

# AS-BUILT WATER DISTRIBUTION SYSTEM

to serve

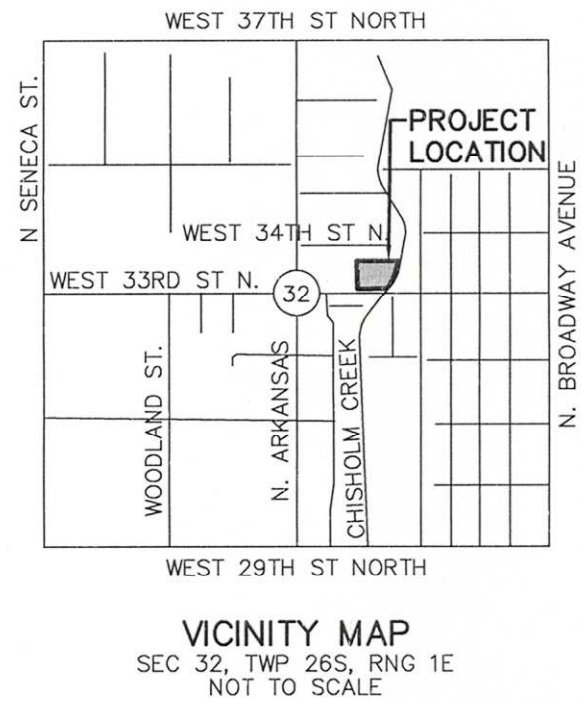
## SUNNYDALE POINTE APARTMENTS

550 W 33rd STREET  
CITY OF WICHITA, KANSAS

GARY JANZEN, P.E. City Engineer

Project Number  
2022 PPW (607853)

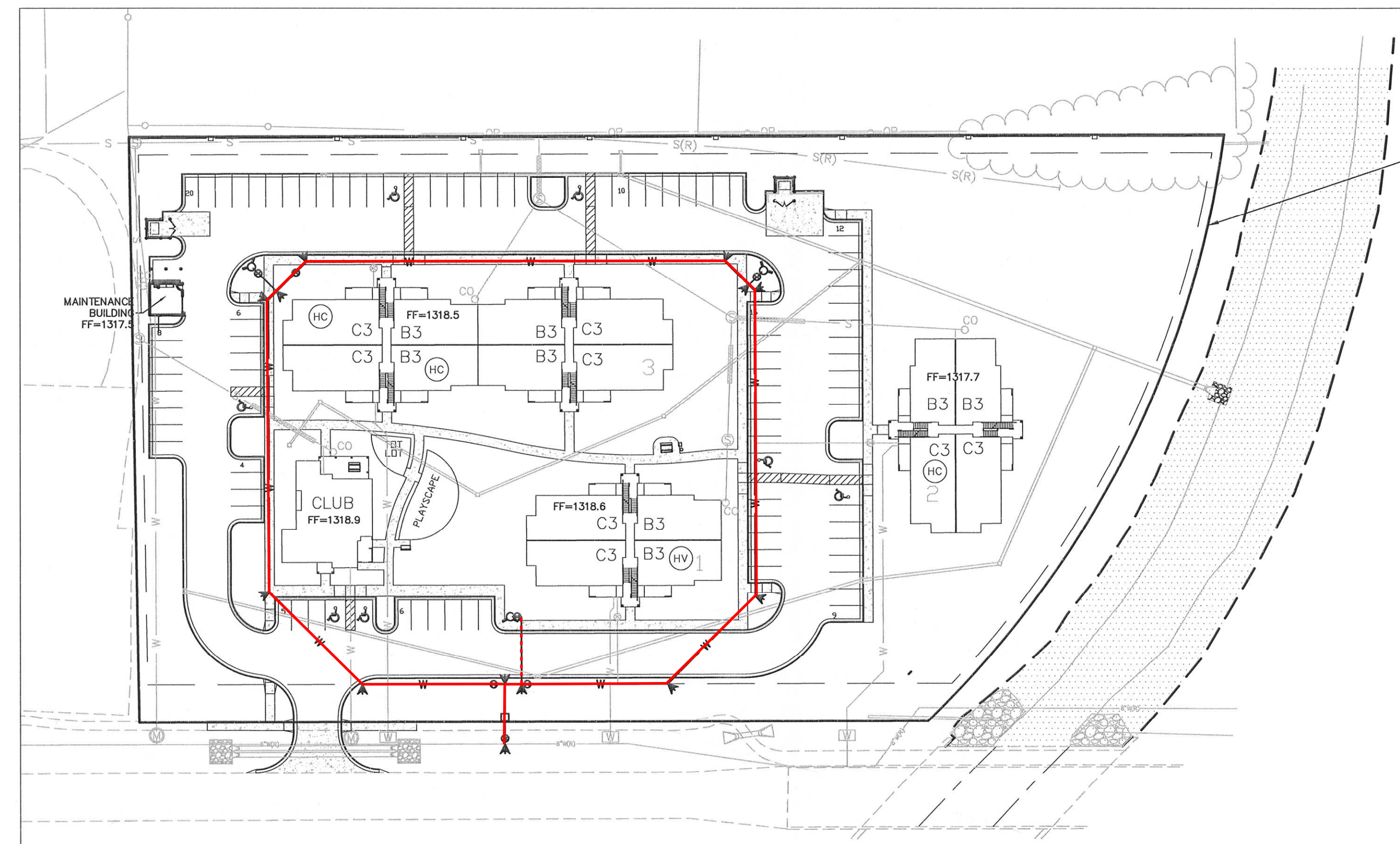
**CONTRACTOR: ZIMMERMAN PROPERTIES CONSTRUCTION /RELIABLE FIRE SYSTEMS**  
**INSPECTION FIRM: KAW VALLEY ENGINEERING**  
**INSPECTOR: A. THOMPSON**



**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 1-800-246-8464  
Black Hills Energy 1-800-694-8989  
City of Wichita Water 1-316-268-4555  
City of Wichita Sewer 1-316-268-4073  
City of Wichita Stormwater 1-316-268-4090  
City of Wichita Traffic 1-316-268-4034  
Cox Communications 1-888-249-3530  
Kansas Gas Service 1-888-482-4950  
Westar Energy 1-800-544-4857
3. UTILITY SERVICE LINES, POLES, ETC. ARE TO BE ADJUSTED AS NECESSARY BY OTHERS PRIOR TO CONSTRUCTION UNLESS THE PLANS SPECIFICALLY CALL FOR THEIR ADJUSTMENT BY THE CONTRACTOR OR UNLESS THE PLANS SPECIFICALLY IDENTIFY A UTILITY TO BE ADJUSTED BY ITS OWNER DURING CONSTRUCTION. EXISTING UTILITIES AND THEIR LOCATION, AS SHOWN ON THE PLANS, REPRESENT THE BEST INFORMATION OBTAINABLE FOR DESIGN. THE CONTRACTOR WILL BE REQUIRED TO WORK AROUND EXISTING UTILITIES WITHIN THE RIGHT-OF-WAY WHICH DO NOT CONFLICT WITH PROPOSED CONSTRUCTION.
4. RUBBLE FROM THE REMOVAL OF MISCELLANEOUS STRUCTURES AND EXCESS EXCAVATION WHICH IS TO BE WASTED SHALL BE DISPOSED OF ON SITES TO BE PROVIDED BY THE CONTRACTOR. THESE SITES SHALL BE APPROVED BY THE ENGINEER AS TO SUITABILITY, APPEARANCE AND SITE LOCATION. LOCATIONS, IN THE OPINION OF THE ENGINEER, THAT WILL LEAVE AN UNSIGHTLY APPEARANCE WILL NOT BE APPROVED. ALL DISPOSAL SITES MUST BE APPROVED BY THE KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT. MATERIAL EITHER STOCKPILED OR DISPOSED OF IN A FLOOD PLAIN WILL 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 WILL REQUIRE ADDITIONAL ARCHAEOLOGICAL INVESTIGATIONS UNLESS BURIED IN A PREVIOUSLY APPROVED BORROW LOCATION.
5. TREES AND SHRUBS IN PUBLIC RIGHT-OF-WAY WHICH ARE IN DIRECT CONFLICT WITH PROPOSED NEW CONSTRUCTION SHALL BE REMOVED BY THE CONTRACTOR WITH THE ENGINEER'S APPROVAL. TREES AND SHRUBS WHICH ARE NOT IN DIRECT CONFLICT WITH PROPOSED NEW CONSTRUCTION SHALL BE SAVED AND PROTECTED FROM DAMAGE.
6. THE CONTRACTOR SHALL GIVE ALL PROPERTY OWNERS AND/OR TENANTS OF DEVELOPED PROPERTY ABUTTING THE CONSTRUCTION OF THIS PROJECT A MINIMUM OF TEN (10) DAYS NOTICE PRIOR TO START OF CONSTRUCTION.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PRESERVING PROPERTY IRONS. THE CONTRACTOR WILL BE REQUIRED TO RE-ESTABLISH ANY PROPERTY IRONS WHICH ARE DAMAGED OR DESTROYED BY HIS CONSTRUCTION OPERATIONS. SUCH IRONS SHALL BE RE-ESTABLISHED BY A LICENSED LAND SURVEYOR IN ACCORDANCE WITH STATE LAWS.
8. THE WATER DISTRIBUTION DIVISION SHALL FIELD LOCATE WATER VALVES ONE TIME DURING CONSTRUCTION WHEN REQUESTED BY THE CONTRACTOR. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PRESERVE SUCH FIELD LOCATIONS DURING THE CONSTRUCTION PROCESS. WATER VALVES, VALVE BOXES OR FIRE HYDRANTS DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED BY CONTRACTOR AT HIS OWN EXPENSE. VALVE BOXES AND WATER METERS WITHIN THE PROJECT LIMITS SHALL BE ADJUSTED TO MATCH FIELD GRADES.
9. THE CONTRACTOR SHALL NOTIFY THE CONSULTANT ENGINEER AND TOM MASON AT 316-268-4574 WITH THE CITY OF WICHITA WITH THE ANTICIPATED CONSTRUCTION START DATE AND NOTIFY THEM OF PROJECT COMPLETION. STAKING AND INSPECTION FOR THIS PROJECT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
10. IF TRAFFIC WILL BE IMPACTED BY CONSTRUCTION, A TRAFFIC CONTROL PLAN MUST BE SUBMITTED AND APPROVED BY THE CITY TRAFFIC ENGINEER, BRIAN COON AT TRAFFIC@WICHITA.GOV BEFORE CONSTRUCTION CAN BEGIN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL MEASURES TO FACILITATE CONSTRUCTION. ALL CONSTRUCTION ZONE MARKINGS AND SIGNAGE SHALL CONFORM TO THE LATEST VERSION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AS PUBLISHED BY THE US DEPT. OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION. ALL COSTS ASSOCIATED WITH CONSTRUCTION MARKINGS AND SIGNAGE SHALL BE THE CONTRACTORS RESPONSIBILITY.
11. ALL ELEVATIONS SHOWN ARE NAVD 88.
12. ALL AREAS DISTURBED DURING CONSTRUCTION THAT WILL NOT BE UNDER PROPOSED PAVEMENT SHALL BE RESTORED TO MATCH EXISTING CONDITIONS.
13. OPENING AND CLOSING OF WATER VALVES SHALL BE DONE SLOWLY TO PREVENT DAMAGE TO THE WATER DISTRIBUTIONS SYSTEM FROM WATER HAMMER. ALL VALVES CLOSED BY THE CONTRACTOR MUST BE REOPENED AS NEW CONSTRUCTION PERMITS. THE PROJECT INSPECTOR MUST ASCERTAIN THAT ANY VALVE CLOSED BY THE CONTRACTOR IS REOPENED. THE CONTRACTOR WILL BE PERMITTED TO OPERATE WATER VALVES ONLY WHEN THE PROJECT INSPECTOR ASSIGNED TO THE PROJECT IS PRESENT.
14. THE CONTRACTOR SHALL LAY A TRACER WIRE AND SET TEST STATIONS ALONG ALL WATER PIPE INSTALLED IN ACCORDANCE WITH CITY SPECIFICATIONS AND TRACER WIRE DETAIL ON DETAIL SHEET WL-101, CAST IS SUBSIDIARY TO PIPE INSTALLATION.
15. THE CONTRACTOR SHALL PROVIDE MATERIALS FOR TEMPORARY BLOWOFF OF WATERLINES. CONNECTIONS TO THE EXISTING WATERLINE(S) SHALL BE MADE WITH CLEAN, SWABBED PIPE AND FLUSHED UPON COMPLETION OF TIE-INS.
16. REQUESTS FOR SHORT TERM WATER INTERRUPTIONS SHALL BE MADE TO THE CITY WATER DISTRIBUTION DIVISION AND WILL BE SUBJECT TO THEIR APPROVAL. THE CONTRACTOR SHALL GIVE WRITTEN NOTICE TO ANY PROPERTY OWNER, BUSINESS, AND/OR TENANTS THAT WILL HAVE WATER SERVICE INTERRUPTED AT LEAST 5 DAYS IN ADVANCE. SUCH NOTIFICATIONS SHOULD INDICATE THE TIME AND DATE THAT THE WATER WILL BE TURNED OFF AND WHEN THE SERVICE WILL BE RESTORED. NO BUSINESS, PROPERTY OWNER, AND/OR TENANTS SHALL BE WITHOUT WATER SERVICE FOR MORE THAN 8 HOURS. PROPOSED TIE IN LOCATIONS WHICH WILL AFFECT WATER SERVICE TO PROPERTY OWNERS SHALL BE PERFORMED DURING NON-PEAK HOURS.
17. THE CONTRACTOR MUST SCHEDULE THE CONNECTIONS TO THE EXISTING MAIN WITH THE CITY SUCH THAT THERE IS A MINIMUM DISRUPTION OF SERVICE. CONNECTIONS SHALL BE MADE DURING PERIODS OF LOW WATER USAGE. THE CONTRACTOR SHALL SUBMIT HIS PROPOSED SCHEDULE FOR COMPLETING WORK FOR CITY APPROVAL AT LEAST 10 DAYS PRIOR TO BEGINNING CONSTRUCTION.

18. DEFLECTIONS AT PIPE JOINT OR COUPLINGS SHALL NOT EXCEED THE PIPE MANUFACTURERS RECOMMENDED MAXIMUM. WHERE DEFLECTIONS ARE GREATER THAN THE MAXIMUM ALLOWED, THE CONTRACTOR SHALL UTILIZE CI MJ LONG SLEEVE OR MULTIPLE JOINTS.
19. ANY EXTENSION GREATER THAN ONE LENGTH OF PIPE SHALL REQUIRE TESTING.
20. ANY EXISTING JOINT EXPOSED DURING EXCAVATION SHALL BE REPLACED IF WITHIN FOUR FEET OF PROPOSED JOINT.
21. CITY MAINTENANCE OF WATER MAINS ENDS AT RIGHT-OF-WAY OR EASEMENT LINE.
22. VALVES 12 INCH AND LARGER ARE TO BE OPERATED BY THE CITY WATER DISTRIBUTION DIVISION. 48 HOURS OF ADVANCE NOTICE IS REQUIRED.
23. ALL WET TAP SHALL BE INSTALLED BY THE CITY OF WICHITA. THE CONTRACTOR WILL REIMBURSE THE CITY FOR TAPING FEES.
24. THE CONTRACTOR SHALL PROTECT FROM DAMAGE AND SUPPORT EXISTING UTILITIES THROUGH CONSTRUCTIONS AS APPROVED BY THE UTILITY OWNER AND ENGINEER AT THE CONTRACTORS EXPENSE.
25. CONTRACTOR SHALL LIMIT THE EXTENT OF TRENCH OPENINGS OVERNIGHT AND WEEKENDS TO LESS THAN 50 FEET.
26. ANY SIDEWALK, DRIVE APPROACH, CURB, OR STREET PAVEMENT REMOVED TO CONSTRUCT PROJECT MUST HAVE A PAVEMENT CUT PERMIT AND BE REPLACED BY THE CITY CONTRACTOR. PERMITS CAN BE OBTAINED BY CALLING 316-268-4501 OR 316-268-4480.



PROJECT IMPROVEMENT AREA

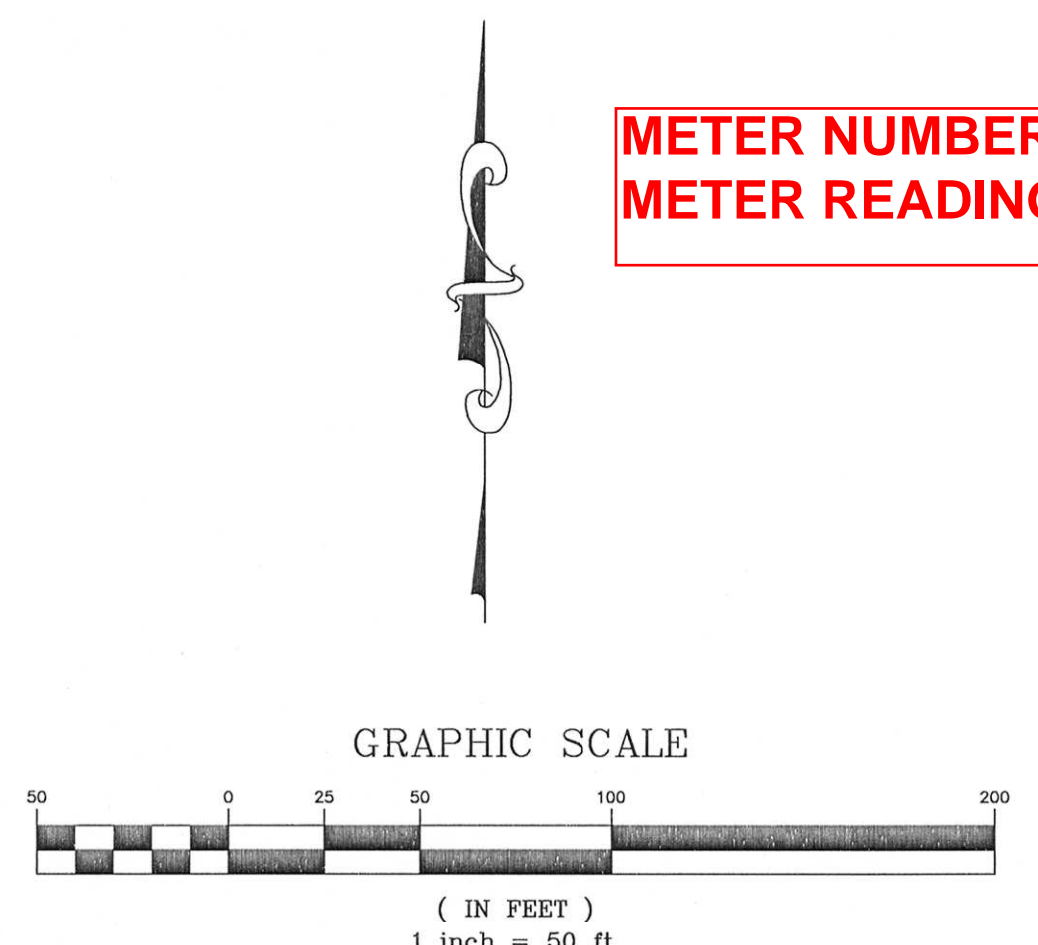
**PROJECT BENCH MARK:**  
**BM #3**  
 CHISELED SQUARE ON THE NORTHWEST CORNER OF THE BRIDGE ABUTMENT OF THE BRIDGE CROSSING OF CHISHOLM CREEK AT 33RD STREET.  
 ELEV = 1318.72 NAVD 88  
**BM #4**  
 CHISELED SQUARE ON A CONCRETE 2'x2' LIGHT POLE BASE AT THE SOUTHEAST CORNER, 225 FEET WEST OF THE SOUTHWEST CORNER PROPERTY.  
 ELEV = 1317.95 NAVD 88

**CAUTION - NOTICE TO CONTRACTOR:**  
 THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.  
**THE CONTRACTOR SHALL EXPOSE EXISTING UTILITIES AT LOCATIONS OF POSSIBLE CONFLICTS PRIOR TO ANY CONSTRUCTION.**

**SAFETY NOTICE TO CONTRACTOR:**  
 IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.

**WARRANTY / DISCLAIMER:**  
 THE DESIGNS REPRESENTED IN THESE PLANS ARE IN ACCORDANCE WITH ESTABLISHED PRACTICES OF CIVIL ENGINEERING FOR THE DESIGN FUNCTIONS AND USES INTENDED BY THE OWNER AT THIS TIME. HOWEVER, NEITHER KAW VALLEY ENGINEERING, INC NOR ITS PERSONNEL CAN OR DO WARRANT THESE DESIGNS OR PLANS AS CONSTRUCTED, EXCEPT IN THE SPECIFIC CASES WHERE KAW VALLEY ENGINEERING PERSONNEL INSPECT AND CONTROL THE PHYSICAL CONSTRUCTION ON A CONTEMPORARY BASIS AT THE SITE.

**METER NUMBER: 16497752**  
**METER READING: 000000.00**



### Sheet Index

TITLE SHEET	C010
EROSION CONTROL- PHASE I	C400
EROSION CONTROL- PHASE II	C401
EROSION CONTROL- PHASE III	C402
EROSION CONTROL DETAILS	C490-C494
GENERAL LAYOUT SHEET	C801
WATER LINE PLAN AND PROFILE	C810
WATER DETAILS	C890-C893
LOT SPLIT	C899

APPROVED AS NOTED  
 BY WICHITA PUBLIC WORKS  
 ENGINEERING DIVISION  
 & BY WICHITA FIRE DEPARTMENT

Engineering Rebecca Dail 11/22/16  
 Utilities John DeGey 11-28-16  
 Fire Dept. [Signature] 11/12/16

**NOTE TO CONTRACTORS**

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

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

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

OCTOBER, 2016

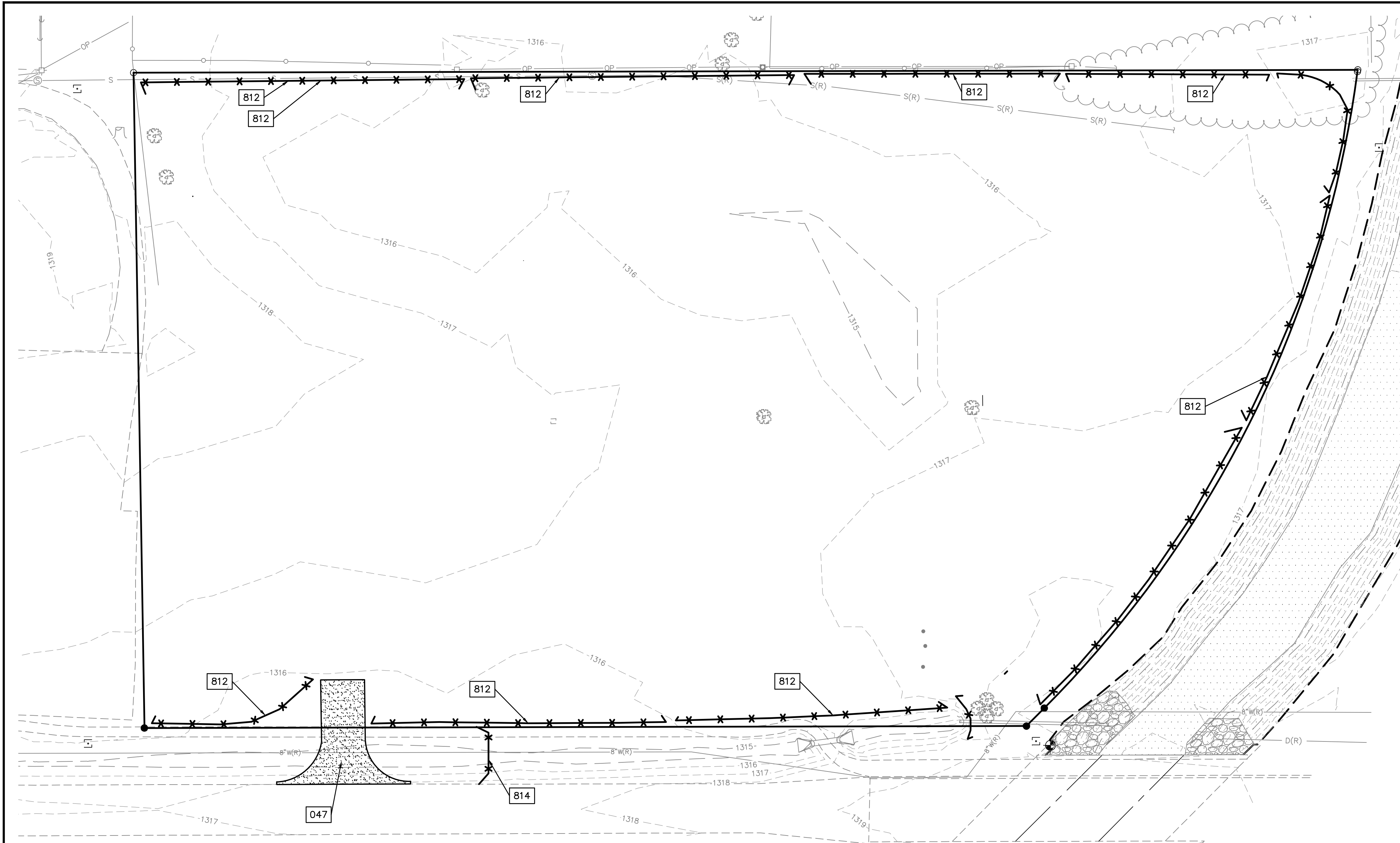
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**KAW VALLEY ENGINEERING**

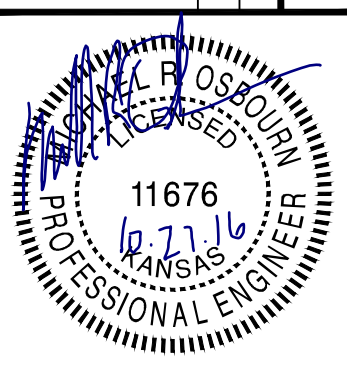
KAW VALLEY ENGINEERING, INC. IS AUTHORIZED TO OFFER ENGINEERING SERVICES BY KANSAS STATE CERTIFICATE OF AUTHORIZATION # E-113. EXPIRES 12/31/16





- GENERAL NOTES:**
- PROPERTY LINE IS LIMITS OF CONSTRUCTION EXCEPT AS SHOWN.
  - THE CONTRACTOR SHALL INSTALL EROSION CONTROL MEASURES AS SHOWN ON THE DRAWINGS PRIOR TO BEGINNING EARTHWORK OPERATIONS.
  - THE CONTRACTOR SHALL MAINTAIN ALL SILT CONTROL MEASURES DURING CONSTRUCTION.
  - ALL SILT SHALL REMAIN ON SITE AND SURROUNDING STREETS SHALL BE KEPT CLEAR OF ALL MUD AND DEBRIS.
  - A SEDIMENTATION BARRIER IS TO BE INSTALLED AS SHOWN.
  - ACCUMULATED SEDIMENT SHALL BE REMOVED AND THE SEDIMENTATION BARRIERS MAINTAINED AS NEEDED TO PREVENT SEDIMENTATION BYPASS OF THE BARRIER.
  - SLOPES ARE TO BE LEFT IN A ROUGH CONDITION DURING GRADING.
  - CURB INLET SEDIMENTATION BARRIERS ARE TO BE INSTALLED AROUND INLETS AND WEIRS WHERE SEDIMENTATION IS A CONCERN. INLET BARRIERS SHALL BE EITHER BLOCK AND GRAVEL, OR SECURED STRAW BALES, OR SILT FENCE.
  - SEDIMENT IS TO BE REMOVED FROM STORM WATER DRAINAGE SYSTEMS.
  - RIPRAP IS TO BE INSTALLED AT AREAS OF CONCENTRATED FLOW (I.E. CULVERT OUTLETS).
  - CONTRACTOR IS RESPONSIBLE FOR INSTALLING ANY ADDITIONAL EROSION CONTROL AS HE/SHE DEEMS NECESSARY.
  - THE CONTRACTOR SHALL PROVIDE ALL MATERIALS, TOOLS, EQUIPMENT AND LABOR AS NECESSARY TO INSTALL AND MAINTAIN ADEQUATE EROSION AND SILTATION CONTROLS REQUIRED TO PREVENT SOIL EROSION FROM LEAVING THE PROJECT SITE. IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO ENSURE THAT METHODS UTILIZED ARE ADEQUATE AND COMPLY WITH REQUIREMENTS OF THE SPECIFICATIONS AND GOVERNMENTAL AGENCIES HAVING JURISDICTION OVER THE WORK.
  - TEMPORARY SEDIMENT FENCE/STRAW BALES TO REMAIN UNTIL ADEQUATE VEGETATION IS ESTABLISHED.
  - MUD AND DEBRIS SHALL BE CLEANED UP AT THE CONCLUSION OF EACH WORKING DAY, OR AFTER EACH RAINFALL IF SILT IS PRESENT.
  - INSPECTION, MAINTENANCE AND REPAIR OF EROSION CONTROL DEVICES SHALL BE ON GOING THROUGHOUT THE LIFE OF BUILDING CONSTRUCTION TO KEEP THE DEVICES IN OPERABLE CONDITION AT ALL TIMES. ADDITIONAL MEASURES SHALL BE INSTALLED AS REQUIRED BY ACTUAL FIELD CONDITIONS AND/OR GOVERNING INSPECTION AGENCIES.
  - INSTALL CONSTRUCTION ENTRANCE AT ANY POINT WHERE TRAFFIC WILL BE ENTERING OR LEAVING THE SITE AND AS SHOWN ON PLANS.
  - AT COMPLETION OF SITE GRADING AND OTHER RELATED CONSTRUCTION ACTIVITIES, ALL DISTURBED AREAS WITHIN THE PROJECT SITE SHALL BE SEEDDED, SODDED, OR LANDSCAPED AS SHOWN ON THE LANDSCAPE PLAN WITHIN 14 DAYS.
  - TOPSOIL IS TO BE PLACED IN AREAS UNSUITABLE FOR VEGETATIVE GROWTH.
  - STRIP TOPSOIL PRIOR TO EXCAVATION, STOCKPILE AND SPREAD ONTO DISKED SUBGRADE (4" MIN) A THICKNESS OF 4 INCHES.
  - ROCK LINING (RIPRAP) SHALL BE DURABLE STONE CONTAINING A COMBINED TOTAL OF NOT MORE THAN 10 PERCENT OF EARTH, SAND, SHALE AND NON-DURABLE ROCK. AT LEAST 60 PERCENT OF THE MASS SHALL BE OF PIECES HAVING A MINIMUM WEIGHT OF 150 POUNDS OR MORE PER CUBIC FOOT.
  - THE CONTRACTOR SHALL HAVE THE RESPONSIBILITY FOR RESOLVING COMPLAINTS IN THE EVENT THAT COMPLAINTS OR DAMAGE CLAIMS ARE FILED DUE TO DAMAGES OCCURRING ADJACENT TO OR DOWNSTREAM FROM PROPERTY BY SEDIMENT RESULTING FROM EROSION ON THE PROJECT SITE.
  - GOOD HOUSEKEEPING PRACTICES SHALL BE MAINTAINED ON SITE TO KEEP SOLID WASTE FROM ENTRY INTO WATERS.
  - ALL FUELING FACILITIES PRESENT ON SITE SHALL ADHERE TO APPLICABLE FEDERAL AND STATE REQUIREMENTS CONCERNING UNDERGROUND STORAGE, ABOVE GROUND STORAGE AND DISPENSERS, INCLUDING SPILL PREVENTION, CONTROL AND COUNTER MEASURES.
  - EROSION CONTROL IS TO BE PLACED IN PHASING AS CONSTRUCTION PROGRESSES.
  - MINIMAL WASHING OF CONCRETE EQUIPMENT ALLOWED, CHUTE ETC. CONCRETE WASHOUT OF THE DRUM IS NOT ALLOWED. ANY PIT/WASHOUT AREA NEEDS TO BE MAINTAINED IN A NON-DISCHARGING MANNER AND ANY WASTE RESIDUE WILL NEED TO BE CLEANED OUT AND REMOVED AT THE END OF PROJECT.

PROJ. NO.	C15_8121
DESIGNER	KGK
DRAWN BY	NJN
CFN	8121ECP
SHEET	C400
REV	1



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**SUNNYDALE POINTE APARTMENTS**  
WEST 33RD STREET NORTH  
WICHITA, KANSAS 67204

**WATER DISTRIBUTION SYSTEM**  
EROSION CONTROL- PHASE I

- LEGEND:**
- SECTION CORNER
  - BENCHMARK
  - CONTROL POINT
  - MONUMENT FOUND ORIGIN UNKNOWN UNLESS OTHERWISE NOTED
  - MONUMENT SET
  - SECTION LINE
  - (P) PLATTED
  - (M) MEASURED
  - (CM) CALCULATED MEASURED
  - CHAIN LINK FENCE
  - WOOD FENCE
  - RCP REINFORCED CONCRETE PIPE
  - CMP CORRUGATED METAL PIPE
  - VCP VITRIFIED CLAY PIPE
  - 939 EXISTING GRADE 1' CONTOUR
  - 950 EXISTING GRADE 5' CONTOUR
  - DECIDUOUS TREE
  - EXISTING SPOT ELEVATION
  - STUMP
  - TREE LINE
  - FF FINISH FLOOR ELEVATION
  - DEADMAN ANCHOR
  - LIGHT POLE
  - (1) OP OVERHEAD POWER LINE (# OF LINES)
  - UTILITY POLE
  - UTILITY POLE W/ TRANSFORMER
  - S SANITARY SEWER LINE
  - SANITARY SEWER MANHOLE
  - FLARED END SECTION
  - FIRE HYDRANT
  - WATER LINE GATE VALVE
  - FLOOD ZONE A
  - APPROXIMATE LOCATION OF FLOOD ZONES PER FEMA WEBSITE
  - BK BREAKER BOX
  - EWS EDGE OF WEARING SURFACE (BRIDGE)

- DETAILS - SEE DETAIL SHEET NO. C490 AND C491 FOR THE FOLLOWING DETAILS
- 047 STABILIZED CONSTRUCTION ENTRANCE
  - 812 SILT FENCE BARRIER
  - 814 SILT FENCE DITCH CHECK

- EROSION & PROPOSED IMPROVEMENTS LEGEND:**
- 1218 EXISTING GROUND CONTOUR (1' INTERVALS)
  - SILT FENCE BARRIER
  - STABILIZED CONSTRUCTION ENTRANCE

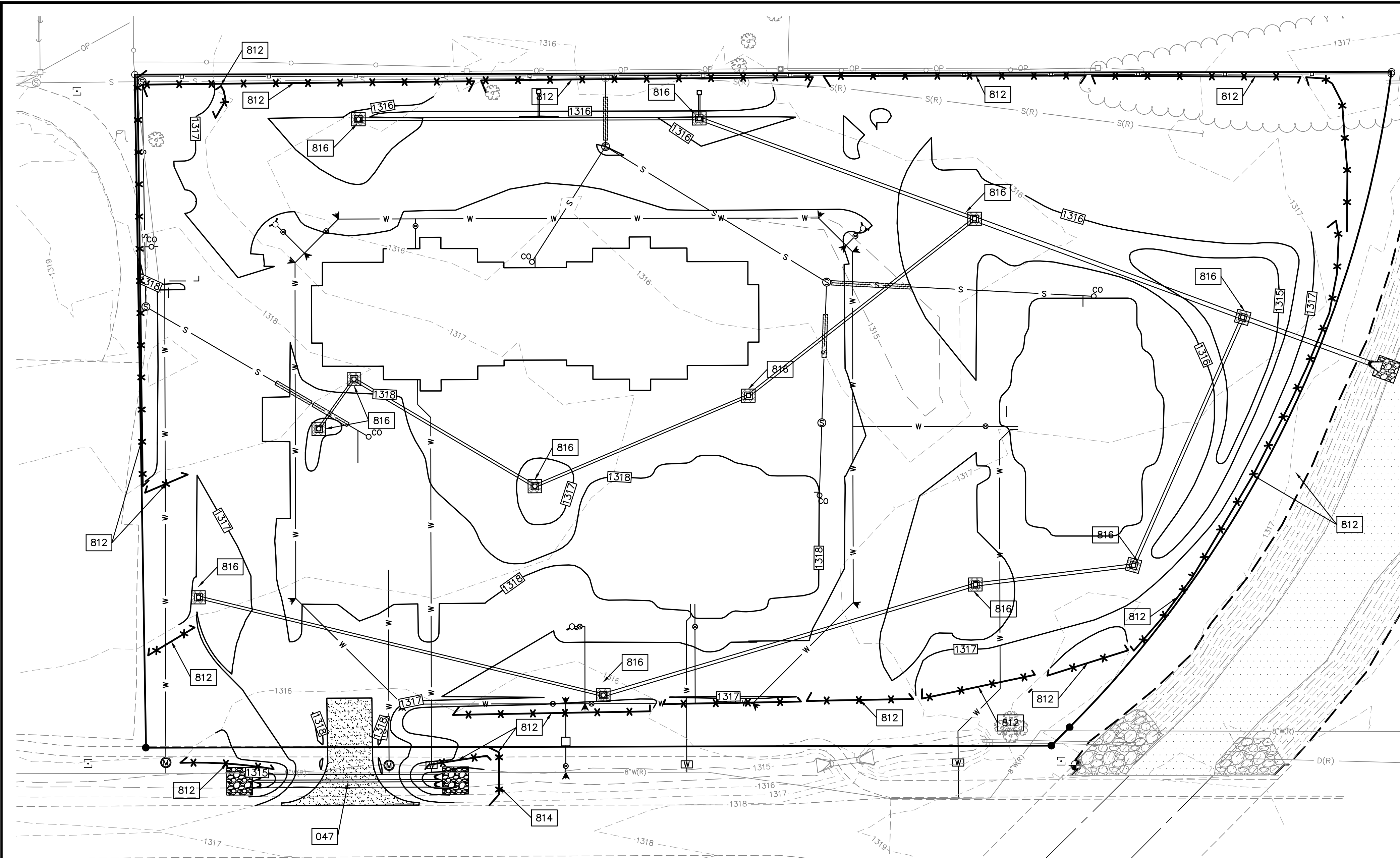
**EROSION AND SEDIMENT CONTROL NOTES**

PHASE 1: ESTABLISH PERIMETER PROTECTION PRIOR TO COMMENCEMENT OF CONSTRUCTION

- TEMPORARY AND PERMANENT SEEDING**
- TEMPORARY SEEDING  
SEEDBED PREPARATION  
SEEDBED SHOULD BE WELL-PULVERIZED, LOOSE AND UNIFORM. LIME AND FERTILIZER SHOULD BE APPLIED ACCORDING TO SOIL TEST RECOMMENDATIONS. IF pH IS UNKNOWN, APPLY LIME AT A RATE OF 2 TONS/ACRE. APPLY A 10-10-10 GRADE FERTILIZER AT 700-1,000 LB/ACRE. INCORPORATE BOTH INTO THE TOP 4-6 INCHES OF SOIL. PLANT SELECTION - ANNUAL RYE GRASS, WHEAT OR OATS FOR TEMPORARY SEEDING
- SEEDING  
EVENLY APPLY SEED USING A CYCLONE SEEDER (BROADCAST), DRILL, CULTIPACKER SEEDER OR HYDROSEEDER. ANNUAL RYE GRASS SHOULD BE APPLIED AT A RATE OF 120 LBS/ACRE, WHEAT OR OATS SHOULD BE APPLIED AT A RATE OF 100 LBS/ACRE. BROADCAST SEEDING AND HYDROSEEDING ARE APPROPRIATE FOR STEEP SLOPES WHERE EQUIPMENT CANNOT BE DRIVEN. HAND BROADCASTING IS NOT RECOMMENDED BECAUSE OF THE DIFFICULTY IN ACHIEVING A UNIFORM DISTRIBUTION. SMALL GRAINS SHOULD BE PLANTED NO MORE THAN 1 INCH DEEP, AND GRASSES AND LEGUMES NO MORE THAN 1/2 INCH. BROADCAST SEED MUST BE COVERED BY RAKING OR CHAIN DRAGGING, AND THEN LIGHTLY FIRMED WITH A ROLLER OR CULTIPACKER. HYDROSEEDED MIXTURES SHOULD INCLUDE A WOOD FIBER (CELLULOSE) MULCH.
- MULCHING  
THE USE OF MULCH WILL HELP ENSURE ESTABLISHMENT UNDER NORMAL CONDITIONS AND IS ESSENTIAL TO SEEDING SUCCESS UNDER HARSH CONDITIONS SUCH AS SEEDING IN FALL OR WINTER COVER (WOOD FIBER MULCHES ARE NOT CONSIDERED ADEQUATE FOR THIS USE), SLOPES STEEPER THAN 3:1, EXCESSIVELY HOT OR DRY WEATHER, ADVERSE SOILS (SHALLOW, ROCKY, HIGH IN CLAY OR SAND), AND AREAS RECEIVING CONCENTRATED FLOW. IF AREA TO BE MULCHED IS SUBJECT TO CONCENTRATED WATERFLOW, AS IN CHANNELS, ANCHOR MULCH WITH NETTING.
- MAINTENANCE  
RESEED, REFERTILIZE AND MULCH AREAS OF INSUFFICIENT GROWTH. RESEED, REFERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.
- PERMANENT SEEDING  
SEE PROJECT SPECIFICATIONS FOR PERMANENT SEEDING REQUIREMENTS.

- EROSION AND SEDIMENT CONTROL INSPECTION PROCEDURES**
- THE FOLLOWING PROCEDURES WILL BE USED TO MAINTAIN EROSION AND SEDIMENTATION CONTROLS.
- ALL CONTROL MEASURES WILL BE INSPECTED AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL EVENT PRODUCING RUNOFF AND DAILY DURING PROLONGED RAINFALL PERIODS.
  - ALL MEASURES WILL BE MAINTAINED IN GOOD WORKING ORDER. IF A REPAIR IS NECESSARY, IT WILL BE MADE WITHIN 24 HOURS OF THE INSPECTION.
  - SEDIMENT WILL BE REMOVED FROM THE SILT BARRIERS WHEN IT HAS REACHED ONE-THIRD OF THE HEIGHT OF THE BARRIER.
  - SILT BARRIERS WILL BE INSPECTED FOR DEPTH OF ACCUMULATED SEDIMENT, TEARS, ATTACHMENT TO POSTS, AND STABILITY ON A WEEKLY BASIS.
  - TEMPORARY AND PERMANENT SEEDING AND PLANTING WILL BE INSPECTED FOR BARE SPOTS, WASHOUTS, AND HEALTHY GROWTH.
  - INSPECT RIPRAP AND AGGREGATE COVERED AREAS FOR BARE SPOTS AND WASHOUTS.
  - THE CONSTRUCTION MANAGER WILL SELECT INDIVIDUALS TO BE RESPONSIBLE FOR INSPECTIONS, MAINTENANCE, REPAIRS, AND REPORTING. THE DESIGNATED INDIVIDUALS WILL RECEIVE THE NECESSARY TRAINING FROM THE CONSTRUCTION MANAGER TO PROPERLY INSPECT AND MAINTAIN THE CONTROLS IN GOOD WORKING ORDER.
  - INSPECTION FORM 1 IN THE STORM WATER POLLUTION PREVENTION PLAN WILL BE COMPLETED AFTER EACH INSPECTION.





**GENERAL NOTES:**

- PROPERTY LINE IS LIMITS OF CONSTRUCTION EXCEPT AS SHOWN.
- THE CONTRACTOR SHALL INSTALL EROSION CONTROL MEASURES AS SHOWN ON THE DRAWINGS PRIOR TO BEGINNING EARTHWORK OPERATIONS.
- THE CONTRACTOR SHALL MAINTAIN ALL SILT CONTROL MEASURES DURING CONSTRUCTION.
- ALL SILT SHALL REMAIN ON SITE AND SURROUNDING STREETS SHALL BE KEPT CLEAR OF ALL MUD AND DEBRIS.
- A SEDIMENTATION BARRIER IS TO BE INSTALLED AS SHOWN.
- ACCUMULATED SEDIMENT SHALL BE REMOVED AND THE SEDIMENTATION BARRIERS MAINTAINED AS NEEDED TO PREVENT SEDIMENTATION BYPASS OF THE BARRIER.
- SLOPES ARE TO BE LEFT IN A ROUGH CONDITION DURING GRADING.
- CURB INLET SEDIMENTATION BARRIERS ARE TO BE INSTALLED AROUND INLETS AND WEIRS WHERE SEDIMENTATION IS A CONCERN. INLET BARRIERS SHALL BE EITHER BLOCK AND GRAVEL, OR SECURED STRAW BALES, OR SILT FENCE.
- SEDIMENT IS TO BE REMOVED FROM STORM WATER DRAINAGE SYSTEMS.
- RIPRAP IS TO BE INSTALLED AT AREAS OF CONCENTRATED FLOW (I.E. CULVERT OUTLETS).
- CONTRACTOR IS RESPONSIBLE FOR INSTALLING ANY ADDITIONAL EROSION CONTROL AS HE/SHE DEEMS NECESSARY.
- THE CONTRACTOR SHALL PROVIDE ALL MATERIALS, TOOLS, EQUIPMENT AND LABOR AS NECESSARY TO INSTALL AND MAINTAIN ADEQUATE EROSION AND SILTATION CONTROLS REQUIRED TO PREVENT SOIL EROSION FROM LEAVING THE PROJECT SITE. IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO ENSURE THAT METHODS UTILIZED ARE ADEQUATE AND COMPLY WITH REQUIREMENTS OF THE SPECIFICATIONS AND GOVERNMENTAL AGENCIES HAVING JURISDICTION OVER THE WORK.
- TEMPORARY SEDIMENT FENCE/STRAW BALES TO REMAIN UNTIL ADEQUATE VEGETATION IS ESTABLISHED.
- MUD AND DEBRIS SHALL BE CLEANED UP AT THE CONCLUSION OF EACH WORKING DAY, OR AFTER EACH RAINFALL IF SILT IS PRESENT.
- INSPECTION, MAINTENANCE AND REPAIR OF EROSION CONTROL DEVICES SHALL BE ON GOING THROUGHOUT THE LIFE OF BUILDING CONSTRUCTION TO KEEP THE DEVICES IN OPERABLE CONDITION AT ALL TIMES. ADDITIONAL MEASURES SHALL BE INSTALLED AS REQUIRED BY ACTUAL FIELD CONDITIONS AND/OR GOVERNING INSPECTION AGENCIES.
- INSTALL CONSTRUCTION ENTRANCE AT ANY POINT WHERE TRAFFIC WILL BE ENTERING OR LEAVING THE SITE AND AS SHOWN ON PLANS.
- AT COMPLETION OF SITE GRADING AND OTHER RELATED CONSTRUCTION ACTIVITIES, ALL DISTURBED AREAS WITHIN THE PROJECT SITE SHALL BE SEEDED, SODDED, OR LANDSCAPED AS SHOWN ON THE LANDSCAPE PLAN WITHIN 14 DAYS.
- TOPSOIL IS TO BE PLACED IN AREAS UNSUITABLE FOR VEGETATIVE GROWTH.
- STRIP TOPSOIL PRIOR TO EXCAVATION, STOCKPILE AND SPREAD ONTO DISKED SUBGRADE (4" MIN) A THICKNESS OF 4 INCHES.
- ROCK LINING (RIPRAP) SHALL BE DURABLE STONE CONTAINING A COMBINED TOTAL OF NOT MORE THAN 10 PERCENT OF EARTH, SAND, SHALE AND NON-DURABLE ROCK. AT LEAST 60 PERCENT OF THE MASS SHALL BE OF PIECES HAVING A MINIMUM WEIGHT OF 150 POUNDS OR MORE PER CUBIC FOOT.
- THE CONTRACTOR SHALL HAVE THE RESPONSIBILITY FOR RESOLVING COMPLAINTS IN THE EVENT THAT COMPLAINTS OR DAMAGE CLAIMS ARE FILED DUE TO DAMAGES OCCURRING ADJACENT TO OR DOWNSTREAM FROM PROPERTY BY SEDIMENT RESULTING FROM EROSION ON THE PROJECT SITE.
- GOOD HOUSEKEEPING PRACTICES SHALL BE MAINTAINED ON SITE TO KEEP SOLID WASTE FROM ENTRY INTO WATERS.
- ALL FUELING FACILITIES PRESENT ON SITE SHALL ADHERE TO APPLICABLE FEDERAL AND STATE REQUIREMENTS CONCERNING UNDERGROUND STORAGE, ABOVE GROUND STORAGE AND DISPENSERS, INCLUDING SPILL PREVENTION, CONTROL AND COUNTER MEASURES.
- EROSION CONTROL IS TO BE PLACED IN PHASING AS CONSTRUCTION PROGRESSES.
- MINIMAL WASHING OF CONCRETE EQUIPMENT ALLOWED, CHUTE ETC. CONCRETE WASHOUT OF THE DRUM IS NOT ALLOWED. ANY PIT/WASHOUT AREA NEEDS TO BE MAINTAINED IN A NON-DISCHARGING MANNER AND ANY WASTE RESIDUE WILL NEED TO BE CLEANED OUT AND REMOVED AT THE END OF PROJECT.

**EROSION AND SEDIMENT CONTROL INSPECTION PROCEDURES**

THE FOLLOWING PROCEDURES WILL BE USED TO MAINTAIN EROSION AND SEDIMENTATION CONTROLS.

- ALL CONTROL MEASURES WILL BE INSPECTED AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL EVENT PRODUCING RUNOFF AND DAILY DURING PROLONGED RAINFALL PERIODS.
- ALL MEASURES WILL BE MAINTAINED IN GOOD WORKING ORDER. IF A REPAIR IS NECESSARY, IT WILL BE MADE WITHIN 24 HOURS OF THE INSPECTION.
- SEDIMENT WILL BE REMOVED FROM THE SILT BARRIERS WHEN IT HAS REACHED ONE-THIRD OF THE HEIGHT OF THE BARRIER.
- SILT BARRIERS WILL BE INSPECTED FOR DEPTH OF ACCUMULATED SEDIMENT, TEARS, ATTACHMENT TO POSTS, AND STABILITY ON A WEEKLY BASIS.
- TEMPORARY AND PERMANENT SEEDING AND PLANTING WILL BE INSPECTED FOR BARE SPOTS, WASHOUTS, AND HEALTHY GROWTH.
- INSPECT RIPRAP AND AGGREGATE COVERED AREAS FOR BARE SPOTS AND WASHOUTS.
- THE CONSTRUCTION MANAGER WILL SELECT INDIVIDUALS TO BE RESPONSIBLE FOR INSPECTIONS, MAINTENANCE, REPAIRS, AND REPORTING. THE DESIGNATED INDIVIDUALS WILL RECEIVE THE NECESSARY TRAINING FROM THE CONSTRUCTION MANAGER TO PROPERLY INSPECT AND MAINTAIN THE CONTROLS IN GOOD WORKING ORDER.
- INSPECTION FORM 1 IN THE STORM WATER POLLUTION PREVENTION PLAN WILL BE COMPLETED AFTER EACH INSPECTION.

**EROSION AND SEDIMENT CONTROL NOTES**

- PHASE 1:** ESTABLISH PERIMETER PROTECTION PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- PHASE 2:** INTERNAL SLOPE AND INLET PROTECTION INSTALLED AT COMPLETION OF ROUGH GRADING AND UTILITY INSTALLATION.

**EROSION & PROPOSED IMPROVEMENTS LEGEND:**

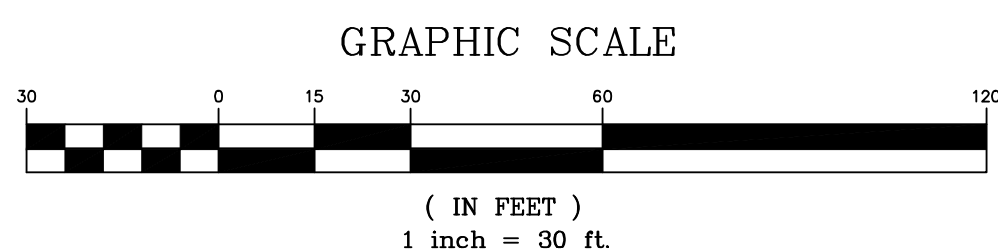
- 1218 ——— EXISTING GROUND CONTOUR (1' INTERVALS)
- 1218 ——— PROPOSED FINISHED GROUND CONTOUR (1' INTERVALS)
- X X X SILT FENCE BARRIER
- INLET PROTECTION
- STABILIZED CONSTRUCTION ENTRANCE

**LEGEND:**

- SECTION CORNER
- BENCHMARK
- CONTROL POINT
- MONUMENT FOUND ORIGIN UNKNOWN UNLESS OTHERWISE NOTED
- MONUMENT SET
- SECTION LINE
- (P) PLATTED
- (M) MEASURED
- (CM) CALCULATED MEASURED
- CHAIN LINK FENCE
- WOOD FENCE
- RCP REINFORCED CONCRETE PIPE
- CMP CORRUGATED METAL PIPE
- VCP VITRIFIED CLAY PIPE
- 939 ——— EXISTING GRADE 1' CONTOUR
- 950 ——— EXISTING GRADE 5' CONTOUR
- DECIDUOUS TREE
- EXISTING SPOT ELEVATION
- STUMP
- TREE LINE
- FF FINISH FLOOR ELEVATION
- DEADMAN ANCHOR
- LIGHT POLE
- OVERHEAD POWER LINE (# OF LINES)
- UTILITY POLE
- UTILITY POLE W/ TRANSFORMER
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- SANITARY SEWER MANHOLE
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- FIRE HYDRANT
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- FLOOD ZONE A
- APPROXIMATE LOCATION OF FLOOD ZONES PER FEMA WEBSITE
- BREAKER BOX
- EWS EDGE OF WEARING SURFACE (BRIDGE)

DETAILS — SEE DETAIL SHEET NO. C490 AND C491 FOR THE FOLLOWING DETAILS

- 047 STABILIZED CONSTRUCTION ENTRANCE
- 812 SILT FENCE BARRIER
- 814 SILT FENCE DITCH CHECK
- 816 SILT FENCE BARRIER FOR AREA INLETS



**TEMPORARY AND PERMANENT SEEDING**

**TEMPORARY SEEDING**  
SEEDBED PREPARATION  
SEEDBED SHOULD BE WELL-PULVERIZED, LOOSE AND UNIFORM. LIME AND FERTILIZER SHOULD BE APPLIED ACCORDING TO SOIL TEST RECOMMENDATIONS. IF pH IS UNKNOWN, APPLY LIME AT A RATE OF 2 TONS/ACRE. APPLY A 10-10-10 GRADE FERTILIZER AT 700-1,000 LB/ACRE. INCORPORATE BOTH INTO THE TOP 4-6 INCHES OF SOIL. PLANT SELECTION — ANNUAL RYE GRASS, WHEAT OR OATS FOR TEMPORARY SEEDING

**SEEDING**

EVENLY APPLY SEED USING A CYCLONE SEEDER (BROADCAST), DRILL, CULTIPACKER SEEDER OR HYDROSEEDER. ANNUAL RYE GRASS SHOULD BE APPLIED AT A RATE OF 120 LBS/ACRE, WHEAT OR OATS SHOULD BE APPLIED AT A RATE OF 100 LBS/ACRE. BROADCAST SEEDING AND HYDROSEEDING ARE APPROPRIATE FOR STEEP SLOPES WHERE EQUIPMENT CANNOT BE DRIVEN. HAND BROADCASTING IS NOT RECOMMENDED BECAUSE OF THE DIFFICULTY IN ACHIEVING A UNIFORM DISTRIBUTION. SMALL GRAINS SHOULD BE PLANTED NO MORE THAN 1 INCH DEEP, AND GRASSES AND LEGUMES NO MORE THAN 1/2 INCH. BROADCAST SEED MUST BE COVERED BY RAKING OR CHAIN DRAGGING, AND THEN LIGHTLY FIRMED WITH A ROLLER OR CULTIPACKER. HYDROSEEDING MIXTURES SHOULD INCLUDE A WOOD FIBER (CELLULOSE) MULCH.

**MULCHING**

THE USE OF MULCH WILL HELP ENSURE ESTABLISHMENT UNDER NORMAL CONDITIONS AND IS ESSENTIAL TO SEEDING SUCCESS UNDER HARSH CONDITIONS SUCH AS SEEDING IN FALL OR WINTER COVER (WOOD FIBER MULCHES ARE NOT CONSIDERED ADEQUATE FOR THIS USE), SLOPES STEEPER THAN 3:1, EXCESSIVELY HOT OR DRY WEATHER, ADVERSE SOILS (SHALLOW, ROCKY, HIGH IN CLAY OR SAND), AND AREAS RECEIVING CONCENTRATED FLOW. IF AREA TO BE MULCHED IS SUBJECT TO CONCENTRATED WATERFLOW, AS IN CHANNELS, ANCHOR MULCH WITH NETTING.

**MAINTENANCE**

RESEED, REFERTILIZE AND MULCH AREAS OF INSUFFICIENT GROWTH. RESEED, REFERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.

**PERMANENT SEEDING**

SEE PROJECT SPECIFICATIONS FOR PERMANENT SEEDING REQUIREMENTS.

PROJ. NO.	C15_8121
DESIGNER	KGK
DRAWN BY	NJN
CFN	8121ECP
SHEET	C401
REV	1

REV	DATE	DESCRIPTION
1	10/27/16	PER CITY COMMENTS
0	9/20/16	INITIAL ISSUE

14700 WEST 114TH TERRACE  
LENEXA, KANSAS 66215  
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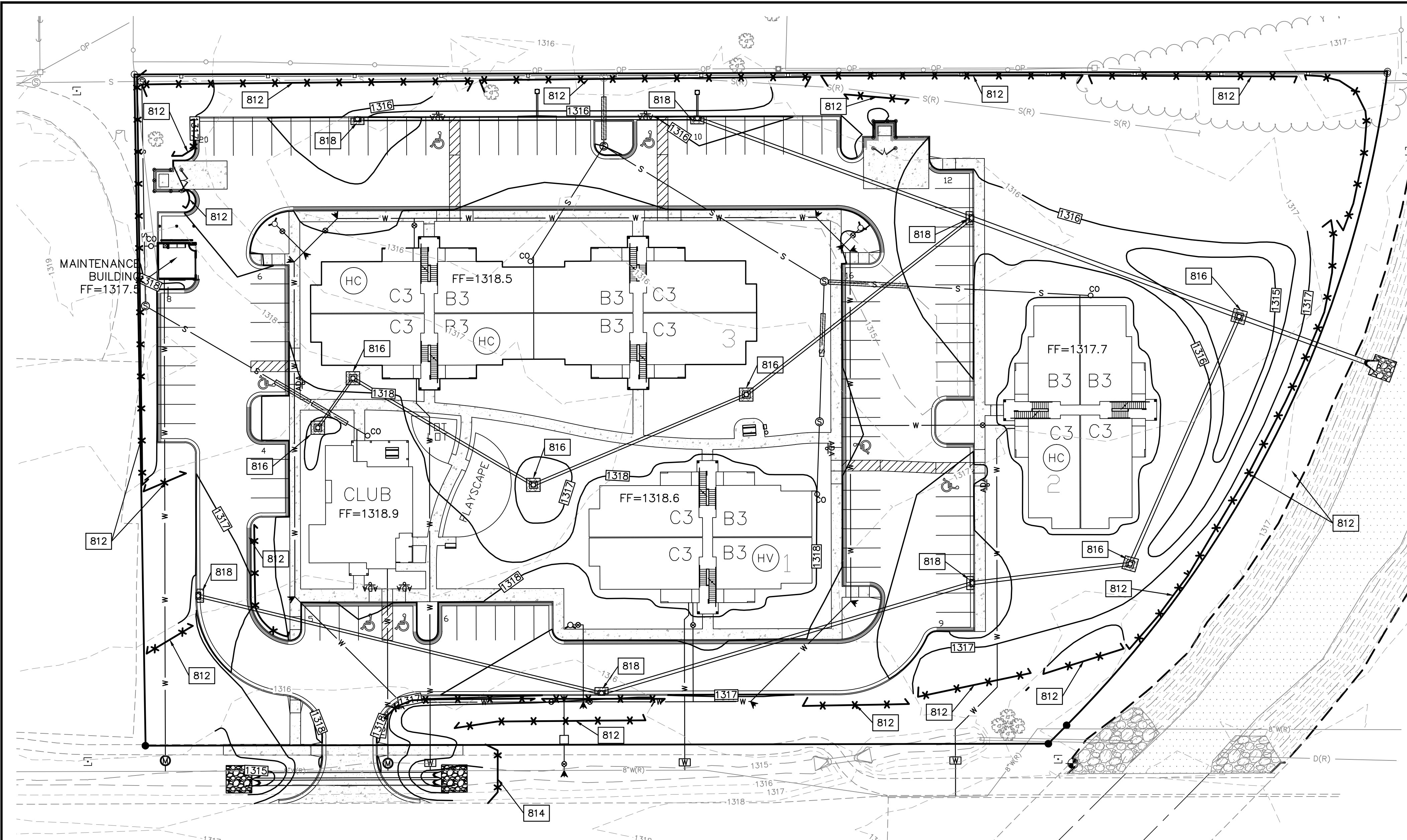
**KAW VALLEY ENGINEERING**  
KAW VALLEY ENGINEERING, INC. IS AUTHORIZED TO OFFER ENGINEERING SERVICES BY KANSAS STATE CERTIFICATE OF AUTHORIZATION # E-113. EXPIRES 12/31/16

MICHAEL R. OSBOURN  
ENGINEER  
KS #. 11676

**811**  
Know what's below.  
Call before you dig.

**SUNNYDALE POINTE APARTMENTS**  
WEST 33RD STREET NORTH  
WICHITA, KANSAS 67204

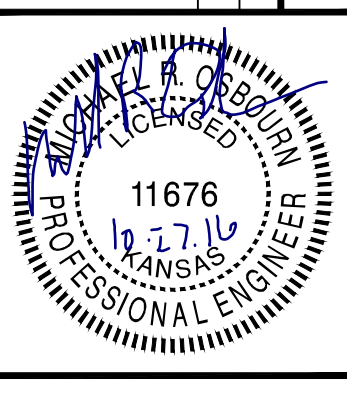
**WATER DISTRIBUTION SYSTEM**  
EROSION CONTROL- PHASE II



**GENERAL NOTES:**

- PROPERTY LINE IS LIMITS OF CONSTRUCTION EXCEPT AS SHOWN.
- THE CONTRACTOR SHALL INSTALL EROSION CONTROL MEASURES AS SHOWN ON THE DRAWINGS PRIOR TO BEGINNING EARTHWORK OPERATIONS.
- THE CONTRACTOR SHALL MAINTAIN ALL SILT CONTROL MEASURES DURING CONSTRUCTION.
- ALL SILT SHALL REMAIN ON SITE AND SURROUNDING STREETS SHALL BE KEPT CLEAR OF ALL MUD AND DEBRIS.
- A SEDIMENTATION BARRIER IS TO BE INSTALLED AS SHOWN.
- ACCUMULATED SEDIMENT SHALL BE REMOVED AND THE SEDIMENTATION BARRIERS MAINTAINED AS NEEDED TO PREVENT SEDIMENTATION BYPASS OF THE BARRIER.
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- INSTALL CONSTRUCTION ENTRANCE AT ANY POINT WHERE TRAFFIC WILL BE ENTERING OR LEAVING THE SITE AND AS SHOWN ON PLANS.
- AT COMPLETION OF SITE GRADING AND OTHER RELATED CONSTRUCTION ACTIVITIES, ALL DISTURBED AREAS WITHIN THE PROJECT SITE SHALL BE SEEDED, SODDED, OR LANDSCAPED AS SHOWN ON THE LANDSCAPE PLAN WITHIN 14 DAYS.
- TOPSOIL IS TO BE PLACED IN AREAS UNSUITABLE FOR VEGETATIVE GROWTH.
- STRIP TOPSOIL PRIOR TO EXCAVATION, STOCKPILE AND SPREAD ONTO DISKED SUBGRADE (4" MIN) A THICKNESS OF 4 INCHES.
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- GOOD HOUSEKEEPING PRACTICES SHALL BE MAINTAINED ON SITE TO KEEP SOLID WASTE FROM ENTRY INTO WATERS.
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CHK	DWN	DSN	KGC	NUN	KGC	NUN
REV	DATE	DESCRIPTION	PER CITY COMMENTS	INITIAL ISSUE	10/27/16	9/20/16
1	10/27/16	PER CITY COMMENTS				
0	9/20/16	INITIAL ISSUE				



MICHAEL R. OSBOURN  
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KS #. 11676

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**SUNNYDALE POINTE APARTMENTS**  
WEST 33RD STREET NORTH  
WICHITA, KANSAS 67204

**WATER DISTRIBUTION SYSTEM**  
EROSION CONTROL- PHASE III

PROJ. NO. C15\_8121  
DESIGNER KGC DRAWN BY NUN  
CFN  
SHEET 8121ECP REV  
C402 1

DETAILS - SEE DETAIL SHEET NO. C490 AND C491 FOR THE FOLLOWING DETAILS

**LEGEND:**

- △ SECTION CORNER
- ◆ BENCHMARK
- CONTROL POINT
- MONUMENT FOUND ORIGIN UNKNOWN UNLESS OTHERWISE NOTED
- MONUMENT SET
- SECTION LINE
- (P) PLATTED
- (M) MEASURED
- (CM) CALCULATED MEASURED
- CHAIN LINK FENCE
- WOOD FENCE
- RCP REINFORCED CONCRETE PIPE
- CMP CORRUGATED METAL PIPE
- VCP VITRIFIED CLAY PIPE
- - - EXISTING GRADE 1' CONTOUR
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- STUMP
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- LIGHT POLE
- OVERHEAD POWER LINE (# OF LINES)
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- SANITARY SEWER LINE
- SANITARY SEWER MANHOLE
- △ FLARED END SECTION
- FIRE HYDRANT
- WATER LINE GATE VALVE
- FLOOD ZONE A
- APPROXIMATE LOCATION OF FLOOD ZONES PER FEMA WEBSITE
- BREAKER BOX
- EWS EDGE OF WEARING SURFACE (BRIDGE)

**EROSION & PROPOSED IMPROVEMENTS LEGEND:**

- 047 STABILIZED CONSTRUCTION ENTRANCE
- 812 SILT FENCE BARRIER
- 814 SILT FENCE DITCH CHECK
- 816 SILT FENCE BARRIER FOR AREA INLET
- 818 CURB INLET PROTECTION
- 1218 EXISTING GROUND CONTOUR (1' INTERVALS)
- 1218 PROPOSED FINISHED GROUND CONTOUR (1' INTERVALS)
- X X SILT FENCE BARRIER
- INLET PROTECTION

**EROSION AND SEDIMENT CONTROL NOTES**

- PHASE 1:** ESTABLISH PERIMETER PROTECTION PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- PHASE 2:** INTERNAL SLOPE AND INLET PROTECTION INSTALLED AT COMPLETIONS OF ROUGH GRADING AND UTILITY INSTALLATION.
- PHASE 3:** CONTRACTOR TO INSTALL AND MAINTAIN SEDIMENT FENCE UNTIL GROUND COVER IS ESTABLISHED

**TEMPORARY AND PERMANENT SEEDING**

**TEMPORARY SEEDING**  
SEEDBED PREPARATION  
SEEDBED SHOULD BE WELL-PULVERIZED, LOOSE AND UNIFORM. LIME AND FERTILIZER SHOULD BE APPLIED ACCORDING TO SOIL TEST RECOMMENDATIONS. IF pH IS UNKNOWN, APPLY LIME AT A RATE OF 2 TONS/ACRE. APPLY A 10-10-10 GRADE FERTILIZER AT 700-1,000 LB/ACRE. INCORPORATE BOTH INTO THE TOP 4-6 INCHES OF SOIL. PLANT SELECTION - ANNUAL RYE GRASS, WHEAT OR OATS FOR TEMPORARY SEEDING

**SEEDING**

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**MULCHING**

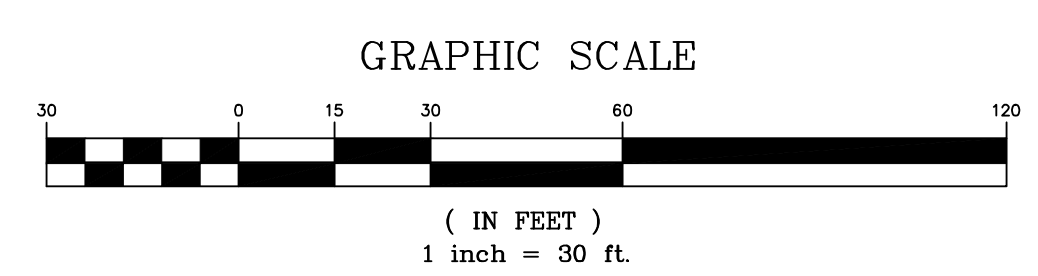
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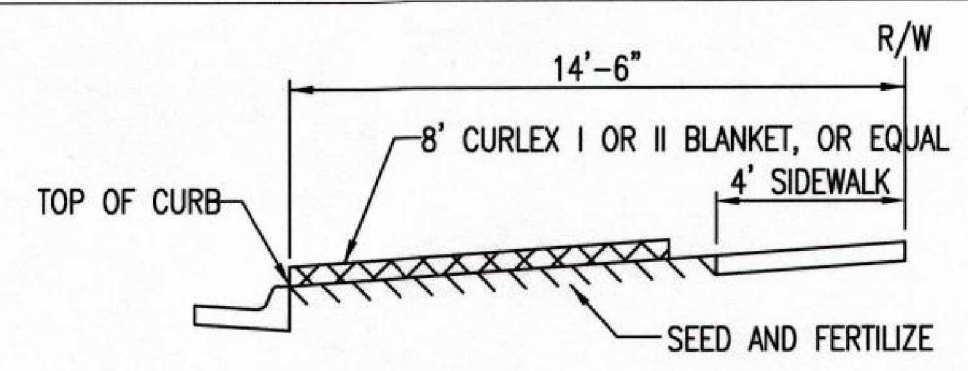
**MAINTENANCE**

RESEED, REFERTILIZE AND MULCH AREAS OF INSUFFICIENT GROWTH. RESEED, REFERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.

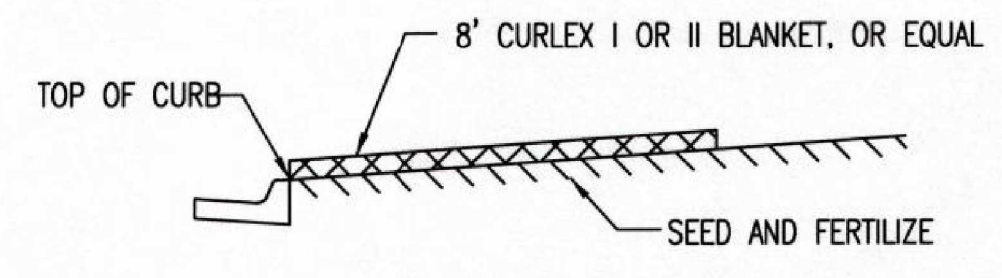
**PERMANENT SEEDING**

SEE PROJECT SPECIFICATIONS FOR PERMANENT SEEDING REQUIREMENTS.



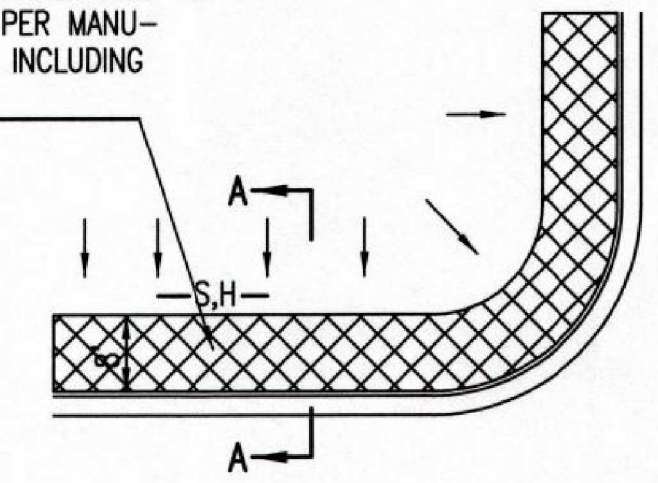


SECTION B-B

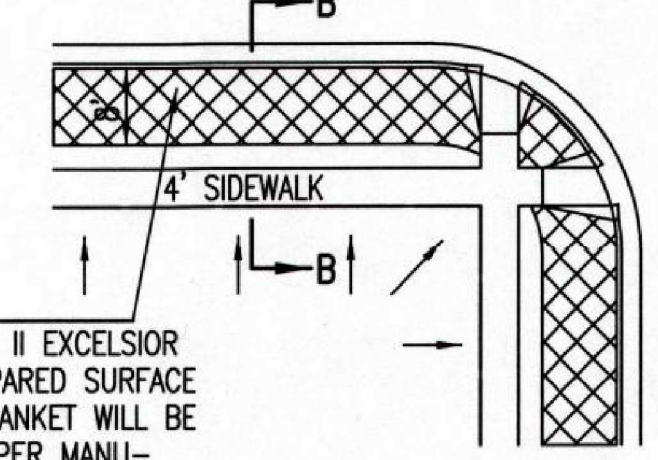


SECTION A-A

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



SOUTH STREET

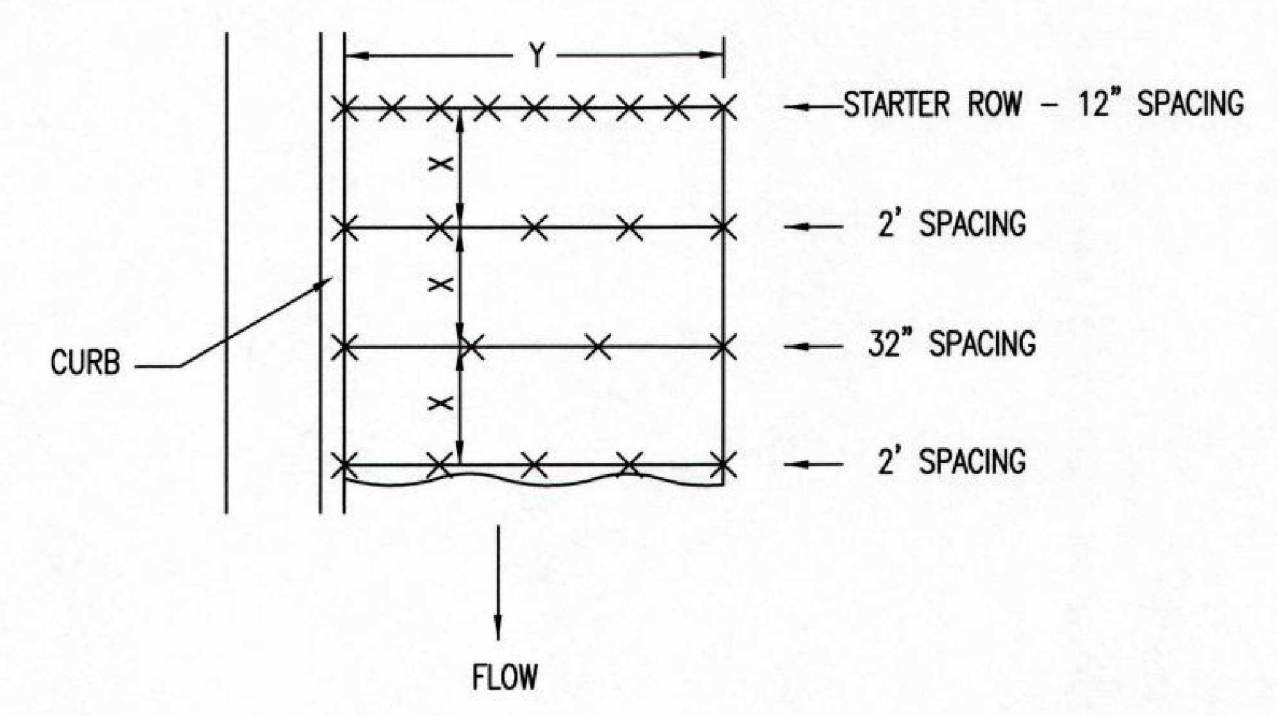


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GENERAL NOTES

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

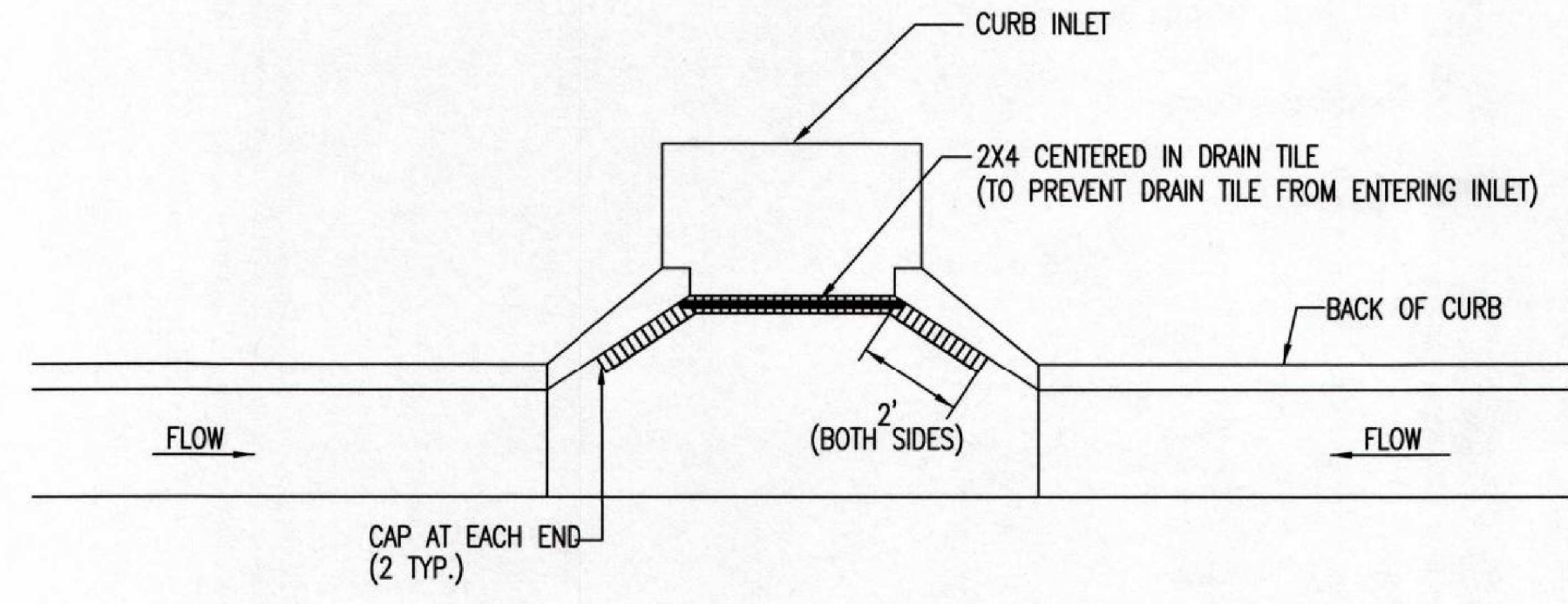
BACK OF CURB PROTECTION DETAIL



STAPLE PATTERN

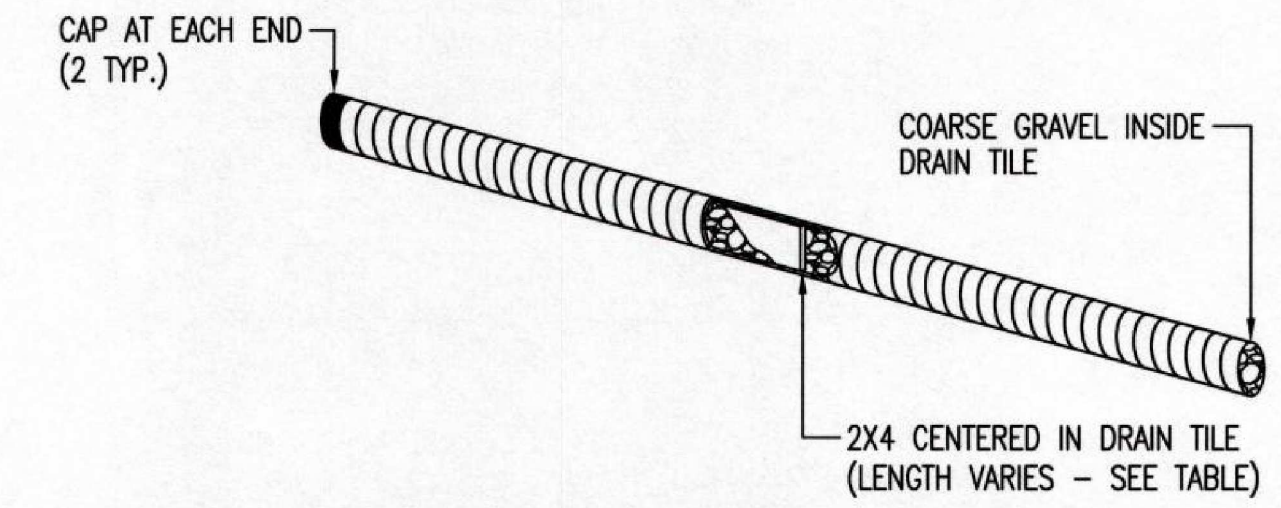
NOTES: USE 6" SEAM OVERLAP  
(X & Y = RECOMMENDED BY MANUFACTURE)

DETAILS FOR APPROVED EROSION CONTROL MAT

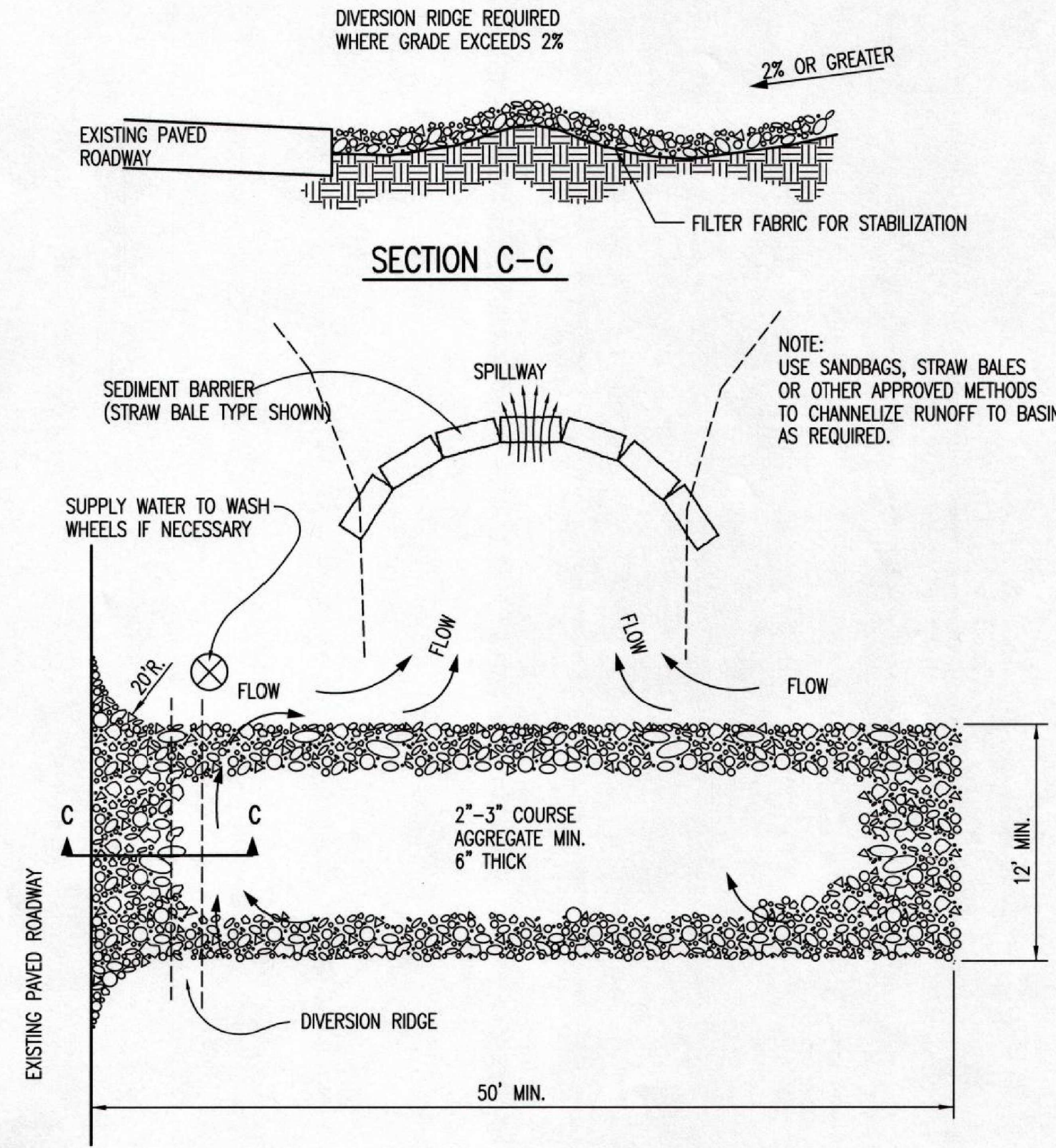


NOTE: PLACE 4" PERFORATED PVC PIPE, FILLED WITH 1/2"-1" DIA. GRAVEL, IN FRONT OF CURB INLET AS SHOWN.

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



CURB INLET PROTECTION  
4" PERFORATED PIPE W/ GRAVEL 818



STABILIZED CONSTRUCTION ENTRANCE 047

GENERAL NOTES

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



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

REVISION DATE: MAY 2013

**BACK OF CURB PROTECTION, CURB INLET PROTECTION AND CONSTRUCTION ENTRANCE**

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

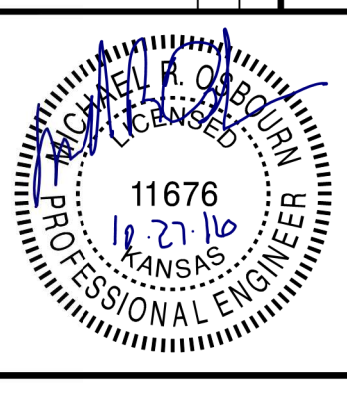
PROJECT NUMBER	OCA NUMBER	DATE
CITY ENGINEER'S OFFICE		SHEET
CITY HALL - SEVENTH FLOOR 455 NORTH MAIN STREET WICHITA, KANSAS 67202-1620 (316) 268-4501		

SUNNYDALE POINTE APARTMENTS  
WEST 33RD STREET NORTH  
WICHITA, KANSAS 67204

WATER DISTRIBUTION SYSTEM  
EROSION CONTROL DETAILS

PROJ. NO.	C15_8121
DESIGNER	KGK
DRAWN BY	NJN
CFN	
SHEET	8121DET
C490	1

REV	DATE	DESCRIPTION
0	9/20/16	INITIAL ISSUE
1	10/27/16	PER CITY COMMENTS
DSN		
DWN		
CHK		

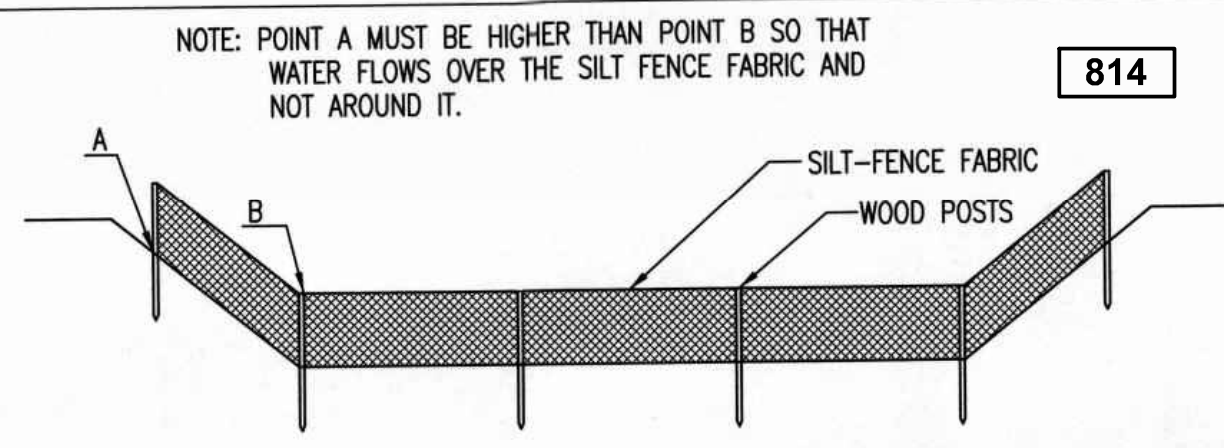


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**KAW VALLEY ENGINEERING**

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

**MATERIAL SPECIFICATION:**

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

**PLACEMENT:**

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

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

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

**PROPER INSTALLATION METHOD:**

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

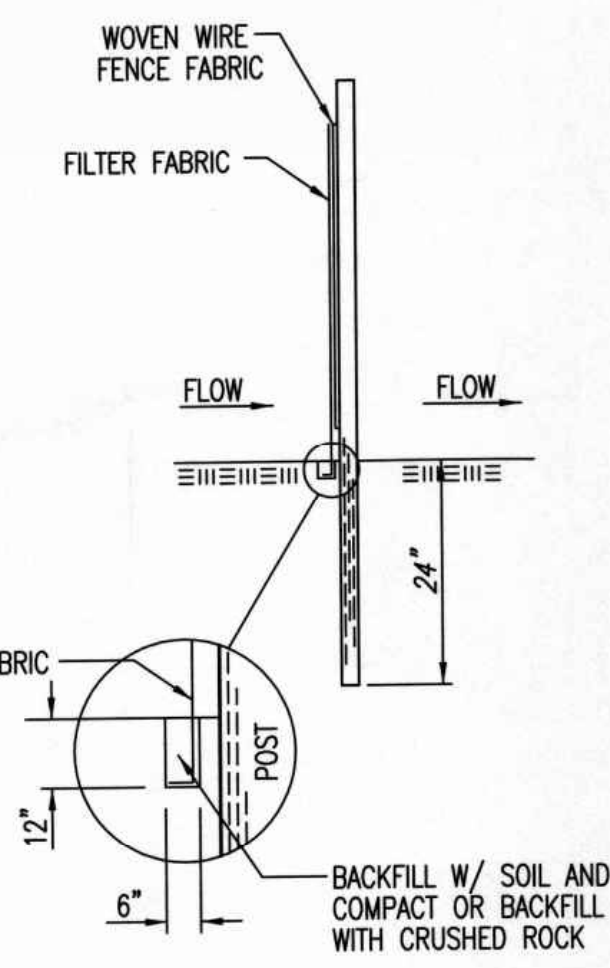
**LIST OF COMMON PLACEMENT/INSTALLATION MISTAKES TO AVOID:**

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

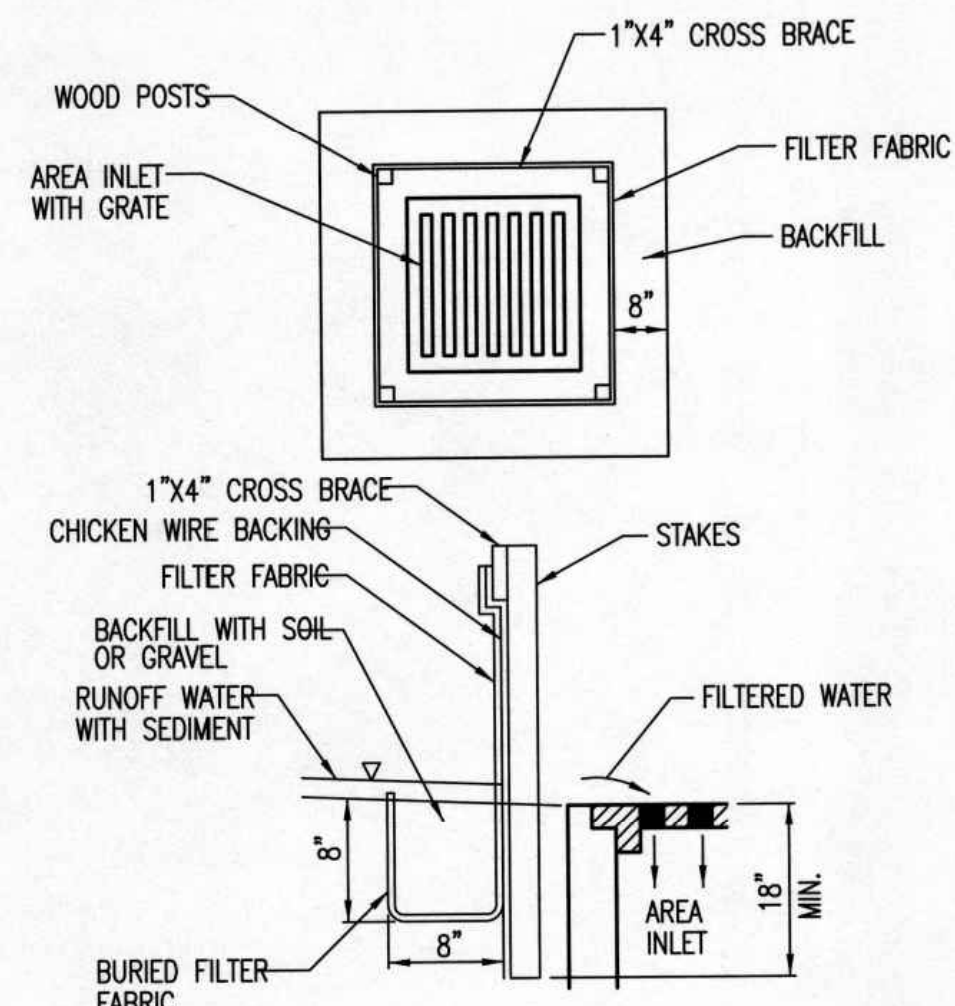
**INSPECTION AND MAINTENANCE:**

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

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



**ANCHOR TRENCH DETAIL**



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

**MATERIAL SPECIFICATION:**

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

**PLACEMENT:**

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

**PROPER INSTALLATION METHOD:**

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

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

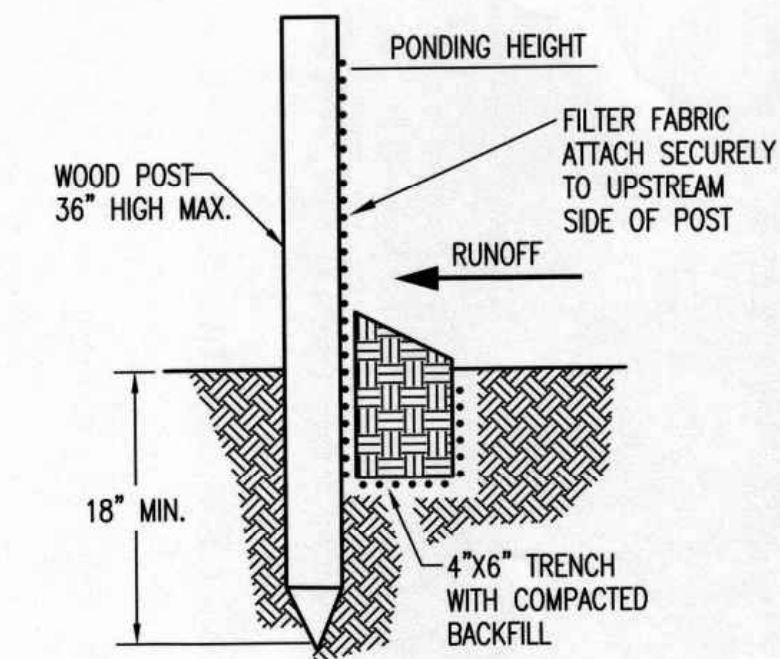
**LIST OF COMMON PLACEMENT/INSTALLATION MISTAKES TO AVOID:**

WATER SHOULD FLOW THROUGH A SILT FENCE BARRIER FOR AREA INLET—NOT OVER IT. PLACE A SILT FENCE BARRIER FOR AREA INLET IN A LOCATION WHERE IT IS UNLIKELY TO BE OVERTOPPED. SILT FENCE BARRIER FOR AREA INLETS OFTEN FAIL WHEN REPEATEDLY OVERTOPPED. DO NOT PLACE POSTS ON THE OUTSIDE OF THE SILT FENCE BARRIER FOR AREA INLET. IN THIS CONFIGURATION, THE FORCE OF THE WATER IS NOT 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?



**SILT FENCE DITCH CHECK AND BARRIER DETAILS**

CITY ENGINEER <b>GARY JANZEN, P.E.</b>		
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		REV



PROJ. NO.	C15-8121
DESIGNER	KGK
DRAWN BY	NJN
CFN	
SHEET	8121DET
	REV
C491	1

1	10/27/16	PER CITY COMMENTS	DSN	DWN	CHK
0	9/20/16	INITIAL ISSUE	KGK	NJN	

11676  
10.17.16  
MICHAEL R. OSBOURN  
PROFESSIONAL ENGINEER  
KANSAS  
KAW VALLEY ENGINEERING

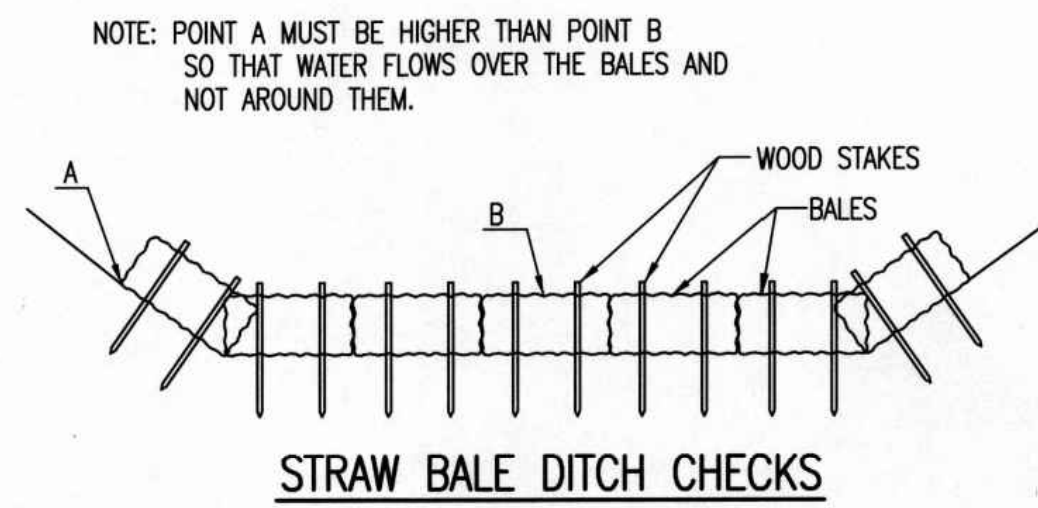
14700 WEST 114TH TERRACE  
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**SUNNYDALE POINTE APARTMENTS**  
WEST 33RD STREET NORTH  
WICHITA, KANSAS 67204

**WATER DISTRIBUTION SYSTEM**  
**EROSION CONTROL DETAILS**

REVISION DATE: MAY 2013



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".

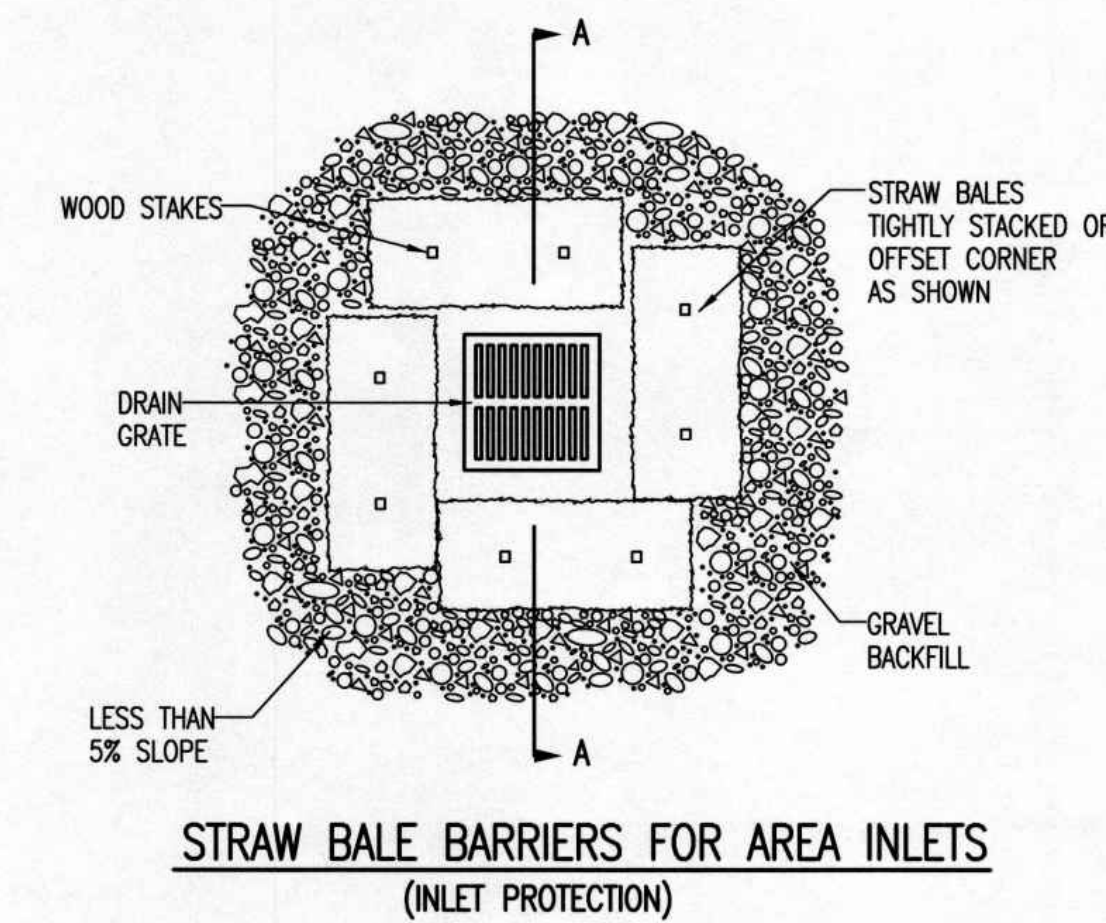
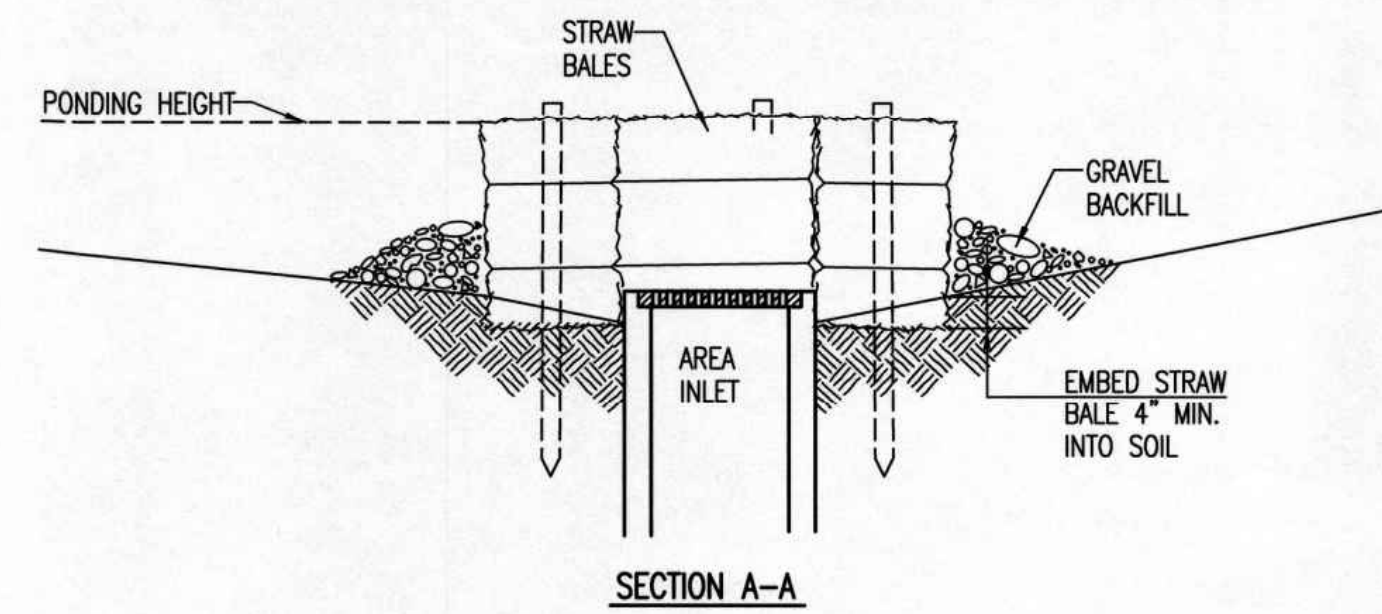
LIST OF COMMON PLACEMENT/INSTALLATION MISTAKES TO AVOID:

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?



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.

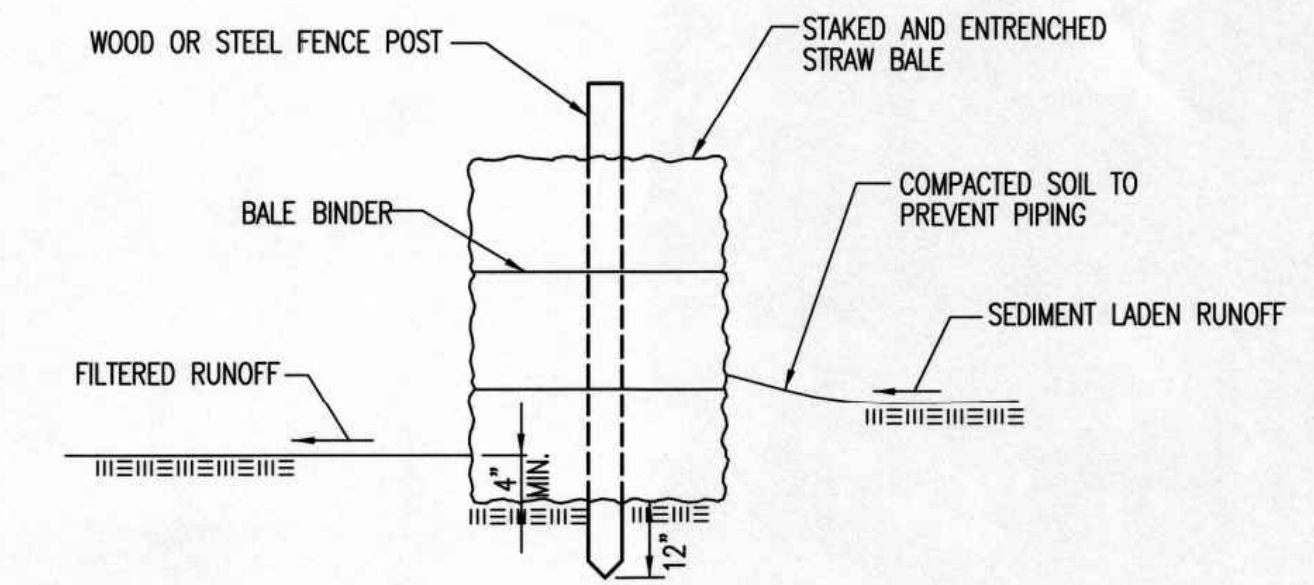
LIST OF COMMON PLACEMENT/INSTALLATION MISTAKES TO AVOID:

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?

REVISION DATE: MAY 2013



**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

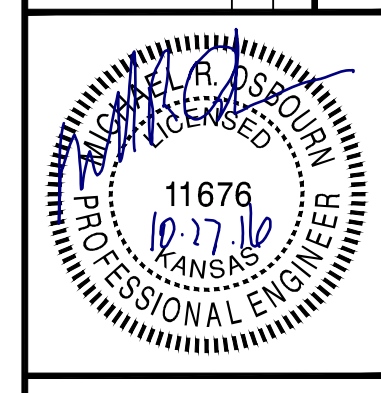
SHEET

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

**SUNNYDALE POINTE APARTMENTS**  
 WEST 33RD STREET NORTH  
 WICHITA, KANSAS 67204

**WATER DISTRIBUTION SYSTEM**  
**EROSION CONTROL DETAILS**


REV	DATE	DESCRIPTION
0	9/20/16	INITIAL ISSUE
1	10/27/16	PER CITY COMMENTS



MICHAEL R. OSBOURN  
ENGINEER  
KS # 11676

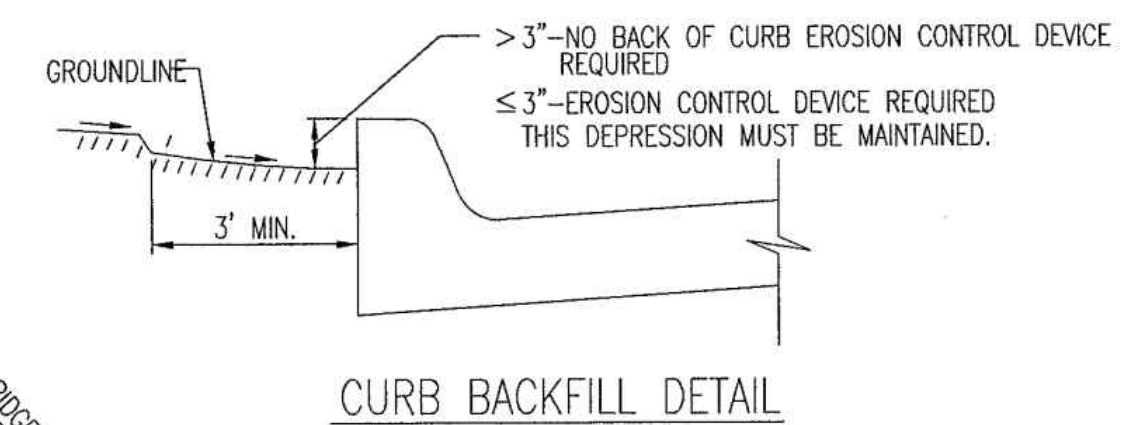
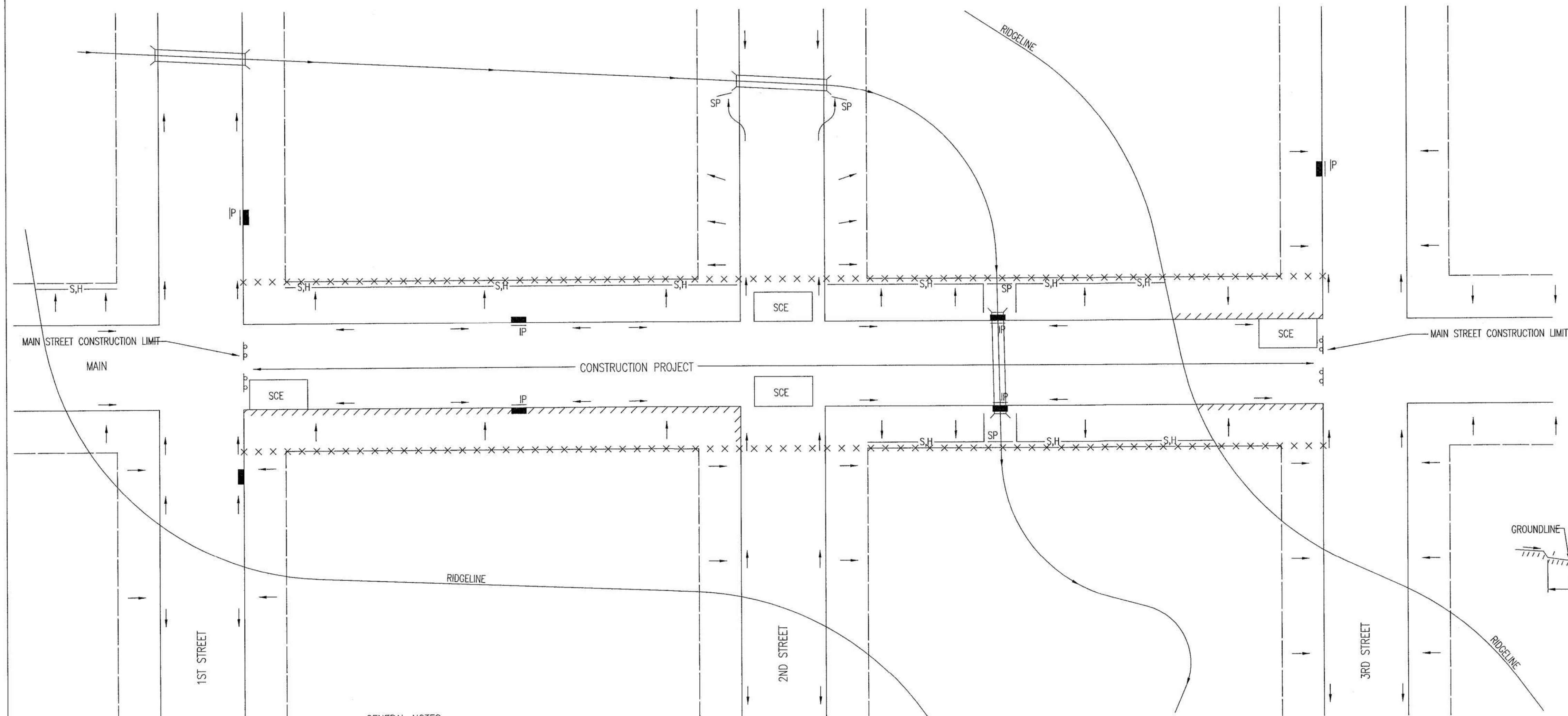
14700 WEST 114TH TERRACE  
 LENEXA, KANSAS 66215  
 PH. (913) 884-9150 | FAX (913) 884-9877  
 kawvalley.com | www.kawvalley.com

**KAW VALLEY ENGINEERING**  
 KAW VALLEY ENGINEERING, INC. IS AUTHORIZED TO OFFER ENGINEERING SERVICES BY KANSAS STATE CERTIFICATE OF AUTHORIZATION # E-113. EXPIRES 12/31/16

PROJ. NO.	<b>C15_8121</b>
DESIGNER	<b>KGK</b>
DRAWN BY	<b>NJN</b>
CFN	<b>8121DET</b>
SHEET	<b>C492</b>
REV	<b>1</b>

**GENERAL NOTES**

- 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.
- EROSION CONTROL DEVICES MUST BE MAINTAINED BY THE CONTRACTOR THROUGHOUT THE CONSTRUCTION PROCESS AND UNTIL THE DISTURBED EARTH IS RESTABILIZED.
- 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.
- 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.
- 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.
- THE APPLICATION OF EROSION CONTROL DEVICES SHOWN ON THIS SHEET IS FOR SITUATIONS NORMALLY ENCOUNTERED. FROM TIME TO TIME, SITUATIONS WILL ARISE THAT MAY REQUIRE A DIFFERENT DEVICE OTHER THAN THOSE SHOWN. EROSION CONTROL DEVICES, OTHER THAN THOSE SHOWN, MAY BE UTILIZED AS LONG AS THEY ARE EFFECTIVE AND MAINTAINED.



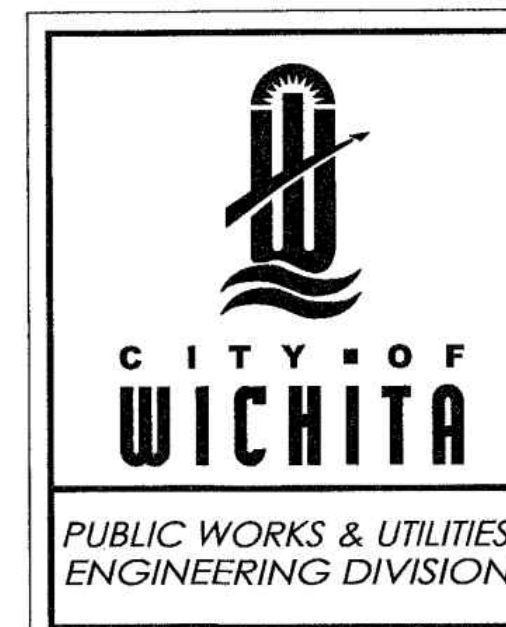
THIS IS A TEMPORARY MEASURE ONLY, WHEN APPROVED BY THE PROJECT ENGINEER. THE DIRT GRADE BEHIND THE CURB SHALL BE BROUGHT TO THE TOP OF CURB, WITH TEMPORARY EROSION CONTROL MAT OR PERMANENT VEGETATION PLACED, PRIOR TO THE COMPLETION OF ALL PROJECTS.

**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**

- 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.
- THE POINT OF COMPLIANCE IS GENERALLY THE RIGHT-OF-WAY LINES WITHIN THE LIMITS OF CONSTRUCTION.
- EROSION CONTROL DEVICES WILL BE REQUIRED AT ALL POINTS ALONG THE PROJECT WHERE DISTURBED EARTH CAN DRAIN ONTO PRIVATE PROPERTY.
- INLET PROTECTION DEVICES WILL BE REQUIRED WHEREVER WATER CAN DRAIN OFF THE PROJECT SITE INTO AN INLET, INCLUDING ANY SIDE STREET INLETS.
- EROSION CONTROL DEVICES SHALL BE INSTALLED AT CREEK CROSSINGS SO AS TO PREVENT SEDIMENT FROM ENTERING THEREIN.
- 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.
- ANY MUD TRACKED ONTO STREETS MUST BE REMOVED AT THE END OF EACH WORK DAY.
- 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:
  - 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)
  - 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.
  - ADDITIONALLY, OTHER EROSION CONTROL DEVICES (HAY BALES, SILT FENCE, ETC.) WILL BE INSTALLED AT LOCATIONS OF CONCENTRATED FLOW RESULTING IN SEDIMENT OVERRUNNING THE MAT.
  - SHOULD THE PROJECT PLANS SPECIFY THAT THE RIGHT-OF-WAY IS TO BE SODED, 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)

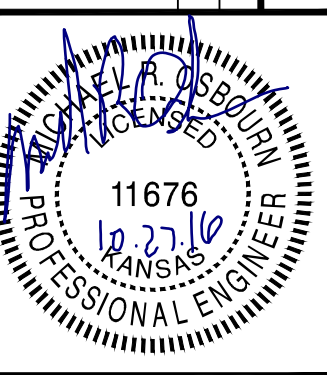


<b>STREET IMPROVEMENT PROJECTS</b>		
CITY ENGINEER <b>GARY JANZEN, P.E.</b>		
PROJECT NUMBER	OCA NUMBER	DATE
CITY ENGINEER'S OFFICE	SHEET	
CITY HALL - SEVENTH FLOOR 455 NORTH MAIN STREET WICHITA, KANSAS 67202-1620 (316) 268-4501		

REVISION: JUNE 2015

SW-504

1	10/27/16	PER CITY COMMENTS	DSN	DWN	CHK
0	9/20/16	INITIAL ISSUE	KGK	NJN	



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**KAW VALLEY ENGINEERING**

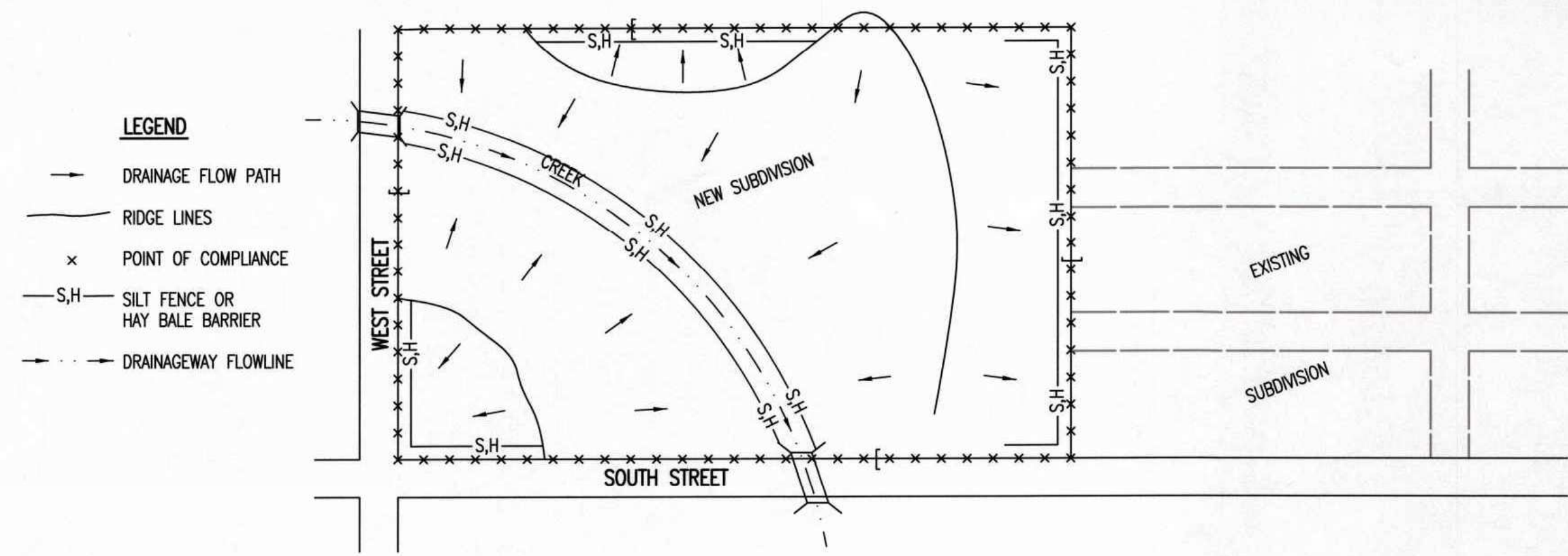
KAW VALLEY ENGINEERING, INC. IS AUTHORIZED TO OFFER ENGINEERING SERVICES BY KANSAS STATE CERTIFICATE OF AUTHORIZATION # E-113. EXPIRES 12/31/16

**SUNNYDALE POINTE APARTMENTS**  
WEST 33RD STREET NORTH  
WICHITA, KANSAS 67204

**WATER DISTRIBUTION SYSTEM**  
**EROSION CONTROL DETAILS**

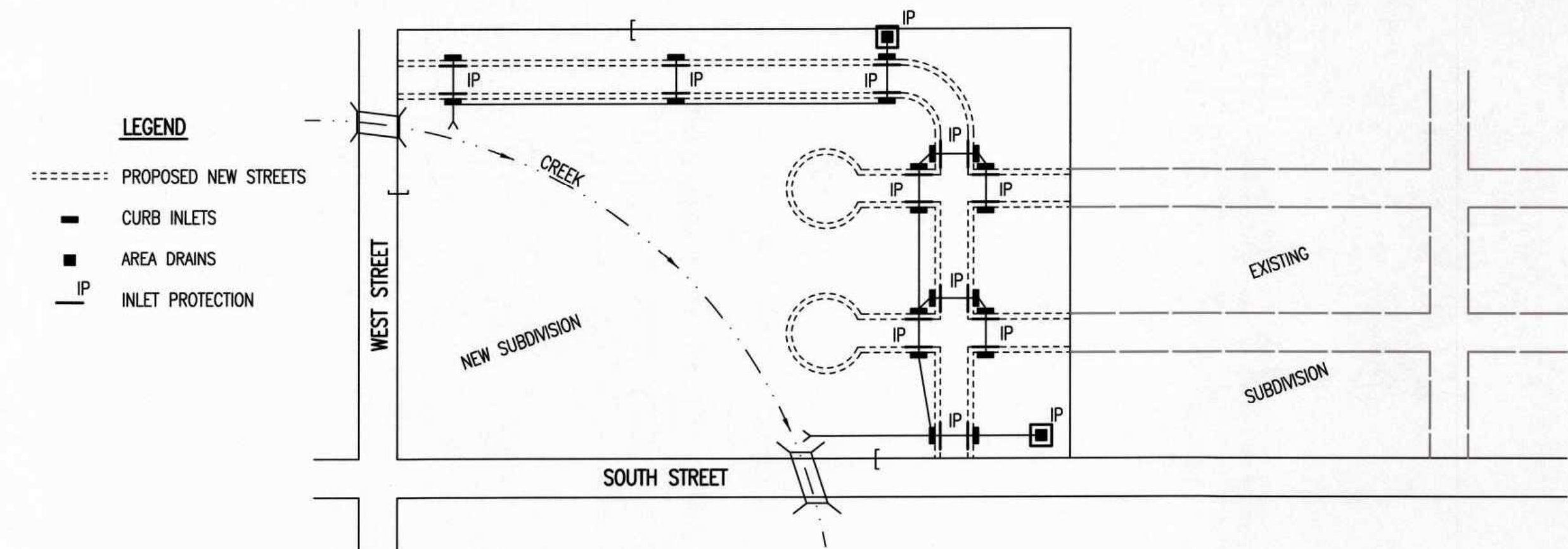
PROJ. NO.	C15-8121
DESIGNER	KGK
DRAWN BY	NJN
CFN	8121DET
SHEET	1
C493	1

**PHASE 1 - INITIAL EARTHWORK AND UTILITIES (EXCEPT STORM SEWER)**



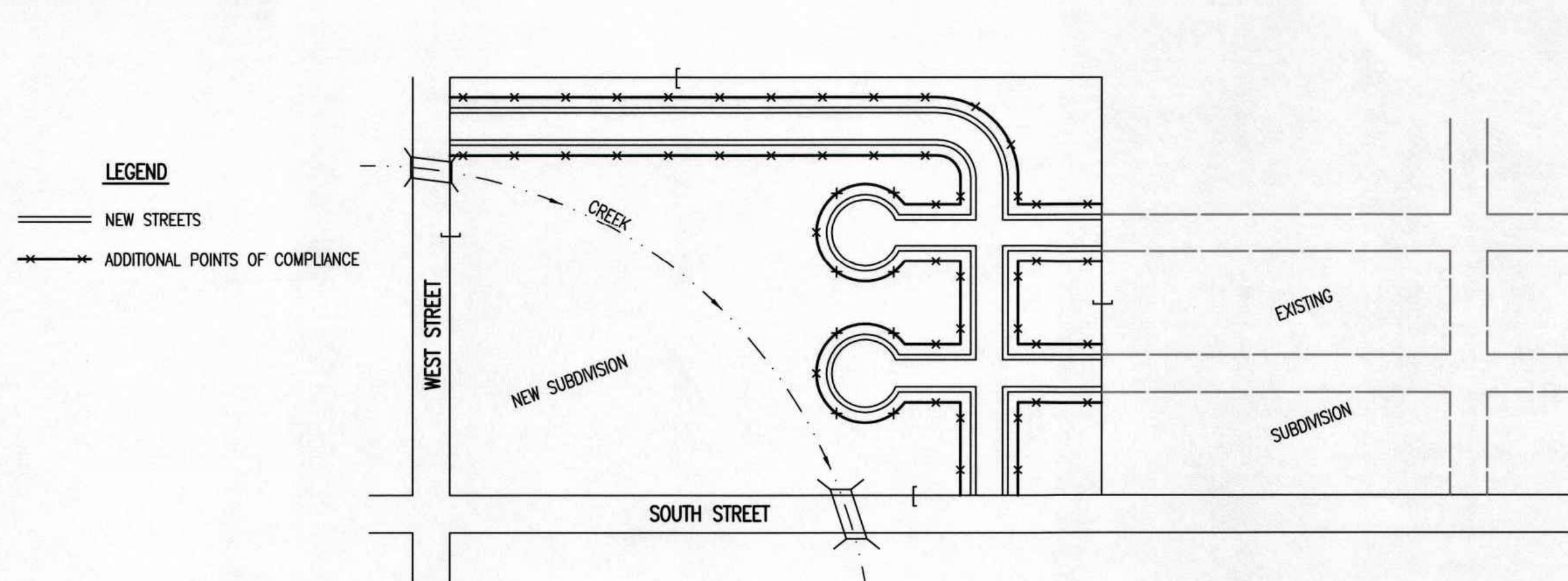
- LEGEND**
- DRAINAGE FLOW PATH
  - RIDGE LINES
  - x POINT OF COMPLIANCE
  - S.H. SILT FENCE OR HAY BALE BARRIER
  - - - DRAINAGEWAY FLOWLINE
- DURING THIS PHASE OF SUBDIVISION CONSTRUCTION, THE POINTS OF COMPLIANCE ARE THE PERIMETER BOUNDARIES AND ANY DRAINAGE LAKES OR STORM SEWERS DRAINING THROUGH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

**PHASE 2 - INSTALLATION OF STORM SEWER**



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

**PHASE 3 - STREET CONSTRUCTION**

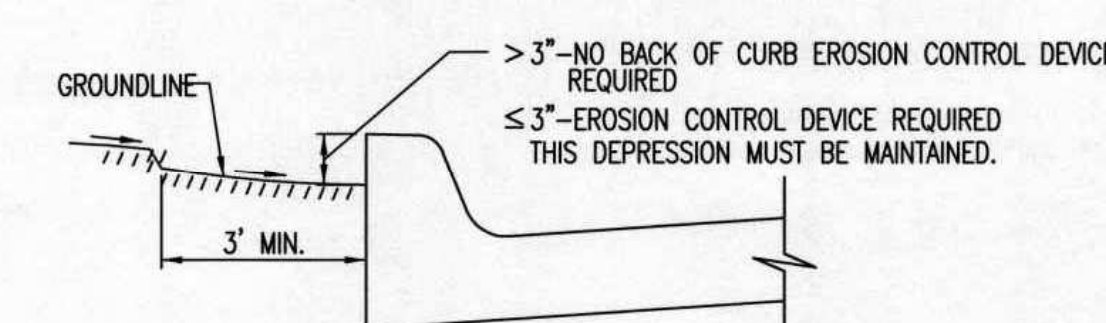


- LEGEND**
- NEW STREETS
  - x ADDITIONAL POINTS OF COMPLIANCE
- DURING THIS PHASE OF SUBDIVISION CONSTRUCTION, NEW STREETS ARE INSTALLED. ALL EROSION CONTROL DEVICES INSTALLED DURING PHASE 1 AND 2 MUST STILL BE MAINTAINED. THE POINT OF COMPLIANCE NOW SHIFTS TO THE BACK OF CURB ALONG EACH STREET.
  -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

**GENERAL NOTES**

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

SEE DETAIL SHEET FOR BACK OF CURB PROTECTION DETAIL



**CURB BACKFILL DETAIL (STREET CONSTRUCTION ONLY)**

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

REVISION DATE: MAY 2013



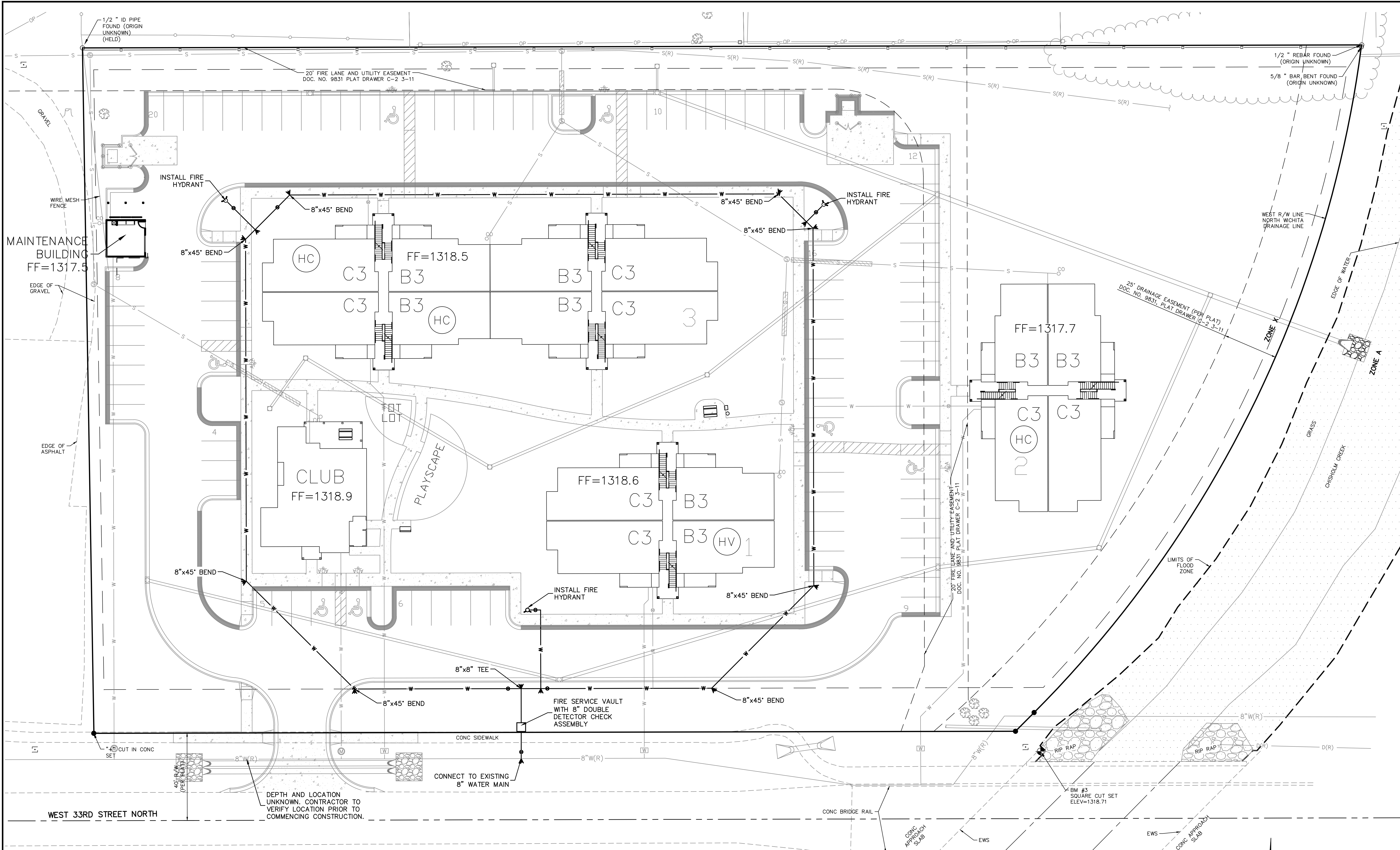
**CITY OF WICHITA**  
PUBLIC WORKS & UTILITIES ENGINEERING DIVISION


**SUBDIVISION DEVELOPMENT PROCESS**

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

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

<p>MICHAEL R. OSBOURN ENGINEER KS #. 11676</p>	<p><b>KAW VALLEY ENGINEERING</b> 14700 WEST 114TH TERRACE LENEXA, KANSAS 66215 PH. (913) 884-9150   FAX (913) 884-9877 kawvalley.com   www.kawvalley.com</p> <p>KAW VALLEY ENGINEERING, INC. IS AUTHORIZED TO OFFER ENGINEERING SERVICES BY KANSAS STATE CERTIFICATE OF AUTHORIZATION # E-113. EXPIRES 12/31/16</p>						
<p><b>SUNNYDALE POINTE APARTMENTS</b> WEST 33RD STREET NORTH WICHITA, KANSAS 67204</p>	<p><b>WATER DISTRIBUTION SYSTEM</b> EROSION CONTROL DETAILS</p>						
<p>PROJ. NO. <b>C15_8121</b></p> <p>DESIGNER <b>KGK</b> DRAWN BY <b>NJN</b></p> <p>CFN <b>8121DET</b></p> <p>SHEET <b>C494</b></p>	<p>REV DATE DESCRIPTION</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>1</td> <td>10/27/16</td> <td>PER CITY COMMENTS</td> </tr> <tr> <td>0</td> <td>9/20/16</td> <td>INITIAL ISSUE</td> </tr> </table>	1	10/27/16	PER CITY COMMENTS	0	9/20/16	INITIAL ISSUE
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0	9/20/16	INITIAL ISSUE					





**Know what's below.  
Call before you dig.**

**LEGEND:**

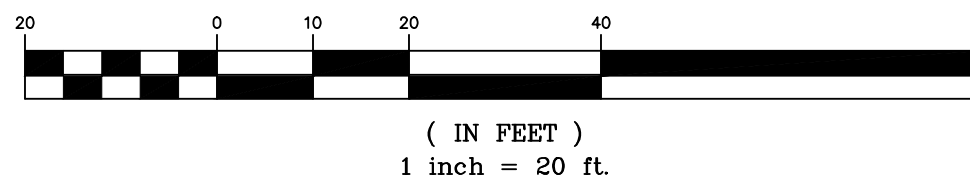
<ul style="list-style-type: none"> <li>▲ SECTION CORNER</li> <li>○ BENCHMARK</li> <li>□ CONTROL POINT</li> <li>○ MONUMENT FOUND</li> <li>○ MONUMENT SET</li> <li>○ MONUMENT SET (OTHERWISE NOTED)</li> <li>○ MONUMENT SET</li> <li>--- SECTION LINE</li> <li>--- CHAIN LINK FENCE</li> <li>--- WOOD FENCE</li> <li>○ DECIDUOUS TREE</li> <li>○ STUMP</li> <li>--- TREE LINE</li> <li>FF FINISH FLOOR ELEVATION</li> <li>EWS EDGE OF WEARING SURFACE (BRIDGE)</li> <li>▲ PROPOSED THRUST BLOCK</li> </ul>	<ul style="list-style-type: none"> <li>○ DEADMAN ANCHOR</li> <li>○ LIGHT POLE</li> <li>○ OVERHEAD POWER LINE (# OF LINES)</li> <li>○ UTILITY POLE</li> <li>○ UTILITY POLE W/ TRANSFORMER</li> <li>--- SANITARY SEWER LINE</li> <li>--- SANITARY SEWER MANHOLE</li> <li>○ FLARED END SECTION</li> <li>○ FIRE HYDRANT</li> <li>○ WATER LINE GATE VALVE</li> <li>--- FLOOD ZONE A</li> <li>--- APPROXIMATE LOCATION OF FLOOD ZONES PER FEMA WEBSITE</li> <li>○ BREAKER BOX</li> </ul>
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**SAFETY NOTICE TO CONTRACTOR**  
 IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.


**WARRANTY / DISCLAIMER**  
 THE DESIGNS REPRESENTED IN THESE PLANS ARE IN ACCORDANCE WITH ESTABLISHED PRACTICES OF CIVIL ENGINEERING FOR THE DESIGN FUNCTIONS AND USES INTENDED BY THE OWNER AT THIS TIME. HOWEVER, NEITHER KAW VALLEY ENGINEERING, INC NOR ITS PERSONNEL CAN OR DO WARRANTY THESE DESIGNS OR PLANS AS CONSTRUCTED, EXCEPT IN THE SPECIFIC CASES WHERE KAW VALLEY ENGINEERING PERSONNEL INSPECT AND CONTROL THE PHYSICAL CONSTRUCTION ON A CONTEMPORARY BASIS AT THE SITE.


**CAUTION - NOTICE TO CONTRACTOR**  
 THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH PROPOSED IMPROVEMENTS SHOWN ON THE PLANS. THE CONTRACTOR SHALL EXPOSE EXISTING UTILITIES AT LOCATIONS OF POSSIBLE CONFLICTS PRIOR TO ANY CONSTRUCTION.

**GRAPHIC SCALE**

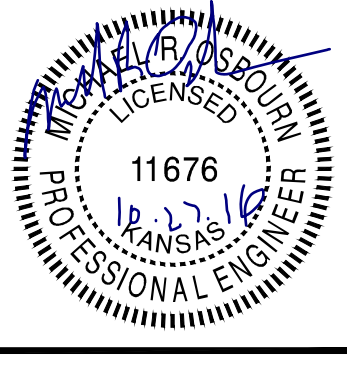


( IN FEET )  
1 inch = 20 ft.

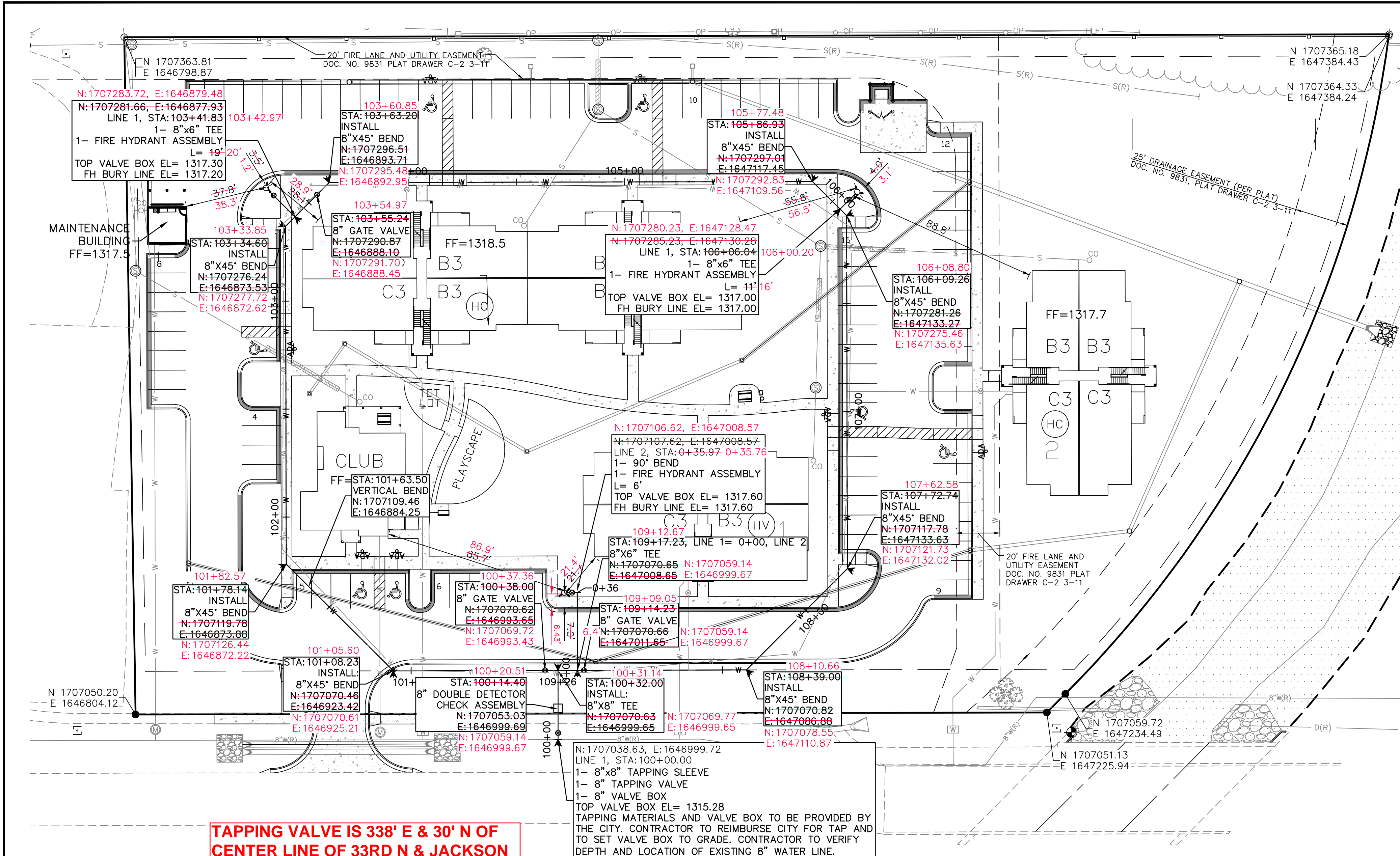




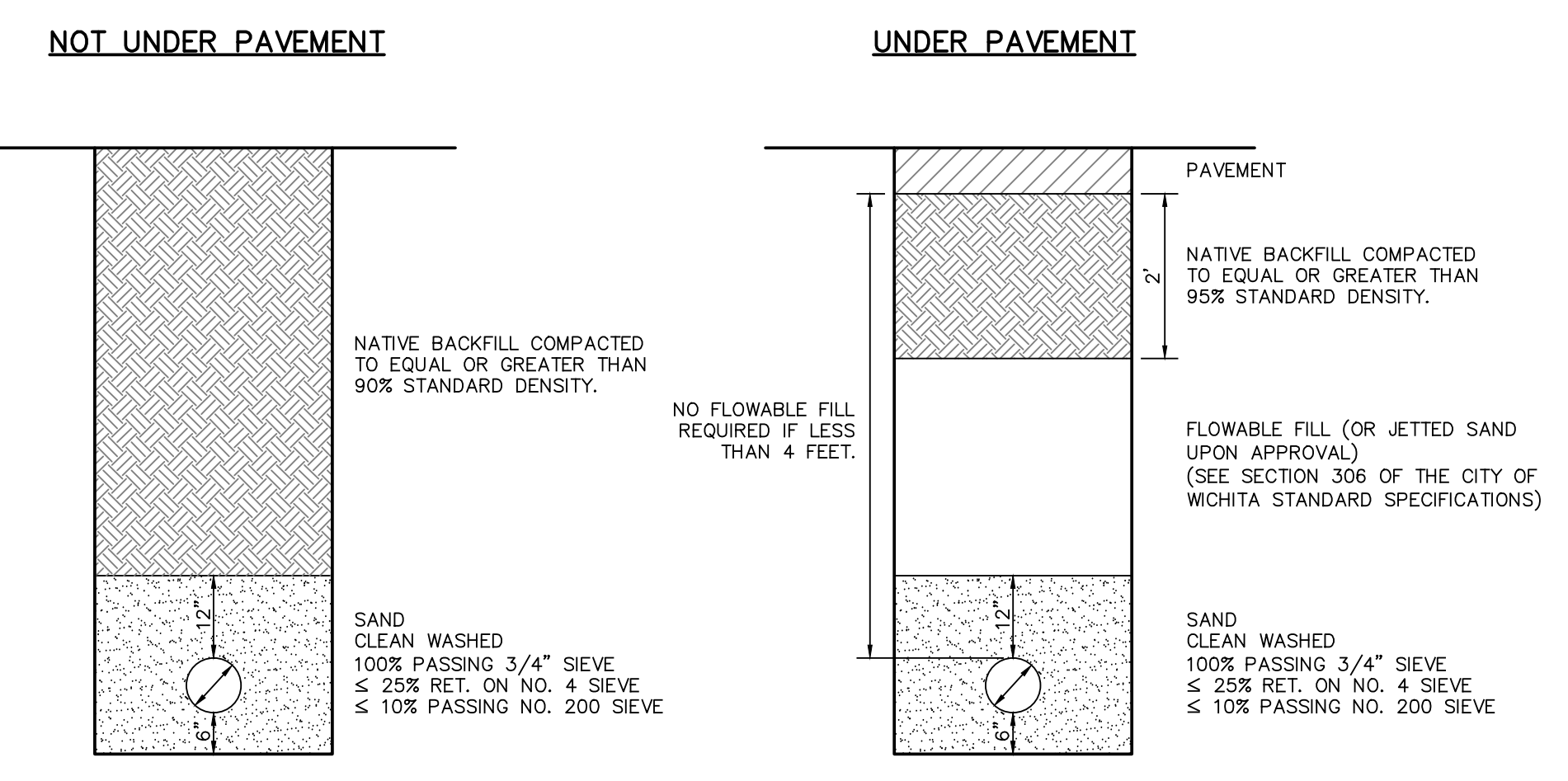
**Know what's below.  
Call before you dig.**

 <p>MICHAEL R. OSBOURN ENGINEER KS # 11676</p>	<p><b>14700 WEST 114TH TERRACE LENEKA, KANSAS 66215 PH. (913) 884-9150   FAX (913) 884-9877 kaveeng.com   www.kaveeng.com</b></p> <p><b>KAW VALLEY ENGINEERING</b> KAW VALLEY ENGINEERING, INC. IS AUTHORIZED TO OFFER ENGINEERING SERVICES BY KANSAS STATE CERTIFICATE OF AUTHORIZATION # E-113. EXPIRES 12/31/16</p>																			
<p><b>SUNNYDALE POINTE APARTMENTS WEST 33RD STREET NORTH WICHITA, KANSAS 67204</b></p>	<p><b>WATER DISTRIBUTION SYSTEM GENERAL LAYOUT SHEET</b></p>																			
<p>PROJ. NO. C15-8121</p> <p>DESIGNER: KGK    DRAWN BY: N.J.N.</p> <p>CFN: 8121WGLS</p> <p>SHEET: C801    REV: 1</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>REV</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>9/20/16</td> <td>INITIAL ISSUE</td> </tr> <tr> <td>1</td> <td>10/27/16</td> <td>PER CITY COMMENTS</td> </tr> </tbody> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">KGC</td> <td style="width: 50%;">KGC</td> </tr> <tr> <td style="width: 50%;">N.J.N.</td> <td style="width: 50%;">N.J.N.</td> </tr> <tr> <td style="width: 50%;">D.S.N.</td> <td style="width: 50%;">D.S.N.</td> </tr> <tr> <td style="width: 50%;">D.W.N.</td> <td style="width: 50%;">D.W.N.</td> </tr> <tr> <td style="width: 50%;">C.H.K.</td> <td style="width: 50%;">C.H.K.</td> </tr> </table>	REV	DATE	DESCRIPTION	0	9/20/16	INITIAL ISSUE	1	10/27/16	PER CITY COMMENTS	KGC	KGC	N.J.N.	N.J.N.	D.S.N.	D.S.N.	D.W.N.	D.W.N.	C.H.K.	C.H.K.
REV	DATE	DESCRIPTION																		
0	9/20/16	INITIAL ISSUE																		
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KGC	KGC																			
N.J.N.	N.J.N.																			
D.S.N.	D.S.N.																			
D.W.N.	D.W.N.																			
C.H.K.	C.H.K.																			

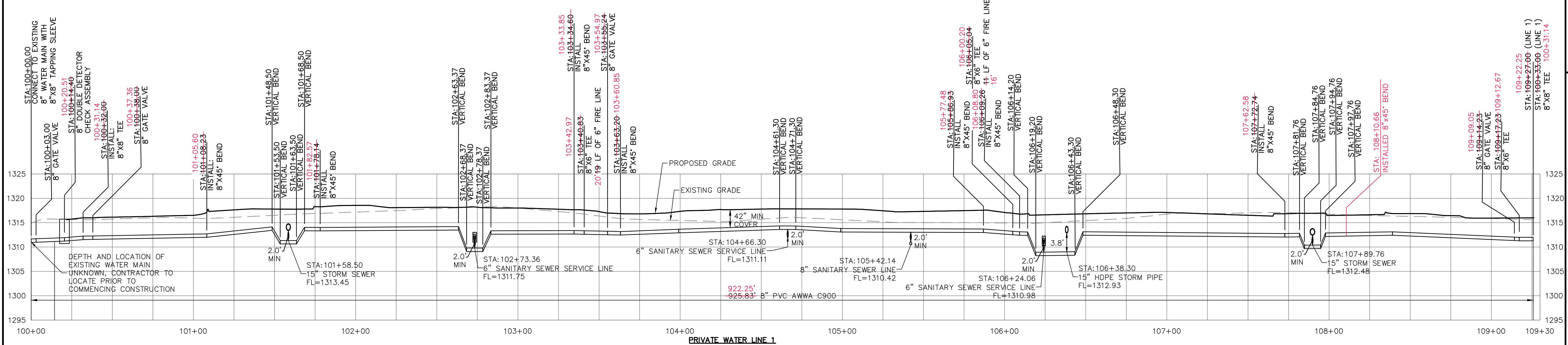
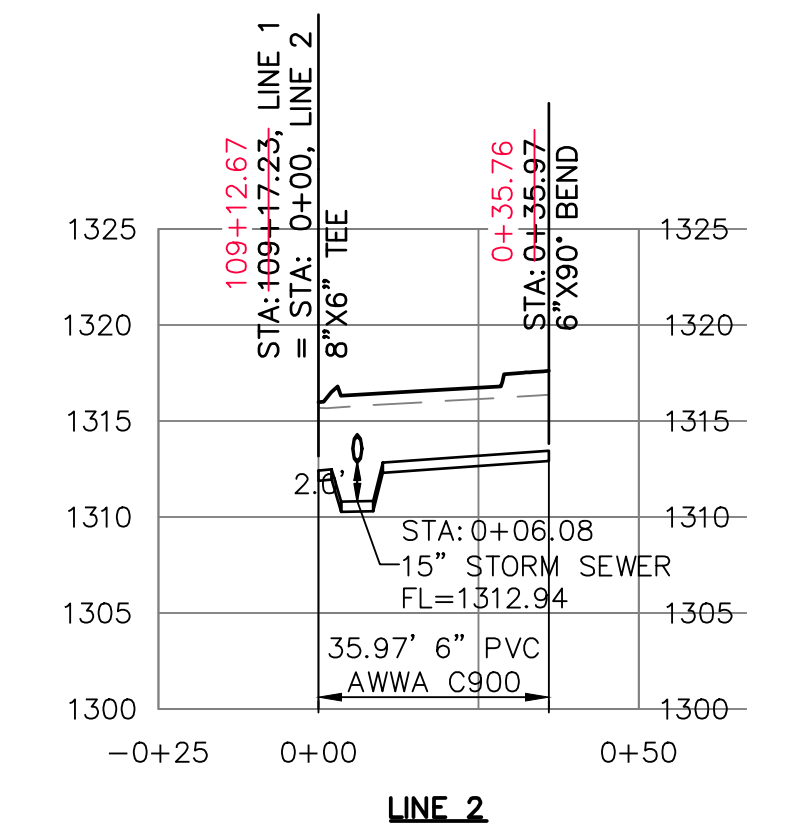
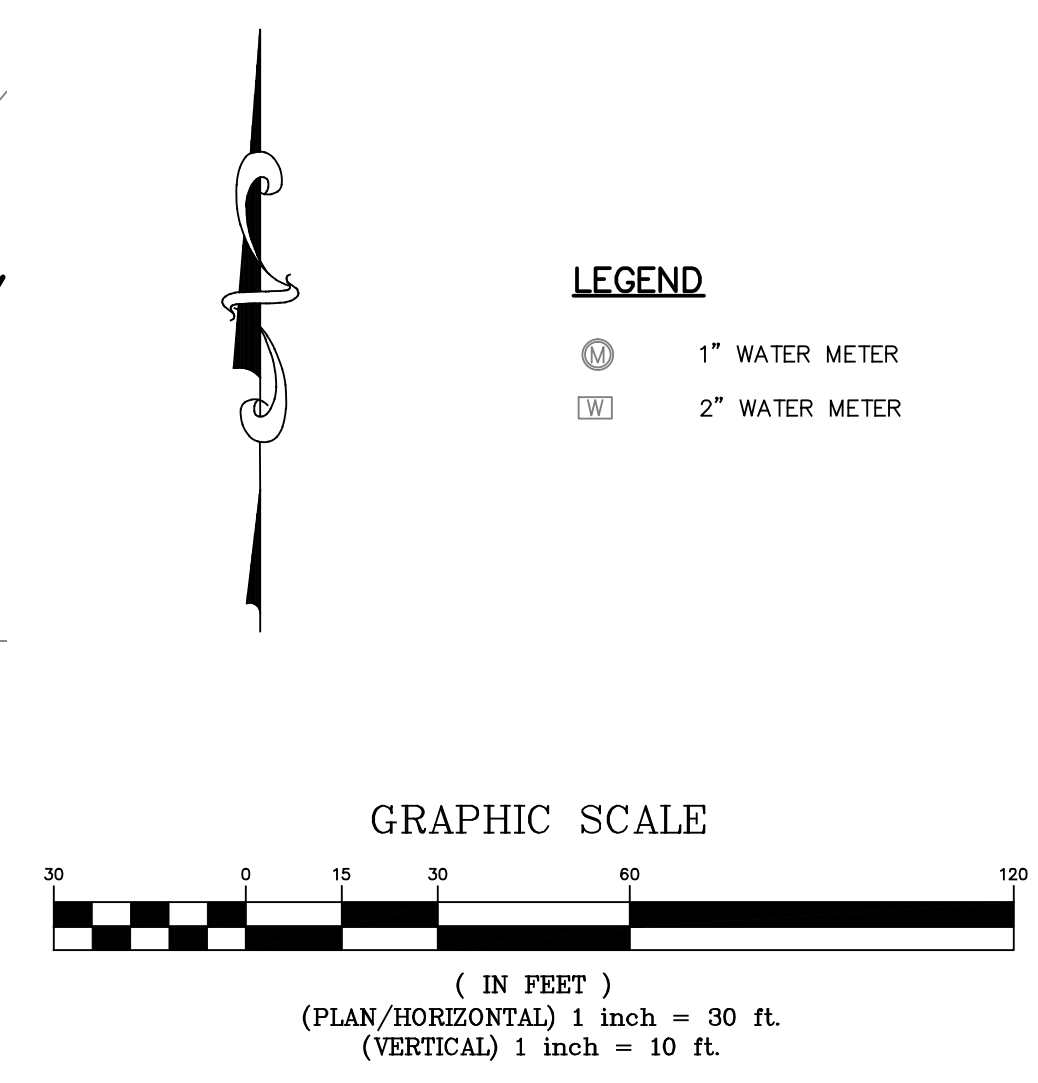
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**TAPPING VALVE IS 338' E & 30' N OF CENTER LINE OF 33RD N & JACKSON**



**TRENCH AND BEDDING DETAILS**



PROJ. NO.	C15_8121
DESIGNER	KGK
DRAWN BY	RLB
CFN	8121WPP
SHEET	C810
REV	0

**811**  
Know what's below.  
Call before you dig.

**KAW VALLEY ENGINEERING**  
14700 WEST 114TH TERRACE  
LENEKA, KANSAS 66215  
PH. (913) 884-9150 | FAX (913) 884-9877  
kawvalley.com | www.kawvalley.com

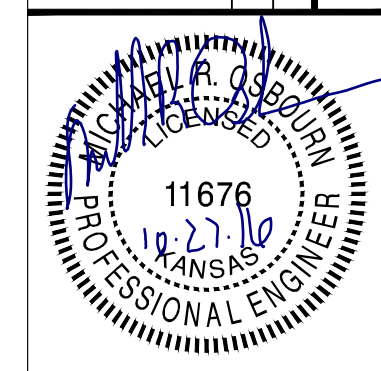
**MICHAEL R. OSBOURN**  
LICENSED PROFESSIONAL ENGINEER  
KANSAS  
11676

**SUNNYDALE POINTE APARTMENTS**  
WEST 33RD STREET NORTH  
WICHITA, KANSAS 67204

**AS-BUILT WATER DISTRIBUTION SYSTEM**  
WATER LINE PLAN & PROFILE

THIS DRAWING SHALL NOT BE UTILIZED BY ANY PERSON, FIRM, OR CORPORATION IN WHOLE OR IN PART WITHOUT THE SPECIFIC PERMISSION OF KAW VALLEY ENGINEERING, INC.

1	10/27/16	PER CITY COMMENTS	DKN	CHK
0	9/20/16	INITIAL ISSUE	KGK	DWN
			KGK	DKN
			KGK	DKN



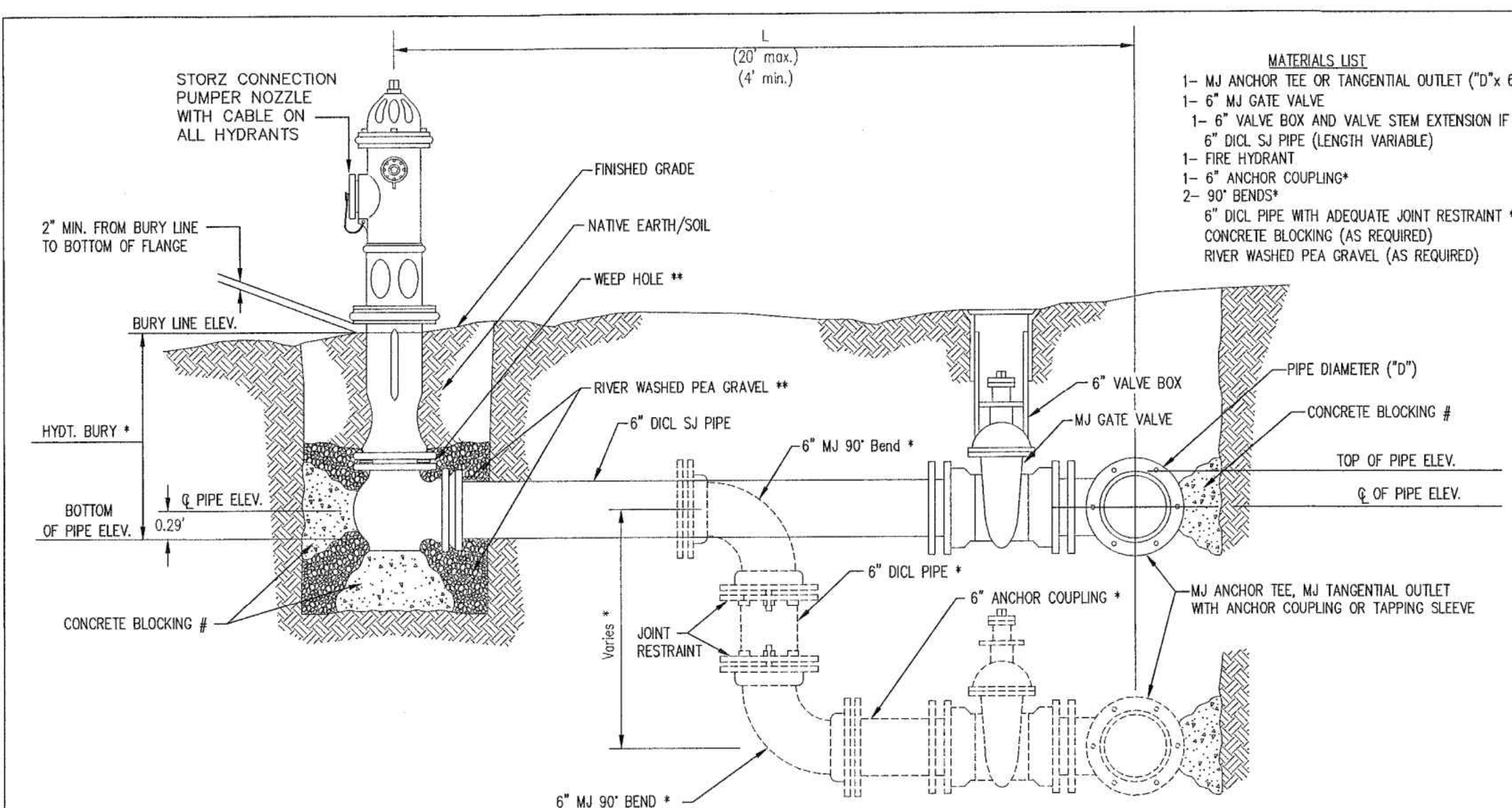
MICHAEL R. OSBOURN  
ENGINEER  
KS #. 11676

14700 WEST 114TH TERRACE  
LENEXA, KANSAS 66215  
PH. (913) 884-9100 | FAX (913) 884-9877  
www.kawvalley.com | www.kawvalley.com  
**KAW VALLEY ENGINEERING**  
KAW VALLEY ENGINEERING, INC. IS AUTHORIZED TO OFFER ENGINEERING SERVICES BY KANSAS STATE CERTIFICATE OF AUTHORIZATION # E-113. EXPIRES 12/31/16

**SUNNYDALE POINTE APARTMENTS**  
WEST 33RD STREET NORTH  
WICHITA, KANSAS 67204  
**WATER DISTRIBUTION SYSTEM**  
WATER DETAILS

PROJ. NO.	C15_8121
DESIGNER	KGK
DRAWN BY	NJN
CFN	8121WDET
SHEET	C890
REV	1

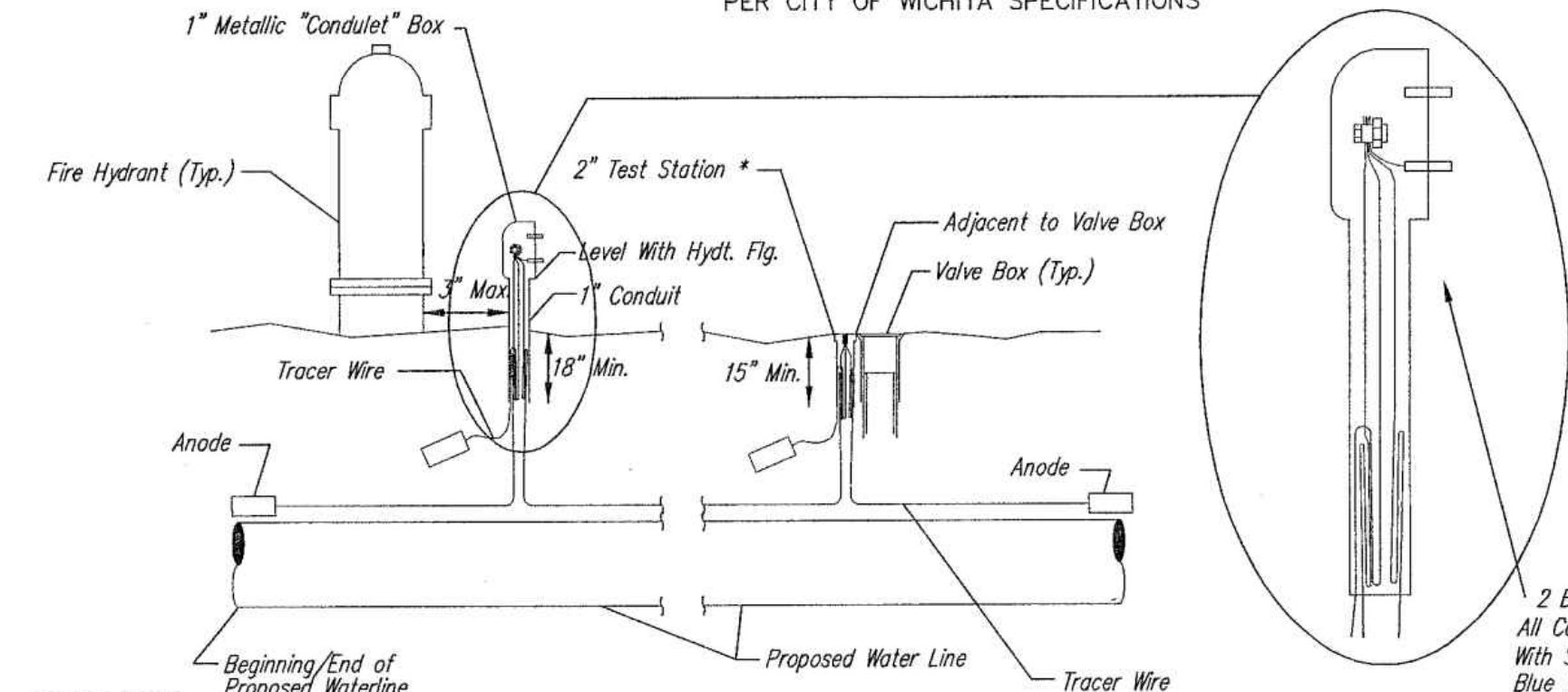
STATION	BURY LINE ELEVATION	TOP OF PIPE ELEVATION	FIRE HYDRANT BURY REQUIRED*	VALVE STEM EXT. REQUIRED (ft)*
103+41.83	1317.20	1313.70	48"	N/A
106+06.04	1317.00	1313.50	48"	N/A
0+35.87	1317.60	1314.10	48"	N/A



- MATERIALS LIST**
- 1- MJ ANCHOR TEE OR TANGENTIAL OUTLET ("D" x 6")
  - 1- 6" MJ GATE VALVE
  - 1- 6" VALVE BOX AND VALVE STEM EXTENSION IF REQUIRED \*
  - 6" DICL SJ PIPE (LENGTH VARIABLE)
  - 1- FIRE HYDRANT
  - 1- 6" ANCHOR COUPLING\*
  - 2- 90° BENDS\*
  - 6" DICL PIPE WITH ADEQUATE JOINT RESTRAINT \*
  - CONCRETE BLOCKING (AS REQUIRED)
  - RIVER WASHED PEA GRAVEL (AS REQUIRED)

- \* IF THE REQUIRED HYDRANT BURY IS IN EXCESS OF 5', BUT LESS THAN 7', CONTRACTOR SHALL USE STANDARD 5' HYDRANT BURY AND HYDRANT BARREL EXTENSIONS AS NECESSARY. IF THE REQUIRED HYDRANT BURY IS GREATER THAN 7', CONTRACTOR SHALL USE 5' HYDRANT BURY, 2-MJ 90° BENDS, 6" ANCHOR COUPLING AND 6" DICL PIPE AS NECESSARY FOR VERTICAL ADJUSTMENT. THE CONTRACTOR SHALL PROVIDE ADEQUATE THRUST BLOCKING AT HYDRANT AND MEGALUGS, OR SIMILAR RESTRAINT BETWEEN 90° BENDS TO SECURE ALL FITTINGS DURING TESTING AND OPERATION. THE CONTRACTOR SHALL PROVIDE A VALVE STEM EXTENSION PER DETAIL THIS SHEET.
- \*\* CAUTION: WEEP HOLES TO BE KEPT CLEAR DURING CONSTRUCTION AND BACKFILL. CONCRETE FOR THRUST BLOCKING SHALL NOT OBSTRUCT WEEP HOLES. PLACE 1 CUBIC FOOT OF RIVER WASHED PEA GRAVEL AROUND EACH WEEP HOLE.
- # CONCRETE THRUST BLOCKING SHALL BE KEPT CLEAR OF BOLTS, NUTS, AND MJ ACCESSORIES.

**FIRE HYDRANT ASSEMBLY**  
PER CITY OF WICHITA SPECIFICATIONS



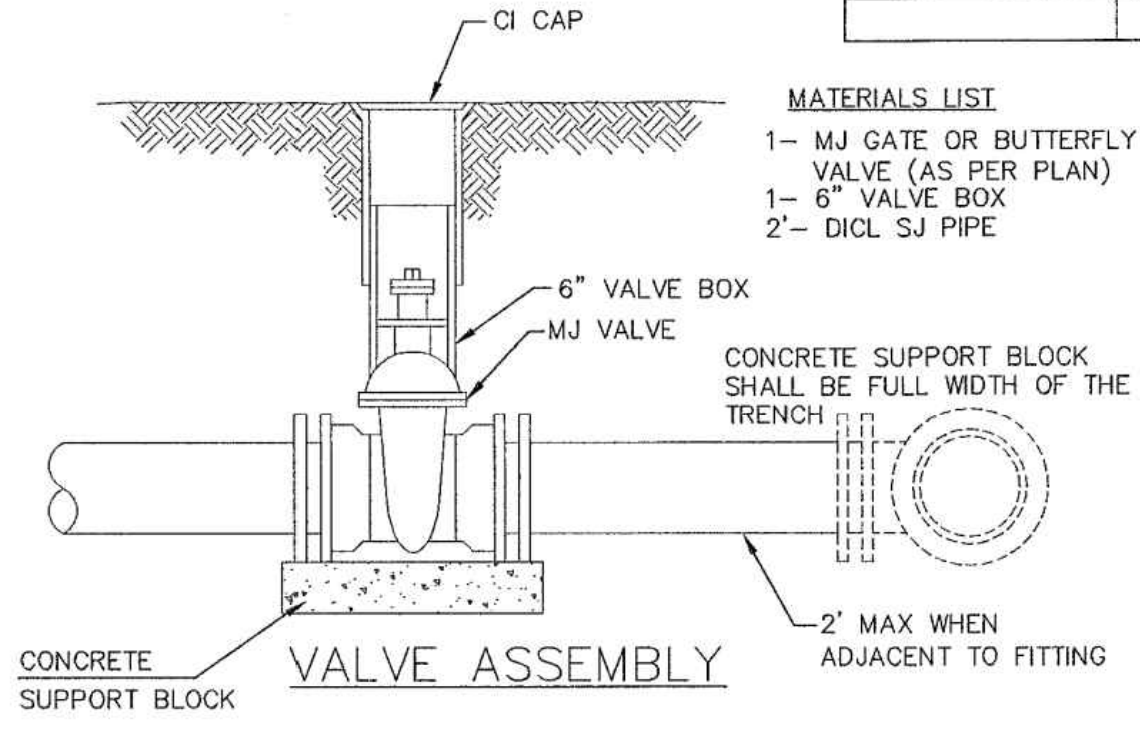
**TRACER WIRE DETAIL**  
COST IS SUBSIDIARY TO PIPE INSTALLATION

**TRACER WIRE**  
Conductive type pipe locator/tracer wire shall be installed to locate all waterline pipe regardless of pipe material. The wire shall extend the entire length of the proposed pipe. The wire shall be taped to the waterline and pulled with the pipe. A waterproof connector shall be used at splice locations. Test stations shall be installed adjacent to all fire hydrants along the waterline and at blowoffs or valves near the ends of waterlines. Any exception to the location shall be approved by the engineer. At each test station, the tracer wire shall be connected to a 3 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.

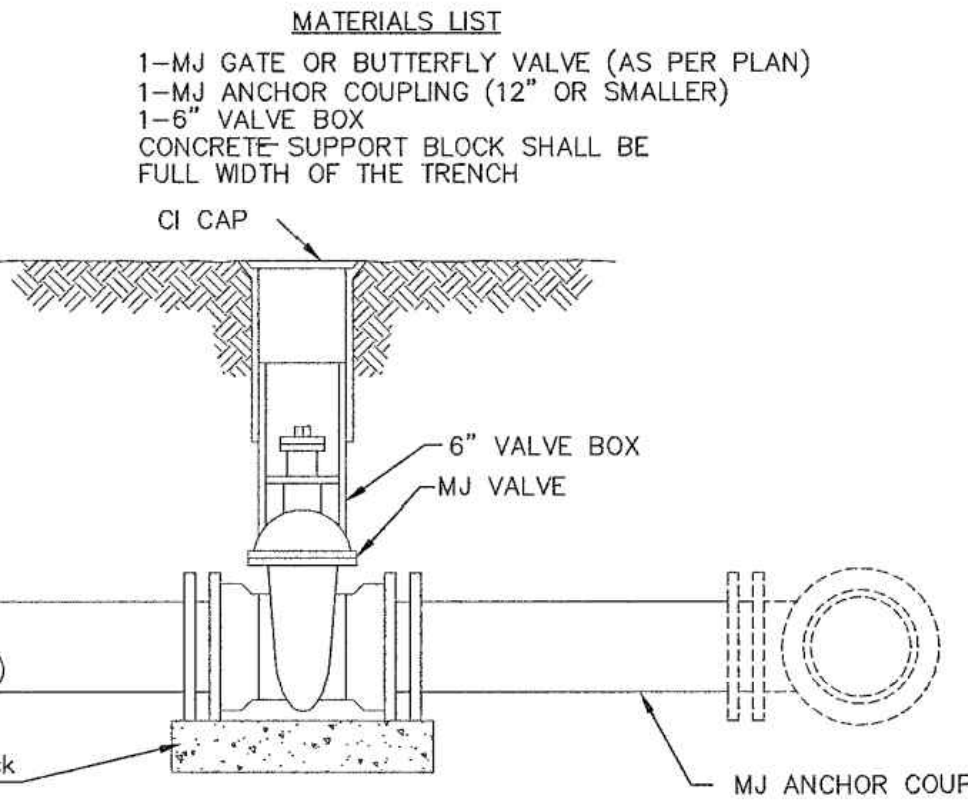
**WIRE**  
The tracer wire shall be Blue No. 12 AWG CCS with 3045 mil HDPE insulation. The insulation shall be heat, oil, and gasoline resistant as manufactured by Temple Electric or approved equal. To allow for grade adjustment, a minimum of 12" of excess wire shall be coiled at the bottom of the test station for all wires. The insulation sheathing shall be removed such that 1" bare copper wire 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**  
A complete list of approved Tracer Wire can be found on City of Wichita's website at www.wichita.gov  
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 test station 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.

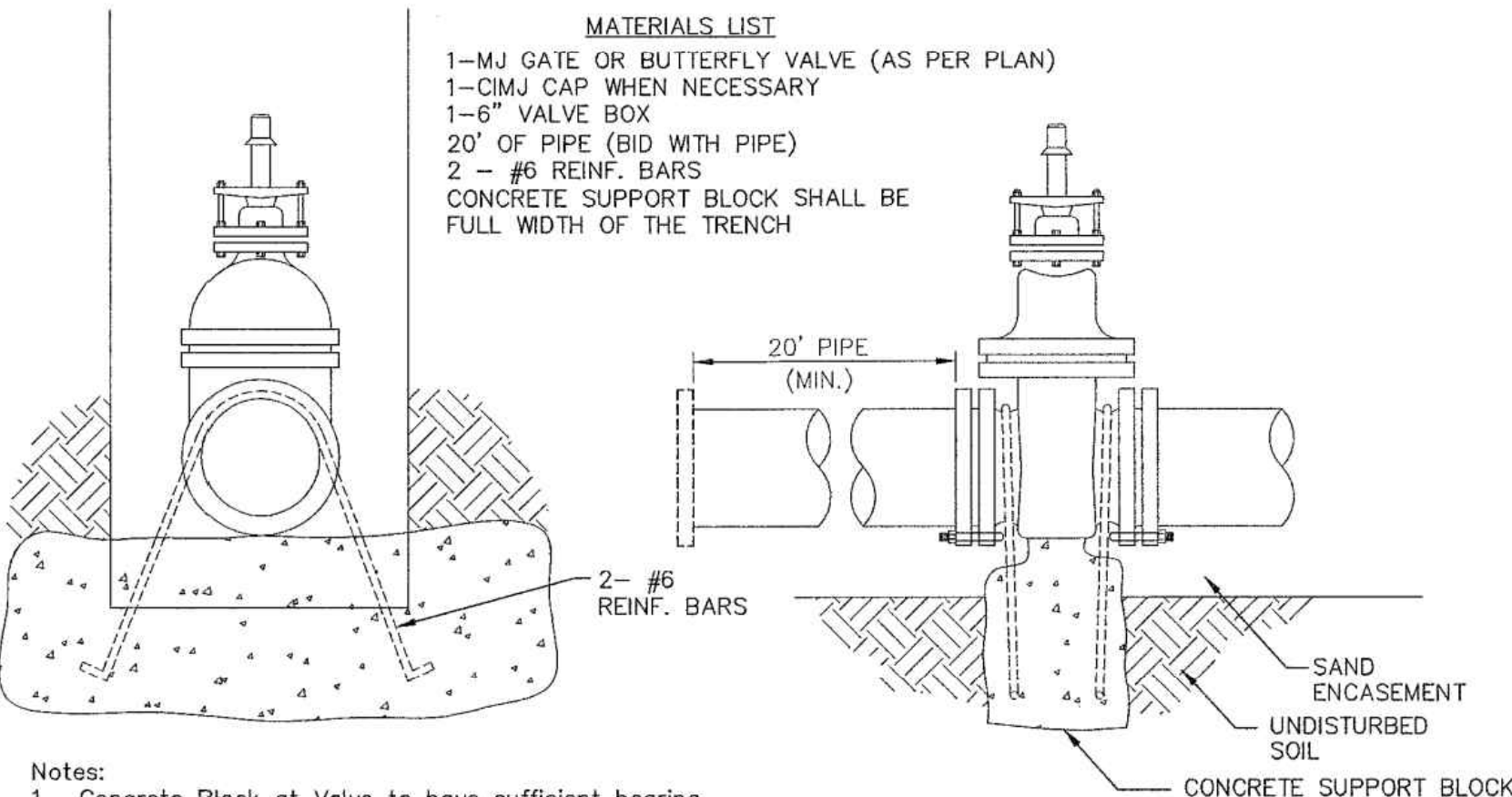
**ANODES**  
The anodes shall be 3 lb. bare zinc or magnesium. The anodes shall be buried at the same elevation as the waterline at each test station. The anodes shall be connected to 12 AWG CCS which shall be extended to the test station.



- MATERIALS LIST**
- 1- MJ GATE OR BUTTERFLY VALVE (AS PER PLAN)
  - 1- 6" VALVE BOX
  - 2- DICL SJ PIPE



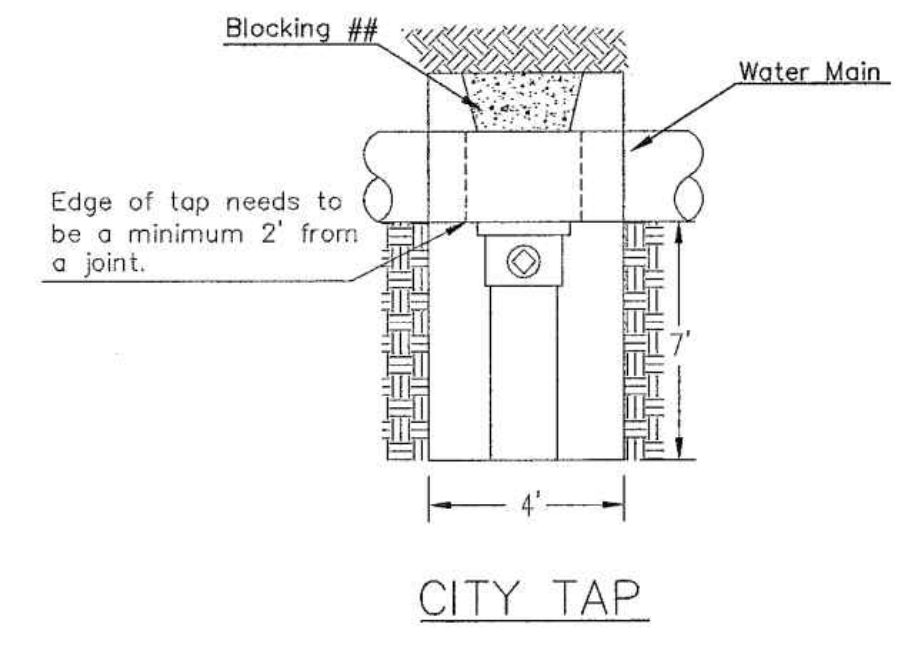
- MATERIALS LIST**
- 1- MJ GATE OR BUTTERFLY VALVE (AS PER PLAN)
  - 1- CIMJ CAP WHEN NECESSARY
  - 1- 6" VALVE BOX
  - 20" OF PIPE (BID WITH PIPE)
  - 2- #6 REINF. BARS
  - CONCRETE SUPPORT BLOCK SHALL BE FULL WIDTH OF THE TRENCH



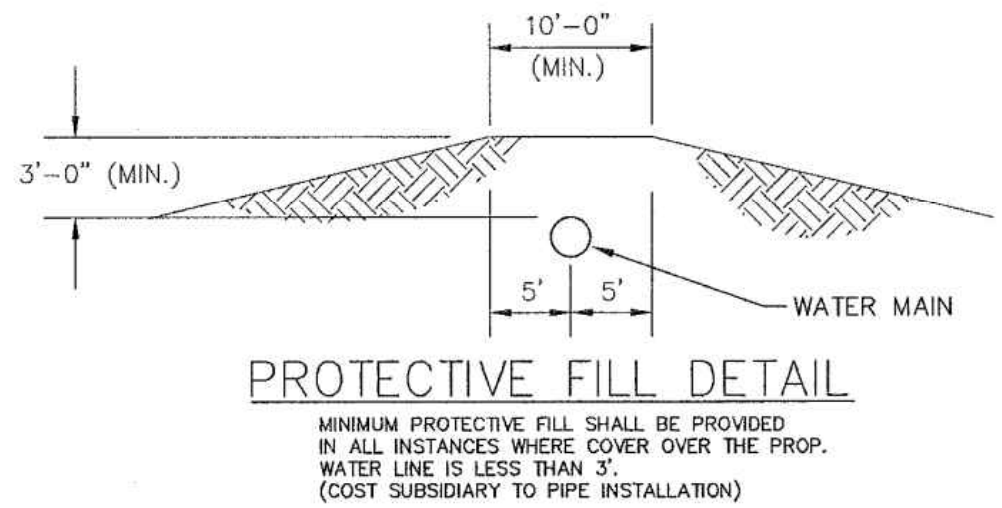
- Notes:**
- Concrete Block at Valve to have sufficient bearing in undisturbed soil to prevent thrust movement as shown in table at right. Field Engineer to determine thrust loading of undisturbed soil and final size of thrust block.
  - The thrust block shall be constructed such that bolts, nuts, and 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.

VALVE	THRUST AT 150 #/in <sup>2</sup>
4"	1809 lbs.
6"	4245 lbs.
8"	7540 lbs.
12"	16965 lbs.

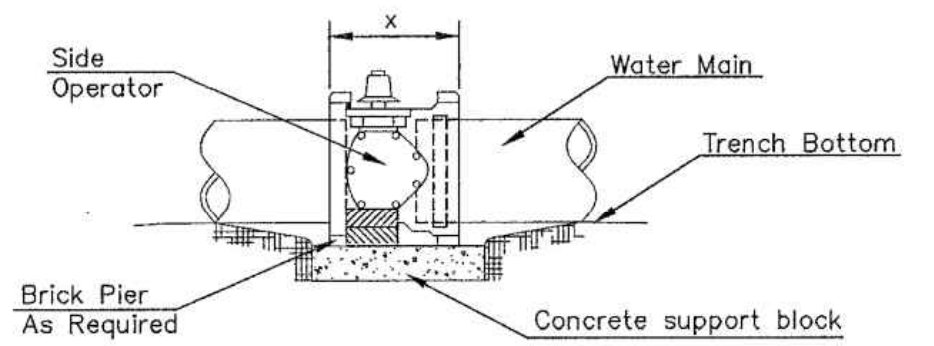
**ANCHORED VALVE ASSEMBLY, SPECIAL**



## When the City of Wichita makes top blocking is to be done by Contractor

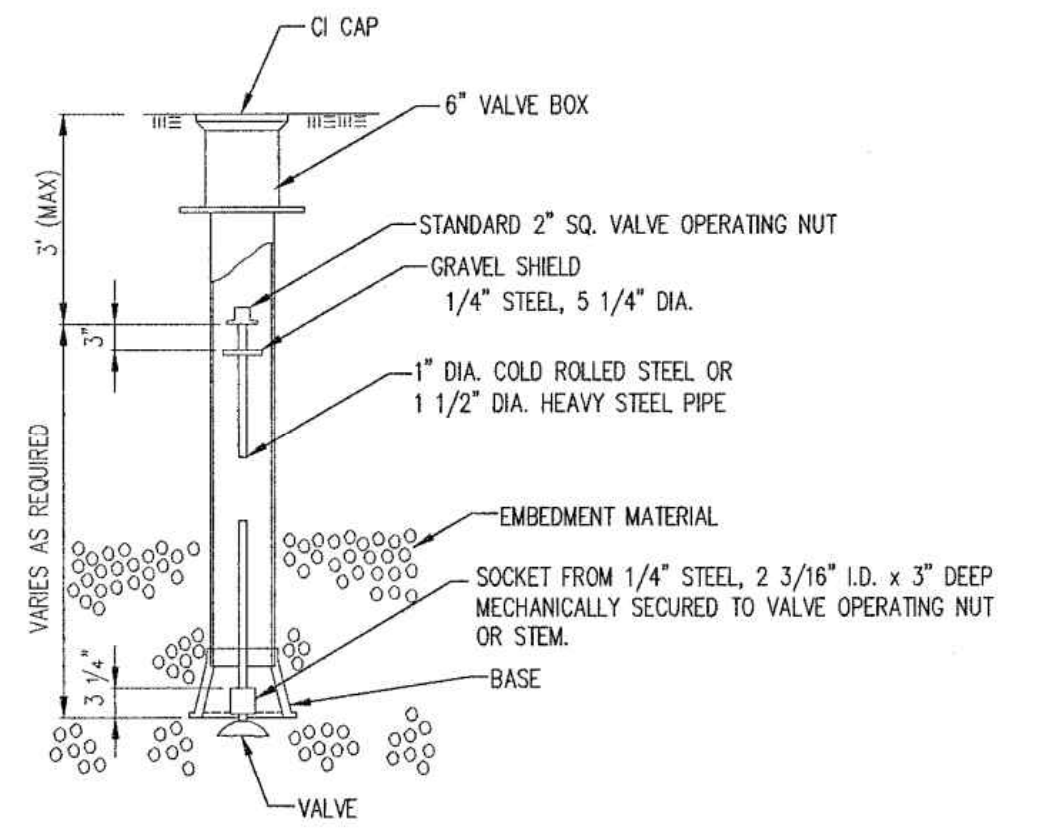


**PROTECTIVE FILL DETAIL**  
MINIMUM PROTECTIVE FILL SHALL BE PROVIDED IN ALL INSTANCES WHERE COVER OVER THE PROP. WATER LINE IS LESS THAN 3'. (COST SUBSIDIARY TO PIPE INSTALLATION)



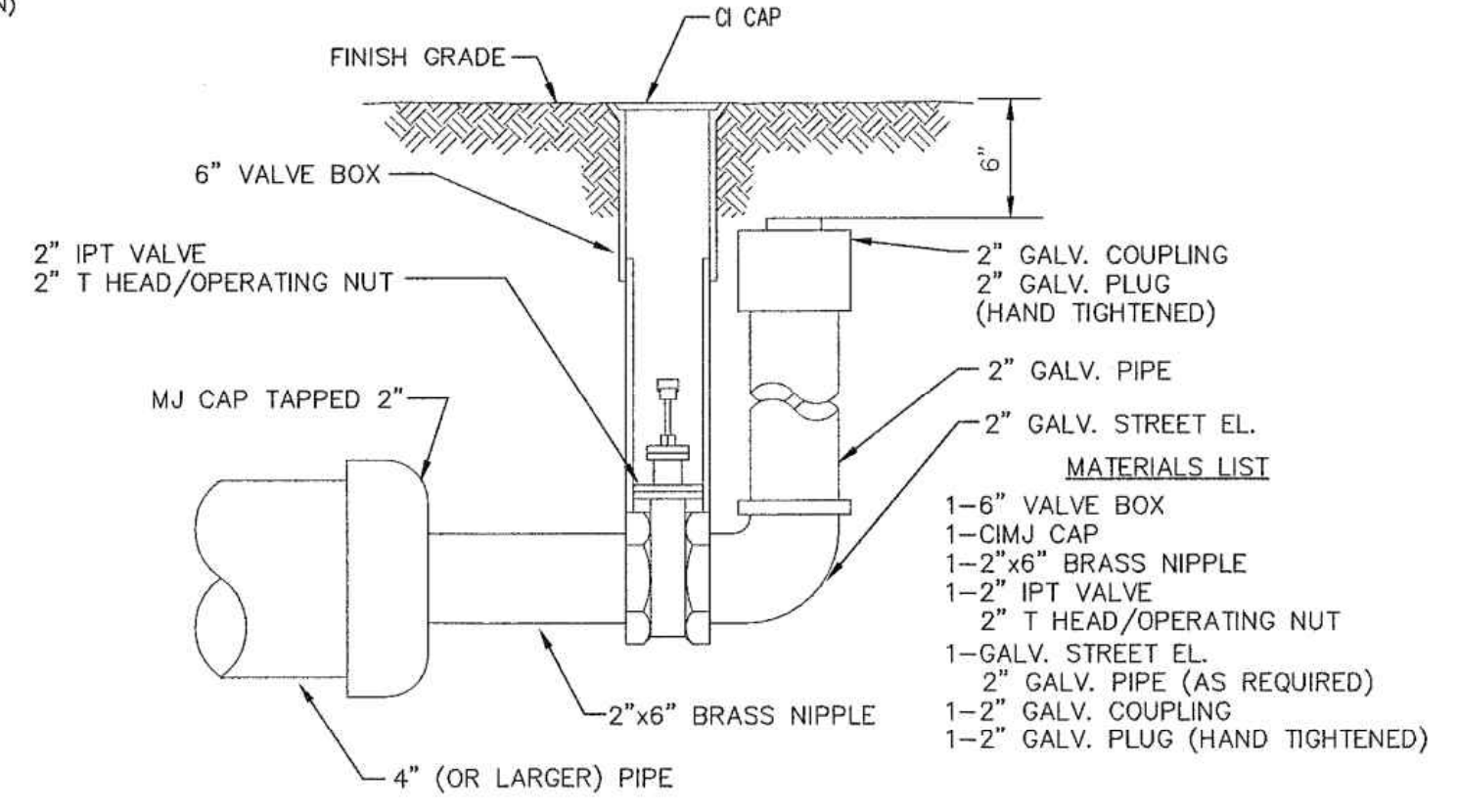
- NOTES**
- This detail covers Butterfly Valve installation, inclusive, regardless of type of pipe or joint used. 24" and larger lines to be detailed on plans.
  - 6" Valve Box and Cover required per City of Wichita Std. Specifications.
  - Conc. Support Block to be full width of trench.

**CONCRETE SUPPORT BLOCKING FOR BUTTERFLY VALVE INSTALLATION**



**VALVE STEM EXTENSION DETAIL**

NOTE: ONE VALVE STEM EXTENSION FOR EACH VALVE BURIED GREATER THAN 5'.



**2" BLOWOFF ASSEMBLY**

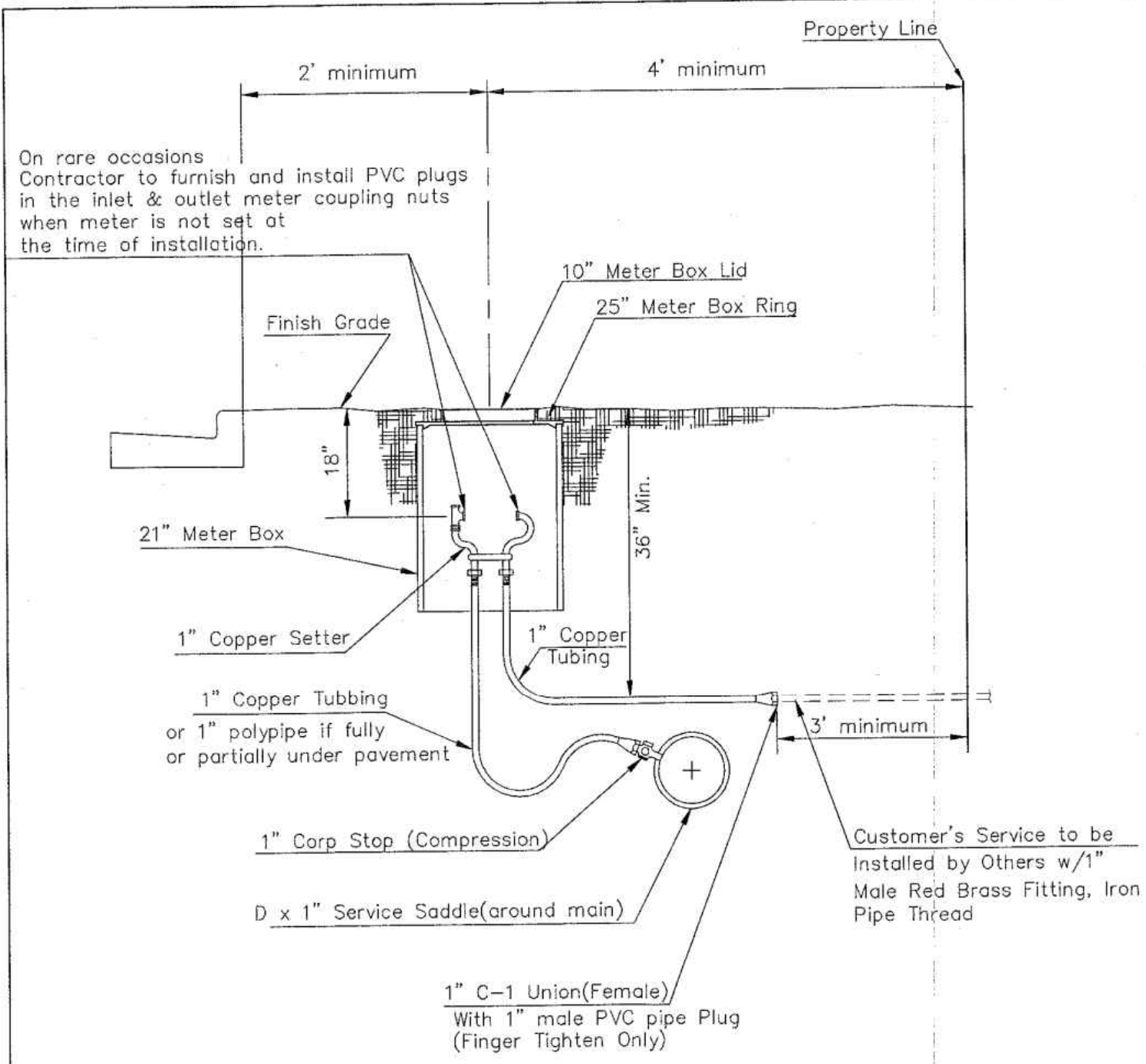


**STANDARD WATER ASSEMBLY DETAIL**  
CITY ENGINEER  
**GARY JANZEN, P.E.**

PROJECT NUMBER: OCA NUMBER: DATE:

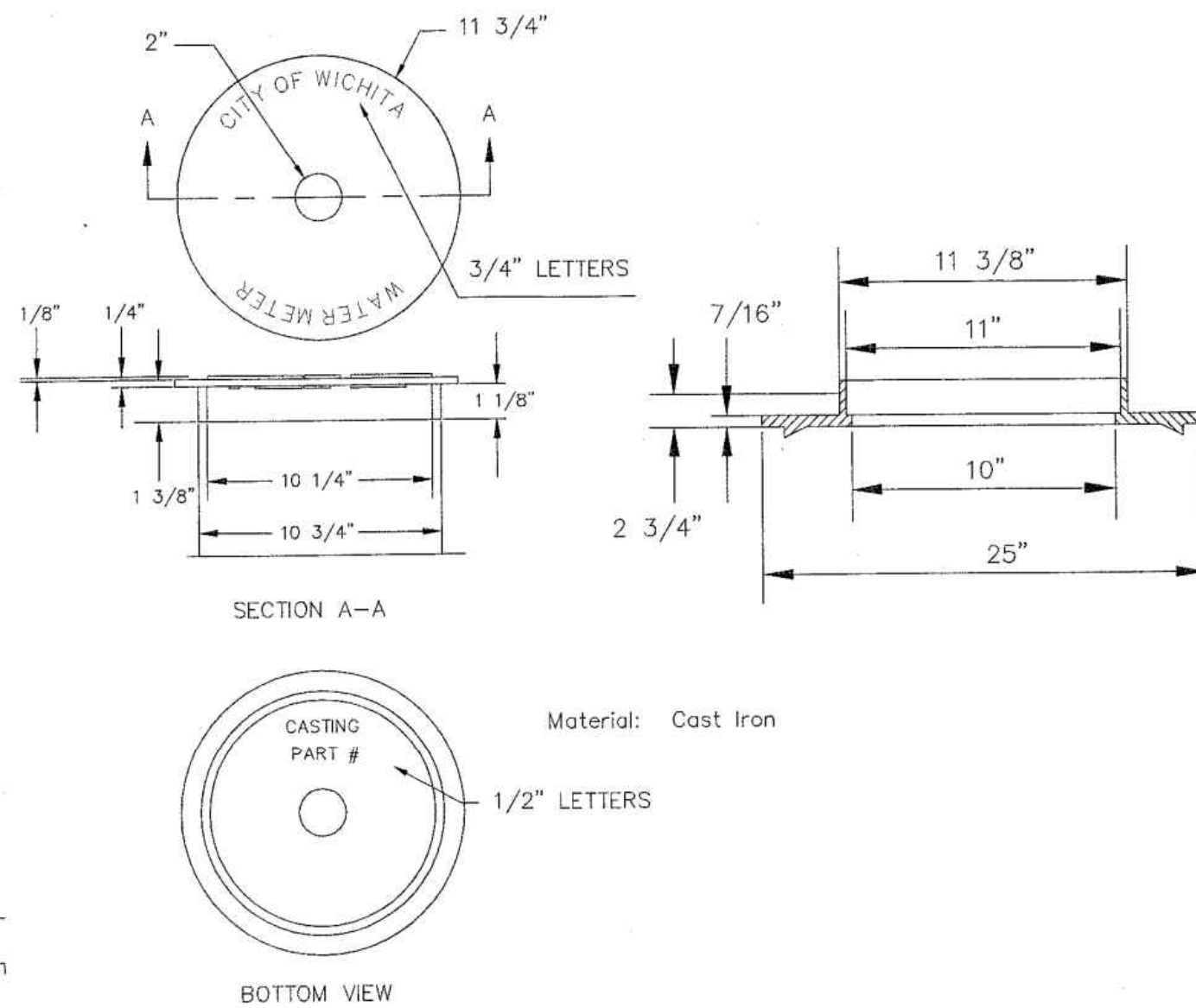
**CITY ENGINEER'S OFFICE**  
CITY HALL - SEVENTH FLOOR  
455 NORTH MAIN STREET  
WICHITA, KANSAS 67202-1620  
(316) 268-4501

SHEET: WL-101



TYPICAL 1" METER SETTING

Minimum length of pigtail on consumer side is 36" of copper tubing from meter set.  
 Bore hole under paving shall be a maximum of 2" in diameter and a minimum of 36" below top of pavement.  
 Service Saddles are required on all mains.  
 Meter boxes will be located on each lot to be served, as indicated in the SPECIAL PROVISIONS

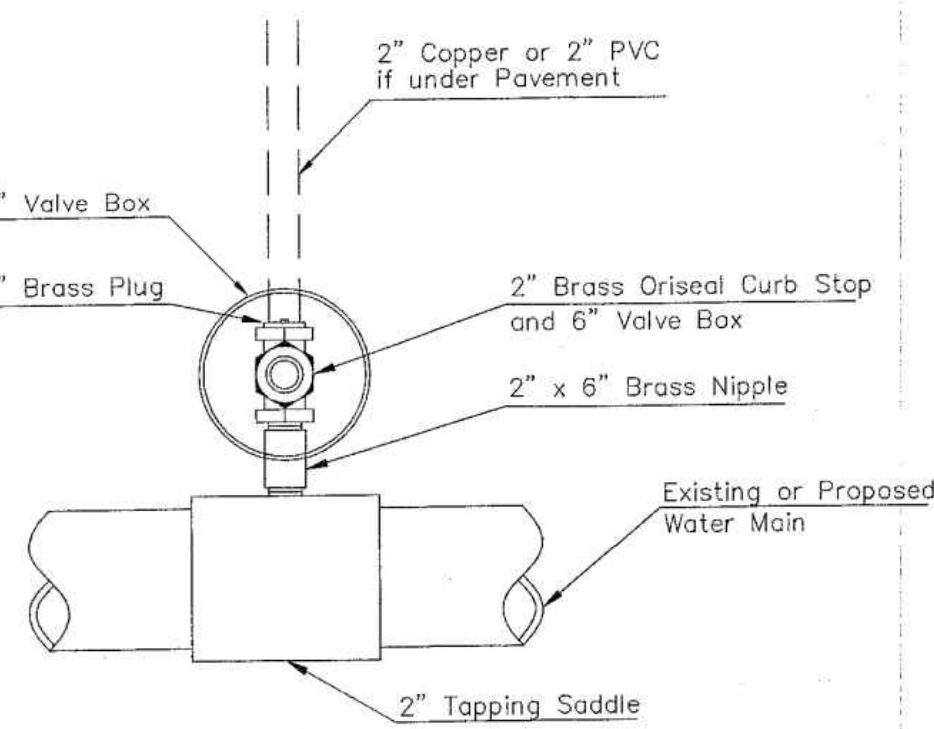


NOT TRAFFIC RATED RING & LID FOR 1" METER BOX

- 1 - 1/2" Mueller Thread Corporation Stop
- 1 - 1/2" Type "K" Copper Tubing
- 1 - 1/2" Copper to Iron Union (Male)
- 1 - 1/2" Brass Curb Stop (Iron to Iron)
- 2 - 1/2" x 4" Brass Nipple
- Air Release
- 2 - 1/2" Brass Elbows (90°)
- 1 - 1" x 6" Brass Nipple
- 1 - 30" Monitor Cover
- 1 - 20" Meter Lid

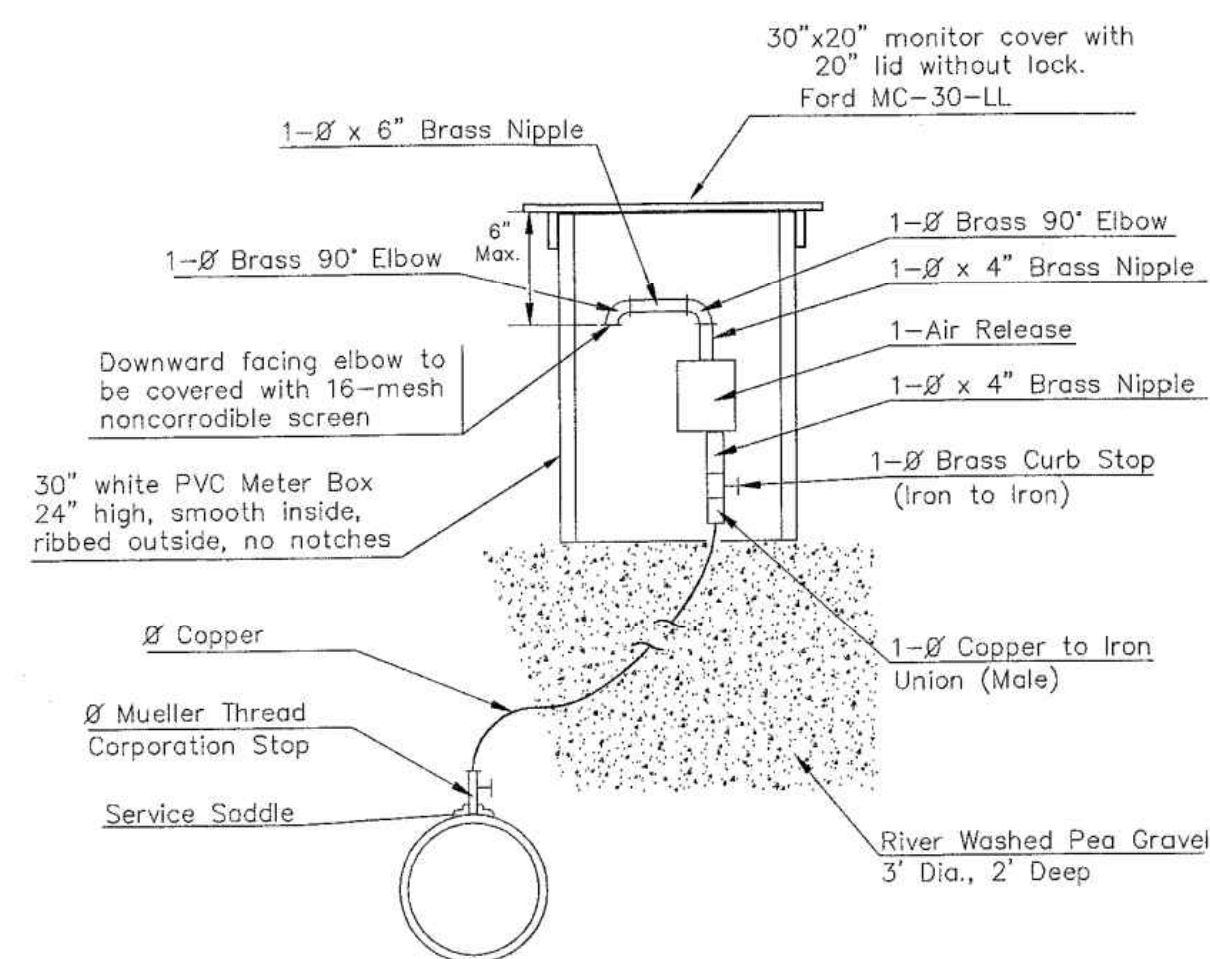
NOTE:

THE 1 1/2" AIR RELEASE ASSEMBLY WILL TYPICALLY BE USED ON WATER MAINS 24" AND SMALLER, AS SPECIFICALLY DESIGNATED IN THE PLANS. COMBINATION AIR RELEASE ASSEMBLIES WILL BE SPECIFICALLY DESIGNED FOR PROJECTS WITH LARGER MAINS, AND WILL BE INCLUDED IN THE PLANS.

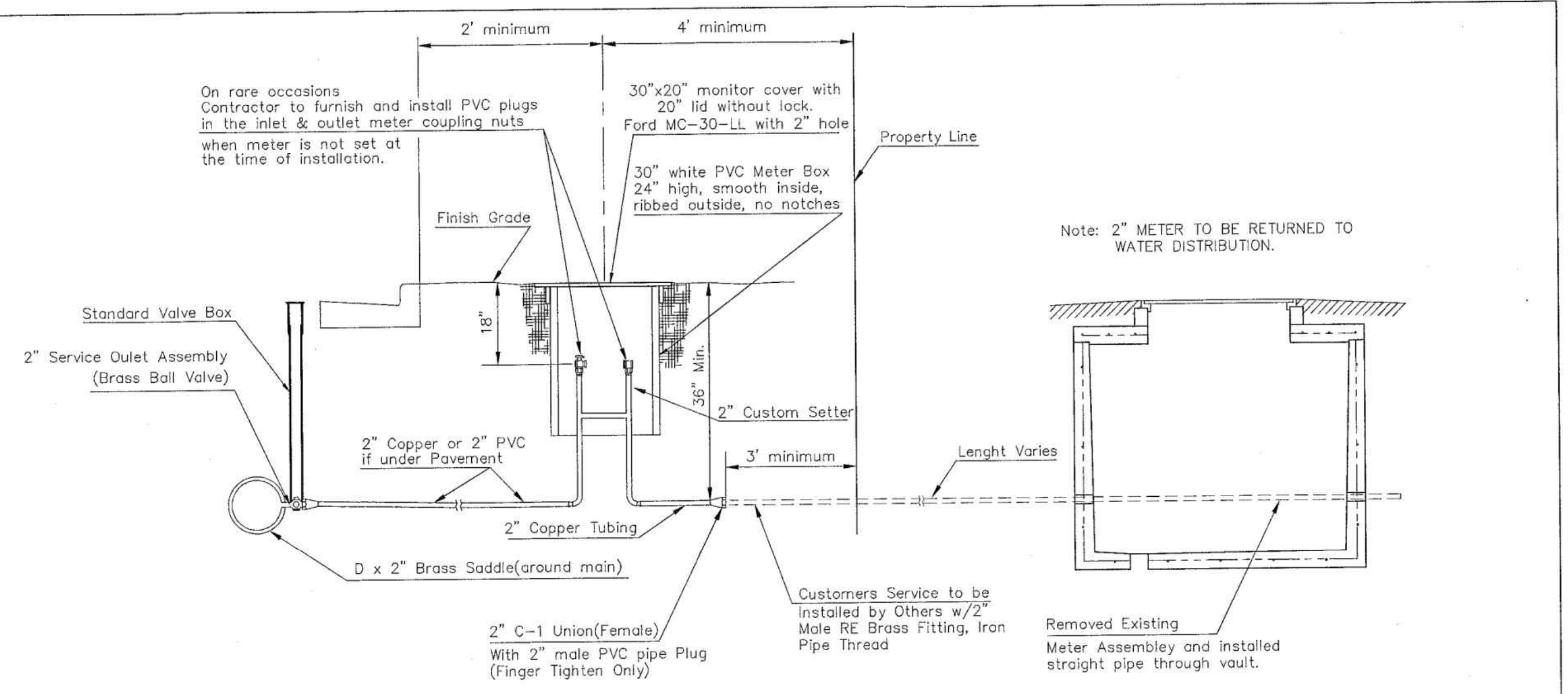


2" SERVICE OUTLET ASSEMBLY TOP VIEW

Note: Where the 2" Service Outlet Assembly is to be used to connect a 2" main to another main, the 2" valve shall be a 2" IPT Gate Valve. 2" ball or globe valves shall not be approved for this use.



MATERIALS FOR 1" or 2" AIR RELEASE ASSEMBLY Ø = 1" or 2"

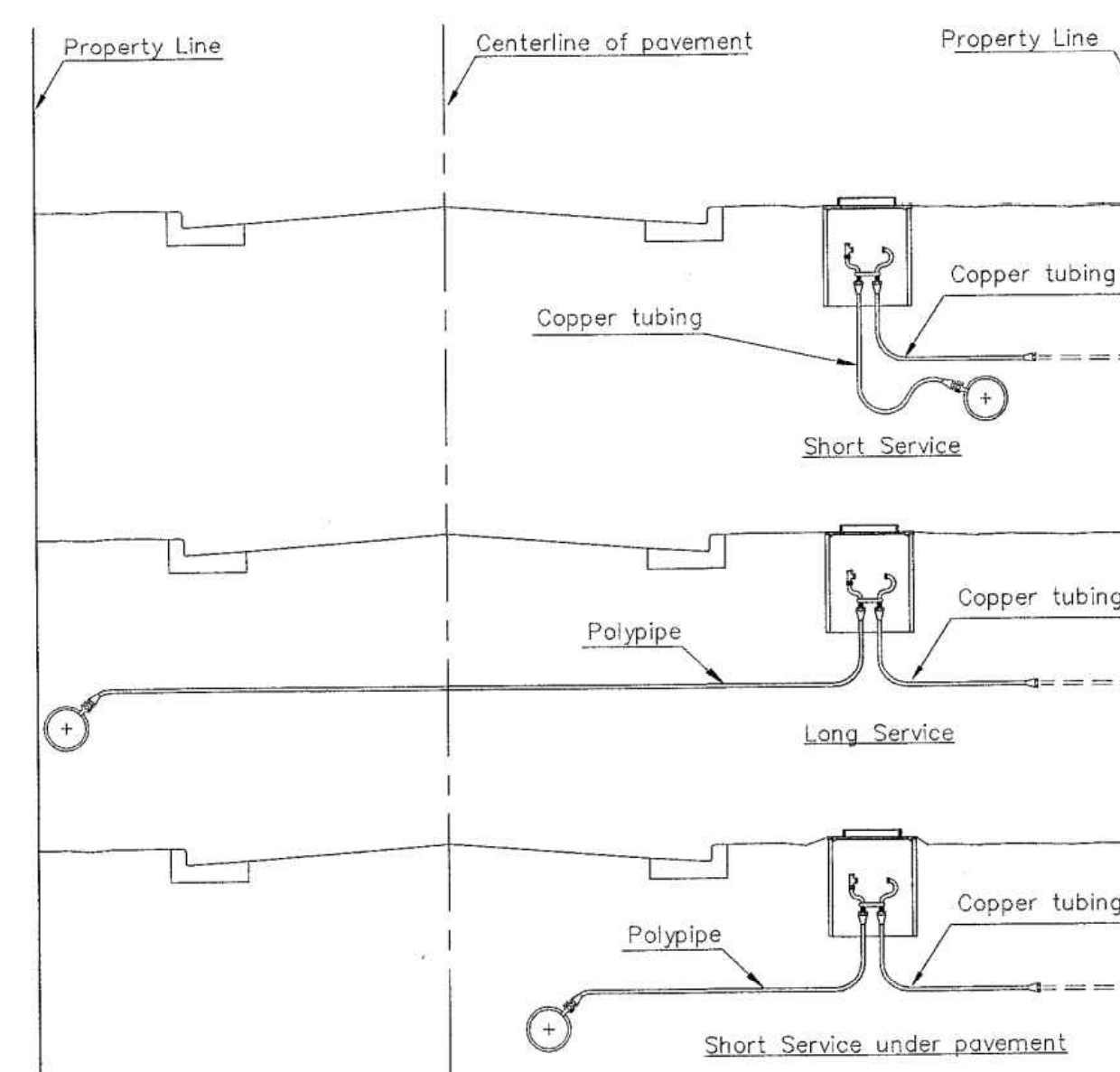


TYPICAL 2" METER SETTING

Note: ONE VALVE STEM EXTENSION FOR EACH VALVE BURIED GREATER THAN 5'.

TYPICAL 2" METER SETTING INVOLVING EXISTING 2" METER VAULT

Note: ONE VALVE STEM EXTENSION FOR EACH VALVE BURIED GREATER THAN 5'.



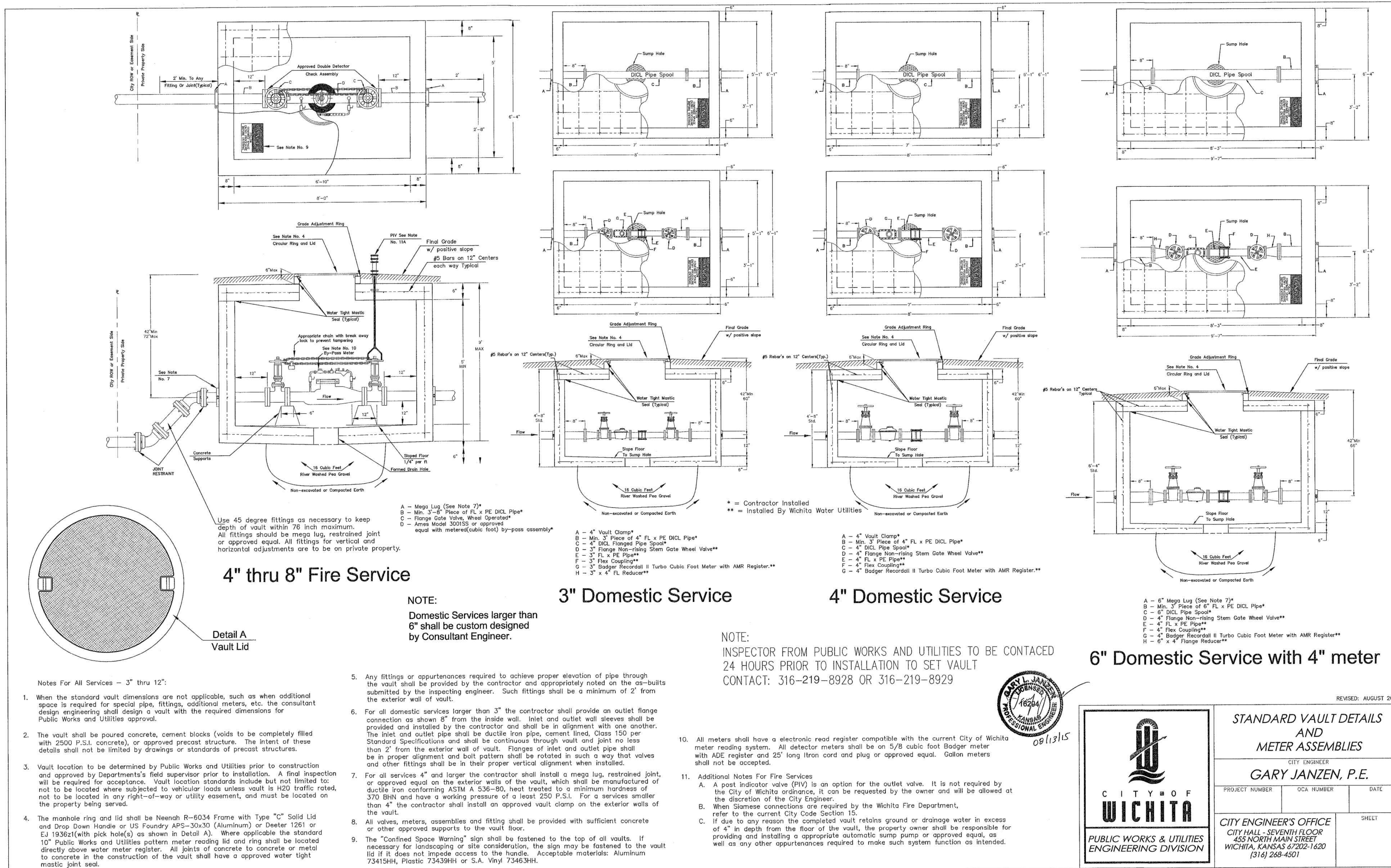
SERVICE TYPES



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

STANDARD WATER SERVICE DETAIL		
CITY ENGINEER <b>GARY JANZEN, P.E.</b>		
PROJECT NUMBER	OCA NUMBER	DATE
CITY ENGINEER'S OFFICE	SHEET	
CITY HALL - SEVENTH FLOOR 455 NORTH MAIN STREET WICHITA, KANSAS 67202-1620 (316) 268-4501	- of -	

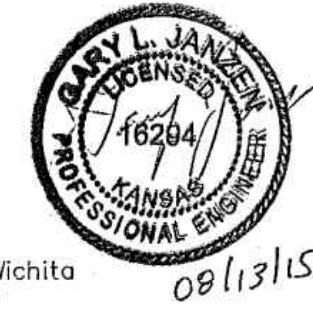
14700 WEST 114TH TERRACE LENEXA, KANSAS 66215 PH. (913) 884-9100   FAX (913) 884-9877 kawvalley.com   www.kawvalley.com	10/27/16 9/20/16	PER CITY COMMENTS INITIAL ISSUE	DSN DWN CHK
<b>KAW VALLEY ENGINEERING</b> KAW VALLEY ENGINEERING, INC. IS AUTHORIZED TO OFFER ENGINEERING SERVICES BY KANSAS STATE CERTIFICATE OF AUTHORIZATION # E-113. EXPIRES 12/31/16	11676 12/27/16	PROFESSIONAL ENGINEER	
MICHAEL R. OSBOURN ENGINEER KS #. 11676	REV	DATE	DESCRIPTION
<b>SUNNYDALE POINTE APARTMENTS</b> WEST 39RD STREET NORTH WICHITA, KANSAS 67204	8121WDET	DESIGNER	C15_8121
<b>WATER DISTRIBUTION SYSTEM</b> WATER DETAILS	CFN	DRAWN BY	NJN
	SHEET	REV	1



- Notes For All Services - 3" thru 12":
- When the standard vault dimensions are not applicable, such as when additional space is required for special pipe, fittings, additional meters, etc. the consultant design engineering shall design a vault with the required dimensions for Public Works and Utilities approval.
  - The vault shall be poured concrete, cement blocks (voids to be completely filled with 2500 P.S.I. concrete), or approved precast structure. The intent of these details shall not be limited by drawings or standards of precast structures.
  - Vault location to be determined by Public Works and Utilities prior to construction and approved by Department's field supervisor prior to installation. A final inspection will be required for acceptance. Vault location standards include but not limited to: not to be located where subjected to vehicular loads unless vault is H2O traffic rated, not to be located in any right-of-way or utility easement, and must be located on the property being served.
  - The manhole ring and lid shall be Neenah R-6034 Frame with Type "C" Solid Lid and Drop Down Handle or US Foundry APS-30x30 (Aluminum) or Deeter 1261 or EJ 1936z1(with pick hole(s) as shown in Detail A). Where applicable the standard 10" Public Works and Utilities pattern meter reading lid and ring shall be located directly above water meter register. All joints of concrete to concrete or metal to concrete in the construction of the vault shall have an approved water tight mastic joint seal.

- Any fittings or appurtenances required to achieve proper elevation of pipe through the vault shall be provided by the contractor and appropriately noted on the as-builts submitted by the inspecting engineer. Such fittings shall be a minimum of 2' from the exterior wall of vault.
- For all domestic services larger than 3" the contractor shall provide an outlet flange connection as shown 8" from the inside wall. Inlet and outlet wall sleeves shall be provided and installed by the contractor and shall be in alignment with one another. The inlet and outlet pipe shall be ductile iron pipe, cement lined, Class 150 per Standard Specifications and shall be continuous through vault and joint no less than 2' from the exterior wall of vault. Flanges of inlet and outlet pipe shall be in proper alignment and bolt pattern shall be rotated in such a way that valves and other fittings shall be in their proper vertical alignment when installed.
- For all services 4" and larger the contractor shall install a mega lug, restrained joint, or approved equal on the exterior walls of the vault, which shall be manufactured of ductile iron conforming ASTM A 536-80, heat treated to a minimum hardness of 370 BHN and have a working pressure of at least 250 P.S.I. For a services smaller than 4" the contractor shall install an approved vault clamp on the exterior walls of the vault.
- All valves, meters, assemblies and fitting shall be provided with sufficient concrete or other approved supports to the vault floor.
- The "Confined Space Warning" sign shall be fastened to the top of all vaults. If necessary for landscaping or site consideration, the sign may be fastened to the vault lid if it does not impede access to the handle. Acceptable materials: Aluminum 73415HH, Plastic 73439HH or S.A. Vinyl 73463HH.

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



**STANDARD VAULT DETAILS AND METER ASSEMBLIES**

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

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

PROJ. NO.	C15-8121
DESIGNER	KGK
DRAWN BY	NJN
CFN	8121WDET
SHEET	REV
C892	1

REV	DATE	DESCRIPTION
0	9/20/16	INITIAL ISSUE
1	10/27/16	PER CITY COMMENTS

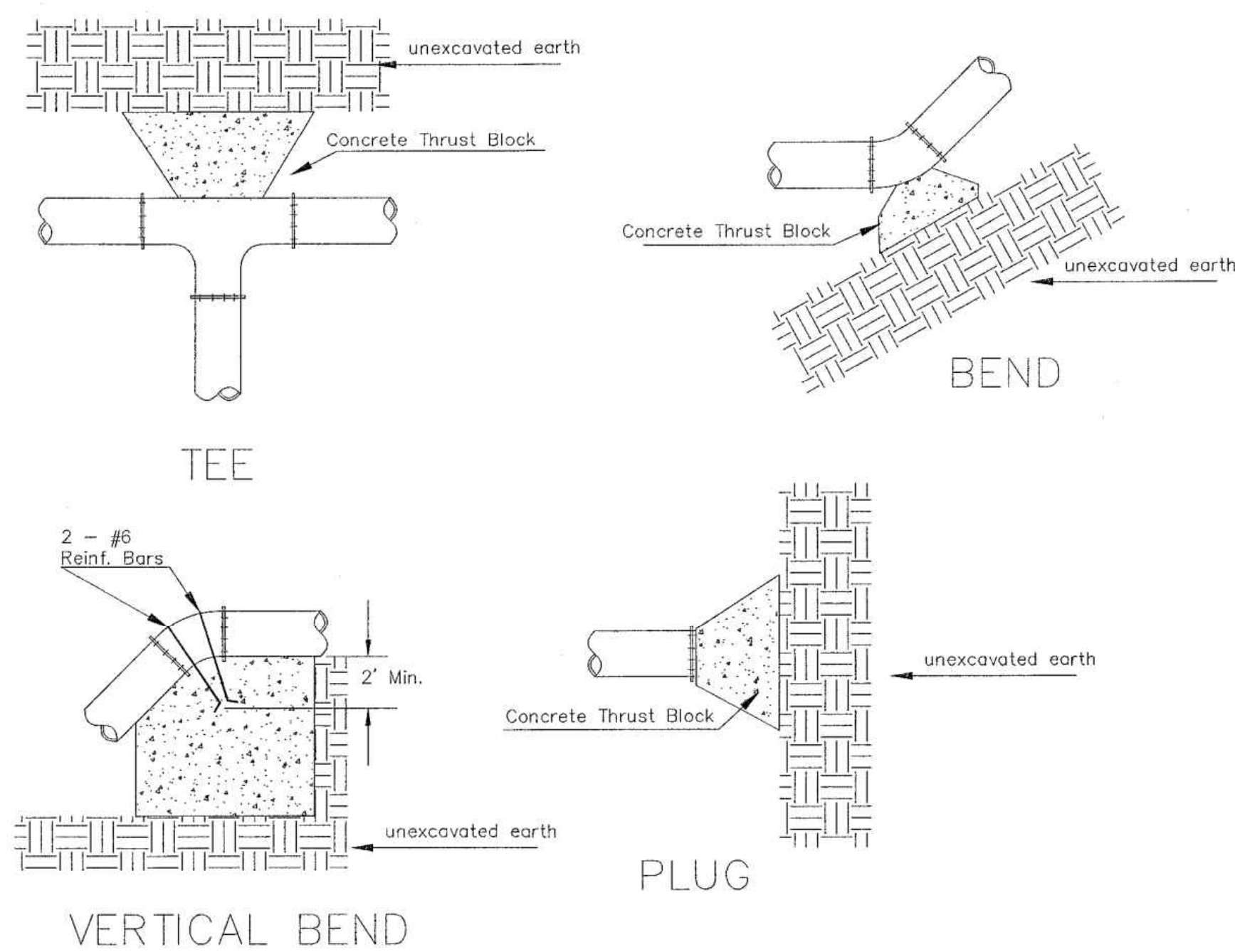
  

PROF. ENGINEER	11676	10-27-16
MICHAEL R. OSBOURN		
ENGINEER		
KS # 11676		

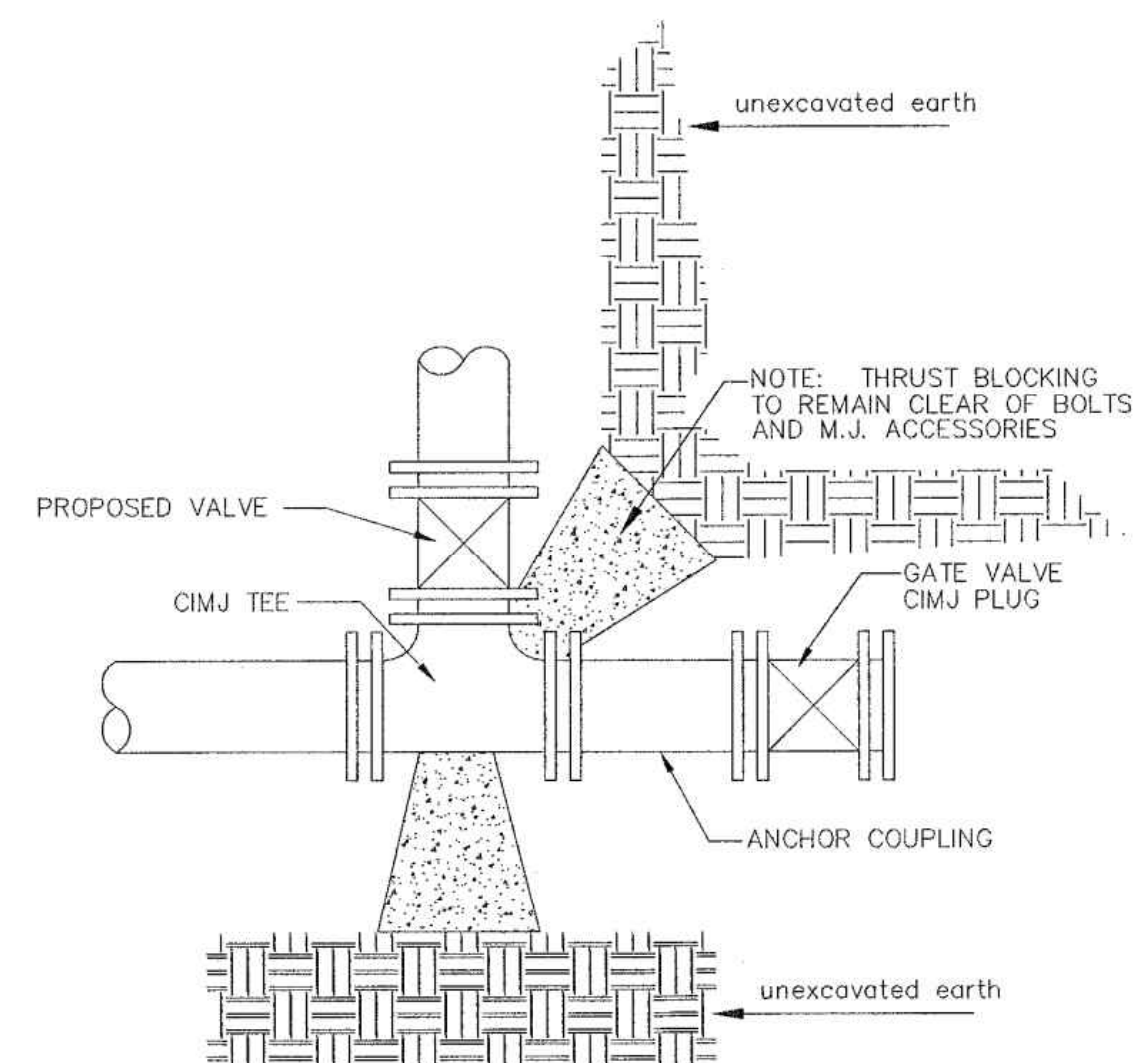
14700 WEST 114TH TERRACE  
LENEKA, KANSAS 66215  
PH. (913) 894-5150 | FAX (913) 894-5977  
kawvalley.com | www.kawvalley.com

**KAW VALLEY ENGINEERING**  
KAW VALLEY ENGINEERING, INC. IS AUTHORIZED TO OFFER ENGINEERING SERVICES BY KANSAS STATE CERTIFICATE OF AUTHORIZATION # E-113. EXPIRES 12/31/16



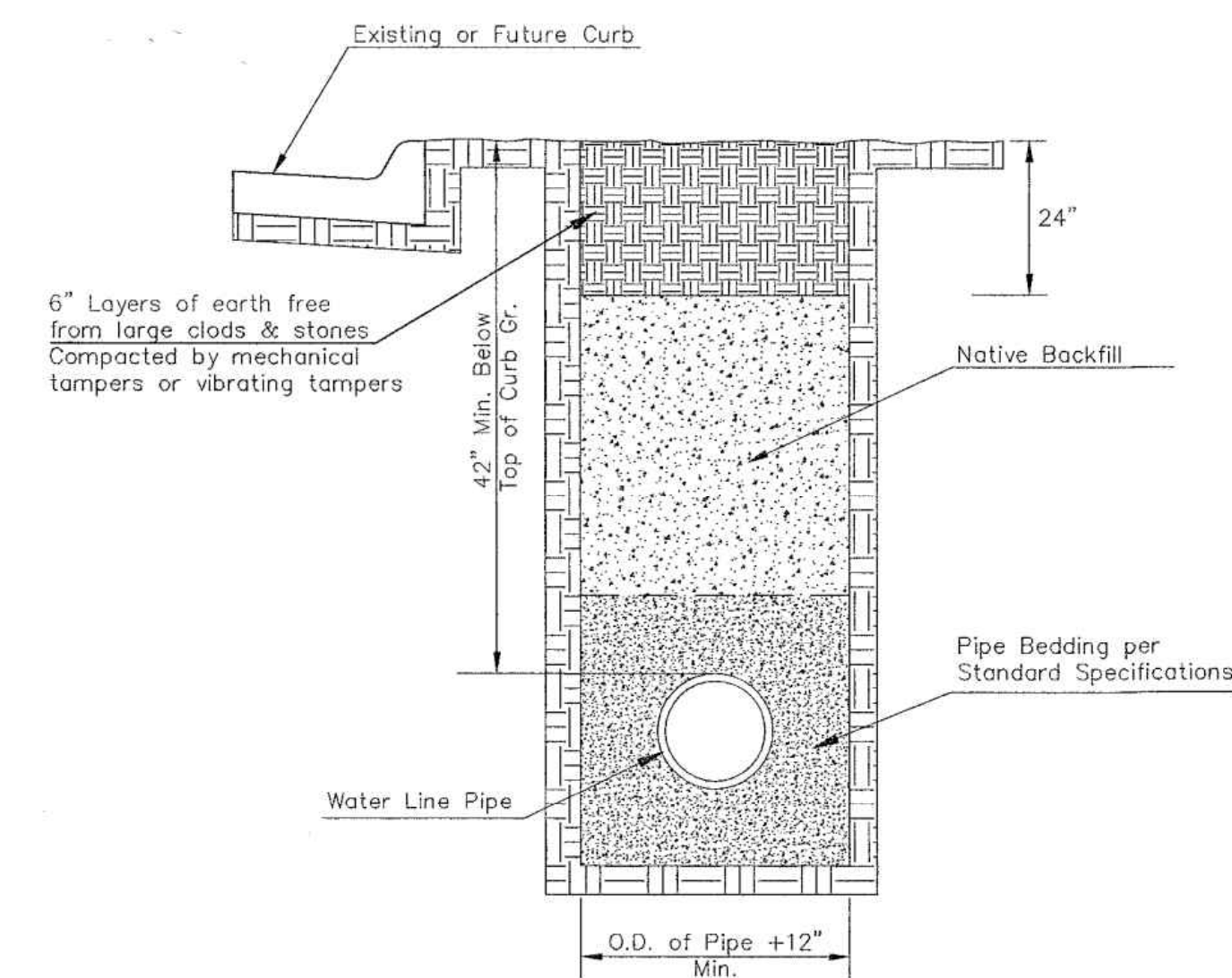
PIPE SIZE	THRUST AT FITTINGS IN TONS-AT 150#/IN <sup>2</sup> P					
	PLUG	90°	45°	22 1/2°	11 1/4°	TEE
6"	2.8	3.95	2.15	1.09	.55	2.8
8"	4.9	6.95	3.75	1.90	.96	4.9
12"	11.4	16.1	8.75	4.45	2.25	11.4
16"	20.15	28.5	15.4	7.85	3.95	20.15
20"	31.15	44.0	23.85	12.15	6.10	31.15
24"	44.55	63.0	34.1	17.4	8.75	44.55

TYPICAL THRUST BLOCKS



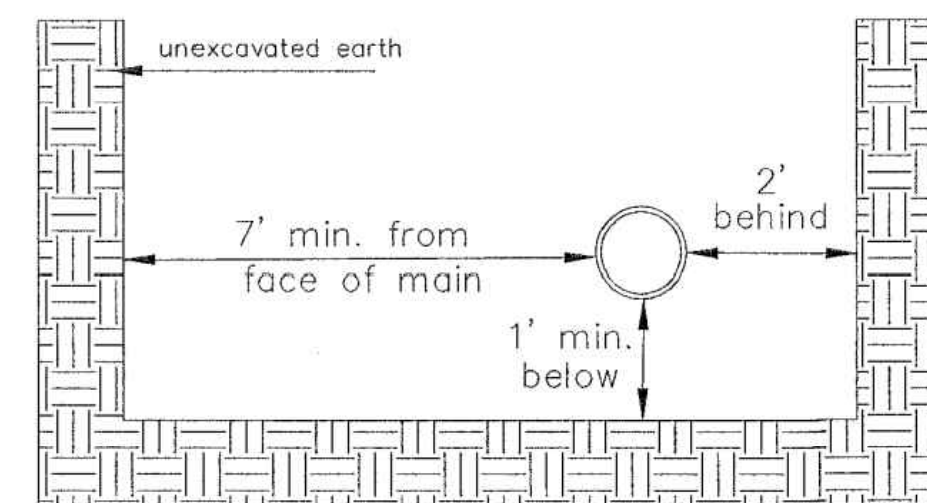
KEY BLOCK DETAIL

\* PLANS GOVERN  
UNLESS OTHERWISE NOTED ON PLANS



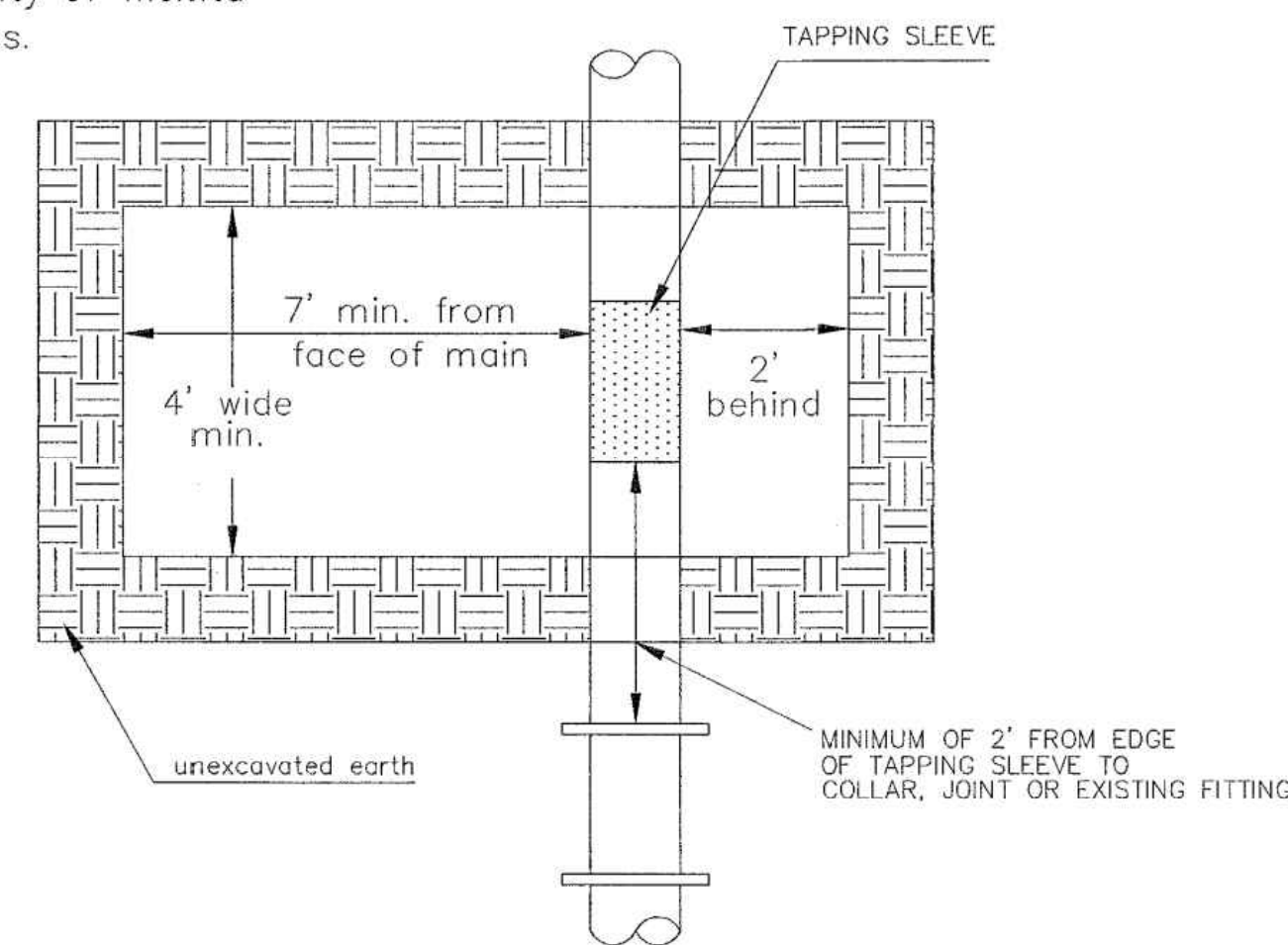
TRENCH COMPACTION IN ROAD RIGHT-OF-WAY

SIDE VIEW

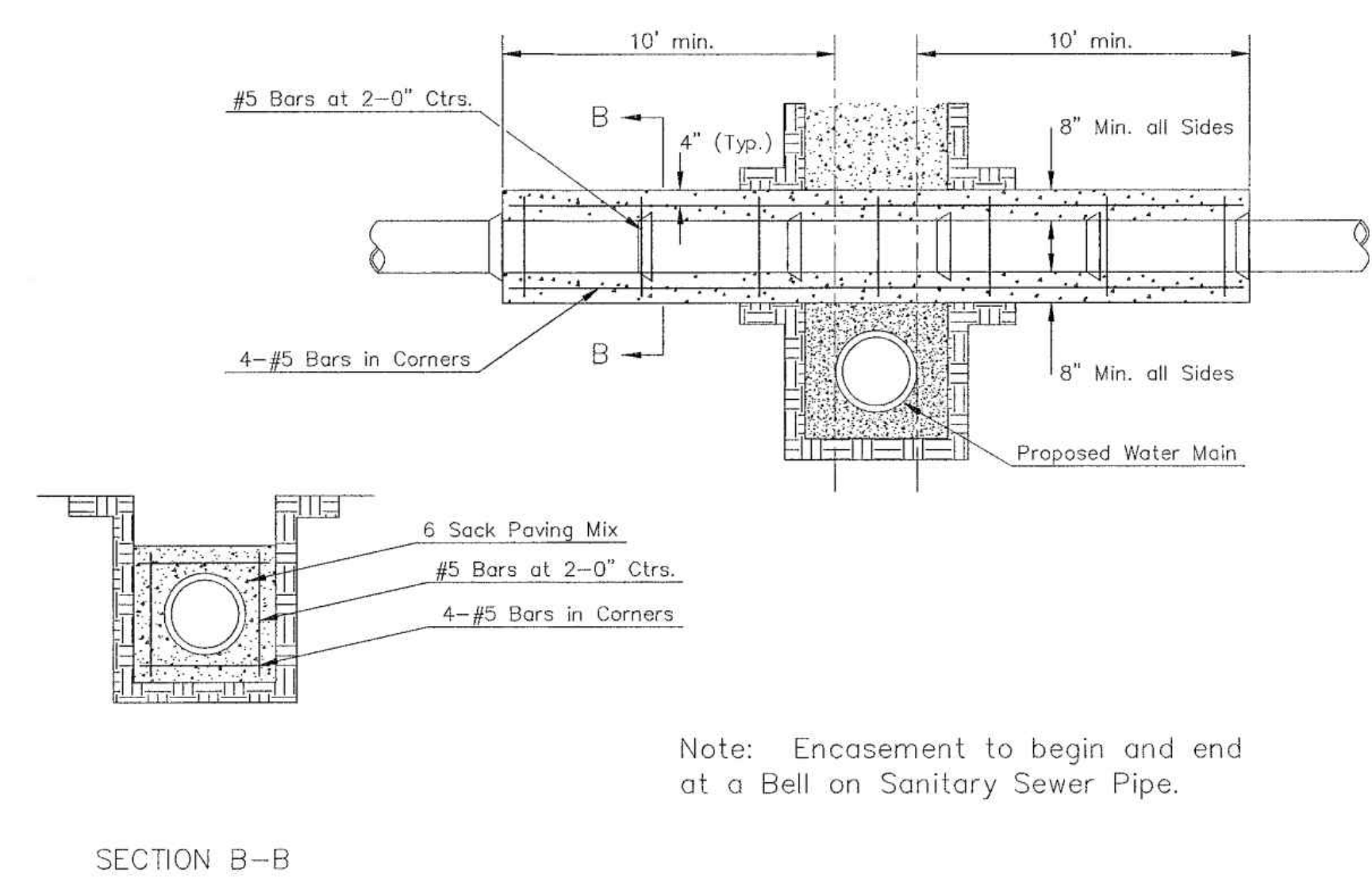


Note: When shoring is required it is to be per The City of Wichita Standard Specifications.

TOP VIEW

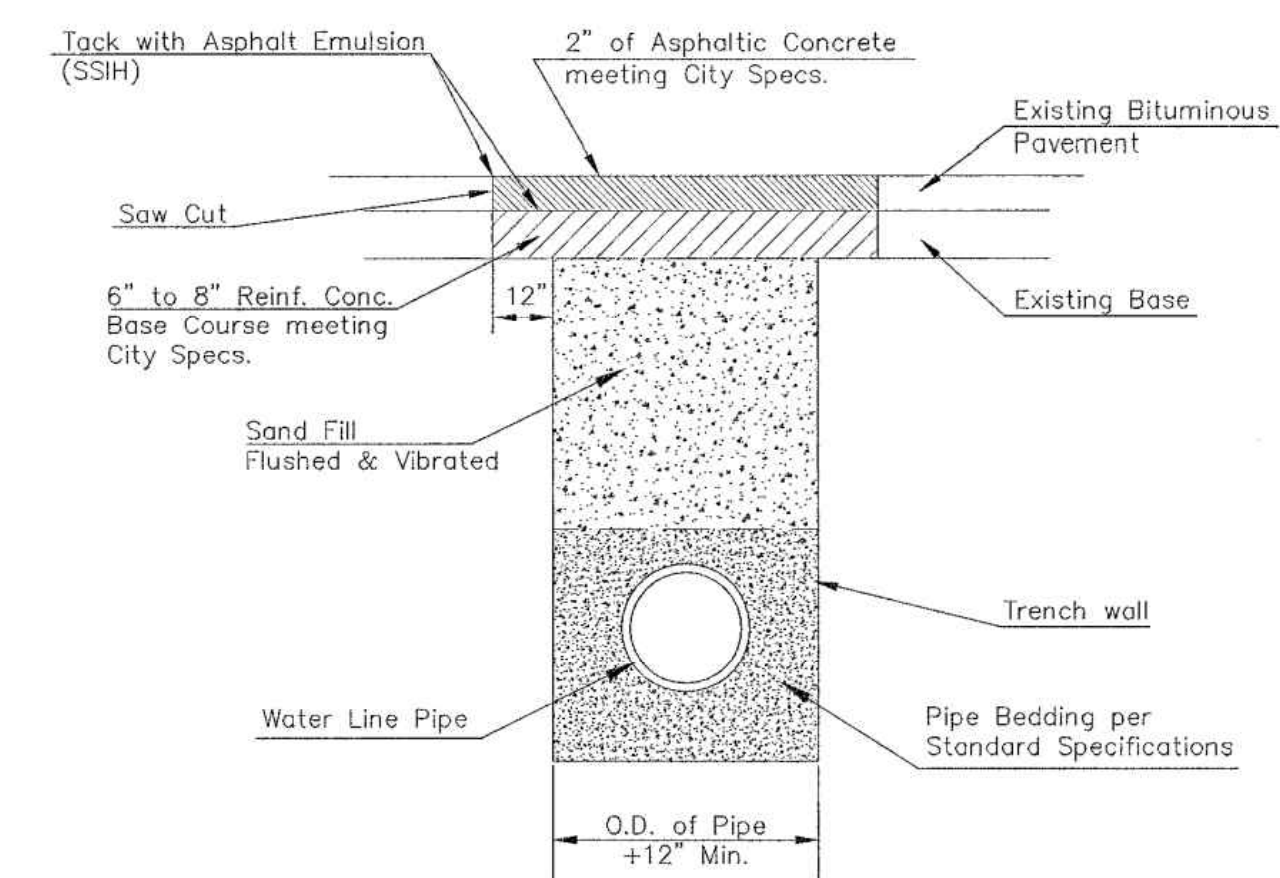


EXCAVATION FOR WET TAP



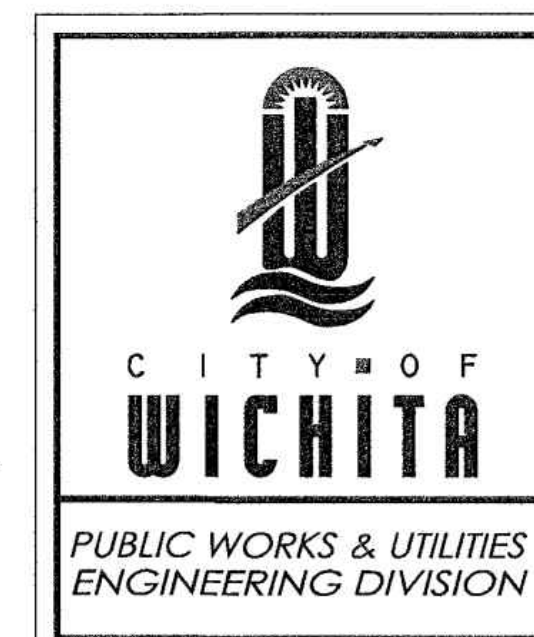
Note: Encasement to begin and end at a Bell on Sanitary Sewer Pipe.

REINFORCED CONCRETE ENCASEMENT OF SANITARY SEWER



PAVEMENT REPLACEMENT & TRENCH COMPACTION UNDER EXISTING AND PROPOSED CITY ROADS

REVISED: JULY 2015

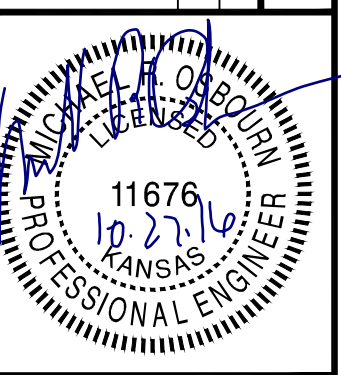


MISCELLANEOUS WATER DETAILS		
CITY ENGINEER <b>GARY JANZEN, P.E.</b>		
PROJECT NUMBER	OCA NUMBER	DATE
CITY ENGINEER'S OFFICE	SHEET	
CITY HALL - SEVENTH FLOOR 455 NORTH MAIN STREET WICHITA, KANSAS 67202-1620 (316) 268-4501		

SUNNYDALE POINTE APARTMENTS  
WEST 33RD STREET NORTH  
WICHITA, KANSAS 67204  
WATER DISTRIBUTION SYSTEM  
WATER DETAILS

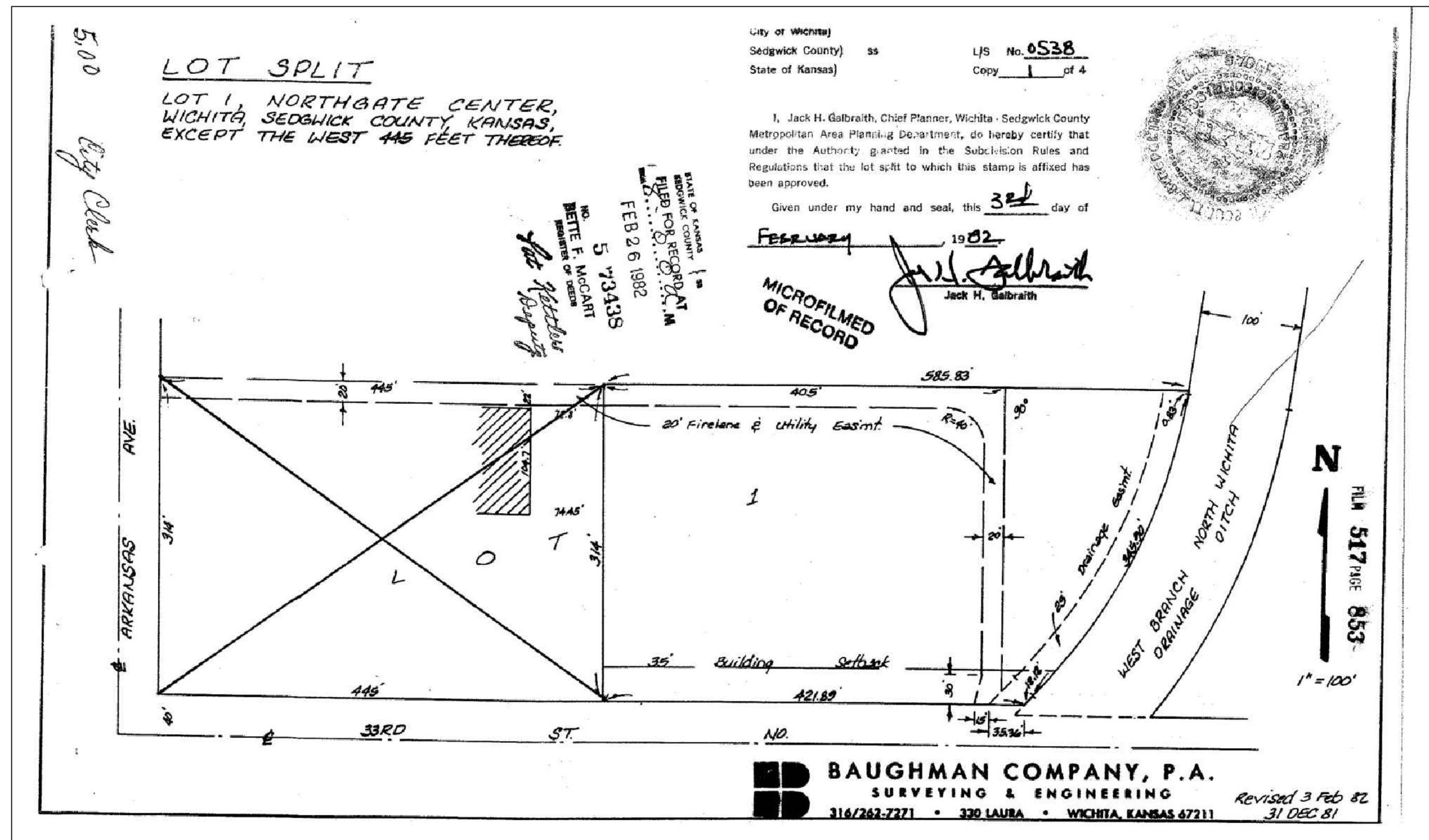
PROJ. NO.	C15-8121
DESIGNER	KGK
DRAWN BY	NJN
CFN	8121WDET
SHEET	C893
REV	1

REV	DATE	DESCRIPTION
1	10/27/16	PER CITY COMMENTS
0	9/20/16	INITIAL ISSUE



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ENGINEER  
KS #. 11676

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www.kaveg.com | www.kaveg.com  
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EXPIRES 12/31/16



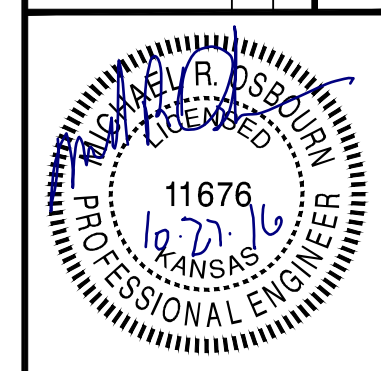
**SUNNYDALE POINTE APARTMENTS**  
 WEST 33RD STREET NORTH  
 WICHITA, KANSAS 67204  
**WATER DISTRIBUTION SYSTEM**  
**LOT SPLIT**

PROJ. NO.	C15_8121
DESIGNER	KGK
DRAWN BY	NJN
CFN	
SHEET	1

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MICHAEL R. OSBOURN  
 ENGINEER  
 KS #. 11676



REV	DATE	DESCRIPTION
1	10/27/16	PER CITY COMMENTS
0	9/20/16	INITIAL ISSUE

		DSN	DWN
		CHK	CHK