CITY OF ALBUQUERQUE

July 24, 2017

David Aube, PE
Hartman + Majewski Design Group
120 Vassar Dr. SE Suite 100
Albuquerque, NM 87106

Re: GAHP Casa Feliz
421 Espanola Street SE
Request for Permanent C. O. – Not Accepted
Engineers Stamp Date 12/18/15 (L19D073F)
Certification dated: 7/18/2017

Dear Mr. Aube,

Based on the Engineer's Certification provided in your submittal received 7/18/2017, Hydrology cannot approve the issuance of the Certificate of Occupancy until the following comments are addressed:

1. Even though your certification and associated survey clams a 6" deep channel on the south side of the site, at our site meeting on 7/20/2017 it appeared that most of that depth is loose landscape rock that won't hold water. So the Grading Plan must be revised and resubmitted to hydrology to include a design of a wall or curb along the south property line as necessary to prevent cross lot drainage. The revised plan should include a new engineer's stamp date.
2. The revised plan should also include a cross-section through the swale and property line and show this sit 1' higher that the adjacent site as shown at section D on the surveyed sections. Manning's "n" value in the channel calculations also needs correction from 0.025to 0.045 for rip-rap.

After the revised G&D Plan is approved by Hydrology and the contractor has completed the construction, a new Engineer's Certification should be submitted to hydrology for CO. The following should be on that plan.

1. The pipe that was added in the side yard swale can either be added to the revised G&D Plan or added to the subsequent Engineer's Certification, but it must include invert elevations at both ends and the flow depth must be revised and the pipe must be analyzed as a culvert instead of the normal depth calculation in 6/28/2017 submittal.

PO Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

2. As-built survey information should be added to the plan to include spot elevations throughout the parking lot, the swale , and the finished floor elevations as well as the top of the new wall to be added on the south side of the property.

An inspection by our office will need to take place after these corrections are made.

If you have any questions, you can contact me at 924-3986 or Totten Elliott at 924-3982.

Sincerely,

James D. Hughes

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

TE/JH
C: email

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 1/28/2003rd)

PROJECT TITLE: GAHP Casa Feliz (L19D073F) ZONE MAP/DRG. FILE #: L-19-Z
DRB #: ___ EPC#:_____ WORK ORDER#:_____

LEGAL DESCRIPTION: Lot 13-18, 18-20 Block 4, Lots 4-8, 17-18 Block 5, etc. Emil Mann Addition
CITY ADDRESS: Bldg H at 421 Espanola SE

ENGINEERING FIRM: Hartman + Majewski Design Group
ADDRESS: 120 Vassar Dr SE, Suite 100
CITY, STATE: Albuquerque, NM 87106
CONTACT: David Aube
PHONE: 505-998-6430
ZIP CODE: 87106

OWNER: Greater Albuquerque Housing Partnership
ADDRESS: 320 Gold SW, Suite 918
CITY, STATE: Albuquerque, NM
CONTACT: Felipe Rael
PHONE: 505-244-1614
ZIP CODE: 87102

ARCHITECT: Hartman + Majewski Design Group
ADDRESS: 120 Vassar Dr SE, Suite 100
CITY, STATE: Albuquerque, NM
CONTACT: Mark Wade
PHONE: 505-998-6442
ZIP CODE: 87106

SURVEYOR: Community Sciences.
ADDRESS: _____
CITY, STATE: Albuquerque, NM
CONTACT:
PHONE: 505-
ZIP CODE: _____

CONTRACTOR: _____
ADDRESS:
CITY, STATE: _____
CONTACT: _____
PHONE:
ZIP CODE:

CHECK TYPE OF SUBMITTAL:

- ☐ DRAINAGE REPORT
- ☐ DRAINAGE PLAN 1st SUBMITTAL, ***REQUIRES TCL or equal***
- ☐ DRAINAGE PLAN RESUBMITTAL
- ☐ CONCEPTUAL GRADING & DRAINAGE PLAN
- ☐ GRADING PLAN
- ☐ EROSION CONTROL PLAN
- ☒ ENGINEER'S CERTIFICATION (HYDROLOGY)
- ☐ CLOMR/LOMR
- ☐ TRAFFIC CIRCULATION LAYOUT (TCL)
- ☐ ENGINEERS CERTIFICATION (TCL)
- ☐ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
- ☐ OTHER

CHECK TYPE OF APPROVAL SOUGHT:

- ☐ SIA / FINANCIAL GUARANTEE RELEASE
- ☐ PRELIMINARY PLAT APPROVAL
- ☐ S. DEV. PLAN FOR SUB'D. APPROVAL
- ☐ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ☐ SECTOR PLAN APPROVAL
- ☐ FINAL PLAT APPROVAL
- ☐ FOUNDATION PERMIT APPROVAL
- ☐ BUILDING PERMIT APPROVAL
- ☒ CERTIFICATE OF OCCUPANCY (PERM.)
- ☐ CERTIFICATE OF OCCUPANCY (TEMP.)
- ☐ GRADING PERMIT APPROVAL
- ☐ PAVING PERMIT APPROVAL
- ☐ WORK ORDER APPROVAL
- ☐ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ☒ YES
- ☐ NO
- ☐ COPY PROVIDED

DATE SUBMITTED: JuLY 18, 2017 BY: David Aube P.E.

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature , location and scope ot the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan**: Required for approval of Site Development Plans greater than five (5) acres and Sector Plans.
2. **Drainage Plans**: Required for building permits, grading permits, paving permits and site plans less than five (5) acres.
3. **Drainage Report**: Required for subdivisions containing more than ten (10) lots or constituting five (5) acres or more.

I. PURPOSE AND SCOPE

THE PURPOSE OF THIS DRAINAGE PLAN IS TO PRESENT THE EXISTING AND PROPOSED DRAINAGE MANAGEMENT PLANS FOR THE GREATER ALBUQUERQUE HOUSING PROJECT TITLED CASA FELIZ.

II. SITE DESCRIPTION AND HISTORY

THE PROJECT CONTAINS MANY SCATTERED SITES, LOCATED AROUND A PREVIOUS PROJECT BY GREATER ALBUQUERQUQ HOUSING AUTHORITY CALLED PLAZA FELIZ. THE SITES ARE LOCATED ON ESPANOLA STREET SE, SAN PABLO STREET SE, GROVE STREET SE, BELL AVENUE SE, AND TRUMBELL AVENUE SE.

THIS AREA WAS AT ONE TIME FULLY DEVELOPED WITH A FOURPLEX ON EACH OF THE LOTS BEING REDEVELOPED BY THIS PROJECT. THE LAND WAS ORIGINALLY SUBDIVIDED IN 1944 AND WAS FULLY DEVELOPED PRIOR TO THE IMPLEMENTATION OF THE DRAINAGE ORDINANCE RESTRICTING FLOW FROM THE SITES INTO THE PUBLIC WAY. DEMOLITION OF THESE PRIOR FOURPLEXES WAS COMPLETED BY 2010 WITH THE EXCEPTION OF ONE LOT THAT STILL NEEDS TO HAVE THE BUILDING REMOVED FOR THIS PROJECT.

THE SITES WERE ALL FREE DISCHARGE INTO THE STREET, OR IN SOME CASES INTO THE ADJACENT PROPERTIES. EACH OF THE SITES WERE ANALYZED AS TYPE C SOIL TO ACCOUNT FOR THE PREVIOUSLY COMPACTED SOIL CONDITIONS. THIS INCLUDES THE LOT WITH THE EXISTING BUILDING TO BE REMOVED.

III. COMPUTATIONAL PROCEDURES

HYDROLOGIC ANALYSIS WAS PERFORMED UTILIZING THE DESIGN CRITERIA BASED ON SECTION 22.2, HYDROLOGY, OF THE DEVELOPMENT PROCESS MANUAL.

IV. PRECIPITATION

THE STORM EVENT USED FOR THE FOLLOWING CALCULATIONS IS THE 100YR-6HR STORM. THE PROJECT SITE IS LOCATED IN ZONE 3.

V. EXISTING DRAINAGE CONDITIONS (REFER TO CD EX1)

CURRENTLY THE SITES FLOW FROM EAST TO WEST AND TOWARD BELL AVENUE FROM BOTH NORTH AND SOUTH. WITH THE PRIOR DEVELOPMENT, MANY OF THE LOTS CREATED CROSS LOT DRAINAGE PATTTERNS THAT WILL BE CORRECTED WITH THIS PROJECT. HISTORICALLY THE SITES HAD BEEN DEVELOPED AS FOURPLEX UNITS WITH APPROXIMATELY 6 PARKING SPACES ON SITE. THE SITES CONTAINED MINIMAL LANDSCAPING AND WERE LIKELY 85% IMPERVIOUS (USING SURROUNDING UNITS AS A TYPICAL DEVELOPMENT DENSITY).

USING THE 85% D AND 15% C SOIL TREATMENTS THE TYPCIAL 50X135 LOT (6750 SF) CREATES A PEAK RUNOFF RATE OF 0.74 CFS AND AN EXCESS RUNOFF VOLUME OF 0.0284 ACRE FEET DURING THE 100 YEAR 6 HOUR EVENT.

TO BE MORE CONSERVATIVE, THE SITES WERE ANALYZED AS 100% C SOIL AS REQUIRED FOR SOIL COMPACTED BY HUMAN ACTIVITY. THE REDUCES THE PEAK RUNOFF RATE TO 0.53 CFS AND AN EXCESS RUNOFF VOLUME OF 0.0167 ACRE FEET DURING THE 100 YEAR 6 HOUR EVENT.

VI. PROPOSED DRAINAGE CONDITIONS

THE SCATTERED SITE HAVE BEEN ANALYZED INDIVIDUALLY. BUILDINGS HAVE BEEN ASSIGNED LETTERS AND THIS REPORT IS ORGANIZED TO FOLLOW THAT SAME ORDER.

BUILDING/SITE A IS LOCATED IN A SINGLE LOT THAT WILL HAVE A PORTION OF TRUMBELL VACATED AND IS THEREFORE SLIGHTLY LARGER THAN THE TYPICAL LOT AND CONTAINS 7425 SF. THIS SITE CURRENTLY CONTAINS AN APARTMENT BUILDING THAT WILL BE DEMOLISHED. THE SITE IS BROKEN UP INTO TWO SUB BASINS, THE FIRST FLOWING WEST TOWARD SAN PABLO AND THE OTHER TO THE EAST AND INTO TRUMBELL ON THE SOUTH. THE COMBINED FLOW RATES FOR THIS SITE 0.70 CFS WHICH IS LESS THAN THE ACTUAL CURRENT CONDITIONS OF 0.82 SF. THESE NUMBERS WERE ADJUSTED BECAUSE THE SITE CONTAINS THE 7425 SF IN LIEU OF THE TYPCIAL 6750 SF. THE INCLUSION OF SHALLOW PONDING AREAS (4" DEEP) THAT HARVEST 113 OF THE FIRST FLUSH VOLUME (91.6 CF REQUIRED) WILL FURTHER REDUCE THE PEAK RUNOFF.

BUILDING/SITE B CONTAINS 7 PARCELS AND WOULD HAVE CREATED A PEAK RUNOFF IN THE PREVIOUSLY DEVELOPED CONDITION OF 5.18 CFS (7 * 0.74 CFS). THE PROPOSED DEVELOPMENT WILL CREATE A PEAK RUNOFF OF 4.32 CSF AND AN EXCESS RUNOFF VOLUME OF 0.1520 ACRE FEET. THE SHALLOW PONDS SURROUNDING THE BUILDING WILL HARVEST 576 CF WHICH EXCEEDS THE FIRST FLUSH REQUIRED VOLUME OF 305.6 CF.

BUILDING/SITE C AND D CONTAINS 5 PARCELS AND WOULD HAVE CREATED A PEAK RUNOFF IN THE PREVIOUSLY DEVELOPED CONDITION OF 3.71 CFS (5 * 0.74 CFS). THE PROPOSED DEVELOPMENT WILL CREATE A PEAK RUNOFF OF 3.28 CSF AND AN EXCESS RUNOFF VOLUME OF 0.1156 ACRE FEET. THE SHALLOW PONDS SURROUNDING THE BUILDING WILL HARVEST 454 CF WHICH EXCEEDS THE FIRST FLUSH REQUIRED VOLUME OF 271.3 CF.

BUILDING/SITE E, F AND G CONTAINS 7 PARCELS AND WOULD HAVE CREATED A PEAK RUNOFF IN THE PREVIOUSLY DEVELOPED CONDITION OF 5.19 CFS (7 * 0.74 CFS). THE PROPOSED DEVELOPMENT WILL CREATE A PEAK RUNOFF OF 4.35 CSF AND AN EXCESS RUNOFF VOLUME OF 0.1527 ACRE FEET. THE SHALLOW PONDS SURROUNDING THE BUILDING WILL HARVEST 393 CF WHICH EXCEEDS THE FIRST FLUSH REQUIRED VOLUME OF 263.0 CF.

EXCESS RUNOFF FROM THESE SITES CAN DISCHARGE INTO ESPANOLA THROUGH THE DRIVEWAY OPENING OR THROUGH A SMALL RUNDOWN CHANNEL LOCATED ON THE SOUTH SIDE OF BUILDING G AND THROUGH A SIDEWALK CULVERT UNDER THE PUBLIC SIDEWALK.

BUILDING/SITE H CONTAINS 3 PARCELS AND WOULD HAVE CREATED A PEAK RUNOFF IN THE PREVIOUSLY DEVELOPED CONDITION OF 2.22 CFS (3 * 0.74 CFS). THE PROPOSED DEVELOPMENT WILL CREATE A PEAK RUNOFF OF 1.81 CSF AND AN EXCESS RUNOFF VOLUME OF 0.0629 ACRE FEET. THE SHALLOW PONDS SURROUNDING THE BUILDING WILL HARVEST 315 CF WHICH EXCEEDS THE FIRST FLUSH REQUIRED VOLUME OF 203.8 CF.

EXCESS RUNOFF FROM THESE SITES CAN DISCHARGE INTO ESPANOLA THROUGH THE DRIVEWAY OPENING OR THROUGH A SMALL RUNDOWN CHANNEL LOCATED ON THE SOUTH SIDE OF BUILDING H AND THROUGH A SIDEWALK CULVERT UNDER THE PUBLIC SIDEWALK.

BUILDING/SITE I CONTAINS 4 PARCELS AND WOULD HAVE CREATED A PEAK RUNOFF IN THE PREVIOUSLY DEVELOPED CONDITION OF 2.97 CFS (4 * 0.74 CFS). THE PROPOSED DEVELOPMENT WILL CREATE A PEAK RUNOFF OF 2.88 CSF AND AN EXCESS RUNOFF VOLUME OF 0.1089 ACRE FEET. THE SHALLOW PONDS SURROUNDING THE BUILDING WILL HARVEST 218.3 CF WHICH EXCEEDS THE FIRST FLUSH REQUIRED VOLUME OF 117.1 CF. THIS SITE DRAINS OUT THE SOUTHERN DRIVEWAY INTO BELL AVENUE, SE.

BUILDING/SITE J CONTAINS 4 PARCELS AND WOULD HAVE CREATED A PEAK RUNOFF IN THE PREVIOUSLY DEVELOPED CONDITION OF 3.03 CFS (SLIGHTLY LARGER DUE TO VACATED ROW ON BELL AVENUE SE THAT IS INCORPORATED INTO THE SITE). THE PROPOSED DEVELOPMENT WILL CREATE A PEAK RUNOFF OF 2.48 CSF AND AN EXCESS RUNOFF VOLUME OF 0.0848 ACRE FEET. THE SHALLOW PONDS SURROUNDING THE BUILDING WILL HARVEST 308 CF WHICH EXCEEDS THE FIRST FLUSH REQUIRED VOLUME OF 151 CF. THIS SITE DRAINS OUT THE NORTHERN DRIVEWAY INTO BELL AVENUE, SE.

BUILDING/SITE K CONTAINS 3 PARCELS AND WOULD HAVE CREATED A PEAK RUNOFF IN THE PREVIOUSLY DEVELOPED CONDITION OF 2.22 CFS (3 * 0.74 CFS). THE PROPOSED DEVELOPMENT WILL CREATE A PEAK RUNOFF OF 1.81 CSF AND AN EXCESS RUNOFF VOLUME OF 0.0629 ACRE FEET. THE SHALLOW PONDS SURROUNDING THE BUILDING WILL HARVEST 338CF WHICH EXCEEDS THE FIRST FLUSH REQUIRED VOLUME OF 102 CF.

BUILDING/SITE L IS LOCATED IN A SINGLE LOT THAT WILL HAVE A PORTION OF TRUMBELL VACATED AND IS THEREFORE SLIGHTLY LARGER THAN THE TYPICAL LOT AND CONTAINS 7425 SF. THE COMBINED FLOW RATES FOR THIS SITE 0.70 CFS WHICH IS LESS THAN THE ACTUAL CURRENT CONDITIONS OF 0.81 SF. THE INCLUSION OF SHALLOW PONDING AREAS (4" DEEP) THAT HARVEST 118 OF THE FIRST FLUSH VOLUME (91.6 CF REQUIRED) WILL FURTHER REDUCE THE PEAK RUNOFF.

VII. CONCLUSIONS

EACH INDIVIDUAL SITE HAS BEEN DESIGNED TO HARVEST MORE THAN IS REQUIRED TO MEET THE MSSSS PERMIT REQUIREMENTS FOR FIRST FLUSH VOLUMES. SITES HAVE BEEN DESIGNED TO DIRECT EXCESS RUNOFF TO THE PUBLIC STREETS WHERE PREVIOUS DEVELOPMENTS DISCHARGED IN A CROSS LOT CONFIGURATION.

EACH LOT IS STILL ALLOWING FOR FREE DISCHARGE FOR RUNOFF EXCEEDING THAT CONTAINED IN THE MSSSS REQUIREMENTS DESCRIBED ABOVE. THIS IS CONSISTENT WITH AND A REDUCTION FROM THE HISTORIC DISCHARGE RATES FROM THE PREVIOUSLY DEVELOPED LOTS.

BECAUSE THERE IS A REDUCTION IN FLOW RATES AND EXCESS RUNOFF IS DIRECTED TOWARD THE PUBLIC STREET INSTEAD OF CROSS LOT DRAINAGE, THERE SHOULD BE BENEFITS TO THE DOWNSTREAM LOTS.

Drainage Summary

Project: Casa Feliz
Project Numbe: 2491
Date: 10/12/15
By: Dave A

Site Location

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

Existing summary

Basin Name	EX A	EX B	EX C & D	EX E	EX F & G	EX H	EX I	EX J	EX K	EX L		Typ 85% D	Typ 100%C	
Area (sf)	7425	47202	33742	13504	33742	20250	26999	27556	20250	7425		6750	6750	
Area (acres)	0.170	1.084	0.775	0.310	0.775	0.465	0.620	0.633	0.465	0.170		0.155	0.155	
%A Land treatment	0	0	0	0	0	0	0	0	0	0		0	0	
%B Land treatment	0	0	0	0	0	0	0	0	0	0		0	0	
%C Land treatment	15	15	15	15	15	15	15	15	15	15		15	100	
%D Land treatment	85	85	85	85	85	85	85	85	85	85		85	0	
Soil Treatment (acres)														
Area "A"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	
Area "B"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	
Area "C"	0.03	0.16	0.12	0.05	0.12	0.07	0.09	0.09	0.07	0.03		0.02	0.15	
Area "D"	0.14	0.92	0.66	0.26	0.66	0.40	0.53	0.54	0.40	0.14		0.13	0.00	
Excess Runoff (acre-feet)														
100yr. 6hr.	0.0312	0.1986	0.1420	0.0568	0.1420	0.0852	0.1136	0.1160	0.0852	0.0312	acre-ft.	0.0284	0.0167	
10yr. 6hr.	0.0194	0.1235	0.0883	0.0353	0.0883	0.0530	0.0707	0.0721	0.0530	0.0194	acre-ft.	0.0177	0.0080	
2yr. 6hr.	0.0112	0.0710	0.0508	0.0203	0.0508	0.0305	0.0406	0.0415	0.0305	0.0112	acre-ft.	0.0102	0.0026	
100yr. 24hr.	0.0373	0.2370	0.1694	0.0678	0.1694	0.1017	0.1356	0.1384	0.1017	0.0373	acre-ft.	0.0339	0.0167	
Peak Discharge (cfs)														
100 yr.	0.82	5.18	3.71	1.48	3.71	2.22	2.97	3.03	2.22	0.82	cfs	0.74	0.53	
10yr.	0.54	3.45	2.46	0.99	2.46	1.48	1.97	2.01	1.48	0.54	cfs	0.49	0.31	
2yr.	0.32	2.01	1.43	0.57	1.43	0.86	1.15	1.17	0.86	0.32	cfs	0.29	0.12	

Proposed summary

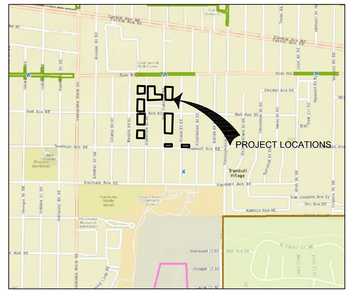
Basin Name	Pro A1	Pro A2	Pro B1	Pro B2	Pro C1	Pro C2	Pro D1	Pro E1	Pro F1	Pro F2	Pro G1	Pro H1	Pro H2	Pro I1	Pro I2	Pro I3	Pro J1	Pro J2	Pro J3	Pro K1	Pro K2	Pro L1	Pro L2	
Area (sf)	2104	5321	12942	34260	4525	25692	4525	7462	4525	30721	4525	6275	13975	3257	3342	20400	5469	21808	278	6435	13815	2104	5321	
Area (acres)	0.048	0.122	0.297	0.787	0.104	0.590	0.104	0.171	0.104	0.705	0.104	0.144	0.321	0.075	0.077	0.468	0.126	0.501	0.006	0.148	0.317	0.048	0.122	
%A Land treatment																								
%B Land treatment																								
%C Land treatment	10	0	15	15	10		10	50	10		10	25	10	10			25	10		25	10	10		
%D Land treatment	25	65	25	50	25	65	25	15	25	65	25	25	60	20	65	15	25	60	50	25	60	25	65	
	65	35	60	35	65	35	65	35	65	35	65	50	30	70	35	85	50	30	50	50	30	65	35	
Soil Treatment (acres)																								
Area "A"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Area "B"	0.00	0.00	0.04	0.12	0.01	0.00	0.01	0.09	0.01	0.00	0.01	0.04	0.03	0.01	0.00	0.00	0.03	0.05	0.00	0.04	0.03	0.00	0.00	
Area "C"	0.01	0.08	0.07	0.39	0.03	0.38	0.03	0.03	0.03	0.46	0.03	0.04	0.19	0.01	0.05	0.07	0.03	0.30	0.00	0.04	0.19	0.01	0.08	
Area "D"	0.03	0.04	0.18	0.28	0.07	0.21	0.07	0.06	0.07	0.25	0.07	0.07	0.10	0.05	0.03	0.40	0.06	0.15	0.00	0.07	0.10	0.03	0.04	
Excess Runoff (acre-feet)																								
100yr. 6hr.	0.0078	0.0169	0.0465	0.1055	0.0169	0.0818	0.0169	0.0211	0.0169	0.0978	0.0169	0.0208	0.0421	0.0125	0.0106	0.0858	0.0181	0.0657	0.0010	0.0213	0.0416	0.0078	0.0169	acre-ft.
10yr. 6hr.	0.0047	0.0094	0.0275	0.0583	0.0101	0.0456	0.0101	0.0114	0.0101	0.0545	0.0101	0.0119	0.0229	0.0075	0.0059	0.0534	0.0104	0.0358	0.0006	0.0122	0.0227	0.0047	0.0094	acre-ft.
2yr. 6hr.	0.0026	0.0045	0.0147	0.0276	0.0055	0.0217	0.0055	0.0053	0.0055	0.0259	0.0055	0.0061	0.0105	0.0042	0.0028	0.0307	0.0053	0.0164	0.0003	0.0063	0.0104	0.0026	0.0045	acre-ft.
100yr. 24hr.	0.0092	0.0187	0.0539	0.1169	0.0197	0.0904	0.0197	0.0236	0.0197	0.1081	0.0197	0.0238	0.0461	0.0147	0.0118	0.1024	0.0207	0.0719	0.0011	0.0244	0.0456	0.0092	0.0187	acre-ft.
Peak Discharge (cfs)																								
100 yr.	0.21	0.49	1.27	3.05	0.46	2.36	0.46	0.61	0.46	2.82	0.46	0.58	1.23	0.33	0.31	2.24	0.51	1.92	0.03	0.59	1.22	0.21	0.49	cfs
10yr.	0.14	0.30	0.81	1.86	0.29	1.47	0.29	0.36	0.29	1.75	0.29	0.36	0.75	0.22	0.19	1.49	0.31	1.17	0.02	0.37	0.74	0.14	0.30	cfs
2yr.	0.07	0.15	0.43	0.89	0.16	0.72	0.16	0.16	0.16	0.86	0.16	0.18	0.35	0.12	0.09	0.87	0.16	0.55	0.01	0.19	0.35	0.07	0.15	cfs
Roof Areas	1615	1615	5394	5394	1643	6286	1643	1355	1643	4641	1643	3598	3598	1367	0	2766	2505	2812	0	1800	1800	1615	1615	
First Flush Ponding Voulme (cf)	45.8	45.8	152.8	152.8	46.6	178.1	46.6	38.4	46.6	131.5	46.6	101.9	101.9	38.7	0.0	78.4	71.0	79.7	0.0	51.0	51.0	45.8	45.8	cf
First Flush Acre Feet	0.0011	0.0011	0.0035	0.0035	0.0011	0.0041	0.0011	0.0009	0.0011	0.0030	0.0011	0.0023	0.0023	0.0009	0.0000	0.0018	0.0016	0.0018	0.0000	0.0012	0.0012	0.0011	0.0011	acre-ft

Drainage Certification (L19D073F, DRB#1010666)

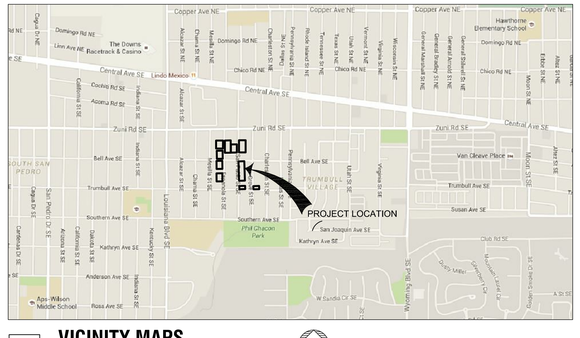
I, David A Aube. NMPE 14221, of the firm The Hartman + Majewski Design Group, Inc, hereby certify that portion of the project (Building H located at 421 Espanola St. SE) is in substantial compliance with and in accordance with the design intent of the Grading and Drainage plan approved plan dated 12-18-15. The record information that has been edited onto the original design documents where obtained by Community Sciences Corporation on May 4th, 2017. I further certify that I have personally visited the project site on June 26, 2017 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 Building H located at 421 Espanola St. SE.

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.

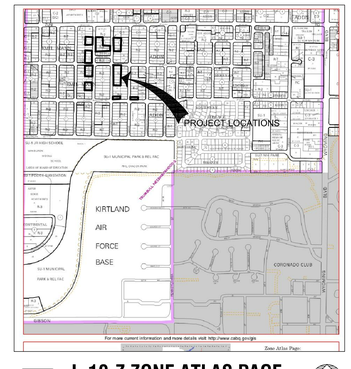
DAVID A. AUBE — STATE OF NEW MEXICO — 14221 — REGISTERED PROFESSIONAL ENGINEER
7-18-17



A4 FIMA FLOOD MAP
SCALE: NOT TO SCALE



A2 VICINITY MAPS
SCALE: NOT TO SCALE



A4 L-19-Z ZONE ATLAS PAGE
SCALE: NOT TO SCALE

THE HARTMAN • MAJEWSKI
DESIGN GROUP
Architects • Engineers • Interior Design
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Albuquerque New Mexico 87106
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CONSULTANT

STAMP

DAVID A. AUBE — STATE OF NEW MEXICO — 14221 — REGISTERED PROFESSIONAL ENGINEER
12-18-15

100% CONSTRUCTION DOCUMENTS

PROJECT NAME
CASA FELIZ

441 ESPANOLA STREET SE,
ALBUQUERQUE, NEW MEXICO 87108

GREATER ALBUQUERQUE HOUSING PATRTNERSHIP

REVISIONS

NO.	DATE	DESCRIPTION

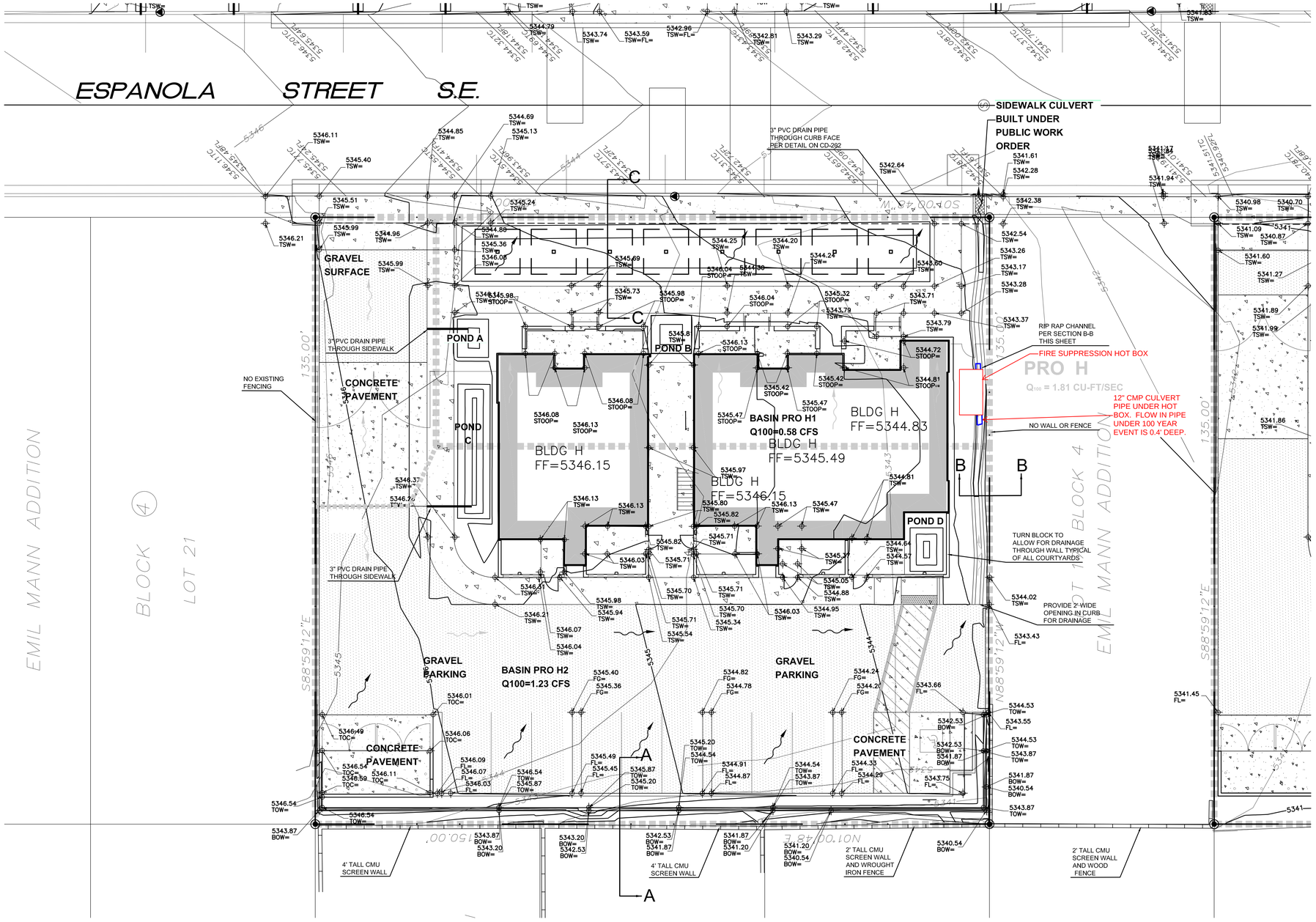
Drawn by	DAA
Checked by	DAA
Date	OCTOBER 19, 2015
Project number	2491

SHEET TITLE

OVERALL EXISTING SITE DRAINAGE PLAN

SHEET NUMBER

CD1



A1 ENLARGED SITE DRAINAGE PLAN - BUILDING H

1" = 10'-0"

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)

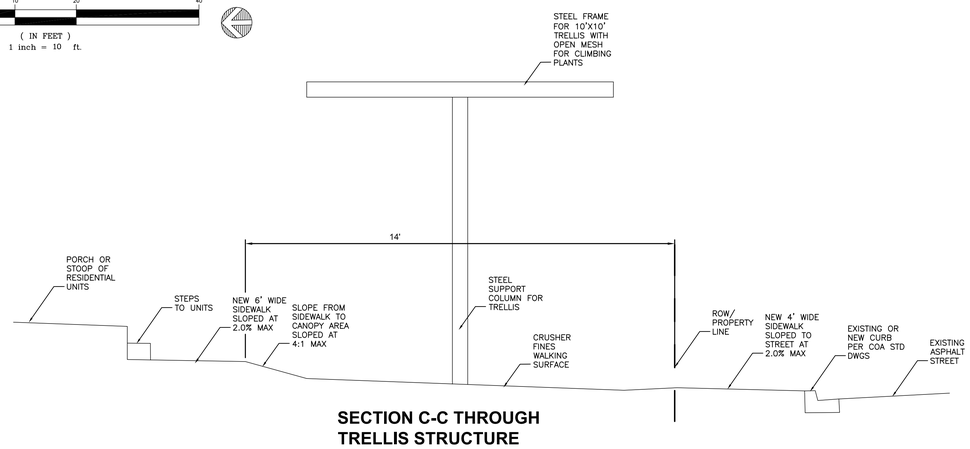
1 inch = 10 ft.

Drainage Certification (L19D073F, DRB#1010666)

I, David A Aube. NMPE 14221, of the firm The Hartman + Majewski Design Group, Inc, hereby certify that portion of the project (Building H located at 421 Espanola St. SE) is in substantial compliance with and in accordance with the design intent of the Grading and Drainage plan approved plan dated 12-18-15. The record information that has been edited onto the original design documents where obtained by Community Sciences Corporation on May 4th, 2017. I further certify that I have personally visited the project site on June 26, 2017 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 Building H located at 421 Espanola St. SE.

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.

DAVID A. AUBE STATE OF NEW MEXICO 14221 REGISTERED PROFESSIONAL ENGINEER 7-18-17

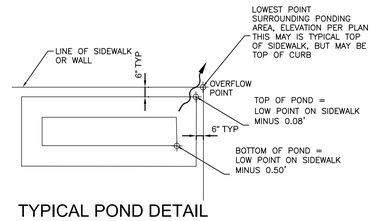


SECTION C-C THROUGH TRELLIS STRUCTURE

NOT TO SCALE

DRAINAGE PLAN GENERAL NOTES

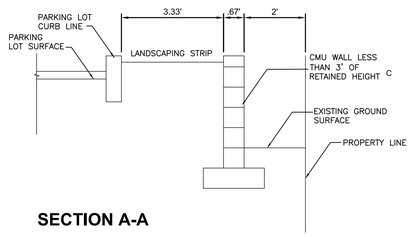
i. SEE SHEET CG001 FOR COMPLETE LIST OF GENERAL NOTES AND SYMBOL/LINETYPE LEGEND THAT APPLY TO ALL SHEETS.
ii. SEE SHEET CD-202 FOR 3" PVC DRAINAGE PIPES THROUGH SIDEWAKS AND UNDER SIDEWALKS THROUGH CITY CURB FACE.



TYPICAL POND DETAIL

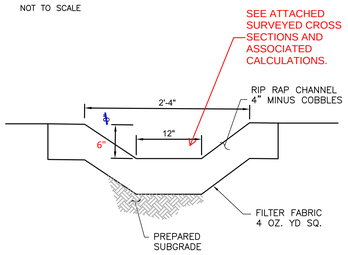
NOT TO SCALE

BUILDING H			
POND	LOWEST POINT ON CURB OR TSW	TOP ELEV	BOTTOM ELEV
A	5345.90	5345.96 5345.82	5344.75 5345.40
B	5344.30	5344.68 5344.22	5343.78 5343.80
C	5345.98	5345.90	5345.48
D	5344.16	5344.08	5343.66



SECTION A-A

NOT TO SCALE



RIP-RAP CHANNEL SECTION B-B

NOT TO SCALE

KEY PLAN

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CONSULTANT

STAMP

DAVID A. AUBE STATE OF NEW MEXICO 14221 REGISTERED PROFESSIONAL ENGINEER 12-18-15

100% CONSTRUCTION DOCUMENTS

PROJECT NAME
CASA FELIZ

441 ESPANOLA STREET SE.
ALBUQUERQUE, NEW MEXICO 87108

GREATER ALBUQUERQUE HOUSING PATRTNERSHIP

REVISIONS

NO.	DATE	DESCRIPTION

Drawn by	DAA
Checked by	DAA
Date	OCTOBER 19, 2015
Project number	2491

SHEET TITLE
ENLARGED SITE DRAINAGE PLAN

BUILDING H

SHEET NUMBER
CD-208

P:\2491_Casa Feliz\A0_Drawings\Civil\C201.dwg
8/14/2015 8:13:40 AM

Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Monday, Jul 17 2017

<Name> SECTION A

Trapezoidal

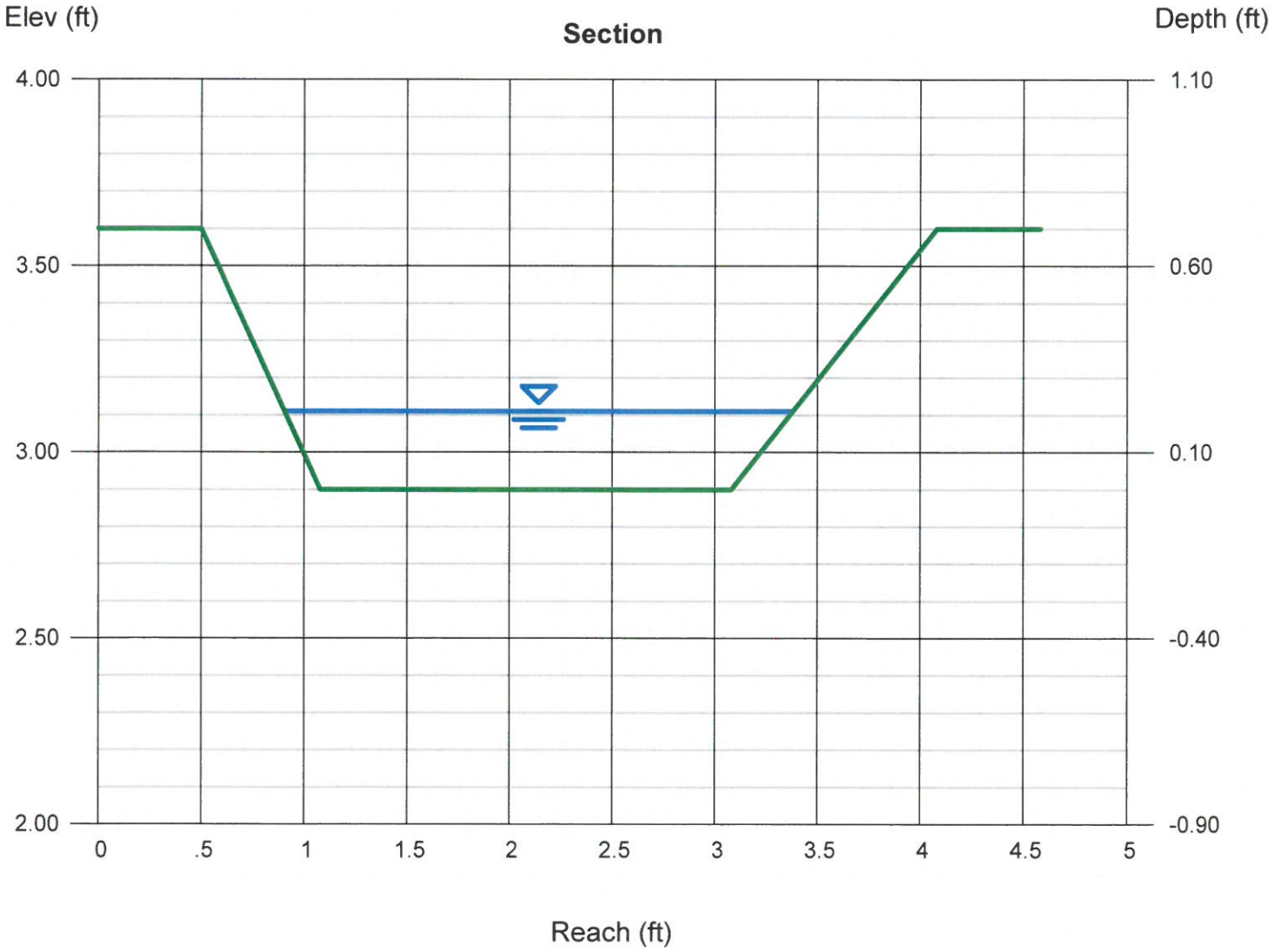
Bottom Width (ft)	= 2.00
Side Slopes (z:1)	= 0.83, 1.43
Total Depth (ft)	= 0.70
Invert Elev (ft)	= 2.90
Slope (%)	= 2.00
N-Value	= 0.025

Calculations

Compute by:	Q vs Depth
No. Increments	= 10

Highlighted

Depth (ft)	= 0.21
Q (cfs)	= 1.249
Area (sqft)	= 0.47
Velocity (ft/s)	= 2.66
Wetted Perim (ft)	= 2.64
Crit Depth, Yc (ft)	= 0.23
Top Width (ft)	= 2.47
EGL (ft)	= 0.32



SECTION A

Depth	Q	Area	Veloc	Wp	Yc	TopWidth	Energy
(ft)	(cfs)	(sqft)	(ft/s)	(ft)	(ft)	(ft)	(ft)
0.07	0.199	0.146	1.37	2.21	0.07	2.16	0.10
0.14	0.633	0.302	2.09	2.43	0.15	2.32	0.21
0.21	1.249	0.470	2.66	2.64	0.23	2.47	0.32
0.28	2.030	0.649	3.13	2.85	0.30	2.63	0.43
0.35	2.968	0.838	3.54	3.07	0.38	2.79	0.54
0.42	4.060	1.039	3.91	3.28	0.47	2.95	0.66
0.49	5.305	1.251	4.24	3.49	0.55	3.11	0.77
0.56	6.703	1.474	4.55	3.70	0.63	3.27	0.88
0.63	8.256	1.708	4.83	3.92	0.70	3.42	0.99
0.70	9.966	1.954	5.10	4.13	0.70	3.58	1.10

Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Monday, Jul 17 2017

Section B

Trapezoidal

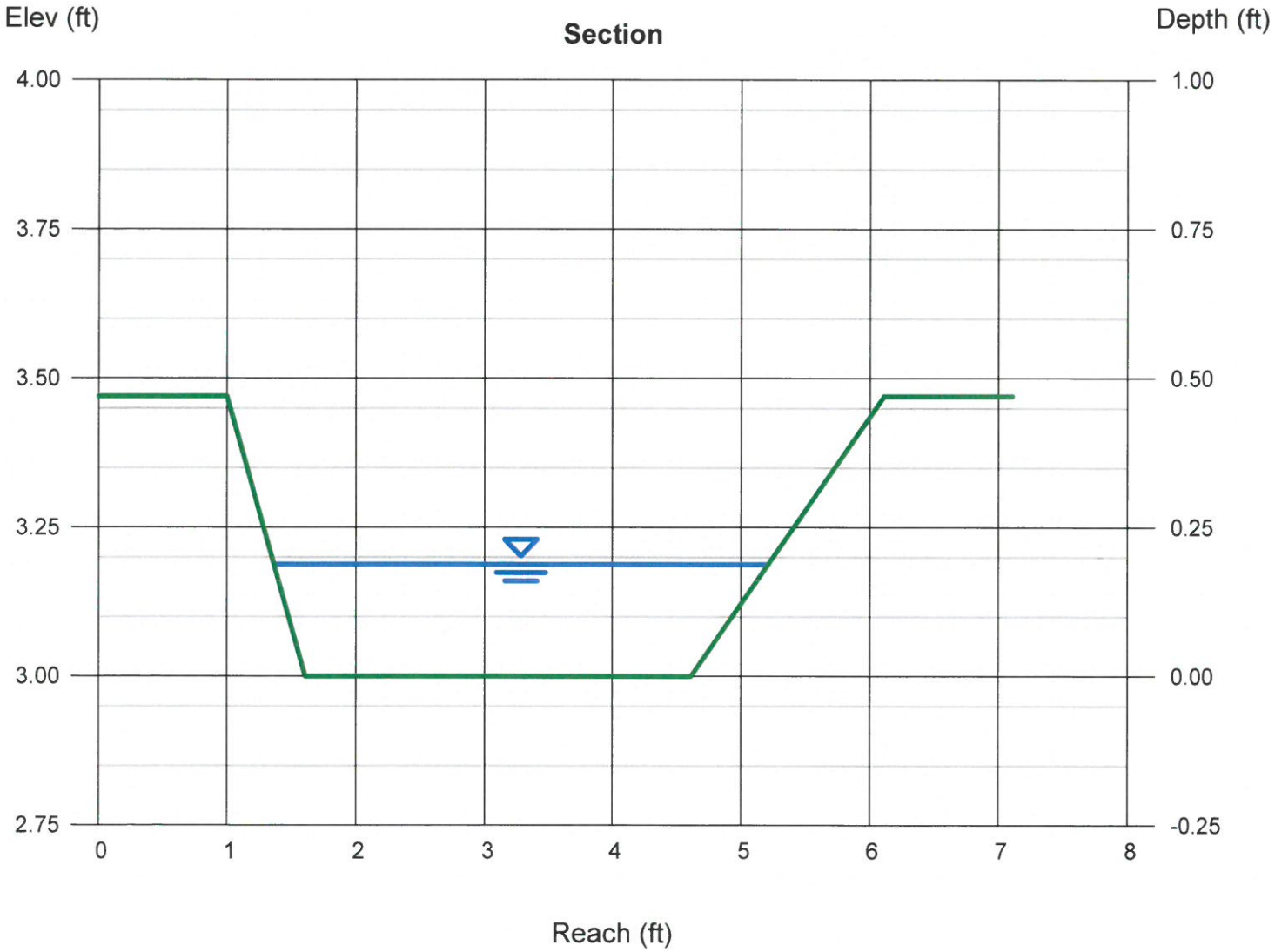
Bottom Width (ft)	= 3.00
Side Slopes (z:1)	= 1.30, 3.19
Total Depth (ft)	= 0.47
Invert Elev (ft)	= 3.00
Slope (%)	= 2.00
N-Value	= 0.025

Calculations

Compute by:	Q vs Depth
No. Increments	= 10

Highlighted

Depth (ft)	= 0.19
Q (cfs)	= 1.616
Area (sqft)	= 0.64
Velocity (ft/s)	= 2.51
Wetted Perim (ft)	= 3.94
Crit Depth, Yc (ft)	= 0.20
Top Width (ft)	= 3.84
EGL (ft)	= 0.29



SECTION B

Depth	Q	Area	Veloc	Wp	Yc	TopWidth	Energy
(ft)	(cfs)	(sqft)	(ft/s)	(ft)	(ft)	(ft)	(ft)
0.05	0.155	0.146	1.06	3.23	0.05	3.21	0.06
0.09	0.498	0.302	1.65	3.47	0.10	3.42	0.14
0.14	0.989	0.468	2.11	3.70	0.15	3.63	0.21
0.19	1.616	0.643	2.51	3.94	0.20	3.84	0.29
0.24	2.372	0.829	2.86	4.17	0.26	4.06	0.36
0.28	3.255	1.025	3.18	4.41	0.31	4.27	0.44
0.33	4.265	1.230	3.47	4.64	0.37	4.48	0.52
0.38	5.401	1.445	3.74	4.87	0.42	4.69	0.59
0.42	6.664	1.671	3.99	5.11	0.47	4.90	0.67
0.47	8.056	1.906	4.23	5.34	0.47	5.11	0.75

Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Monday, Jul 17 2017

Section C

Trapezoidal

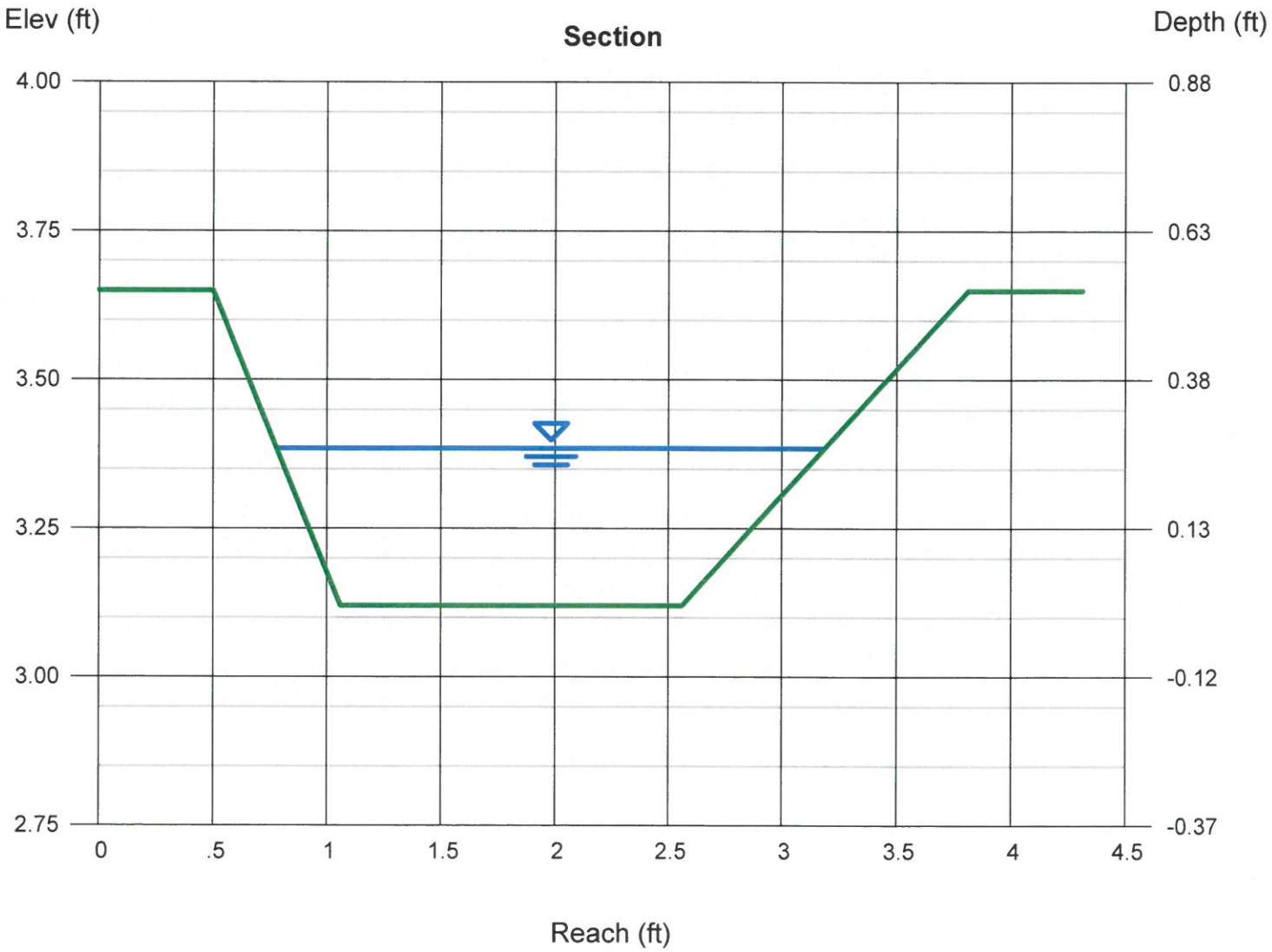
Bottom Width (ft)	= 1.50
Side Slopes (z:1)	= 1.06, 2.36
Total Depth (ft)	= 0.53
Invert Elev (ft)	= 3.12
Slope (%)	= 2.00
N-Value	= 0.025

Calculations

Compute by:	Q vs Depth
No. Increments	= 10

Highlighted

Depth (ft)	= 0.27
Q (cfs)	= 1.496
Area (sqft)	= 0.52
Velocity (ft/s)	= 2.89
Wetted Perim (ft)	= 2.57
Crit Depth, Yc (ft)	= 0.29
Top Width (ft)	= 2.41
EGL (ft)	= 0.39



SECTION C

Depth	Q	Area	Veloc	Wp	Yc	TopWidth	Energy
(ft)	(cfs)	(sqft)	(ft/s)	(ft)	(ft)	(ft)	(ft)
0.05	0.095	0.084	1.13	1.71	0.05	1.68	0.07
0.11	0.306	0.178	1.72	1.93	0.11	1.86	0.15
0.16	0.613	0.282	2.17	2.14	0.17	2.04	0.23
0.21	1.009	0.395	2.56	2.35	0.23	2.23	0.31
0.27	1.496	0.518	2.89	2.57	0.29	2.41	0.39
0.32	2.073	0.650	3.19	2.78	0.35	2.59	0.48
0.37	2.743	0.792	3.46	2.99	0.41	2.77	0.56
0.42	3.508	0.943	3.72	3.20	0.47	2.95	0.64
0.48	4.371	1.105	3.96	3.42	0.53	3.13	0.72
0.53	5.335	1.275	4.18	3.63	0.53	3.31	0.80

Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Monday, Jul 17 2017

Section D

Trapezoidal

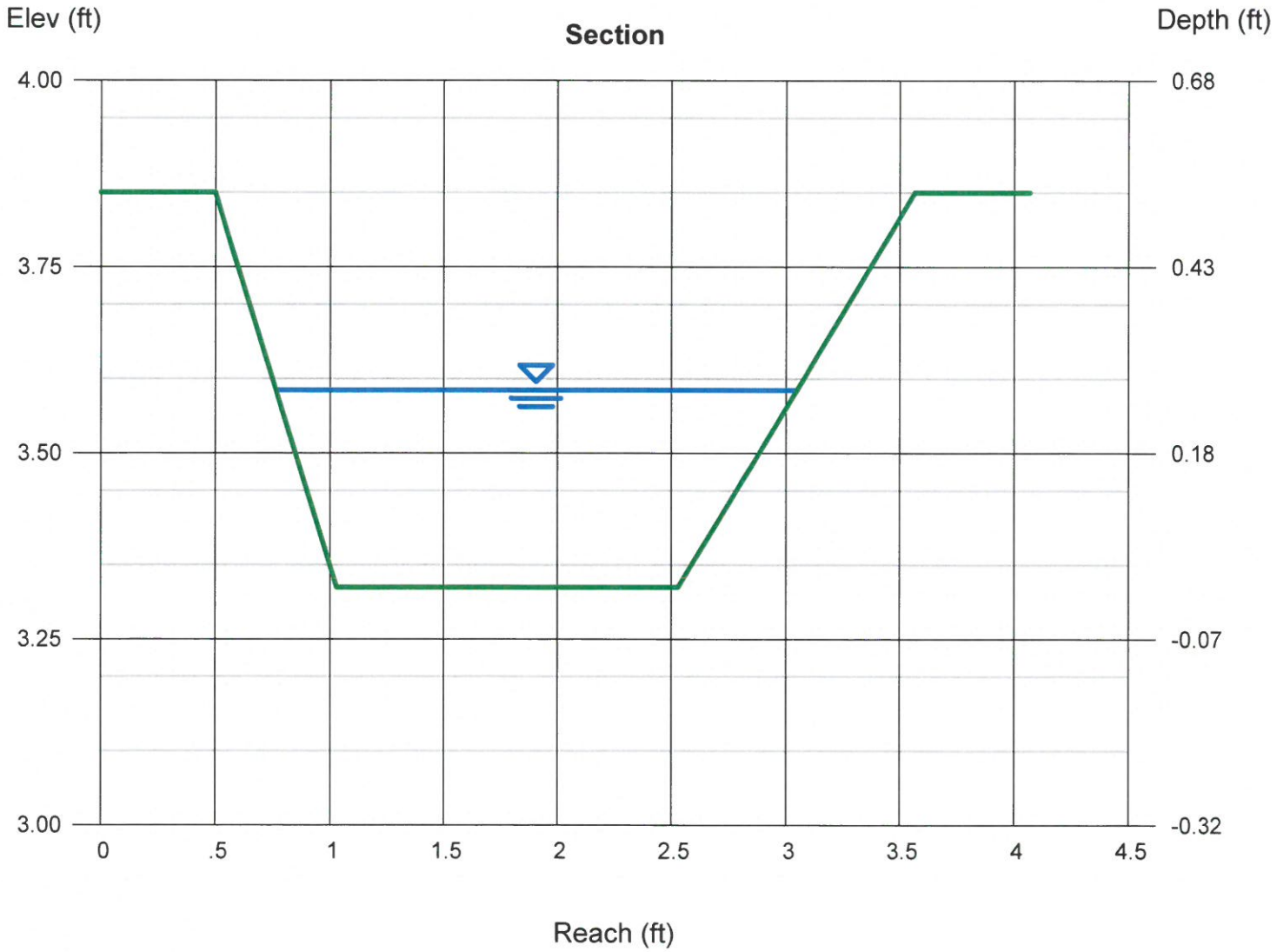
Bottom Width (ft)	= 1.50
Side Slopes (z:1)	= 1.00, 1.96
Total Depth (ft)	= 0.53
Invert Elev (ft)	= 3.32
Slope (%)	= 2.00
N-Value	= 0.025

Calculations

Compute by:	Q vs Depth
No. Increments	= 10

Highlighted

Depth (ft)	= 0.27
Q (cfs)	= 1.460
Area (sqft)	= 0.50
Velocity (ft/s)	= 2.91
Wetted Perim (ft)	= 2.46
Crit Depth, Yc (ft)	= 0.29
Top Width (ft)	= 2.28
EGL (ft)	= 0.40



SECTION D

Depth	Q	Area	Veloc	Wp	Yc	TopWidth	Energy
(ft)	(cfs)	(sqft)	(ft/s)	(ft)	(ft)	(ft)	(ft)
0.05	0.095	0.084	1.13	1.69	0.05	1.66	0.07
0.11	0.303	0.176	1.73	1.88	0.11	1.81	0.15
0.16	0.604	0.276	2.19	2.07	0.17	1.97	0.23
0.21	0.990	0.385	2.57	2.27	0.23	2.13	0.32
0.27	1.460	0.501	2.91	2.46	0.29	2.28	0.40
0.32	2.014	0.627	3.21	2.65	0.35	2.44	0.48
0.37	2.652	0.760	3.49	2.84	0.41	2.60	0.56
0.42	3.378	0.902	3.74	3.03	0.47	2.76	0.64
0.48	4.191	1.052	3.98	3.22	0.53	2.91	0.72
0.53	5.096	1.211	4.21	3.42	0.53	3.07	0.81

Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Monday, Jul 17 2017

Section E

Trapezoidal

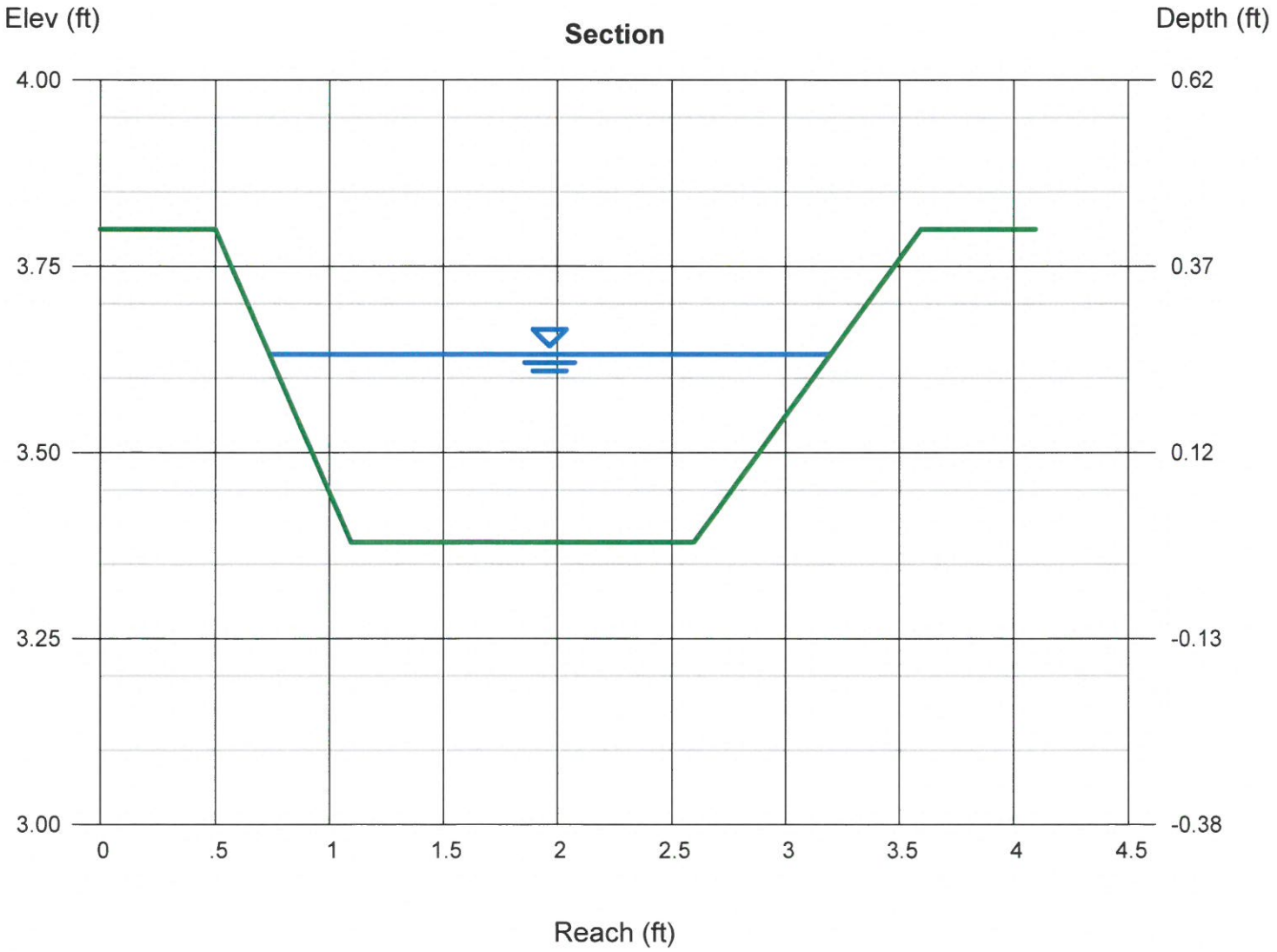
Bottom Width (ft)	= 1.50
Side Slopes (z:1)	= 1.42, 2.38
Total Depth (ft)	= 0.42
Invert Elev (ft)	= 3.38
Slope (%)	= 2.00
N-Value	= 0.025

Calculations

Compute by:	Q vs Depth
No. Increments	= 10

Highlighted

Depth (ft)	= 0.25
Q (cfs)	= 1.398
Area (sqft)	= 0.50
Velocity (ft/s)	= 2.80
Wetted Perim (ft)	= 2.59
Crit Depth, Yc (ft)	= 0.27
Top Width (ft)	= 2.46
EGL (ft)	= 0.37



SECTION E

Depth	Q	Area	Veloc	Wp	Yc	TopWidth	Energy
(ft)	(cfs)	(sqft)	(ft/s)	(ft)	(ft)	(ft)	(ft)
0.04	0.065	0.066	0.97	1.68	0.04	1.66	0.06
0.08	0.208	0.139	1.49	1.86	0.09	1.82	0.12
0.13	0.415	0.219	1.90	2.04	0.13	1.98	0.18
0.17	0.683	0.306	2.24	2.23	0.18	2.14	0.25
0.21	1.011	0.399	2.53	2.41	0.22	2.30	0.31
0.25	1.398	0.499	2.80	2.59	0.27	2.46	0.37
0.29	1.845	0.605	3.05	2.77	0.32	2.62	0.44
0.34	2.354	0.719	3.28	2.95	0.37	2.78	0.50
0.38	2.926	0.838	3.49	3.13	0.41	2.94	0.57
0.42	3.563	0.965	3.69	3.31	0.42	3.10	0.63

SURVEYOR'S CERTIFICATE

I, THOMAS W. PATRICK, A DULY QUALIFIED LICENSED PROFESSIONAL SURVEYOR UNDER THE LAWS OF THE STATE OF NEW MEXICO, DO HEREBY CERTIFY THAT THE AS-BUILT INFORMATION SHOWN ON THESE DRAWINGS WAS OBTAINED FROM FIELD CONSTRUCTION AND "AS-BUILT" SURVEYS PERFORMED BY ME, OR UNDER MY SUPERVISION, THAT THE "AS-BUILT" INFORMATION SHOWN ON THESE DRAWINGS (UNLESS OTHERWISE NOTED) WAS ADDED BY ME, OR UNDER MY SUPERVISION, AND THAT THIS "AS-BUILT" INFORMATION IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

THOMAS W. PATRICK NEW MEXICO 12651 LICENSED PROFESSIONAL SURVEYOR

Thomas W. Patrick 7.17.2017

THOMAS W. PATRICK — DATE

NEW MEXICO PROFESSIONAL SURVEYOR NO. 12651

community sciences corporation

Post Office Box 1328
Corrales, N.M. 87048

CASA FELIZ APTS.

CLIENT: TOFEL CONSTRUCTION

INFRASTRUCTURE AS-BUILT

CREW: LRC

DATE: 7/5/17

BLDG H

E D C B A

N

(A)-(B)-(C) 8± TO FNC
(C)-(D) 8± TO FNC