

STORM WATER DRAIN NO. 179 EQUESTRIAN ESTATES ADDITION- PHASE 2 TO THE CITY OF WICHITA, KANSAS

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

PROJECT NO. 468-83319
OCA NO. 751410

GENERAL NOTES:

- Utility service lines, poles, valve boxes, meters and etc. 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. The Contractor will be required to work around existing utilities within the right-of-way which do not conflict with proposed construction.
- Contractor will be required to provide a minimum advance notice of twenty-four (24) hours to utility companies prior to starting any excavation as follows:

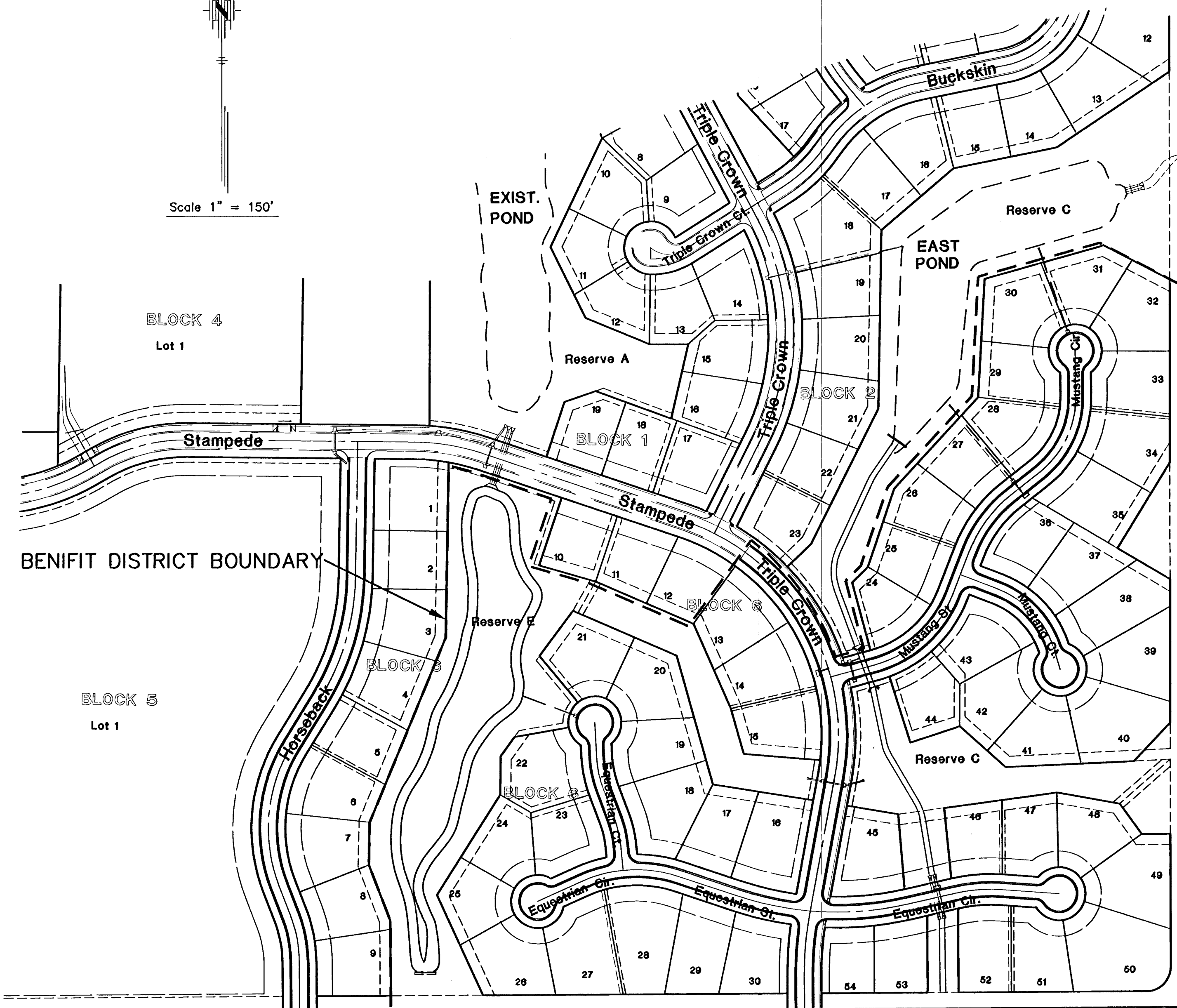
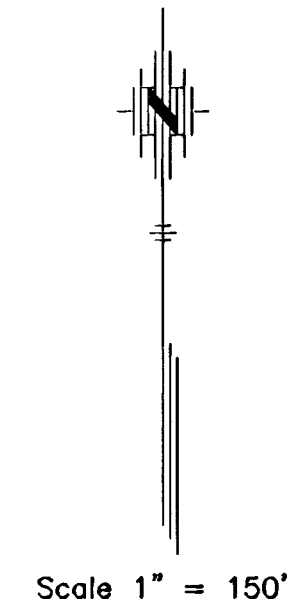
Kansas One-Call	1-800-344-7233
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The Contractor must notify the following in case of an emergency:

Cox Communications	262-4270 or 263-2061
Kansas Gas	263-7511
Westar Energy	264-1141
Aquila Networks	942-8350 or 263-8161
Southwestern Bell Tel. Co.	1-800-571-2611
City of Wichita Water Department	268-4908
- Rubble from the removal of miscellaneous structures and excess excavation which is to be wasted shall be disposed of on sites to be provided by the Contractor. These sites shall be approved by the Engineer as to suitability, appearance and site location. Locations that, in the opinion of the Engineer, will leave an unsightly appearance will not be approved.

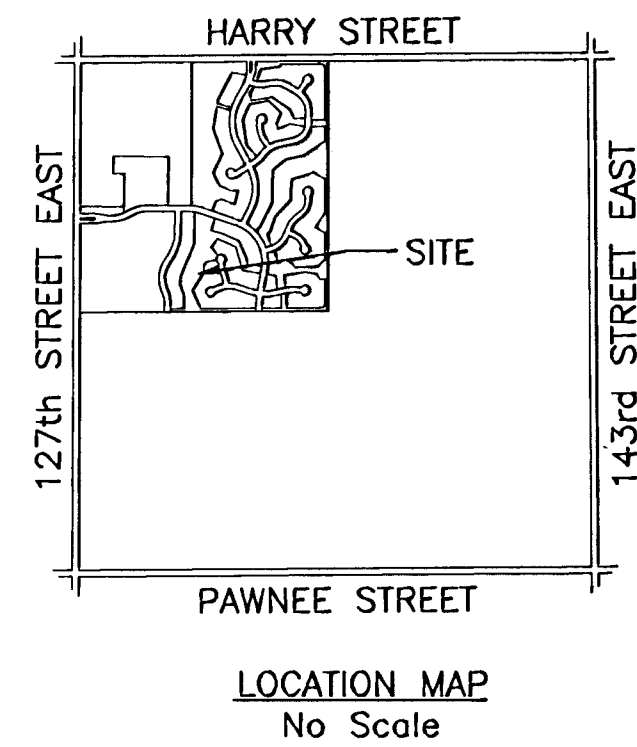
All suitable excavation shall be wasted on low lying lots within the addition before any material is disposed of off site.

All disposal sites must be approved by the Kansas Department of Health and Environment. Material either stockpiled or disposed of in a flood plain would require a Kansas State Board of Agriculture permit. Any material dumped in waters of the United States or wetlands is subject to U.S. Corps. of Engineers permitting regulations. Any material buried or stockpiled beyond approved construction limits would require additional archaeological investigations unless buried in a previously approved borrow location.
- Trees and shrubs in public right-of-way which are in direct conflict with proposed new construction shall be removed by the Contractor with the Engineer's approval. Trees and shrubs which are not in direct conflict with proposed new construction shall be saved and protected from damage.
- The Contractor shall be responsible for preserving property irons. The Contractor will be required to reestablish any property irons which are damaged or destroyed by his construction operations. Such irons shall be reestablished by a licensed land surveyor in accordance with state laws.
- Trees are to be removed as needed. The cost is subsidiary to site clearing costs.
- All lawn/turf areas disturbed by construction shall be restored with the same sod as existing. Restoration of disturbed areas shall include, but not be limited to, top soil preparation and sodding. All sodding work shall be in accordance with City Standard Specifications and the City Administrative Regulation No. AR78, which governs cleanup and restoration or replacement following construction. The "Recapitulation of Quantities" will show the estimated Square Yards of disturbed lawn/turf area to be sodded, with a bid item for the same. When the weather/season prevents the installation of sod, the Contractor shall be responsible for installing Erosion Control Blanket (Curlex I, or approved equal) at the back of curb (8' wide minimum). All costs for erosion mat installation shall be subsidiary to "Site Restoration".
- The Contractor shall reseed all non-lawn/turf areas disturbed by construction with a mixture of Ryegrass (applied at a rate of 200 lbs per acre) and Fescue, Bermuda, or Buffalo grass, depending on the soil conditions (applied per Standard Specifications). Pure Nitrogen fertilizer shall also be applied at a rate of 1.5 lbs per thousand square feet. The seed shall be watered with deep soaking every two (2) weeks during dry periods until a mature stand of grass is obtained. The "Recapitulation of Quantities" will show the estimated Square Yards of disturbed non-lawn/turf area to be seeded, with a bid item for the same. The permanent seeding may be omitted only if sodding is required in accordance with previous General Note. The Contractor shall be responsible for installing Erosion Control Blanket (Curlex I, or approved equal) at the back of curb, to and including the limits of all seeded areas. All costs for this work shall be subsidiary to the seeding bid item.
- Contractor shall maintain all existing BMPs on project site during construction. Contractor shall repair or replace any existing BMPs that are damaged (Cost is subsidiary to site restoration). If BMPs were damaged prior to contractor beginning work on project, notify construction inspector or engineer.
- Contractor shall remove and stockpile organic material (topsoil) to surface (to a minimum of twelve (12) inches) all fills, embankments and any other areas on the site of the work where the original topsoil will be covered or damaged. Topsoil shall be free from trash, debris and surface vegetation more than six (6) inches in height. After all work has been completed in each area, topsoil shall be placed and graded. (Cost shall be subsidiary to Excavation)



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BENCH MARKS

- (U.S.G.S. Datum)
- Railroad spike in power pole, approximately 25' south and 30' east of W 1/4 Corner, Section 35-27-2E. Elev. 1349.65
 - Square on south hub guard of RCBC just west of NW Corner of Section 35-27-2E. Elev. 1311.90

James L. Armour

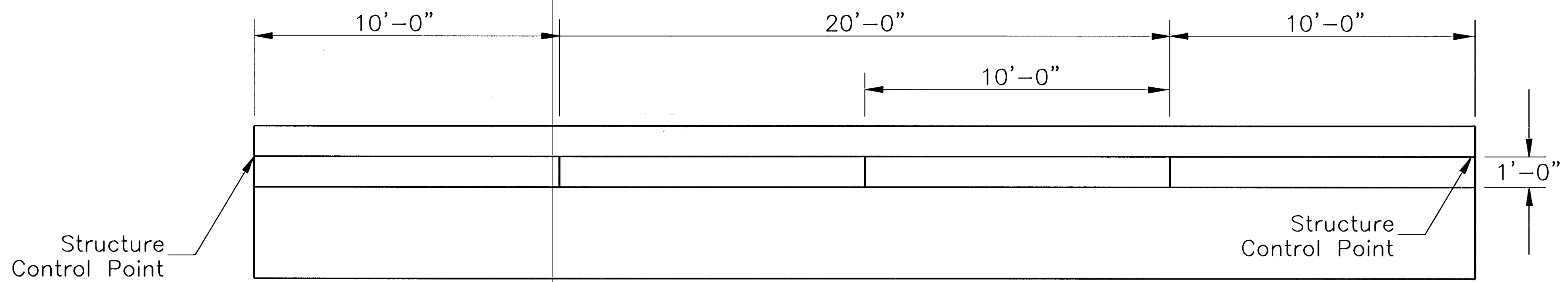
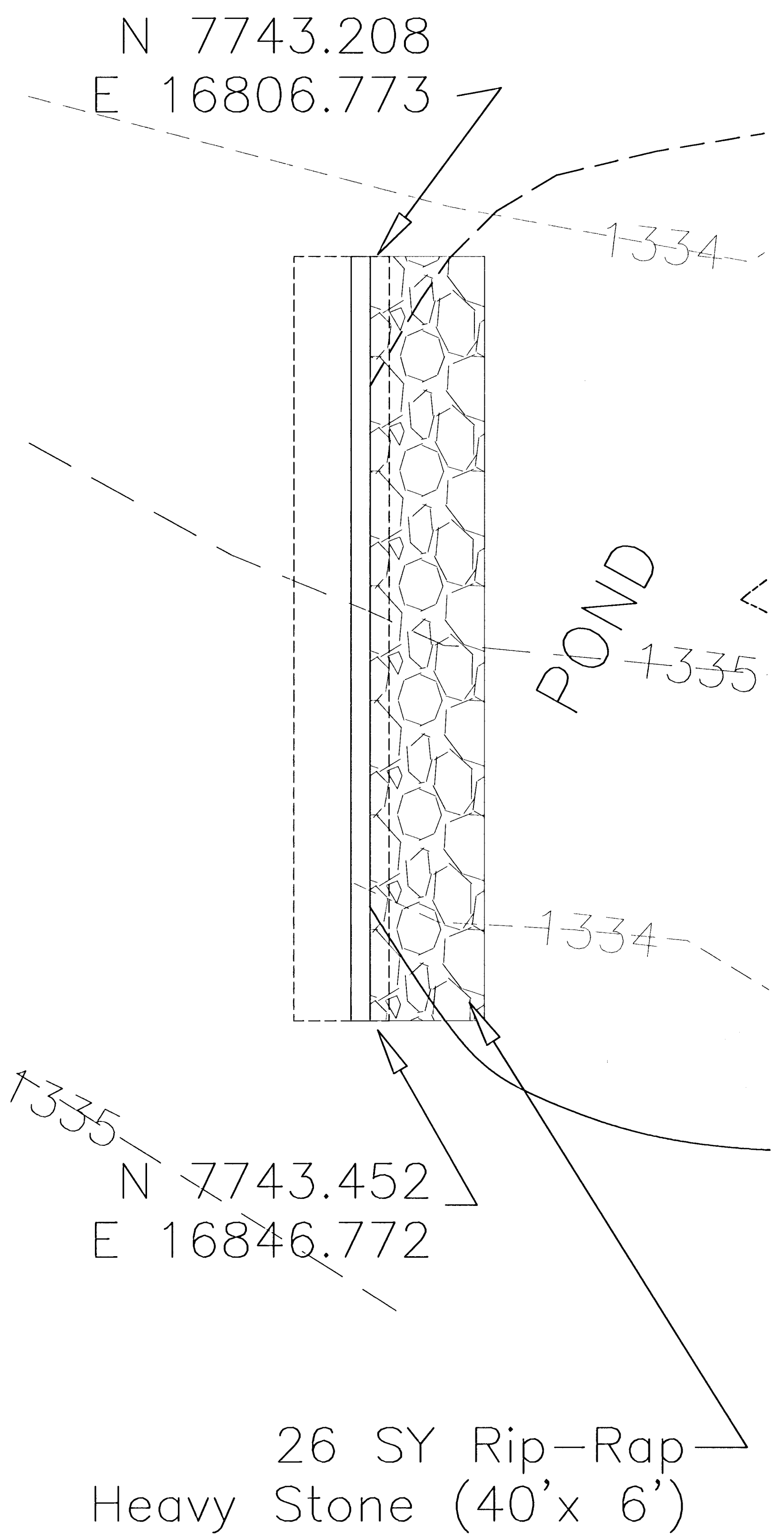
JANUARY 2006

POE & ASSOCIATES, INC.
 CONSULTING ENGINEERS
 5940 E. Central, Suite 200 • Wichita, KS 67208-4242
 Phone 316/685-4114 • FAX 316/685-4444

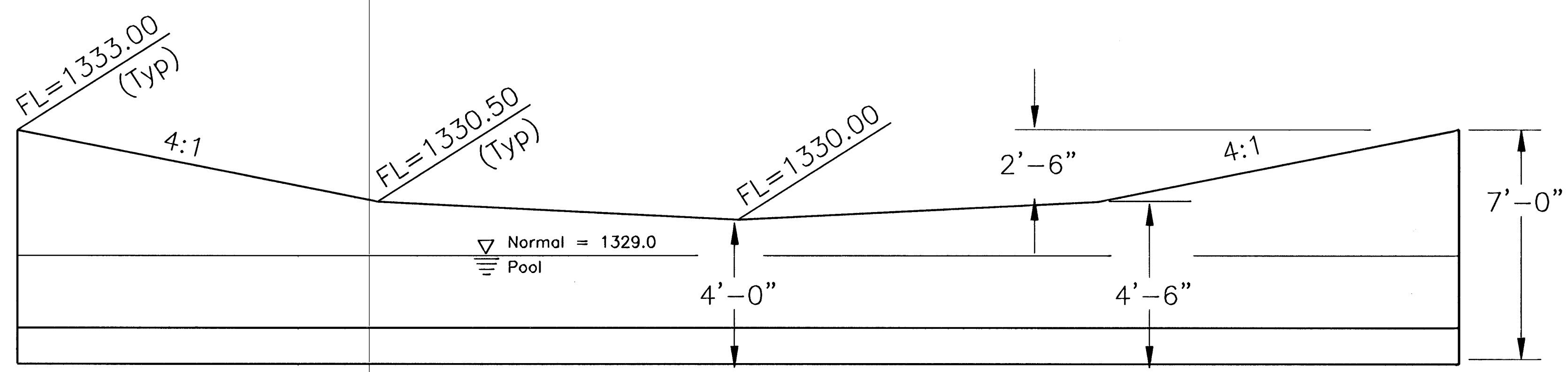
EARTHWORK SUMMARY

Pond Excavation	39,520 C.Y.
Pond Fill	1,477 C.Y.
Waste **	38,043 C.Y.

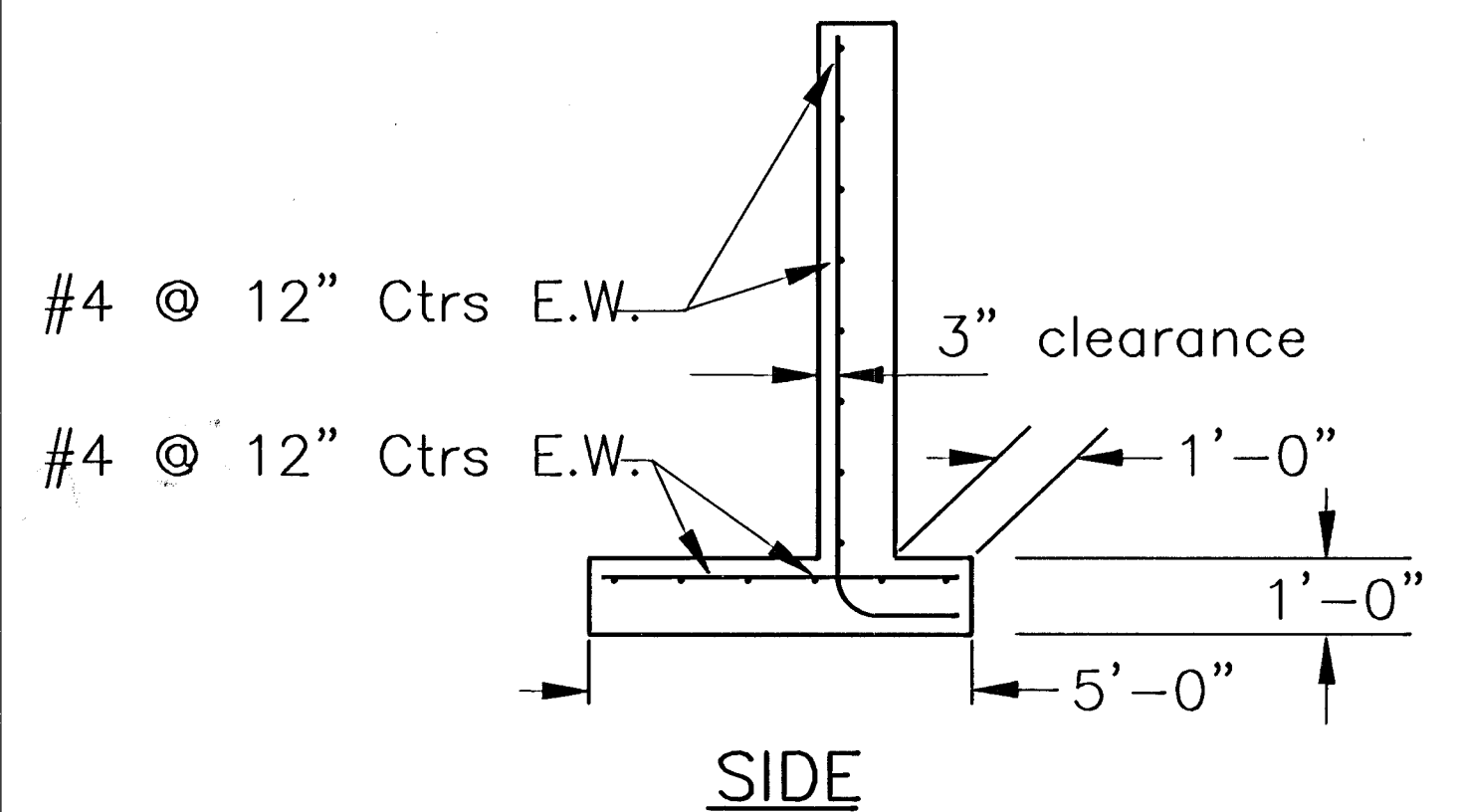
(See Earthwork Summary Sheet for Site Balance)
 ** See Street Plans for Waste Placement on Site



PLAN

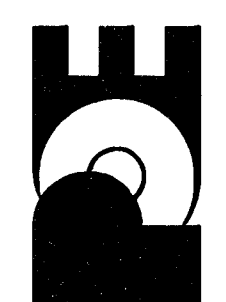


ELEVATION

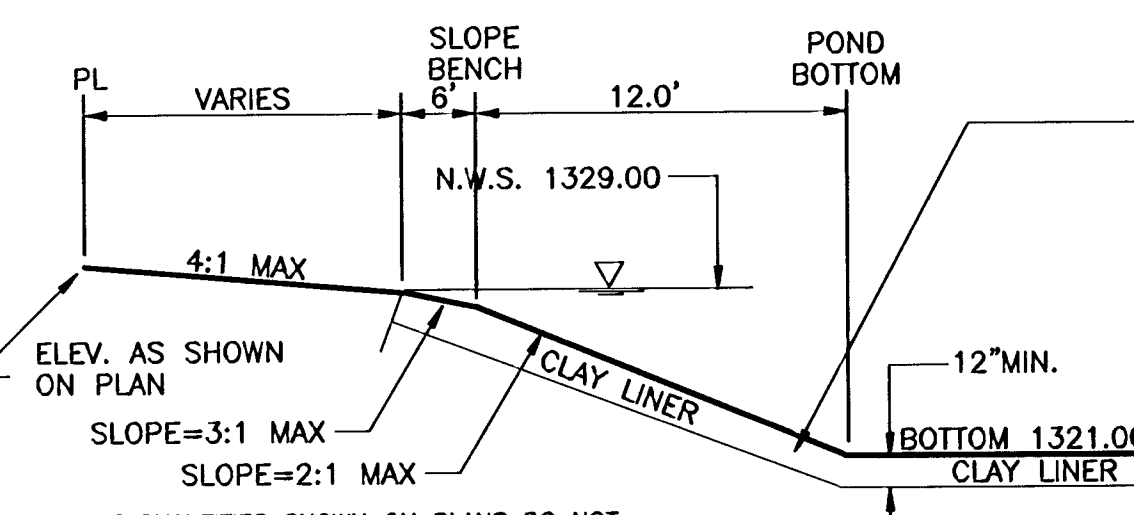
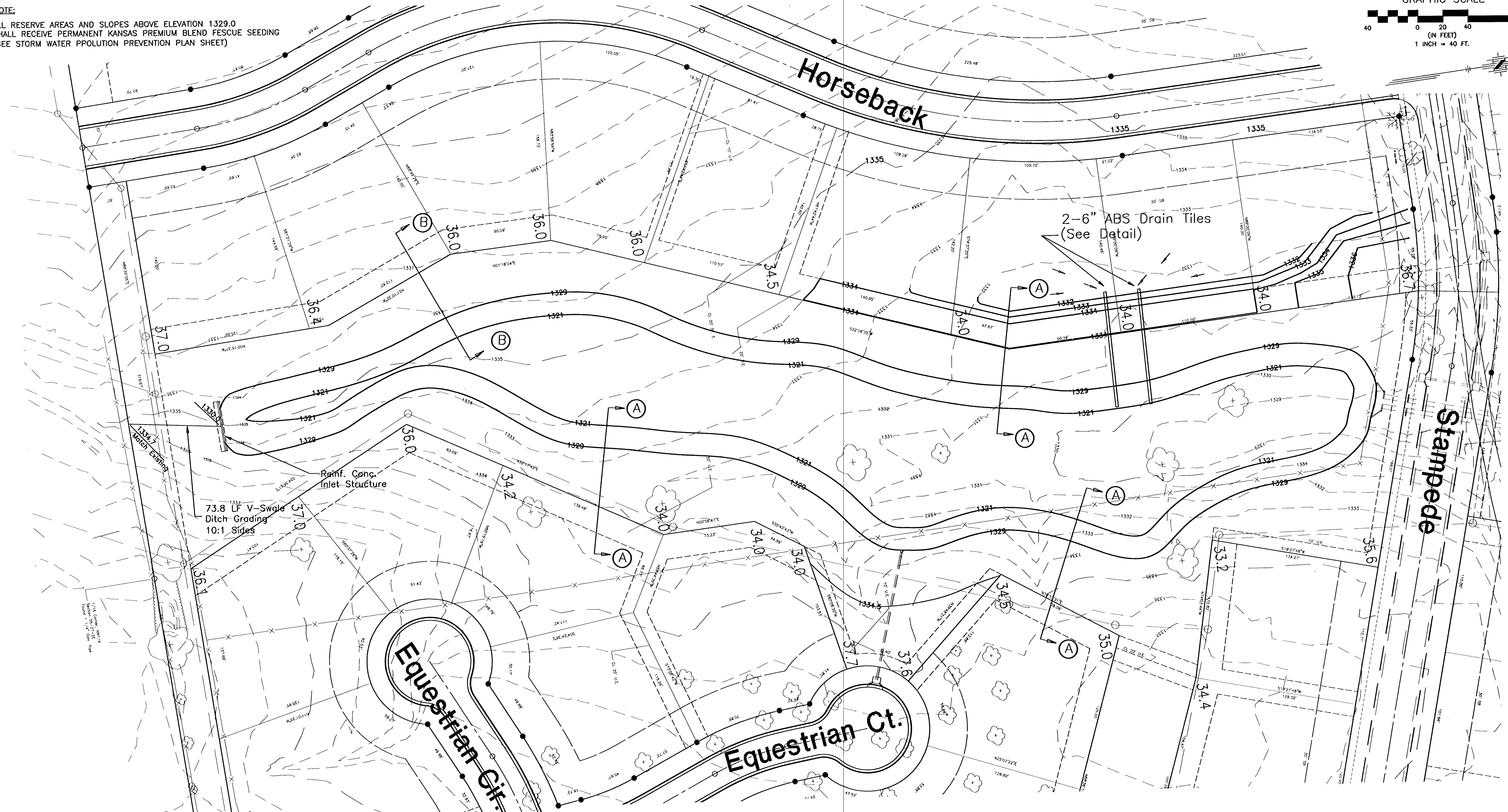
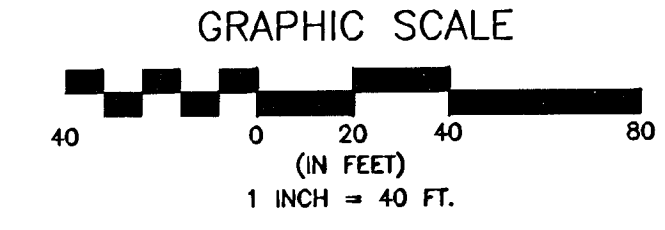


Reinforced Concrete Toe Wall

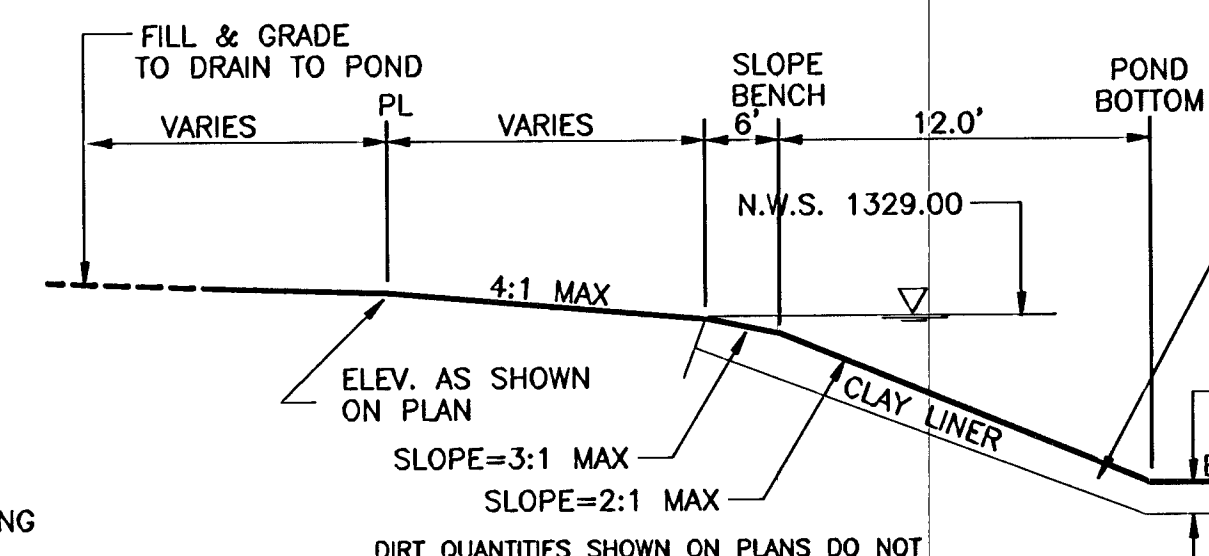
Scale: 1"=2.5'

EQUESTRIAN ESTATES ADDITION - PHASE 2	
STORM WATER DRAIN NO. 179	
REINFORCED CONCRETE INLET STRUCTURE	
CITY OF WICHITA, KANSAS	
JAMES L. ARMOUR, P.E. - CITY ENGINEER	
C.O.W. Project # 468-83319 O.C.A. # 75140	
No.	By
Date	Approved
1	
2	
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POE & ASSOCIATES, INC.	
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FINAL	
Designed By:	JMU/JPD
Drawn By:	JMU/JPD
Project No.:	1694J
Date:	January 2006
Sheet	
2 of 11	

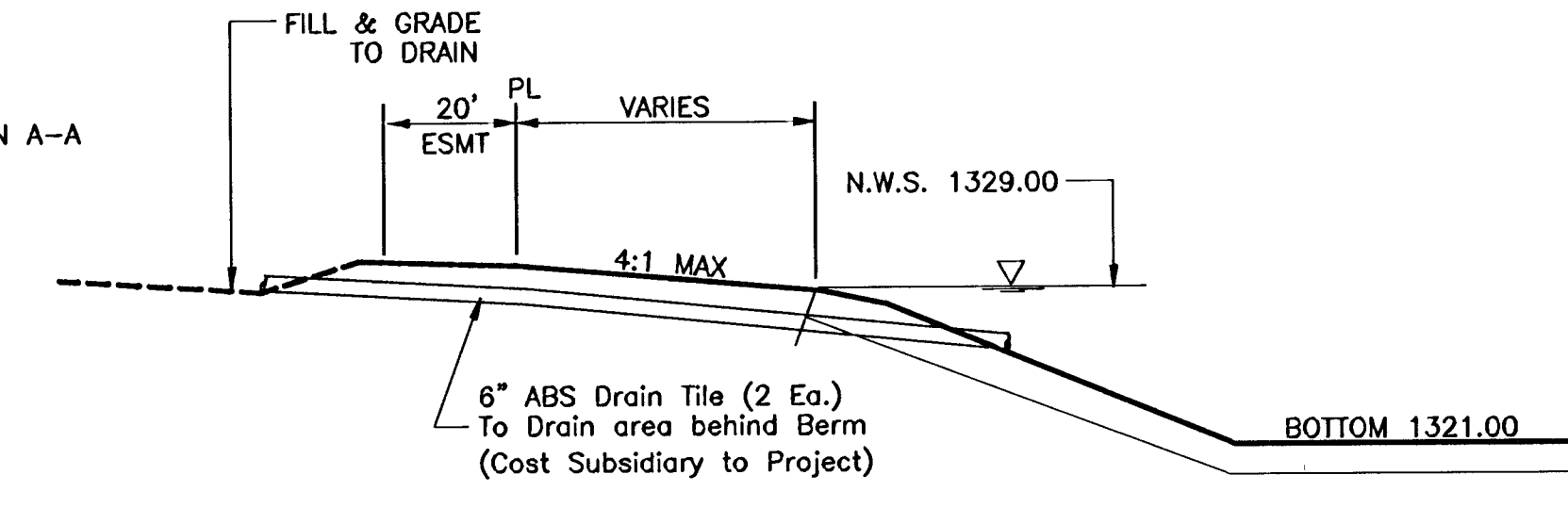
NOTE:
 ALL RESERVE AREAS AND SLOPES ABOVE ELEVATION 1329.0
 SHALL RECEIVE PERMANENT KANSAS PREMIUM BLEND FESCUE SEEDING
 (SEE STORM WATER POLLUTION PREVENTION PLAN SHEET)



SECTION 'A' - 'A'



SECTION 'B' - 'B'



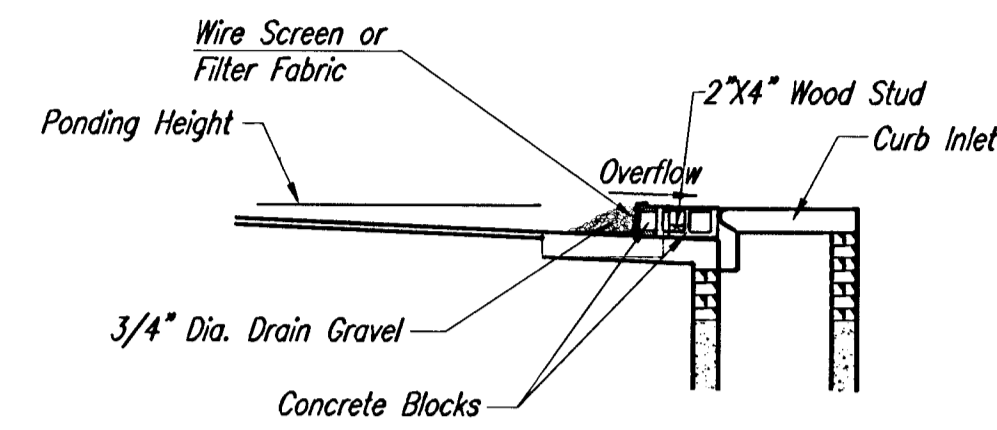
DRAIN TILE DETAIL

CONSTRUCT 12" MINIMUM THICKNESS CLAY LINER, COMPACT TO ABOVE OPTIMUM MOISTURE CONTENT A MINIMUM OF 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D 698, STANDARD PROCTOR PROCEDURE. CLAY LINER TO BE CONSTRUCTED WITH SOILS HAVING A PLASTICITY INDEX OF 25 (MIN.) IF SUITABLE MATERIAL IS NOT ON SITE, CONTRACTOR SHALL USE MOST SUITABLE MATERIAL AVAILABLE. PROCTOR AND COMPACTION TESTING SHALL BE BY INDEPENDENT LABORATORY FURNISHED AND PAID FOR BY CONTRACTOR. CONTRACTOR SHALL PROVIDE TESTING REPORTS TO ENGINEER.

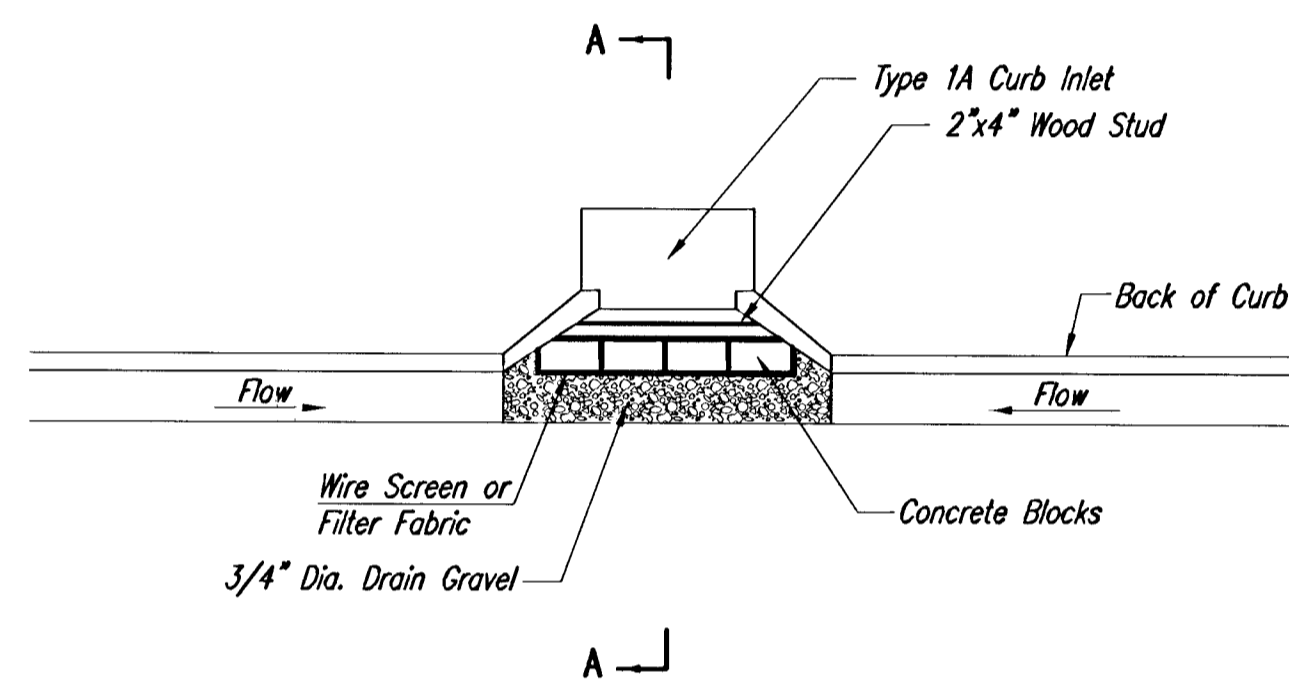
DIRT QUANTITIES SHOWN ON PLANS DO NOT REFLECT 12" CLAY LINER AT POND BOTTOM. THE PLACEMENT OF THESE ITEMS WILL BE SUBSIDIARY TO THE EXCAVATION BID ITEM.

6" ABS Drain Tile (2 Ea.)
 To Drain area behind Berm
 (Cost Subsidiary to Project)

EQUINE ESTATES ADDITION - PHASE 2	
STORM WATER DRAIN NO. 179	
POND GRADING PLAN	
CITY OF WICHITA, KANSAS	
JAMES L. ARMOUR, P.E. - CITY ENGINEER	
C.O.M. Project # 488-83319 O.C.A. # 751410	
FINAL	
Designed By: JMU/JPD	Date: January 2006
Drawn By: JMU/JPD	Sheet
Poe Job No.: 1694J	3 of 11



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.

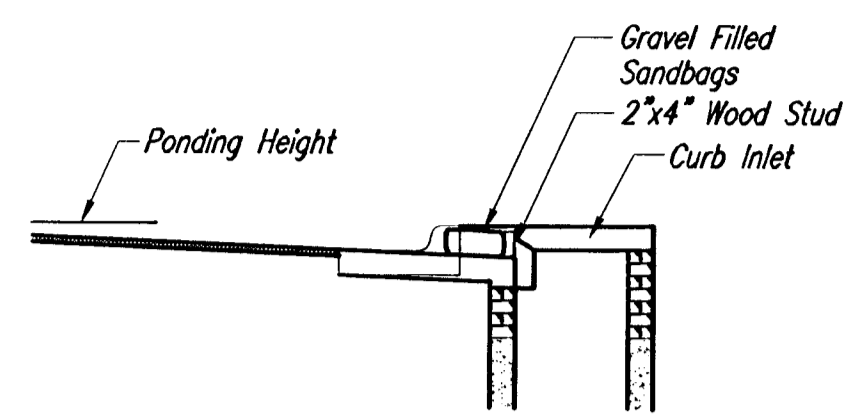
Instructions for Installing:

- 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 2x4" board to prevent collapsing.

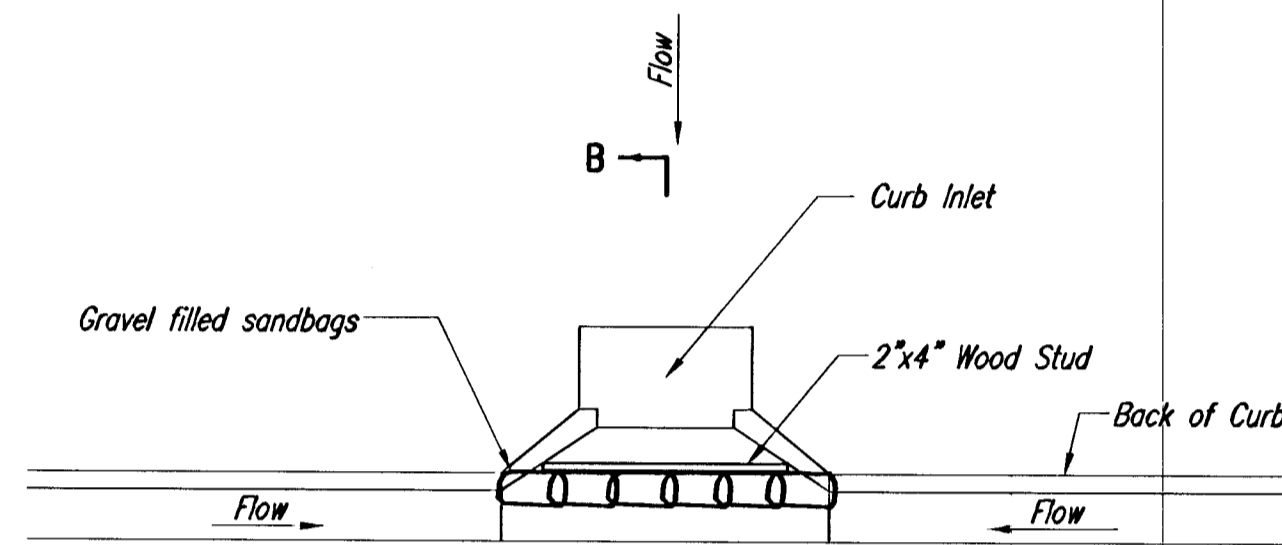
Use of rock with diameters smaller than 1" in the bag may result in clogging of pores and reduce the amount of water flowing into an inlet.

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.

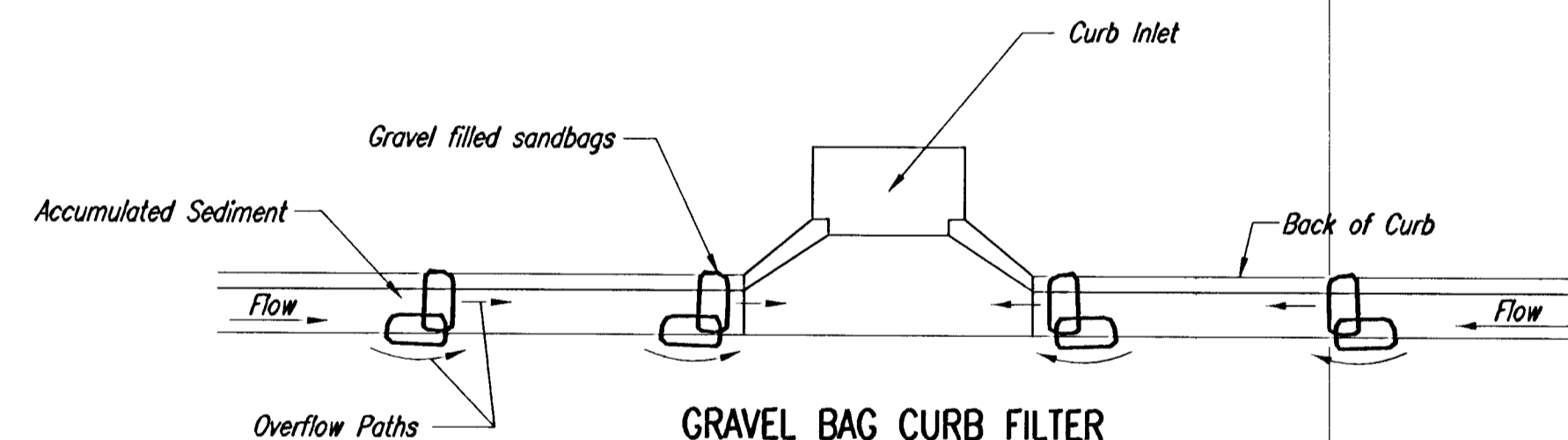


SECTION B-B



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.

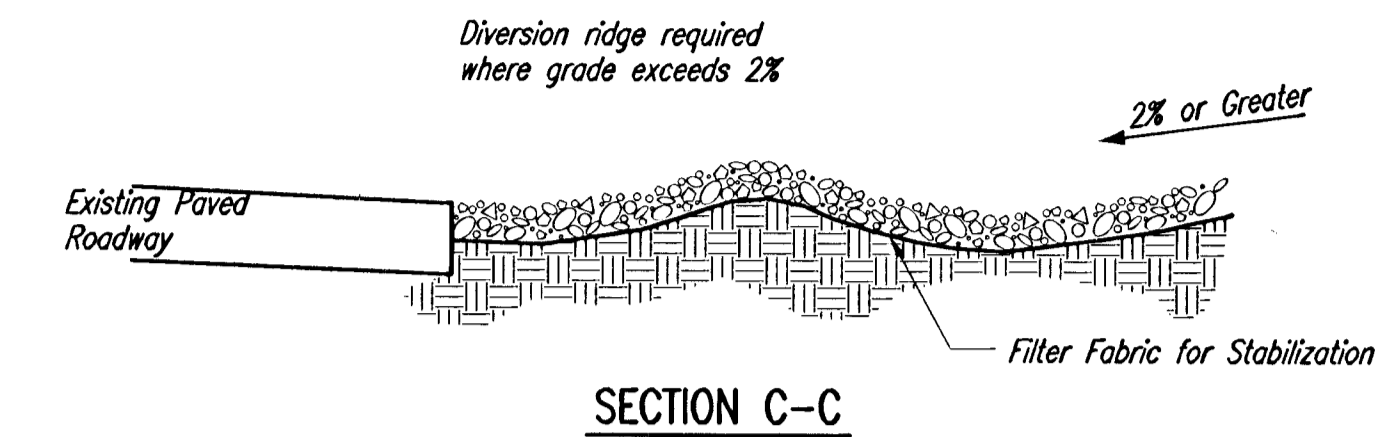
Spacing:

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

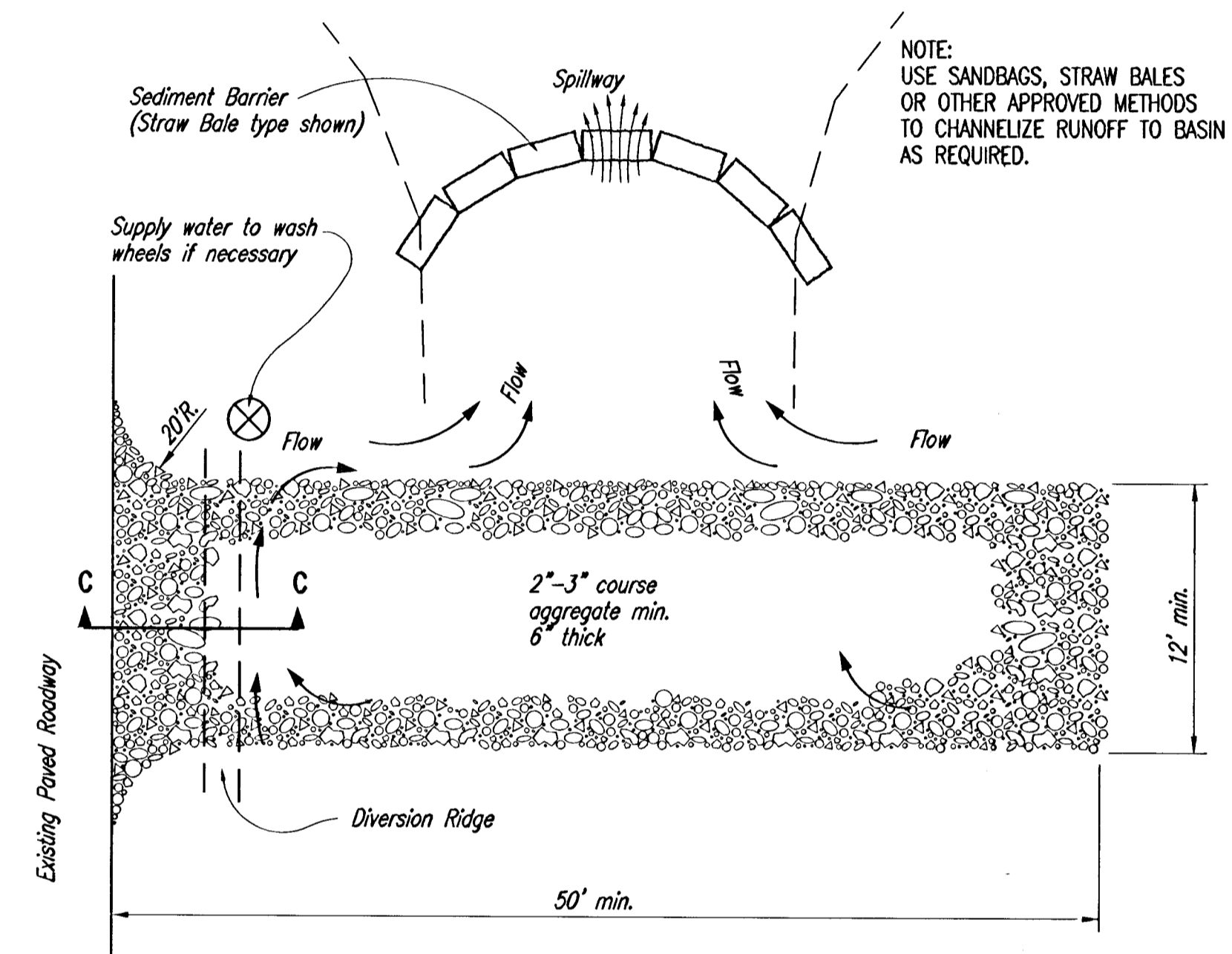
GRADE (%)	SPACING (FEET)
0.5	75
1.0	45
2.0	18
3.0	12
4.0	9
5.0	6

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



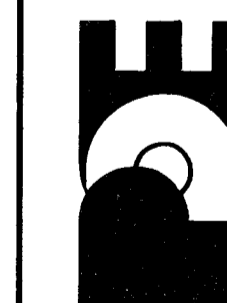
STABILIZED CONSTRUCTION ENTRANCE

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.

Revision	By	Date

EQUINESTRAN ESTATES ADDITION - PHASE 2
STORM WATER DRAIN NO. 179
SOIL EROSION BMPs
CITY OF WICHITA, KANSAS
JAMES L. ARMOUR, P.E. - CITY ENGINEER
C.O.W. Project # 468-83319 O.C.A. # 751410

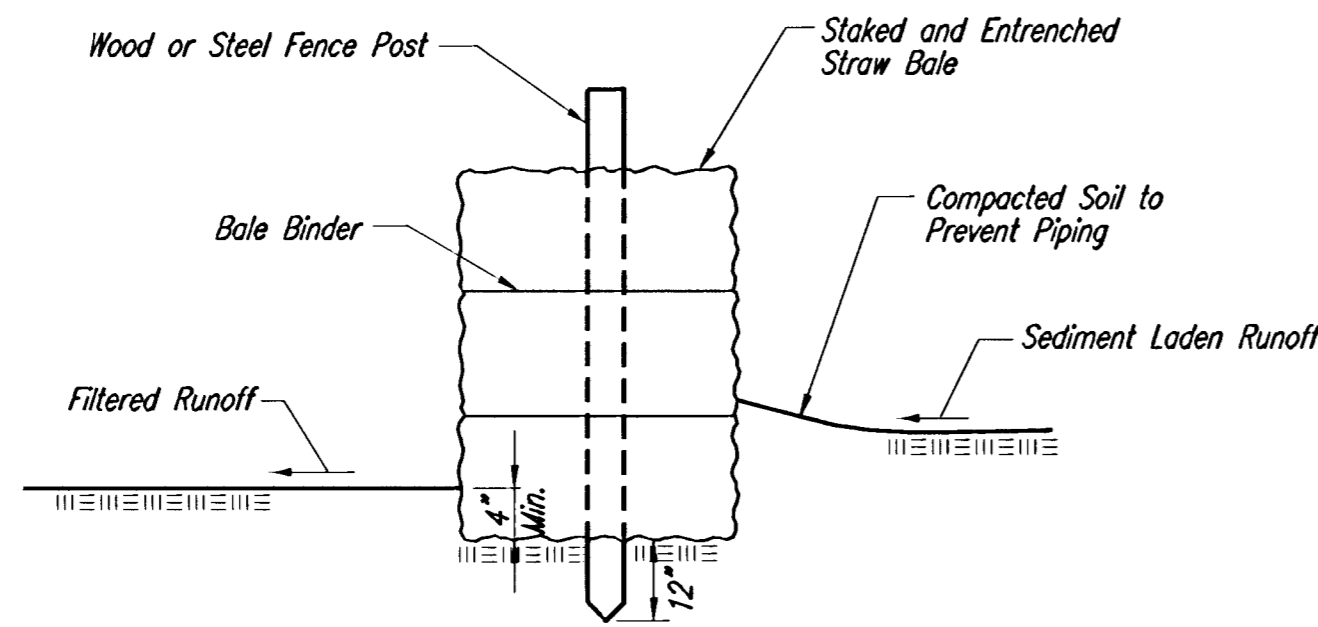


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Designed By: JML/JPD
Drawn By: JML/JPD
Poe Job No.: 1694J
Date: January 2006



SOIL EROSION BMPs	
CURB INLET PROTECTION AND CONSTRUCTION ENTRANCE	
SCOTT LINDEBAK, P.E. STORM WATER ENGINEER	
PROJECT NUMBER 468-83319	O.C.A. NO. 751410
DATE SEPT. 2003	Sheet SHEET 4 OF 11



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.

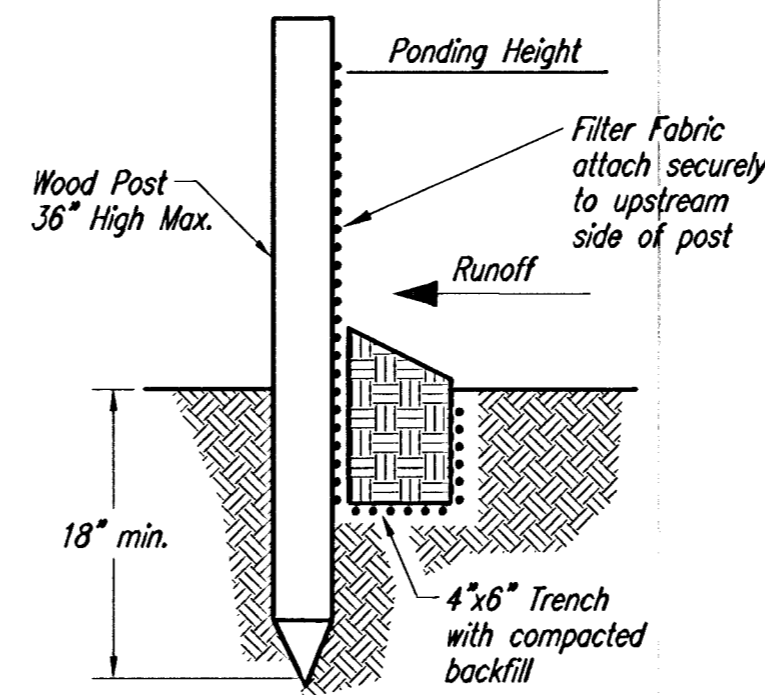
Do not place bale slope barriers in areas with shallow soils underlain by rock. If the barrier is not anchored sufficiently, it will wash out.

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?



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 sog excessively?
- Has the silt fence torn or become detached from the posts?
- Does sediment need to be removed from behind the slope barrier?

No.	Date	By	Approved	Revision

EQUESTRIAN ESTATES ADDITION - PHASE 2
 STORM WATER DRAIN NO. 179
 SOIL EROSION BMPs
CITY OF WICHITA, KANSAS
 JAMES L. ARMOUR, P.E. - CITY ENGINEER
 C.O.N. Project # 468-83319 O.C.A. # 751410

POE & ASSOCIATES, INC.
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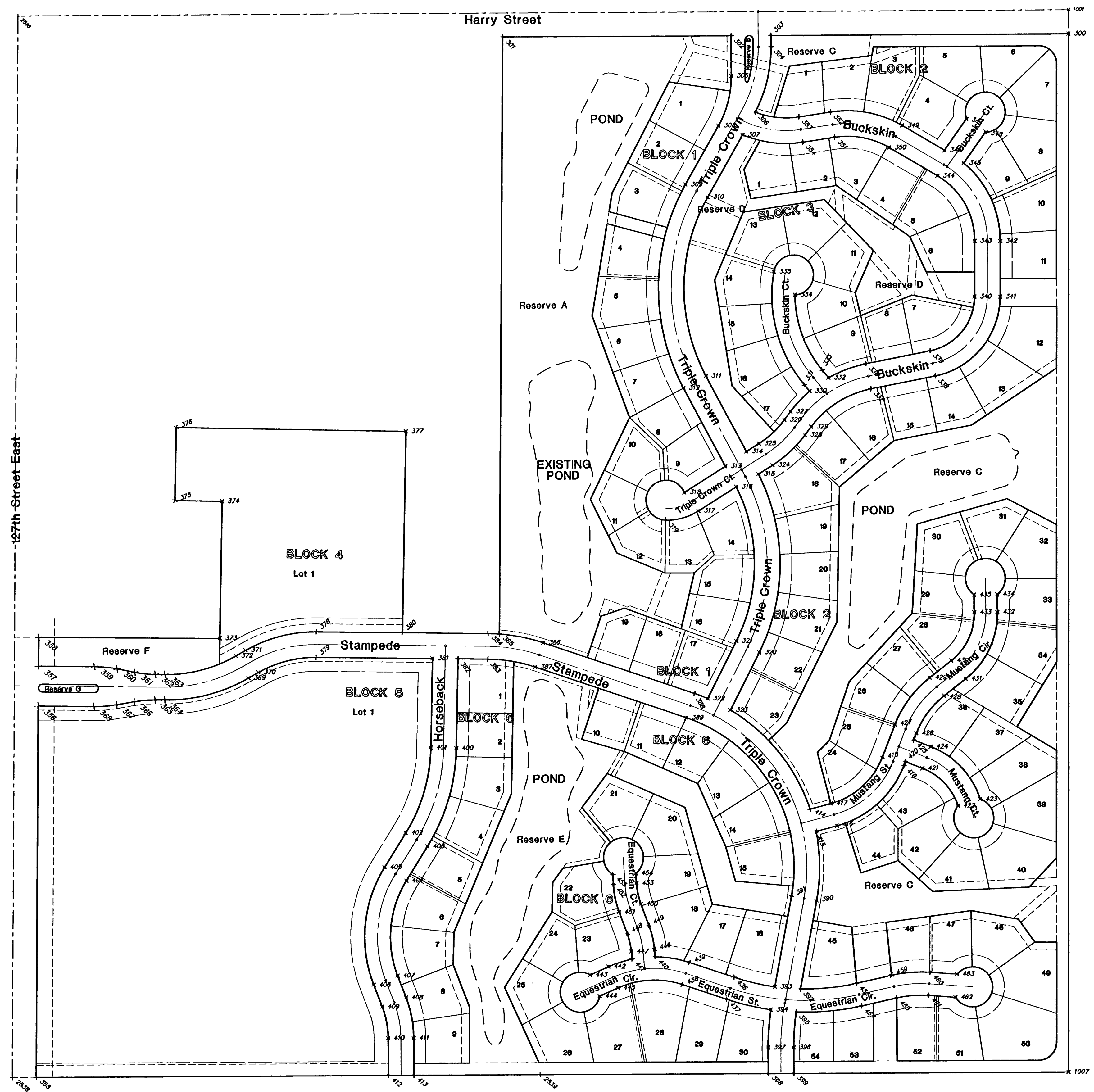


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Designed By: JMU/JPD
 Drawn By: JMU/JPD
 P.Oe Job No.: 1684J
 Date: January 2006

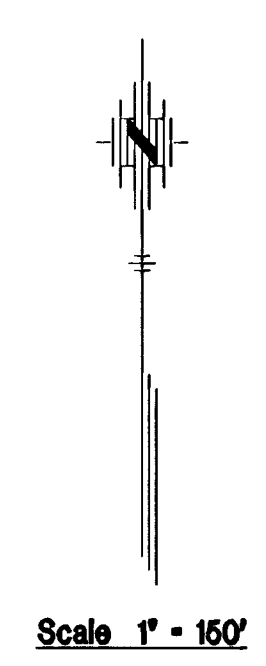


SOIL EROSION BMPs	
BARRIER DETAILS	
SCOTT LINDEBAK, P.E. STORM WATER ENGINEER	
PROJECT NUMBER 468-83319	O.C.A. NO. 751410
DATE SEPT. 2003	Sheet SHEET 5 OF 11



COORDINATE POINTS LIST		
POINT #	NORTHING	EASTING
2,538	7,662.418	15,615.996
2,539	7,670.464	16,938.392
1,007	7,678.243	18,261.644
1,001	10,338.235	18,259.974
2,546	10,317.973	15,628.839
300	10,278.022	18,259.919
301	10,286.300	18,842.555
302	10,270.228	17,414.928
303	10,270.912	17,514.923
304	10,242.402	17,515.119
305	10,168.998	17,415.620
306	10,078.463	17,475.619
307	10,022.056	17,444.188
308	10,045.015	17,383.688
309	9,897.509	17,300.981
310	9,866.208	17,356.805
311	9,418.822	17,352.720
312	9,388.546	17,296.334
313	9,192.842	17,401.415
314	9,229.957	17,454.128
315	9,173.368	17,484.398
316	9,141.511	17,428.787
317	9,081.445	17,334.436
318	9,127.508	17,298.790
319	9,057.989	17,252.197
320	8,727.559	17,486.613
321	8,756.094	17,429.328
322	8,611.828	17,357.483
323	8,582.915	17,414.563
324	9,195.879	17,519.774
325	9,249.887	17,485.404
326	9,309.385	17,549.228
327	9,330.283	17,564.663
328	9,271.335	17,600.686
329	9,292.212	17,616.123
330	9,381.346	17,612.163
331	9,398.735	17,599.272
332	9,414.952	17,659.672
333	9,433.979	17,643.733
334	9,621.827	17,575.575
335	9,680.051	17,522.509
336	9,450.242	17,753.331
337	9,387.502	17,765.966
338	9,419.918	17,926.925
339	9,482.656	17,914.290
340	9,617.696	18,025.046
341	9,617.583	18,089.046
342	9,757.042	18,089.292
343	9,757.155	18,025.293
344	9,919.848	17,932.072
345	9,951.713	17,997.855
346	9,983.778	17,949.505
347	10,062.544	18,004.420
348	10,029.372	18,051.998
349	10,045.740	17,843.361
350	9,990.468	17,811.096
351	10,016.382	17,874.381
352	10,079.627	17,664.579
353	10,067.313	17,585.122
354	10,004.068	17,594.923
355	7,662.783	15,875.998
356	8,591.642	15,680.488
357	8,691.642	15,680.971
358	8,783.622	15,681.319
359	8,690.428	15,821.275
360	8,684.759	15,878.060
361	8,678.254	15,922.197
362	8,671.108	15,973.745
363	8,670.900	15,997.851
364	8,608.902	15,997.298
365	8,607.111	15,973.191
366	8,602.857	15,921.562
367	8,595.117	15,877.284
368	8,590.432	15,820.410
369	8,661.955	16,207.328
370	8,676.117	16,231.984
371	8,731.614	16,200.108
372	8,717.453	16,175.452
373	8,761.363	16,135.329
374	9,103.987	16,141.175
375	9,106.008	16,022.723
376	9,288.897	16,025.844
377	9,279.083	16,601.068
378	8,778.032	16,377.513
379	8,714.034	16,376.903

COORDINATE POINTS LIST		
POINT #	NORTHING	EASTING
380	8,775.981	16,592.484
381	8,711.261	16,667.715
382	8,710.650	16,731.714
383	8,709.934	16,808.764
384	8,773.931	16,807.374
385	8,772.794	16,835.333
386	8,750.814	16,845.443
387	8,690.109	16,925.174
388	8,624.239	17,324.542
389	8,563.533	17,304.273
390	8,106.172	17,630.687
391	8,117.702	17,587.714
392	7,885.954	17,590.333
393	7,891.010	17,526.194
394	7,833.848	17,518.131
395	7,828.235	17,580.005
396	7,739.088	17,573.413
397	7,738.797	17,509.413
398	7,873.823	17,509.708
399	7,674.199	17,573.707
400	8,487.174	16,727.823
401	8,488.288	16,683.833
402	8,274.489	16,601.148
403	8,240.874	16,655.609
404	8,155.174	16,602.712
405	8,188.790	16,548.251
406	7,894.483	16,521.185
407	7,917.601	16,580.863
408	7,862.880	16,602.082
409	7,839.762	16,542.383
410	7,760.935	16,557.303
411	7,761.228	16,621.302
412	7,668.148	16,557.724
413	7,668.537	16,621.723
414	8,335.820	17,614.017
415	8,279.810	17,629.078
416	8,283.821	17,681.185
417	8,349.832	17,666.124
418	8,465.468	17,794.701
419	8,444.570	17,848.808
420	8,454.474	17,852.631
421	8,437.966	17,895.373
422	8,344.419	17,984.367
423	8,360.964	18,039.976
424	8,492.071	17,916.269
425	8,508.579	17,873.527
426	8,525.363	17,880.009
427	8,548.259	17,825.904
428	8,619.137	17,949.146
429	8,664.643	17,913.186
430	8,707.503	17,967.423
431	8,661.997	18,003.383
432	8,828.981	18,082.780
433	8,828.147	18,024.756
434	8,873.093	18,082.146
435	8,872.260	18,024.152
436	7,914.650	17,423.896
437	7,859.579	17,405.696
438	7,896.552	17,293.818
439	7,951.622	17,312.017
440	7,965.708	17,228.234
441	7,960.043	17,168.511
442	7,940.810	17,109.251
443	7,920.171	17,063.758
444	7,887.348	17,087.659
445	7,887.987	17,133.204
446	7,984.347	17,224.405
447	7,978.683	17,168.682
448	8,023.332	17,158.302
449	8,043.711	17,210.605
450	8,097.761	17,190.321
451	8,077.383	17,136.019
452	8,146.481	17,121.468
453	8,149.732	17,179.377
454	8,174.412	17,177.991
455	8,171.161	17,120.082
456	7,900.238	17,730.595
457	7,843.701	17,743.549
458	7,863.772	17,831.145
459	7,920.307	17,818.191
460	7,927.807	17,914.748
461	7,869.950	17,910.680
462	7,865.180	17,978.529
463	7,923.037	17,982.597



FINAL

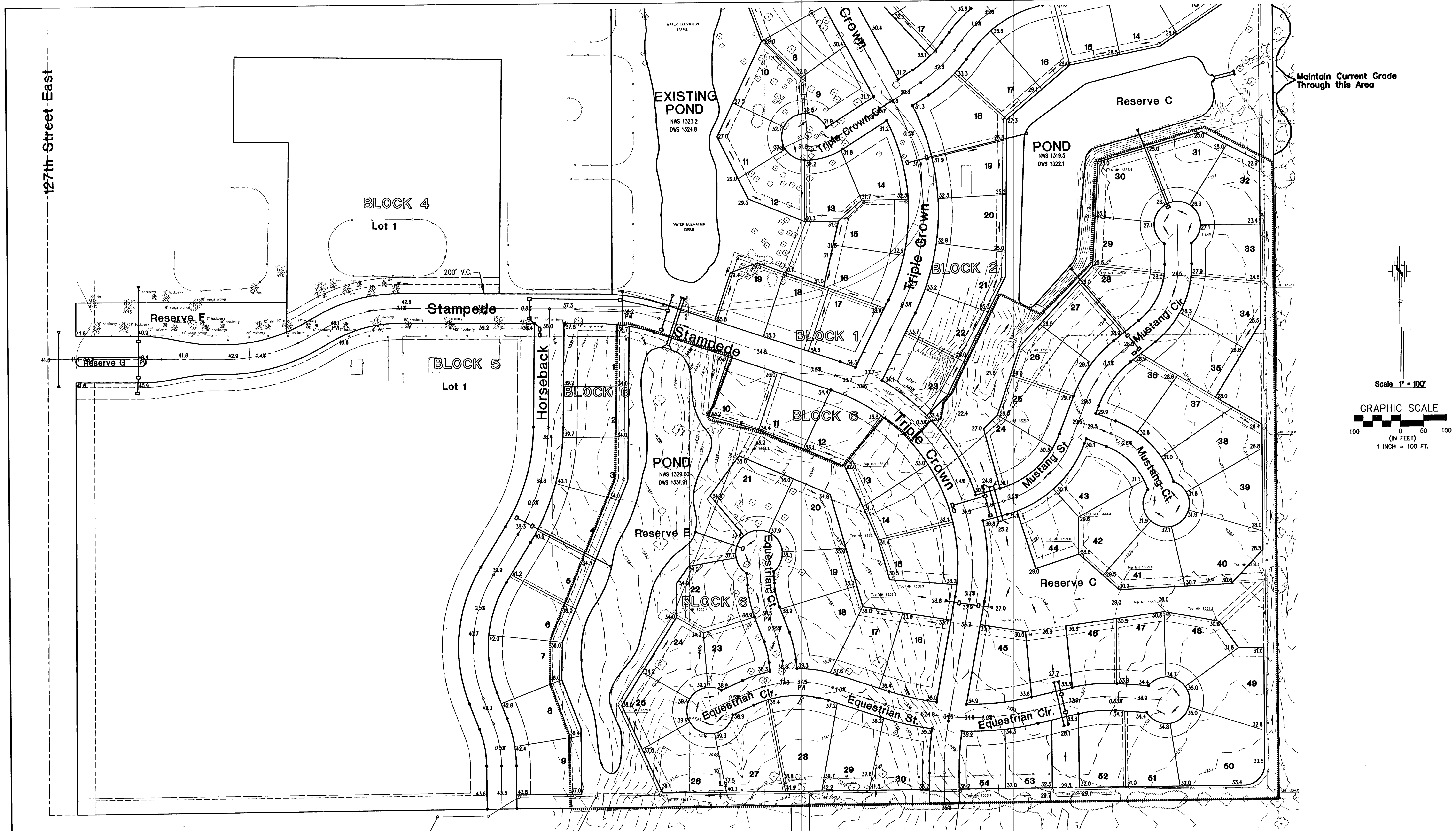
Designed By: JMU/JPD
 Drawn By: JMU/JPD
 P.O. Job No.: 1694J
 Date: January, 2006

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 Phone 316/685-1111 • FAX 316/685-4444

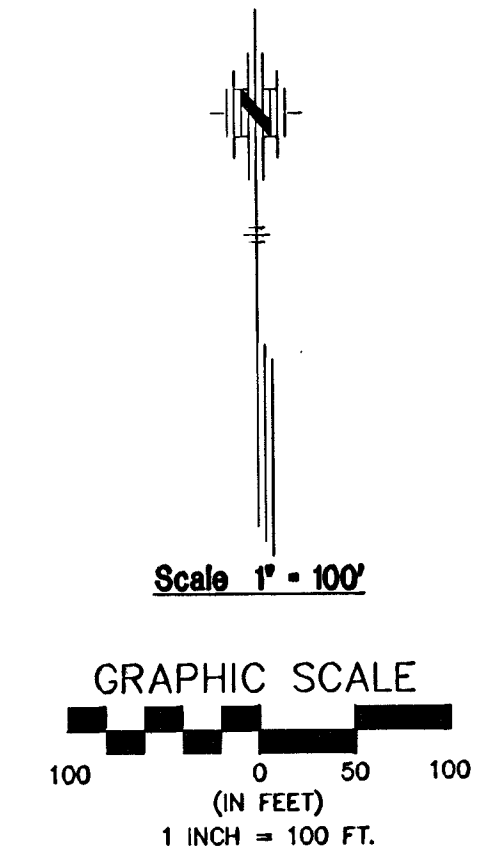
EQUESTRIAN ESTATES ADDITION - PHASE 2
 STORM WATER DRAIN NO. 179
 COORDINATE POINTS LIST
 CITY OF WICHITA, KANSAS
 JAMES L. ARMOUR, P.E. - CITY ENGINEER
 C.O.W. Project # 466-83319 O.C.A. # 751410

No.	Date	By	Approved	Revision

Sheet
6 of 11



Maintain Current Grade Through this Area



127th Street East

Limits of Grading

LEGEND

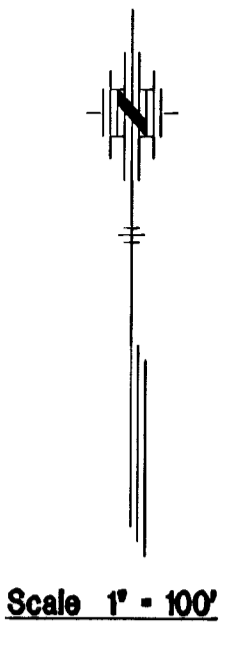
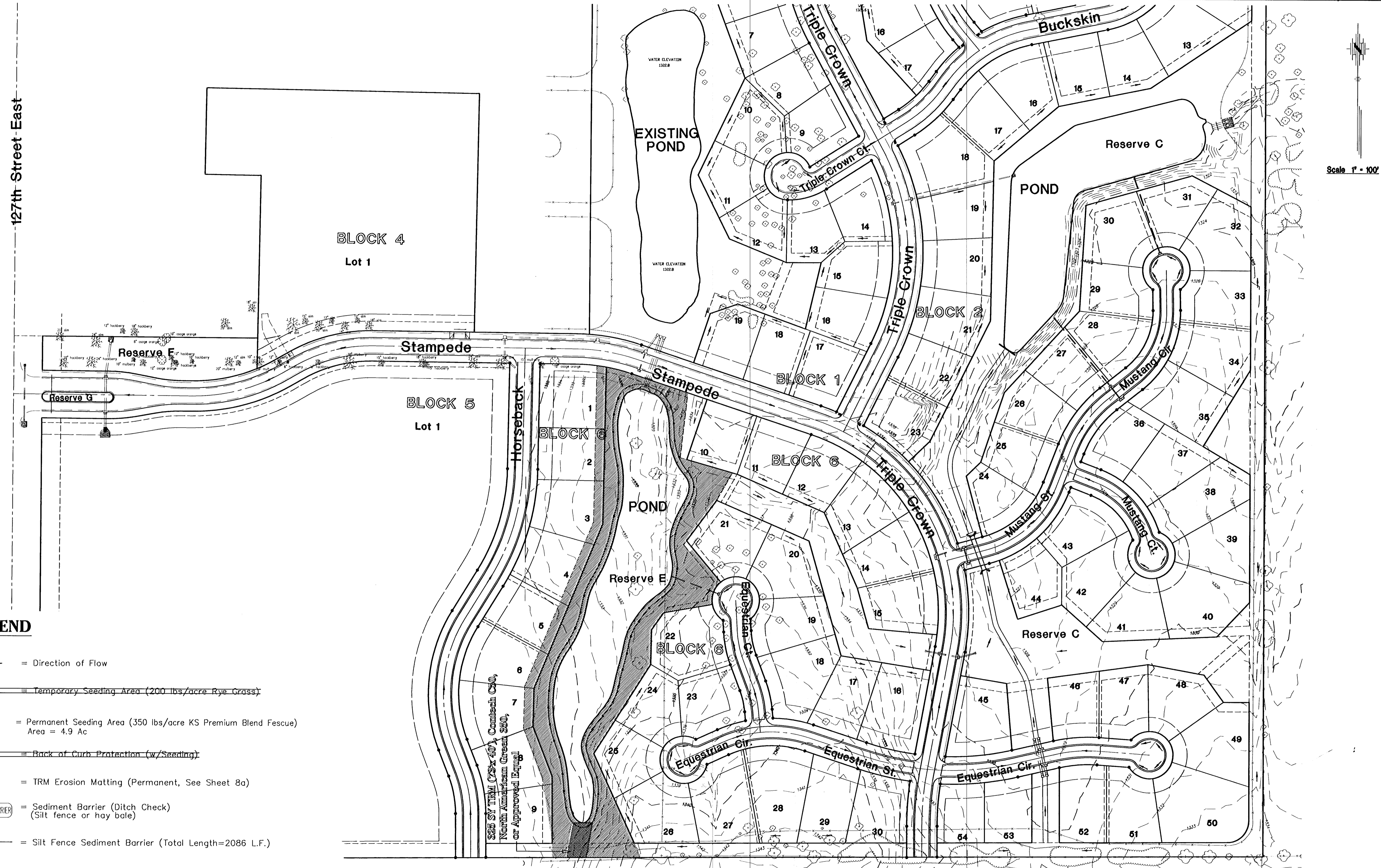
- 20.9 = Proposed Elevation at Lot Corner
- X 28.8 = Proposed Finished Elevation at 'X'
- = Direction of Flow

NOTES

1. Contractor shall grade all right-of-way areas according to elevations shown. (Cost subsidiary to Site Clearing/Restoration.)
2. Contractor shall waste earthwork evenly across low lying lots. (Cost subsidiary to Site Clearing/Restoration.)

<p>POE & ASSOCIATES, INC. CONSULTING ENGINEERS 5940 E. Central, Suite 200 • Wichita, KS 67208-1242 Phone 316/685-4114 • FAX 316/685-4444</p>		<p>FINAL</p>	<p>DESIGNED BY: JMU/JPD DRAWN BY: JMU/JPD POE JOB NO.: 1694J DATE: January 2006</p>	<p>Sheet 7 of 11</p>
<p>EQUESTRIAN ESTATES ADDITION - PHASE 2 STORM WATER DRAIN NO. 179 LOT GRADING PLAN CITY OF WICHITA, KANSAS JAMES L. ARMOUR, P.E. - CITY ENGINEER C.O.W. Project # 468-8319 O.C.A. # 75140</p>				

127th Street - East



LEGEND

- = Direction of Flow
- = Temporary Seeding Area (200 lbs/acre Rye Grass)
- = Permanent Seeding Area (350 lbs/acre KS Premium Blend Fescue)
Area = 4.9 Ac
- = Back of Curb Protection (w/Seeding)
- = TRM Erosion Matting (Permanent, See Sheet 8a)
- = Sediment Barrier (Ditch Check)
(Silt fence or hay bale)
- = Silt Fence Sediment Barrier (Total Length=2086 L.F.)

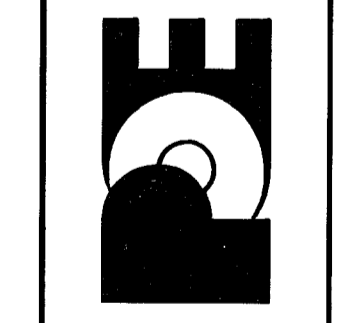
SEE SY TRM (75% 40% Comtech C60,
North American Green S50,
or Approved Equal)

Storm Water Pollution Prevention Plan - Phase 2
EQUESTRIAN ESTATES
 An Addition to Wichita - Sedgwick County, Kansas

No.	Date	By	Approved	Revision
1				
2				
3				

EQUESTRIAN ESTATES ADDITION - PHASE 2
 STORM WATER DRAIN NO. 179
 STORM WATER POLLUTION PREVENTION PLAN
CITY OF WICHITA, KANSAS
 JAMES L. ARMOUR, P.E. - CITY ENGINEER
 C.O.W. Project # 468-83319 O.C.A. # 751410

POE & ASSOCIATES, INC.
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 5940 E. Central, Suite 200 #Wichita, KS 67208-4442
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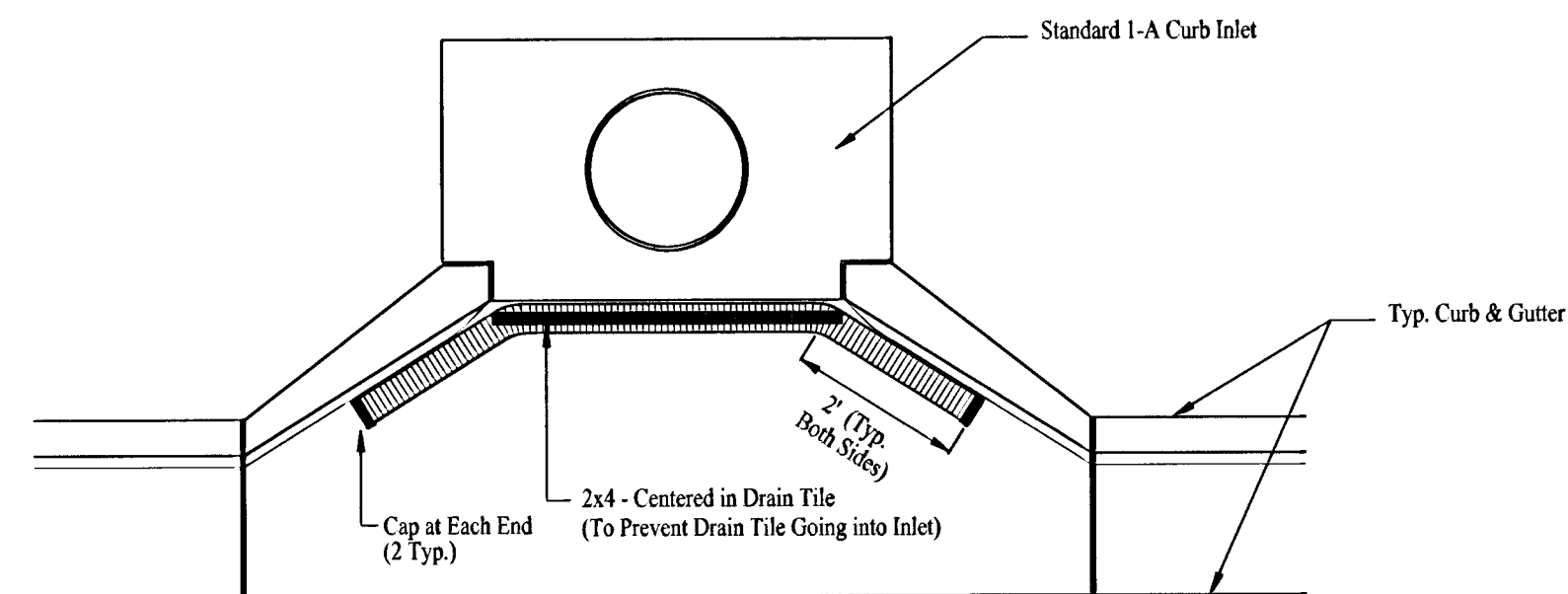


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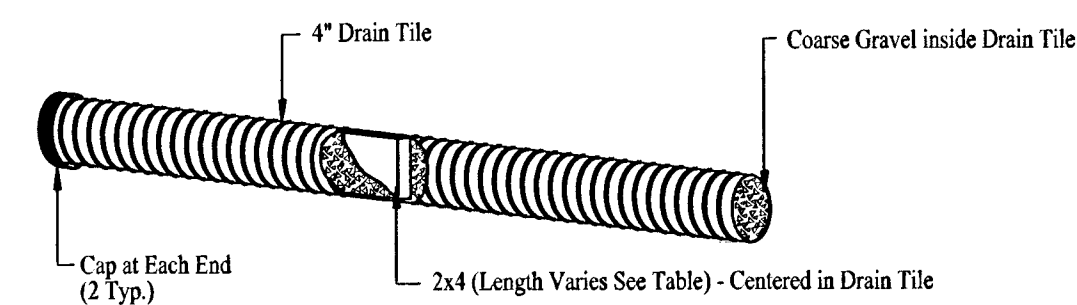
Designed By: JMU/JPD
 Drawn By: JMU/JPD
 Pce Job No.: 1694J
 Date: January, 2006

Sheet
 8 of 11

EROSION CONTROL
ADDITIONAL DETAILS

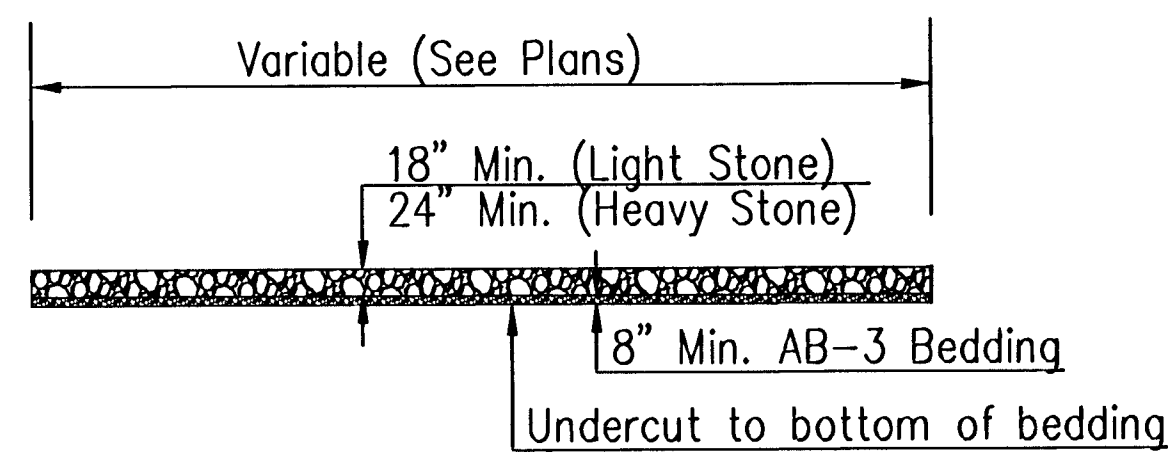


2x4 LENGTH	INLET TYPE	INLET OPENING
5'-0"	1-A	5'-0"
10'-0"	1-A	10'-0"
15'-0"	1-A	15'-0"



Curb Inlet Sediment Barrier Detail

(No Scale)



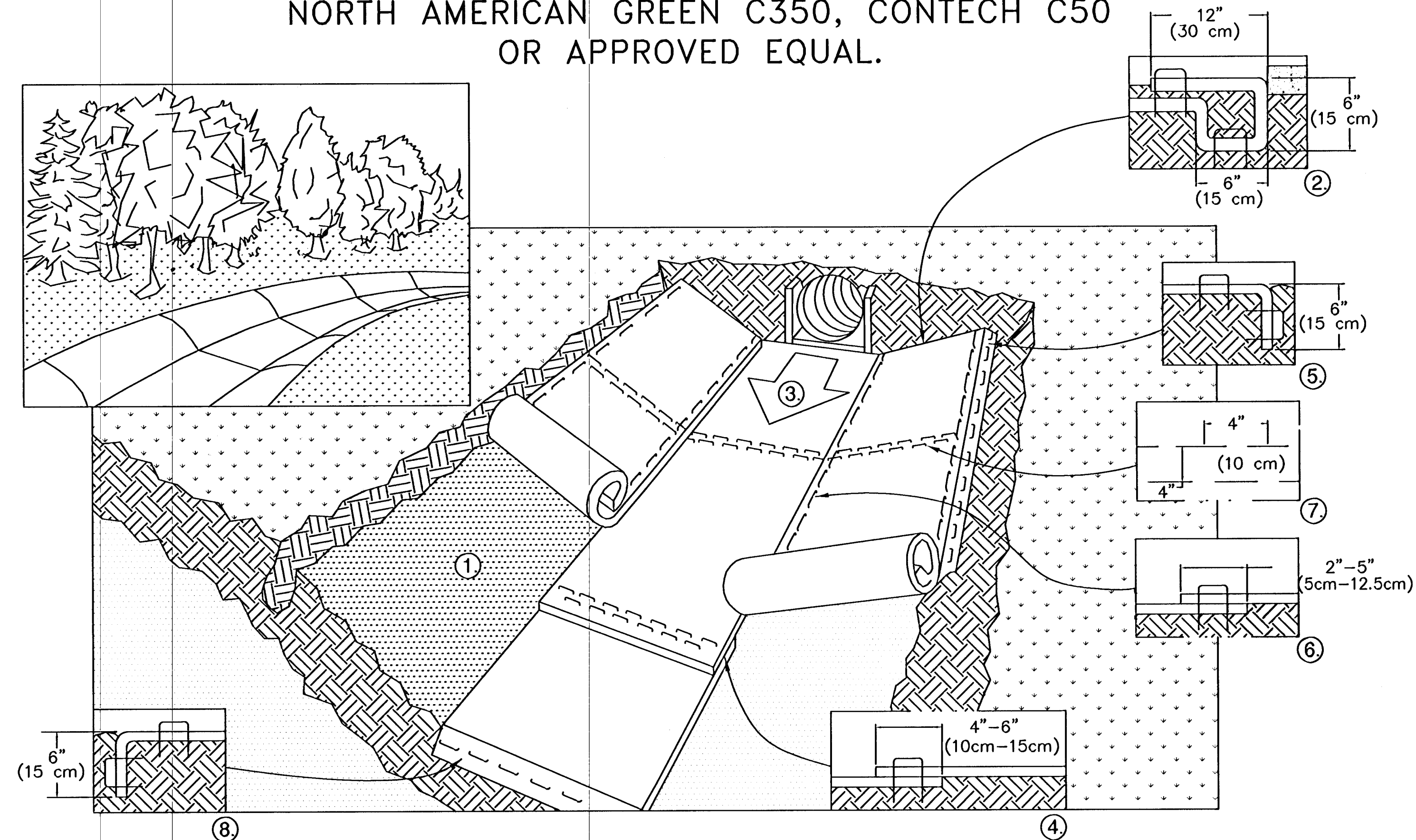
Light Stone Rip Rap shall be used
(Bedding shall be subsidiary to rip rap cost)

RIP RAP DETAIL

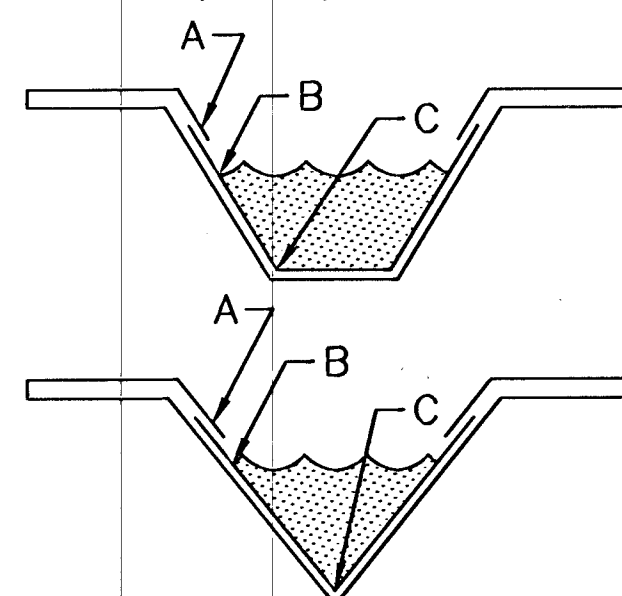
(No Scale)

EROSION CONTROL
(PERMANENT) TURF REINFORCEMENT MAT (TRM)
CHANNEL INSTALLATION

NORTH AMERICAN GREEN C350, CONTECH C50
OR APPROVED EQUAL.



1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE BLANKET IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30cm) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30cm) APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL CENTER BLANKET IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE.
4. PLACE CONSECUTIVE BLANKETS END OVER END (SHINGLE STYLE) WITH A 4"-6" (10cm-15cm) OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10cm) APART AND 4" (10cm) ON CENTER TO SECURE BLANKETS.
5. FULL LENGTH EDGE OF BLANKETS AT TOP OF SIDE SLOPES MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
6. ADJACENT BLANKETS MUST BE OVERLAPPED APPROXIMATELY 2"-5" (5cm-12.5cm) (DEPENDING ON BLANKET TYPE) AND STAPLED. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE SEAM STITCH ON THE BLANKET BEING OVERLAPPED.
7. IN HIGH FLOW CHANNEL APPLICATIONS, A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 FOOT (9m-12m) INTERVALS. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10cm) APART AND 4" (10cm) ON CENTER OVER ENTIRE WIDTH OF THE CHANNEL.
8. THE TERMINAL END OF THE BLANKETS MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.



CRITICAL POINTS

- A. OVERLAPS AND SEAMS
- B. PROJECTED WATER LINE
- C. CHANNEL BOTTOM/SIDE SLOPE VERTICES

NOTE:

* HORIZONTAL STAPLE SPACING SHOULD BE ALTERED IF NECESSARY TO ALLOW STAPLES TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.

** IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 cm) MAY BE NECESSARY TO PROPERLY ANCHOR THE BLANKETS.

*** USE NORTH AMERICAN GREEN SC150, LANDLOK CS2, CONTECH SCFB2, OR APPROVED EQUAL.

No.	Date	By	Approved	Revision

EQUESTRIAN ESTATES ADDITION - PHASE 2
STORM WATER DRAIN NO. 179
SOIL EROSION BMPs
CITY OF WICHITA, KANSAS
JAMES L. ARMOUR, P.E. - CITY ENGINEER
C.O.M. Project # 468-63319 O.C.A. # 751410

POE & ASSOCIATES, INC.
CONSULTING ENGINEERS
5940 E. Central, Suite 200 • Wichita, KS 67208-4242
Phone 316/685-4114 • FAX 316/685-4444



FINAL

Designed By: JMU/JPD
Drawn By: JMU/JPD
Poe Job No.: 1694J
Date: January, 2006

EARTHWORK SUMMARY			
STREET	CUT CU. YDS.	LOOSE FILL CU. YDS.	COMPACTED FILL CU. YDS.
** TRIPLE CROWN	130	1075	4422
** MUSTANG ST./CIR.	515	757	1433
** MUSTANG CT.	13	712	181
** EQUESTRIAN CIR.	0	731	2850
** EQUESTRIAN ST./CIR.	2317	217	283
** EQUESTRIAN CT.	206	323	192
	3181	3724	9361
15% SHRINKAGE		559	1404
STREETS TOTAL	3181	4283	10765
SITE			
** RESERVE C	1581	3855	0
** RESERVE E	3312	195	0
RESERVE E	39520	1368	0
** BLOCK 2	917	25401	0
** BLOCK 6	10106	7230	0
	55436	38049	0
8% SHRINKAGE		3044	0
SITE TOTAL	55436	41093	0
PROJECT TOTALS	58617	45376 •	10765 •

- * LOOSE FILL AND COMPACTED FILL SHALL NOT EXCEED EXCAVATION (2,476 CY WILL BE WASTED ON SITE - SEE LOT GRADING PLAN)
- ** FROM COMPANION STREET PROJECT

FINAL

Designed By: JMU/JPD
 Drawn By: JMU/JPD
 Pce. Job No.: 1694J
 Date: January 2006



POE & ASSOCIATES, INC.
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 Phone 316/685-4114 • FAX 316/685-4444

EQUESTRIAN ESTATES ADDITION - PHASE 2
 STORM WATER DRAIN NO. 179
 EARTHWORK SUMMARY
 CITY OF WICHITA, KANSAS
 JAMES L. ARMOUR, P.E. - CITY ENGINEER
 C.O.W. Project # 468-83319 O.C.A. # 751410

No.	Date	By	Approved	Revision
1				
2				
3				
4				

NW Corner, NW1/4
Section 35-27-2E
Found 3/4" Pipe

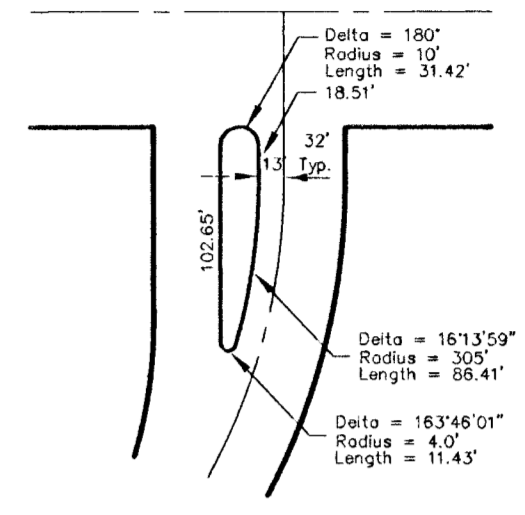
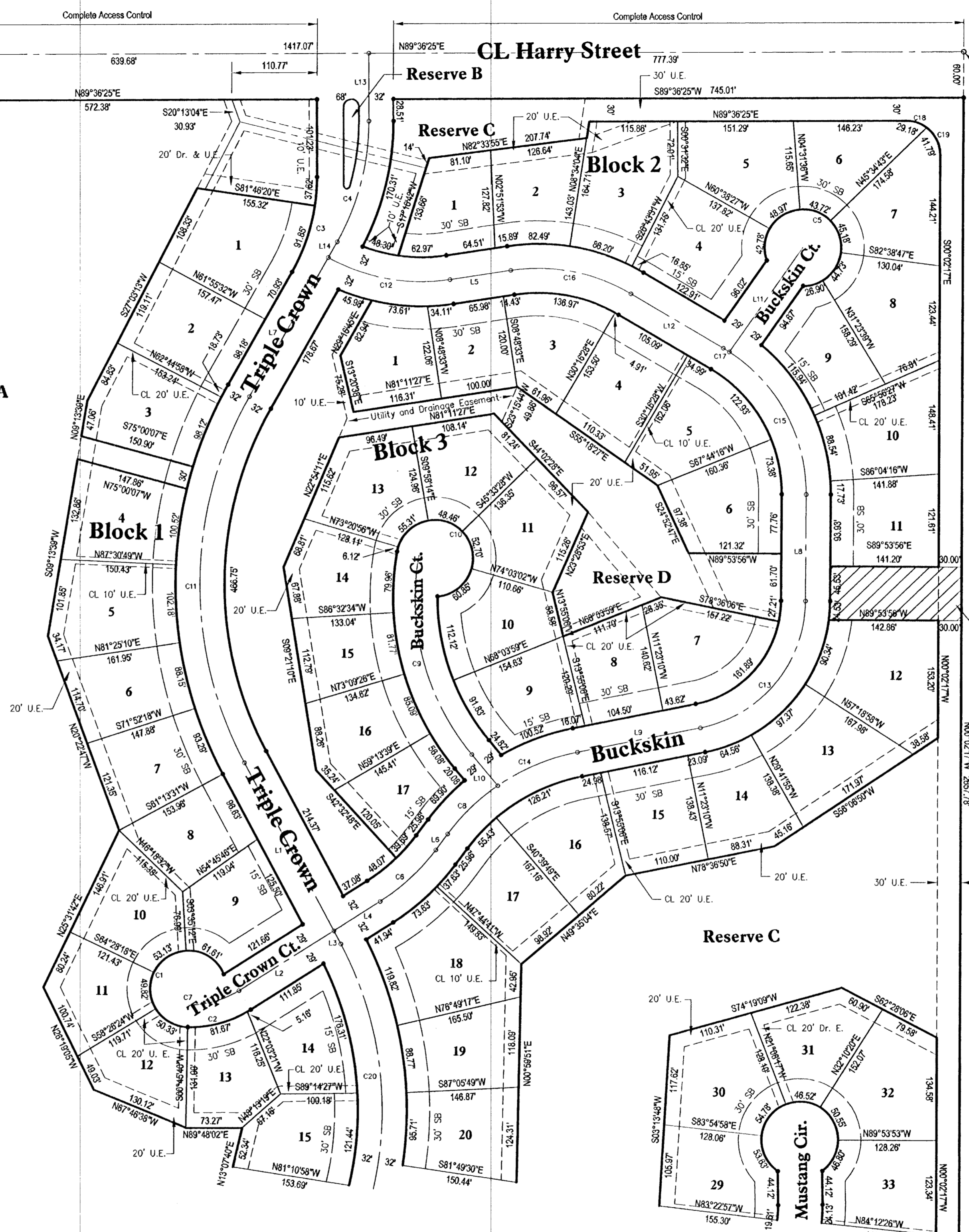
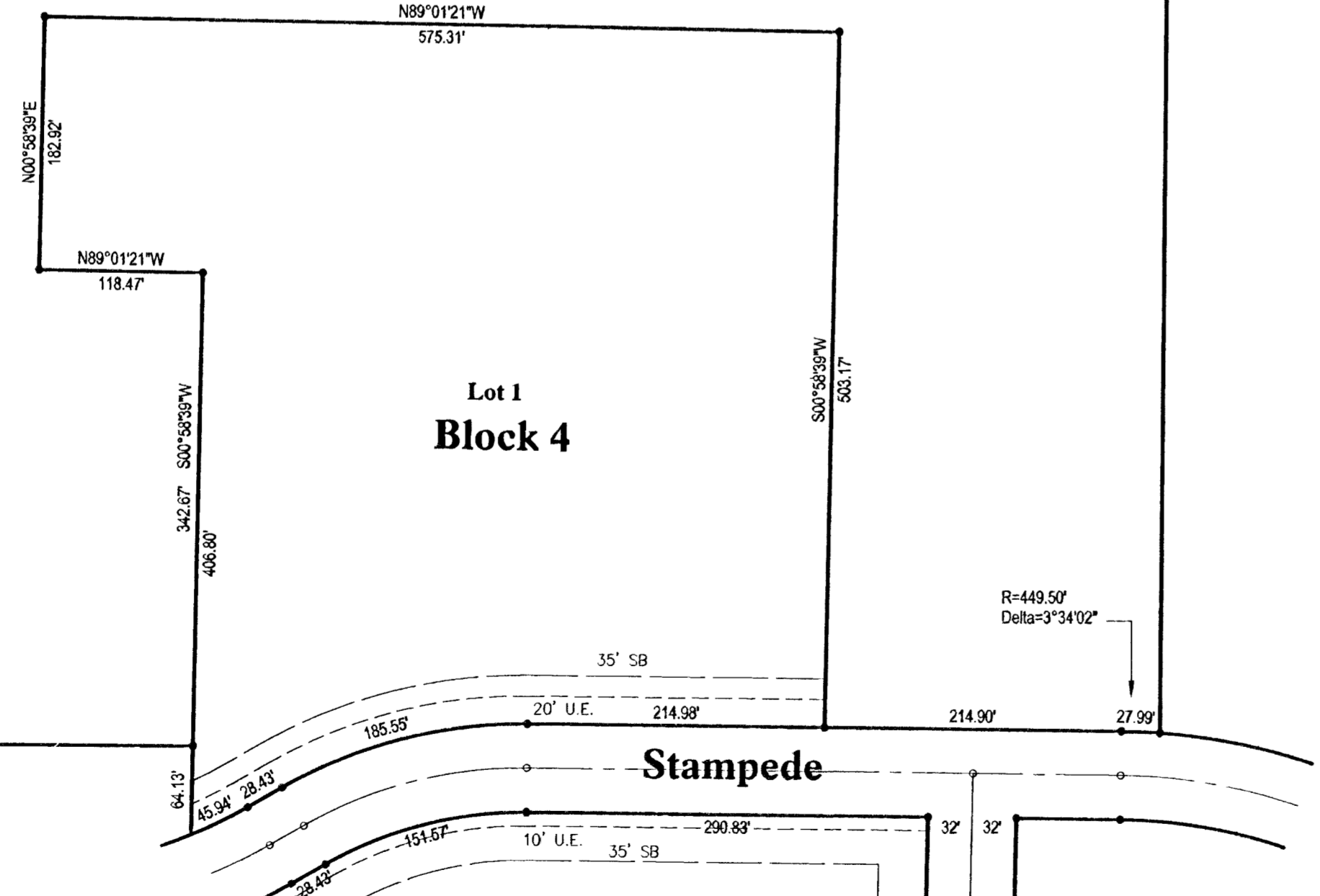
NE Corner, NW1/4
Section 35-27-2E
Found 3/4" Pipe

CURVE	LENGTH	RADIUS	TANGENT	CHORD	BEARING	DELTA
C1	215.00	50.00	78.45	83.69	S33°49'50"W	246°22'28"
C2	86.72	150.00	44.61	85.52	N74°04'50"E	33°07'30"
C3	129.47	250.00	66.22	128.03	N14°28'35"E	29°40'20"
C4	164.88	318.00	84.23	162.85	N14°28'35"E	29°40'20"
C5	252.29	50.00	35.60	58.00	N55°06'58"W	289°05'56"
C6	99.51	271.00	50.32	98.95	N46°59'56"E	21°02'20"
C7	69.96	121.00	35.99	68.98	N74°04'50"E	33°07'30"
C8	91.36	279.00	48.09	90.95	S45°51'37"W	18°45'41"
C9	277.80	321.00	148.27	269.21	S15°09'36"E	49°35'04"
C10	223.44	50.00	63.95	78.78	N42°20'47"W	256°02'33"
C11	498.88	497.00	272.73	478.19	S00°31'23"W	57°30'43"
C12	164.51	250.00	85.36	161.56	S79°57'28"E	37°42'09"
C13	232.95	170.00	138.93	215.15	N39°21'27"E	78°30'46"
C14	113.81	279.00	57.71	113.03	S68°55'39"W	23°22'23"
C15	220.39	220.00	120.44	211.29	N28°35'51"W	57°23'52"
C16	163.71	240.00	85.19	160.56	N79°16'02"W	39°09'01"
C17	8.53	220.00	4.66	9.33	N58°30'39"W	02°25'44"
C18	28.18	45.00	15.12	28.67	N71°46'03"W	37°19'04"
C19	41.79	45.00	22.54	40.50	N29°38'24"W	53°12'14"

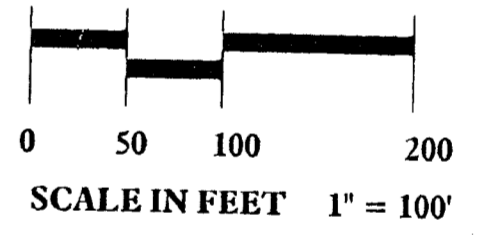
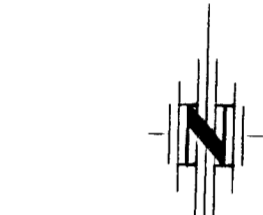
LINE	LENGTH	BEARING
L1	248.83	N28°13'58"W
L2	146.26	S57°31'05"W
L3	18.48	N28°13'58"W
L4	71.54	S57°31'05"W
L5	80.41	N81°11'27"E
L6	25.96	N36°28'46"E
L7	208.65	N29°16'45"E
L8	139.46	S00°06'04"W
L9	164.19	S78°36'52"W
L10	53.20	N39°57'09"W
L11	166.71	S34°53'02"W
L12	140.08	S59°43'32"E
L13	88.51	N00°23'35"W
L14	23.65	N29°16'45"E

Exception to Plat

MINIMUM BUILDING ELEVATIONS			
Minimum Low Opening Elevation			
Location	NGVD Datum	City Datum	
Lots 1-5, Blk 1	1316.0	128.6	
Lots 6-19, Blk 1	1327.3	139.9	
Lots 1-9, Blk 2	1326.4	139.0	
Lots 1-9, Blk 6	1335.0	147.6	
Lot 10, Blk 6	1335.0	147.6	
Lots 21-26, Blk 6	1335.0	147.6	



Reserve B Details



LEGEND

- Utility Easement 20' U.E.
- Drainage Easement 20' Dr. E.
- Iron Set ————
- Building Setback 30' SB
- Curve Label c2
- Line Label l2
- Center Line CL
- Monument Found ————

NOTE:

This Addition is subject to the conditions of the Planned Unit Development PUD 2000-0001.

BENCHMARKS:

- NGVD Datum
- 1. Railroad spike in power pole, approximately 25' south and 30' east of W 1/4 Corner, Section 35-27-2E. Elevation 1349.65
- 2. Square on south hub guard of RCBC just west of NW Corner of Section 35-27-2E. Elevation 1311.90

CL-127th Street East

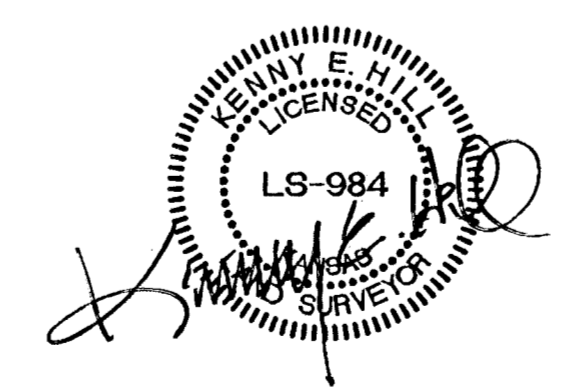
N89°16'27"E 1554.07'

Base of Buckskin (Assumed Direction)

EQUESTRIAN ESTATES

An Addition to Wichita - Sedgwick County, Kansas

(Associated Zone Case PUD 2000-0001)



SE Corner, NW1/4
Section 35-27-2E
Found 1 1/4" Galv. Pipe

CURVE	LENGTH	RADIUS	TANGENT	CHORD	BEARING	DELTA
C20	442.12	483.00	239.54	425.51	S00°52'37"E	54°42'42"
C21	130.56	417.50	65.81	130.02	N80°29'42"W	17°59'01"
C22	242.82	453.00	124.30	239.73	N16°20'22"E	30°41'14"
C23	92.35	253.00	46.70	91.84	N10°43'04"W	20°54'55"
C24	278.77	300.00	149.12	267.08	S05°19'16"W	52°51'36"
C25	252.26	50.00	35.82	58.02	N43°25'49"E	289°04'24"
C26	358.23	427.00	190.42	347.82	N89°05'04"W	48°04'08"
C27	206.70	220.00	111.69	199.18	N48°02'01"E	53°49'56"
C28	189.51	427.00	96.34	187.96	N02°20'08"W	25°25'46"
C29	185.42	600.00	93.46	184.69	N85°56'51"E	17°42'24"
C30	104.25	250.00	52.89	103.49	N83°39'31"W	23°53'30"
C31	252.29	50.00	35.80	58.00	S24°23'52"E	289°05'56"
C32	81.98	250.00	41.36	81.61	S15°00'09"W	18°41'16"
C33	111.97	603.00	58.15	111.81	S05°03'34"W	10°38'22"
C34	141.23	600.00	70.94	140.90	S78°27'21"E	13°29'11"
C35	62.10	205.00	31.29	61.86	S11°53'30"E	17°21'22"
C36	53.55	205.00	26.93	53.39	N13°05'14"W	14°57'55"
C37	252.29	50.00	35.80	58.00	S88°47'11"W	289°05'56"
C38	88.63	300.00	44.84	88.31	S85°33'29"W	18°55'40"
C39	70.45	45.00	44.77	63.47	N44°48'45"E	89°42'04"
C40	252.29	50.00	35.80	58.00	N04°01'19"E	289°05'56"
C41	62.74	427.00	31.42	62.68	N87°19'40"W	08°25'05"
C42	164.63	180.00	88.58	158.95	N42°40'53"W	52°24'09"
C43	133.37	250.00	66.31	131.79	S36°24'01"W	30°33'57"
C44	164.95	180.00	88.78	159.24	N25°25'48"E	52°30'24"
C45	252.29	50.00	35.80	58.00	S89°10'36"W	289°05'56"
C46	168.58	317.50	86.32	168.59	N75°20'15"E	30°25'09"
C47	202.73	382.50	103.81	200.36	N75°16'43"E	30°22'02"

Exception to Plat

Lot 1
Block 4

Lot 1
Block 5

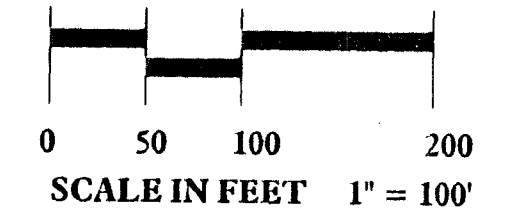
Reserve A

Reserve E

Reserve C

Reserve C

Reserve G Details



LEGEND

- Utility Easement 20' U.E.
- Drainage Easement 20' Dr. E.
- Iron Set
- Building Setback 30' SB
- Curve Label C2
- Line Label L2
- Center Line CL
- Monument Found

NOTE:

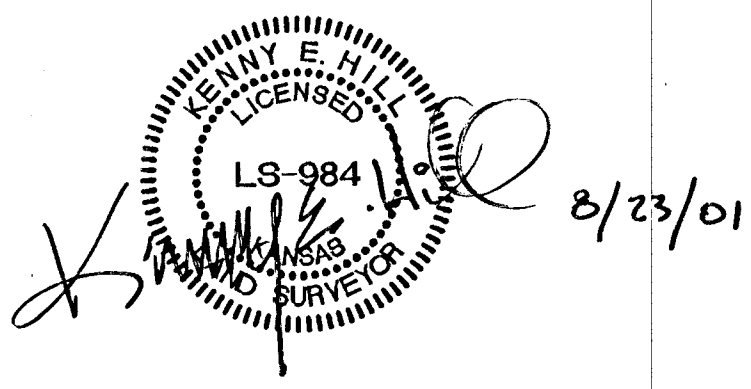
This Addition is subject to the conditions of the Planned Unit Development PUD 2000-0001.

BENCHMARKS:

- NGVD Datum
- 1. Railroad spike in power pole, approximately 25' south and 30' east of W 1/4 Corner, Section 35-27-2E. Elevation 1349.65
- 2. Square on south hub guard of RCBC just west of NW Corner of Section 35-27-2E. Elevation 1311.90

LINE	LENGTH	BEARING
L14	58.68	S21°10'32"E
L15	92.74	S00°15'37"E
L16	100.71	S31°41'04"W
L17	255.26	N00°59'51"E
L18	108.80	N89°27'13"W
L19	85.04	S74°56'59"W
L20	48.22	N05°36'16"W
L21	257.23	S10°22'45"W
L22	90.71	N65°36'28"E
L23	64.93	N00°19'37"W
L24	117.83	S71°42'48"E
L25	57.73	N20°34'13"W
L26	65.45	N03°12'49"W
L27	108.75	S85°58'41"E
L28	89.87	N77°05'40"E
L29	192.27	N26°28'44"E
L30	399.67	S71°32'12"E
L31	68.13	N51°41'00"W
L32	39.62	S21°07'53"W
L33	74.82	N68°52'57"W
L34	48.90	S21°07'03"W
L35	35.99	N16°28'48"W
L36	84.85	S00°49'24"E
L37	8.74	S10°22'45"W
L38	523.08	N89°27'13"W
L39	28.43	S60°07'42"W
L40	378.88	N89°30'16"W

MINIMUM BUILDING ELEVATIONS		
Minimum Low Opening Elevation		
Location	NGVD Datum	City Datum
Lots 1-5, Blk 1	1319.0	128.6
Lots 6-18, Blk 1	1327.3	133.9
Lots 12-32, Blk 2	1328.4	139.0
Lots 1-9, Blk 6	1335.0	147.6
Lot 10, Blk 6	1335.0	147.6
Lots 21-28, Blk 6	1335.0	147.6



EQUESTRIAN ESTATES

An Addition to Wichita - Sedgwick County, Kansas

(Associated Zone Case PUD 2000-0001)

DHS
Sheet 11 of 11