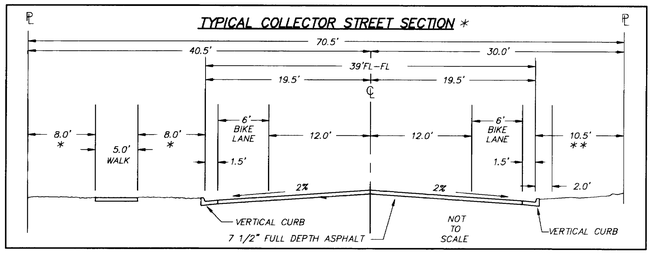
FOUR MILE CREEK
Filing No. 1
CONSTRUCTION PLANS

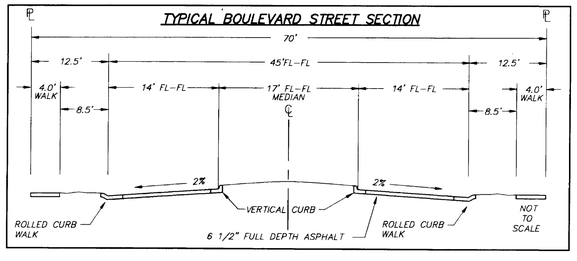
CONSTRUCTION NOTES

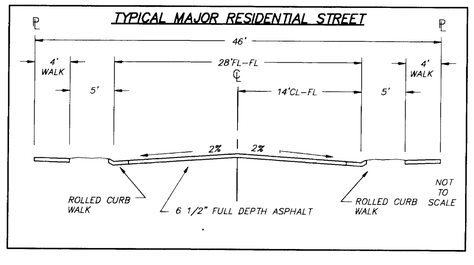
1. ALL STREETS AND UTILITIES SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF BOULDER DESIGN AND CONSTRUCTION STANDARDS AND SPECIFICATIONS (LATEST REVISION).
2. ALL 8" AND SMALLER WATERLINES SHALL BE PVC, AWWA C900-CL200 WITH CLASS B (GRANULAR) BEDDING.
3. ALL SANITARY SEWER LINE SHALL BE PVC SDR35 WITH CLASS B BEDDING (GRANULAR II) OR NATIVE GRANULAR MATERIAL.
4. ALL PUBLIC STORM SEWER SHALL BE PRECAST CLASS III REINFORCED CONCRETE PIPE WITH CLASS C, COMPACTED GRANULAR BEDDING OR CORRUGATED STEEL PIPE (AASHTO SPEC M-36) FULLY COATED INSIDE AND OUTSIDE (AASHTO M-190), COMPACTED GRANULAR BEDDING.
5. ALL WATERLINES SHALL BE CONSTRUCTED A MINIMUM OF 4.5' BELOW FINAL GRADE TO TOP OF PIPE.
6. NEW SERVICES TO EXISTING MAINS WILL BE TAPPED AT THE MAIN BY CITY PERSONNEL AT DEVELOPER'S EXPENSE.
7. CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES BEFORE CONSTRUCTION.
8. PAVING SHALL NOT START UNTIL SUBGRADE COMPACTION TESTS ARE TAKEN AND APPROVED.
9. ALL TRAFFIC CONTROL DEVICES SHALL COMPLY WITH THE LATEST VERSION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES". THE CONTRACTOR IS DIRECTED TO PAY PARTICULAR ATTENTION TO THE SECTION OF CONSTRUCTION ZONE TRAFFIC CONTROL.
10. BENCHMARK – CHISELED CROSS ON SIDEWALK NORTHWEST CORNER OF BRIDGE ON N. 30TH STREET OVER THE PALO PARK SPILLWAY ELEVATION 5346.69' BASED ON U.S.G.S. DATUM.
11. REFER TO SCOTT COX REPORT #91522 FOR GEOTECHNICAL ANALYSIS AND PAVEMENT DESIGNS.
12. ALL ISLANDS SHALL HAVE STAMPTED CONCRETE "CURB SKIRT" PER LANDSCAPING PLANS.
13. REFER TO 47TH STREET CONSTRUCTION PLANS FOR CONSTRUCTION OF 47TH STREET FROM JAY ROAD TO FOURMILE CREEK.
14. FINAL LOCATION OF HANDICAP RAMPS AND YIELD SIGNS ARE SUBJECT TO FIELD LOCATION BY THE CITY OF BOULDER.
15. HIGH DENSITY POLYETHYLENE PIPE (H.D.P.E.P.) SHALL CONFORM TO C.D.O.T. MATERIAL AND INSTALLATION REQUIREMENTS.
16. PROVIDE 1.5' CLEARANCE BETWEEN H.D.P.E.P. IRRIGATION PIPE AND ALL OTHER MAINS AT CROSSINGS.

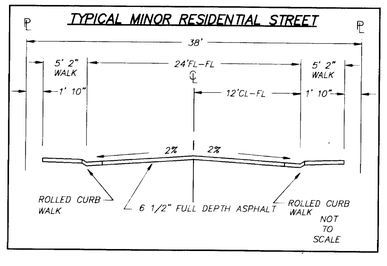


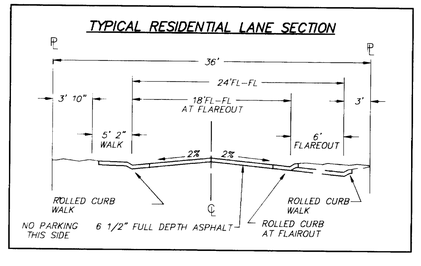
* REDUCE TO 6' ALONG LEFT TURN LANE

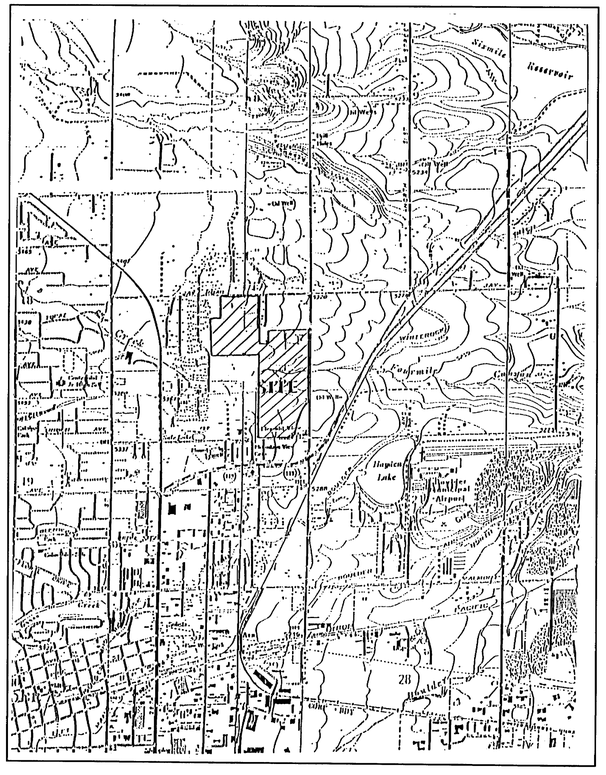
** REDUCE TO 2.5' ALONG LEFT TURN LANE











VICINITY MAP

BY: [illegible]
DATE: 1-28-94

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13. SOUTH HAMPTON CIRCLE STA 0+00–5+00
14. SOUTH HAMPTON CIRCLE STA 5+00–11+00
15. SOUTH HAMPTON CIRCLE STA 11+00–16+28.80
16. NEW HAVEN COURT STA 0+00–5+18.56
17. ST. PETERSBURG STREET 0+00–6+00
18. ST. PETERSBURG STREET STA 6+00–10+67.68
19. SCARSDALE PLACE STA 0+00–4+45.52
20. SAVANNAH COURT STA 0+00–6+00
21. SAVANNAH COURT STA 6+00–7+03.54
22. SAVANNAH PLACE STA 0+00–2+52.06
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AS-BUILT BY
HURST & ASSOCIATES, INC.
CONSULTING ENGINEERS
1/94
WATER, SANITARY, & STORM LINES ONLY - NO SURFACE IMPROVEMENTS

ENGINEERING DESIGN
Reference [illegible] Sealed by:
John W. Jorgensen
P.E. # 22730 Dated: 6/28/93

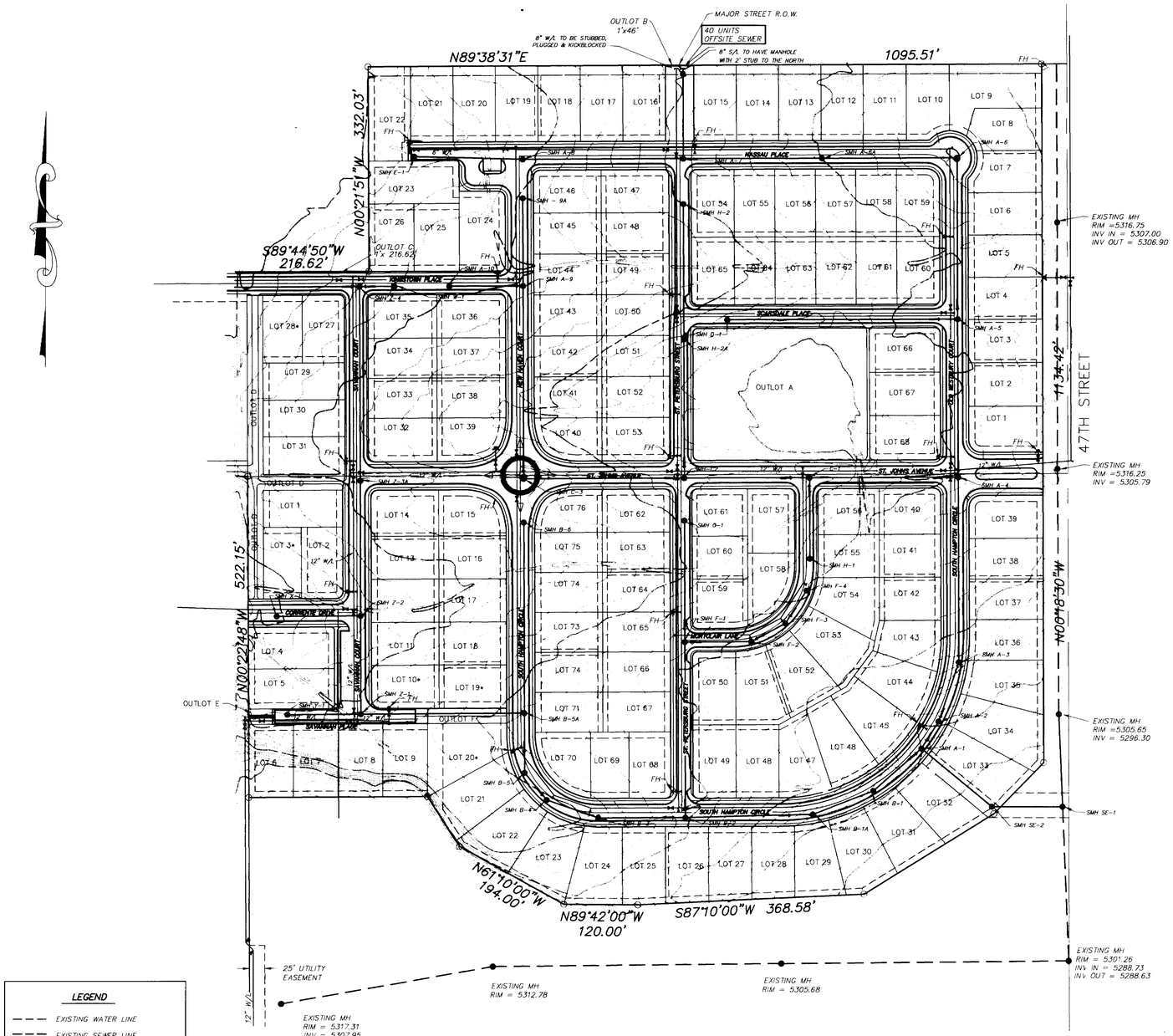
CITY OF BOULDER
DEPARTMENT OF PUBLIC WORKS
PPE-APPROVAL REVIEW
WATER/WASTEWATER
STORMWATER
TRANSPORTATION

21003

CITY OF BOULDER
DEPARTMENT OF PUBLIC WORKS
ENGINEERING CONSTRUCTION APPROVAL
CITY ENGINEER — DATE
APPROVAL EXPIRES ONE YEAR AFTER DATE ABOVE

FOUR MILE CREEK
Filing No. 1
CONSTRUCTION PLAN

SCALE HOR. N/A VERT. N/A	HURST & ASSOCIATES, INC. CONSULTING ENGINEERS 3055 47th Street, A-2 Boulder, Colorado 80301 (303) 449-9105
DESIGN CH	
DRAWN RK/CAD	
FILE NAME 09CVC	
APPROVED CH	JOB NO. 20009 DATE 05/17/93 SHEET 1 OF 32

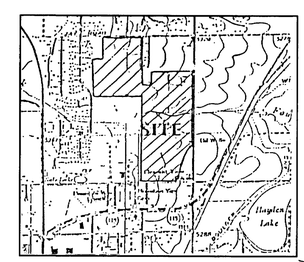


SANITARY SEWER OUTFALL SYSTEM					
MH	RIM	IN	OUT	LENGTH	SLOPE
SE-1	5303.50	5293.47	5293.27		
SE-2	5303.00	5295.82	5295.62	SE-2 to SE-1 114.73	1.87%
A-1	5310.76	5298.53	5298.33	A-1 to SE-2 148.49	1.69%
A-2	5311.10	5300.10	5299.90	A-2 to A-1 52.15	2.63%
A-3	5312.75	5301.75	5301.55	A-3 to A-2 101.67	1.43%
A-4	5318.45	5307.45	5307.25	A-4 to A-3 300.84	1.83%
A-5	5321.40	5310.40	5310.20	A-5 to A-4 256.56	1.07%
A-6	5323.5	5312.04	5311.84	A-6 to A-5 262.00	0.56%
A-6A	5325.53	5314.53	5314.33	A-6A to A-6 220.00	1.04%
A-7	5328.67	5317.67	5317.47	A-7 to A-6A 225.52	1.30%
A-8	5331.28	5320.28	5320.08	A-8 to A-7 261.00	0.92%
E-1	5333.14		5322.14	E-1 to A-8 176.40	1.05%
B-1	5311.49	5300.49	5300.29	A-1 to B-1 104.18	1.69%
B-1A	5313.32	5302.32	5302.12	B-1A to B-1 105.84	1.54%
B-2	5316.98	5305.98	5305.78	B-2 to B-1A 207.33	1.67%
B-3	5319.50	5308.50	5308.30	B-3 to B-2 141.50	1.64%
B-4	5321.01	5310.01	5309.81	B-4 to B-3 88.68	1.48%
B-5	5321.97	5310.97	5310.77	B-5 to B-4 55.17	1.33%
B-5A	5323.72	5312.72	5312.52	B-5A to B-5 96.86	1.60%
B-6	5326.40		5315.40	B-6 to B-5 310.21	0.86%
C-1	5320.89	5309.89	5309.69	C-1 to A-4 242.00	0.93%
C-2	5323.44	5312.44	5312.24	C-2 to C-1 203.52	1.15%
C-3	5326.83	5315.83	5315.63	C-3 to C-2 261.00	1.22%
A-9	5329.53	5318.53	5318.33	A-9 to C-3 313.04	0.80%
A-9A	5330.75		5319.75	A-9A to A-9 142.46	0.86%
A-10	5332.03		5321.03	A-10 to A-9 120.00	2.08%
D-1	5325.27		5314.27	D-1 to A-5 375.00	1.03%
F-1	5321.48	5310.47	5310.27	F-1 to B-2 285.58	1.50%
F-2	5322.53	5311.25	5311.05	F-2 to F-1 107.91	0.54%
F-3	5323.23	5311.78	5311.58	F-3 to F-2 63.12	0.52%
F-4	5323.12		5312.12	F-4 to F-3 63.47	0.54%
G-1	5322.95		5311.95	G-1 to F-1 197.45	0.75%
H-1	5322.43		5311.43	H-1 to C-1 131.63	1.17%
H-2	5327.89		5316.89	H-2 to H-2A 220.00	1.07%
H-2A	5325.54	5314.54	5314.34	H-2A to C-2 225.00	0.84%

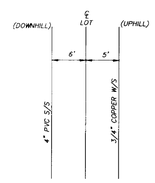
SANITARY SEWER OUTFALL SYSTEM					
MH	RIM	IN	OUT	LENGTH	SLOPE
Z-1	5326.37	5315.11	5314.91	Z-1 to B-5A 265.99	0.82%
Z-2	5226.95	5315.95	5315.75	Z-2 to Z-1 159.84	0.40%
Z-3A	5328.49	5317.49	5317.29	Z-3A to Z-2 220.04	0.61%
Z-4	5332.50	5321.49	5321.29	Z-4 to Z-3A 315	1.21%
Z-5	5336.7	5326.7	5326.5	Z-5 to Z-4 330'	0.64%
Z-6	5338.1	5328.1	5327.9	Z-6 to Z-5 140'	0.86%
Z-7	5340.7	5330.7	5330.5	Z-7 to Z-6 255'	0.94%
Z-8	5341.8	5331.8	5331.6	Z-8 to Z-7 110'	0.82%
Z-9	5343.1	5333.1	5332.9	Z-9 to Z-8 135'	0.82%
Z-10	5345.6	5334.6	5334.2	Z-10 to Z-9 205'	0.54%
Z-11	5348.3	5338.3	5338.1	Z-10 to Z-11 135'	2.59%
Z-12	5354.4	5341.4	5341.2	Z-12 to Z-11 305'	0.95%
Z-13	5360.9		5350.9	Z-13 to Z-12 310'	3.07%
Y-1	5326.97		5315.97	Y-1 to Z-1 119.22	0.72%
X-1	5333.24		5322.25	X-1 to Z-2 136.00	4.63%
W-1	5332.73		5321.73	W-1 to Z-4 56.82	0.42%
V-1	5339.8	5329.8	5329.6	V-1 to Z-5 315'	0.92%
V-2	5342.5	5332.7	5332.5	V-2 to V-1 260'	1.04%
V-3	5344.9	5335.1	5334.9	V-3 to V-2 260'	0.85%
V-4	5352.3	5342.5	5342.5	V-4 to V-3 365'	2.03%
V-5	5359.6		5349.6	V-5 to V-4 400'	1.78%
U-1	5338.6		5328.7	U-1 to Z-6 35'	1.71%
T-1	5344.0		5334.0	T-1 to Z-8 145'	1.52%
S-1	5347.5		5337.5	S-1 to Z-10 35'	8.29%
R-1	5356.0		5346.0	R-1 to Z-12 170'	2.71%
Q-1	5347.3	5337.3	5337.1	Q-1 to Y-1 365'	2.00%
Q-2	5354.8	5344.8	5344.6	Q-2 to Q-1 385'	1.90%
Q-3	5360.4	5350.4	5350.2	Q-3 to Q-2 300'	1.80%
Q-4	5361.5		5351.5	Q-4 to Q-3 125'	0.88%
P-1	5349.1		5339.1	P-1 to Q-1 200'	0.90%
O-1	5356.8		5347.8	O-1 to Q-2 220'	1.36%
N-1	5349.8	5339.8	5339.6	N-1 to Y-2 365'	1.89%
N-2	5357.3	5346.3	5346.1	N-2 to N-1 385'	1.64%
N-3	5358.8		5348.8	N-3 to N-2 180'	1.39%
M-1	5351.7		5341.7	M-1 to N-1 210'	0.91%
L-1	5344.2		5334.2	L-1 to Z-7 380'	0.92%
K-1	5348.7		5338.7	K-1 to Z-9 380'	1.47%
J-1	5353.4		5343.4	J-1 to Z-11 250'	2.04%

CITY OF BOULDER
DEPARTMENT OF PUBLIC WORKS
PRE-APPROVAL REVIEW
WATER/WASTEWATER
STORMWATER
TRANSPORTATION

AS-BUILT APP.
BY:
DATE: 1-28-94



VICINITY MAP
SCALE 1"=2000'



TYPICAL SERVICE

ENGINEERING DESIGN
Reference "FOUR MILE CREEK" Sealed by:
John W. Jongman
P.E. # 22730 Dated: 6/28/93

LEGEND

- EXISTING WATER LINE
- EXISTING SEWER LINE
- PROPOSED WATER LINE
- PROPOSED SEWER LINE
- EXISTING MANHOLE
- PROPOSED MANHOLE
- EXISTING WATER VALVE
- PROPOSED WATER VALVE
- PROPOSED FIRE HYDRANT
- PROPOSED THRUST BLOCK/BEND
- PROPOSED PLUG

NOTES:

1. ALL SANITARY SEWER LINE SHALL BE 8" DIAMETER PVC (SDR35)
2. ALL WATER LINE SHALL BE POLYETHELENE WRAPPED AWWA C151-CL 51 FOR 12" AND PVC, AWWA C900-CL200 FOR 8" AND 6".
3. MINIMUM HORIZONTAL SEPARATION BETWEEN W/L AND S/L IS 11' (CENTERLINE TO CENTERLINE).
4. MINIMUM SLOPE 8" S/L IS 0.4% MINIMUM COVER 4.0'.
5. MINIMUM COVER W/L IS 4.5'.
6. ALL WATERLINE SHALL BE 8" UNLESS OTHERWISE NOTED.
7. FINAL INVERTS AND PIPE GRADES SHOWN ON CONSTRUCTION PLANS.

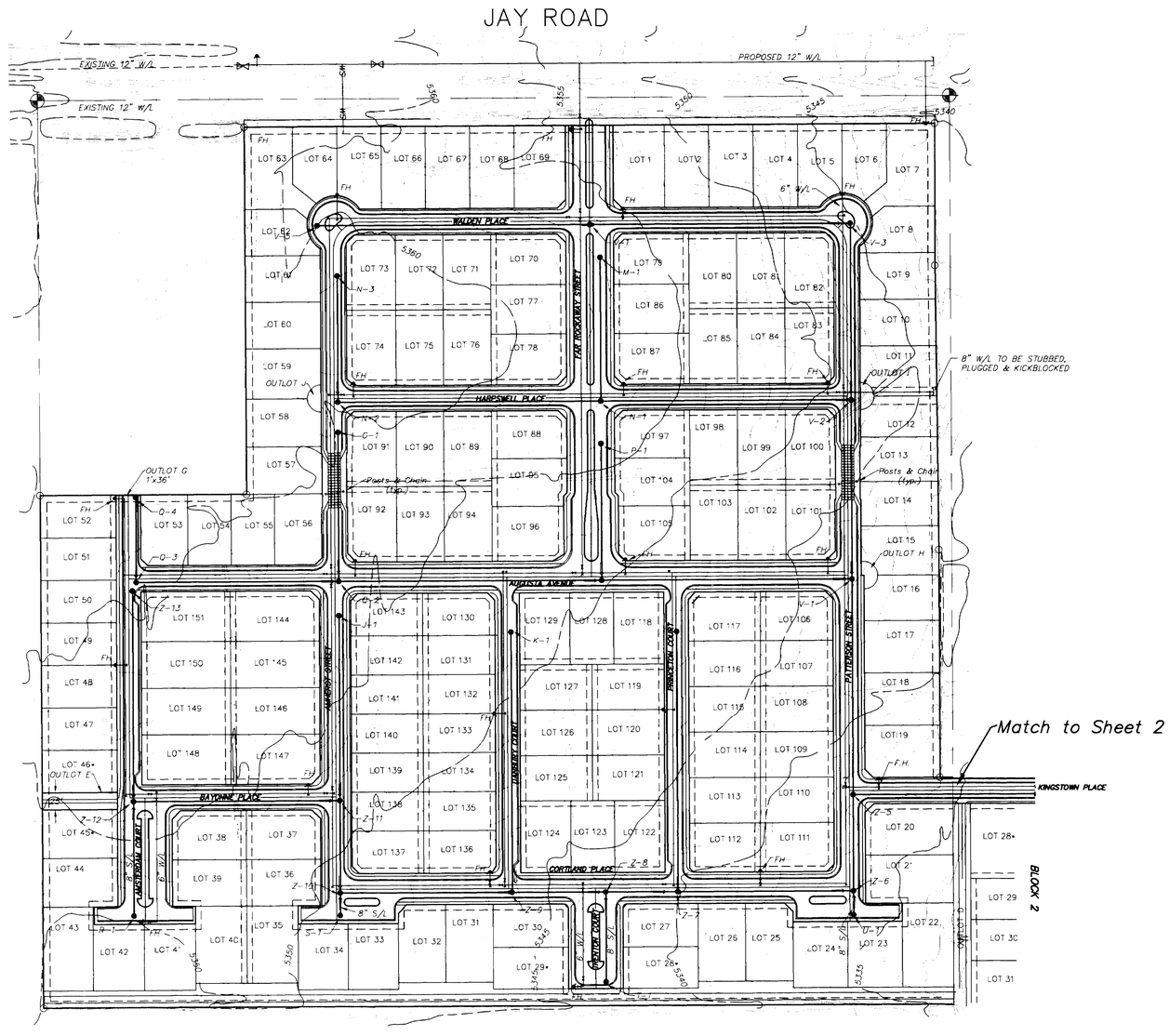
CITY OF BOULDER
ENGINEERING CONSTRUCTION
APPROVED
CITY ENGINEER DATE 6/29/93
APPROVAL EXPIRES ONE YEAR AFTER DATE ABOVE

GRAPHIC SCALE
100 0 50 100 200 400
(IN FEET)
1 inch = 100 ft.

21004

FOUR MILE CREEK
MASTER UTILITY PLAN
BLOCKS 1 & 2

SCALE HOR.1"=100' VERT.N/A	HURST & ASSOCIATES, INC. CONSULTING ENGINEERS 3055 47th Street, A-2 Boulder, Colorado 80301 (303) 449-9105
DESIGN CH	
DRAWN RKI	
FILE NAME 009MU-1	
APPROVED CH	JOB NO. 2000-9 DATE 06/23/93 SHEET 2 OF 32



GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

AS BUILT
BY: [signature]
DATE: 6-28-94

M F Reid 6/29/93
CITY ENGINEER DATE
APPROVAL EXPIRES ONE YEAR AFTER DATE ABOVE

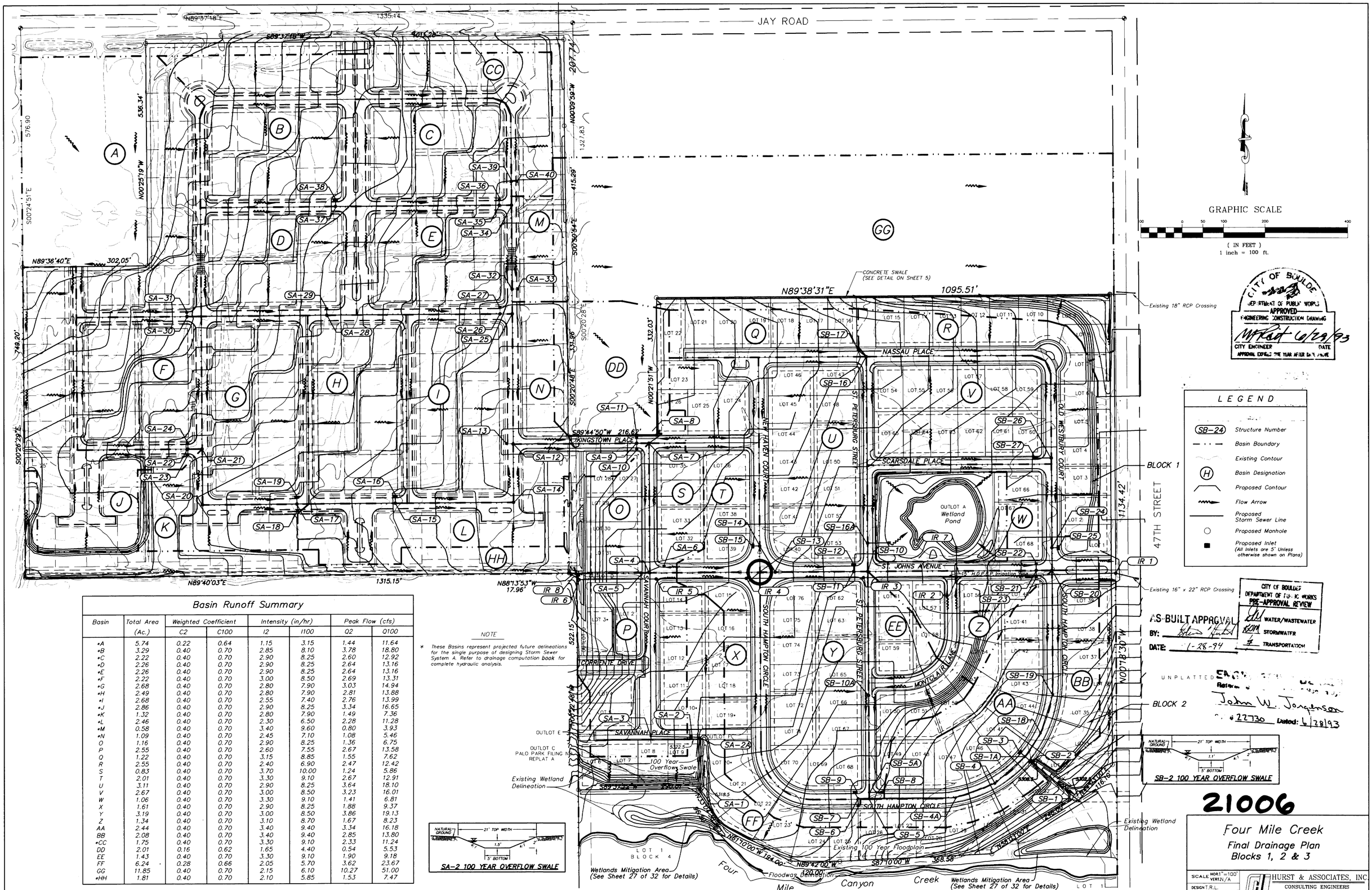
Reviewed by:
John W. Jorgenson
P.E. # 22730 Dated: 6/28/93

WATER/WASTEWATER
STORM WATER
TRANSPORTATION

21005

FOUR MILE CREEK
MASTER UTILITY PLAN
BLOCK 3

SCALE HOR: 1"=100' VERT: N/A	HURST & ASSOCIATES, INC. CONSULTING ENGINEERS 3055 47th Street, A-2 Boulder, Colorado 80301 (303) 449-9105
DESIGN CH	
DRAWN AKR	
FILE NAME 009MU-2	
APPROVED CH	JOB NO. 2000-9 DATE 05/17/93 SHEET 3 OF 32

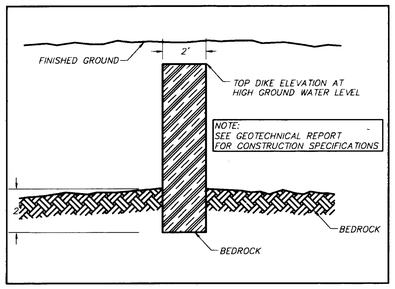


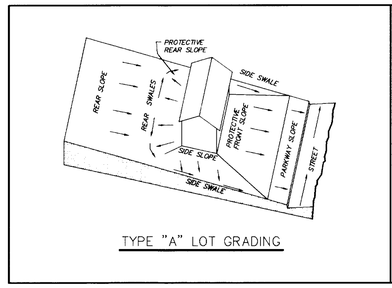
Basin Runoff Summary

Basin	Total Area (Ac.)	Weighted Coefficient C2	Weighted Coefficient C100	Intensity (in/hr) I2	Intensity (in/hr) I100	Peak Flow (cfs) Q2	Peak Flow (cfs) Q100
*A	5.74	0.22	0.64	1.15	3.15	1.44	11.64
*B	3.29	0.40	0.70	2.85	8.10	3.78	18.80
*C	2.22	0.40	0.70	2.90	8.25	2.60	12.92
*D	2.26	0.40	0.70	2.90	8.25	2.64	13.16
*E	2.26	0.40	0.70	2.90	8.25	2.64	13.16
*F	2.22	0.40	0.70	3.00	8.50	2.69	13.31
*G	2.68	0.40	0.70	2.80	7.90	3.03	14.94
*H	2.49	0.40	0.70	2.80	7.90	2.81	13.88
*I	2.68	0.40	0.70	2.55	7.40	2.76	13.99
*J	2.86	0.40	0.70	2.90	8.25	3.34	16.65
*K	1.32	0.40	0.70	2.80	7.90	1.49	7.36
*L	2.46	0.40	0.70	2.30	6.50	2.28	11.28
*M	0.58	0.40	0.70	3.40	9.60	0.80	3.93
*N	1.09	0.40	0.70	2.45	7.10	1.08	5.46
O	1.16	0.40	0.70	2.90	8.25	1.36	6.75
P	2.55	0.40	0.70	2.60	7.55	2.67	13.58
Q	1.22	0.40	0.70	3.15	8.85	1.55	7.62
R	2.55	0.40	0.70	2.40	6.90	2.47	12.42
S	0.83	0.40	0.70	3.70	10.00	1.24	5.86
T	2.01	0.40	0.70	3.30	9.10	2.67	12.91
U	3.11	0.40	0.70	2.90	8.25	3.64	18.10
V	2.67	0.40	0.70	3.00	8.50	3.23	16.01
W	1.06	0.40	0.70	3.30	9.10	1.41	6.81
X	1.61	0.40	0.70	2.90	8.25	1.88	9.37
Y	3.19	0.40	0.70	3.00	8.50	3.86	19.13
Z	1.34	0.40	0.70	3.10	8.70	1.67	8.23
AA	2.44	0.40	0.70	3.40	9.40	3.34	16.18
BB	2.08	0.40	0.70	3.40	9.40	2.85	13.80
*CC	1.75	0.40	0.70	3.30	9.10	2.33	11.24
DD	2.01	0.16	0.62	1.65	4.40	0.54	5.53
EE	1.43	0.40	0.70	3.30	9.10	1.90	9.18
FF	6.24	0.28	0.66	2.05	5.70	3.62	23.67
GG	11.85	0.40	0.70	2.15	6.10	10.27	51.00
*HH	1.81	0.40	0.70	2.10	5.85	1.53	7.47

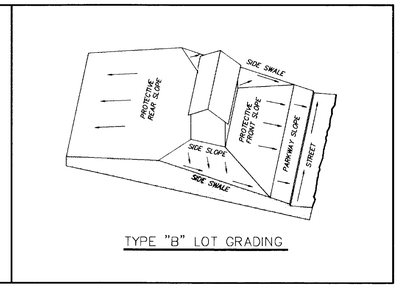
NOTE

* These Basins represent projected future delineations for the single purpose of designing Storm Sewer System A. Refer to drainage computation book for complete hydraulic analysis.





TYPE "A" LOT GRADING



TYPE "B" LOT GRADING

EARTHWORK GENERAL NOTES:

1. ALL STRUCTURES, CONCRETE, TREES, BRUSH AND RUBBISH SHALL BE REMOVED AND ACCEPTABLY DISPOSED OF.
2. ALL ORGANIC MATTER SHALL BE REMOVED FROM FILL AREAS.
3. ALL FILL AREAS SHALL BE COMPACTED IN ACCORDANCE WITH THE GEOTECHNICAL ENGINEER'S RECOMMENDATIONS.
4. ALL SLOPES STEEPER THAN 4:1 SHALL BE TREATED WITH SEED AND MULCH.

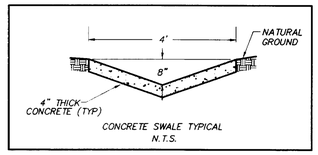
SEEDING NOTES:

1. SPREAD WITH 2" (MINIMUM) DEPTH OF TOPSOIL BEFORE SEEDING AND SCARIFYING TO A MINIMUM DEPTH OF 6".
2. SEED SHALL BE DRILLED 1/4" TO 1/2" DEEP.
3. SEED MIX SHALL BE AS FOLLOWS:

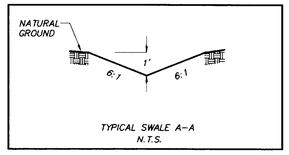
MIX	SPECIES	#PLS/AC
25%	CRESTED WHEATGRASS	5.0
25%	WESTERN WHEATGRASS	8.0
25%	FAIRWAY WHEATGRASS	3.0
25%	SIDEOATS GRAMA	4.5

4. MULCH SHALL BE CLEAN HAY CRIMPED INTO SOIL (APPLICATION RATE APPROX. 2 TONS/ACRES).

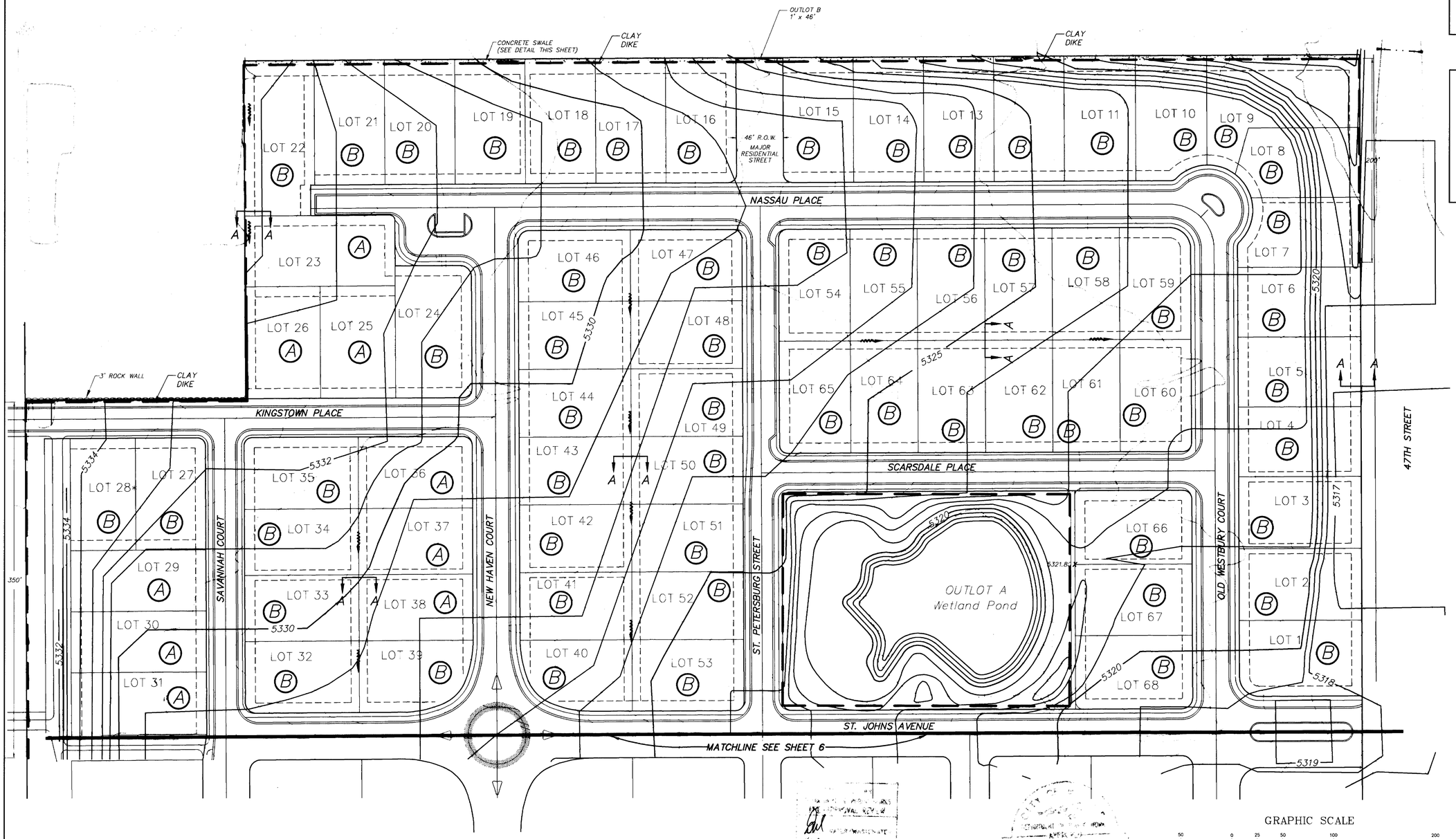
NOTE:
SEE SHEET 7 STORMWATER MANAGEMENT PLAN FOR EROSION CONTROL MEASURES.



CONCRETE SWALE TYPICAL
N.T.S.



TYPICAL SWALE A-A
N.T.S.



EARTHWORK SUMMARY

Cut:	43,201 C.Y.
Fill:	69,219 C.Y
Area cut:	19.5 Acres
Area fill:	15.2 Acres

ENGINEERING DESIGN
Referenced "RECORD SET" Sealed by:
John W. Jorgenson
P.E. # 22730 Dated: 6/28/93

LEGEND

EXISTING CONTOURS
PROPOSED CONTOURS
CLAY DIKE

48 HOURS BEFORE YOU DIG
CALL FOR THE BLUE STAKES
1-800-922-1987
GAS, ELECTRIC, TELEPHONE, CATV AND PANHANDLE EASTERN PIPELINE LOCATIONS

AS-BUILT APPR
BY:
DATE: 1-28-94

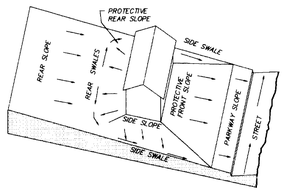
GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

21007

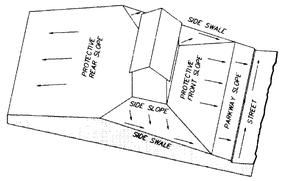
4/29/93
CITY ENGINEER

FOUR MILE CREEK
OVERLOT GRADING BLOCK 1

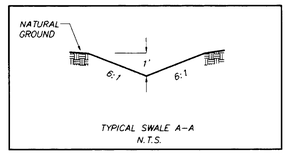
SCALE HOR. 1" = 50' VERT. N/A	HURST & ASSOCIATES, INC. CONSULTING ENGINEERS 3055 47th Street, A-2 Boulder, Colorado 80301 (303) 449-9105
DESIGN TRL	
DRAWN GMC/AKR	
FILE NAME 0990G_1	
APPROVED CH	JOB NO. 20009 DATE 6/23/93 SHEET 5 OF 32



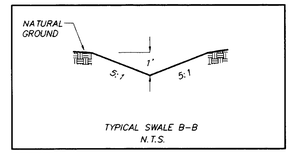
TYPE "A" LOT GRADING



TYPE "B" LOT GRADING



TYPICAL SWALE A–A
N.T.S.

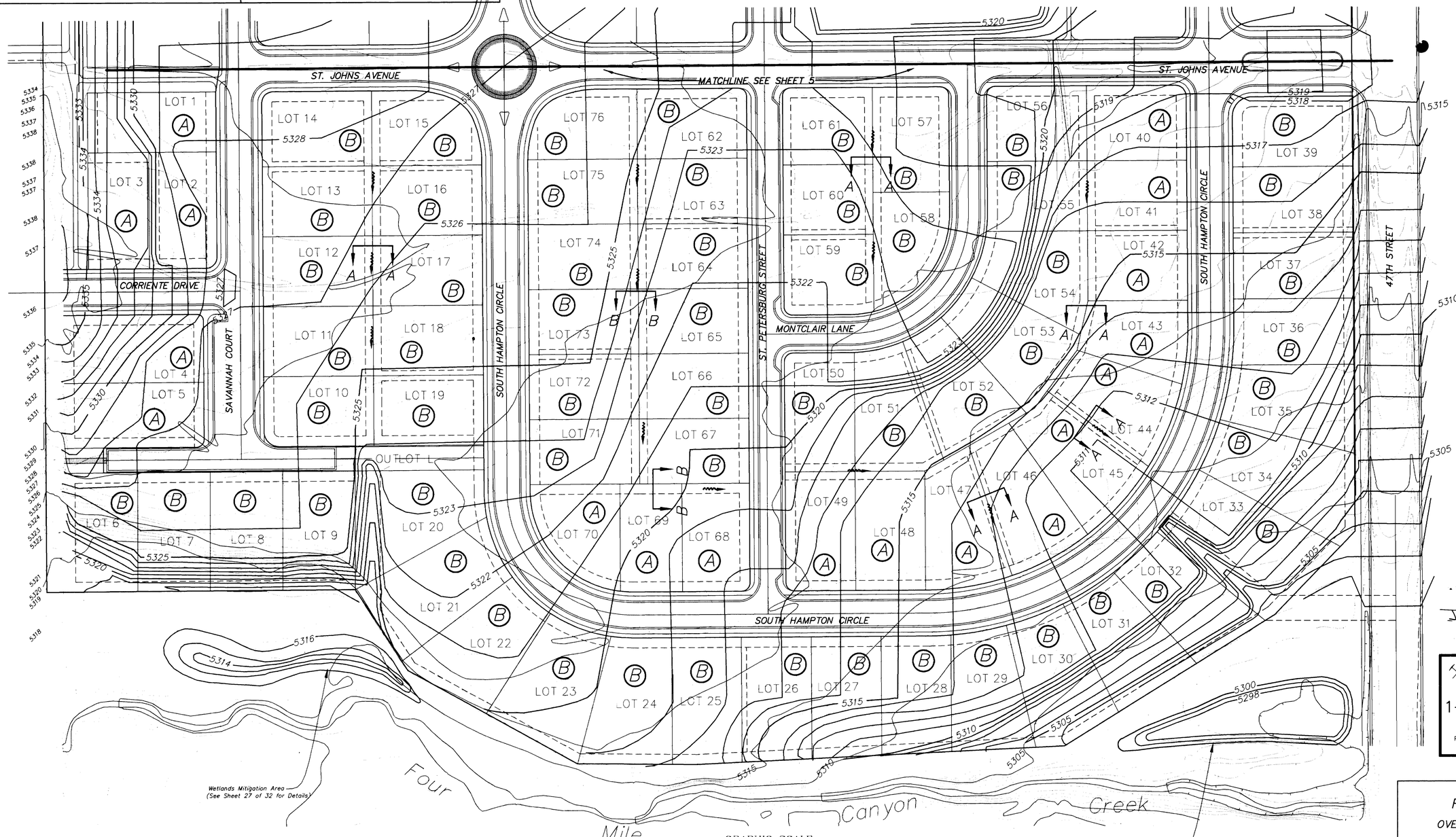


TYPICAL SWALE B–B
N.T.S.

LEGEND

EXISTING CONTOURS

PROPOSED CONTOURS



GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

21008

REVIEWED FOR GENERAL CONFORMANCE WITH THE DESIGN CONCEPT AND THE BOULDER REVISED CODE
BY: WASTEWATER
STORMWATER
TRANSPORTATION

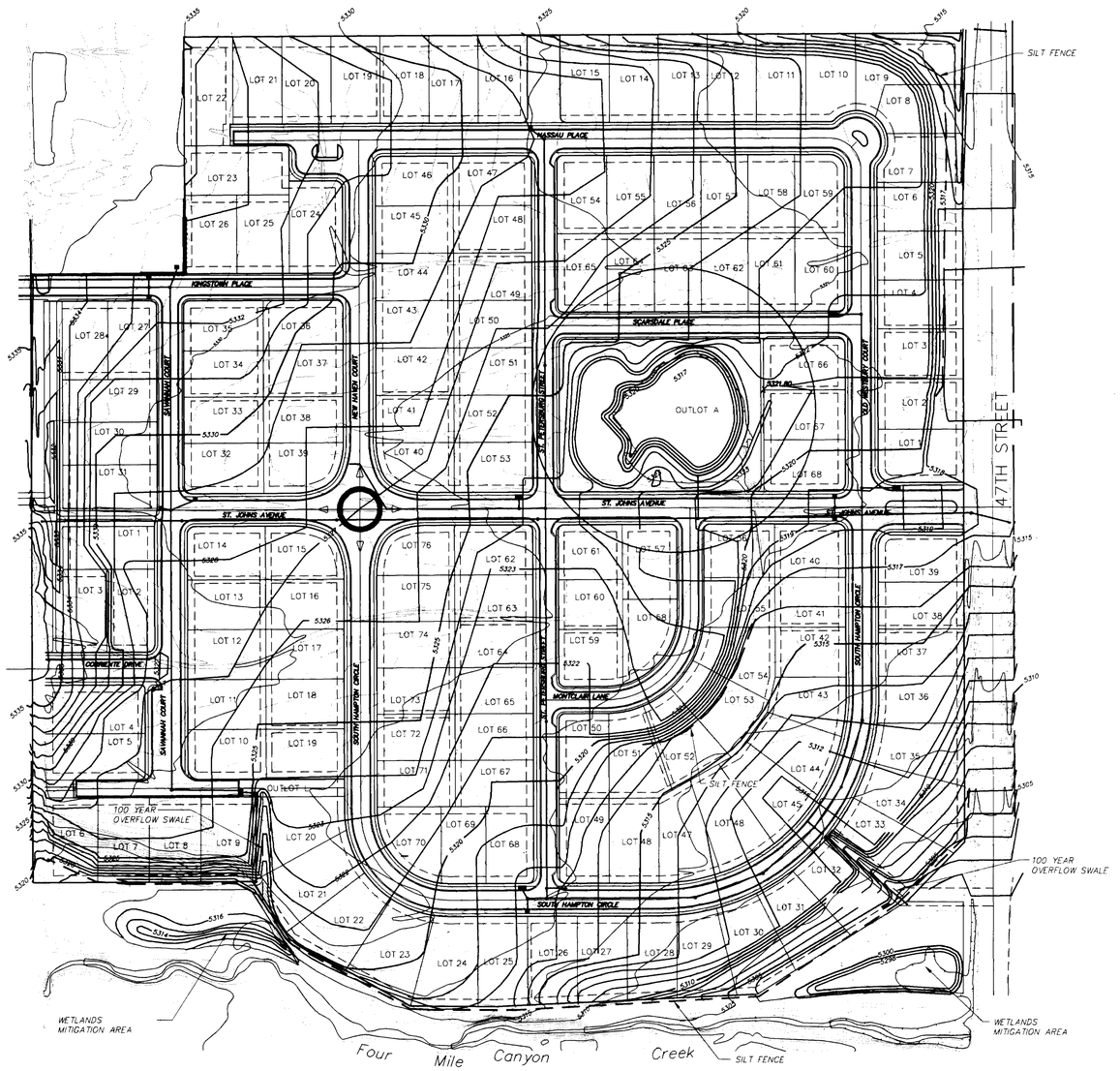
AS-BUILT APPROVED
BY: [illegible]
DATE: 1-28-94

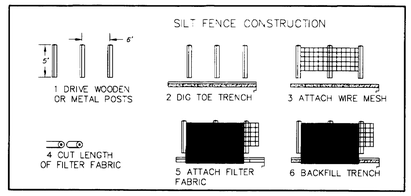
John W. Jorgenson
22730 6/28/93

48 HOURS BEFORE YOU DIG
CALL FOR THE BLUE STAKES
1–800–922–1987
GAS, ELECTRIC, TELEPHONE, CATV AND PANHANDLE EASTERN PIPELINE LOCATIONS

FOUR MILE CREEK
OVERLOT GRADING BLOCK 2

SCALE HOR. 1"=50' VERT. N/A	HURST & ASSOCIATES, INC. CONSULTING ENGINEERS 3055 47th Street, A-2 Boulder, Colorado 80301 (303) 449-9105
DESIGN TRL	
DRAWN GMG/AKR	
FILE NAME 0909_2	
APPROVED CH	JOB NO. 20009 DATE 5/17/93 SHEET 6 OF 32





LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- SILT FENCE

48 HOURS BEFORE YOU DIG
CALL FOR THE BLUE STAKES
1-800-922-1987
GAS, ELECTRIC, TELEPHONE, CATV AND PANHANDLE EASTERN PIPELINE LOCATIONS

EARTHWORK GENERAL NOTES:

1. Four Mile Creek is a 125.78 acre, 144 lot, single family residential development located in the Southeast Quarter of Section 17, Township 1 North, Range 70 West, Sixth Principle Meridian, in the City of Louisville, Boulder County, Colorado.
2. Overlot grading of the development site shall be performed as indicated on these plans.
3. Pre-development land use was unimproved greenbelt with runoff coefficients as follows: C2 = 0.10 C100 = 0.60

   Post-development runoff coefficients are consistent with single family residential development and are as follows: C2 = 0.40 C100 = 0.70
4. Existing ground cover consists primarily of native grasses.
5. No potential sources of pollution are known to exist on the site.
6. No non-stormwater components of discharge are known to exist on the site.
7. Post-development runoff will be conveyed by Storm Sewer and streets to wetland areas located in the southwest wnd southeast property corners adjacent to Four Mile Canyon Creek. Ultimate receiving water body is Four Mile Canyon Creek.
8. All structures, concrete, trees, brush and rubbish shall be removed and acceptably disposed of.
9. All organic matter shall be removed from fill areas.
10. All fill areas shall be compacted in accordance with the geotechnical engineer's recommendations.
11. All slopes steeper than 4:1 shall be treated with seed and mulch.
12. Silt fence shall be placed at the toe and drainage outfall points of all slopes 4:1 or steeper to prevent siltation and sediment transport.
13. Contractor shall comply with all Local, County, and State regulations pertaining to grading, dust, and erosion.
14. Natural vegetation shall be retained and protected wherever possible. Exposure of soil to erosion by removal or disturbance of vegetation shall be limited to the area required for immediate construction operations and for the shortest practical period of time.
15. Topsoil shall be stockpiled to the extent practicable on the site for use on areas to be revegetated. Any and all stockpiles shall be located and protected from erosive elements.
16. At all times, the property shall be maintained and/or watered to prevent wind-caused erosion. Earthwork operations shall be discontinues when fugitive dust significantly impacts adjacent property. If earthwork is complete or discontinued and dust from the site continues to create problems, the owner/developer shall immediately institute mitigative measures and shall correct damage to adjacent property.

Seeding Notes:

1. Spread with 2" (minimum) depth of topsoil before seeding and scarifying to a minimum depth of 6".
2. Seed shall be drilled 1/4" to 1/2" deep.
3. Seed mix shall be as follows:

Mix	Species	#PLS/AC
25%	Crested Wheatgrass	5.0
25%	Western Wheatgrass	8.0
25%	Fairway Wheatgrass	3.0
25%	Sideoats Grama	4.5

4. Mulch shall be clean hay crimped into soil (application rate approximately 2 tons/acre).
5. Erosion control to be installed as required by the engineer or directed by the city.

MF Pdit 6/29/93
APPROVAL EXPIRES ONE YEAR

GRAPHIC SCALE
100 0 50 100 200 400
(IN FEET)
1 inch = 100 ft.

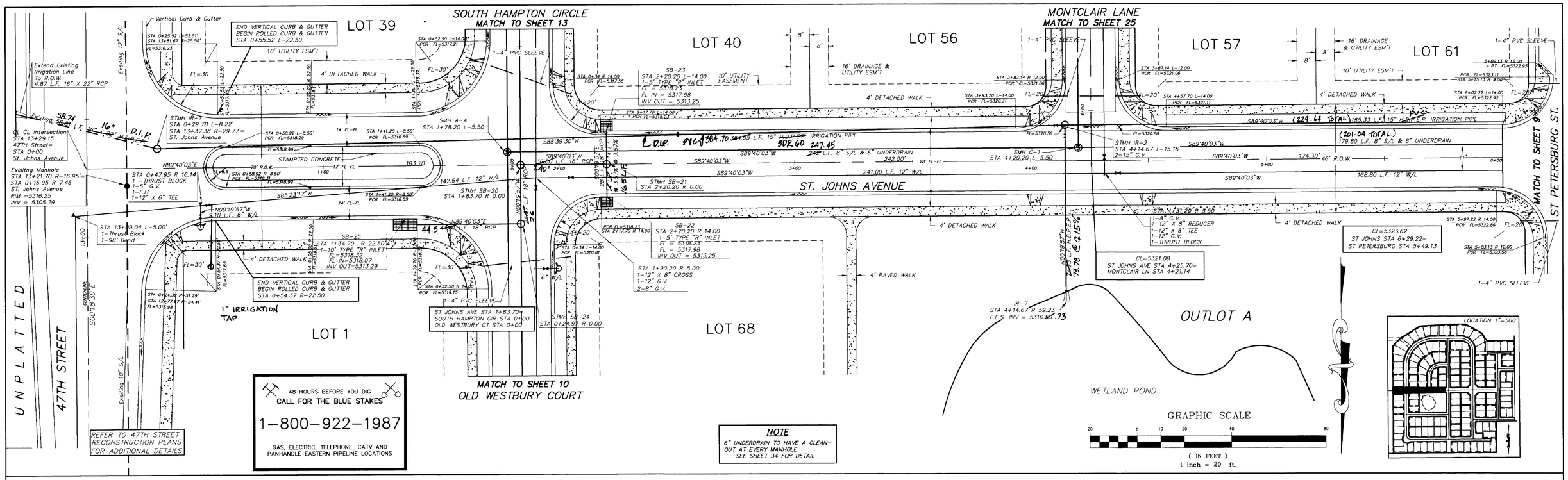
AS-BUILT APPROVAL
BY: Steve Hurst
DATE: 1-28-94

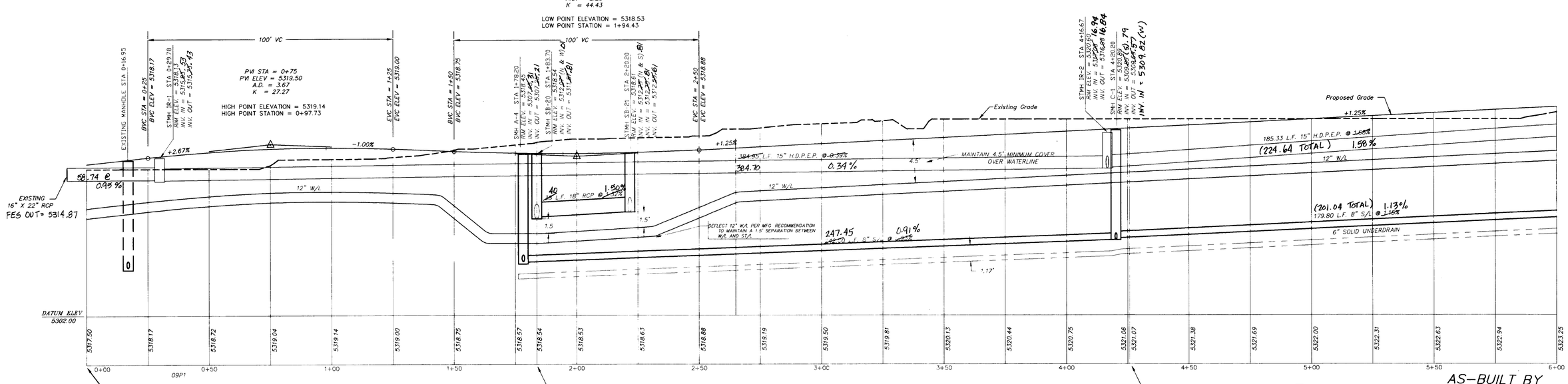
21009

ENGINEERING DESIGN
John W. Jorgenson
P.E. 22730 DATE 6/28/93

FOUR MILE CREEK
STORMWATER MANAGEMENT PLAN

SCALE HOR:1"=100' VERT:N/A	HURST & ASSOCIATES, INC. CONSULTING ENGINEERS 3055 47th Street, A-2 Boulder, Colorado 80301 (303) 449-9105
DESIGN TRL	
DRAWN GMG	
FILE NAME 09SWMP	
APPROVED CH	JOB NO. 20009 DATE 5/17/93 SHEET 7 OF 32





21010

AS-BUILT BY
HURST & ASSOCIATES, INC.
CONSULTING ENGINEERS
1/94

ENGINEERING DESIGN
John W. Jorgenson
PE # 22730 Date: 6/28/93

AS-BUILT APPROVAL
BY:
DATE: 1-28-94

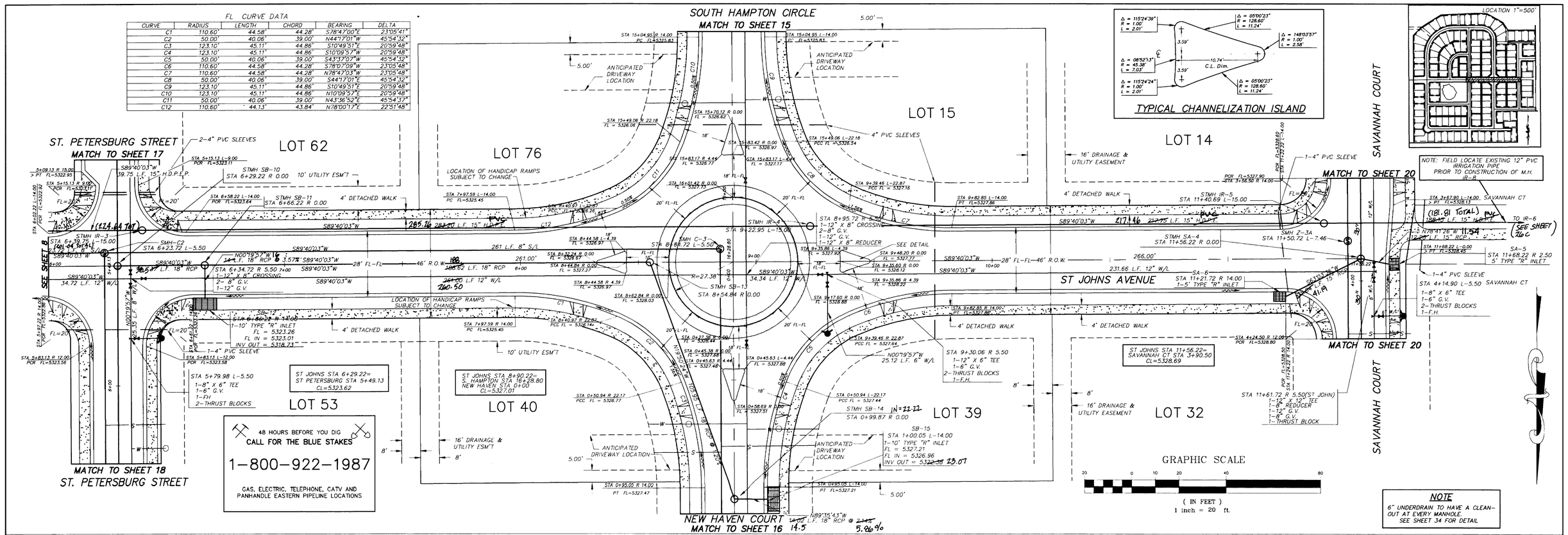
CITY ENGINEER 6/29/93
APPROVAL EXPIRES ONE YEAR AFTER DATE ABOVE

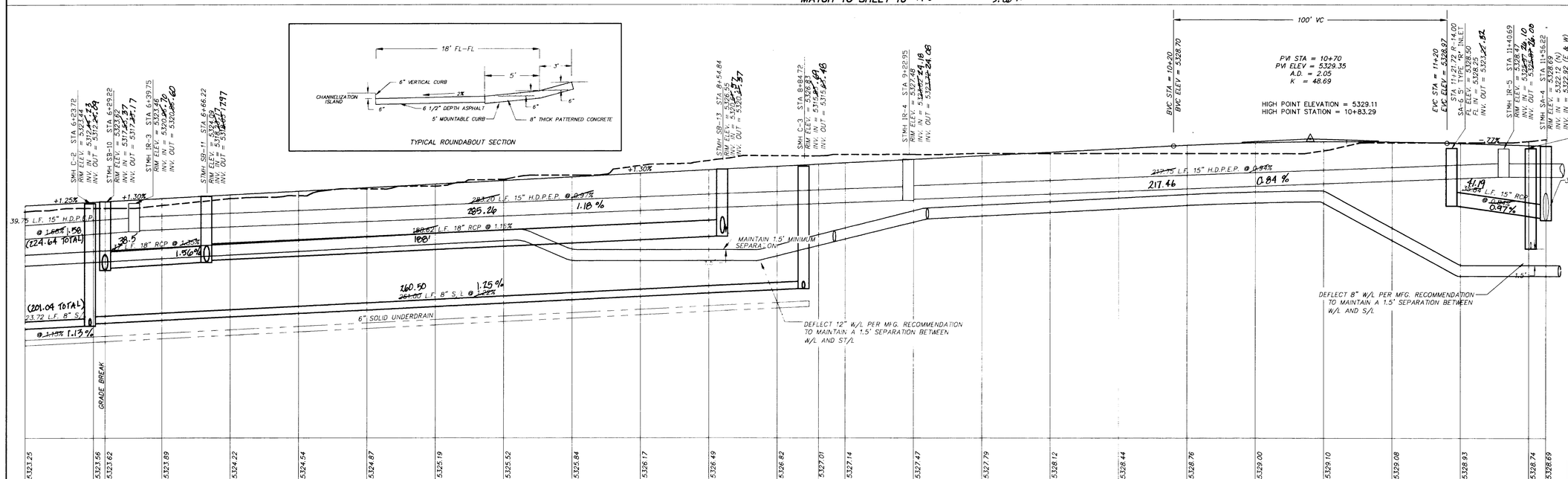
FOUR MILE CREEK
ST JOHNS AVENUE
PLAN & PROFILE
STA 0+00 – 6+00

SCALE HOR.1=20 VERT.1=5	HURST & ASSOCIATES, INC. CONSULTING ENGINEERS 3055 47th Street, A-2 Boulder, Colorado 80301 (303) 449-9105
DESIGN TRL	
DRAWN RKI/CAD	
FILE NAME 09PP1	
APPROVED CH	JOB NO. 20009 DATE 06.22.93 SHEET 8 OF 32

FL CURVE DATA

CURVE	RADIUS	LENGTH	CHORD	BEARING	DELTA
C1	110.60'	44.58'	44.28'	S78°47'00"E	23°05'41"
C2	50.00'	40.06'	39.00'	N44°17'01"W	45°54'32"
C3	123.10'	45.11'	44.86'	S10°49'51"E	20°59'48"
C4	123.10'	45.11'	44.86'	S10°09'57"W	20°59'48"
C5	50.00'	40.06'	39.00'	S43°37'07"W	45°54'32"
C6	110.60'	44.58'	44.28'	S78°07'09"W	23°05'48"
C7	110.60'	44.58'	44.28'	N78°47'03"W	23°05'48"
C8	50.00'	40.06'	39.00'	S44°17'01"E	45°54'32"
C9	123.10'	45.11'	44.86'	S10°49'51"E	20°59'48"
C10	123.10'	45.11'	44.86'	N10°09'57"E	20°59'48"
C11	50.00'	40.06'	39.00'	N43°36'52"E	45°54'37"
C12	110.60'	44.13'	43.84'	N78°00'17"E	22°51'48"





48 HOURS BEFORE YOU DIG
CALL FOR THE BLUE STAKES
1-800-922-1987
GAS, ELECTRIC, TELEPHONE, CATV AND PANHANDLE EASTERN PIPELINE LOCATIONS

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

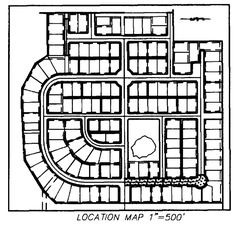
CUL-DE-SAC FL CURVE TABLE

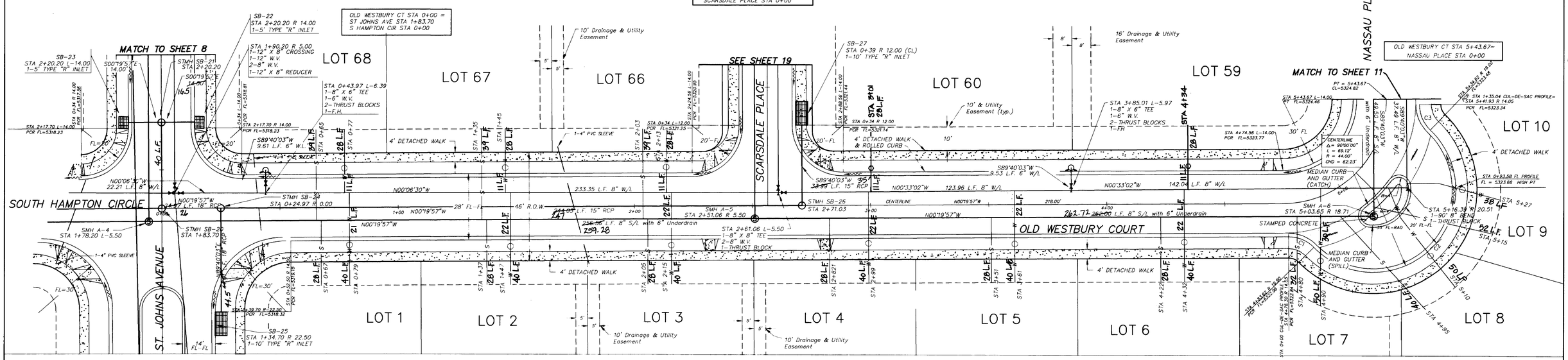
CURVE	RADIUS	LENGTH	CHORD	BEARING	DELTA
C1	15.00'	12.01'	11.69'	S22°36'03"W	45°52'02"
C2	35.00'	111.02'	69.99'	N45°19'57"W	181°44'03"
C3	15.00'	12.01'	11.69'	N66°44'02"E	45°52'02"

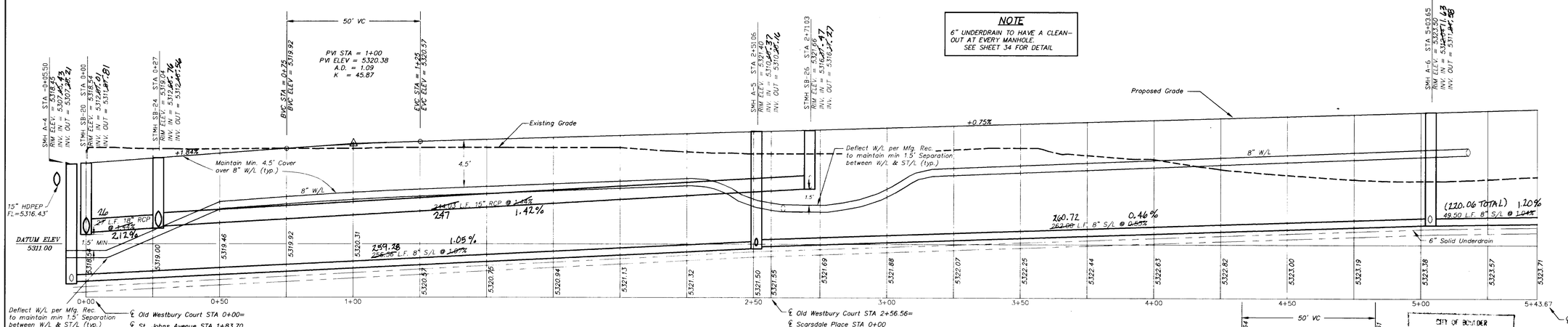
OLD WESTBURY CT STA 2+56.56 = SCARSDALE PLACE STA 0+00

OLD WESTBURY CT STA 0+00 = ST JOHNS AVE STA 1+83.70 S HAMPTON CIR STA 0+00

OLD WESTBURY CT STA 5+43.67= NASSAU PLACE STA 0+00







LEGEND

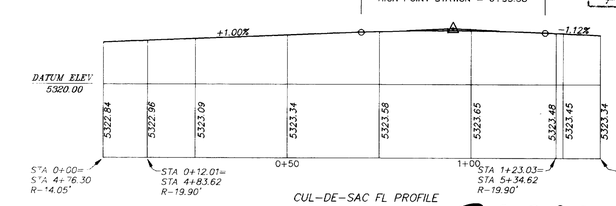
- Sewer Manhole
- Water Meter
- Water Valve
- Fire Hydrant
- Thrust Block
- Plug
- Proposed San. Sewer Line
- Proposed Water Line
- Proposed San. Sewer Service
- Proposed Water Service
- Proposed Storm Drainage
- Sign

ALL UTILITIES ARE PROPOSED UNLESS NOTED.

AS-BUILT APPROVAL
BY: [illegible]
DATE: 1-28-94

CITY OF BOULDER
DEPARTMENT OF PUBLIC WORKS
PRE-APPROVAL REVIEW
WATER/WASTEWATER
STORMWATER
TRANSPORTATION

ENGINEER'S CERTIFICATION
Prepared by:
John W. Jorgenson
P.E. # 22730 Dated: 6/28/93



AS-BUILT BY
HURST & ASSOCIATES, INC. CONSULTING ENGINEERS
1/94

FOUR MILE CREEK
OLD WESTBURY COURT
PLAN & PROFILE
STA 0+00 - 5+43.16

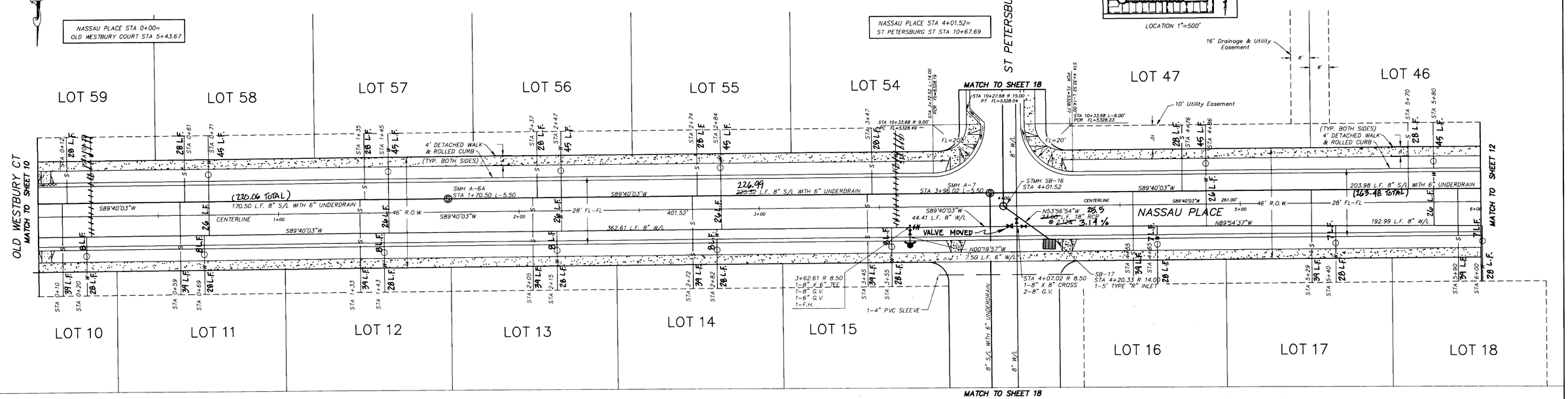
SCALE	HOR.1=20 VERT.1=5
DESIGN	TRL
DRAWN	RKI/CAD
FILE NAME	09PP3
APPROVED	CH

HURST & ASSOCIATES, INC.
CONSULTING ENGINEERS
3055 47th Street, A-2
Boulder, Colorado 80301 (303) 449-9105
JOB NO. 20009 DATE 06/22/93 SHEET 10 OF 33

21012

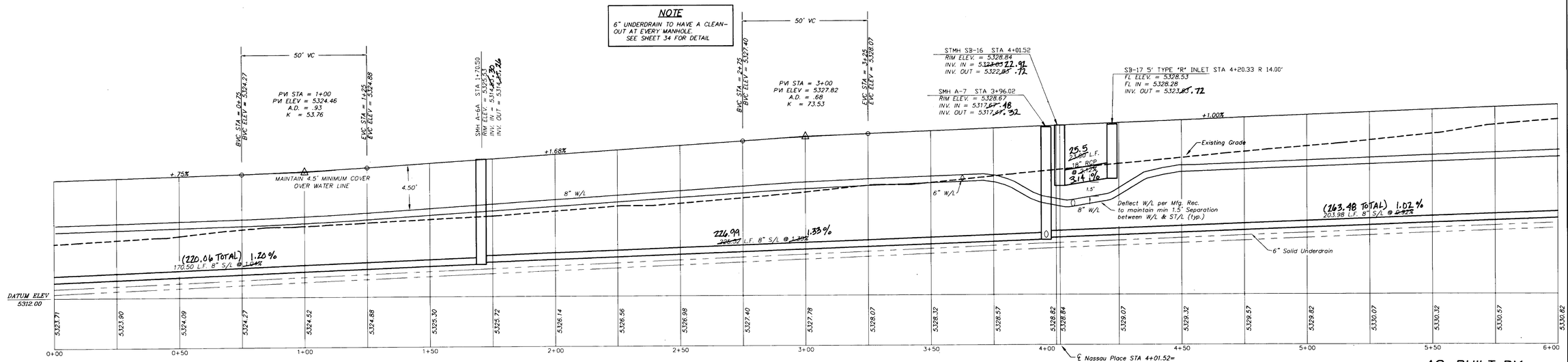
48 HOURS BEFORE YOU DIG
CALL FOR THE BLUE STAKES
1-800-922-1987
GAS, ELECTRIC, TELEPHONE, CATV AND PANHANDLE EASTERN PIPELINE LOCATIONS

GRAPHIC SCALE
(IN FEET)
1 inch = 20 ft.



NOTE

6" UNDERDRAIN TO HAVE A CLEAN-OUT AT EVERY MANHOLE. SEE SHEET 34 FOR DETAIL



CITY OF BOULDER
DEPARTMENT OF PUBLIC WORKS
APPROVED
ENGINEERING CONSTRUCTION
CITY ENGINEER — DATE 6/29/93
APPROVAL EXPIRES ONE YEAR AFTER DATE ABOVE.

21013

ENGINEER'S CERTIFICATION
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF COLORADO.
John W. Jorgenson
P.E. # 22730 Dated: 6/28/93

AS-BUILT APPROVAL
BY:
DATE: 1-28-94

AS-BUILT BY
HURST & ASSOCIATES, INC.
CONSULTING ENGINEERS
1/94

FOUR MILE CREEK
NASSAU PLACE
PLAN & PROFILE
STA 0+00 - 6+00

SCALE HOR.1=20 VERT.1=5
DESIGN TRL
DRAWN RKI/CAD
FILE NAME Q9PP4
APPROVED CH

HURST & ASSOCIATES, INC.
CONSULTING ENGINEERS
3055 47th Street, A-2
Boulder, Colorado 80301 (303) 449-9105

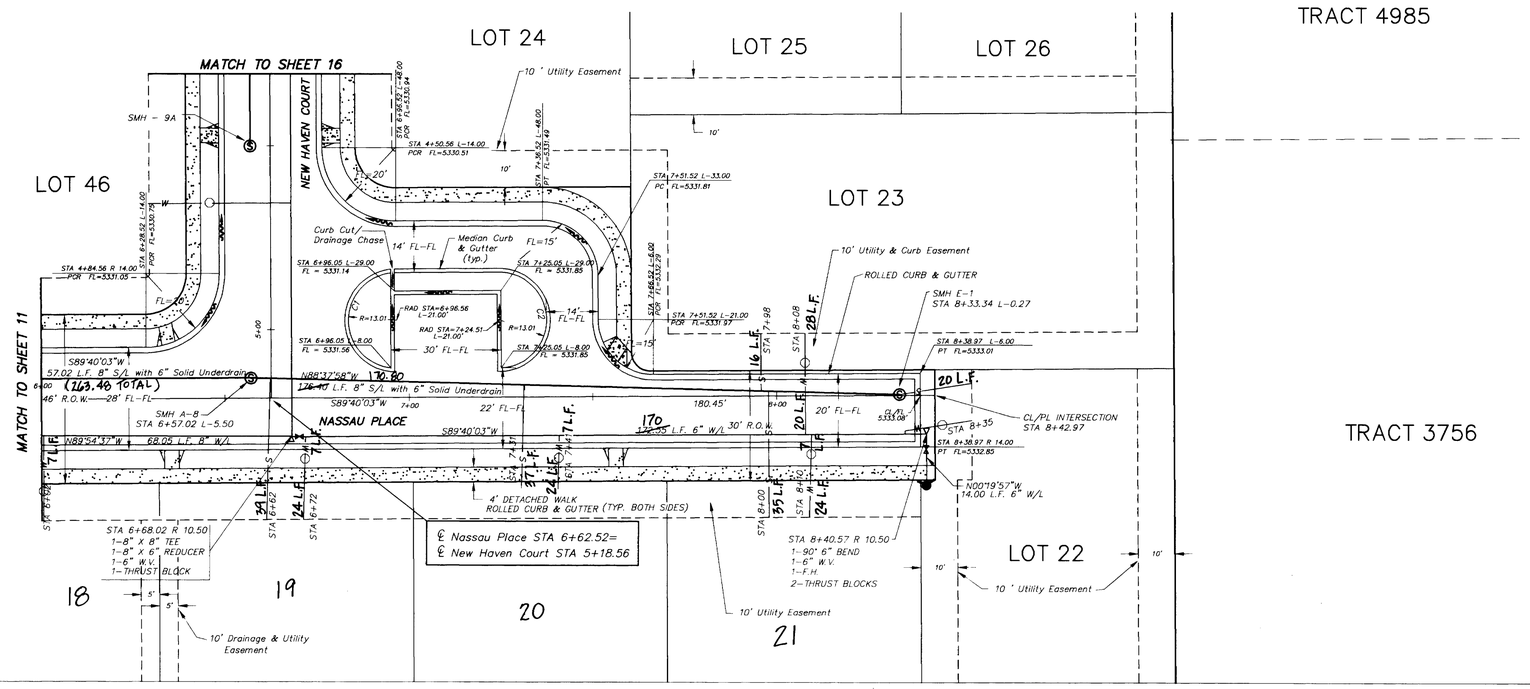
JOB NO. 20009 DATE 06/22/93 SHEET 11 OF 32

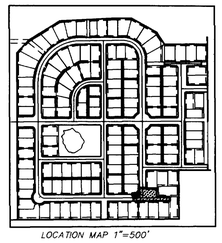
GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

48 HOURS BEFORE YOU DIG
CALL FOR THE BLUE STAKES
1-800-922-1987
GAS, ELECTRIC, TELEPHONE, CATV AND PANHANDLE EASTERN PIPELINE LOCATIONS



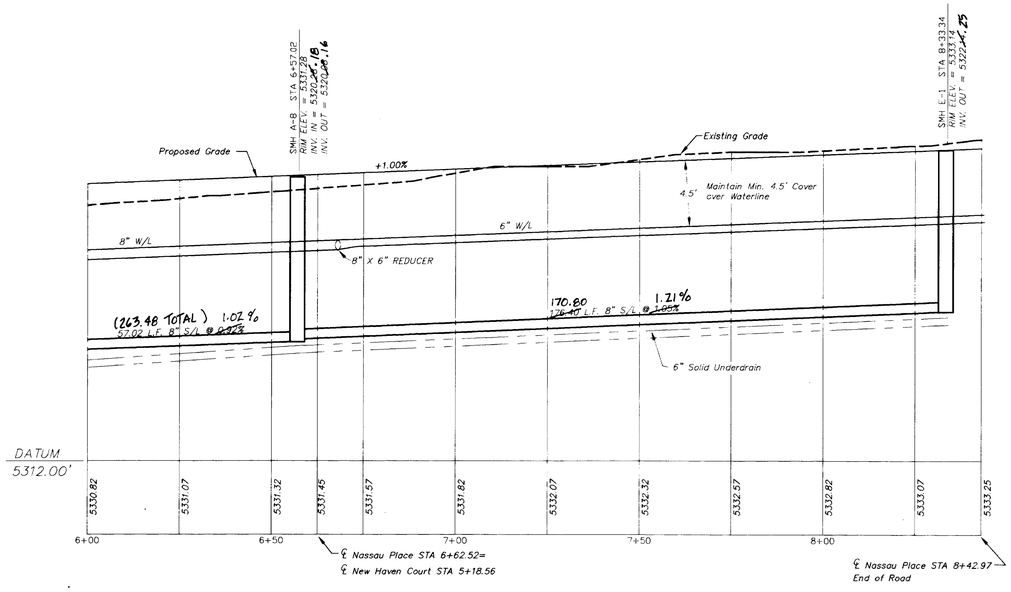


LOCATION MAP 1"=500'

ISLAND FL CURVE DATA

CURVE	RADIUS	LENGTH	CHORD	BEARING	DELTA
C1	13.01'	37.84'	25.84'	N00°19'57"W	166°38'57"
C2	13.01'	39.79'	26.00'	N00°19'57"W	175°13'57"

NOTE
6" UNDERDRAIN TO HAVE A CLEAN-OUT AT EVERY MANHOLE.
SEE SHEET 34 FOR DETAIL



LEGEND

- Sewer Manhole
- Water Meter
- Water Valve
- Fire Hydrant
- Thrust Block
- Plug
- Proposed San. Sewer Line
- Proposed Water Line
- Proposed San. Sewer Service
- Proposed Water Service
- Proposed Storm Drainage
- Sign

ALL UTILITIES ARE PROPOSED UNLESS NOTED.

CITY OF BOULDER
DEPARTMENT OF PUBLIC WORKS
PRE-APPROVAL REVIEW
WATER/WASTEWATER
STORMWATER
TRANSPORTATION

CITY OF BOULDER
DEPARTMENT OF PUBLIC WORKS
APPROVED
ENGINEERING CONSTRUCTION DRAWING
6/29/93
CITY ENGINEER DATE
APPROVAL EXPIRES ONE YEAR AFTER DATE ABOVE

AS-BUILT APPROVAL
BY:
DATE: 1-28-94

AS-BUILT BY
HURST & ASSOCIATES, INC.
CONSULTING ENGINEERS
1/94

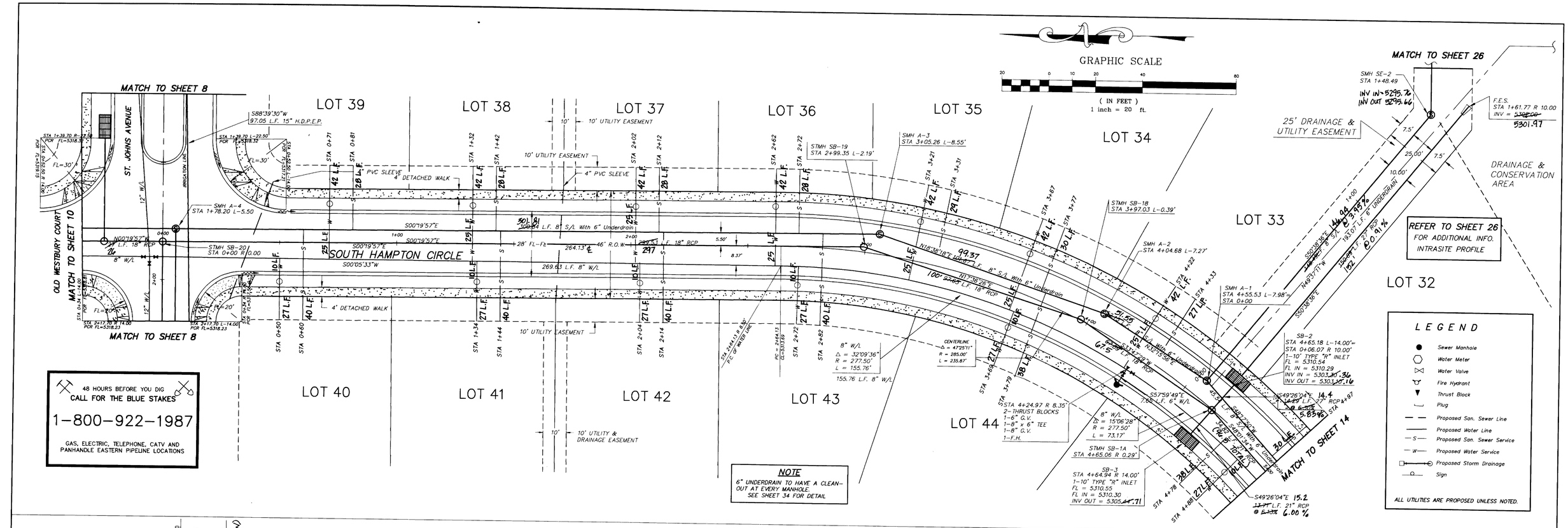
ENGINEER'S SEAL
Reviewed by:
John W. Jorgenson
22730 6/28/93
21014

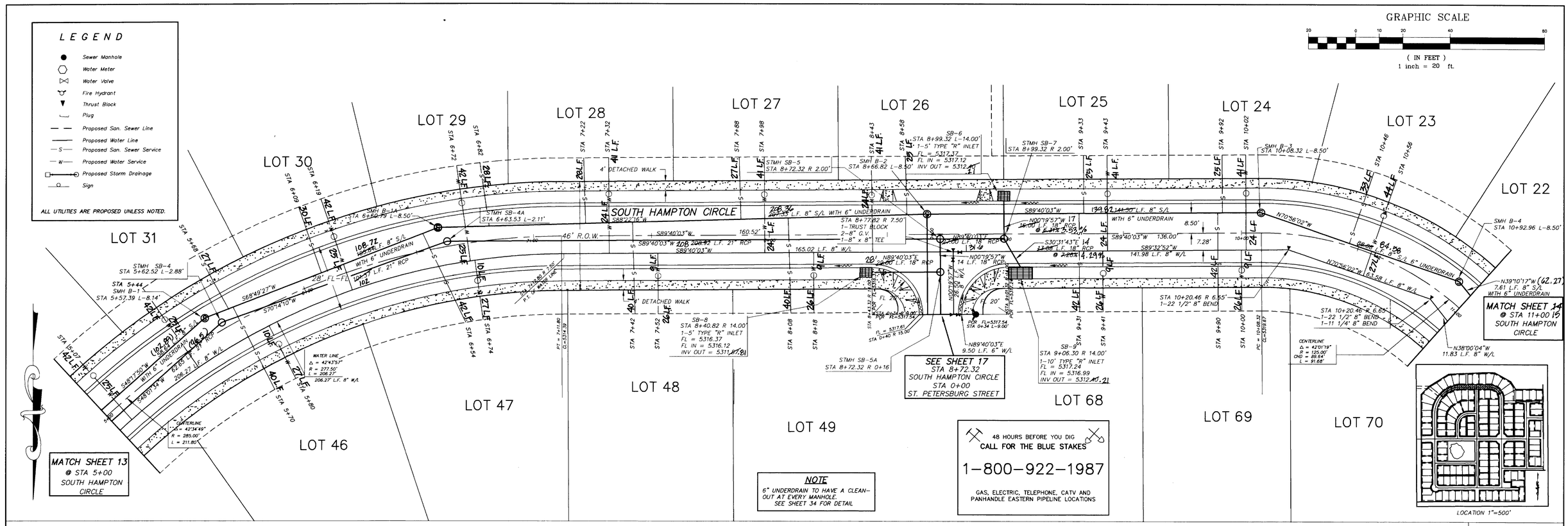
FOUR MILE CREEK
NASSAU PLACE
PLAN & PROFILE
STA 6+00 - 8+42.97

SCALE HOR.1=20 VERT.1=5
DESIGN TRL
DRAWN RKI/CAD
FILE NAME 09PP5
APPROVED CH

HURST & ASSOCIATES, INC.
CONSULTING ENGINEERS
3055 47th Street, A-2
Boulder, Colorado 80301 (303) 449-9105

JOB NO 20009 DATE 06/24/93 SHEET 12 OF 32


GRAPHIC SCALE
(IN FEET)
1 inch = 20 ft.
MATCH TO SHEET 8
MATCH TO SHEET 10
MATCH TO SHEET 26
MATCH TO SHEET 14
ST. JOHNS AVENUE
OLD WESTBURY COURT
SOUTH HAMPTON CIRCLE
LOT 39
LOT 38
LOT 37
LOT 36
LOT 35
LOT 34
LOT 33
LOT 32
LOT 40
LOT 41
LOT 42
LOT 43
LOT 44
25' DRAINAGE & UTILITY EASEMENT
DRAINAGE & CONSERVATION AREA
REFER TO SHEET 26 FOR ADDITIONAL INFO. INTRASITE PROFILE
10' UTILITY & DRAINAGE EASEMENT
48 HOURS BEFORE YOU DIG
CALL FOR THE BLUE STAKES
1-800-922-1987
GAS, ELECTRIC, TELEPHONE, CATV AND PANHANDLE EASTERN PIPELINE LOCATIONS
NOTE
6" UNDERDRAIN TO HAVE A CLEAN-OUT AT EVERY MANHOLE. SEE SHEET 34 FOR DETAIL
LEGEND
Sewer Manhole
Water Meter
Water Valve
Fire Hydrant
Thrust Block
Plug
Proposed San. Sewer Line
Proposed Water Line
Proposed San. Sewer Service
Proposed Water Service
Proposed Storm Drainage
Sign
ALL UTILITIES ARE PROPOSED UNLESS NOTED.
PROPOSED GRADE
EXISTING GRADE
15" H.D.P.E.P. IRRIGATION PIPE
MAINTAIN 4.5' COVER OVER 8" W/L (TYP.)
DEFLECT 8" W/L PER MFG. RECOMMENDATION TO MAINTAIN A 1.5' SEPARATION BETWEEN W/L AND S/L
6" SOLID UNDERDRAIN
LOW POINT ELEVATION = 5310.90
LOW POINT STATION = 4+66.64
PVI STA = 4+65
PVI ELEV = 5310.00
A.D. = 3.61
K = 55.34
200' VC
LOCATION 1"=500'
DATUM ELEV 5294.00
℄ South Hampton Circle STA 0+00=
℄ St. Johns Avenue STA 1+83.70
℄ Old Westbury Court STA 0+00
AS-BUILT BY
HURST & ASSOCIATES, INC.
CONSULTING ENGINEERS
1/94
CITY OF BOULDER
APPROVED
CITY ENGINEER
DATE
APPROVAL EXPIRES ONE YEAR AFTER DATE ABOVE
ENGINEERING DESIGN
Reference Plans Prepared by:
John W. Jorgenson
P.E. # 22730 Date: 6/28/93
AS-BUILT APPROVAL
BY:
DATE: 1-28-94
21015
FOUR MILE CREEK
SOUTH HAMPTON CIRCLE
PLAN & PROFILE
STA 0+00 - 5+00
SCALE HOR.1=20 VERT.1=5
DESIGN TRL
DRAWN RKI/CAD
FILE NAME 09PP6
APPROVED CH
HURST & ASSOCIATES, INC.
CONSULTING ENGINEERS
3055 47th Street, A-2
Boulder, Colorado 80301 (303) 449-9105
JOB NO. 20009
DATE 05/17/93 SHEET 13 OF 32



AS-BUILT BY
HURST & ASSOCIATES, INC.
CONSULTING ENGINEERS
1/94

ENGINEERING DESIGN
John W. Jorgenson
P.E. 22730 Date: 6/28/93

CITY OF BOULDER
APPROVED
ENGINEERING CONSTRUCTION DRAWING
CITY ENGINEER DATE 6/29/93
APPROVAL EXPIRES ONE YEAR AFTER DATE ABOVE

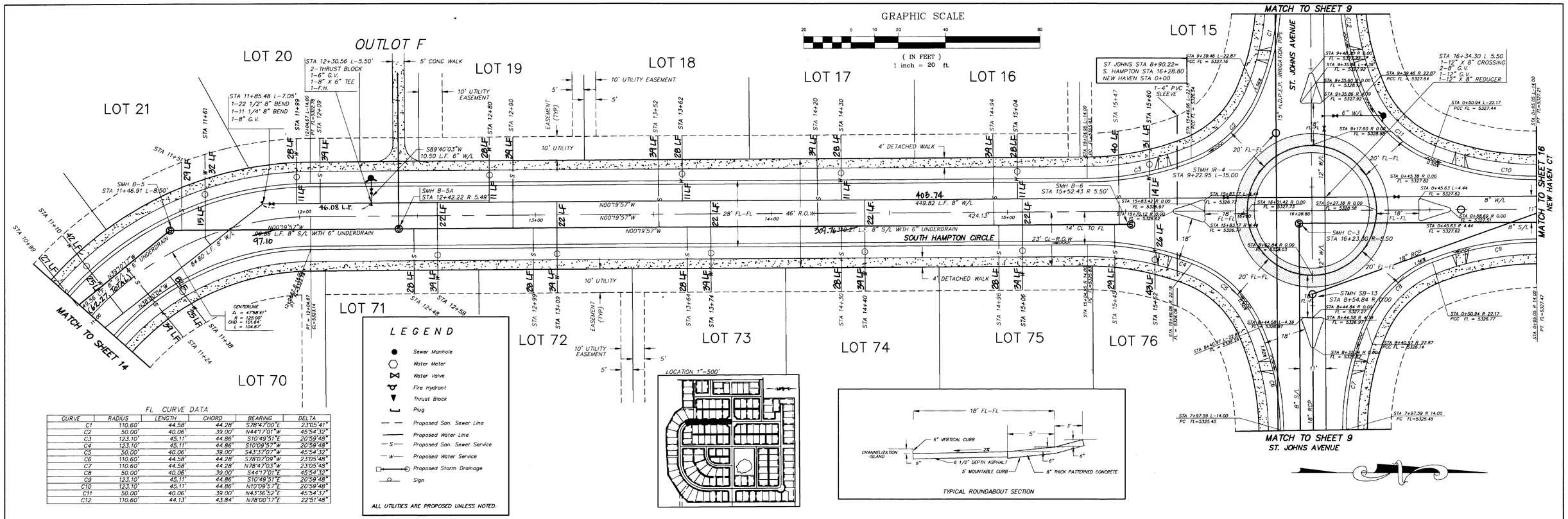
21016
AS-BUILT APPROVAL
BY:
DATE 1-28-94

FOUR MILE CREEK
SOUTH HAMPTON CIRCLE
PLAN & PROFILE
STA 5+00 - 11+00

SCALE	HOR.1"=20 VERT.1"=5
DESIGN	TRL
DRAWN	RKI/CAD
FILE NAME	09PP7
APPROVED	CH

HURST & ASSOCIATES, INC.
CONSULTING ENGINEERS
3055 47th Street, A-2
Boulder, Colorado 80301 (303) 449-9105

JOB NO. 20009 DATE 06/22/93 SHEET 14 OF 32



FL CURVE DATA

CURVE	RADIUS	LENGTH	CHORD	BEARING	DELTA
C1	110.60'	44.58'	44.28'	S78°47'00"E	23°05'41"
C2	50.00'	40.06'	39.00'	N44°17'01"W	45°54'32"
C3	123.10'	45.11'	44.86'	S10°49'51"E	20°59'48"
C4	123.10'	45.11'	44.86'	S10°09'57"W	20°59'48"
C5	50.00'	40.06'	39.00'	S43°37'07"W	45°54'32"
C6	110.60'	44.58'	44.28'	S78°07'09"W	23°05'48"
C7	110.60'	44.58'	44.28'	N78°47'03"W	23°05'48"
C8	50.00'	40.06'	39.00'	S44°17'01"E	45°54'32"
C9	123.10'	45.11'	44.86'	S10°49'51"E	20°59'48"
C10	123.10'	45.11'	44.86'	N10°09'57"E	20°59'48"
C11	50.00'	40.06'	39.00'	N43°36'52"E	45°54'37"
C12	110.60'	44.13'	43.84'	N78°00'17"E	22°51'48"

LEGEND

- Sewer Manhole
- Water Meter
- Water Valve
- Fire Hydrant
- Thrust Block
- Plug
- Proposed San. Sewer Line
- Proposed Water Line
- Proposed San. Sewer Service
- Proposed Water Service
- Proposed Storm Drainage
- Sign

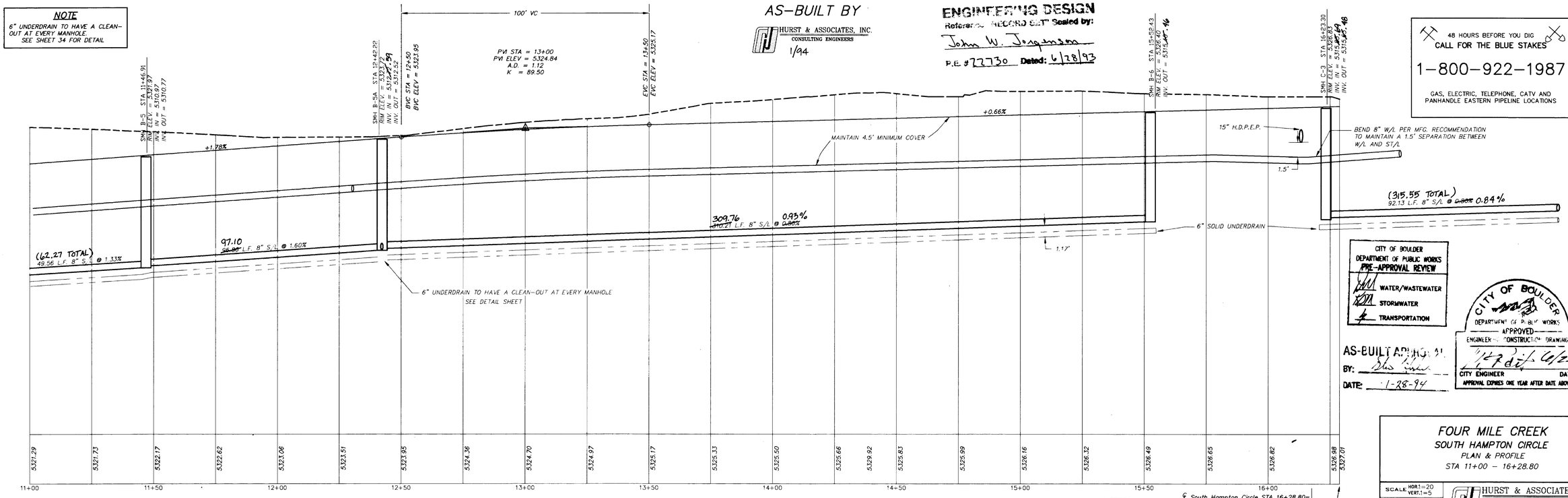
ALL UTILITIES ARE PROPOSED UNLESS NOTED.

TYPICAL ROUNDABOUT SECTION

NOTE
6" UNDERDRAIN TO HAVE A CLEAN-OUT AT EVERY MANHOLE.
SEE SHEET 34 FOR DETAIL

AS-BUILT BY
HURST & ASSOCIATES, INC.
CONSULTING ENGINEERS
1/94

ENGINEERING DESIGN
Reference "RECORD SET" Sealed by:
John W. Jorgensen
P.E. #22730 Dated: 6/28/93



48 HOURS BEFORE YOU DIG
CALL FOR THE BLUE STAKES
1-800-922-1987
GAS, ELECTRIC, TELEPHONE, CATV AND PANHANDLE EASTERN PIPELINE LOCATIONS

CITY OF BOULDER
DEPARTMENT OF PUBLIC WORKS
PRE-APPROVAL REVIEW
WATER/WASTEWATER
STORMWATER
TRANSPORTATION

AS-BUILT APPROVAL
BY: Steve Fisher
DATE: 1-28-94

CITY OF BOULDER
DEPARTMENT OF PUBLIC WORKS
APPROVED
ENGINEERING CONSTRUCTION DRAWING
CITY ENGINEER — DATE 6/29/93
APPROVAL EXPIRES ONE YEAR AFTER DATE ABOVE

℄ South Hampton Circle STA 16+28.80=
℄ St. Johns Avenue STA 8+90.22
℄ New Haven Court STA 0+00

21017

FOUR MILE CREEK
SOUTH HAMPTON CIRCLE
PLAN & PROFILE
STA 11+00 – 16+28.80

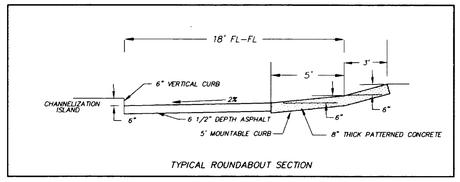
SCALE	HOR.1=20 VERT.1=5
DESIGN	TRL
DRAWN	RKJ/CAD
FILE NAME	09PP8
APPROVED	CH

HURST & ASSOCIATES, INC.
CONSULTING ENGINEERS
3055 47th Street, A-2
Boulder, Colorado 80301 (303) 449-9105

JOB NO. 20009 DATE 06/23/93 SHEET 15 OF 32

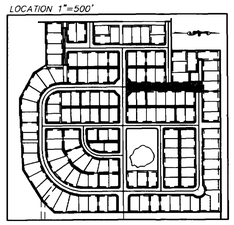
48 HOURS BEFORE YOU DIG
CALL FOR THE BLUE STAKES
1-800-922-1987
GAS, ELECTRIC, TELEPHONE, CATV AND PANHANDLE EASTERN PIPELINE LOCATIONS

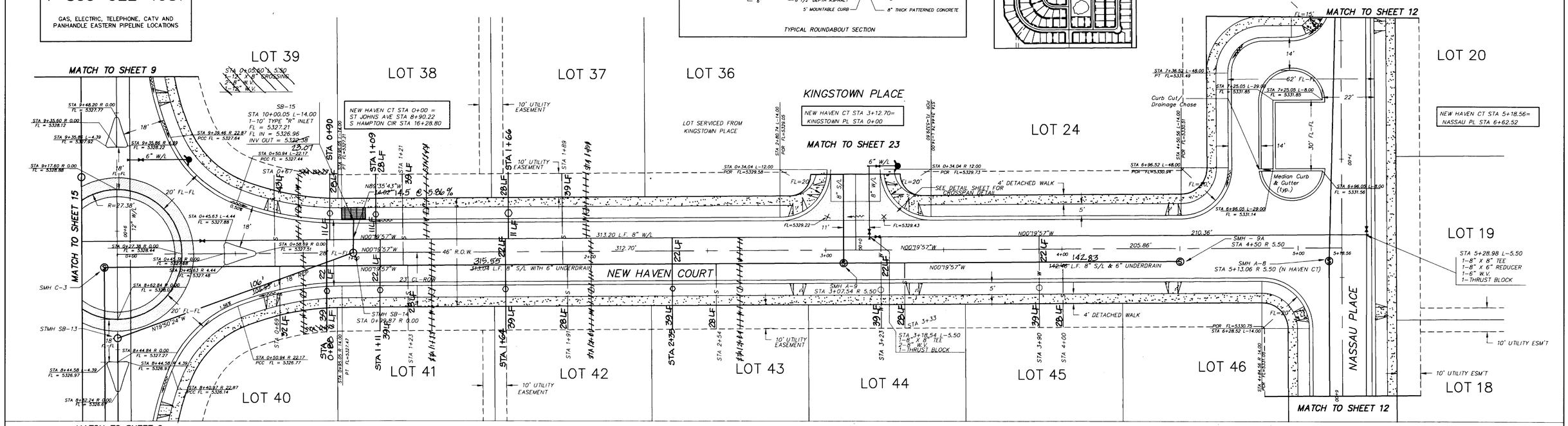
GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

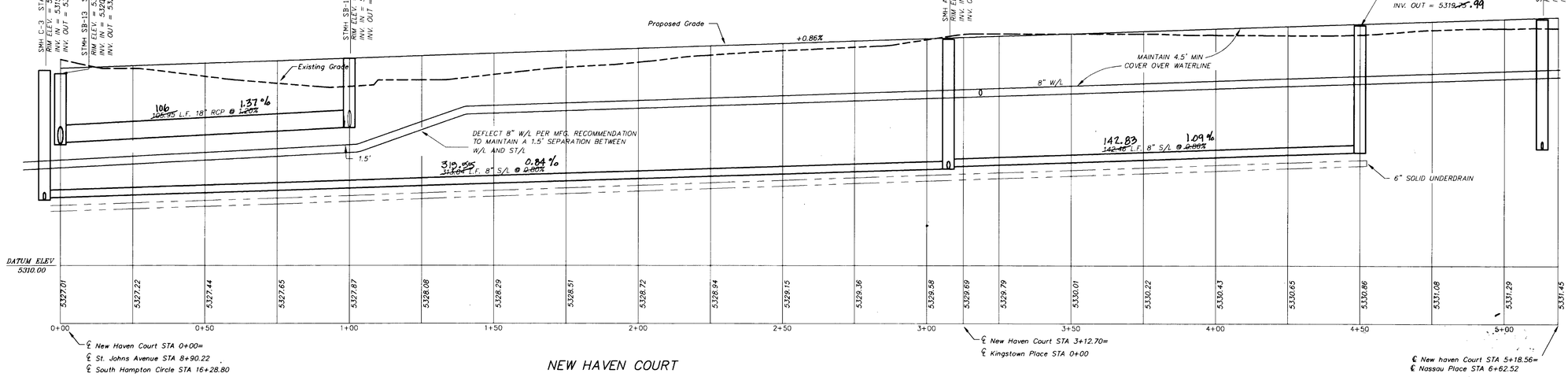


TYPICAL ROUNDABOUT SECTION

LOCATION 1"=500'







NOTE
6" UNDERDRAIN TO HAVE A CLEAN-OUT AT EVERY MANHOLE. SEE SHEET 34 FOR DETAIL

CITY OF BOULDER
DEPARTMENT OF PUBLIC WORKS
APPROVED
ENGINEERING CONSTRUCTION DRAWING
CITY ENGINEER — DATE 4/29/93
APPROVAL EXPIRES ONE YEAR AFTER DATE ABOVE

CITY OF BOULDER
DEPARTMENT OF PUBLIC WORKS
PRE-APPROVAL REVIEW
WATER/WASTEWATER
STORMWATER
TRANSPORTATION

AS-BUILT APPROVAL
BY:
DATE: 1-28-94

AS-BUILT BY
HURST & ASSOCIATES, INC.
CONSULTING ENGINEERS
1/94

ENGINEER'S SEAL
Hurst & Associates, Inc. Sealed by:
John W. Jorgenson
P.E. # 22730 Dated: 6/28/93

21018

FOUR MILE CREEK
NEW HAVEN COURT
PLAN & PROFILE
STA 0+00 - 5+18.56

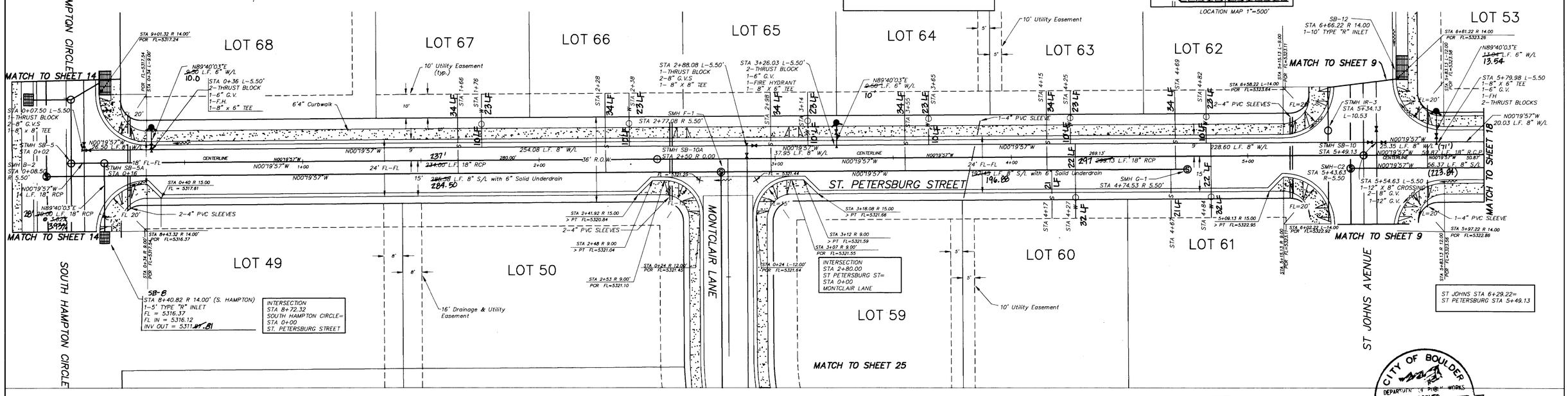
SCALE HOR.1=20 VERT.1=5	HURST & ASSOCIATES, INC. CONSULTING ENGINEERS 3055 47th Street, A-2 Boulder, Colorado 80301 (303) 449-9105
DESIGN TRL	
DRAWN RKI/CAD	
FILE NAME 09PP9	
APPROVED CH	JOB NO 20009 DATE 06/22/93 SHEET 15 OF 32

GRAPHIC SCALE

(IN FEET)
1 inch = 20 ft.

48 HOURS BEFORE YOU DIG
CALL FOR THE BLUE STAKES
1-800-922-1987
GAS, ELECTRIC, TELEPHONE, CATV AND PANHANDLE EASTERN PIPELINE LOCATIONS

LOCATION MAP 1"=500'

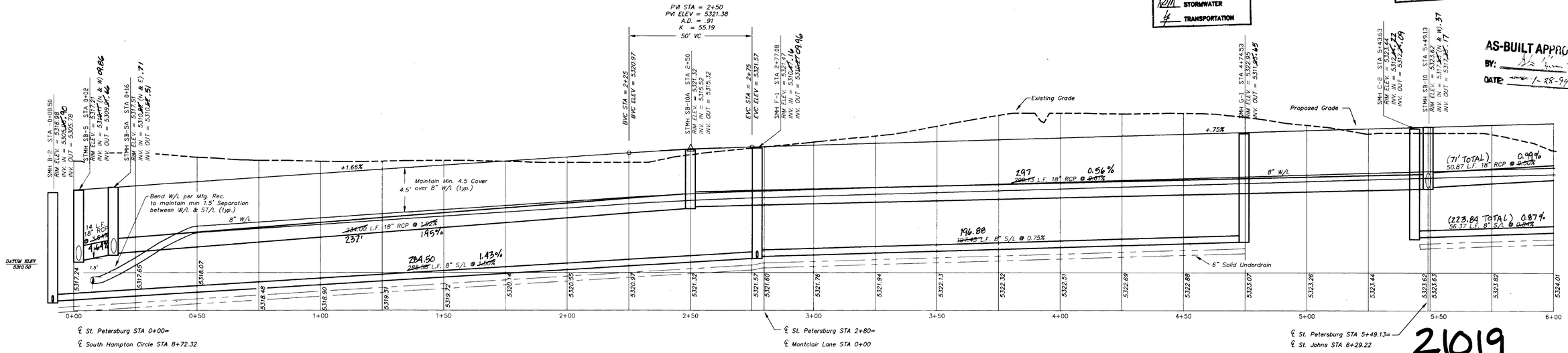


CITY OF BOULDER
DEPARTMENT OF PUBLIC WORKS
APPROVED
ENGINEERING CONSTRUCTION DRAWING
CITY ENGINEER — DATE 1/28/93
APPROVAL EXPIRES ONE YEAR AFTER DATE ABOVE

NOTE
6" UNDERDRAIN TO HAVE A CLEAN-OUT AT EVERY MANHOLE.
SEE SHEET 34 FOR DETAIL

CITY OF BOULDER
DEPARTMENT OF PUBLIC WORKS
PRE-APPROVAL REVIEW
WATER/WASTEWATER
STORMWATER
TRANSPORTATION

AS-BUILT APPROVAL
BY:
DATE: 1-28-94



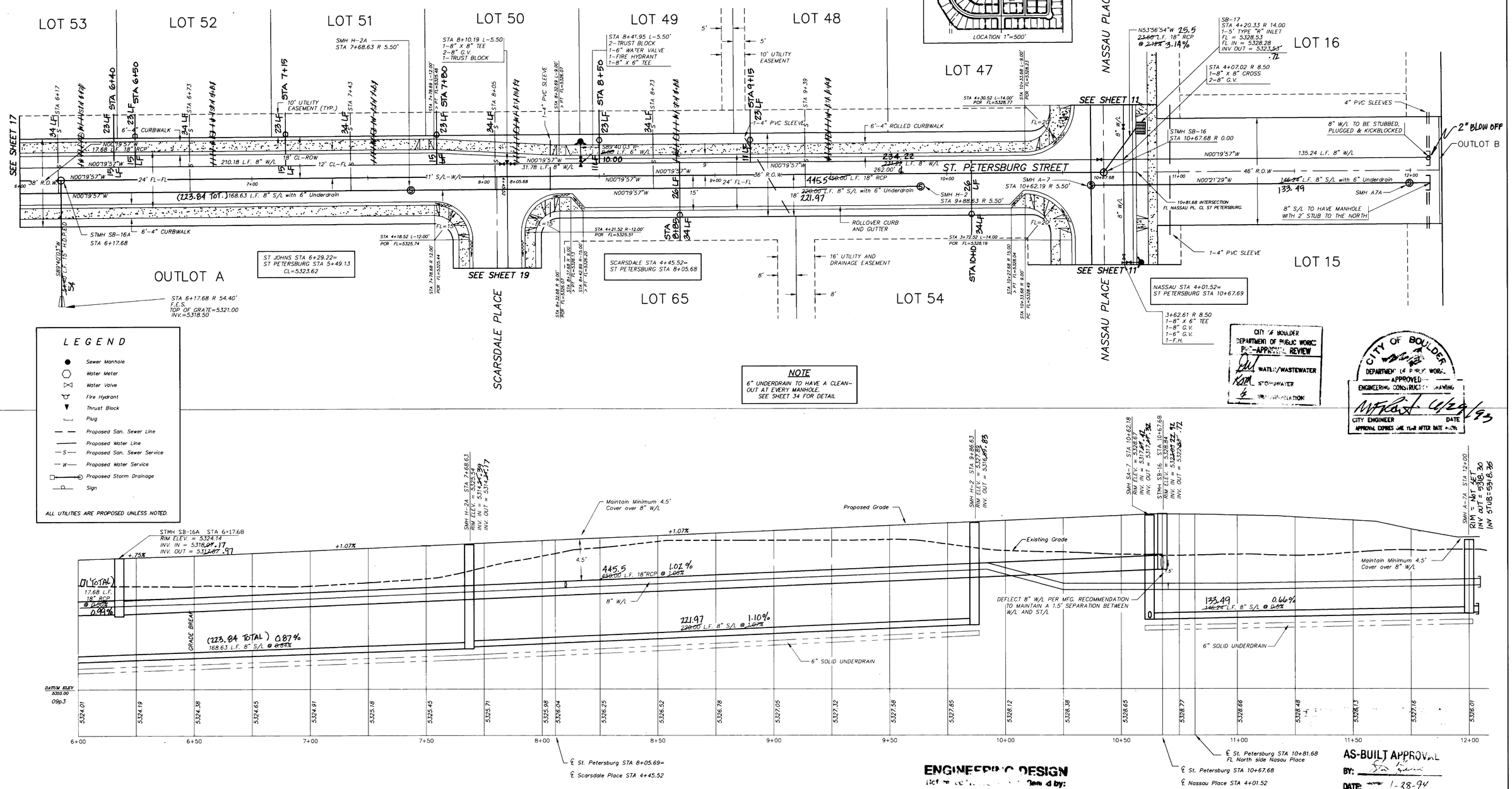
21019

AS-BUILT BY
HURST & ASSOCIATES, INC.
CONSULTING ENGINEERS
1/94

ENGINEERING DESIGN
Hereby Certify This Design Is Sealed by:
John W. Jorgensen
P.E. #22730 Dated: 6/28/93

FOUR MILE CREEK
ST PETERSBURG STREET
PLAN & PROFILE
STA 0+00 - 6+00

SCALE HOR.1=20 VERT.1=5	HURST & ASSOCIATES, INC. CONSULTING ENGINEERS 3055 47th Street, A-2 Boulder, Colorado 80301 (303) 449-9105
DESIGN TRL	
DRAWN RKI/CAD	
FILE NAME Q9PP10	
APPROVED CH	JOB NO. 20009 DATE 06/23/93 SHEET 17 OF 32



NOTE

6" UNDERDRAIN TO HAVE A CLEAN-OUT AT EVERY MANHOLE. SEE SHEET 34 FOR DETAIL

LEGEND

- Sewer Manhole
- Water Meter
- Water Valve
- Fire Hydrant
- Thrust Block
- Plug
- Proposed San. Sewer Line
- Proposed Water Line
- Proposed San. Sewer Service
- Proposed Water Service
- Proposed Storm Drainage
- Sign

ALL UTILITIES ARE PROPOSED UNLESS NOTED.

ENGINEERING DESIGN
Approved by:
John W. Jorgenson
P.E. #22730 Dated: 6/28/93

AS-BUILT APPROVAL
BY: [illegible]
DATE: 1-28-94

48 HOURS BEFORE YOU DIG
CALL FOR THE BLUE STAKES
1-800-922-1987
GAS, ELECTRIC, TELEPHONE, CATV AND PANHANDLE EASTERN PIPELINE LOCATIONS

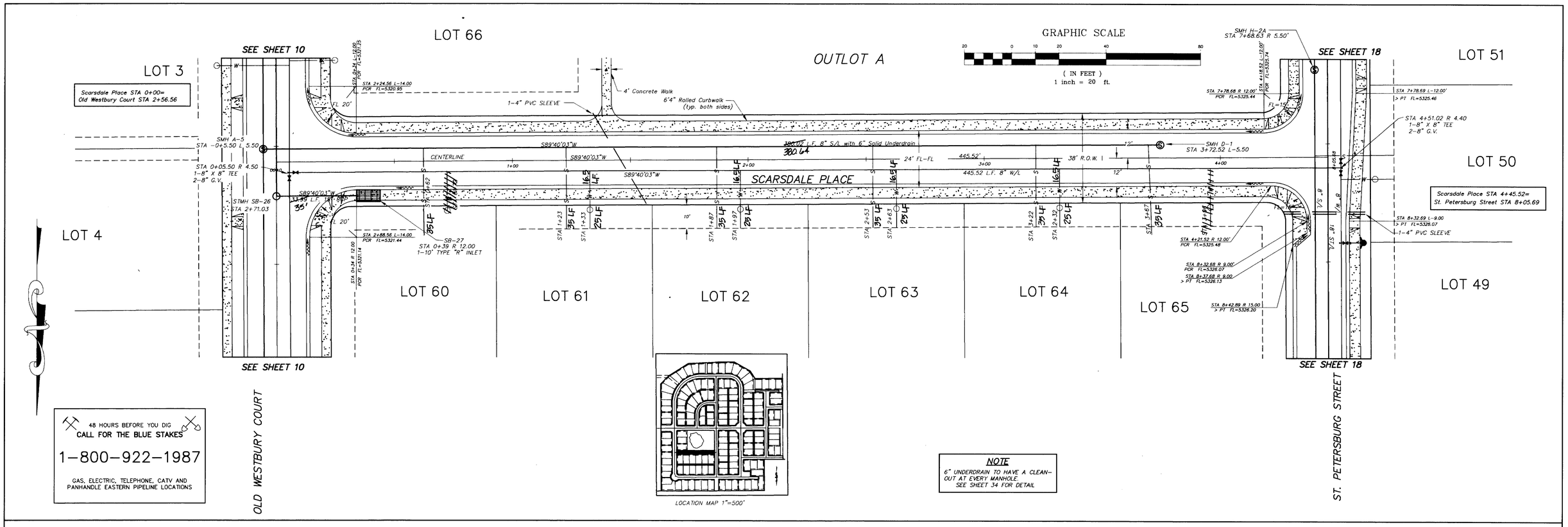
AS-BUILT BY
HURST & ASSOCIATES, INC.
CONSULTING ENGINEERS
1/94

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

21020

FOUR MILE CREEK
ST PETERSBURG STREET
PLAN & PROFILE
STA 6+00 – 10+67.68

SCALE HOR.1=20 VERT.1=5	HURST & ASSOCIATES, INC. CONSULTING ENGINEERS 3055 47th Street, A-2 Boulder, Colorado 80301 (303) 449-9105
DESIGN TRL	
DRAWN RKI/CAD	
FILE NAME 09PP11	
APPROVED CH	JOB NO 20009 DATE 05/17/93 SHEET 18 OF 32



CITY OF BOULDER
DEPARTMENT OF PUBLIC WORKS
PRE-APPROVAL REVIEW
WATER/WASTEWATER
STORMWATER
TRANSPORTATION

CITY OF BOULDER
DEPARTMENT OF PUBLIC WORKS
APPROVED
ENGINEERING CONSTRUCTION DRAWING
CITY ENGINEER DATE 6/29/93
APPROVAL EXPIRES ONE YEAR AFTER DATE ABOVE

AS-BUILT APPROVAL
BY:
DATE: 1-28-94

AS-BUILT BY
HURST & ASSOCIATES, INC.
CONSULTING ENGINEERS
1/94

ENGINEERING DESIGN
Reference "RECORD DRAWING" Sealed by:
John W. Jorgenson
P.E. # 22730 Dated: 6/28/93

21021

FOUR MILE CREEK
SCARSDALE PLACE
PLAN & PROFILE
STA 0+00 - 4+45.52

SCALE HOR.1=20 VERT.1=5	HURST & ASSOCIATES, INC. CONSULTING ENGINEERS 3055 47th Street, A-2 Boulder, Colorado 80301 (303) 449-9105
DESIGN TRL	
DRAWN RKI/CAD	
FILE NAME 09PP12	
APPROVED CH	JOB NO. 20009 DATE 06/22/93 SHEET 19 OF 32

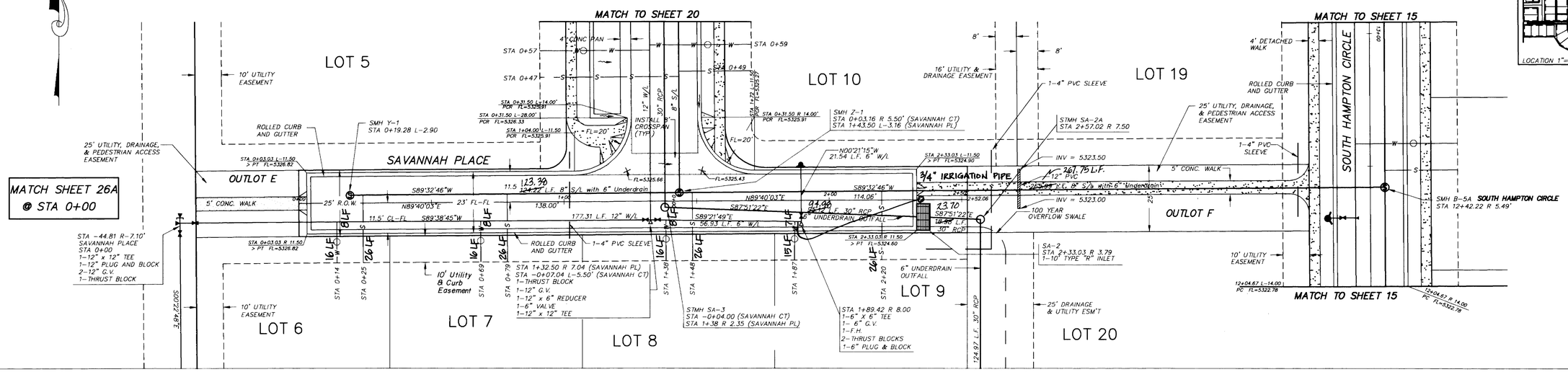
48 HOURS BEFORE YOU DIG
CALL FOR THE BLUE STAKES
1-800-922-1987
GAS, ELECTRIC, TELEPHONE, CATV AND PANHANDLE EASTERN PIPELINE LOCATIONS
TYPICAL 4' CROSSPAN
N.T.S.
8" THICK CONCRETE
4'
2"
CORRIENTE DRIVE
GRAPHIC SCALE
(IN FEET)
1 inch = 20 ft.
LOCATION 1"=500'
SEE SHEET 24
SEE SHEET 22
SEE SHEET 21
MATCH TO SHEET 9
SAVANNAH PLACE
SAVANNAH COURT
ST JOHNS STREET
LOT 5
LOT 4
LOT 2
LOT 1
OUTLOT D
LOT 30
LOT 29
LOT 31
LOT 10
LOT 11
LOT 12
LOT 13
LOT 14
LOT 32
LOT 33
LOT 34
1-4" PVC SLEEVE
STA -0+07.04 L-5.50'
1-THRUST BLOCK
1-12" G.V.
1-6" G.V.
1-12" x 8" REDUCER
1-12" x 12" TEE
STMH SA-3
STA -0+02.35 R 0.00
SMH Z-1
STA 0+03.16 R 5.50'
4' DETACHED WALK
ROLLED CURB(SPILL) AND GUTTER
4' WIDE CONCRETE PAN
28' CL-FL
60' R.O.W.
42' FL-FL
14' CL-FL
159.84 L.F. 8" S/L
162.20
181.14 L.F. 12" W/L
168.50'
N00°19'57"W
6" UNDERDRAIN OUTFALL LINE
STA 1+00
BEGIN TYPICAL 6" UNDERDRAIN
SMH Z-2
STA 1+63 R 5.50'
STA 1+63 R-5.50'
END TYPICAL 6" UNDERDRAIN
BEGIN SPECIAL UNDERDRAIN OUTFALL
CONSTRUCT UNDERDRAIN OUTFALL
IN STORM SEWER TRENCH
STA 1+74 L-5.50'=
STA 0+05.50 R 5.50'
1-THRUST BLOCK
1-12" G.V.S
1-8" G.V.S
1-12" x 12 x 8" TEE
STA 1+68.50 SAVANNAH CT=
STA 0+00 CORRIENTE DR
28.40 L.F. 12" W/L
11' S/L-W/L
302.85 L.F. 30" RCP
390.05
S89°40'03"W
10.50 L.F. 6" W/L
11.00
STA 2+02.61 L-5.29
1-12" X 6" TEE
1-6" G.V.
2-THRUST BLOCKS
1-F.H.
23' CL-ROW
28' FL-FL
46' R.O.W.
222.00'
220.04 L.F. 8" S/L
223.06
193.50 L.F. 12" W/L
N78°41'26"W
12.25 L.F. 15" RCP
@ 2.40% 1.62%
STMH SA-4
STA 3+90.50 R 0.00
SMH Z-3A
STA 3+83.04 R 5.50
10' UTILITY EASEMENT
STMH IR-5
STA 11+40.69 L-15.00
1" IRRIGATION TAP
15" H.D.P.E. (SEE SHEET 9)
SA-5
STA 3+92.97 L-12.00
5' TYPE "R" INLET
FL = 5328.40
FL IN = 5328.15
INV OUT = 5323.22
STA 11+61.72 R 5.50(ST JOHN)
STA 3+96 L-5.50(SAVANNAH CT)
1-12" X 12" TEE
1-8" G.V.
1-12" G.V.
1-12"x8" REDUCER
1-THRUST BLOCK
STA 4+14.90 L-5.50
1-8" X 6" TEE
1-6" G.V.
2-THRUST BLOCKS
1-F.H.
S89°40'03"W
12.50 L.F. 6" W/L
13.0
S63°03'36"W
15" RCP
18.90 L.F. 8" W/L
19' CL-ROW
12' CL-FL
24' FL-FL
38' R.O.W.
S00°19'57"E
216.96 L.F. 8" S/L with 6" Underdrain
(313.13 TOTAL)
209.50'
185.10 L.F. 8" W/L
209.50 L.F. 30" RCP
(312.03 TOTAL)
6'4" ROLLED CURBWALK
4" ROLLED CURBWALK
10' UTILITY AND DRAINAGE EASEMENT
SA-6
STA 11+21.72 R 14.00
1-5' TYPE "R" INLET
ST JOHNS STA 11+56.22=
SAVANNAH CT STA 3+90.50
NOTE
6" UNDERDRAIN TO HAVE A CLEAN-OUT AT EVERY MANHOLE.
SEE SHEET 34 FOR DETAIL
STMH SA-3 STA -0+02.35
RIM ELEV. = 5326.41
INV. IN = 5319.57 .28
INV. OUT = 5319.37 .08
SMH Z-1 STA 0+03.16
RIM ELEV. = 5326.37
INV. IN = 5315.11 (N) 14.94
INV. OUT = 5314.81 .79
INV IN = 5314.86 (W)
SMH Z-2 STA 1+63
RIM ELEV. = 5326.95
INV. IN = 5317.95 .85
INV. OUT = 5317.75 .69
Existing Grade
Proposed Grade
+0.60%
MAINTAIN 4.5' MIN COVER
4.5' MIN
12" W/L
392.85 L.F. 30" RCP @ 0.60%
390.05
159.84 L.F. 8" S/L @ 1.65%
162.20 1.70%
220.04 L.F. 8" S/L @ 0.61% with 6" Underdrain
223.06 0.59%
SPECIAL UNDERDRAIN PROFILE INVERT - 5316.00
OUTFALL LINE
SPECIAL UNDERDRAIN PROFILE INVERT 5316.84
OUTFALL LINE
Begin Typical 6" Solid Underdrain
STA 1+00
6" SOLID UNDERDRAIN
DATUM ELEV
5314.00
50' VC
BVC STA = 3+25
BVC ELEV = 5328.03
PVI STA = 3+50
PVI ELEV = 5328.18
A.D. = .66
K = 76.23
EVC STA = 3+75
EVC ELEV = 5328.49
SMH Z-3A STA 3+83.04
RIM ELEV. = 5328.49
INV. IN = 5319.45 .25
INV. OUT = 5319.29 .17
15" Irrigation Line
MAINTAIN 18" MIN SEPARATION
18"
STMH SA-4 STA 3+90.50
RIM ELEV. = 5328.69
INV. IN = 5322.92 (E & W)
INV. IN = 5322.12 (N)
INV. OUT = 5321.92
8" W/L
12" x 8" REDUCER
DEFLECT 8" W/L PER MFG. RECOMMENDATION TO MAINTAIN A 1.5' SEPARATION BETWEEN W/L AND ST/L
+1.26%
(312.03 TOTAL)
209.50 L.F. 30" RCP @ 1.23%
(313.13 TOTAL)
216.96 L.F. 8" S/L @ 0.57% with 6" Underdrain
5326.08 5326.15 5326.23 5326.38 5326.53 5326.68 5326.83 5326.98 5327.09 5327.13 5327.28 5327.43 5327.58 5327.73 5327.88 5328.03 5328.22 5328.49 5328.69 5328.81 5329.12 5329.44 5329.75 5330.06 5330.38 5330.69 5331.01 5331.32
0+00 0+11.5 0+50 1+00 1+50 2+00 2+50 3+00 3+50 4+00 4+50 5+00 5+50 6+00
℄ Savannah Court STA 0+00=
℄ Savannah Place STA 1+38
℄ Savannah Court STA 1+68.50=
℄ Corriente Drive STA 0+00
℄ Savannah Court STA 3+90.50
℄ St. Johns Avenue STA 11+56.22
LEGEND
Sewer Manhole
Water Meter
Water Valve
Fire Hydrant
Thrust Block
Plug
Proposed San. Sewer Line
Proposed Water Line
Proposed San. Sewer Service
Proposed Water Service
Proposed Storm Drainage
Sign
ALL UTILITIES ARE PROPOSED UNLESS NOTED.
CITY OF BOULDER
DEPARTMENT OF PUBLIC WORKS
PRE-APPROVAL REVIEW
WATER/WASTEWATER
STORMWATER
TRANSPORTATION
AS-BUILT BY
HURST & ASSOCIATES, INC.
CONSULTING ENGINEERS
1/94
21022
CITY OF BOULDER
APPROVED
CITY ENGINEER
DATE
6/29/93
APPROVAL EXPIRES ONE YEAR AFTER DATE ABOVE
AS-BUILT APPROVAL
BY:
DATE: 1-28-94
ENGINEERING DESIGN
Sealed by:
John W. Jorgenson
P.E. # 22730 Dated: 6/28/93
FOUR MILE CREEK
SAVANNAH COURT
PLAN & PROFILE
STA 0+00 - 6+00
SCALE HOR.1=20 VERT.1=5
DESIGN TRL
DRAWN RKI/CAD
FILE NAME 09PP13
APPROVED CH
HURST & ASSOCIATES, INC.
CONSULTING ENGINEERS
3055 47th Street, A-2
Boulder, Colorado 80301 (303) 449-9105
JOB NO 20009
DATE 05/17/93
SHEET 20 OF 32

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

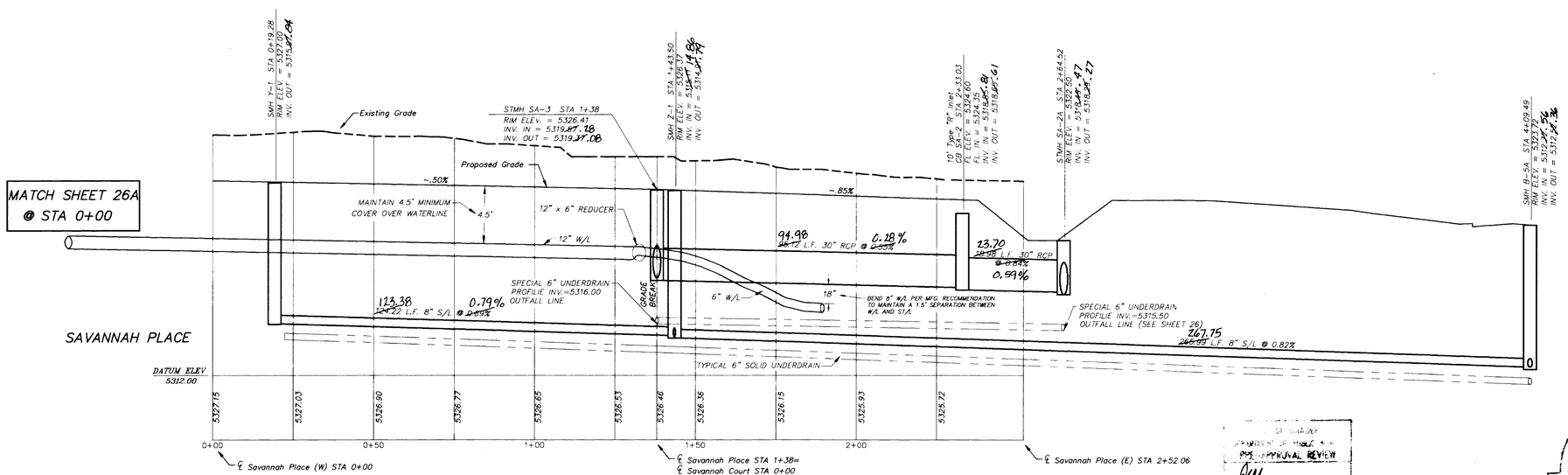
48 HOURS BEFORE YOU DIG
CALL FOR THE BLUE STAKES
1-800-922-1987
GAS, ELECTRIC, TELEPHONE, CATV AND PANHANDLE EASTERN PIPELINE LOCATIONS



SEE SHEET 26 FOR INTRASITE STORM SEWER

NOTE
6" UNDERDRAIN TO HAVE A CLEAN-OUT AT EVERY MANHOLE. SEE SHEET 34 FOR DETAIL

AS-BUILT BY
HURST & ASSOCIATES, INC.
CONSULTING ENGINEERS
1/94



LEGEND

- Sewer Manhole
- Water Meter
- Water Valve
- Fire Hydrant
- Thrust Block
- Plug
- Proposed San. Sewer Line
- Proposed Water Line
- Proposed San. Sewer Service
- Proposed Water Service
- Proposed Storm Drainage
- Sign

ALL UTILITIES ARE PROPOSED UNLESS NOTED.

AS-BUILT APPROVAL
BY: [signature]
DATE: [redacted] 1-28-94

[redacted]
John W. Jorgensen
P.E. #27730 Dated: 6/28/93

CITY OF BOULDER
DEPARTMENT OF PUBLIC WORKS
APPROVAL REVIEW
ENGINEERING CONSTRUCTION
CITY ENGINEER DATE
6/29/93
APPROVAL EXPIRES ONE YEAR AFTER DATE ABOVE

21024

FOUR MILE CREEK
SAVANNAH PLACE
PLAN & PROFILE
STA 0+00 - 2+52.06

SCALE	HOR.1=20 VERT.1=5
DESIGN	TRL
DRAWN	RKI/CAD
FILE NAME	Q9PP17
APPROVED	CH

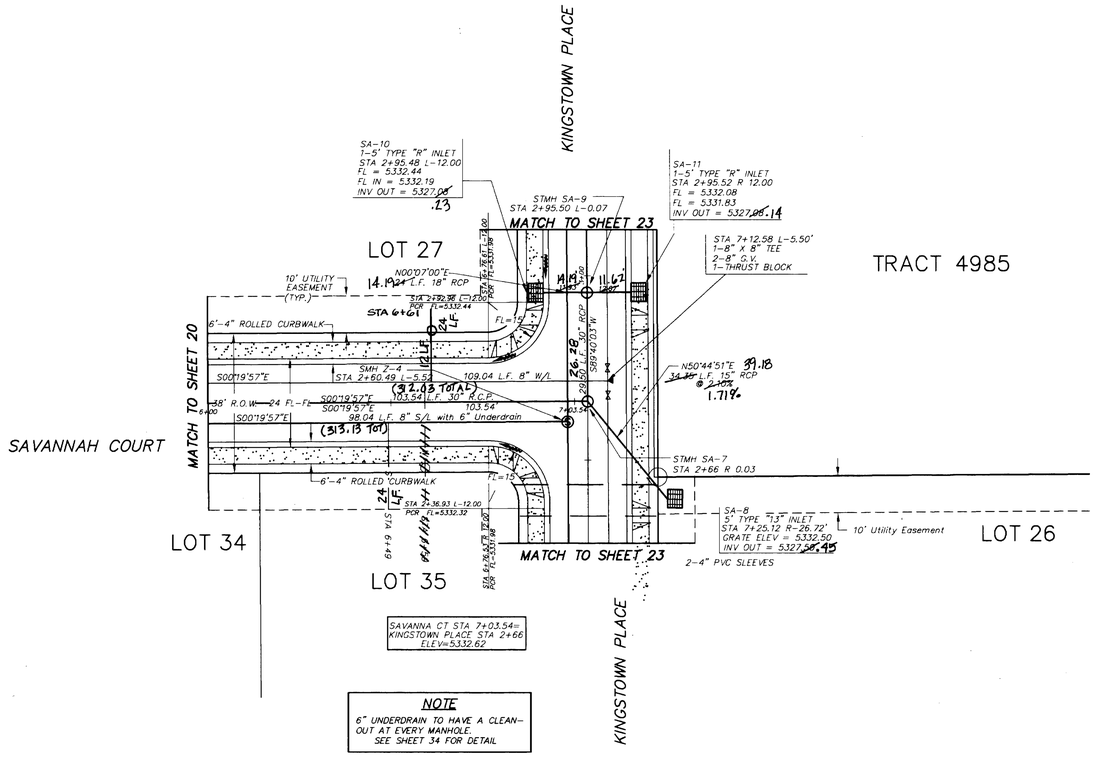
HURST & ASSOCIATES, INC.
CONSULTING ENGINEERS
3055 47th Street, A-2
Boulder, Colorado 80301 (303) 449-9105

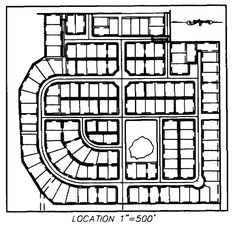
JOB NO. 20009 DATE 06/23/93 SHEET 22 OF 32

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.





LOCATION 1"=500'

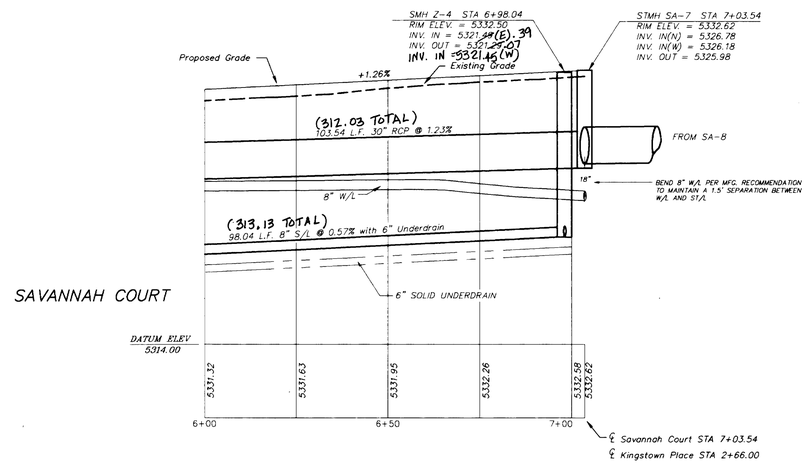
48 HOURS BEFORE YOU DIG
CALL FOR THE BLUE STAKES

1-800-922-1987

GAS, ELECTRIC, TELEPHONE, CATV AND PANHANDLE EASTERN PIPELINE LOCATIONS

NOTE

6" UNDERDRAIN TO HAVE A CLEAN-OUT AT EVERY MANHOLE.
SEE SHEET 34 FOR DETAIL



LEGEND

- Sewer Manhole
- Water Meter
- Water Valve
- Fire Hydrant
- Thrust Block
- Plug
- Proposed San. Sewer Line
- Proposed Water Line
- Proposed San. Sewer Service
- Proposed Water Service
- Proposed Storm Drainage
- Sign

ALL UTILITIES ARE PROPOSED UNLESS NOTED.

WATER/WASTEWATER
STORMWATER

CITY OF BOULDER
WORKS
ENGINEER 6/29/93
DATE
ENGINEER'S ONE YEAR AFTER DATE ABOVE

AS-BUILT A...
BY:
DATE:

AS-BUILT BY
HURST & ASSOCIATES, INC.
CONSULTING ENGINEERS
1/94

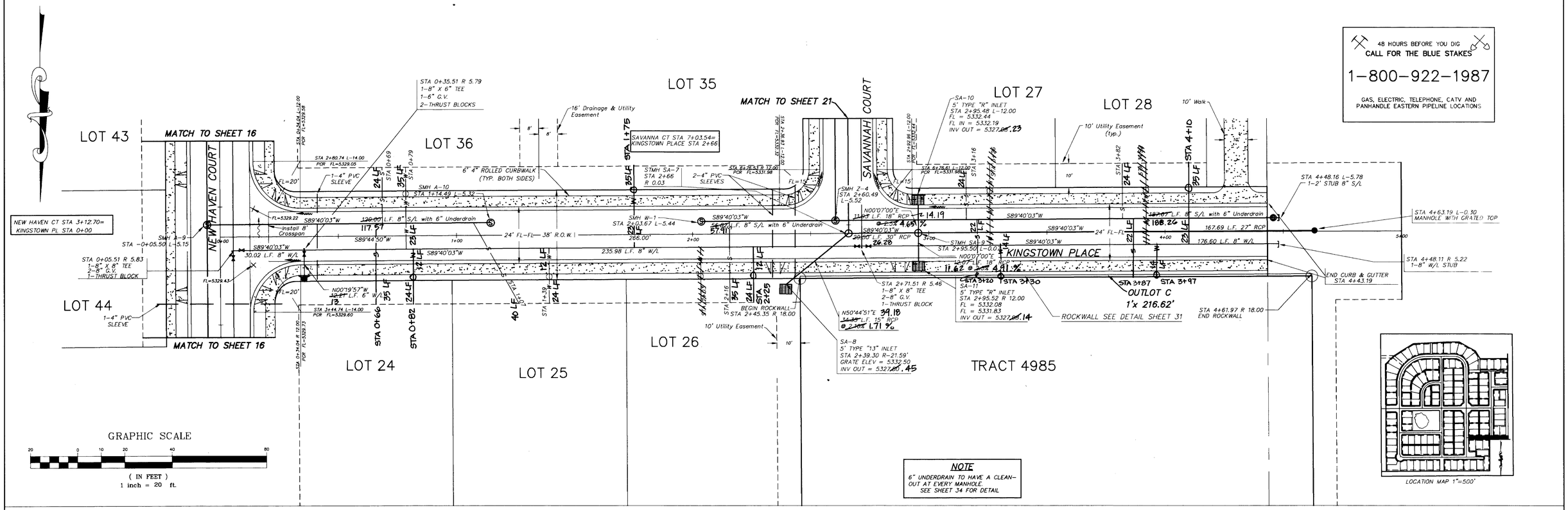
21024A

ENGINEERING DESIGN
Reference "RECORD SET" Sealed by:
John W. Jorgenson
P.E. 22730 Date: 6/28/93

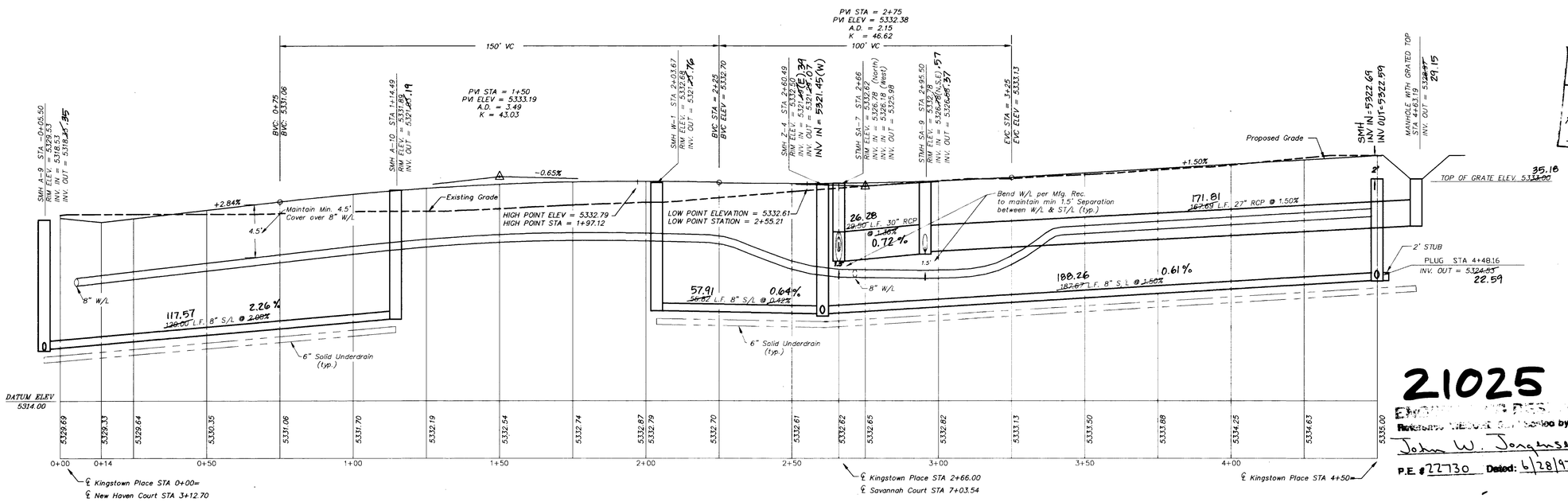
FOUR MILE CREEK
SAVANNAH COURT
PLAN & PROFILE
STA 6+00 - 7+03.54

SCALE HOR.1=20 VERT.1=5	HURST & ASSOCIATES, INC. CONSULTING ENGINEERS 3055 47th Street, A-2 Boulder, Colorado 80301 (303) 449-9105
DESIGN TRL	
DRAWN RKI/CAD	
FILE NAME 09PP14	
APPROVED CH	JOB NO. 20009 DATE 05/17/93 SHEET 21 OF 32

48 HOURS BEFORE YOU DIG
CALL FOR THE BLUE STAKES
1-800-922-1987
GAS, ELECTRIC, TELEPHONE, CATV AND PANHANDLE EASTERN PIPELINE LOCATIONS



NOTE
6" UNDERDRAIN TO HAVE A CLEAN-OUT AT EVERY MANHOLE.
SEE SHEET 34 FOR DETAIL



CITY OF BOULDER
DEPARTMENT OF PUBLIC WORKS
PRE-APPROVAL REVIEW
WATER/WASTEWATER
STORMWATER
TRANSPORTATION

CITY OF BOULDER
DEPARTMENT OF PUBLIC WORKS
APPROVED
ENGINEERING CONSTRUCTION
CITY ENGINEER DATE 6/29/93
APPROVAL EXPIRES ONE YEAR AFTER DATE ABOVE

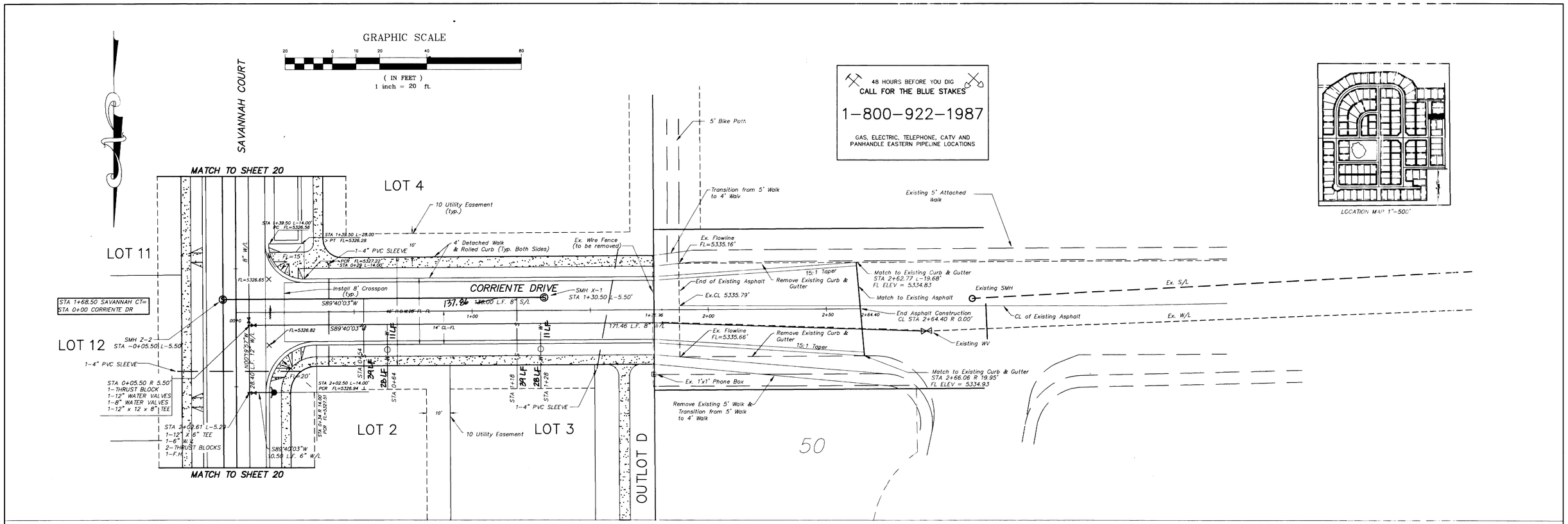
21025
Engineering Review Approved by:
John W. Jonghusen
P.E. # 27730 Dated: 6/28/93

AS-BUILT APPROVAL
BY:
DATE: 1-28-94

AS-BUILT BY
HURST & ASSOCIATES, INC.
CONSULTING ENGINEERS
1/94

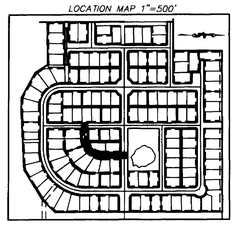
FOUR MILE CREEK
KINGSTOWN PLACE
PLAN & PROFILE
STA 0+00 - 4+63.18

SCALE HOR.1=20 VERT.1=5	HURST & ASSOCIATES, INC. CONSULTING ENGINEERS 3055 47th Street, A-2 Boulder, Colorado 80301 (303) 449-9105
DESIGN TRL	
DRAWN RKI/CAD	
FILE NAME 09PP15	
APPROVED CH	JOB NO. 20009 DATE 05/17/93 SHEET 23 OF 32

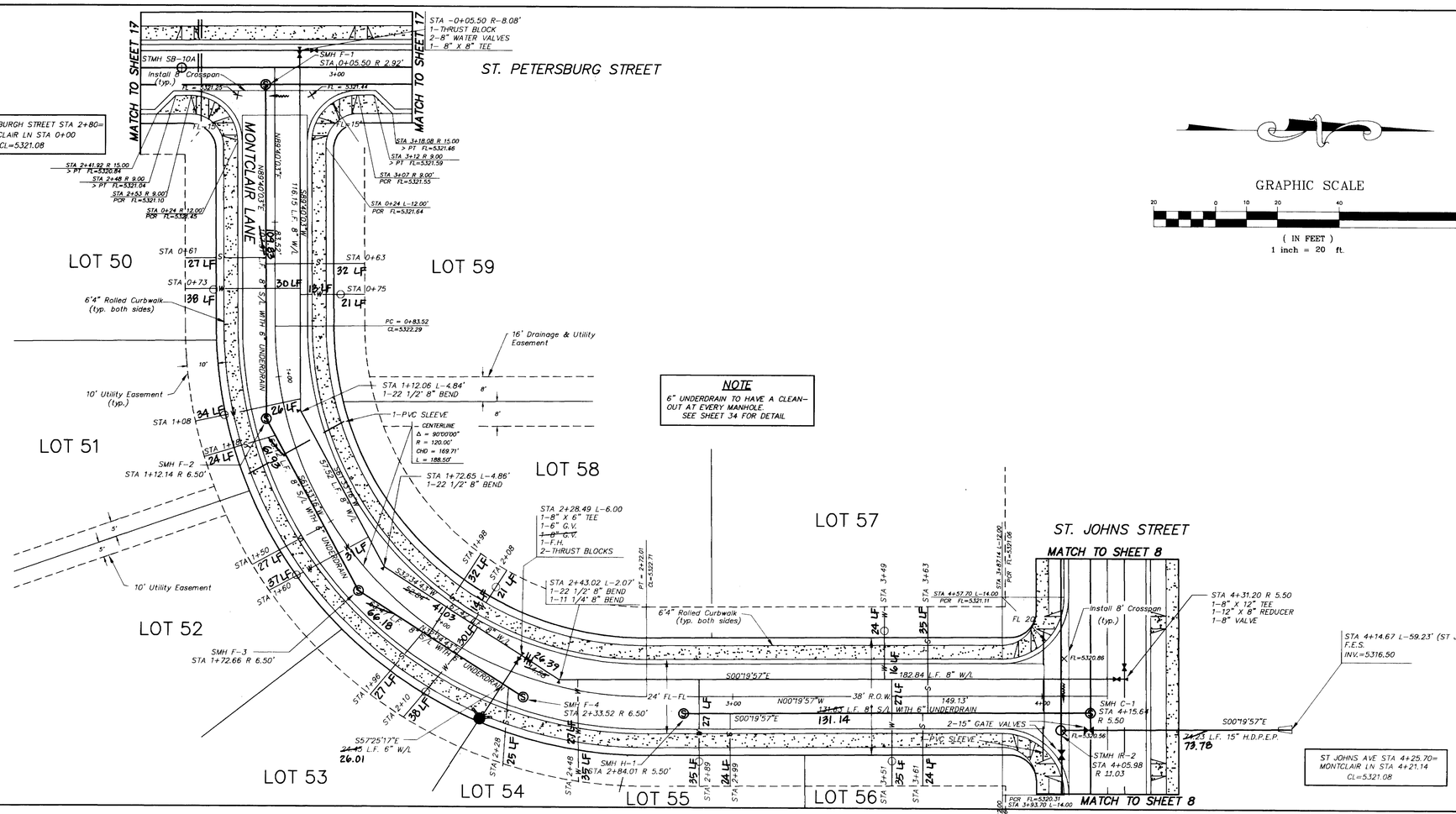

GRAPHIC SCALE
(IN FEET)
1 inch = 20 ft.
SAVANNAH COURT
MATCH TO SHEET 20
LOT 4
LOT 11
LOT 12
LOT 2
LOT 3
CORRIENTE DRIVE
OUTLOT D
10 Utility Easement (typ.)
4' Detached Walk & Rolled Curb (Typ. Both Sides)
Ex. Wire Fence (to be removed)
Transition from 5' Walk to 4' Walk
5' Bike Path
Existing 5' Attached Walk
Ex. Flowline FL=5335.16'
End of Existing Asphalt
Remove Existing Curb & Gutter
Match to Existing Curb & Gutter STA 2+62.77 L-19.68' FL ELEV = 5334.83
Match to Existing Asphalt
Existing SMH
Ex. S/L
End Asphalt Construction CL STA 2+64.40 R 0.00'
CL of Existing Asphalt
Ex. W/L
Existing WV
Ex. Flowline FL=5335.66'
Ex. 1'x1' Phone Box
Remove Existing 5' Walk & Transition from 5' Walk to 4' Walk
Match to Existing Curb & Gutter STA 2+66.06 R 19.95' FL ELEV = 5334.93
Install 8' Crosspan (typ.)
SMH X-1 STA 1+30.50 L-5.50'
SMH Z-2 STA -0+05.50 L-5.50'
STA 1+68.50 SAVANNAH CT= STA 0+00 CORRIENTE DR
STA 0+05.50 R 5.50' 1-THRUST BLOCK 1-12" WATER VALVES 1-8" WATER VALVES 1-12" x 12 x 8" TEE
STA 2+02.61 L-5.29 1-12" X 6" TEE 1-6" W.V. 2-THRUST BLOCKS 1-F.H.
1-4" PVC SLEEVE
137.86 L.F. 8" S/L
171.46 L.F. 8" W/L
10 Utility Easement
50
48 HOURS BEFORE YOU DIG
CALL FOR THE BLUE STAKES
1-800-922-1987
GAS, ELECTRIC, TELEPHONE, CATV AND PANHANDLE EASTERN PIPELINE LOCATIONS
LOCATION MAP 1"=500'
NOTE
6" UNDERDRAIN TO HAVE A CLEAN-OUT AT EVERY MANHOLE. SEE SHEET 34 FOR DETAIL
HIGH POINT ELEV = 5335.41
HIGH POINT STA = 2+48.03
PVI STA = 2+10
100.00' VC
HIGH POINT ELEV = 5335.41
HIGH POINT STA = 2+48.03
PVI STA = 2+10
PVI ELEV = 5335.68
A.D. = 5.18
K = 19.30
BVCS: 1+60
BVCE: 5333.40
EVCS: 2+60
EVCE: 5335.37
Proposed Grade
Existing Grade
Existing
-0.62%
4.56%
MAINTAIN 4.5' MIN COVER OVER WATERLINE
4.5'
8" W/L
EXISTING W/L
Connect to Existing W/L @ Existing Valve
12" W/L
27" RCP
137.86 L.F. 8" S/L @ 2.28%
DATUM ELEV 5317.00
0+00
0+14
0+50
1+00
1+50
1+75
2+00
2+50
2+64.40
℄ Corriente Drive STA 0+00= ℄ Savannah Court STA 1+68.50
℄ Corriente Drive STA 1+76.96
Match to Existing Asphalt STA 2+64.40 Elev.= 5335.34
CITY OF BOULDER
DEPARTMENT OF PUBLIC WORKS
PPE APPROVAL REVIEW
WATER/WASTEWATER
STORMWATER
TRANSPORTATION
CITY OF BOULDER
DEPARTMENT OF PUBLIC WORKS
APPROVED
ENGINEER - CONSTRUCTION
6/29/93
CITY ENGINEER DATE
APPROVAL EXPIRES ONE YEAR AFTER DATE ABOVE
AS-BUILT APPROVAL
BY:
DATE: 1-28-94
ENGINEERING DESIGN
Reference "RECORD SET" Sealed by:
John W. Jorgenson
P.E. # 22730 Dated: 6/28/93
AS-BUILT BY
HURST & ASSOCIATES, INC.
CONSULTING ENGINEERS
1/94
21026
FOUR MILE CREEK
CORRIENTE DRIVE
PLAN & PROFILE
STA 0+00 - 1+76.96
SCALE HORIZ. 1:20 VERT. 1:5
DESIGN TF L
DRAWN RH/CAD
FILE NAME 09PF16
APPROVED CH
HURST & ASSOCIATES, INC.
CONSULTING ENGINEERS
3055 47th Street, A-2
Boulder, Colorado 80301 (303) 449-9105
JOB NO 20009 DATE 06/23/93 SHEET 24 OF 32

48 HOURS BEFORE YOU DIG
CALL FOR THE BLUE STAKES
1-800-922-1987
GAS, ELECTRIC, TELEPHONE, CATV AND PANHANDLE EASTERN PIPELINE LOCATIONS

LOCATION MAP 1"=500'



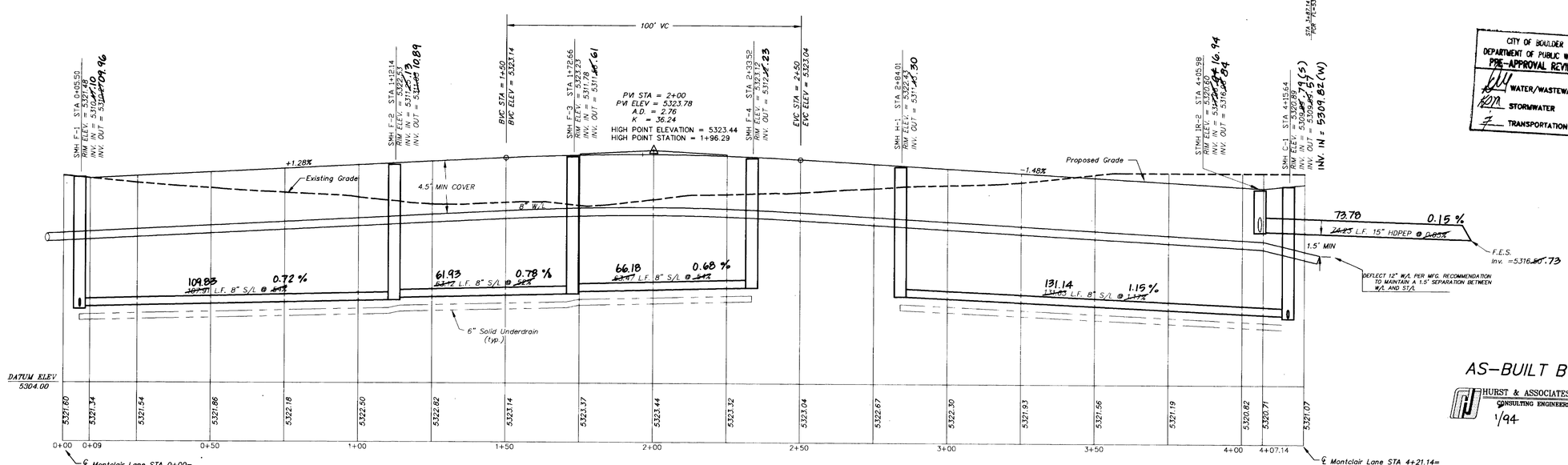
ST PETERSBURGH STREET STA 2+80=
MONTCLAIR LN STA 0+00
CL=5321.08



ST JOHNS AVE STA 4+25.70=
MONTCLAIR LN STA 4+21.14
CL=5321.08

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

NOTE
6" UNDERDRAIN TO HAVE A CLEAN-OUT AT EVERY MANHOLE.
SEE SHEET 34 FOR DETAIL



CITY OF BOULDER
DEPARTMENT OF PUBLIC WORKS
PRE-APPROVAL REVIEW
WATER/WASTEWATER
STORMWATER
TRANSPORTATION

CITY OF BOULDER
DEPARTMENT OF PUBLIC WORKS
APPROVED
ENGINEERING CONSTRUCTION DRAWING
CITY ENGINEER DATE 6/29/93
APPROVAL EXPIRES ONE YEAR AFTER DATE ABOVE

AS-BUILT APPROVAL
BY:
DATE: 1-28-94

ENGINEERING DESIGN
Reproducible RECORD SET Sealed by:
John W. Jorgenson
P.E. # 22730 Dated: 6/28/93

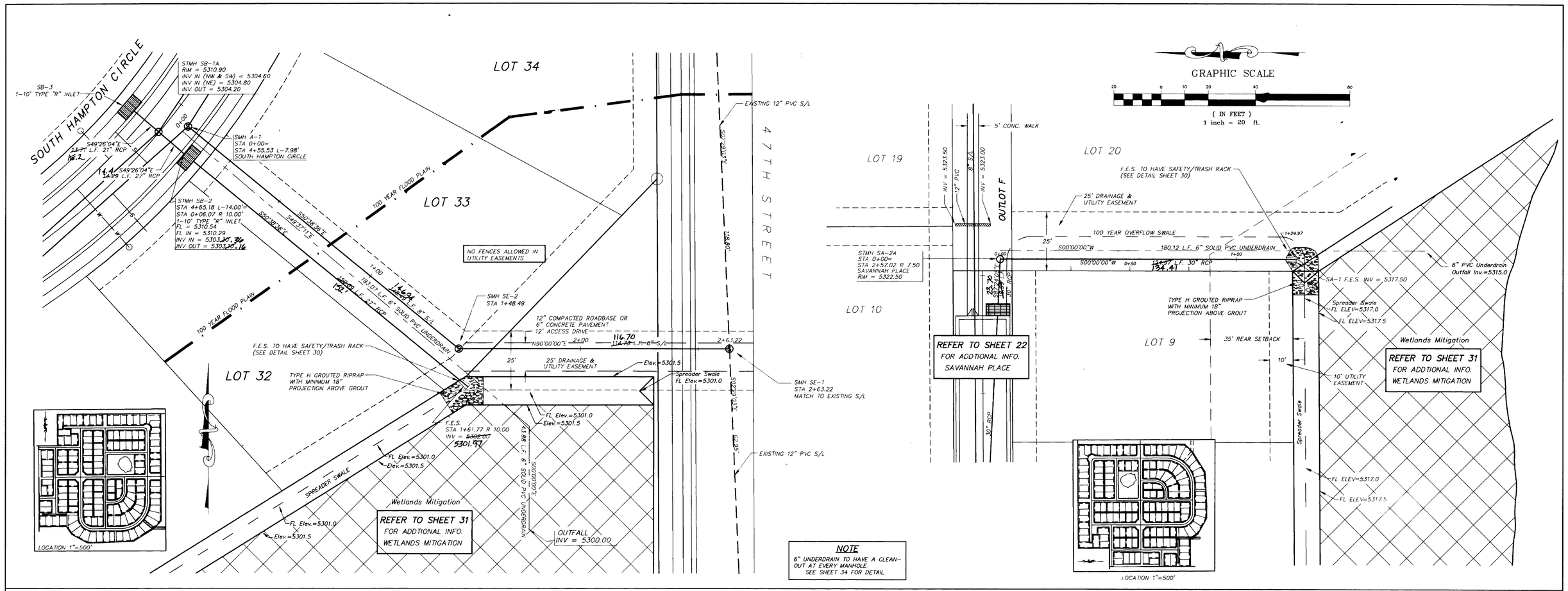
AS-BUILT BY
HURST & ASSOCIATES, INC.
CONSULTING ENGINEERS
1/94

21027

FOUR MILE CREEK
MONTCLAIR LANE
PLAN & PROFILE
STA 0+00 - 4+21.14

SCALE HOR.1=20 VERT.1=5
DESIGN TRL
DRAWN RKI/CAD
FILE NAME 09PP18
APPROVED CH

HURST & ASSOCIATES, INC.
CONSULTING ENGINEERS
3055 47th Street, A-2
Boulder, Colorado 80301 (303) 449-9105
JOB NO. 20009 DATE 06/23/93 SHEET 25 OF 32



NOTE

6" UNDERDRAIN TO HAVE A CLEAN-OUT AT EVERY MANHOLE. SEE SHEET 34 FOR DETAIL

AS-BUILT BY

HURST & ASSOCIATES, INC.
CONSULTING ENGINEERS
1/94

AS-BUILT APPROVAL

BY: _____

DATE: _____

CITY OF BOULDER
DEPARTMENT OF PUBLIC WORKS
PRE-APPROVAL REVIEW
WATER/WASTEWATER
STORMWATER
TRANSPORTATION

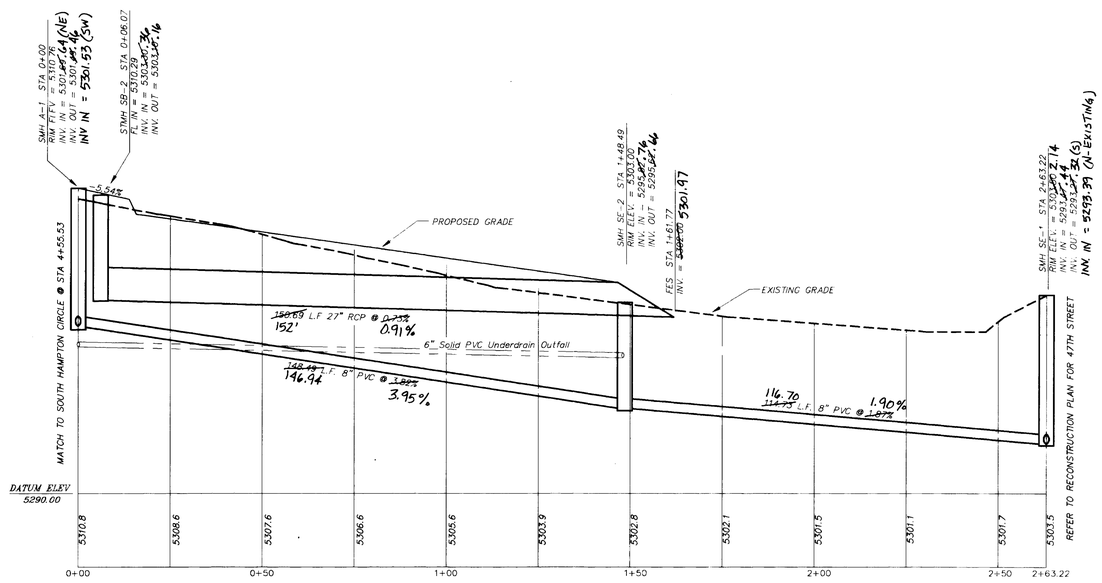
CITY OF BOULDER
DEPARTMENT OF PUBLIC WORKS
APPROVED
ENGINEERING CONSTRUCTION DRAWING
CITY ENGINEER — DATE
APPROVAL EXPIRES ONE YEAR AFTER DATE ABOVE

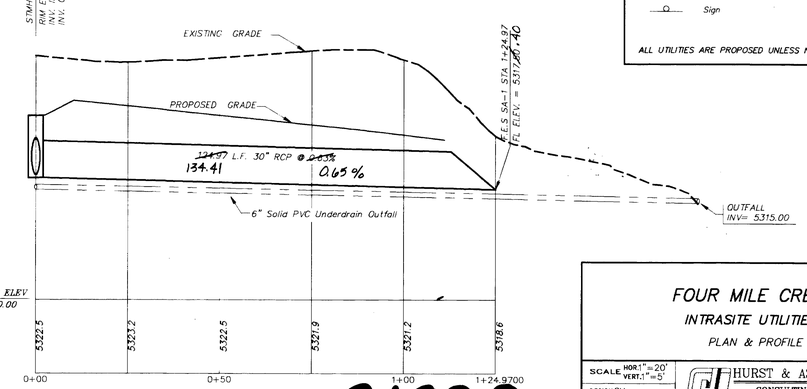
48 HOURS BEFORE YOU DIG
CALL FOR THE BLUE STAKES
1-800-922-1987
GAS, ELECTRIC, TELEPHONE, CATV AND PANHANDLE EASTERN PIPELINE LOCATIONS

LEGEND

- Sewer Manhole
- Water Meter
- Water Valve
- Fire Hydrant
- Thrust Block
- Plug
- Proposed San. Sewer Line
- Proposed Water Line
- Proposed San. Sewer Service
- Proposed Water Service
- Proposed Storm Drainage
- Sign

ALL UTILITIES ARE PROPOSED UNLESS NOTED.



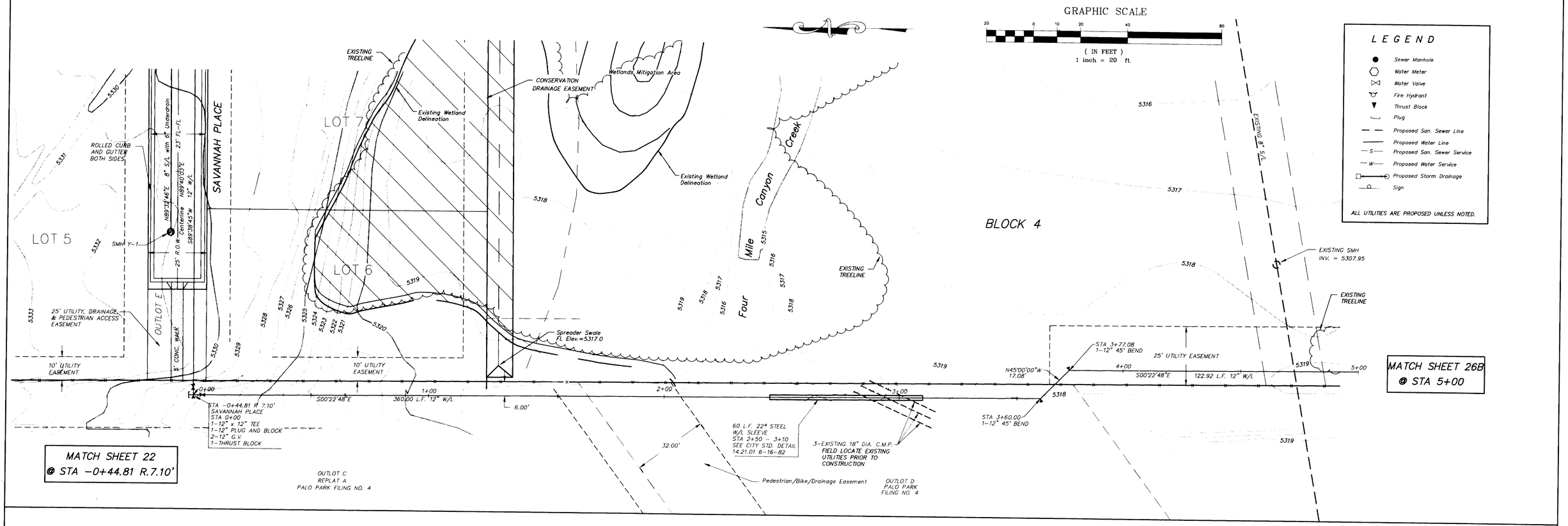


John W. Jonghenson
22730 Date: 6/28/93

21028

FOUR MILE CREEK
INTRASITE UTILITIES
PLAN & PROFILE

SCALE HOR.1"=20' VERT.1"=5'	HURST & ASSOCIATES, INC. CONSULTING ENGINEERS 2055 47th Street, A-2 Boulder, Colorado 80301 (303) 449-9105
DESIGNCH	
DRAWNAKR	
FILE NAME09gas1	
APPROVEDCH	JOB NO.20009 DATE06/23/93 SHEET26 OF 32

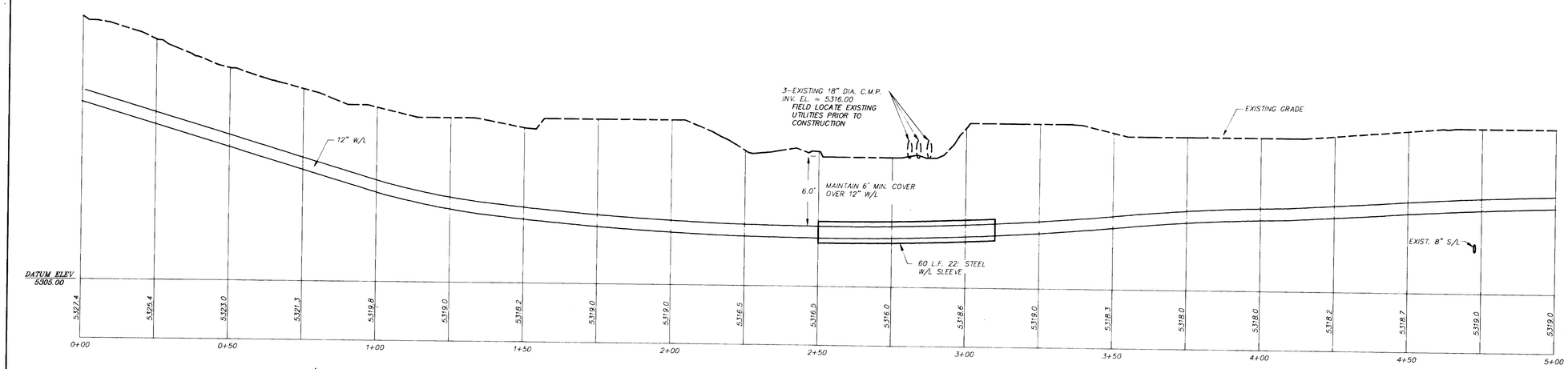


CITY OF BOULDER
DEPARTMENT OF PUBLIC WORKS
PRE-APPROVAL REVIEW
WATER/WASTEWATER
STORMWATER
TRANSPORTATION

CITY OF BOULDER
DEPARTMENT OF PUBLIC WORKS
APPROVED
ENGINEERING CONSTRUCTION DRAWING
CITY ENGINEER DATE 6/29/93
APPROVAL EXPIRES ONE YEAR AFTER DATE ABOVE

AS-BUILT APPROVAL
BY
DATE

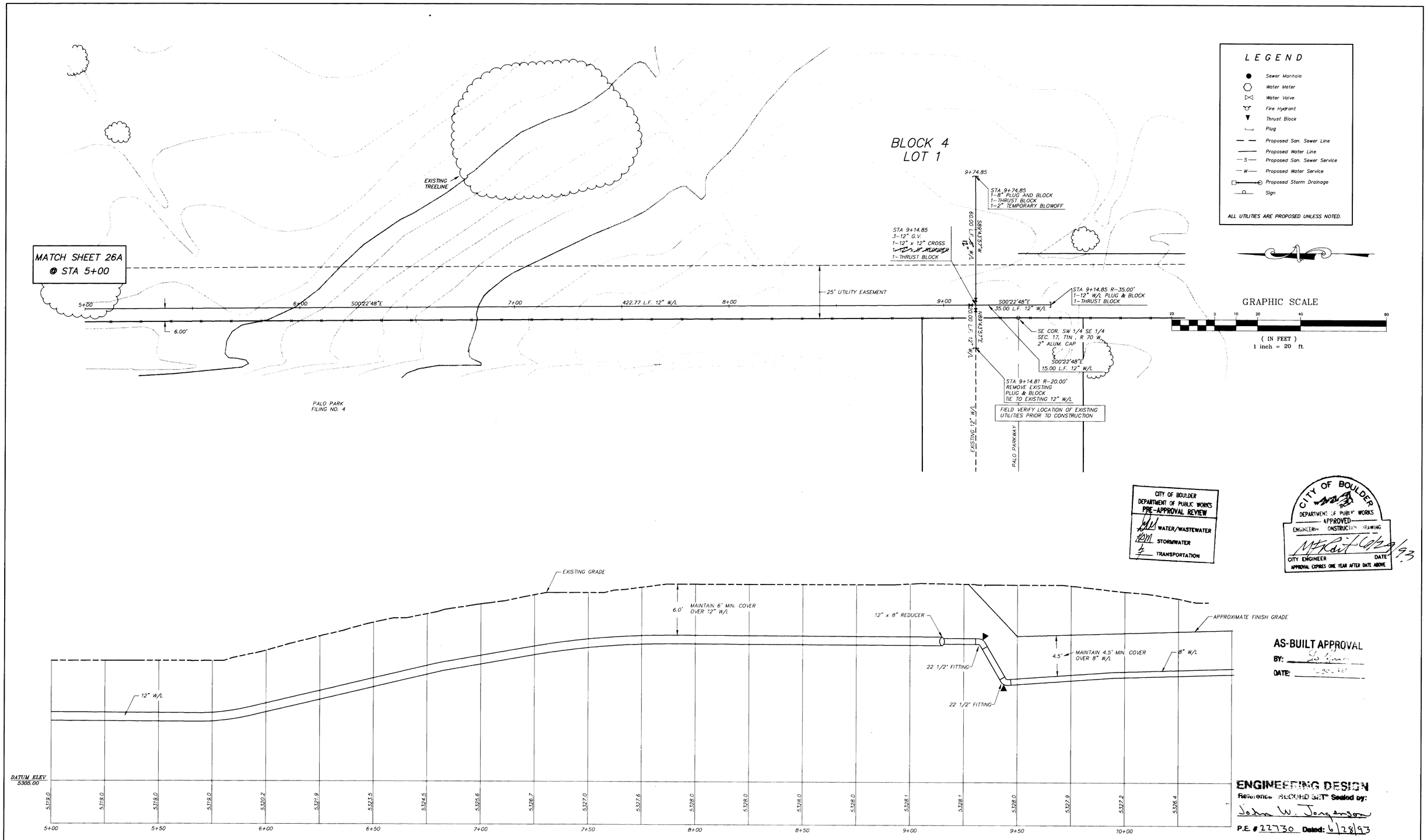
ENGINEERING DESIGN
Inspector ALCOHOL Sealed by:
John W. Jorgenson
P.E. # 22730 Dated: 6/28/93



21029

FOUR MILE CREEK
PLAN & PROFILE
WATERLINE STA 0+00-5+00

SCALE HOR.1"=20' VERT.1"=5'	HURST & ASSOCIATES, INC. CONSULTING ENGINEERS 3055 47th Street, A-2 Boulder, Colorado 80301 (303) 449-9105
DESIGN CH	
DRAWN AKR	
FILE NAME 090W1	
APPROVED CH	JOB NO 20009 DATE 6/23/93 SHEET 26A OF 30



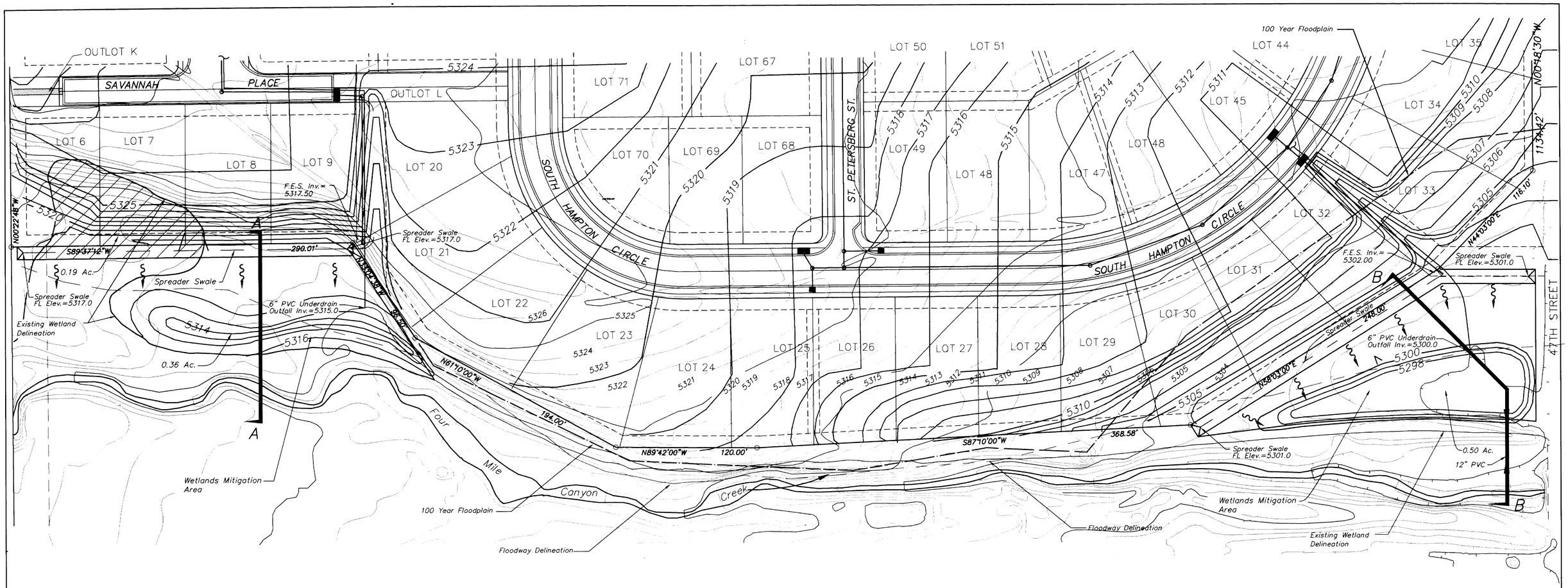
AS-BUILT APPROVAL
BY:
DATE:

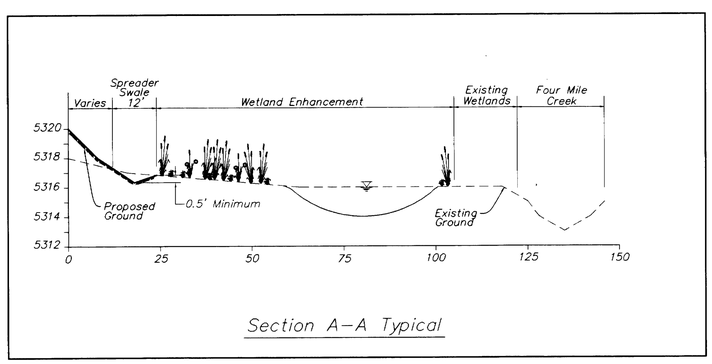
ENGINEERING DESIGN
Reference "RECORD SET" Sealed by:
John W. Jorgenson
P.E. # 22730 Dated: 6/28/93

FOUR MILE CREEK
PLAN & PROFILE
WATERLINE
STA 5+00-10+57.77

SCALE HOR.1"=20' VERT.1"=5'	HURST & ASSOCIATES, INC. CONSULTING ENGINEERS 3055 47th Street, A-2 Boulder, Colorado 80301 (303) 449-9105
DESIGN CH	
DRAWN AKR	
FILE NAME 0090W2	
APPROVED CH	JOB NO 20009 DATE 06/24/93 SHEET 26B OF 38

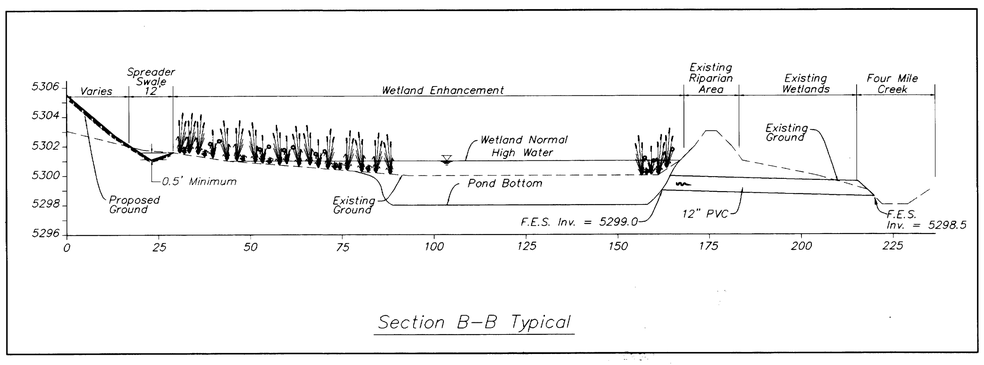
21030





Section A–A Typical

NOTE:
REFER TO REPORT PREPARED BY WESTERN RESOURCE DEVELOPMENT CORPORATION. FOR ADDITIONAL MITIGATION DETAILS INCLUDING PLANT SPECIES, DENSITY, AND PLACEMENT INFORMATION.



Section B–B Typical

John W. Jorgenson
22730
6/28/93

GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

AS-BUILT APPROVAL
BY: [illegible]
DATE: 1-28-94

ENGINEERING DOCUMENT
RD 3E/T [illegible]
P.E. #: _____ Dated: _____

[illegible] 6/29/93
YEAR AFTER [illegible]

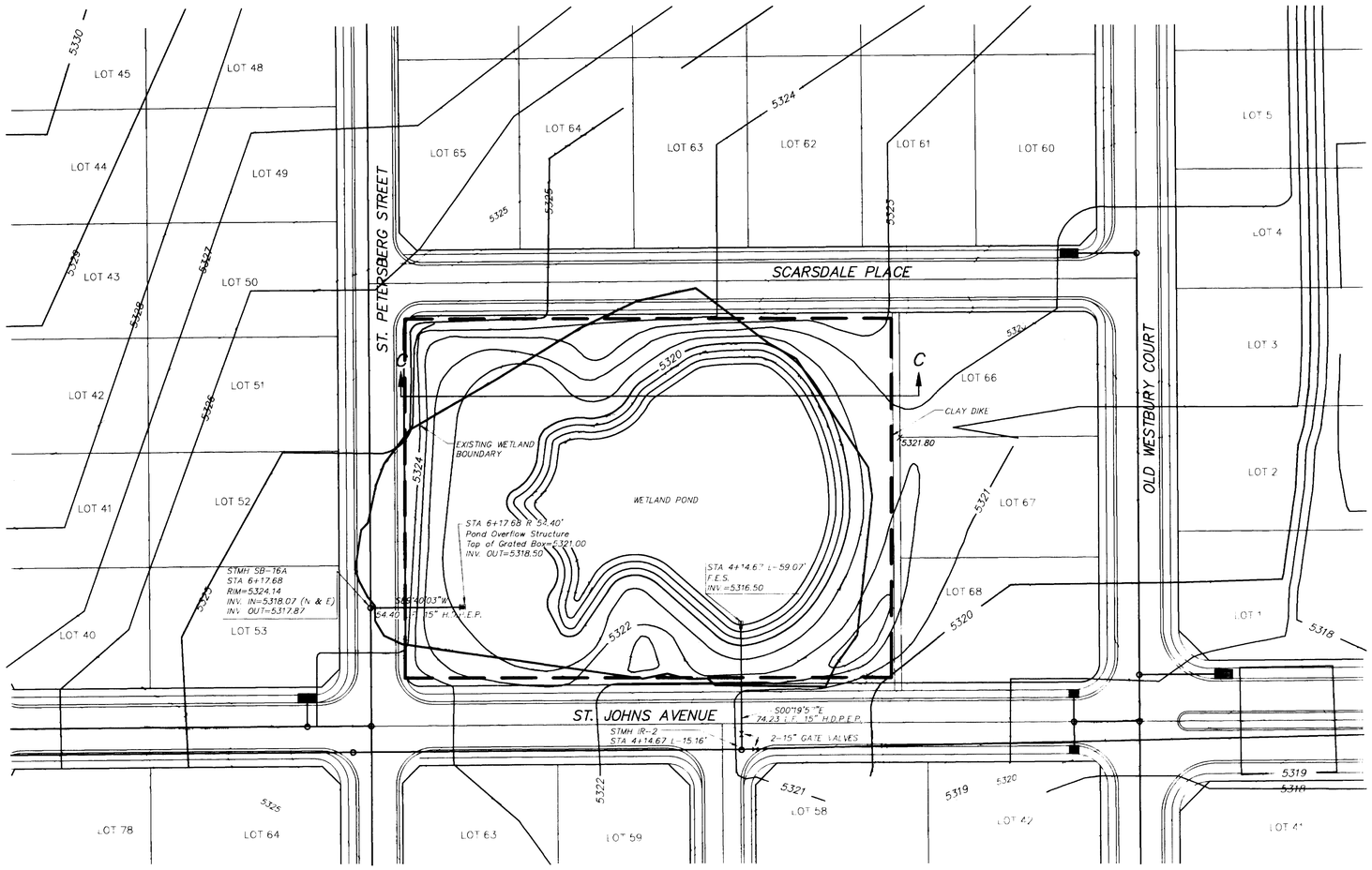
21032

Four Mile Creek
Wetlands Mitigation Plan

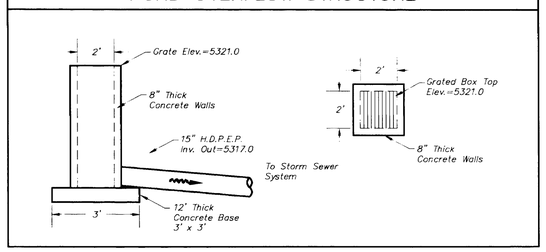
SCALE HOR. 1"=40' VERT. N/A
DESIGN T.R.L.
DRAWN T.R.L.
FILE NAME 009W.1
APPROVED C.H.

HURST & ASSOCIATES, INC.
CONSULTING ENGINEERS
3055 47th Street, A-2
Boulder, Colorado 80301 (303) 449-9105

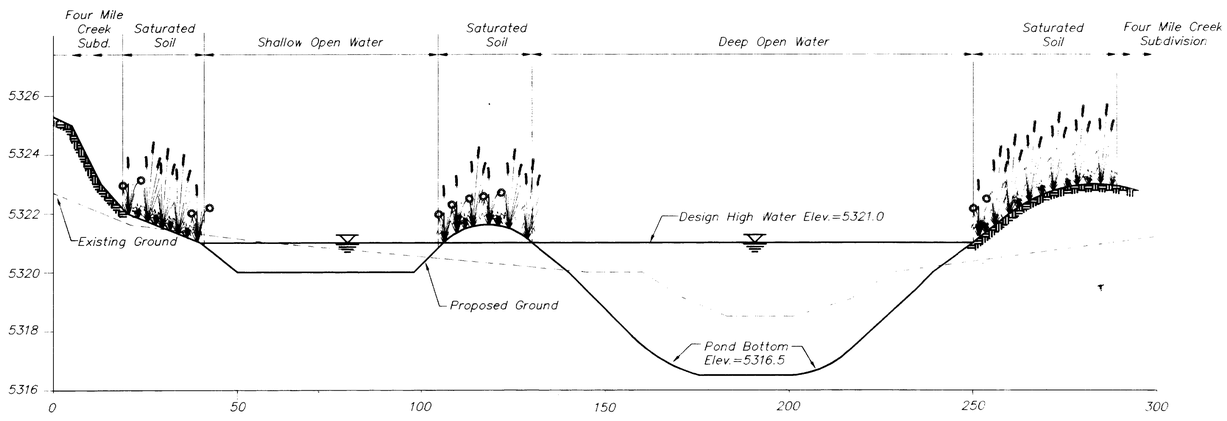
JOB NO 2000-9 DATE 5/17/93 SHEET 27 OF 32



POND OVERFLOW STRUCTURE



NOTE:
REFER TO REPORT PREPARED BY WESTERN RESOURCE DEVELOPMENT CORPORATION. FOR ADDITIONAL MITIGATION DETAILS INCLUDING PLANT SPECIES, DENSITY, AND PLACEMENT INFORMATION.



Section C–C Typical

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

John W. Jorgenson
P.E. # 22730 Date 6/28/93

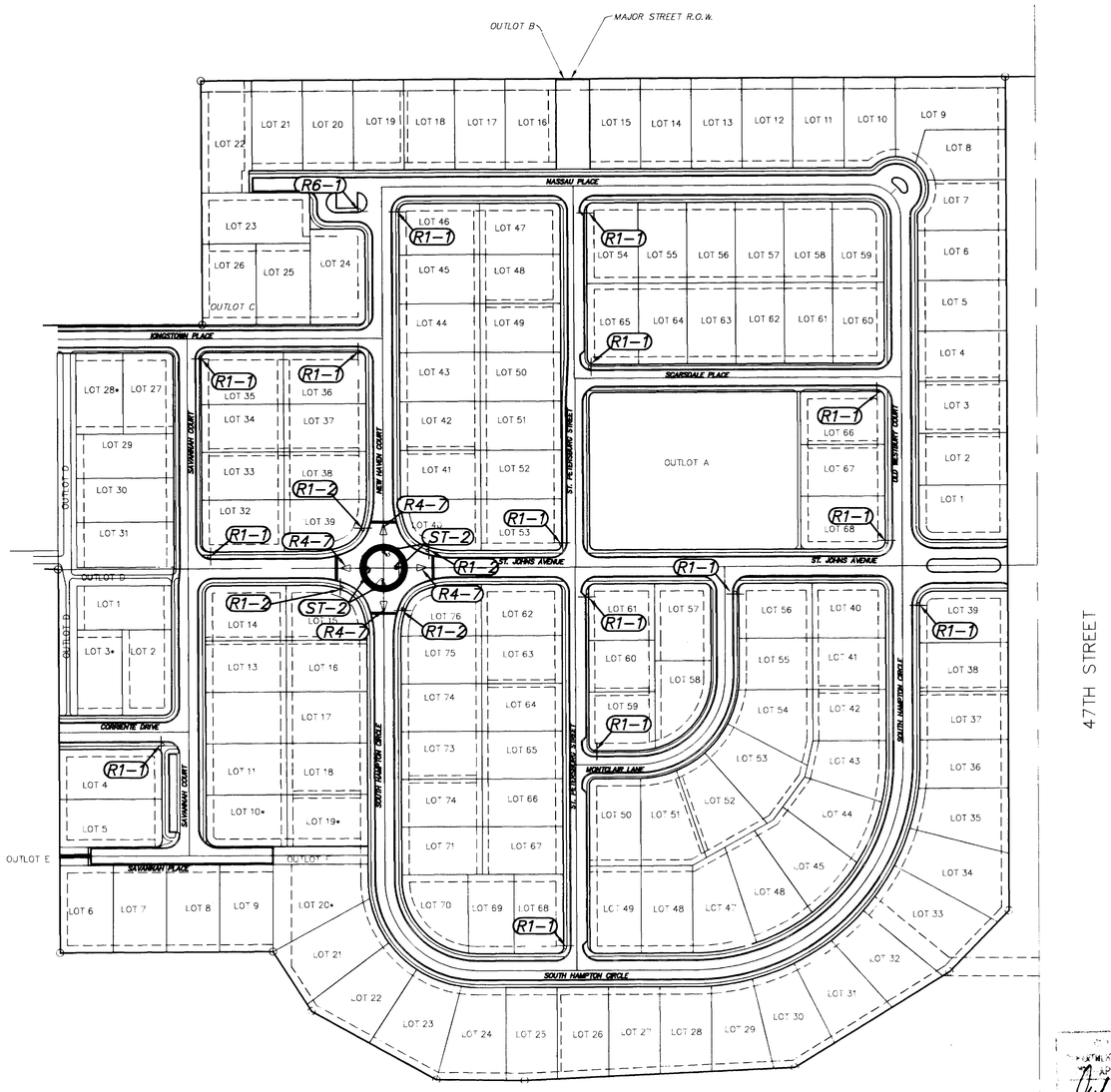
AS-BUILT APPROVAL
BY: [signature]
DATE: 1-28-94

[signature] 6/29/93

21033

Four Mile Creek
Wetlands Mitigation Plan

SCALE HOR 1"=40' VERT N/A	HURST & ASSOCIATES, INC. CONSULTING ENGINEERS 3055 47th Street, A-2 Boulder, Colorado 80301 (303) 449-9105
DESIGN T.R.	
DRAWN AKR	
FILE NAME 009W.2A	
APPROVED C.H.	JOB NO 2000-9 DATE 6, 22, 93 SHEET 28 OF 32



GRAPHIC SCALE

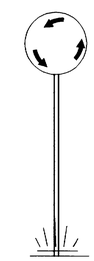
100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

LEGEND	
R1-1	STOP 30" x 30"
R1-2	YEILD 36" x 36" x 36"
ST-2	ROUNDABOUT 30" DIAMETER
R6-1	ONEWAY 36" X 12"
R4-7	KEEP RIGHT

48 HOURS BEFORE YOU DIG
CALL FOR THE BLUE STAKES
1-800-922-1987
GAS, ELECTRIC, TELEPHONE, CATV AND PANHANDLE EASTERN PIPELINE LOCATIONS

TYPE 2 SIGN DETAIL



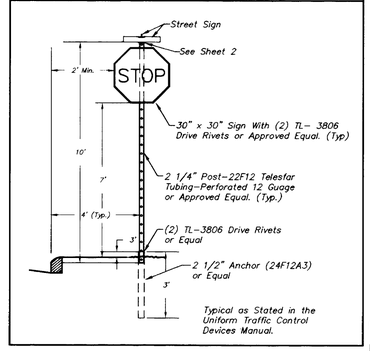
ST-2

GENERAL NOTES:

1. ALL "STOP" SIGNS, "YIELD" SIGNS AND "DO NOT ENTER" SIGNS SHALL BE OF SCOTCHLITE REFLECTIVE SHEETING – HIGH INTENSITY GRADE, OR APPROVED EQUAL. ALL OTHER TRAFFIC SIGNS SHALL BE OF SCOTCHLITE REFLECTIVE SHEETING – ENGINEER GRADE, OR APPROVED EQUAL.
2. ALL SIGN POSTS SHALL BE 12-GAUGE, GALVANIZED, PERFORATED TELESPAR TUBING, AND SHALL CONFORM TO THE STANDARD SPECIFICATION FOR COLD-ROLLED CARBON STEEL SHEETS, COMMERCIAL QUALITY ASTM DESIGNATION A-446.

   THE SHAPE OF THE POST SHALL BE A SQUARE TUBE CAREFULLY ROLLED TO SIZE AND WELDED IN THE CORNER.
3. ALL SIGN HARDWARE SHALL HAVE VANDAL-PROOF BOLTS AND FITTINGS, AND SHALL BE GALVANIZED OR CADMIUM-PLATED.
4. BEFORE ANY SIGN POST INSTALLATIONS ARE MADE, ALL UNDERGROUND UTILITIES SHALL BE CLEARED BY PUBLIC SERVICE COMPANY OF COLORADO, MOUNTAIN BELL TELEPHONE COMPANY, CITY OF BOULDER SEWER DEPARTMENT, CITY OF BOULDER WATER DEPARTMENT, AND ALL UNDERGROUND DRAINS AND SPRINKLING SYSTEMS.
5. THE DISTANCE OF SIGN POST FROM THE CURB FACE, AND ALIGNMENT OF THE SIGN FACE SHALL BE IN ACCORDANCE WITH THE ATTACHED CONSTRUCTION PLANS AND DRAWINGS.
6. ALL SIGN POSTS SHALL BE INSTALLED WITH FIRST DRIVING A 3 FOOT ANCHOR (NOTE SIZE OF ANCHOR AND DEPTH OF ANCHOR IN DRAWING FOR APPROPRIATE TYPE OF INSTALLATION) USING A TELESPAR DRIVING CAP TO ACCOMMODATE THE SIZE ANCHOR BEING USED.
7. CUT SIGN POST TO PROPER SIZE AND SLIDE INTO ANCHOR AS SHOWN IN DRAWING, AND SECURE WITH TWO TL-3806 DRIVE RIVETS, OR APPROVED EQUAL; ONE ON SIGN FACE SIDE, AND THE OTHER TO THE RIGHT OR LEFT SIDE OF THE POST, I.E., 90° SEPARATION OF EACH SET OF DRIVING RIVETS. CARE MUST BE TAKEN TO SET SIGN POST AS NOT TO OBSCURE ANOTHER SIGN, OR SO THAT NEW INSTALLATION IS NOT OBSCURED BY ANOTHER OBJECT.
8. ALL TRAFFIC SIGNS OF TYPE I AND TYPE II SHALL BE MOUNTED AT A HEIGHT OF 7 FEET, FROM THE TOP OF THE CURB TO THE BOTTOM OF THE SIGN; EXCEPT THE "KEEP RIGHT" SIGN WHICH SHALL BE MOUNTED AT A HEIGHT OF 5 FEET, FROM THE TOP OF THE CURB TO THE BOTTOM OF THE SIGN. STREET NAME SIGNS MOUNTED BY THEMSELVES, SHALL BE MOUNTED AT THE SAME HEIGHT AS IF THEY WERE ACCOMPANIED BY A "STOP" SIGN. NOTE TYPE I INSTALLATION ON THE DRAWING.
9. ALL TYPE I, TYPE II, AND TYPE III TRAFFIC SIGN PANELS SHALL BE FASTENED DIRECTLY TO THE POST. FASTEN SIGN PANEL TO TELESPAR POST BY FIRST PLACING TWO 3/8-INCH ZINC-PLATED FLAT WASHERS ON FACE OF SIGN, AND SECURE WITH TWO TL-3806 DRIVE RIVETS OR APPROVED EQUAL. WHERE A HIGH-INTENSITY SIGN IS MOUNTED, IT IS NECESSARY TO PLACE A FIBER WASHER AGAINST THE SIGN BEFORE THE FLAT WASHER.

TYPE I SIGN DETAIL



DEPARTMENT OF PUBLIC WORKS
APPROVAL REVIEW
WATER/WASTEWATER
STORMWATER
TRANSPORTATION

AS-BUILT APPROVAL
BY: [illegible]
DATE: 1-28-94

CITY OF BOULDER
CITY ENGINEER — DATE
APPROVAL EXPIRES ONE YEAR AFTER DATE ABOVE
6/29/93

REGISTERED PROFESSIONAL ENGINEER
John W. Jorgenson
P.E. # 22730 Dated: 6/28/93

21034

FOUR MILE CREEK
SIGNING PLAN
BLOCKS 1 & 2

SCALE HOR.1"=100' VERT.N/A
DESIGN TRL
DRAWN AKR
FILE NAME 009SIGN
APPROVED CH

HURST & ASSOCIATES, INC.
CONSULTING ENGINEERS
3055 47th Street, A-2
Boulder, Colorado 80301 (303) 449-9105

JOB NO. 2000-9 DATE 06, 24, 93 SHEET 29 of 32

163
4 Mile Cr

see Page 7

K102392
K102526

#01338569 09/20/93 08:23 AM REAL ESTATE RECORDS
F1875 CHARLOTTE HOUSTON BOULDER CNTY CO RECORDER

27-1

For Administrative Use Only
Sub. Name: 4 Mile Creek Subdivision, #1
Subdivider: James Company & Belgrove Development
Prelim. Plat App. Date:

SUBDIVISION AGREEMENT

135

A. This Agreement is made between the City of Boulder, a Colorado municipal corporation, hereinafter called "City," and the Belgrove Development Co., a Colorado general partnership, 2/28 C Corporation, a Colorado corporation, Geron, Inc., a Colorado corporation, Cooke Development Limited Liability Company, a Colorado limited liability company and James Construction Company, Inc., a Colorado corporation, hereinafter called "Subdivider," for the purposes of insuring that all ordinances and regulations of the City are met for the protection of the public health, welfare and safety, and obtaining the approval of the 4 Mile Creek Filing #1 Subdivision, hereinafter called "Subdivision."

B. The City acknowledges that the portions of the Subdivision which are owned by Belgrove Development Co., will be transferred to 2/28 C Corporation, Geron, Inc., and Cooke Development Limited Liability Company. Upon such transfer, and the assumption in writing by said transferees of the obligations of Belgrove Development Co., hereunder, Belgrove Development Co., shall be relieved of all obligations hereunder, whether or not then accrued.

C. The parties agree that good and valuable consideration exists as a basis for this Agreement including, but not limited to, the City's approval of the Subdivision of that parcel of land described in the attached Exhibit "A" and the provision of City services to the Subdivision which Subdivider agrees is of special benefit to the Subdivision.

D. This Agreement is binding upon the Subdivider, the Subdivider's successors and assigns, both jointly and individually, and shall be recorded in the office of the County Clerk and Recorder in order to put the prospective purchasers or other interested parties on notice of any of its terms. The Subdivider

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33127

27.2

agrees to notify subsequent purchasers of the Subdivision or any portion thereof, of the existence of this Agreement, and of the purchasers' potential obligations hereunder by providing a copy of this Agreement to the purchaser prior to the conveyance of the Subdivision or any portion thereof.

E. The Subdivider agrees to notify subsequent purchasers of the Subdivision or any portion thereof, of the existence of the drainage and underdrain requirements for each lot and of the underdrain and site drainage system requirements for the entire Subdivision and the purchasers' potential obligations hereunder by providing a copy of this Agreement to the purchaser prior to the conveyance of the Subdivision or any portion thereof.

F. The Subdivider shall commence, construct, and complete the Subdivision in accordance with:

(1) The provisions of approval of the final plat;

(2) The approved engineering plans, for the Subdivision, dated June 29, 1993, on file with the City of Boulder;

(3) All requirements of Chapter 9-5, B.R.C. 1981;

(4) The requirements of the "City of Boulder Design Criteria & Standard Specifications," December, 1982;

(5) All terms and conditions of Annexation Ordinance No.'s 5478, 5479, and 5480;

(6) Wetlands permit #W-93-1, attached hereto as Exhibit "B";

(7) The landscape plan, said plan to be approved prior to issuance of any building permits in the Subdivision;

(8) That certain unrecorded document entitled "Contract to Exchange Real Estate between City of Boulder and Belgrove Development", on file with the City of Boulder, dated August 20, 1991, except as modified by this Agreement;

(9) The "License to Modify and Reconstruct A Portion of A Lateral of the Farmer's Ditch" recorded in the offices of the Boulder County Clerk and Recorder on August 5, 1993 at Reception Number 1322211, Film Number 1855;

27.3

(10) The "Ditch Easement Agreement" recorded in the offices of the Boulder County Clerk and Recorder on August 5, 1993 at Reception Number 1322212, Film Number 1855;

(11) The Public Improvement Extension Agreement attached hereto as Exhibit "C"; and

(12) The engineering plans for 47th St. which shall be approved prior to issuance of any building permits in the Subdivision and which will be on file with the City of Boulder.

G. The Subdivider shall construct public improvements, at no cost to the City, as shown on the approved engineering plans, dated June 29, 1993, including but not limited to the following:

(1) All streets internal to the Subdivision including Old Westbury Court, St. Petersburg Street, New Haven Court, Savannah Court, S. Hampton Circle, Nassau Place, Kingstown Place, Scarsdale Place, St. John's Avenue, Corriente Drive, and Montclair Lane;

(2) Landscaped islands, circles, and medians in said rights-of-way;

(3) All curbs, gutters, and sidewalks associated with the above streets;

(4) Traffic control devices on the above-described streets;

(5) A bike and pedestrian path and landscaping in Outlots D, E and F;

(6) All water and sanitary sewer mains;

(7) All flood control and storm drainage improvements including, the underdrain system located in the public rights-of-way, storm drainage mains and storm water quality mitigation/enhancement areas on the northern boundaries of Lot 1, Block 4. ;

(8) Fire hydrants;

(9) A reconstructed irrigation lateral for the Farmer's Ditch from the northeast corner of Palo Park Filing #4 Replat to the existing splitter box adjacent to 47th St;

(10) A concrete lined irrigation ditch along the north boundary line of Block 1;

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(11) A concrete bike and pedestrian path, between the eastern and western boundaries of Lot 1, Block 4, roughly parallel to 4 Mile Creek;

(12) New wetlands, mitigation areas and water quality enhancement areas as further specified and described in Wetlands Permit # W-93-1.

The Subdivider agrees to install the improvements listed above according to Section 9-5-10(c) B.R.C. 1981.

H. The Subdivider shall provide the following public improvements at no cost to the City and may receive reimbursement for part or all of the cost of such improvements in accordance with the Public Improvement Extension Agreement attached hereto as Exhibit "C":

(1) Improve 47th St. to collector street standards along the eastern edge of the subject property, from the existing improved surface near the beginning of the highway overpass, and extending north to the intersection of Jay Rd. and 47th St. including all curbs, gutters and sidewalks associated therewith;

(2) A 12" water line, in 47th St., from St. John's Avenue to the intersection of Jay Rd. and 47th St.

I. The Subdivider shall construct and install the following public improvements, in conformance with the City of Boulder "Design Criteria and Standard Specifications", and shall be reimbursed for all costs associated with said improvements upon acceptance by the City of Boulder:

(1) A 12" water line from Outlot E, Block 2 to Palo Parkway.

J. The Subdivider shall, at the request of the City Manager, submit preliminary design plans, final engineering plans, and construct a bike and pedestrian path between the eastern and western boundaries of Lot 1, Block 4, generally parallel to 4 Mile Creek.

K. The Subdivider shall provide to the City financial security to guarantee the installation of the public improvements specified in paragraphs G, H, I and J and other obligations undertaken by the Subdivider in this Agreement. The guarantee will be in an amount to secure the full cost, as determined by the City of Boulder Director of Public Works, of constructing or installing the

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improvements. The guarantee will be either: (a) a deposit of escrow of funds with the City, (b) an escrow with a bank or savings and loan association upon which the City can draw, (c) an irrevocable clean sight draft or letter of commitment upon which the City can draw, (d) a performance bond for the benefit of the City upon which the City can collect, (e) or any other form of guarantee approved by the Director of Public Works, any one of which is in a form satisfactory to the City Attorney. The term of the guarantee shall be for a period of time sufficient to cover the construction of the public improvements. If the construction is not completed and paid for by the Subdivider according to the requirements of this Agreement and Chapter 9-5, B.R.C. 1981, the City may in its absolute discretion complete the construction or cause the same to be done and pay outstanding claims and bills incurred in such completion from the escrow fund or guarantee furnished. The Subdivider shall pay any amount above the amount provided in the guarantee required to complete construction of the improvements. The Public Works Director shall annually review the guarantee to assure that it meets full current costs of constructing the improvements whose installation it secures and, upon notification, the Subdivider shall amend the guarantee to meet such current costs. If the Subdivider constructs and pays for part of the improvements, which are then accepted by the City, the City shall reduce the amount of the guarantee required, as long as the remaining guarantee is sufficient to secure the costs of the improvements not yet completed or accepted. The City shall release the guarantee when all the improvements have been constructed and the City has accepted them.

L. Upon completion of the public improvements and acceptance by the City, the Subdivider shall warrant all public improvements and utilities for two years and shall secure the two-year warranty by insurance policy or bond from a surety acceptable to the Public Works Director, payable to the City as beneficiary, in an amount adequate to replace or repair the improvements if they are damaged or become inoperable during the warranty period. If the Public Works Director determines that any such public improvements require

27-6

repair or replacement, the Director shall so notify the Subdivider. The City will not approve any other development applications from or improvements constructed or installed by the Subdivider until the Subdivider satisfactorily repairs or replaces a defective improvement. If the Subdivider fails to repair or replace any such improvements after notice, the City may cause the work to be done and charge the cost thereof against the insurance policy or bond.

M. The Subdivider shall provide the following private improvements or utilities.

(1) Landscaping and parks areas in Outlot A, Block 1; and

(2) Landscaping in the circles, islands, eyebrows and medians in the public rights-of-way.

The Subdivider shall provide mutual covenants in the deeds of all property owners of the Subdivision for continued and perpetual maintenance of the above-described utilities and improvements.

N. Prior to issuance of a Certificate of Occupancy for Lots 6 through 9, and Lots 20 through 34, Block 2, the Subdivider shall construct a five foot solid fence with a one foot lattice top for a total of six feet in height, along the southern property lines of the aforementioned lots. Subdivider shall be eligible for reimbursement from the City for all reasonable costs exceeding $4.50 per lineal foot. The Subdivider shall affirmatively notify subsequent purchasers of said lots, as required by paragraphs D and E of this Agreement, of the location of, and the limitations on, fencing adjacent to the Block 4. The Subdivider shall obtain the written permission of the City for any encroachments into any easements and shall obtain the written approval of the City for the design of the fence prior to issuance of a fence permit. Upon acceptance by the City, the City shall be responsible for the maintenance, repair and reconstruction of the fence.

O. The Subdivider shall construct the approved bicycle and pedestrian path, see paragraph G(11), prior to issuance of a Certificate of Occupancy for Lots 27, 28, 29, 30 and 31, Block 1 and Lots 1, 3, 5, 6, 9, 10, 19 and 20, Block 2 and shall affirmatively notify purchasers of said lots, as required by paragraphs D and E of this Agreement, of the location of the path, landscaping, the

27-7

limitations on fencing adjacent to the path, and of any other obligations noted hereunder.

P. The Subdivider agrees that the following conditions are continuing limitations on future buildings and uses of each lot covered by this Agreement:

(1) There shall be a 25 foot rearyard setback for Lots 21 through 33 of Block 2;

(2) There shall be a 35 foot rearyard setback for Lots 6 through 9 of Block 2;

(3) There shall be no openings or gates in the fence adjacent to the Lot 1, Block 4;

(4) All utility service lines shall be constructed underground;

(5) Construction of any fence, any portion of which is located or to be constructed in a drainage easement shall be subject to the review and, at the sole discretion of the City, approval of a Revocable Permit from the City. Additional requirements for said fences may be imposed pursuant to the City's review of a Revocable Permit application.

(6) Only 42 inch high solid, picket, split rail, or chain link which uses wooden posts and wooden crossbars shall be permitted in any yard adjacent to a pedestrian or bike path;

(7) Building coverage on any lot in the Subdivision is limited to a maximum of thirty percent of the total lot area and shall include house, garage and accessory structures;

(8) There shall be at least one street tree per lot; and

(9) Landscaping and other improvements, including but not limited to eyebrows, medians and traffic circles shall be maintained by property owners within the Subdivision.

The Subdivider shall include the conditions and requirements noted above in all deeds of any portion of the Subdivision thereby notifying subsequent purchasers of these limitations.

Q. The Subdivider shall convey the Subdivision's historical drainage in a manner so as to not adversely affect adjacent property.

27-8

R. Prior to issuance of a building permit for any lots within the Subdivision, the Subdivider, or the then property owner, shall grant an avigation easement to the City of Boulder in accordance with the requirements of Chapter 9-11, BRC, 1981.

S. The Subdivider shall submit revised utility engineering plans and grant of easement legal instruments, as required, upon submittal of a replat for Block 3 of the Subdivision. Said plans shall be subject to review and approval by the Public Works Department to insure compliance with the then current City design standards and specifications for public improvements. Under no circumstances will a replat of Block 3 of the Subdivision be approved or any building permit applications for Block 3 accepted by the City until all required revisions have been made and original mylars submitted and approved by the City and all required financial guarantees submitted and approved.

T. The Subdivider shall defend and hold the City harmless from any and all claims or damages that may arise from the Subdivider's actions in connection with the execution of this Subdivision, including but not limited to the construction of any public or private improvements or the failure to construct the same.

U. Belgrove Development Co., 2/28 C Corporation, Geron, Inc., Cooke Development Limited Liability Company, and James Construction Company, Inc., notwithstanding the provisions of paragraph D, shall be responsible for the provision of a groundwater underdrain system to serve each lot within the Subdivision in conformance with the "Proposed Subdivision Underdrain System, Four Mile Creek Subdivision, Boulder, Colorado" report prepared by Scott Cox and Associates, Inc., revised April, 1993; the approved engineering plans dated June 29, 1993, on file with the City; and Exhibit "D", "Four Mile Creek Development Groundwater Control Systems and Impacts."

(1) The underdrain system shall consist of the following:

(a) A six inch solid (non-perforated) underdrain main line, to be constructed parallel to and below the sanitary sewer main system within the dedicated public right-of-way or utility

27.9

easements. The six inch underdrain main line shall be maintained by the City.

(b) Four inch service lines connecting to and extending from the six inch main line to serve each lot. Service lines shall consist of four inch solid (non-perforated) pipe lines within the dedicated public right-of-way and utility easements, and four inch perforated pipe lines within individual lots, and shall be constructed parallel to and below the sanitary sewer line. The Subdivider, or the individual lot owner, shall be responsible for all maintenance associated with any four inch service line (including that portion located within the dedicated public right-of-way or utility easement) from the connection with the six-inch main line to, and within, the individual lot.

(2) The Subdivider agrees to establish a system for reimbursing the City for any and all costs associated with the maintenance, repair, or reconstruction of the public portion of the underdrain system by assessing each individual property owner. In the event that sufficient assessments are not collected, the City reserves the right to assess individual property owners for their pro rata share of any and all costs incurred by the City in the maintenance, repair, or reconstruction of the public portion of the underdrain system. In the event that the City establishes a storm drainage surcharge for the maintenance, repair and reconstruction of the public portion of the underdrain system, the obligation to collect an assessment for the maintenance, repair, or reconstruction of the underdrain system shall cease.

V. Belgrove Development Co., 2/28 C Corporation, Geron, Inc., Cooke Development Limited Liability Company, and James Construction Company, Inc., notwithstanding the provisions of paragraph D, shall provide the following groundwater drainage systems upon development of any lot within the Subdivision:

27.10

(1) A sump pump, if a basement is constructed, in each residential structure; and

(2) A perforated perimeter groundwater underdrain system surrounding the foundation of each residential structure, connected to the four inch underdrain service line serving each individual lot.

(3) Maintenance for the sump pump and perimeter underdrain system shall be the responsibility of the individual lot owners.

W. Outlots A, D, E and F in the Subdivision are subject to the following restrictive covenants and the Subdivider shall include these covenants in all deeds notifying subsequent purchasers of these limitations:

(1) Each individual lot within the Subdivision shall be responsible for payment of its proportionate share of any and all taxes or assessments assessed against the common areas or outlots.

(2) The maintenance of said outlots shall be the responsibility of the individual property owners of the Subdivision;

(3) The Subdivider agrees that the City, or its duly authorized representative, may enter said outlots to insure, and to evaluate, the adequacy of the maintenance of said outlots;

(4) Outlot A shall be maintained pursuant to Wetlands Permit #W-93-1 attached hereto as Exhibit "B"; and

(5) The Subdivider agrees that the City has the right to require the Subdivider, or future individual lot owners, to correct any deficiencies in the maintenance of, or any damages to said outlots; and

(6) The Subdivider agrees that the City shall have the ability to certify to the Boulder County Assessor's Office for collection, any expenses incurred with respect to and deficiencies in the maintenance of or repair of any damages to said outlots.

X. The City acknowledges that Farmer's Ditch water rights will be retained by the Subdivider for the maintenance of the wetlands improvements in Outlot A. These water rights shall not be conveyed or transferred to any other party

27-11

except the 4 Mile Creek Homeowner's Association without prior, written approval from the City of Boulder.

Y. The undersigned warrants ownership of the property described in Exhibit "A" and agrees to provide an update of the preliminary title report or attorney memorandum of ownership current as of the date of recording the Subdivision plat.

Z. If the Subdivider breaches this Agreement in any respect, the City may withhold approval of all building permits and other development applications requested for the area within the Subdivision until the breaches have been cured. This remedy is in addition to all other remedies available to the City at law or equity.

AA. The terms and covenants of this Agreement are in addition to, and do not extinguish unless expressly stated, any other Agreements between the parties.

BB. If this Agreement is deemed to create an interest in land, this Agreement shall be enforced, if not sooner completed, during the lives of the undersigned plus twenty years and three hundred sixty-four days.

CC. This Agreement is effective on the date above indicated upon the affixing of the parties' signatures.

SIGNED:

SUBDIVIDER: Belgrove Development Company, a Colorado General Partnership

by: 2/28 C Corporation, a Colorado Corporation, General Partner of Belgrove Development Co.

James Hudson, President

ATTEST:

Dale C. Hudson, Secretary

27-12

by: Geron, Inc., a Colorado Corporation, General Partner of Belgrove Development Company

Dennis C. Hudson, President

SEAL
ATTEST:

Dale C. Hudson, Secretary

by: Melody Homes, a Colorado General Partnership, a.k.a. Melody Homes, a Joint Venture, General Partner of Belgrove Development Company

Noel West Lane III, Attorney-in-Fact

STATE OF COLORADO)
) ss.
COUNTY OF ~~BOULDER~~ Jefferson)

The foregoing instrument was acknowledged before me this 19th day of August, 1993, by Noel West Lane III, Attorney-in-Fact of Melody Homes, a Colorado General Partnership, a.k.a. Melody Homes, a Joint Venture, General Partner of Belgrove Development Company

Witness my hand and official seal.
My Commission expires: 11/22/93

Notary Public

Address: 11031 Sheridan Blvd.
Westminster, Co 80030

27-1

2/28 C Corporation, a Colorado Corporation

James Hudson, President

ATTEST:

Dale C. Hudson, Secretary

Geron, Inc., a Colorado Corporation

Dennis C. Hudson, President

ATTEST:

Dale C. Hudson, Secretary

Cooke Development Limited Liability Company, a Colorado limited liability company

Donald E. Cooke, Manager

ATTEST:

Secretary

James Construction Company, Inc., a Colorado Corporation

James Postle, President

ATTEST:

Secretary

27-14

CITY OF BOULDER, COLORADO

By: _____
Robert O. Cole, Acting Director
Community Planning and Development

Date: 8/26/93

ATTEST:

_____
Director of Finance and Record
Ex-officio City Clerk

APPROVED AS TO FORM:

_____ 8-20-93
City Attorney

SGJay47.SA

EXHIBIT A

27-15

LEGAL DESCRIPTION

THAT PORTION OF THE SOUTHEAST QUARTER OF SECTION 17 AND THE NORTHEAST QUARTER OF THE NORTHEAST QUARTER OF SECTION 20, TOWNSHIP 1 NORTH, RANGE 70 WEST, 6TH PRINCIPAL MERIDIAN, BOULDER COUNTY, COLORADO, DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHEAST CORNER OF SAID NORTHEAST QUARTER OF THE NORTHEAST QUARTER OF SECTION 20;

THENCE S 89°51'30" W 417.36 FEET ALONG THE SOUTHERLY BOUNDARY OF SAID NORTHEAST QUARTER OF THE NORTHEAST QUARTER OF SECTION 20;
THENCE N 00°08'24" W 30.00 FEET TO THE NORTHERLY RIGHT OF WAY OF KALMIA AVENUE, THE POINT OF BEGINNING;

THENCE S 89°51'30" W 912.33 FEET ALONG SAID RIGHT OF WAY TO THE WESTERLY BOUNDARY OF SAID NORTHEAST QUARTER OF THE NORTHEAST QUARTER OF SECTION 20;
THENCE N 00°07'02" W 1303.20 FEET ALONG SAID WESTERLY BOUNDARY TO THE SOUTHWEST CORNER OF SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SAID SECTION 17;
THENCE N 00°22'48" W 1327.40 FEET ALONG THE WESTERLY BOUNDARY OF SAID SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 17 TO THE NORTHWEST CORNER THEREOF;
THENCE N 88°13'53" W 17.96 FEET ALONG THE SOUTHERLY BOUNDARY OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SAID SECTION 17 AS MONUMENTED;
THENCE CONTINUING ALONG SAID SOUTHERLY BOUNDARY S 89°40'03" W 1315.15 FEET TO THE SOUTHWEST CORNER OF SAID NORTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 17;
N 00°26'29" W 749.20 FEET ALONG THE WESTERLY BOUNDARY OF SAID NORTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 17;
THENCE N 89°36'40" E 302.05 FEET;
THENCE N 00°25'19" W 536.34 FEET TO THE SOUTHERLY RIGHT OF WAY OF JAY ROAD;
THENCE N 89°37'18" E 1011.28 ALONG SAID RIGHT OF WAY TO THE WESTERLY BOUNDARY OF THOSE TRACTS OF LAND DESCRIBED IN A DISTRICT COURT DECREE RECORDED ON FILM 840 RECEPTION NO. 89359;
THENCE ALONG SAID WESTERLY BOUNDARY THE FOLLOWING COURSES;
1. S 00°09'59" E 207.74 FEET;
2. S 00°50'54" E 415.29 FEET;
3. S 00°20'48" E 331.96 FEET;
THENCE N 89°44'50" E 216.62 FEET;
THENCE N 00°21'51" W 332.03 FEET TO THE NORTHERLY BOUNDARY OF THE SOUTH HALF OF THE NORTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SAID SECTION 17;
THENCE N 89°38'31" E 1095.51 FEET ALONG SAID NORTHERLY BOUNDARY TO THE WESTERLY RIGHT OF WAY OF 47TH STREET;
THENCE ALONG SAID WESTERLY RIGHT OF WAY THE FOLLOWING COURSES;
1. S 00°18'30" E 1586.23 FEET;
2. S 03°50'04" W 408.47 FEET;
3. S 00°01'54" E 326.53 FEET TO THE WESTERLY RIGHT OF WAY OF STATE HIGHWAY NO. 119;
THENCE ALONG SAID RIGHT OF WAY THE FOLLOWING COURSES:
1. S 35°12'32" W 49.17 FEET;
2. ALONG THE ARC OF A CURVE TO THE LEFT 601.98 FEET, SAID ARC SUBTENDED BY A RADIUS OF 1321.00 FEET, A CENTRAL ANGLE OF 26°06'34", AND A CHORD BEARING S 22°10'11" W 596.78 FEET;
3. S 08°19'22" W 334.77 FEET;
4. S 89°51'30" W 45.00 FEET;
5. S 00°08'24" E 55.88 FEET TO THE POINT OF BEGINNING,

CONTAINING 125.778 ACRES, MORE OR LESS.

EXHIBIT B

27-16

CITY
OF
BOULDER

Department of Community Planning and Development
P.O. Box 791 Boulder, Colorado 80306 (303) 441-3270

WETLAND PERMIT

NAME OF PROJECT:	Four Mile Creek Project Wetlands permit
COOR:	N6W3
LOCATION:	West of 47th St., north of Four Mile Canyon Creek
LEGAL DESCRIPTION:	See attached.
APPLICANT:	Jim Hudson
OWNERS:	Jim Hudson, Jim Postle and Don Cooke
TYPE AND NUMBER:	Wetland Review, #W-93-1.
ZONING:	County (pending City zoning: LR-D)
DECISION:	Approval, with conditions

PROJECT DESCRIPTION:

Elimination of 0.79 acres of existing wetlands and completion of compensatory mitigation, including the creation of two new wetland areas adjacent to Four Mile Canyon Creek: one of 0.36 acres (west area), and the other of 0.50 acres (east area), enlargement of an existing wetland (stock pond) by a total of 0.12 acres, and enhancement of .20 acres around the pond.

REQUIREMENTS:

1. Development shall be in compliance with the approved Wetlands Impact Map on file with the City of Boulder Planning Department dated April 6, 1993, and the Compensatory Mitigation Plan specified as Section 4.0 of the "Wetlands Permit Application-Four Mile Creek Project" dated April, 1993.

2. The Applicant shall submit the following items for the review, and subject to the approval, of the Planning Department no later than the time of building permit application:

   a. Final wetlands mitigation plans including wetland plant species, aquatic seed mix, aquatic plantings, saturated soil seed mixes, and shrub, tree and forb plantings to insure compliance with the intent of this approval. Planning staff will review plans at the time of building permit application to assure consistency with this approval.

27-17

and application rates, the seeding process, type and number of plantings, the planting process, mulching, and measures implemented to reduced the influence of weeds.

3. The Applicant shall provide a financial guarantee prior to issuance of any temporary or permanent certificate of occupancy for the Four Mile Creek development, in an amount sufficient to secure the installation or completion of all items required by this approval.

4. The Applicant will submit annually to the City of Boulder, The Army Corps of Engineers, and all other applicable regulatory agencies, a comprehensive vegetation monitoring report for a period five years following the initial seeding and planting.

5. The Applicant is required to convey drainage in a historical manner without adversely impacting neighboring properties.

Approved on: 5-10-93
Date

By: [signature]
Robert Cole, Acting Director
Dept. of Community Planning & Development

This decision may be appealed to the Planning Board by filing an appeal letter with the Planning Department within two weeks of the date of approval. If no such appeal is filed, the decision shall be deemed final fourteen days after the date above mentioned.

Appeal to Planning Board expires: 5-24-93
Date

Pursuant to Section 9-12-12 of the Land Use Regulations (Boulder Revised Code, 1981), this approval shall expire three years after the final approval date unless development has proceeded as specified in Section 9-12-12.

27-18

EXHIBIT C

PUBLIC IMPROVEMENT EXTENSION AGREEMENT

THIS AGREEMENT is made this _____ day of _____, 1993, by and between Belgrove Development Company, a Colorado general partnership, 2/28 C Corporation, a Colorado corporation, Geron, Inc., a Colorado corporation, Cooke Development Limited Liability Company, a Colorado limited liability company and James Construction Company, Inc., a Colorado corporation herein referred to as "Subdivider", and the City Boulder, a Colorado municipal corporation, hereinafter referred to as "City."

RECITALS

WHEREAS, the Subdivider owns the real property described in Exhibit A heretofore to the Subdivision Agreement, to be known as Four Mile Creek Filing #1 Subdivision;

WHEREAS, the Subdivider has agreed to extend and install the following public improvement in connection with the subdivision but not entirely on the premises thereof, as shown on the approved subdivision engineering plans dated June 29, 1993, and the 47th Street Reconstruction Plans:

> Approximately 2150 lineal feet of new collector standard roadway, for 47th Street south of Jay Road, including but not limited to curb, gutter, sidewalk, paving, striping and signage.
>
> Approximately 4,050 feet of a 12 inch water main.
> Approximately 5,733 feet of an 8 inch water main.
> Approximately 7,807 feet of an 8 inch sewer main.

WHEREAS, the Subdivider wishes to receive reimbursement for all or part of the costs of these improvements from adjacent properties; and

WHEREAS, the City is interested in ensuring that certain things be accomplished by the Subdivider in order to protect the public health, safety, and welfare;

COVENANTS

NOW THEREFORE, in consideration of the recitals, covenants, and promises herein set forth and other good and valuable consideration herein receipted for, the parties agree as follows:

1. Upon the completion and acceptance by the City of all parts of the construction, the aforementioned improvement shall become the property of the City, subject to the warranties required in paragraph L of the Subdivision Agreement.

27-19

2. Within 60 days of preliminary acceptance of these improvements, Subdivider shall submit to the City an itemized statement of all of the costs of constructing the improvements. Upon the verification of these costs, the Director of Public Works or an authorized agent shall establish the per front-foot cost or equivalent unit cost for the improvement. If, at any time within ten years from the effective date of this Agreement, any person other than Subdivider or his or her successors-in-interest subdivide, annex, or obtain a building permit for property abutting the improvement that Subdivider has installed, the City shall collect from each such person its pro-rata share of the cost of the installation on a front-foot basis. The City shall pay over to Subdivider any such amount so collected within the ten year period. In no event shall the amount paid to Subdivider exceed the original cost of the construction, as verified by the Director of Public Works. After the expiration of the ten year period, the City shall retain any such monies collected.

3. Subdivider agrees to provide to the City a current address during the term of the agreement.

4. The City agrees to reimburse to Subdivider the costs of constructing approximately 665 lineal feet of 12" water main and appurtenances in 47th Street, generally located from the intersection of 47th Street and Jay Road south, to the north-east corner of Four Mile Creek Subdivision; more particularly between the Stations 0+00 and 6+65, as shown on the 47th Street Reconstruction Plans. The Director of Public Works or an authorized agent shall establish the reimbursable construction costs, from their respective unit prices, for the improvements constructed by Subdivider. The City shall pay this amount to the Subdivider upon completion and acceptance of the improvements by the City. However, should the money not be available in the City's Utility budget, the reimbursement shall be paid as soon as such money becomes available. The construction costs have been determined and will be reimbursed as follows (quantities are approximate):

a)	665 lf	of	12" Pipe	@	$ 18.40 lf
b)	31 lf	of	8" Pipe	@	$ 13.25 lf
c)	33 lf	of	6" Pipe	@	$ 12.00 lf
d)	1 ea	of	12" Cross	@	$459.00 ea
e)	1 ea	of	12"x 8" Tee	@	$310.00 ea
f)	1 ea	of	12"x 6" Tee	@	$302.00 ea
g)	3 ea	of	12" Valve	@	$845.00 ea
h)	1 ea	of	8" Valve	@	$450.00 ea
i)	1 ea	of	6" Valve	@	$365.00 ea
j)	3 ea	of	12" Plug	@	$150.00 ea
k)	1 ea	of	8" Plug	@	$105.00 ea
l)	1 ea	of	Fire Hydrant	@	$880.00 ea

27-20

5. The agreements and covenants as set forth herein shall run with the land and shall be binding upon and inure to the benefit of the parties to this Agreement, their successors, representatives, assigns, and all persons who may hereafter acquire and interest in the subject property or any part thereof.

6. If this agreement creates an interest in land, that interest shall vest, if at all, within the lives of the undersigned plus twenty years and three hundred sixty-four days.

EXECUTED on the day and year first above written.

Subdivider: Belgrove Development Company, a Colorado General Partnership

by: 2/28 C Corporation, a Colorado Corporation, General Partner of Belgrove Development Company

James Hudson, President

ATTEST:

Dale C. Hudson, Secretary

by: Geron, Inc., a Colorado Corporation, General Partner of Belgrove Development Company

Dennis C. Hudson, President

ATTEST:

Dale C. Hudson, Secretary

by: Melody Homes, a Colorado General Partnership, a.k.a. Melody Homes, a Joint Venture, General Partner of Belgrove Development Company

Noel West Lane III, Attorney-in-Fact

27.21

STATE OF COLORADO)
) ss.
COUNTY OF ~~BOULDER~~ Jefferson)

The foregoing instrument was acknowledged before me this 19th day of August, 1993, by Noel West Lane III, Attorney-in-Fact of Melody Homes, a Colorado General Partnership, a.k.a. Melody Homes, a Joint Venture, General Partner of Belgrove Development Company

Witness my hand and official seal.
My Commission expires: 11/22/93

Notary Public

Address: 1051 Sheridan Blvd.
Westminster, CO 80020

2/28 C Corporation, a Colorado Corporation

James Hudson, President

ATTEST:

Dale C. Hudson, Secretary

Geron, Inc., a Colorado Corporation

Dennis C. Hudson, President

ATTEST:

Dale C. Hudson, Secretary

Cooke Development Limited Liability Company, a Colorado limited liability company

Donald E. Cooke, Manager

ATTEST:

Secretary

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James Construction Company, Inc., a Colorado Corporation

James Postle, President

ATTEST:

Secretary

CITY OF BOULDER, COLORADO

By:
Robert O. Cole, Acting Director
Community Planning and Development

ATTEST:

for Director of Finance and Record
Ex-officio City Clerk

Approved as to form:

8-20-93
City Attorney

agrwork\sgpay47.ex2

EXHIBIT D

27-23

FOUR MILE CREEK DEVELOPMENT
GROUNDWATER CONTROL SYSTEM & IMPACTS

BLOCKS 1 & 2

A clay dike will be constructed around the north and west boundary of Block 1 and a portion of the east boundary of Block 1 (see construction plans - overlot grading). This dike will be keyed into bedrock, and the top of the dike will be constructed to an elevation equal to the highest (closest to surface) groundwater level as determined by existing site test hole information. This perimeter dike will protect existing domestic wells to the west of Block 1 and wetlands to the north and east of Block 1 from the impacts of underdrains constructed within Blocks 1 and 2. The existing sewer line trench in 47th Street serves as a groundwater boundary on the east side of the project. To the west of Block 2, Palo Park has an existing underdrain system; thus the Block 2 underdrains will have no negative impacts on Palo Park.

By utilizing a perimeter dike system, the area within Blocks 1 and 2 will be cut-off from groundwater flows from the northwest (see attached figure). Conversely, the perimeter dike and 47th Street sanitary sewer trench will confine drawdown impacts from the Blocks 1 and 2 underdrains to Blocks 1 and 2 and to an overlap with the Palo Park underdrains. With this approach to groundwater control, the sanitary sewer line within Blocks 1 and 2 will not require clay dikes. Additionally, the wetlands pond within Block 1 will be surrounded by a clay dike so that individual site underdrains will not dewater the pond (note that Farmer's Ditch water will be used to irrigate the pond wetlands).

BLOCK 3

Negative impacts from underdrains within Block 3 could occur in two areas -

1. Domestic wells east of Block 3.

2. A single domestic well west of Block 3.

Other areas adjacent to Block 3 (Palo Park and Orange Orchard) are currently served by city water and sewer have residential underdrains in areas of high groundwater; thus Block 3 underdrains will not adversely impact these areas.

To eliminate potential impacts to these domestic wells the following groundwater control system will be used:

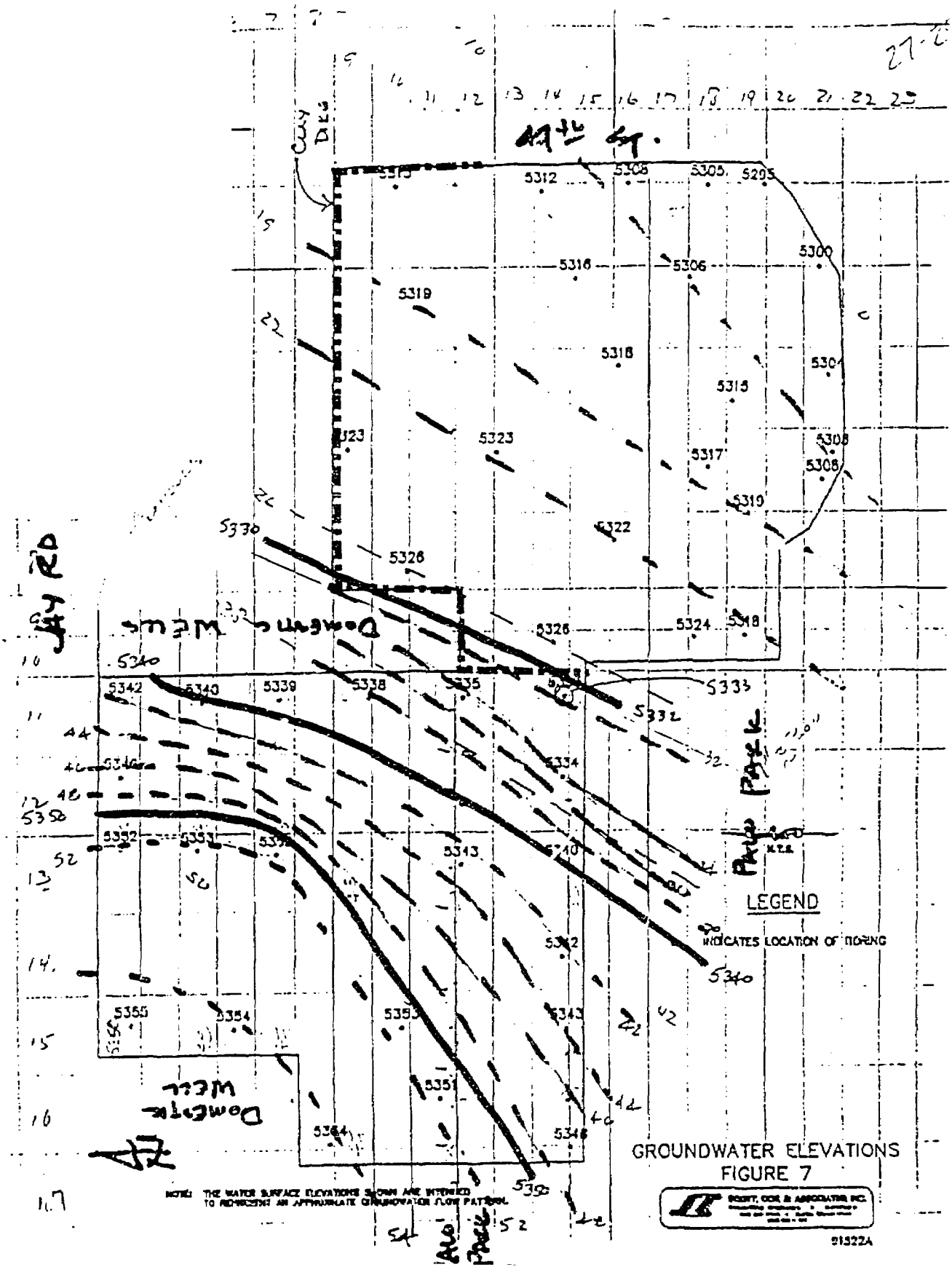
1. Underdrains along the eastern tier of lots will be no lower than the high groundwater elevations shown on the attached map. From north to south these are 5342, 5340, 5339, 5338, 5335 and 5333.

27-2c

2. All sewer lines will have clay dikes at each manhole. The top of the dike shall be at an elevation equal to the highest adjacent underdrain.

3. Underdrains west of the eastern tier of lots will be set at an elevation no lower than the eastern control elevation plus 0.75% rise in water surface elevation. This will insure a water table gradient (flow) from west to east so that the existing domestic wells east of Block 3 will not be impacted (see attached figure).

4. To protect the domestic well west of Block 3, applicants agree to redrill the well in the event that domestic water production in that well is lessened by Block 3 underdrains. Referring to the attached figures, it can be seen that the current water bearing strata is 23' to 25' deep and that the potential impact of the underdrains would be to decrease this water bearing strata to 18' to 20' deep which is sufficient for a domestic well (note that the eastern wells are in the 10' to 14' range).

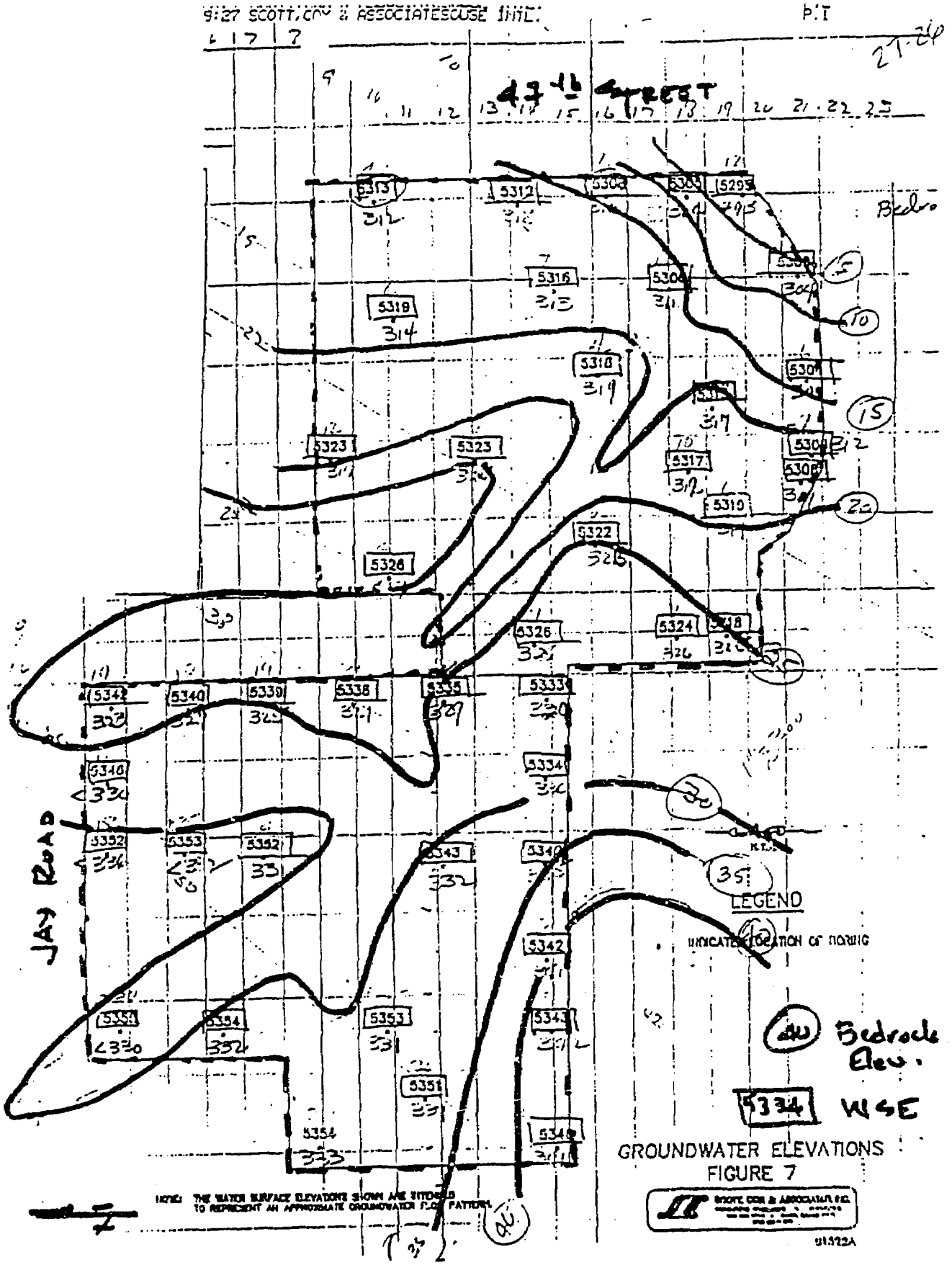


GROUNDWATER ELEVATIONS
FIGURE 7

NOTE: THE WATER SURFACE ELEVATIONS SHOWN ARE INTENDED TO REPRESENT AN APPROXIMATE GROUNDWATER FLOW PATTERN.

SCOTT, COX & ASSOCIATES INC.

91322A



GROUNDWATER ELEVATIONS
FIGURE 7

27-27

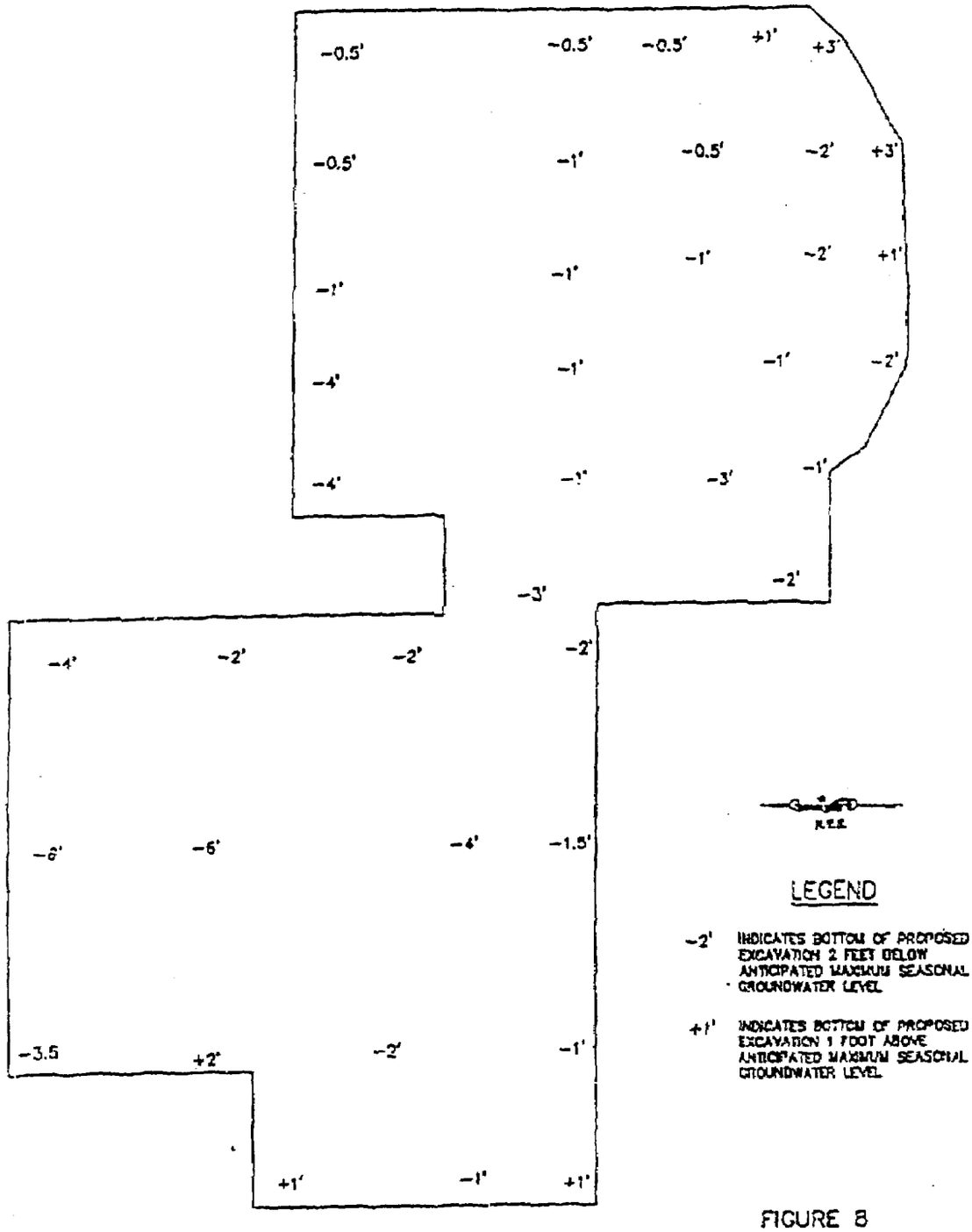
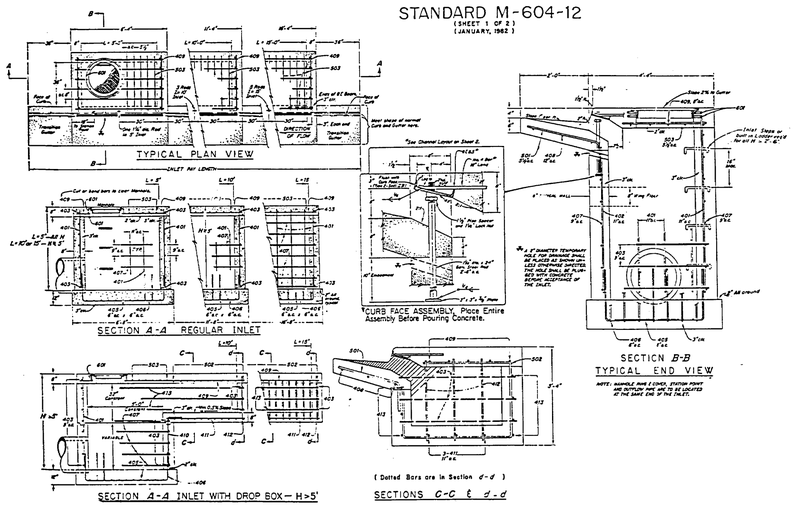


FIGURE 8

91522A

STANDARD M-604-12
(SHEET 1 OF 2)
(JANUARY, 1982)



STANDARD M-604-12
(SHEET 2)
(JANUARY, 1982)

TABLE ONE – BAR LIST FOR CURB INLETS, TYPE R

MARK	DIA in	o.c. Spacing	TYPE	ALL INLETS L = 5' No. Req'd	Length	INLETS H ≥ 5' L = 10' No. Req'd	Length	L = 15' No. Req'd	Length	INLETS, H > 5' L = 10' No. Req'd	Length	L = 15' No. Req'd	Length
401		11"	11	13	*	21	*	26	*	11	*	11	*
402		11"	11	7	*	13	*	18	*	7	*	7	*
403		9"	11	*	4'-0"	*	6'-0"	*	6'-0"	*	4'-0"	*	6'-0"
405		6"	VII	11	6'-10"	21	6'-10"	31	6'-10"	11	6'-10"	11	6'-10"
406		6"	VIII	7	8'-10"	7	13'-10"	7	18'-10"	7	8'-10"	7	8'-10"
407	½"	9"	11	*	5'-10"	*	10'-10"	*	15'-10"	*	5'-10"	*	5'-10"
408		12"	11	3	6'-0"	3	11'-0"	3	16'-0"	3	11'-0"	3	16'-0"
409		8"	11	6	5'-10"	6	10'-10"	6	15'-10"	6	10'-10"	6	15'-10"
410		11"	VII	—	—	—	—	—	—	3	*	3	*
411		11"	11							3	5'-2"	3	10'-2"
412		11"	11							3	2'-9"	3	2'-9"
413		9"	11							7	10'-0"	7	13'-0"
501	½	5½"	IV	11	3'-4"	22	3'-4"	33	3'-4"	22	3'-4"	33	3'-4"
502	½	5½"	III							11	11'-5"	22	11'-5"
503		5½"	11	5	3'-4"	16	3'-4"	27	3'-4"	6	3'-6"	6	3'-6"
601	½"	2½"	V	2	8'-10"	2	8'-10"	2	8'-10"	2	8'-10"	2	8'-10"
PB1 B3		—	—	1	5'-10	1	10'-10"	1	15'-10"	1	10'-10"	1	15'-10"
#		—	—	2 Bars, 1 Hook	—	4 Bars, 2 Hook	—	6 Bars, 3 Hook	—	2 Bars, 2 Hook	—	2 Bars, 3 Hook	—

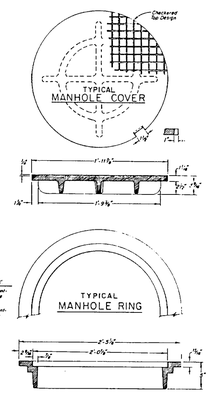
* Variable, refer to Table TWO
# Include 18" No. 4 Bars (See Channel Layout Detail).
* See Curb Face Assembly on Sheet 1 and Channel Layout Details on this sheet.

REGULAR INLETS — DROP BOX INLETS

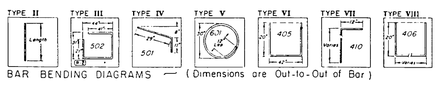
TABLE TWO – BARS AND QUANTITIES VARIABLE WITH H

H	Length 401	402	410	No. Req'd Regular 403	407	No. Req'd Drop Box 403	407	L = 5' Cu Yd Conc	Lb Steel	L = 10' Cu Yd Conc	Lb Steel	L = 15' Cu Yd Conc	Lb Steel
3'-0"	3'-8"	1'-8"		10	7			3.2	285	5.3	497	7.4	708
3'-6"	3'-8"	2'-0"		10	7			3.4	303	5.7	528	7.9	747
4'-0"	3'-8"	2'-8"		12	9			3.7	326	6.0	559	8.4	788
4'-6"	4'-2"	3'-2"		12	9			3.9	334	6.4	571	8.8	803
5'-0"	4'-8"	3'-8"		14	11			4.1	354	6.7	602	9.3	844
5'-6"	5'-2"	4'-2"	3'-3"	16	13	13	8	4.4	373	6.9	607	9.5	840
6'-0"	5'-8"	4'-8"	3'-11"	16	13	16	8	4.6	387	8.2	616	7.7	830
6'-6"	6'-2"	5'-2"	4'-3"	18	15	18	8	4.8	402	8.4	637	7.9	870
7'-0"	6'-8"	5'-8"	4'-11"	20	17	19	10	5.0	423	8.6	654	8.1	885
7'-6"	7'-2"	6'-2"	5'-3"	20	17	20	10	5.3	430	8.9	664	8.4	897
8'-0"	7'-8"	6'-8"	5'-11"	22	19	20	12	5.5	451	7.1	684	8.6	917
8'-6"	8'-2"	7'-2"	6'-3"	24	21	23	14	5.7	471	7.3	700	8.8	934
9'-0"	8'-8"	7'-8"	6'-11"	24	21	24	14	6.0	479	7.6	711	9.1	944
9'-6"	9'-2"	8'-2"	7'-3"	26	23	26	16	6.2	499	7.8	732	9.3	964
10'-0"	9'-8"	8'-8"	7'-11"	28	25	27	18	6.4	520	8.0	749	9.5	982
10'-6"	10'-2"	9'-2"	8'-3"	28	25	28	18	6.7	527	8.3	763	9.8	991
11'-0"	10'-8"	9'-8"	8'-11"	30	27	30	20	6.9	547	8.5	779	10.0	1012

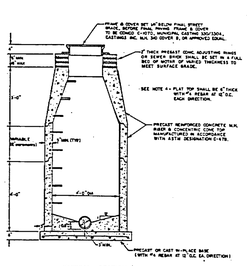
NOTE: For L=5', L=10' and L=15' REGULAR INLETS: Total quantities needed are OUTSIDE of the heavy base line.
DROP BOX INLETS: Total quantities needed are INSIDE of the heavy base line.
STEEL WEIGHTS DO NOT INCLUDE STRUCTURAL STEEL.



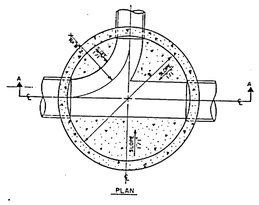
Approximate Weights:
Cover = 125 lbs.
Ring = 135 lbs.
TOTAL = 260 lbs.

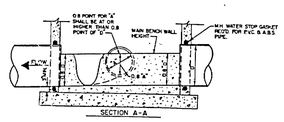


BAR BENDING DIAGRAMS — (Dimensions are Out-to-Out of Bar)



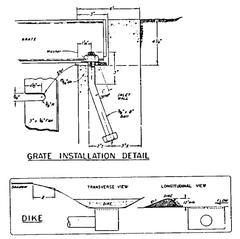
STANDARD MANHOLE DETAIL

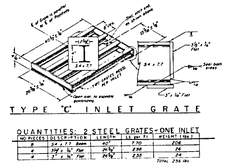




STANDARD MANHOLE INVERT DETAILS

STANDARD M-604-11
(JANUARY, 1982)

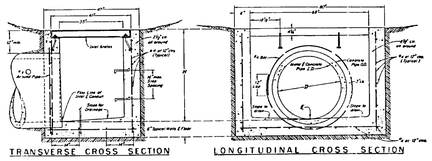




QUANTITIES: 2 STEEL GRATES-ONE INLET

NO REQ'D	DESCRIPTION	LENGTH	LB. PER FT.	WEIGHT LBS.
2	3/8 x 1 1/2 Bars	30"	1.70	102
2	PL1 x 1/4" Plate	24 1/4"	2.88	70
2	1" x 1/4" Plate	24 1/4"	1.20	29
			TOTAL	216 LBS

INLET, TYPE D



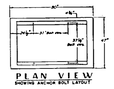
QUANTITIES FOR ONE INLET

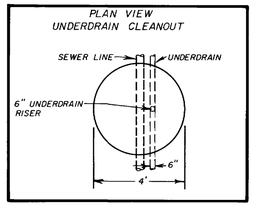
H	CONCRETE cu. yd.	STEEL	NO. REQ'D. L = 5'	L = 10'	L = 15'	NO. REQ'D. DROP BOX
3.0	1.3	127	12	12	12	6
3.5	1.5	142	12-14	12-14	12-14	6
4.0	1.7	157	12-16	12-16	12-16	7
4.5	1.9	167	14-18	14-18	14-18	7
5.0	2.1	187	14-20	14-20	14-20	8
5.5	2.4	204	16-22	16-22	16-22	8
6.0	2.6	213	18-24	18-24	18-24	9
6.5	2.8	234	18-26	18-26	18-26	9
7.0	3.0	251	20-28	20-28	20-28	10
7.5	3.1	264	20-30	20-30	20-30	10
8.0	3.3	271	22-32	22-32	22-32	11
8.5	3.5	290	22-34	22-34	22-34	11
9.0	3.8	300	24-36	24-36	24-36	12
9.5	4.0	307	24-38	24-38	24-38	12

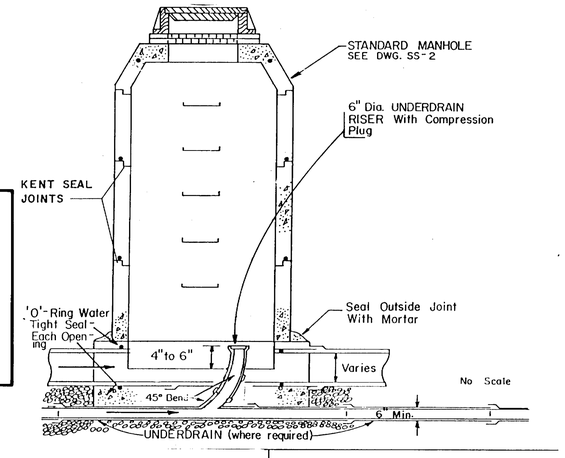
* Concrete and Steel quantities are for steel cross (not before reduction for drop box) and concrete for the entire height of inlet including a cap for the reduction plus standard offset.

GENERAL NOTES

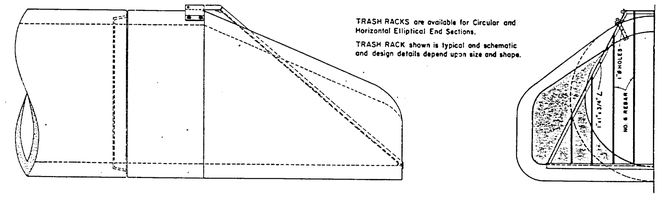
All work shall be done in accordance with the Standard Specifications applicable to the project.
Concrete shall be Class A or B.
See plans for size and number of Conduit.
Inlet Grating shall be galvanized as described in Frames, Grates, Covers & Steps Section.
All exposed concrete surfaces shall receive one 2 brush finishing to neat shall be poured out to neat line and not formed over one to Cast-in-Place or Precast.
Steps will be required when Inlet "H" exceeds 3'-6".
For sizes of Inlet Grates, see Standard M-604-8.
Steps shall be included in the cost for "Inlet, Type D".
Grating shall conform to Section 906.



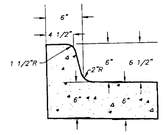




UNDERDRAIN CLEANOUT

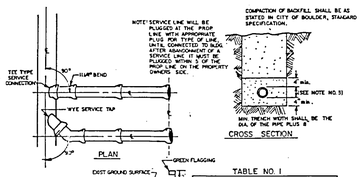


TRASH RACK



NOTE:
All exposed concrete shall have a broom finish. Expansion joints at each end of all curb returns–see DWG. No. 9.05
Contraction joints at 10' max. intervals–see DWG. No. 9.05

MEDIAN CURB & GUTTER



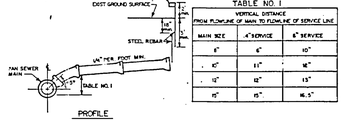


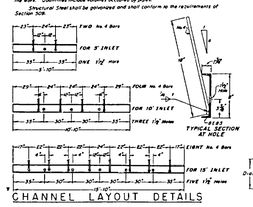
TABLE NO. I

VERTICAL DISTANCE FROM FLOWLINE OF MAIN TO FLOWLINE OF SERVICE LINE		
MAIN SIZE	4" SERVICE	6" SERVICE
8"	6"	10"
10"	11"	16"
12"	12"	13"
15"	15"	16.5"

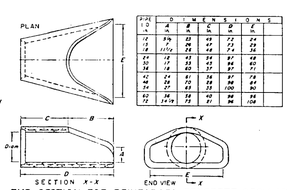
NOTES

1. ALL SERVICE LINES SHALL BE 4" IN DIA. EXCEPT AS OTHERWISE REQ'D.
2. THE MIN. SLOPE FOR 4" OR 6" SERVICE LINES SHALL BE 1/4" PER FT.
3. BEDDING FOR HOUSE CONNECTION WITHIN CITY R/W SHALL BE 3/4" WASHED ROCK, LAID TO A MIN. DEPTH OF 4" BELOW THE PIPE AND 6" ABOVE THE TOP OF PIPE.
4. ALL TAPS ARE TO BE MADE BY CITY OF BOULDER WORK FORCE, UNLESS OTHERWISE AUTHORIZED BY THE UTILITY DIVISION.
5. ALL WORK DONE IN THE CITY R/W SHALL BE DONE BY CITY OF BOULDER WORK FORCE UNLESS OTHERWISE AUTHORIZED BY THE UTILITY DIVISION.
6. SERVICE LINES LARGER THAN 6" MUST BE CONNECTED TO THE MAIN AT A M.H.

SEWER SERVICE LINE DETAILS



CHANNEL LAYOUT DETAILS



PIPE I.D. in	D in	B in	C in	E in	X in
12	19	12	19	7.2	24
15	22	14	22	7.5	28
18	27 1/2	18	27	7.5	36
24	33	23	33	8.1	48
30	40	27	40	8.7	60
36	46	32	46	9.3	72
42	54	41	54	9.7	78
48	59	45	59	9.7	90
54	67	53	100	9.7	90
60	74	58	74	9.7	108
72	89 1/2	73	91	9.8	126

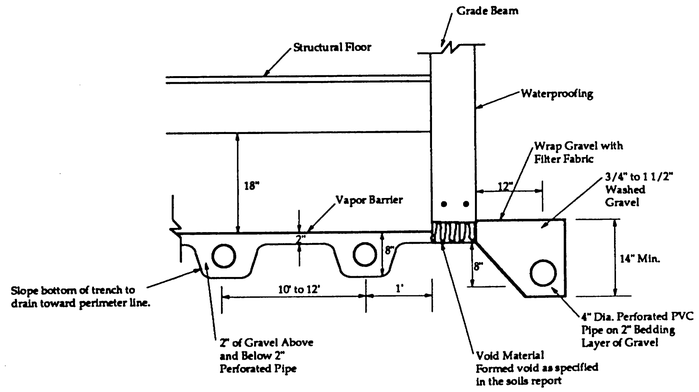
END SECTION FOR REINFORCED CONCRETE CIRCULAR PIPE

AS-BUILT APPROVAL
BY
DATE: 1-28-94

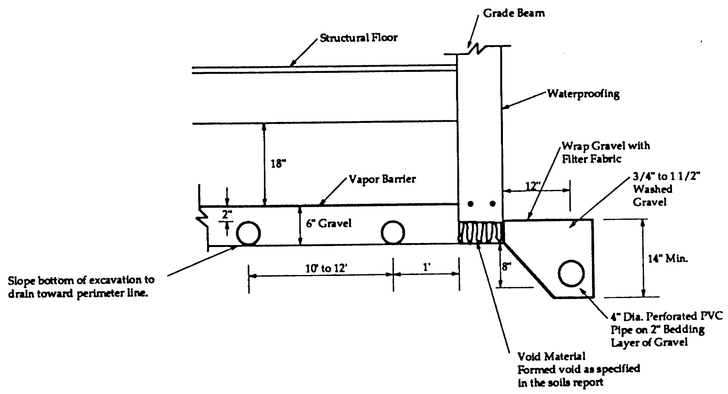
John W. Jorgenson
22730 6/28/93

21035

4 MILE CREEK SUBDIVISION	
Detail Sheet	
SCALE HORZ. N/A VERT. N/A	HURST & ASSOCIATES, INC. CONSULTING ENGINEERS 3055 47th Street, A-2 Boulder, Colorado 80301 (303) 449-9105
DESIGN CH	
DRAWN AKR	
FILE NAME 009DET2	
APPROVED CH	JOB NO. 20009 DATE 4/7/93 SHEET 30 OF 32



Note: 1. Underslab Pipes 4"Above Perimeter Pipes.
2. Gravel for Perimeter Drain to Extend from Foundation Wall to Side of Excavation.

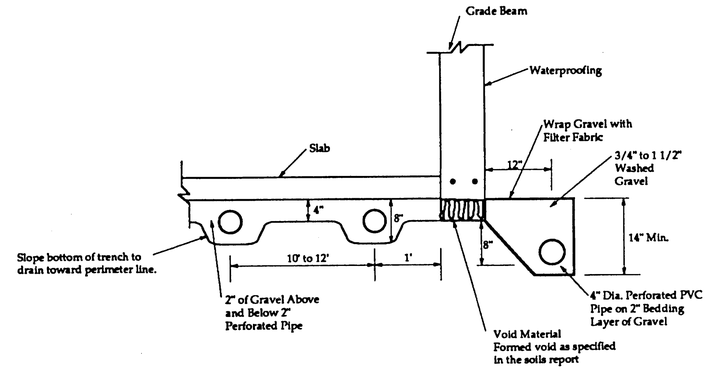


Note: 1. Filter sock required for pipe if placed directly on bottom of excavation.
2. Underslab Pipes 8"Above Perimeter Pipes.
3. Gravel for Perimeter Drain to Extend from Foundation Wall to Side of Excavation.

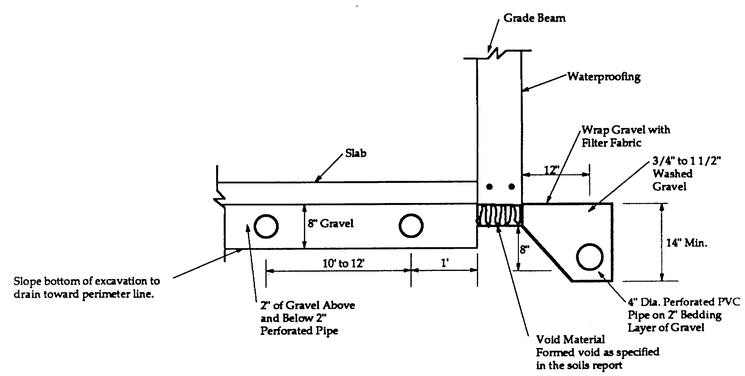
OPTION

TYPICAL PERIMETER AND SUBFLOOR DRAIN SYSTEM DRILLED PIER FOUNDATION SYSTEM FOR STRUCTURAL FLOORS

N.T.S.



Note: 1. Underslab Pipes 6"Above Perimeter Pipes.
2. Gravel for Perimeter Drain to Extend from Foundation Wall to Side of Excavation.

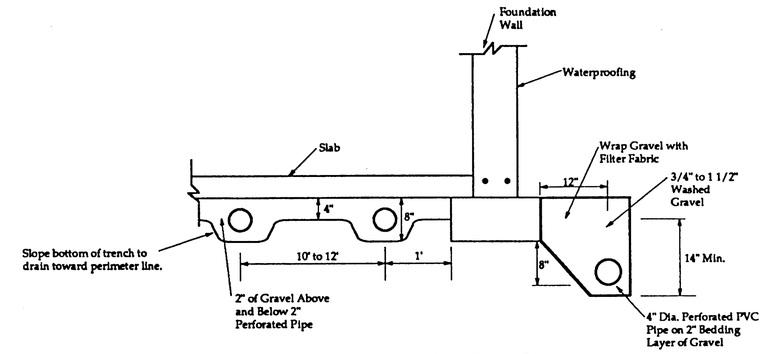


Note: 1. Underslab Pipes 6"Above Perimeter Pipes.
2. Gravel for Perimeter Drain to Extend from Foundation Wall to Side of Excavation.

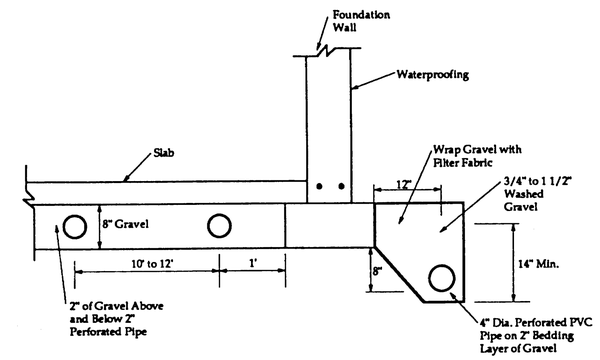
OPTION

TYPICAL PERIMETER AND UNDERSLAB DRAIN SYSTEM DRILLED PIER SYSTEM SYSTEM FOR SLAB-ON-GRADE CONSTRUCTION

N.T.S.



Note: 1. Underslab Pipes 10"Above Perimeter Pipes.
2. Gravel for Perimeter Drain to Extend from Foundation Wall to Side of Excavation.

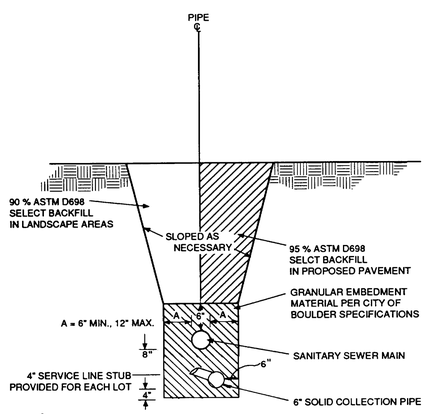


Note: 1. Underslab Pipes 10"Above Perimeter Pipes.
2. Gravel for Perimeter Drain to Extend from Foundation Wall to Side of Excavation.

OPTION

TYPICAL PERIMETER AND UNDERSLAB DRAIN SYSTEM FOOTING FOUNDATION SYSTEM FOR SLAB-ON-GRADE CONSTRUCTION

N.T.S.



CROSS-SECTION OF COLLECTION PIPE FOR SUBDIVISION UNDERDRAIN SYSTEM

N.T.S.

Del
Kom
#

Vt Rist 6/29/93 John W. Jorgenson
22730 6/28/93

DRAINAGE DETAILS
FOUR MILE CREEK SUBDIVISION
BOULDER COUNTY, COLORADO

SCOTT, COX & ASSOCIATES, INC.
consulting engineers • surveyors
1540 55th Street • Boulder, Colorado 80303
(303) 444-1051

Designed by GR	Date	Scale	Survey book	Sheet 32	Drawing no
Drawn by JAS	1/26/93	AS SHOWN	Page	of 32	91522A
	Revision	Description		Date	Project no
Checked by GR					91522A

21037

U. Belgrove Development Co., 2/28 C Corporation, Geron, Inc., Cooke Development Limited Liability Company, and James Construction Company, Inc., notwithstanding the provisions of paragraph D, shall be responsible for the provision of a groundwater underdrain system to serve each lot within the Subdivision in conformance with the "Proposed Subdivision Underdrain System, Four Mile Creek Subdivision, Boulder, Colorado" report prepared by Scott Cox and Associates, Inc., revised April, 1993; the approved engineering plans dated June 29, 1993, on file with the City; and Exhibit "D", "Four Mile Creek Development Groundwater Control Systems and Impacts."

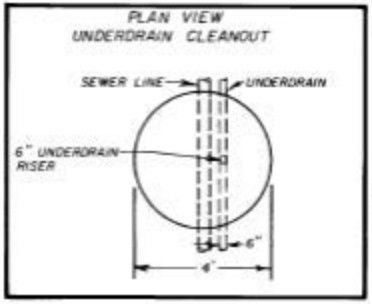
(1) The underdrain system shall consist of the following:

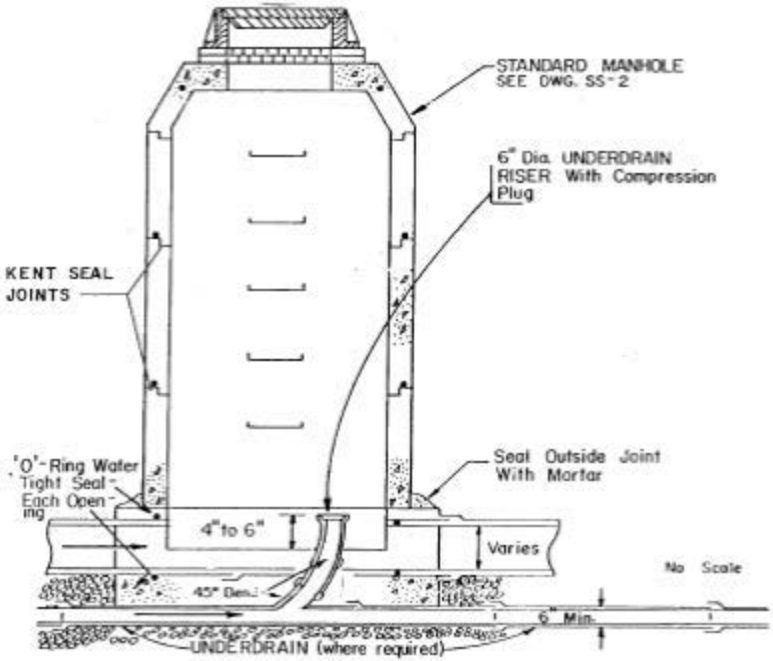
(a) A six inch solid (non-perforated) underdrain main line, to be constructed parallel to and below the sanitary sewer main system within the dedicated public right-of-way or utility

easements. The six inch underdrain main line shall be maintained by the City.

(b) Four inch service lines connecting to and extending from the six inch main line to serve each lot. Service lines shall consist of four inch solid (non-perforated) pipe lines within the dedicated public right-of-way and utility easements, and four inch perforated pipe lines within individual lots, and shall be constructed parallel to and below the sanitary sewer line. The Subdivider, or the individual lot owner, shall be responsible for all maintenance associated with any four inch service line (including that portion located within the dedicated public right-of-way or utility easement) from the connection with the six-inch main line to, and within, the individual lot.

(2) The Subdivider agrees to establish a system for reimbursing the City for any and all costs associated with the maintenance, repair, or reconstruction of the public portion of the underdrain system by assessing each individual property owner. In the event that sufficient assessments are not collected, the City reserves the right to assess individual property owners for their pro rata share of any and all costs incurred by the City in the maintenance, repair, or reconstruction of the public portion of the underdrain system. In the event that the City establishes a storm drainage surcharge for the maintenance, repair and reconstruction of the public portion of the underdrain system, the obligation to collect an assessment for the maintenance, repair, or reconstruction of the underdrain system shall cease.





UNDERDRAIN CLEANOUT