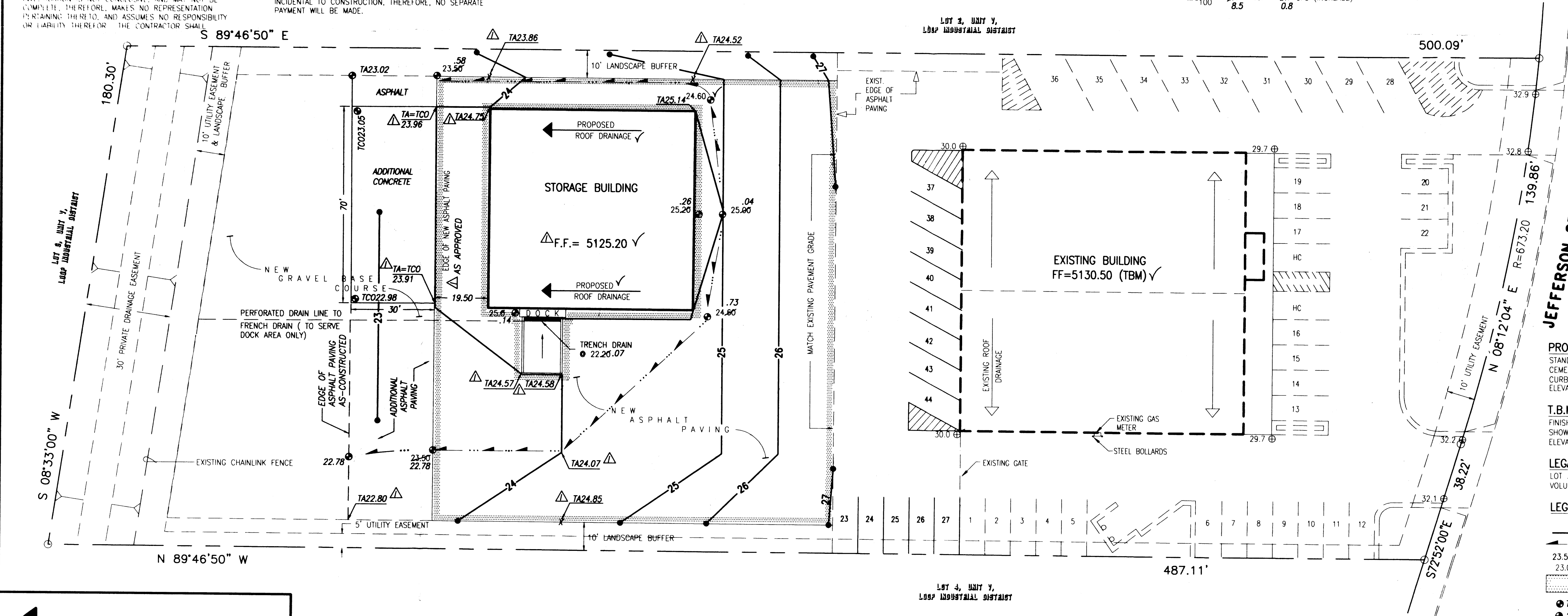




JEFF MORTENSEN & ASSOCIATES, INC.  
 6000-B MIDWAY PARK BLVD. NE  
 ALBUQUERQUE, NM 87109  
 ENGINEERS & SURVEYORS (505) 945-4250



# VICINITY MAP

SCALE: 1" = 500'

## C-17 FLOODPLAIN/WATERSHED MAP

SCALE: 1" = 500'

### PANELS 136 AND 137 OF 825

#### CONSTRUCTION NOTES

- TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT NEW MEXICO ONE CALL SYSTEM (800) 480-4800 (ALBUQUERQUE AREA), 1-800-371-ALERT(2537) (OUTSIDE AREA) FOR LOCATION OF EXISTING UTILITIES.
- PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF ALL POTENTIAL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING SO THAT THE CONFLICT CAN BE REMOVED WITH A MINIMUM AMOUNT OF DELAY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL INTERFERENCES TO MARKS WITHOUT FIRST CONTACTING THE ENGINEER AS BEING AN EASY.
- ALL WORK ON THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS, RULES AND REGULATIONS CONCERNING CONSTRUCTION SAFETY AND HEALTH.
- ALL CONSTRUCTION WITHIN PUBLIC RIGHT-OF-WAY SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE CITY OF ALBUQUERQUE STANDARDS AND PROCEDURES.
- IF ANY UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES ARE SHOWN ON THESE DRAWINGS, THEY ARE SHOWN IN AN APPROXIMATE MANNER ONLY, AND SUCH LINES MAY EXIST WHERE NONE ARE SHOWN. IF ANY SUCH EXISTING LINES ARE SHOWN, THE LOCATION IS BASED UPON INFORMATION PROVIDED BY THE OWNER OF SAID UTILITY, AND THE INFORMATION MAY BE INCOMPLETE, OR MAY BE OBSOLETE BY THE TIME OF CONSTRUCTION COMMENCEMENT. THE ENGINEER HAS CONDUCTED ONLY PRELIMINARY INVESTIGATION OF THE LOCATION, DEPTH, SIZE, OR TYPE OF EXISTING UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES. THIS INVESTIGATION IS NOT CONCLUSIVE, AND MAY NOT BE COMPLETE. THEREFORE, THE ENGINEER MAKES NO REPRESENTATION PERTAINING THERETO, AND ASSUMES NO RESPONSIBILITY OR LIABILITY THEREFOR. THE CONTRACTOR SHALL

- INFORM ITSELF OF THE LOCATION OF ANY UTILITY LINE, PIPELINE, OR UNDERGROUND UTILITY LINE IN OR NEAR THE AREA OF THE WORK IN ADVANCE OF AND DURING EXCAVATION WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE CAUSED BY ITS FAILURE TO LOCATE, IDENTIFY AND PRESERVE ANY AND ALL EXISTING UTILITIES, PIPELINES, AND UNDERGROUND UTILITY LINES. IN PLANNING AND CONDUCTING EXCAVATION, THE CONTRACTOR SHALL COMPLY WITH STATE STATUTES, MUNICIPAL AND LOCAL ORDINANCES, RULES AND REGULATIONS, IF ANY, PERTAINING TO THE LOCATION OF THESE LINES AND FACILITIES.
- THE DESIGN OF PLANTERS AND LANDSCAPED AREAS IS NOT PART OF THIS PLAN. ALL PLANTERS AND LANDSCAPED AREAS ADJACENT TO THE BUILDING(S) SHALL BE PROVIDED WITH POSITIVE DRAINAGE TO AVOID ANY PONDING ADJACENT TO THE STRUCTURE. FOR CONSTRUCTION DETAILS, REFER TO LANDSCAPING PLAN.
- EROSION CONTROL MEASURES:**
- THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE SITE INTO PUBLIC RIGHT-OF-WAY OR ONTO PRIVATE PROPERTY.
- THE CONTRACTOR SHALL PROMPTLY CLEAN UP ANY MATERIAL EXCAVATED WITHIN THE PUBLIC RIGHT-OF-WAY SO THAT THE EXCAVATED MATERIAL IS NOT SUSCEPTIBLE TO BEING WASHED DOWN THE STREET.
- THE CONTRACTOR SHALL SECURE "TOPSOIL DISTURBANCE PERMIT" PRIOR TO BEGINNING CONSTRUCTION.
- ANY AREAS OF EXCESS DISTURBANCE (TRAFFIC ACCESS, STORAGE YARD, EXCAVATED MATERIAL, ETC.) SHALL BE RE-SEEDING ACCORDING TO C.O.A. SPECIFICATION 1012 "NATIVE GRASS SEEDING". THIS WILL BE CONSIDERED INCIDENTAL TO CONSTRUCTION, THEREFORE, NO SEPARATE PAYMENT WILL BE MADE.

# DRAINAGE PLAN

## I. INTRODUCTION AND EXECUTIVE SUMMARY

THIS PROJECT, LOCATED ALONG THE JEFFERSON/I-25 CORRIDOR, REPRESENTS A MODIFICATION TO AN EXISTING SITE WITHIN AN INFILL AREA. THE DRAINAGE CONCEPT WILL BE CONSISTENT WITH THE PREVIOUSLY APPROVED SITE SPECIFIC (C17/D13A) AND MASTER DRAINAGE (C17/D12) PLANS FOR THIS SITE. THESE PRECEDING PLANS ADDRESS ONSITE AND OFFSITE FLOWS AS WELL AS DOWNSTREAM CAPACITY. THE SITE WILL DISCHARGE ITS RUNOFF TO AN EXISTING PRIVATE DRAINAGE EASEMENT THAT OUTFALLS TO THE DOMINGO BACA ARROYO TO THE SOUTH OF THE SITE.

THIS SUBMITTAL IS MADE IN SUPPORT OF A BUILDING PERMIT FOR THE PROPOSED ADDITION.

## II. PROJECT DESCRIPTION

AS SHOWN BY THE VICINITY MAP, THE SITE IS LOCATED ON THE WEST SIDE OF JEFFERSON NE JUST SOUTH OF ALAMEDA BLVD. NE. THE CURRENT LEGAL DESCRIPTION IS LOT 3, LOOP INDUSTRIAL DISTRICT, UNIT V, AS SHOWN BY PANEL 137 OF 825 OF THE NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAPS PUBLISHED BY FEMA FOR BERNALILLO COUNTY, NEW MEXICO, SEPTEMBER 20, 1996. THIS SITE DOES NOT LIE WITHIN NOR ADVERSELY IMPACT A DESIGNATED FLOOD HAZARD ZONE (ZONE A).

## III. BACKGROUND DOCUMENTS

THE FOLLOWING IS A BRIEF LIST OF DRAINAGE PLANS RELEVANT TO THE DEVELOPMENT OF THIS SITE:

- MASTER DRAINAGE PLAN PREPARED BY LEEDSHILL HERKENHOFF (C17/D12). THIS PLAN STATES THAT "LOTS 1-11 SHALL BE DEVELOPED SUCH THAT ONSITE STORM WATERS FLOW WEST INTO THE PRIVATE DRAINAGE EASEMENT AND FROM THERE INTO THE DOMINGO BACA ARROYO THROUGH A SOFT LINED CHANNEL. THERE IS NO PONDING REQUIREMENT FOR ANY OF THESE LOTS PROVIDED THEY CONFORM TO THE EXTENT OF DEVELOPMENT AS MENTIONED UNDER "GENERAL" AND "RECOMMENDATIONS". THESE RECOMMENDATIONS STATE THAT THE TOTAL IMPERVIOUS LAND TREATMENT CANNOT EXCEED 73% OR ELSE ONSITE DETENTION IS REQUIRED."
- GRADING AND DRAINAGE PLAN (C17/D13A) FOR "OFFICE & WAREHOUSE FOR RICO INC." DATED 12-11-84 PREPARED BY FRANK D. LOVELODY FOR G.W. WALKER & COMPANY. THIS PLAN VALIDATES THE DRAINAGE CONCEPTS SET FORTH BY THE MASTER DRAINAGE PLAN AND ESTABLISHES THE EXISTING CONDITIONS OF THE SITE.

## IV. EXISTING CONDITIONS

AT PRESENT, THE SITE IS PARTIALLY DEVELOPED AS AN OFFICE WAREHOUSE FACILITY WITH PAVING AND LANDSCAPING. THE REAR PORTION OF THE SITE CURRENTLY SERVES AS A CONSTRUCTION YARD. THE SITE SLOPES FROM EAST TO WEST AND DISCHARGES ITS DEVELOPED RUNOFF TO AN EXISTING PRIVATE DRAINAGE EASEMENT LOCATED ALONG THE WEST PROPERTY LINE OF THE SITE. FROM THIS POINT, RUNOFF FLOWS SOUTH WITHIN THE SOFT LINED EASEMENT TO ENTER THE DOMINGO BACA ARROYO, THE OUTFALL.

## V. DEVELOPED CONDITIONS

THE PROPOSED DEVELOPMENT CONSISTS OF A DETACHED BUILDING ADDITION WITH ASSOCIATED PAVING AND LANDSCAPING. THE ADDITION IS LOCATED AT THE REAR OF THE PROPERTY BEHIND THE EXISTING BUILDING IN WHAT IS NOW CONSTRUCTION YARD. ROOF RUNOFF WILL BE DIRECTED TO THE WEST AND DISCHARGED ONTO NEW ASPHALT PAVING. FROM THIS POINT, THE RUNOFF GENERATED BY THE NEW PAVING AND ROOF AREA WILL SHEETFLOW ACROSS NEW GRAVEL BASE COURSE TO ENTER THE EXISTING PRIVATE DRAINAGE EASEMENT AT THE WEST SIDE OF THE SITE. FROM THIS POINT, THE RUNOFF WILL FOLLOW THE PATTERN DESCRIBED ABOVE UNDER "EXISTING CONDITIONS".

## VI. GRADING PLAN

THE GRADING PLAN SHOWS 1.) EXISTING GRADES INDICATED BY SPOT ELEVATIONS AND CONTOURS AT 1'-0" INTERVALS COMPILED FROM THE PREVIOUSLY APPROVED GRADING AND DRAINAGE PLAN, 2.) PROPOSED GRADES INDICATED BY SPOT ELEVATIONS AND CONTOURS AT 1'-0" INTERVALS, 3.) THE LIMIT AND CHARACTER OF THE EXISTING IMPROVEMENTS COMPILED FROM THE PREVIOUSLY APPROVED GRADING AND DRAINAGE PLAN, 4.) THE LIMIT AND CHARACTER OF THE PROPOSED IMPROVEMENTS, AND 5.) CONTINUITY BETWEEN EXISTING AND PROPOSED GRADES. THIS PLAN ILLUSTRATES THE DRAINAGE PATTERNS DESCRIBED IN THE SECTION ABOVE.

## VII. CALCULATIONS

THE CALCULATIONS WHICH APPEAR HEREON ANALYZE BOTH THE EXISTING AND DEVELOPED CONDITIONS FOR THE 100-YEAR, 6-HOUR RAINFALL EVENT. THE PROCEDURE FOR 40 ACRE AND SMALLER BASINS, AS SET FORTH IN THE REVISION OF SECTION 22.2, HYDROLOGY OF THE DEVELOPMENT PROCESS MANUAL, VOLUME 2, DESIGN CRITERIA, DATED JANUARY, 1993, HAS BEEN USED TO QUANTIFY THE PEAK RATE OF DISCHARGE AND VOLUME OF RUNOFF GENERATED. AS SHOWN BY THESE CALCULATIONS, THERE WILL BE A SLIGHT INCREASE IN RUNOFF ASSOCIATED WITH THE PROPOSED CONSTRUCTION. FURTHERMORE, COMBINED PERCENTAGE OF EXISTING AND PROPOSED IMPERVIOUS LAND TREATMENT FALLS BELOW THE THRESHOLD VALUE SET FORTH IN THE MASTER DRAINAGE PLAN. THIS PLAN DEMONSTRATES 69% IMPERVIOUSNESS COMPARED WITH AN ALLOWABLE PERCENTAGE OF 73%.

## VIII. CONCLUSION

THE CONTINUED FREE DISCHARGE OF RUNOFF FROM THIS SITE TO THE DOMINGO BACA ARROYO IS APPROPRIATE DUE TO FOLLOWING FACTORS:

- MODIFICATION TO AN EXISTING SITE WITHIN AN INFILL AREA
- NEGIGIBLE INCREASE IN DEVELOPED RUNOFF
- PROXIMITY TO DOWNSTREAM FACILITIES AND APPARENT DOWNSTREAM CAPACITY
- CONFORMANCE WITH PREVIOUSLY APPROVED PLANS
- NO IMPACT ON DOWNSTREAM FLOOD ZONES

THE PRIVATE DRAINAGE EASEMENT REFERENCED ABOVE IS OWNED, OPERATED AND MAINTAINED BY EACH UNDERLYING PROPERTY OWNER. THE DOMINGO BACA ARROYO IS PUBLICLY OWNED, OPERATED AND MAINTAINED.

# CALCULATIONS

## I. SITE CHARACTERISTICS

- PRECIPITATION ZONE = 2
- $P_{6,100} = P_{360} = 2.35$  IN.
- TOTAL AREA ( $A_T$ ) = 88,310 SF/2.03 AC
- EXISTING LAND TREATMENT

TREATMENT	AREA (SF/AC)	%
B	4,350/0.11	05
C	45,370/1.04	52
D	38,500/0.88	43

## II. EXISTING CONDITION

### A. VOLUME

$$E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D) / A_T$$

$$E_W = [(0.78)(0.11) + (1.13)(1.04) + (2.12)(0.88)] / 2.03 = 1.54$$

$$V_{100} = (E_W / 12) A_T$$

$$V_{100} = (1.54 / 12) 2.03 = 0.2605$$

### B. PEAK DISCHARGE

$$Q_P = Q_{PA} A_A + Q_{PB} A_B + Q_{PC} A_C + Q_{PD} A_D$$

$$Q_P = Q_{100} = (2.28)(0.11) + (3.14)(1.04) + (4.70)(0.88) = 7.7$$

## III. DEVELOPED CONDITION

### A. VOLUME

$$E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D) / A_T$$

$$E_W = [(0.78)(0.25) + (1.13)(0.87) + (2.12)(1.41)] / 2.06 = 1.80$$

$$V_{100} = (E_W / 12) A_T$$

$$V_{100} = (1.80 / 12) 2.03 = 0.3039$$

### B. PEAK DISCHARGE

$$Q_P = Q_{PA} A_A + Q_{PB} A_B + Q_{PC} A_C + Q_{PD} A_D$$

$$Q_P = Q_{100} = (2.28)(0.25) + (3.14)(0.87) + (4.70)(1.41) = 8.5$$

## IV. COMPARISON

$$\Delta V_{100} = 12.820 - 11.350 = 1.470$$

$$\Delta Q_{100} = 8.5 - 7.7 = 0.8$$

# ENGINEER'S CERTIFICATION

AS INDICATED BY THE AS-BUILT INFORMATION SHOWN HEREON, THIS PROJECT HAS BEEN GRADED AND DRAINED IN SUBSTANTIAL COMPLIANCE WITH THE APPROVED PLAN. ADDITIONAL PAVING HAS BEEN ADDED AT THE WEST OF THE NEW BUILDING. THIS DEVIATION FROM THE APPROVED PLAN RAISED THE PERCENTAGE OF IMPERVIOUS AREA TO 75 %, JUST BARELY ABOVE THE MAXIMUM ALLOWABLE THRESHOLD OF 73 %. TO EVALUATE THIS CHANGE, THE CALCULATIONS HEREON HAVE BEEN REVISED AND REVEAL THAT THE IMPACT OF THIS DEVIATION IS INSIGNIFICANT. IT IS BASED UPON THIS EVALUATION OF AS-CONSTRUCTED CONDITIONS THAT ISSUANCE OF A PERMANENT CERTIFICATE OF OCCUPANCY IS HEREBY RECOMMENDED. THE AS-BUILT INFORMATION HAS BEEN OBTAINED BY ME OR UNDER MY DIRECT SUPERVISION AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. THE AS-BUILT INFORMATION IS NOT NECESSARILY COMPLETE AND INTENDED ONLY TO VERIFY SUBSTANTIAL COMPLIANCE OF THE GRADING AND DRAINAGE ASPECTS OF THIS PROJECT. THOSE RELYING ON THIS RECORD DOCUMENT ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY BEFORE USING IT FOR ANY OTHER PURPOSE.

JEFFREY G. MORTENSEN, N.M.P.E. 8547

10-14-99

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AS-BUILT AND CERTIFY

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reviewed by J.G.M.

date 10-14-99

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drawing name

**GRADING AND DRAINAGE PLAN**

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