

CITY OF ALBUQUERQUE

Planning Department
Brennon Williams, Director



Mayor Timothy M. Keller

May 24, 2021

David Aube
The Design Group
120 Vasser St. SE
Albuquerque, NM 87106

RE: **Hope Christian School**
6721 Palomas Ave. NE
Permanent Certificate of Occupancy - Accepted
Grading and Drainage Plan Stamp Date: 6/10/19
Certification Dated: 5/12/21
Drainage File: D18D009A

Dear Mr. Aube:

PO Box 1293

Based on the submittal received on 5/13/21 and site visit on 5/21/21, this certification is approved in support of Permanent Certificate of Occupancy by Hydrology.

Albuquerque

If you have any questions, please contact me at 924-3986 or earmijo@cabq.gov.

NM 87103

Sincerely,

www.cabq.gov

Ernest Armijo, P.E.
Principal Engineer, Planning Dept.
Development Review Services



City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 11/2016)

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 _____ RESIDENCE _____ DRB SITE ☒ ADMIN SITE

Check all that Apply:

DEPARTMENT:

_____ HYDROLOGY/ DRAINAGE
_____ TRAFFIC/ TRANSPORTATION

TYPE OF SUBMITTAL:

_____ ENGINEER/ARCHITECT CERTIFICATION

_____ CONCEPTUAL G & D PLAN

_____ GRADING PLAN

_____ DRAINAGE MASTER PLAN

_____ DRAINAGE REPORT

_____ CLOMR/LOMR

_____ TRAFFIC CIRCULATION LAYOUT (TCL)

_____ TRAFFIC IMPACT STUDY (TIS)

_____ 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

_____ OTHER (SPECIFY) _____

IS THIS A RESUBMITTAL?: _____ Yes _____ No

DATE SUBMITTED: _____ **By:** _____

COA STAFF:

ELECTRONIC SUBMITTAL RECEIVED: _____

FEE PAID: _____

Drainage Summary

Project: Hope Christian School
Project Numbe: 2553
Date: 05/05/19
By: Dave A

Site Location 6721 Palomas Avenue NE

Precipitaion Zone 3 Per Table A-1 COA DPM Section 22.2

Existing summary

| Basin Name | EX 1 | EX 2 | EX 3 | EX 4 | EX 5 |
|---------------------------|----------|--------|--------|--------|---------|
| Area (sf) | 41420.42 | 99535 | 37025 | 108444 | 46960.2 |
| Area (acres) | 0.95 | 2.29 | 0.85 | 2.49 | 1.08 |
| %A Land treatment | 0 | 15 | 0 | 0 | 0 |
| %B Land treatment | 0 | 5 | 5 | 0 | 15 |
| %C Land treatment | 85 | 55 | 45 | 30 | 20 |
| %D Land treatment | 15 | 25 | 50 | 70 | 65 |
| Soil Treatment (acres) | | | | | |
| Area "A" | 0.00 | 0.34 | 0.00 | 0.00 | 0.00 |
| Area "B" | 0.00 | 0.11 | 0.04 | 0.00 | 0.16 |
| Area "C" | 0.81 | 1.26 | 0.38 | 0.75 | 0.22 |
| Area "D" | 0.14 | 0.57 | 0.42 | 1.74 | 0.70 |
| Excess Runoff (acre-feet) | | | | | |
| 100yr. 6hr. | 0.1149 | 0.2751 | 0.1280 | 0.4230 | 0.1734 |
| 10yr. 6hr. | 0.0596 | 0.1452 | 0.0742 | 0.2564 | 0.1036 |
| 2yr. 6hr. | 0.0240 | 0.0639 | 0.0381 | 0.1417 | 0.0564 |
| 100yr. 24hr. | 0.1209 | 0.2989 | 0.1457 | 0.4956 | 0.2026 |
| Peak Discharge (cfs) | | | | | |
| 100 yr. | 3.50 | 8.14 | 3.56 | 11.32 | 4.68 |
| 10yr. | 2.10 | 4.78 | 2.26 | 7.40 | 3.00 |
| 2yr. | 0.92 | 2.17 | 1.17 | 4.14 | 1.63 |

Proposed summary

| Basin Name | PRO 1 | PRO 2 | PRO 3 | PRO 4 | PRO 5 | EX 5 | 3 East |
|---------------------------|--------|--------|--------|--------|--------|---------|--------|
| Area (sf) | 33815 | 12673 | 118011 | 13107 | 108763 | 46960.2 | 82153 |
| Area (acres) | 0.778 | 0.291 | 2.709 | 0.301 | 2.497 | 1.08 | 1.89 |
| %A Land treatment | 30 | 0 | 12 | 0 | 15 | 0 | 20 |
| %B Land treatment | 0 | 10 | 28 | 15 | 10 | 15 | 40 |
| %C Land treatment | 0 | 0 | 30 | 0 | 20 | 20 | 20 |
| %D Land treatment | 70 | 90 | 40 | 85 | 55 | 65 | 20 |
| Soil Treatment (acres) | | | | | | | |
| Area "A" | 0.23 | 0.00 | 0.33 | 0.00 | 0.37 | 0.00 | 0.38 |
| Area "B" | 0.00 | 0.03 | 0.76 | 0.05 | 0.25 | 0.16 | 0.75 |
| Area "C" | 0.00 | 0.00 | 0.81 | 0.00 | 0.50 | 0.22 | 0.38 |
| Area "D" | 0.54 | 0.26 | 1.08 | 0.26 | 1.37 | 0.70 | 0.38 |
| Excess Runoff (acre-feet) | | | | | | | |
| 100yr. 6hr. | 0.1197 | 0.0537 | 0.3765 | 0.0538 | 0.3635 | 0.1734 | 0.1933 |
| 10yr. 6hr. | 0.0716 | 0.0336 | 0.2054 | 0.0333 | 0.2109 | 0.1036 | 0.0952 |
| 2yr. 6hr. | 0.0403 | 0.0196 | 0.0977 | 0.0192 | 0.1114 | 0.0564 | 0.0380 |
| 100yr. 24hr. | 0.1423 | 0.0646 | 0.4217 | 0.0644 | 0.4207 | 0.2026 | 0.2090 |
| Peak Discharge (cfs) | | | | | | | |
| 100 yr. | 3.16 | 1.39 | 10.82 | 1.40 | 9.97 | 4.68 | 5.86 |
| 10yr. | 1.98 | 0.92 | 6.39 | 0.92 | 6.17 | 3.00 | 3.15 |
| 2yr. | 1.11 | 0.54 | 3.00 | 0.53 | 3.24 | 1.63 | 1.22 |

| | | | | | | |
|---------------------------------|-------|-------|--------|----------|----|-------|
| First Flush Ponding Voulme (cf) | 670.7 | 323.2 | 1337.5 | 315.7 NA | NA | 465.5 |
|---------------------------------|-------|-------|--------|----------|----|-------|

Pond Routing and Volumes

| | Pond 1 | Pond 2 | Pond 3 | Pond 4 |
|--------------------------------------|--------|--------|--------|--------|
| Incoming Flow Rate | Qin | 5.86 | 3.16 | 1.39 |
| Allowable Discharge Rate | Qout | 4.40 | 2.61 | 1.00 |
| Hyrdlogy Zone | | 2 | 2 | 2 |
| Area Total | At | 2.709 | 0.95 | 0.301 |
| Area Type A | Aa | 12 | 30 | |
| Area Type B | Ab | 28 | 10 | 15 |
| Area Type C | Ac | 30 | | |
| Area Type D Impervious | Ad | 40 | 70 | 85 |
| Excess runoff rates | A | 0.53 | 0.53 | 0.53 |
| | B | 0.78 | 0.78 | 0.78 |
| | C | 1.13 | 1.13 | 1.13 |
| | D | 2.12 | 2.12 | 2.12 |
| Weighted E (Exces Runoff) | | 1.47 | 1.64 | 1.99 |
| Time of Concentration | | 0.2 | 0.2 | 0.2 |
| Time to Peak | | 0.240 | 0.215 | 0.198 |
| =0.7* T_c + ((1.6-(Ad/At)/12) | | | | |
| Time of Base | | 1.331 | 0.866 | 0.651 |
| =2.107*E*At/Qp-(.25*Ad/At) | | | | |
| Duration of Peak | | 0.100 | 0.175 | 0.225 |
| Time for end of peak | | 0.340 | 0.390 | 0.415 |
| Time when storage begins | | 0.180 | 0.178 | 0.143 |
| Time incoming is less that discharge | | 0.587 | 0.473 | 0.487 |
| Volume Required during storm | | 0.370 | 0.129 | 0.111 |
| | | 1343 | 469 | 403 |

HOPE CHRISTIAN ELEMENTARY
SCHOOL, PHASE 1

- I. PURPOSE AND SCOPE
- The purpose of this drainage plan is to present the existing and proposed drainage management plans for the proposed Classroom Building to be located within the Hope Christian Elementary School located mid-block on Paloma Avenue NE, between San Pedro Boulevard NE, and Louisiana Boulevard NE. The site is located in Zone Atlas Page D-18-Z. The site is currently partially developed.
- II. SITE DESCRIPTION AND HISTORY
- The site has been previously developed with a mixture of built on site buildings and modular classroom buildings. Several of the buildings are to remain, and the portables will be removed prior beginning Phase 2 development.
- III. COMPUTATIONAL PROCEDURES
- Hydrologic analysis was performed utilizing the design criteria found in the COA-DPM Section 22.2 released in June 1997.
- IV. PRECIPITATION
- The 100-yr, 6-hr duration storm was used as the design storm for this analysis. This site is within Zone 3 as identified in the DPM Section 22.2. Tables within the section were used to establish the 6-hr precipitation, excess precipitation and peak discharge.
- V. EXISTING DRAINAGE CONDITIONS OVERVIEW

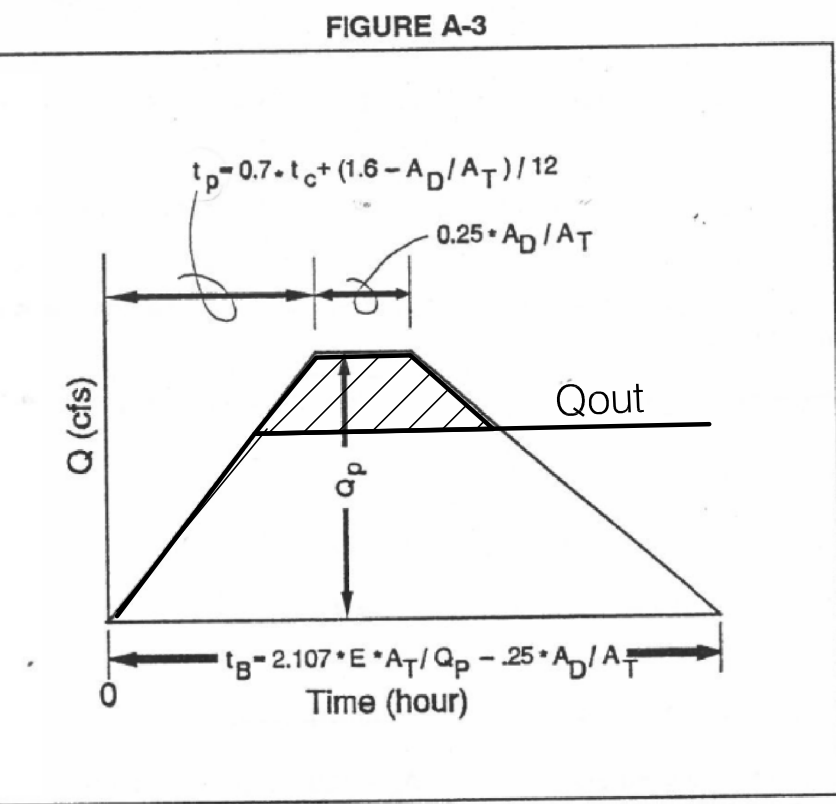
The existing site contains a variety of functions from turf practice fields, buildings, pedestrian circulation paths, vehicular paths, parking areas and vacant dirt lots out to the west. The site is bounded to the east by a site for ABCWUA water tanks, to the north by Paseo Del Norte, to the south by Palomas Avenue NE, and to the West by a site currently under construction for an Assisted Care Facility.

The site generally drains from east to west. The ABCWUA water tanks to the east also generally drain from east to west, but the driveway located on the western side of the water tanks site collects the water and diverts it to the south into Palomas Avenue NE. This prevents offsite drainage from entering the project site from the east.

A majority of the southe nr parts of the site (Basins Ex 4 and Ex5) drains gently to south and will discharge into Palomas Avenue NE. The middle portion of the site (Basin Ex1 and Basin Ex2) will drain historically into the neighboring property to the west. There is not a defined concentrated flow location, but more sheet flow in nature. The south western part of the site (Basin Ex 3) will drain back into Palomas. Please refer to the Drainage Summary Table for Peak Flowrates for each of these basins and Excess Runoff Volumes.

- VI. DRAINAGE MANAGEMENT PLAN
- The site overall drainage patterns will change slightly with the phased construction. In Phase 1 the new building will have a center ridge and drain toward the edges. For Proposed Basin 1 (PRO 1) the peak runoff will be 3.16 cfs and will still drain to the historic discharge point along the western property line. The developed discharge rate is 0.34 cfs less than the historic conditions. The site to the west was designed to accept 2.75 cfs per acres with the historic basin area of 41420 sf giving an allowable discharge of 2.61 cfs onto the property to the west. A portion (255 cf) of the required first flush volume 671 cubic feet that will be collected in a shallow pond at the north west corner of the site. The remainder would be captured within the engineer wood fibers of the playground area. The play areas is 7400sf and would only need to contain 0.056' (less that $\frac{3}{4}$ ") over the area.

Proposed Basin 2 (PRO 2) will also receive some roof runoff, as well as drainage from a base course fire lane. The basin will generate a peak runoff of 1.39 cfs. The site to the west was designed to accept 2.75 cfs per acre onto the property to the west. When the neighboring drainage study was completed the offsite flows permitted was identified as 6.08 cfs. This would reduce the allowable from Basin 2 to (6.08-2.61=3.47cfs). Due to the size of the basin, the peak runoff will be less than 1.39 cfs generated in the basin due to the routing through the pond and retaining the first flush volume. The proposed runoff is well below the amount that was anticipated onto the parcel to the west. The first flush volume is 323 cubic feet and will be completely contained in a shallow pond (with capacity for 400cf) at the south west corner of the basin. The outfall from this basin will be through openings in the wall that will allow the 1.00 cfs (discharge rate after the 400 cubic feet is removed) to flow into the neighbors property.



VI. DRAINAGE MANAGEMENT PLAN (CONTINUED)

Proposed Basin 3 (PRO 3) contains portions of the new building, the Kindergarten Playground area, existing turf fields and an area that currently contains portable buildings that will be removed once the new building is constructed and the classroom functions are transferred from the portables to the permanent facility. This basin was previous contained within Existing Basin 2 and 3 but with the new building blocking the historic drainage path, the kindergarten playground and loading area will divert the water so the basins are now combined.

The new peak runoff rate from PRO 3 is 10.82 cfs. Historically EX 2 and EX 3 combined created a peak runoff of 11.70 cfs. This basin has also been divided to allow for the eastern portion that drains into the kindergarten play area to be studied. this will generate 5.86 cfs and the outfall from the play area is set at 4.40 cfs. This will set the ponding volume equal to the first flush volume for the entire basin. The lower portion of the basin will discharge directly into Palomas, but an attempt has been made to offset and contain the first flush volume in the upper portion of the basin.

A portion of the roof and paving will flow toward the shallow ponding areas that is created by the Kindergarten Playground area. The basin will be filled with engineered wood fibers but will still contain some of the first flush volume. This depression will also accept runoff from the eastern portion of the basin. The ponding volume is 1,560 and will be able to contain the first flush volume of 1338 cf.

Once the ponding volume is reached, an overflow drain (sidewalk culvert) will discharge the excess runoff into the drive lane along the east side of the building and then flowing down toward Palomas Avenue NE. The proposed discharge point for PRO 3 is into Palomas Avenue NE as there is a drive lane that diverts the runoff into the South Domingo Baca Arroyo that is located just to the south of Edmund G Ross Elementary School. The peak runoff from this basin will be 10.36 cfs.

Proposed Basin 4 (PRO 4) is a small parking area located along Palomas Avenue NE. This basin creates a peak runoff of 1.40 cfs. Runoff will be routed through the landscaping areas (two internal islands with 1421 sf of surface area) where possible to harvest excess runoff and to contain the First Flush (316 cf). To contain the first flush volume the landscaping areas would need to be depressed an average of .22' (3") . Due to the slopes within the parking area and landscaping areas, we proposed to depress the area 8" on the low side so that the volume is acheived even though the area is sloping. A sidewalk culvert will be required to discharge the runoff under the sidewalk and into Palomas Avenue NE.

Proposed Basin 5 (PRO 5) and Existing Basin (EX 5) are unchanged in the proposed conditions from existing. The peak flow rate and discharge point remain. Retention of First Flush is not required in these basins.

- VII. CONCLUSIONS
- The site generally drains from east to west, and historic patterns have been maintained. Drainage onto the adjacent parcels has decreased from the historic that will benefit the two properties to the west.

Because the new two story classroom facility is replacing the single story modular buildings, the overall impervious roof surface are is decreasing. There is an increase in parking areas that will keep the overall impervious area approximately the same in the existing and proposed conditions.

Proposed Basin 1 through 4 have been designed to retain the first flush volumes. This is accomplished by directing excess runoff to shallow ponds prior to the overflow that directs runoff toward the the western property line or out into Palomas Avenue NE. Proposed Basin 5 and Existing Basin 5 do not contain any new impervious surface and therefore is not affected by the first flush requirements.

PROJECT LOCATION:
SOUTHWEST CORNER OF PASEO DEL NORTE AND
LOUISIANA BOULEVARD NE

LEGAL DESCRIPTIONS:
TRACT B, HOPE CHRISTIAN SCHOOL,
LOT 23-A, BLOCK 11, TRACT A, UNIT A, NORTH
ALBUQUERQUE ACRES,
REMAINING PORTION LOT A, BLOCK 11, TRACK A, UNIT A
NORTH ALBUQUERQUE ACRES,
LOT 13A, BLOCK 11, TRACK A, UNIT A, NORTH
ALBUQUERQUE ACRES, AND
HOPE CHRISTIAN SCHOOL

ZONE ATLAS PAGE:
D-18-Z

TOTAL ACREAGE:
ELEMENTARY SCHOOL = 6.752 ACRES

EXISTING ZONING:
ELEMENTARY SCHOOL IS DESIGNATED MX-M
ADDITIONAL PARCEL TO BE ADDED TO ELEMENTARY
SCHOOL IS DESIGNATED PD BUT WILL BE
REVIEWED UNDER VOLUNTARY ZONING
CONVERSION TO CHANGE TO MX-M

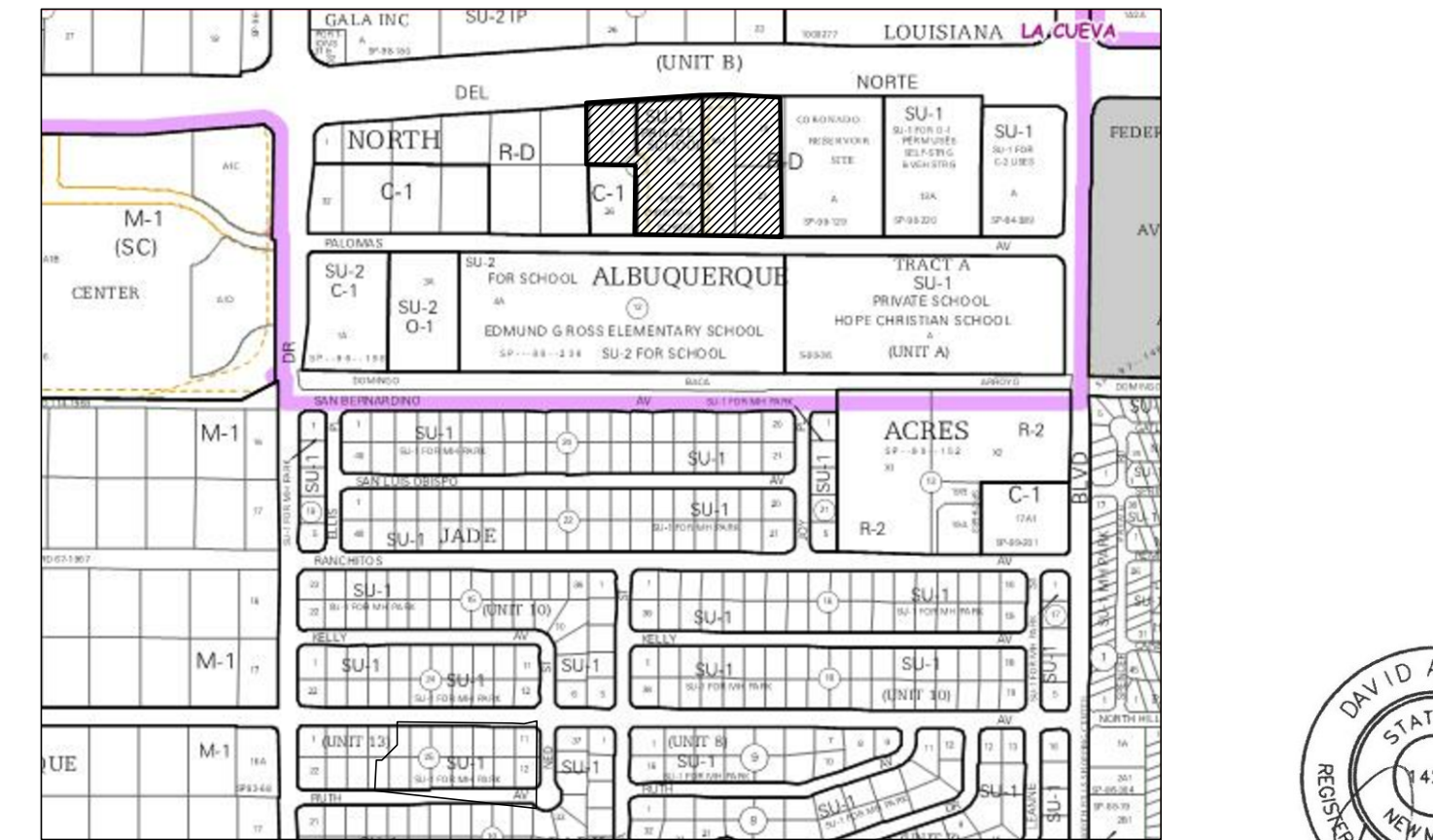
MIDDLE SCHOOL IS DESIGNATED MX-M

HIGH SCHOOL IS DESIGNATED MX-L

PROPOSED USES:
PRIVATE SCHOOL



B5 FIRMETTE PAGE
SCALE: NOT TO SCALE 35001C0137H



A5 ZONE ATLAS PAGE
SCALE: NOT TO SCALE

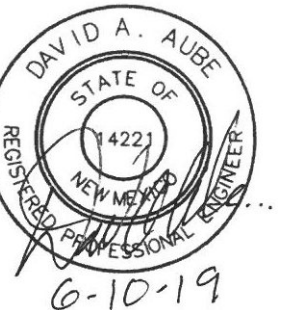
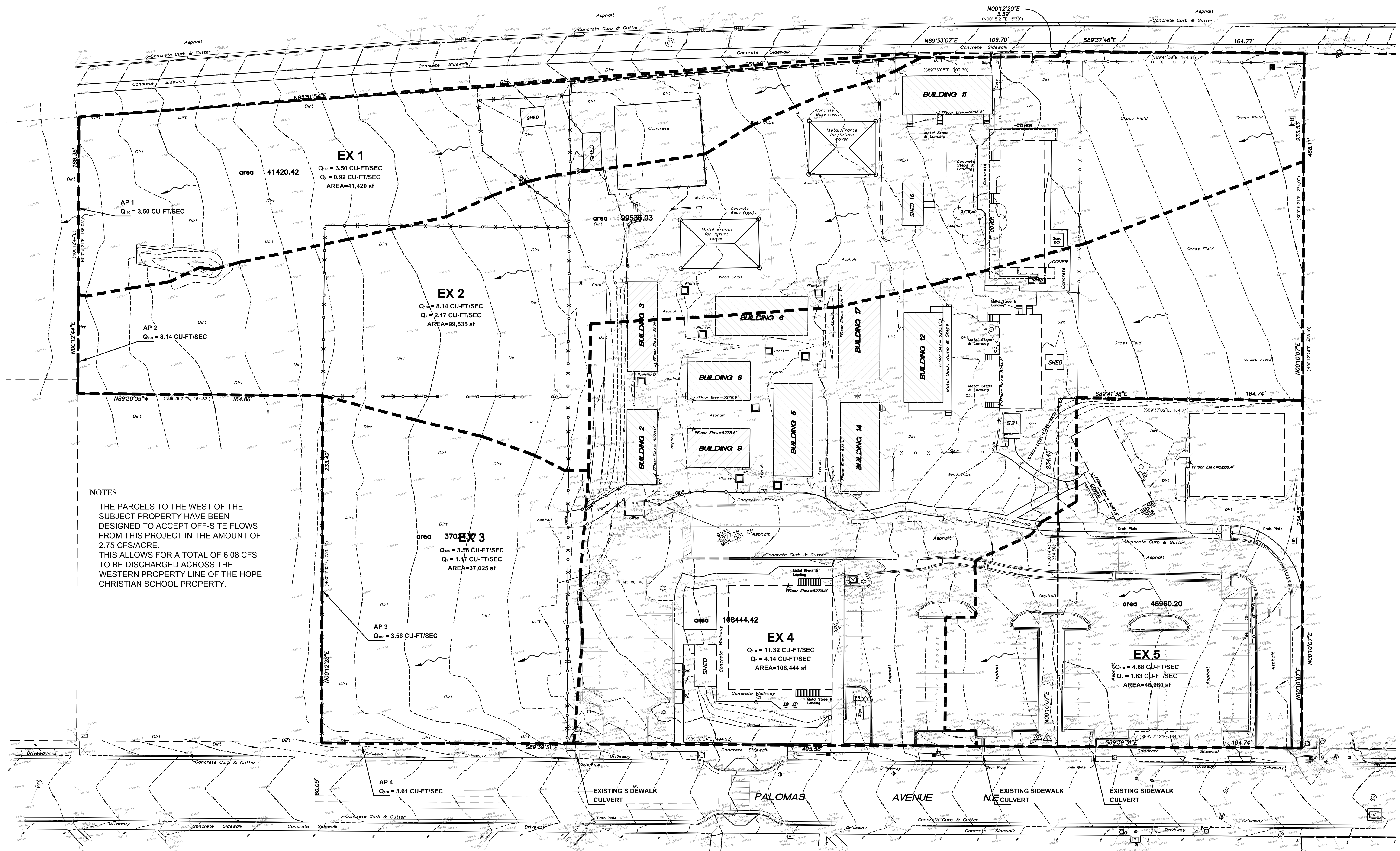


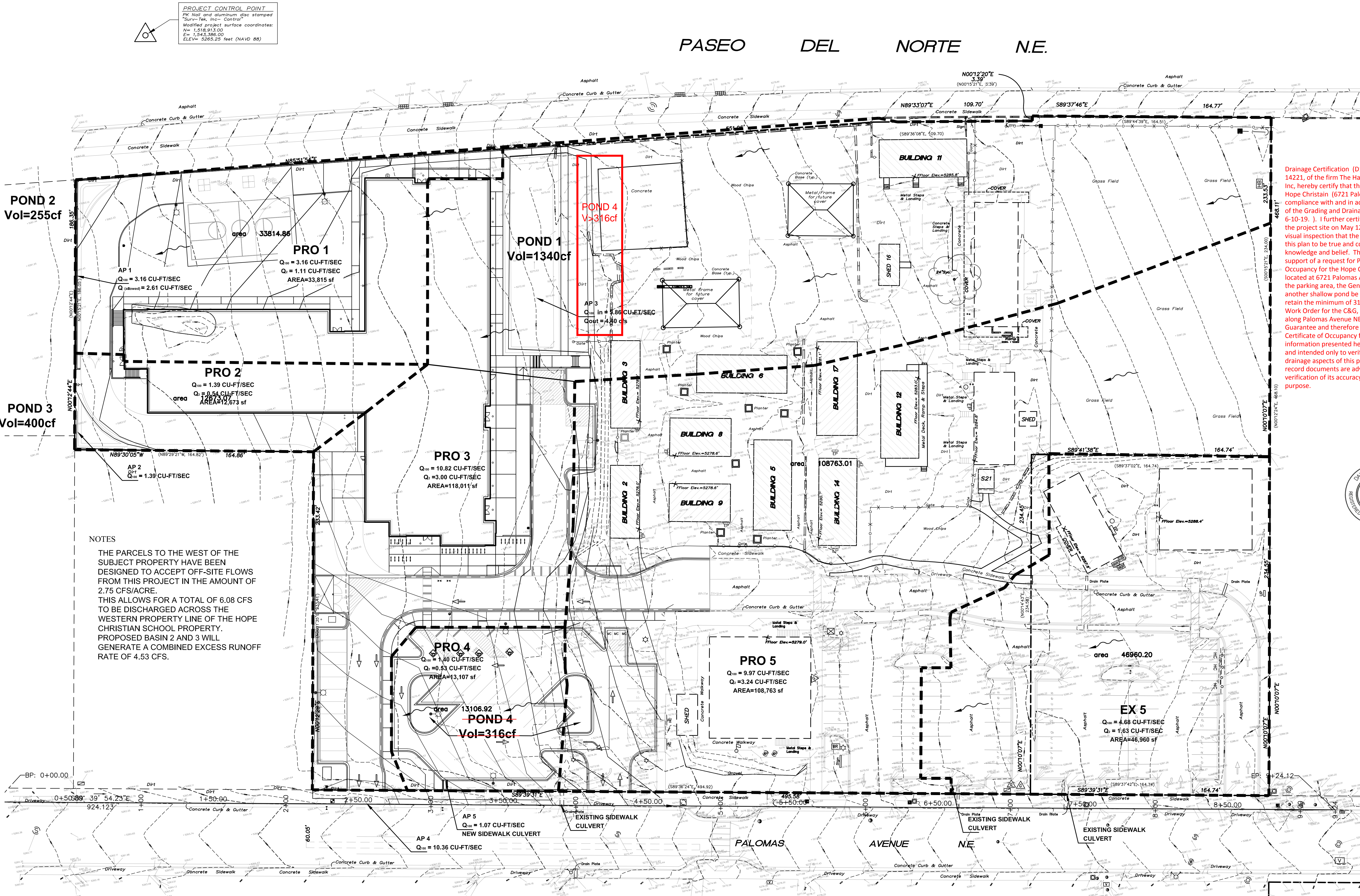
| REVISIONS | PHASE | DATE | |
|-----------|-------|--------|----------------------------|
| | CD | 5.6.19 | DRAINAGE PLAN NARRATIVE |

CD-1

PROJECT CONTROL POINT
PK Nail and aluminum disc stamped
"Surv-Tek, Inc. - Control"
Modified project surface coordinates:
N= 1,516,913.00
E= 1,543,366.00
ELEV= 5265.25 feet (NAVD 88)

PASEO DEL NORTE N.E.





Drainage Certification (D18D009A) I, David A. Aube, NMPE 14221, of the firm The Hartman + Majewski Design Group, Inc. hereby certify that the new Elementary School for Hope Christian (6721 Palomas Avenue NE) is in substantial compliance with and in accordance with the design intent of the Grading and Drainage plan approved plan dated 6-10-19. I further certify that I have personally visited the project site on May 12, 2021 and have determined by visual inspection that the actual site conditions shown on this plan to be true and correct to the best of my knowledge and belief. This certification is submitted in support of a request for Permanent Certificate of Occupancy for the Hope Christian Elementary School located at 6721 Palomas Avenue NE. Due to the slope of the parking area, the General Contractor requested that another shallow pond be created east of the school to retain the minimum of 316cf. There is a separate Public Work Order for the C&G, sidewalks, ramps, and driveways along Palomas Avenue NE. The PWO contains a Financial Guarantee and therefore does not affect the release of the Certificate of Occupancy for the Building. The record information presented hereon is not necessarily complete and intended only to verify substantial compliance of the drainage aspects of this project. Those relying on the record documents are advised to obtain independent verification of its accuracy before using it for any other purpose.



NOTES
THE PARCELS TO THE WEST OF THE SUBJECT PROPERTY HAVE BEEN DESIGNED TO ACCEPT OFF-SITE FLOWS FROM THIS PROJECT IN THE AMOUNT OF 2.75 CFS/ACRE. THIS ALLOWS FOR A TOTAL OF 6.08 CFS TO BE DISCHARGED ACROSS THE WESTERN PROPERTY LINE OF THE HOPE CHRISTIAN SCHOOL PROPERTY. PROPOSED BASIN 2 AND 3 WILL GENERATE A COMBINED EXCESS RUNOFF RATE OF 4.53 CFS.

1 SITE DRAINAGE PLAN - PROPOSED CONDITIONS
1" = 30'-0"



TREASURY DIVISION DAILY DEPOSIT

Transmittals for:
PROJECTS Only

Payment-in-Lieu for Storm Water Quality Volume Requirement

| CASH COUNT | AMOUNT | ACCOUNT NUMBER | FUND NUMBER | BUSINESS UNIT | PROJECT ID | ACTIVITY ID | AMOUNT |
|--------------|------------|-------------------|----------------|------------------|------------|----------------|------------------|
| TOTAL CHECKS | \$ 2525.60 | 461615 | 305 | PCDMD | 24_MS4 | 7547210 | \$ 2525.60 |
| | | | | | | | |
| TOTAL AMOUNT | | | | | | TOTAL DEPOSIT | \$2525.60 |

Hydrology#: D18D009A Name: Hope Christian Elementary
Payment In-Lieu For Storm Water Quality
Volume Requirement

Address/Legal Description: 6721 Palomas Ave. NE

DEPARTMENT NAME: Planning Department/Development Review Services, Hydrology

PREPARED BY Ernest Armijo PHONE 505-924-3986

BUSINESS DATE 5/18/2021

DUAL VERIFICATION OF DEPOSIT Ernest Armijo
EMPLOYEE SIGNATURE

AND BY _____
EMPLOYEE SIGNATURE

REMITTER: _____

AMOUNT: _____

BANK: _____

CHECK #: _____ DATE ON CHECK: _____

The Payment-in-Lieu can be paid at the Plaza del Sol Treasury, 600 2nd St. NW. **Bring three copies of this invoice to the Treasury** and provide a copy of the receipt to Hydrology, Suite 201, 600 2nd St. NW, or e-mail with the Hydrology submittal to PLNDRS@cabq.gov.