

CITY OF ALBUQUERQUE



February 23, 2018

David Soule, P.E.
Rio Grande Engineering
PO Box 93924
Albuquerque, NM 87199

RE: **Kidz Academy**
McMahon and Fineland NW
Grading Plan and Drainage Report
Engineer's Stamp Date 2/20/18 (File: A11D016)

Dear Mr. Soule:

Based on the information provided in your submittal received 2/22/18, the Grading Plan and Drainage Report are approved for Site Plan for Building Permit and Grading Permit.

Prior to Building Permit:

1. Payment of the Fee in Lieu (Basin D1= 692SF x (0.34"/12) = 20CF; 20CF x \$8/CF= \$160, per weighted E calc sheet) for the required first flush volume must be made.

Prior to Certificate of Occupancy:

2. The new ponds will need to be certified (along with the rest of the site). Once certified, the City can release the previous covenant on the temporary retention pond (not constructed).
3. City acceptance and close-out of the public Work Order will be required, unless financial guarantee has been posted.

If you have any questions, please contact me at 924-3695 or dpeterson@cabq.gov.

Sincerely,

Dana Peterson, P.E.
Senior Engineer, Planning Dept.
Development Review Services



City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

Project Title: _____ **Building Permit #:** _____ **City Drainage #:** _____

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

Legal Description: _____

City Address: _____

Engineering Firm: _____ **Contact:** _____

Address: _____

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

Owner: _____ **Contact:** _____

Address: _____

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

Architect: _____ **Contact:** _____

Address: _____

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

Other Contact: _____ **Contact:** _____

Address: _____

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

Check all that Apply:

DEPARTMENT:

- ☐ HYDROLOGY/ DRAINAGE
☐ TRAFFIC/ TRANSPORTATION
☐ MS4/ EROSION & SEDIMENT CONTROL

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)
☐ EROSION & SEDIMENT CONTROL PLAN (ESC)
- ☐ OTHER (SPECIFY) _____

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

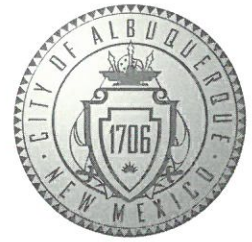
- ☐ BUILDING PERMIT APPROVAL
☐ CERTIFICATE OF OCCUPANCY
- ☐ PRELIMINARY PLAT APPROVAL
☐ SITE PLAN FOR SUB'D APPROVAL
☐ SITE PLAN FOR BLDG. PERMIT APPROVAL
☐ FINAL PLAT APPROVAL
☐ SIA/ RELEASE OF FINANCIAL GUARANTEE
☐ FOUNDATION PERMIT APPROVAL
☐ GRADING PERMIT APPROVAL
☐ SO-19 APPROVAL
☐ PAVING PERMIT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

IS THIS A RESUBMITTAL?: ☐ Yes ☐ No

DATE SUBMITTED: _____ **By:** _____

COA STAFF: _____ ELECTRONIC SUBMITTAL RECEIVED: _____

CITY OF ALBUQUERQUE



February 16, 2018

David Soule, P.E.
Rio Grande Engineering
PO Box 93924
Albuquerque, NM 87199

RE: **Kidz Academy
McMahon and Fineland NW
Grading Plan and Drainage Report
Engineer's Stamp Date 2/12/18 (File: A11D016)**

Dear Mr. Soule:

Based on the information provided in your submittal received 2/12/18, the Grading Plan and Drainage Report cannot be approved until the following are corrected:

Prior to Site Plan for Building Permit and Grading Permit:

1. A full resubmittal of the Drainage Report, bound and stamped, is required. Loose calculations cannot be accepted as a resubmittal.
we have resubmitted full report
2. This project requires an ESC Plan, submitted to the Stormwater Quality Engineer (Curtis Cherne PE, ccherne@cabq.gov or 924-3420).
we acknowledge this is required
3. If no longer under common ownership, provide written permission from the adjoining landowner (Lot A1B) for grading and work on their property.
Affirmation of permission to grade is enclosed
4. The AHYMO model shows the pond as having outflows beginning at elevation 85.52', but on the plan, the inlet grate elevation is at 87.25'. Please clarify the routing. Is this outflow from Basin A bypassing the pond and going right to the orifice plate inlet?
The outflow is the invert of the orifice at 85.50. All basins drain to inlet
5. What is the function of the storm drain w/ inline drains around the building? Previously these were used for routing the roof drains to the orifice plate/inlet near the pond, but now they seem to be just for area drains to capture runoff from Basin A. If so, they do not appear to be placed where they will intercept all flows from Basin A.
The report better explains
6. The small amount of impervious area in Basin A does not appear to be routing through any first flush pond. It appears to either free discharge onto Crown Rd or get routed through the orifice plate/inlet, but not get retained anywhere. If true payment, of Fee-in-Lieu will be required for this impervious area.
INFILTRATION GALLERY PROVIDED FOR BASIN A

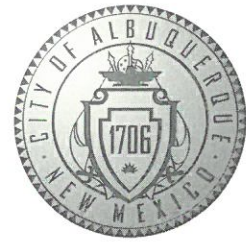
PO Box 1293

Albuquerque

NM 87103

www.cabq.gov

CITY OF ALBUQUERQUE



7. In the Drainage Report, clarify that the Lot A1B pond is sized for 10-day, 100yr (temporary retention pond) and what the allowable discharge will be once that lot develops.

We have clarified

Prior to Building Permit:

8. Payment of the Fee in Lieu (current estimate= 16CF x \$8/CF= \$128, per weighted E calc sheet) for the required first flush volume must be made.

Acknowledged

Prior to Certificate of Occupancy:

9. The new ponds will need to be certified (along with the rest of the site). Once certified, the City can release the previous covenant on the temporary retention pond (not constructed).
10. City acceptance and close-out of the public Work Order will be required, unless financial guarantee has been posted.

If you have any questions, please contact me at 924-3695 or dpeterson@cabq.gov.

PO Box 1293

Sincerely,

Albuquerque

NM 87103

Dana Peterson, P.E.
Senior Engineer, Planning Dept.
Development Review Services

www.cabq.gov

David Soule

From: Keith Griego [kidzacademystaff@gmail.com]
Sent: Tuesday, February 20, 2018 11:39 AM
To: David Soule
Cc: Jack Clifford; Phil Ward
Subject: Re: Permission to grade on Pacel A-1-A and A-1-B Fineland Development

David,

Keith Griego owner of Kidz Academy gives permission for grading on the city approved plan per file A11D016.

Thanks,

Keith

On Tue, Feb 20, 2018 at 7:09 AM, David Soule <david@riograndeengineering.com> wrote:

The purpose of this email is to confirm the owners of Parcel A-1-A(Keith Griego) and Parcel A-1-B(Jack Clifford and Phil Ward) allow grading to be performed on their respective lots based upon the city approved grading plan

as shown in drainage file A11D016. A response back with affirmation is requested and will be included within the city drainage file.

David Soule

From: Jack Clifford [jackc3909@gmail.com]
Sent: Tuesday, February 20, 2018 12:01 PM
To: David Soule; Keith Griego; Phil Ward
Subject: Re: Permission to grade on Pacer A-1-A and A-1-B Fineland Development

Hi David, McMahon Tenancy in Common gives permission for the grading of our property per the attached grading plan sent to us.

Jack

On Tue, Feb 20, 2018 at 10:41 AM, David Soule <david@riograndeengineering.com> wrote:
Academy please plot one out. Jack Clifford will pick up
Jack Academy is located on San Mateo north of Alameda
David

From: Jack Clifford [mailto:jackc3909@gmail.com]
Sent: Tuesday, February 20, 2018 10:31 AM
To: David Soule
Subject: Re: Permission to grade on Pacer A-1-A and A-1-B Fineland Development

Hi David, could print me a copy of the grading plan, and I can come by to pick it up. Let know where your office is located..I'm just waiting for Phil to consent to this action, as a soon as he responds, I will let you know.

Jack

On Tue, Feb 20, 2018 at 7:09 AM, David Soule <david@riograndeengineering.com> wrote:

The purpose of this email is to confirm the owners of Parcel A-1-A(Keith Griego) and Parcel A-1-B(Jack Clifford and Phil Ward) allow grading to be performed on their respective lots based upon the city approved grading plan

as shown in drainage file A11D016. A response back with affirmation is requested and will be included within the city drainage file.

--
Jack J. Clifford
The Grayland Corporation
9004 Menaul Blvd NE, Ste 20
Albuquerque NM 87112
[505-881-0900](tel:505-881-0900) phone
[505-292-7695](tel:505-292-7695) fax

--
Jack J. Clifford
The Grayland Corporation
9004 Menaul Blvd NE, Ste 20
Albuquerque NM 87112
505-881-0900 phone
505-292-7695 fax

2/20/2018

REVISED
DRAINAGE REPORT

For

KIDZ ACADEMY
Parcel A1A and A1B Fineland Subdivision
Albuquerque, New Mexico

Prepared by

Rio Grande Engineering
PO Box 93924
Albuquerque, New Mexico 87199

FEBRUARY 2018



David Soule P.E. No. 14522

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Map

Site Grading and Drainage Plan

PURPOSE

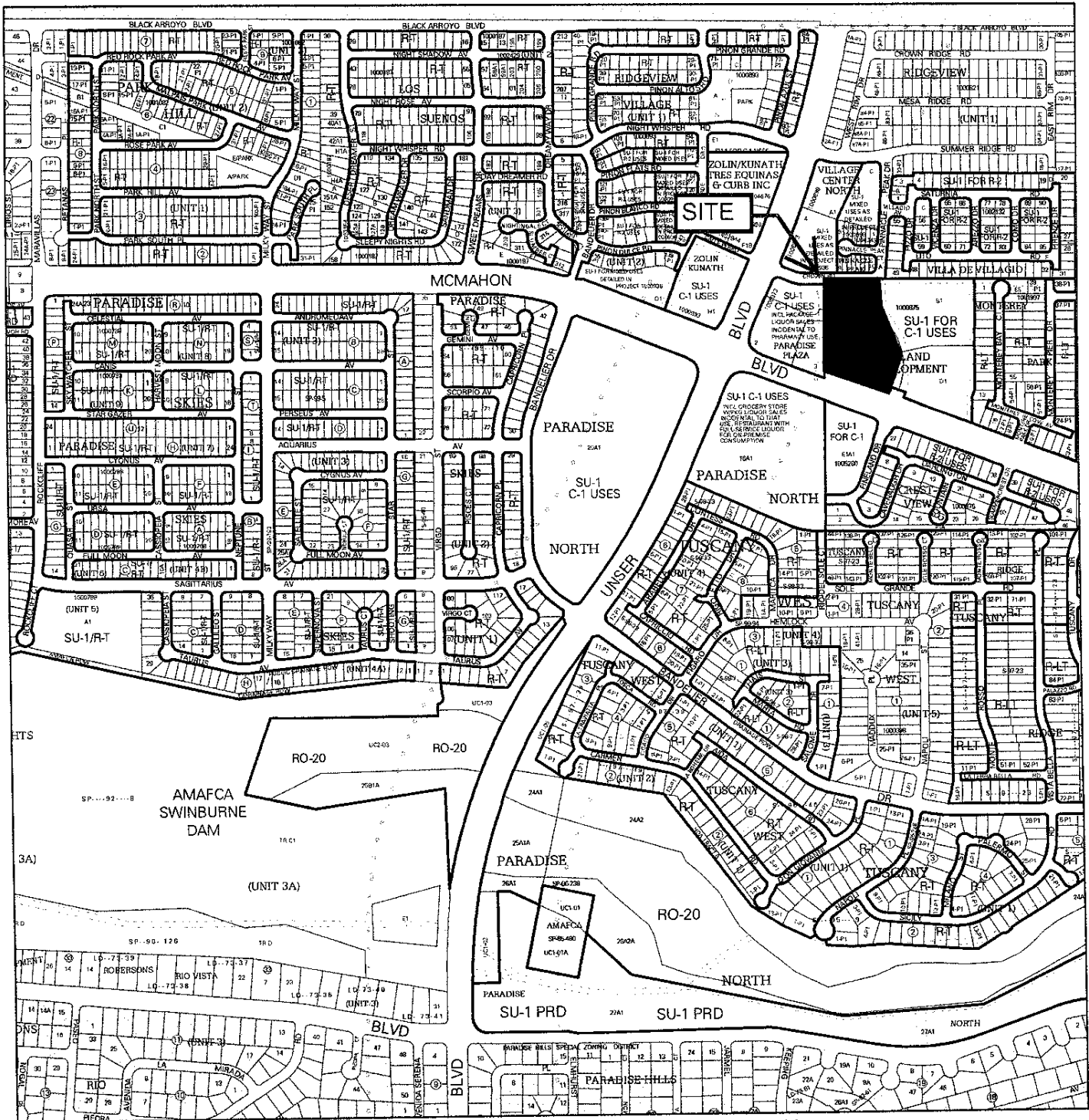
The purpose of this report is to provide the Drainage Management Plan for the subdivision of a 4.33 acre tract and the construction of a Kidz Daycare building with associated parking lot and playground on the northern 1.03 acres. The southern portion will be mass graded to balance the site and allow for future development. This plan was prepared in accordance with the City of Albuquerque design regulations, utilizing the City of Albuquerque's Development Process Manual drainage guidelines. This report will demonstrate that the grading does not adversely affect the surrounding properties, nor the upstream or downstream facilities.

INTRODUCTION

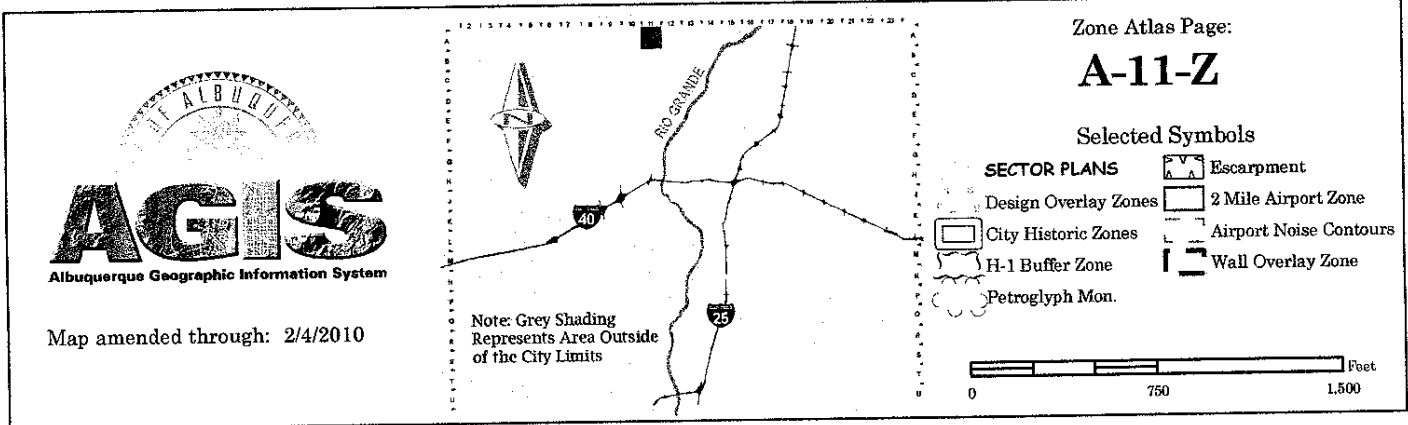
The subject of this report, as shown on the Exhibit A, is a 4.33 -acre parcel of land located on the west side of Fineland drive between McMahon and Crown road. The legal description of this site is tract A1A and A1B Fineland Subdivision. As shown on FIRM map35001C0104H, the entire site is located within Flood Zone X. The site is bound on all sides by roadways and not impacted by upland flows. The site is an undeveloped site. The site free discharges 5.63 cfs to the intersection of Crown road and Fineland. The site is located within basin O as shown in the area drainage plan (A11D009). The proposed improvements include the construction of a day care with parking and play ground areas on tract A1A. The remaining A1B will not be developed at this time. This site must conform to the 1.3 cfs per acre assigned within the master drainage plan and discharge to the existing storm drain system within Crown. The site must manage the first flush volume onsite.

EXISTING CONDITIONS

The site is currently undeveloped. The site currently discharges native flow of 5.63 or 1.3 cfs per acre to the intersection of crown and Fineland. The flows are captured by inlets north of the intersection and conveyed north to the Black Arroyo. Due to being higher than the surrounding roadways, the site is not impacted by upland flows.



For more current information and more details visit: <http://www.cabq.gov/gis>



PROPOSED CONDITIONS

The proposed improvements consist of new building with exterior sand playgrounds with a parking area within tract A1A. The southerly tract A1B will not be developed at this time, but allowance for its future development is provided and it will be mass graded with this project. The proposed site development will contain 4 basins. Basin A contains the playground areas around the building. This basin generates 0.69 cfs, which is captured by area drains within the play ground area. The inlets are conveyed to a single D inlet located within the parking lot by a private 12" storm drain. Basin B contains the building and parking lot. This basin is collected by a single type D inlet located within the parking lot. This basin discharges 3.00 cfs. The parking area will sheet flow to the Single D inlet. The north and west portion of the roof is directed to this inlet via an underground storm drain shared with basin A. The outlet flow for basins A and B are metered by the introduction of an orifice plate with a 3.75" opening placed at the outlet of the D inlet. The parking area acts as the detention basin. As shown in appendix B, this pond was modeled using AHYMO and the resultant peak out fall will be 64 cfs with a maximum water surface elevation of 5288.48. In the event of clogging the driveway to Fineland serves as the emergency overflow. The inlet is connected to an 18" storm drain which will be connected to an existing manhole at Crown. Basin C contains the undeveloped tract A1B. This basin generates 7.49 cfs and 9,365.4 CF. The undeveloped flow from this basin is captured by an interim retention pond that will retain the 100-year 10-day volume. The onsite storm drain extends to this pond and acts as an emergency overflow and will be utilized for the metered developed flow upon development of the lot. The future development must maintain a peak discharge of 2.15 cfs. Basin D contains the existing surrounding road way This basin generated 2.67 cfs which drains to the intersection of Fineland and Crown where the sheet flows north and is captured by city maintained inlets. The combined flow leaving this site is 3.31 in the proposed conditions and 5.46 cfs in the ultimate condition which is less than the allowed rate of 5.63 cfs or 1.3 cfs per acre. The developed portion will retain 1116 cf within the parking lot landscape pond and the onsite storm drain will

provide infiltration volume of 248 cf within the system, which is greater than the 776 cubic feet required for the first flush requirement. A portion of the parking driveway will discharge 114 cf to the roadways without being treated.

SUMMARY AND RECOMMENDATIONS

This project is located within basin O of the area drainage plan (A11D009). The site has a total peak discharge to the city maintained facilities of 5.46 cfs (1.26 cfs per acre). This is less than the allowed discharge rate of 5.63 cfs (1.3 cfs per acre). The first flush volume of 776 cubic feet is retained onsite. The plan allows for the future development of the parcel A1B. The onsite storm drain was designed to convey the current and ultimate flow. The ponds will overflow in an emergency or clogging situation via the parking lot discharging to Fineland. The development of this site will not negatively impact the upstream nor down stream facilities. Since the work area does exceed 1 acre, erosion and sediment Control Plan shall be required prior to any construction activity.

APPENDIX A
SITE HYDROLOGY

Weighted E Method

Existing Developed Basins										100-Year, 6-hr.			10-day	
Basin	Area (sf)	Area (acres)	Treatment A		Treatment B		Treatment C		Treatment D		Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs	Volume (ac-ft)
BASIN D	26615	0.611	0%	0	0.0%	0.000	0.0%	0	100%	0.611	1.970	0.100	2.67	0.182
SUBBASIN D1	692	0.016	0%	0	0.0%	0.000	0.0%	0	100%	0.016	1.970	0.003	0.07	0.005
BASIN A	12131	0.278	0%	0	64.0%	0.178	18.0%	0.05013	15%	0.042	0.903	0.021	0.69	0.027
BASIN B	32801	0.753	0%	0	7.0%	0.053	15.0%	0.11295	78%	0.587	1.732	0.109	3.00	0.187
BASIN C	117128	2.689	0%	0	10.0%	0.269	90.0%	2.42	0%	0.000	0.958	0.215	7.49	0.215
	44932.00	1.03			22%	0.23	16%	0.16	61%	0.63				

Equations:

$$\text{Weighted E} = E_a * A_a + E_b * A_b + E_c * A_c + E_d * A_d / (\text{Total Area})$$

$$\text{Volume} = \text{Weighted D} * \text{Total Area}$$

$$\text{Flow} = Q_a * A_a + Q_b * A_b + Q_c * A_c + Q_d * A_d$$

Where for 100-year, 6-hour storm (zone 1)

$$\begin{aligned} E_a &= 0.44 \\ E_b &= 0.67 \\ E_c &= 0.99 \\ E_d &= 1.97 \end{aligned}$$

FIRST FLUSH
776 CF
114 CF

DRIVEWAY NOT CAPTURED SUB BASIN D1

ALLOWED DISCHARGE=5.63 CFS
DISCHARGE FROM STREET/DRIVE=2.67
REMAINING ALLOWED=2.96 CFS
ONSITE ALLOWABLE DISCHARGE=.79 CFS PER ACRE
TRACT A1A= 81 CFS
TRACT A1B=2.15 CFS

$$\begin{aligned} Q_a &= 1.29 \\ Q_b &= 2.03 \\ Q_c &= 2.87 \\ Q_d &= 4.37 \end{aligned}$$

APPENDIX B

HYDRAULIC MODELING AND CALCULATIONS

DROP INLET CALCULATIONS

INLET	TYPE OF INLET	AREA (SF)	Q (CFS)	H (FT)	H ALLOW (FT)
INLET A	SINGLE	3.84	2.88	0.0243	1.5

ORIFICE EQUATION

$$Q = CA \sqrt{2gH}$$

$$C = 0.6$$

$$g = 32.2$$

Pipe Capacity

Pipe	D	Slope	Area	R	Q Provided	Q Required	Velocity
	(in)	(%)	(ft ²)		(cfs)	(cfs)	(ft/s)
18HDPE	18	4	1.77	0.375	18.26	4.18	2.37
12HDPE	12	0.7	0.79	0.25	2.59	1.32	1.68

Manning's Equation:

$$Q = 1.49/n * A * R^{(2/3)} * S^{(1/2)}$$

A = Area

R = D/4

S = Slope

n = 0.015

VOLUME CALCULATIONS

PARKING LOT POND

	ACTUAL ELEV.	DEPTH (FT)	AREA SF	VOLUME PER UNIT	VOLUME CUMULATIVE	VOLUME AC-FT	Q (CFS)
inlet bottim	84.25	0	4	4	4	0.000	
outfall	85.50	0.00	4.00	5	9	0.000	0.00
	86.50	1.00	4.00	4.0000	13	0.001	0.37
	87.50	2.00	332.00	168.0000	181	0.004	0.52
POND OVERFLOW	88.00	2.50	2346.00	669.5000	850.5	0.020	0.58
	88.50	3.00	8462.00	2702.0000	3552.5	0.082	0.64
	88.75	3.25	9785.00	2280.8750	5833.375	0.134	0.67

outlet at 87.25

Orifice Equation

$$Q = CA \sqrt{2gH}$$

C = 0.6
 Diameter (in) 3.75
 Area (ft^2)= 0.076699039
 g = 32.2
 H (Ft) = Depth of water above center of orifice
 Q (CFS)= Flow

pondrout011718.txt

*S AHYMO - DETENTION-KIDZ ACADEMY
 *S POND ROUTING

START TIME=0.0 PUNCH CODE=0

RAINFALL TYPE=2
 QUARTER=0.0 ONE= 1.87 IN
 SIX=2.20 IN DAY= 2.66 IN DT = 0.05 HR

COMPUTE NM HYD ID=1 HYD NO=101 DA= .0016094 SQ MI
 PER A=0 PER B=22 PER C=16 PER D=61
 TP=-.142 MASSRAIN=-1

PRINT HYD ID=1 CODE=3

* ROUTE THE TOTAL FLOW THROUGH THE PROPOSED RESERVOIR
 ROUTE RESERVOIR ID=2 HYD NO=102 INFLOW=1 CODE=3

OUTFLOW(CFS)	STORAGE(AC-FT)	ELEV(FT)
0.00	0.000	85.50
0.37	0.001	86.50
0.52	0.004	87.50
0.58	0.020	88.00
0.64	0.082	88.50
0.67	0.134	88.75

FINISH

AHYMO.OUT

AHYMO PROGRAM (AHYMO-S4) - Version: S4.01a - Rel: 01a
 RUN DATE (MON/DAY/YR) = 02/08/2018
 START TIME (HR:MIN:SEC) = 08:59:24 USER NO.=
 RioGrandeSingleA41963517
 INPUT FILE = ents and Settings\Owner\Desktop\2017
 jobs\17187-kidz\drainage\pondrout011718.txt

*S AHYMO - DETENTION-KIDZ ACADEMY
 *S POND ROUTING

START TIME=0.0 PUNCH CODE=0

RAINFALL TYPE=2
 QUARTER=0.0 ONE= 1.87 IN
 SIX=2.20 IN DAY= 2.66 IN DT = 0.05 HR

24-HOUR RAINFALL DIST. - BASED ON NOAA ATLAS 14 FOR CONVECTIVE
 AREAS (NM & AZ) - D1

DT =	0.050000	HOURS	END TIME =	24.000002	HOURS
0.0000	0.0022	0.0045	0.0069	0.0096	0.0123
0.0197	0.0264	0.0336	0.0412	0.0494	0.0578
0.0753	0.0844	0.0946	0.1052	0.1168	0.1387
0.2020	0.2430	0.2937	0.3614	0.4375	0.5689
1.1234	1.3695	1.5635	1.6610	1.7465	1.8079
1.8994	1.9306	1.9592	1.9828	1.9979	2.0087
2.0273	2.0352	2.0426	2.0499	2.0568	2.0625
2.0692	2.0724	2.0754	2.0784	2.0813	2.0842
2.0896	2.0923	2.0949	2.0974	2.0999	2.1023
2.1069	2.1092	2.1115	2.1136	2.1158	2.1179
2.1220	2.1240	2.1260	2.1280	2.1299	2.1318
2.1356	2.1374	2.1392	2.1411	2.1428	2.1446
2.1481	2.1498	2.1514	2.1531	2.1548	2.1564
2.1596	2.1612	2.1628	2.1643	2.1658	2.1674
2.1704	2.1718	2.1733	2.1747	2.1762	2.1776
2.1804	2.1818	2.1832	2.1845	2.1859	2.1872
2.1899	2.1912	2.1924	2.1937	2.1950	2.1963
2.1988	2.2000	2.2013	2.2026	2.2038	2.2051
2.2077	2.2089	2.2102	2.2115	2.2128	2.2141
2.2166	2.2179	2.2192	2.2204	2.2217	2.2230
2.2256	2.2268	2.2281	2.2294	2.2307	2.2319
2.2345	2.2358	2.2371	2.2383	2.2396	2.2409
2.2434	2.2447	2.2460	2.2473	2.2486	2.2498
2.2524	2.2537	2.2549	2.2562	2.2575	2.2588
2.2613	2.2626	2.2639	2.2652	2.2664	2.2677
2.2703	2.2716	2.2728	2.2741	2.2754	2.2767
2.2792	2.2805	2.2818	2.2831	2.2843	2.2856
2.2882	2.2894	2.2907	2.2920	2.2933	2.2946
2.2971	2.2984	2.2997	2.3009	2.3022	2.3035
2.3061	2.3073	2.3086	2.3099	2.3112	2.3124
2.3150	2.3163	2.3176	2.3188	2.3201	2.3214
2.3239	2.3252	2.3265	2.3278	2.3291	2.3303
2.3329	2.3342	2.3354	2.3367	2.3380	2.3393
2.3418	2.3431	2.3444	2.3457	2.3469	2.3482
2.3508	2.3521	2.3533	2.3546	2.3559	2.3572
2.3597	2.3610	2.3623	2.3636	2.3648	2.3661
2.3687	2.3699	2.3712	2.3725	2.3738	2.3750

AHYMO.OUT

2.3776	2.3789	2.3802	2.3814	2.3827	2.3840	2.3853
2.3865	2.3878	2.3891	2.3904	2.3917	2.3929	2.3942
2.3955	2.3968	2.3980	2.3993	2.4006	2.4019	2.4032
2.4044	2.4057	2.4070	2.4083	2.4095	2.4108	2.4121
2.4134	2.4147	2.4159	2.4172	2.4185	2.4198	2.4210
2.4223	2.4236	2.4249	2.4262	2.4274	2.4287	2.4300
2.4313	2.4325	2.4338	2.4351	2.4364	2.4377	2.4389
2.4402	2.4415	2.4428	2.4440	2.4453	2.4466	2.4479
2.4492	2.4504	2.4517	2.4530	2.4543	2.4555	2.4568
2.4581	2.4594	2.4607	2.4619	2.4632	2.4645	2.4658
2.4670	2.4683	2.4696	2.4709	2.4722	2.4734	2.4747
2.4760	2.4773	2.4785	2.4798	2.4811	2.4824	2.4837
2.4849	2.4862	2.4875	2.4888	2.4900	2.4913	2.4926
2.4939	2.4952	2.4964	2.4977	2.4990	2.5003	2.5015
2.5028	2.5041	2.5054	2.5067	2.5079	2.5092	2.5105
2.5118	2.5130	2.5143	2.5156	2.5169	2.5182	2.5194
2.5207	2.5220	2.5233	2.5245	2.5258	2.5271	2.5284
2.5297	2.5309	2.5322	2.5335	2.5348	2.5360	2.5373
2.5386	2.5399	2.5412	2.5424	2.5437	2.5450	2.5463
2.5475	2.5488	2.5501	2.5514	2.5527	2.5539	2.5552
2.5565	2.5578	2.5590	2.5603	2.5616	2.5629	2.5642
2.5654	2.5667	2.5680	2.5693	2.5705	2.5718	2.5731
2.5744	2.5757	2.5769	2.5782	2.5795	2.5808	2.5820
2.5833	2.5846	2.5859	2.5872	2.5884	2.5897	2.5910
2.5923	2.5935	2.5948	2.5961	2.5974	2.5987	2.5999
2.6012	2.6025	2.6038	2.6050	2.6063	2.6076	2.6089
2.6102	2.6114	2.6127	2.6140	2.6153	2.6165	2.6178
2.6191	2.6204	2.6217	2.6229	2.6242	2.6255	2.6268
2.6280	2.6293	2.6306	2.6319	2.6332	2.6344	2.6357
2.6370	2.6383	2.6395	2.6408	2.6421	2.6434	2.6447
2.6459	2.6472	2.6485	2.6498	2.6510	2.6523	2.6536
2.6549	2.6562	2.6574	2.6587	2.6600		

COMPUTE NM HYD ID=1 HYD NO=101 DA= .0016094 SQ MI
 PER A=0 PER B=22 PER C=16 PER D=61
 TP=-.142 MASSRAIN=-1

*****WARNING***** SUM OF TREATMENT TYPES DOES NOT EQUAL 100 PERCENT OR
 TOTAL AREA

K = 0.077390HR TP = 0.142000HR K/TP RATIO = 0.545000 SHAPE
 CONSTANT, N = 7.106428
 UNIT PEAK = 3.6752 CFS UNIT VOLUME = 0.9962 B = 526.28
 P60 = 1.8700
 AREA = 0.000992 SQ MI IA = 0.10000 INCHES INF = 0.04000
 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
 0.050000

K = 0.128272HR TP = 0.142000HR K/TP RATIO = 0.903323 SHAPE
 CONSTANT, N = 3.922324
 UNIT PEAK = 1.5225 CFS UNIT VOLUME = 0.9931 B = 349.96
 P60 = 1.8700
 AREA = 0.000618 SQ MI IA = 0.43684 INCHES INF = 1.07316
 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
 0.050000

PRINT HYD ID=1 CODE=3

AHYMO.OUT
PARTIAL HYDROGRAPH 101.00

TIME	TIME	FLOW	TIME	TIME	FLOW	TIME	FLOW
HRS	FLOW HRS CFS	CFS	HRS	FLOW HRS CFS	CFS	HRS	CFS
14.850	0.000	0.0	19.800	4.950	0.0	9.900	0.0
15.000	0.150	0.0	19.950	5.100	0.0	10.050	0.0
15.150	0.300	0.0	20.100	5.250	0.0	10.200	0.0
15.300	0.450	0.0	20.250	5.400	0.0	10.350	0.0
15.450	0.600	0.0	20.400	5.550	0.0	10.500	0.0
15.600	0.750	0.0	20.550	5.700	0.0	10.650	0.0
15.750	0.900	0.0	20.700	5.850	0.0	10.800	0.0
15.900	1.050	0.2	20.850	6.000	0.0	10.950	0.0
16.050	1.200	0.4	21.000	6.150	0.0	11.100	0.0
16.200	1.350	1.1	21.150	6.300	0.0	11.250	0.0
16.350	1.500	3.8	21.300	6.450	0.0	11.400	0.0
16.500	1.650	2.5	21.450	6.600	0.0	11.550	0.0
16.650	1.800	1.2	21.600	6.750	0.0	11.700	0.0
16.800	1.950	0.6	21.750	6.900	0.0	11.850	0.0
16.950	2.100	0.4	21.900	7.050	0.0	12.000	0.0
17.100	2.250	0.2	22.050	7.200	0.0	12.150	0.0
17.250	2.400	0.1	22.200	7.350	0.0	12.300	0.0
17.400	2.550	0.1	22.350	7.500	0.0	12.450	0.0
17.550	2.700	0.0	22.500	7.650	0.0	12.600	0.0
17.700	2.850	0.0	22.650	7.800	0.0	12.750	0.0
17.850	3.000	0.0	22.800	7.950	0.0	12.900	0.0
18.000	3.150	0.0	22.950	8.100	0.0	13.050	0.0
18.150	3.300	0.0	23.100	8.250	0.0	13.200	0.0
18.300	3.450	0.0	23.250	8.400	0.0	13.350	0.0
18.450	3.600	0.0	23.400	8.550	0.0	13.500	0.0
18.600	3.750	0.0	23.550	8.700	0.0	13.650	0.0
18.750	3.900	0.0	23.700	8.850	0.0	13.800	0.0
18.900	4.050	0.0	23.850	9.000	0.0	13.950	0.0
	4.200	0.0		9.150	0.0	14.100	0.0

TIME	INFLW	ELEV	VOLUME	OUTFLOW	RESERVOIR	RESERVOIR
19.050	0.0	24.000	0.0	0.0	14.250	0.0
19.200	4.350	0.0	24.150	0.0	14.400	0.0
19.350	0.0	0.0	24.300	0.0	14.550	0.0
19.500	4.500	0.0	24.450	0.0	14.700	0.0
19.650	0.0	0.0	9.750	0.0		

RUNOFF VOLUME = 1.84975 INCHES = 0.1588 ACRE-Feet
 PEAK DISCHARGE RATE = 3.78 CFS AT 1.500 HOURS BASIN AREA = 0.0016 SQ. MI.

* ROUTE THE TOTAL FLOW THROUGH THE PROPOSED RESERVOIR
 ROUTE RESERVOIR ID=2 HYD NO=102 INFLOW=1 CODE=3
 OUTFLOW(CFS) STORAGE(AC-FT) ELEV(FT)
 0.00 0.000 85.50
 0.37 0.001 86.50
 0.52 0.004 87.50
 0.58 0.020 88.00
 0.64 0.082 88.50
 0.67 0.134 88.75

TIME (HRS)	INFLW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
0.00	0.00	85.50	0.000	0.00
0.15	0.00	85.50	0.000	0.00
0.30	0.00	85.50	0.000	0.00
0.45	0.00	85.50	0.000	0.00
0.60	0.00	85.50	0.000	0.00
0.75	0.00	85.50	0.000	0.00
0.90	0.01	85.52	0.000	0.01
1.05	0.18	85.86	0.000	0.13
1.20	0.43	86.50	0.001	0.37
1.35	1.13	87.51	0.004	0.52
1.50	3.78	88.06	0.028	0.59
1.65	2.48	88.34	0.062	0.62
1.80	1.16	88.45	0.076	0.63
1.95	0.65	88.47	0.079	0.64
2.10	0.35	88.46	0.077	0.64
2.25	0.21	88.42	0.072	0.63
2.40	0.14	88.38	0.067	0.63
2.55	0.07	88.33	0.060	0.62
2.70	0.04	88.27	0.053	0.61
2.85	0.03	88.21	0.046	0.61
3.00	0.01	88.15	0.039	0.60

AHYMO.OUT				
3.15	0.01	88.10	0.032	0.59
3.30	0.01	88.04	0.025	0.58
3.45	0.01	87.92	0.017	0.57
3.60	0.01	87.71	0.011	0.54
3.75	0.01	87.50	0.004	0.52
3.90	0.01	85.61	0.000	0.04
4.05	0.01	85.52	0.000	0.01
4.20	0.01	85.52	0.000	0.01
4.35	0.01	85.52	0.000	0.01
4.50	0.01	85.52	0.000	0.01
4.65	0.01	85.52	0.000	0.01
4.80	0.01	85.52	0.000	0.01
4.95	0.01	85.53	0.000	0.01
5.10	0.01	85.53	0.000	0.01
5.25	0.01	85.53	0.000	0.01
5.40	0.01	85.53	0.000	0.01
5.55	0.01	85.53	0.000	0.01
5.70	0.01	85.54	0.000	0.01
5.85	0.01	85.54	0.000	0.01
6.00	0.02	85.54	0.000	0.02
6.15	0.02	85.54	0.000	0.02
6.30	0.02	85.54	0.000	0.02
6.45	0.02	85.54	0.000	0.02
6.60	0.02	85.54	0.000	0.02
6.75	0.02	85.54	0.000	0.02
6.90	0.02	85.54	0.000	0.02
7.05	0.02	85.54	0.000	0.02
7.20	0.02	85.54	0.000	0.02
7.35	0.02	85.54	0.000	0.02
7.50	0.02	85.54	0.000	0.02
7.65	0.02	85.54	0.000	0.02
7.80	0.02	85.54	0.000	0.02
7.95	0.02	85.54	0.000	0.02
8.10	0.02	85.54	0.000	0.02
8.25	0.02	85.54	0.000	0.02

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
8.40	0.02	85.54	0.000	0.02
8.55	0.02	85.54	0.000	0.02
8.70	0.02	85.54	0.000	0.02
8.85	0.02	85.54	0.000	0.02
9.00	0.02	85.54	0.000	0.02
9.15	0.02	85.54	0.000	0.02
9.30	0.02	85.54	0.000	0.02
9.45	0.02	85.54	0.000	0.02
9.60	0.02	85.54	0.000	0.02
9.75	0.02	85.54	0.000	0.02
9.90	0.02	85.54	0.000	0.02
10.05	0.02	85.54	0.000	0.02
10.20	0.02	85.54	0.000	0.02
10.35	0.02	85.54	0.000	0.02
10.50	0.02	85.54	0.000	0.02
10.65	0.02	85.54	0.000	0.02
10.80	0.02	85.54	0.000	0.02
10.95	0.02	85.54	0.000	0.02
11.10	0.02	85.54	0.000	0.02
11.25	0.02	85.54	0.000	0.02
11.40	0.02	85.54	0.000	0.02
11.55	0.02	85.54	0.000	0.02
11.70	0.02	85.54	0.000	0.02
11.85	0.02	85.54	0.000	0.02

AHYMO.OUT				
12.00	0.02	85.54	0.000	0.02
12.15	0.02	85.54	0.000	0.02
12.30	0.02	85.54	0.000	0.02
12.45	0.02	85.54	0.000	0.02
12.60	0.02	85.54	0.000	0.02
12.75	0.02	85.54	0.000	0.02
12.90	0.02	85.54	0.000	0.02
13.05	0.02	85.54	0.000	0.02
13.20	0.02	85.54	0.000	0.02
13.35	0.02	85.54	0.000	0.02
13.50	0.02	85.54	0.000	0.02
13.65	0.02	85.54	0.000	0.02
13.80	0.02	85.54	0.000	0.02
13.95	0.02	85.54	0.000	0.02
14.10	0.02	85.54	0.000	0.02
14.25	0.02	85.54	0.000	0.02
14.40	0.02	85.54	0.000	0.02
14.55	0.02	85.54	0.000	0.02
14.70	0.02	85.54	0.000	0.02
14.85	0.02	85.54	0.000	0.02
15.00	0.02	85.54	0.000	0.02
15.15	0.02	85.54	0.000	0.02
15.30	0.02	85.54	0.000	0.02
15.45	0.02	85.54	0.000	0.02
15.60	0.02	85.54	0.000	0.02
15.75	0.02	85.54	0.000	0.02
15.90	0.02	85.54	0.000	0.02
16.05	0.02	85.54	0.000	0.02
16.20	0.02	85.54	0.000	0.02
16.35	0.02	85.54	0.000	0.02
16.50	0.02	85.54	0.000	0.02
16.65	0.02	85.54	0.000	0.02

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
16.80	0.02	85.54	0.000	0.02
16.95	0.02	85.54	0.000	0.02
17.10	0.02	85.54	0.000	0.02
17.25	0.02	85.54	0.000	0.02
17.40	0.02	85.54	0.000	0.02
17.55	0.02	85.54	0.000	0.02
17.70	0.02	85.54	0.000	0.02
17.85	0.02	85.54	0.000	0.02
18.00	0.02	85.54	0.000	0.02
18.15	0.02	85.54	0.000	0.02
18.30	0.02	85.54	0.000	0.02
18.45	0.02	85.54	0.000	0.02
18.60	0.02	85.54	0.000	0.02
18.75	0.02	85.54	0.000	0.02
18.90	0.02	85.54	0.000	0.02
19.05	0.02	85.54	0.000	0.02
19.20	0.02	85.54	0.000	0.02
19.35	0.02	85.54	0.000	0.02
19.50	0.02	85.54	0.000	0.02
19.65	0.02	85.54	0.000	0.02
19.80	0.02	85.54	0.000	0.02
19.95	0.02	85.54	0.000	0.02
20.10	0.02	85.54	0.000	0.02
20.25	0.02	85.54	0.000	0.02
20.40	0.02	85.54	0.000	0.02
20.55	0.02	85.54	0.000	0.02
20.70	0.02	85.54	0.000	0.02

AHYMO.OUT				
20.85	0.02	85.54	0.000	0.02
21.00	0.02	85.54	0.000	0.02
21.15	0.02	85.54	0.000	0.02
21.30	0.02	85.54	0.000	0.02
21.45	0.02	85.54	0.000	0.02
21.60	0.02	85.54	0.000	0.02
21.75	0.02	85.54	0.000	0.02
21.90	0.02	85.54	0.000	0.02
22.05	0.02	85.54	0.000	0.02
22.20	0.02	85.54	0.000	0.02
22.35	0.02	85.54	0.000	0.02
22.50	0.02	85.54	0.000	0.02
22.65	0.02	85.54	0.000	0.02
22.80	0.02	85.54	0.000	0.02
22.95	0.02	85.54	0.000	0.02
23.10	0.02	85.54	0.000	0.02
23.25	0.02	85.54	0.000	0.02
23.40	0.02	85.54	0.000	0.02
23.55	0.02	85.54	0.000	0.02
23.70	0.02	85.54	0.000	0.02
23.85	0.02	85.54	0.000	0.02
24.00	0.02	85.54	0.000	0.02
24.15	0.01	85.53	0.000	0.01
24.30	0.00	85.51	0.000	0.00

PEAK DISCHARGE = 0.637 CFS - PEAK OCCURS AT HOUR 1.95
 MAXIMUM WATER SURFACE ELEVATION = 88.473
 MAXIMUM STORAGE = 0.0787 AC-FT INCREMENTAL TIME= 0.050000HRS

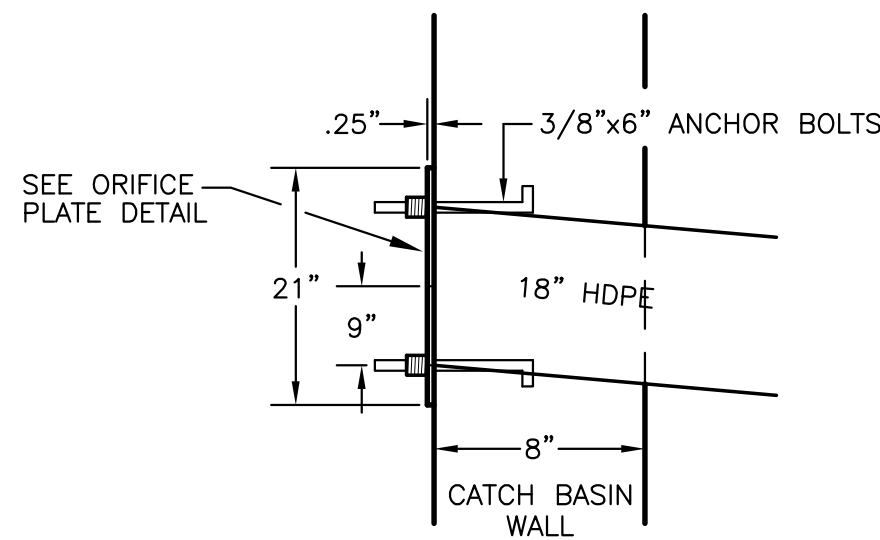
FINISH

NORMAL PROGRAM FINISH

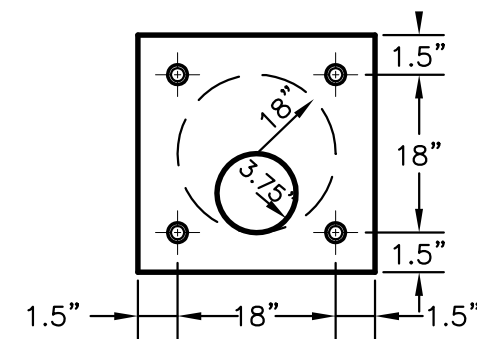
END TIME (HR:MIN:SEC) = 08:59:24

EROSION CONTROL NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR OBTAINING A TOPSOIL DISTURBANCE PERMIT PRIOR TO BEGINNING WORK.
2. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING RUN-OFF ON SITE DURING CONSTRUCTION.
3. CONTRACTOR IS RESPONSIBLE FOR CLEANING ALL SEDIMENT THAT GETS INTO EXISTING RIGHT-OF-WAY.
4. REPAIR OF DAMAGED FACILITIES AND CLEANUP OF SEDIMENT ACCUMULATIONS ON ADJACENT PROPERTIES AND IN PUBLIC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.
5. ALL EXPOSED EARTH SURFACES MUST BE PROTECTED FROM WIND AND WATER EROSION PRIOR TO FINAL ACCEPTANCE OF ANY PROJECT.

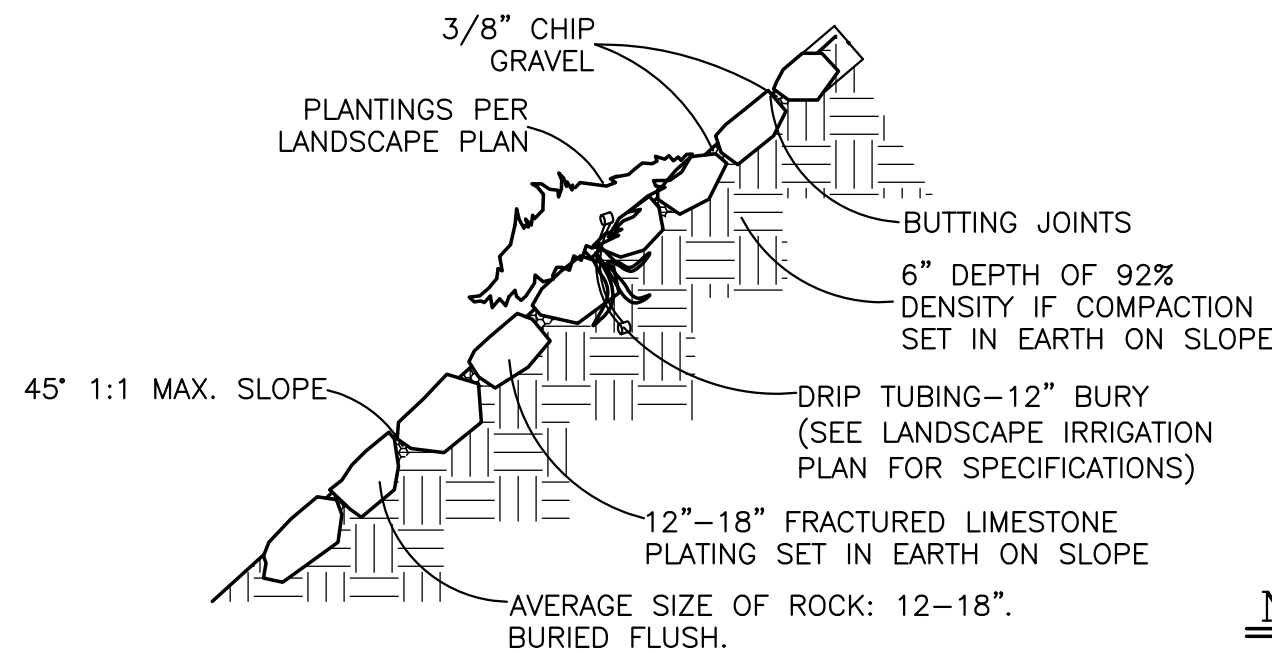
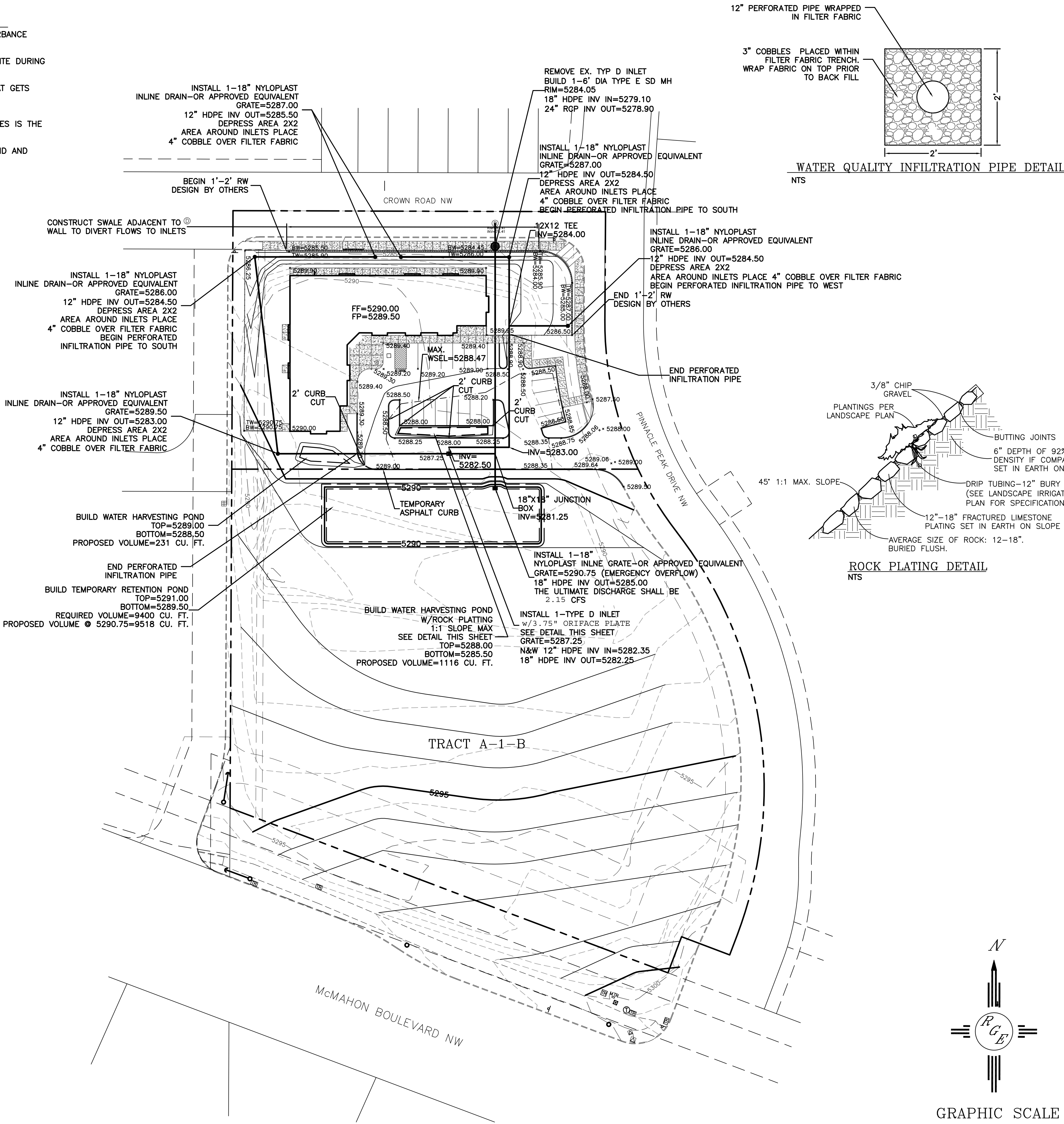


DETAIL A
TO BE INSTALLED @ THE OUTFLOW
OF THE CATCH BASINS (SEE THIS PLAN
FOR ORIFICE PLATE SIZES)

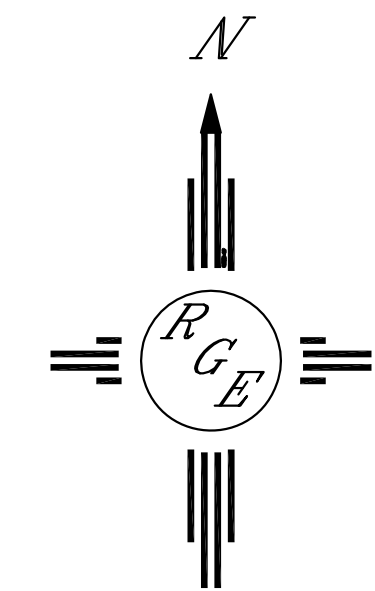


TYP. ORIFICE PLATE DETAIL
N.T.S.

CAUTION:
EXISTING UTILITIES ARE NOT SHOWN.
IT SHALL BE THE SOLE RESPONSIBILITY
OF THE CONTRACTOR TO CONDUCT ALL
NECESSARY FIELD INVESTIGATIONS PRIOR
TO ANY EXCAVATION TO DETERMINE THE
ACTUAL LOCATION OF UTILITIES & OTHER
IMPROVEMENTS.

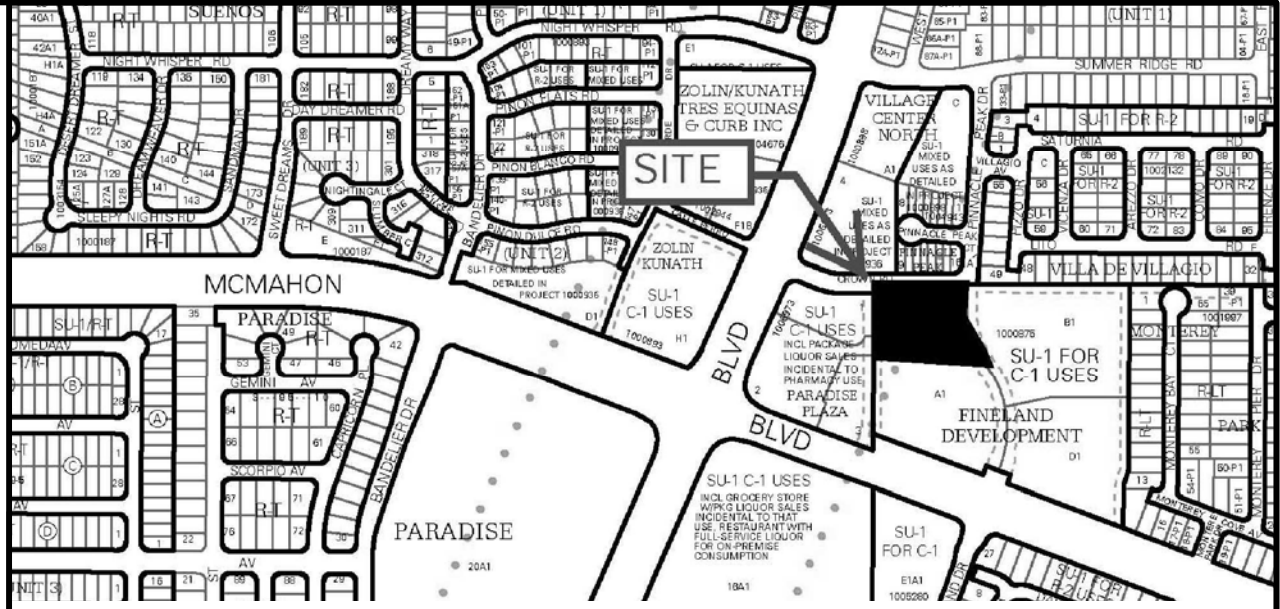


ROCK PLATING DETAIL
N.T.S.



GRAPHIC SCALE

SCALE: 1"=40'



LEGAL DESCRIPTION:
PARCEL A-1, FINELAND DEVELOPMENT

NOTES:

1. ALL SPOT ELEVATIONS REPRESENT FLOWLINE ELEVATION UNLESS OTHERWISE NOTED.
2. ALL CURB AND GUTTER TO 6" HEADER UNLESS OTHERWISE NOTED.
3. ALL RETAINING WALL DESIGN SHALL BE BY OTHERS.
4. ANY CURBS OR PAVEMENT NEGATIVELY IMPACTED BY CONSTRUCTION ACTIVITY SHALL BE REPLACED TO MATCH EXISTING CONDITIONS.
5. ALL SITE WORK SHALL CONFORM TO CITY OF ALBUQUERQUE STANDARDS FOR PUBLIC WORKS CONSTRUCTION EDITION 9

LEGEND

---	-5414-	EXISTING CONTOUR
---	-5415-	EXISTING INDEX CONTOUR
---	-5414-	PROPOSED CONTOUR
---	-5415-	PROPOSED INDEX CONTOUR
---	1	SLOPE TIE
---	x 4048.25	EXISTING SPOT ELEVATION
---	x 4048.25	PROPOSED SPOT ELEVATION
---	---	BOUNDARY
---	---	CENTERLINE
---	---	RIGHT-OF-WAY
---	---	PROPOSED CURB
---	---	EXISTING CURB AND GUTTER
---	---	PROPOSED SIDEWALK
---	---	EXISTING SIDEWALK
---	---	PROPOSED RETAINING WALL (SEE STRUCTURAL DRAWINGS)
---	---	6" CONCRETE OVER 4" AGGREGATE BASE COURSE, WITH 12" SUBGRADE PREP
---	---	REMOVE AND REPLACE EX.SW PER COA STD DWG #2430

ENGINEER'S SEAL DAVID SOULE NEW MEXICO REGISTERED PROFESSIONAL ENGINEER 14522 2/20/18 DAVID SOULE P.E. #14522	KIDZ ACADEMY GRADING AND DRAINAGE PLAN <i>Pio Grande Engineering</i> 1606 CENTRAL AVENUE SE SUITE 201 ALBUQUERQUE, NM 87106 (505) 872-0999	DRAWN BY WCWJ DATE 2-20-18 21801-LAYOUT-9-25-17 SHEET # JOB # 21801
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