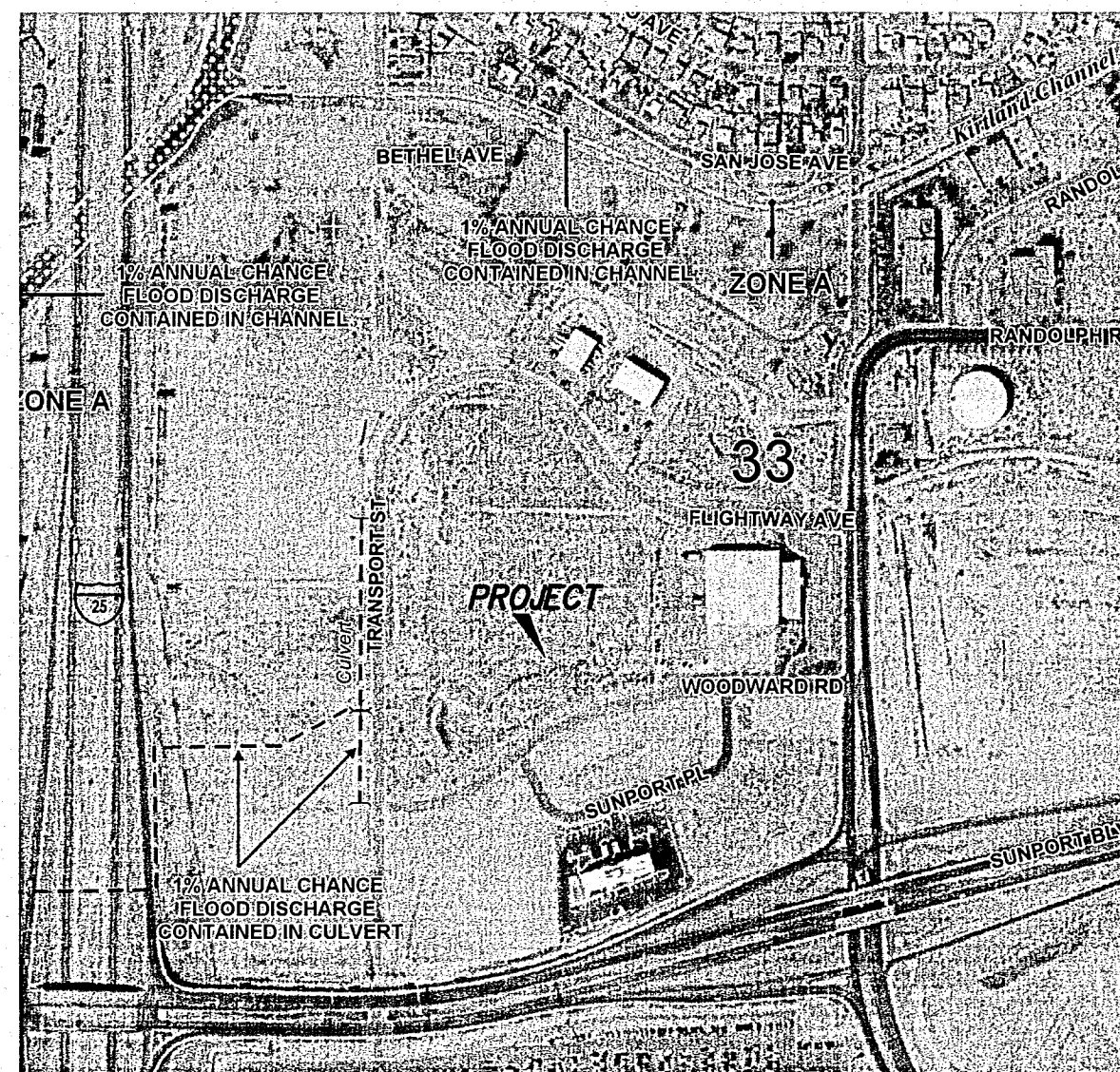




FIRM MAP PANEL 35001C0342 G

GRADING & DRAINAGE PLAN

THE LIGHT INDUSTRIAL ZONED PROJECT IS LOCATED IN THE DEVELOPED SUNPORT PARK SUBDIVISION (AIRPORT AREA) APPROX. 2 MILES SOUTH OF THE DOWNTOWN CORE OF ALBUQUERQUE, NM. THE GRADING & DRAINAGE SCHEME HEREON IS IN COMPLIANCE WITH THE BERNALILLO COUNTY FLOOD HAZARD ORDINANCE, NO. 88-46, AND THE CITY STORM DRAINAGE ORDINANCE. THE PLAN IS REQUIRED IN ORDER TO FACILITATE THE OWNER'S REQUEST FOR EXCAVATION AND GRADING PERMIT. THE PLAN SHOWS:

- EXISTING CONTOURS, AND SPOT ELEVATIONS AND EXISTING DRAINAGE PATTERNS AND EXISTING IMPROVEMENTS, INCLUDING SURFACE UTILITIES/EASEMENTS.
- PROPOSED IMPROVEMENTS: 85% IMPERVIOUS HOTEL - RESTAURANT SITE DEVELOPMENT, NEW GRADE ELEVATIONS, PERIMETER SILT FENCING AND REVEGETATION
- CONTINUITY BETWEEN EXISTING AND PROPOSED ELEVATIONS.
- QUANTIFICATION AND ANALYSIS OF UPSTREAM OFF-SITE FLOWS (IF APPLICABLE) PLUS THE DEVELOPED FLOWS GENERATED BY THE IMPROVEMENTS, INCLUDING PONDING REQUIREMENTS.

THE PURPOSE OF THE PLAN IS TO ESTABLISH CRITERIA FOR CONTROLLING STORM RUNOFF AND EROSION, AND ESSENTIALLY ALLOWING HISTORIC FLOWS TO CONTINUE TO DRAIN THROUGH THE PROPERTY. PRESENTLY, THE SITE IS BOUNDED ON ALL SIDES BY UNDEVELOPED PROPERTY. WOODWARD RD ON THE SOUTH IS AN IMPROVED ASPHALT MAJOR LOCAL ROADWAY MAINTAINED BY THE CITY OF ALBUQUERQUE. THE SITE CURRENTLY DRAINS AT APPROXIMATELY 7% TO THE WEST.

HISTORICAL SITE RUNOFF OUTFALL LOCATIONS WILL REMAIN UNCHANGED. THE SITE IS NOT IMPACTED ADVERSELY BY ANY OFF-SITE DRAINAGE FLOWS.

FREE DISCHARGE OF DEVELOPED FLOW IS NOT ACCEPTABLE SINCE THE SITE LIES WITHIN THE OVERALL MASTERPLAN FOR THE SUNPORT PARK REGIONAL AREA. RUNOFF WILL NOT BE ALLOWED TO CONCENTRATE AT THE PROPERTY BOUNDARY. THE NORTH BASIN SHALL DRAIN TO THE DETENTION POND WITH CONTROLLED OUTLET SIZED FOR HISTORIC - THE SOUTH BASIN SHALL DRAIN TO THE DRIVEPAD, ROUTING RUNOFF THRU DEPRESSED LANDSCAPE AREAS.

CALCULATIONS

DESIGN CRITERIA

HYDROLOGIC METHODS PER SECTION 22.2, HYDROLOGY OF THE DEVELOPMENT PROCESS MANUAL (DPM) REVISED JANUARY 1993 FOR CITY OF ALBUQUERQUE ADOPTED BY THE COUNTY OF BERNALILLO
DISCHARGE RATE: $Q = Q_{PEAK} \times AREA$. "Peak Discharge Rates For Small Watersheds"
VOLUMETRIC DISCHARGE: $VOLUME = E_{WEIGHTED} \times AREA$
 $P100 = 2.35$ Inches, Zone 2 Time of Concentration, $TC = 10$ Minutes
DESIGN STORM: 100-YEAR/6-HOUR, 10-YEAR/6-HOUR $[] = 10$ YEAR VALUES

HISTORIC CONDITIONS

TOTAL AREA = 2 ACRES, WHERE EXCESS PRECIP. 'B' = 0.78 in. [0.28]
PEAK DISCHARGE, $Q100 = 4.56$ CFS [1.9] WHERE UNIT PEAK DISCHARGE 'B' = 2.28CFS/AC. [0.95]
THEREFORE: $VOLUME 100 = 5663$ CF [2033]

EXISTING CONDITIONS - INTERIM WITH PORTION SITE REVEGETATED

DETERMINE LAND TREATMENTS, PEAK DISCHARGE AND VOLUMETRIC DISCHARGE FOR STUDY AREA

AREA	LAND TREATMENT	Q_{PEAK}	E
UNDEVELOPED	Ac.	1.56[0.38]	0.53[0.13]
LANDSCAPING	Ac.(0%)	2.28[0.95]	0.78[0.28]
GRAVEL & COMPACTED SOIL	2.03 Ac.(100%)	3.14[1.71]	1.13[0.52]
ROOF - PAVEMENT	Ac.(0%)	4.70[3.14]	2.12[1.34]
	2.03 Ac.		

THEREFORE: $E_{WEIGHTED} = 1.13$ in.[0.52] & $Q100 = 6.3$ CFS
 $Q10 = 3.4$ CFS

RECOMMEND: MINIMAL INCREASE, THEREFORE ENSURE THAT HIGH VELOCITY FLOWS ARE NOT ALLOWED AT THE BOUNDARY, AND NO CONCENTRATION OF FLOWS CROSS BOUNDARY. RETENTION OF THE INCREASE OF RUN-OFF DUE TO THE INTERIM DEVELOPMENT.

DEVELOPED CONDITIONS - HOTEL - RESTAURANT

DETERMINE LAND TREATMENTS, PEAK DISCHARGE AND VOLUMETRIC DISCHARGE FOR STUDY AREA

AREA	LAND TREATMENT	Q_{PEAK}	E
UNDEVELOPED	Ac.	1.56[0.38]	0.53[0.13]
LANDSCAPING	0.2 Ac.(10%)	2.28[0.95]	0.78[0.28]
GRAVEL & COMPACTED SOIL	0.1 Ac.(0.05%)	3.14[1.71]	1.13[0.52]
ROOF - PAVEMENT	1.7 Ac.(85%)	4.70[3.14]	2.12[1.34]
	2.0 Ac.		

THEREFORE: $E_{WEIGHTED} = 1.94$ in.[0.52] & $Q100 = 8.76$ CFS
 $Q10 = 3.4$ CFS
THEN: N. BASIN, $Q100 = 6.1$ CFS, $VOL.100 = 9859$ CF
S. BASIN (FREE DISCHARGE) = 2.6 CFS, $VOL.100 = 4225$ CF

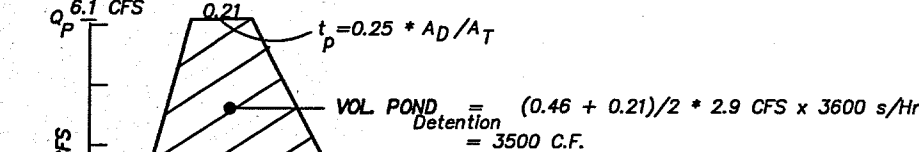
WEIR CALC.

$Q = CLH^{3/2}$ WHERE: $C = 2.7$
THEN: $L = 6.5'$ $H = 6"$ $Q = 6$ CFS

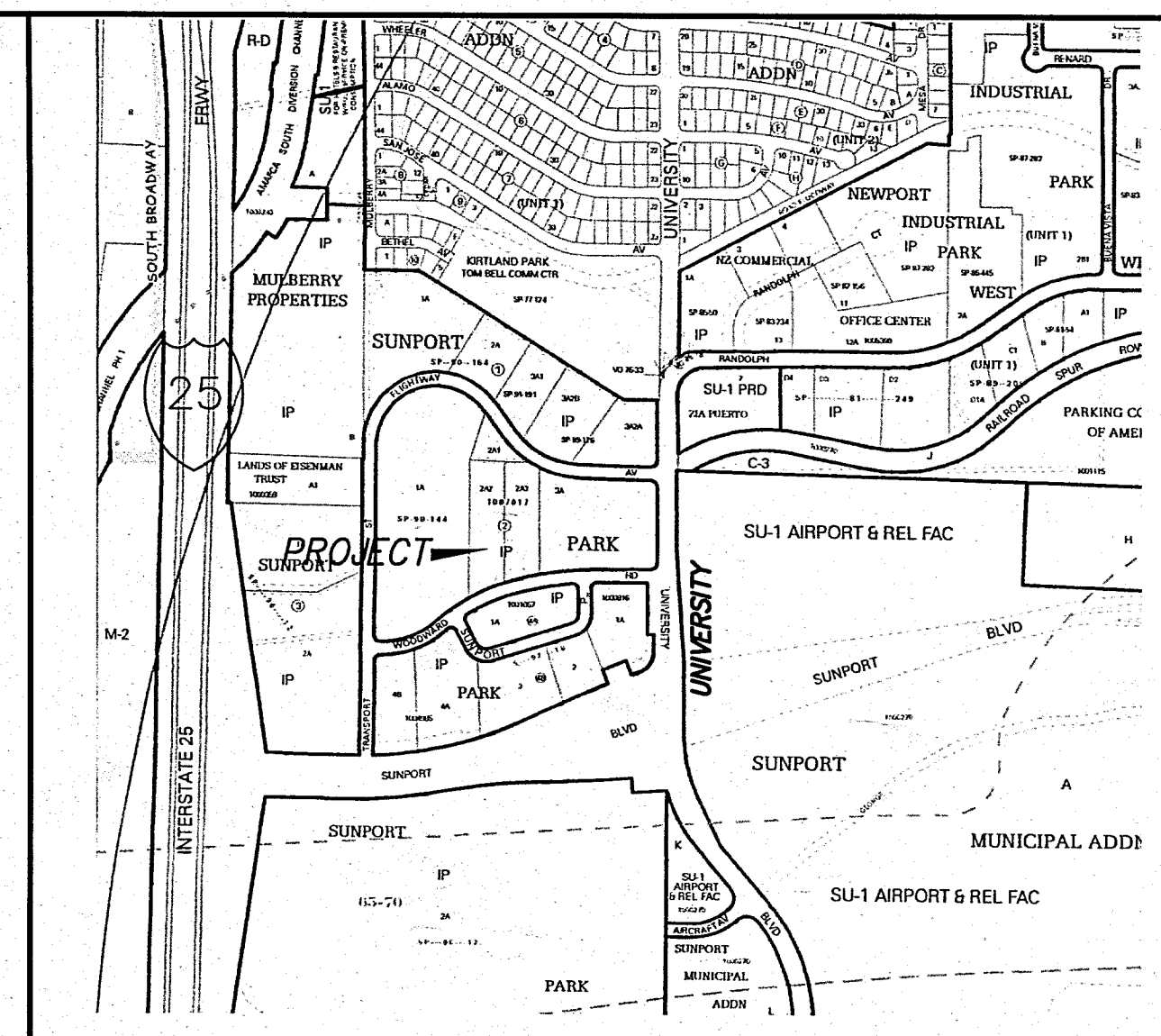
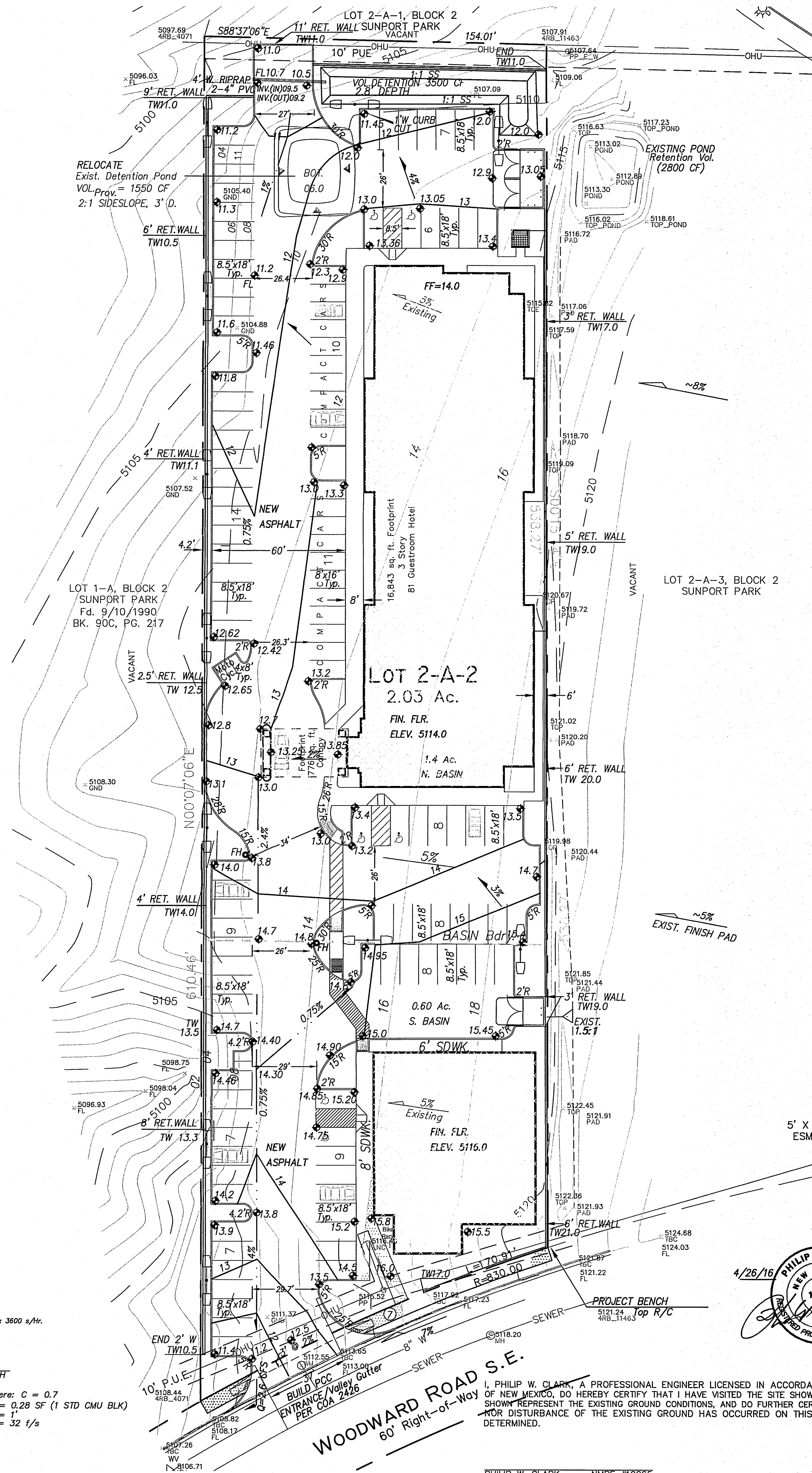
FIRST FLUSH - TOTAL SITE, $0.34"/12 \times 1.7/43560$
= 2098 CF (STORE BELOW PIPE & ROUTE S. BASIN THRU DEPRESSED LANDSCAPE AREAS)

DETERMINE POND SIZE

DETENTION POND PER HYDROGRAPH & DPM, Section A.8
STORAGE VOLUME (Required) = VOLUME AREA ABOVE ALLOWABLE RELEASE = 8435 CF



$Q_{PEAK} = 6.1$ CFS
 $Q_{RELEASE} = 3.4$ CFS
TURN 2-BLKS.
SIZE OUTLET BLK: $Q = CA \sqrt{2gH}$
Where: $C = 0.7$
 $A = 0.28$ SF (1 STD CMU BLK)
 $H = 1'$
 $g = 32$ f/s



ZONE M15

VICINITY MAP

NOTES

- ALL WORK WITHIN THE RIGHT-OF-WAY SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF ALBUQUERQUE STANDARD SPECS. FOR PUBLIC WORKS CONSTRUCTION, 1986 EDITION W/ 9 UPDATES.
- AN EXCAVATION/CONSTRUCTION PERMIT IS REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY R.O.W. AN APPROVED COPY OF THIS PLAN MUST BE SUBMITTED AT THE TIME OF APPLICATION.
- 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.
- CONTRACTOR SHALL ENSURE THAT NO SITE SOILS/SEDIMENT OR SILT ENTER THE RIGHT-OF-WAYS DURING CONSTRUCTION.
- REVEGETATE ALL AREAS DISTURBED DUE TO CONSTRUCTION PER CITY OF ALBUQ. SPEC. 1012, NATIVE SEED MIX USING HAY MULCH, FOR EAST SIDE APPLICATION, HATCHITA BLUE GRAMA DOMINANT MIX PER PARAGRAPH 4.1.2.
- MAXIMUM SITE GRADING WITHOUT EROSION PROTECTION:
3 HORIZONTAL TO 1 VERTICAL, 3:1.
- BUILD 6" PCC SIDEWALK PER COA STD DWG. 2430.

LEGEND

EXIST. SPOT ELEVATION	+24.0
EXIST. CONTOUR	-5310
NEW SPOT ELEVATION	12.0 (ADD 5100 FOR MSL)
NEW CONTOUR	12
NEW SWALE	---
DRAINAGE DIRECTION, EXISTING	---
NEW P.C.C., CONCRETE	FL
FLOWLINE	FL
WATER BLOCK	---
RIPRAP STONE	8" BURY
TYP. VVL, 4" Avg. Dia.	---

Scale: 1" = 30'

PROJECT DATA

UPC# 1-015-055-183-234-30410

LEGAL DESCRIPTION

LOT 2-A-2, SUNPORT PARK
ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO

PROJECT BENCHMARK

TOP OF REBAR/CAP AT THE PROJECT SOUTHEAST CORNER MSL ELEVATION = 5121.24, AS TIED FROM AMAFCA SDC 3-1/4" DIAMETER ALUM DISK SET IN CONCRETE, SDC-11-2, MSL, NAVD 88, 5001.66, LOCATED

TOPOGRAPHIC DESIGN SURVEY

PROVIDED BY ALPHA PRO SURVEYING, LLC, DATED APRIL 2014, AND SUPPLEMENTED MAR. 2016.

Clark Consulting Engineers
19 Ryan Road
Edgewood, New Mexico 87015

DATE	REVISION	LOT 2-A-2, BLOCK 2, SUNPORT PARK ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO SUNPORT PARK HOSPITALITY / KUMAR Grading & Drainage Plan
DESIGNED BY: PWC	DRAWN BY: CCE	JOB #: YOGASH
CHECKED BY: PWC	DATE: 3/04/16	FILE #: G/D

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