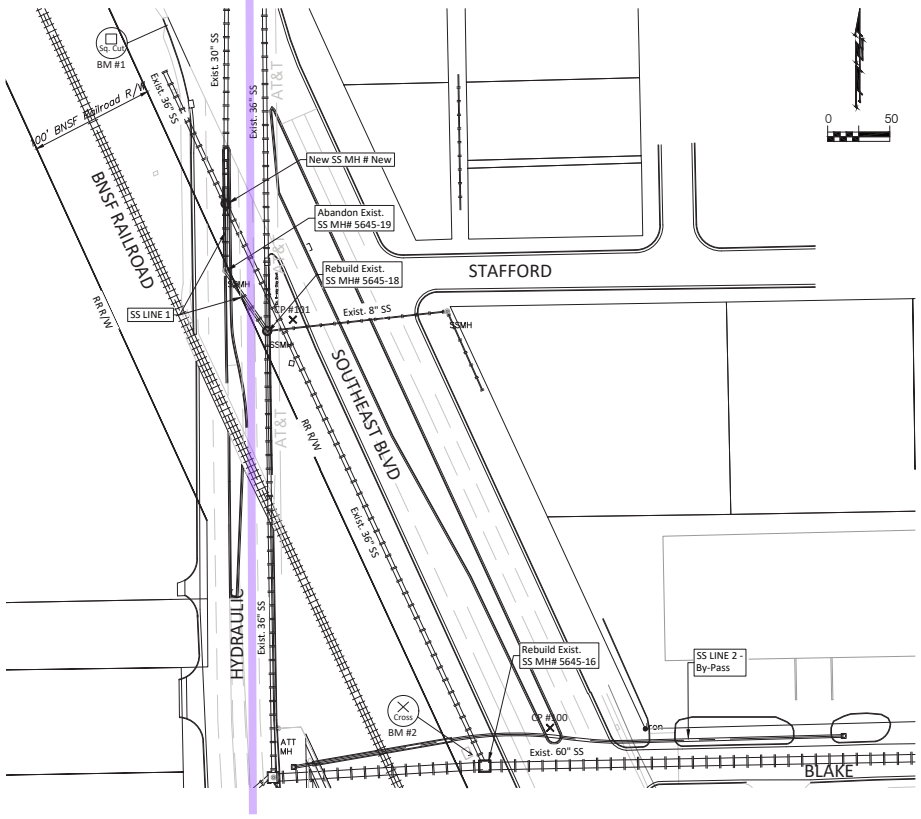
Sanitary Sewer Improvements
in
HYDRAULIC & SOUTHEAST BLVD.
CITY OF WICHITA, KANSAS

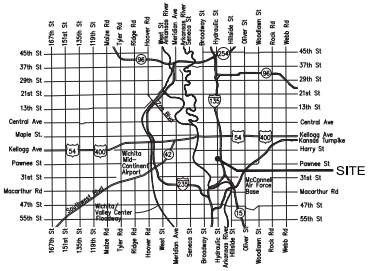
Gary Janzen, P.E. City Engineer

Project Number
468-85276
OCA Number
622526

Basin: SS1-03

5545B 5645C





VICINITY MAP

SHEET INDEX

CONTROL POINTS

POINT TABLE

POINT #	RAW DESCRIPTION	NORTHING	EASTING	ELEVATION
98	BM #1	1673546.0167	1654713.5198	1286.43
99	BM #2	1672957.5835	1654959.0496	1285.59
100	cp topo	1672980.2174	1655021.4791	1287.51
101	cp topo	1673308.8047	1654814.3521	1286.57

BENCHMARKS

BM #1 - Chiseled "□" in the Top of Curb Located at the Southwest Corner of the Intersection of Hydraulic & Southest Blvd., 6' East of Fire Hydrant.
Elev. = 1286.43 (NAVD 88)

BM #2 - Chiseled "X" on the Concrete Pad w/ a Vent Pipe Located 500' Southeast of the Intersection of Hydraulic & Southeast Blvd. on the Southwest Side of Southeast Blvd.
Elev. = 1285.59 (NAVD 88)

BRENT WOOTEN 8470 01/27/2023 KANSAS PROFESSIONAL ENGINEER

Jan. 23, 2023

BAUGHMAN COMPANY
315 Ellis St. Wichita, KS 67211 316-262-7271
BaughmanCo.com

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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 687-2470

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

AT&T	1-800-246-6464
Black Hills Energy	1-800-694-8989
City of Wichita Water & Sewer	1-316-219-8921
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
Evergy	1-800-544-4857

3. Utility service lines, poles, valve boxes, meters, and etcetera 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 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.

5. 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.

6. A saw cut of at least one-half the depth of existing surface courses or one-fourth the depth of the existing total pavement thickness shall be provided at locations where proposed construction abuts the existing surface course or pavement for which partial removal of that surface or pavement is required. Sawed joint to facilitate removal within three (3) feet of existing joints will not be permitted and for such instances the limits of removal shall extend to the existing joint. Such saw cuts will not be paid for directly and this cost shall be considered as subsidiary to the removal of the surface or pavement.

7. Prior to bidding the project, each bidder shall visit the site and satisfy themselves of surface & subsurface conditions. Each bidder shall also fully inform himself as to the extent of the scope of work to be performed. Each bidder shall also be aware that no additional compensation will be awarded for extra work that should have been evaluated prior to bidding.

8. 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 City Engineer's approval. Trees and shrubs which are not in direct conflict with proposed new construction shall be saved and protected from damage.

9. 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.

10. The Engineering Division shall field locate water valve 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. Valve boxes and water meters within the project limits shall be adjusted to match field grades by the contractor.

11. If traffic will be impacted by construction, a traffic control plan must be submitted and approved by the City Traffic Engineer, Mike Armour 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 Manual on Uniform Traffic Control Devices (MUTCD) as published by the US Dept. of Transportation, Federal Highway Administration. All costs associated with construction Traffic Control shall be paid for with the Lump Sum Bid Item "Traffic Control".

12. All elevations shown are NAVD88.

13. All areas disturbed during construction that will not be under proposed pavement shall be restored to match existing conditions per City specifications.

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

15. The Contractor shall prevent any construction debris from entering the existing sanitary sewer during construction.

16. The Contractor shall be responsible for maintaining continuous flow of sewage through construction. Contractors proposed method for maintaining sewage flow shall be submitted and approved by the Sewer Maintenance Division (316-268-4073) prior to starting and by-passing of sewage flows. To be paid for with the Lump Sum Bid Item "Sewage Flow Control".

17. Any over excavation from manhole and pipe removal shall be backfilled with AB-3 compacted to 90-95% ASTM D698.

18. The Contractor shall protect from damage and support existing utilities through construction as approved by the utility owner and the Engineer at the contractor's expense.

19. R/W disturbed during construction shall be seeded and mulched as follows:

    Seed -- Kansas Premium Fescue Blend; 8 lbs. PLS/1000 Sq. Ft.
    Annual Rye grass; 3 lbs./1000 Sq. Ft.
    Fertilizer -- 12-24-12 Ratio; 45 Lbs./Ac.
    Mulch -- 2 Tons Prairie Hay/Ac.

    All other areas disturbed during construction are to be seeded as follows:

    Seed -- Rye grass; 5 lbs./1000 Sq. Ft.

    All costs associated with seeding including mobilization, preparation of ground, seeding, fertilizing, mulching, etc. shall be included in the L.S. bid item "Seeding". All seeding operations shall conform to the City of Wichita Standard Specifications.

20. All existing and proposed erosion control measures including silt fencing, erosion control mat, straw bales, inlet barriers, and const. entrance shall be maintained throughout construction by the contractor and until project is accepted by the City of Wichita. The on-site engineer shall complete weekly reports on the status of erosion control measures. The contractor shall be required to comply with maintenance and/or replacement of erosion control measures as determined by the on-site engineer until project is accepted by City of Wichita.

21. The Contractor shall not begin work on the project until the Project Inspector is assigned and on site. Any work completed without inspection will be required to be uncovered for inspection at the Contractor's expense.

22. Sanitary Sewer Manhole Abandonment. Manhole designated to be abandoned shall have top four feet (4') removed. All pipes in the manhole shall be plugged with brick masonry. The remaining portion of the manhole shall then be filled with sand, flushed and vibrated. The flushed sand shall be vibrated in maximum 6' lifts. The flushed and vibrated sand fill shall be brought up to the bottom of crushed rock base below proposed street or median pavement. Flushed and vibrated sand fill shall be compacted to a minimum of 90% Standard Proctor. Flowable Fill may also be utilized for fill with approval of the Engineer. Mahole castings (frame & lid) shall be salvaged, cleaned and dellivered to the City Maintenance Yard (715 W. Harry Street: 316-268-4025).

23. Sanitary Sewer Pipe Abandoned In-Place. Both ends of all pipes to be abandoned in-place shall be plugged with brick masonry. Pipes abandoned in-place having inside diameters greater than fifteen inches (15") shall be filled with sand or grout and plugged.

24. Sanitary Sewer Manhole Castings. Existing frames and lids from SS Manholes to be Rebuilt shall be salvaged, cleaned and dellivered to the City Maintenance Yard (715 W. Harry Street: 316-268-4025).

25. Sanitary Sewer Pipe Plugs. Pipes shall be constructed of brick masonry. Pipes having diameters of eighteen inches (18") or smaller shall be plugged with brick masonry eight inches (8") thick. Pipes having diameters of greater than eighteen inches (18") shall be plugged with brick masonry twelve inches (12") thick. Construction requirements and materials for brick masonry plugs shall conform to the same requirements as specified for brick manholes.

26. Sanitary Sewer Line 2 Testing. The 26" HDPE By-Pass pipe shall pass an Air Test preformed by the Contractor prior to its temporary use as a Sewage By-Pass. Line 2 shall also be visually inspected with a television camera by the City of Wichita and pass review prior to its temporary use as a Sewage By-Pass.

27. Pavement Markings. Contractor shall replace all existing pavement markings disturbed during construction along Hydraulic Ave. or Southeast Blvd. Pavement Markings on PC Concrete Pavement shall be Epoxy. Pavement Markings on Asphalt Pavement shall be Thermoplastic. All cost associated with new Pavement Markings to be paid by Lump Sum Bid Item "Pavement Markings".

28. Working in Railroad Right-of-Way. Contractors shall coordinate construction activities with Burlington Northern-Sante Fe (BNSF) Railroad prior to working in railroad right-of-way.

29. Contractor shall coordinate with City of Wichita - Traffic Maintenance PRIOR to disturbing existing traffic signal loop wires in pavement along Hydraulic Ave. during pavement removal operations.

30. Existing Sanitary Sewer (SS) Manhole (MH) Lids. Two (2) existing SS MH lids have been covered with a recent Hot Mix Asphalt overlay on Hydraulic Avenue at Osle & Hodson that will need to be popped for Sewage Flow Control by-pass pumping operations. Contractor shall locate, remove old manhole frame & lid and replace with new frame & lid, and adjust flush with new pavement overlay. All costs associated with this work to be paid by Bid Item (MH Adjust w/New Ring & Cover" (Each).

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HYDRAULIC & SE BLVD SS

GENERAL NOTES

CAPITAL IMPROVEMENT PROJECT

PROJECT NUMBER: 468-85276

DESIGN: ENG DRAWN: JSB

DATE: January 26, 2023

SHEET 2 OF 24

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BENCHMARKS

BM #1 - Chiseled "cl" in the Top of Curb Located at the Southwest Corner of the Intersection of Hydraulic & Southest Blvd., 6' East of Fire Hydrant.
Elev. = 1286.43 (NAVD 88)

BM #2 - Chiseled "X" on the Concrete Pad w/ a Vent Pipe Located 500' Southeast of the Intersection of Hydraulic & Southeast Blvd. on the Southwest Side of Southeast Blvd.
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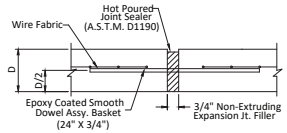
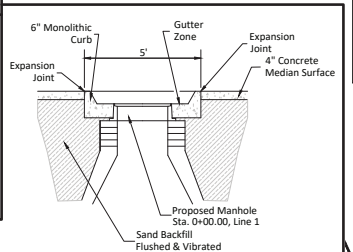
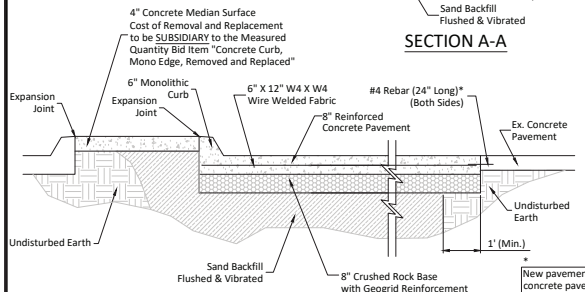
SCALE:
1" = 20' Horizontal
1" = 5' Vertical



DOWEL JOINT DETAIL

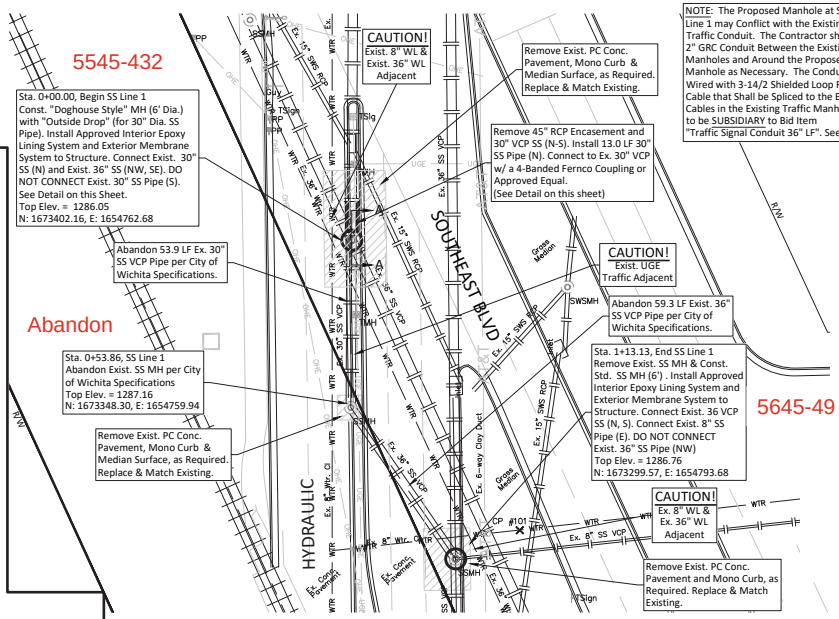


SECTION A-A

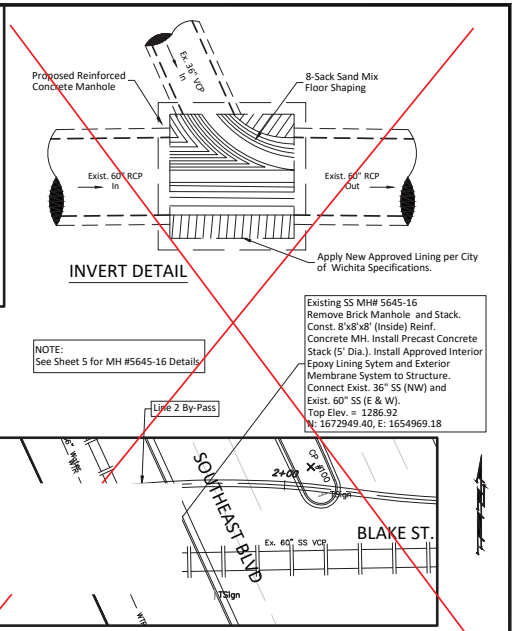


REINF. CONCRETE PAVEMENT TYPICAL SECTION

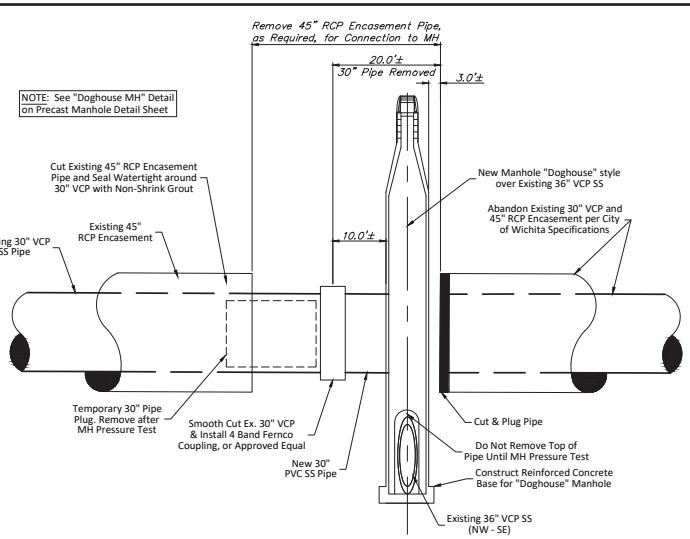
New pavement to be tied to all adjacent concrete pavement with 24" #4 rebars drilled and grouted into the existing concrete at half depth on 30" center. See Detail, This Sheet.



SS LINE 1

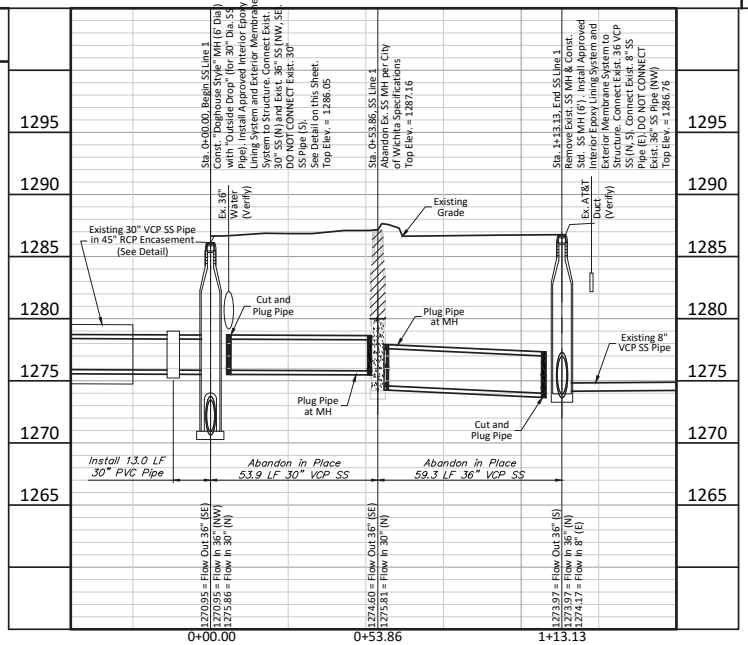


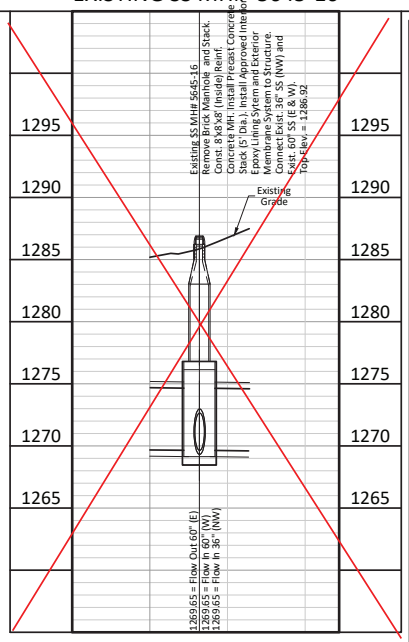
EXISTING SS MH# 5645-16



PIPE CONNECTION DETAIL AT NEW SS MANHOLE

Sta. 0+00.00, SS Line 1
Not to Scale





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HYDRAULIC & SE BLVD SS

SANITARY SEWER LINE 1 & MH REHABILITATION

CAPITAL IMPROVEMENT PROJECT

PROJECT NUMBER: 468-85276

DESIGN: ENG DRAWN: JSB

DATE: January 26, 2023

SHEET 3 OF 24

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BENCHMARKS

BM #1 - Chiseled "□" in the Top of Curb Located at the Southwest Corner of the Intersection of Hydraulic & Southest Blvd., 6' East of Fire Hydrant.
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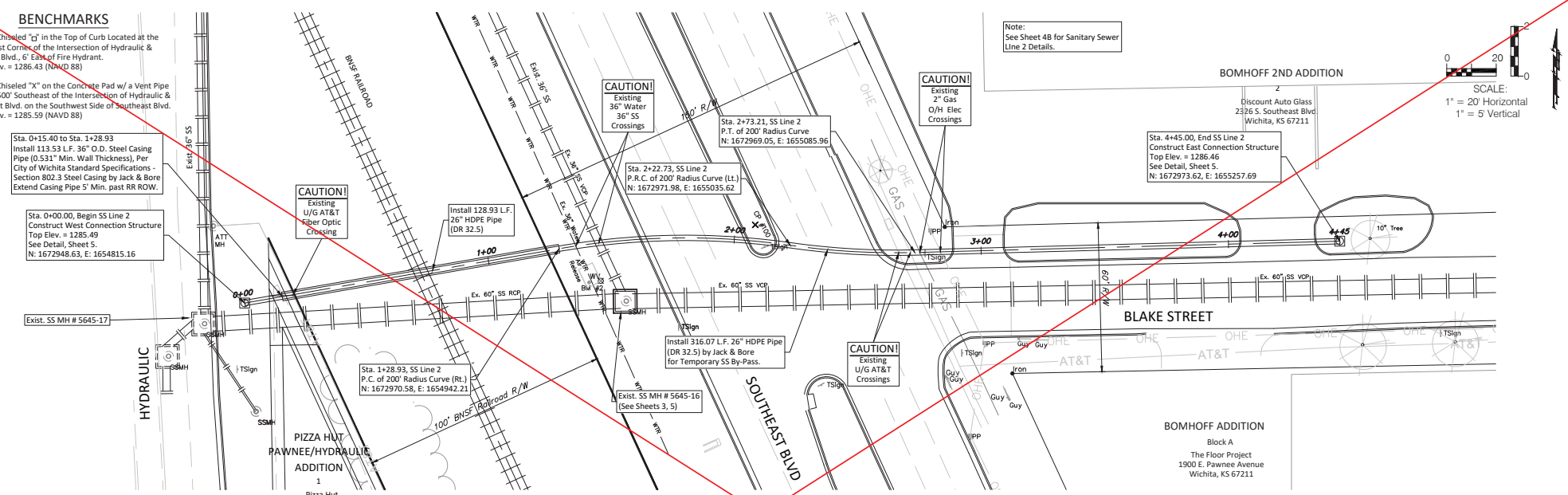
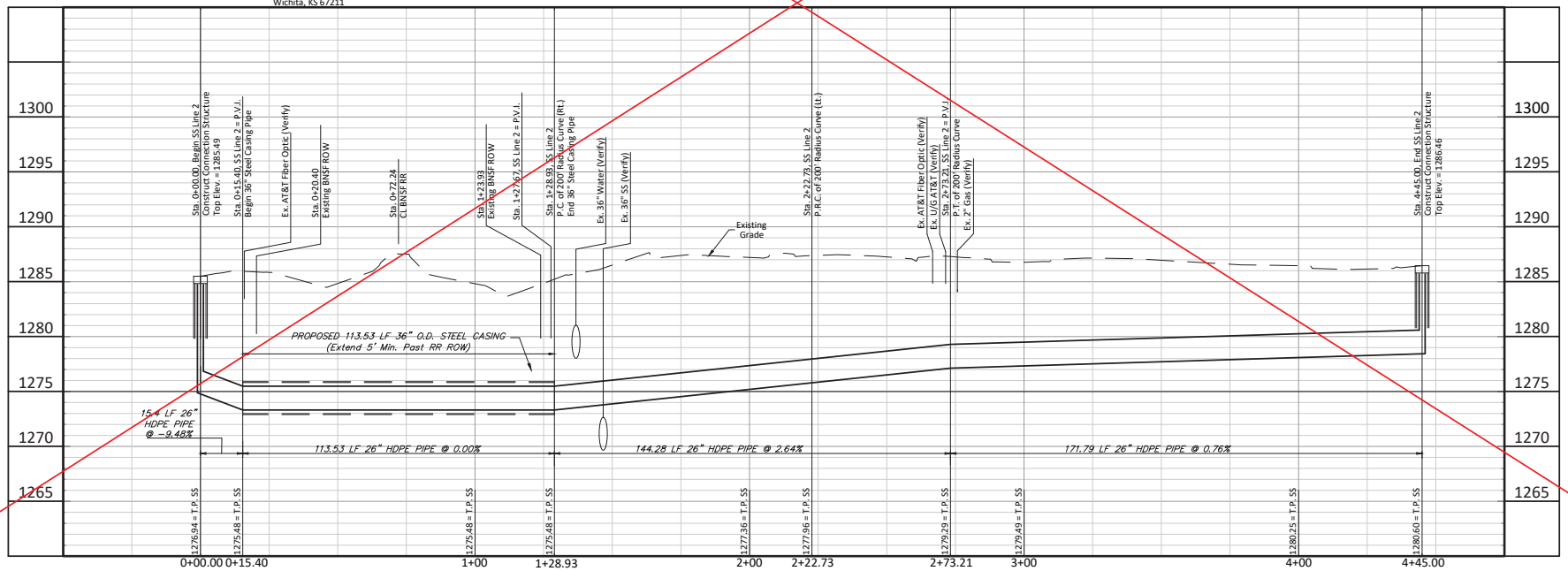


SS LINE 2 BY-PASS



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HYDRAULIC & SE BLVD SS

SANITARY SEWER LINE 2 PLAN/PROFILE

CAPITAL IMPROVEMENT PROJECT

PROJECT NUMBER: 468-85276

DESIGN: ENG DRAWN: JSB

DATE: January 26, 2023

SHEET 4A OF 24

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BENCHMARKS

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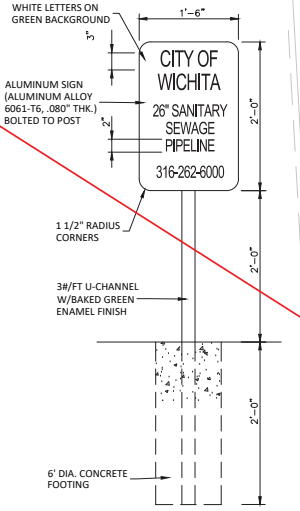
Elev. = 1285.59 (NAVD 88)

NOTES:

1. *CONTRACTOR SHALL ADHERE TO THE BNSF UTILITY ACCOMODATION POLICY (updated February 14, 2022, Part 3 - Utilities Perpendicular to Railroad Property), UNLESS EXPLICITLY STATED OTHERWISE, DURING ALL CASING INSTALLATION, PIPELINE INSTALLATION, OR OTHER CONSTRUCTION RELATED ACTIVITY WITHIN BNSF RIGHT-OF-WAY (ROW).*
   https://www.bnsf.com/bnsf-resources/pdf/about-bnsf/utility.pdf
2. *THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL SAFETY LAWS AND REGULATIONS INCLUDING BUT NOT LIMITED TO OSHA REQUIREMENTS FOR TRENCH SAFETY, CONFINED SPACE, PERSONAL PROTECTIVE EQUIPMENT, TUNNELING OPERATIONS AND ELECTRICAL SAFETY. WHERE LAWS OR ORDERS OF PUBLIC AUTHORITY GOVERN, THEY SHALL SUPERSEDE THE PROVISIONS SPECIFIED ON THIS PLAN SHEET.*
3. *PRIOR TO THE COMMENCEMENT OF THE RAILWAY CROSSING, THE CONTRACTOR SHALL SUBMIT FOR REVIEW AND APPROVAL AN UPDATED DESCRIPTION OF WORK PROCESS INCLUDING BUT NOT LIMITED TO ALL PLAN AND FIELD CHANGES / MODIFICATIONS, CERTIFICATES OF COMPLIANCE, WORK PLAN AND SCHEDULED ACTIVITIES FOR WORK THAT MAY AFFECT RAILROAD RIGHT-OF-WAY. THE CONTRACTOR SHALL LAYOUT THE PROPOSED BORE AND RECEIVING PITS FOR INSPECTION AND ACCEPTANCE PRIOR TO COMMENCEMENT OF WORK. THE EXECUTION OF WORK ON RAILROAD PROPERTY SHALL BE SUBJECT TO INSPECTION AND DIRECTION OF THE BNSF ROADMASTER OR HER / HIS REPRESENTATIVE.*
4. *WHEN WORK IS PERFORMED WITHIN TWENTY-FIVE (25) FEET OF THE CENTERLINE OF THE TRACK, RAILROAD FLAGGING WILL BE REQUIRED. FLAGGING SERVICES SHALL BE PERFORMED BY BNSF EMPLOYEES OR THEIR DESIGNATED CONTRACTOR. A WRITTEN REQUEST FOR FLAGGING SERVICES SHALL BE SUBMITTED TO BNSF ROADMASTER NO LESS THAN 72 HOURS PRIOR TO THE TIME WHEN SUCH SERVICES ARE NEEDED. FLAGGER COSTS ARE SUBSIDIARY TO THE COST OF THE DRY JACK & BORE OR TUNNELING METHODS.*
5. *CONTRACTOR TO PROTECT ALL RAILROAD PROPERTY, INCLUDING SIGNAL WIRE CONNECTIONS, RAILS, ETC. INCLUDING SETTLEMENT MONITORING REQUIREMENTS, AS LISTED IN BNSF UTILITY ACCOMMODATION POLICY. SEE NOTE 1.*
6. *BORE PITS SHALL NOT BE LOCATED WITHIN BNSF RIGHT-OF-WAY. THE LOCATION / SIZE OF THE BORE PIT SHALL ADHERE TO THE BNSF UTILITY ACCOMMODATION REQUIREMENTS. SEE NOTE 1.*
7. *REDWOOD OR OTHER APPROVED PRESERVATIVE TREATED WOOD SKIDS SHALL BE SECURED TO THE BARREL OF THE CARRIER PIPE WITH METAL BANDS IN SUCH A MANNER TO SUPPORT THE WEIGHT OF THE PIPE ALONG ITS FULL BARREL LENGTH ON THE WOOD SKIDS WITHOUT ANY OF THE WEIGHT SUPPORTED BY THE PIPE BELL AND IN SUCH A MANNER AS REQUIRED TO PROPERLY POSITION THE CARRIER PIPE TO THE SPECIFIED ELEVATIONS AND ALIGNMENT. CASING SPACERS MAY BE USED IN LIEU OF TREATED WOOD SKIDS. THE CASING SPACERS MUST BE LOCATED AS RECOMMENDED BY THE SPACER MANUFACTURER AND APPROVED BY THE ENGINEER.*
8. *THE CASING PIPE SHALL HAVE A "FUSION BONDED EPOXY COATING" (FBE) WITH AN "ABRASION RESISTANT OVERCOATING" (ARO). THE MINIMUM STEEL CASING PIPE WALL THICKNESS SHALL MEET BNSF AND UAP STANDARDS (0.469" MINIMUM FOR 36" CASING, WHEN COATED OR CATHODICALLY PROTECTED). THE CASING PIPE SHALL FOLLOW BNSF UTILITY ACCOMMODATION POLICY. SEE NOTE 1.*
9. *STEEL CASING PIPE WITHIN BNSF RAILROAD ROW SHALL HAVE EXTERIOR OF PIPE COATED WITH AN EPOXY POLYMER CONCRETE COATING OR AN APPROVED EQUAL.*

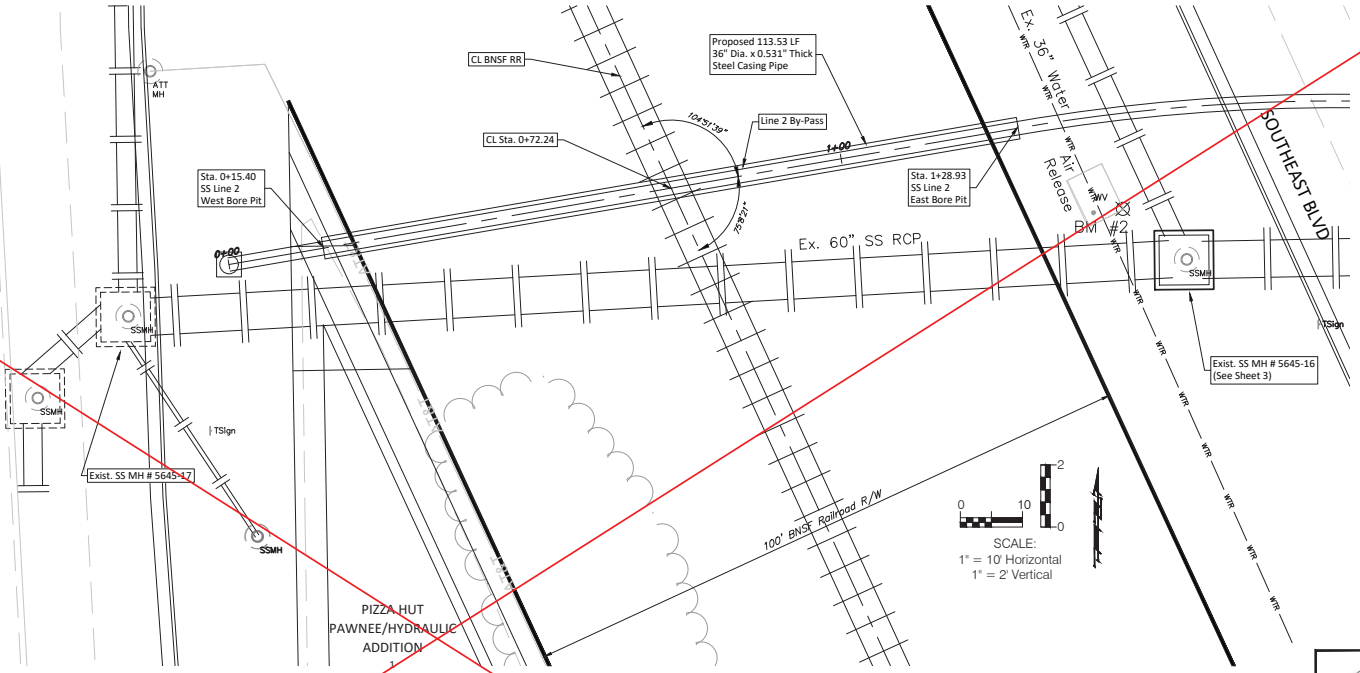
   EPOXY POLYMER CONCRETE COATING:

   - *A TWO-PART CHEMICALLY CURED EXPOXY PRIMER AND ONE OR MORE COATS OF A DIFFERENT TWO-PART CHEMICALLY CURED EPOXY TOP COAT. STEEL CASING PIPE SHALL BE COATED IN ACCORDANCE WITH AWWA C210 AND MANUFACTURER'S RECOMMENDATIONS.*
   - *CONTAIN AN ABRASION RESISTANT OVERLAY.*
   - *CATHODIC DISBONDMENT: MAXIMUM 10 MM.*
   - *DRY FILM THICKNESS: MINIMUM 16 MILS.*
   - *ADHESION: 800 PSI PER ASTM D4541 (METHOD E).*
   - *COATING SHALL HAVE NO HOLIDAYS.*
10. *FILL ANNULAR SPACE WITH SAND FROM END SEAL TO END SEAL AFTER CARRIER PIPE HAS BEEN PERMANENTLY PLACED IN CASING PIPE AND APPROVED, IN SUCH A MANNER AS TO NOT DISTURB THE ALIGNMENT OR GRADE OF CARRIER PIPE. EXCAVATABLE FLOWABLE FILL MAY BE USED IN THE ANNULAR SPACE WHEN APPROVED BY THE ENGINEER.*
11. *THE CONTRACTOR SHALL INSTALL A READILY IDENTIFIABLE AND SUITABLE MARKER AT EACH RAILROAD PROPERTY LINE WHERE IT IS CROSSED BY AN UNDERGROUND UTILITY IDENTIFYING THE SIZE OF THE LINE AND ITS DEPTH, UNLESS WITHIN A PUBLIC GRADE CROSSING. SEE SANITARY SEWER MARKER DETAIL THIS SHEET. UTILITY MARKERS SHALL MEET ALL REQUIREMENTS SET FORTH BY THE BNSF UTILITY ACCOMMODATION POLICY. SEE NOTE 1.*
12. *CONTRACTOR SHALL BE AWARE THAT NO WORKERS WITHOUT PROPER IDENTIFICATION ARE TO ENTER BNSF RIGHT-OF-WAY PROPERTY.*

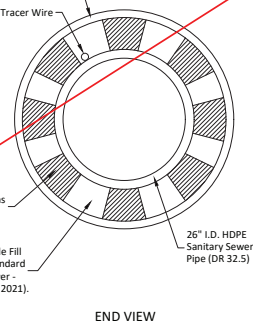


SANITARY SEWER MARKER DETAIL

NOTE:
UTILITY MARKER SHALL MEET ALL REQUIREMENTS SET FORTH BY THE BNSF UTILITY ACCOMODATION POLICY. SEE NOTE 1.

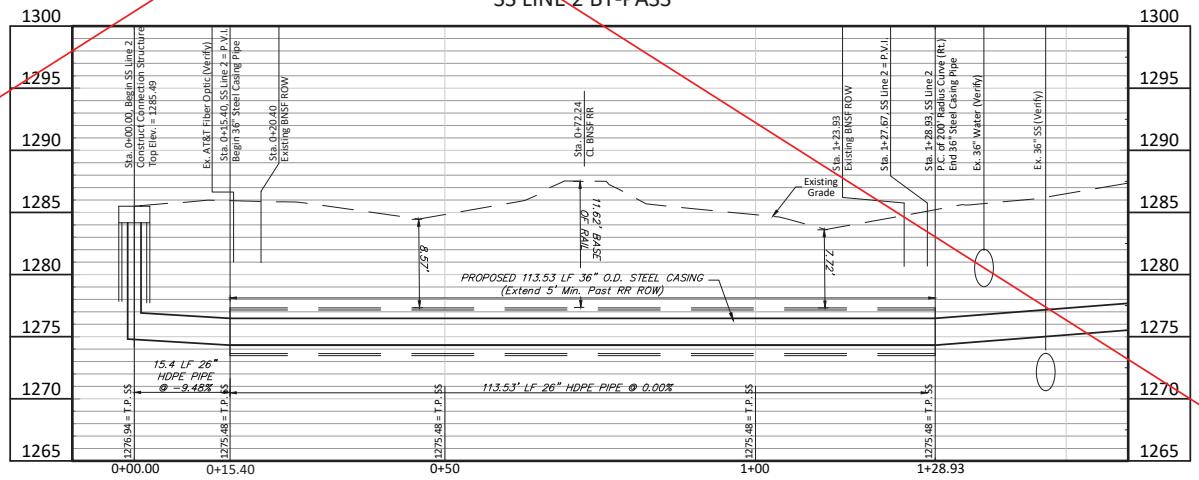


PIZZA HUT
PAWNEE/HYDRAULIC ADDITION
1
Pizza Hut
1708 E. Pawnee Avenue
Wichita, KS 67211



END VIEW

SS LINE 2 BY-PASS



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HYDRAULIC & SE BLVD SS

SANITARY SEWER LINE 2 DETAILS

CAPITAL IMPROVEMENT PROJECT

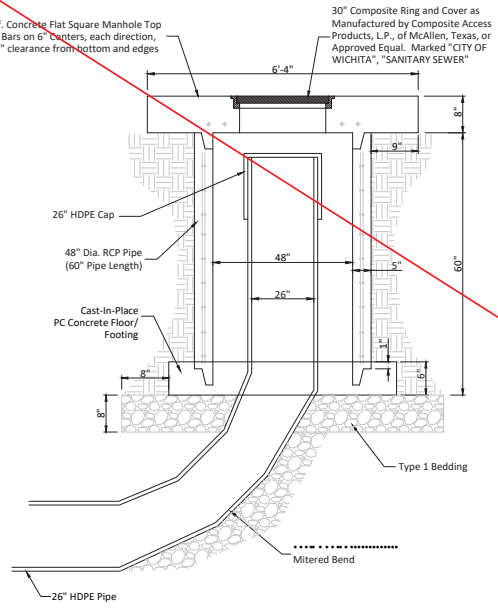
PROJECT NUMBER: 468-85276

DESIGN: ENG DRAWN: JSB

DATE: January 26, 2023

SHEET 4B OF 24

File: E:\Projects\Hydraulic & SE Blvd SS\ 17-11-E\572SS Base.dwg



PROFILE VIEW

EAST & WEST CONNECTION STRUCTURE (TYP)

Not to Scale

PHASE	SANITARY SEWER RECONSTRUCTION CONSTRUCTION SEQUENCE *	SEWAGE FLOW CONTROL PHASE **	TRAFFIC CONTROL PHASE ***
1	Relocate Traffic Signal Conduit along Hydraulic Ave.	----	1A
2	Line 1: Construct New SS MH (ID # New)	1	1A
3	Line 1: Abandon Exist. SS MH #(5645-19)		
4	Line 1: Abandon Exist. 30" & 36" SS Pipes		
5	Line 1: Rebuild Exist. SS MH # (5645-18)	2	1A & 1B
6	Install SS Line 2 By-Pass & Build Connection Structures	----	2A
7	Rebuild Exist. SS MH # (5645-16)	3	2A & 2B
8	Replace Curb & Gutter, Median and Street Pavement	----	1A

NOTES:

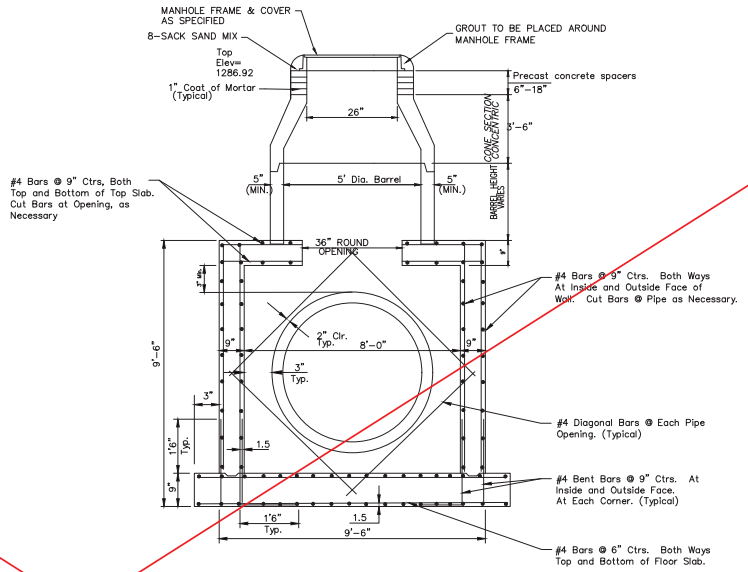
* See Sheet No.'s 3, 4 & 16.

** See Sheet No. 8

*** See Sheet No.'s 9-12

BYPASS PUMPING GENERAL NOTES

1. To Make the Connection to the 26" HDPE Bypass Pipe, the Contractor shall remove the 8" Reinf. Concrete Manhole Top and 26" HDPE Cap and then make the connection by fusing or restrained joint fitting as approved by the Field Engineer. After Bypass pumping is complete, the Contractor shall cut off the additional pipe or remove any fitting so the the 8" Reinf. Concrete Manhole Top can be set back in place. All cost associated in the making and removing this connection shall be SUBSIDIARY to the installation of the Connection Structures.
2. In order to bypass pump around the Reinforced Concrete Manhole (# 5645-16) that is to be rebuilt, the Contractor shall be required to pump Peak Flow from the existing Reinforced Concrete Manhole in Hydraulic south of the railroad tracks to the Reinforced Concrete Manhole in Blake Street 275' east of east R/W of Southeast Boulevard. Contractor shall obtain "Peak Flow" from City of Wichita - James Wagner, Jwagner@wichita.gov. All cost associated with the bypass pumping operation shall be SUBSIDIARY to the Lump Sum Bid Item "Bypass Pumping".
3. After the Bypass Pumping is complete, the Contractor shall clean inside connection structures and flush the 26" HDPE pipe with clean water for a minimum of 15 minutes to clean the pipe. All cost assiociated with the flushing operation shall be SUBSIDIARY to the Lump Sum Bid Item "Site Restoration".
4. The Contractor can close Blake Street from just east of the middle drive into Discount Auto Glass to just east of the Reinforced Concrete Manhole 275' east of east R/W of Southeast Boulevard. See Traffic Control Details for more information.
5. Concrete 6'-4" x 6'-4" Manhole Top shall be set with one side parallel to nearby Curb & Gutter.

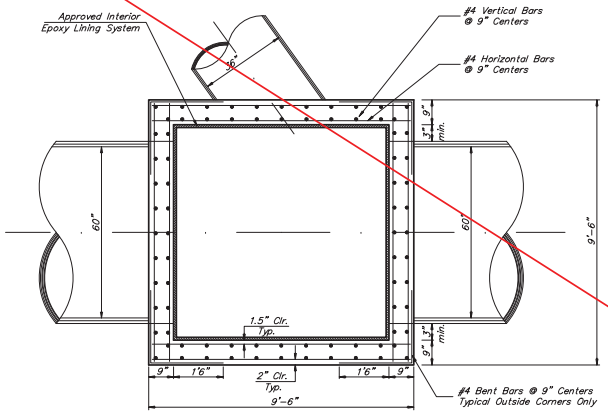


REINFORCED CONCRETE MANHOLE # 5645-16

Not to Scale

SS MANHOLE NOTES

1. Contractor shall submit shop drawings to Engineer for review.



TOP VIEW

BRENT WOOTEN LICENSED 6470 01/27/2023 KANSAS PROFESSIONAL ENGINEER

BAUGHMAN COMPANY
315 Ellis St.
Wichita, KS 67211
316-262-7271
BaughmanCo.com

HYDRAULIC & SE BLVD SS

MISC. DETAILS

CAPITAL IMPROVEMENT PROJECT

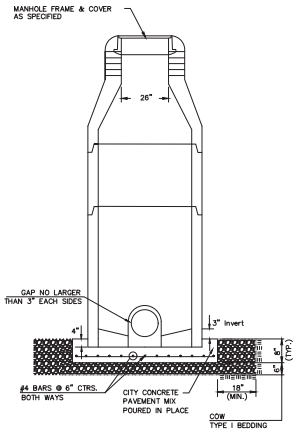
PROJECT NUMBER: 468-85276

DESIGN: ENG DRAWN: JSB

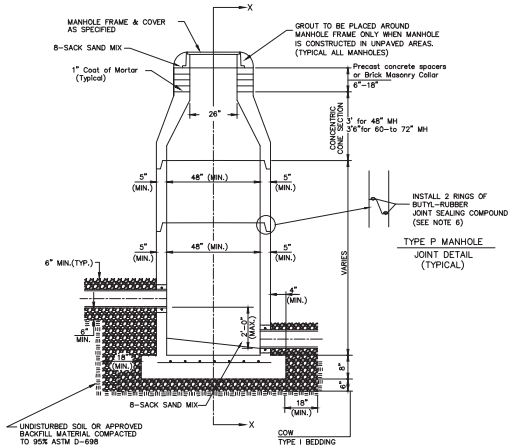
DATE: January 26, 2023

SHEET 5 OF 24

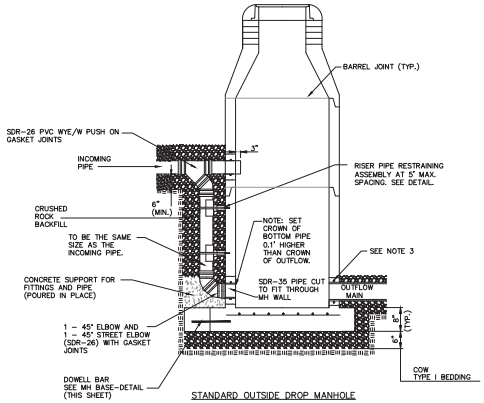
File: E:\Projects\Hydraulic & SE Blvd SS\ 17-11-E0726SS Base.dwg



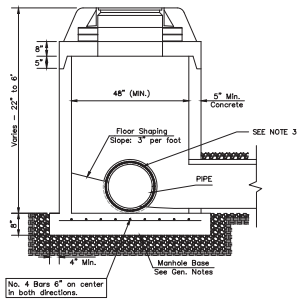
DOG HOUSE MANHOLE
(OVER EXISTING PIPE)
Not to Scale



STANDARD MANHOLE
Not to Scale

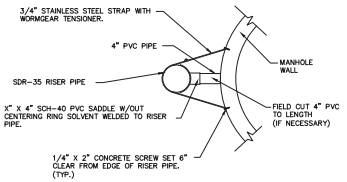


STANDARD OUTSIDE DROP MANHOLE
Not to Scale



SHALLOW MANHOLE
Not to Scale

= COW TYPE I BEDDING = UNDISTURBED SOIL



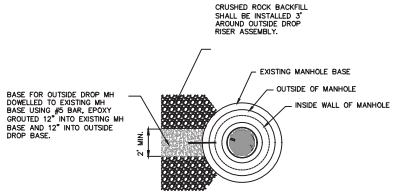
RISER PIPE RESTRAINING ASSEMBLY
Not to Scale

SANITARY SEWER MANHOLE DIAMETERS

DIAMETER	DEPTH	PIPE SIZE
4'	0'-15'	8"-18"
5'	>15'-30'	21"-30"
6'	>30'	36"-60"

PRECAST MANHOLE GENERAL NOTES

1. ALL PRECAST CONCRETE MANHOLE SECTIONS SHALL CONFORM TO THE LATEST REVISIONS OF A.S.T.M. C478 AS MODIFIED BY THE SPECIFICATIONS.
2. NON-SHRINK GROUT SHALL BE NON-METALLIC TYPE.
3. APPROVED FLEXIBLE WATERSTOP SHALL BE INSTALLED TO JOIN THE SEWER PIPE TO THE MANHOLE WALL. THE SEWER PIPE SHALL BE SUPPORTED WITH CRUSHED ROCK A MINIMUM OF 3 FEET FROM THE MANHOLE WALL AND TO THE FIRST JOINT FOR V.C.P. SUCH THAT THE JOINT REMAINS FLEXIBLE.
4. ALL INSIDE SURFACES OF THE CONCRETE MANHOLE WHICH WOULD BE EXPOSED TO SEWER GAS SHALL BE COATED PER SECTION 804.4 OF STANDARD SPECIFICATIONS.
5. EXTERIOR MANHOLE WALLS SHALL BE COATED PER SECTION 804.4 OF STANDARD SPECIFICATIONS.
6. JOINT SEALING COMPOUND SHALL BE PER 804.4 OF STANDARD SPECIFICATIONS.
7. ALL MANHOLE SECTION JOINTS THAT WILL BE IN GROUNDWATER OR GREATER THAN 12' DEEP SHALL BE WRAPPED WITH AN EXTERNAL JOINT SEAL PER SECTION 804.4 OF STANDARD SPECIFICATIONS. AS INDICATED BY THE PLANS.
8. PRECAST MANHOLES SHALL BE SET AT LEAST 4 INCHES INTO THE MANHOLE BASE FOR DOG HOUSE MANHOLES.
9. 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.
10. LIFTING HOLES SHALL BE FILLED WITH NON-SHRINK GROUT AND THE INTERIOR SURFACE COATED AS SPECIFIED.
11. MORTAR USED IN MASONRY CONSTRUCTION SHALL CONTAIN 8 SACKS OF CEMENT PER CUBIC YARD. CONCRETE USED IN MANHOLE BASES SHALL CONFORM TO THE REQUIREMENTS OF CONCRETE FOR CONCRETE PAVEMENT CONSTRUCTION AS SPECIFIED IN THE CITY STANDARD PAVING SPECIFICATIONS USING CITY CONCRETE PAVEMENT MIX WITHOUT AIR ENTRAINING ADMIXTURE. MORTAR SHALL BE PLACE AROUND THE MANHOLE RING AS SHOWN ON THE DRAWINGS WHEN MANHOLES ARE CONSTRUCTED IN UNPAVED AREAS. COMPLETED MANHOLE SHALL BE WITHOUT LEAKS AND WATER TIGHT.
12. REINFORCING STEEL SHALL BE INSTALLED IN THE MANHOLE BASES AND SHALL CONSIST OF NO.4 BARS PLACED ON 6" CENTERS IN BOTH DIRECTIONS. THE MANHOLE BASE REINFORCEMENT SHALL BE PLACED AT LEAST 3" ABOVE THE BOTTOM OF THE MANHOLE BASE. ALL COSTS FOR FURNISHING AND INSTALLING REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.
13. WALL THICKNESS SHALL BE 1" GREATER THAN MANHOLE DIAMETER IN FEET.
14. OPENINGS SHALL BE CORE DRILLED INTO THE MANHOLE WALL WHEN OUTSIDE DROPS ARE CONSTRUCTED ON EXISTING MANHOLES. SUCH OPENINGS DRILLED INTO EXISTING MANHOLES SHALL BE AS SMALL AS PRACTICAL TO FACILITATE INSTALLING AND GROUTING THE NEW PIPE IN PLACE. WATERSTOP GASKETS SHALL BE USED WITH P.V.C. PIPE. THE NEW PIPE SHALL BE GROUTED INTO THE OPENING USING AN APPROVED NONSHRINK GROUT FOR THE FULL MANHOLE WALL THICKNESS. THE EXTERIOR OF THE COMPLETED CONNECTION SHALL BE SEALED WITH AN APPROVED BITUMINOUS COATING SUCH THAT THE CONNECTION WILL BE WATER TIGHT. FLOOR OF MANHOLE SHALL BE MODIFIED TO FORM NEW FLOW CHANNEL FOR THE NEW CONNECTION AS INDICATED BY THE DRAWING. THIS WORK, INCLUDING MODIFICATION OF MANHOLE FLOOR, SHALL BE PAID FOR AT THE UNIT PRICE BID FOR OUTSIDE DROP STACK CONSTRUCTED ON EXISTING MANHOLE.
15. THE FLOORS OF ALL MANHOLES SHALL BE SHAPED WITH FLOW CHANNELS SUCH THAT THE MANHOLES WILL BE SELF CLEANING AND FREE OF AREAS WHERE SOLIDS COULD BE DEPOSITED AS SEWAGE FLOWS THROUGH THE MANHOLE FROM ALL INLET PIPES TO THE OUTLET PIPE. FLOW CHANNELS SHALL BE FORMED TO MATCH THE BOTTOM HALVES OF THE INFLOWING PIPES AND THE OUTFLOWING PIPE AS SHOWN BY THE DRAWINGS. MANHOLE FLOORS SHALL HAVE SLOPES OF 3 INCHES PER FOOT IN THE AREAS OUTSIDE OF THE FLOW CHANNELS SLOPED TOWARD THE FLOW CHANNELS. PIPES LAID THROUGH MANHOLES SHALL HAVE THE TOP HALF REMOVED TO NEAT LINES FOR THE FULL INSIDE DIAMETER OF THE MANHOLE. MANHOLE FLOORS SHALL THEN BE SHAPED AROUND THE BOTTOM HALF OF THE PIPE WHICH FORMS THE FLOW CHANNEL.
16. MANHOLE COVER CASTINGS AND MANHOLE FRAME CASTINGS SHALL CONFORM TO THE REQUIREMENTS AS INDICATED IN THE STANDARD SPECIFICATIONS AND AS SHOWN IN THE STANDARD DETAIL DRAWING.
17. THE VERTICAL DROP IN STANDARD MANHOLES SHALL NOT EXCEED 2' REGARDLESS OF PIPE SIZE. THE CROWNS OF INFLOWING PIPES SHALL NEVER BE SET LOWER THAN THE CROWN OF THE OUTFLOWING PIPE.
18. STANDARD MANHOLES SHALL BE BID AS STANDARD MANHOLES FOR THE TYPE AND DIAMETER INDICATED. OUTSIDE DROP MANHOLES SHALL BE BID AS STANDARD OUTSIDE DROP MANHOLES FOR THE TYPE AND DIAMETER INDICATED. ALL MANHOLE DIAMETERS WILL BE 4' UNLESS INDICATED OTHERWISE.
19. PRECAST CONCRETE SPACERS OR BRICK MASONRY COLLAR SHALL BE INSTALLED BETWEEN THE CAST IRON FRAME AND THE CONCENTRIC CONE. THE COLLAR WILL HAVE 8" WALLS AND A VERTICAL HEIGHT OF 6" MINIMUM AND 18" MAXIMUM. A 1" COAT OF MORTAR WILL BE PLASTERED ON THE OUTSIDE OF THE COLLAR. THE USE OF PRE-CAST CONCRETE SPACERS FOR MANHOLE TOP ADJUSTMENT IS ALSO ALLOWED.
20. THE FULL DIAMETER OF THE MANHOLE SHALL EXTEND THE ENTIRE DEPTH OF THE MANHOLE TO THE CONE SECTION. NO REDUCTION IN MANHOLE DIAMETER WILL BE ALLOWED.



MH BASE DETAIL
Not to Scale

REVISION NOVEMBER 2019	RISER PIPE RETAINING ASSEMBLY REVISED ON MANHOLE DRAWING

CITY OF WICHITA
PUBLIC WORKS & UTILITIES ENGINEERING DIVISION

PRECAST SANITARY SEWER MANHOLE

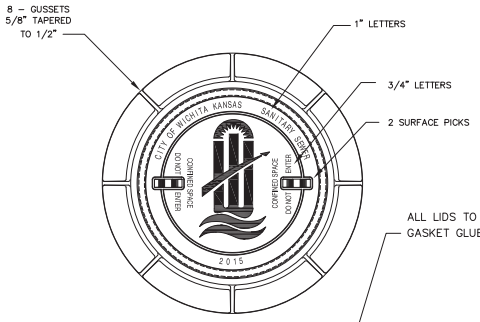
CITY ENGINEER
GARY JANZEN, P.E.

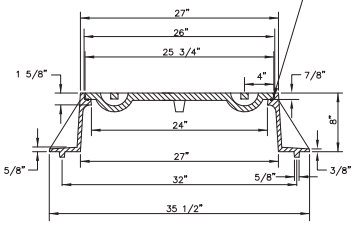
PROJECT NUMBER	OCA NUMBER	DATE

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

SHEET
6 of 24

SS-101

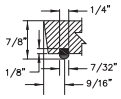




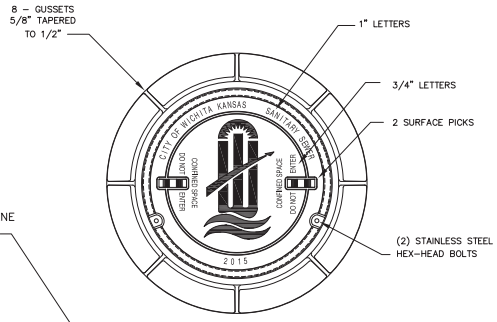
STANDARD MANHOLE FRAME & COVER

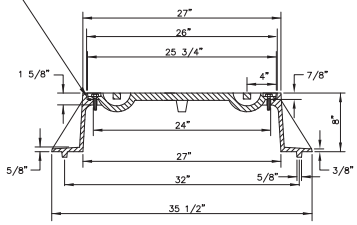
DEETER #1261 OR EJIW #1936–Z1

NOTE:
1. FURNISHED WITH MACHINED HORIZONTAL BEARING SURFACE.



O–RING DETAIL

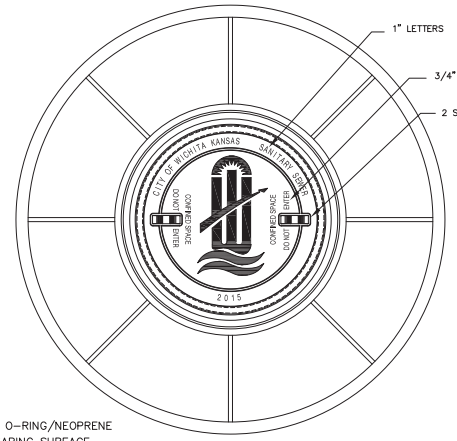


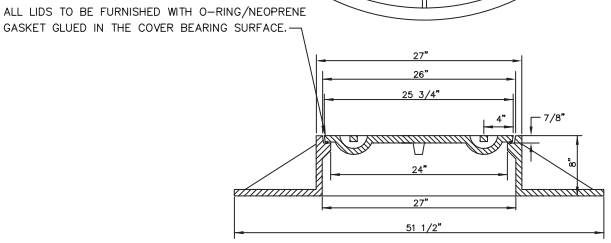


BOLT DOWN MANHOLE FRAME & COVER

DEETER #1261 OR EJIW #1936–Z1

NOTE:
1. FURNISHED WITH MACHINED HORIZONTAL BEARING SURFACE.





WIDE FLANGED FRAME & COVER

DEETER #1261A

NOTE:
1. FURNISHED WITH MACHINED HORIZONTAL BEARING SURFACE.

GENERAL NOTES

1. MANHOLE CASTINGS SHALL BE MANUFACTURED USING GOOD QUALITY GRAY IRON CONFORMING TO CLASS 30 OF A.S.T.M. DESIGNATION A–48. DIMENSIONS SHOWN ON THE DETAILED DRAWINGS SHALL BE CONSIDERED AS MINIMUM REQUIREMENTS AND ANY DEVIATIONS FROM THE DIMENSIONS SHOWN MUST BE SPECIFICALLY APPROVED. THE FINISHED CASTINGS SHALL BE OF UNIFORM QUALITY, FREE FROM BLOWHOLES, POROSITY, HARD SPOTS, SHRINKAGE DISTORTIONS OR OTHER DEFECTS.

2. MANHOLE CASTINGS SHALL BE MANUFACTURED SUCH THAT A COVER MANUFACTURED BY ANY ONE FOUNDARY WILL FIT INTERCHANGEABLY INTO A FRAME MANUFACTURED BY ANOTHER FOUNDRY AND STILL MEET ALLOWABLE CLEARANCES AND NON–ROCKING REQUIREMENTS. THIS WILL REQUIRE MANUFACTURING OF THE MATCHING FACES ON THE COVER AND THE FRAME TO CLOSE TOLERANCES.

3. THE OUTSIDE CIRCUMFERENCE OF THE VERTICAL FACE OF THE COVER AND THE INSIDE CIRCUMFERENCE OF THE VERTICAL FACE IN THE FRAME RECESS SHALL BE MANUFACTURED TO TOLERANCES SUCH THAT THE CLEARANCE BETWEEN THE COVER AND FRAME WILL NOT EXCEED 1/8" AT ANY POINT AROUND THE CIRCUMFERENCE OF THE COVER. THE SEATING SURFACES BETWEEN THE COVER AND FRAME SHALL BE MACHINED SUCH THAT THESE SEATING SURFACES SHALL MAKE FULL CONTACT FOR THEIR FULL CIRCUM–FERENCE TO PRECLUDE THE COVER FROM ROCKING IN THE FRAME.

4. THE MANHOLE FRAME AND COVER SHALL BE MARKED WITH LETTERING INDICATING THE NAME OF THE MANUFACTURER AND THE YEAR WHEN THE COVER OR FRAME WAS CAST. THE COVER SHALL BE FURTHER IDENTIFIED WITH REGARDS TO OWNERSHIP USING LETTERS AT LEAST 1"IIN HEIGHT. THIS IDENTIFICATION SHALL BE "CITY OF WICHITA SANITARY SEWER".
THE TOP SURFACE OF THE COVER SHALL BE MANUFACTURED IN WITH CITY OF WICHITA DESIGN AS INDICATED ON THE DRAWINGS. SMOOTH BLOCKOUTS SHALL BE UTILIZED TO HIGHLIGHT THE LETTERING ON THE COVER SURFACE. THE TOTAL AREA OF SMOOTH SURFACE BLOCKOUT SHALL NOT EXCEED THE AREA AS INDICATED ON THE DRAWING. POSITIONING OF SMOOTH BLOCKOUTS AND LETTERING MAY VARY FROM THAT SHOWN ON THE DETAILED DRAWING.

REVISED: MARCH 2016

CITY OF WICHITA
PUBLIC WORKS & UTILITIES
ENGINEERING DIVISION

MANHOLE
FRAME AND COVER
(SANITARY 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

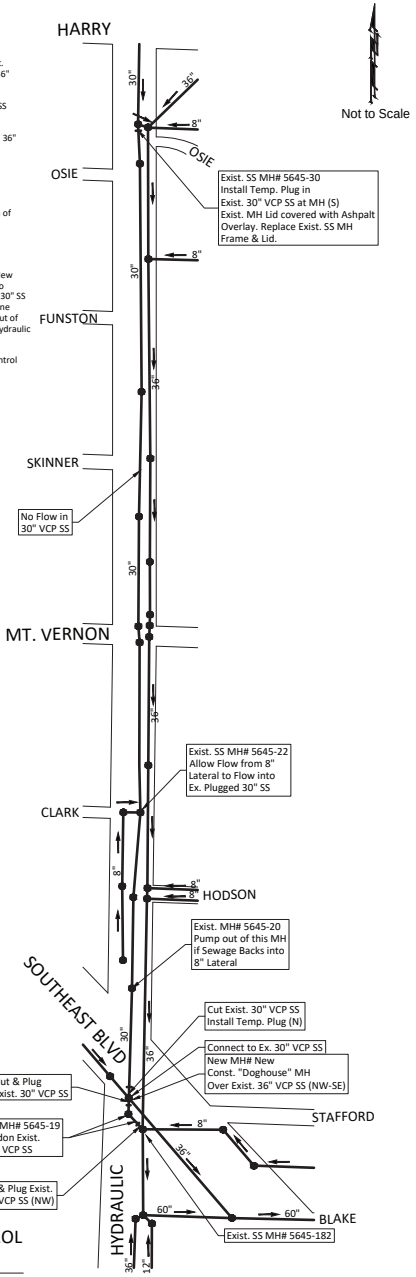
SS-102

CONSTRUCTION SEQUENCE:

1. Near Osie Street, Install Temporary Plug in Exist. 30" SS Pipe(S), at Exist. SS MH# 5645-30.
2. Allow Exist. 30" SS to drain South, then Cut and Plug Exist. 30" SS Pipe North of New MH# New, located over Exist. 36" SS in Hydraulic Avenue.
3. Allow Exist. 8" SS Lateral to drain into Plugged Exist. 30" SS Line at Exist. SS MH# 5645-22, near Clark Street.
4. Construct New "Doghouse" Style SS MH# New over Exist. 36" SS in Hydraulic Avenue.
5. Don't Cut Top half of Exist. 36" SS Pipe until New SS MH# New has Passed Vacuum Testing.
6. Cut out Top half of Exist. 36" SS Pipe in SS MH# New. Remove both Temporary Plugs in Exist. 30" SS Pipe North of New SS MH# New.

GENERAL NOTES:

1. Once the Exist. 30" SS Pipe is Plugged, the New SS MH# New must be Contructed & Operational, as Soon as Possible, to prevent the Exist. 8" SS Lateral Line from Filling the Exist. 30" SS Line and Backing Up Sewage Flow. If Exist. 8" SS Lateral Line Begins to Fill and Back Flow, Sewage MUST be Pumped Out of Exist. SS MH# 5645-20, located North of Intersection in Hydraulic Avenue.
2. If Pumping Sewage Backflow is Required, Erect Traffic Control per KDOT Detail TE700 and TE702, Sheets 11 & 12.

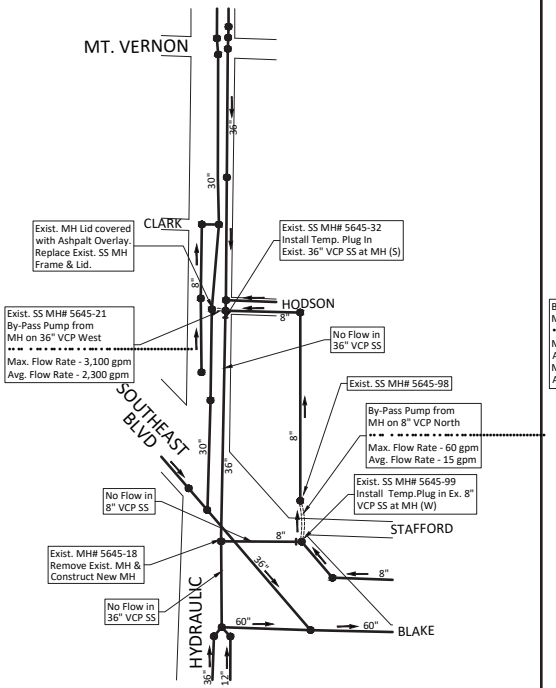


Not to Scale

SEWAGE FLOW CONTROL
PHASE 1

CONSTRUCTION SEQUENCE:

1. At Southeast corner of Hodson & Hydraulic Avenue, Install Temporary Plug in 36" VCP SS (S), at Exist. SS MH# 5645-32.
2. Pump Sewage from Exist. SS MH# 5645-32, West to Exist. SS MH# 5645-21, located over Exist. 30" SS.
3. At Southeast corner of Stafford & Southeast Blvd., Install Temporary Plug in Exist. 8" VCP SS (W), at Exist. SS MH# 5645-99.
4. Pump Sewage from Exist. SS MH# 5645-99, North across Stafford to Exist. SS MH# 5645-98, located over 8" VCP SS in Alley.
5. Remove & Replace Exist. SS MH# 5645-18, over Exist. 36" VCP SS (N-S), located in Hydraulic Avenue at Sta. 1+13.13, SS Line 1. See Sheet 3.



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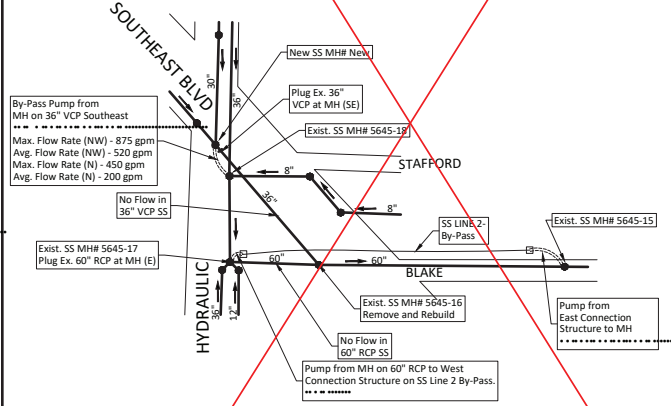
SEWAGE FLOW CONTROL
PHASE 2

CONSTRUCTION SEQUENCE:

1. At Intersection of Hydraulic Avenue and Southeast Blvd., Install Temporary Plug in 36" VCP SS (SE), at New SS MH# New.
2. Pump Sewage from New SS MH# New Southeast to Rebuilt SS MH# 5645-18, located over Exist. 36" SS (N-S) and 8" (E).
3. In Hydraulic Avenue, Install Temporary Plug in 60" RCP(E), at Exist. SS MH# 5645-17.
4. Pump Sewage from Exist. SS MH# 5645-17, into West Connection Structure - SS Line 2 By-Pass .
5. Pump Sewage from East Connection - SS Line 2 By-Pass into Exist. SS MH# 5645-15, located in Blake Street.
6. Remove & Replace Exist. SS MH# 5645-16, over Exist. 60" RCP SS (E-W), and Exist. 36" SS (NW) located between Railroad Tracks and Southeast Blvd.

GENERAL NOTES:

1. The Contractor SHALL Limit the Amount of Time the Flow Through By-Pass is in Place to 4 Days.



Not to Scale

SEWAGE FLOW CONTROL
PHASE 3

BRENT WOOTEN
LICENSED
6470
01/27/2023
KANSAS
PROFESSIONAL ENGINEER

BAUGHMAN COMPANY
315 Ellis St.
Wichita, KS 67211
316-262-7271
BaughmanCo.com

HYDRAULIC & SE BLVD SS

SANITARY SEWER SEWAGE FLOW CONTROL

CAPITAL IMPROVEMENT PROJECT

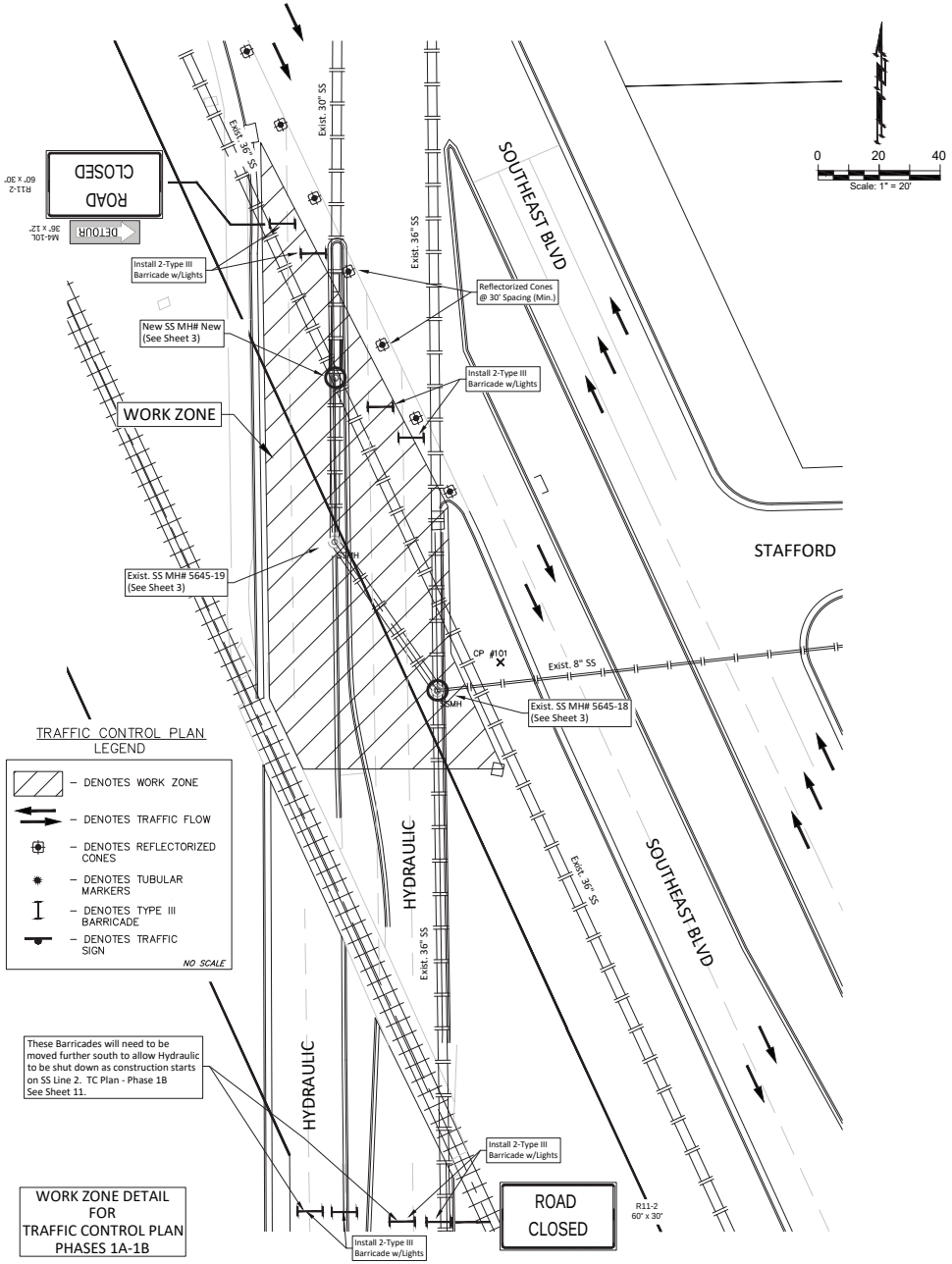
PROJECT NUMBER:
468-85276

DESIGN: ENG DRAWN: JSB

DATE: January 26, 2023

SHEET 8 OF 24

J:\Mc_E \Projects\Hydraulic & SE Blvd SS\ 17-11-E0726SS Base.dwg

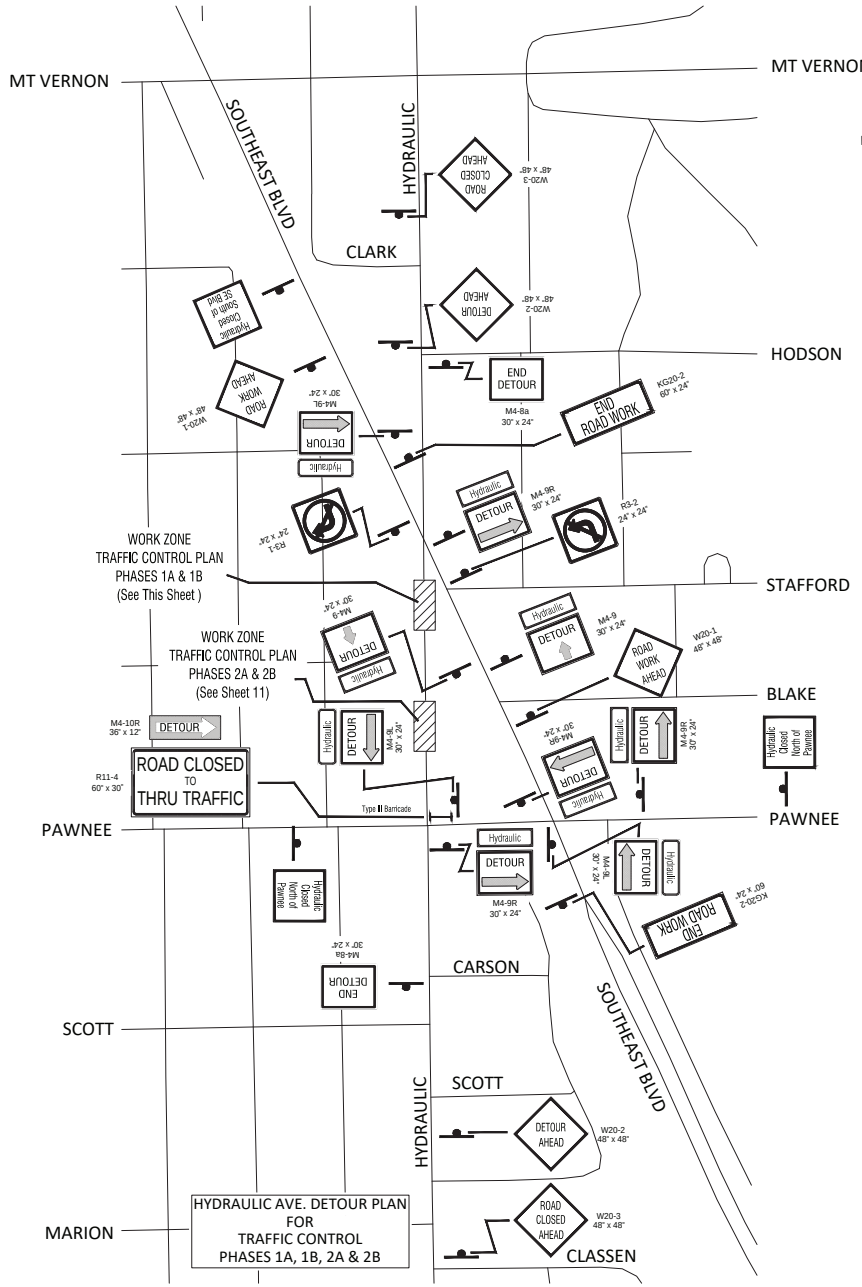


TRAFFIC CONTROL PLAN
LEGEND

- DENOTES WORK ZONE
- DENOTES TRAFFIC FLOW
- DENOTES REFLECTORIZED CONES
- DENOTES TUBULAR MARKERS
- DENOTES TYPE III BARRICADE
- DENOTES TRAFFIC SIGN

NO SCALE

WORK ZONE DETAIL
FOR
TRAFFIC CONTROL PLAN
PHASES 1A-1B



WORK ZONE
TRAFFIC CONTROL PLAN
PHASES 1A & 1B
(See This Sheet)

WORK ZONE
TRAFFIC CONTROL PLAN
PHASES 2A & 2B
(See Sheet 11)

HYDRAULIC AVE. DETOUR PLAN
FOR
TRAFFIC CONTROL
PHASES 1A, 1B, 2A & 2B

BRENT WOODEN LICENSED 6470 01/27/2023 KANSAS PROFESSIONAL ENGINEER

BAUGHMAN COMPANY
315 Ellis St.
Wichita, KS 67211
316-262-7271
BaughmanCo.com

HYDRAULIC & SE BLVD SS

TRAFFIC CONTROL PLAN & DETOUR ROUTING

CAPITAL IMPROVEMENT PROJECT

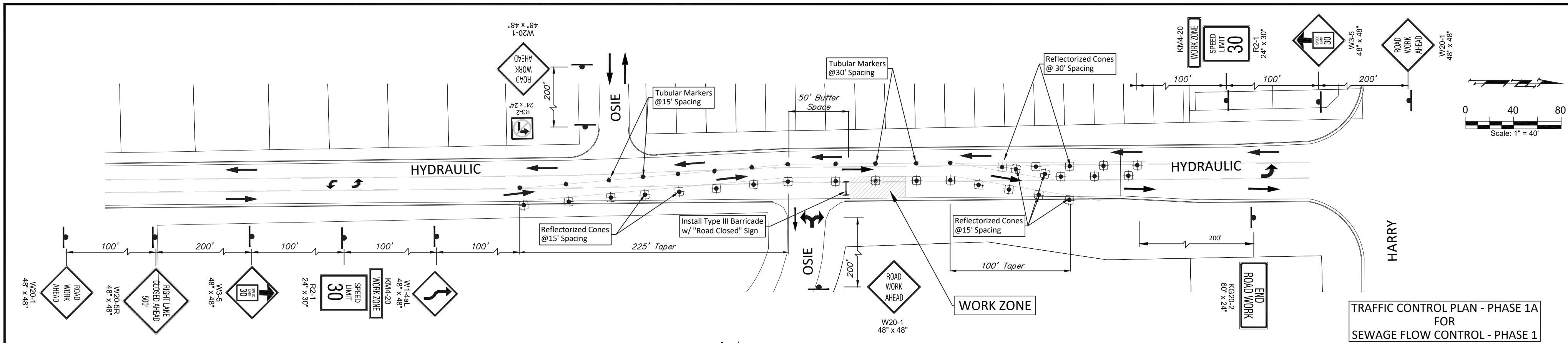
PROJECT NUMBER:
468-85276

DESIGN: ENG DRAWN: JSB

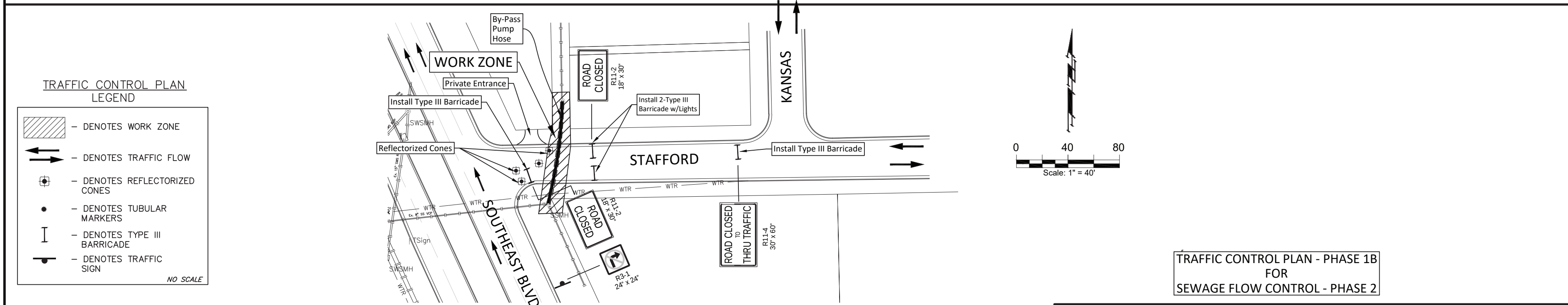
DATE: January 26, 2023

SHEET 9 OF 24

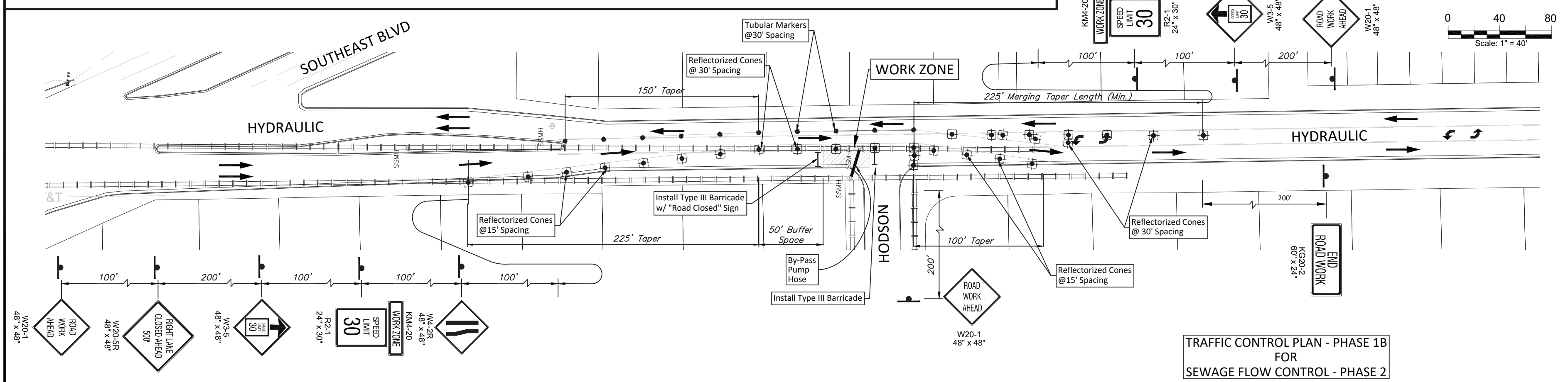
File: E:\Projects\Hydraulic & SE Blvd SS\ 1-7-1-E\072SS Base.dwg



TRAFFIC CONTROL PLAN - PHASE 1A
FOR
SEWAGE FLOW CONTROL - PHASE 1



TRAFFIC CONTROL PLAN - PHASE 1B
FOR
SEWAGE FLOW CONTROL - PHASE 2



TRAFFIC CONTROL PLAN - PHASE 1B
FOR
SEWAGE FLOW CONTROL - PHASE 2

BRENT WOOTEN
LICENSED
8470
01/27/2023
KANSAS
PROFESSIONAL ENGINEER

BAUGHMAN COMPANY
315 Ellis St.
Wichita, KS 67211
316-262-7271
BaughmanCo.com

HYDRAULIC & SE BLVD SS

TRAFFIC CONTROL PLAN FOR BYPASS PUMPING

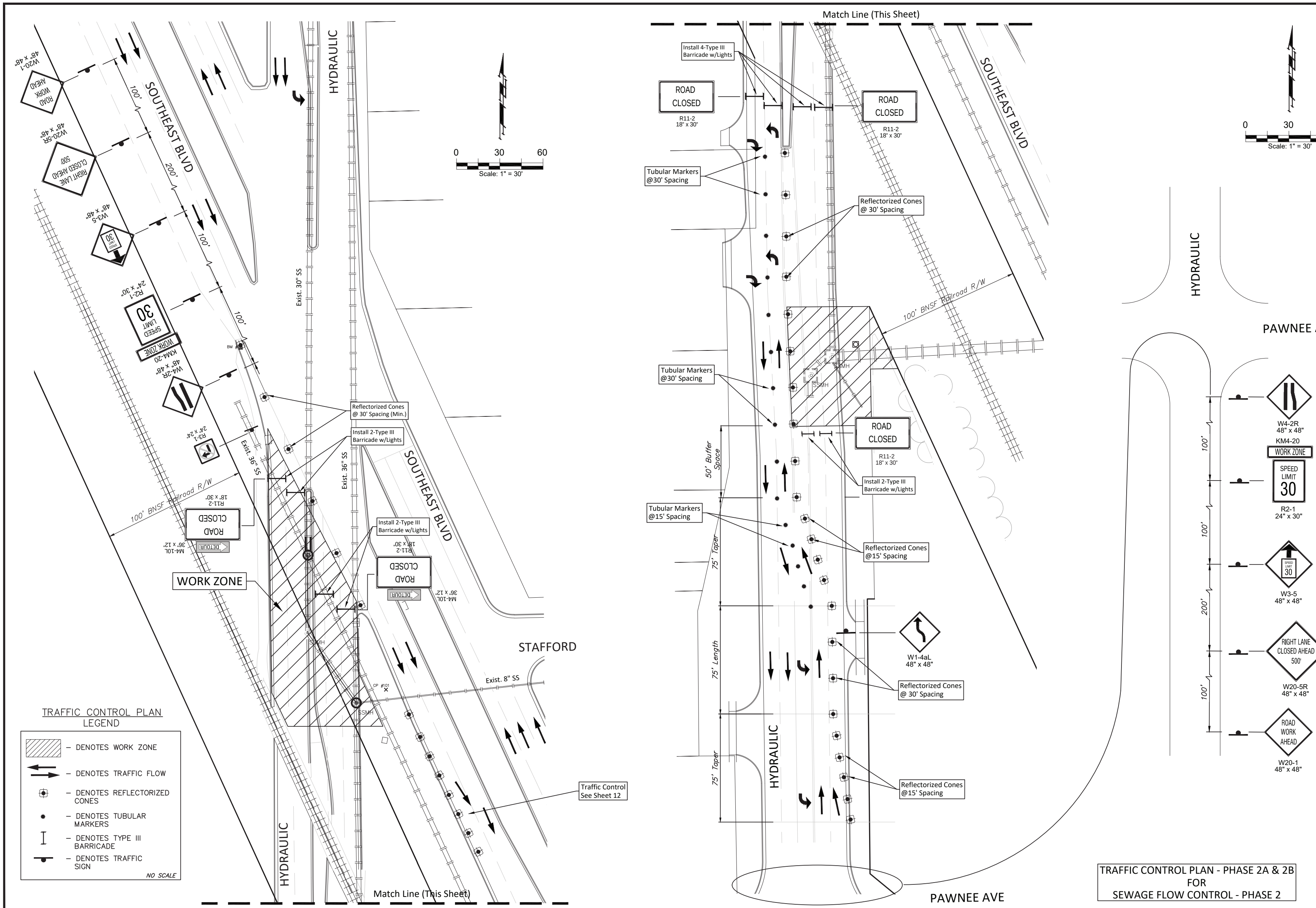
CAPITAL IMPROVEMENT PROJECT

PROJECT NUMBER:
468-85276

DESIGN: ENG DRAWN: JSB
DATE: January 26, 2023

SHEET 10 OF 24

File: E:\Projects\Hydraulic & SE Blvd SS_17-11-E872\SS Base.dwg



TRAFFIC CONTROL PLAN - PHASE 2A & 2B
FOR
SEWAGE FLOW CONTROL - PHASE 2

BRENT WOOTEN LICENSED 8470 01/27/2023 KANSAS PROFESSIONAL ENGINEER

BAUGHMAN COMPANY

315 Ellis St.
Wichita, KS 67211
316-262-7271
BaughmanCo.com

HYDRAULIC & SE BLVD SS

TRAFFIC CONTROL PLAN PHASE 2A & 2B

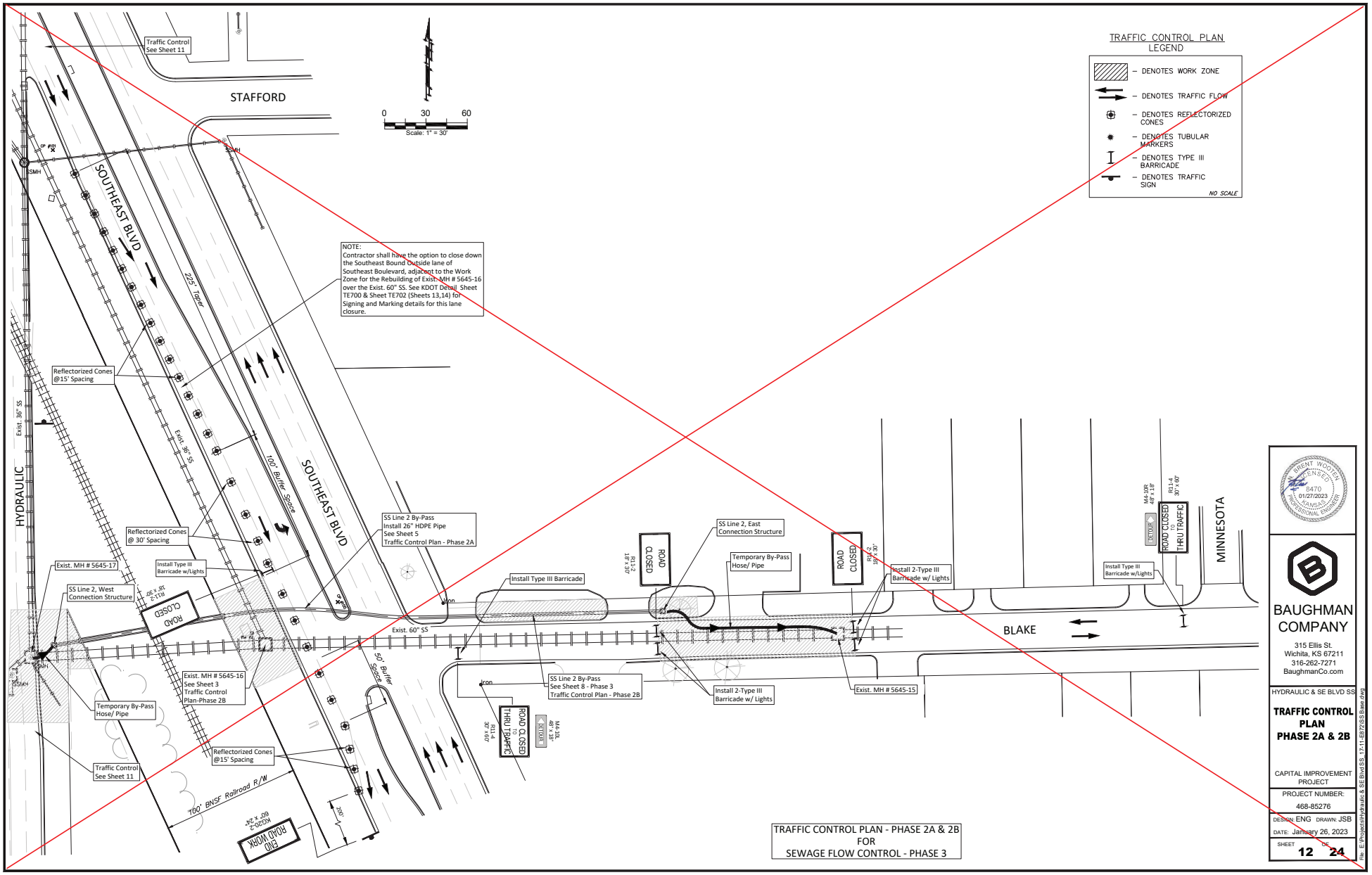
CAPITAL IMPROVEMENT PROJECT

PROJECT NUMBER: 468-85276

DESIGN: ENG DRAWN: JSB
DATE: January 26, 2023

SHEET 11 OF 24

File: E:\Projects\Hydraulic & SE Blvd SS_17-11-E872\SS Base.dwg



TRAFFIC CONTROL PLAN - PHASE 2A & 2B
FOR
SEWAGE FLOW CONTROL - PHASE 3

BRENT WOOTEN LICENSED 8470 01/27/2023 KANSAS PROFESSIONAL ENGINEER

BAUGHMAN COMPANY
315 Ellis St.
Wichita, KS 67211
316-262-7271
BaughmanCo.com

HYDRAULIC & SE BLVD SS

TRAFFIC CONTROL PLAN PHASE 2A & 2B

CAPITAL IMPROVEMENT PROJECT

PROJECT NUMBER: 468-85276

DESIGN: ENG DRAWN: JSB

DATE: January 26, 2023

SHEET 12 OF 24

File: E:\Projects\Hydraulic & SE Blvd\SS_12-11-18\P2\SS Base.dwg

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS		2022	13	24

1) Design Speed: Those items delegated to temporary traffic control should be designed and installed using the posted/legal speed of the roadway prior to work starting.

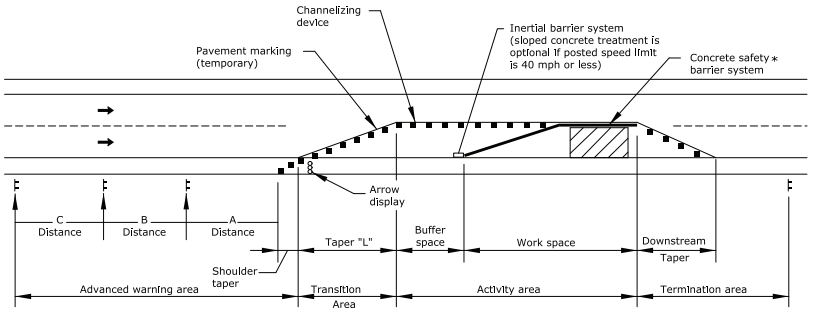
2) Minimum lane width: Lane widths shall be a minimum of 11' (measured between centerlines of pavement markings) or as shown on the plans, or as directed by the engineer. A lane width less than 11' may require restricted roadway width signing.

3) Consideration should be made to seperate pedestrian and, if needed, bicycle movements from both work site activity and vehicular traffic. Unless a reasonable safe route that does not involve crossing the roadway can be provided, pedestrians should be appropriately directed with advance signing that encourages them to cross to the opposite side of the roadway. In urban and suburban areas with high vehicular traffic volumes, these signs should be placed at intersections (rather than midblock locations) so that pedestrians are not confronted with midblock work sites that will induce them to attempt skirting the work site or making a midblock crossing.

4) When existing pedestrian facilities are disrupted, closed, or relocated, the temporary facilities shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility.

5) When the driving surface open to traffic is milled, is a temporary surface made of loose material, or when directed by the engineer use the W8-15 (Grooved Pavement) or W8-7(Loose Gravel) a "C" distance after the W20-1 (Road Work Ahead) on mainline approaches. Signs may be used with the W8-15p motorcycle plaque as directed by the engineer. Display signs in advance of the condition as long as the condition is present.

6) Alternative temporary rumble strip options may be available. Please contact the Temporary Traffic Control Unit for more information at 785-296-0355 or 785-296-1183.



TYPICAL WORK ZONE COMPONENTS

∗ When concrete barrier system is used, portable channelizing devices are not needed along the tangent barrier section.

Minimum advance warning sign spacing (in feet):

SPEED (MPH) ∗	A	B	C
URBAN (40 MPH OR LOWER)	100	100	100
URBAN (45 MPH OR HIGHER)	350	350	350
RURAL (55 MPH OR LOWER)	500	500	500
RURAL (60 MPH OR HIGHER)	750	750	750
EXPRESSWAY/FREEWAY	1000	1500	2640

∗ Posted speed prior to work starting

The minimum spacing between signs shall be no less than 100', unless directed by the engineer.

The spacing between any signs may be increased beyond the minimum values in the table above as approved by the engineer in order to maximize visibility.

Taper Formulas:

$L = WS$ for speeds of 45 MPH or more

$L = WS^2/60$ for speeds of 40 MPH or less

Where: L =Minimum length of taper in feet
S =Numericial value of posted speed prior to work starting in MPH
W =Width in offset feet

Shifting taper=1/2 L
Shoulder taper=1/3 L

Channellzer placement:

(1) The spacing between devices in transition area (taper) should not exceed a distance in feet equal to 1/2 the posted speed limit in mph prior to work starting.

(2) The spacing between devices in the advanced warning area and the activity area should not exceed a distance in feet equal to two times the posted speed limit in mph prior to work starting.

(3) Channelizing devices shall be placed for optimum visibility, normally at right angles to the traffic flow.

(4) Place directional indicator barricades in series to direct traffic onto the new path. The arrow sign should not be visible to opposing traffic.

(5) Alternating diagonal orange and white striping must slope downward in the direction traffic is expected to pass.

Buffer Space

SPEED (MPH) ∗	20	25	30	35	40	45	50	55	60	65	70	75
LENGTH (ft)	115	155	200	250	305	360	425	495	570	645	730	820

∗ Posted speed prior to work starting

Neither work activity nor storage of equipment, vehicles, or material should occur in the buffer space. When a protection vehicle is placed in advance of the work space, only the space upstream of the vehicle constitutes the buffer space.

If temporary concrete safety barrier system is used to seperate approaching traffic from the work space, the barrier system shall be considered part of the activity area. A full lane width should be available throughout the length of the buffer space. See typical work zone components above.

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1	08/18/15	Channerlizer spacing info	R.W.B.	K.E.

KANSAS DEPARTMENT OF TRANSPORTATION

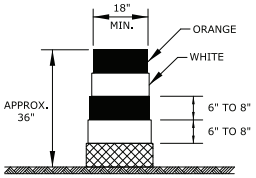
TRAFFIC CONTROL GENERAL NOTES

TE700

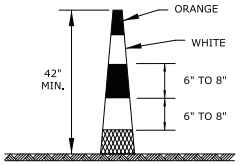
FHWA APPROVAL		08/18/15	APP'D	Kristina Eriksen	
DESIGNED	B.A.H.	DETAILED	R.W.B	QUANTITIES	TRACED
DESIGN CK.		DETAIL CK.		QUAN. CK.	TRACE CK.

KDOT Graphics Certified 08-18-2015

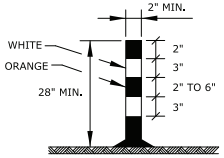
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS		2018	14	24



DRUM

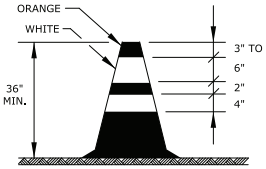


CONICAL DELINEATOR

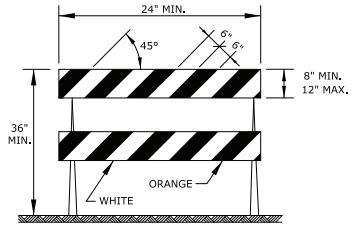


TUBULAR MARKER

Striping as shown for up to 42".

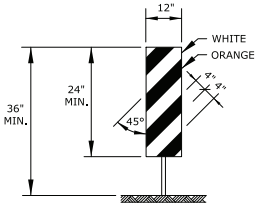


TRAFFIC CONE



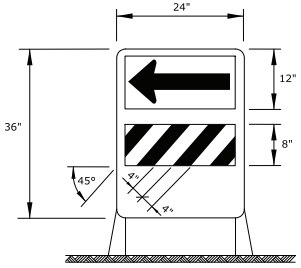
TYPE 2 BARRICADE

For rails less than 36" long, 4" wide stripes may be used. All stripes shall slope downward to the traffic side for channelization.



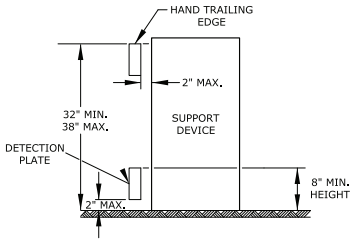
VERTICAL PANEL

The stripes shall slope downward to the traffic side for channelization.



DIRECTION INDICATOR BARRICADE

The stripes shall slope downward in the direction traffic is to pass. The direction indicator barricade shall be used in series to direct the motorist into the intended lane of travel.



PEDESTRIAN CHANNELIZER

1. Support device shall not project beyond the detection plate into the pathway.
2. Hand trailing edges and detection plates are optional for continuous walls.
3. Interconnect pedestrian channellzers to prevent displacement and to provide continuous guidance through or around work.
4. Alternate pathways shall be firm, stable, and slip resistant.
5. Treat height differentials > 1/2" in the surfaces of alternate paths with a firm, stable, and slip resistant temporary ramp having a slope of 12:1 or flatter and having a width equal to the alternate path.
6. Use alternating orange/white on interconnected devices.

ITEM	LOCATION	Cross-overs	Shoofly Diversions	Tangents	Tapers	Ramps	Head to Head	Object Identifier	Lead-in Devices	Gores
PORTABLE										
	Drums	Yes	Yes	Yes	Yes	Yes	(1)	Yes	Yes	Yes
	Conical Delineators	Yes	Yes	Yes	Yes	Yes	(1)	Yes	Yes	Yes
	Vertical Panels	(2)	(2)	(2)	(2)	(2)	(1,2)	YES	(2)	(2)
	Direction Indicator Barricade	NO	NO	NO	Yes	NO	NO	NO	NO	NO
	Type 2 Barricade	(2)	(2)	(2)	(2)	NO	NO	Yes	NO	NO
	Traffic Cones	NO	NO	(4)	(4)	(4)	NO	(4)	(4)	(4)
FIXED										
	Tubular Markers	(3)	(3)	(3)	NO	(3)	Yes	NO	Yes	Yes
	Vertical Panels	(3)	(3)	(3)	(3)	(3)	(3)	Yes	(2,3)	(2)

(1) Not allowed on centerline delineation along freeways or expressways.
(2) The stripes shall slope downward to the traffic side for channelization.
(3) May be used upon the approval of the engineer.
(4) Daytime operations only.

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL CHANNELIZING DEVICES

TE702

FHWA APPROVAL		06/01/15	APP'D	Kristina Eriksen
DESIGNED	L.E.R.	DETAILED	R.W.B.	QUANTITIES	TRACED
DESIGN CK.		DETAIL CK.		QUAN. CK.	TRACE CK.

KDOT Graphics Certified 06-01-2015

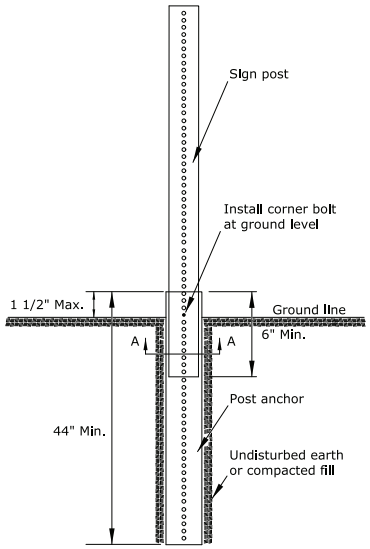
Sh. 14 of 24

KDOT Graphics Certified

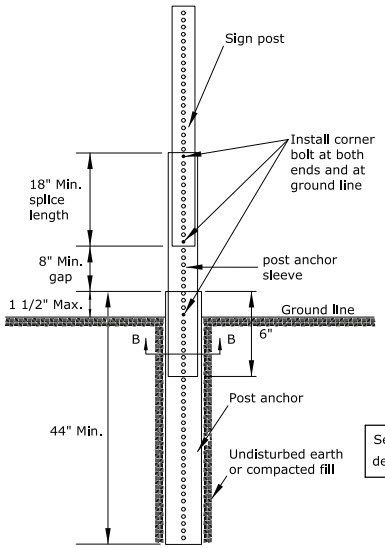
Plotted : 01-JUN-2015 13:54
Traffic

Drawn By : mushock
File : te702.dgn

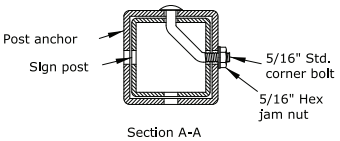
Perforated square steel tube (P.S.S.T.) post setup



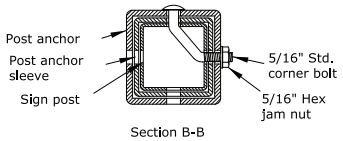
P.S.S.T. detail



Telescoping P.S.S.T. detail



Section A-A

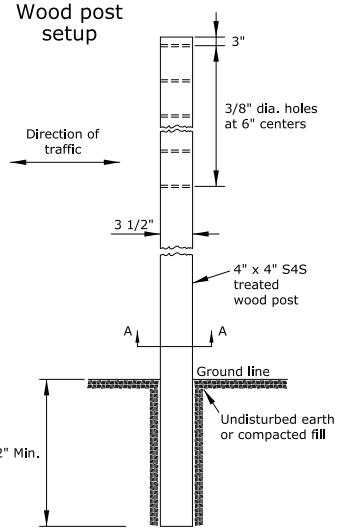


Section B-B

Details for 2", 2 1/4", or 2 1/2" sign posts

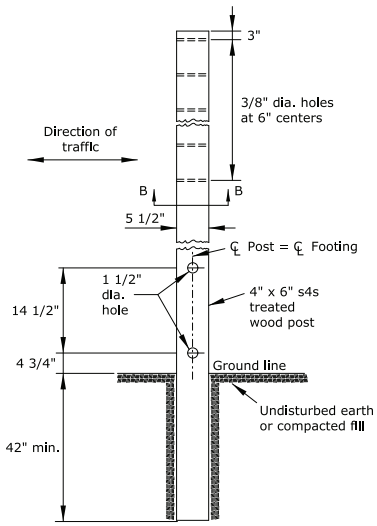
Place bolts in the same corner along each sign post.

Wood post setup



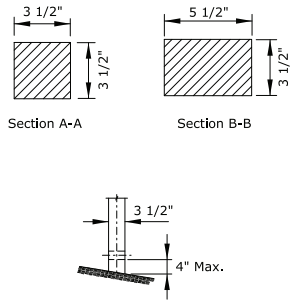
Side elevation

4" x 4" Wood post In soil



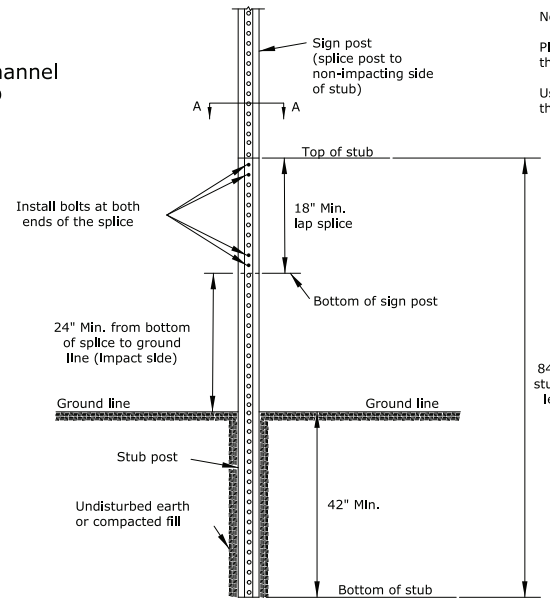
Side elevation

4" x 6" Wood post in soil



See TE710 for additional details and requirements

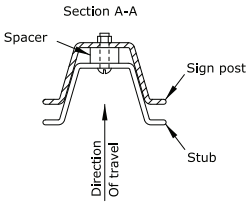
3 lb/f U-Channel setup



Notes:

Place two bolts at both ends of the splice through the holes nearest the ends of the splice.

Use manufacturer recommended spacers over the bolts between the spliced pieces of U-Channel.



STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS		2022	15	23

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL SIGN POSTS

TE712

FHWA APPROVAL		06/01/15	APP'D	Kristina Pyle
DESIGNED	B.A.H.	DETAILED	R.M.B.	QUANTITIES	TRACED
DESIGN CK.		DETAIL CK.		QUAN. CK.	TRACE CK.

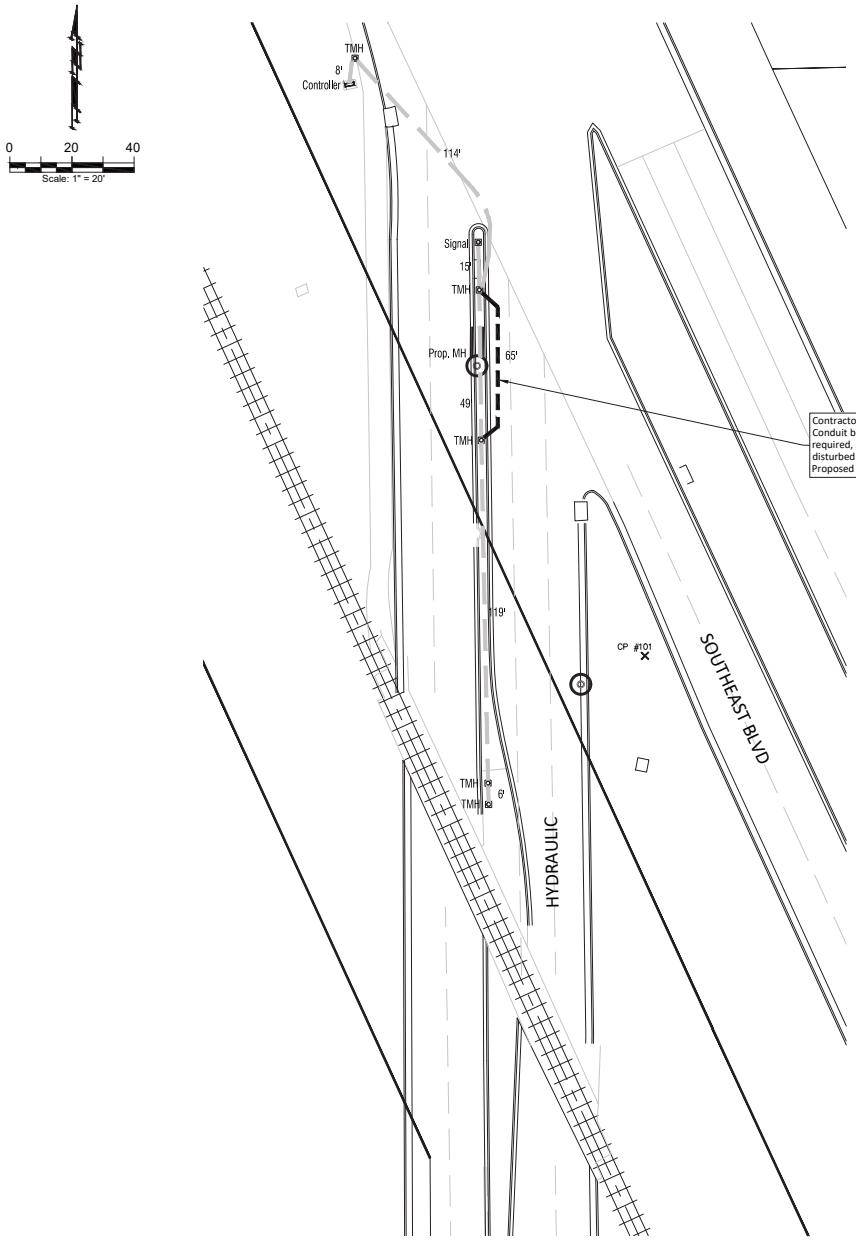
KDOT Graphics Certified 06-01-2015

KDOT Graphics Certified

Sh. 15 of 23

Plotted : 01-JUN-2015 13:54
Traffic

Drawn By : mushock
File : te712.dgn



Proposed 2" RGC Conduit

Existing 2" RGC Conduit

The Contractor shall contact Kevin Shore or Lynn Avants at (316) 268-4034 or (316) 268-4013 with City of Wichita Traffic Maintenance PRIOR to setting up or removing any traffic control so that signal timing adjustments can be made before traffic is affected.

Contractor shall locate Proposed 2" RGC Conduit below street pavement, as required, so Conduit will NOT be disturbed during installation of Proposed SS Manhole.

The existing conduit has an abandoned 6-pair twisted-pair communications cable that can be cut off with a 4' tail in the service hole and abandoned with the end taped over with plastic electrical tape.

A #6 AWG THWN ground wire shall be installed in the relocated duct. A shielded 2 conductor #14 AWG THWN cable shall be pulled unspliced from the furthest south traffic manhole to the control cabinet with a 6' tail on each end.

The City of Wichita Traffic Maintenance Department will give access to the signal controller and assist terminating and splicing cables.

SUMMARY OF QUANTITIES	
2" RGC Conduit	65'
#6 AWG THWN Cable	85'
#14 AWG THWN Cable	372'
For Infomation Only.	

All Costs Associated with the Removal and Relocation of the Traffic Conduit and Returning the Traffic Signal System to Working Order Shall be SUBSIDIARY to the Lump Sum Bid Item "Traffic Signal Conduit (Includes Cables)".

See TR-109 Detail, Sheet 16, for Details on Trenching in the Conduit and Connecting to the Existing Traffic Manholes.

BRENT WOOTEN LICENSED 6470 01/27/2023 KANSAS PROFESSIONAL ENGINEER

BAUGHMAN COMPANY
315 Ellis St.
Wichita, KS 67211
316-262-7271
BaughmanCo.com

HYDRAULIC & SE BLVD SS

TRAFFIC SIGNAL CONDUIT RELOCATION PLAN

CAPITAL IMPROVEMENT PROJECT

PROJECT NUMBER: 468-85276

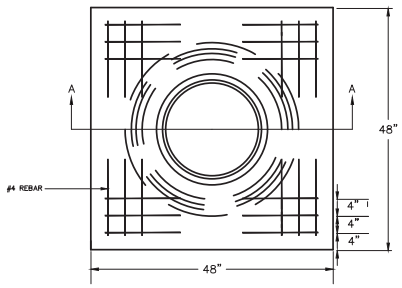
DESIGN: ENG DRAWN: JSB

DATE: January 26, 2023

SHEET 16 OF 24

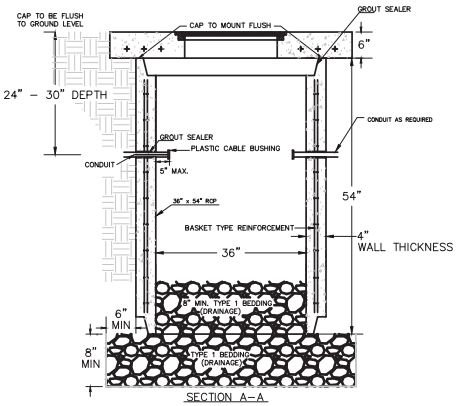
File: E:\Projects\Hydraulic & SE Blvd SS\ 17-11-E\072SS Base.dwg

SERVICE BOX CONSTRUCTION/INSTALLATION DETAILS

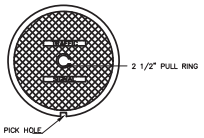


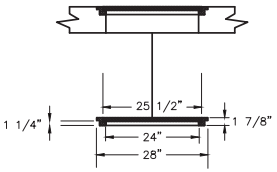
PRE-CAST CONCRETE
SERVICE BOX

(36" I.D. X 54" RCP)
with 6" CAP



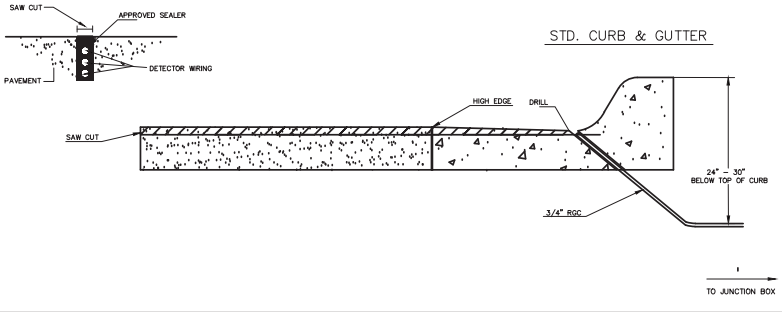
SECTION A–A



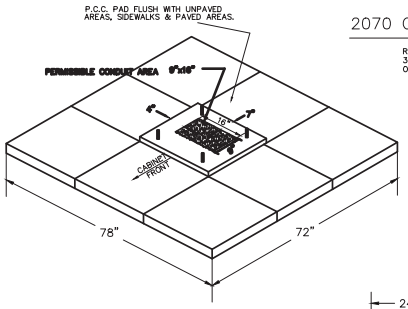


RING & COVER DETAIL

CONDUIT/DETECTOR WIRE INSTALLATION DETAILS

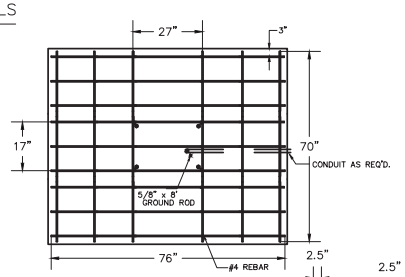


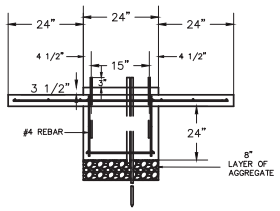
STD. CURB & GUTTER

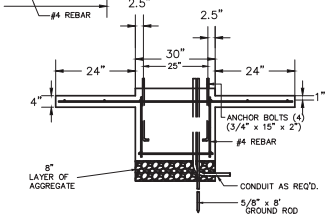


2070 CONTROLLER PAD DETAILS

REBAR SHALL BE ASTM A615M GRADE 300 MEETING THE REQUIREMENTS OF SUBSECTION SPECIFICATIONS.

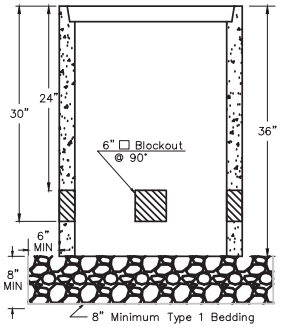




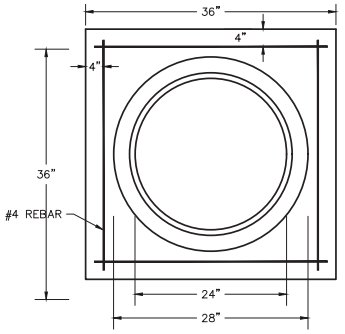


JUNCTION BOX DETAILS

PRE-FAB Junction Box
(24" I.D. X 36" R.C.P.)

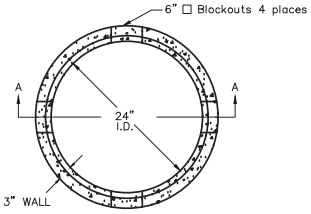


SECTION A–A



JUNCTION BOX CAP

36" x 36" x 6"
TOP OF CAP TO BE FLUSH WITH GROUND LEVEL.



** SEE SERVICE BOX INSTALLATION FOR RING & COVER DETAILS.

NOTES:

SERVICE & JUNCTION BOX:

1. CONDUIT CONNECTION TO BE FLUSH TO WITHIN 5" OF INSIDE FACE OF SIDE WALL, CONDUIT TO DRAIN INTO SERVICE BOX.
2. CONDUIT CONNECTIONS TO SERVICE BOX SHALL BE TERMINATED WITH PLASTIC CABLE BUSHING.
3. CONDUIT SHALL BE SEALED WITH APPROVED SEALER AT INSIDE WALL FACE.
4. ALL SERVICE & JUNCTION BOXES TO HAVE 8" OF CRUSHED ROCK.

No 90 degree elbows unless approved by Traffic Maintenance

TRENCHING:

1. DEPTH TO BE 30" MINIMUM WITH ROCK & STUBBLE FREE BACKFILL TO SERVE AS BEDDING MATERIAL. MAINTAIN MINIMUM CONDUIT DEPTH IN TRENCH.
2. BACKFILL TO BE COMPACTED IN 6" LOOSE LIFTS BY HAND OR MECHANICAL TAMPING TO A 95% STANDARD DENSITY.

CONDUIT:

1. SLOPE CONDUIT TO DRAIN AS DIRECTED BY THE ENGINEER.
2. 3" RIGID STEEL CONDUIT BTWN. SERVICE BOXES.
   2" " " " BTWN. SERVICE BOX AND POLE.
   1 1/4" " " BTWN. SERVICE & JUNCTION BOXES.
   3/4" " " BTWN. JUNCTION BOXES.
   3/4" " " BTWN. JUNCTION BOX & DETECTOR LOOP SAW CUT

No 90 degree elbows unless approved by Traffic Maintenance

REVISED AUGUST 2014

CITY OF WICHITA
PUBLIC WORKS & UTILITIES
ENGINEERING DIVISION

SERVICE/JUNCTION BOX, CONTOLLER PAD CONSTRUCTION/INSTALLATION

TRAFFIC ENGINEER
BRIAN COON, P.E.

PROJECT NUMBER	OCA NUMBER	DATE
468-85276	622526	

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

SHEET
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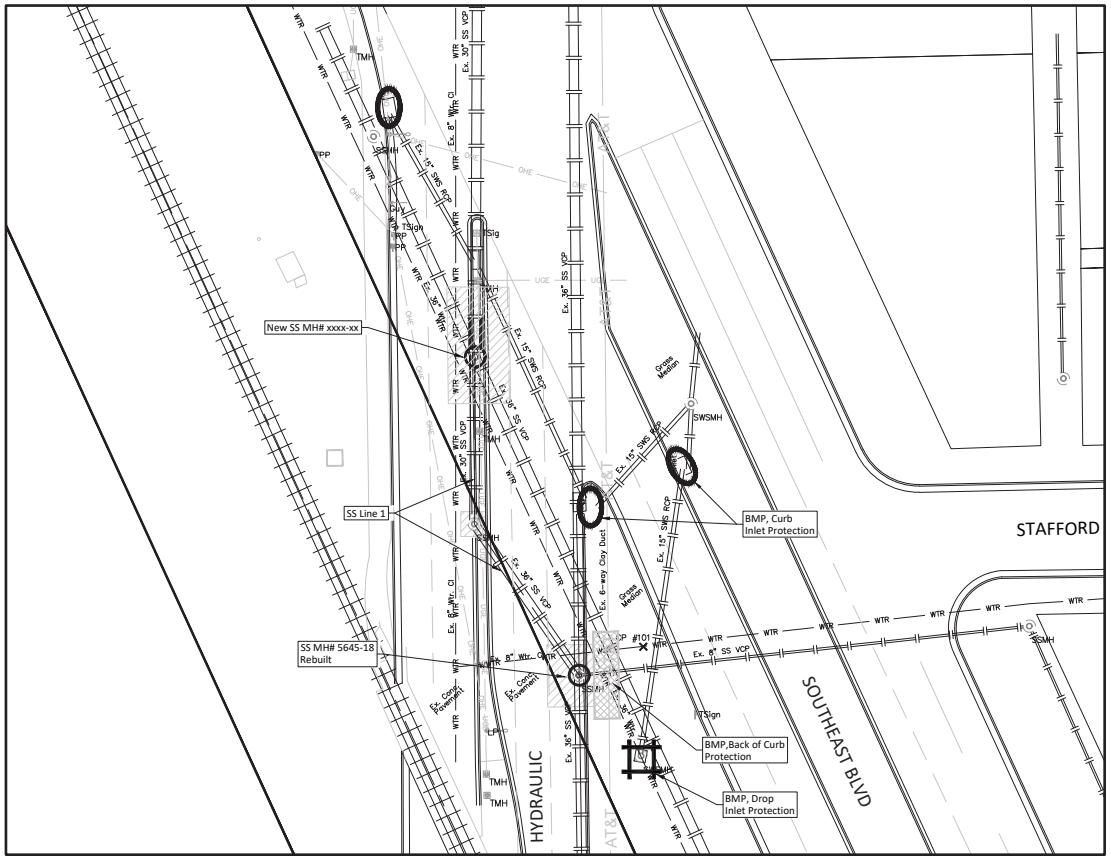
EROSION CONTROL PLAN
LEGEND

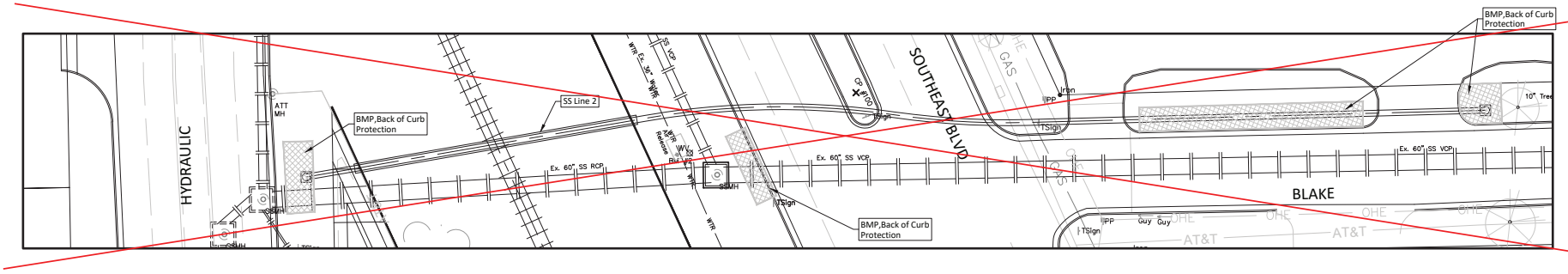
- BMP, CURB INLET PROTECTION
- BMP, DROP INLET PROTECTION
- BMP, SILT FENCE
- BMP, BACK OF CURB PROTECTION
- BMP, DITCH CHECK

NO SCALE
(Installation Details Found in the BMP Details Sheets)

EROSION CONTROL QUANTITIES	
EROSION CONTROL MEASURE	QUANTITES
BACK OF CURB PROTECTION (LF)	155
CONSTRUCTION ENTRANCE (EA)	2
CURB INLET PROTECTION (EA)	3
DROP INLET PROTECTION (EA)	1
DITCH CHECKS (EA)	-
SILT FENCE (LF)	-

TURF RESTORATION	
SEEDING	100 SY
For Inforation Only.	





0 20
SCALE:
1" = 20' Horizontal

BRENT WOOTEN LICENSED 6470 01/27/2023 KANSAS PROFESSIONAL ENGINEER

BAUGHMAN COMPANY
315 Ellis St.
Wichita, KS 67211
316-262-7271
BaughmanCo.com

HYDRAULIC & SE BLVD SS

EROSION CONTROL PLAN

CAPITAL IMPROVEMENT PROJECT

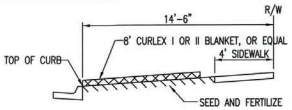
PROJECT NUMBER:
468-85276

DESIGN: ENG DRAWN: JSB

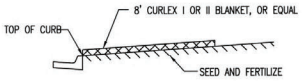
DATE: January 26, 2023

SHEET 18 OF 24

File: E:\Projects\Hydraulic & SE Blvd SS\ 17-1-E\572SS Base.dwg



SECTION B–B



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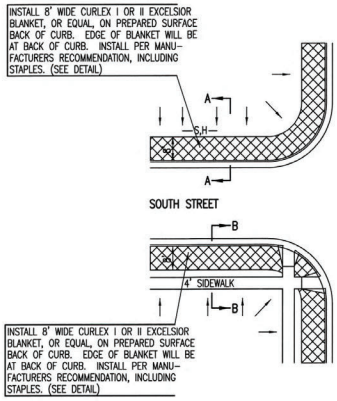
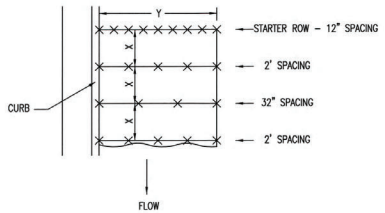


GENERAL NOTES

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

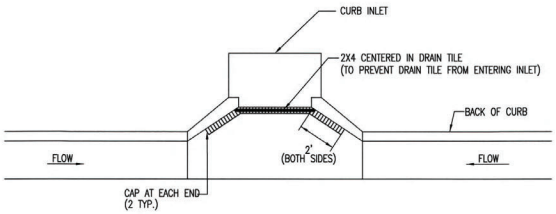


STAPLE PATTERN

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

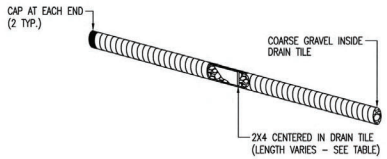
STAPLE

DETAILS FOR APPROVED EROSION CONTROL MAT

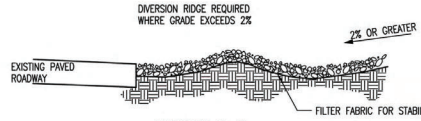


NOTE:
PLACE 4" PERFORATED PVC PIPE, FILLED WITH 1/2"–1" DIA. GRAVEL, IN FRONT OF CURB INLET AS SHOWN.

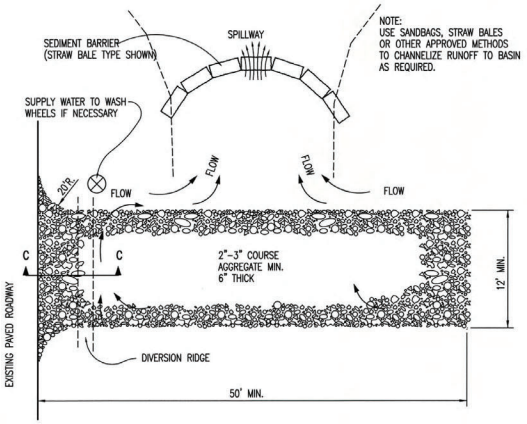
2X4 LENGTH	INLET TYPE	INLET OPENING
5'–6"	1–A	5'–0"
10'–6"	1–A	10'–0"
15'–6"	1–A	15'–0"



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

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
		5/2013

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

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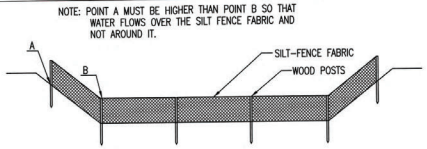


ELEVATION

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

PROPER INSTALLATION METHOD:

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

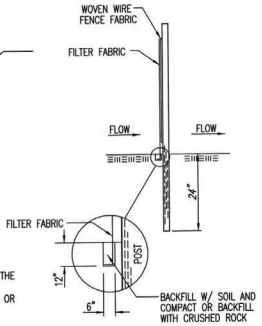
LIST OF COMMON PLACEMENT/INSTALLATION MISTAKES TO AVOID:

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

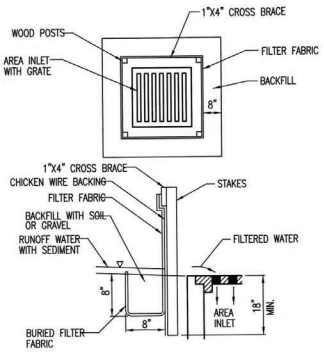
INSPECTION AND MAINTENANCE:

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

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



ANCHOR TRENCH DETAIL



SILT FENCE BARRIERS FOR AREA INLETS
(INLET PROTECTION)

MATERIAL SPECIFICATION:

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

PLACEMENT:

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

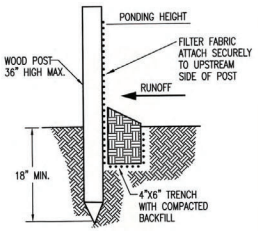
LIST OF COMMON PLACEMENT/INSTALLATION MISTAKES TO AVOID:

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?

REVISION DATE: MAY 2013

GARY L. JANZEN LICENSED 19294 PROFESSIONAL ENGINEER KANSAS
05/31/13

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
		5/2013

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

SHEET
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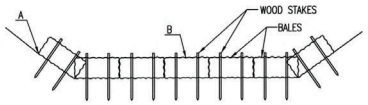
SW-502

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".

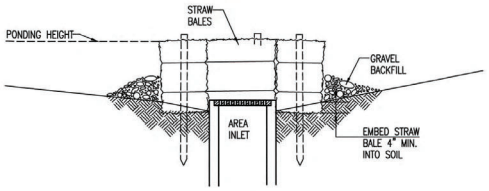
LIST OF COMMON PLACEMENT/INSTALLATION MISTAKES TO AVOID:

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.

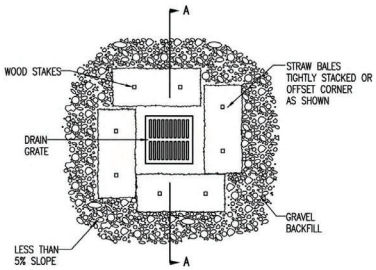
INSPECTION AND MAINTENANCE:

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.

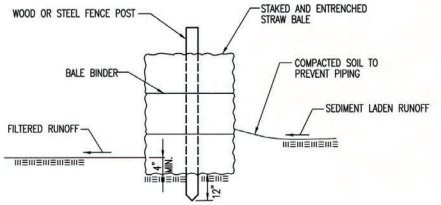
LIST OF COMMON PLACEMENT INSTALLATION MISTAKES TO AVOID:

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 16294 PROFESSIONAL ENGINEER KANSAS
05/13/13

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
		5/2013

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

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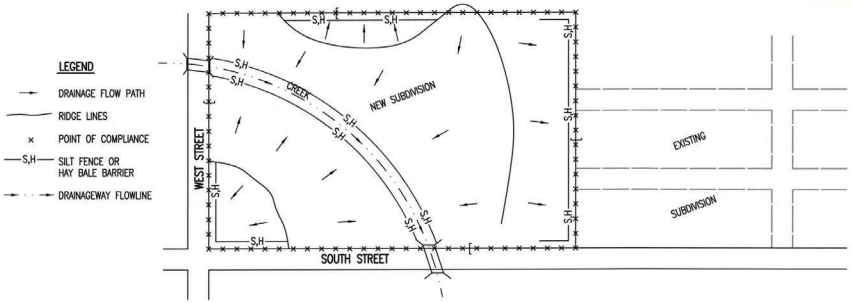
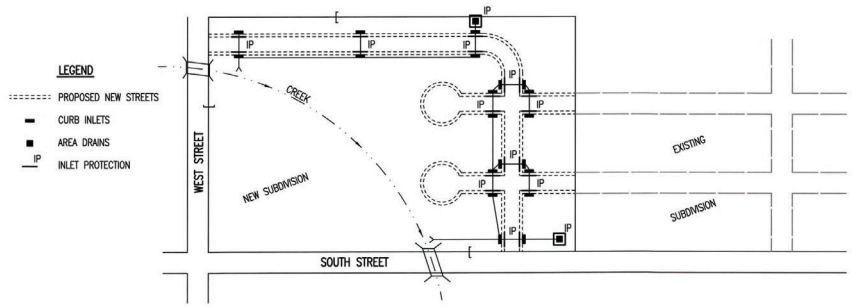
SW-503

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



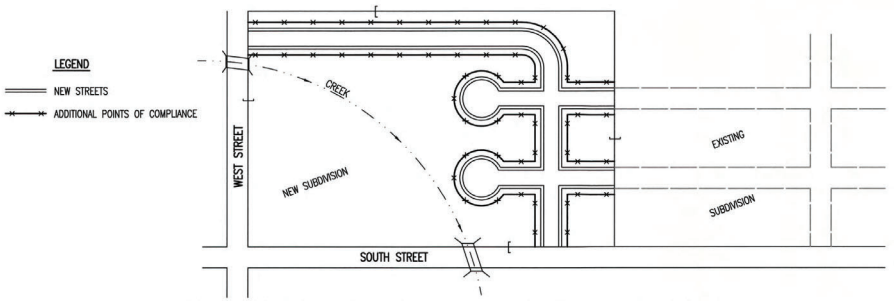
1. DURING THIS PHASE OF SUBDIVISION CONSTRUCTION, THE POINTS OF COMPLIANCE ARE THE PERIMETER BOUNDARIES AND ANY DRAINAGE WAYS OR STORM SEWERS DRAINING THROUGH OR FROM THE SITE. SHOULD LAKES BE CONSTRUCTED WITHIN THE SUBDIVISION THAT WILL DISCHARGE DURING STORMS, THEY ARE ALSO A POINT OF COMPLIANCE.
2. 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

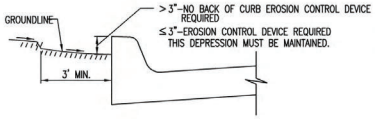


1. DURING THIS PHASE OF SUBDIVISION CONSTRUCTION, NEW STREETS ARE INSTALLED. ALL EROSION CONTROL DEVICES INSTALLED DURING PHASE 1 AND 2 MUST STILL BE MAINTAINED. THE POINT OF COMPLIANCE NOW SHIFTS TO THE BACK OF CURB ALONG EACH STREET.
2. CURB OPENING INLET PROTECTION:
   A. SUMP AREAS – INLET PROTECTION 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 16294 KANSAS PROFESSIONAL ENGINEER 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
		5/2013

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

SHEET
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SW-505

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.

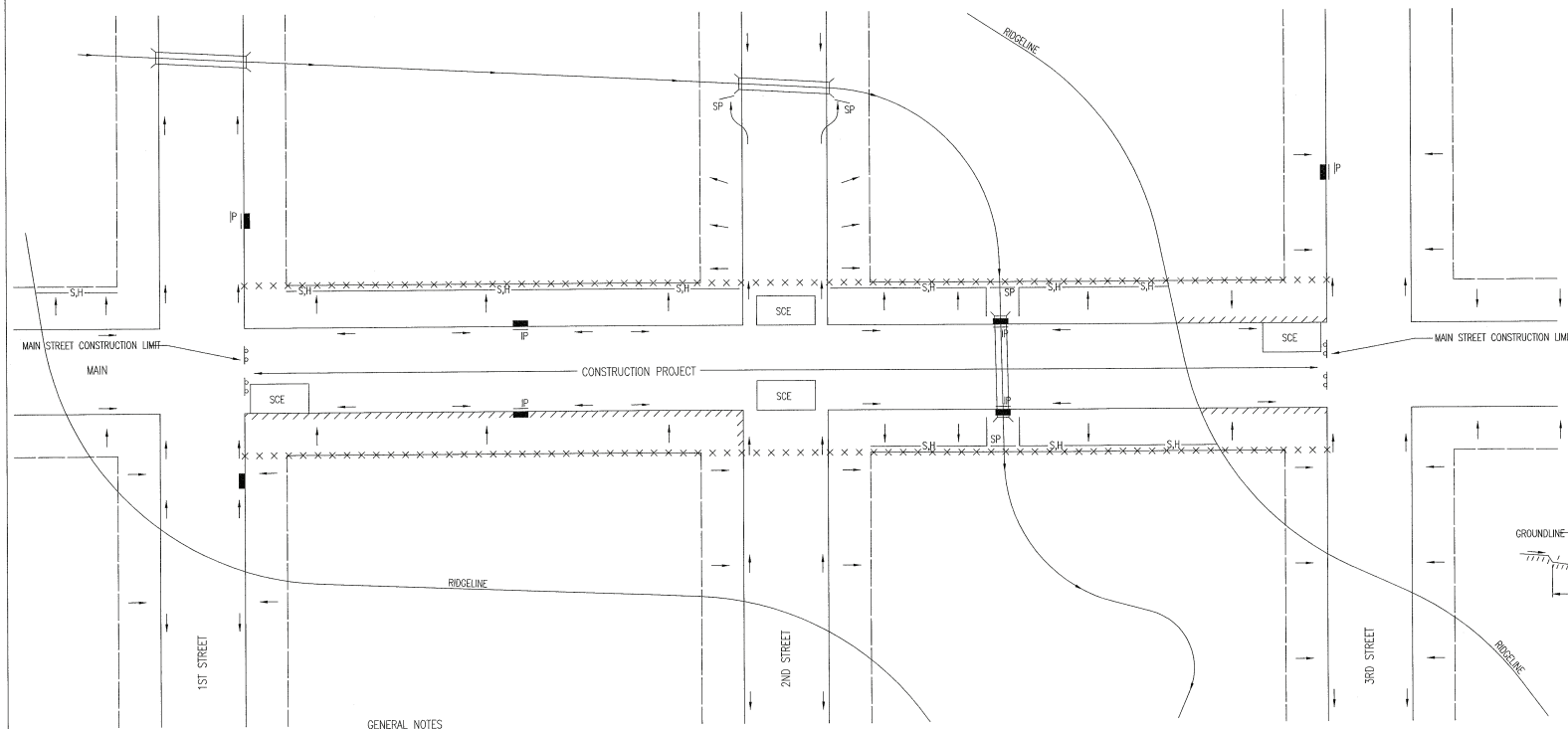
2. EROSION CONTROL DEVICES MUST BE MAINTAINED BY THE CONTRACTOR THROUGHOUT THE CONSTRUCTION PROCESS AND UNTIL THE DISTURBED EARTH IS RESTABILIZED.

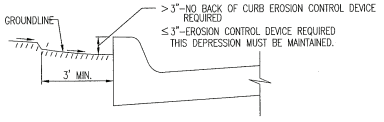
3. IF THE PROJECT WILL DISTURB 1 ACRE OR MORE, A FEDERAL/STATE NPDES STORMWATER PERMIT IS REQUIRED. A DETAILED STORMWATER POLLUTION PREVENTION PLAN, IS REQUIRED. THE EROSION CONTROL DEVICES SHOWN ON THIS SHEET ARE CONSIDERED TO BE THE MINIMUM TO BE SHOWN IN THE POLLUTION PREVENTION PLAN.

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 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)

GARY L. JANZEN — 16294 — REGISTERED PROFESSIONAL ENGINEER — 06/05/15

REVISION: JUNE 2015

CITY OF WICHITA
PUBLIC WORKS & UTILITIES ENGINEERING DIVISION

STREET IMPROVEMENT PROJECTS

CITY ENGINEER
GARY JANZEN, P.E.

PROJECT NUMBER	OCA NUMBER	DATE
		11/2015

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