

CITY OF ALBUQUERQUE

Planning Department
Alan Varela, Interim Director



Mayor Timothy M. Keller

December 8, 2021

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

Re: Los Altos Park Renovation – Phase I, K20D037

Dear Mr. Means,

Based upon the information provided in your submittal received 11/29/2021, the Grading & Drainage Plans is approved with following conditions:

1. The plans approved were with Engineer's Stamp date of 11/23/2021 for sheets C100, C101A, CG101-107, CG108-110, CG113 & CG501, Engineer's Stamp date of 8/03/2021 for sheet CG107, and Engineer's Stamp date of 12/03/2021 for sheets CG111 & CG112.
2. Payment-in-Lieu for Storm Water Quality Volume Requirement is \$30,160.00 (please see attached payment sheet).
3. Please attach a copy of this approved plan in the construction set. Prior to approval of Permanent Release of Occupancy by Hydrology, Engineer Certification per the DPM checklist will be required.
4. Contractor must obtain all the necessary permits from NMDOT to perform work within the NMDOT right-of-way.

If you have any questions, please contact me at 924-3999.

Sincerely,

Shahab Biazar, P.E., CFM
City Engineer, Planning Dept.
Development and Review Services

C: file

PO Box 1293

Albuquerque

NM 87103

www.cabq.gov



City of Albuquerque

Planning Department
Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 6/2018)

Project Title: _____ **Building Permit #:** _____ **Hydrology File #:** _____

DRB#: _____ **EPC#:** _____ **Work Order#:** _____

Legal Description: _____

City Address: _____

Applicant: _____ **Contact:** _____

Address: _____

Phone#: _____ **Fax#:** _____ **E-mail:** _____

Other Contact: _____ **Contact:** _____

Address: _____

Phone#: _____ **Fax#:** _____ **E-mail:** _____

TYPE OF DEVELOPMENT: _____ PLAT (# of lots) _____ RESIDENCE _____ DRB SITE _____ ADMIN SITE

IS THIS A RESUBMITTAL? _____ Yes _____ No

DEPARTMENT _____ TRANSPORTATION _____ HYDROLOGY/DRAINAGE

Check all that Apply:

TYPE OF SUBMITTAL:

- _____ ENGINEER/ARCHITECT CERTIFICATION
- _____ PAD CERTIFICATION
- _____ CONCEPTUAL G & D PLAN
- _____ GRADING PLAN
- _____ DRAINAGE REPORT
- _____ DRAINAGE MASTER PLAN
- _____ FLOODPLAIN DEVELOPMENT PERMIT APPLIC
- _____ ELEVATION CERTIFICATE
- _____ CLOMR/LOMR
- _____ TRAFFIC CIRCULATION LAYOUT (TCL)
- _____ TRAFFIC IMPACT STUDY (TIS)
- _____ STREET LIGHT LAYOUT
- _____ OTHER (SPECIFY) _____
- _____ PRE-DESIGN MEETING?

TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

- _____ BUILDING PERMIT APPROVAL
- _____ CERTIFICATE OF OCCUPANCY
- _____ PRELIMINARY PLAT APPROVAL
- _____ SITE PLAN FOR SUB'D APPROVAL
- _____ SITE PLAN FOR BLDG. PERMIT APPROVAL
- _____ FINAL PLAT APPROVAL
- _____ SIA/ RELEASE OF FINANCIAL GUARANTEE
- _____ FOUNDATION PERMIT APPROVAL
- _____ GRADING PERMIT APPROVAL
- _____ SO-19 APPROVAL
- _____ PAVING PERMIT APPROVAL
- _____ GRADING/ PAD CERTIFICATION
- _____ WORK ORDER APPROVAL
- _____ CLOMR/LOMR
- _____ FLOODPLAIN DEVELOPMENT PERMIT
- _____ OTHER (SPECIFY) _____

DATE SUBMITTED: _____ **By:** _____

COA STAFF:

ELECTRONIC SUBMITTAL RECEIVED: _____

FEE PAID: _____

DRAINAGE PLAN:

I. INTRODUCTION AND EXECUTIVE SUMMARY

THIS SITE IS LOCATED SOUTH OF LOMAS, NEAR THE SOUTHWEST CORNER OF THE INTERSECTION OF EUBANK BLVD NE AND LOMAS BLVD NE. THE PROJECT REPRESENTS A REDEVELOPMENT OF A PREVIOUSLY DEVELOPED SITE (CITY-OWNED LOS ALTOS PARK) WITHIN AN INFILL AREA. THIS PROJECT CONSISTS OF THE PHASE 1 DEVELOPMENT OF THE EAST PORTION OF THE EXISTING PARK. INCLUDED IN THIS WORK WILL BE THE COMPLETE REMOVAL OF THE EXISTING SOUTHWEST TENNIS COURTS, AND HORSESHOE PITS, ALONG WITH ASSOCIATED PARKING AND ACCESS ROADS. THESE ITEMS WILL BE REPLACED WITH A NEW SOFTBALL FIELD COMPLEX, CONCESSIONS / RESTROOM BUILDING, AND ASSOCIATED PAVED PARKING AND ACCESS IMPROVEMENTS.

THIS DRAINAGE PLAN ADDRESSES THE DRAINAGE CONCEPTS AND IMPROVEMENTS PROPOSED FOR DEVELOPMENT OF THE PHASE 1 PARK REDEVELOPMENT. THIS PLAN IS SUBMITTED IN SUPPORT OF BUILDING PERMIT APPROVAL BY THE CITY OF ALBUQUERQUE.

II. PROJECT DESCRIPTION

AS SHOWN BY THE VICINITY MAP, THE PROJECT SITE IS BOUNDED BY LOMAS BLVD NE TO THE NORTH, EUBANK BLVD NE TO THE WEST, INTERSTATE 40 RIGHT OF WAY TO THE SOUTH, AND THE EXISTING IMPROVED PORTIONS OF THE LOS ALTOS PARK TO THE EAST (I.E. LOS ALTOS POOL, ALBUQUERQUE GARDEN CENTER). ALL PERIMETER STREETS REFERENCED ABOVE ARE FULLY DEVELOPED PUBLIC STREETS WITH CURBS, GUTTER AND SIDEWALKS. THE MAJORITY OF THE SITE IS OWNED BY THE CITY OF ALBUQUERQUE AND OPERATED BY THE CITY OF ALBUQUERQUE PARKS AND RECREATION DEPARTMENT. AS SHOWN BY THE BOUNDARY SURVEY, PORTIONS OF THE EXISTING PARK ARE LOCATED ON INDOT RIGHT-OF-WAY. THE COA AND EUBANK BLVD HAVE ENTERED INTO A RIGHT-OF-WAY USE AGREEMENT TO ALLOW THE CONTINUED USE OF THE PORTIONS OF THE DEVELOPED AREA WITHIN INDOT RIGHT-OF-WAY FOR PUBLIC RECREATIONAL USE.

AS INDICATED BY PANEL 358 OF 825 OF THE NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAPS PUBLISHED BY FEMA FOR BERNALILLO COUNTY, NEW MEXICO, DATED AUGUST 16, 2012, THIS PHASE 1 PROJECT SITE DOES NOT LIE WITHIN A DESIGNATED FLOOD HAZARD ZONE. THE SITE DOES LIE IMMEDIATELY ADJACENT TO A ZONE "NO" DESIGNATED FLOOD HAZARD ZONE ASSOCIATED WITH LOMAS BLVD NE RIGHT OF WAY, WHERE THE 1% ANNUAL CHANCE FLOOD DISCHARGE IS DESIGNATED TO BE CONFINED WITHIN THE INDOT RIGHT OF WAY. THE FLOOD MAP INDICATES THAT THIS FLOOD HAZARD ZONE "NO" DOES IMPACT THE OVERALL LOS ALTOS PARK, BUT THAT IS BEYOND THE LIMITS OF THIS PHASE 1 DEVELOPMENT, AND AS SUCH DOES NOT IMPACT THIS PROJECT REDEVELOPMENT. THE LOS ALTOS PARK PROJECT SITE CURRENTLY DISCHARGES FREELY TO THE INTERSTATE 40 INDOT DRAINAGE CHANNEL BASED UPON FLOOD CONDITIONS. THE INDOT APPROVED PARK DEVELOPMENT PLANS, AND EXISTING AGREEMENTS BETWEEN THE CITY OF ALBUQUERQUE AND THE NM DEPARTMENT OF TRANSPORTATION.

III. BACKGROUND DOCUMENTS & RESEARCH

THE PREPARATION OF THIS PLAN RELIED UPON THE FOLLOWING DOCUMENTS:

- TOPOGRAPHIC AND UTILITY SURVEY PREPARED BY HIGH MESA CONSULTING GROUP (NMP# 11184) DATED 12/08/2020. THIS REFERENCED SURVEY PROVIDES THE BASIS FOR THE EXISTING CONDITIONS OF THE SITE.
- BOUNDARY SURVEY PREPARED BY HIGH MESA CONSULTING GROUP (NMP# 11184) DATED 6/23/2021. THIS REFERENCED SURVEY DENOTES THE EXISTING BOUNDARY LIMITS FOR THE PARK AND THE EXISTING ONSITE EASEMENTS.
- LOS ALTOS STATE PARK DRAINAGE PLAN PREPARED BY HOLMES & NAYNER INC., DATED 04-14-1999. THIS REFERENCED DRAINAGE PLAN DENOTED THE EXISTING DRAINAGE PATTERNS FOR LOS ALTOS PARK, AND ESTABLISHED THE EXISTING HISTORICAL CONDITION OF FREE DISCHARGE FROM THE PARK TO THE INTERSTATE 40 RIGHT OF WAY / DRAINAGE CHANNEL.

IV. EXISTING CONDITIONS

THE PROJECT SITE CONSISTS OF FOUR EXISTING SOFTBALL FIELDS, SIX TENNIS COURTS, SEVERAL HORSEHOE PITS, AND ASSOCIATED LANDSCAPING, PAVED PARKING AND ACCESS IMPROVEMENTS. THERE IS ALSO AN EXISTING SPORTS OFFICE BUILDING AT THE SOUTHWEST CORNER OF THE EXISTING PARK AREA. STORMWATER GENERATED BY THE OVERALL PROJECT SITE GENERALLY SHEETDROPS FROM NORTHEAST TO SOUTHWEST ACROSS THE FIELDS, TENNIS COURTS, AND OTHER LANDSCAPED IMPROVEMENTS INTO THE EXISTING PARKING LOTS AND ACCESS ROADS, AND IS THEN CONVEYED ALONG THE PAVED ACCESS ROADS TO RELEASE AT TWO POINTS OF DISCHARGE INTO THE I-40 RIGHT-OF-WAY AND ULTIMATELY INTO THE I-40 DRAINAGE CHANNEL. THIS PROJECT SITE IS DIVIDED INTO TWO SUB-BASINS, WEST AND EAST, BASED UPON THEIR POINTS OF DISCHARGE INTO THE INTERSTATE 40 (I-40) DRAINAGE CHANNEL.

THE "WEST" DRAINAGE SUB-BASIN IS MADE OF THE NORTH AND WEST PORTIONS OF THE PROJECT SITE, AS NOTED ABOVE. THIS BASIN SHEET FLOWS ACROSS THE SITE FROM NORTHEAST TO SOUTH WEST, ULTIMATELY DISCHARGING FROM THE SITE TO THE I-40 RIGHT-OF-WAY VIA AN ACCESS ROAD CURB CUT LOCATED IMMEDIATELY UPSTREAM OF AN EXISTING LARGE (DOUBLE TO) STORMWATER INLET WITHIN THE INDOT RIGHT OF WAY. THIS INLET IS CONNECTED VIA LARGE DIAMETER RCP PIPES TO THE I-40 DRAINAGE CHANNEL. THERE IS NO EXISTING PONDING WITHIN THIS SUB-BASIN. THIS STORMWATER FREE DISCHARGES TO THE I-40 DRAINAGE CHANNEL.

THE "EAST" DRAINAGE SUB-BASIN CONSISTS OF THE SOUTH AND EAST PORTIONS OF THE PROJECT SITE. THIS BASIN GENERALLY SHEETDROPS ACROSS THE SITE FROM NORTHEAST TO SOUTHWEST. THERE ARE UPSTEAM FLOWS ON THE INDOT RIGHT OF WAY. THE EXISTING SUB-BASIN DOES NOT HAVE A SPECIFIC POINT OF DISCHARGE BUT INSTEAD GENERALLY OVERLAND SHEET FLOWS INTO THE I-40 RIGHT-OF-WAY. WITHIN THE RIGHT OF WAY, THERE IS AN EXISTING UNPAVED FLOWLINE THAT ULTIMATELY DRAINS TO AN EXISTING LARGE (DOUBLE TO) STORMWATER INLET THAT DISCHARGES TO THE I-40 DRAINAGE CHANNEL VIA LARGE DIAMETER RCP PIPING. THERE IS NO EXISTING PONDING WITHIN THIS SUB-BASIN. THIS STORMWATER FREE DISCHARGES TO THE I-40 DRAINAGE CHANNEL.

THERE ARE NO OFFSITE FLOWS FROM THE ADJACENT PUBLIC STREETS TO THE NORTH AND EAST. THERE ARE NO OFFSITE FLOWS FROM THE LOS ALTOS PARK AND ALBUQUERQUE GARDEN CENTER TO THE WEST, OR FROM I-40 INDOT RIGHT-OF-WAY TO THE SOUTH, AS THEY ARE TOPOGRAPHICALLY LOWER THAN THE PROJECT SITE. THERE ARE OFFSITE FLOWS ONTO THE SOUTHEAST CORNER OF THE SITE THAT DISCHARGE FROM A LARGE 54" RCP CULVERT EXTENDING ACROSS EUBANK BLVD NE. THIS CULVERT RELEASES ~180 CFS OF STORMWATER DURING A 100-YEAR, 6 HR STORM EVENT INTO THE SITE, AND IS THEN CONVEYED ACROSS THE SOUTHEAST CORNER OF THE SITE VIA AN EXISTING COMBINATION CONCRETE VALLEY GUTTER AND EARTHEN DRAINAGE CHANNEL, TO DISCHARGE TO ULTIMATELY DISCHARGE INTO THE I-40 RIGHT-OF-WAY TO THE SOUTH. THE EARTHEN PORTIONS OF THE CHANNEL ARE STABILIZED WITH TURF GRASS. UPON RELEASE INTO THE I-40 RIGHT-OF-WAY, AN UNPAVED FLOWLINE CONTINUES TO CONVEY THIS EXISTING STORMWATER EAST TO WEST TO AN EXISTING 54" RCP STORM CULVERT THAT RELEASES DIRECTLY INTO THE I-40 DRAINAGE CHANNEL.

V. DEVELOPED CONDITIONS

THE PROJECT PHASE 1 DEVELOPED CONDITIONS CONSISTS OF 5 NEW SOFTBALL FIELDS TO REPLACE THE EXISTING 4 FIELDS, A NEW CONCESSIONS / RESTROOM BUILDING, PAVED PARKING AND ACCESS ROAD IMPROVEMENTS, AND ASSOCIATED LANDSCAPING IMPROVEMENTS. THE EXISTING SPORTS OFFICE BUILDING AT THE SOUTHWEST CORNER OF THE SITE WILL REMAIN IN PLACE. THE OVERALL PHASE 1 SITE DRAINAGE PATTERN WILL BE SIMILAR TO THE EXISTING DRAINAGE PATTERN FOR THE SITE WITH STORMWATER RUNOFF DRAINING GENERALLY FROM NORTHEAST TO SOUTHWEST, AND ULTIMATELY THE ENTIRE PROJECT SITE WILL CONTINUE TO DISCHARGE TO THE I-40 INDOT DRAINAGE CHANNEL. WHILE THE PHASE 1 DEVELOPMENT PROVIDES ADVANTAGE OF SEVERAL SMALL AREAS OF LANDSCAPED DEPRESSED AREAS TO CAPTURE AND TREAT STORMWATER TO THE MAXIMUM EXTENT PRACTICABLE, THIS PROJECT NOT INCLEMENT ANY DEGRADED CONNECTIONS AS SUCH TO THE LIMITED OPPORTUNITIES RESULTING FROM THE SITE DESIGN REQUIREMENTS. THE PROJECT SITE WILL CONTINUE TO BE DIVIDED INTO TWO SUB-BASINS, WEST AND EAST, THAT REPEAT THE EXISTING DRAINAGE PATTERN OF FREE DISCHARGE AT TWO FIXED POINTS OF DISCHARGE INTO THE I-40 RIGHT-OF-WAY / DRAINAGE CHANNEL.

THE "WEST" DRAINAGE SUB-BASIN IS MADE UP OF THE WESTERN PORTIONS OF THE PROJECT SITE, AND ALSO INCLUDES THE NORTHEAST PARKING LOT, NORTH ACCESS ROAD, AND SPORTS OFFICE BUILDING. STORMWATER GENERATED BY THIS BASIN WILL DRAIN FROM NORTHEAST TO SOUTHWEST VIA SURFACE FLOW ACROSS THE SOFTBALL FIELDS, PARKING LOTS AND ACCESS ROADS, AND VIA NEW SUBSURFACE STORM DRAIN IMPROVEMENTS IN THE NORTH AND WEST ACCESS ROADS. SURFACE FLOW AND SUBSURFACE PIPED DRAINAGE WILL ULTIMATELY CONVERGE AT A NEW ACCESS ROAD CURB INLET LOCATED AT THE SOUTHWEST CORNER OF THE SITE, NEAR THE LOS ALTOS POOL. ALL SUB-BASIN WEST STORMWATER WILL BE COMBINED AT THIS INLET AND FREE DISCHARGE TO THE I-40 INDOT RIGHT-OF-WAY VIA A NEW PRIVATE SUBSURFACE STORM PIPE CONNECTION INTO THE EXISTING LARGE (DOUBLE TO) STORMWATER INLET IN THE RIGHT OF WAY AS REFERENCED IN THE EXISTING CONDITIONS. AS NOTED ABOVE, THE I-40 STORM INLET IS DIRECTLY CONNECTED TO THE I-40 DRAINAGE CHANNEL BY LARGE DIAMETER RCP PIPE. THIS DIRECT PIPE CONNECTION REPLACES EXISTING OVERLAND FLOW CONNECTIONS, AND AS SUCH WILL MANAGE THE DISCHARGE RELEASE IN AN IMPROVED MANNER THAT WILL SIGNIFICANTLY REDUCE SEDIMENT DELIVERY TO THE I-40 INDOT RIGHT-OF-WAY.

THE "EAST" DRAINAGE SUB-BASIN IS MADE UP OF THE EASTERN PORTION OF THE PROJECT SITE, AND INCLUDES THE SOUTHEAST PARKING LOT, THE EASTERN HALF OF THE SOUTH ACCESS ROAD AND THE NEW CONCESSIONS / RESTROOM BUILDING. STORMWATER RUNOFF GENERATED BY THIS BASIN WILL DRAIN FROM NORTHEAST TO SOUTHWEST ACROSS THE SITE VIA SURFACE FLOW ACROSS THE SOFTBALL FIELDS, PARKING LOT, AND ACCESS ROADS, AS WELL AS VIA NEW SUBSURFACE STORM DRAIN IMPROVEMENTS THAT WILL COLLECT RUNOFF FROM THE CONCESSIONS / RESTROOM BUILDING AND LOW POINTS IN THE SURROUNDING CENTRAL, PEDESTRIAN ACCESS AND LANDSCAPED AREAS. SURFACE FLOW STORMWATER AND SUBSURFACE PIPED DRAINAGE WILL ULTIMATELY CONVERGE AT A NEW CURB INLET IN THE SOUTH ACCESS ROAD LOCATED IMMEDIATELY NORTH OF THE DOUBLE "U" STORM INLET IN THE I-40 INDOT RIGHT-OF-WAY REFERENCED IN THE EXISTING CONDITIONS. A NEW PRIVATE STORM DRAIN CONNECTION WILL BE MADE BETWEEN THE NEW CURB INLET AND THE EXISTING I-40 STORM INLET TO DIRECT-PIPE THE SUB-BASIN "EAST" STORMWATER INTO THE I-40 DRAINAGE SYSTEM. AS NOTED ABOVE, THE I-40 STORM INLET IS DIRECTLY CONNECTED TO THE I-40 DRAINAGE CHANNEL BY LARGE DIAMETER RCP PIPE. SIMILAR TO THE "WEST" SUB-BASIN DISCHARGE, THIS DIRECT PIPE CONNECTION REPLACES EXISTING OVERLAND CONNECTIONS AS SUCH WILL MANAGE THE DISCHARGE RELEASE IN AN IMPROVED MANNER THAT WILL SIGNIFICANTLY REDUCE SEDIMENT DELIVERY TO THE I-40 INDOT RIGHT-OF-WAY.

AS NOTED IN THE EXISTING CONDITIONS ABOVE, THERE ARE NO OFFSITE FLOWS FROM LOMAS BLVD TO THE NORTH, EUBANK BLVD TO THE EAST, I-40 INDOT RIGHT-OF-WAY TO THE SOUTH, AND ALBUQUERQUE GARDEN CENTER TO THE WEST. THERE CONTINUES TO BE OFFSITE FLOWS ONTO THE SOUTHEAST CORNER OF THE SITE FROM A LARGE 54" RCP CULVERT EXTENDING ACROSS EUBANK BLVD NE. THIS CULVERT RELEASES ~180 CFS OF STORMWATER DURING A 100-YEAR, 6 HR STORM EVENT INTO THE SITE, AND IS CONVEYED ACROSS THE SOUTHEAST CORNER OF THE SITE VIA AN EXISTING COMBINATION CONCRETE VALLEY GUTTER AND EARTHEN DRAINAGE CHANNEL, TO ULTIMATELY DISCHARGE INTO THE I-40 RIGHT-OF-WAY. THE EARTHEN PORTIONS OF THE CHANNEL ARE STABILIZED WITH TURF GRASS. UPON RELEASE INTO THE I-40 RIGHT-OF-WAY, AN UNPAVED FLOWLINE CONTINUES TO CONVEY THIS EXISTING STORMWATER EAST TO WEST TO AN EXISTING 54" RCP STORM CULVERT THAT RELEASES DIRECTLY INTO THE I-40 DRAINAGE CHANNEL.

AS NOTED ABOVE, THIS SITE WILL INCLUDE SEVERAL DEPRESSED LANDSCAPED AREAS THAT WILL CAPTURE STORMWATER RUNOFF TO THE MAXIMUM EXTENT PRACTICABLE (4300 OF STORM WATER QUALITY RETENTION ONSITE). HOWEVER, DUE TO THE USER REQUIREMENTS OF THE SITE LIMITING OPPORTUNITIES FOR WATER RETENTION ONSITE, THE SITE WILL NOT RETURN THE GENERATED STORM WATER QUALITY (FIRST FLUSH) OF 8,070 CF (3.770 IN THE AMOUNT OF \$30.180 (3.770 CF * \$8.00/CF) TO MEET THE CITY DRAINAGE REQUIREMENTS.

VI. CALCULATIONS

CALCULATIONS ANALYZING THE EXISTING AND PROPOSED DEVELOPMENT CONDITIONS FOR THE 100 YEAR, 6-HOUR RAINFALL EVENT HAVE BEEN PREPARED FOR EACH DRAINAGE BASIN. THE PROPOSED IMPROVEMENTS ARE 40 ACRES OF 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 DEMONSTRATED BY THESE CALCULATIONS, THE PROPOSED IMPROVEMENTS WILL RESULT IN MINIMAL DECREASE IN PEAK RATE OF DISCHARGE (~0.4 CFS FROM SUB-BASIN "WEST"; ~0.5 CFS FROM SUB-BASIN "EAST") AND A MINIMAL INCREASE IN VOLUME OF RUNOFF GENERATED (890 CF FROM SUB-BASIN "WEST"; 430 CF FROM SUB-BASIN "EAST"). THIS INCREASED VOLUME OF RUNOFF GENERATED OF 1,320 CF WILL BE OFFSET BY THE STORMWATER QUALITY RETENTION CAPACITY OF 1500 CF. THEREFORE, THE OVERALL SITE WILL RESULT IN A NET DECREASE (~180 CF) IN STORMWATER DISCHARGE RELEASED FROM THE SITE.

VII. CONCLUSIONS

THE FOLLOWING CONCLUSIONS HAVE BEEN ESTABLISHED AS A RESULT OF THE EVALUATIONS CONTAINED HEREIN:

- THIS DRAINAGE PLAN ADDRESSES THE PHASE 1 LOS ALTOS PARK IMPROVEMENTS FOR THE EASTERN PORTION OF THE OVERALL PARK PROPERTY; FUTURE DEVELOPMENT FOR THE WESTERN PORTION OF THE PARK WILL REQUIRE SEPARATE SUBMITTAL.
- THE PROPOSED IMPROVEMENTS WILL MAINTAIN THE EXISTING DRAINAGE PATTERNS OF THE SITE, RELEASING GENERATED STORMWATER RUNOFF TO THE INTERSTATE-40 INDOT RIGHT-OF-WAY / DRAINAGE CHANNEL VIA TWO DISCHARGE POINTS LOCATED IMMEDIATELY UPSTREAM OF INDOT DRAINAGE INLET STRUCTURES. THESE NEW CONNECTIONS WILL BE DIRECTED CONNECTIONS, REPLACING EXISTING OVERLAND FLOW DISCHARGE, AND AS SUCH WILL MANAGE AND REDUCE THE DISCHARGE RELEASE IN AN IMPROVED MANNER THAT WILL SIGNIFICANTLY REDUCE SEDIMENT DELIVERY TO THE I-40 INDOT RIGHT-OF-WAY.
- THE PROPOSED IMPROVEMENTS WILL MAINTAIN THE STATUS QUO OF FREE DISCHARGE TO THE I-40 INDOT RIGHT-OF-WAY / DRAINAGE CHANNEL. THE PROPOSED IMPROVEMENTS WILL RESULT IN A MINIMAL DECREASE IN THE OVERALL PEAK RATE OF RUNOFF (~0.9 CFS) AND MINIMAL INCREASE IN VOLUME (1,320 CF) GENERATED BY THE SITE. THE INCREASE IN VOLUME OF RUNOFF GENERATED WILL BE OFFSET BY 1500 CF OF STORMWATER QUALITY RETENTION ONSITE, RESULTING IN A NET DECREASE OF 180 CF DRAINING TO THE I-40 INDOT RIGHT-OF-WAY.
- THE PROPOSED DEVELOPMENT WILL NOT ADVERSELY IMPACT DOWNSTREAM PROPERTIES OR DOWNSTREAM DRAINAGE CONDITIONS.
- STORMWATER QUALITY DEPRESSED LANDSCAPED AREAS WILL CAPTURE AND TREAT STORMWATER RUNOFF FROM THE SITE TO THE MAXIMUM EXTENT PRACTICABLE ($V_{\text{SWQY RETAINED}} = 4300$ CF). HOWEVER, THIS PROPOSED SITE IS NOT ANTICIPATED TO MEET CITY DRAINANCE STORMWATER FLUSH RETENT (FIRST FLUSH) VOLUME REQUIREMENTS (FIRST FLUSH GENERATED = 8,070 CF). AS THIS IS A CITY PARK PROJECT, ADDRESSING THE FEE-IN-LIEU ALTERNATIVE OPTION FOR THE AMOUNT OF VOLUME RELEASED FROM THE OVERALL PROJECT SITE (3,770 CF) WILL BE COORDINATED BETWEEN THE PARK OWNER AND THE CITY HYDROLOGY DEPARTMENT.

CALCULATIONS:

I. LOS ALTOS PARK - PHASE 1 ONSITE DRAINAGE BASINS CHARACTERISTICS

B

P_{100, 6-HR} = P₃₀₀ =

2.43

IN

C

LAND TREATMENTS

1	EXISTING LAND TREATMENT		DEVELOPED LAND TREATMENT	
	ONSITE (WEST) DRAIN BASIN	532,920 SF	532,920 SF	
LAND TREATMENT	AREA (SF/AC)	%	AREA (SF/AC)	%
A				
B	140,730 SF	26%	196,020 SF	37%
	3.23 AC		4.50 AC	
C	150,730 SF	28%	80,900 SF	15%
	3.37 AC		1.84 AC	
D	241,460 SF	46%	256,900 SF	48%
	5.64 AC		5.88 AC	

A	DEVELOPED LAND TREATMENT	
	WEST SUB-BASIN	TOTAL AREA (AC)
B		
C	1.56	
	0.26	
D	3.02	
WEST-2	2.48	
	1.10	
1.10	0.26	
WEST-3	8.21	
	3.10	
0.50	2.80	

2	EXISTING LAND TREATMENT		DEVELOPED LAND TREATMENT	
	ONSITE (EAST) DRAIN BASIN	514,740 SF	514,740 SF	
LAND TREATMENT	11.82 AC		11.82 AC	
	AREA (SF/AC)		AREA (SF/AC)	
A				
B	189,940 SF		248,200 SF	
	4.38 AC		5.70 AC	
C	215,300 SF		145,140 SF	
	4.96 AC		3.34 AC	
D	109,000 SF		121,400 SF	
	2.50 AC		2.79 AC	

A	DEVELOPED LAND TREATMENT	
	EAST SUB-BASIN	TOTAL AREA (AC)
B		
C	1.22	
	0.60	
0.19		
EAST-2	1.93	
	1.00	
0.45	0.48	
EAST-3	8.08	
	3.48	
2.29	2.12	

HYDROLOGY

A. EXISTING CONDITION 100 YEAR STORM

- ONSITE (WEST) DRAIN BASIN
 - VOLUME 100-YR, 6-HR

$$WTE = (E_A \cdot A_A + E_B \cdot A_B + E_C \cdot A_C + E_D \cdot A_D) / A_{\text{TOTAL}}$$

$$= (0.87 \cdot 0.00) + (0.86 \cdot 3.23) + (1.09 \cdot 3.47) + (2.58 \cdot 5.54) / 12.23 = 1.70 \text{ IN}$$

$$V_{100, 6-HR} = (E_{\text{WQY}} / 12) \cdot A_T \Rightarrow (1.70 / 12) \cdot 12.23 = 1.7332 \text{ AC-FT} = 75,600 \text{ CF}$$
 - PEAK DISCHARGE 100-YR

$$Q_{100} = Q_A \cdot A_A + Q_B \cdot A_B + Q_C \cdot A_C + Q_D \cdot A_D$$

$$\Rightarrow (1.84 \cdot 0.00) + (2.49 \cdot 3.23) + (3.17 \cdot 3.47) + (4.49 \cdot 5.54) = 43.9 \text{ CFS}$$
- ONSITE (EAST) DRAIN BASIN
 - VOLUME 100-YR, 6-HR

$$WTE = (E_A \cdot A_A + E_B \cdot A_B + E_C \cdot A_C + E_D \cdot A_D) / A_{\text{TOTAL}}$$

$$= (0.87 \cdot 0.00) + (0.86 \cdot 4.36) + (1.09 \cdot 4.96) + (2.58 \cdot 2.50) / 11.82 = 1.32 \text{ IN}$$

$$V_{100, 6-HR} = (E_{\text{WQY}} / 12) \cdot A_T \Rightarrow (1.32 / 12) \cdot 11.82 = 1.2998 \text{ AC-FT} = 56,620 \text{ CF}$$
 - PEAK DISCHARGE 100-YR

$$Q_{100} = Q_A \cdot A_A + Q_B \cdot A_B + Q_C \cdot A_C + Q_D \cdot A_D$$

$$\Rightarrow (1.84 \cdot 0.00) + (2.49 \cdot 4.36) + (3.17 \cdot 4.96) + (4.49 \cdot 2.50) = 37.8 \text{ CFS}$$

B. DEVELOPED CONDITION 100 YEAR STORM

- ONSITE (WEST) DRAIN BASIN
 - VOLUME 100-YR, 6-HR

$$WTE = (E_A \cdot A_A + E_B \cdot A_B + E_C \cdot A_C + E_D \cdot A_D) / A_{\text{TOTAL}}$$

$$= (0.87 \cdot 0.00) + (0.86 \cdot 4.36) + (1.09 \cdot 4.96) + (2.58 \cdot 5.88) / 12.23 = 1.72 \text{ IN}$$

$$V_{100, 6-HR} = (E_{\text{WQY}} / 12) \cdot A_T \Rightarrow (1.72 / 12) \cdot 12.23 = 1.7636 \text{ AC-FT} = 75,390 \text{ CF}$$
 - PEAK DISCHARGE 100-YR

$$Q_{100} = Q_A \cdot A_A + Q_B \cdot A_B + Q_C \cdot A_C + Q_D \cdot A_D$$

$$\Rightarrow (1.84 \cdot 0.00) + (2.49 \cdot 4.36) + (3.17 \cdot 4.96) + (4.49 \cdot 5.88) = 43.5 \text{ CFS}$$
- STORMWATER QUALITY VOLUME (FIRST FLUSH) GENERATED

$$V_{\text{SWQY}} = (F_{\text{SWQY}} / 12) \cdot A_{\text{TOTAL}}$$

$$\Rightarrow (0.42 / 12) \cdot (1.73) = 0.0876 \text{ AC-FT} = 3,820 \text{ CF}$$

- WEST SUB-BASIN PEAK DISCHARGE RATES, INLET & STORM PIPE SIZING
 - PEAK DISCHARGE RATE: $Q_{\text{WQY}} = Q_A \cdot A_A + Q_B \cdot A_B + Q_C \cdot A_C + Q_D \cdot A_D$
 - PIPE CAPACITY CALCULATED USING FLOWMASTER V6.0 - MANNING'S EQUATION FOR GRADY FLOW IN PIPES
 - "24" X "24" AND "SINGLE / DOUBLE C" INLET CAPACITY CALCULATED USING EJLIRNWORK OR IFICE FLOW CALCULATOR

SUB-BASIN	PEAK DISCHARGE (100 YR) INLET CAP		PIPE CAPACITY	
	Q_{WQY} (CFS)	(CFS)	SIZE	MIN SLOPE Q_{WQY} (CFS)
WEST-1	13.6		14"	24"
			18"	1.00%
WEST-2	2.5		8"	18"
			24"	0.85%
WEST-3	22.5		28"	24"
			30.00%	52.4
EAST (COMBINED)	43.5		N/A	24"
			3.00%	52.4

- ONSITE (EAST) DRAIN BASIN
 - VOLUME 100-YR, 6-HR

$$WTE = (E_A \cdot A_A + E_B \cdot A_B + E_C \cdot A_C + E_D \cdot A_D) / A_{\text{TOTAL}}$$

$$= (0.87 \cdot 0.00) + (0.86 \cdot 5.70) + (1.09 \cdot 3.34) + (2.58 \cdot 2.79) / 11.82 = 1.33 \text{ IN}$$

$$V_{100, 6-HR} = (E_{\text{WQY}} / 12) \cdot A_T \Rightarrow (1.33 / 12) \cdot 11.82 = 1.3097 \text{ AC-FT} = 57,080 \text{ CF}$$
 - PEAK DISCHARGE 100-YR

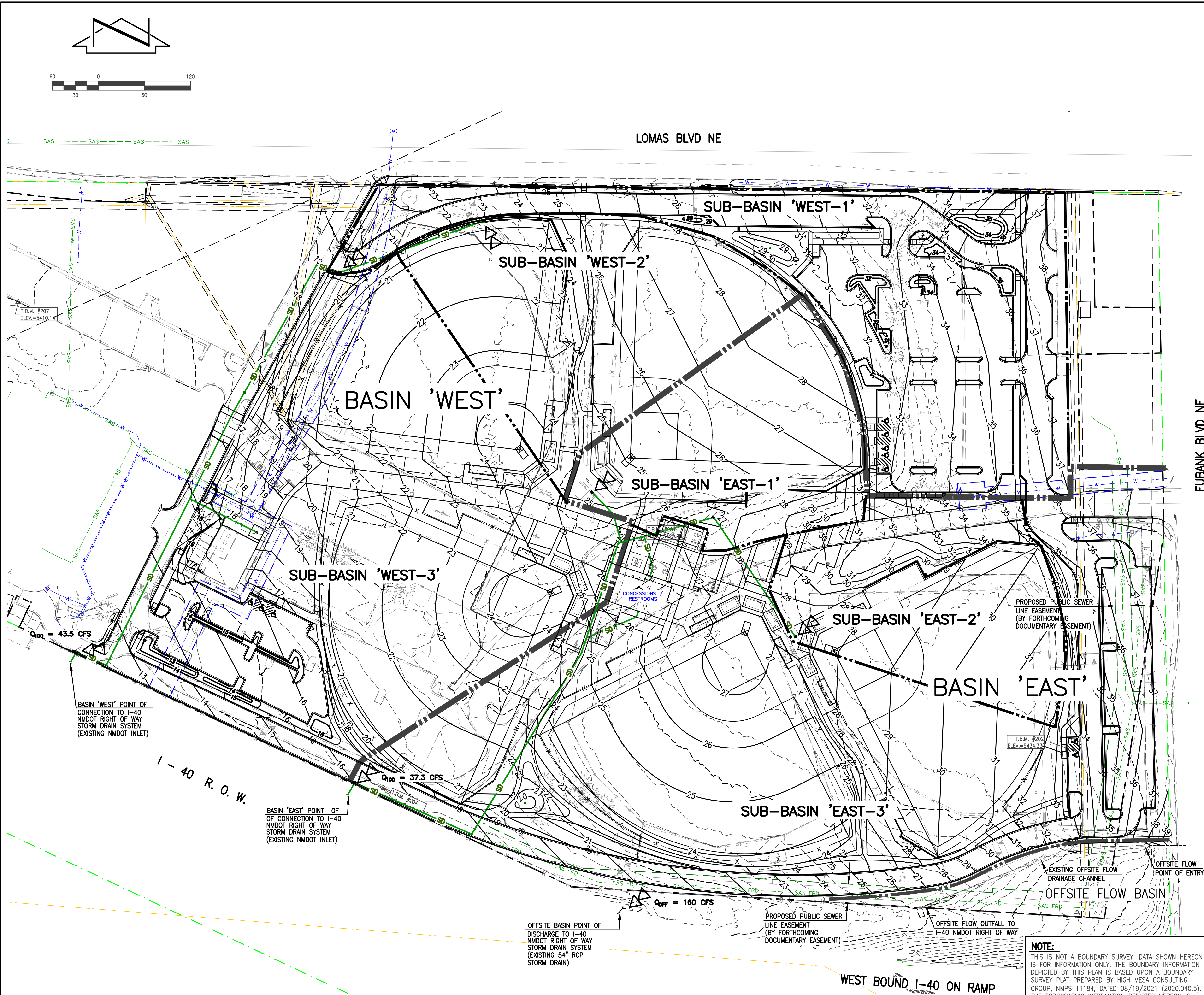
$$Q_{100} = Q_A \cdot A_A + Q_B \cdot A_B + Q_C \cdot A_C + Q_D \cdot A_D$$

$$\Rightarrow (1.84 \cdot 0.00) + (2.49 \cdot 5.70) + (3.17 \cdot 3.34) + (4.49 \cdot 2.79) = 37.3 \text{ CFS}$$

- EAST SUB-BASIN PEAK DISCHARGE RATES, INLET & STORM PIPE SIZING
 - PEAK DISCHARGE RATE: $Q_{\text{WQY}} = Q_A \cdot A_A + Q_B \cdot A_B + Q_C \cdot A_C + Q_D \cdot A_D$
 - PIPE CAPACITY CALCULATED USING FLOWMASTER V6.0 - MANNING'S EQUATION FOR GRADY FLOW IN PIPES
 - "24" X "24" AND "SINGLE / DOUBLE C" INLET CAPACITY CALCULATED USING EJLIRNWORK OR IFICE FLOW CALCULATOR

EAST-3	25.6	28" ¹⁸	24"	2.00%	4.00%
EAST (COMBINED)	37.3	N/A	24"	2.00%	4.00%

File Name: P:\data\2020\2020.040.3\ENGIN\2020.040.3_DesignBase_JDS.dwg - C101A-R1 Plot Date: 11/23/21 Plot Time: 16:06



A1 OVERALL DRAINAGE BASIN MAP
SCALE: 1" = 60'

PROJECT BENCHMARK

AN AGRS BRASS DISK STAMPED "14-K20", SET FLUSH WITH THE TOP OF A CONCRETE CURB, ON THE NOSE OF THE ISLAND APPROXIMATELY 123' NORTH OF THE INTERSECTION OF COPPER AVENUE NE AND WYOMING BOULEVARD NE.
ELEVATION = 5381.93 FEET (NAVD 1988)

TEMPORARY BENCHMARK #201 (T.B.M.)

A #5 REBAR W/CAP STAMPED "HMC CONTROL NMPS 11184", SET IN GRASS NORTHWEST OF A WHEELCHAIR RAMP, BETWEEN A BASEBALL FIELD AND A PARKING LOT, AS SHOWN ON THIS SHEET.
ELEVATION = 5425.88 FEET (NAVD 1988)

TEMPORARY BENCHMARK #202 (T.B.M.)

A #5 REBAR W/CAP STAMPED "HMC CONTROL NMPS 11184", SET IN GRASS NEAR THE EAST SIDE OF THE PROJECT SITE, BETWEEN A BASEBALL FIELD AND A PARKING LOT, AS SHOWN ON THIS SHEET.
ELEVATION = 5434.33 FEET (NAVD 1988)

TEMPORARY BENCHMARK #204 (T.B.M.)

A MAG NAIL, SET IN CONCRETE CURB JOINT NEAR THE SOUTHEAST CORNER OF THE LOOP ROAD THRU THE PROJECT SITE, AS SHOWN ON THIS SHEET.
ELEVATION = 5417.25 FEET (NAVD 1988)

TEMPORARY BENCHMARK #207 (T.B.M.)

A MAG NAIL, SET IN CONCRETE CURB JOINT SOUTHEAST OF THE ALBUQUERQUE GARDEN CENTER, AS SHOWN ON THIS SHEET.
ELEVATION = 5410.14 FEET (NAVD 1988)

TEMPORARY BENCHMARK #211 (T.B.M.)

A #5 REBAR W/CAP STAMPED "HMC CONTROL NMPS 11184", SET IN DIRT NEAR THE WEST SIDE OF THE PROJECT SITE, NOT SHOWN.
ELEVATION = 5390.22 FEET (NAVD 1988)

TEMPORARY BENCHMARK #212 (T.B.M.)

A MAG NAIL, SET IN CONCRETE CURB JOINT EAST OF THE DRIVE ENTRANCE TO THE SKATE PARK, NOT SHOWN.
ELEVATION = 5408.19 FEET (NAVD 1988)

CONSTRUCTION NOTES:

- TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT NEW MEXICO ONE CALL SYSTEM, 811, FOR DESIGNATION (LINE-SPOTTING) 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 RESOLVED WITH A MINIMUM AMOUNT OF DELAY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL INTERPRETATIONS IT MAKES WITHOUT FIRST CONTACTING THE ENGINEER AS REQUIRED ABOVE.
- 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.
- UTILITY INFORMATION SHOWN HEREON IS BASED UPON THE TOPOGRAPHIC AND UTILITY SURVEY CONDUCTED BY THIS FIRM DATED 12/08/2020 AND INCLUDED AS SHEET VF-101 THROUGH VF-108 OF THIS PLAN SET. THAT UTILITY SURVEY AND SUBSEQUENT UTILITY ENGINEERING EFFORT IS NOT ALL-INCLUSIVE AND MAY NOT REPRESENT UTILITIES/INFRASTRUCTURE THAT HAVE BEEN ABANDONED-IN-PLACE, WERE INACCESSIBLE, OR OTHERWISE UNDETECTABLE DUE TO UNFORESEEN AND UNCONTROLLABLE SITE AND/OR UTILITY CONDITIONS. FURTHER, THAT UTILITY INVESTIGATION MAY BE INCOMPLETE, OR MAY BE OBSOLETE BY THE TIME CONSTRUCTION COMMENCES, THEREFORE, MAKES NO REPRESENTATION PERTAINING THERETO, AND ASSUMES NO RESPONSIBILITY OR LIABILITY THEREFOR. THE PROPERTY OWNER, DEVELOPER, OR CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE CAUSED BY ITS FAILURE TO LOCATE, IDENTIFY AND PRESERVE ANY AND ALL EXISTING UNDERGROUND UTILITY LINES. IN PLANNING AND CONDUCTING EXCAVATION, THE CONTRACTOR SHALL COMPLY WITH STATE STATUTES, NEW MEXICO EXCAVATION LAWS (NM811), MUNICIPAL AND LOCAL ORDINANCES, SITE SPECIFIC RULES AND REGULATIONS, IF ANY, PERTAINING TO THE LOCATION OF THESE UTILITY 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.
- THE GRADES INDICATED ON THIS PLAN ARE FINISHED GRADES UNLESS OTHERWISE INDICATED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LEAVING SUBGRADE AT ELEVATIONS THAT SHALL ACCOMMODATE PROPOSED IMPROVEMENTS AS INDICATED ON THE PLANS INCLUDING, BUT NOT LIMITED TO, SURFACE DRAINAGE STRUCTURES, PAVING AND LANDSCAPING SURFACING.

2020.040.3

HIGH MESA Consulting Group

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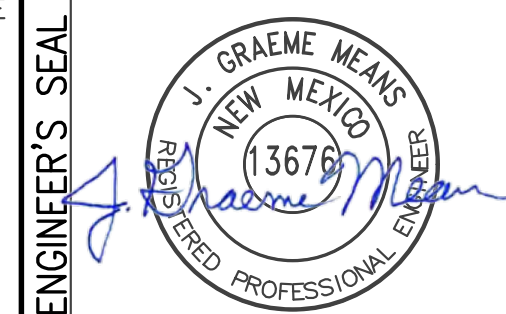
CITY OF ALBUQUERQUE
STRATEGIC PLANNING AND DESIGN
DEPARTMENT OF MUNICIPAL DEVELOPMENT

**LOS ALTOS PARK RENOVATION - PHASE 1
OVERALL DRAINAGE BASIN MAP**

Design Review Committee		City Engineer Approval		Last Design Update		Mo./Day/Yr.	Mo./Day/Yr.
City Project No.		Zone Map No.		Sheet			
759692		K-20		C101A			

AS-BUILT INFORMATION		BENCH MARKS		SURVEY INFORMATION		ENGINEER'S SEAL		REVISIONS	
CONTRACTOR	DATE	AN AGRS BRASS DISK STAMPED "14-K20", SET FLUSH WITH THE TOP OF A CONCRETE CURB, ON THE NOSE OF THE ISLAND APPROXIMATELY 123' NORTH OF THE INTERSECTION OF COPPER AVENUE NE AND WYOMING BOULEVARD NE.	DATE	NO.	BY	DATE	DATE	NO.	DATE
WORK DONE BY	DATE	12/02/2020	DATE	2020.040.2	C.CALA	11/23/21	DATE	11/23/21	DATE
APPROVED BY	DATE		DATE				DATE		DATE
FIELD VERIFICATION	DATE		DATE				DATE		DATE
BY	DATE		DATE				DATE		DATE
REMARKS	DATE		DATE				DATE		DATE
CORRECTED BY	DATE		DATE				DATE		DATE
ELEVATION	DATE		DATE				DATE		DATE
	DATE		DATE				DATE		DATE
	DATE		DATE				DATE		DATE

FIELD NOTES		ENGINEER'S SEAL	
NO.	DATE	DATE	DATE
2020.040.2	12/02/2020	11/23/21	DATE



REVISIONS		NEW ADDED SHEET TO SET		REMARKS	
NO.	DATE	NO.	DATE	NO.	DATE

DESIGNED BY: J.D.S.	DATE: 08/31/21	DATE: 08/31/21	DATE: 08/31/21
DRAWN BY: J.Y.R.	DATE: 08/31/21	DATE: 08/31/21	DATE: 08/31/21
CHECKED BY: G.M.	DATE: 08/31/21	DATE: 08/31/21	DATE: 08/31/21

DATE: 08/31/21

LOS ALTOS PARK RENOVATION

PROJECT# 759692