rainfall Depth, P = 1.2 inches
- Runoff Coeff., Rv = 0.82

### Qwq Calculation

- WQ Prot. Volume, WQv = 0.980 inches
- Calculated CN = 97.9
- S = 0.21 inches
- la = 0.04 inches
- la/P = 0.04
- qu = 740 cfs/sq. mi/in

### Water Quality Peak Flow Rate, Qwq = 1.34 cfs

### Water Quality Peak Flow Calculation (Qwq) - Hydraulic

$Qwq = qu \cdot A \cdot Qwq \cdot Fp$

Rv Calculation	Coeff.	Area
Rv Undisturbed = 0	0	0
Rv Disturbed = 0.20	0	0
Rv Impervious = 0.95	0.62	0
<b>Weighted Rv = 0.95</b>		

Data

- Drainage Area, A = 0.62 acres
- Time of Conc., Tc = 0.25 hrs
- WQ Rainfall Depth, P = 1.2 inches
- Runoff Coeff., Rv = 0.95

### Qwq Calculation

- WQ Prot. Volume, WQv = 1.140 inches
- Calculated CN = 99.5
- S = 0.05 inches
- la = 0.01 inches
- la/P = 0.01
- qu = 740 cfs/sq. mi/in

### Water Quality Peak Flow Rate, Qwq = 0.82 cfs

### Developed Drainage Summary Chart - SCS Method (With Detention)

Drainage Area Basin	Drainage Area (Acres)	Impervious Area (%)	SCS Soil Type (%)	CN	Tc (min.)	Discharge (cfs)				
						2 yr.	5 yr.	10 yr.	25 yr.	
To 47th (B,D,G,I,R1,R2,X1)	1.30	75	B (25)	-	15	2.46	2.74	2.93	3.16	3.60
To Hydraulic (A,C,F,H)	0.79	82	B (18)	95	15	2.75	3.61	4.21	4.97	6.41
To the South (E)	0.07	0	B (100)	80	15	0.14	0.22	0.27	0.34	0.47

### Existing Drainage Summary Chart - SCS Method

Drainage Area Basin	Drainage Area (Acres)	Impervious Area (%)	SCS Soil Type (%)	CN	Tc (min.)	Discharge (cfs)				
						2 yr.	5 yr.	10 yr.	25 yr.	
To 47th (A,X1)	0.71	100	B (0)	98	15	2.60	3.35	3.88	4.56	5.84
To Hydraulic (B)	1.13	25	B (75)	85	15	2.87	4.12	5.00	6.13	8.27
To the South (C)	0.32	50	B (50)	89	15	0.94	1.30	1.55	1.87	2.47

### Developed Drainage Summary Chart - Rational Method

Drainage Area Basin	Drainage Area (Acres)	Impervious Area (%)	Rational C (10 Yr.)	Tc (min.)	Peak Discharge (cfs)				
					2 Yr.	5 Yr.	10 Yr.	25 Yr.	100 Yr.
A	0.08	0	0.28	15	0.06	0.08	0.12	0.15	0.24
B	0.21	0	0.28	15	0.16	0.21	0.31	0.38	0.63
C	0.32	100	0.88	15	1.07	1.27	1.47	1.71	2.10
D	0.17	100	0.88	15	0.57	0.67	0.78	0.91	1.12
E	0.07	0	0.28	15	0.05	0.07	0.10	0.13	0.21
F	0.30	100	0.88	15	1.00	1.19	1.38	1.60	1.97
G	0.40	100	0.88	15	1.33	1.59	1.84	2.13	2.62
H	0.09	33	0.48	15	0.14	0.18	0.23	0.27	0.38
I	0.12	0	0.28	15	0.09	0.12	0.18	0.22	0.36
R1	0.13	100	0.88	15	0.43	0.52	0.60	0.69	0.85
R2	0.11	100	0.88	15	0.37	0.44	0.51	0.59	0.72
X1	0.16	100	0.88	15	0.53	0.63	0.73	0.85	1.05

### Storm Sewer Summary Table

Pipe From	To	Size (in.)	Min. Slope (%)	Material
1	2	15	0.38	RCP
2	3	12	0.51	RCP
3	4	12	0.51	RCP
4	5	12	0.51	RCP
5	8	Vane	-	PVC
7	8	12	0.51	RCP
8	9	12	0.51	RCP
9	10	15	0.38	RCP
10	11	15	0.38	RCP
11	12	15	0.38	RCP
12	13	12	0.51	RCP
13	14	Vane	-	PVC

- ### ENGINEERING NOTES:
- THE RATIONAL METHOD WAS USED TO COMPUTE THE PEAK DISCHARGES FOR EXISTING AND DEVELOPED CONDITIONS. RATIONAL 'C' FACTORS WERE ASSIGNED TO THE EXISTING SITE AND PROPOSED IMPROVEMENTS FROM THE CITY OF WICHITA STORM WATER MANUAL. THESE PEAK DISCHARGE VALUES WERE USED TO SIZE THE PROPOSED STORM SEWER SYSTEM FOR THE 10 YR DESIGN STORM. THE SCS METHOD WAS USED TO ANALYZE THE SITE FOR DETENTION.
  - SOIL TYPES WERE DETERMINED FROM THE NATURAL RESOURCE CONSERVATION SOIL SURVEY WEBSITE.
  - THE PROPERTY IS NOT LOCATED IN A FLOODPLAIN ON THE FEMA FLOOD MAP. (FIRM #20173C0505E)
  - THE TOTAL PROPERTY AREA IS 2.03 ACRES. THE LIMITS OF DISTURBANCE AREA IS 2.87 ACRES.
  - WATER QUALITY IS REQUIRED FOR THE SITE, BECAUSE THE LIMITS OF DISTURBANCE AREA IS GREATER THAN 1 ACRE. THE SITE WILL BE TREATED BY TWO WATER QUALITY DEVICES (KRISTAR DVS-60C & DVS-48S). THE LOCATION OF THESE UNITS CAN BE SEEN ON THE PLAN. DETENTION IS REQUIRED AND PROVIDED THROUGH THE USE OF A STORM WATER POND FOR THE SITE. DETENTION CALCULATIONS AND A STAGE/STORAGE TABLE ARE SHOWN ON THIS SHEET.
  - CHANNEL PROTECTION IS NOT REQUIRED SINCE THE PROPOSED LIMITS OF DISTURBANCE AREA IS LESS THAN 5 ACRES.

### Detention Pond

Bottom Elevation	1266.81
Normal Pool Elevation	-
10-yr Stage	1269.55
10-yr Peak Discharge	2.60 cfs
100-yr Stage	1270.40
100-yr Peak Discharge	3.03 cfs

Stage (EL)	Area (s.f.)	(c.f.)	acre-ft
1266.81	0	0	0.00
1268.27	571	417	0.01
1269	3,369	1,855	0.04
1270	4,229	5,654	0.13
1271	5,146	10,341	0.24
1272	6,120	15,974	0.37

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**QuikTrip No. 0356**  
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REV	DATE	DESCRIPTION

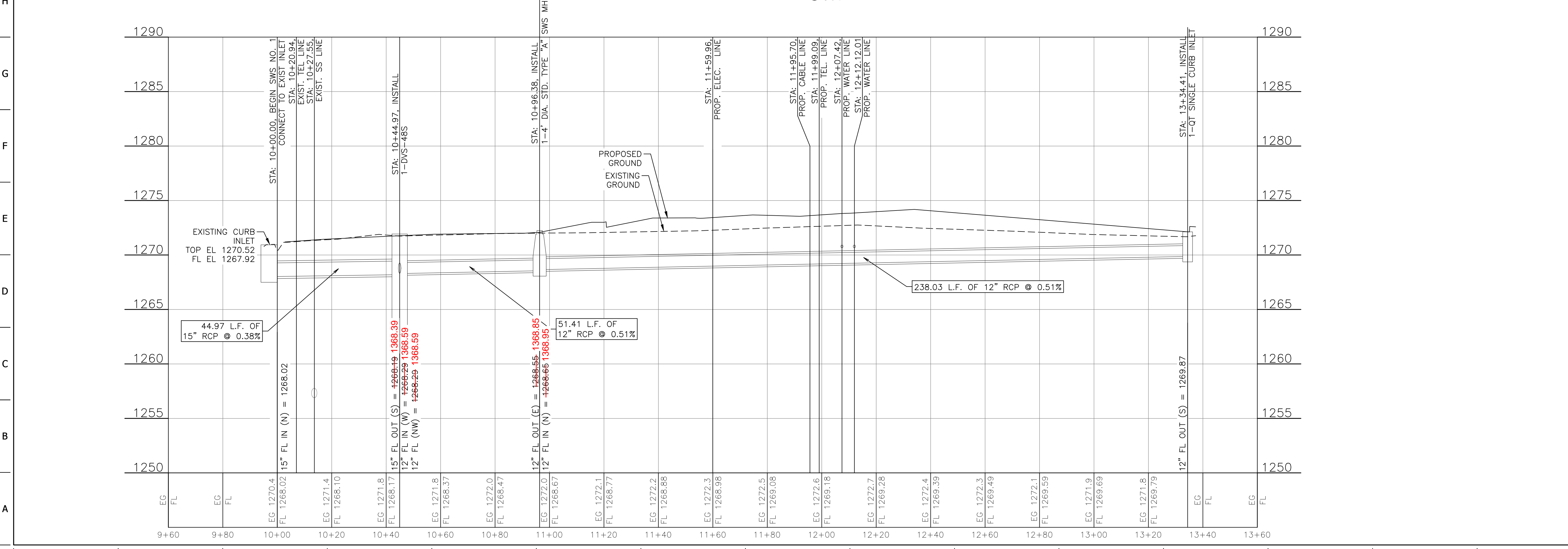
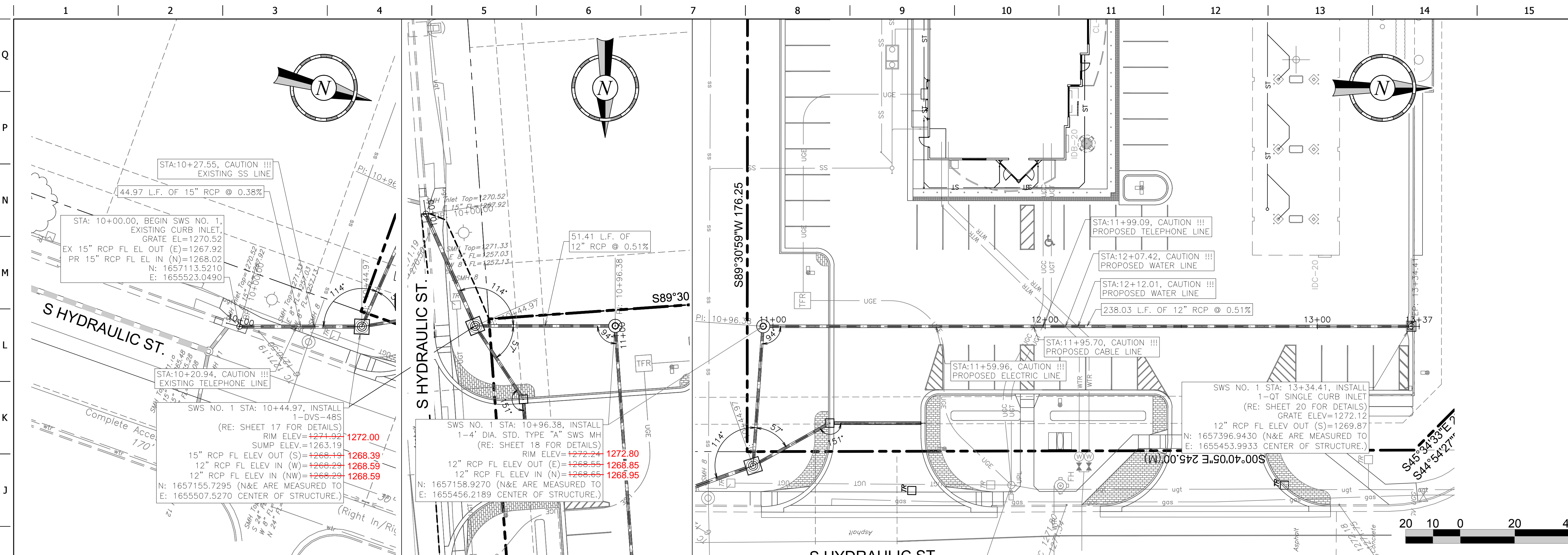
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**4**

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PROJECT NO.:

CERTIFIED ENGINEERING DESIGN, P.A.  
 1935 W. MAPLE STREET  
 WICHITA, KANSAS 67213  
 PH (316)262-8808  
 FAX (316)262-1669

**QuikTrip No. 0356**  
 SWC 47TH & HYDRAULIC  
 WICHITA, SEDGWICK, KS

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 DIVISION: 03  
 VERSION: 001  
 DESIGNED BY:  
 DRAWN BY: KSR  
 REVIEWED BY:

REV	DATE	DESCRIPTION

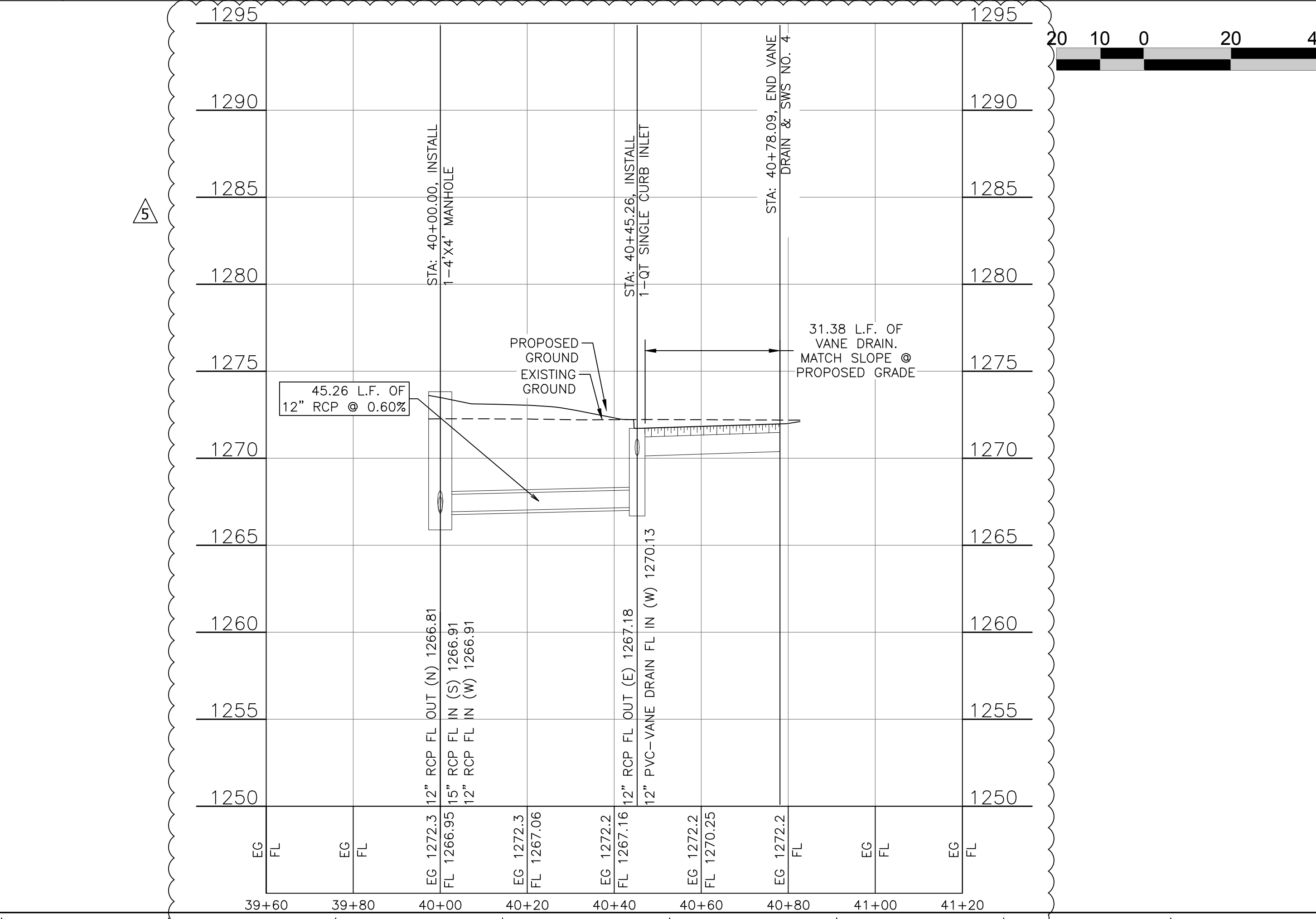
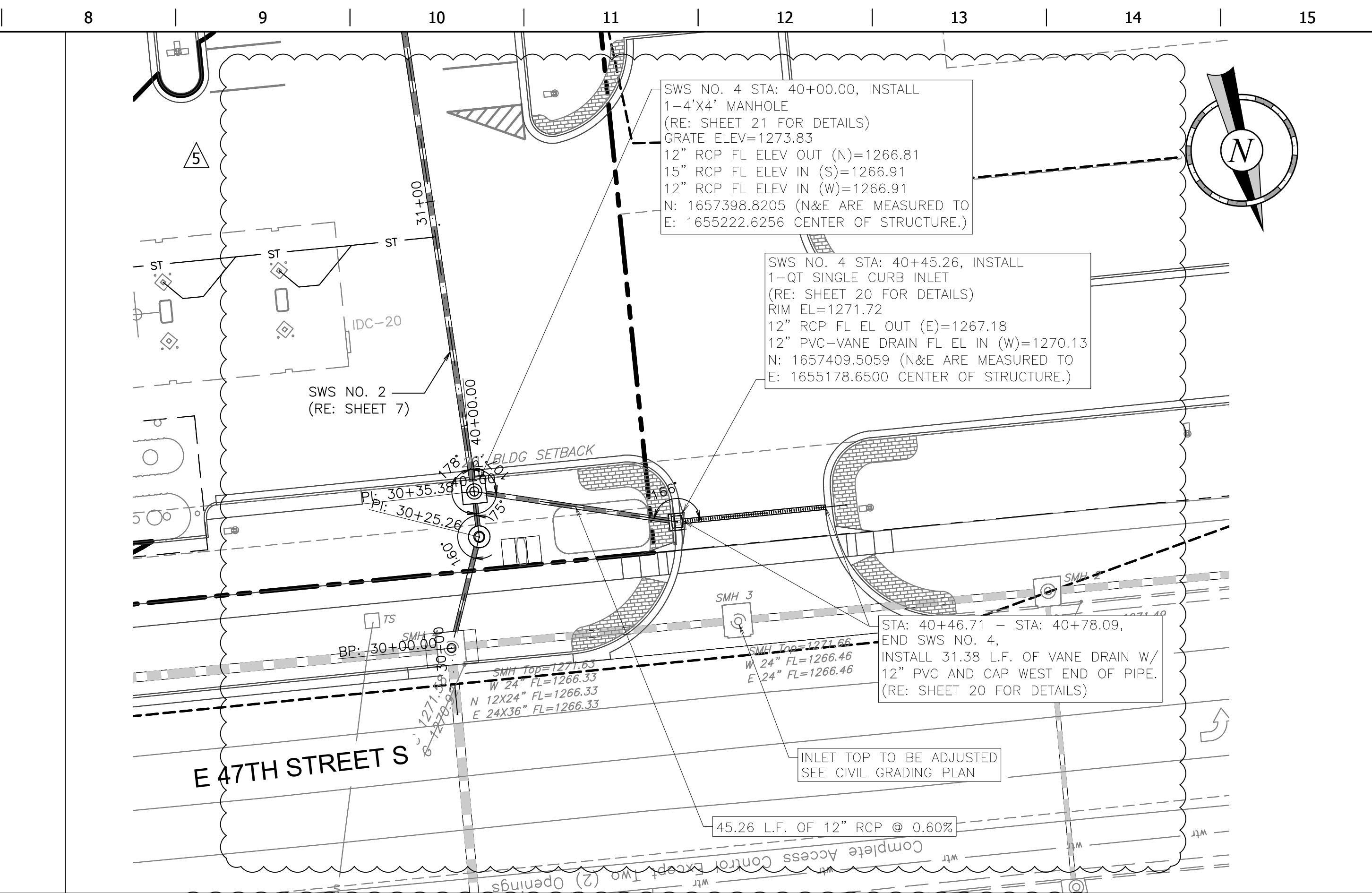
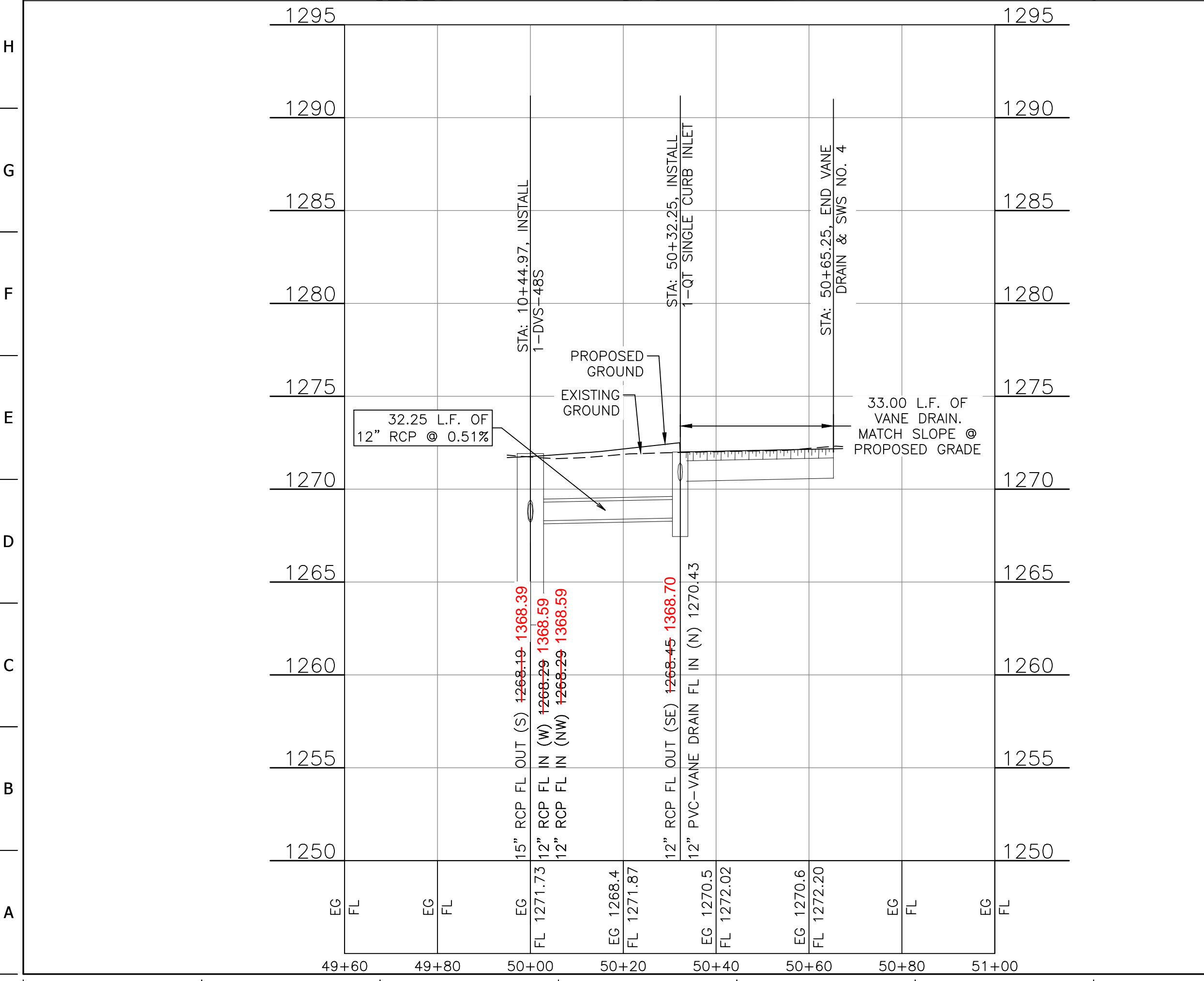
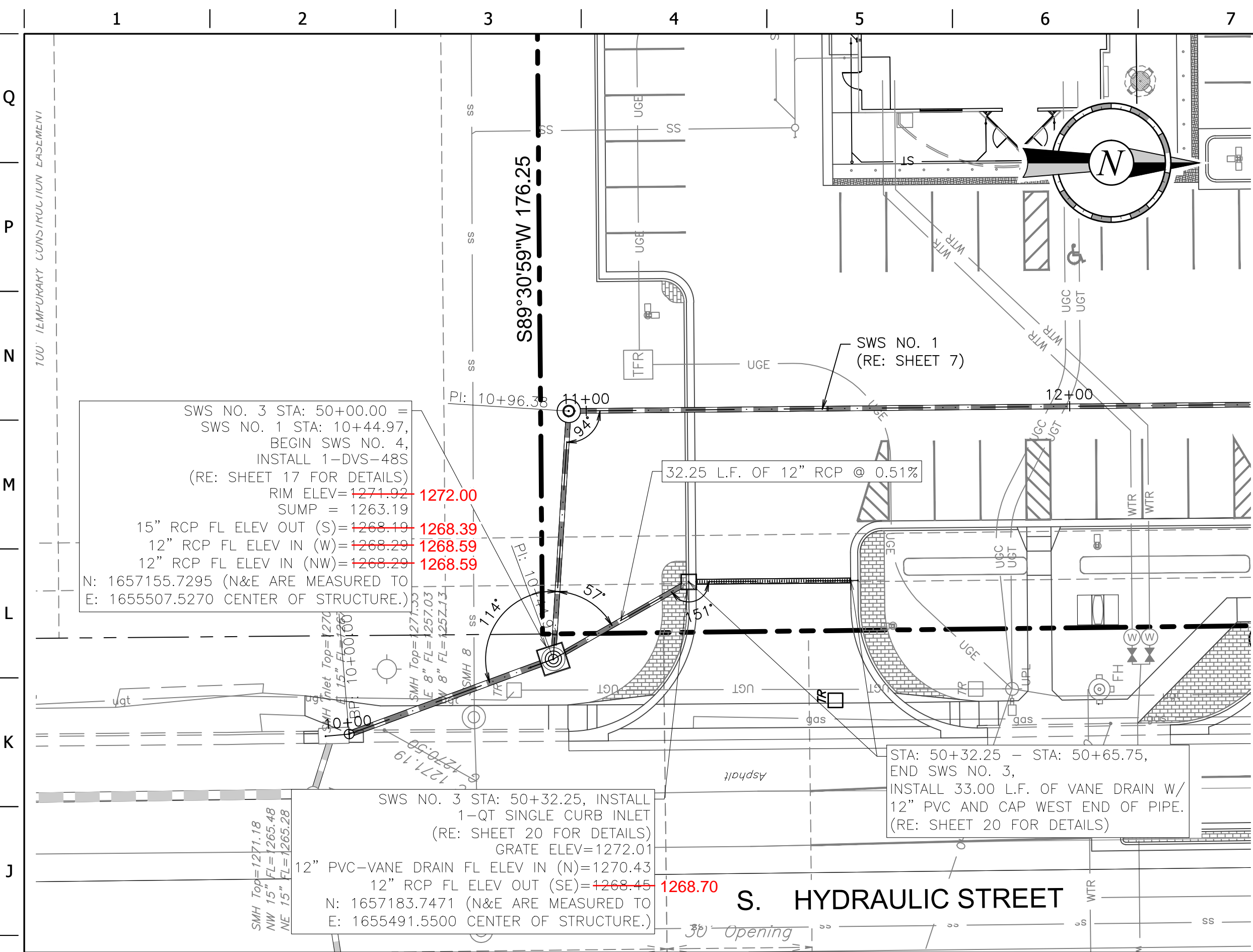
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SHEET TITLE:  
 SWS NO. 1 PLAN & PROFILE

SHEET NUMBER:  
**6**



FILE LOCATION: Drawing Files\Project AMG 9-16-13\LOT #0358\DWG\03-0356 PPD.dwg TAB NAME: SWS NO. 3 & 4 PLAN & PROFILE USER: ragoatich SWED: 2/3/2015 11:09 AM PLOTTED: 2/3/2015 2:33 PM



**QUICKTRIP**

HAROLD DALE FOX  
LICENSED PROFESSIONAL ENGINEER  
10891  
11.7.14  
KANSAS

PROJECT NO.:

**QUICKTRIP**

CERTIFIED ENGINEERING DESIGN, P.A.

1935 W. MAPLE STREET  
WICHITA, KANSAS 67213  
PH (316)262-8808  
FAX (316)262-1669

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DIVISION: 03  
VERSION: 001  
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DRAWN BY: KSR  
REVIEWED BY:

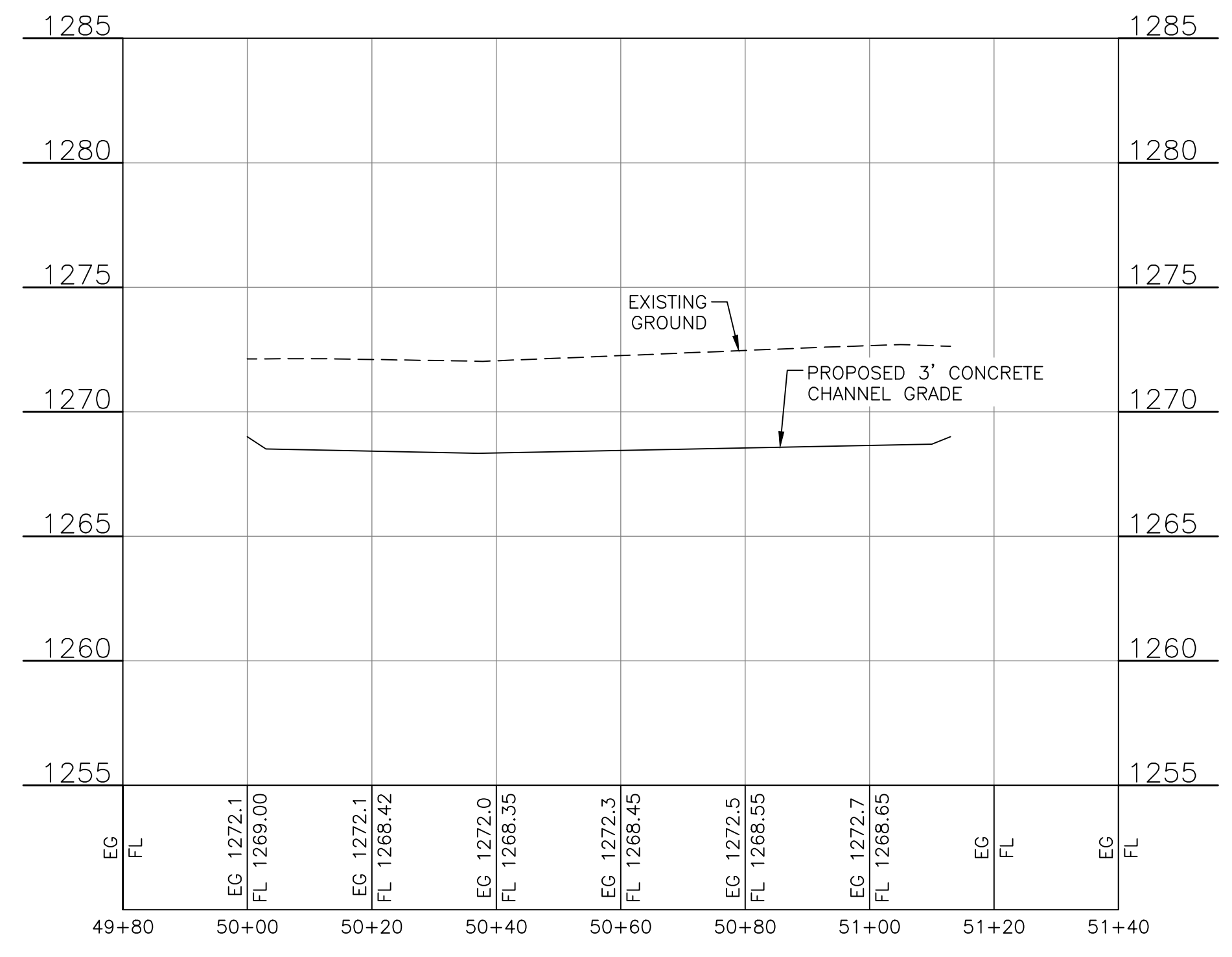
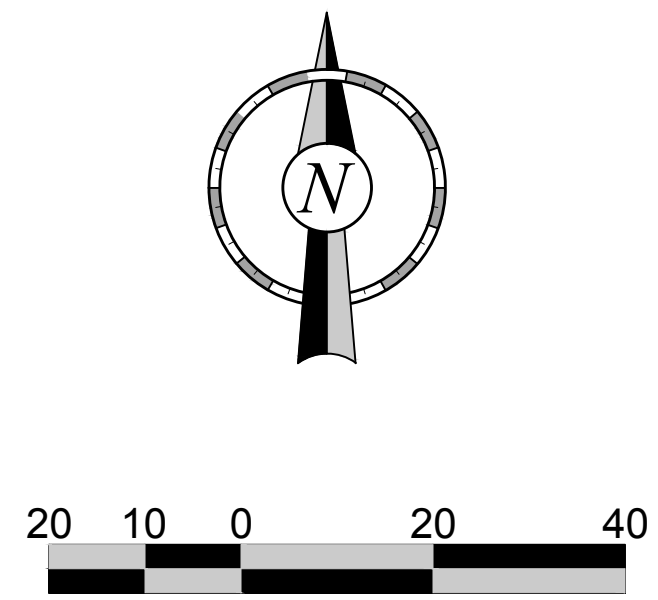
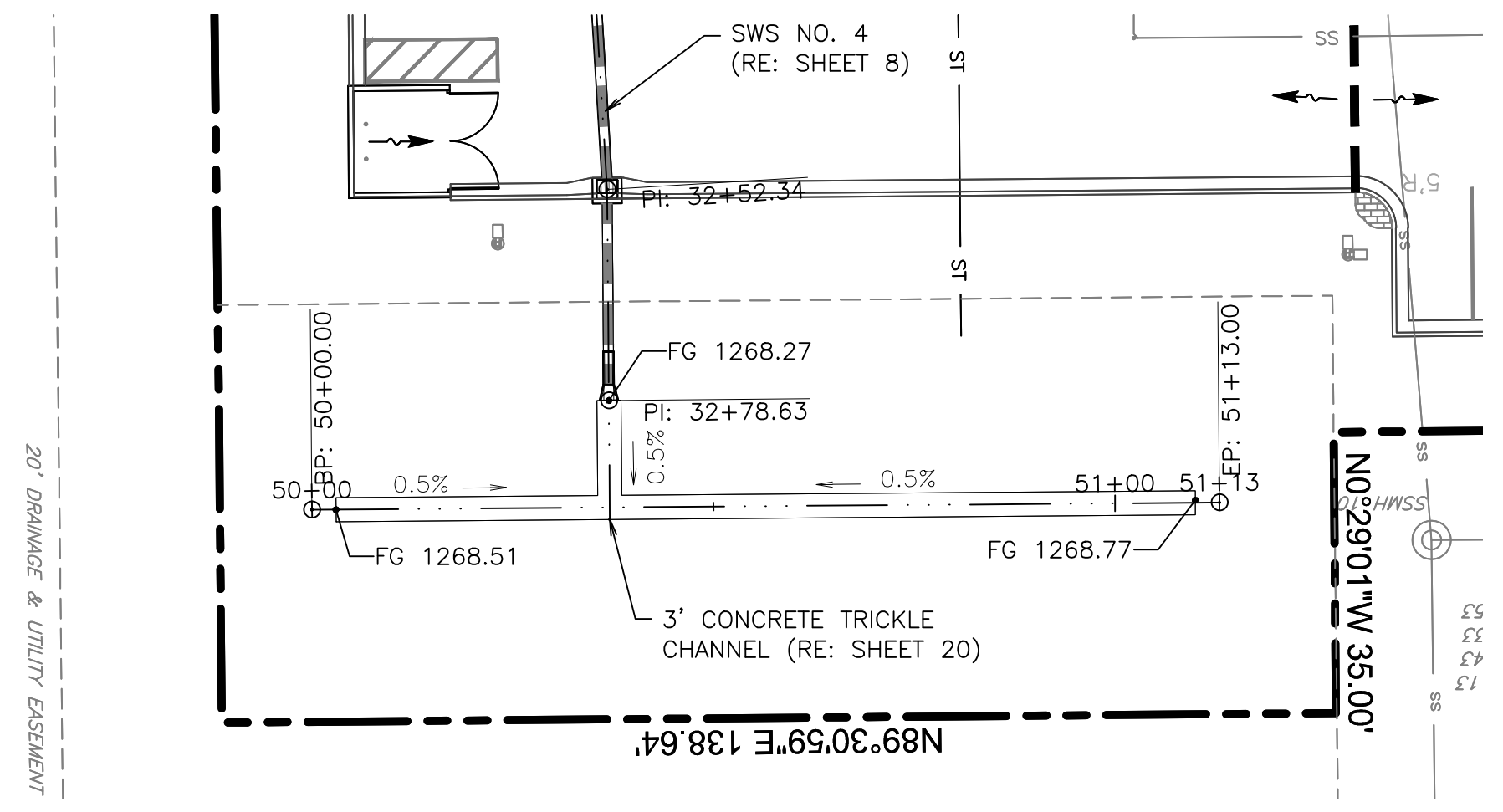
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ORIGINAL ISSUE DATE: 04/22/14

SHEET TITLE:  
SWS NO. 3 & 4 PLAN & PROFILE

SHEET NUMBER:  
8

FILE LOCATION: Drawing Files\Project AMG 9-16-13\QT #0356\DWG\03-0356 PPD.dwg TAB NAME: SWS NO. 5 PLAN & PROFILE USER: gpedrich SAVED: 2/3/2015 11:09 AM PLOTTED: 2/3/2015 11:13 AM



PROJECT NO.:

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 WICHITA, KANSAS 67213  
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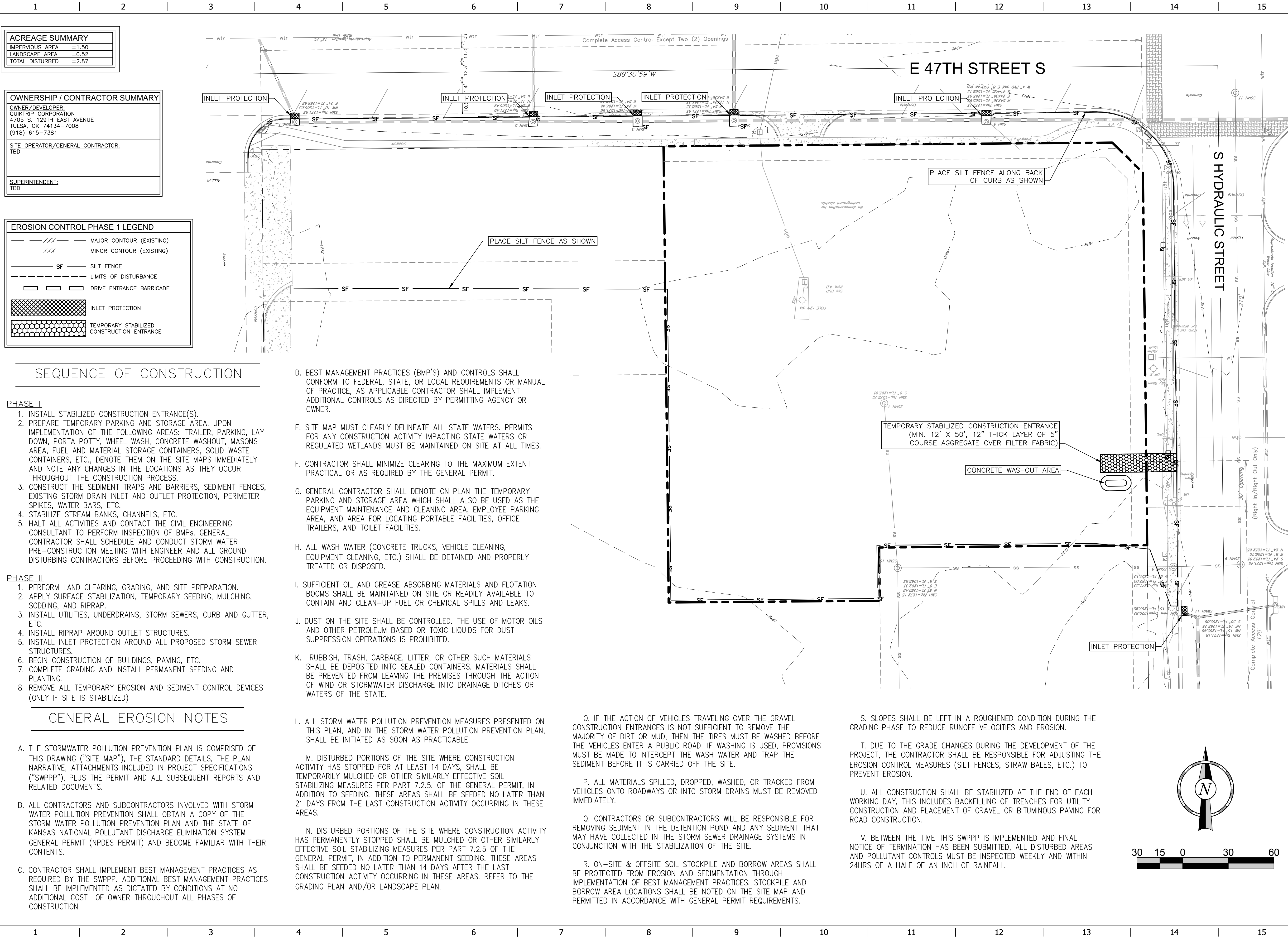
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SHEET TITLE:	ORIGINAL ISSUE DATE: 04/22/14
SWS NO. 5 PLAN & PROFILE	
SHEET NUMBER:	
<b>9</b>	

**BUILT TO PLAN**



ACREAGE SUMMARY	
IMPERVIOUS AREA	±1.50
LANDSCAPE AREA	±0.52
TOTAL DISTURBED	±2.02

OWNERSHIP / CONTRACTOR SUMMARY	
OWNER/DEVELOPER:	QUIKTRIP CORPORATION 4705 S. 129TH EAST AVENUE TULSA, OK 74134-7008 (918) 615-7381
SITE OPERATOR/GENERAL CONTRACTOR:	TBD
SUPERINTENDENT:	TBD

EROSION CONTROL PHASE 1 LEGEND	
---XXX---	MAJOR CONTOUR (EXISTING)
---xxx---	MINOR CONTOUR (EXISTING)
-SF-	SILT FENCE
- - - - -	LIMITS OF DISTURBANCE
[Symbol]	DRIVE ENTRANCE BARRICADE
[Symbol]	INLET PROTECTION
[Symbol]	TEMPORARY STABILIZED CONSTRUCTION ENTRANCE

### SEQUENCE OF CONSTRUCTION

- PHASE I**
1. INSTALL STABILIZED CONSTRUCTION ENTRANCE(S).
  2. PREPARE TEMPORARY PARKING AND STORAGE AREA. UPON IMPLEMENTATION OF THE FOLLOWING AREAS: TRAILER, PARKING, LAY DOWN, PORTA POTTY, WHEEL WASH, CONCRETE WASHOUT, MASONS AREA, FUEL AND MATERIAL STORAGE CONTAINERS, SOLID WASTE CONTAINERS, ETC., DENOTE THEM ON THE SITE MAPS IMMEDIATELY AND NOTE ANY CHANGES IN THE LOCATIONS AS THEY OCCUR THROUGHOUT THE CONSTRUCTION PROCESS.
  3. CONSTRUCT THE SEDIMENT TRAPS AND BARRIERS, SEDIMENT FENCES, EXISTING STORM DRAIN INLET AND OUTLET PROTECTION, PERIMETER SPIKES, WATER BARS, ETC.
  4. STABILIZE STREAM BANKS, CHANNELS, ETC.
  5. HALT ALL ACTIVITIES AND CONTACT THE CIVIL ENGINEERING CONSULTANT TO PERFORM INSPECTION OF BMPs. GENERAL CONTRACTOR SHALL SCHEDULE AND CONDUCT STORM WATER PRE-CONSTRUCTION MEETING WITH ENGINEER AND ALL GROUP DISTURBING CONTRACTORS BEFORE PROCEEDING WITH CONSTRUCTION.

- PHASE II**
1. PERFORM LAND CLEARING, GRADING, AND SITE PREPARATION.
  2. APPLY SURFACE STABILIZATION, TEMPORARY SEEDING, MULCHING, SODDING, AND RIPRAP.
  3. INSTALL UTILITIES, UNDERDRAINS, STORM SEWERS, CURB AND GUTTER, ETC.
  4. INSTALL RIPRAP AROUND OUTLET STRUCTURES.
  5. INSTALL INLET PROTECTION AROUND ALL PROPOSED STORM SEWER STRUCTURES.
  6. BEGIN CONSTRUCTION OF BUILDINGS, PAVING, ETC.
  7. COMPLETE GRADING AND INSTALL PERMANENT SEEDING AND PLANTING.
  8. REMOVE ALL TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES (ONLY IF SITE IS STABILIZED)

### GENERAL EROSION NOTES

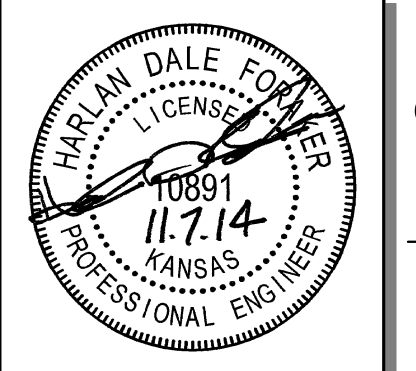
- A. THE STORMWATER POLLUTION PREVENTION PLAN IS COMPRISED OF THIS DRAWING ("SITE MAP"), THE STANDARD DETAILS, THE PLAN NARRATIVE, ATTACHMENTS INCLUDED IN PROJECT SPECIFICATIONS ("SWPPP"), PLUS THE PERMIT AND ALL SUBSEQUENT REPORTS AND RELATED DOCUMENTS.
- B. ALL CONTRACTORS AND SUBCONTRACTORS INVOLVED WITH STORM WATER POLLUTION PREVENTION SHALL OBTAIN A COPY OF THE STORM WATER POLLUTION PREVENTION PLAN AND THE STATE OF KANSAS NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM GENERAL PERMIT (NPDES PERMIT) AND BECOME FAMILIAR WITH THEIR CONTENTS.
- C. CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES AS REQUIRED BY THE SWPPP. ADDITIONAL BEST MANAGEMENT PRACTICES SHALL BE IMPLEMENTED AS DICTATED BY CONDITIONS AT NO ADDITIONAL COST OF OWNER THROUGHOUT ALL PHASES OF CONSTRUCTION.

- D. BEST MANAGEMENT PRACTICES (BMP'S) AND CONTROLS SHALL CONFORM TO FEDERAL, STATE, OR LOCAL REQUIREMENTS OR MANUAL OF PRACTICE, AS APPLICABLE CONTRACTOR SHALL IMPLEMENT ADDITIONAL CONTROLS AS DIRECTED BY PERMITTING AGENCY OR OWNER.
- E. SITE MAP MUST CLEARLY DELINEATE ALL STATE WATERS. PERMITS FOR ANY CONSTRUCTION ACTIVITY IMPACTING STATE WATERS OR REGULATED WETLANDS MUST BE MAINTAINED ON SITE AT ALL TIMES.
- F. CONTRACTOR SHALL MINIMIZE CLEARING TO THE MAXIMUM EXTENT PRACTICAL OR AS REQUIRED BY THE GENERAL PERMIT.
- G. GENERAL CONTRACTOR SHALL DENOTE ON PLAN THE TEMPORARY PARKING AND STORAGE AREA WHICH SHALL ALSO BE USED AS THE EQUIPMENT MAINTENANCE AND CLEANING AREA, EMPLOYEE PARKING AREA, AND AREA FOR LOCATING PORTABLE FACILITIES, OFFICE TRAILERS, AND TOILET FACILITIES.
- H. ALL WASH WATER (CONCRETE TRUCKS, VEHICLE CLEANING, EQUIPMENT CLEANING, ETC.) SHALL BE DETAINED AND PROPERLY TREATED OR DISPOSED.
- I. SUFFICIENT OIL AND GREASE ABSORBING MATERIALS AND FLOTATION BOOMS SHALL BE MAINTAINED ON SITE OR READILY AVAILABLE TO CONTAIN AND CLEAN-UP FUEL OR CHEMICAL SPILLS AND LEAKS.
- J. DUST ON THE SITE SHALL BE CONTROLLED. THE USE OF MOTOR OILS AND OTHER PETROLEUM BASED OR TOXIC LIQUIDS FOR DUST SUPPRESSION OPERATIONS IS PROHIBITED.
- K. RUBBISH, TRASH, GARBAGE, LITTER, OR OTHER SUCH MATERIALS SHALL BE DEPOSITED INTO SEALED CONTAINERS. MATERIALS SHALL BE PREVENTED FROM LEAVING THE PREMISES THROUGH THE ACTION OF WIND OR STORMWATER DISCHARGE INTO DRAINAGE DITCHES OR WATERS OF THE STATE.
- L. ALL STORM WATER POLLUTION PREVENTION MEASURES PRESENTED ON THIS PLAN, AND IN THE STORM WATER POLLUTION PREVENTION PLAN, SHALL BE INITIATED AS SOON AS PRACTICABLE.

- M. DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITY HAS STOPPED FOR AT LEAST 14 DAYS, SHALL BE TEMPORARILY MULCHED OR OTHER SIMILARLY EFFECTIVE SOIL STABILIZING MEASURES PER PART 7.2.5. OF THE GENERAL PERMIT, IN ADDITION TO SEEDING. THESE AREAS SHALL BE SEED NO LATER THAN 21 DAYS FROM THE LAST CONSTRUCTION ACTIVITY OCCURRING IN THESE AREAS.
- N. DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITY HAS PERMANENTLY STOPPED SHALL BE MULCHED OR OTHER SIMILARLY EFFECTIVE SOIL STABILIZING MEASURES PER PART 7.2.5 OF THE GENERAL PERMIT, IN ADDITION TO PERMANENT SEEDING. THESE AREAS SHALL BE SEED NO LATER THAN 14 DAYS AFTER THE LAST CONSTRUCTION ACTIVITY OCCURRING IN THESE AREAS. REFER TO THE GRADING PLAN AND/OR LANDSCAPE PLAN.

- O. IF THE ACTION OF VEHICLES TRAVELING OVER THE GRAVEL CONSTRUCTION ENTRANCES IS NOT SUFFICIENT TO REMOVE THE MAJORITY OF DIRT OR MUD, THEN THE TIRES MUST BE WASHED BEFORE THE VEHICLES ENTER A PUBLIC ROAD. IF WASHING IS USED, PROVISIONS MUST BE MADE TO INTERCEPT THE WASH WATER AND TRAP THE SEDIMENT BEFORE IT IS CARRIED OFF THE SITE.
- P. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY.
- Q. CONTRACTORS OR SUBCONTRACTORS WILL BE RESPONSIBLE FOR REMOVING SEDIMENT IN THE DETENTION POND AND ANY SEDIMENT THAT MAY HAVE COLLECTED IN THE STORM SEWER DRAINAGE SYSTEMS IN CONJUNCTION WITH THE STABILIZATION OF THE SITE.
- R. ON-SITE & OFFSITE SOIL STOCKPILE AND BORROW AREAS SHALL BE PROTECTED FROM EROSION AND SEDIMENTATION THROUGH IMPLEMENTATION OF BEST MANAGEMENT PRACTICES. STOCKPILE AND BORROW AREA LOCATIONS SHALL BE NOTED ON THE SITE MAP AND PERMITTED IN ACCORDANCE WITH GENERAL PERMIT REQUIREMENTS.

- S. SLOPES SHALL BE LEFT IN A ROUGHENED CONDITION DURING THE GRADING PHASE TO REDUCE RUNOFF VELOCITIES AND EROSION.
- T. DUE TO THE GRADE CHANGES DURING THE DEVELOPMENT OF THE PROJECT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING THE EROSION CONTROL MEASURES (SILT FENCES, STRAW BALES, ETC.) TO PREVENT EROSION.
- U. ALL CONSTRUCTION SHALL BE STABILIZED AT THE END OF EACH WORKING DAY. THIS INCLUDES BACKFILLING OF TRENCHES FOR UTILITY CONSTRUCTION AND PLACEMENT OF GRAVEL OR BITUMINOUS PAVING FOR ROAD CONSTRUCTION.
- V. BETWEEN THE TIME THIS SWPPP IS IMPLEMENTED AND FINAL NOTICE OF TERMINATION HAS BEEN SUBMITTED, ALL DISTURBED AREAS AND POLLUTANT CONTROLS MUST BE INSPECTED WEEKLY AND WITHIN 24HRS OF A HALF OF AN INCH OF RAINFALL.



PROJECT NO.:  
**CLED**  
 CERTIFIED ENGINEERING DESIGN, P.A.  
 1935 W. MAPLE STREET  
 WICHITA, KANSAS 67213  
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 FAX (316)262-1669

**QuikTrip No. 0356**  
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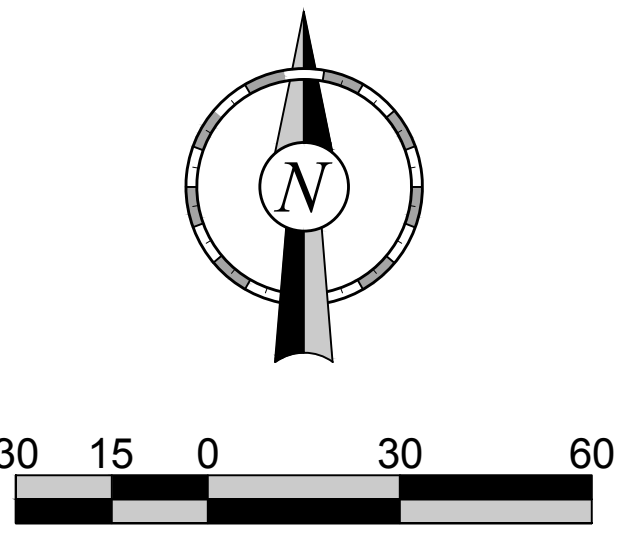
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DIVISION:	03
VERSION:	001
DESIGNED BY:	
DRAWN BY:	KSR
REVIEWED BY:	

REV	DATE	DESCRIPTION

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 EROSION PH 1

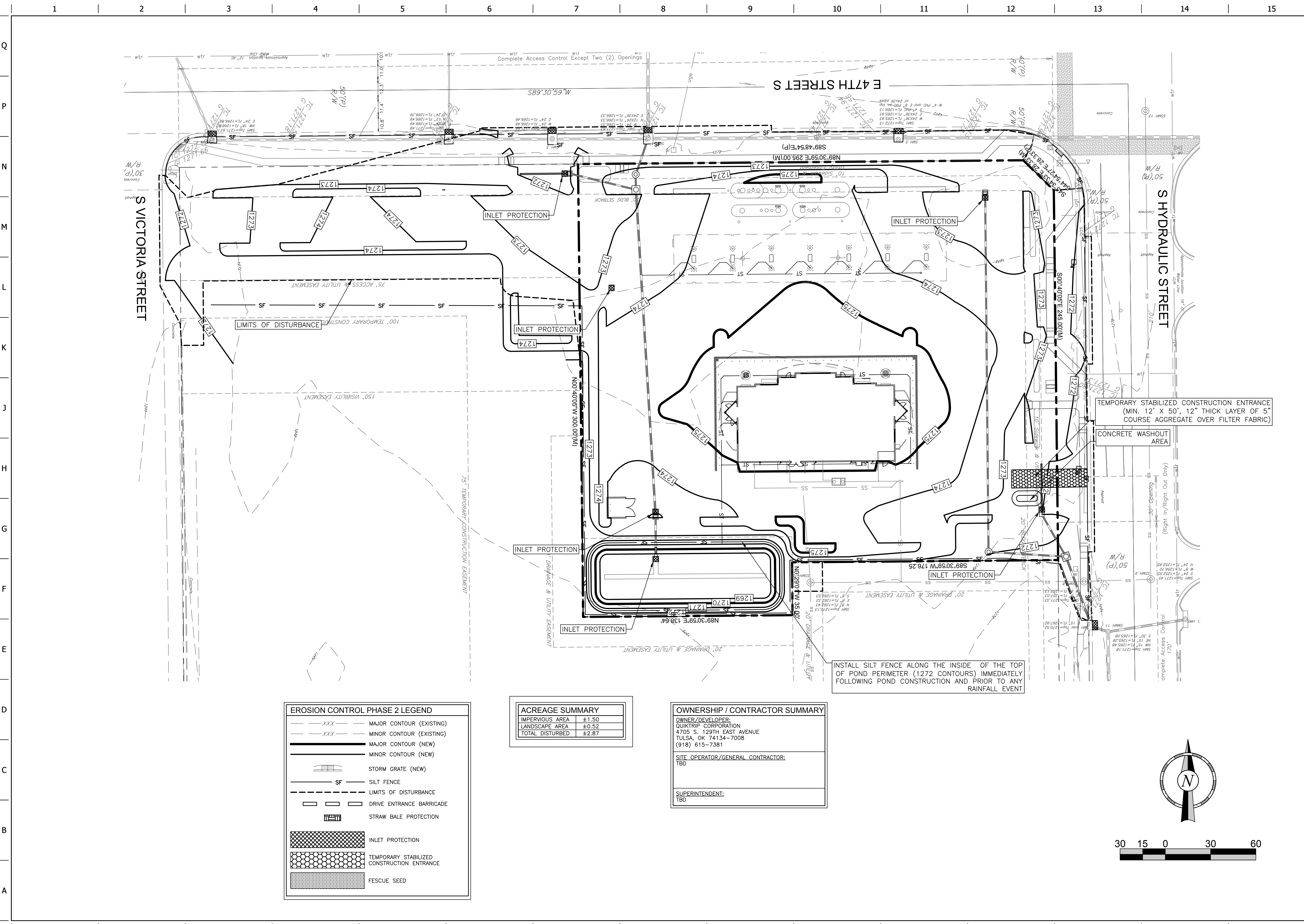
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ORIGINAL ISSUE DATE: 04/22/14



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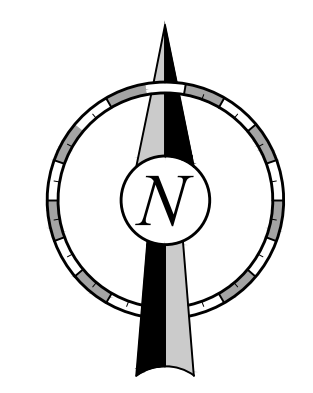
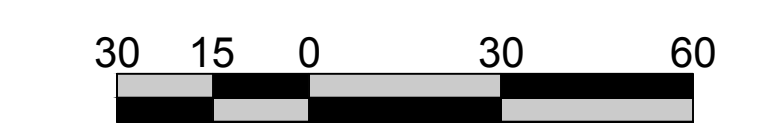


EROSION CONTROL PHASE 2 LEGEND	
---XXX---	MAJOR CONTOUR (EXISTING)
---XXX---	MINOR CONTOUR (EXISTING)
—	MAJOR CONTOUR (NEW)
—	MINOR CONTOUR (NEW)
	STORM GRATE (NEW)
SF	SILT FENCE
- - - - -	LIMITS OF DISTURBANCE
	DRIVE ENTRANCE BARRICADE
	STRAW BALE PROTECTION
	INLET PROTECTION
	TEMPORARY STABILIZED CONSTRUCTION ENTRANCE
	FESCUE SEED

ACREAGE SUMMARY	
IMPERVIOUS AREA	±1.50
LANDSCAPE AREA	±0.52
TOTAL DISTURBED	±2.87

OWNERSHIP / CONTRACTOR SUMMARY	
OWNER/DEVELOPER:	QUIKTRIP CORPORATION 4705 S. 129TH EAST AVENUE TULSA, OK 74134-7008 (918) 615-7381
SITE OPERATOR/GENERAL CONTRACTOR:	TBD
SUPERINTENDENT:	TBD

INSTALL SILT FENCE ALONG THE INSIDE OF THE TOP OF POND PERIMETER (1272 CONTOURS) IMMEDIATELY FOLLOWING POND CONSTRUCTION AND PRIOR TO ANY RAINFALL EVENT



PROJECT NO.:

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**QuikTrip No. 0356**

SWC 47TH & HYDRAULIC  
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VERSION:	001
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DRAWN BY:	KSR
REVIEWED BY:	

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REV	DATE	DESCRIPTION

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ORIGINAL ISSUE DATE: 04/22/14

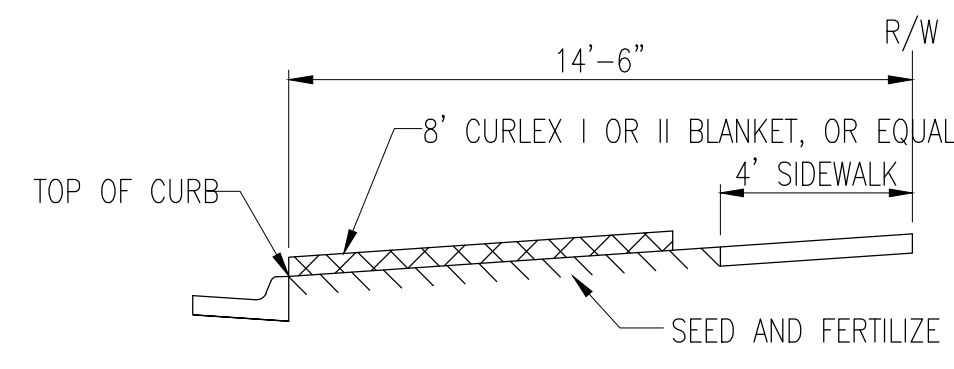
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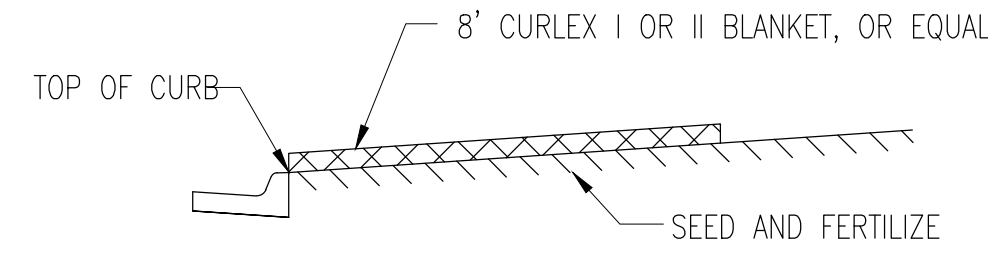
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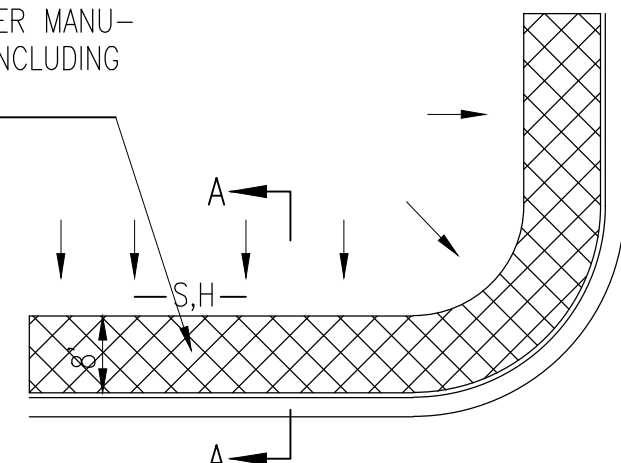


SECTION B-B

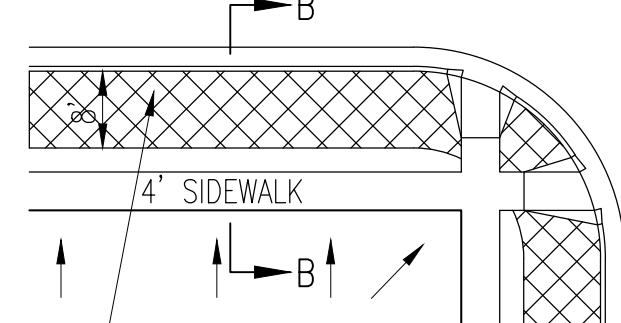


SECTION A-A

INSTALL 8' WIDE CURLEX I OR II EXCELSIOR BLANKET, OR EQUAL, ON PREPARED SURFACE BACK OF CURB. EDGE OF BLANKET WILL BE AT BACK OF CURB. INSTALL PER MANUFACTURERS RECOMMENDATION, INCLUDING STAPLES. (SEE DETAIL)



SOUTH STREET

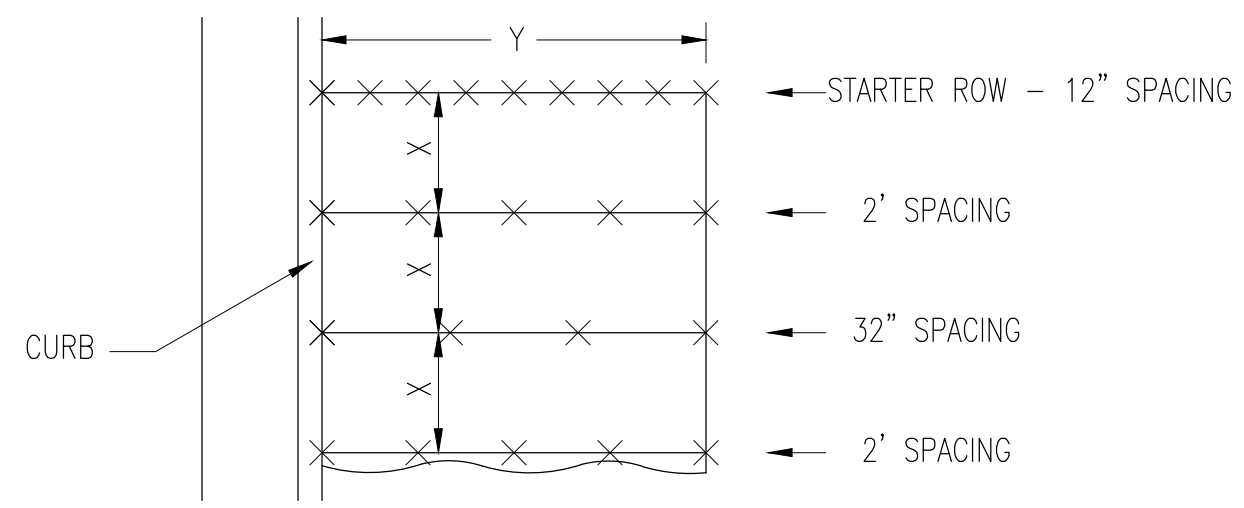


INSTALL 8' WIDE CURLEX I OR II EXCELSIOR BLANKET, OR EQUAL, ON PREPARED SURFACE BACK OF CURB. EDGE OF BLANKET WILL BE AT BACK OF CURB. INSTALL PER MANUFACTURERS RECOMMENDATION, INCLUDING STAPLES. (SEE DETAIL)

GENERAL NOTES

- EXCELSIOR MAT TO BE INSTALLED WHEN SOD IS NOT SPECIFIED ON PROJECT.
- EXCELSIOR BLANKET TO BE INSTALLED OVER SEED AND FERTILIZER, AS SPECIFIED IN THE PROJECT SPECIFICATIONS.
- 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.

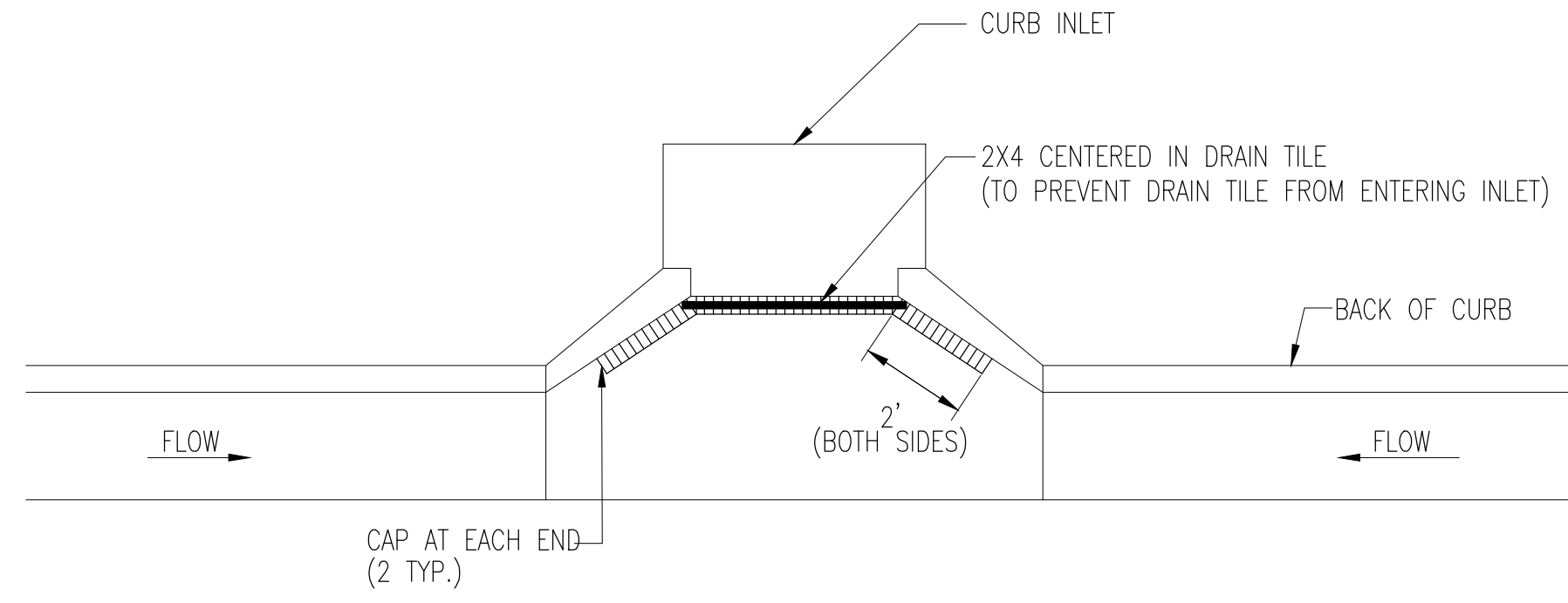
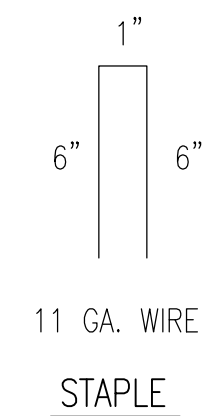
BACK OF CURB PROTECTION DETAIL



STAPLE PATTERN

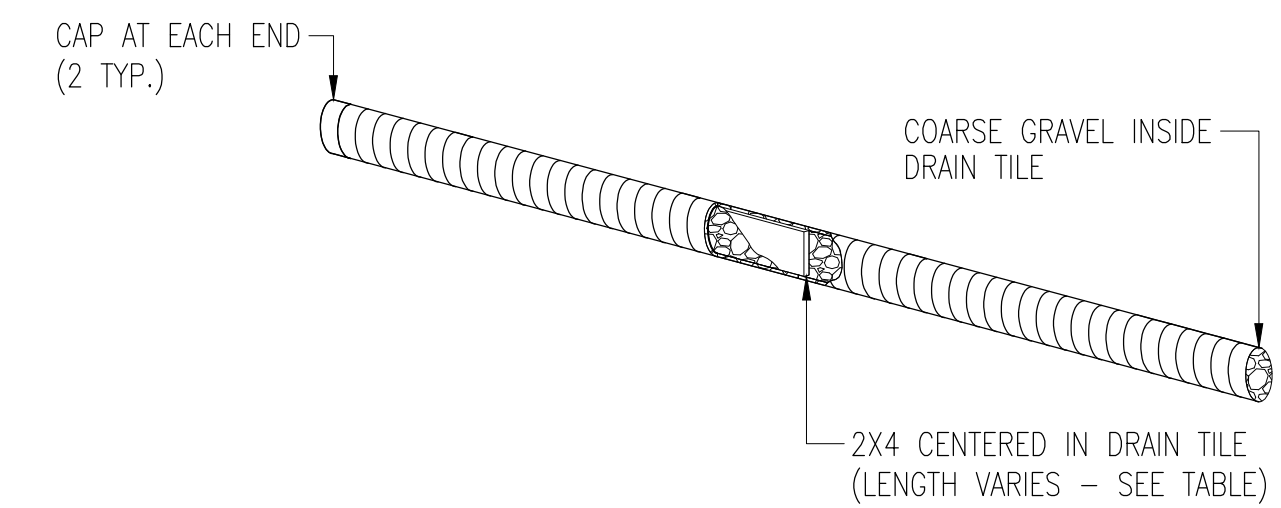
NOTES: USE 6" SEAM OVERLAP  
(X & Y = RECOMMENDED BY MANUFACTURE)

DETAILS FOR APPROVED EROSION CONTROL MAT

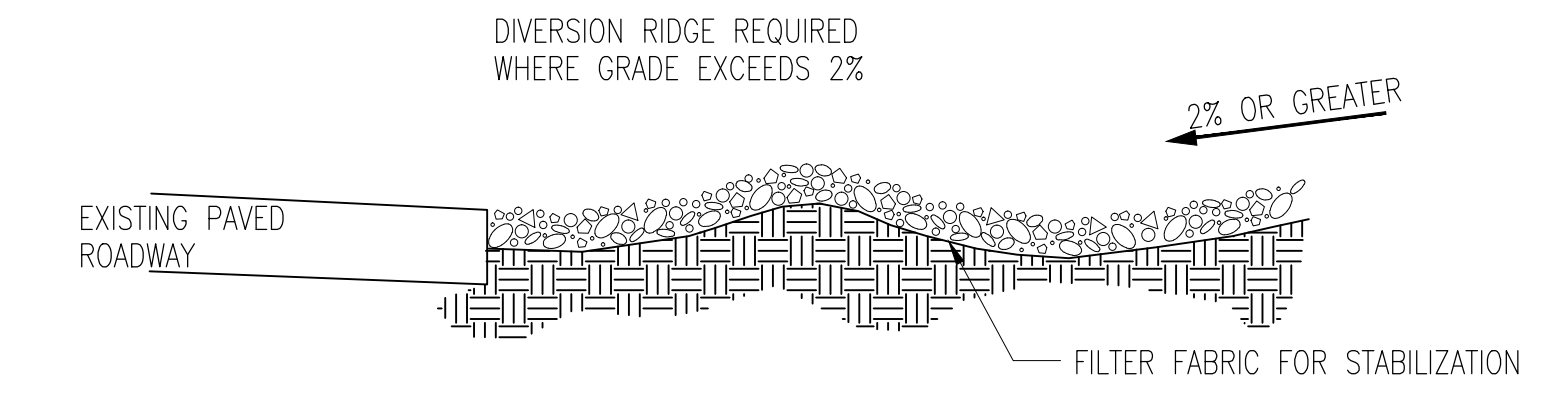


NOTE: PLACE 4" PERFORATED PVC PIPE, FILLED WITH 1/2"-1" DIA. GRAVEL, IN FRONT OF CURB INLET AS SHOWN.

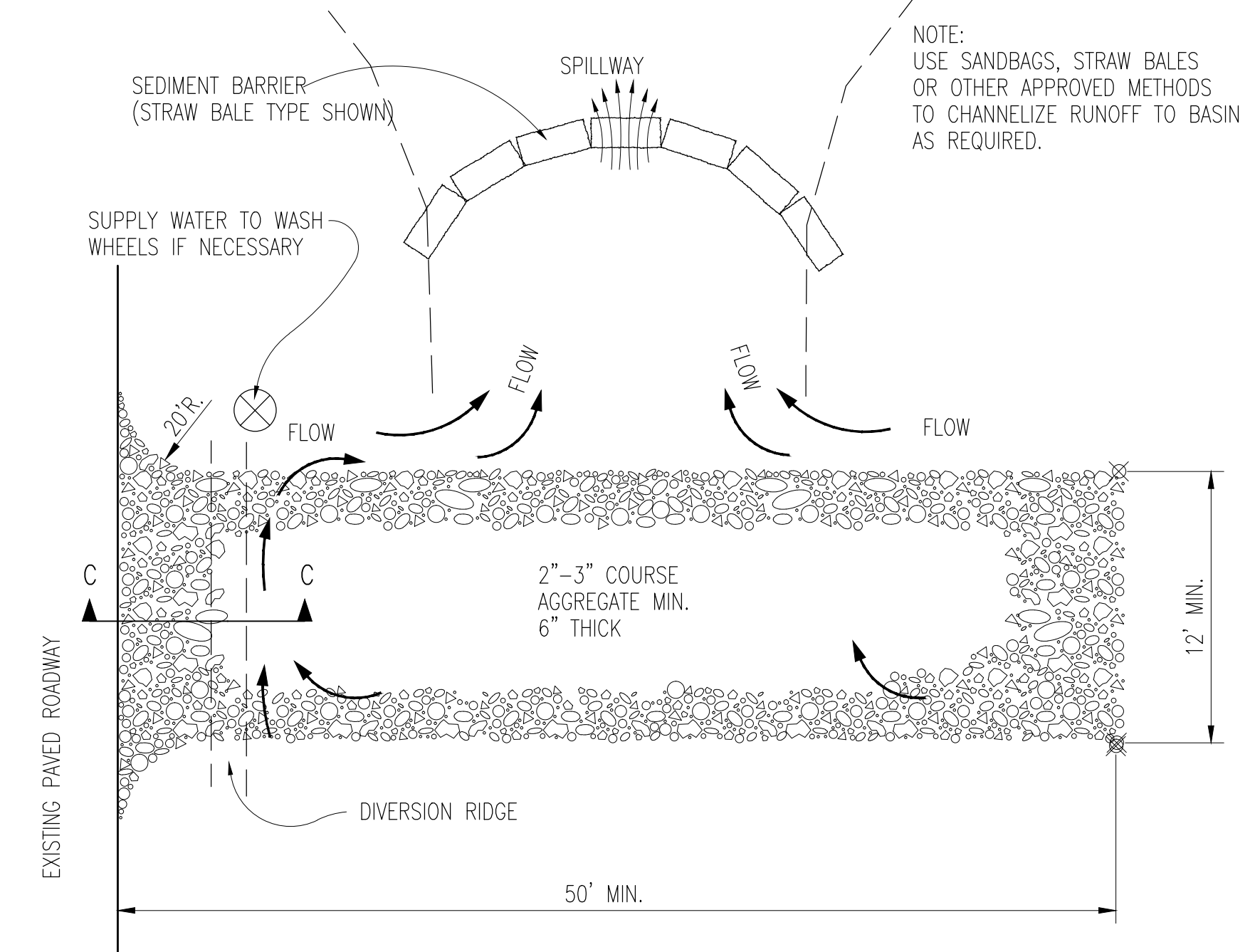
2X4 LENGTH	INLET TYPE	INLET OPENING
5'-6"	1-A	5'-0"
10'-6"	1-A	10'-0"
15'-6"	1-A	15'-0"



CURB INLET PROTECTION  
4" PERFORATED PIPE W/ GRAVEL



SECTION C-C



STABILIZED CONSTRUCTION ENTRANCE

GENERAL NOTES

- 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.
- WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
- 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.
- 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.



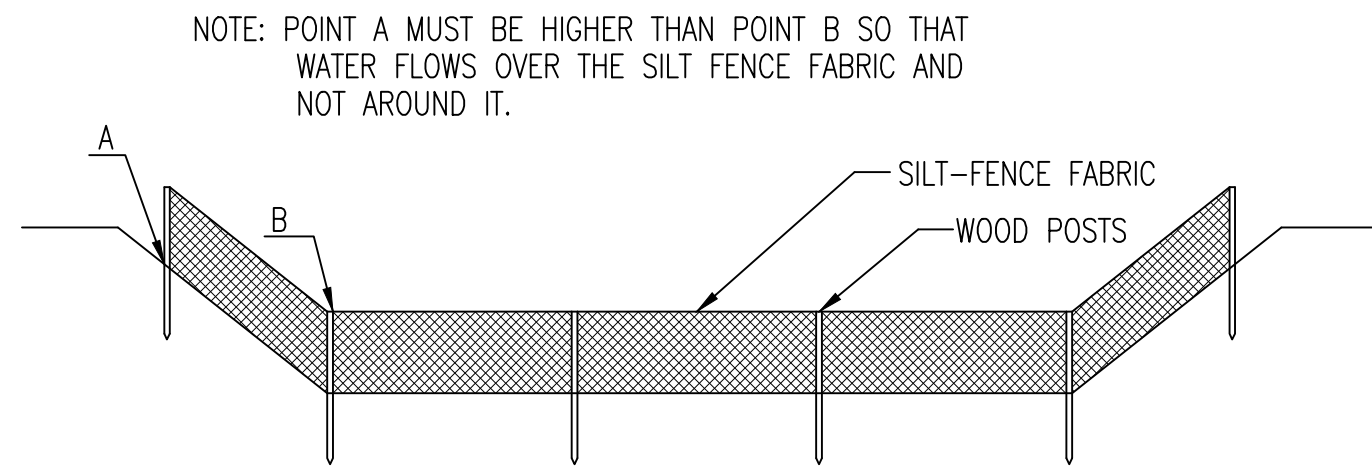
05/30/13

**CITY OF WICHITA**  
PUBLIC WORKS & UTILITIES  
ENGINEERING DIVISION

BACK OF CURB PROTECTION,  
CURB INLET PROTECTION AND  
CONSTRUCTION ENTRANCE

CITY ENGINEER <b>GARY JANZEN, P.E.</b>		
PROJECT NUMBER 257 PPD	OCA NUMBER 607861	DATE 08/2012
CITY ENGINEER'S OFFICE CITY HALL - SEVENTH FLOOR 455 NORTH MAIN STREET WICHITA, KANSAS 67202-1620 (316) 268-4501		SHEET <b>12</b>

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**ELEVATION**  
**SILT FENCE DITCH CHECKS**  
 (STREAM PROTECTION)

**MATERIAL SPECIFICATION:**

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

**PLACEMENT:**

PLACE SILT FENCE IN DITCHES WHERE IT IS UNLIKELY THAT IT WILL BE OVERTOPPED. WATER SHOULD FLOW THROUGH A SILT FENCE DITCH CHECK, NOT OVER IT. SILT FENCE DITCH CHECKS OFTEN FAIL WHEN OVERTOPPED. SILT FENCE 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 DOWNSLOPE SIDE OF THE TRENCH. PLACE THE EDGE OF THE FABRIC IN THE TRENCH STARTING AT THE TOP UPSLOPE 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 UPSLOPE SIDE 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 24". PLACE POSTS NO MORE THAN 4' APART. ATTACH THE SILT FENCE TO THE ANCHORED POST WITH STAPLES, WIRE, ZIP TIES, OR NAILS.

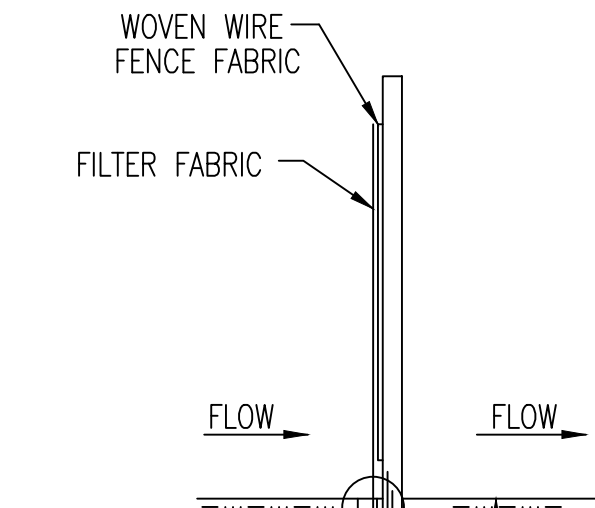
**LIST OF COMMON PLACEMENT/INSTALLATION MISTAKES TO AVOID:**

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 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 A SILT FENCE DITCH CHECK DIRECTLY IN FRONT OF A CULVERT OUTLET. IT WILL NOT STAND UP TO THE CONCENTRATED FLOW. DO NOT PLACE SILT FENCE DITCH CHECKS IN DITCHES THAT WILL LIKELY EXPERIENCE HIGH FLOWS. THEY WILL NOT STAND UP TO CONCENTRATED FLOW. FOLLOW PRESCRIBED DITCH CHECK SPACING GUIDELINES. IF SPACING GUIDELINES ARE EXCEEDED, EROSION WILL OCCUR BETWEEN THE DITCH CHECKS. DO NOT ALLOW WATER TO FLOW AROUND THE DITCH CHECK. MAKE SURE THAT THE DITCH CHECK IS LONG ENOUGH SO THAT THE GROUND LEVEL AT THE ENDS OF THE FENCE IS HIGHER THAN THE LOW POINT ON THE TOP OF THE FENCE. DO NOT PLACE SILT FENCE DITCH CHECKS IN CHANNELS WITH SHALLOW SOILS UNDERLAIN BY ROCK. IF THE CHECK IS NOT ANCHORED SUFFICIENTLY, IT WILL WASH OUT.

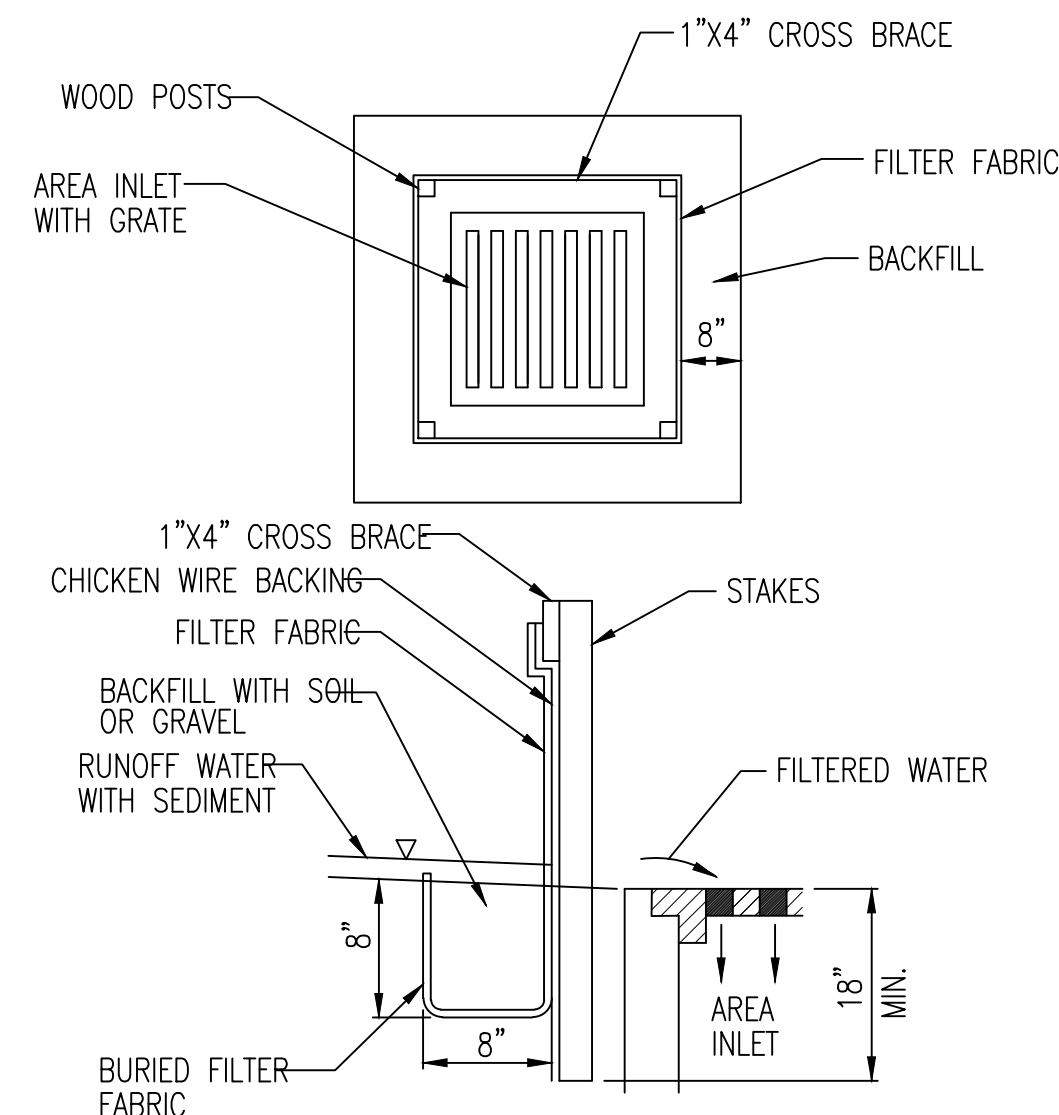
**INSPECTION AND MAINTENANCE:**

SILT FENCE DITCH CHECKS SHOULD BE INSPECTED EVERY 7 DAYS AND WITHIN 24 HOURS OF A RAINFALL OF 1/2" OR MORE. THE FOLLOWING IS A LIST OF QUESTIONS THAT SHOULD BE ADDRESSED DURING EACH INSPECTION:

- DOES WATER FLOW AROUND THE DITCH CHECK?
- DOES WATER FLOW UNDER THE DITCH CHECK?
- DOES THE SILT FENCE SAG EXCESSIVELY?
- HAS THE SILT FENCE TORN OR BECOME DETACHED FROM THE POSTS?
- DOES SEDIMENT NEED TO BE REMOVED FROM BEHIND THE DITCH CHECK?



**ANCHOR TRENCH DETAIL**



**SILT FENCE BARRIERS FOR AREA INLETS**  
 (INLET PROTECTION)

**MATERIAL SPECIFICATION:**

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

**PLACEMENT:**

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

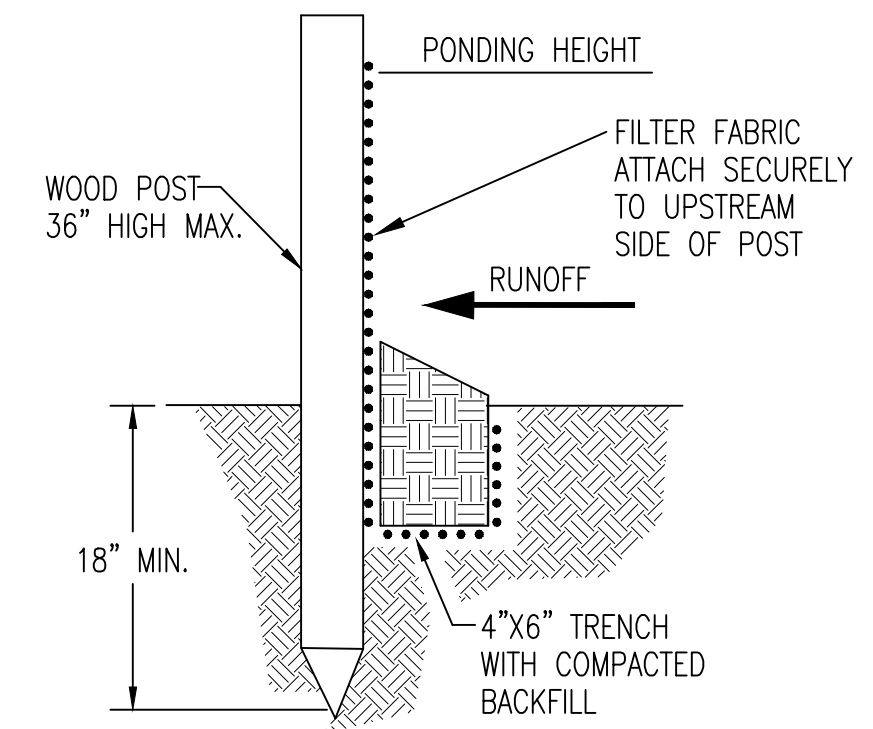
**LIST OF COMMON PLACEMENT/INSTALLATION MISTAKES TO AVOID:**

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 RESTRICTED BY THE POSTS, BUT ONLY BY THE STAPLES (WIRE, ZIP TIES, NAILS, ETC.). THE SILT FENCE WILL RIP AND FAIL. DO NOT INSTALL SILT FENCE BARRIER FOR AREA INLETS WITHOUT FRAMING THE TOP OF THE POSTS. THE CORNER POSTS AROUND AREA INLETS ARE STRESSED IN TWO DIRECTIONS WHEREAS A NORMAL SILT FENCE IS ONLY STRESSED IN ONE DIRECTION. THIS ADDED STRESS REQUIRES MORE SUPPORT.

**INSPECTION AND MAINTENANCE:**

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

- DOES WATER FLOW UNDER THE SILT FENCE?
- DOES THE SILT FENCE SAG EXCESSIVELY?
- HAS THE SILT FENCE TORN OR BECOME DETACHED FROM THE POSTS?
- DOES SEDIMENT NEED TO BE REMOVED FROM BEHIND THE AREA INLET BARRIER?



**SILT FENCE BARRIERS**

**MATERIAL SPECIFICATION:**

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

**PLACEMENT:**

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

**PROPER INSTALLATION METHOD:**

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

**LIST OF COMMON PLACEMENT/INSTALLATION MISTAKES TO AVOID:**

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


**INSPECTION AND MAINTENANCE:**

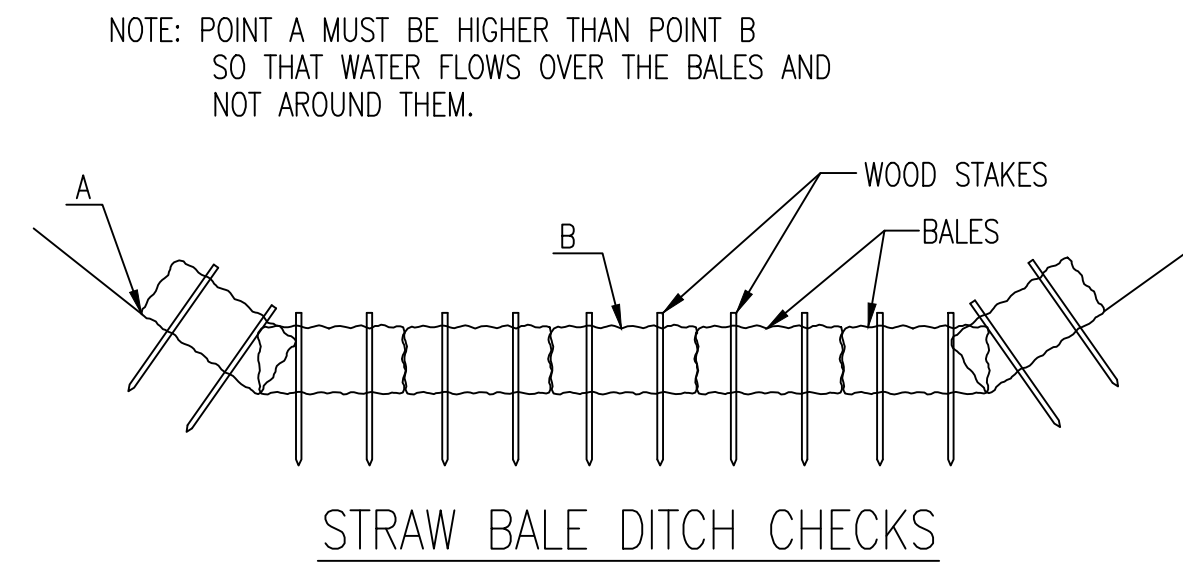
SILT FENCE SLOPE BARRIERS SHOULD BE INSPECTED EVERY 7 DAYS AND WITHIN 24 HOURS OF A RAINFALL OF 1/2" OR MORE. THE FOLLOWING IS A LIST OF QUESTIONS THAT SHOULD BE ADDRESSED DURING EACH INSPECTION:

- ARE THERE ANY POINTS ALONG THE SLOPE BARRIER WHERE WATER IS CONCENTRATING?
- DOES WATER FLOW UNDER THE SLOPE BARRIER?
- DO THE SILT FENCES SAG EXCESSIVELY?
- HAS THE SILT FENCE TORN OR BECOME DETACHED FROM THE POSTS?
- DOES SEDIMENT NEED TO BE REMOVED FROM BEHIND THE SLOPE BARRIER?



05/30/13

 <b>CITY OF WICHITA</b> PUBLIC WORKS & UTILITIES ENGINEERING DIVISION			<b>SILT FENCE DITCH CHECK AND BARRIER DETAILS</b>		
CITY ENGINEER <b>GARY JANZEN, P.E.</b>					
PROJECT NUMBER	OCA NUMBER	DATE			
257 PPD	607861	11/2010			
CITY ENGINEER'S OFFICE CITY HALL - SEVENTH FLOOR 455 NORTH MAIN STREET WICHITA, KANSAS 67202-1620 (316) 268-4501			SHEET <b>13</b>		



**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 CHECK 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 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".

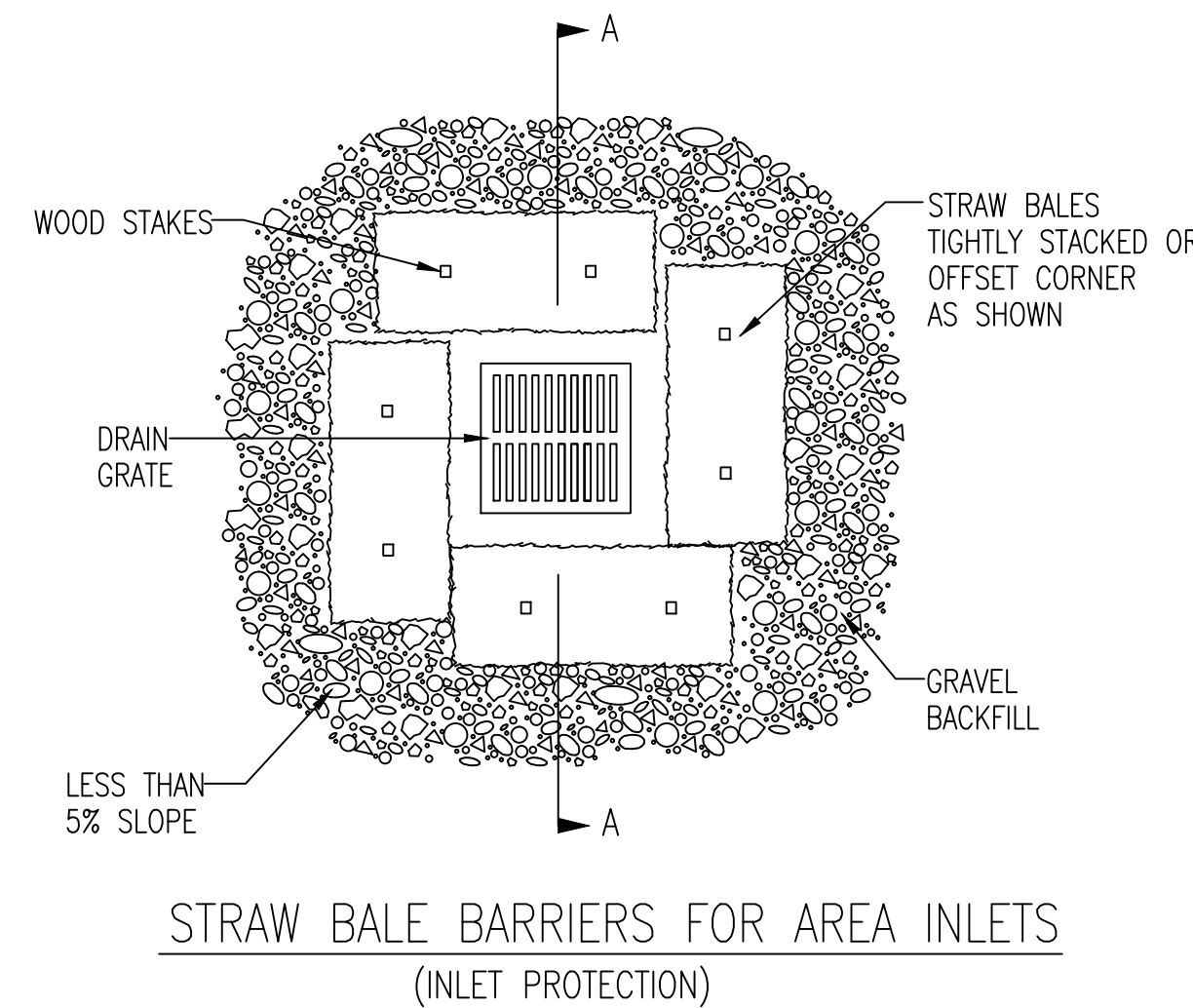
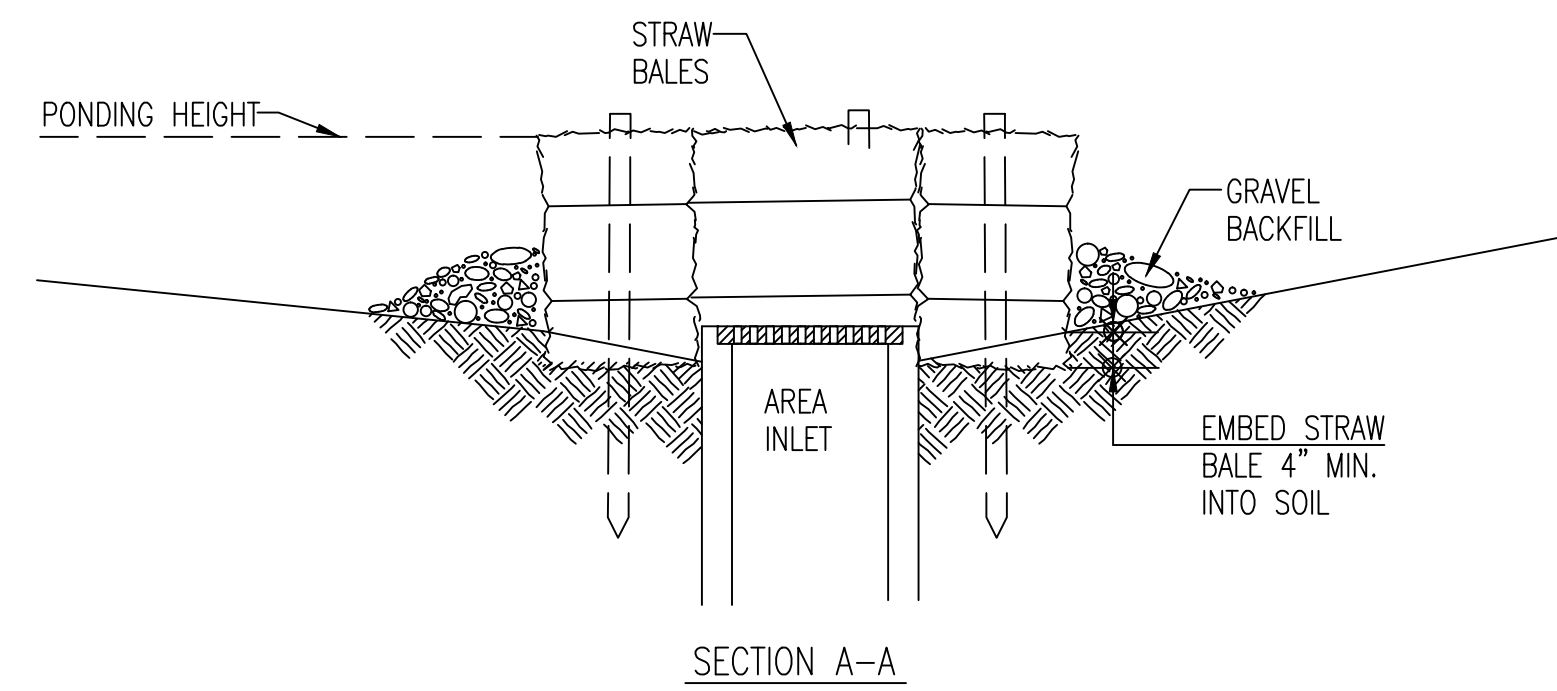
**LIST OF COMMON PLACEMENT/INSTALLATION MISTAKES TO AVOID:**

- 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?



**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.

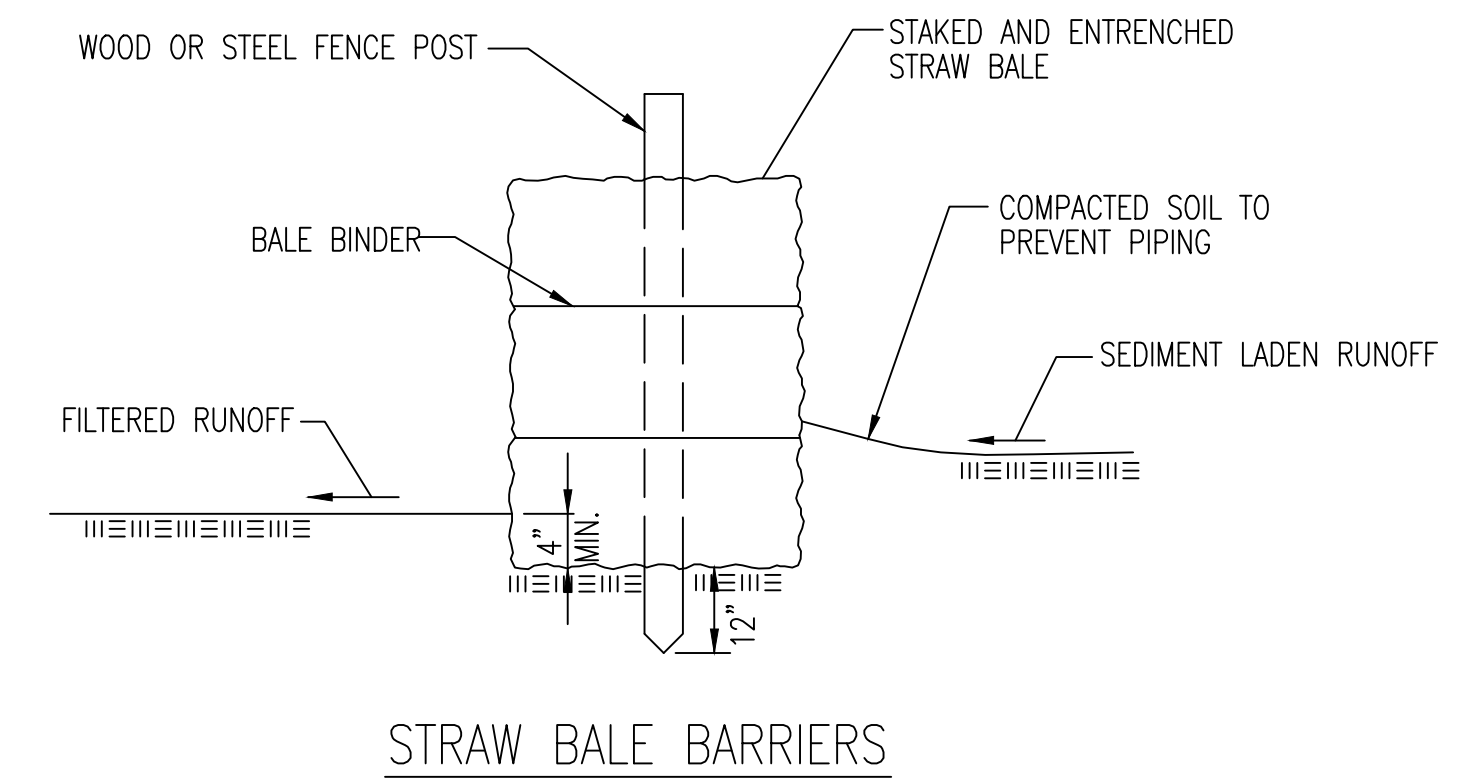
**LIST OF COMMON PLACEMENT INSTALLATION MISTAKES TO AVOID:**

- 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 OF 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?



**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:

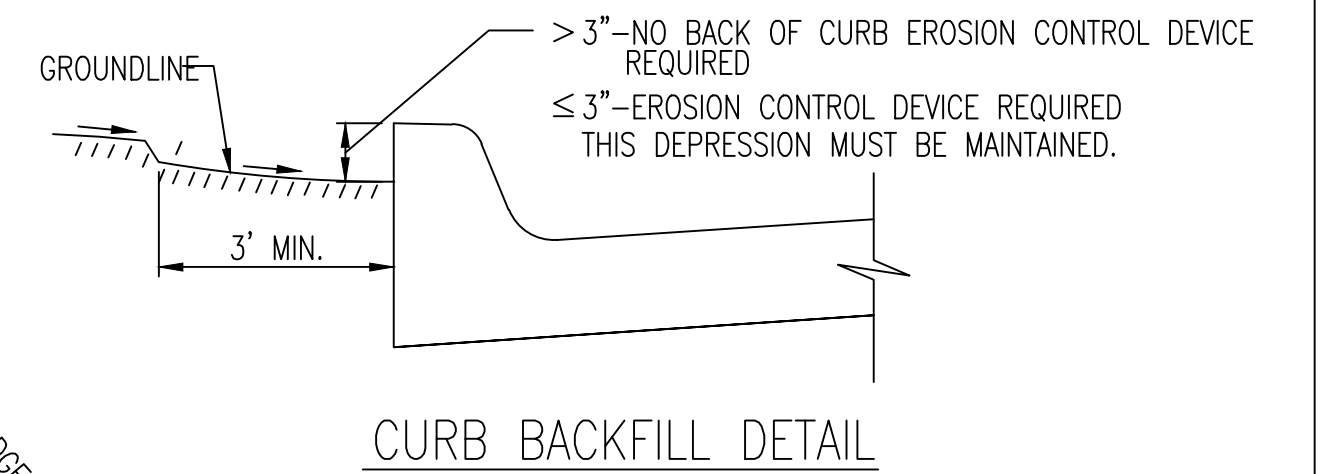
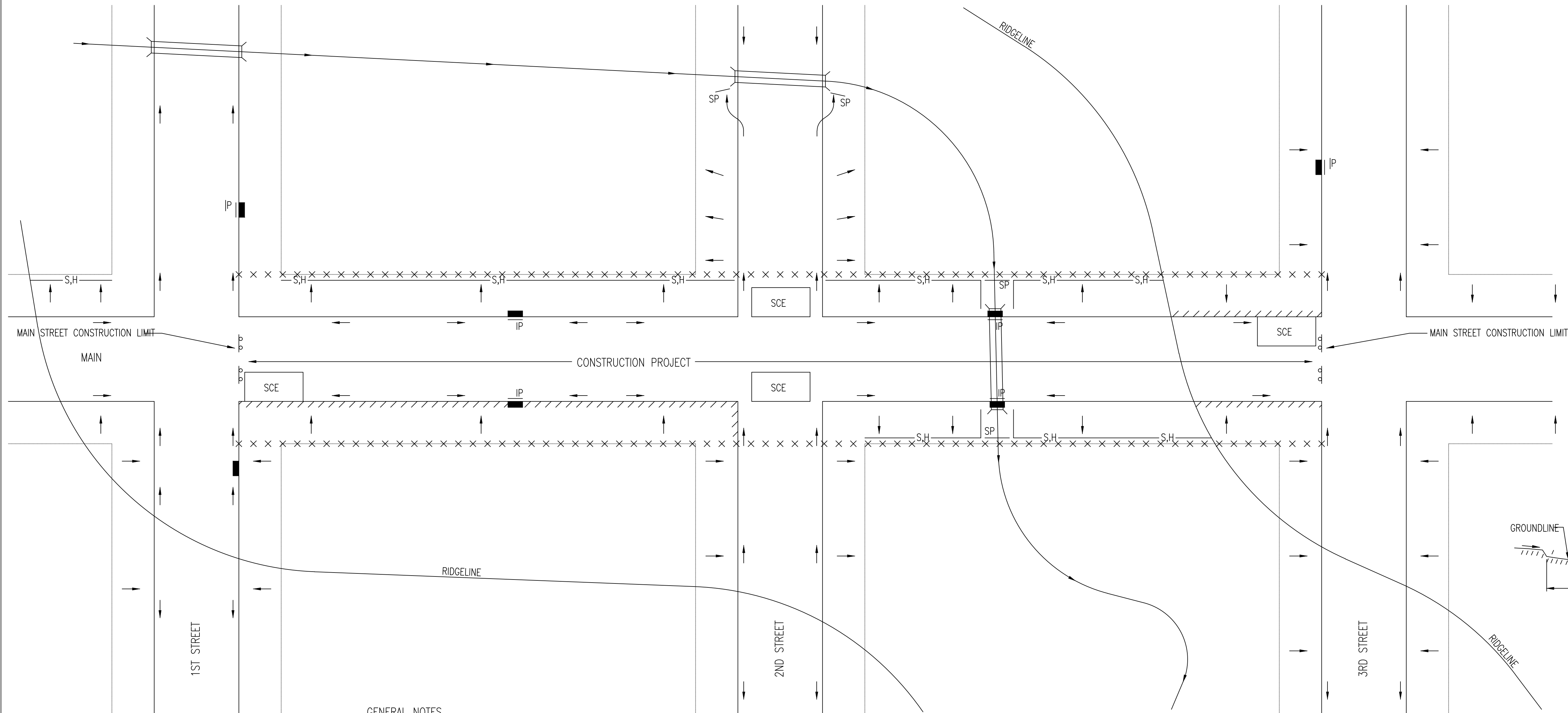
- ARE THERE ANY POINTS ALONG THE SLOPE BARRIER WHERE WATER IS CONCENTRATING?
- DOES WATER FLOW UNDER THE SLOPE BARRIER?
- DOES WATER FLOW THROUGH SPACES BETWEEN ABUTTING BALES?
- ARE ANY BALES DISLODGED?
- ARE BALES DECOMPOSING DUE TO AGE AND/OR WATER DAMAGE?
- DOES SEDIMENT NEED TO BE REMOVED FROM BEHIND THE SLOPE BARRIER?



<p><b>CITY OF WICHITA</b> PUBLIC WORKS &amp; UTILITIES ENGINEERING DIVISION</p>			<p><b>STRAW BALE DITCH CHECK AND BARRIER DETAILS</b></p>		
			<p>CITY ENGINEER <b>GARY JANZEN, P.E.</b></p>		
PROJECT NUMBER	OCA NUMBER	DATE			
257 PPD	607861	11/2010			
<p>CITY ENGINEER'S OFFICE CITY HALL - SEVENTH FLOOR 455 NORTH MAIN STREET WICHITA, KANSAS 67202-1620 (316) 268-4501</p>			<p>SHEET <b>14</b></p>		

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.



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.

GENERAL NOTES

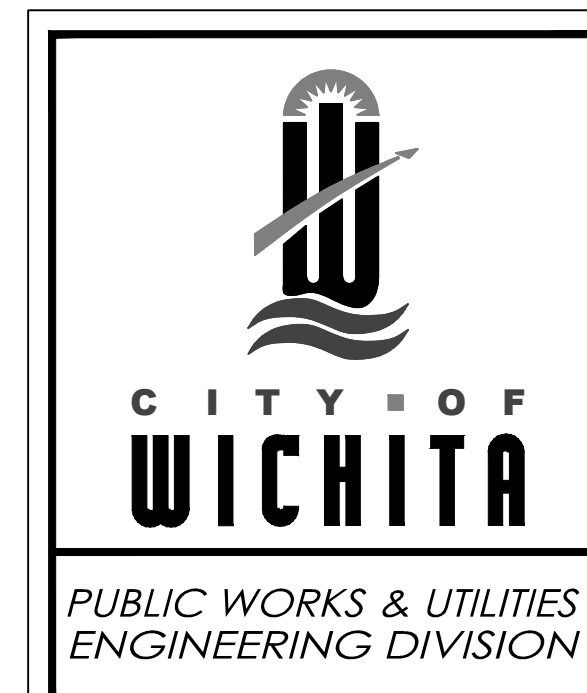
1. THE INTENT OF ALL EROSION CONTROL DEVICES IS TO KEEP ALL SEDIMENT CONFINED TO THE CONSTRUCTION SITE, AND OUT OF ALL UNDERGROUND PIPES, DITCHES, LAKES, AND OTHER DRAINAGE FACILITIES, AND OFF OF STREETS.
2. THE POINT OF COMPLIANCE IS GENERALLY THE RIGHT-OF-WAY LINES WITHIN THE LIMITS OF CONSTRUCTION.
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 CONTRACTOR 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 BMPs - 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)

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

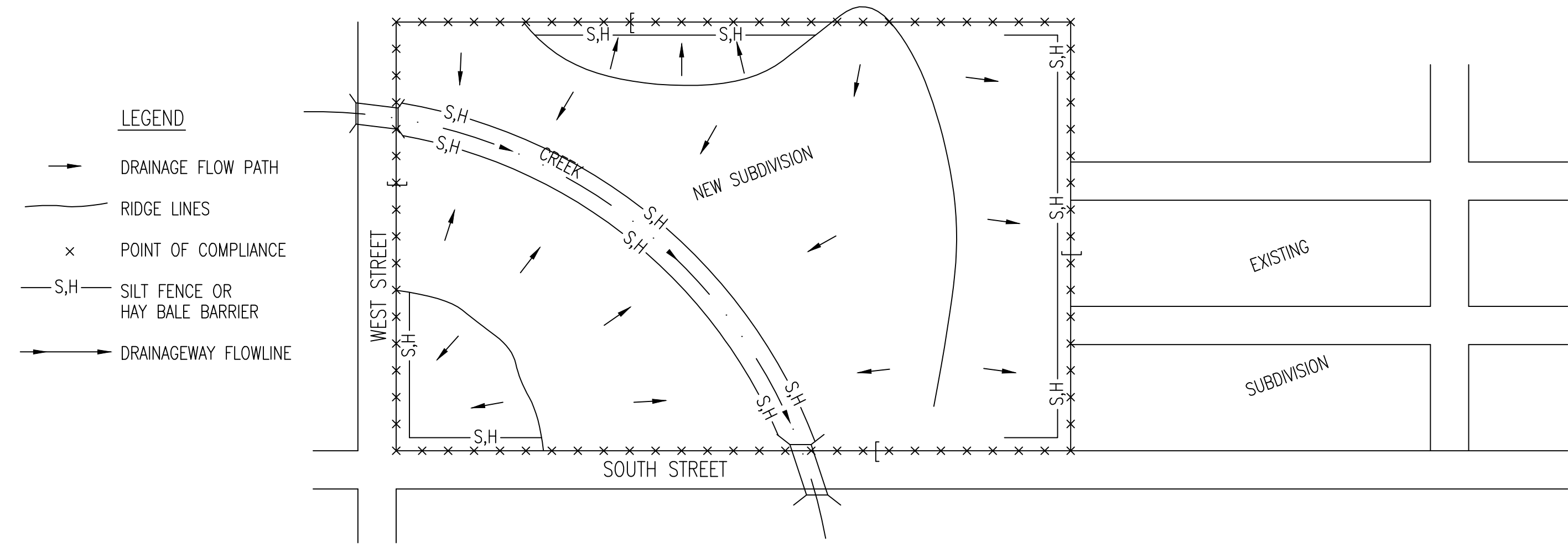


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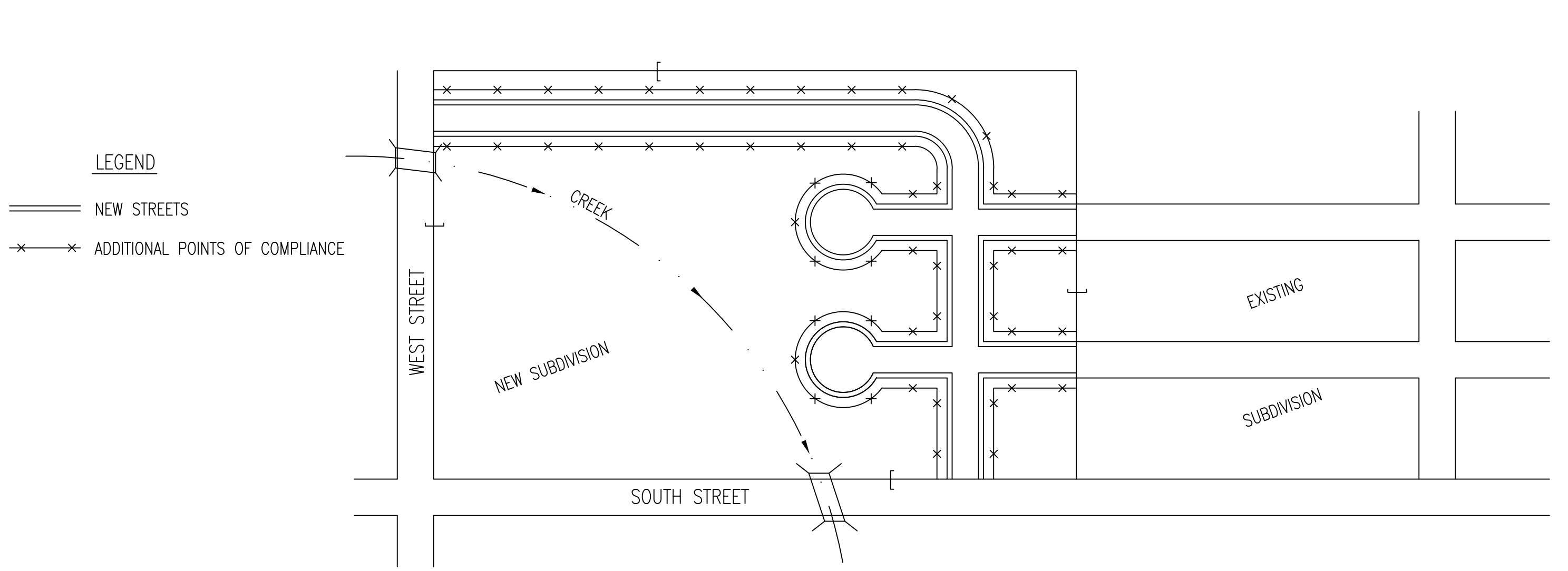
STREET IMPROVEMENT PROJECTS		
CITY ENGINEER <b>GARY JANZEN, P.E.</b>		
PROJECT NUMBER 257 PPD	OCA NUMBER 607861	DATE 08/2012
CITY ENGINEER'S OFFICE CITY HALL - SEVENTH FLOOR 455 NORTH MAIN STREET WICHITA, KANSAS 67202-1620 (316) 268-4501		SHEET <b>15</b>

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



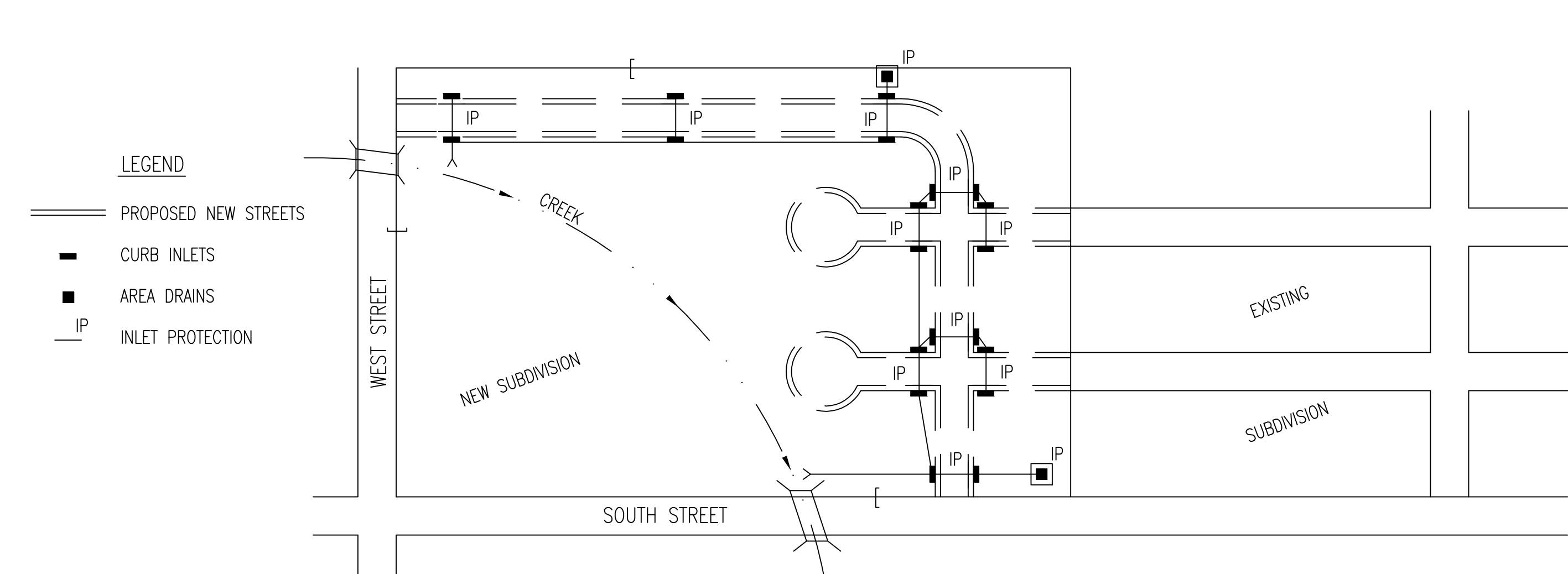
- LEGEND**
- DRAINAGE FLOW PATH
  - RIDGE LINES
  - x POINT OF COMPLIANCE
  - S.H. SILT FENCE OR HAY BALE BARRIER
  - DRAINAGEWAY FLOWLINE
- DURING THIS PHASE OF SUBDIVISION CONSTRUCTION, THE POINTS OF COMPLIANCE ARE THE PERIMETER BOUNDARIES AND ANY DRAINAGE WAYS OR STORM SEWERS DRAINING THROUGH OR FROM THE SITE. SHOULD LAKES BE CONSTRUCTED WITHIN THE SUBDIVISION THAT WILL DISCHARGE DURING STORMS, THEY ARE ALSO A POINT OF COMPLIANCE.
  - 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.
  - 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.
  - ANY MUD TRACKED ONTO ADJACENT STREETS WILL BE REMOVED WITHIN 48 HOURS OR BY FRIDAY AT 6:00 PM, WHICHEVER IS EARLIER.
  - 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.
  - UTILIZE STABILIZED CONSTRUCTION ENTRANCE AT ENTRANCE AND EXIT ONTO ANY EXISTING PUBLIC STREETS.
  - 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.
  - WITHIN 14 DAYS OF COMPLETION OF EARTHWORK ACTIVITIES IN ANY GIVEN AREA, THAT AREA SHALL BE TEMPORARILY OR PERMANENTLY SEEDED AND MULCHED.

PHASE 3 – STREET CONSTRUCTION



- LEGEND**
- NEW STREETS
  - x-x-x-x ADDITIONAL POINTS OF COMPLIANCE
- 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.
  - CURB OPENING INLET PROTECTION:
    - SUMP AREAS – INLET PROTECTION SHALL BE PROVIDED WHEN STREET SUBGRADE WORK IS COMPLETED.
    - NON-SUMP LOCATIONS – PROVIDE INLET PROTECTION AS SOON AS BASE COURSE ASPHALT IS INSTALLED, BEFORE THE SURFACE COURSE LIFT.
  - 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.
  - SEE DETAIL SHEET FOR BACK OF CURB PROTECTION.
  - 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.
  - THE STREET CONTRACTOR WILL BE RESPONSIBLE FOR INSTALLING BACK OF CURB EROSION CONTROL DEVICES.
  - 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.

PHASE 2 – INSTALLATION OF STORM SEWER

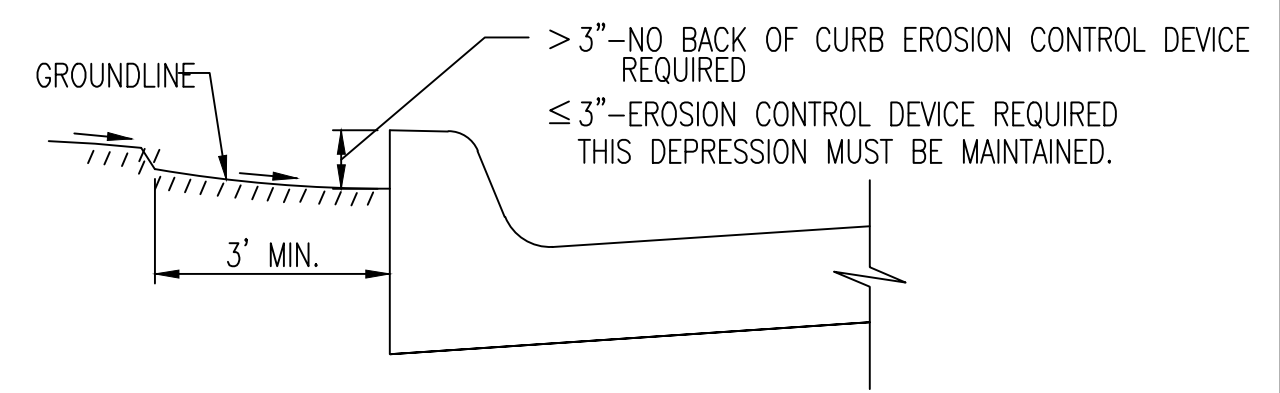


- LEGEND**
- PROPOSED NEW STREETS
  - CURB INLETS
  - AREA DRAINS
  - IP INLET PROTECTION
- DURING THIS PHASE OF SUBDIVISION DEVELOPMENT, ALL EROSION CONTROL DEVICES REQUIRED IN PHASE 1 SHALL REMAIN IN PLACE AND BE MAINTAINED.
  - AS NEW STORM SEWERS, WITH INLETS, ARE INSTALLED, THE STORM SEWERS MUST NOW BE PROTECTED SO ALL NEW INLETS BECOME POINTS OF COMPLIANCE.
  - AREA DRAINS – AS SOON AS WATER CAN FLOW INTO THESE DRAINS, HAY BALE OR SILT FENCE PROTECTION WILL BE INSTALLED AROUND THEM.
  - 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.
  - THE STORM SEWER CONTRACTOR WILL BE RESPONSIBLE FOR INSTALLING THESE DEVICES.
  - THE SUBDIVISION DEVELOPER WILL MAINTAIN THESE EROSION CONTROL DEVICES ONCE INSTALLED.
  - 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.
  - 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.

GENERAL NOTES

- 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.
- 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.
- 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.
- PERSONS DESTROYING EROSION CONTROL DEVICES SHALL BE RESPONSIBLE FOR IMMEDIATELY REPAIRING THEM OR INSTALLING SUITABLE REPLACEMENT DEVICES.
- 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.
- 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.
- 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.
- 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.
- 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)

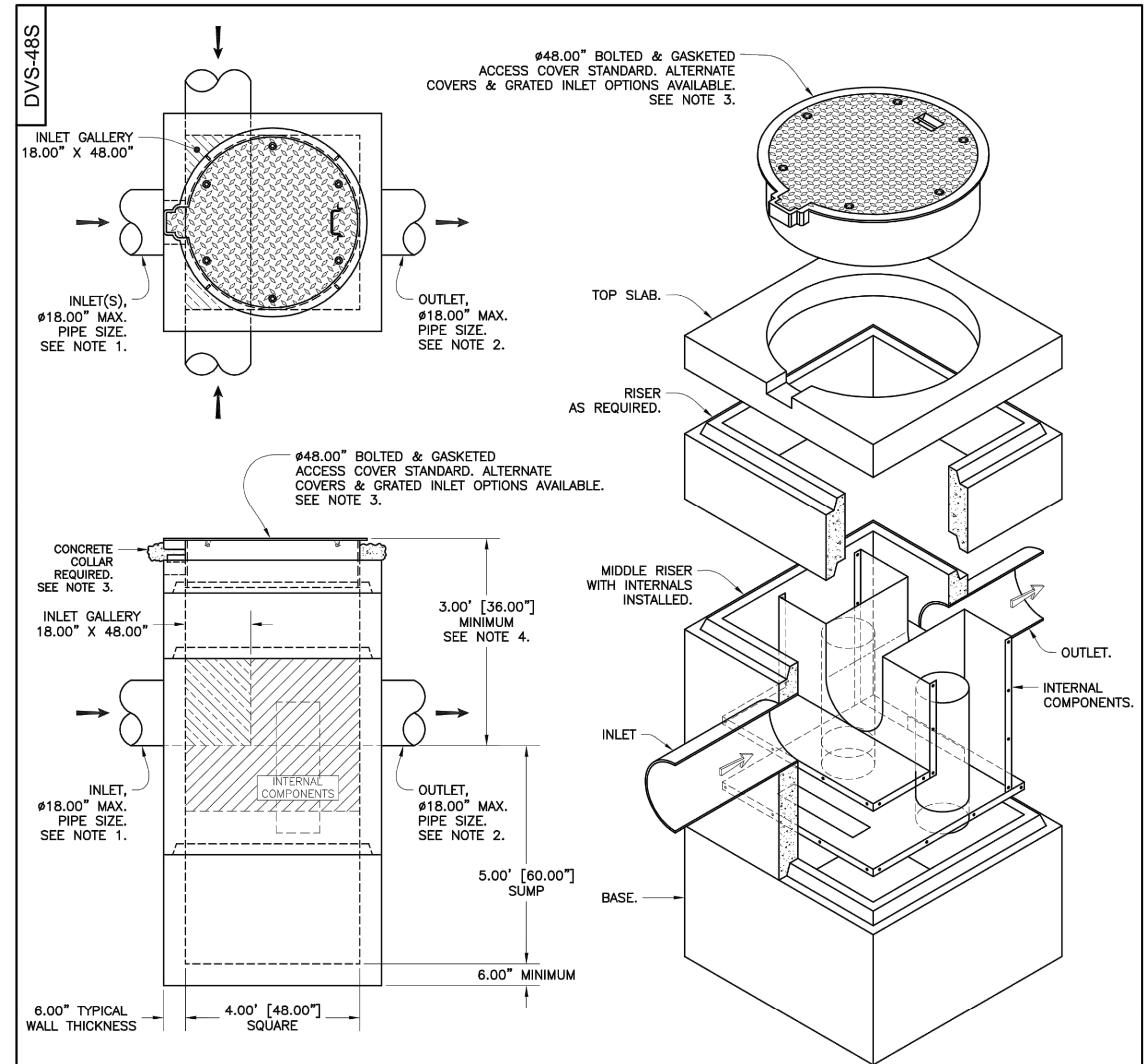
THIS IS A TEMPORARY MEASURE ONLY, WHEN APPROVED BY THE PROJECT ENGINEER. THE DIRT GRADE BEHIND THE CURB SHALL BE BROUGHT TO THE TOP OF CURB, WITH TEMPORARY EROSION CONTROL MAT OR PERMANENT VEGETATION PLACED, PRIOR TO THE COMPLETION OF ALL PROJECTS.



<p><b>CITY OF WICHITA</b> PUBLIC WORKS &amp; UTILITIES ENGINEERING DIVISION</p>			<p><b>SUBDIVISION DEVELOPMENT PROCESS</b></p> <p>CITY ENGINEER <b>GARY JANZEN, P.E.</b></p>		
			PROJECT NUMBER <b>257 PPD</b>	OCA NUMBER <b>607861</b>	DATE <b>08/2012</b>
<p>CITY ENGINEER'S OFFICE CITY HALL - SEVENTH FLOOR 455 NORTH MAIN STREET WICHITA, KANSAS 67202-1620 (316) 268-4501</p>					

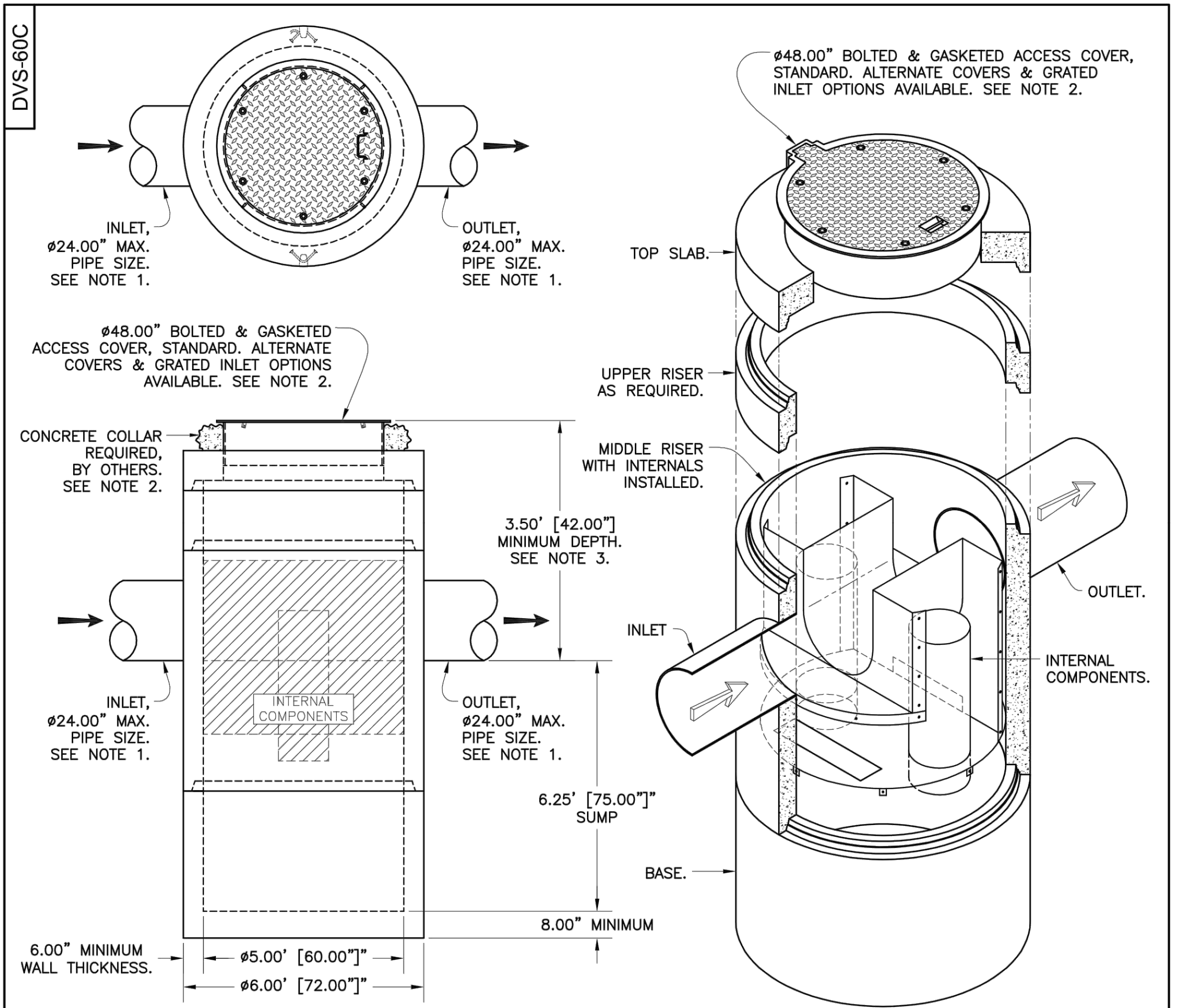
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- NOTES:
1. ALL INLET PIPES MUST ENTER SEPARATOR AT INLET GALLERY, (OBLIQUE ANGLES ALLOWED).
  2. STANDARD OUTLET PIPE CONFIGURATION TO EXIT SEPARATOR AT THE CENTER LINE, (OBLIQUE ANGLES ALLOWED). CUSTOM OUTLET CONFIGURATIONS AVAILABLE UPON REQUEST.
  3. BOLTED & GASKETED MANHOLE ACCESS COVER ELEVATION MAY BE ADJUSTED TO GRADE. FIELD POURED CONCRETE COLLAR AS REQUIRED, BY OTHERS. INLET GRATES & ALTERNATE COVER OPTIONS AVAILABLE.
  4. FOR DEPTHS LESS THAN THE MINIMUM SHOWN CONTACT KRISTAR ENTERPRISES FOR ENGINEERING ASSISTANCE.
  5. CONCRETE COMPONENTS SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM DESIGNATION C858.
  6. REMOVABLE INTERNAL COMPONENTS MAY BE AVAILABLE TO FACILITATE MAINTENANCE. CONTACT KRISTAR ENTERPRISES FOR DETAILS.

<b>TITLE</b> <b>FloGard DUAL-VORTEX</b> HYDRODYNAMIC SEPARATOR SQUARE STRUCTURE <b>DVS-48S</b>		<b>KriStar Enterprises, Inc.</b> 360 Sutton Place, Santa Rosa, CA 95407 Ph: 800.579.8819, Fax: 707.524.8186, www.kristar.com	
DRAWING NO.	REV	ECO	DATE
DVS-48S	A	0103 JPR	4/10/12
		JPR	4/25/11
		SHEET 1 OF 1	

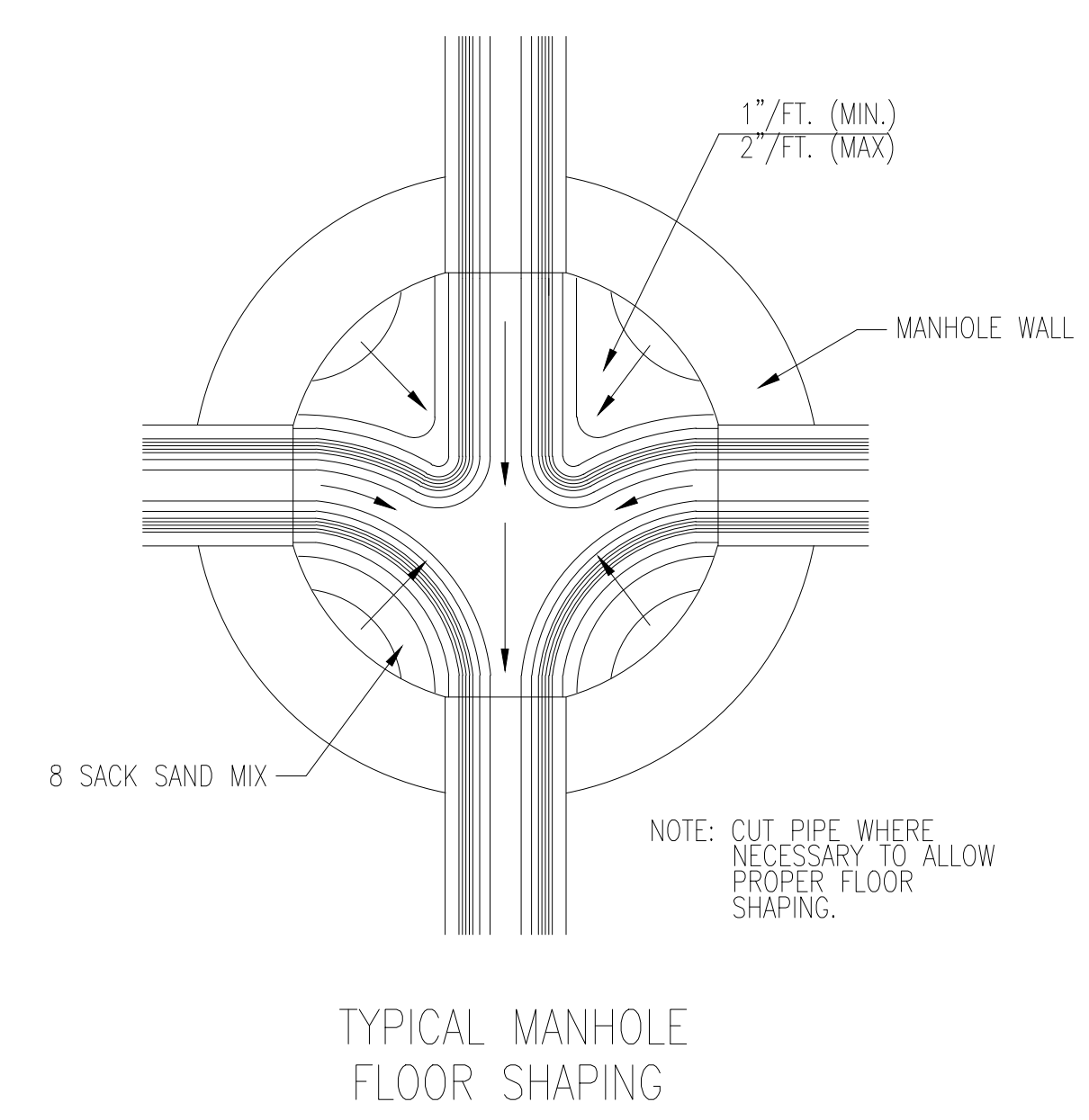
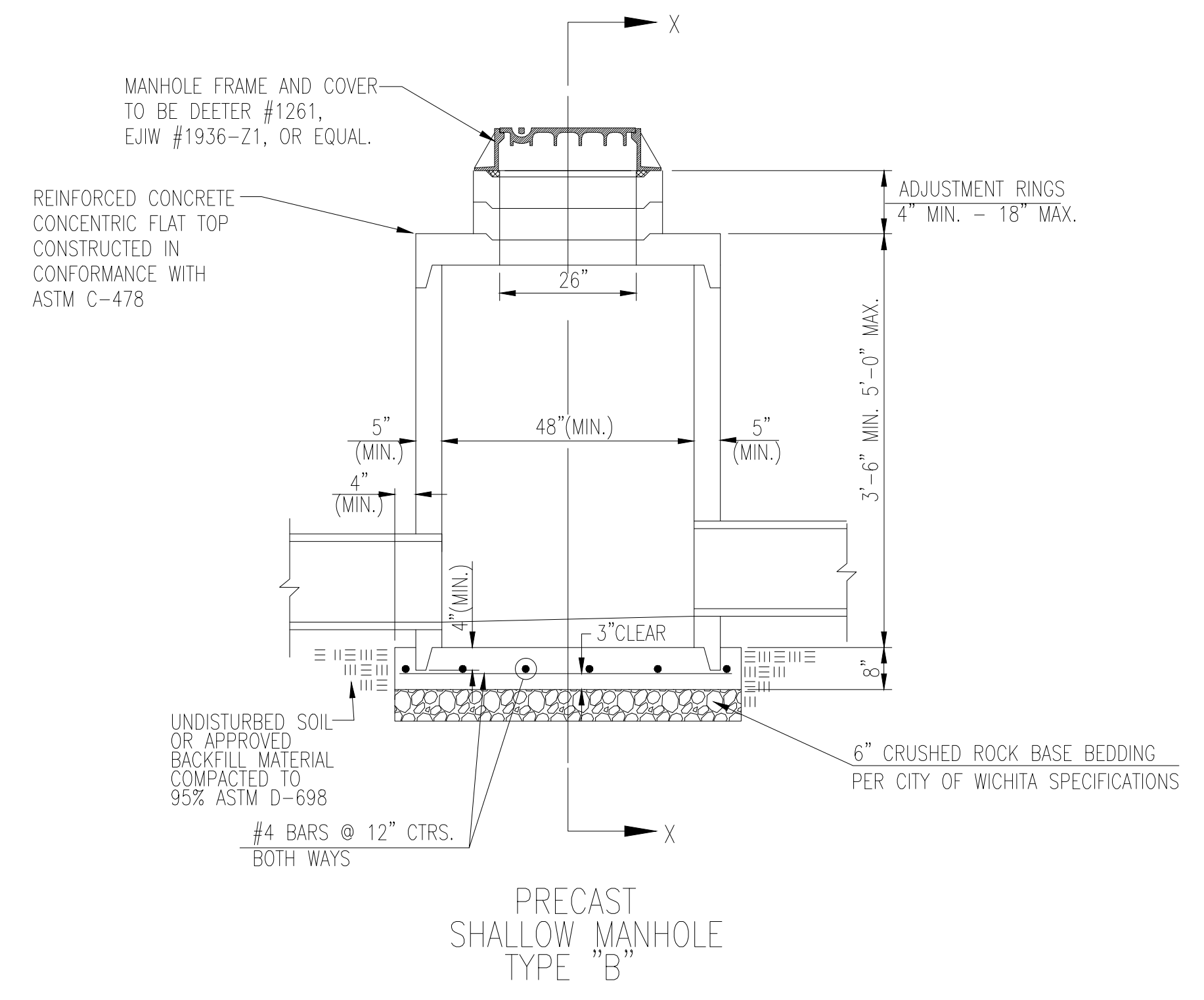
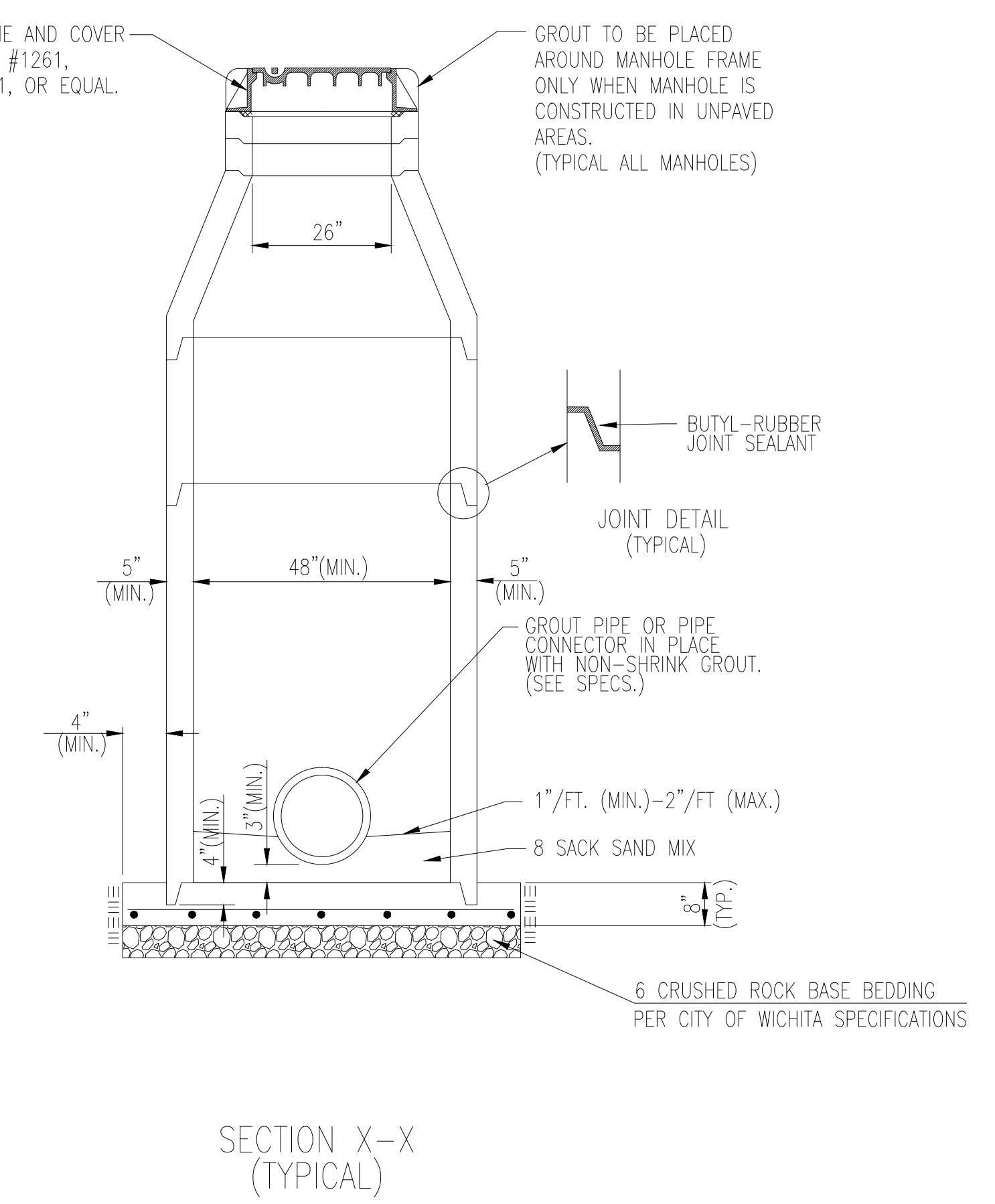
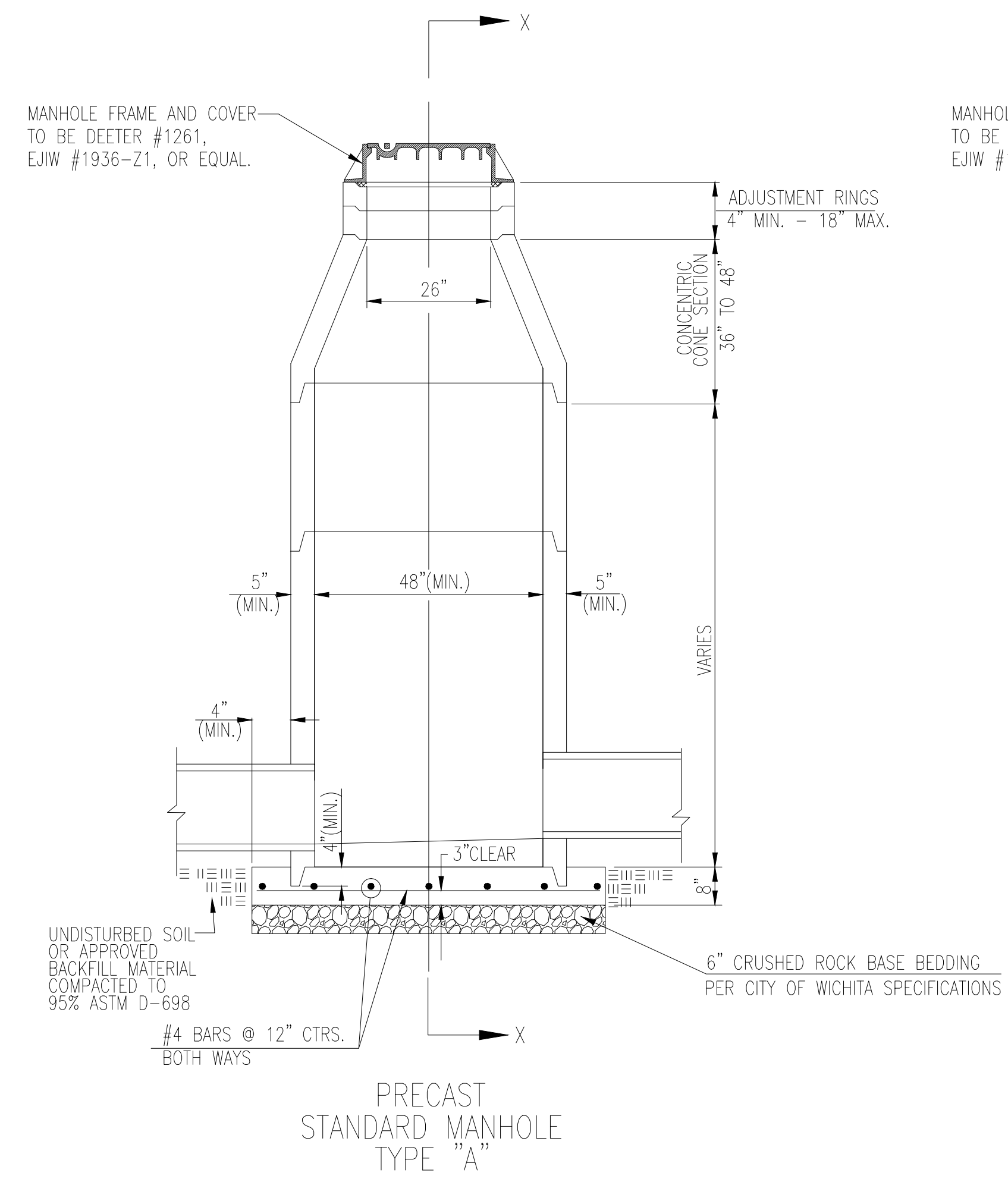


- NOTES:
1. STANDARD INLET/OUTLET PIPE CONFIGURATION TO ENTER & EXIT SEPARATOR AT 180°. CUSTOM ANGLED CONFIGURATIONS AVAILABLE UPON REQUEST, SPECIFIC MAXIMUM ANGLES & PIPE SIZES APPLY. CONTACT KRISTAR ENTERPRISES FOR ENGINEERING DETAILS.
  2. BOLTED & GASKETED MANHOLE ACCESS COVER ELEVATION MAY BE ADJUSTED TO GRADE. FIELD POURED CONCRETE COLLAR AS REQUIRED, BY OTHERS. INLET GRATES & ALTERNATE COVER OPTIONS AVAILABLE.
  3. FOR DEPTHS LESS THAN THE MINIMUM SHOWN CONTACT KRISTAR ENTERPRISES FOR ENGINEERING DESIGN ASSISTANCE.
  4. CONCRETE COMPONENTS SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM DESIGNATION C478.
  5. REMOVABLE INTERNAL COMPONENTS MAY BE AVAILABLE TO FACILITATE MAINTENANCE. OR CONTACT KRISTAR ENTERPRISES FOR DETAILS.


<b>TITLE</b> <b>FloGard DUAL-VORTEX</b> HYDRODYNAMIC SEPARATOR CIRCULAR STRUCTURE <b>DVS-60C</b>		<b>KriStar Enterprises, Inc.</b> 360 Sutton Place, Santa Rosa, CA 95407 Ph: 800.579.8819, Fax: 707.524.8186, www.kristar.com	
DRAWING NO.	REV	ECO	DATE
DVS-60C	A	0103 JPR	4/10/12
		JPR	4/25/11
		SHEET 1 OF 1	

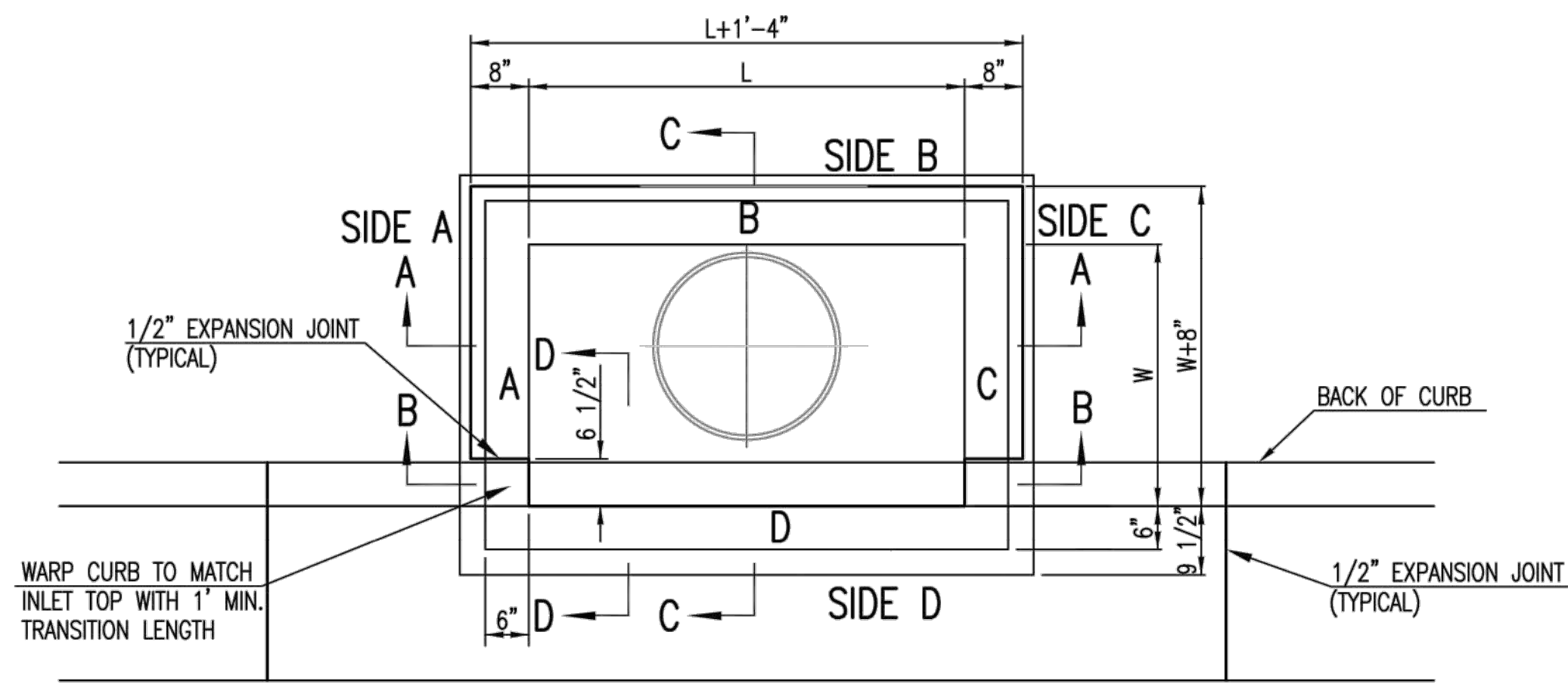
PROJECT NO.:	
CERTIFIED ENGINEERING DESIGN, P.A. 1935 W. MAPLE STREET WICHITA, KANSAS 67213 PH: (316)262-8808 FAX: (316)262-1669	
<b>QuikTrip No. 0356</b> SWC 47TH & HYDRAULIC WICHITA, SEDGWICK, KS	
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PROTOTYPE: P-78 (02/01/14) DIVISION: 03 VERSION: 001 DESIGNED BY: DRAWN BY: KSR REVIEWED BY:	
REV. DATE DESCRIPTION	ORIGINAL ISSUE DATE: 04/22/14
SHEET TITLE: WATER QUALITY DEVICE DETAIL	
SHEET NUMBER: 17	

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- GENERAL NOTES
- 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.
  - STEEL REINFORCING WILL BE REQUIRED IN ALL MANHOLE BASES.
  - ALL MANHOLE CONSTRUCTION SHALL BE WATER TIGHT.
  - 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.
  - ALL PRECAST CONCRETE MANHOLE SECTIONS SHALL CONFORM TO THE LATEST REVISION OF ASTM C-478 AS MODIFIED BY THE SPECIFICATIONS.
  - CONCRETE USED FOR MANHOLE CONSTRUCTION SHALL CONFORM TO CITY OF WICHITA SPECIFICATIONS FOR CONCRETE PAVEMENT MIX.
  - PRECAST MANHOLES SHALL BE SET AT LEAST 4 INCHES INTO MANHOLE BASE.
  - MANHOLES WITH PIPE SIZES 24" AND LARGER SHALL HAVE 5 FOOT INSIDE DIAMETER (MIN.)
  - 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.
  - 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.
  - THE ENDS OF ALL PIPES IN MANHOLES SHALL BE CUT OFF FLUSH WITH THE INSIDE FACE OF THE MANHOLE WALL.
  - 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.
  - MANHOLE FRAME AND COVER TO BE DEETER #1261, EJIW #1936-21, OR APPROVED EQUAL, SEE SW-303.
  - FOR FLAT GRATED INLET APPLICATION, GRATE TO BE DEETER #1933, EJIW #1205 MDI, OR APPROVED EQUAL.
  - FOR BEEHIVE GRATE APPLICATION, GRATE TO BE DEETER #4495, EJIW #120545, OR APPROVED EQUAL.

 <p><b>CITY OF WICHITA</b> PUBLIC WORKS &amp; UTILITIES ENGINEERING DIVISION</p>			<b>PRECAST CONCRETE MANHOLE (STORM SEWER)</b>		
			CITY ENGINEER <b>GARY JANZEN, P.E.</b>		
PROJECT NUMBER	OCA NUMBER	DATE			
257 PPD	607861	11/2010			
CITY ENGINEER'S OFFICE CITY HALL - SEVENTH FLOOR 455 NORTH MAIN STREET WICHITA, KANSAS 67202-1620 (316) 268-4501			SHEET		
			18		



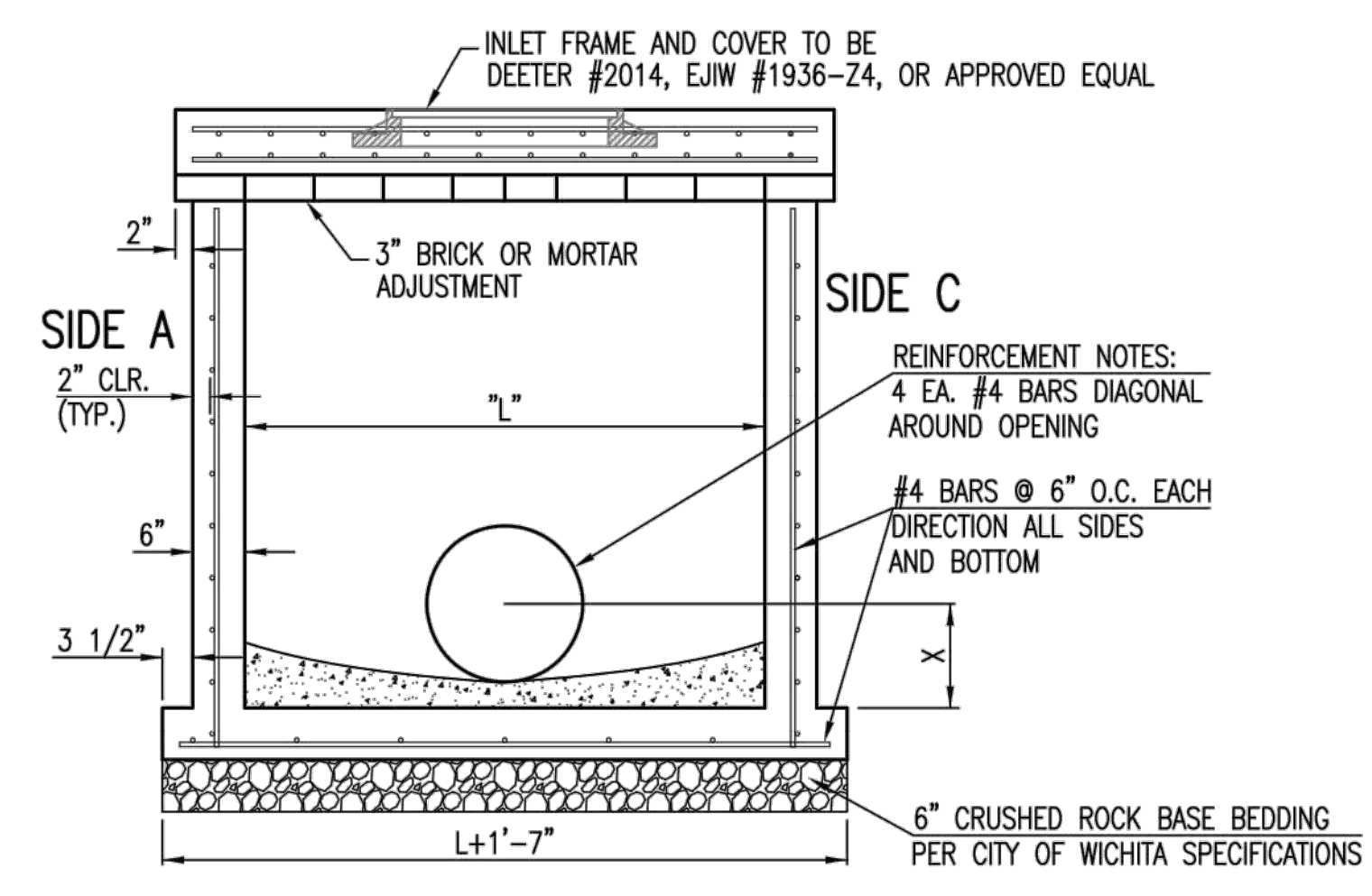
TOP VIEW

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

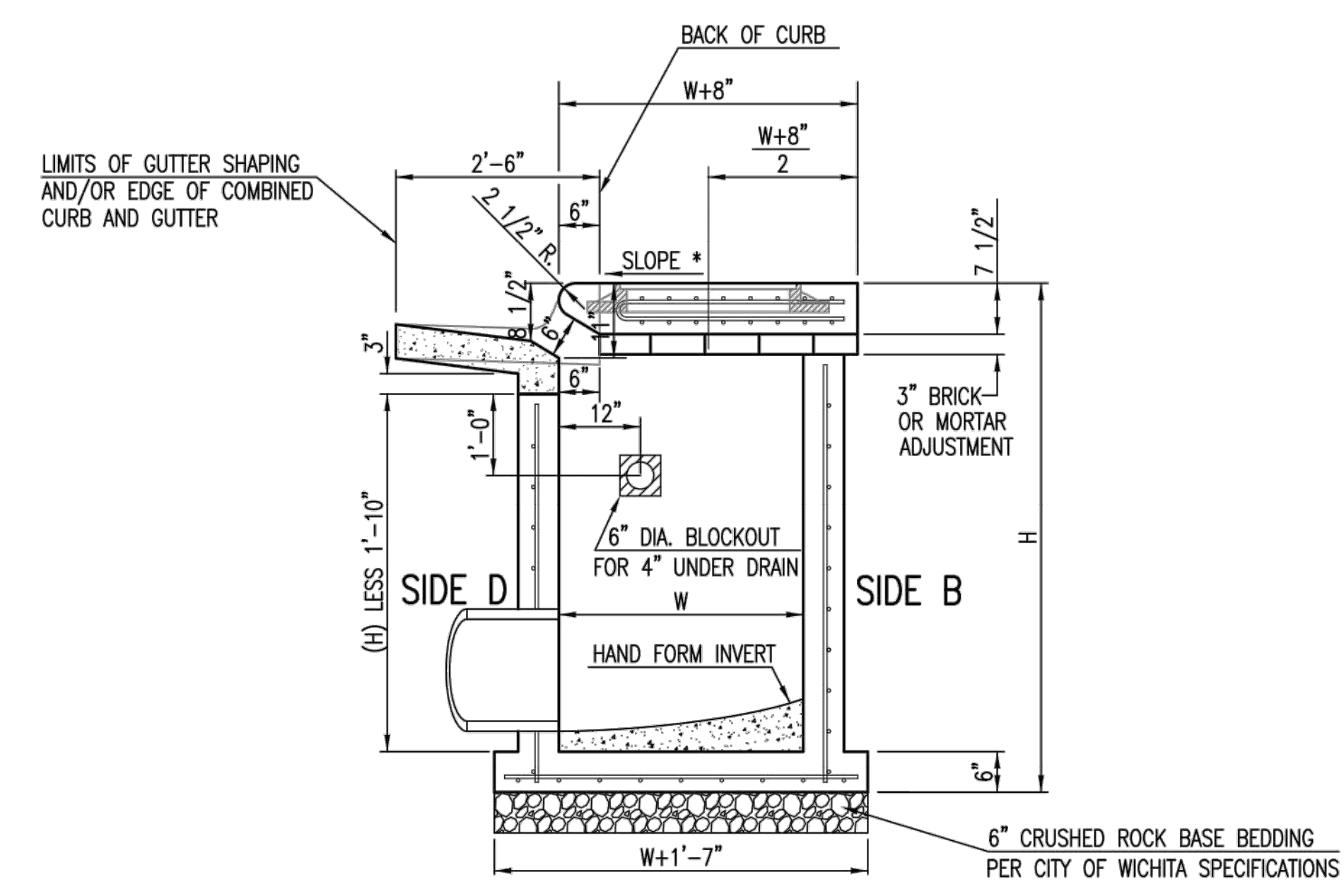
PRECAST CURB INLET WIDTHS				
W	PRE-CAST TOP SIZE			PIPE DIA.**
	WIDTH	LENGTH	TOP	
3'-0"	W+8"	L+1'-4"	7 1/2"	21" & SMALLER
4'-0"	W+8"	L+1'-4"	7 1/2"	24" & 30"
5'-0"	W+8"	L+1'-4"	7 1/2"	36" & 42"
6'-0"	W+8"	L+1'-4"	7 1/2"	48" & 54"
7'-0"	W+8"	L+1'-4"	7 1/2"	60" & 66"

\*\* 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, EUJW #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.

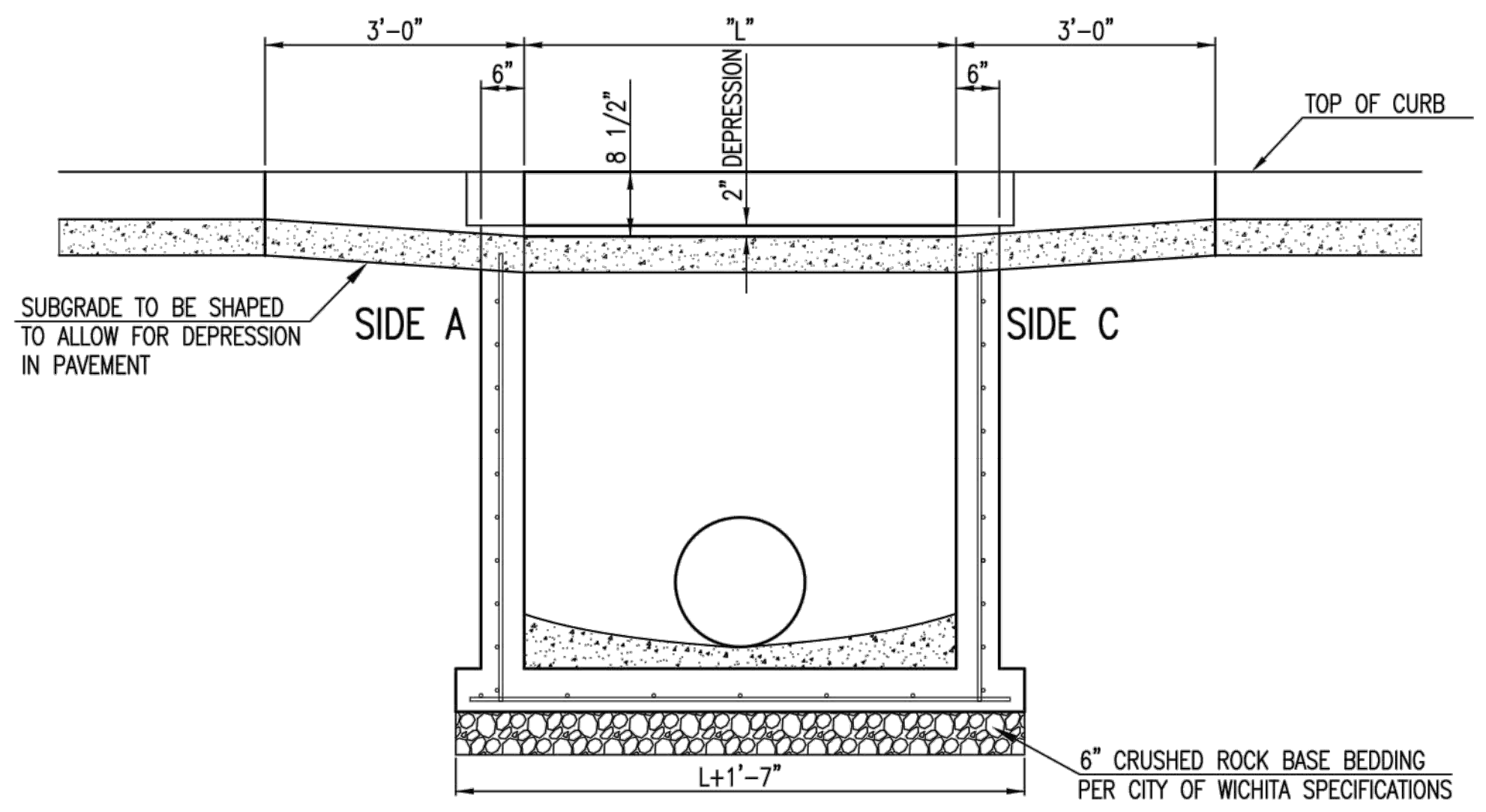
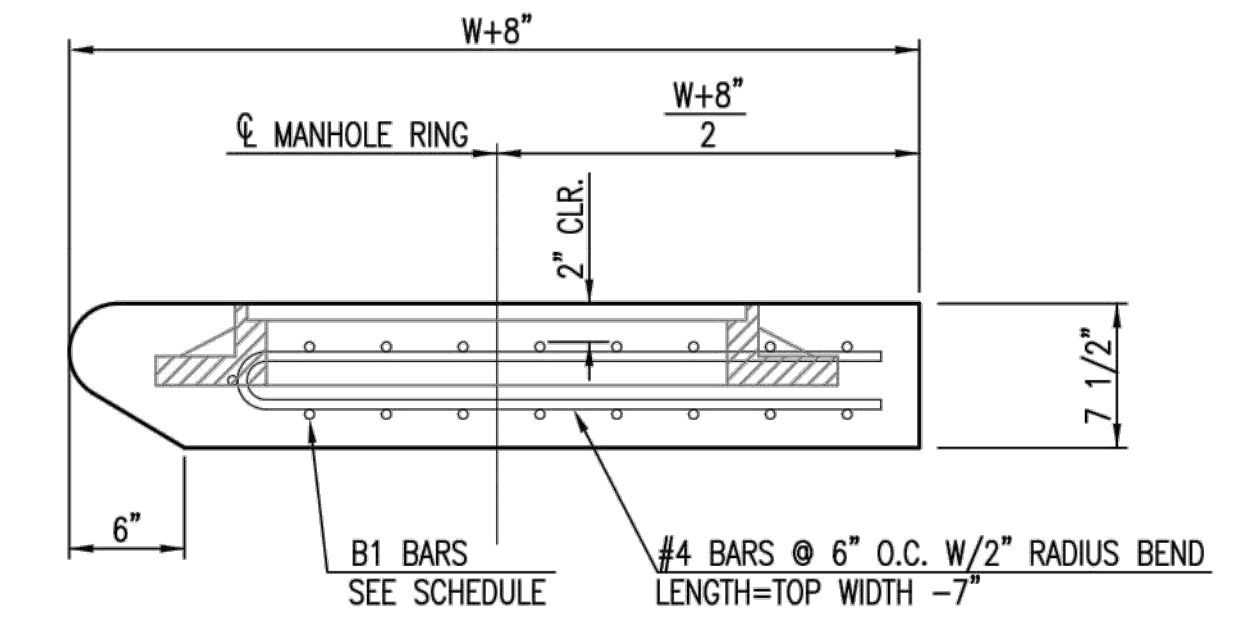


SECTION "A-A"

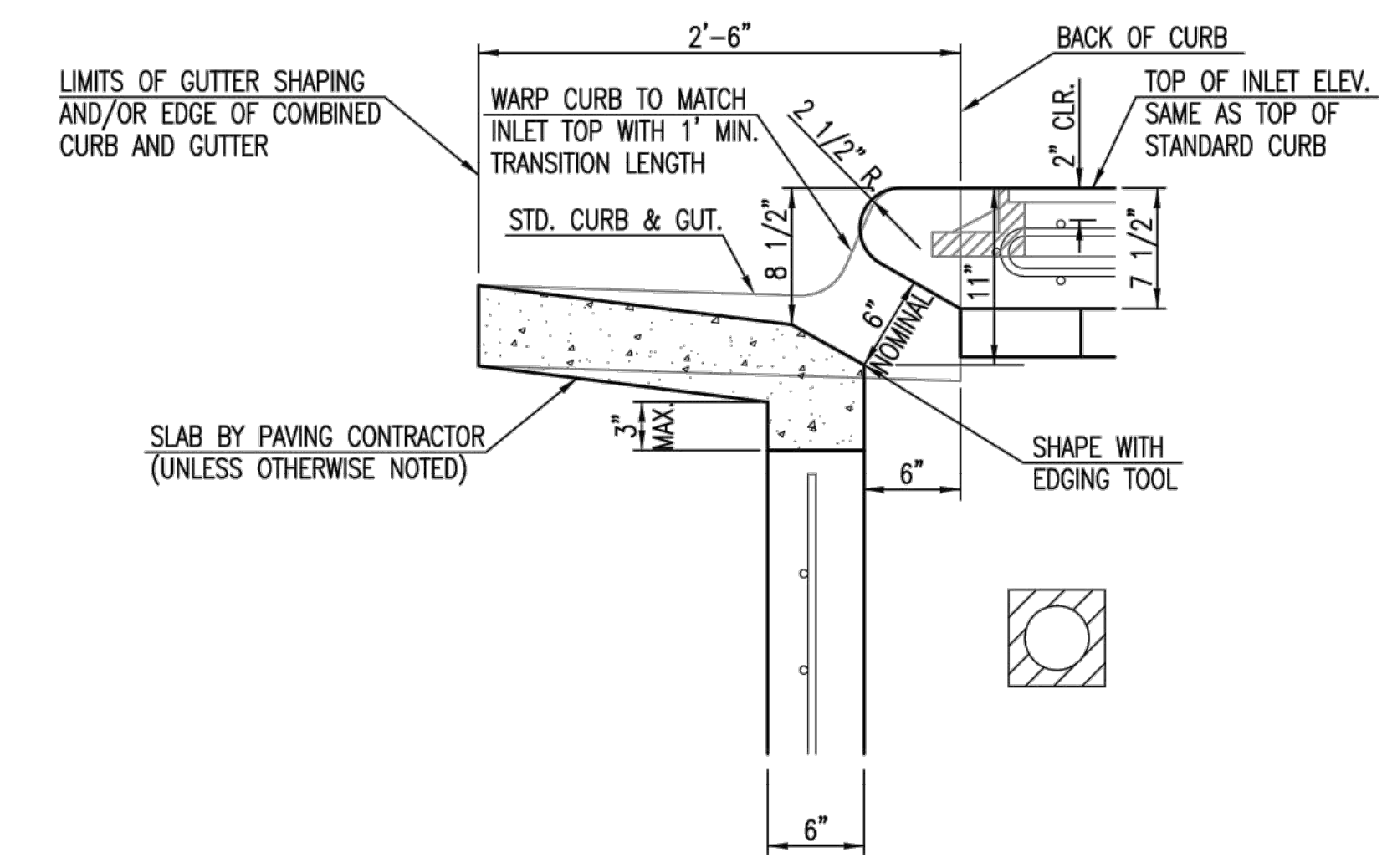


SECTION "C-C"

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



SECTION "B-B"



SECTION "D-D"



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

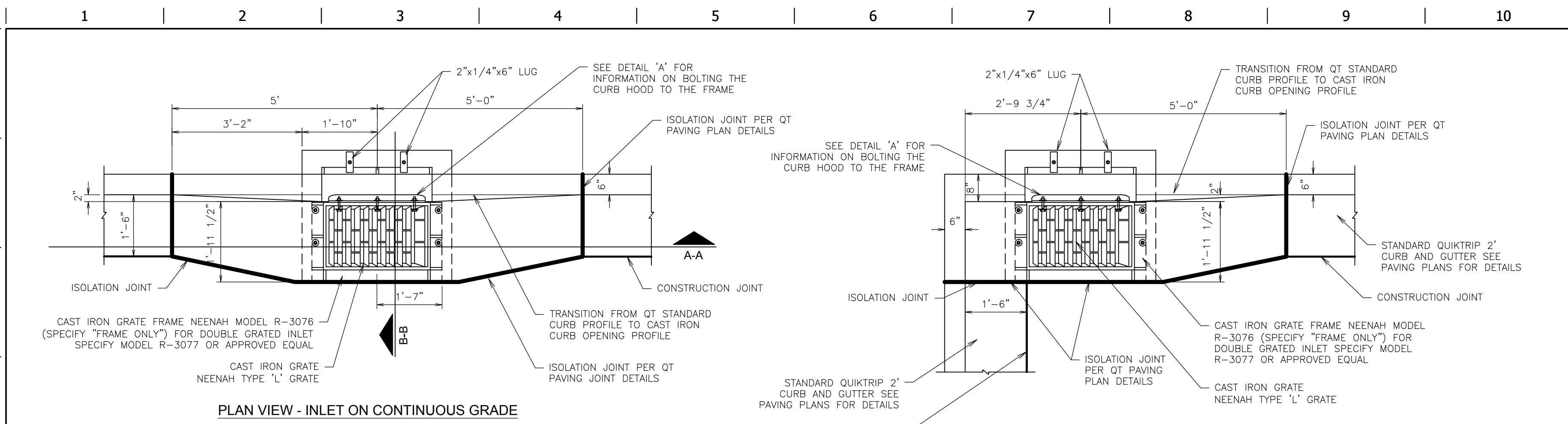
CITY ENGINEER  
**GARY JANZEN, P.E.**

PROJECT NUMBER 257 PPD	OCA NUMBER 607861	DATE 11/2010
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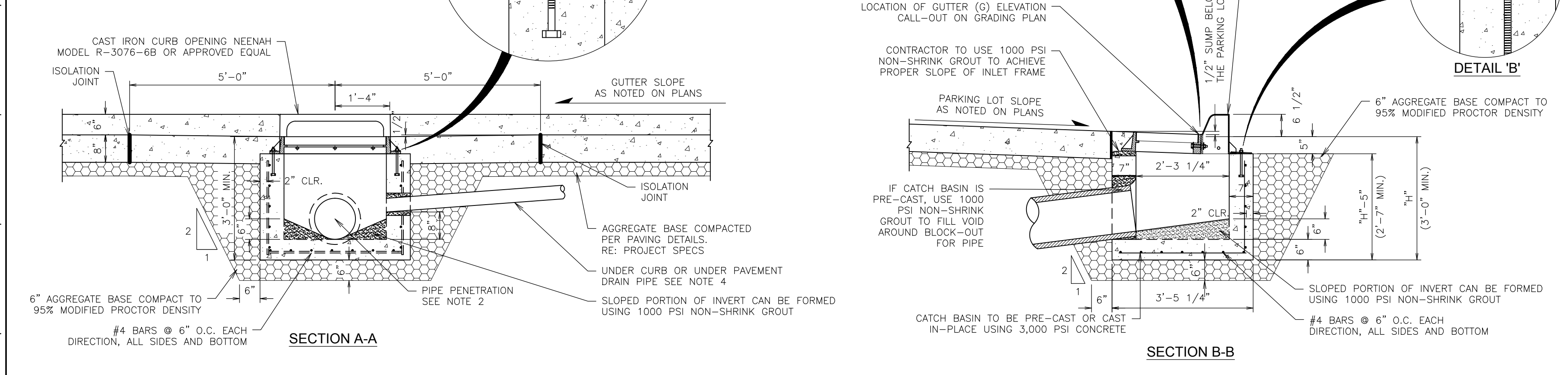
CITY ENGINEER'S OFFICE  
CITY HALL - SEVENTH FLOOR  
455 NORTH MAIN STREET  
WICHITA, KANSAS 67202-1620  
(316) 268-4501

SHEET  
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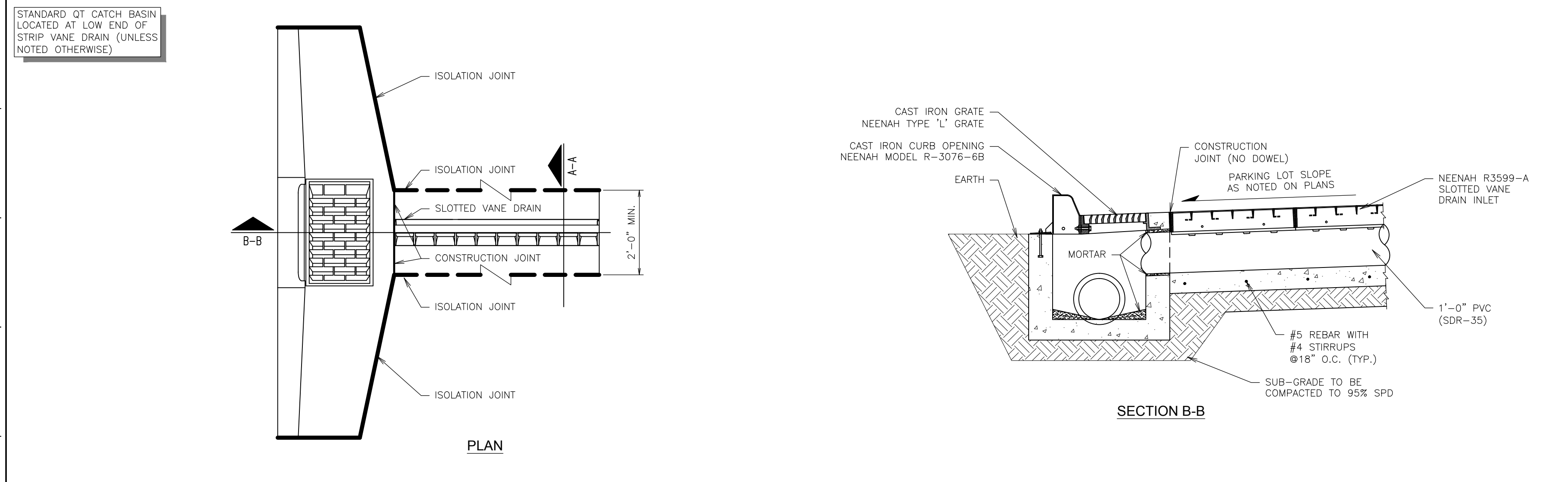
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 USER: greg@ch2m.com  
 PLOTTED: 2/3/2015 11:16 AM



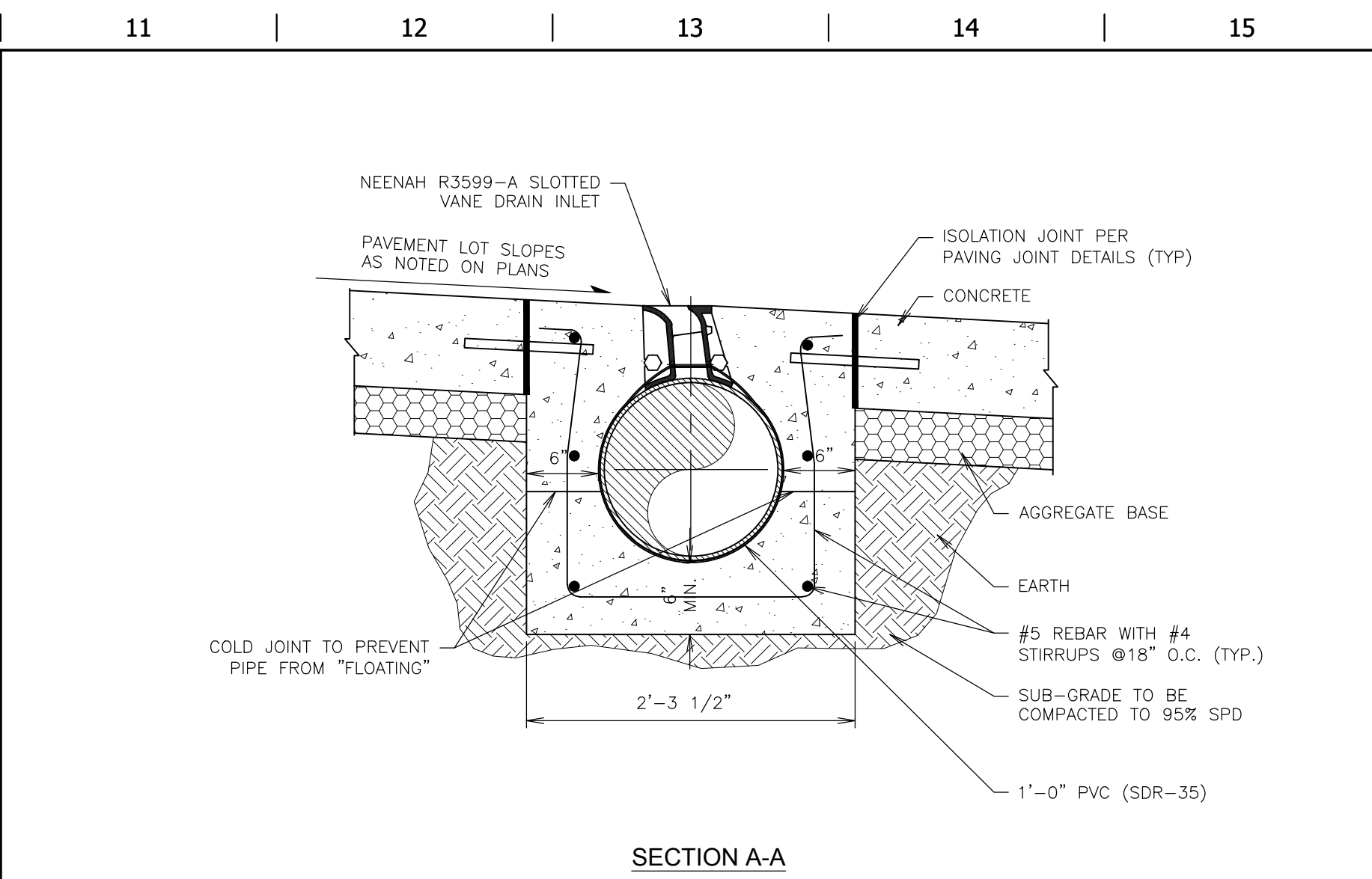
- CONTRACTOR CAN SUBSTITUTE HILTI DRILLED BOLT SYSTEM FOR ANCHOR BOLT SET IN CONCRETE FOR EASE OF CONSTRUCTION
- 12" PIPE IS THE MINIMUM PIPE SIZE ACCEPTED BY QUIKTRIP. PIPE TYPE MAY VARY BY REGION AND MUNICIPALITY. IF HYDRAULICS REQUIRES A LARGER PIPE, DEPTH OF THE INLET MAY NEED TO BE INCREASED. AT NO TIME SHALL THE CLEARANCE FROM THE TOP OF THE HIGHEST/LARGEST PIPE TO THE BOTTOM OF THE INLET BE LESS THAN 6".
- AT TIMES MORE THAN ONE PIPE MAY PENETRATE INTO A CATCH BASIN. WHEN THIS OCCURS THE OUTLET PIPE IS TO BE SET AT THE INVERT ELEVATION AND ALL OTHER PIPES ARE TO BE SET A MINIMUM OF 2" HIGHER. AT NO TIME SHALL THE CLEARANCE FROM THE TOP OF THE HIGHEST/LARGEST PIPE TO THE BOTTOM OF THE FRAME BE LESS THAN 6".
- UNDER CURB AND UNDER PAVEMENT DRAIN DETAILS ARE SHOWN ON "DRAINAGE AND UTILITY TRENCH DETAILS SHEETS" INCLUDED WITH THIS SET OF PLANS. THIS DOES NOT APPLY TO THE ARIZONA DIVISION.



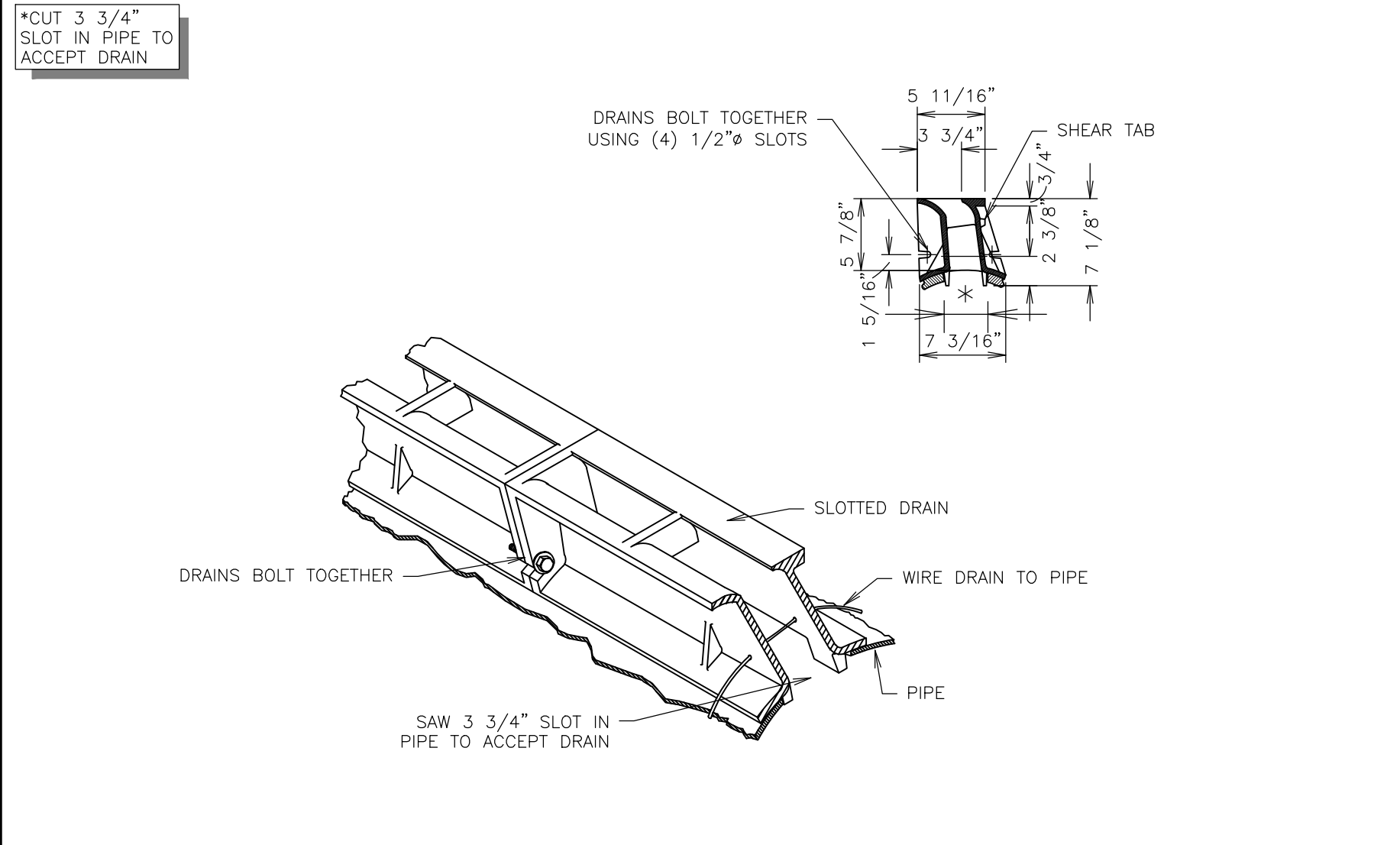
**F1** CATCH BASIN INLET DETAIL (SINGLE)  
 NTS SN: DD001A007



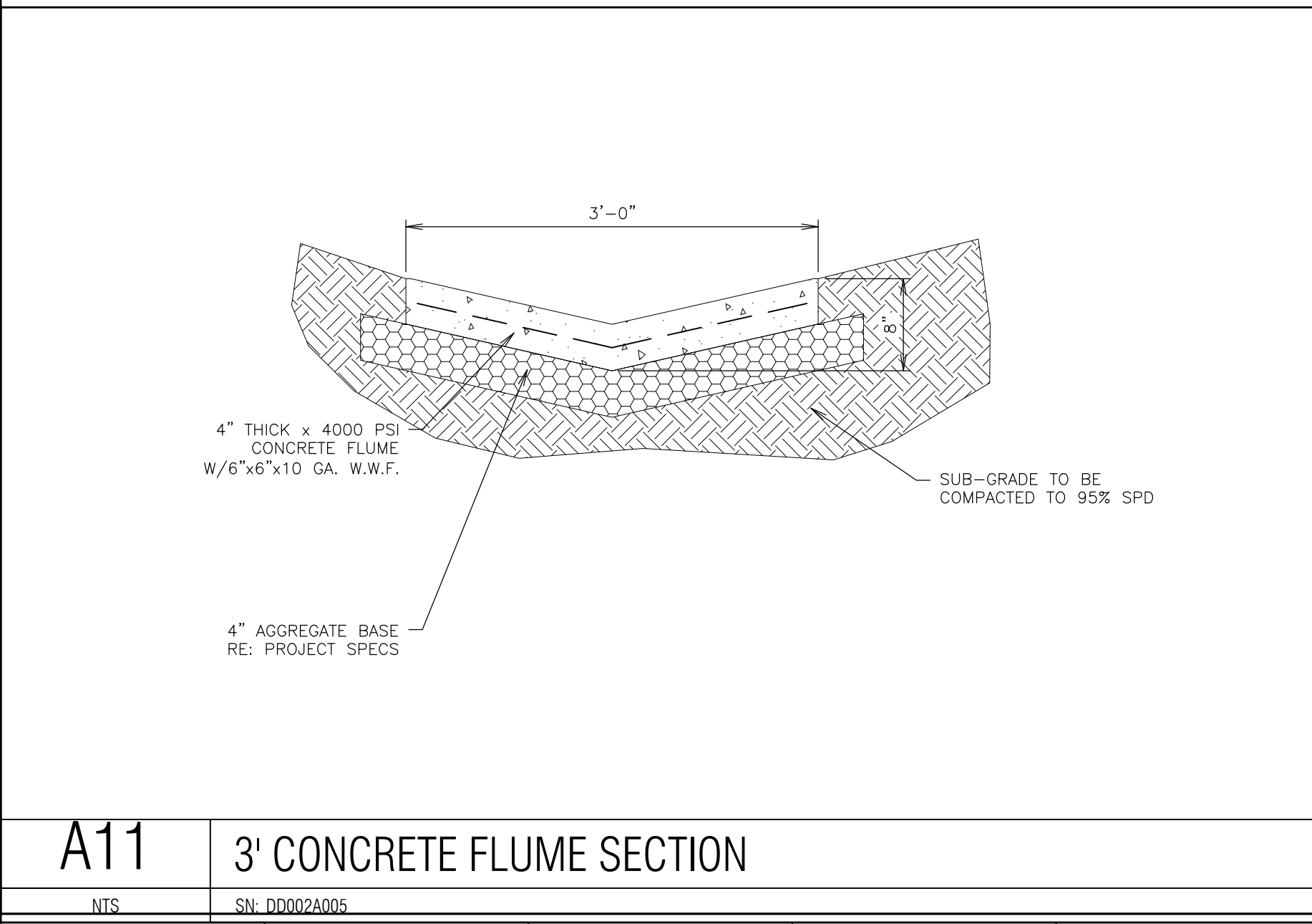
**A1** SLOTTED VANE DRAIN INSTALLATION @ CATCH BASIN DETAIL  
 NTS SN: DD004A003



**L11** SLOTTED VANE DRAIN INSTALLATION CROSS SECTION "A-A"  
 NTS SN: DD006A005



**F11** SLOTTED VANE DRAIN (ISOMETRIC VIEW)  
 NTS SN: DD007A003



**A11** 3' CONCRETE FLUME SECTION  
 NTS SN: DD002A005

**HAROLD DALE FOX**  
 LICENSE  
 10891  
 11.7.14  
 KANSAS  
 PROFESSIONAL ENGINEER

PROJECT NO.:

**CED**  
 CERTIFIED ENGINEERING DESIGN, P.A.  
 1935 W. MAPLE STREET  
 WICHITA, KANSAS 67213  
 PH (316)262-8808  
 FAX (316)262-1669

**QuikTrip No. 0356**  
 SWC 47TH & HYDRAULIC  
 WICHITA, SEDGWICK, KS

**QT**

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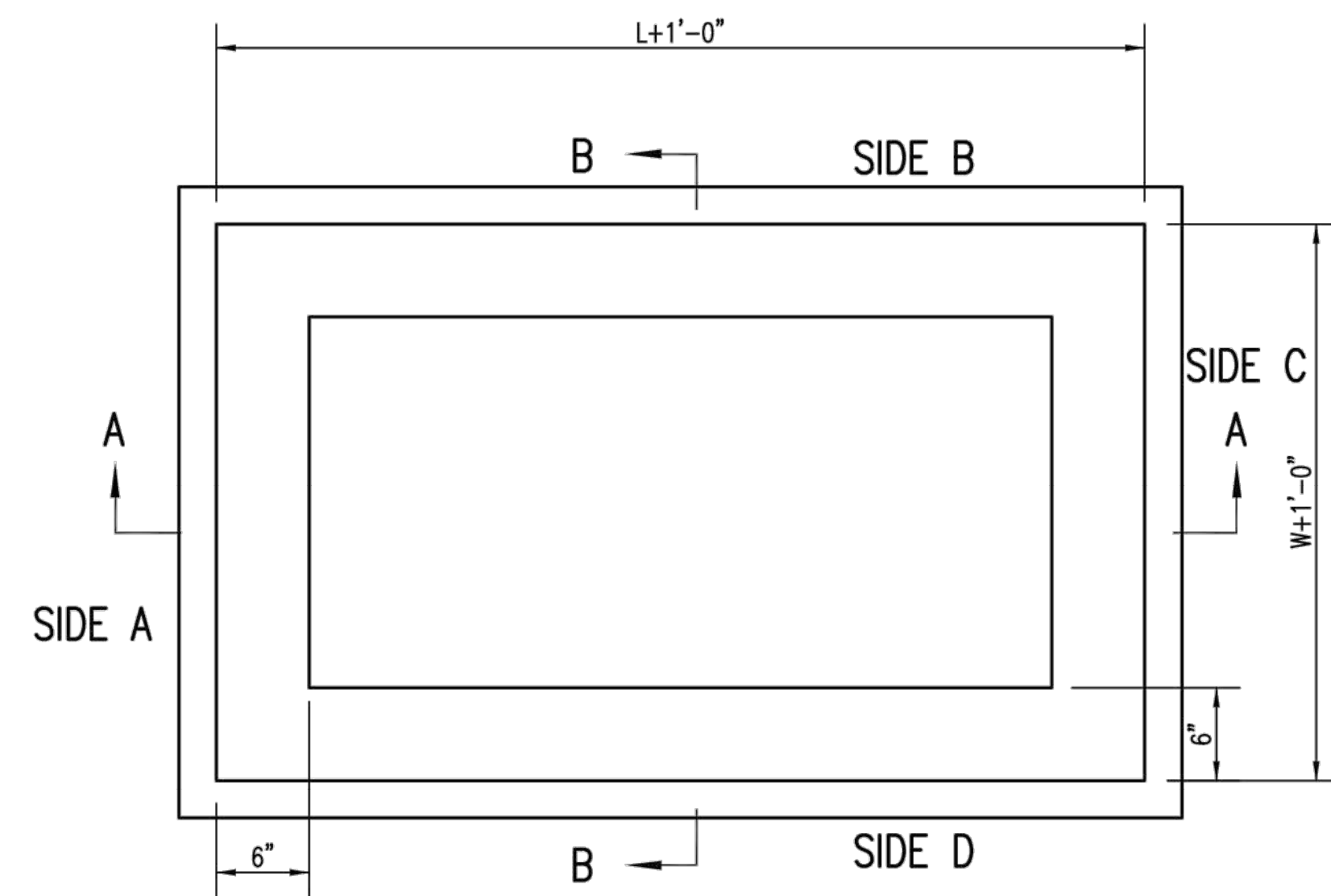
PROTOTYPE: P-78 (02/01/14)  
 DIVISION: 03  
 VERSION: 001  
 DESIGNED BY:  
 DRAWN BY: KSR  
 REVIEWED BY:

REV	DATE	DESCRIPTION

SHEET TITLE:  
 QT DRAINAGE DETAILS 1

SHEET NUMBER:  
 20

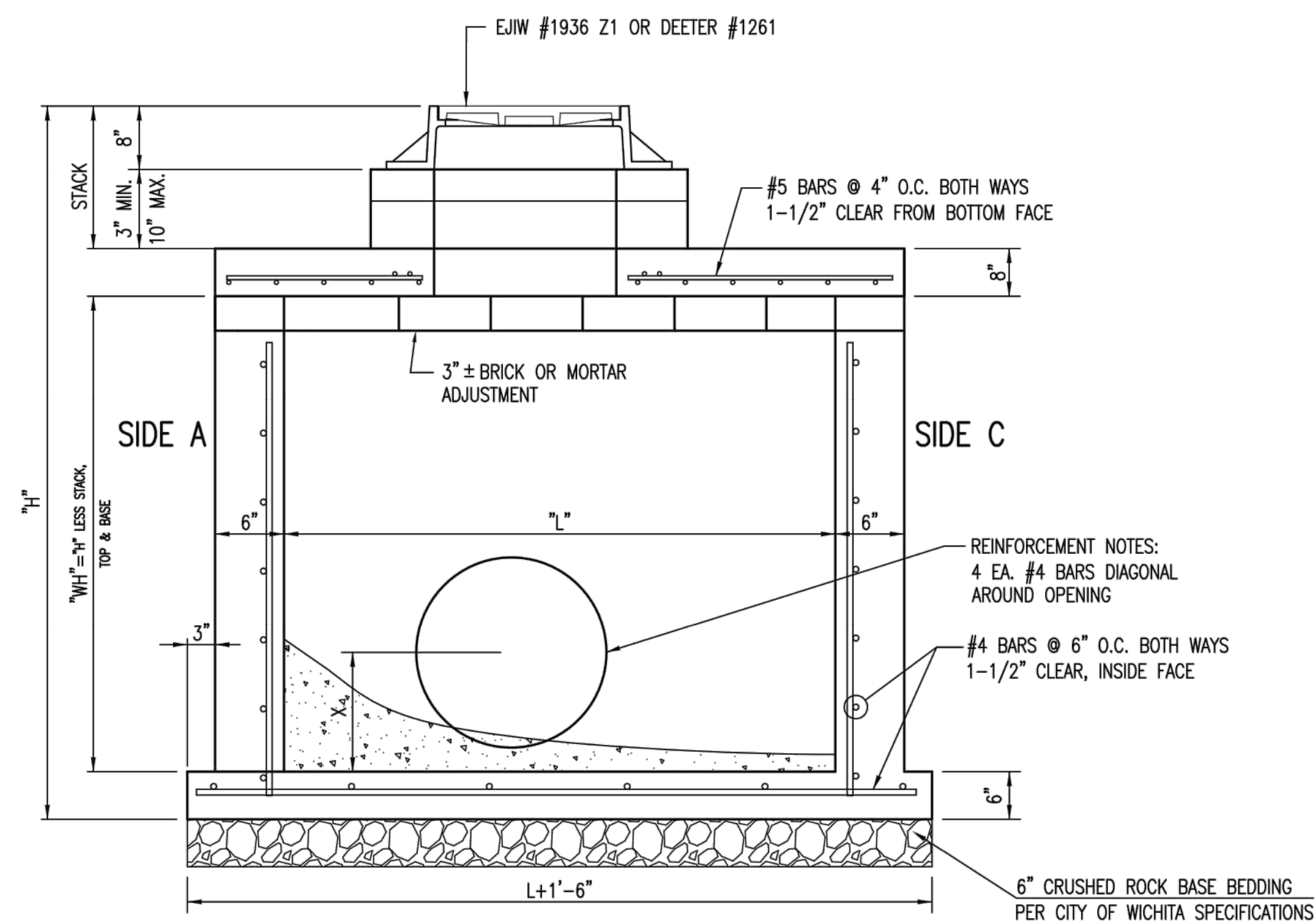
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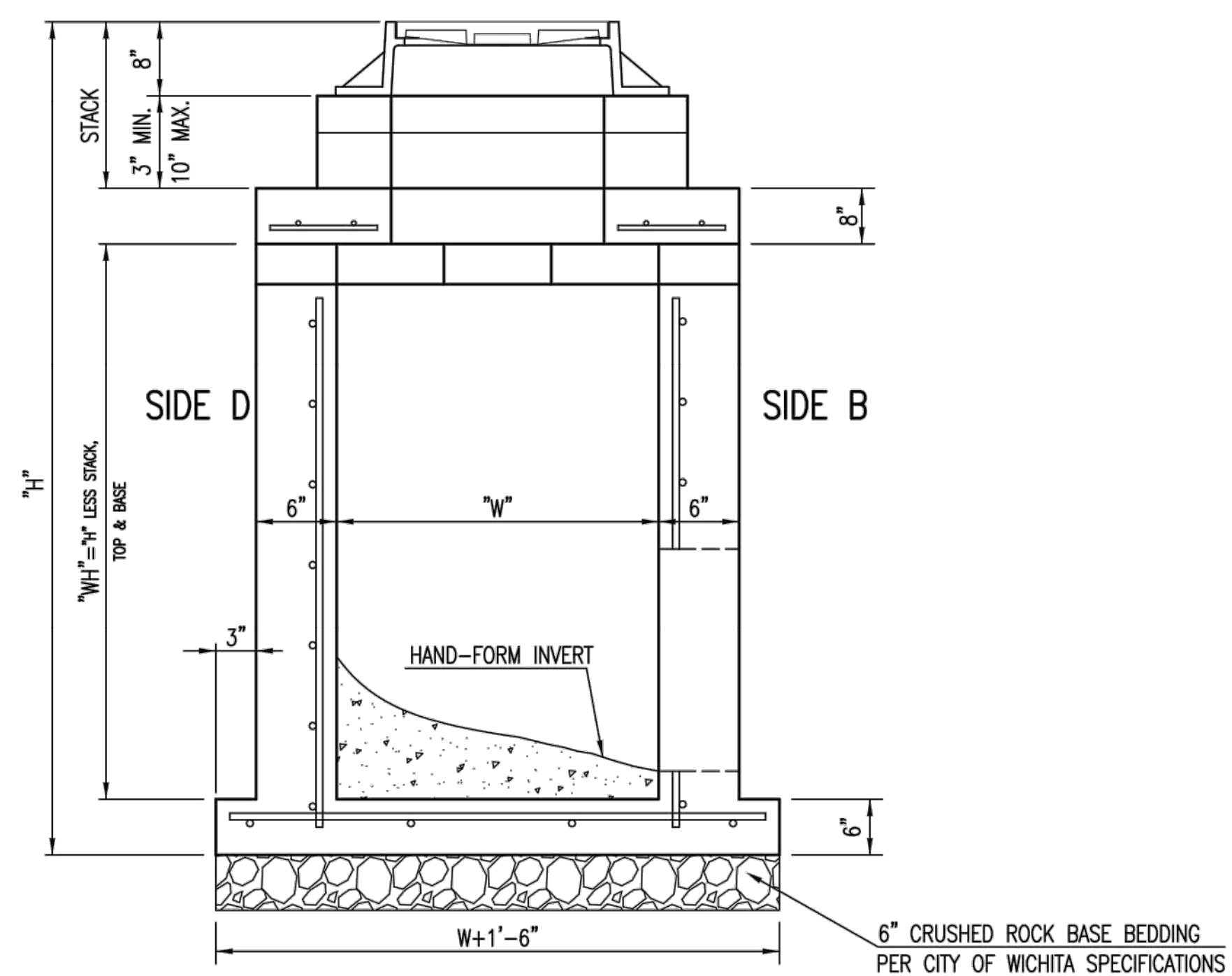
TOP VIEW

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.



SECTION "A-A"



SECTION "B-B"



REINFORCED CONCRETE  
MANHOLE  
(STORM SEWER)

CITY ENGINEER  
GARY JANZEN, P.E.

PROJECT NUMBER 257 PPD	OCA NUMBER 607861	DATE 11/2010
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CITY ENGINEER'S OFFICE  
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