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File SPR-1996-238 Name: Murdock Trailer Sales – 2173 River Road

Present	Scanned	A few items are denoted with an asterisk (*), which means they are to be scanned for permanent record on the ISYS retrieval system. In some instances, items are found on the list but are not present in the scanned electronic development file because they are already scanned elsewhere on the system. These scanned documents are denoted with (**) and will be found on the ISYS query system in their designated categories. Documents specific to certain files, not found in the standard checklist materials, are listed at the bottom of the page. Remaining items, (not selected for scanning), will be listed and marked present. This index can serve as a quick guide for the contents of each file.
X	X	**Table of Contents**
		***Review Sheet Summary**
		***Application form**
x		Review Sheets
		Receipts for fees paid for anything
X	X	***Submittal checklist**
X	X	***General project report**
		Reduced copy of final plans or drawings
X		Reduction of assessor's map.
		Evidence of title, deeds, easements
		***Mailing list to adjacent property owners**
		Public notice cards
		Record of certified mail
		Legal description
		Appraisal of raw land
		Reduction of any maps – final copy
		***Final reports for drainage and soils (geotechnical reports)**
		Other bound or non-bound reports
		Traffic studies
X	X	***Review Comments**
X	X	***Petitioner's response to comments**
		***Staff Reports**
		***Planning Commission staff report and exhibits**
		***City Council staff report and exhibits**
		***Summary sheet of final conditions**

DOCUMENT DESCRIPTION:

X	X	Planning Clearance – issued 12/18/96 - **			
X	X	Correspondence			
X		Warranty Deed – Bk 2263/ Pg 50 – not conveyed to City			
X	X	Drainage Report – 10/96			
X	X	Certificates of Occupancy – 3/20/97, 3/24/97			
X		Quality Building Post Frame System Illustration			
X	X	Grading and Drainage Plan			
X	X	Site Plan			
X	X	Landscape Plan			
X	X	Facility Site Plan			

SUBMITTAL CHECKLIST

SITE PLAN REVIEW

Murdock

Location: I-70 & 6 & 50/2173 River Rd Project Name: Farm Implement Sales

ITEMS		DISTRIBUTION																														
Date Received 11-1-96 Receipt # 4849 File # SPR-96-238 DESCRIPTION	SSID REFERENCE	● City Community Development	● City Dev. Eng.	● City Utility Eng.	● City ~~Property Agent~~ Police	O City Parks/Recreation	● City Fire Department	● City Attorney	O City Downtown Dev. Auth.	O County Planning	● County Bldg. Dept.	● Irrigation District - GVIC	● Drainage District - GJ	● Water District - Ute	O Sewer District	● U.S. West	● Public Service	O GVRP	O CDOT	O Corps of Engineers	O Walker Field	O Persigo WWT	O Mesa County Health	O State Environ. Health	O City Sanitation	O School Dist #51						TOTAL REQ'D.
● Application Fee - $100 + acreage	VII-1	1																														
● Submittal Checklist *	VII-3	1																														
● Review Agency Cover Sheet*	VII-3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1						
● Planning Clearance*	VII-3	1																														
● 11"x17" Reduction of Assessor's Map	VII-1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1						
● Evidence of Title	VII-2	1			1			1																								
O Deeds	VII-1	1			1			1																								
O Easements	VII-2	1	1	1	1			1																								
O Avigation Easement	VII-1	1			1			1																								
● ROW ?	VII-2	1	1	1	1			1																								
O Improvements Agreement/Guarantee*	VII-2	1	1	1				1																								
O CDOT Access Permit	VII-3	1	1																													
O Industrial Pretreatment Sign-off	VII-4	1		1																												
● General Project Report	X-7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1						
O Elevation Drawing	IX-13	1	1																													
● Site Plan	IX-29	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1						
O 11"x17" Reduction of Site Plan	IX-29					1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1						
● Grading and Drainage Plan (site plan)	IX-16	1	2										1							1												
O Storm Drainage Plan and Profile	IX-30	1	2										1			1	1	1														
O Water and Sewer Plan and Profile	IX-34	1	2	1			1							1	1	1	1	1														
O Roadway Plan and Profile	IX-28	1	2										1																			
O Road Cross-Sections	IX-27	1	2																													
O Detail Sheet	IX-12	1	2																													
● Landscape Plan (site plan)	IX-20	2	1	1																												
O Geotechnical Report	X-8	1	1								1																					
● Final Drainage Report	X-5,6	1	2										1																			
O Stormwater Management Plan	X-14	1	2										1							1												
O Phase I and II Environmental Rerpot	X-10,11	1	1																													
O Traffic Impact Study	X-15	1	2																1													

NOTES: * An asterisk in the item description column indicates that a form is supplied by the City.

PRE-APPLICATION CONFERENCE

Date: 8/26/96
Conference Attendance: Lewis Hoffman, Kristen Ashbeck
Proposal: SPR - Farm Implements
Location: 2173 River Road

Tax Parcel Number: 2697-364-00-061 24 AC X 15 = 360
Review Fee: ~~$400 + $15/ac~~ $100 + $100
(Fee is due at the time of submittal. Make check payable to the City of Grand Junction.) $460

Additional ROW required? _____
Adjacent road improvements required? _____
Area identified as a need in the Master Plan of Parks and Recreation? _____
Parks and Open Space fees required? _____ Estimated Amount: _____
Recording fees required? _____ Estimated Amount: _____
Half street improvement fees/TCP required? Per engineering Estimated Amount: _____
Revocable Permit required? _____
State Highway Access Permit required? _____
On-site detention/retention or Drainage fee required? Per engineering
Applicable Plans, Policies and Guidelines _____

Located in identified floodplain? FIRM panel # _____
Located in other geohazard area? _____

Located in established Airport Zone? Clear Zone, Critical Zone, Area of Influence? _____
Avigation Easement required? _____

While all factors in a development proposal require careful thought, preparation and design, the following "checked" items are brought to the petitioner's attention as needing special attention or consideration. Other items of special concern may be identified during the review process.

X Access/Parking	O Screening/Buffering	O Land Use Compatibility
X Drainage	X Landscaping	O Traffic Generation
O Floodplain/Wetlands Mitigation	O Availability of Utilities	O Geologic Hazards/Soils

O Other _____
Related Files: _____

It is recommended that the applicant inform the neighboring property owners and tenants of the proposal prior to the public hearing and preferably prior to submittal to the City.

PRE-APPLICATION CONFERENCE

WE RECOGNIZE that we, ourselves, or our representative(s) must be present at all hearings relative to this proposal and it is our responsibility to know when and where those hearings are.

In the event that the petitioner is not represented, the proposed item will be dropped from the agenda, and an additional fee shall be charged to cover rescheduling expenses. Such fee must be paid before the proposed item can again be placed on the agenda. Any changes to the approved plan will require a re-review and approval by the Community Development Department prior to those changes being accepted.

WE UNDERSTAND that incomplete submittals will not be accepted and submittals with insufficient information, identified in the review process, which has not been addressed by the applicant, may be withdrawn from the agenda.

WE FURTHER UNDERSTAND that failure to meet any deadlines as identified by the Community Development Department for the review process may result in the project not being scheduled for hearing or being pulled from the agenda.

X _____ X _____
Signature(s) of Petitioner(s) Signature(s) of Representative(s)

GENERAL PROJECT REPORT
October 28, 1996

This is an application for a Site Plan Review for a 23.6 acre parcel located at 2173 River Road. The zoning is I-1. We are proposing to use this property for sales of farm implements, farm supplies, horse trailers, etc. This is one of the allowed uses in the I-1 zone. We will build a 30 ft. by 40 ft. building from which we will operate.

The surrounding land uses are vacant land to the east, Persigo Wash to the west, I 70 on the southern boundary, and the railroad across the street to the north of River Road. The area is still very rural in nature and the use we are proposing is a perfect use to maintain the rural nature.

The site will be accessed from River Road and all traffic circulation will be on site on all weather gravel surfaces. Water is available from a Ute Water main in River Road. Sewer is available in River Road. Gas, electric and telephone are also available in River Road easements. We are proposing to install a fire hydrant on the River Road frontage to provide fire protection. Our impact on all of these utilities will be minimal as our proposed use is a low customer volume use. We will of course have no impact on schools or parks.

The soils and geology of the site have no impact. The site is typical desert with gradual to no slope. There is an existing pond which will be incorporated in our drainage improvements.

The hours of operation will be 8 to 5:30 +/- M-F some Saturdays, and we'll have seasonal fluctuations. Two to four people will be employed.

The signage for the business will consist of two 4 ft. by 8 Ft. plywood signs on the I 70 boundary installed in a wedge manner in order to be visible from both east and west bound I 70. There will be a small 20 in. by 40 in. sign on the gate to identify the entrance, and the Scott Murdock Trailer Sales logo on the building.

The schedule for development is to build the onsite improvements and building immediately upon obtaining a building permit, including the fire hydrant.

21.24 ac.

DRAINAGE STUDY
MURDOCK'S TRAILER SALES
2173 River Road
Grand Junction, CO
October, 1996

THIS DRAINAGE REPORT WAS PREPARED BY WESTERN ENGINEERS, INC. BASED ON PROPOSED SITE CONDITIONS AS SHOWN ON SITE PLAN FOR THE MURDOCK TRAILER SALES FACILITY BY WESTERN ENGINEERS, DRAWING 3913-1248-2, DATED NOVEMBER 1, 1996. IN ACCORDANCE WITH COMMENTS RECEIVED FROM THE CITY OF GRAND JUNCTION PLANNING DEPARTMENT, THE SITE PLAN FOR THE MURDOCK TRAILER SALES FACILITY WAS REVISED TO INCLUDE PAVED PARKING AND DRIVE AREAS AS SHOWN ON WESTERN ENGINEERS DRAWING 3913-1248-2, DATED DECEMBER 6, 1996. BUT, THIS DRAINAGE REPORT WAS NOT REVISED AND IS NOT APPLICABLE TO THE REVISED SITE PLAN.

Prepared by:

WESTERN ENGINEERS, INC.
2150 Highway 6 AND 50
Grand Junction, CO
81505

Work Order Number 3913

DRAINAGE STUDY
MURDOCK'S TRAILER SALES

October, 1996

GENERAL:

The proposed trailer sales lot and associated building site is located South of River Road between Persigo Wash and Interstate 70 in Grand Junction, Colorado. The analyses presented in this report are for a parcel of about 8.6 acres identified as Lot 1 of the minor subdivision. The site has historically been under agricultural cultivation but is currently vacant land. The site exhibits slight drainage to the southwest. A stock watering pond exists in the southeast portion of the lot which is intended to be utilized as a detention pond for post-development runoff. No off-site runoff is collected by this property. Site soils are categorized by the National Resource Conservation Service as Billings Clay with a Hydrologic Soil Group classification of "C". All site runoff from Lot 1 will flow through the detention pond and, from there, westerly in an existing channel along the southern boundary of Lots 1 and 2 to an existing 18 inch diameter corrugated metal pipe used to drain runoff from Interstate 70 into Persigo Wash. In order to reach this culvert, runoff flows must drain into the drain ditch within the Interstate Right of Way near the culvert location.

DRAINAGE EVALUATION METHOD:

Hydrologic analyses for this site were performed by the Modified Rational Method. Hydrologic parameters and storm intensities were determined using the recommended values and procedures presented in the January, 1996 edition of the City of Grand Junction's Stormwater Management Manual (SWMM). The pre-development conditions were treated as a single basin. The post-development Lot 1 areas were divided into two basins. Basin number 2 includes exclusively the areas to be developed and which will drain into the detention pond. Basin number 1 consists of the areas which will not be affected by site development and from which runoff drainage circumvents the detention pond. Drainage basin

delineations are shown on figure 1. Since the detention pond currently exists, the procedure for determining the routing effects of the pond on runoff rates was determined using the characteristics of the existing pond.

CONCENTRATION TIMES:

The upper 300 feet of both the pre-development drainage basin and the post-development basin number 1 were considered to exhibit sheet flow. Concentration times were calculated by the three following equations presented in the SWMM:

SCS TR-55 Method

$$T_0 = 0.42(NL)^{0.8}/P^{0.5}S^{0.4}$$

FHWA Method

$$T_0 = 0.93(NL)^{0.6}/I^{0.4}S^{0.3}$$

FAA Method

$$T_0 = 1.8(1.1-C)L^{0.5}/S^{0.33}$$

Tables 1, 2 and 3 show comparisons of the results of these three methods. The results of the FHWA method were used because they seemed to represent approximately the average of the values produced by the three methods and because the method is suited to the Rational Method for runoff evaluation.

The lower portion of both the pre-development drainage basin and the post-development basin number 2 were considered to exhibit shallow concentrated flow. The SCS, TR-55 method was used to determine concentration times attributed to this type of flow. The "Nearly bare and untilled and alluvial fans western mountain regions" curve was used. The contribution of shallow concentrated flow to the concentration times are shown on tables 1 and 2.

The longest runoff path for the post-development Basin number 2 area

consists almost exclusively of channel flow. The estimated hydraulic characteristics for this channel are shown on Table 4. The concentration times for post-development Basin number 2 were calculated using the channel velocities determined by the Manning Formula at the respective flows. This calculation is shown on Table 3.

RATIONAL RUNOFF COEFFICIENTS:

Using the Hydrologic Soil Group of "C", the runoff coefficients were determined in accordance with the recommendations presented in the SWMM. Both the pre-development drainage basin and the post-development basin number 1 consist entirely of bare ground. The post-development basin number 2 includes a combination of gravel surfaced drive and parking areas along with the building roof. The weighted runoff coefficients for this basin were determined as follows:

STORM RECURRENCE INTERVAL (YEARS)	SURFACE TYPE	AREA (ACRES)	RUNOFF COEFFICIENT	WEIGHTING VALUE
2	Gravel	0.506	0.68	0.344
2	Roof	0.028	0.93	0.026
Totals		0.534		0.370
Weighted Runoff Coefficient				0.693
100	Gravel	0.506	0.76	0.385
100	Roof	0.028	0.95	0.027
Totals		0.534		0.412
Weighted Runoff Coefficient				0.772

Following is a summary of the runoff coefficients used in the analyses:

DEVELOPMENT STATUS	BASIN IDENTIFICATION	STORM RECURRENCE INTERVAL (YEARS)	RUNOFF COEFFICIENT
Pre-Development	N/A	2	0.24
Pre-Development	N/A	100	0.30
Post-Development	1	2	0.24
Post-Development	1	100	0.30
Post-Development	2	2	0.69
Post-Development	2	100	0.77

DETENTION FACILITIES:

The storage rating for the existing pond is depicted on figure 2. Because the existing pond is large relative to the size of the area to be developed, detention discharge control can be adequately provided by the dirt channel to be established. This outlet ditch runs to the west along the southern boundaries of Lots 1 and 2, drains into the Interstate 70 drain ditch and discharges into an 18 inch diameter culvert which flows into Persigo wash, as shown on figure 1. The ditch will be regraded as part of the development work. This ditch provides adequate detention discharge control because it is quite flat. The ditch was treated as a release weir for the purposes of determining the appropriate Modified Rational average release rate to maximum release ratio (.55).

CONCLUSIONS:

Because the post-development conditions include a drainage basin which bypasses the detention pond, it is necessary to evaluate the site discharges for two conditions to determine which is the critical. The first condition includes the storm intensity which produces the greatest discharge from the detention pond. The second condition involves use of the storm intensity which produces the greatest discharge from the basin which bypasses the detention pond (Basin 2). Modified Rational runoff routing calculations are summarized on Table 6. Following is a summary of both pre and post-development site discharges for the 2 and 100 year storms:

DEVELOPMENT STATUS	STORM RECURRENCE INTERVAL (YEARS)	BASIN IDENTIFICATION	STORM INTENSITY (INCH/HR)	SITE DISCHARGE (CU FT/SEC)
Pre-Development	2	N/A	0.51	1.06
Pre-Development	100	N/A	1.67	4.32
Post-Development (Basin 2 Control)	2	1	0.09	0.17
Post-Development (Basin 2 Control)	2	2	0.09	0.004
Post-Development (Basin 2 Control)	2	combined	0.09	0.174
Post-Development (Basin 2 Control)	100	1	0.89	2.16
Post-Development (Basin 2 Control)	100	2	0.89	0.11
Post-Development (Basin 2 Control)	100	combined	0.89	2.27
Post-Development (Basin 1 Control)	2	1	0.31	0.60
Post-Development (Basin 1 Control)	2	2	0.31	0.003
Post-Development (Basin 1 Control)	2	combined	0.31	0.603
Post-Development (Basin 1 Control)	100	1	1.57	3.82
Post-Development (Basin 1 Control)	100	2	1.57	0.09
Post-Development (Basin 1 Control)	100	combined	1.57	3.91

It is seen that the time of concentration for the post-development Basin 1 controls the critical combined rainfall intensity and that, under all conditions, the post-development flows are less than those for the pre-development conditions for comparable storm intensities.

THIS DRAINAGE REPORT WAS PREPARED BY WESTERN ENGINEERS, INC. BASED ON PROPOSED SITE CONDITIONS AS SHOWN ON SITE PLAN FOR THE MURDOCK TRAILER SALES FACILITY BY WESTERN ENGINEERS, DRAWING 3913-1248-2, DATED NOVEMBER 1, 1996. IN ACCORDANCE WITH COMMENTS RECEIVED FROM THE CITY OF GRAND JUNCTION PLANNING DEPARTMENT, THE SITE PLAN FOR THE MURDOCK TRAILER SALES FACILITY WAS REVISED TO INCLUDE PAVED PARKING AND DRIVE AREAS AS SHOWN ON WESTERN ENGINEERS DRAWING 3913-1248-2, DATED DECEMBER 6, 1996. BUT, THIS DRAINAGE REPORT WAS NOT REVISED AND IS NOT APPLICABLE TO THE REVISED SITE PLAN.

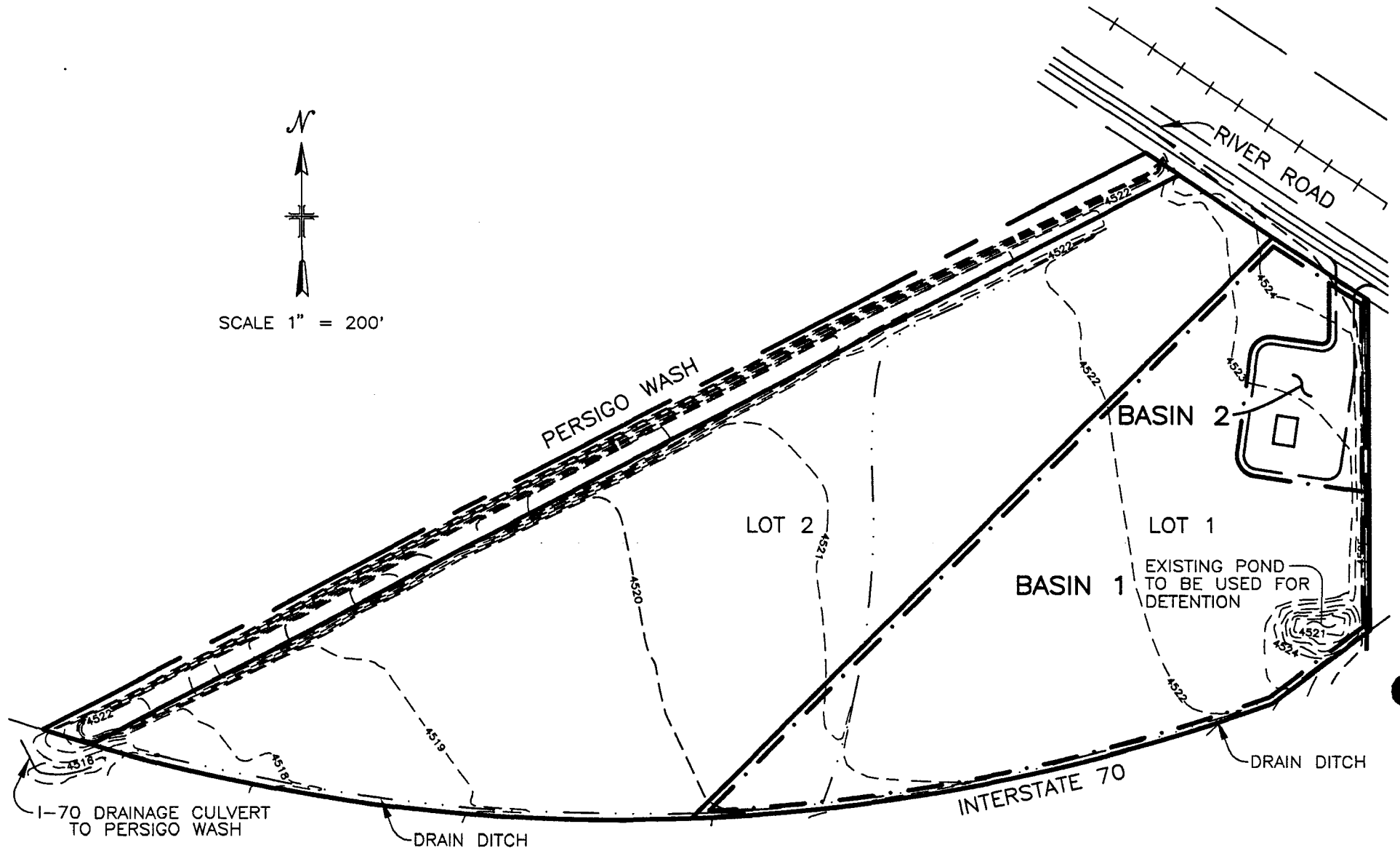
Submitted by:

WESTERN ENGINEERS, INC.

14956

Bruce D. Marvin P.E.

12-6-96



LEGEND:

— · — BASIN BOUNDARY

MURDOCK TRAILER SALES

FACILITY AT 2173 RIVER ROAD

POST-DEVELOPMENT LOT 1 DRAINAGE BASINS

FIGURE 1

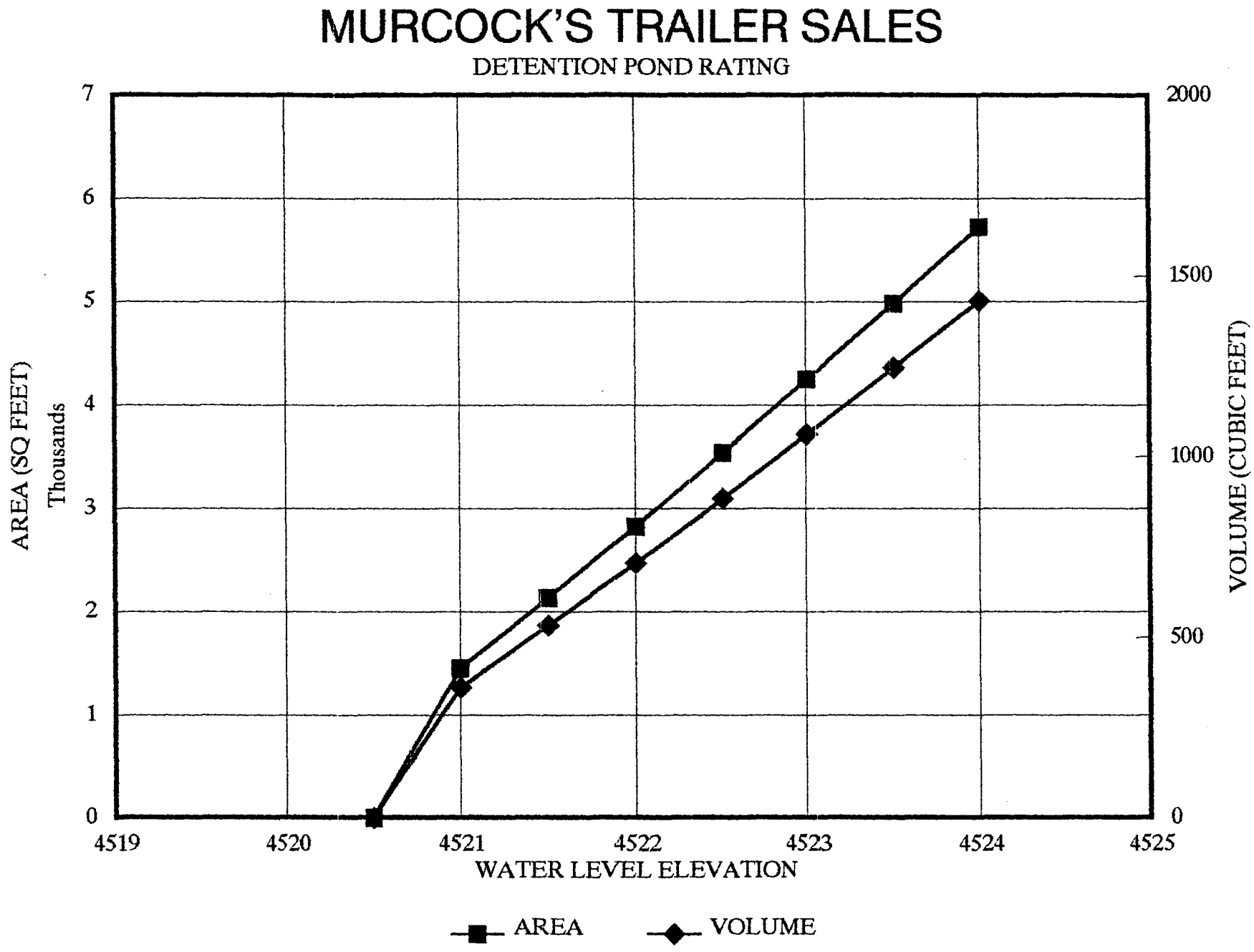

MURCOCK'S TRAILER SALES
DETENTION POND RATING
AREA (SQ FEET)
Thousands
VOLUME (CUBIC FEET)
WATER LEVEL ELEVATION
0
1
2
3
4
5
6
7
0
500
1000
1500
2000
4519
4520
4521
4522
4523
4524
4525
AREA
VOLUME

FIGURE 2

MURDOCK'S TRAILER SALES, CALCULATION OF CONCENTRATION TIMES

PRE-DEVELOPMENT CONDITIONS
OVERLAND FLOW COMPONENT

OVERLAND FLOW RESISTANCE FACTOR, N =	0.07
FLOW PLANE LENGTH, L (FEET) =	300
2 YEAR PRECIPITATION DEPTH, P(2) (INCH) =	0.42
100 YEAR PRECIPITATION DEPTH, P(100) (INCH) =	1.4
AVERAGE SLOPE OF FLOW PLANE, S =	0.0048
2 YEAR RAINFALL INTENSITY, I(2), (INCH/HR) =	0.34
100 YEAR RAINFALL INTENSITY, I(100), (INCH/HR) =	1.33
2 YEAR WEIGHTED RATIONAL RUNOFF COEFFICIENT, C(2) =	0.24
100 YEAR WEIGHTED RATIONAL RUNOFF COEFFICIENT, C(100) =	0.3

OVERLAND FLOW TRAVEL TIME

PRECIPITATION RECURRENCE INTERVAL (YEARS)	SCS TR-55 METHOD	FHWA, HEC-12 METHOD	FAA METHOD
2	62.65	44.14	34.16
100	34.31	25.58	31.78

SHALLOW CONCENTRATED FLOW COMPONENT

FLOW LENGTH (FEET) =	950
GROUND SLOPE =	0.0044
VELOCITY, SCS TR-55, (FT/SEC) =	0.7
SHALLOW CONCENTRATED FLOW TRAVEL TIME (MINUTES) =	22.6

CHANNEL/PIPE FLOW COMPONENT

CHANNEL/PIPE LENGTH (FEET) =	0
CHANNEL/PIPE SLOPE =	0

PRECIPITATION RECURRENCE INTERVAL (YEARS)	DISCHARGE FLOW RATE (CU FT/SEC)	DISCHARGE FLOW VELOCITY (FT/SEC)	CHANNEL/PIPE TRAVEL TIME (MINUTES)
2	0	0.00	0.00
100	0	0.00	0.00

TOTAL TIME OF CONCENTRATION

PRECIPITATION RECURRENCE INTERVAL (YEARS)	OVERLAND FLOW TIME (MINUTES)	SHALLOW CONCENTRATED FLOW TIME (MINUTES)	CHANNEL AND PIPE FLOW TIME (MINUTES)	TOTAL TIME OF CONCENTRATION (MINUTES)
2	44.14	22.6	0	66.74
100	25.58	22.6	0	48.18

TABLE 1

MURDOCK'S TRAILER SALES, CALCULATION OF CONCENTRATION TIMES

POST-DEVELOPMENT CONDITIONS
BASIN 1
OVERLAND FLOW COMPONENT

OVERLAND FLOW RESISTANCE FACTOR, N =	0.07
FLOW PLANE LENGTH, L (FEET) =	300
2 YEAR PRECIPITATION DEPTH, P(2) (INCH) =	0.42
100 YEAR PRECIPITATION DEPTH, P(100) (INCH) =	1.4
AVERAGE SLOPE OF FLOW PLANE, S =	0.0048
2 YEAR RAINFALL INTENSITY, I(2), (INCH/HR) =	0.54
100 YEAR RAINFALL INTENSITY, I(100), (INCH/HR) =	2.15
2 YEAR WEIGHTED RATIONAL RUNOFF COEFFICIENT, C(2) =	0.24
100 YEAR WEIGHTED RATIONAL RUNOFF COEFFICIENT, C(100) =	0.3

OVERLAND FLOW TRAVEL TIME

PRECIPITATION RECURRENCE INTERVAL (YEARS)	SCS TR-55 METHOD	FHWA, HEC-12 METHOD	FAA METHOD
2	62.65	36.68	34.16
100	34.31	21.11	31.78

SHALLOW CONCENTRATED FLOW COMPONENT

FLOW LENGTH (FEET) =	950
GROUND SLOPE =	0.0048
VELOCITY, SCS TR-55, (FT/SEC) =	0.7
SHALLOW CONCENTRATED FLOW TRAVEL TIME (MINUTES) =	22.6

CHANNEL/PIPE FLOW COMPONENT

CHANNEL/PIPE LENGTH (FEET) =	0
CHANNEL/PIPE SLOPE =	0

PRECIPITATION RECURRENCE INTERVAL (YEARS)	DISCHARGE FLOW RATE (CU FT/SEC)	DISCHARGE FLOW VELOCITY (FT/SEC)	CHANNEL/PIPE TRAVEL TIME (MINUTES)
2	0	0.00	0.00
100	0	0.00	0.00

TOTAL TIME OF CONCENTRATION

PRECIPITATION RECURRENCE INTERVAL (YEARS)	OVERLAND FLOW TIME (MINUTES)	SHALLOW CONCENTRATED FLOW TIME (MINUTES)	CHANNEL AND PIPE FLOW TIME (MINUTES)	TOTAL TIME OF CONCENTRATION (MINUTES)
2	44.14	22.6	0	66.74
100	25.58	22.6	0	48.18

TABLE 2

MURDOCK'S TRAILER SALES, CALCULATION OF CONCENTRATION TIMES

POST-DEVELOPMENT CONDITIONS
BASIN 2
OVERLAND FLOW COMPONENT

OVERLAND FLOW RESISTANCE FACTOR, N =	0.00
FLOW PLANE LENGTH, L (FEET) =	0.00
2 YEAR PRECIPITATION DEPTH, P(2) (INCH) =	0.00
100 YEAR PRECIPITATION DEPTH, P(100) (INCH) =	0.00
AVERAGE SLOPE OF FLOW PLANE, S =	0.00
2 YEAR RAINFALL INTENSITY, I(2), (INCH/HR) =	0.00
100 YEAR RAINFALL INTENSITY, I(100), (INCH/HR) =	0.00
2 YEAR WEIGHTED RATIONAL RUNOFF COEFFICIENT, C(2) =	0.00
100 YEAR WEIGHTED RATIONAL RUNOFF COEFFICIENT, C(100) =	0.00

OVERLAND FLOW TRAVEL TIME

PRECIPITATION RECURRENCE INTERVAL (YEARS)	SCS TR-55 METHOD	FHWA, HEC-12 METHOD	FAA METHOD
2	0.00	0.00	0.00
100	0.00	0.00	0.00

SHALLOW CONCENTRATED FLOW COMPONENT

FLOW LENGTH (FEET) =	0
GROUND SLOPE =	0
VELOCITY, SCS TR-55, (FT/SEC) =	0
SHALLOW CONCENTRATED FLOW TRAVEL TIME (MINUTES) =	0

CHANNEL/PIPE FLOW COMPONENT

CHANNEL/PIPE LENGTH (FEET) =	450
CHANNEL/PIPE SLOPE =	0.0044

FROM DETENTION POND DISCHARGE V-CHANNEL FLOW RATING DATA:

PRECIPITATION RECURRENCE INTERVAL (YEARS)	DISCHARGE FLOW RATE (CU FT/SEC)	DISCHARGE FLOW VELOCITY (FT/SEC)	CHANNEL/PIPE TRAVEL TIME (MINUTES)
2	0.11	0.07	107.14
100	0.64	0.102	73.53

TOTAL TIME OF CONCENTRATION

PRECIPITATION RECURRENCE INTERVAL (YEARS)	OVERLAND FLOW TIME (MINUTES)	SHALLOW CONCENTRATED FLOW TIME (MINUTES)	CHANNEL AND PIPE FLOW TIME (MINUTES)	TOTAL TIME OF CONCENTRATION (MINUTES)
2	0	0	107.14	107.14
100	0	0	73.53	73.53

TABLE 3

MURDOCK'S TRAILER SALES, DETENTION POND INLET CHANNEL FLOW RATING

V-CHANNEL FLOW CAPACITY:

RIGHT SIDE SLOPE =	0.125
LEFT SIDE SLOPE =	0.125
CHANNEL SLOPE =	0.0044
MANNING'S ROUGHNESS =	0.5

DEPTH (FEET)	WETTED PERIMETER (FEET)	FLOW AREA (SQ FEET)	FLOW VELOCITY (FT/SEC)	FLOW CAPACITY (CU FT/SEC)
0.1	1.612	0.080	0.027	0.002
0.2	3.225	0.320	0.042	0.014
0.3	4.837	0.720	0.056	0.040
0.4	6.450	1.280	0.067	0.086
0.5	8.062	2.000	0.078	0.156
0.6	9.675	2.880	0.088	0.254
0.7	11.287	3.920	0.098	0.383
0.8	12.900	5.120	0.107	0.547
0.9	14.512	6.480	0.115	0.748
1	16.125	8.000	0.124	0.991
1.1	17.737	9.680	0.132	1.278
1.2	19.349	11.520	0.140	1.612
1.3	20.962	13.520	0.148	1.995
1.4	22.574	15.680	0.155	2.431
1.5	24.187	18.000	0.162	2.922
1.6	25.799	20.480	0.169	3.471

TABLE 4

MURDOCK'S TRAILER SALES, DETENTION POND OUTLET CHANNEL FLOW RATING

V-CHANNEL FLOW CAPACITY:

RIGHT SIDE SLOPE =	0.125
LEFT SIDE SLOPE =	0.125
CHANNEL SLOPE =	0.0027
MANNING'S ROUGHNESS =	0.5

DEPTH (FEET)	WETTED PERIMETER (FEET)	FLOW AREA (SQ FEET)	FLOW VELOCITY (FT/SEC)	FLOW CAPACITY (CU FT/SEC)
0.1	1.612	0.080	0.021	0.002
0.2	3.225	0.320	0.033	0.011
0.3	4.837	0.720	0.043	0.031
0.4	6.450	1.280	0.053	0.067
0.5	8.062	2.000	0.061	0.122
0.6	9.675	2.880	0.069	0.199
0.7	11.287	3.920	0.077	0.300
0.8	12.900	5.120	0.084	0.428
0.9	14.512	6.480	0.090	0.586
1	16.125	8.000	0.097	0.776
1.1	17.737	9.680	0.103	1.001
1.2	19.349	11.520	0.110	1.262
1.3	20.962	13.520	0.116	1.563
1.4	22.574	15.680	0.121	1.904
1.5	24.187	18.000	0.127	2.289
1.6	25.799	20.480	0.133	2.719

TABLE 5

MURDOCK'S TRAILER SALES, DETENTION POND ROUTING AND SITE DISCHARGE CALCULATIONS

PRE-DEVELOPMENT:

2 YEAR RAINFALL INTENSITY, I(2), (INCH/HR) =	0.31
100 YEAR RAINFALL INTENSITY, I(100), (INCH/HR) =	1.57
2 YEAR WEIGHTED RATIONAL RUNOFF COEFFICIENT, C(2) =	0.24
100 YEAR WEIGHTED RATIONAL RUNOFF COEFFICIENT, C(100) =	0.3
2 YEAR TIME OF CONCENTRATION, T(C,2), (MINUTES) =	66.7
100 YEAR TIME OF CONCENTRATION, T(C,100), (MINUTES) =	48.2
BASIN AREA, A (ACRES) =	8.63

POST-DEVELOPMENT, BASIN 1:

2 YEAR RAINFALL INTENSITY, I(2), (INCH/HR) =	0.31
100 YEAR RAINFALL INTENSITY, I(100), (INCH/HR) =	1.57
2 YEAR WEIGHTED RATIONAL RUNOFF COEFFICIENT, C(2) =	0.24
100 YEAR WEIGHTED RATIONAL RUNOFF COEFFICIENT, C(100) =	0.3
2 YEAR TIME OF CONCENTRATION, T(C,2), (MINUTES) =	66.7
100 YEAR TIME OF CONCENTRATION, T(C,100), (MINUTES) =	48.2
BASIN AREA, A (ACRES) =	8.1

POST-DEVELOPMENT, BASIN 2:

2 YEAR RAINFALL INTENSITY, I(2), (INCH/HR) =	0.12
100 YEAR RAINFALL INTENSITY, I(100), (INCH/HR) =	1.13
2 YEAR WEIGHTED RATIONAL RUNOFF COEFFICIENT, C(2) =	0.69
100 YEAR WEIGHTED RATIONAL RUNOFF COEFFICIENT, C(100) =	0.77
2 YEAR TIME OF CONCENTRATION, T(C,2), (MINUTES) =	115
100 YEAR TIME OF CONCENTRATION, T(C,100), (MINUTES) =	74
FOR PEAK POND DISCHARGE:	
2 YEAR AVERAGE POND DISCHARGE, Q(R,2), (CU FT/SEC) =	0.0022
100 YEAR AVERAGE POND DISCHARGE, Q(R,100), (CU FT/SEC) =	0.061
FOR PEAK BASIN 1 DISCHARGE:	
2 YEAR AVERAGE POND DISCHARGE, Q(R,2), (CU FT/SEC) =	0.00165
100 YEAR AVERAGE POND DISCHARGE, Q(R,100), (CU FT/SEC) =	0.05
BASIN AREA, A (ACRES) =	0.534
RATIO OF PEAK OUTFLOW TO PEAK INFLOW TIME, K =	2

MODIFIED RATIONAL DETENTION CHARACTERISTICS, BASIN 2

PRECIPITATION RECURRENCE INTERVAL (YEARS)	POST-DEVELOPMENT CONCENTRATION TIME GOVERNING BASIN	CRITICAL STORM DURATION (MINUTES)	CRITICAL STORM INTENSITY (INCH/HOUR)	RUNOFF RATE INTO DETENTION POND (CFS)	REQUIRED DETENTION VOLUME (CUBIC FEET)
2	2	274.53	0.09	0.03	516.51
100	2	99.66	0.89	0.36	1836.00
2	1	66.7	0.31	0.11	453.00
100	1	48.2	1.57	0.64	1726.52

SUMMARY TABLE

PRECIPITATION RECURRENCE INTERVAL (YEARS)	PRE-DEVELOPMENT FLOW RATE (CU FT/SEC)	POST-DEVELOPMENT CONCENTRATION TIME GOVERNING BASIN	POST-DEVELOPMENT STORM INTENSITY (INCH/HOUR)	POST-DEVELOPMENT BASIN 1 DISCHARGE (CU FT/SEC)	POST-DEVELOPMENT BASIN 2, DETENTION DISCHARGE (CU FT/SEC)	POST-DEVELOPMENT COMBINED DISCHARGE (CU FT/SEC)
2	0.64	2	0.09	0.17	0.004	0.174
100	4.06	2	0.89	2.16	0.11	2.27
2	0.64	1	0.31	0.60	0.003	0.603
100	4.06	1	1.57	3.82	0.09	3.91

TABLE 6

It is seen that the time of concentration for the post-development Basin 1 controls the critical combined rainfall intensity and that, under all conditions, the post-development flows are less than those for the pre-development conditions for comparable storm intensities.

Submitted by:

Western Engineers

Bruce D. Marvin, P.E.

STATE OF COLORADO
14856
REGISTERED
PROFESSIONAL ENGINEER

NOT APPROVED

Date _____ Signed _____

11-1-96

REVIEW COMMENTS

FILE #SPR-96-238 **TITLE HEADING:** Murdock Trailer Sales

LOCATION: 2173 River Road

PETITIONER: Scott Murdock

PETITIONER'S ADDRESS/TELEPHONE: 3550 SCR 5
Loveland, CO 80537
970-663-1100

PETITIONER'S REPRESENTATIVE: Lewis Hoffman

STAFF REPRESENTATIVE: Kristen Ashbeck

NOTE: THE PETITIONER IS REQUIRED TO SUBMIT FOUR (4) COPIES OF WRITTEN RESPONSE AND REVISED DRAWINGS ADDRESSING ALL REVIEW COMMENTS.

CITY COMMUNITY DEVELOPMENT **11/15/96**
Kristen Ashbeck **244-1437**

1. Parking requirement cannot be determined as it is based on total display area. Revise plan to delineate area(s) for equipment display.
2. As per Development Engineer comments, all parking and circulation areas must be paved. Is the display area by I-70 to be accessed by customers? If so, the area and the access drive to it must also be paved.
3. Landscaping in the public right-of-way between the property line and edge of pavement is required.
4. A table listing quantities, species and planting size of all proposed landscaping is required.
5. Irrigation of landscaped areas is required. Add a note to the plan that all landscaped areas will have an underground, pressurized irrigation system.
6. Based on the street frontages of Lot 1 only, the landscape requirement is 7,062 sf + 5% of the parking area (once determined). At a minimum, landscaping should be provided near the building and a row of trees planted along the I-70 frontage.
7. An Improvements Agreement and Guarantee is required for installation of the fire hydrant. See enclosed form.

CITY DEVELOPMENT ENGINEER **11/14/96**
Jody Kliska **244-1591**

1. The drainage report and plan is acceptable.
2. Section 5-1-4 of Zoning and Development Code requires all required parking and vehicular traffic areas to be paved. This means from the street connection to the required parking and maneuvering area. Once you determine the amount of required parking, you may want to re-orient your site to minimize the amount of paved area required.

Min. driveway - Jody Hall

CITY UTILITY ENGINEER **11/15/96**
Trent Prall **244-1590**

Please contact Jodi Romero of the City Customer Service Division at 244-1520 for information regarding sewer plant investment fees.

CITY FIRE DEPARTMENT **11/14/96**
Hank Masterson **244-1414**

1. Place the fire hydrant at the entrance to your business along River Road.
2. A building permit clearance form is required from the Fire Department. A copy of this form must be submitted to the Building Department before you receive your building permit.

CITY ATTORNEY **11/12/96**
Dan Wilson **244-1505**

Gravel roads?

MESA COUNTY BUILDING DEPARTMENT **11/5/96**
Bob Lee **244-1656**

Need to allow 10-15 days for plan review and permit issuance. To expedite, submit building plans as soon as possible. City licensed general contractor is required to perform work.

PUBLIC SERVICE COMPANY **11/6/96**
Tom Boughton **244-2675**

GAS & ELECTRIC: no objections.

GRAND JUNCTION DRAINAGE DISTRICT **11/11/96**
John Ballagh **242-4343**

See Grand Junction Drainage District response to Minor Subdivision, #MS-96-239.

UTE WATER **11/6/96**
Gary Mathews **242-7491**

1. No objections.
2. Construction plans required 48 hours before development begins.
3. Policies and fees in effect at the time of application will apply.

RESPONSES TO REVIEW COMMENTS

FILE #SPR-96-238
Murdock Trailer Sales
2173 River Road

December 6, 1996

CITY COMMUNITY DEVELOPMENT
We have made the site plan revisions pursuant to our meeting of 11-20-96.
1. Revised plan to show 4 parking spaces and delineation of display area.
2. Revised plan to show paved areas.
3-6. Revised plan to show landscaping as agreed upon.
7. We are bidding the work and will provide the agreement prior to site plan final approval.

CITY DEVELOPMENT ENGINEER
2. Revised plan per comment.

CITY FIRE DEPARTMENT
1. The revised plan has moved the building closer the hydrant so the hydrant can remain where it is to accommodate future plans for this property.

Other agency review comments were either statements of facts or were responded to in our revisions to the site plan.

Temporary Co.O. good for 1 week from date of issuance

CERTIFICATE OF OCCUPANCY

BUILDING DEPARTMENT
CITY OF GRAND JUNCTION
(OR MESA COUNTY)

PERMIT # 58767 *DATE* 3-20-97

PERMISSION IS HEREBY GRANTED TO Ford Const *TO OCCUPY THE*

BUILDING SITUATED AT 2173 River Rd.

LOT ______ *BLOCK* ______ *FILING* ______ *SUBDIVISION* ______

TAX SCHEDULE NUMBER 2697-364-00-061

FOR THE FOLLOWING PURPOSE: farm Implement Sales Building

THIS CERTIFICATE ISSUED IN CONFORMITY TO SECTION 307, UNIFORM BUILDING CODE

INSPECTOR [signature]

City Planning [signature]

CERTIFICATE OF OCCUPANCY

BUILDING DEPARTMENT
CITY OF GRAND JUNCTION
(OR MESA COUNTY)

PERMIT # 58767 *DATE* 3-24-97

PERMISSION IS HEREBY GRANTED TO Ford Const *TO OCCUPY THE*

BUILDING SITUATED AT 2173 River Rd.

LOT ____ *BLOCK* ____ *FILING* ____ *SUBDIVISION* ____

TAX SCHEDULE NUMBER 2697-364-00-061

FOR THE FOLLOWING PURPOSE: farm imp. sales Building

THIS CERTIFICATE ISSUED IN CONFORMITY TO SECTION 307, UNIFORM BUILDING CODE

INSPECTOR Bob [signature]

City Planning [signature]

City of Grand Junction

Community Development Department
Planning • Zoning • Code Enforcement
250 North 5th Street
Grand Junction, CO 81501-2668

Phone: (970) 244-1430
FAX: (970) 244-1599

April 18, 1997

Scott Murdock
Murdock Trailer Sales
3550 SCR 5
Loveland, Colorado 80537

RE: SPR-96-238 Murdock Trailer Sales -2173 River Road

Dear Mr. Murdock,

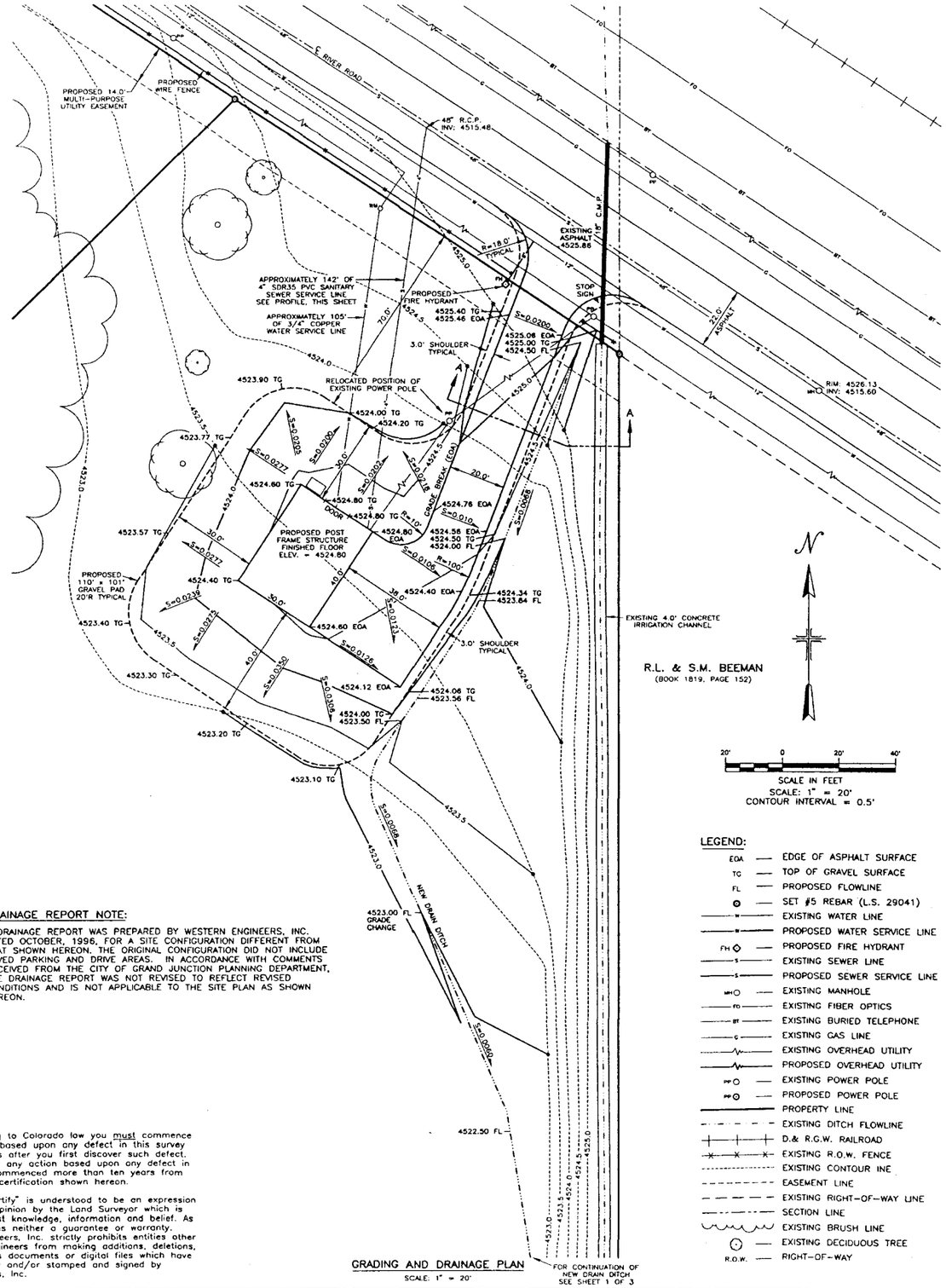
As of March 27, 1997, the Temporary Certificate of Occupancy of the new building constructed at the site mentioned above has expired. At the time it expired, you indicated that the remainder of the required site improvements, including site paving and landscaping, would be installed within a few weeks. It has been three weeks since that time and I have not heard from you as to the completion of the improvements. If you desire to continue to occupy the building, execution of a Development Improvements Agreement and Guarantee (see enclosed form) is required for the remainder of the improvements which included site paving and landscaping.

Please do not hesitate to contact me at 970/244-1437 if you have questions regarding this information.

Sincerely,

Kristen Ashbeck
Planner

encl



GRADING AND DRAINAGE PLAN
SCALE: 1" = 20'

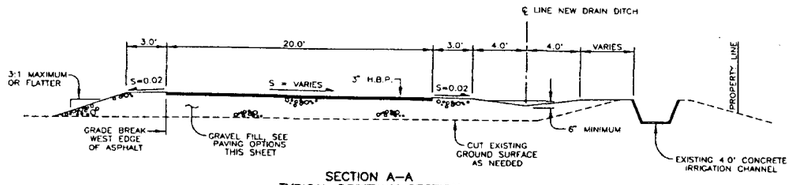
DRAINAGE REPORT NOTE:

A DRAINAGE REPORT WAS PREPARED BY WESTERN ENGINEERS, INC. DATED OCTOBER, 1996, FOR A SITE CONFIGURATION DIFFERENT FROM THAT SHOWN HEREON. THE ORIGINAL CONFIGURATION DID NOT INCLUDE PAVED PARKING AND DRIVE AREAS. IN ACCORDANCE WITH COMMENTS RECEIVED FROM THE CITY OF GRAND JUNCTION PLANNING DEPARTMENT, THE DRAINAGE REPORT WAS NOT REVISED TO REFLECT REVISED CONDITIONS AND IS NOT APPLICABLE TO THE SITE PLAN AS SHOWN HEREON.

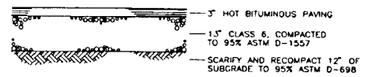
LEGEND:

- EOA — EDGE OF ASPHALT SURFACE
- TG — TOP OF GRAVEL SURFACE
- FL — PROPOSED FLOWLINE
- ⊙ — SET #5 REBAR (L.S. 29041)
- W — EXISTING WATER LINE
- W — PROPOSED WATER SERVICE LINE
- FH ◇ — PROPOSED FIRE HYDRANT
- S — EXISTING SEWER LINE
- S — PROPOSED SEWER SERVICE LINE
- MH ○ — EXISTING MANHOLE
- FO — EXISTING FIBER OPTICS
- BT — EXISTING BURIED TELEPHONE
- G — EXISTING GAS LINE
- OHU — EXISTING OVERHEAD UTILITY
- OHU — PROPOSED OVERHEAD UTILITY
- PP ○ — EXISTING POWER POLE
- PP ⊙ — PROPOSED POWER POLE
- PROPERTY LINE
- EXISTING DITCH FLOWLINE
- D.& R.G.W. RAILROAD
- EXISTING R.O.W. FENCE
- EXISTING CONTOUR INE
- EASEMENT LINE
- EXISTING RIGHT-OF-WAY LINE
- SECTION LINE
- EXISTING BRUSH LINE
- EXISTING DECIDUOUS TREE
- R.O.W. — RIGHT-OF-WAY

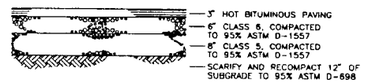
NOTICE: According to Colorado law you must commence any legal action based upon any defect in this survey within three years after you first discover such defect. In no event, may any action based upon any defect in this survey be commenced more than ten years from the date of the certification shown hereon.
NOTES:
1) The word "Certify" is understood to be an expression of Professional opinion by the Land Surveyor which is based on his best knowledge, information and belief. As such it constitutes neither a guarantee or warranty.
2) Western Engineers, Inc. strictly prohibits entities other than Western Engineers from making additions, deletions, revisions, or edits documents or digital files which have been prepared by and/or stamped and signed by Western Engineers, Inc.



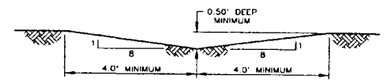
SECTION A–A
TYPICAL DRIVEWAY SECTION
SCALE: 1" = 5'



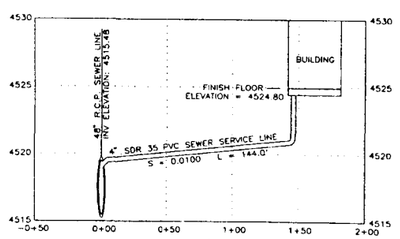
PAVING OPTION 1
SCALE: 1" = 2'



PAVING OPTION 2
SCALE: 1" = 2'



SECTION B–B
TYPICAL OUTLET DITCH SECTION
SCALE: 1" = 2'



SEWER SERVICE PROFILE
SCALE: HORIZONTAL 1" = 50'
VERTICAL 1" = 5'

RECEIVED GRAND JUNCTION PLANNING DEPARTMENT
DEC 12 1996
FINAL KEA 12/18/96

BRUCE D. MARTIN — REGISTERED — PROFESSIONAL ENGINEER — STATE OF COLORADO

12-12-96

REVISED: 12-12-96

SHEET 3 OF 3

WESTERN ENGINEERS, INC. — CONSULTING ENGINEERS / LAND SURVEYORS — 2150 Hwy 6 & 50, Grand Junction, CO (970)242-8282

GRADING AND DRAINAGE PLAN FOR THE
MURDOCK TRAILER SALES
FACILITY AT 2173 RIVER ROAD
LOCATED IN THE SOUTH 1/2 OF
SECTION 36, T1N, R2W, UTE MERIDIAN
CITY OF GRAND JCT., MESA COUNTY, COLORADO

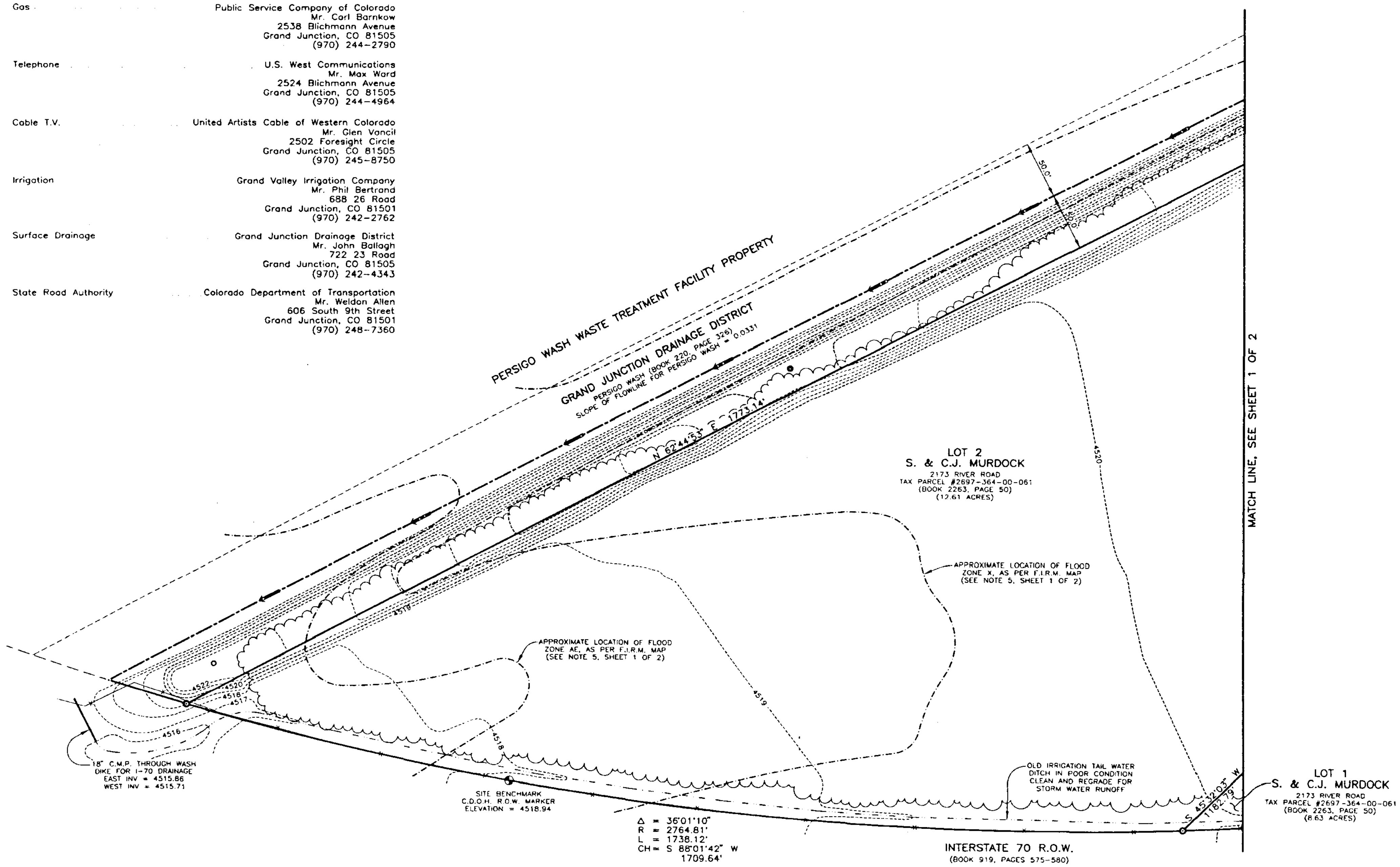
DESIGNED	M.J.L.	DRAWN	T.O.A.	CHECKED	B.D.M.
DATE	12-6-96	WEI DWG. NO.	3913-1248-2		

SUB 1001-96

MURDOCK TRAILER SALES
FACILITY SITE PLAN
PROPERTY LOCATED IN THE SOUTH 1/2 OF SECTION 36, T1N, R2W OF THE U.M.

UTILITY AUTHORITIES

Sanitary Sewer and Road Authority	City of Grand Junction Mr. Trent Prall (Utilities) Mr. Don Newton (Roads) 250 North Fifth Street Grand Junction, CO 81505 (970) 244-1555
Water	Ute Water Conservancy District Mr. Larry Clever P.O. Box 460 Grand Junction, CO 81502 (970) 242-7491
Electric	Grand Valley Rural Power Inc. Mr. Chuck Mitisek 2727 Grand Avenue Grand Junction, CO 81505 (970) 242-0040
Gas	Public Service Company of Colorado Mr. Carl Barnkow 2538 Blichmann Avenue Grand Junction, CO 81505 (970) 244-2790
Telephone	U.S. West Communications Mr. Max Ward 2524 Blichmann Avenue Grand Junction, CO 81505 (970) 244-4964
Cable T.V.	United Artists Cable of Western Colorado Mr. Glen Vancil 2502 Foresight Circle Grand Junction, CO 81505 (970) 245-8750
Irrigation	Grand Valley Irrigation Company Mr. Phil Bertrand 688 26 Road Grand Junction, CO 81501 (970) 242-2762
Surface Drainage	Grand Junction Drainage District Mr. John Ballagh 722 23 Road Grand Junction, CO 81505 (970) 242-4343
State Road Authority	Colorado Department of Transportation Mr. Weldon Allen 606 South 9th Street Grand Junction, CO 81501 (970) 248-7360



N

SCALE IN FEET
SCALE: 1" = 50'
CONTOUR INTERVAL = 1.0'

LEGEND:

- CENTERLINE PERSIGO WASH
- PROPERTY LINE
- EXISTING CONTOUR LINE
- EASEMENT LINE
- EXISTING BRUSH LINE
- CALCULATED POSITION
- CDOH R.O.W. MARKER
- SET #5 REBAR (L.S. 29041)
- FOUND 3" BRASS CAP
- FOUND REBAR (NO CAP)

SPR-1996-238

RECEIVED GRAND JUNCTION PLANNING DEPARTMENT
DEC 12 1996
FINAL KKA 12/18/96

NOTICE: According to Colorado law you must commence any legal action based upon any defect in this survey within three years after you first discover such defect. In no event, may any action based upon any defect in this survey be commenced more than ten years from the date of the certification shown hereon.

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BRUCE D. MARVIN, REGISTERED PROFESSIONAL ENGINEER, STATE OF COLORADO

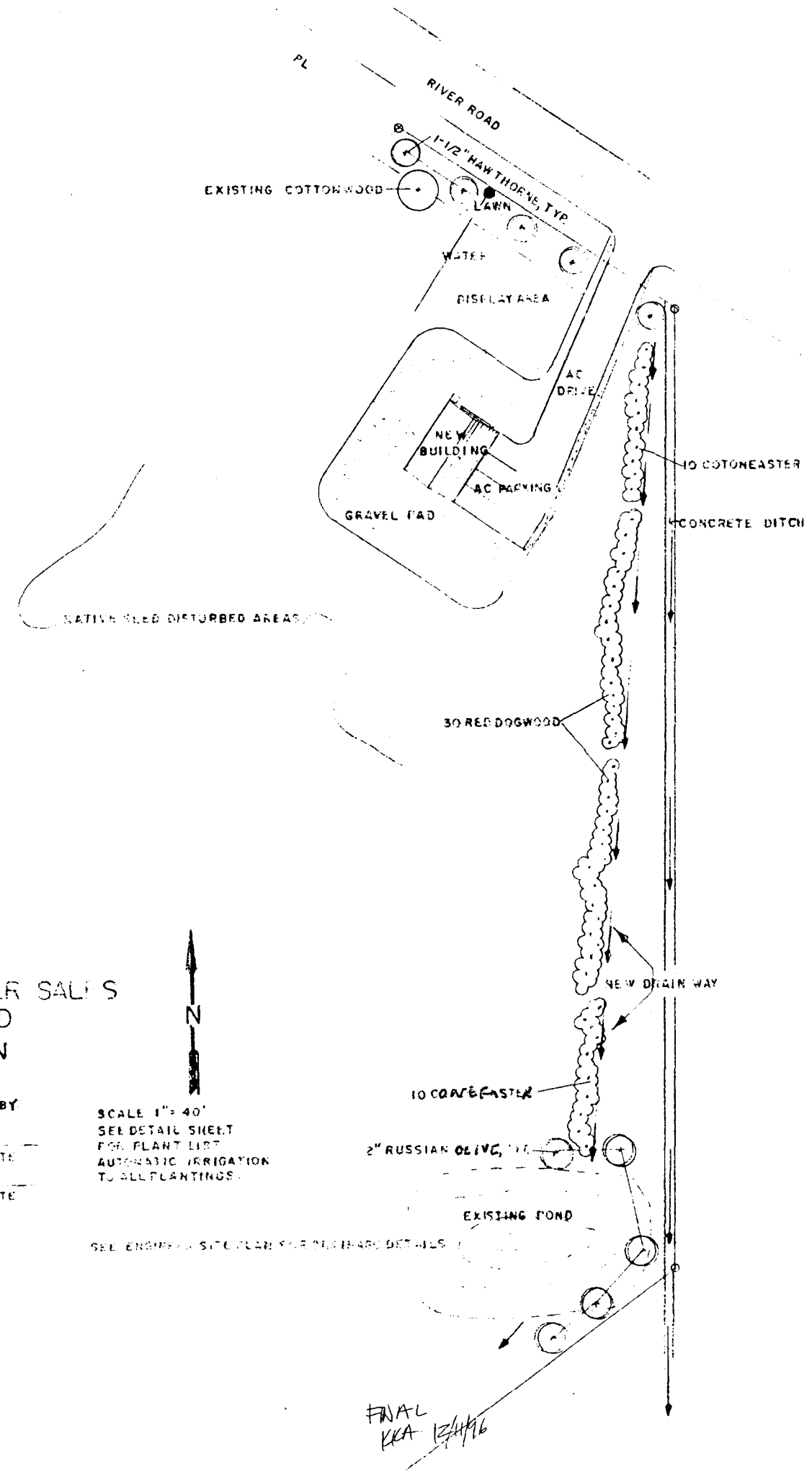
12.12.96

SHEET 2 OF 3

WESTERN ENGINEERS, INC. CONSULTING ENGINEERS / LAND SURVEYORS
2150 Hwy 6 & 50, Grand Junction, CO (970)242-5202

SITE PLAN FOR THE
MURDOCK TRAILER SALES
FACILITY AT 2173 RIVER ROAD
LOCATED IN THE SOUTH 1/2 OF
SECTION 36, T1N, R2W, UTE MERIDIAN
CITY OF GRAND JCT., MESA COUNTY, COLORADO

SURVEYED	M.J.H.	DRAWN	T.O.A.	CHECKED	M.J.L.
DATE	12-6-96	WEI DWG. NO.	3913-1248-2		



MURDOCK TRAILER SALES
2175 RIVER ROAD
LANDSCAPE PLAN

CITY OF GRAND JUNCTION
APPROVED FOR CONSTRUCTION BY

_____ TITLE _____ DATE

_____ TITLE _____ DATE

N

SCALE 1" = 40'
SEE DETAIL SHEET
FOR PLANT LIST
AUTOMATIC IRRIGATION
TO ALL PLANTINGS

CLARKE & CO
GRAND JUNCTION