83694

STORM WATER DRAIN NO. 214

TO SERVE

AVALON PARK-PHASE 2

OCA NO. 751372

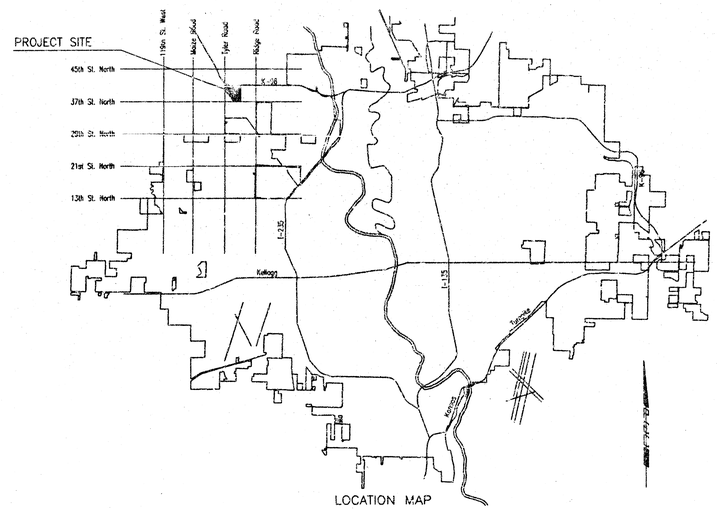
CITY OF WICHITA PROJECT NO. 468-83694

CITY OF WICHITA, KANSAS

JAMES L. ARMOUR, P.E. - ACTING CITY ENGINEER

INDEX OF SHEETS

1. TITLE SHEET
2. KEY MAP AND GENERAL NOTES
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7. SITE GRADING PLAN
8. EROSION CONTROL PLAN
9-12. EROSION CONTROL DETAILS



LOCATION MAP

EARTHWORK

EXCAVATION	69,220 CU. YDS.
FILL	71,026 CU. YDS. **
IMPORTED FILL (POND LINER)	4,725 C.Y.

** EXCAVATED MATERIAL FROM ON-SITE SHALL BE USED FOR MASS GRADING WITHIN THE IMPROVEMENT DISTRICT BOUNDARY UNTIL ALL ON-SITE MATERIAL HAS BE UTILIZED. NO BORROW MATERIAL IS REQUIRED FOR MASS GRADING.

SEE SHEET NO. 7 FOR SITE GRADING PLAN AND ADDITIONAL NOTES.



CONSTRUCTION SCHEDULE/SEQUENCE

THE CONTRACTOR FOR EACH OF THE FOLLOWING AVALON PARK PHASE 2 PROJECTS SHALL COORDINATE THEIR EFFORTS WITH OTHER CONTRACTORS WORKING ON-SITE (INCLUDING THE MAIN 19, SOUTHWEST INTERCEPTOR SEWER CONTRACTOR 468-83186) SUCH THAT CONSTRUCTION CAN PROCEED CONCURRENTLY WHENEVER POSSIBLE TO PREVENT UNDUE DELAYS SO THAT EACH PROJECT CAN BE COMPLETED WITHIN THE TIME FRAME NOTED.

STORM WATER DRAIN (468-83694)
THE CONTRACTOR SHALL COMPLETE THE AVALON PARK - PHASE 2 STORM WATER DRAIN CONSTRUCTION BY SEPTEMBER 17, 2004.

SANITARY SEWER (468-83689)
THE CONTRACTOR SHALL COMPLETE THE AVALON PARK - PHASE 2 SANITARY SEWER WORK BY OCTOBER 15, 2004. THE PROPOSED CONNECTIONS TO THE MAIN 19, SWI PROJECT (PROJECT NO. 468-83186) MANHOLES SHALL BE PERFORMED BY THE AVALON PARK - PHASE 2 SANITARY SEWER CONTRACTOR UPON COMPLETION OF THE MAIN 19, SWI WORK.

WATER DISTRIBUTION SYSTEM (448-89867)
THE CONTRACTOR SHALL COMPLETE ALL WORK ON THE AVALON PARK - PHASE 2 WATER DISTRIBUTION SYSTEM IMPROVEMENTS BY OCTOBER 29, 2004. THE PROPOSED CONNECTION TO AVALON PARK - PHASE 1 WATERLINE (PROJECT NO. 448-89866) SHALL BE PERFORMED BY THE AVALON PARK - PHASE 2 WATERLINE CONTRACTOR UPON COMPLETION OF THE AVALON PARK - PHASE 1 WATERLINE WORK.

IT SHOULD BE NOTED THAT THE WATER SUPPLY LINE ALONG 37TH STREET WILL NEED TO BE COMPLETED PRIOR TO PERFORMING TESTING AND DISINFECTION OF THE PROPOSED IMPROVEMENTS. NO ADDITIONAL COMPENSATION WILL BE MADE FOR DELAYS THAT MAY OCCUR FROM FURNISHING WATER FOR THESE PURPOSES.

STREETS/DRAINAGE (472-83836)
THE CONTRACTOR SHALL COMMENCE WITH CONSTRUCTION OF THE STREET/DRAINAGE IMPROVEMENTS UPON COMPLETION OF THE INSTALLATION OF THE WATER DISTRIBUTION SYSTEM (PROJECT NO. 448-89867), AND COMPLETE ALL WORK ON THE AVALON PARK - PHASE 2 STREET AND DRAINAGE IMPROVEMENTS BY DECEMBER 1, 2004.

JULY 2004

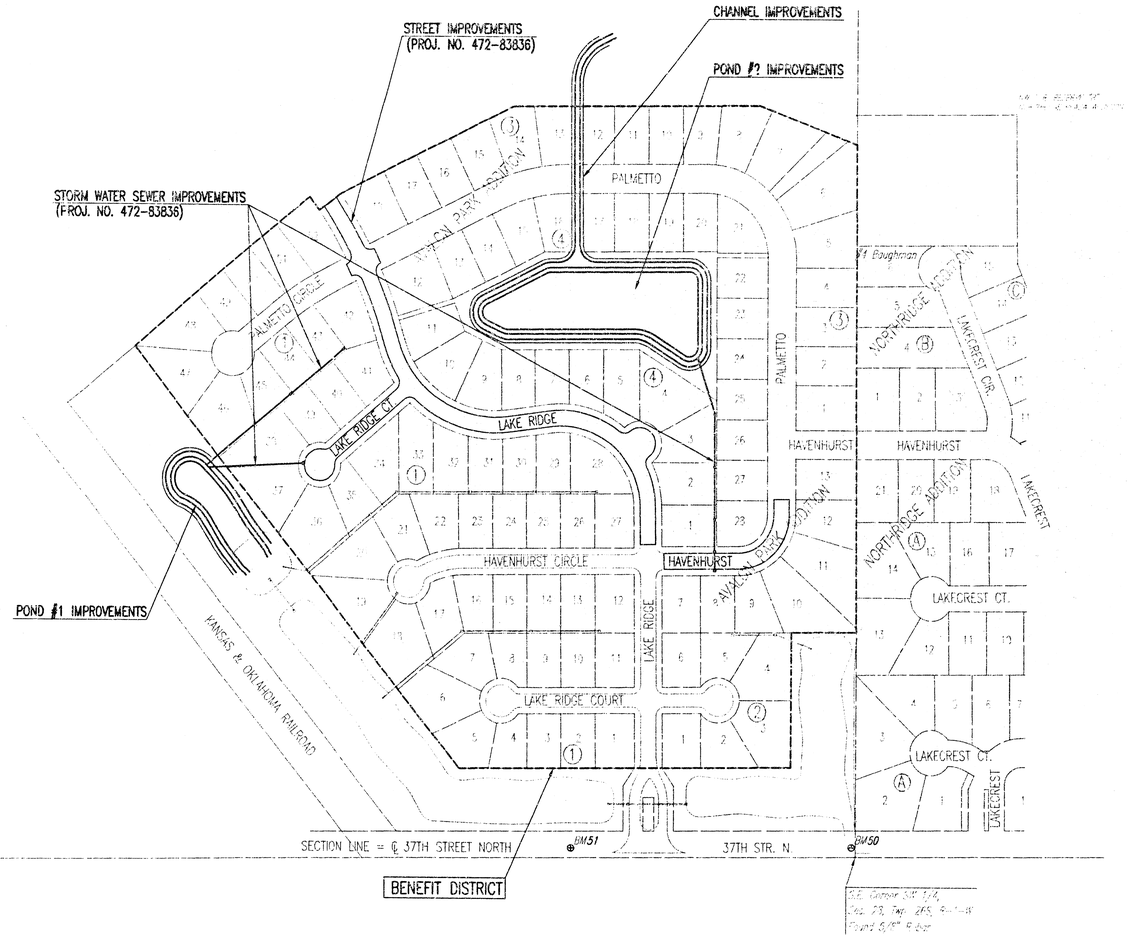
PLANS PREPARED BY

PROFESSIONAL ENGINEERING CONSULTANTS, P.A.

ENGINEERS

WICHITA, KANSAS

DSNR: BSR OPER: BJS SCALE: 1=1.00
Q:\2004\04099\003\SHEET1E 07-20-2004 06:37:02 nm



1" = 150'

GENERAL NOTES

1. UNDERGROUND UTILITY SERVICE LINES AND OVERHEAD UTILITY POLE LINES ARE TO BE ADJUSTED AS NECESSARY BY OTHERS PRIOR TO CONSTRUCTION UNLESS THE PLANS SPECIFICALLY CALL FOR THEIR ADJUSTMENT BY THE CONTRACTOR. EXISTING UTILITIES AND THEIR LOCATION, AS SHOWN ON THE PLANS, REPRESENT THE BEST INFORMATION OBTAINABLE FOR DESIGN. LOCATION INFORMATION HAS BEEN OBTAINED FROM THE VARIOUS UTILITY COMPANIES AND IS EITHER FROM COMPANY RECORD DRAWINGS OR COMPANY PROVIDED FIELD LOCATIONS. THE CONTRACTOR WILL BE REQUIRED TO WORK AROUND EXISTING UTILITIES WITHIN THE RIGHT-OF-WAY WHICH DO NOT CONFLICT WITH PROPOSED CONSTRUCTION.

2. 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.

3. RUBBLE FROM THE REMOVAL OF MISCELLANEOUS STRUCTURES SHALL BE DISPOSED OF ON SITES TO BE PROVIDED BY THE CONTRACTOR AND APPROVED AS NOTED BELOW.

   ALL DISPOSAL SITES MUST BE APPROVED BY THE KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT. MATERIAL EITHER STOCKPILED OR DISPOSED OF IN A FLOOD PLAIN WOULD REQUIRE A KANSAS STATE BOARD OF AGRICULTURE PERMIT. ANY MATERIAL DUMPED IN WATERS OF THE UNITED STATES OR WETLANDS IS SUBJECT TO U.S. CORPS OF ENGINEERS PERMITTING REGULATIONS. ANY MATERIAL BURIED OR STOCKPILED BEYOND APPROVED CONSTRUCTION LIMITS WOULD REQUIRE ADDITIONAL ARCHEOLOGICAL INVESTIGATIONS UNLESS BURIED IN A PREVIOUSLY APPROVED BORROW LOCATION.

4. CONTRACTOR SHALL SATISFY HIMSELF OF SURFACE AND SUBSURFACE CONDITIONS PRIOR TO BIDDING.

5. TEMPORARY SURFACING MATERIAL (ROCK, ASPHALT, ETC.) MAY HAVE BEEN PLACED WITHIN STREET RIGHTS-OF-WAY FOR HAUL ROADS AND TEMPORARY ACCESS. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS TO DETERMINE EXTENT, IF ANY, OF SUCH SURFACING. CONTRACTOR SHALL REMOVE SAID TEMPORARY SURFACING IN THE SAME MANNER AS NOTED ABOVE FOR RUBBLE. THIS REMOVAL SHALL BE SUBSIDIARY TO "EXCAVATION".

6. CONTRACTOR SHALL PROVIDE A MINIMUM FORTY-EIGHT (48) HOUR ADVANCE NOTICE (EXCLUDING WEEKENDS AND HOLIDAYS) PRIOR TO BEGINNING ANY EXCAVATION, TO KANSAS ONE-CALL SYSTEM, A UTILITY LOCATION SERVICE, AT (316) 687-2470 TO REQUEST THE FOLLOWING UTILITY COMPANIES TO LOCATE ALL EXISTING LINES WITHIN THE PROJECT AREA: K.C.S. GAS, WESTAR ELECTRIC, SBC, MULTIMEDIA CABLEVISION, CITY OF WICHITA SEWER MAINTENANCE AND CITY OF WICHITA WATER DEPARTMENT.

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 DEPARTMENT 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, WATER VALVE BOXES OR FIRE HYDRANTS DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED BY THE CONTRACTOR AT HIS OWN EXPENSE.

9. THE CONTRACTOR SHALL APPLY TEMPORARY SEED AND MULCH TO ALL UNPAVED AREAS DISTURBED BY HIS CONSTRUCTION OPERATIONS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. SEED SHALL BE ANNUAL RYE APPLIED AT THE RATE OF 4 LBS. PER 1,000 SQUARE FEET. MULCH SHALL BE PRAIRIE HAY APPLIED AT THE RATE OF 15 BALES PER ACRE. THIS WORK SHALL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE BID FOR "TEMPORARY PROJECT SEEDING".

10. EROSION CONTROL (BMP'S)
    THE CONTRACTOR SHALL INSTALL AND/OR MAINTAIN EROSION CONTROL METHODS AS SPECIFIED ON SHEET 8. THE FOLLOWING QUANTITIES ARE ESTIMATED, AND SHOULD BE CONSIDERED THE MINIMUM EFFORT REQUIRED. INSTALLATION OF THESE BMP'S DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF ABATING SOIL EROSION

CONSTRUCTION ENTRANCE	1 EACH
SILT FENCE BARRIER	3,785 L.F.
AREA INLET PROTECTION	5 EACH

BENCHMARKS

BM #50 – "T" Post, 1/2 mile E. of Tyler Rd., 14' N. of N. edge 37th St. N.
Elev.=145.75

BM #51 – "T" Post, 3/8 mile E. of Tyler Rd., 14' N. of N. edge 37th St. N., E. of R.R. tracks 186'±
Elev.=148.15

BM #58 – Chiseled "6" on S. end concrete headwall, E. end RCB under Tyler Rd. at 1/2 mile line, S. of K96 Highway. (Not Shown).
Elev.=154.63

BRIAN D. BOUTWELL LICENSED 10889 PROFESSIONAL ENGINEER STATE OF KANSAS
7/20/04

No.	Revision	By	Date

AVALON PARK-PHASE 2
STORM WATER DRAIN NO. 214

KEY MAP AND GENERAL NOTES

JAMES L. ARMOUR, P.E.-ACTING CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468-83694

Professional Engineering Consultants, P.A.
303 S. TOPEKA • WICHITA, KANSAS 67202
316-262-2691 • FAX 316-262-3003

Designed by	BDB	Job No.	35-04099-003
Drawn by	BJS	Date	APRIL 2004

Sht. 2 of 12

DSNR: BDB OPER: BJS SCALE: 1=150.00
Q:\2004\04099\003\KEYMAP 07-20-2004 06:39:04 am

AVALON PARK

AN ADDITION TO WICHITA
SEDGWICK COUNTY, KANSAS

SCALE: 1" = 100'

● = 3/4" IRON PIPE "I"/PEC CAP UNLESS OTHERWISE NOTED

BENCHMARKS:

BM #50 – "I" Post, 1/2 mile E. of Tyler Rd., 14' N. of N. edge 37th St. N.
Elev.=1333.15 N.G.V.D.
Elev.=145.75 CITY DATUM

BM #51 – "I" Post, 3/8 mile E. of Tyler Rd., 14' N. of N. edge 37th St. N., E. of R.R. tracks 186'±
Elev.=1335.55 N.G.V.D.
Elev.=148.15 CITY DATUM

BM #58 – Chiseled "d" on S. end concrete headwall, E. end RCB under Tyler Rd. at 1/2 mile line, S. of K96 Highway.
Elev.=1342.03 N.G.V.D.
Elev.=154.63 CITY DATUM

N.E. Corner SW 1/4, Sec. 28, Twp. 26S, R-1-W
Found 3/4" Rebar

N.W. Corner SW 1/4, Sec. 28 Twp. 26S, R-1-W
Found 3/4" Iron Pipe w/ LS875 Cap–Moehring

S.W. Cor. SW 1/4, Sec. 28, Twp. 26S, R-1-W
Found 3/4" Pipe

S.E. Corner SW 1/4, Sec. 28, Twp. 26S, R-1-W
Found 5/8" Rebar

POINT OF BEGINNING

SECTION LINE = ℄ TYLER ROAD

SECTION LINE = ℄ 37TH STREET NORTH

50' Permanent Pipeline Right of Way Condemnation Case # 45982

KANSAS & OKLAHOMA RAILROAD ℄ TRACKS

50' Street Dedication

Complete Access Control

PALMETTO CIRCLE

PALMETTO

HAVENHURST CIRCLE

HAVENHURST

LAKE RIDGE CT.

LAKE RIDGE

LAKE RIDGE COURT

RESERVE A

RESERVE B

RESERVE C

RESERVE D

COORDINATE LIST					
Pt.#	NORTHING	EASTING	Pt.#	NORTHING	EASTING
1	00.0000	10000.0000	265	11552.7650	11977.6884
2	32.4400	10000.0000	266	11488.7667	11979.1575
100	10892.2944	10603.0777	267	11170.7766	11960.8551
113	11127.8237	11197.4559	289	10869.6449	12112.3018
114	11176.0783	11210.5477	290	10775.4910	12112.6342
117	11131.2418	11247.3389	291	10975.4937	12113.3672
121	11242.2711	11291.2155	293	10790.7163	12134.1250
127	11197.4335	11328.0068	294	10761.6575	12134.7777
138	11448.7591	11195.1383	295	10643.6890	12135.2029
139	10851.4792	11399.5929	297	10393.6757	12137.0355
141	10929.8577	11412.2992	298	10335.8775	12137.4698
142	11321.0725	11413.8918	299	10215.8805	12138.3403
145	11268.9687	11439.3711	302	10034.1417	12147.5086
146	11485.5606	11447.5059	303	10150.8252	12158.5162
147	10885.2953	11449.4471	304	10075.8272	12158.8660
149	11343.1960	11459.5422	309	10691.9195	12174.2908
153	11291.2922	11485.0215	310	10151.0085	12183.5155
156	11374.1790	11515.6627	311	10076.0105	12183.8653
158	11164.6528	11531.9722	314	10791.1854	12198.1232
160	11143.4150	11538.1993	315	10705.1365	12198.7540
161	11316.6652	11543.7777	316	10641.1382	12199.2232
165	11065.3721	11574.8126	318	10394.1449	12201.0337
174	11182.6600	11593.3867	319	10336.1464	12201.4589
175	11161.4221	11599.6138	320	10215.1497	12202.3385
177	10624.7960	11610.2133	321	10176.3413	12228.6311
179	11020.8295	11611.9605	322	10076.3440	12229.3641
183	10671.0348	11629.0924	329	10394.8048	12291.0313
186	10621.8957	11660.1291	330	10336.8062	12291.4565
193	10756.0158	11690.2104	332	11555.1408	12301.7841
203	10698.7480	11736.5142	333	11491.1425	12302.2533
204	10640.7495	11736.9384	334	11348.1464	12303.3015
206	10469.7541	11738.1929	350	10366.1039	12351.9736
215	11508.8601	11791.0783	356	10774.4614	12379.2452
224	11222.7590	11808.8070	357	10706.4633	12379.7436
227	11451.3662	11819.1933	358	10642.4650	12380.2128
230	10362.3914	11825.5284	366	11348.3816	12446.3013
234	11006.5950	11837.0399	373	10774.5733	12447.2451
235	10943.1340	11845.3285	384	11348.4868	12510.3012
238	10391.6892	11866.0455	389	10965.2325	12510.9316
239	10333.6908	11866.4707	390	10901.2326	12511.0369
255	11019.5310	11936.0834	392	10774.6785	12511.2450
256	10956.0699	11944.3719	401	10965.4628	12650.9314
260	10789.4848	11966.1295	402	10901.4629	12651.0367

(298) =COORDINATE POINT NO.

No.	Revision	By	Date

AVALON PARK–PHASE 2
STORM WATER DRAIN NO. 214

PLAT

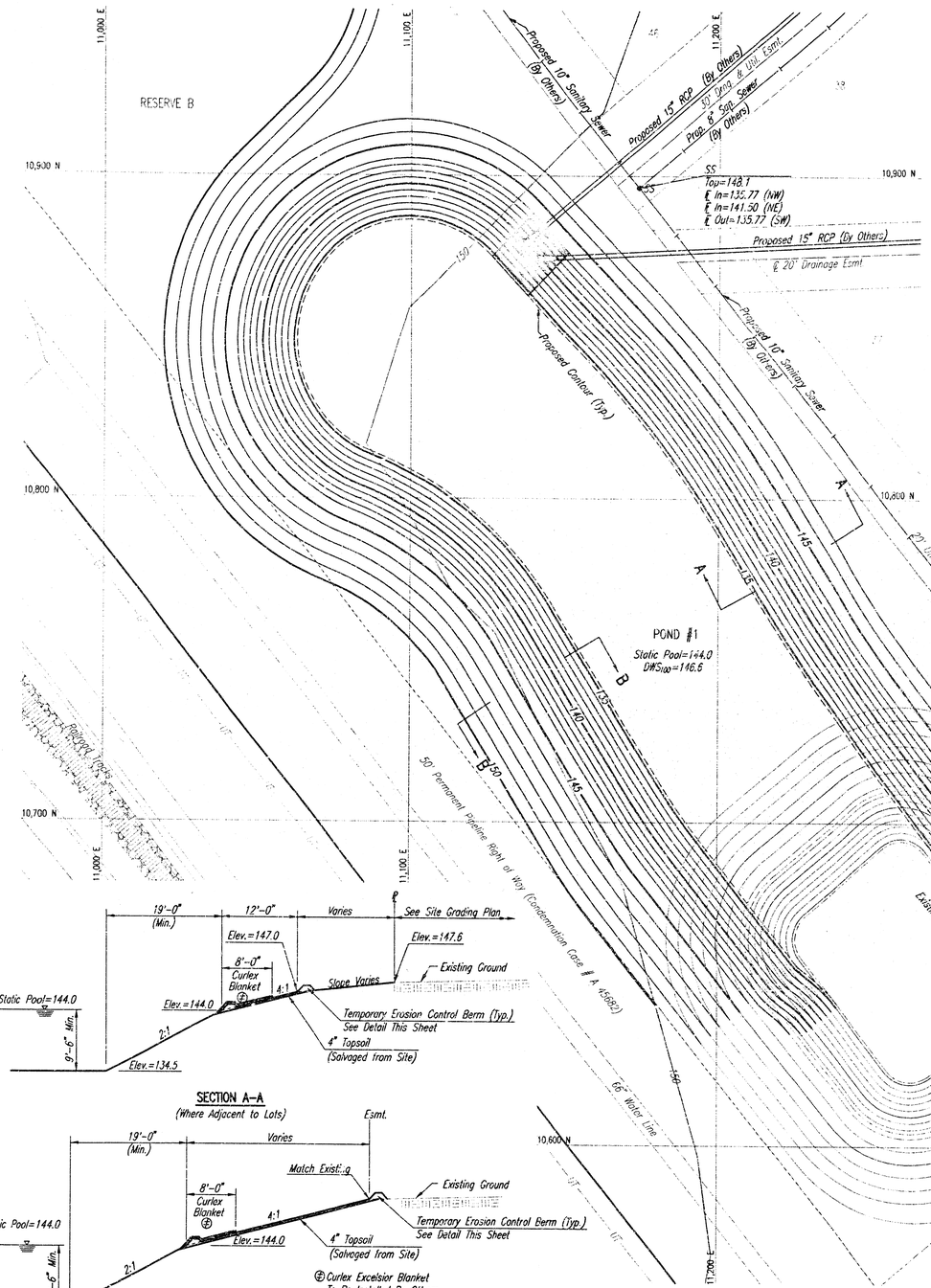
JAMES L. ARMOUR, P.E.–ACTING CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468–83694

Professional Engineering Consultants, P.A.
303 S. TOPEKA • WICHITA, KANSAS 67202
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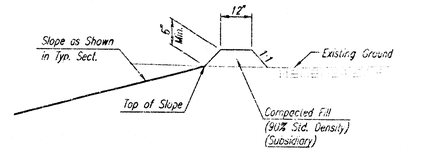
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Drawn by		Date	OCTOBER 2003

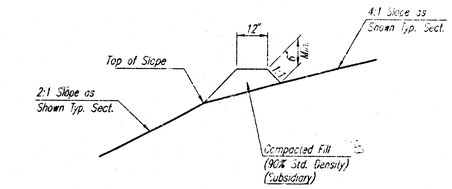
Sht. 3 of 12

DSNR: BDB OPER: BJS SCALE: 1=100.00
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NOTE: POND NO. 1 WILL NOT BE SEALED WITH THIS PROJECT.





TEMPORARY EROSION CONTROL DETAIL FOR SLOPE PROTECTION

THE ENGINEER MAY DETERMINE THAT THE HEIGHT OF BERM SHOULD BE INCREASED OVER THAT SHOWN IF DRAINAGE CONDITIONS ARE PRODUCING SLOPE EROSION.

TEMPORARY EROSION CONTROL BERMS AND INTERCEPT DITCHES SHALL BE CONSTRUCTED AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

ALL AREAS WHERE FLOW IS CONCENTRATED SHALL BE PROTECTED BY SILTATION BARRIERS PRIOR TO DISCHARGING INTO ANY DITCH, STORM SEWER, OR WATERCOURSE, AS APPROVED BY THE ENGINEER.

MEASUREMENT AND PAYMENT: THIS WORK SHALL NOT BE PAID FOR DIRECTLY BUT SHALL BE CONSIDERED SUBSIDIARY TO "EXCAVATION".

POND GRADING NOTES

CONTRACTOR SHALL PERFORM GRADING AS SHOWN BY CONTOURS AND SPOT ELEVATIONS ON THIS SHEET. EARTHWORK VOLUMES FOR THIS GRADING HAVE BEEN INCLUDED IN THE BID ITEM "UNCLASSIFIED EXCAVATION".

HORIZONTAL CONTROL FOR POND LAYOUT MAY BE SCALED FROM THIS DRAWING. SEE SHEET NO. 3 FOR ADDITIONAL CONTROL POINT INFORMATION.

ALL EXCESS MATERIAL EXCAVATED AS A RESULT OF THIS GRADING SHALL REMAIN ON-SITE FOR USE IN SITE GRADING.

BRIAND BOUTWELL LICENSED 10889 PROFESSIONAL ENGINEER KANSAS

No.	Revision	By	Date

AVALON PARK-PHASE 2
STORM WATER DRAIN NO. 214

POND NO. 1 GRADING PLAN

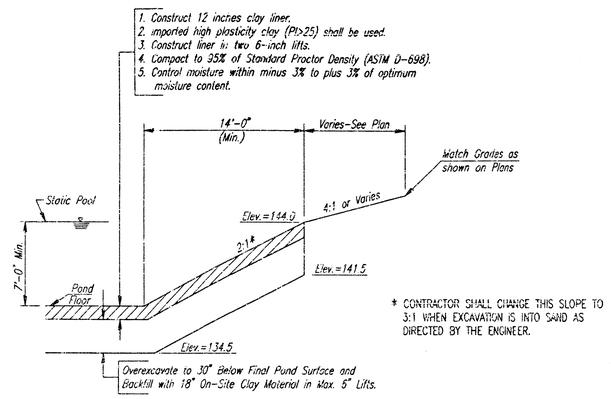
JAMES L. ARMOUR, P.E.-ACTING CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468-83694

Professional Engineering Consultants, P.A.
303 S. TOPEKA • WICHITA, KANSAS 67202
316-262-2691 • FAX 316-262-3003

Designed by	BDB	Job No.	35-04099-003
Drawn by	SAW	Date	APRIL 2004

SH. 4 of 12

DSNR: BDB OPER: BJS SCALE: 1=20.00
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* CONTRACTOR SHALL CHANGE THIS SLOPE TO 3:1 WHEN EXCAVATION IS INTO SAND AS DIRECTED BY THE ENGINEER.

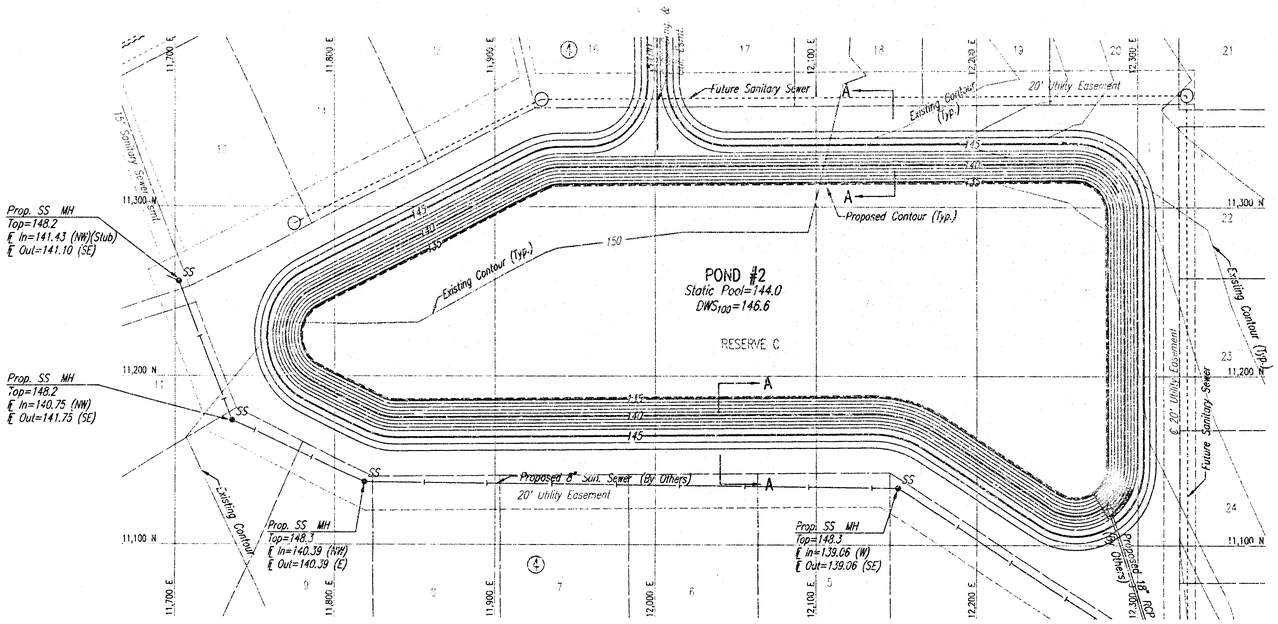
CLAY LINER CONSTRUCTION PROCEDURE FOR POND SEALING

POND SEALING NOTES:

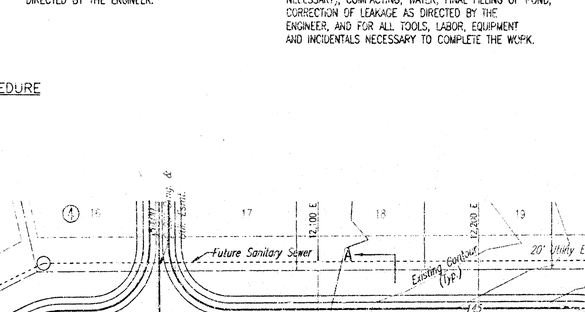
THE POND AREAS BELOW STATIC POOL ELEVATION SHALL BE OVEREXCAVATED TO A DEPTH OF 30 INCHES BELOW THE FINAL POND SURFACE. THE OVEREXCAVATED MATERIAL SHALL BE STOCKPILED FOR RE-USE, UTILIZED IN PROJECT EMBANKMENTS, OR WASTED ON SITE. BACKFILL OVEREXCAVATED AREA WITH 18 INCHES OF PROJECT AREA CLAY MATERIAL AND COMPACT TO TYPE B (MR-0) IN MAXIMUM 6-INCH LIFTS TO PROVIDE AN IMPERVIOUS SURFACE. NO SHALE PERMITTED IN THIS ZONE.

AS SOON AS POSSIBLE AFTER COMPLETION OF FOUNDATION TREATMENT, POND CONTRACTOR SHALL FILL PONDS WITH WATER TO STATIC POOL ELEVATION SHOWN ON THE PLANS TO PREVENT RUNOFF EROSION OF SIDE SLOPES. WATER TO BE FURNISHED BY THE CONTRACTOR.

POND SEALING, AS DESCRIBED HEREIN, SHALL BE MEASURED AND PAID FOR BY THE LUMP SUM. THE LUMP SUM BID FOR "POND SEALING" SHALL BE CONSIDERED FULL COMPENSATION FOR ALL OVEREXCAVATION, STOCKPILING, DOUBLE HANDLING OF EARTHWORK (IF NECESSARY), COMPACTING, WATER, FINAL FILLING OF POND, CORRECTION OF LEAKAGE AS DIRECTED BY THE ENGINEER, AND FOR ALL TOOLS, LABOR, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.

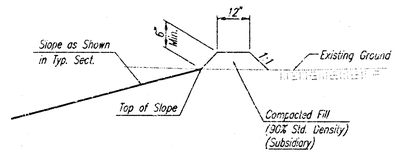


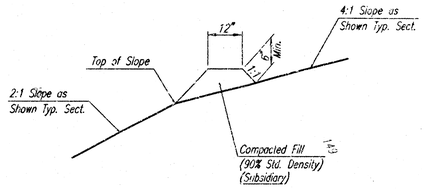
SCALE: 1"=40'



SECTION A-A

Ⓒ Curlex Excelsior Blanket To Be Installed By Others. (C.O.W. Proj. No. 472-83836)





TEMPORARY EROSION CONTROL DETAIL FOR SLOPE PROTECTION

THE ENGINEER MAY DETERMINE THAT THE HEIGHT OF BERM SHOULD BE INCREASED OVER THAT SHOWN IF DRAINAGE CONDITIONS ARE PRODUCING SLOPE EROSION.

TEMPORARY EROSION CONTROL BERMS AND INTERCEPT DITCHES SHALL BE CONSTRUCTED AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

ALL AREAS WHERE FLOW IS CONCENTRATED SHALL BE PROTECTED BY SILTATION BARRIERS PRIOR TO DISCHARGING INTO ANY DITCH, STORM SEWER, OR WATERCOURSE, AS APPROVED BY THE ENGINEER.

MEASUREMENT AND PAYMENT: THIS WORK SHALL NOT BE PAID FOR DIRECTLY BUT SHALL BE CONSIDERED SUBSIDIARY TO "EXCAVATION".

POND GRADING NOTES

CONTRACTOR SHALL PERFORM GRADING AS SHOWN BY CONTOURS AND SPOT ELEVATIONS ON THIS SHEET. EARTHWORK VOLUMES FOR THIS GRADING HAVE BEEN INCLUDED IN THE BID ITEM "UNCLASSIFIED EXCAVATION".

HORIZONTAL CONTROL FOR POND LAYOUT MAY BE SCALED FROM THIS DRAWING. SEE SHEET NO. 3 FOR ADDITIONAL CONTROL POINT INFORMATION.

ALL EXCESS MATERIAL EXCAVATED AS A RESULT OF THIS GRADING SHALL REMAIN ON-SITE FOR USE IN SITE GRADING.

BRIAN D. BOUTWELL LICENSED 10883 PROFESSIONAL ENGINEER 7/20/04

No.	Revision	By	Date

AVALON PARK-PHASE 2
STORM WATER DRAIN NO. 214

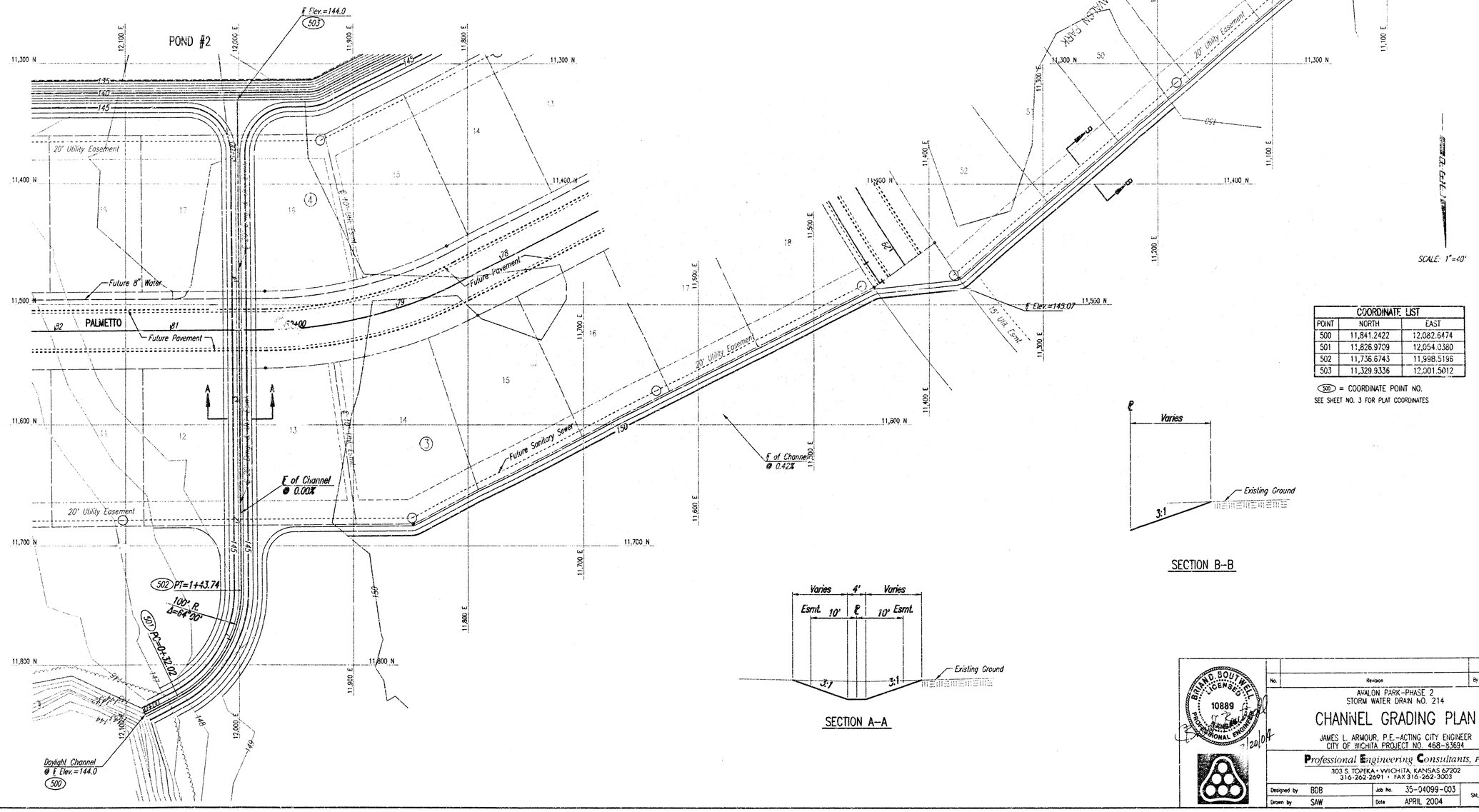
POND NO. 2 GRADING PLAN

JAMES L. ARMOUR, P.E.-ACTING CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468-83694

Professional Engineering Consultants, P.A.
303 S. TOPEKA • WICHITA, KANSAS 67202
316-262-2691 • FAX 316-262-3003

Designed by	BDB	Job No.	35-04099-003	SN 5 of 12
Drawn by	SAW	Date	APRIL 2004	

DSNR: BDB OPER: BJS SCALE: 1=40.00
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COORDINATE LIST		
POINT	NORTH	EAST
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501	11,826.9709	12,054.0380
502	11,736.6743	11,998.5196
503	11,329.9336	12,001.5012

(500) = COORDINATE POINT NO.

SEE SHEET NO. 3 FOR PLAT COORDINATES

SECTION B-B

SECTION A-A

No.	Revision	By	Date

AVALON PARK-PHASE 2
STORM WATER DRAIN NO. 214

CHANNEL GRADING PLAN

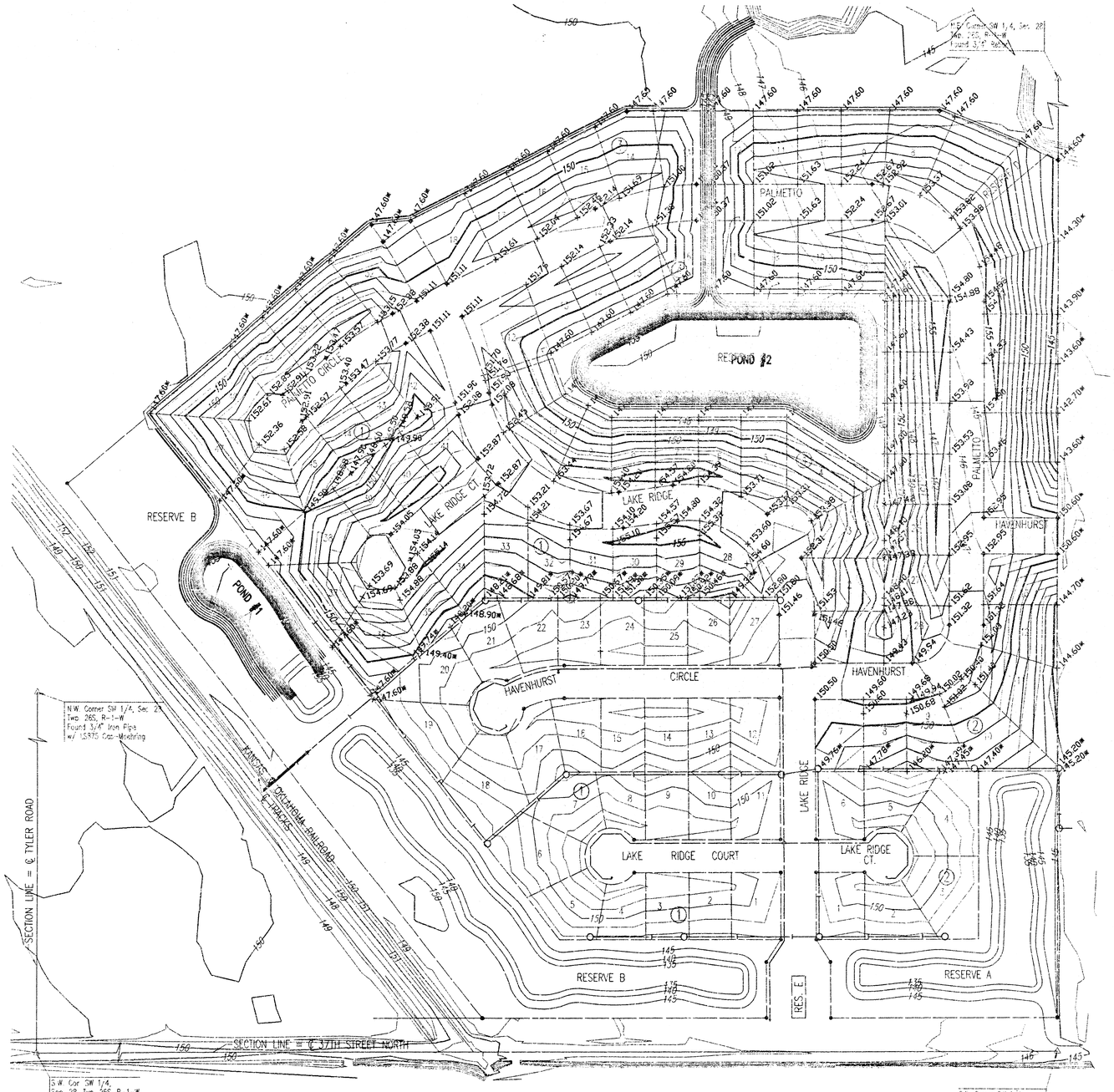
JAMES L. ARMOUR, P.E.-ACTING CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468-83694

BRIAN D. SOUTWELL LICENSED 10889 PROFESSIONAL ENGINEER 7/20/04

Professional Engineering Consultants, P.A.
303 S. TOPEKA • WICHITA, KANSAS 67202
316-262-2691 • FAX 316-262-3003

Designed by	BDB	Job No.	35-04099-003	Sht. 6 of 12
Drawn by	SAW	Date	APRIL 2004	

DSNR: BJB OPER: BJS SCALE: 1=40.00
Q:\2004\04099\003\CHANNEL GRADING 07-20-2004 06:48:49 am



SCALE: 1"=100'

SITE GRADING NOTES

EXCAVATED MATERIAL FROM ON-SITE SHALL BE USED TO PERFORM SITE GRADING AS SHOWN BY THE CONTOURS AND SPOT ELEVATIONS ON THIS PLAN. CONTRACTOR SHALL FIRST GRADE LOTS 28-42 & 52, BLOCK 1; LOTS 7 THROUGH 13, BLOCK 2; LOTS 1-12, 27, & 28, BLOCK 4; AND LOT 18, BLOCK 3. GRADING MAY THEN PROCEED ON LOTS 43-51, BLOCK 1; LOTS 1-17, BLOCK 3; AND LOTS 13-26, BLOCK 4, UNTIL ALL WASTE MATERIAL HAS BEEN UTILIZED.

ADJACENT STREET RIGHTS-OF-WAY SHALL ALSO BE GRADED AND COMPACTED AS SHOWN.

FILL MATERIAL SHALL BE PLACED IN 6" LIFTS AND COMPACTED TO 90% STD. DENSITY UNLESS A HIGHER COMPACTIVE EFFORT IS REQUIRED ELSEWHERE IN THE PLANS OR SPECIFICATIONS.

GRADING CONTRACTOR SHALL WORK AROUND, AND PREVENT DAMAGE TO, ALL EXISTING UTILITIES. DAMAGE TO SUCH UTILITIES SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE PROJECT.

NOTE: THE "EXISTING" CONTOURS SHOWN ON THIS SHEET ARE BASED ON CONSTRUCTION PLANS FOR C.O.W. PROJECT NO. 472-83835 (AVALON PARK PHASE 1 PAVING) AND ARE APPROXIMATE. THE ACTUAL GROUND SURFACE AT THE TIME OF CONSTRUCTION WILL BE DEPENDENT ON THE AMOUNT OF GRADING COMPLETED WITH THE PHASE 1 PROJECT.

IT IS ESTIMATED THAT UP TO 35,000 C.Y. OF EXCESS EXCAVATION MAY BE PLACED WITHIN THE PHASE 2 PROJECT LIMITS (PARTICULARLY THE AREA WEST OF LAKE RIDGE) DURING PHASE 1 CONSTRUCTION. THE EARTHWORK SUMMARY SHOWN ON SHEET NO. 1 INCLUDES AN ALLOWANCE FOR THIS ESTIMATED FILL VOLUME FROM PHASE 1; HOWEVER, NO AS-BUILT SURVEY INFORMATION IS AVAILABLE FOR THE PHASE 1 PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH EXISTING CONDITIONS PRIOR TO BIDDING.

LEGEND

- x147.40 Proposed Elevation
- x144.60* Match Existing Elevation
- —150— Proposed Contour
- —147— Proposed Contour
- —150— Existing Contour
- —147— Existing Contour
- Contour Interval: 1 Foot

BRIAN D. BOUTWELL LICENSED PROFESSIONAL ENGINEER 10869 STATE OF KANSAS 12/20/04

No.	Revision	By	Date

AVALON PARK PHASE 2
STORM WATER DRAIN NO. 214

SITE GRADING PLAN

JAMES L. ARMOUR, P.E.-ACTING CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468-83694

Professional Engineering Consultants, P.A.
303 S. TOPEKA • WICHITA, KANSAS 67202
316-262-2691 • FAX 316-262-3003

Designed by	BDB, BLB	Job No.	35-04099-003
Drawn by	BJS	Date	APRIL 2004

Sht. 7 of 12

USNR: BLB OPER: BJS SCALE: 1=100.00
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GENERAL NOTES

1. THE EROSION CONTROL DEVICES SHOWN ON THIS SHEET ARE CONSIDERED MINIMUM STANDARDS. WHENEVER SEDIMENT ENTERS THE STREETS, STORM SEWERS, DITCHES, OR PONDS, CONTRACTOR WILL INSTALL ADDITIONAL DEVICES, AS NEEDED, TO CORRECT THE PROBLEM.
2. THE EROSION CONTROL DEVICES SHOWN HEREON MUST BE IN PLACE AT ALL TIMES DURING CONSTRUCTION UNTIL SUCH TIME AS THE SITE IS REESTABLISHED WITH PAVING OR GRASS. TEMPORARY OR PERMANENT SEED MULCH WILL BE INSTALLED WHEN EARTHWORK ACTIVITIES CEASE IN AN AREA FOR 14 DAYS OR MORE.
3. ANY MUD INADVERTENTLY TRACKED ONTO ANY STREET WILL BE CLEANED UP BY THE CONTRACTOR AT THE END OF EACH DAY'S WORK.
4. CONTRACTOR TO FURNISH A TRUCK WASH-OUT PIT TO BE PLACED AT A CONVENIENT AND OBVIOUS LOCATION THAT DOES NOT CONFLICT WITH CONSTRUCTION. CONTRACTOR SHALL CLEAN OUT AND BACKFILL PIT PRIOR TO FINAL INSPECTION.

LEGEND

Silt Fence Barrier

Area Inlet Protection

BRIAN D. BOUTWELL LICENSED 10889 PROFESSIONAL ENGINEER
7/20/04

No.	Revision	By	Date

AVALON PARK-PHASE 2
STORM WATER DRAIN NO. 214

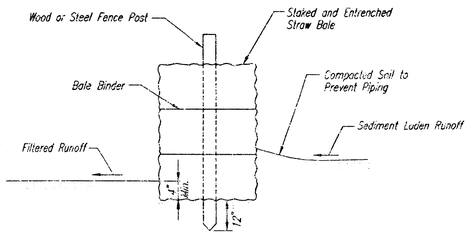
EROSION CONTROL (BMP) PLAN

JAMES L. ARMOUR, P.E.-ACTING CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468-83694

Professional Engineering Consultants, P.A.
303 S. TOPEKA • WICHITA, KANSAS 67202
316-262-2691 • FAX 316-262-3003

Designed by	BDB	Job No.	35-04099-003	Sht. 8 of 12
Drawn by	SAW	Date	APRIL 2004	

DSNR: BDB OPER: BJS SCALE: 1=100.00
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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.

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:

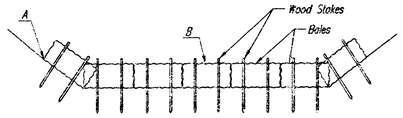
When practical, do not place bale slope barriers across contours. Slope barriers should be placed along contours to avoid a concentration of flow. Concentrated flow over a slope barrier creates a scour hole on the downslope side of the barrier. The scour hole eventually undermines the bales and the barrier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

NOTE: Point A must be higher than Point B so that water flows over the bales and not around them.



STRAW BALE DITCH CHECKS

Material Specification:

Bale ditch checks may be constructed of wheat straw, oat straw, prairie hay, or bromegrass hay that is free of weeds declared noxious by the Kansas State Board of Agriculture.
The stakes used to anchor the bales should be a hardwood material with the following minimum dimensions: 2" square (nominal) by 4' long.
Optional: the downstream scour apron should be constructed of a double-netted straw erosion-control blanket at least 6' wide.
Optional: The metal landscape staples used to anchor the erosion-control blanket should be at least 8" long.

Placement:

Bale ditch checks should be placed perpendicular to the flowline of the ditch.
The ditch check should extend far enough so that the ground level at the ends of the check is higher than the top of the lowest center bale. This prevents water from flowing around the check.
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 8% or less. For slopes steeper than 5%, rock checks should be used.
The following table provides check spacing for a given ditch grade:

Ditch Check Spacing

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

Proper installation method:

Excavate a trench perpendicular to the ditch flowline that is 4" deep and a bale's width wide. Extend the trench in a straight line along the entire length of the proposed ditch check. Place the soil on the upstream side of the trench-it will be used later.
Optional: On the downstream side of the trench, roll out a length of erosion-control blanket (scour apron) equal to the length of the trench. Place the upstream edge of the erosion-control blanket along the bottom upstream edge of the trench. The erosion control blanket should be anchored in the trench with one row of 8" landscape staples placed on 18" centers. The remainder of the erosion-control blanket (the portion that is not lying in the trench) will serve as the downstream scour apron. This section of the blanket should be anchored to the ground with 8" landscape staples placed around the perimeter of the blanket on 18" centers. The remainder of the blanket should be anchored using two evenly spaced rows of 8" landscape staples on 18" centers placed perpendicular to the flowline of the ditch.
Place the bales in the trench, making sure that they are butted tightly. Two stakes should be driven through each bale along the centerline of the ditch check, approximately 6" to 8" in from the bale ends. Stakes should be driven at least 12" into the ground.
Once all the bales have been installed and anchored, place the excavated soil against the upstream side of the check and compact it. The compacted soil should be no more than 3" to 4" deep and extend upstream no more than 24".

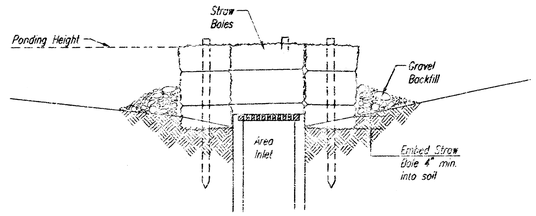
List of common placement/installation mistakes to avoid:

Do not place a bale ditch check directly in front of a culvert outlet. It will not stand up to the concentrated flow.
Do not place bale ditch checks in ditches that will likely experience high flows. They will not stand up to concentrated flow.
Follow prescribed ditch-check spacing guidelines. If spacing guidelines are exceeded, erosion will occur between the ditch checks.
Do not allow water to flow around the ditch check. Make sure that the ditch check is long enough so that the ground level at the ends of the check is higher than the top of the lowest center bale.
Do not place bale ditch checks in channels with shallow soils underlain by rock. If the check is not anchored sufficiently, it will wash out.
Bale ditch checks must be dug into the ground. Bales at ground level do not work because they allow water to flow under the check.

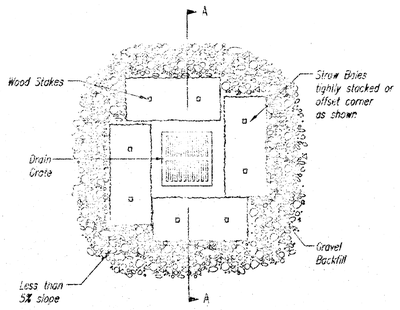
Inspection and Maintenance:

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

Does water flow around the ditch check?
Does water flow under the ditch check?
Does water flow through spaces between abutting bales?
Are any bales and/or scour aprons (optional) dislodged?
Are bales decomposing due to age and/or water damage?
Does sediment need to be removed from behind the ditch check?



SECTION A-A



STRAW BALE BARRIERS FOR AREA INLETS
(INLET PROTECTION)

Material Specification:

Bale area inlet barriers should be constructed of wheat straw, oat straw, prairie hay, or bromegrass hay that is free of weeds declared noxious by the Kansas State Board of Agriculture.
The stakes used to anchor the bales should be a hardwood material with the following minimum dimensions: 2" square (nominal) by 4' long.

Placement:

Bale area inlet barriers should be placed directly around the perimeter of a drop inlet. When a bale area inlet barrier is located near an inlet that has steep approach slopes, the storage capacity behind the barrier is drastically reduced. Timely removal of sediment must occur for a barrier to operate properly in this location.

Proper Installation Method:

Excavate a trench around the perimeter of the area inlet that is at least 4" deep by a bale's width wide.
Place the bales in the trench, making sure that they are butted tightly. Some bales may need to be shortened to fit into the trench around the area inlet. Two stakes should be driven through each bale, approximately 6" to 8" in from the bale ends.
Stakes should be driven at least 12" into the ground.
Once all the bales have been installed and anchored, place the excavated soil against the receiving side of the barrier and compact it. The compacted soil should be no more than 3" to 4" deep.
Note: When a bale area inlet barrier is placed in a shallow median ditch, make sure that the top of the barrier is not higher than the paved road. In this configuration, water may spread onto the roadway causing a hazardous condition.

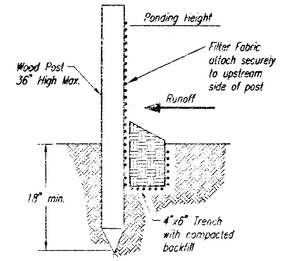
List of common placement installation mistakes to avoid:

Bales should be placed directly against the perimeter of the area inlet. This allows overtopping water to flow directly into the inlet instead of onto nearby soil causing scour.
Bale area inlet barriers must be dug into the ground. Bales at ground level do not work because they allow water to flow under the barrier.

Inspection and Maintenance:

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

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



SILT FENCE BARRIERS

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?

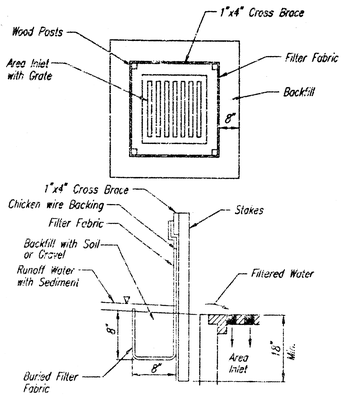
CITY OF WICHITA

SOIL EROSION BMP DETAILS

CHRISTOPHER M. CARRIER, P.E.
STORM WATER ENGINEER

PROJECT NUMBER	OCA NO.
468-83694	751372
DATE: MAY 2001	SHEET 9 OF 12

DSNR: BOB OPER: BJS SCALE: 1=1.00
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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.

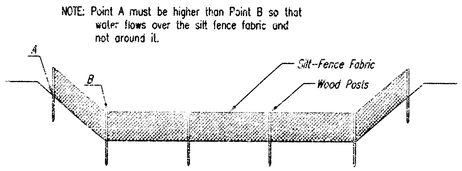
List of common placement/installation mistakes to avoid:

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?



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.
Checks should not be placed in ditches where high flows are expected. Rock checks should be used instead.
Silt fence should be placed in ditches with slopes of 6% or less. For slopes steeper than 6%, rock checks should be used.

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

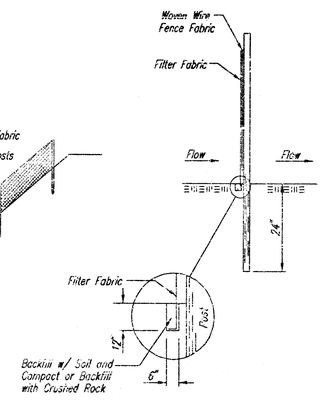
Ditch grade (%)	Check Spacing (feet)
0.5	200
1.0	200
2.0	100
3.0	65
4.0	50
5.0	40
6.0	30

Proper installation method:

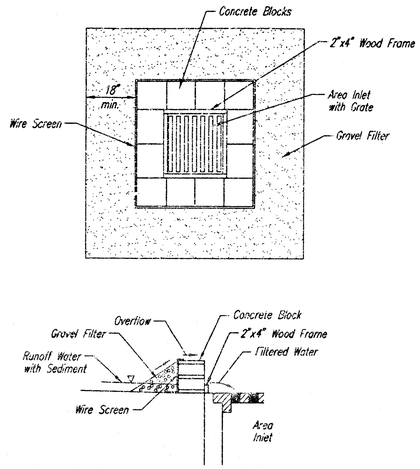
Excavate a trench perpendicular to the ditch flowline that is at least 12" deep by 6" wide.
Extend the trench in a straight line along the entire length of the proposed ditch check.
Place the soil on the upstream side of the trench for later use.
Roll out a continuous length of silt fence fabric on the downstream side of the trench.
Place the edge of the fabric in the trench starting at the top upstream edge of the trench. Line two sides of the trench with the fabric as shown on detail. Backfill over the fabric in the trench with the excavated soil and compact. After filling the trench, approximately 24" to 36" of silt fence fabric should remain exposed.
Lay the exposed silt fence on the upstream side of the trench to clear an area for driving in the posts. Just downstream of the trench, drive posts into the ground to a depth of at least 24". Place posts no more than 4' apart.
Attach the silt fence to the anchored post with staples, wire, zip ties, or nails.

List of common placement/installation mistakes to avoid:

Water should flow through a silt fence ditch check-not over it. Place silt fence in ditches where it is unlikely that it will be overtopped. Silt fence installations quickly deteriorate when water overtops them.
Do not place silt fence posts on the upstream side of the silt fence fabric. In this configuration, the force of the water is not restricted by the posts, but only by the staples (wire, zip ties, nails, etc.). The silt fence will rip and fail.
Do not place a silt fence ditch check directly in front of a culvert outlet. It will not stand up to the concentrated flow.
Do not place silt fence ditch checks in ditches that will likely experience high flows. They will not stand up to concentrated flow.
Follow prescribed ditch check spacing guidelines. If spacing guidelines are exceeded, erosion will occur between the ditch checks.
Do not allow water to flow around the ditch check. Make sure that the ditch check is long enough so that the ground level at the ends of the fence is higher than the low point on the top of the fence.
Do not place silt fence ditch checks in channels with shallow soils underlain by rock. If the check is not anchored sufficiently, it will wash out.



ANCHOR TRENCH DETAIL



CONCRETE BLOCK FILTER FOR AREA DRAIN
(INLET PROTECTION)

Gravel barriers provide little filtering of large inflow waters. However, when installed correctly and maintained, they can effectively treat low runoff flows.

Placement of gravel filters around area drains must be completed in a manner that will not cause local flooding.

Gravel filters can be used if the immediate and adjacent area to the area drain consists of soil or pavement.

Only gravel filters are to be installed on top of the pavement.

Instructions for installing:

STEP 1: Place concrete blocks around the grate. The blocks can be stacked one or two high and should be supported by a 2"x4" board.
STEP 2: Wrap 1/2" mesh wire screen around the concrete blocks.
STEP 3: Place 1" to 1-1/2" diameter rock around the blocks and wire screen. Be sure the rock extends down from the top of the concrete block.
STEP 4: To prevent damage to vehicles, signs warning drivers about the structures may be necessary.

An alternative method is use of gravel bags that are supported to prevent collapsing.

Use of rock having diameters smaller than 1" may result in clogging of pores and reduce the amount of water flowing into an inlet.

Maintenance:

All gravel filters installed around area drains should be inspected and repaired after each runoff event. Sediment should be removed when material is within 3" of the top of any block. Periodically, the gravel should be raked to increase infiltration and filtering of runoff waters. Accumulated sediment is to be removed immediately from roads and streets after every runoff event.

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?

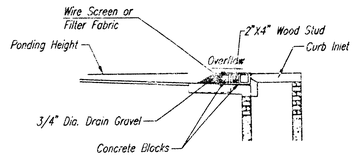
CITY OF WICHITA

SOIL EROSION BMP DETAILS

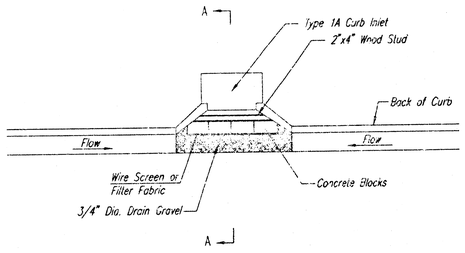
CHRISTOPHER M. CARRIER, P.E.
STORM WATER ENGINEER

PROJECT NUMBER	OCA NO.
468-83334	751372
DATE: MAY 2001	SHEET 10 OF 12

DSNR: BOB CPER: BJS SCALE: 1=1.00
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SECTION A-A



CURB INLET GRAVEL FILTERS
(INLET PROTECTION-RESIDENTIAL STREETS ONLY)

NOTE: Other types of curb inlet protection may be approved by the city so long as equal protection is provided.

A gravel inlet filter shall be installed at sump locations on residential streets. This type of protection is not to be used on arterial or collector streets at any time that it would pose an undue traffic hazard.

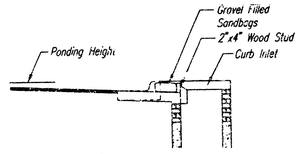
Instructions for Installing:

STEP 1: Place concrete blocks around the inlet as shown on drawing. Insert 2x4 board as shown.
STEP 2: Wrap 1/2" mesh wire screen around the concrete blocks.
STEP 3: Place 1" to 1-1/2" diameter rock around the blocks and wire screen. Be sure the rock extends down from the top of the concrete block.
STEP 4: To prevent damage to vehicles, signs warning drivers about the structures may be necessary. An alternative installation is the use of gravel bags supported by a 2"x4" board to prevent collapsing.

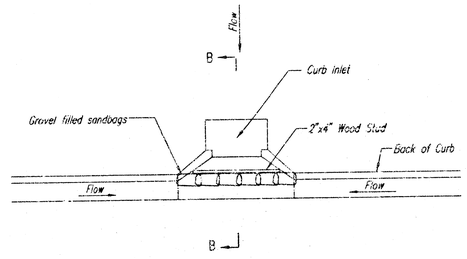
Use of rock with diameters smaller than 1" in the bag may result in clogging of pores and reduce the amount of water flowing into an inlet.

Maintenance:

All curb inlet gravel filters shall be inspected and repaired after each runoff event. Sediment deposits are to be removed once material is within 8 cm (3 inches) of the top of any block. Periodically, the gravel shall be raked to increase infiltration and filtering of runoff waters. Accumulated sediment is to be removed immediately from roads and streets.

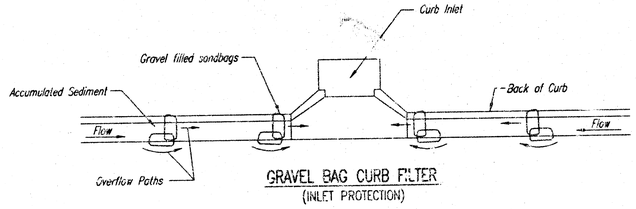


SECTION B-B



CURB INLET SANDBAG FILTERS
(INLET PROTECTION)

NOTE: Other types of curb inlet protection may be approved by the City so long as equal protection is provided.



GRAVEL BAG CURB FILTER
(INLET PROTECTION)

NOTE: Place two or more sets of bags in a manner that results in maximum support. The flow line bag must be lower than top of curb.

CURB SEDIMENT TRAPS

When inlets are located on streets having a grade (i.e., sump conditions do not exist), installing gravel (or sand) bags in the gutter flow line to create small sediment traps can be considered. Gravel bags are recommended over sand bags to allow for drainage.

If the spacing between bags becomes too large, little sediment may be trapped. Spacing of bags should be completed using the table or graph that illustrates placement distances based upon street slope. When installed in the gutter, bag tops must be lower than the sidewalk.

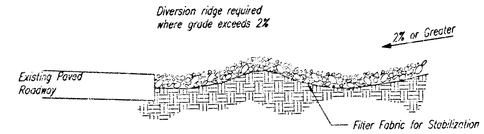
Spacing:

Gravel bags are to be placed according to street grades using the following table or graph that appears below.

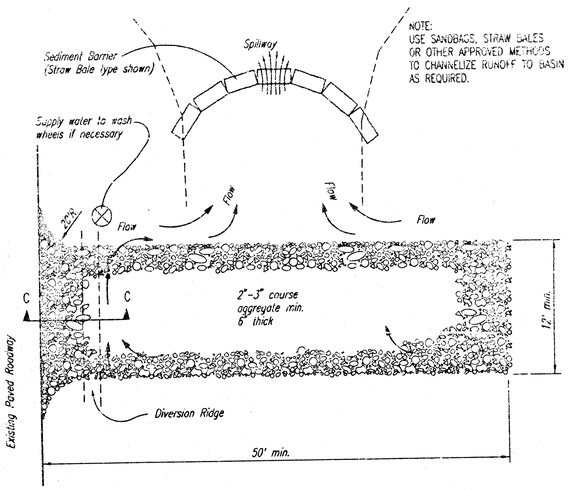
GRADE (%)	SPACING (FEET)
0.5	75
1.0	45
2.0	18
3.0	12
4.0	9
5.0	6

Maintenance:

Collected sediment shall be removed after every runoff event. Bags that are destroyed by vehicular traffic or through natural deterioration are to be immediately replaced.



SECTION C-C



STABILIZED CONSTRUCTION ENTRANCE

NOTES:

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

CITY OF WICHITA

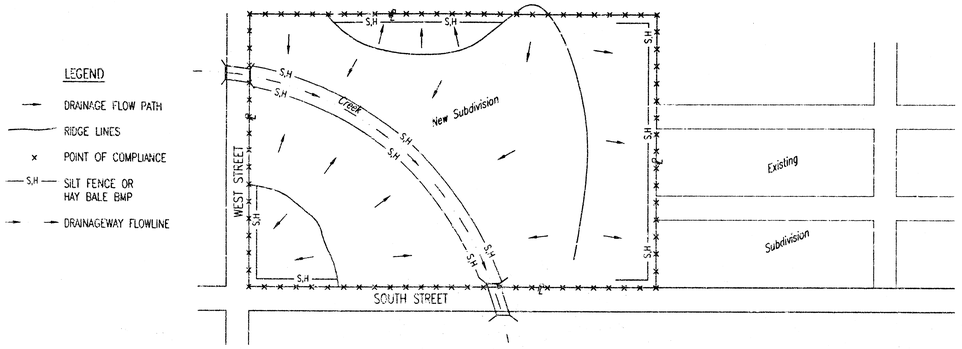
SOIL EROSION BMP DETAILS

CHRISTOPHER M. CARRIER, P.E.
STORM WATER ENGINEER

PROJECT NUMBER	OCA NO.
468-83694	751372
DATE: MAY 2001	SHEET 11 OF 12

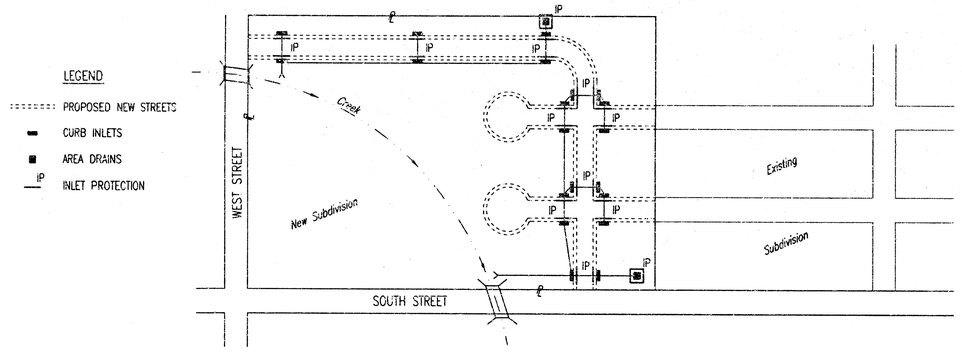
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PHASE 1 – INITIAL EARTHWORK AND UTILITIES (EXCEPT STORM SEWER)



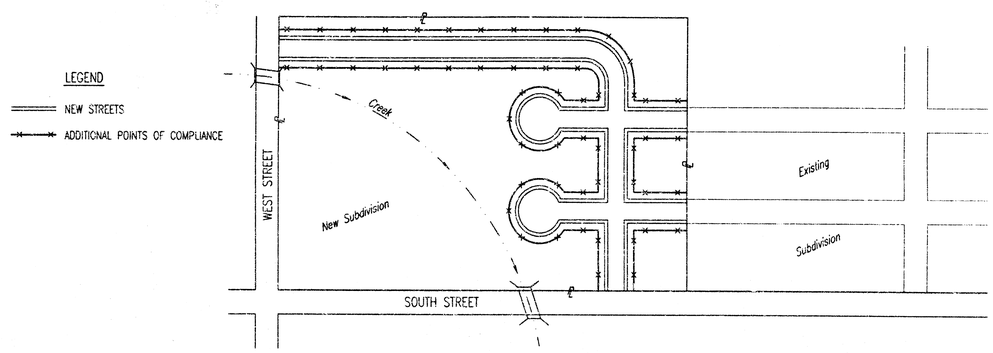
1. DURING THIS PHASE OF SUBDIVISION CONSTRUCTION, THE POINTS OF COMPLIANCE ARE THE PERIMETER BOUNDARIES AND ANY DRAINAGE WAYS OR STORM SEWERS DRAINING THROUGH OR FROM THE SITE. SHOULD LAKES BE CONSTRUCTED WITHIN THE SUBDIVISION THAT WILL DISCHARGE DURING STORMS, THEY ARE ALSO A POINT OF COMPLIANCE.
2. HAYBALES OR SILT FENCE MUST BE CONSTRUCTED ALONG THE PROPERTY LINE WHERE ON SITE WATER CAN DRAIN OFF THE PROPERTY. THESE BMP'S WILL ALSO BE INSTALLED ALONG ANY DRAINAGE DITCH OR LAKE THAT CAN DISCHARGE.
3. SHOULD SILT OR SEDIMENT ENTER THE DITCHES OR GUTTERLINES ON THE ADJACENT BOUNDARY STREETS, APPROPRIATE BMP'S WILL BE PLACED WITHIN THE SUBDIVISION TO PREVENT THIS.
4. ANY MUD TRACKED ONTO ADJACENT STREETS WILL BE REMOVED AT THE END OF EACH WORK DAY.
5. CONTRACTORS WORKING WITHIN THE SITE WILL NOT BE REQUIRED TO USE INDIVIDUAL BMP'S 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 BMP'S AT THEIR WORK LOCATIONS, AS NEEDED.
6. UTILIZE STABILIZED CONSTRUCTION ENTRANCE AT ENTRANCE AND EXIT ONTO ANY EXISTING PUBLIC STREETS.
7. THE SUBDIVISION DEVELOPER (OWNER) SHALL INSTALL AND MAINTAIN THE ON-SITE BMP'S.

PHASE 2 – INSTALLATION OF STORM SEWER



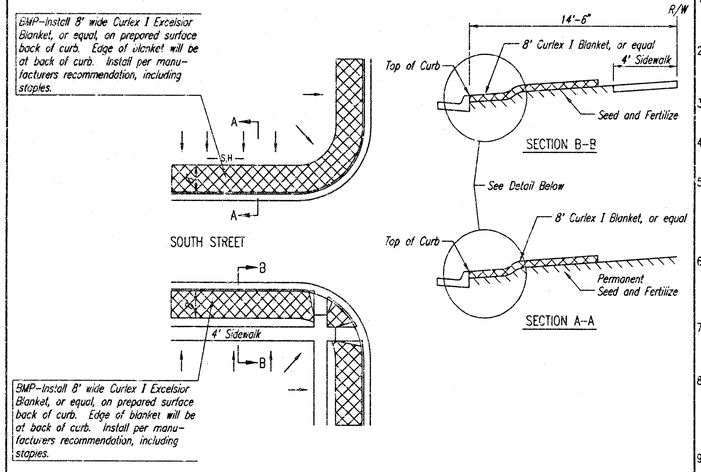
1. DURING THIS PHASE OF SUBDIVISION DEVELOPMENT, ALL BMP'S REQUIRED IN PHASE 1 SHALL REMAIN IN PLACE AND BE MAINTAINED.
2. AS NEW STORM SEWERS, WITH INLETS, ARE INSTALLED, THE STORM SEWERS MUST NOW BE PROTECTED SO ALL NEW INLETS BECOME POINTS OF COMPLIANCE.
3. AREA DRAINS – AS SOON AS WATER CAN FLOW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

PHASE 3 – STREET CONSTRUCTION

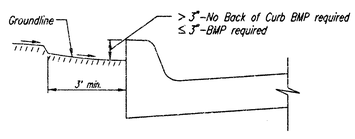


1. DURING THIS PHASE OF SUBDIVISION CONSTRUCTION, NEW STREETS ARE INSTALLED. ALL BMP'S INSTALLED DURING PHASE 1 AND 2 MUST STILL BE MAINTAINED. THE POINT OF COMPLIANCE NOW SHIFTS TO THE BACK OF CURB ALONG EACH STREET.
2. CURB OPENING INLET PROTECTION:
   A. SUMP AREAS – INLET PROTECTION SHALL BE PROVIDED WHEN STREET SUBGRADE WORK IS COMPLETED.
   B. NON-SUMP LOCATIONS – PROVIDE INLET PROTECTION AS SOON AS BASE COURSE ASPHALT IS INSTALLED, BEFORE THE SURFACE COURSE LIFT.
3. BMP'S 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), BMP'S WILL BE REQUIRED AT POINTS WHERE WATER BREAKS OVER CURB WHICH COULD RESULT IN THE PLACEMENT OF SEDIMENT IN THE GUTTER.
4. SEE DETAIL THIS SHEET ON BACK OF CURB PROTECTION.
5. THE BACK OF CURB PROTECTION SPECIFIED ON THIS PLAN MAY HAVE TO BE SUPPLEMENTED WITH HAYBALE OR SILT FENCE BMP'S AT LOCATIONS WHERE CONCENTRATED FLOW RESULTS IN SEDIMENT BEING CARRIED OVER THE EXCELSIOR MATS.
6. THE STREET CONTRACTOR WILL BE RESPONSIBLE FOR INSTALLING BACK OF CURB BMP'S.
7. THE INDIVIDUAL LOT OWNERS WILL BE RESPONSIBLE FOR MAINTAINING THE BACK OF CURB BMP'S IN FRONT OF THEIR LOTS UNTIL SUCH TIME AS ADJACENT DISTURBED EARTH IS STABILIZED WITH GRASS OR SOD.

BACK OF CURB PROTECTION DETAIL



CURB BACKFILL DETAIL



GENERAL NOTES:

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

CITY OF WICHITA

SOIL EROSION BMPS SUBDIVISION DEVELOPMENT PROCESS

CHRISTOPHER M. CARRIER, P.E.
STORM WATER ENGINEER

PROJECT NUMBER	OCA NO.
468-83694	751372
DATE: MAY 2001	SHEET 12 OF 12

DSNR: BOB OPER: BJS SCALE: 1=1.00
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