

GENERAL NOTES

- Contractor will be required to provide a minimum advance notice of twenty-four (24) hours to utility companies prior to starting any excavation as follows:

| | |
|-----------------|----------|
| Kansas One-Call | 687-2470 |
|-----------------|----------|
- The Contractor must notify the following in case of an emergency:

| | |
|--------------------------------------|----------------|
| Cox Communications | 260-7204 |
| Kansas Gas Service (Jim Coe) | 632-3126 |
| Westar | 383-8600 |
| Aquila Net | 1-800-303-0357 |
| SBC | 1-800-286-8313 |
| City of Wichita Water Department | 262-6000 |
| City of Wichita Sewer Maintenance | 262-6000 |
| Conoco Phillips Pipeline (Rusty Lee) | 681-2081 |
- Underground utility service lines and overhead utility pole lines 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. Location information has been obtained from the various utility companies and is either from company record drawings or company-provided field locations. The Contractor will be required to work around existing utilities within the right-of-way which do not conflict with proposed construction.
- 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 that, in the opinion of the Engineer, will leave an unsightly appearance will not be approved.
- All disposal sites must be approved by the Kansas Department of Health and Environment. Material either stockpiled or disposed of in a 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 permitting regulations. Any material buried or stockpiled beyond approved of Engineers construction limits would require additional archeological investigations unless buried in a previously approved borrow location.
- The Contractor shall give all property owners and/or tenants of developed property directly abutting the construction of this project a minimum of ten (10) days advance notice prior to start of construction.
- The Contractor shall seed, fertilize and mulch all disturbed areas upon completion of construction in accordance with City of Wichita standard specifications.
- The water main shall be constructed on the alignment shown by the plans. Trees and shrubs in public right-of-way which are in direct conflict with proposed new construction shall be removed by the Contractor with the Engineer's approval. Trees and shrubs which are not in direct conflict with proposed new construction shall be saved and protected from damage. The cost for any necessary tree trimming, clearing and/or grubbing shall be included in the price bid for the installed water main pipe.
- Opening and closing water valves shall be done slowly to prevent damage to the water distribution system from water hammer. All valves closed by the Contractor must be reopened as new construction permits. Project inspector must ascertain that any valve closed by the Contractor is reopened. Contractor will be permitted to operate water valves only when the project inspector assigned to the project is present.
- Contractor shall not start work on the project until the project inspector is assigned to the project and is present on the site. Any work done without inspection will be required to be uncovered for inspection.
- 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.
- The contractor shall maintain all existing erosion control BMP's that are present on the site at the time of construction. Cost of maintaining BMP's shall be incidental to the bid item for Site Clearing & Restoration.

WATER DISTRIBUTION SYSTEM IMPROVEMENTS WILLOW CREEK EAST PROJECT NO. 448-90282 O.C.A. NO. 735360

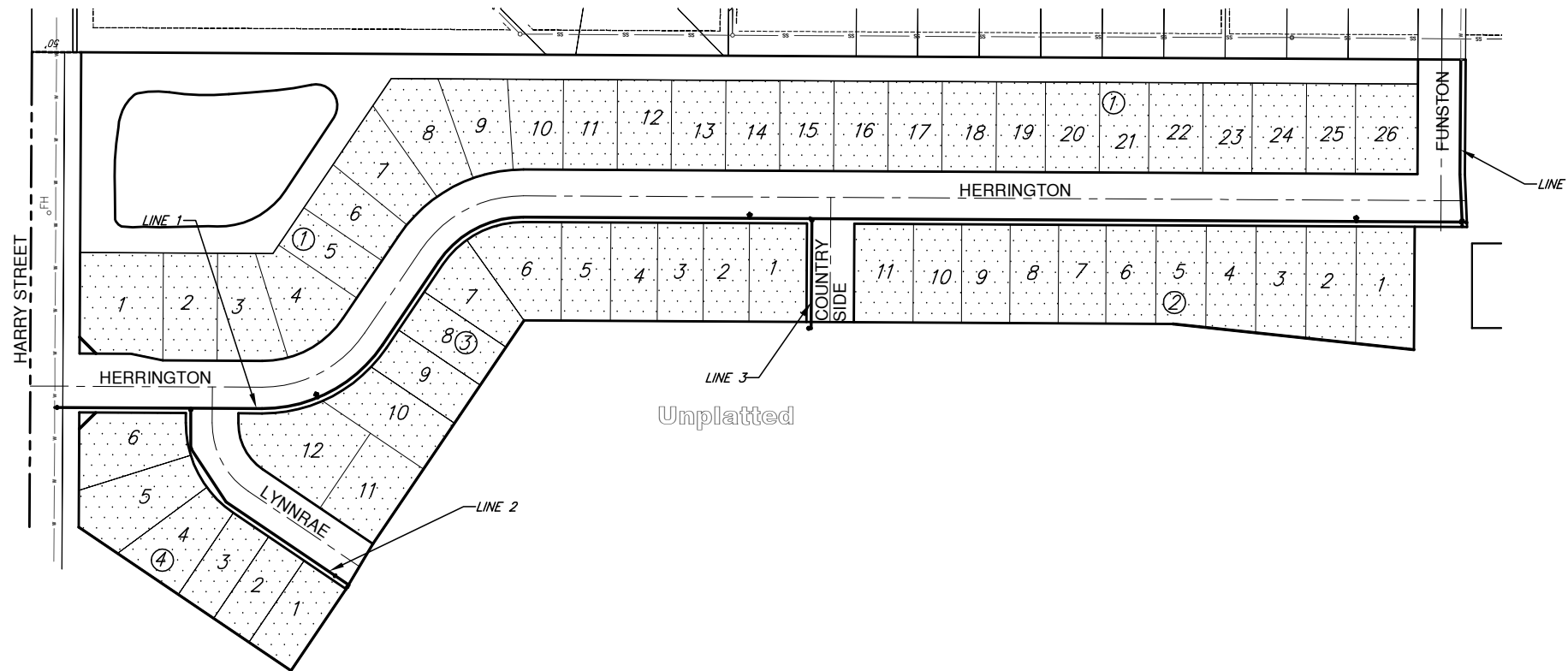
BENCH MARK

R&B BRASS DISC SET IN CONCRETE, 70' S. AND 10' W. OF THE N.E. COR., NW1/4, SEC. 34, T27S, R2E. ELEV. = 1331.77 NGVD 29

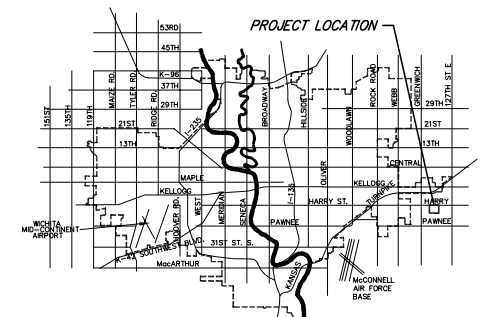
COW BENCHMARK: NORTHEAST CORNER OF INTERSECTION. SOUTHWEST CORNER OF CONCRETE BASE FOR TRAFFIC SIGNAL LIGHT POLE. ELEV. = 1343.86 NGVD 29

INDEX

- TITLE SHEET
- CONNECTION DETAILS
- LINE 1
- LINES 1 & 4
- LINES 2 & 3
- ADDITION & WATER BUBBLE MAP
- EROSION CONTROL PLAN
- EROSION CONTROL BMP'S
- FINAL PLAT



Scale: 1" = 100'

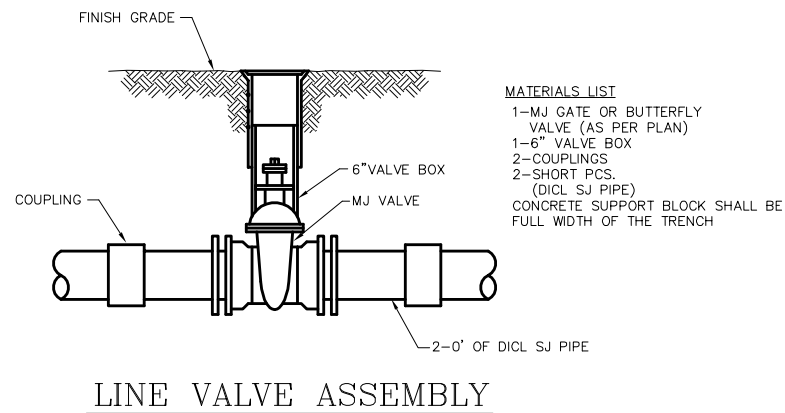


VICINITY MAP

IMPROVEMENT DISTRICT
CITY OF WICHITA, KANSAS
JAMES ARMOUR, P.E. - CITY ENGINEER

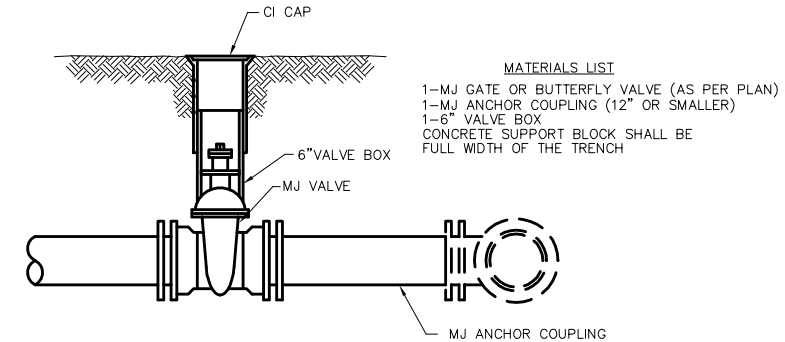


Ruggles & Bohm, P.A.
 Engineering, Surveying, Land Planning
 924 North Main (316) 264-8008
 Wichita, Kansas 67203 (316) 264-4621 fax
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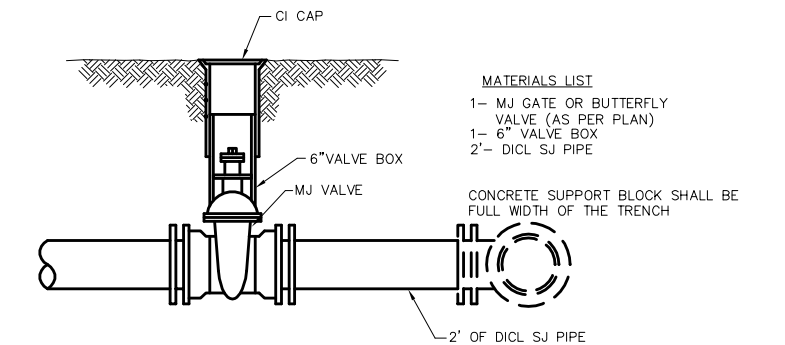
- MATERIALS LIST**
- 1-MJ GATE OR BUTTERFLY VALVE (AS PER PLAN)
 - 1-6" VALVE BOX
 - 2-COUPPLINGS
 - 2-SHORT PCS. (DICT SJ PIPE)
 - CONCRETE SUPPORT BLOCK SHALL BE FULL WIDTH OF THE TRENCH

LINE VALVE ASSEMBLY



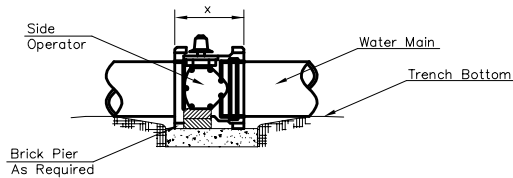
- MATERIALS LIST**
- 1-MJ GATE OR BUTTERFLY VALVE (AS PER PLAN)
 - 1-MJ ANCHOR COUPLING (12" OR SMALLER)
 - 1-6" VALVE BOX
 - CONCRETE SUPPORT BLOCK SHALL BE FULL WIDTH OF THE TRENCH

ANCHORED VALVE ASSEMBLY



- MATERIALS LIST**
- 1-MJ GATE OR BUTTERFLY VALVE (AS PER PLAN)
 - 1-6" VALVE BOX
 - 2- DICT SJ PIPE
 - CONCRETE SUPPORT BLOCK SHALL BE FULL WIDTH OF THE TRENCH

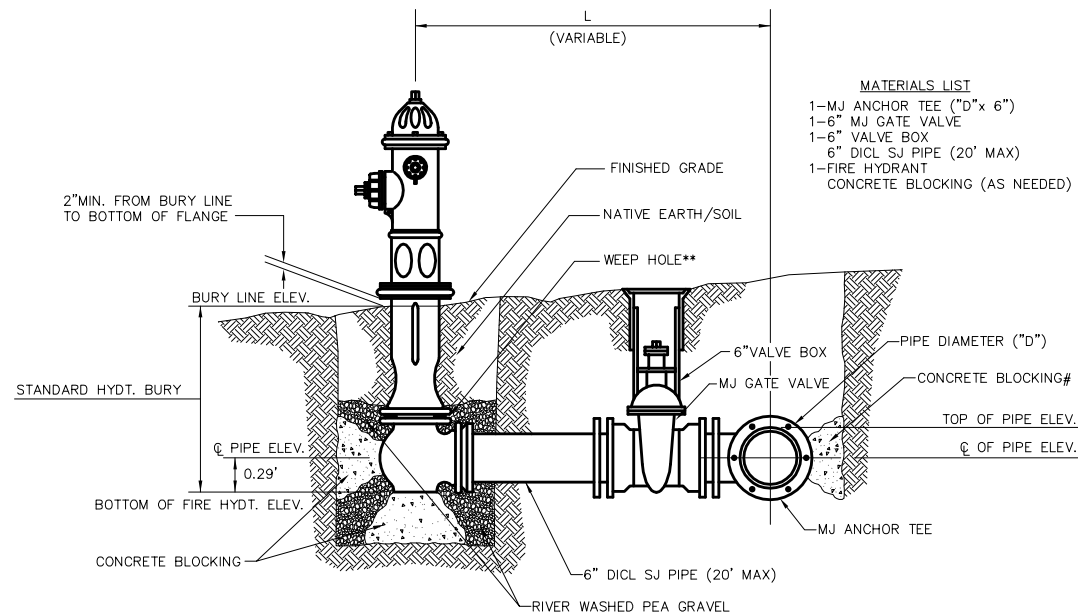
VALVE ASSEMBLY



NOTES

- This detail covers Butterfly Valve installation, inclusive, regardless of type of pipe or joint used. Larger lines to be detailed on plans.
- 6" Valve Box and Cover required per City of Wichita Std. Specifications.
- Conc. Support Block to be full width of trench.

CONCRETE SUPPORT BLOCKING FOR BUTTERFLY VALVE INSTALLATION



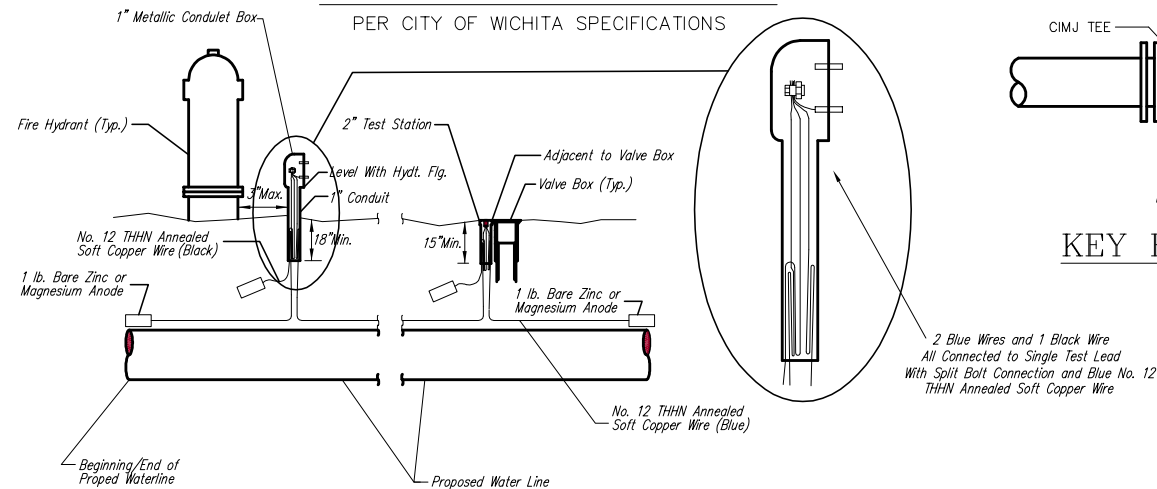
- MATERIALS LIST**
- 1-MJ ANCHOR TEE ("D"x 6")
 - 1-6" MJ GATE VALVE
 - 1-6" VALVE BOX
 - 6" DICT SJ PIPE (20' MAX)
 - 1-FIRE HYDRANT
 - CONCRETE BLOCKING (AS NEEDED)

- ** CAUTION! WEEP HOLES TO BE KEPT CLEAR DURING CONSTRUCTION AND BACKFILL. CONCRETE FOR THRUST BLOCKING SHALL NOT OBSTRUCT WEEP HOLES.**
- # CONCRETE THRUST BLOCKING SHALL BE KEPT CLEAR OF BOLTS, NUTS, AND MJ ACCESSORIES.**
- * IF HYDRANT BURY IS IN EXCESS OF 5', CONTRACTOR SHALL USE STANDARD 5' HYDRANT BURY AND HYDRANT BARREL EXTENSIONS AS NECESSARY.**

FIRE HYDRANTS REQUIRED

| STATION | BURY LINE ELEVATION | TOP OF PIPE ELEVATION | FIRE HYDRANT BURY REQUIRED* |
|------------------|---------------------|-----------------------|-----------------------------|
| 3+22.49, LINE 1 | 1337.65 | 1333.83 | 4.5' |
| 9+45.34, LINE 1 | 1339.10 | 1335.28 | 4.5' |
| 16+85.34, LINE 1 | 1343.80 | 1339.98 | 4.5' |
| | | | |
| | | | |
| | | | |

FIRE HYDRANT ASSEMBLY
PER CITY OF WICHITA SPECIFICATIONS



TRACER WIRE

Conductive type pipe locator/tracer wire shall be installed to locate Polyvinyl Chloride (PVC) or any nonmetallic waterline pipes. The wire shall extend the entire length of the proposed pipe. The wire shall be taped to the waterline and pulled with the pipe. Split-bolt connectors shall be used at splice locations. Electrical tape shall cover all splices so no bare wire is exposed. Test stations shall be installed adjacent to all fire hydrants along the waterline and at blowoffs or valves near the ends of the waterlines. Any exceptions to the location of test stations shall be approved by the engineer. At each test station, the tracer wire shall be connected to a 1 lb. Zinc or magnesium anode. Anodes shall also be attached to the tracer wire at both the beginning and the end of the proposed waterline. A typical layout of the tracer wire and test station is provided in the above figure.

WIRE

The tracer wire shall be Blue No. 12 THHN annealed soft copper wire with thermal plastic insulation. The insulation shall be heat, oil, and gasoline resistant as manufactured by Temple Electric or approved equal. To allow for grade adjustment, a minimum of 12" of excess wire shall be coiled at the bottom of the test station for all wires. The insulation sheathing shall be removed such that 1" bare copper wire is exposed at all points of connection. Contractor shall attach wire being installed with proposed water main to any tracer wire installed with adjacent waterline projects.

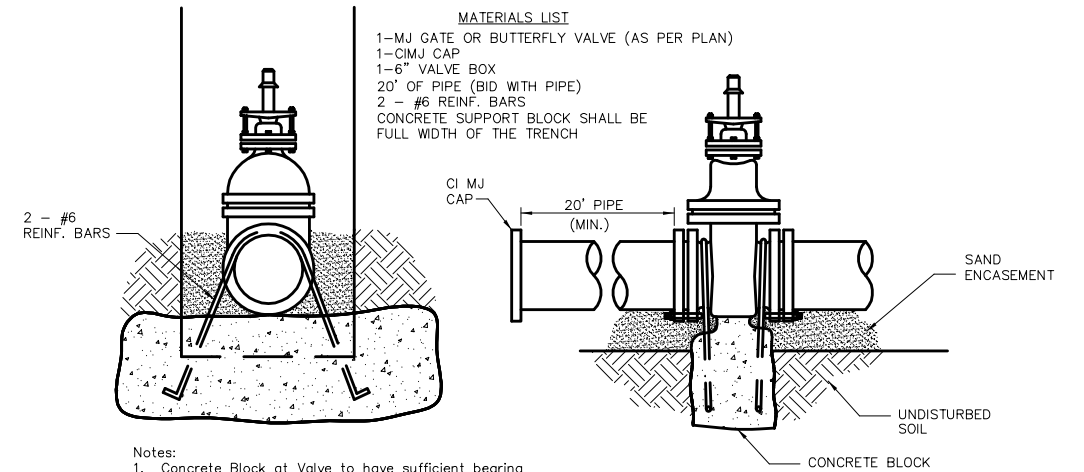
TEST STATIONS

The test station for fire hydrant applications shall be a 1 inch galvanized conduit style test station as manufactured by AGRA Industries with a removable solid cover having two leads extending from the face or approved equal. The test station for valve applications shall be 2 inch flush style test station T2PS3B as manufactured by HANDLEY Industries or approved equal. The conduit style shall be attached to a 1 inch rigid galvanized conduit with a minimum length of 36" and plastic end bushing. The flush style shall have the word "WATER" stamped or molded into the lid. All test stations shall be manufactured using molded blue tops or sufficiently coated with blue enamel paint. The tracer wire and the anode wire shall be installed to allow 10 inches of wire within the test station. In concrete environments such as sidewalks or in the downtown area the contractor shall use the flush style test station. The location of all test stations shall be approved by the engineer, recorded, and shown in the as-built drawings.

ANODES

The anodes shall be 1 lb. bare zinc or magnesium. The anodes shall be buried at the same elevation as the waterline at each test station. The anodes shall be connected to Black No. 12 THHN annealed soft copper wire which shall be extended to the test station.

TRACER WIRE DETAIL
COST IS SUBSIDIARY TO PIPE INSTALLATION



- MATERIALS LIST**
- 1-MJ GATE OR BUTTERFLY VALVE (AS PER PLAN)
 - 1-CIMJ CAP
 - 1-6" VALVE BOX
 - 20' OF PIPE (BID WITH PIPE)
 - 2 - #6 REINF. BARS
 - CONCRETE SUPPORT BLOCK SHALL BE FULL WIDTH OF THE TRENCH

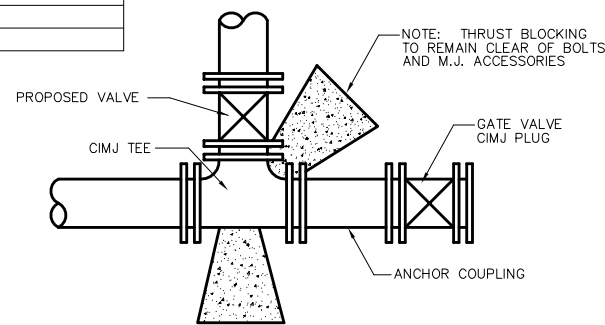
Notes:

- Concrete Block at Valve to have sufficient bearing in undisturbed soil to prevent thrust movement as shown in table at right. Field Engineer to determine thrust loading of undisturbed soil and final size of thrust block.
- The thrust block shall be constructed such that bolts, nuts, and other MJ accessories are kept clear of concrete.
- All valves at dead ends and at other locations as called out on the plans shall be blocked as shown here.

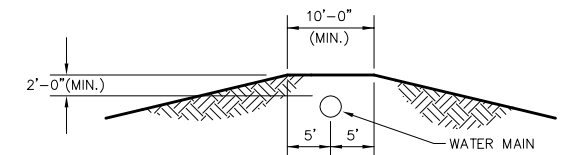
THRUST AT VALVES

| VALVE | THRUST AT 150 #/in ² |
|-------|---------------------------------|
| 4" | 1809 lbs. |
| 6" | 4245 lbs. |
| 8" | 7540 lbs. |
| 12" | 16965 lbs. |

ANCHORED VALVE ASSEMBLY, SPECIAL

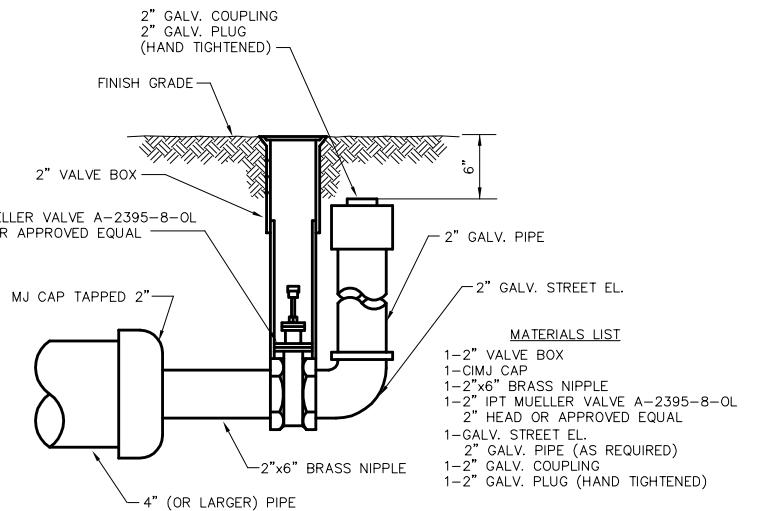


KEY BLOCK DETAIL



PROTECTIVE FILL DETAIL

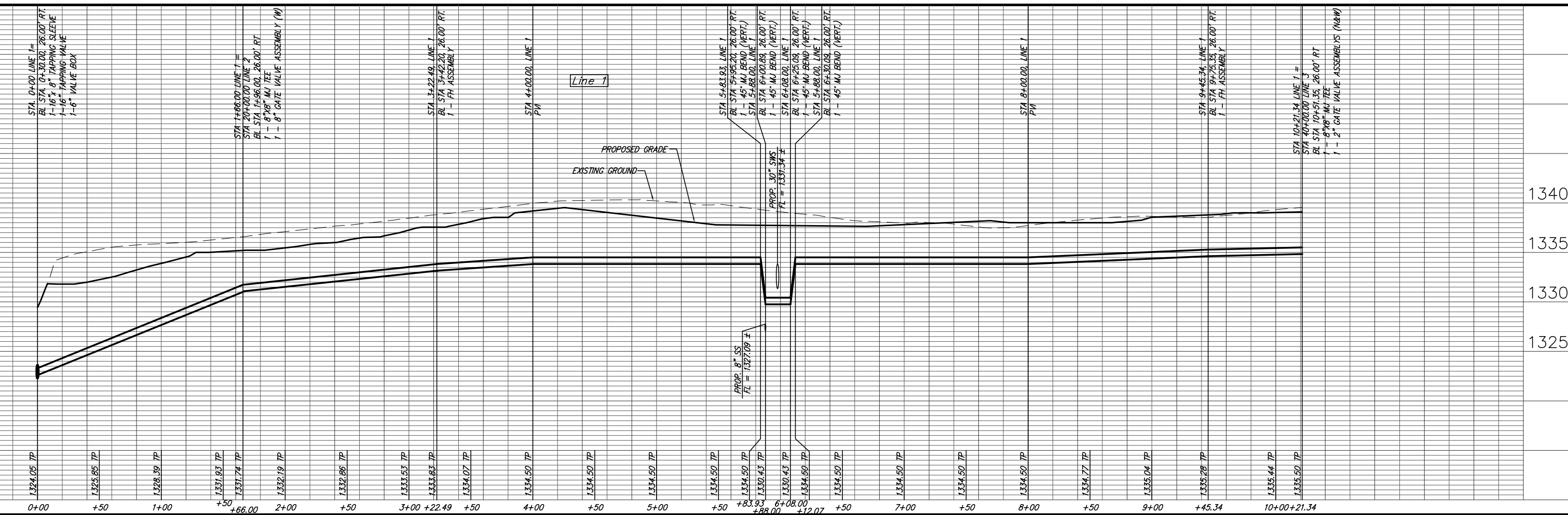
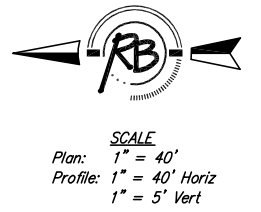
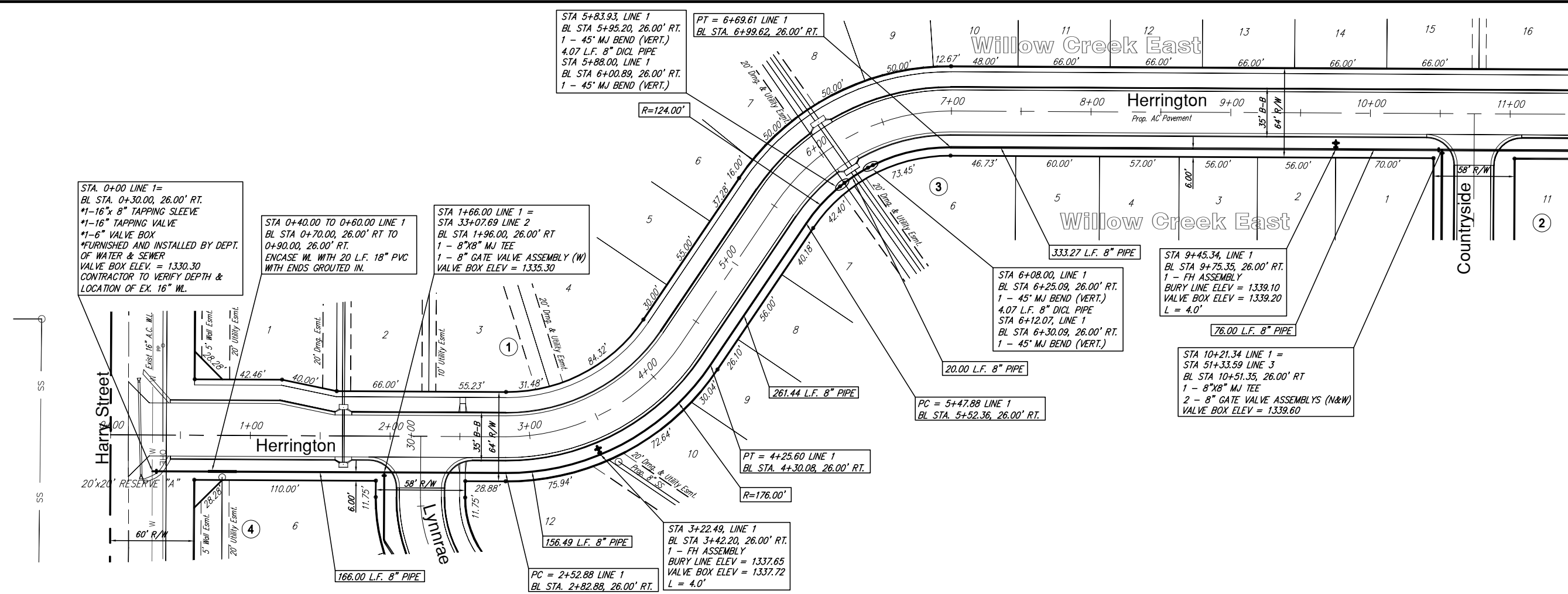
MINIMUM PROTECTIVE FILL SHALL BE PROVIDED IN ALL INSTANCES WHERE COVER OVER THE PROP. WATER LINE IS LESS THAN (2) FEET. (COST SUBSIDIARY TO PIPE INSTALLATION)



- MATERIALS LIST**
- 1-2" VALVE BOX
 - 1-CIMJ CAP
 - 1-2"x6" BRASS NIPPLE
 - 1-2" IPT MUELLER VALVE A-2395-8-OL
 - 2" HEAD OR APPROVED EQUAL
 - 1-GALV. STREET EL.
 - 2" GALV. PIPE (AS REQUIRED)
 - 1-2" GALV. COUPLING
 - 1-2" GALV. PLUG (HAND TIGHTENED)

2" BLOWOFF ASSEMBLY

| | | |
|--|--|-----------------------------|
| <p>THE CITY OF WICHITA CITY ENGINEER'S OFFICE 455 NORTH MAIN STREET WICHITA, KANSAS 67202 (316) 268-4501 (316) 268-4114 FAX</p> | STANDARD WATER ASSEMBLY DETAILS | |
| | JAMES L. ARMOUR, P.E. - CITY ENGINEER | |
| | PROJECT NUMBER 448-90282 | OCA # 735360 |
| | DATE DEC 98 | SHEET 2 OF 13 |



Willow Creek East Water Distribution System WICHITA, KANSAS

PROJECT NUMBER: 448-90282
DRAWING FILE: Water (LINE 1)

DESIGN: AML
UTILITY

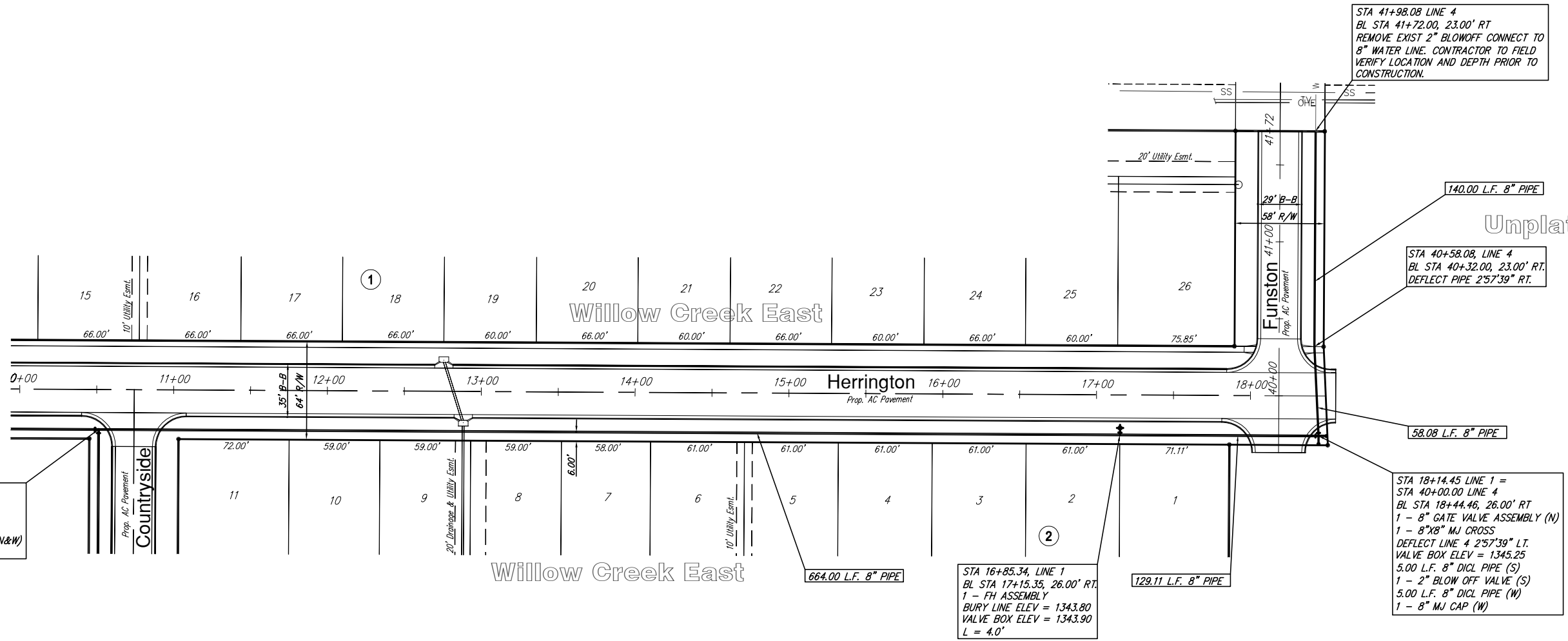
DRAWN: AML
DATE: Apr. 5, 2007
REVIEW: AML

RB JOB 30282 SHEET 13

Ruggles & Bohm, P.A.
Engineering, Surveying, Land Planning
1000 N. Main St., Suite 200
Wichita, Kansas 67202
www.rugglesandbohm.com



SCALE
 Plan: 1" = 40'
 Profile: 1" = 40' Horiz
 1" = 5' Vert



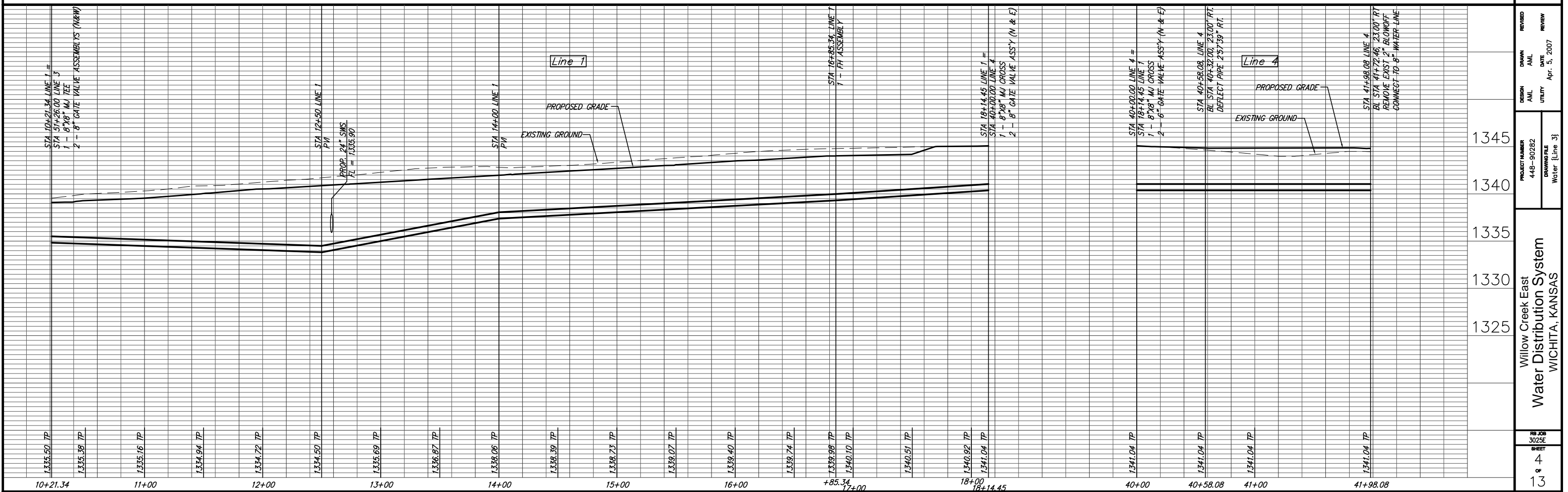
STA 10+21.34 LINE 1 =
 STA 51+33.59 LINE 3
 BL STA 10+51.35, 26.00' RT
 1 - 8"X8" MJ TEE
 2 - 8" GATE VALVE ASSEMBLYS (N&W)
 VALVE BOX ELEV = 1339.60

STA 41+98.08 LINE 4
 BL STA 41+72.00, 23.00' RT
 REMOVE EXIST 2" BLOWOFF CONNECT TO
 8" WATER LINE. CONTRACTOR TO FIELD
 VERIFY LOCATION AND DEPTH PRIOR TO
 CONSTRUCTION.

STA 40+58.08, LINE 4
 BL STA 40+32.00, 23.00' RT.
 DEFLECT PIPE 2'57'39" RT.

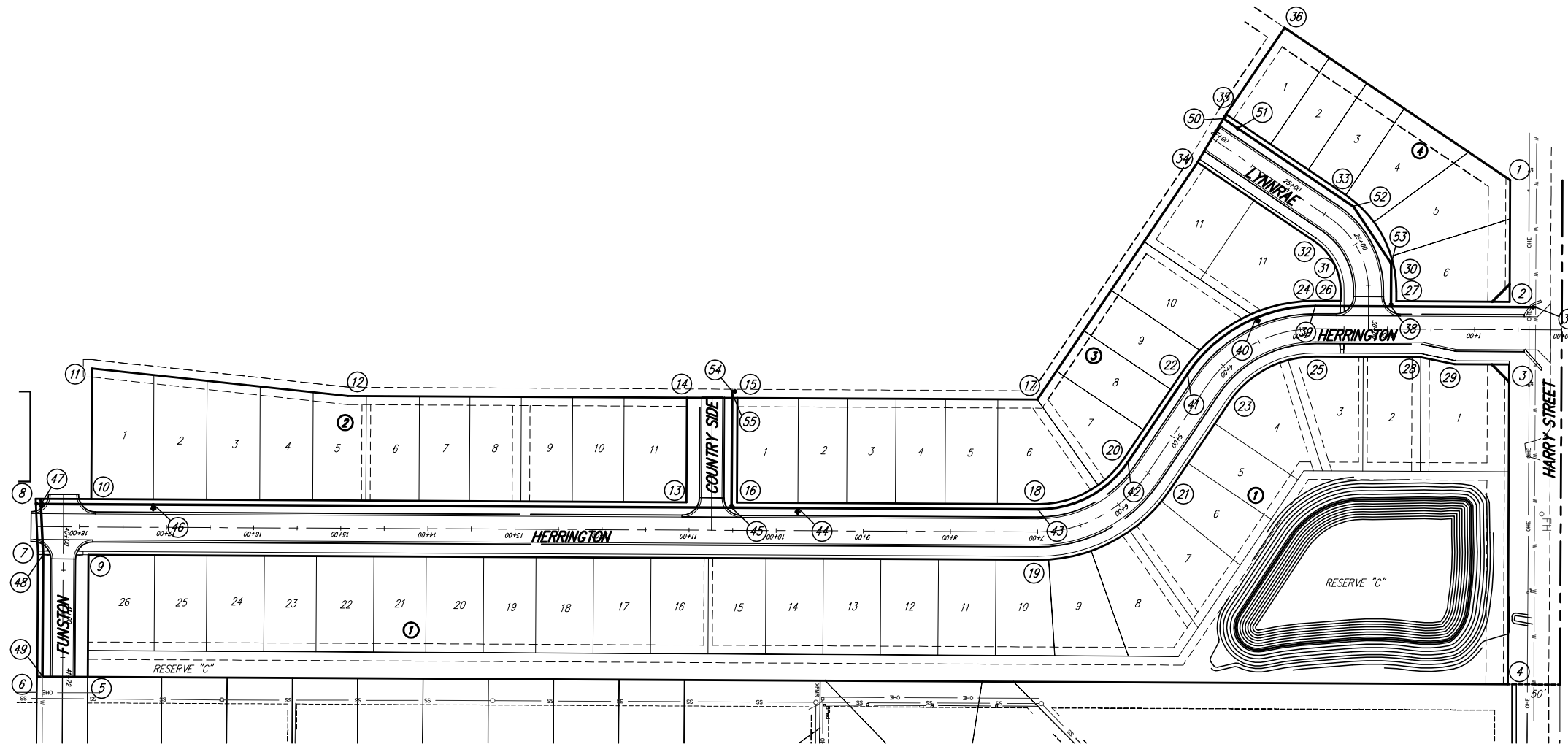
STA 18+14.45 LINE 1 =
 STA 40+00.00 LINE 4
 BL STA 18+44.46, 26.00' RT
 1 - 8" GATE VALVE ASSEMBLY (N)
 1 - 8"X8" MJ CROSS
 DEFLECT LINE 4 2'57'39" LT.
 VALVE BOX ELEV = 1345.25
 5.00 L.F. 8" DI CL PIPE (S)
 1 - 2" BLOW OFF VALVE (S)
 5.00 L.F. 8" DI CL PIPE (W)
 1 - 8" MJ CAP (W)

STA 16+85.34, LINE 1
 BL STA 17+15.35, 26.00' RT.
 1 - FH ASSEMBLY
 BURY LINE ELEV = 1343.80
 VALVE BOX ELEV = 1343.90
 L = 4.0'



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| | | |
|---|----------------------|----------------------|
| PROJECT NUMBER 448-90282 | DESIGN UTILITY | REVISION DATE |
| DRAWING FILE Water [Line 3] | DATE Apr. 5, 2007 | REVISION REVISION |
| Willow Creek East Water Distribution System WICHITA, KANSAS | | |
| RB JOB 3025E | SHEET 4 | 9 |
| | | 13 |



POINT TABLE

| POINT NUMBER | NORTHING | EASTING | DESCRIPTION |
|--------------|------------|------------|-------------|
| 1 | 25258.8542 | 19440.4543 | IRON |
| 2 | 25258.1597 | 19580.1581 | IRON |
| 3 | 25257.8018 | 19652.1572 | IRON |
| 4 | 25255.9770 | 20019.2145 | IRON |
| 5 | 23625.8200 | 20010.5683 | IRON |
| 6 | 23567.9377 | 20010.3729 | IRON |
| 7 | 23568.5633 | 19870.2626 | IRON |
| 8 | 23565.9028 | 19806.2476 | IRON |
| 9 | 23626.5625 | 19870.5702 | IRON |
| 10 | 23629.9019 | 19806.5870 | IRON |
| 11 | 23630.6975 | 19656.5892 | IRON |
| 12 | 23924.6479 | 19688.1487 | IRON |
| 13 | 24313.0060 | 19810.2102 | IRON |
| 14 | 24313.6424 | 19690.2119 | IRON |
| 15 | 24371.6416 | 19690.5195 | IRON |
| 16 | 24371.0052 | 19810.5178 | IRON |
| 17 | 24715.9350 | 19692.3456 | IRON |
| 18 | 24716.7337 | 19812.3515 | IRON |
| 19 | 24716.3942 | 19876.3506 | IRON |
| 20 | 24815.1217 | 19760.4331 | IRON |
| 21 | 24868.1453 | 19796.2730 | IRON |
| 22 | 24883.5963 | 19659.1280 | IRON |
| 23 | 24936.6199 | 19694.9680 | IRON |
| 24 | 25035.2868 | 19579.0501 | IRON |
| 25 | 25034.9687 | 19643.0494 | IRON |
| 26 | 25064.1621 | 19579.1937 | IRON |
| 27 | 25128.1613 | 19579.5118 | IRON |
| 28 | 25156.1952 | 19643.6520 | IRON |
| 29 | 25195.3468 | 19651.8467 | IRON |
| 30 | 25128.2198 | 19567.7571 | IRON |
| 31 | 25064.2205 | 19567.4389 | IRON |

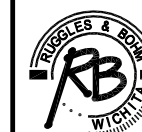
POINT TABLE

| POINT NUMBER | NORTHING | EASTING | DESCRIPTION |
|--------------|------------|------------|---|
| 32 | 25034.3013 | 19510.7634 | IRON |
| 33 | 25070.1413 | 19457.7398 | IRON |
| 34 | 24900.0205 | 19419.9996 | IRON |
| 35 | 24932.7544 | 19364.8766 | IRON |
| 36 | 24999.9543 | 19265.4574 | IRON |
| 37 | 25288.1295 | 19586.3072 | 0+00.00-LINE 1 Connect to Ex. 16" WL |
| 38 | 25122.1316 | 19585.4819 | 1+66.00-LINE 1 8"x8" MJ Tee |
| 39 | 25035.2570 | 19585.0501 | 2+52.88-LINE 1 PC |
| 40 | 24967.3798 | 19598.3006 | 3+22.49-LINE 1 FH Assembly |
| 41 | 24888.5673 | 19662.4880 | 4+25.60-LINE 1 PT |
| 42 | 24820.0927 | 19763.7931 | 5+47.88-LINE 1 PC |
| 43 | 24716.7018 | 19818.3514 | 6+69.61-LINE 1 PT |
| 44 | 24440.9724 | 19816.8890 | 9+45.34-LINE 1 FH Assembly |
| 45 | 24364.9734 | 19816.4859 | 10+21.34-LINE 1 8"x8" MJ Tee |
| 46 | 23700.9828 | 19812.9641 | 16+85.34-LINE 1 FH Assembly |
| 47 | 23571.8709 | 19812.2793 | 18+14.45-LINE 1 8"x8" MJ Cross |
| 48 | 23574.5632 | 19870.2944 | 40+58.08-LINE 4 Deflect Pipe 2'57'39" |
| 49 | 23573.8207 | 20010.2925 | 41+98.08-LINE 4 Connect to Ex. 8" WL |
| 50 | 24929.6856 | 19370.0444 | 30+00.00-LINE 2 2" Blowoff Assembly |
| 51 | 24946.2555 | 19381.2443 | 30+20.00-LINE 2 8" Special Anchor Gate Valve Assembly |
| 52 | 25078.2056 | 19470.4327 | 31+79.27-LINE 2 8" 22.5" MJ Bend |
| 53 | 25122.3711 | 19537.3007 | 32+59.41-LINE 2 8" 22.5" MJ Bend |
| 54 | 24365.6820 | 19682.8978 | 49+92.41-LINE 3 2" Blowoff Assembly |
| 55 | 24365.6682 | 19685.4877 | 49+95.00-LINE 3 8" 45" MJ Bend (Vert) |



SCALE 1" = 80'

Willow Creek East Phase 1
Addition Bubble Map
WICHITA, KANSAS

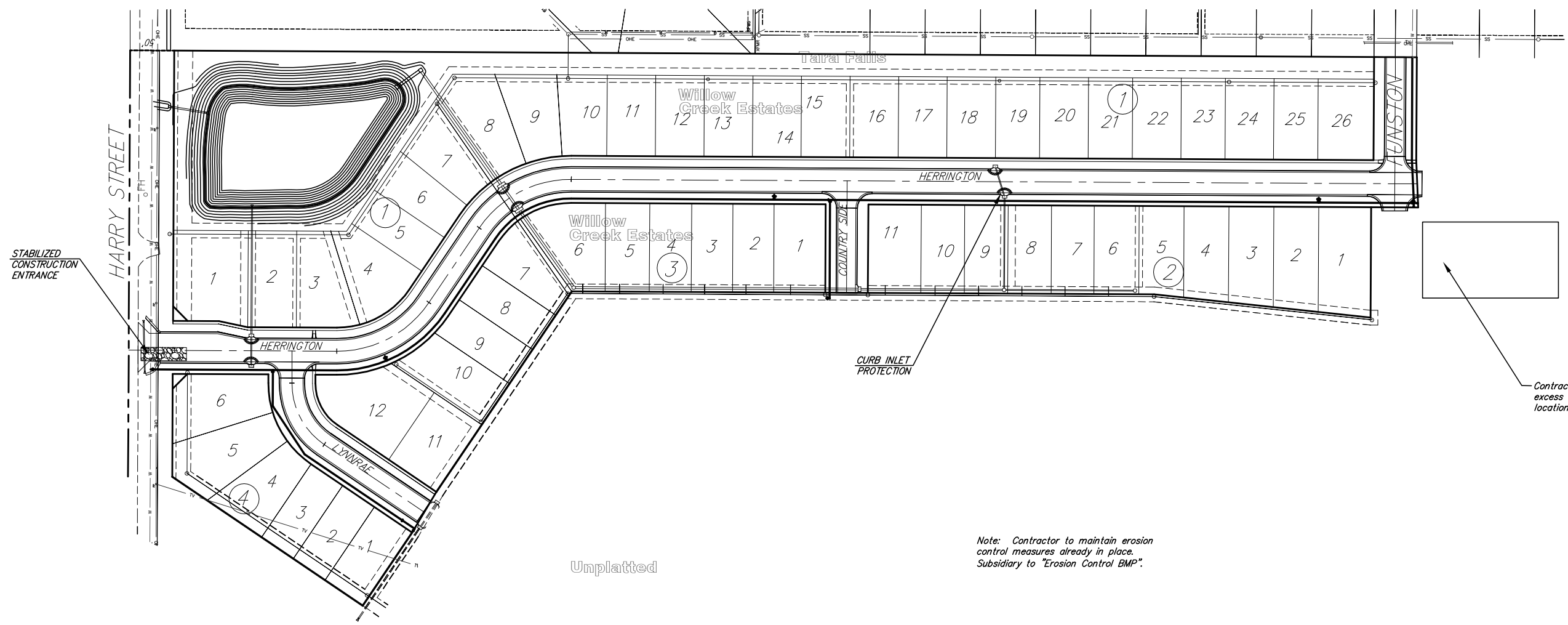


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Engineering, Surveying, Land Planning

924 North Main (316) 264-8008
Wichita, Kansas 67203 (316) 264-4821 fax
www.rbkansas.com E-mail: info@rbkansas.com

DRAWING FILE: Water {Addition-Water Bubble} PROJECT NUMBER: 448-90282 DATE: Apr. 5, 2007

| | | |
|---------|-----|------------------------|
| DESIGN | AML | SHEET 6 OF 13 |
| DRAWN | AML | |
| REVIEW | | |
| UTILITY | | |



Contractor to stockpile excess excavation in this location.



SCALE: 1" = 80'

Note: Contractor to maintain erosion control measures already in place. Subsidiary to "Erosion Control BMP".

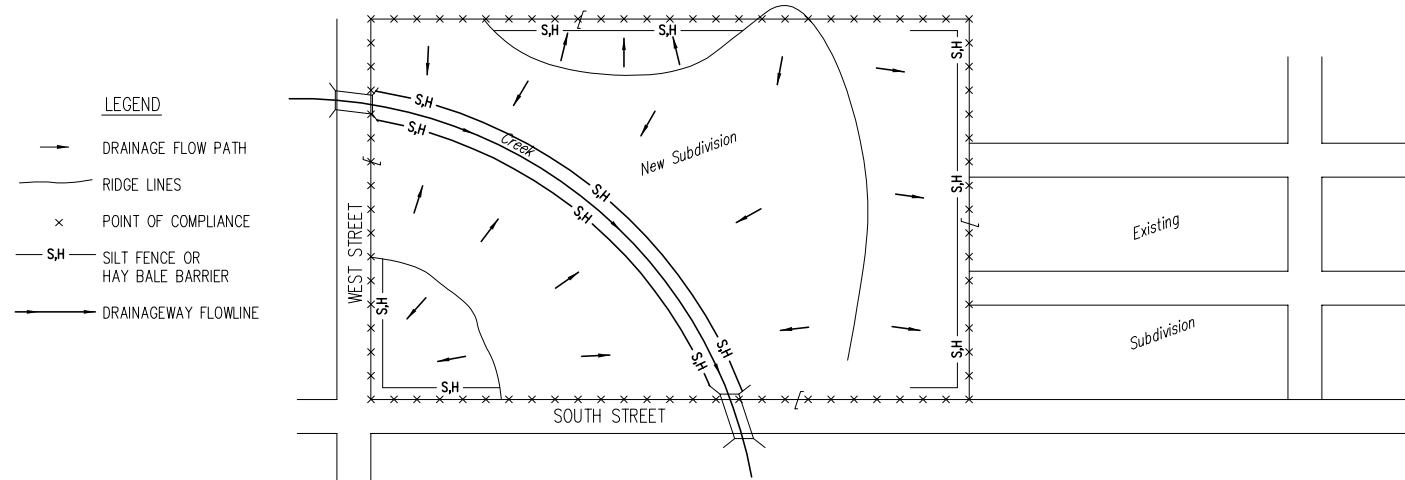
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- LEGEND**
- ∕ ∕ DITCH CHECK
 - ⌒ CURB INLET PROTECTION
 - STRAW BALE BARRIER
 - x— SILT FENCE
 - - - - CONSTRUCTION LIMITS
 - ⊠ TEMPORARY DRAINAGE DITCH

NOTE: ALL DISTURBED AREAS TO SEEDED AND MULCHED PER CITY OF WICHITA SPECIFICATIONS.

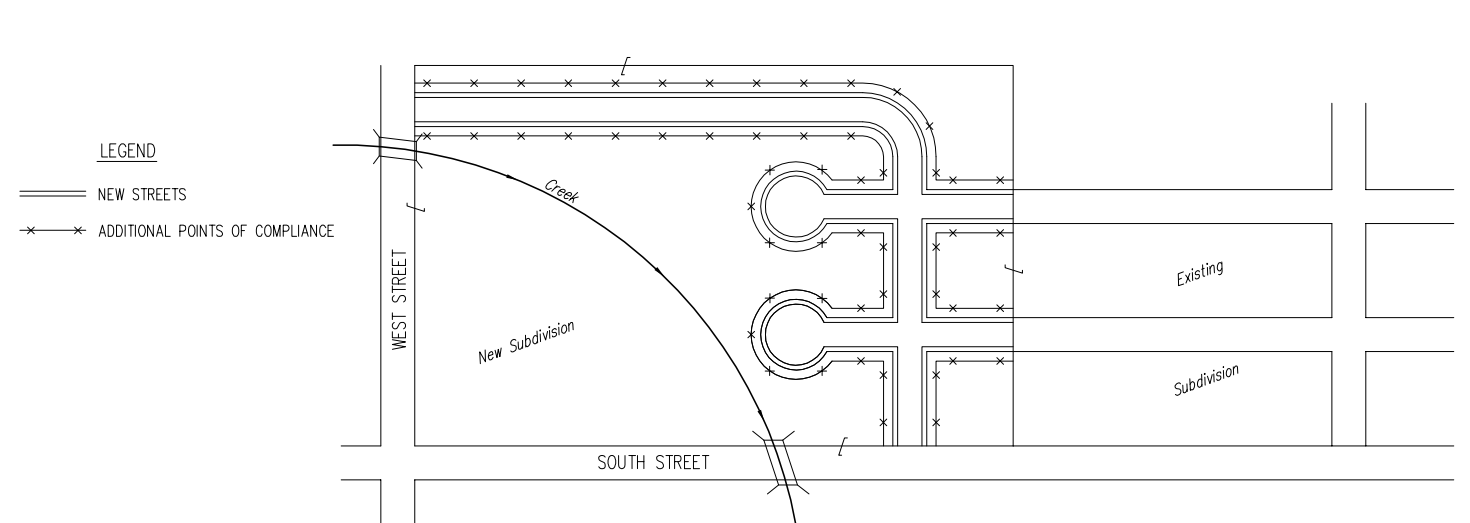
| | | | |
|---|--|------------------------------|--|
| <p>Willow Creek East Phase 1 Erosion Control Plan WICHITA, KANSAS</p> | | | |
| | <p>Ruggles & Bohm, P.A. Engineering, Surveying, Land Planning</p> | | <p>DESIGN AML DRAWN MLP REVIEW UTILITY</p> |
| | <p>824 North Main (316) 264-8008 Wichita, Kansas 67203 (316) 264-4621 fax www.rbkansas.com E-mail: info@rbkansas.com</p> | | <p>PROJECT NUMBER 448-90282</p> |
| <p>DRAWING FILE WL_EROSION CONTROL PLAN</p> | | <p>DATE Mar. 7, 2007</p> | |
| | | | <p>SHEET 7 OF 13</p> |

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



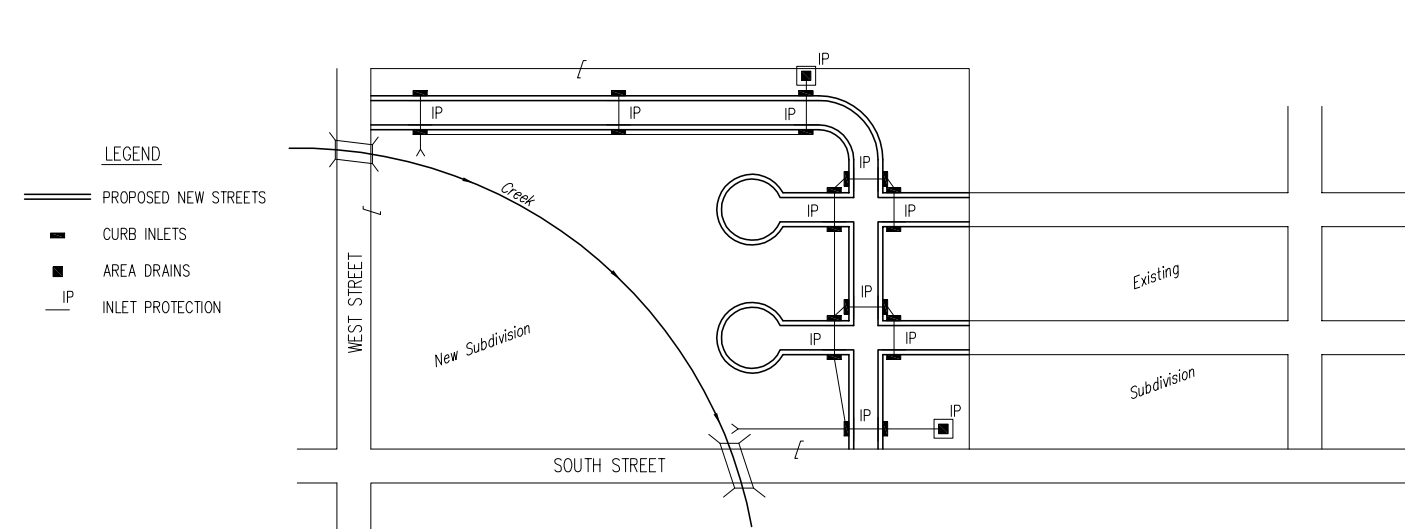
- LEGEND**
- DRAINAGE FLOW PATH
 - RIDGE LINES
 - × POINT OF COMPLIANCE
 - S.H— SILT FENCE OR HAY BALE BARRIER
 - DRAINAGEWAY FLOWLINE
1. DURING THIS PHASE OF SUBDIVISION CONSTRUCTION, THE POINTS OF COMPLIANCE ARE THE PERIMETER BOUNDARIES AND ANY DRAINAGE WAYS OR STORM SEWERS DRAINING THROUGH OR FROM 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 3 – STREET CONSTRUCTION



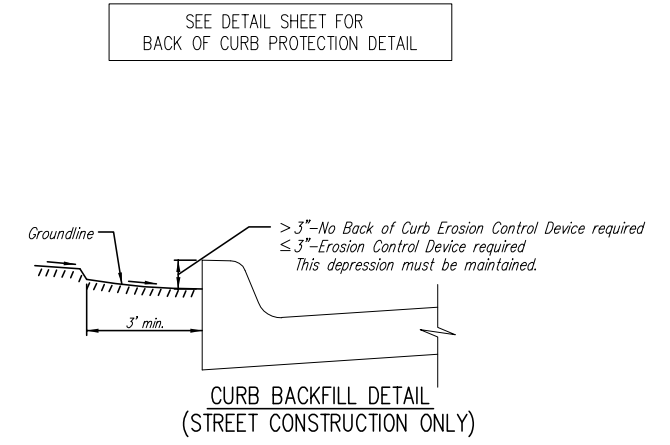
- LEGEND**
- NEW STREETS
 - ××× ADDITIONAL POINTS OF COMPLIANCE
1. DURING THIS PHASE OF SUBDIVISION CONSTRUCTION, NEW STREETS ARE INSTALLED. ALL EROSION CONTROL DEVICES INSTALLED DURING PHASE 1 AND 2 MUST STILL BE MAINTAINED. THE POINT OF COMPLIANCE NOW SHIFTS TO THE BACK OF CURB ALONG EACH STREET.
 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.

PHASE 2 – INSTALLATION OF STORM SEWER



- LEGEND**
- PROPOSED NEW STREETS
 - CURB INLETS
 - AREA DRAINS
 - IP INLET PROTECTION
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.

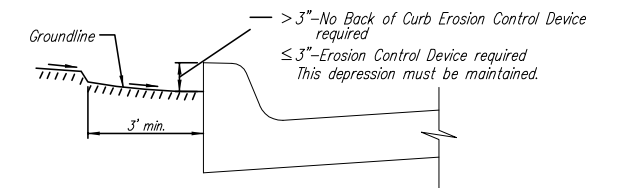
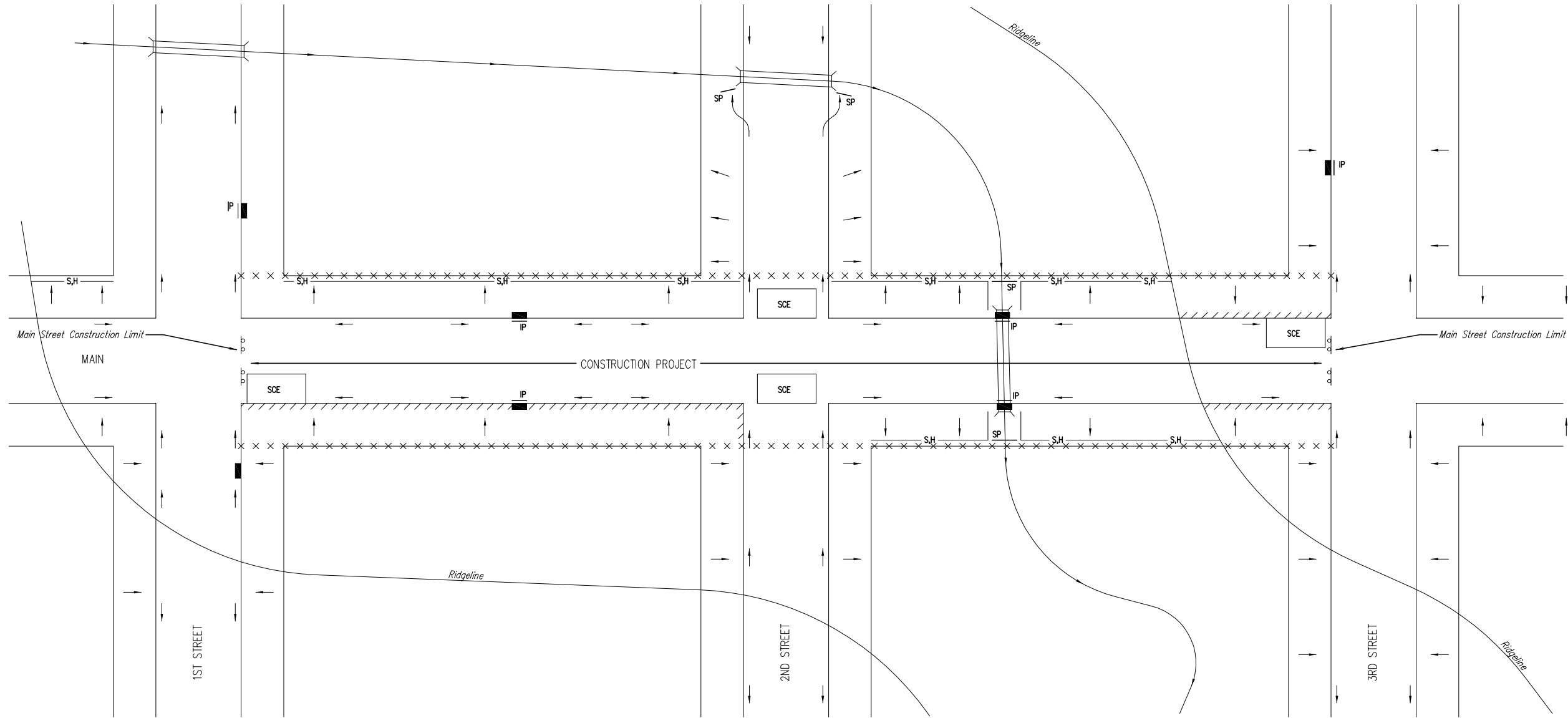
- GENERAL NOTES:
1. THE INTENT OF ALL EROSION CONTROL DEVICES IS TO PREVENT ERODED SOIL FROM ENTERING DITCHES, STORM SEWERS, LAKES, STREETS OR ANY OTHER OTHER DRAINAGE FEATURE.
 2. THIS SHEET IS INTENDED TO PROVIDE GUIDELINES AS TO WHAT TYPE OF EROSION CONTROL DEVICES WILL BE INSTALLED DURING THE CONSTRUCTION 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.



| | | |
|-------------------|-----------------------------------|-------------------|
| | SOIL EROSION BMPs | |
| | SUBDIVISION DEVELOPMENT PROCESS | |
| | JIM ARMOUR, P.E. CITY ENGINEER | |
| | PROJECT NUMBER 448-90282 | OCA NO. 735360 |
| DATE JAN. 2007 | SHEET 8 OF 13 | |

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

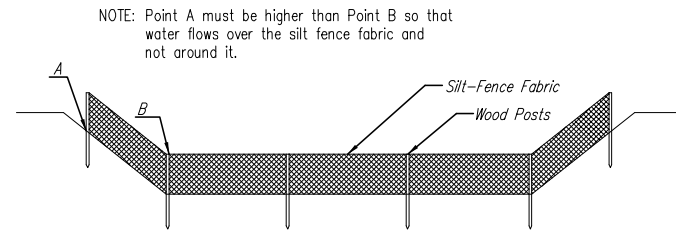
NOTES:

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

LEGEND

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

| | | |
|-------------------|-----------------------------------|-------------------|
| | SOIL EROSION BMPs | |
| | STREET IMPROVEMENT PROJECTS | |
| | JIM ARMOUR, P.E. CITY ENGINEER | |
| | PROJECT NUMBER 448-90282 | OCA NO. 735360 |
| DATE JAN. 2007 | SHEET 9 OF 13 | |



NOTE: Point A must be higher than Point B so that water flows over the silt fence fabric and not around it.

ELEVATION
SILT FENCE DITCH CHECKS
(STREAM PROTECTION)

Material Specification:

Silt fence fabric should conform to the AASHTO M288 96 silt fence specification. The posts used to support the silt fence fabric should be a hardwood material with the following minimum dimensions: 2" square (nominal) by 4' long. Silt fence fabric should be attached to the wooden posts with staples, wire, zip ties, or nails.

Placement:

Place silt fence in ditches where it is unlikely that it will be overtopped. Water should flow through a silt fence ditch check, not over it. Silt fence ditch checks often fail when overtopped. Silt fence ditch checks should be placed perpendicular to the flowline of the ditch. The silt fence should extend far enough so that the ground level at the ends of the fence is higher than the top of the low point of the fence. This prevents water from flowing around the check. Silt fence ditch checks should not be placed in ditches where high flows are expected. Rock checks should be used instead. Silt fence should be placed in ditches with slopes of 6% or less. For slopes steeper than 6%, rock checks should be used.

The following table provides check spacing for a given ditch grade:

| Ditch Check Ditch grade (%) | Spacing Check Spacing (feet) |
|-----------------------------|------------------------------|
| 0.5 | 200 |
| 1.0 | 200 |
| 2.0 | 100 |
| 3.0 | 65 |
| 4.0 | 50 |
| 5.0 | 40 |
| 6.0 | 30 |

Proper installation method:

Excavate a trench perpendicular to the ditch flowline that is at least 12" deep by 6" wide. Extend the trench in a straight line along the entire length of the proposed ditch check. Place the soil on the upstream side of the trench for later use. Roll out a continuous length of silt fence fabric on the 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.

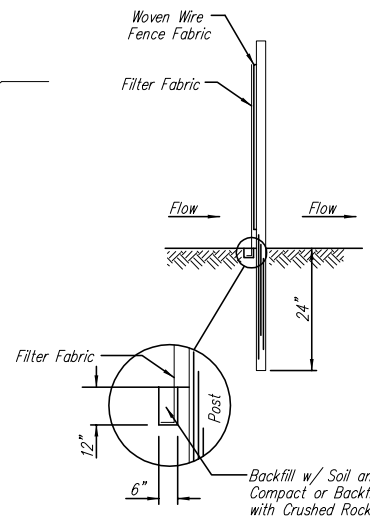
List of common placement/installation mistakes to avoid:

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.

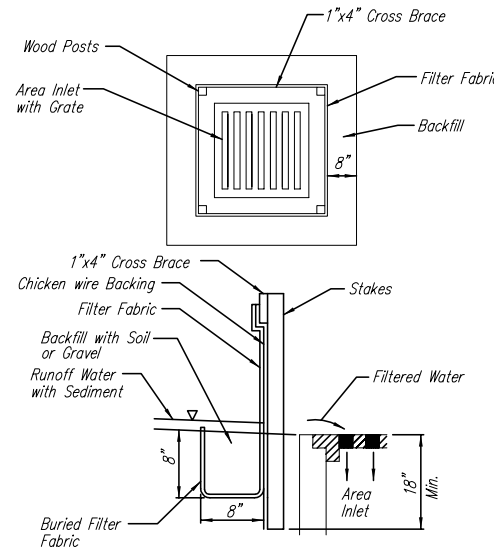
Inspection and Maintenance:

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.

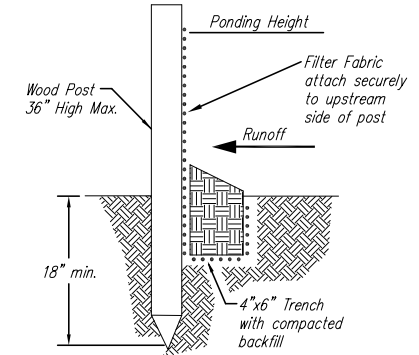
List of common placement/installation mistakes to avoid:

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.

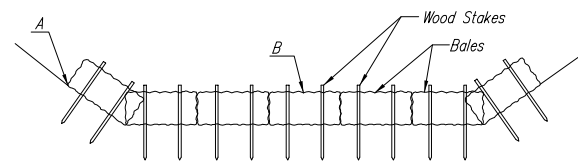
Inspection and Maintenance:

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?

| | | |
|-------------------|---|-------------------|
| | SOIL EROSION BMPs | |
| | SILT FENCE DITCH CHECK AND BARRIER DETAILS | |
| | JIM ARMOUR, P.E. CITY ENGINEER | |
| | PROJECT NUMBER 448-90282 | OCA NO. 735360 |
| DATE JAN. 2007 | SHEET 10 OF 13 | |

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".

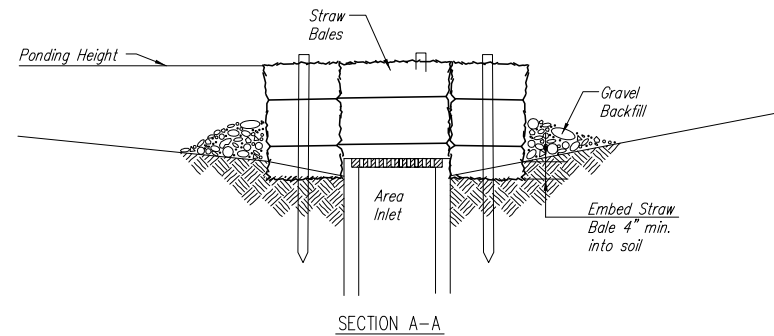
List of common placement/installation mistakes to avoid:

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.

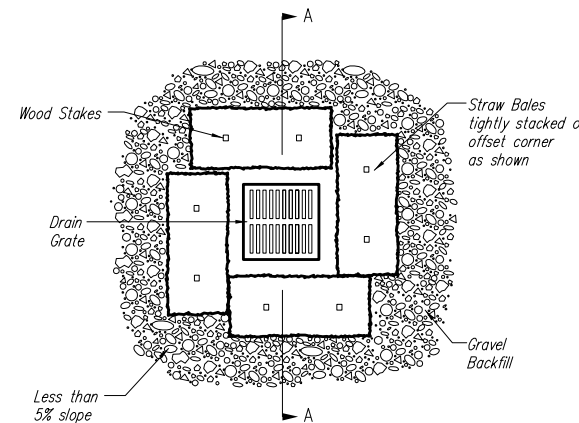
Inspection and Maintenance:

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.

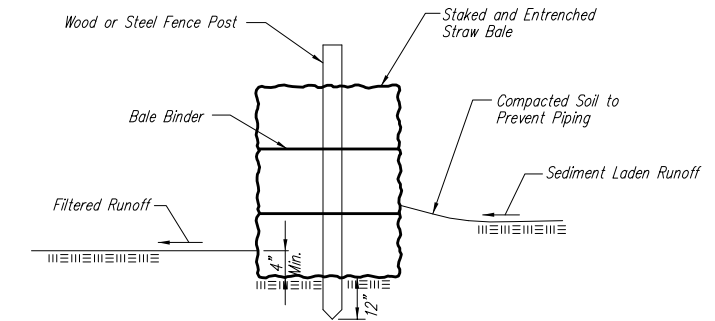
List of common placement installation mistakes to avoid:

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 of 1/2" or more. The following is a list of questions that should be addressed during each inspection:

- Does water flow under the area inlet barrier?
- Does water flow through spaces between abutting bales?
- Are any bales dislodged?
- Are bales decomposing due to age and/or water damage?
- Does sediment need to be removed from behind the area inlet barrier?



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:

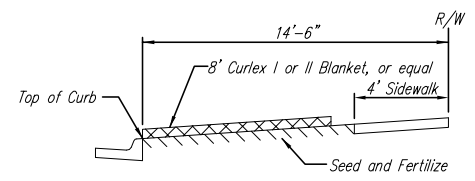
When practical, do not place bale slope barriers across contours. Slope barriers should be placed along contours to avoid a concentration of flow. Concentrated flow over a slope barrier creates a scour hole on the downslope side of the barrier. The scour hole eventually undermines the bales and the barrier 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:

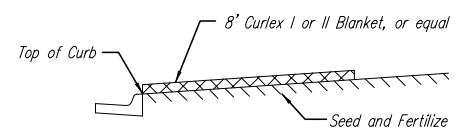
Bale slope barriers should be inspected every 7 days and within 24 hours of a rainfall of 1/2" or more. The following is a list of questions that should be addressed during each inspection:

- 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?

| | | |
|--------------------------|---|--------------------------|
| | <i>SOIL EROSION BMPs</i> | |
| | STRAW BALE DITCH CHECK AND BARRIER DETAILS | |
| | JIM ARMOUR, P.E. CITY ENGINEER | |
| | PROJECT NUMBER 448-90282 | OCA NO. 735360 |
| DATE JAN. 2007 | SHEET 11 OF 13 | |

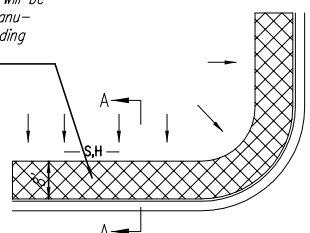


SECTION B-B

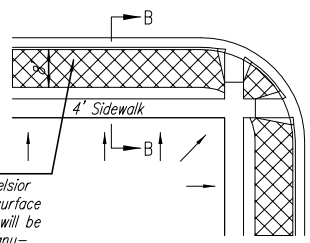


SECTION A-A

Install 8' wide Curlex I or II Excelsior Blanket, or equal, on prepared surface back of curb. Edge of blanket will be at back of curb. Install per manufacturer's recommendation, including staples. (See detail)



SOUTH STREET

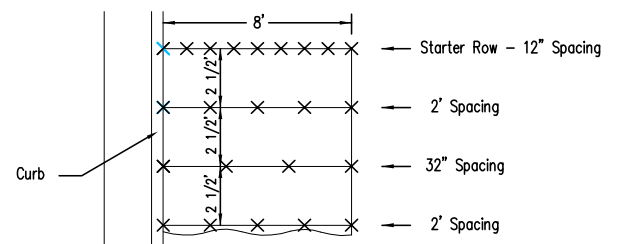


Install 8' wide Curlex I or II Excelsior Blanket, or equal, on prepared surface back of curb. Edge of blanket will be at back of curb. Install per manufacturer's recommendation, including staples. (See detail)

NOTES:

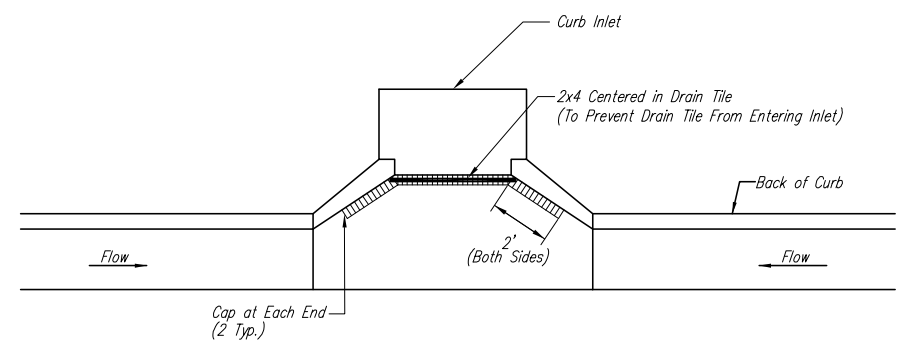
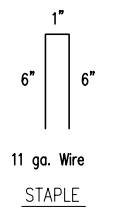
- EXCELSIOR MAT TO BE INSTALLED WHEN SOD IS NOT SPECIFIED ON PROJECT.
- EXCELSIOR BLANKET TO BE INSTALLED OVER SEED AND FERTILIZER, AS SPECIFIED IN THE PROJECT SPECIFICATIONS.
- AFTER INSTALLATION OF EXCELSIOR BLANKET, AT LOCATIONS WHERE CONCENTRATED FLOW CARRIES SEDIMENT OVER THE CURB AND INTO THE GUTTER,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

BACK OF CURB PROTECTION DETAIL



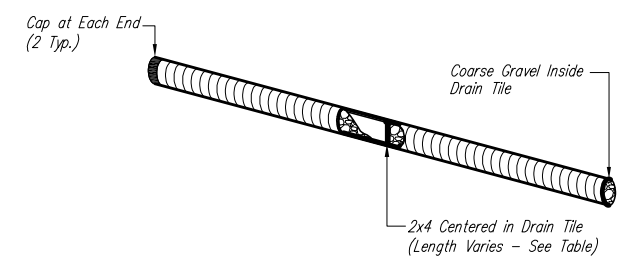
STAPLE PATTERN
NOTES: Use 6" seam overlap

DETAILS FOR CURLEX I OR II BLANKETS

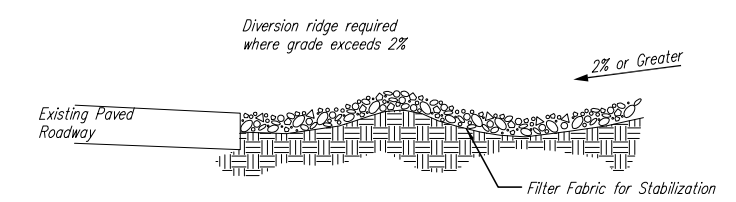


Note: Place 4" perforated PVC pipe, filled with 1/2"-1" dia. gravel, in front of curb inlet as shown.

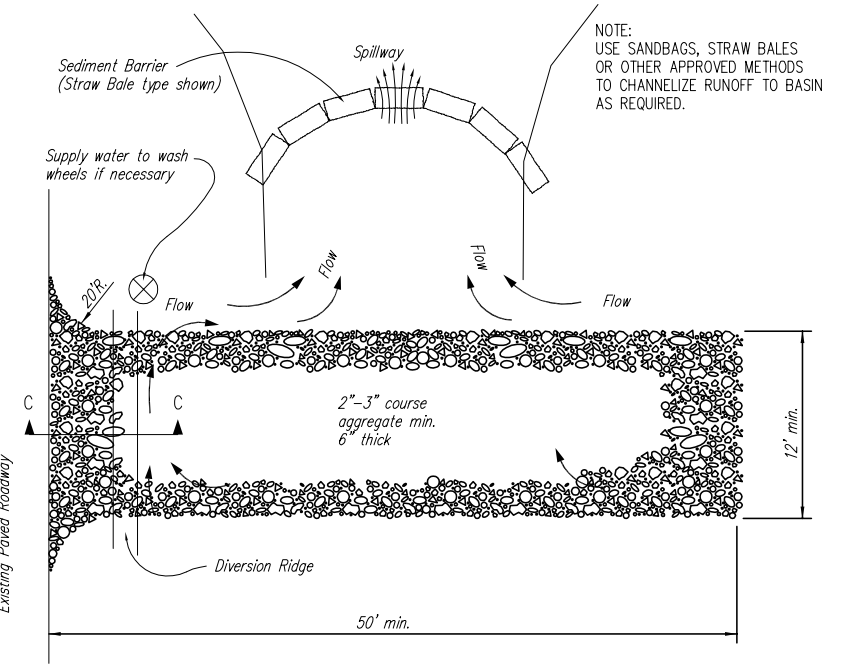
| 2X4 LENGTH | INLET TYPE | INLET OPENING |
|------------|------------|---------------|
| 5'-6" | 1-A | 5'-0" |
| 10'-6" | 1-A | 10'-0" |
| 15'-6" | 1-A | 15'-0" |



CURB INLET PROTECTION
4" PERFORATED PIPE W/ GRAVEL



SECTION C-C



STABILIZED CONSTRUCTION ENTRANCE

NOTES:

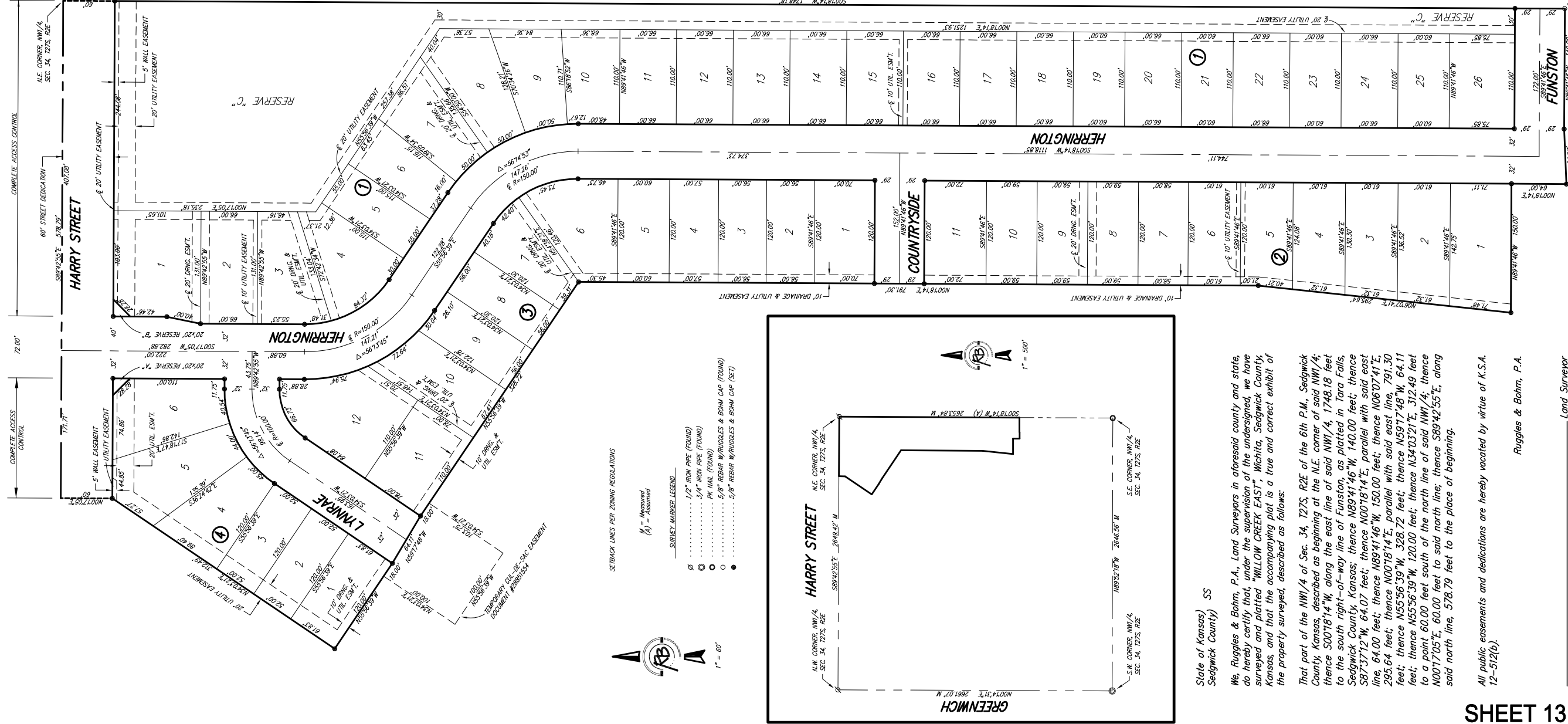
- THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
- WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.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

| | | |
|-------------------|---|-------------------|
| | SOIL EROSION BMPs | |
| | BACK OF CURB PROTECTION, CURB INLET PROTECTION AND CONSTRUCTION ENTRANCE | |
| | JIM ARMOUR, P.E. CITY ENGINEER | |
| | PROJECT NUMBER 448-90282 | OCA NO. 735360 |
| DATE JAN. 2007 | SHEET 12 OF 13 | |

WILLOW CREEK EAST

Wichita, Sedgwick County, Kansas

Know all men by these presents that we, the undersigned, have caused the land described in the surveyor's certificate to be platted into Lots, Blocks, Reserves and Streets, to be known as "WILLOW CREEK EAST", Wichita, Sedgwick County, Kansas. Access Controls as indicated are hereby granted to the appropriate governing body. The streets are hereby dedicated to and for the use of the public. Utility Easements are hereby granted for the construction and maintenance of all public utilities. Drainage Easements are hereby granted to the public as indicated for drainage purposes. Reserves "A" and "B" are hereby reserved for irrigation, walls, signage, and utilities confined to easements. Reserve "C" is hereby reserved for irrigation, walls, gazebos, playground structures, picnic areas/tables with canopies, walks, lighting, landscaping, berms, lakes, drainage, drainage structures, and utilities confined to easements. The Reserves are to be owned and maintained by the Home Owners Association for the addition. A drainage plan has been developed for this plat; the property shall remain at established grades, or as modified with the approval of the City Engineer, and unobstructed to allow for the conveyance of storm water.



Crestview Heights Development, L.L.C.

Stephen G. Miller
President

State of Kansas) SS
Sedgwick County) SS

The foregoing instrument acknowledged before me, this _____ day of _____, 200___, by Stephen G. Miller, President, on behalf of Crestview Heights Development, L.L.C.

Mildred E. Franz
Notary Public

My appointment expires _____

We, the undersigned, holders of a mortgage on the above described property, do hereby consent to this plat of "WILLOW CREEK EAST", Wichita, Sedgwick County, Kansas, this _____ day of _____, 200___, Garden Plain State Bank

Pat Waldon
President

State of Kansas) SS
Sedgwick County) SS

The foregoing instrument acknowledged before me, this _____ day of _____, 200___, by Pat Waldon, President of Garden Plain State Bank, on behalf of the Bank.

Notary Public

My appointment expires _____

This plat of "WILLOW CREEK EAST", Wichita, Sedgwick County, Kansas, has been submitted to and approved by the Wichita-Sedgwick County Metropolitan Area Planning Commission, Wichita, Kansas.

Dated this _____ day of _____, 200___, Wichita-Sedgwick County Metropolitan Area Planning Commission

Darrell A. Downing
Chair

John L. Schlegel
Secretary

This plat approved and all dedications shown herein accepted by the City Council of the City of Wichita, Kansas, this _____ day of _____, 200___.

At the Direction of the City Council

Carlos Mayans
Mayor

Karen Sublett
City Clerk

Reviewed in accordance with K.S.A. 58-2005 on this _____ day of _____, 200___.

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

Entered on transfer record this _____ day of _____, 200___.

Don Brace
County Clerk

State of Kansas) SS
Sedgwick County) SS

This is to certify that this plat has been filed for record in the office of the Register of Deeds, this _____ day of _____, 200___, at _____ o'clock _____ M, and is duly recorded.

Bill Meek
Register of Deeds

Tonya Buckingham
Deputy

| MINIMUM BUILDING PAD ELEVATION FOR LOTS OPENING INTO STRUCTURES | LOT NO. | ELEVATION (N.G.S.I.) |
|---|---------|-----------------------------------|
| | 1 | 1. 2, 3, 4, 5, 6, 7, 8 1.534.5 |
| | 4 | 1, 2, 3, 4, 5, 6 1.528.4 |

BENCH MARK: RABE BRASS DISC SET IN CONCRETE, 70' S. AND 10' W. OF THE N.E. CORNER NW1/4, SEC. 34, T27S, R2E. ELEV. = 1531.77 M.S.L.

5/8" RABE 0.11" E. & 0.12" N. OF PROPERTY CORNER

State of Kansas) SS
Sedgwick County) SS

We, Ruggles & Bohm, P.A., Land Surveyors in aforesaid county and state, do hereby certify that, under the supervision of the undersigned, we have surveyed and platted "WILLOW CREEK EAST", Wichita, Sedgwick County, Kansas, and that the accompanying plat is a true and correct exhibit of the property surveyed, described as follows:

That part of the NW1/4 of Sec. 34, T27S, R2E of the 6th P.M., Sedgwick County, Kansas, described as beginning at the N.E. corner of said NW1/4; thence S00°18'14"W, along the east line of said NW1/4, 1748.18 feet to the south right-of-way line of Funston, as platted in Tara Falls, Sedgwick County, Kansas; thence N89°41'46"W, 140.00 feet; thence S87°37'12"W, 64.07 feet; thence N00°18'14"E, parallel with said east line, 64.00 feet; thence N89°41'46"W, 150.00 feet; thence N06°07'41"E, 295.64 feet; thence N00°18'14"E, parallel with said east line, 791.30 feet; thence N55°56'39"W, 328.72 feet; thence N59°17'48"W, 64.11 feet; thence N55°56'39"W, 120.00 feet; thence N34°03'21"E, 312.49 feet to a point 60.00 feet south of the north line of said NW1/4; thence N00°17'05"E, 60.00 feet to said north line; thence S89°42'55"E, along said north line, 578.79 feet to the place of beginning.

All public easements and dedications are hereby vacated by virtue of K.S.A. 12-512(b).

Ruggles & Bohm, P.A.

Thomas C. Ruggles
Land Surveyor



Ruggles & Bohm, P.A.
Engineering, Surveying, Land Planning
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Wichita, Kansas 67203
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(316) 264-4621 Fax
E-mail: info@rbkansas.com