CITY OF ALBUQUERQUE



January 22, 2018

J. Graeme Means, P.E. High Mesa Consulting Group 6010 B Midway Park Blvd NE Albuquerque, NM 87109

RE: Good to Go: Broadway 1401 Broadway Blvd. SE Grading and Drainage Plan Engineer's Stamp Date 1/17/2018 (File: L14D022)

Dear Mr. Means:

Based on the information provided in your submittal received on1/18/18, this plan is approved for Building Permit.

If you have any questions, please contact me at 924-3986 or e-mail at jhughes@cabq.gov. PO Box 1293

Albuquerque

NM 87103

www.cabq.gov

Sincerely,

James D. Hughes P.E. Principal Engineer, Planning Dept. Development Review Services

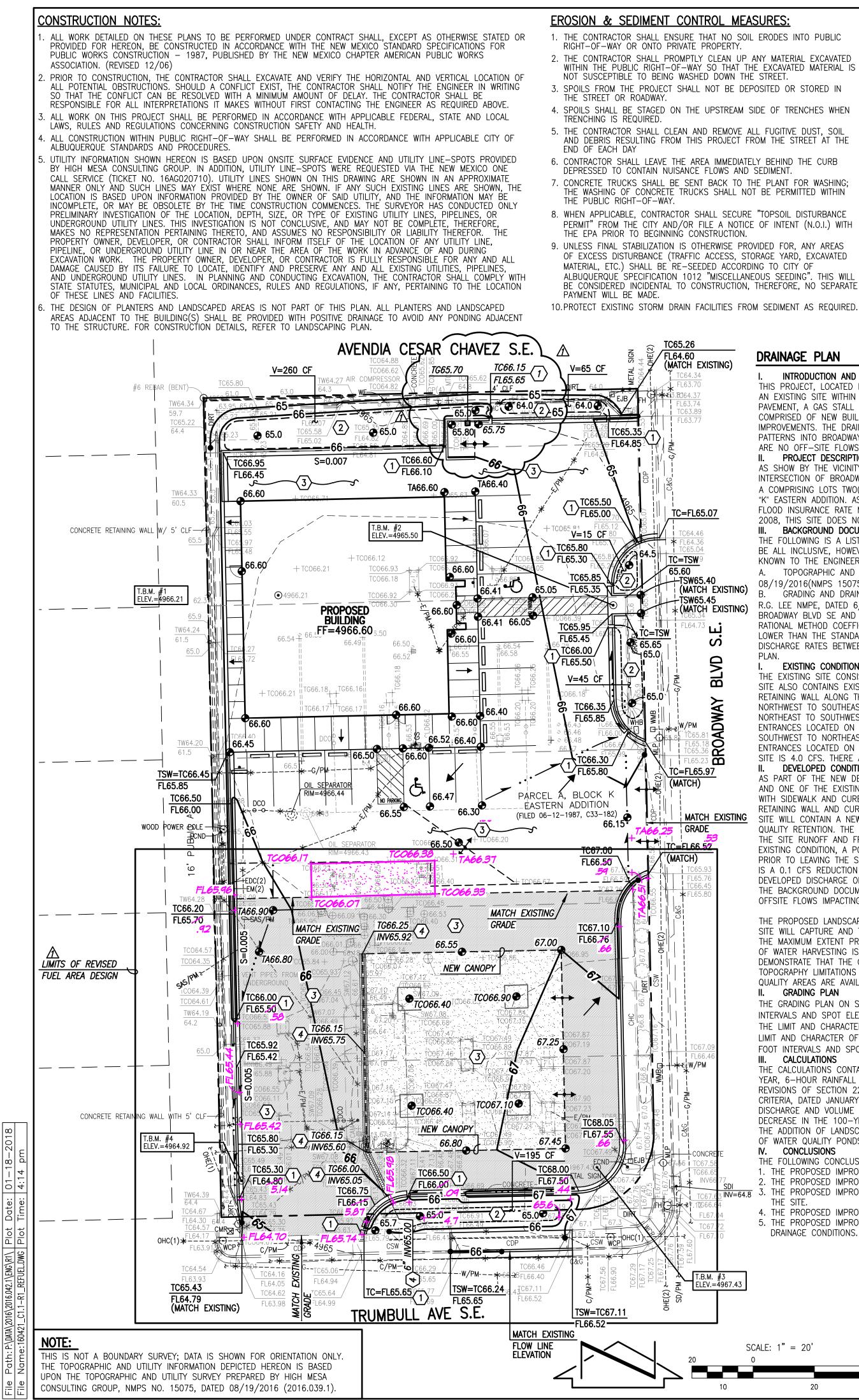


City of Albuquerque

Planning Department Development & Building Services Division DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 10/2015)

Project Title:	Building Pe	rmit #: Hydrology File #:	
DRB#:	EPC#:	Work Order#:	
Legal Description:			
City Address:			
Applicant:		Contact:	
Address:			
		Fax#:E-mail:	
Other Contact:		Contact:	
Address:			
		E-mail:	
Check all that Apply:			
DEPARTMENT: HYDROLOGY/ DRAINAGE TRAFFIC/ TRANSPORTATION MS4/ EROSION & SEDIMENT CONTROL		TYPE OF APPROVAL/ACCEPTANCE SOUGHT: BUILDING PERMIT APPROVAL CERTIFICATE OF OCCUPANCY	
TYPE OF SUBMITTAL: ENGINEER/ARCHITECT CERTIFICATION CONCEPTUAL G & D PLAN		PRELIMINARY PLAT APPROVAL SITE PLAN FOR SUB'D APPROVAL SITE PLAN FOR BLDG. PERMIT APPROVAL FINAL PLAT APPROVAL	
GRADING PLAN DRAINAGE MASTER PLAN DRAINAGE REPORT CLOMR/LOMR		SIA/ RELEASE OF FINANCIAL GUARANTEE FOUNDATION PERMIT APPROVAL GRADING PERMIT APPROVAL	
TRAFFIC CIRCULATION LAYOUT (TCL) TRAFFIC IMPACT STUDY (TIS) EROSION & SEDIMENT CONTROL PLAN (ESC		SO-19 APPROVAL PAVING PERMIT APPROVAL GRADING/ PAD CERTIFICATION WORK ORDER APPROVAL CLOMR/LOMR	
OTHER (SPECIFY)		PRE-DESIGN MEETING?	
IS THIS A RESUBMITTAL?:	Yes <u>No</u>	OTHER (SPECIFY)	
DATE SUBMITTED:	By:		

COA STAFF: ELECTRONIC SUBMITTAL RECEIVED:



2. THE CONTRACTOR SHALL PROMPTLY CLEAN UP ANY MATERIAL EXCAVATED WITHIN THE PUBLIC RIGHT-OF-WAY SO THAT THE EXCAVATED MATERIAL IS

4. SPOILS SHALL BE STAGED ON THE UPSTREAM SIDE OF TRENCHES WHEN

5. THE CONTRACTOR SHALL CLEAN AND REMOVE ALL FUGITIVE DUST, SOIL

7. CONCRETE TRUCKS SHALL BE SENT BACK TO THE PLANT FOR WASHING

THE WASHING OF CONCRETE TRUCKS SHALL NOT BE PERMITTED WITHIN

PERMIT" FROM THE CITY AND/OR FILE A NOTICE OF INTENT (N.O.I.) WITH

OF EXCESS DISTURBANCE (TRAFFIC ACCESS, STORAGE YARD, EXCAVATED ALBUQUERQUE SPECIFICATION 1012 "MISCELLANEOUS SEEDING". THIS WILL

DRAINAGE PLAN INTRODUCTION AND EXECUTIVE SUMMARY THIS PROJECT, LOCATED IN THE SOUTH BROADWAY AREA OF ALBUQUERQUE, REPRESENTS A MODIFICATION TO AN EXISTING SITE WITHIN AN INFILL AREA. ON A DEVELOPED SITE THAT CONTAINS AN EXISTING BUILDING, PAVEMENT, A GAS STALL CANOPY, CARWASH, AND LANDSCAPED AREAS. THE PROPOSED REDEVELOPMENT IS COMPRISED OF NEW BUILDING CONSTRUCTION, PAVING IMPROVEMENTS, LANDSCAPING, AND UTILITY IMPROVEMENTS. THE DRAINAGE PLAN FOR THIS PROJECT WILL CONTINUE TO FOLLOW EXISTING DRAINAGE PATTERNS INTO BROADWAY BLVD AND TRUMBULL AVE AND WILL REDUCE THE PEAK DISCHARGE RATE. THERE ARE NO OFF-SITE FLOWS THAT DRAIN INTO THE SITE. II. PROJECT DESCRIPTION AS SHOW BY THE VICINITY MAP ON SHEET C1.1, THE SITE LOCATED AT THE NORTHWEST CORNER OF THE INTERSECTION OF BROADWAY BLVD. SE AND TRUMBULL AVE. SE. THE CURRENT LEGAL DESCRIPTION IS PARCEL A COMPRISING LOTS TWO(2) THRU SIX(6), INCLUSIVE AND THE SOUTHERLY 18 OF LOT ONE(1), BLOCK "K" EASTERN ADDITION. AS SHOWN BY PANEL 334 OF 825 OF THE NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAPS PUBLISHED BY FEMA FOR BERNALILLO COUNTY. NEW MEXICO SEPTEMBER 26. 2008, THIS SITE DOES NOT LIE WITHIN A DESIGNATED FLOOD HAZARD ZONE BACKGROUND DOCUMENTS THE FOLLOWING IS A LIST OF DOCUMENTS RELATED TO THE SITE AND SURROUNDING AREA. THE LIST MAY NOT BE ALL INCLUSIVE. HOWEVER REPRESENTS A SUMMARY OF THE RELEVANT PLANS AND DOCUMENTS WHICH ARE KNOWN TO THE ENGINEER AT THE TIME OF THE PLAN PREPARATION. TOPOGRAPHIC AND UTILITY SURVEY PREPARED BY HIGH MESA CONSULTING GROUP (HMCG), DATED 08/19/2016(NMPS 15075). THE SURVEY DOCUMENTS THE EXISTING CONDITIONS FOR THE SITE. (MATCH EXISTING) GRADING AND DRAINAGE PLAN FOR DIAMOND SHAMROCK GAS STATION. PREPARED BY LEE ENGINEERING R.G. LEE NMPE, DATED 6/26/1987. THIS ESTABLISHED FREE DISCHARGE FROM THE DEVELOPED SITE TO (MATCH EXISTING) BROADWAY BLVD SE AND TRUMBULL AVE. SE AND A DISCHARGE RATE OF 3.69 CFS. THE PRECIPITATION DEPTH RATIONAL METHOD COEFFICIENT, AND PEAK INTENSITY USED TO CALCULATE THIS PEAK DISCHARGE RATE ARE LOWER THAN THE STANDARD VALUES USED IN THE CURRENT DPM WHICH ACCOUNTS FOR THE DIFFERENCE IN S DISCHARGE RATES BETWEEN OUR CALCULATED EXISTING RATE AND APPROVED DEVELOPED RATE SHOWN ON THIS PLAN. \mathcal{O} EXISTING CONDITIONS THE EXISTING SITE CONSISTS OF A GAS STATION BUILDING, CANOPY, CAR LOCATED WITHIN AN INFILL AREA. THE ā SITE ALSO CONTAINS EXISTING CONCRETE PAVING, CURB AND GUTTER, LANDSCAPING, AND AN EXISTING RETAINING WALL ALONG THE WEST EDGE OF THE SITE. THE SITE IS DIVIDED BY A HIGH POINT THAT RUNS NORTHWEST TO SOUTHEAST THROUGH THE SITE. THE AREA SOUTH OF THE HIGH POINT DRAINS FROM NORTHEAST TO SOUTHWEST AND FREELY DISCHARGES INTO TRUMBULL AVE THROUGH THE EXISTING DRIVEPAD ENTRANCES LOCATED ON THIS SOUTH SIDE OF THE SITE. THE AREA NORTH OF THE HIGH POINT FROM BROAL SOUTHWEST TO NORTHEAST AND FREELY DISCHARGES INTO BROADWAY BLVD. THROUGH THE EXISTING DRIVEPAD ENTRANCES LOCATED ON THIS THE EAST SIDE OF THE SITE. THE EXISTING TOTAL DISCHARGE THAT LEAVES THE SITE IS 4.0 CFS. THERE ARE NO OFFSITE FLOWS INTO THE SITE. DEVELOPED CONDITIONS AS PART OF THE NEW DEVELOPMENT THE EXISTING GAS STATION BUILDING AND CARWASH WILL BE DEMOLISHED AND ONE OF THE EXISTING DRIVE PAD ENTRANCES ALONG TRUMBULL AVE. WILL BE REMOVED AND REPLACED WITH SIDEWALK AND CURB AND GUTTER. THE EXISTING CANOPY AND GAS STALLS WILL REMAIN. THE EXISTING RETAINING WALL AND CURB ALONG THE WEST EDGE OF THE SITE WILL ALSO REMAIN UNDISTURBED. THE NEW MATCH EXISTING SITE WILL CONTAIN A NEW BUILDING, PAVEMENT, SIDEWALKS, AND DEPRESSED LANDSCAPED AREAS FOR WATER QUALITY RETENTION. THE DEVELOPED SITE WILL STILL FOLLOW THE EXISTING DRAINAGE PATTERN OF SPLITTING THE SITE RUNOFF AND FREELY DISCHARGING INTO TRUMBULL AVE AND BROADWAY BLVD BUT UNLIKE IN THE EXISTING CONDITION, A PORTION OF THE RUNOFF WILL BE DIRECTED TOWARDS DEPRESSED LANDSCAPED AREAS PRIOR TO LEAVING THE SITE. THE PROPOSED TOTAL DISCHARGE THAT LEAVES THE SITE WILL BE 3.9 CFS WHICH IS A 0.1 CFS REDUCTION TO THE EXISTING DISCHARGE. THIS RATE IS SLIGHTLY HIGHER THAN THE APPROVED DEVELOPED DISCHARGE OF 3.69 CFS BUT THIS DIFFERENCE IS ATTRIBUTABLE TO FACTORS DESCRIBED ABOVE IN THE BACKGROUND DOCUMENT SECTION. AS IN THE EXISTING CONDITION, THERE WILL CONTINUE TO BE NO OFFSITE FLOWS IMPACTING THE PROJECT SITE. THE PROPOSED LANDSCAPED WATER HARVESTING AREAS WITHIN AND AT THE PERIMETER OF THE DEVELOPED SITE WILL CAPTURE AND TREAT THE FIRST FLUSH RUNOFF GENERATED BY THE PROPOSED IMPROVEMENTS TO THE MAXIMUM EXTENT PRACTICABLE. FIRST FLUSH CALCULATIONS FOR THE DEVELOPED SITE SHOW THAT 940 CF OF WATER HARVESTING IS REQUIRED; AVERAGE END AREA METHOD CALCULATIONS FOR THE DEVELOPED SITE DEMONSTRATE THAT THE COMBINED ONSITE WATER HARVESTING AREA CAPACITY IS 580 CF. DUE TO SITE TOPOGRAPHY LIMITATIONS AND THIS BEING A PARTIAL MODIFICATION TO AN EXISTING SITE, NO ADDITIONAL WATER QUALITY AREAS ARE AVAILABLE. II. GRADING PLAN THE GRADING PLAN ON SHEET C1.1 SHOWS 1) THE EXISTING GRADES INDICATED BY THE CONTOURS AT 1 FOOT INTERVALS AND SPOT ELEVATIONS FROM THE TOPOGRAPHIC SURVEY REFERENCED ABOVE BY THIS OFFICE; 2) THE LIMIT AND CHARACTER OF EXISTING IMPROVEMENTS AS SHOWN BY THE AFOREMENTIONED SURVEY; 3) THE LIMIT AND CHARACTER OF THE PROPOSED IMPROVEMENTS; 4) PROPOSED GRADES INDICATED BY CONTOURS AT 1 FOOT INTERVALS AND SPOT ELEVATIONS; AND 5) CONTINUITY BETWEEN EXISTING AND PROPOSED GRADES. III. CALCULATIONS THE CALCULATIONS CONTAINED HEREON ANALYZE 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 REVISIONS OF SECTION 22.2, HYDROLOGY OF THE DEVELOPMENT PROCESS MANUAL, VOLUME 2, DESIGN CRITERIA, DATED JANUARY 1993 AND REVISED 1997, HAS BEEN USED TO QUANTIFY THE PEAK RATE OF DISCHARGE AND VOLUME OF RUNOFF GENERATED. AS SHOWN BY THE CALCULATIONS, THERE WILL BE A DECREASE IN THE 100-YEAR PEAK DISCHARGE AND VOLUME RUNOFF ATTRIBUTABLE TO THIS PROJECT DUE TO THE ADDITION OF LANDSCAPED AREAS. THE DISCHARGE WILL BE FURTHER REDUCED DUE TO THE CONSTRUCTION OF WATER QUALITY PONDS. IV. CONCLUSIONS THE FOLLOWING CONCLUSIONS HAVE BEEN ESTABLISHED FROM THE EVALUATIONS CONTAINED HEREIN: . THE PROPOSED IMPROVEMENTS REPRESENT MODIFICATIONS TO AN EXISTING DEVELOPED SITE. THE PROPOSED IMPROVEMENTS WILL NOT SIGNIFICANTLY ALTER THE EXISTING DRAINAGE PATTERNS ON SITE. THE PROPOSED IMPROVEMENTS WILL RESULT IN A DECREASE IN THE DEVELOPED RUNOFF GENERATED BY NV=64.8 3 THE SITE. 4. THE PROPOSED IMPROVEMENTS WILL RESULT IN A DECREASE IN THE DEVELOPED DISCHARGE RATE 5. THE PROPOSED IMPROVEMENTS WILL NOT ADVERSELY IMPACT DOWNSTREAM PROPERTIES OR DOWNSTREAM DRAINAGE CONDITIONS. T.B.M. #3 ELEV.=4967.4

(1) CONSTRUCT CURB CUT PER TYPICAL DETAIL, SHEET C3.1 DEPRESSED LANDSCAPING FOR WATER QUALITY RETENTION NEW PAVEMENT PER PAVING PLAN, SHEET C1.2 CONSTRUCT TRENCH DRAIN PER TYPICAL DETAIL, SHEET C3.1. AT DOWNSTREAM END OF TRENCH DRAIN, INSTALL AND DAYLIGHT 6" STORM DRAIN INTO EXISTING WATER QUALITY AREA. REMOVE AND REPLACE CONCRETE CURB AND GUTTER AS REQUIRED FOR OUTLET INSTALLATION.

GRADING KEYED NOTES

CALCULATIONS

- I. SITE CHARACTERISTICS
- A. PRECIPITATION ZONE = B. $P_{100, 6 HR} = P_{360} =$
- 2.4 IN 37,855 SF C. TOTAL PROJECT AREA $(A_{T}) =$
 - 0.87 AC
- D. LAND TREATMENTS 1. EXISTING LAND TREATMENT TREATMENT AREA (SF/AC) Α 2 074 SF 0.05 AC 35,781 SF 0.82 AC

2. DEVELOPED LAND TREATMENT TREATMENT AREA (SF/AC)

	А			
	В			
	С	4,534 0.10	SF	
		0.10	AC	
	D	33,321 0.76	SF	
		0.76	AC	

<u>HYDROLOGY</u>

A. EXISTING CONDITION 100 YEAR

- 1. 100-YR STORM a. VOLUME 100-YR, 6- HR
- $E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D)/A_T$
- $E_{W} = (0.53*0.00) + (0.78*0.00) + (1.13*0.05) + (2.12*0.82)/0.87 =$
- (2.07/12)0.87 = V_{100.6 HR} = (E_W/12)A_T =

b. PEAK DISCHARGE

- $\mathbf{Q}_{\mathrm{P}} = \mathbf{Q}_{\mathrm{PA}}\mathbf{A}_{\mathrm{A}} + \mathbf{Q}_{\mathrm{PB}}\mathbf{A}_{\mathrm{B}} + \mathbf{Q}_{\mathrm{PC}}\mathbf{A}_{\mathrm{C}} + \mathbf{Q}_{\mathrm{PD}}\mathbf{A}_{\mathrm{D}}$
- $Q_{P} = (1.56 * 0.00) + (2.28 * 0.00) + (3.14 * 0.05) + (4.70 * 0.82) =$

B. DEVELOPED CONDITION

. 100-YR STORM

<u>a. VOLUME</u> $E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D)/A_T$

 $E_{W} = (0.53^{*}0.00) + (0.78^{*}0.00) + (1.13^{*}0.10) + (2.12^{*}0.76)/0.87 =$ $V_{100,6 \text{ HR}} = (E_W/12)A_T = (2.00/12)0.87 =$

b. PEAK DISCHARGE

 $\mathbf{Q}_{\mathrm{P}} = \mathbf{Q}_{\mathrm{PA}}\mathbf{A}_{\mathrm{A}} + \mathbf{Q}_{\mathrm{PB}}\mathbf{A}_{\mathrm{B}} + \mathbf{Q}_{\mathrm{PC}}\mathbf{A}_{\mathrm{C}} + \mathbf{Q}_{\mathrm{PD}}\mathbf{A}_{\mathrm{D}}$ $Q_{P} = (1.56 * 0.00) + (2.28 * 0.00) + (3.14 * 0.10) + (4.70 * 0.76) =$

C. COMPARISON 100 YEAR

. 100-YR STORM

a. VOLUME 100-YR, 6-HR

ΔV_{100, 6 HR} = 6310 - 6530 = b. PEAK DISCHARGE

 $\Delta Q_{100} = 3.9 - 4.0 =$

* DOES NOT INCLUDE PONDING WHICH IS A GREATER REDUCTION. **D. FIRST FLUSH CALCULATIONS**

. RETENTION REQUIREMENT

<u>a. VOLUME</u> $V_{RQ} = ((P_{FF}-IA_D)/12)A_D$

 $V_{RQ} = ((0.44-0.10)/12)(33320.70) =$

2. WATER QUALITY PONDING PROVIDED ONSITE (BASED ON AVERAGE END AREA METHOD) $V_{CAP} = 260 + 15 + 45 + 195 + 65 =$

LEGEND	
C&G	CURB AND GUTTER
С/РМ	COMMUNICATION BY PAINT MARK
CAM	CAMERA
CHC	CONCRETE HEADER CURB
CLD	CENTERLINE OF DOOR
	CHAINLINK FENCE
	SEWER CLEANOUT
CONC	CONCRETE
CMR	COMMUNICATIONS RISER
CSW	CONCRETE SIDEWALK
DCO	DOUBLE SEWER CLEANOUT
E/PM	ELECTRIC BY PAINT MARK
	ELECTRIC CONDUIT ELECTRIC DISCONNECT SWITCH
EJB	ELECTRIC DISCONNECT SWITCH ELECTRIC JUNCTION BOX
EM	ELECTRIC METER
FH	FIRE HYDRANT
FL	FLOWLINE
	FUEL PUMP
	GAS BY PAINT MARK
GM	GAS METER
GP	STEEL GUARD POST
GRV	GRAVEL
GS	GAS SERVICE
IVB	IRRIGATION VALVE BOX
MBC	10"X10" METAL BUILDING COLUMN
MC	METAL COLUMN
MLP	METAL LIGHT POLE
MTC	METAL TRASH CAN
OHC(1)	OVERHEAD COMMUNICATION (# OF

LINES) OHE(2)OVERHEAD ELECTRIC (# OF LINES)

SCALE:

