SITE PLAN, NOTES, LEGEND & INDEX

NORTHWOOD SECOND ADD'N.

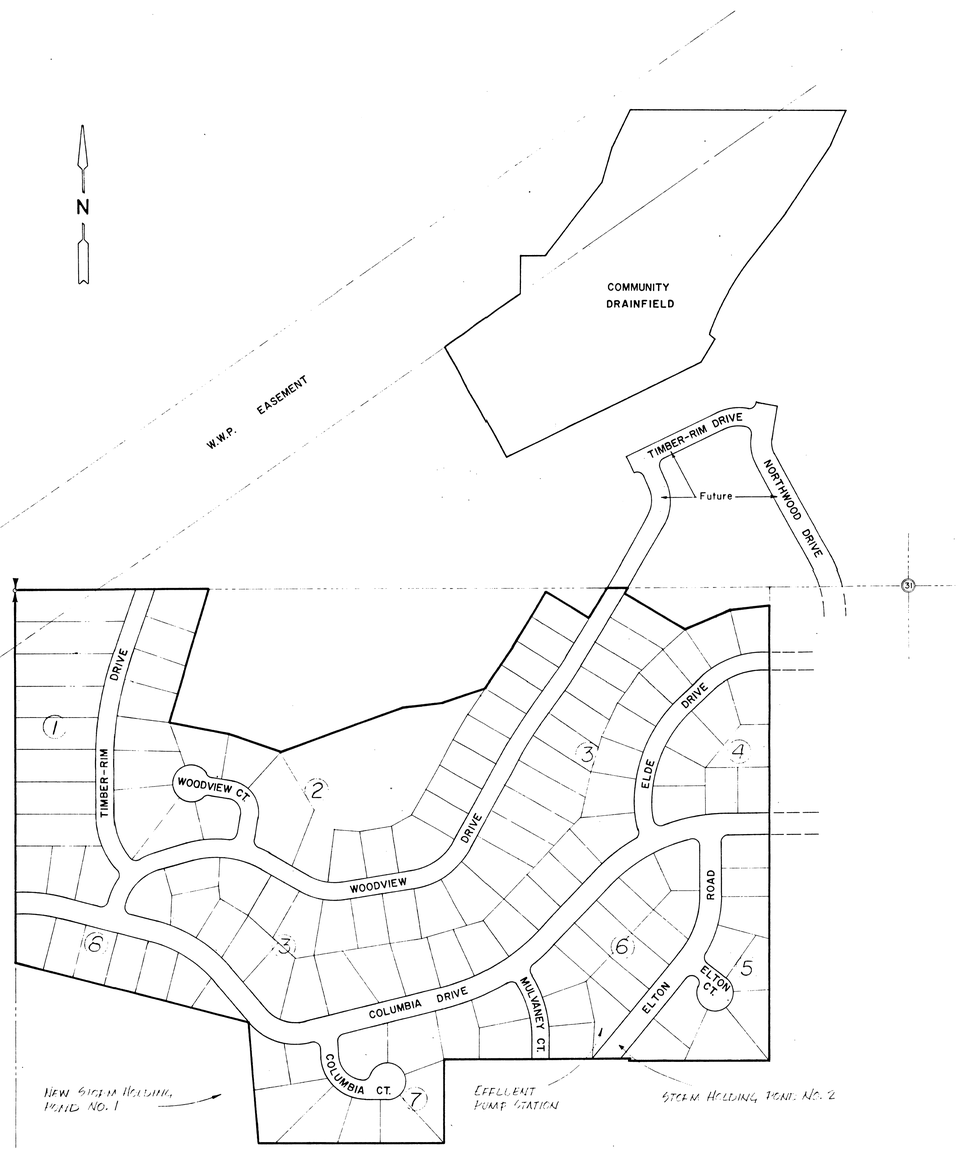
SEC. 31, T.26N., R.44E.W.M.

Adams, Benthin & Clark, Inc.
Civil Engineers & Land Surveyors
W1803 Maxwell Spokane, WA 99201
Phone 328-5853

Scale: 1"=200'	MAY, 1979	
	F.B. 214-2	
DWN.: DrD	W.O. 78-358	

SHEET 1 OF 21

STORM DRAINAGE & SEWAGE DISPOSAL PLANS
NORTHWOOD 2nd ADD.



DRAWING INDEX

SHEET NO.	DRAWING DESCRIPTION
1	Site Plan, Notes, Legend & Index
1A	Rolled Curb Detail
2 *	Timber-Rim Drive (0+00 to 8+43.72) & Columbia Court
3 *	Woodview Drive (13+75 to 23+85.66) & Woodview Court
4 *	Woodview Drive (0+00 to 13+75)
5 *	Columbia Drive (0+00 to 13+31.67)
6 *	Misc. Property Line Locations
7 *	Misc. Property Line Locations
8 *	Columbia Drive (13+31.67 to 24+13.62)
9 *	Mulvaney Court & Elde Drive
10 *	Elton Road & Elton Court
VOID-SEE SHEETS 18 & 19 → ~~11~~	Storm Holding Pond No. 1 Plan and Details
12	Storm Holding Pond No. 2 Plan and Details
VOID-SEE SHEETS 20 & 21 → ~~13~~	Community Drainfield Plan and Profiles
14	Community Drainfield and Effluent Pressure Line Details
15	Effluent Pump Station Plan and Details
16	Effluent Pump Station Details
17	Misc. Details
18	New Storm Holding Pond No. 1 Plan
19	New Storm Holding Pond No. 1 Profile & Detail
20	Community Drainfield As-Builts
21	Community Drainfield As-Builts

* Plan & Profile - Sanitary Sewer, Storm Drain & Effluent Pressure Line

LEGEND

Sanitary or Storm Manhole
Catch Basin With Std. Rectangular Grate
Catch Basin With Curb and Gutter Inlet
1000 Gal. Septic Tank
2000 Gal. Septic Tank

GENERAL NOTES

1. Construction of all facilities shown on these drawings shall comply with applicable sections of the latest edition of Standard Specifications for Municipal Public Works Construction, prepared by the Washington State Chapter of the American Public Works Association, and the "Supplemental Specifications" provided herewith.

2. All sanitary sewer mains, septic tank connections and house connections shall be PVC pipe, ASTM D3034, with flexible gaskets. All storm drain lines and catch basin connections shall be galvanized corrugated steel pipe, AASHO M136. The effluent pressure line shall be Class 160 PVC pressure pipe, ASTM D2241. Other lines shall be as indicated on the drawings.

3. Sewer mains shall be provided with 1, 8 in. x 8 in. x 4 in. tee for each 1000 gallon septic tank and 2, 8 in. x 8 in. x 4 in. tees for each 2000 gallon septic tank. Four inch lines shall be constructed on a 2.0% minimum slope from each tee to the property line where septic tanks are shown. The 4 in. lines shall be plugged until septic tanks are installed, and at that time, one of the two lines to the 2000 gallon septic tanks shall remain plugged.

4. All storm drain connections from manholes to catch basins shall be 10 in. pipe laid on a 3.0% minimum slope.

5. Construct APWA Type I-A or Type I-B or Washington State Highway Department 8-22-1 catch basin with Spokane County Standard D-1 rectangular grate. Locate catch basin 1.08 feet from face of curb to centerline of catch basin for standard curbs and 1.58 feet from back of curb to centerline of catch basin for rolled curbs (see attached rolled curb detail).

6. Construct catch basin with curb and gutter inlet complying with Spokane County Standards D-2, D-3 and D-4 for standard curbs with centerline of catch basin 0.64 feet from face of curb. Modify Stds. D-2, D-3 and D-4 per attached rolled curb detail for those curb and gutter inlets on streets with rolled curbs, and locate centerline of catch basin 1.14 feet from back of curb. See Note 5 for catch basin types to be used.

7. Standard curbs shall be constructed along Columbia Drive and to the ends of curb returns (from Columbia Drive) along streets leaving Columbia Drive. All other streets shall have rolled curbs.

8. All sanitary sewer and storm drain manholes shall be constructed according to the following APWA Standards:

Depth	Pipe Size	Standard
≥ 8 ft.	≤ 21 in.	Type I - 48
< 8 ft.	≤ 21 in.	Type III - 48
≥ 8 ft.	> 21 in.	Type I - 54
< 8 ft.	> 21 in.	Type III - 54

Elevation Datum:

BM: R/R Spike (Simpson) in 15" pine
SW Cor. Lot 7, Bk. 5 Northwood 1st Add.
Elev. 2231.96

(DATUM—FIELD OF R.M. 2016-70 CO. DATUM
SPIKE IN LIGHT POLE S.E. CORNER
PRINCETON AND ELTON)

FILE 1153

PLAN & PROFILE – SEWER

NORTHWOOD SECOND ADD'N.

TIMBER-RIM DRIVE & COLUMBIA COURT SEC. 31, T.26N, R.44E.W.M.

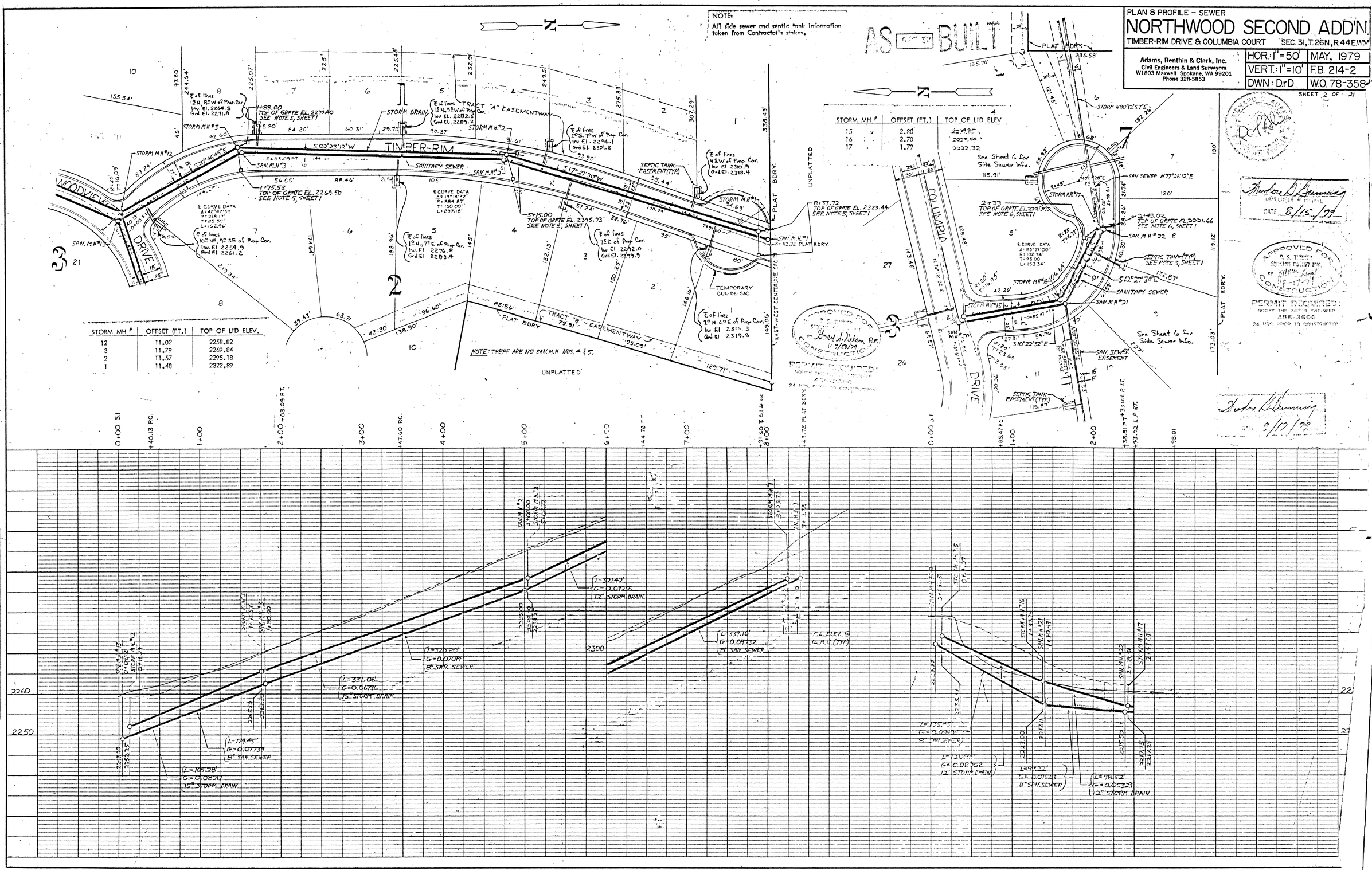
Adams, Benthin & Clark, Inc.
Civil Engineers & Land Surveyors
W1803 Maxwell Spokane, WA 99201
Phone 328-5853

HOR.: 1" = 50'	MAY, 1979
VERT.: 1" = 10'	F.B. 214-2
DWN: DrD	W.O. 78-358

SHEET 2 OF 21

NOTE:
All side sewer and septic tank information taken from Contractor's stakes.

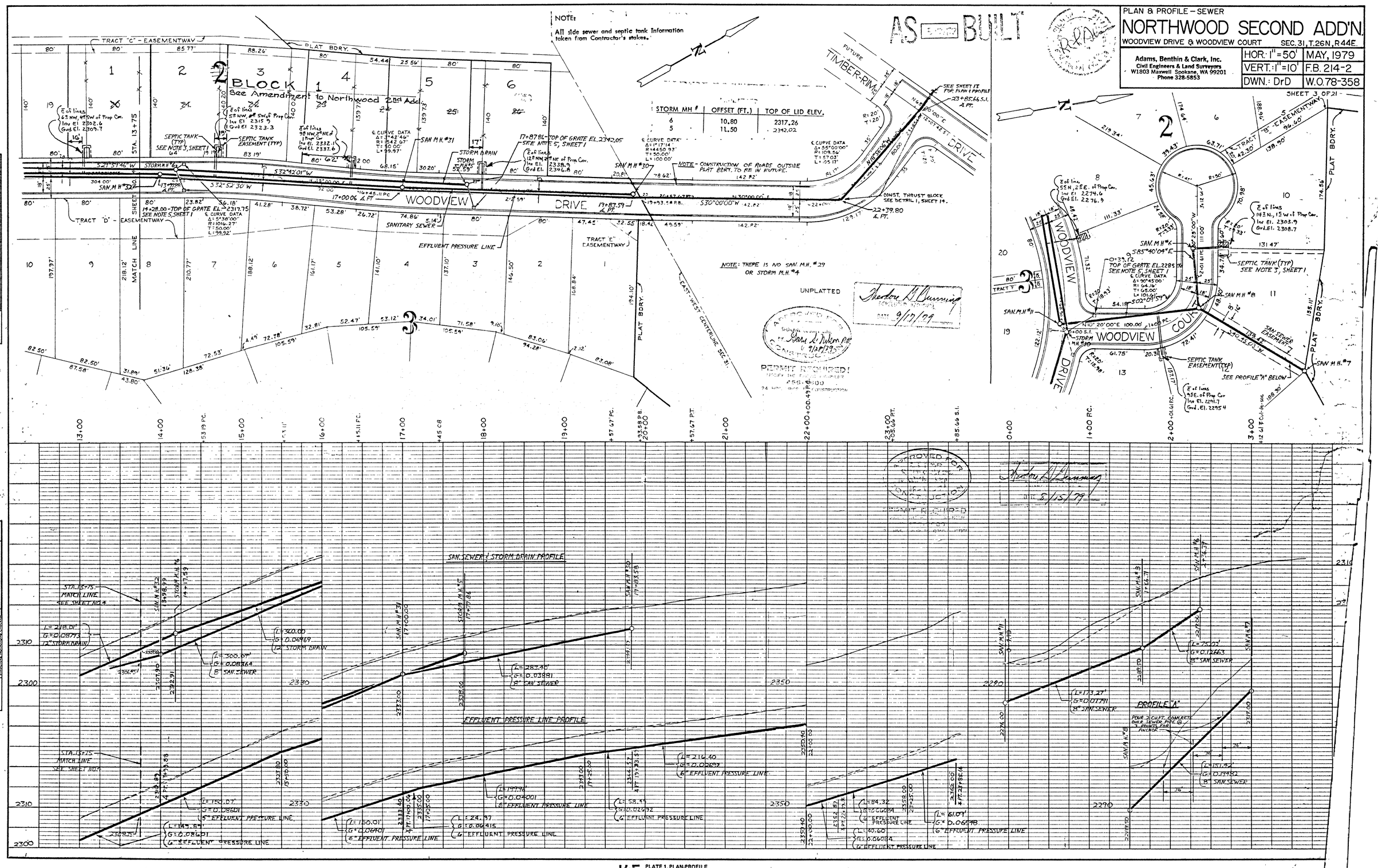
AS BUILT



STORM MH #	OFFSET (FT.)	TOP OF LID ELEV.
12	11.02	2258.82
3	11.79	2269.84
2	11.57	2295.18
1	11.48	2322.89

STORM MH #	OFFSET (FT.)	TOP OF LID ELEV
15	2.80	2329.85
16	2.70	2329.64
17	1.79	2322.32

K+E PLATE 1, PLAN-PROFILE
KEUFFEL & ESSER CO.
48 7008 MADE IN U.S.A.



PLAN & PROFILE – SEWER
NORTHWOOD SECOND ADD'N.
WOODVIEW DRIVE & WOODVIEW COURT
SEC. 31, T.26N, R44E.
Adams, Benthin & Clark, Inc.
Civil Engineers & Land Surveyors
W1803 Maxwell Spokane, WA 99201
Phone 328-5853
HOR.: 1"=50'
VERT.: 1"=10'
DWN.: DrD
MAY, 1979
F.B. 214-2
W.O. 78-358
AS BUILT
NOTE:
All side sewer and septic tank information taken from Contractor's stakes.
STORM MH # | OFFSET (FT.) | TOP OF LID ELEV.
6 | 10.80 | 2317.26
5 | 11.50 | 2342.02
BLOCK 1
See Amendment to Northwood 2nd Add.
WOODVIEW DRIVE
TIMBER-RIM DRIVE
WOODVIEW COURT
TRACT "C" - EASEMENTWAY
TRACT "D" - EASEMENTWAY
TRACT "E" EASEMENTWAY
TRACT "B" - EASEMENTWAY
PLAT BDRY.
MATCH LINE
EAST-WEST CENTERLINE SEC. 31
EFFLUENT PRESSURE LINE
SANITARY SEWER
NOTE - CONSTRUCTION OF ROADS OUTSIDE PLAT BDRY. TO BE IN FUTURE.
NOTE: THERE IS NO SAN. M.H. #29 OR STORM M.H. #4
UNPLATTED
PERMIT REQUIRED!
SAN. SEWER & STORM DRAIN PROFILE
EFFLUENT PRESSURE LINE PROFILE
PROFILE "A"
STA. 13+75 MATCH LINE SEE SHEET NO. 4
12" STORM DRAIN
8" SAN. SEWER
6" EFFLUENT PRESSURE LINE
PLATE 1, PLAN-PROFILE
KEUFFEL & ESSER CO.
48 7008 MADE IN U.S.A.

PLAN & PROFILE – SEWER

NORTHWOOD SECOND ADD'N.

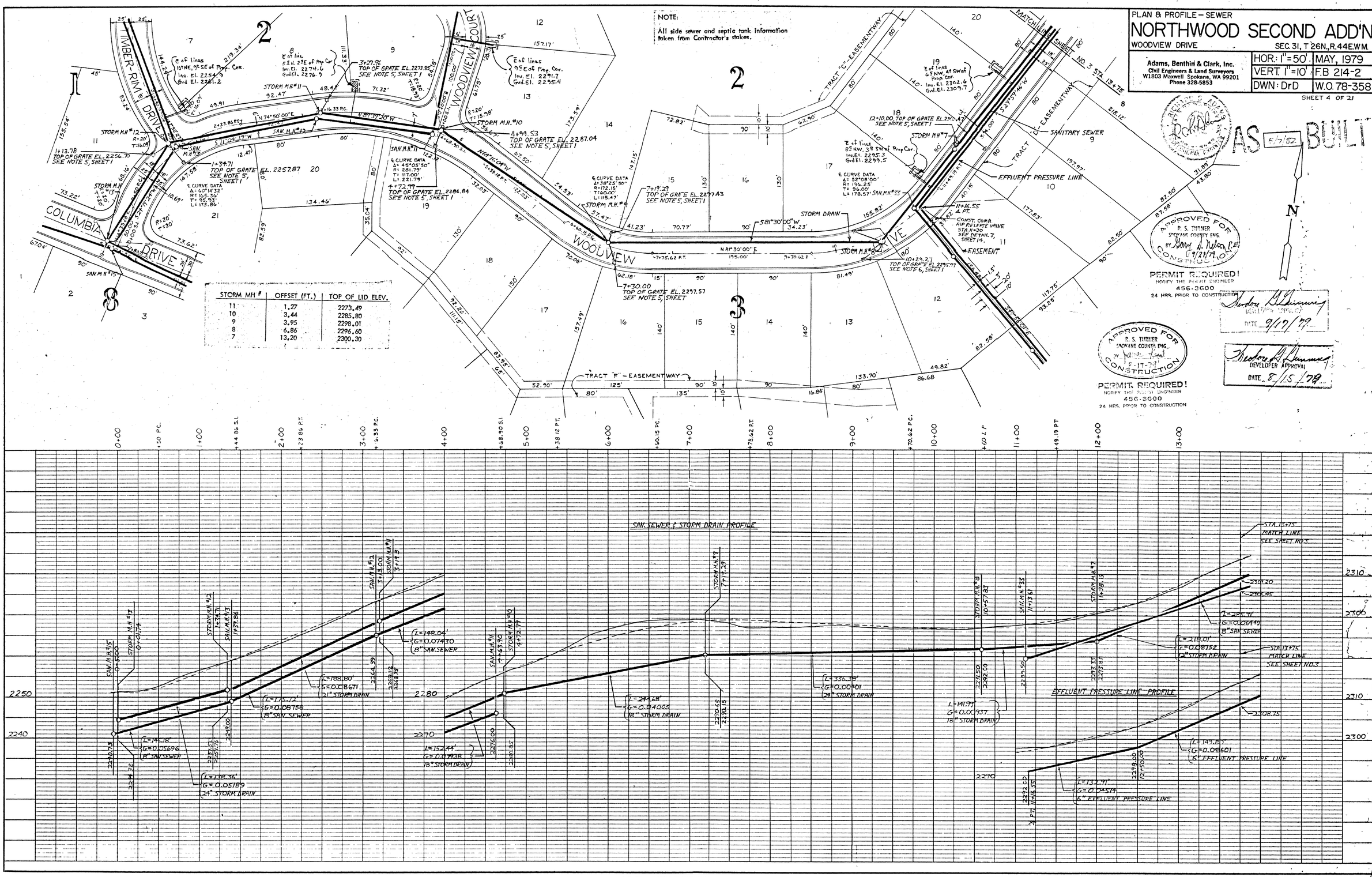
WOODVIEW DRIVE — SEC. 31, T 26N., R.44E.W.M.

Adams, Benthin & Clark, Inc.
Civil Engineers & Land Surveyors
W1803 Maxwell Spokane, WA 99201
Phone 328-5853

HOR.: 1"=50'	MAY, 1979
VERT. 1"=10'	F.B 214-2
DWN: DrD	W.O. 78-358

SHEET 4 OF 21

NOTE:
All side sewer and septic tank information taken from Contractor's stakes.



STORM MH #	OFFSET (FT.)	TOP OF LID ELEV.
11	1.27	2273.49
10	3.44	2285.80
9	3.95	2298.01
8	6.86	2296.60
7	13.20	2300.30

AS BUILT 5/7/82

APPROVED FOR CONSTRUCTION
R. S. TURNER
SPOKANE COUNTY ENG.
BY Gary J. Nelson P.E.
9/28/79

PERMIT REQUIRED!
NOTIFY THE PERMIT ENGINEER
456-3600
24 HRS. PRIOR TO CONSTRUCTION

Theodore G. Dunning
DEVELOPER APPROVAL
DATE 9/17/79

APPROVED FOR CONSTRUCTION
R. S. TURNER
SPOKANE COUNTY ENG.
BY [signature]
8-17-79

PERMIT REQUIRED!
NOTIFY THE PERMIT ENGINEER
456-3600
24 HRS. PRIOR TO CONSTRUCTION

Theodore G. Dunning
DEVELOPER APPROVAL
DATE 8/15/79

NOTE BOOK No. — PLOTTED — ALIGNMENT CHECKED — RT. OF WAY CHECKED

NOTE BOOK No. — GRADES CHECKED — B.M.'s NOTED — STRUCTURE NOTATIONS CHECKED

K+E PLATE 1, PLAN-PROFILE
KEUFFEL & ESSER CO.
48 7006 MADE IN U.S.A.

PLAN & PROFILE — SEWER

NORTHWOOD SECOND ADD'N

COLUMBIA DRIVE — SEC. 31, T. 26 N., R. 44 E.W.M.

Adams, Benthin & Clark, Inc.
Civil Engineers & Land Surveyors
W1803 Maxwell Spokane, WA 99201
Phone 328-5853

HOR.: 1"=50'	MAY, 1979	
VERT.: 1"=10'	F.B. 214-2	
DWN.: DrD	W.O. 78-358	

SHEET 5 OF 21

NOTE:
All side sewer and septic tank information taken from Contractor's stakes.

AS 5-7-82 BUILT

N

APPROVED FOR CONSTRUCTION
R. S. TURNER
SPOKANE COUNTY ENG.
BY Dave L. Nelson P.E.
6 9/28/79

PERMIT REQUIRED!
NOTIFY THE COUNTY ENGINEER
456-3600
24 HRS. PRIOR TO CONSTRUCTION

Theodore D. Demmer
DEVELOPER APPROVAL
DATE 9/10/79

Theodore D. Demmer
DEVELOPER APPROVAL
DATE 8/15/79

APPROVED FOR CONSTRUCTION
R. S. TURNER
SPOKANE COUNTY ENG.
BY Duane Fogel
6-17-79

PERMIT REQUIRED!
NOTIFY THE COUNTY ENGINEER
456-3600
24 HRS. PRIOR TO CONSTRUCTION

STORM MH.#	OFFSET (FT.)	TOP OF LID ELEV.
13	1.74	2252.26
14	6.69	2241.68

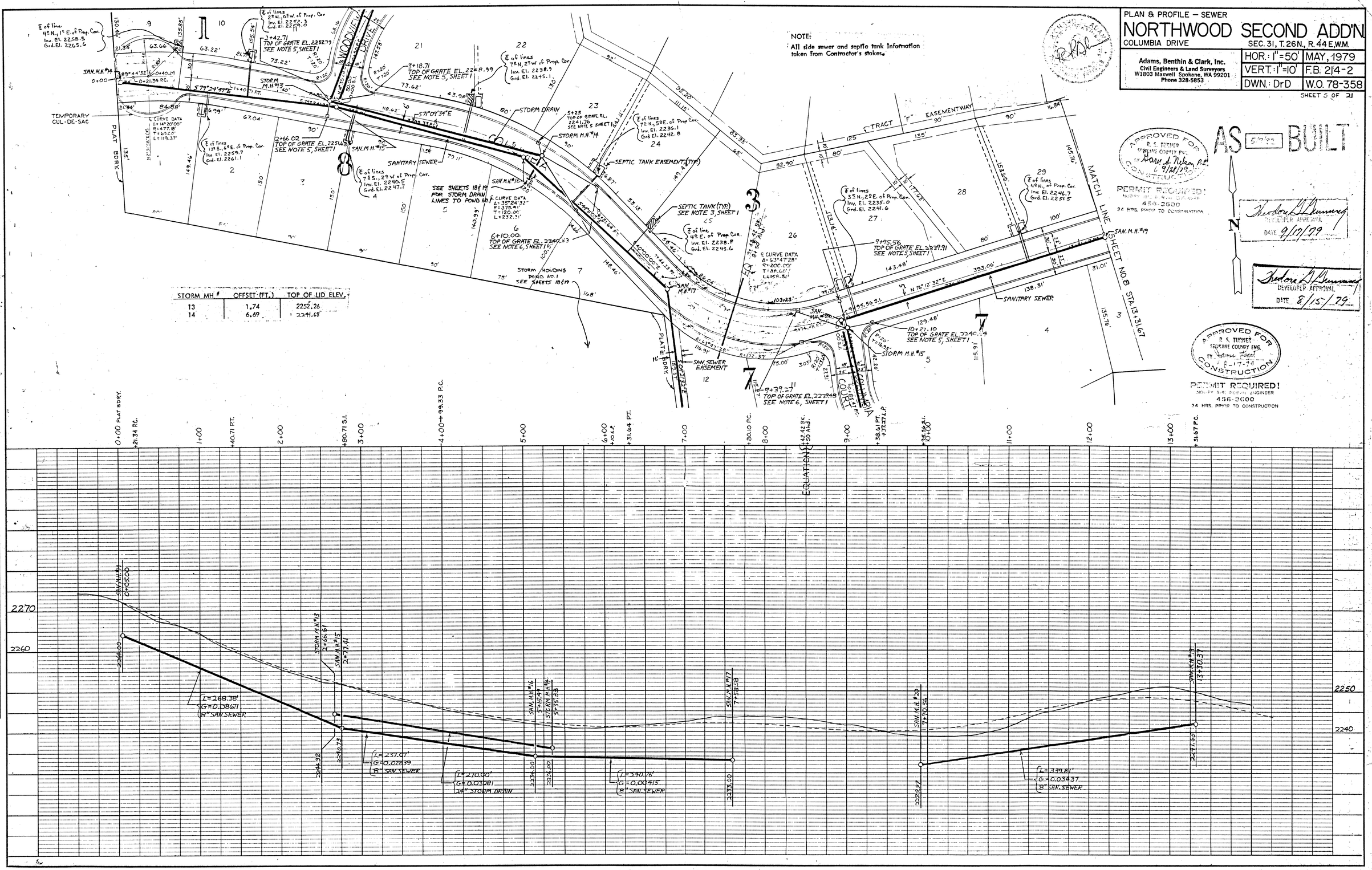


PLATE 1, PLAN-PROFILE

K+E KEUFFEL & ESSER CO.

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PLAN & PROFILE — SEWER

NORTHWOOD SECOND ADD'N.

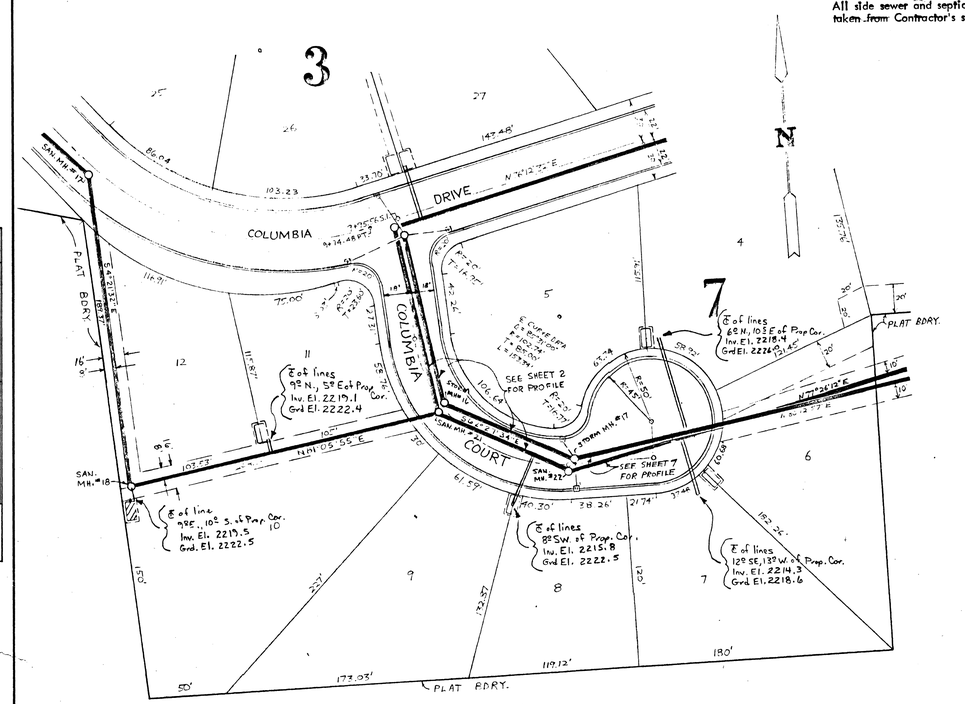
SEC. 31, T. 26N., R. 44 E.W.M.

Adams, Benthin & Clark, Inc.
Civil Engineers & Land Surveyors
W1803 Maxwell Spokane, WA 99201
Phone 328-5853

HOR.: 1"=50'	MAY, 1979
VERT.: 1"=10'	F.B. 214-2
DWN.: DrD	W.O. 78-358

SHEET 6 OF 21

NOTE:
All side sewer and septic tank information taken from Contractor's stakes.



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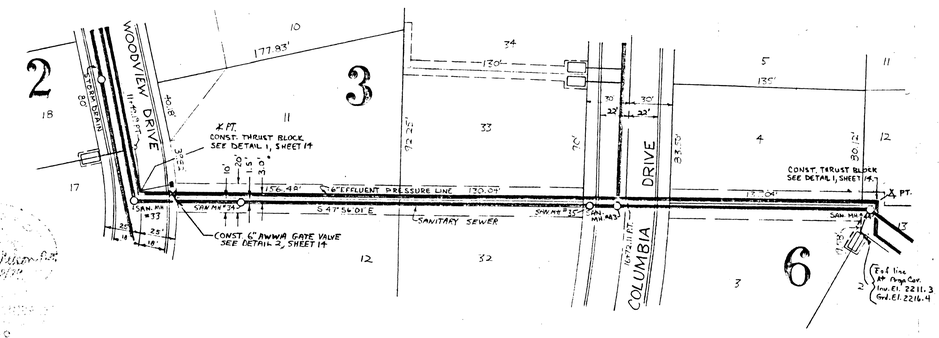


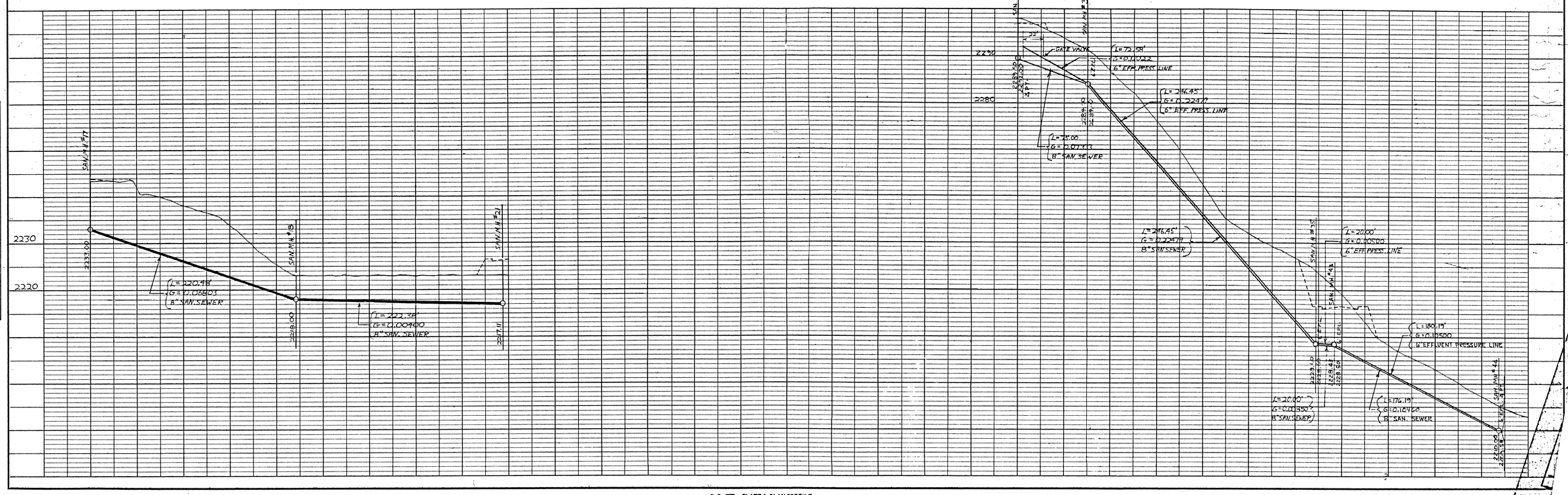


PLATE 1, PLAN-PROFILE

K+E KEUFFEL & ESSER CO.
48 7008 MADE IN U.S.A.

NOTE:
All side sewer and septic tank information taken from Contractor's stakes.

AS BUILT

PLAN & PROFILE – SEWER

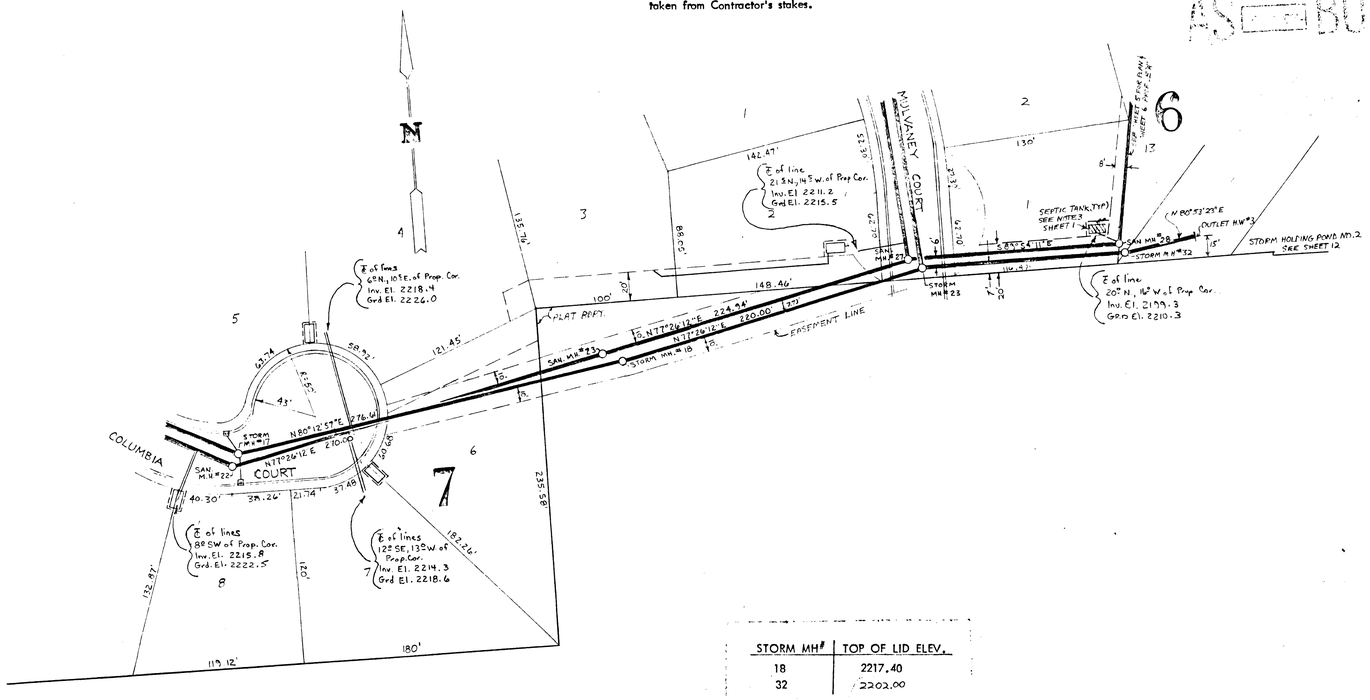
NORTHWOOD SECOND ADD'N

SEC. 31, T. 26N., R. 44 E.W.M.

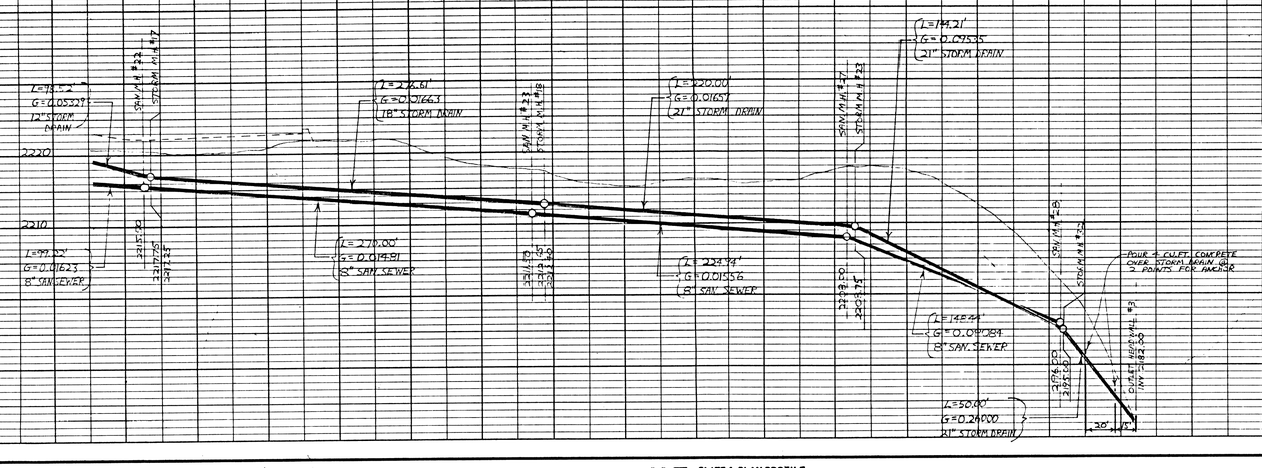
Adams, Benthin & Clark, Inc.
Civil Engineers & Land Surveyors
W1803 Maxwell Spokane, WA 99201
Phone 328-5853.

HOR. 1" = 50'	SEPT. 1979
VERT. 1" = 10'	F.B. 214-2
	W.O. 78-358

SHEET 7 of 21



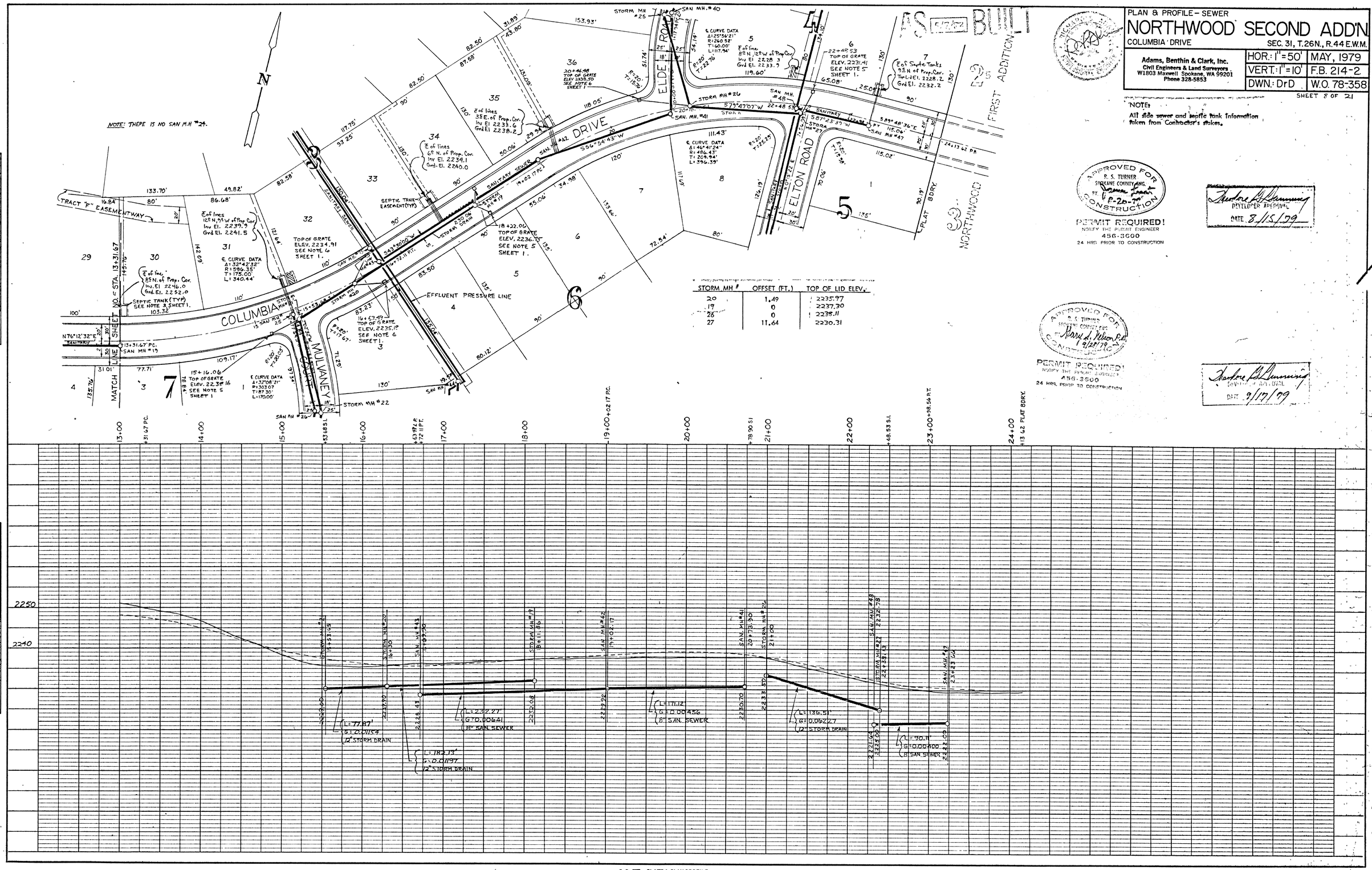
STORM MH#	TOP OF LID ELEV.
18	2217.40
32	2202.00



PLAN
NOTE BOOK No.
SURVEYED
PLOTTED
ALIGNMENT CHECKED
RT. OF WAY CHECKED
BY
DATE

PROFILE
NOTE BOOK No.
SURVEYED
PLOTTED
GRADES CHECKED
B.M.'s NOTED
STRUCTURE NOTATIONS CHECKED
BY
DATE

K+E PLATE 1, PLAN-PROFILE
KEUFFEL & ESSER CO.
48 7008 MADE IN U.S.A.



STORM MH #	OFFSET (FT.)	TOP OF LID ELEV.
20	1.49	2235.97
19	0	2237.30
26	0	2238.11
27	11.64	2230.31

PLAN & PROFILE – SEWER

NORTHWOOD SECOND ADD'N

COLUMBIA DRIVE — SEC. 31, T.26N., R.44 E.W.M.

Adams, Benthin & Clark, Inc.
Civil Engineers & Land Surveyors
W1803 Maxwell Spokane, WA 99201
Phone 328-5853

HOR.: 1"=50'	MAY, 1979
VERT.: 1"=10'	F.B. 214-2
DWN.: DrD	W.O. 78-358

SHEET 8 OF 21

NOTE:
All side sewer and septic tank information taken from Contractor's stakes.

APPROVED FOR CONSTRUCTION
R. S. TURNER
SPOKANE COUNTY ENG.
BY [signature] 8-20-79
PERMIT REQUIRED!
NOTIFY THE PERMIT ENGINEER
456-3600
24 HRS. PRIOR TO CONSTRUCTION

Theodore H. Dunning
DEVELOPER APPROVAL
DATE 8/15/79

APPROVED FOR CONSTRUCTION
R. S. TURNER
SPOKANE COUNTY ENG.
BY Harry L. Nelson P.E. 9/28/79
PERMIT REQUIRED!
NOTIFY THE PERMIT ENGINEER
456-3600
24 HRS. PRIOR TO CONSTRUCTION

Theodore H. Dunning
DEVELOPER APPROVAL
DATE 9/17/79

PLAN — NOTE BOOK No. — SURVEYED, PLOTTED, ALIGNMENT CHECKED, RT. OF WAY CHECKED

PROFILE — NOTE BOOK No. — SURVEYED, PLOTTED, GRADES CHECKED, B.M.'s NOTED, STRUCTURE NOTATIONS CHECKED

K+E PLATE 1, PLAN-PROFILE
KEUFFEL & ESSER CO
48 7006 MADE IN U.S.A.

PLAN & PROFILE – SEWER

NORTHWOOD SECOND ADD'N.

MULVANEY COURT & ELDE DRIVE SEC. 31, T. 26N., R 44E.W.M.

Adams, Benthin & Clark, Inc.
Civil Engineers & Land Surveyors
W1803 Maxwell Spokane, WA 99201
Phone 328-5853

HOR.: 1"=50'	MAY, 1979
VERT.: 1"=10'	F.B. 214-2
DWN.: DrD	W.O. 78-358

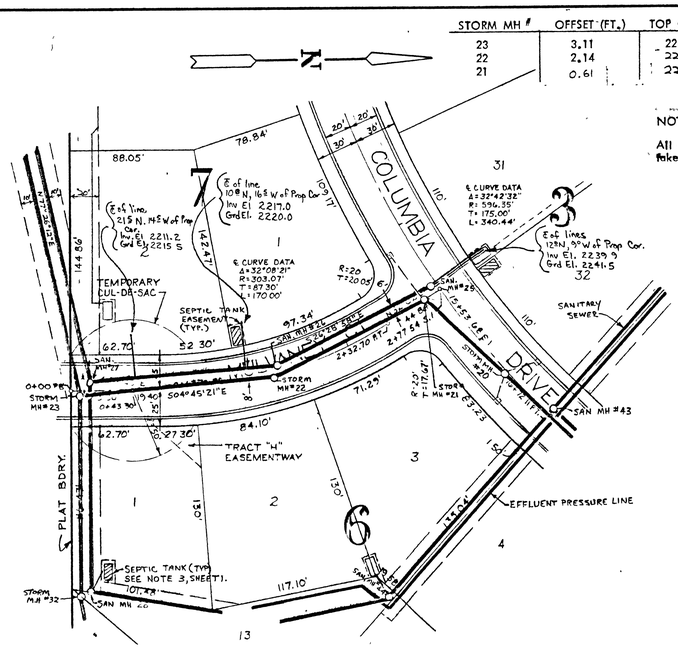
SHEET 9 OF 21

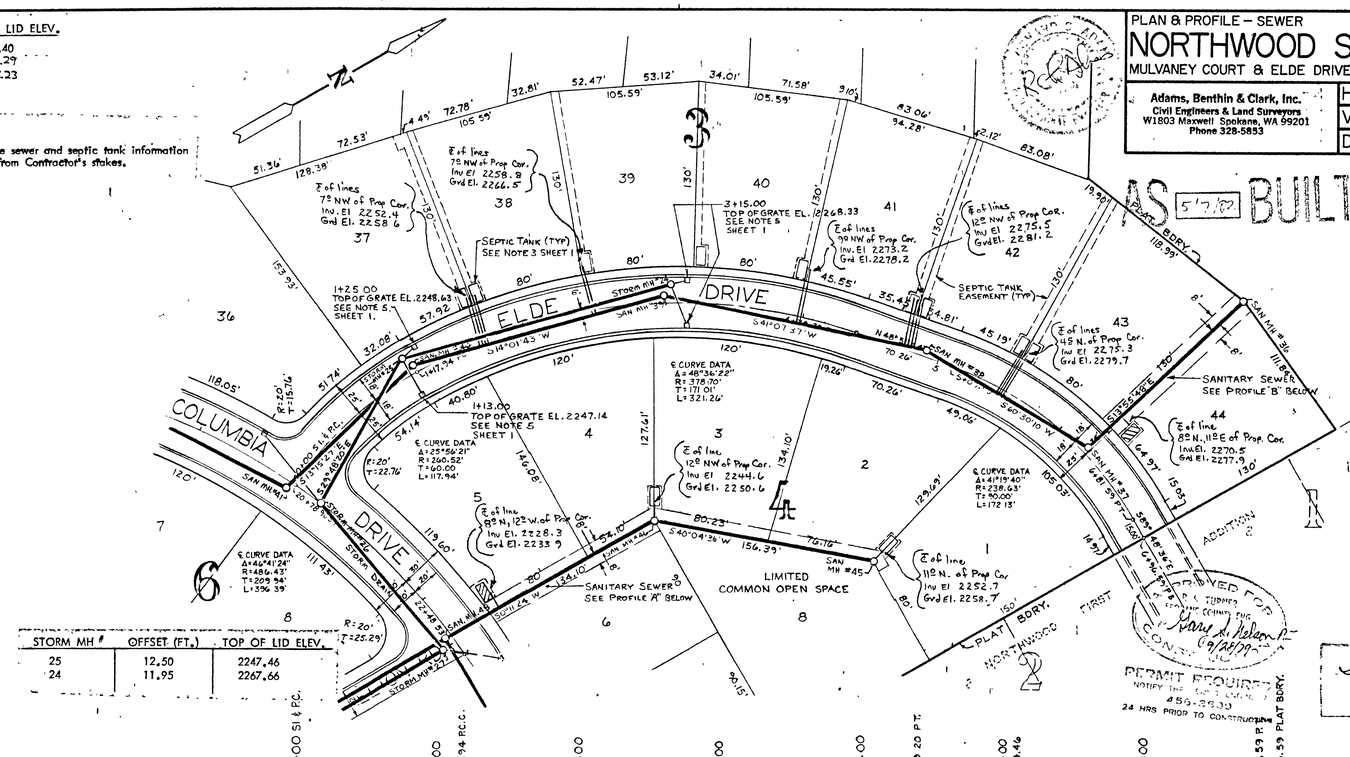
AS BUILT 5/7/82

STORM MH #	OFFSET (FT.)	TOP OF LID ELEV.
23	3.11	2217.40
22	2.14	2226.29
21	0.61	2237.23

NOTE:

All side sewer and septic tank information taken from Contractor's stakes.





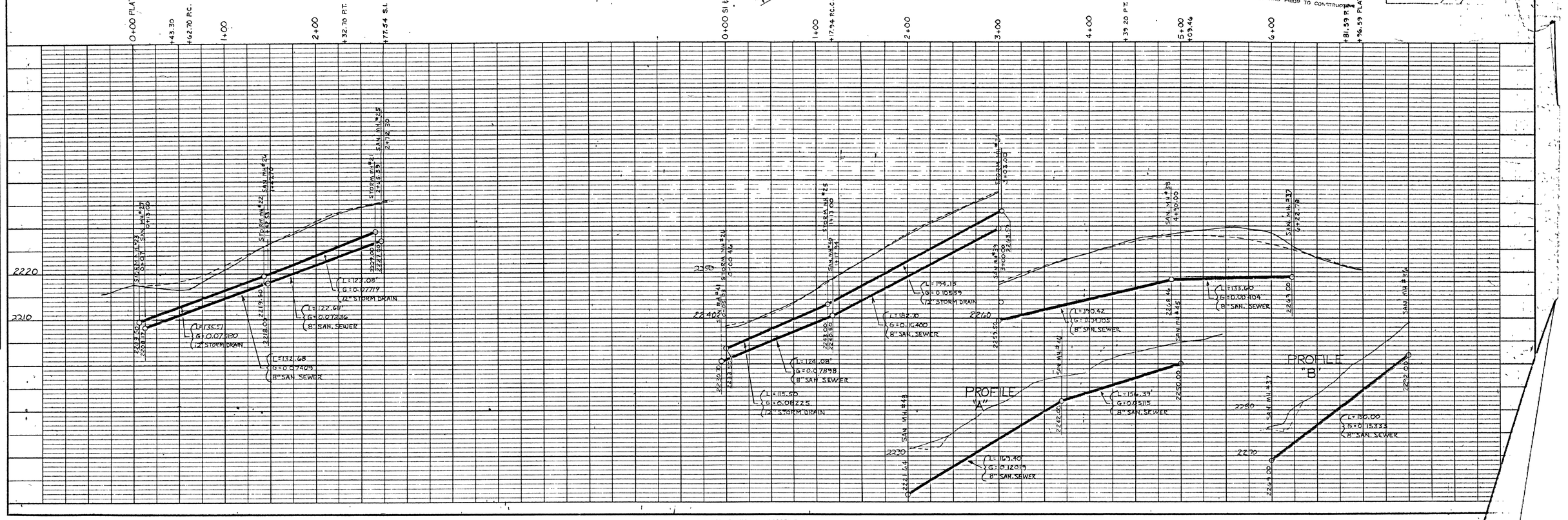
STORM MH #	OFFSET (FT.)	TOP OF LID ELEV.
25	12.50	2247.46
24	11.95	2267.66

APPROVED FOR CONSTRUCTION
R. S. TURNER
SPOKANE COUNTY ENG.
BY [signature]
5-17-79

PERMIT REQUIRED!
NOTIFY THE PERMIT ENGINEER
456-3600
24 HRS PRIOR TO CONSTRUCTION

Theodore G. Dunning
DEVELOPER APPROVAL
DATE 8/15/79

Theodore G. Dunning
DEVELOPER APPROVAL
DATE 9/17/79



PROFILE
NOTE BOOK No.
SURVEYED
PLOTTED
GRADES CHECKED
B. & L's NOTED
STRUCTURE NOTATIONS CHECKED

NOTE BOOK No.
PLOTTED
ALIGNMENT CHECKED
RT. OF WAY CHECKED

K+E PLATE 1, PLAN-PROFILE
KEUFFEL & ESSER CO.
48 7008 MADE IN U.S.A.

PLAN & PROFILE—SEWER

NORTHWOOD SECOND ADD'N

ELTON ROAD & ELTON COURT — SEC. 31, T.26N., R.44 E.W.M.

Adams, Benthin & Clark, Inc.
Civil Engineers & Land Surveyors
W1803 Maxwell Spokane, WA 99201
Phone 328-5853

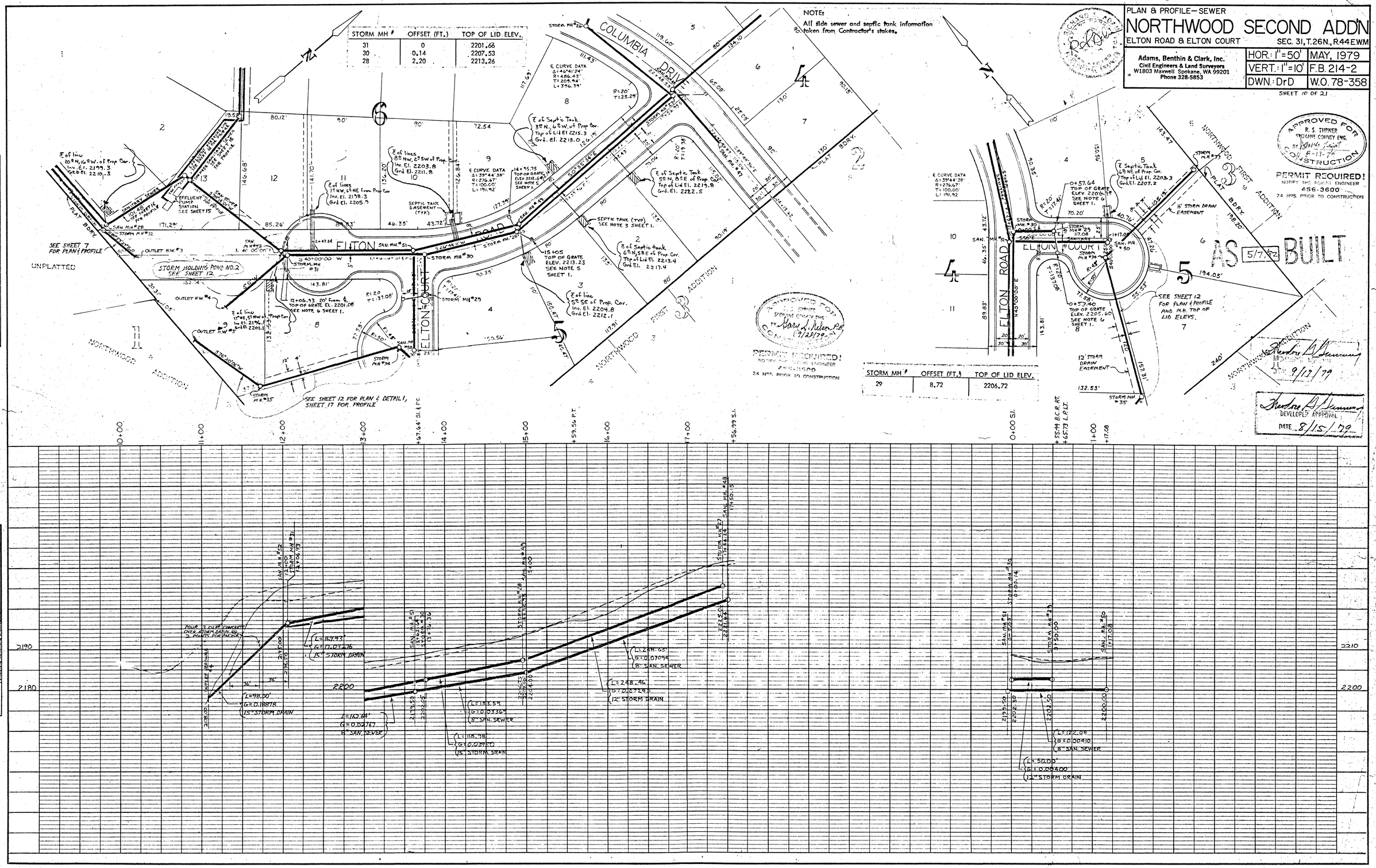
HOR.: 1"=50'	MAY, 1979
VERT.: 1"=10'	F.B. 214-2
DWN.: DrD	W.O. 78-358

SHEET 10 OF 21

NOTE:
All side sewer and septic tank information taken from Contractor's stakes.

STORM MH #	OFFSET (FT.)	TOP OF LID ELEV.
31	0	2201.66
30	0.14	2207.53
28	2.20	2213.26

STORM MH #	OFFSET (FT.)	TOP OF LID ELEV.
29	8.72	2206.72



APPROVED FOR CONSTRUCTION — R. S. THURNER, SPOKANE COUNTY ENG. — 8-17-79

PERMIT REQUIRED! NOTIFY THE PERMIT ENGINEER 456-3600 24 HRS. PRIOR TO CONSTRUCTION

APPROVED FOR CONSTRUCTION — SPOKANE COUNTY ENG. — 9/28/79

PERMIT REQUIRED! NOTIFY THE PERMIT ENGINEER 456-3600 24 HRS. PRIOR TO CONSTRUCTION

DEVELOPER APPROVAL — DATE 9/17/79

DATE 8/15/79

PLAN — NOTE BOOK No. — SURVEYED — PLOTTED — ALIGNMENT CHECKED — RT. OF WAY CHECKED — BY — DATE

PROFILE — NOTE BOOK No. — SURVEYED — PLOTTED — GRADES CHECKED — B. M.'s NOTED — STRUCTURE NOTATIONS CHECKED — BY — DATE

K+E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.
48 7008 MADE IN U.S.A.

STORM HOLDING POND NO. 1, PLAN AND DETAILS

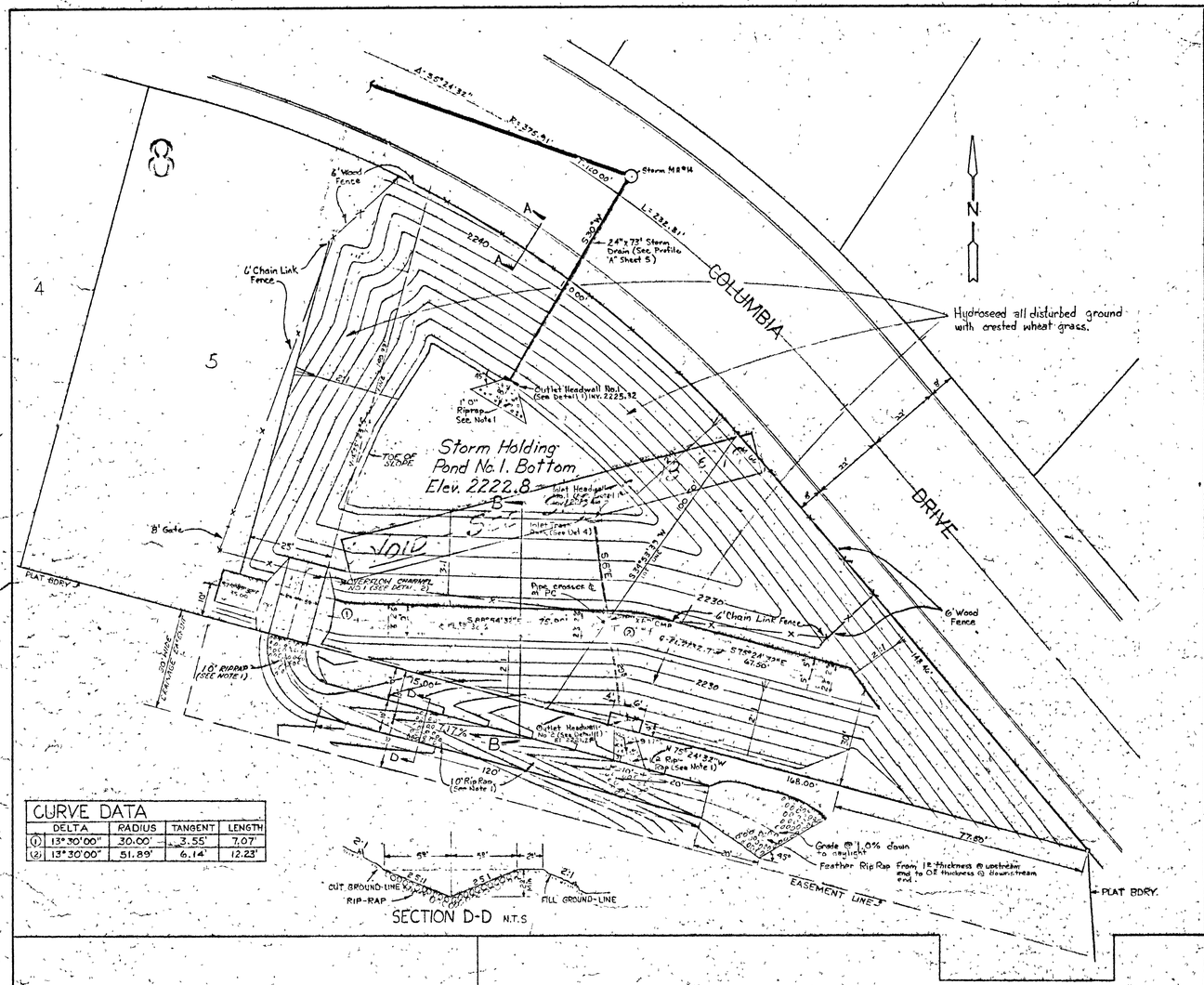
NORTHWOOD SECOND ADD'N

SEC. 31, T.26N., R.44 E.W.M.

Adams, Benthin & Clark, Inc.
Civil Engineers & Land Surveyors
W1803 Maxwell Spokane, WA 99201
Phone 328-5853

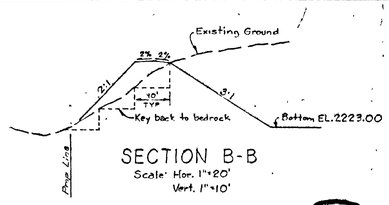
Scale: 1"=20'	MAY, 1979
	F.B. 214-2
DWN.: DrD.	W.O. 78-358

SHEET 11 of 21



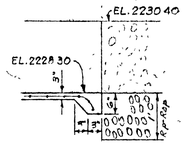
SECTION D-D N.T.S

CURVE DATA			
DELTA	RADIUS	TANGENT	LENGTH
(1) 13°30'00"	30.00'	3.55'	7.07'
(2) 13°30'00"	51.89'	6.14'	12.23'

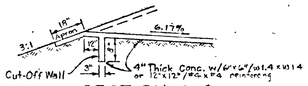


SECTION B-B
Scale: Hor. 1"=20'
Vert. 1"=10'

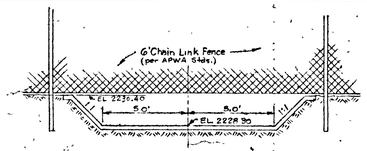
NOTES:
1. Riprap shall be hand placed per Sections 9-15.3 (3) and 9-13.2 of State of Washington, STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 1977.
2. All Holding Pond fill material shall be well graded, free of organic matter and shall have maximum particle size of 4" diameter. The Holding Pond shall be constructed in accordance with Compaction Method C, Section 13-3.10 E4 of APWA STANDARD SPECIFICATIONS FOR MUNICIPAL PUBLIC WORKS CONSTRUCTION, 1977.



SECTION H-H
N.T.S.



SECTION G-G
N.T.S.

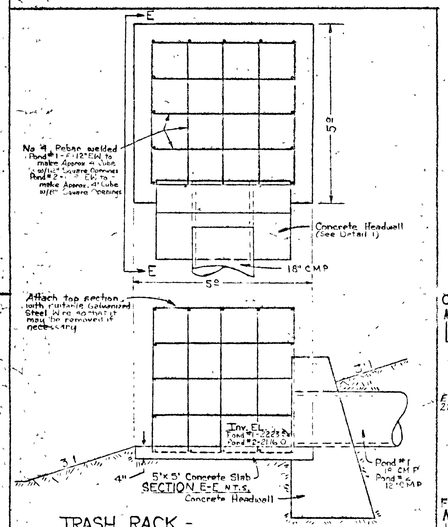


SECTION F-F N.T.S.

APPROVED FOR CONSTRUCTION

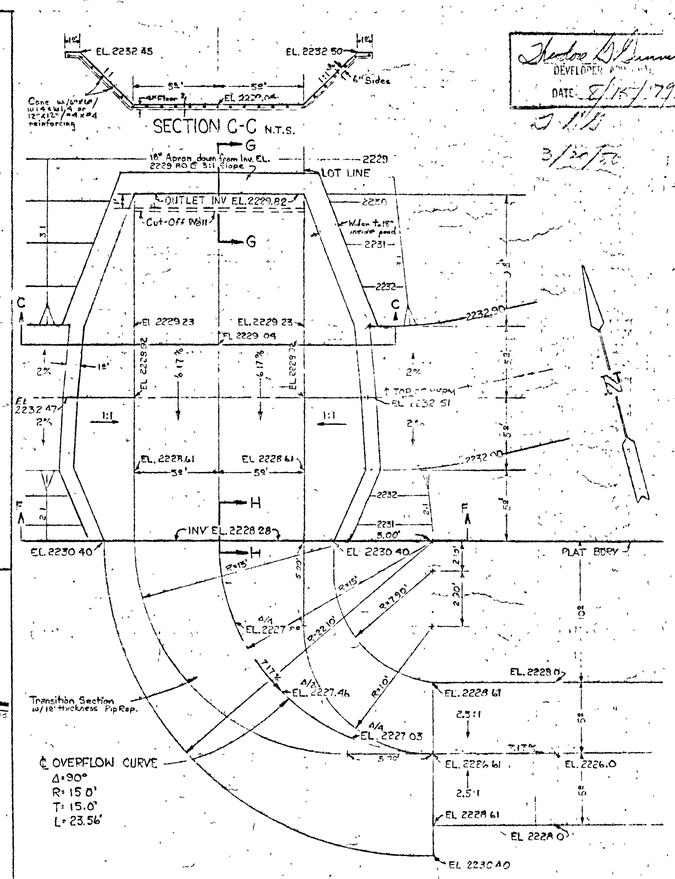
PERMIT REQUIRED
(CONTACT THE PUBLIC WORKS DEPT. 456-3600 24 HRS. PRIOR TO CONSTRUCTION)

DEVELOPER
DATE 5/15/79

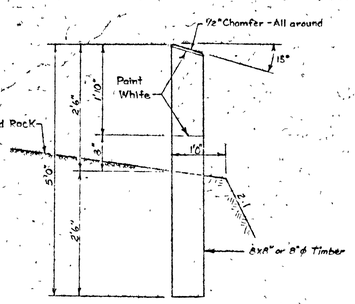


SECTION E-E N.T.S.

TRASH RACK - DETAIL 4 N.T.S.

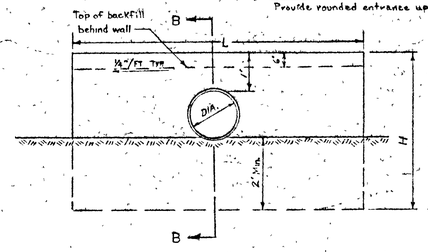


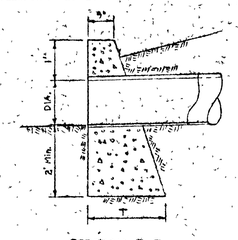
OVERFLOW CHANNEL - DETAIL 2 N.T.S.



GUARD POST - DETAIL 3
N.T.S.

NOTE: Chamfer all exposed concrete edges one inch. Provide rounded entrance upstream on 3" radius.

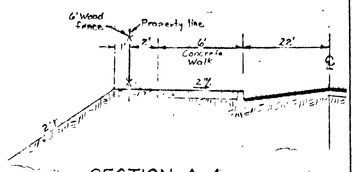




SECTION B-B

DIMENSIONS						
DIA.	12"	15"	18"	21"	24"	30"
T	2'0"	2'0"	2'3"	2'3"	2'6"	2'9"
H	4'0"	4'3"	4'6"	4'9"	5'0"	5'6"
L	3'0"	3'6"	4'0"	4'6"	5'-0"	6'0"

HEADWALL - DETAIL 1
N.T.S.



SECTION A-A
N.T.S.

STORM HOLDING POND NO. 2, PLANS AND DETAILS

NORTHWOOD SECOND ADD'N

SEC. 31, T.26N, R.44E, WM.

Adams, Benthin & Clark, Inc.
Civil Engineers & Land Surveyors
W1803 Maxwell Spokane, WA 99201
Phone 328-5853

Scale 1"=20'	JAN., 1980
	F.B. 214-2
DWN. M.K.W.	W.O. 78-358

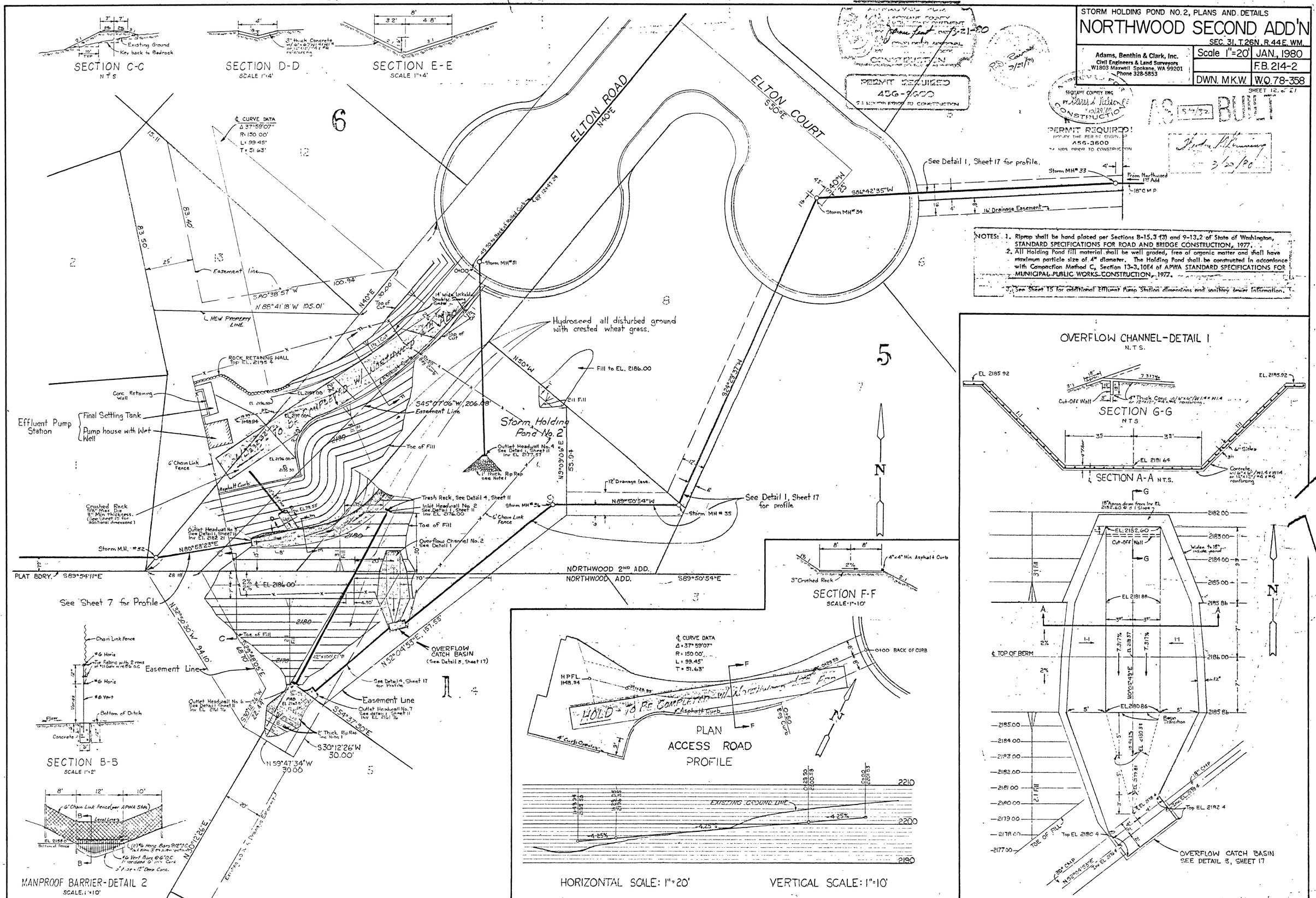
SHEET 12 of 21

PERMIT REQUIRED
456-3600
24 HRS. PRIOR TO CONSTRUCTION

SPOKANE COUNTY ENG
CONSTRUCTION

PERMIT REQUIRED!
APPLY THE PERMIT ENGINEER
456-3600
24 HRS. PRIOR TO CONSTRUCTION

AS BUILT



STORM DRAIN OUTFALL PROFILES.

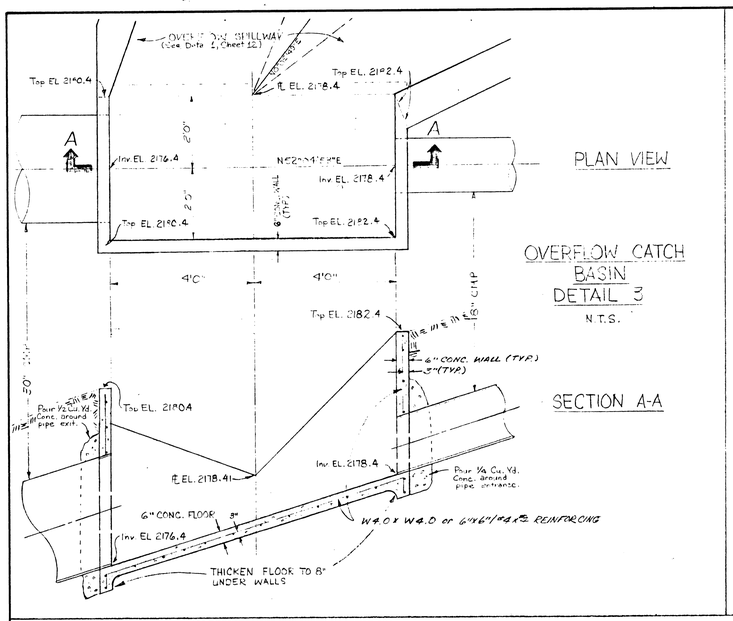
NORTHWOOD SECOND ADD'N.

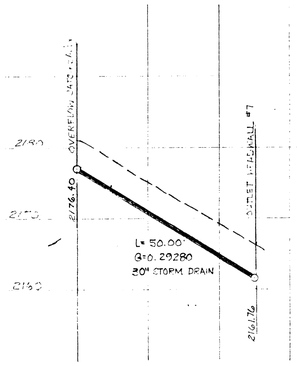
SEC. 31, T. 26N., R.44 E.W.M.

Adams, Benthin & Clark, Inc.
Civil Engineers & Land Surveyors
W1803 Maxwell Spokane, WA 99201
Phone 328-5853

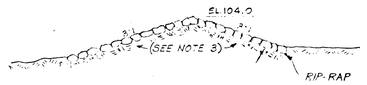
HOR.: 1"=20'	OCT. 1979
VERT.: 1"=10'	
DWN.: DrD	W.O. 78-358

SHEET 17 OF 21

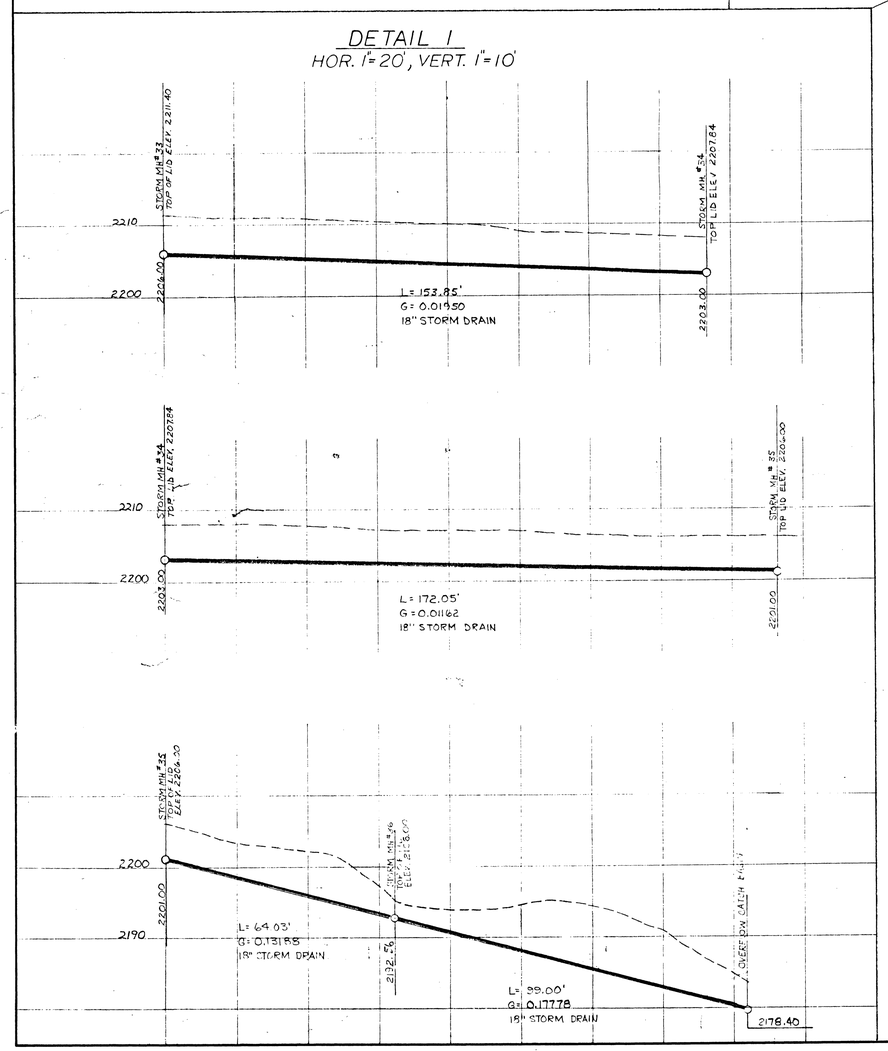




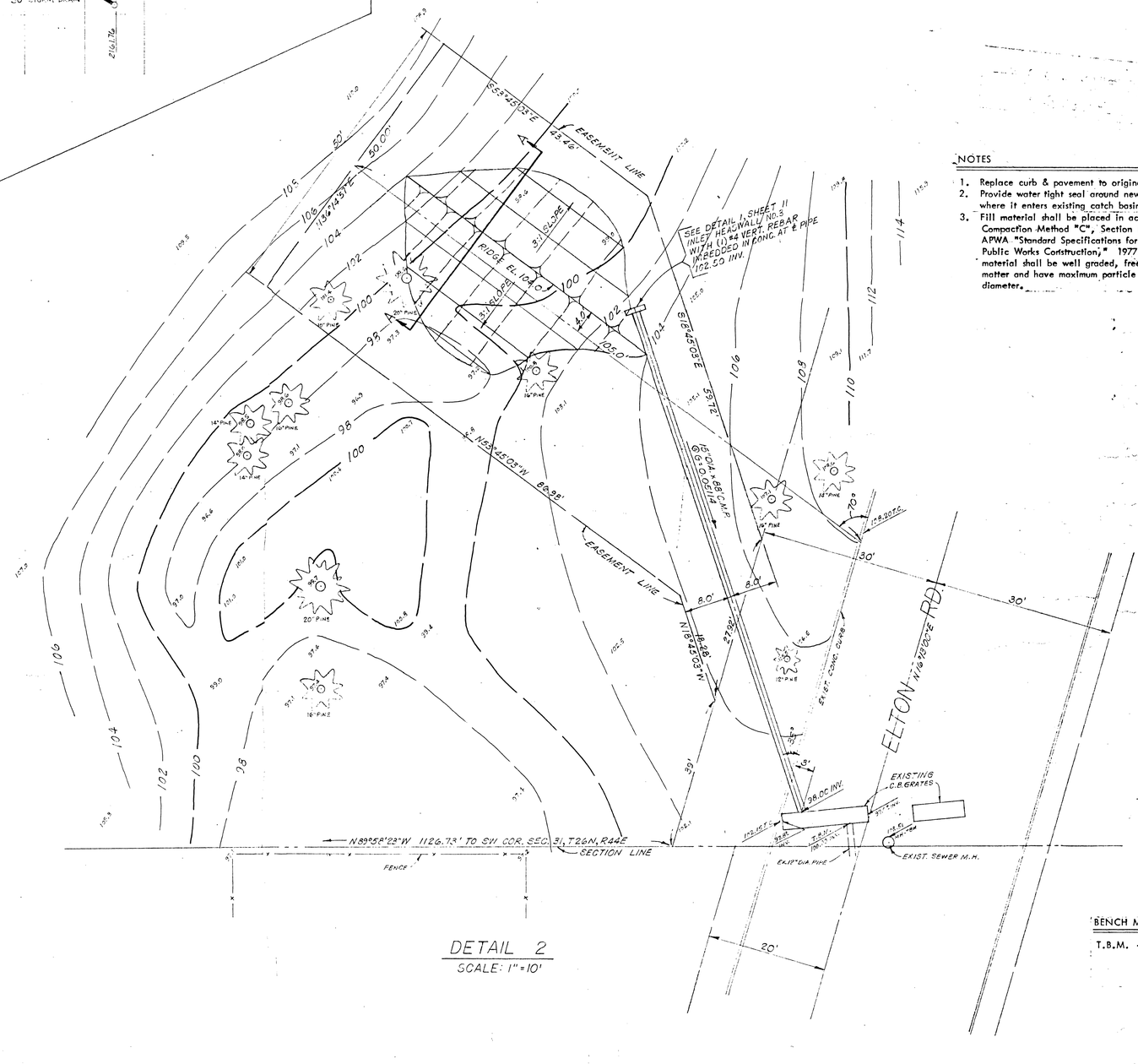
DETAIL 4
HOR. 1"=20', VERT. 1"=10'



SECTION A-A
N.T.S.



DETAIL 1
HOR. 1"=20', VERT. 1"=10'



DETAIL 2
SCALE: 1"=10'

NOTES

1. Replace curb & pavement to original condition.
2. Provide water tight seal around new 15" C.M.P. where it enters existing catch basin.
3. Fill material shall be placed in accordance with Compaction Method "C", Section 13-3.10E4 of APWA "Standard Specifications for Municipal Public Works Construction," 1977 edition. Fill material shall be well graded, free of organic matter and have maximum particle size of 4" diameter.

BENCH MARK (DETAIL 2)

T.B.M. - North rim of sewer manhole ELEV. 103.51 (Assumed datum)

APPROVED FOR PUBLIC WORKS
DATE
CITY ENGINEER

AS-BUILT