

DS #: 4685

APN: # 138-15-410-055

PROJECT: DORAL ACADEMY — FIRE MESA CAMPUS

SUBMITTAL: 3RD

SCANNED BY/DATE: _____

CHECKED BY/DATE: _____



CITY OF LAS VEGAS		DATE:
INTER-OFFICE MEMORANDUM		October 20, 2014
TO: Land Development Services Department of Building & Safety		FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	Drainage Study for:	COPIES TO:
	Doral Academy – Fire Mesa Campus	Walker Engineering LLC
Cross Streets:	Fire Mesa Street & Trinity Peak Avenue	CA Las Vegas FMS LLC
File Number:	F:\Depot\DSMemos\DS4685D.doc	Bart Anderson, P.E., DevCo
Parcel Number:	138-15-410-055	CCRFCD
Zoning Action:	SDR-54330 & SUP-54332	
FEMA Flood Zone	YES NO X	
Proposed Storm Drain	YES NO X	

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1 st Submittal	7/2/2014	7/16/2014	Not Approved	\$400.00	362316: \$400
2 nd Submittal	8/21/2014	8/27/2014	Conditional Approval	\$400.00	367750: \$400
3 rd Submittal	9/30/2014	10/13/2014	Conditional Approval	\$400.00	371938: \$400
CCRFCD	10/20/2014	10/20/2014	Concurrence Recv'd	N/C	N/C
TOTAL FEES (LDDRS):				\$1,200.00	----

REMARKS:

3rd Submittal: Response to CCRFCD comments

The Drainage Study for the subject project has been reviewed and:

X	is approved subject to conformance to all City standards and the following conditions:
	must be resubmitted or supplemented including the following:
	is conditionally approved subject to Clark County Regional Flood Control District concurrence.

1. Provide a note on the grading plan: ALL ONSITE STORM DRAINS AND THE ASSOCIATED FACILITIES ARE PRIVATELY OWNED AND TO BE PRIVATELY MAINTAINED BY THE OWNER.

NOTE: Any future changes to the proposed design (or design assumptions) as outlined in the approved drainage study and attached preliminary grading plan which affect drainage must be addressed in a Drainage Study Update and accepted by the *City of Las Vegas Flood Control Section*. Additionally, conditional acceptance of a drainage study is valid for a period of one (1) year. If the proposed construction has not been completed in that time period, the *City of Las Vegas* reserves the right to require additional conditions and/or submission and acceptance of a complete drainage study update prior to further construction of a project.

NOTE: Please be advised that all land surface area disturbances over 1 acre or any area adjacent to a water way must submit to the *Nevada Division of Environmental Protection* a "Notice of Intent" to discharge that certifies a stormwater pollution prevention plan has been developed and is maintained on site; for inclusion in the Stormwater General Permit No. NVR100000. A phased construction unit in a contiguous subdivision is considered under construction until all stripped or disturbed surface areas have been covered by paving, building construction or planting. For more information, including forms and applications see <http://ndep.nv.gov/bwpc/storm01.htm> or call (775) 687-9429.

END OF REMARKS

ays

T/R/S: T20S/R60E/15
AREA L-15

 *** FAX TX REPORT ***

TRANSMISSION OK

JOB NO. 4671
 DESTINATION ADDRESS 7028735346
 PSWD/SUBADDRESS
 DESTINATION ID
 ST. TIME 10/20 14:39
 USAGE T 00' 30
 PGS. 1
 RESULT OK

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM

DATE:

October 20, 2014

TO:

Land Development Services
 Department of Building & Safety

FROM:

Albert Sung, P.E.
 Flood Control Project Engineer
 Department of Public Works

SUBJECT:

Drainage Study for:

Doral Academy – Fire Mesa Campus

COPIES TO:

Walker Engineering LLC

Cross Streets:

Fire Mesa Street & Trinity Peak Avenue

CA Las Vegas FMS LLC

File Number:

F:\Depot\DSMemos\DS4685D.doc

Bart Anderson, P.E., DevCo

Parcel Number:

138-15-410-055

CCRFCFCD

Zoning Action:

SDR-54330 & SUP-54332

FEMA Flood Zone

YES

NO

X

Proposed Storm Drain

YES

NO

X

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1 st Submittal	7/2/2014	7/16/2014	Not Approved	\$400.00	362316: \$400
2 nd Submittal	8/21/2014	8/27/2014	Conditional Approval	\$400.00	367750: \$400
3 rd Submittal	9/30/2014	10/13/2014	Conditional Approval	\$400.00	371938: \$400
CCRFCFCD	10/20/2014	10/20/2014	Concurrence Recv'd	N/C	N/C
TOTAL FEES (LDDRS):				\$1,200.00	----

REMARKS:

3rd Submittal: Response to CCRFCFCD comments

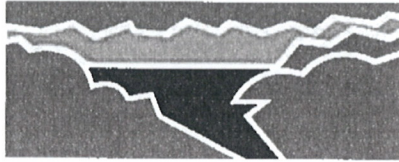
The Drainage Study for the subject project has been reviewed and:

X	is approved subject to conformance to all City standards and the following conditions:
	must be resubmitted or supplemented including the following:
	is conditionally approved subject to Clark County Regional Flood Control District concurrence.

- Provide a note on the grading plan: ALL ONSITE STORM DRAINS AND THE ASSOCIATED FACILITIES ARE PRIVATELY OWNED AND TO BE PRIVATELY MAINTAINED BY THE OWNER.

NOTE: Any future changes to the proposed design (or design assumptions) as outlined in the approved drainage study and attached preliminary grading plan which affect drainage must be addressed in a Drainage Study Update and accepted by the *City of Las Vegas Flood Control Section*. Additionally, conditional acceptance of a drainage study is valid for a period of one (1) year. If the proposed construction has not been completed in that time period, the *City of Las Vegas* reserves the right to require additional conditions and/or submission and acceptance of a complete drainage study update prior to further construction of a project.

REGIONAL FLOOD
CONTROL DISTRICT



Rec'd: 10/20/14
DS4685
L-15
N/C

Gale Wm. Fraser, II, P.E.
General Manager/Chief
Engineer

October 15, 2014

BOARD OF DIRECTORS

Lawrence L. Brown, III
Chairman
Clark County

Debra March
Vice-Chairman
City of Henderson

Chris Glunchigiani
Clark County

Mayor John J. Lee
City of North Las Vegas

Mayor Allan Litman
City of Mesquite

Steven D. Ross
City of Las Vegas

Dr. Lois Tarkanian
City of Las Vegas

Mayor Roger Tobler
City of Boulder City

Mr. Oh Sang Kwon, P.E.
City of Las Vegas
333 North Rancho Drive
Las Vegas, NV 89106

**DISTRICT CONCURRENCE: DORAL ACADEMY FIRE MESA CAMPUS
(DS4685B) (RFCD No. 14-9395)**

Dear Mr. Kwon:

Clark County Regional Flood Control District (District) reviewed Technical Drainage Study dated July 4, 2014, Addendum No. 1 dated August 20, 2014 and Addendum No. 2 dated September 29, 2014 or above-mentioned project as submitted by WALKER ENGINEERING, LLC. In addition, District is in receipt of the Conditional Letter of Acceptance from City of Las Vegas dated October 13, 2014.

District concurs with acceptance of this Technical Drainage Study by City of Las Vegas.

District's review of this project was limited to issues of Regional Flood Control Significance as defined in *Uniform Regulations for the Control of Drainage*.

Please be aware that as additional information becomes available and/or restudies of Flood Insurance Studies are performed, information submitted by WALKER ENGINEERING, LLC may be superseded. Compliance with regulatory elements and design standards specified in *Uniform Regulations for the Control of Drainage* does not imply a guarantee that properties will be free from flooding or flood damage. The District, its officials, or employees assume no liability for information, data, or conclusions presented by consulting engineers. We, therefore, make no warranties, either expressed or implied, in conducting this review.

GALE WM. FRASER, II, P.E.
General Manager/Chief Engineer

BY:


Abigail Mayrena, P.E., CFM
Senior Engineer

AM:eb

c: Treasea Wolf, P.E., LEAD AP, Walker Engineering, LLC

P:\Letters and Memos\Local Drainage\Land Development & Drainage\2014\L-14-9395.doc

CITY OF LAS VEGAS		DATE:
INTER-OFFICE MEMORANDUM		October 13, 2014
TO: Land Development Services Department of Building & Safety		FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	Drainage Study for:	COPIES TO:
	Doral Academy – Fire Mesa Campus	Walker Engineering LLC
Cross Streets:	Fire Mesa Street & Trinity Peak Avenue	CA Las Vegas FMS LLC
File Number:	F:\Depot\DSMemos\DS4685C.doc	Bart Anderson, P.E., DevCo
Parcel Number:	138-15-410-055	CCRFCD
Zoning Action:	SDR-54330 & SUP-54332	
FEMA Flood Zone	YES	NO X
Proposed Storm Drain	YES	NO X

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1 st Submittal	7/2/2014	7/16/2014	Not Approved	\$400.00	362316: \$400
2 nd Submittal	8/21/2014	8/27/2014	Conditional Approval	\$400.00	367750: \$400
3 rd Submittal	9/30/2014	10/13/2014	See Comments Below	\$400.00	371938: \$400
TOTAL FEES (LDDRS):				\$1,200.00	----

REMARKS:

3rd Submittal: Response to CCRFCD comments

The Drainage Study for the subject project has been reviewed and:

	is approved subject to conformance to all City standards and the following conditions:
	must be resubmitted or supplemented including the following:
X	is conditionally approved subject to Clark County Regional Flood Control District concurrence.
	is conditionally approved subject to Clark County Public Works Department concurrence.

- This drainage study is acceptable in concept;** however, *City of Las Vegas* will not formally accept the study until the *Clark County Regional Flood Control District* (CCRFCD) has issued a letter of concurrence. The engineer should contact the CCRFCD to confirm that they have begun their review.
- Provide a note on the grading plan: ALL ONSITE STORM DRAINS AND THE ASSOCIATED FACILITIES ARE PRIVATELY OWNED AND TO BE PRIVATELY MAINTAINED BY THE OWNER.

NOTE: Please be advised that all land surface area disturbances over 1 acre or any area adjacent to a water way must submit to the *Nevada Division of Environmental Protection* a "Notice of Intent" to discharge that certifies a stormwater pollution prevention plan has been developed and is maintained on site; for inclusion in the Stormwater General Permit No. NVR100000. A phased construction unit in a contiguous subdivision is considered under construction until all stripped or disturbed surface areas have been covered by paving, building construction or planting. For more information, including forms and applications see <http://ndep.nv.gov/bwpc/storm01.htm> or call (775) 687-9429.

END OF REMARKS

ays

T/R/S: T20S/R60E/15
AREA L-15

*** FAX TX REPORT ***

TRANSMISSION OK

JOB NO. 4620
 DESTINATION ADDRESS 7028735346
 PSWD/SUBADDRESS
 DESTINATION ID
 ST. TIME 10/13 13:54
 USAGE T 00' 25
 PGS. 1
 RESULT OK

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM		DATE: October 13, 2014
TO: Land Development Services Department of Building & Safety		FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	Drainage Study for: Doral Academy – Fire Mesa Campus	COPIES TO: Walker Engineering LLC
Cross Streets:	Fire Mesa Street & Trinity Peak Avenue	CA Las Vegas FMS LLC
File Number:	F:\Depot\DSMemos\DS4685C.doc	Bart Anderson, P.E., DevCo
Parcel Number:	138-15-410-055	CCRFCD
Zoning Action:	SDR-54330 & SUP-54332	
FEMA Flood Zone	YES NO X	
Proposed Storm Drain	YES NO X	

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1 st Submittal	7/2/2014	7/16/2014	Not Approved	\$400.00	362316: \$400
2 nd Submittal	8/21/2014	8/27/2014	Conditional Approval	\$400.00	367750: \$400
3 rd Submittal	9/30/2014	10/13/2014	See Comments Below	\$400.00	371938: \$400
TOTAL FEES (LDDRS):				\$1,200.00	----

REMARKS:**3rd Submittal: Response to CCRFCD comments**

The Drainage Study for the subject project has been reviewed and:

	is approved subject to conformance to all City standards and the following conditions:
	must be resubmitted or supplemented including the following:
X	is conditionally approved subject to Clark County Regional Flood Control District concurrence.
	is conditionally approved subject to Clark County Public Works Department concurrence.

- This drainage study is acceptable in concept;** however, *City of Las Vegas* will not formally accept the study until the *Clark County Regional Flood Control District* (CCRFCD) has issued a letter of concurrence. The engineer should contact the CCRFCD to confirm that they have begun their review.
- Provide a note on the grading plan: ALL ONSITE STORM DRAINS AND THE ASSOCIATED FACILITIES ARE PRIVATELY OWNED AND TO BE PRIVATELY MAINTAINED BY THE OWNER.

Rec'd: 9/30/14

5765 South Rainbow Boulevard
Suite 101
Las Vegas, Nevada 89118
T: 702.873.5197
F: 702.873.5346
www.walker-eng.com

WALKER ENGINEERING, LLC

ADDENDUM #2
to the
TECHNICAL DRAINAGE STUDY
for

DS 4685

L-15

\$400-

**DORAL ACADEMY
FIRE MESA CAMPUS
APN: 138-15-410-055
CLV DS#4685**



Prepared for:
CA Las Vegas FMS LLC.
3000 Olympic Blvd., Bldg. 5, Suite 2120
Santa Monica, CA 90404
Tel: 818.522.7300
Fax: 818.522.7301

Date Prepared:
September 29, 2014

5765 South Rainbow Boulevard
Suite 101
Las Vegas, Nevada 89118
T: 702.873.5197
F: 702.873.5346
www.walker-eng.com

WALKER ENGINEERING, LLC

*ADDENDUM #2
to the
TECHNICAL DRAINAGE STUDY
for*

**DORAL ACADEMY
FIRE MESA CAMPUS
APN: 138-15-410-055
CLV DS#4685**



Prepared for:
CA Las Vegas FMS LLC.
3000 Olympic Blvd., Bldg. 5, Suite 2120
Santa Monica, CA 90404
Tel: 818.522.7300
Fax: 818.522.7301

Date Prepared:
September 29, 2014

HYDROLOGIC CRITERIA AND DRAINAGE MANUAL
DRAINAGE STUDY INFORMATION FORM

Name of Development: DORAL ACADEMY FIRE MESA CAMPUS Date: Sep 29, 2014

Location of Development: a) Descriptive (Cross Streets) North/South: FIRE MESA STREET
East/West: TRINITY PEAK AVENUE

b) Section: 15 Township: 20S Range: 60E

c) APN : 138-15-410-055

Name of Owner: CA Las Vegas FMS LLC

Telephone No.: 818.522.7300 Fax No.: 818.522.7301 E-Mail Address: _____

Address: 3000 Olympic Blvd., Bldg. 5, Suite 2120, Santa Monica, CA 90404

Contact Person-Name: Treasea Wolf, P.E., LEED AP Telephone No.: 702.873.5197

* E-Mail Address: twolf@walker-eng.com Fax No.: 702.873.5346

Firm: WALKER ENGINEERING, LLC

Address: 5765 S. RAINBOW BLVD., SUITE 101 LAS VEGAS, NV 89118

Type of Land Development/Land Disturbance Process:

☐	Rezoning	☐	Subdivision Map	☐	Clearing and Grading Only
☐	Parcel Map	☐	Planned Unit Development	☒	Other (Please specify below)
☐	Large Parcel Map	☒	Building Permit		GRADING PERMIT

1. Total Owned Land Area: At Site: 8.39 Being Developed/Disturbed: 4.94

2. Is a portion or all of the subject property located in a designated FEMA Flood Hazard Area? ☐ Yes** ☒ No

3. Is the property bordered or crossed by an existing or proposed Clark County Regional Flood Control District Master Planned Facility? ☒ Yes** ☐ No

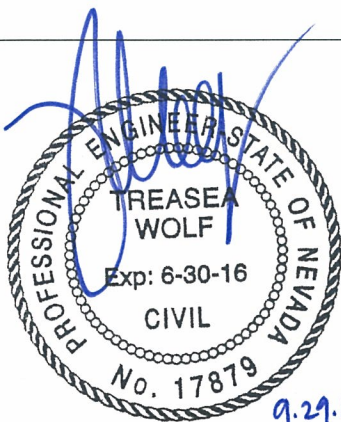
4. Proposed type of development (Residential, Commercial, Etc.): COMMERCIAL

5. Approximate upstream land area which drains to the subject site: NONE

6. Has the site drainage been evaluated in the past? ☒ YES ☐ NO If yes, please identify documentation: TDS FOR LAS VEGAS TECH CENTER PHASE 2, JANUARY 1999, DS#2440

7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: SITE WILL DISCHARGE INTO THE EXISTING CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT MASTER PLANNED FACILITY, BUFFALO CHANNEL, AT THE NORTH-EAST CORNER OF THE PROPOSED DEVELOPMENT.

8. Briefly describe your proposed schedule for the subject project: ASAP



Engineer's Seal

Submit this form as part of the required drainage study to the local entity which has jurisdiction over the subject property. This form may provide sufficient information to serve as the Conceptual Drainage Study.

*New Required Field

**Review and concurrence of the Clark County Regional Flood Control District is required.

Revision	Date
ADD #1	Aug 20, 2014
ADD#2	Sep 29, 2014

Local Entity File No. _____

REFERENCE:

STANDARD FORM 1



WALKER ENGINEERING, LLC

September 29, 2014
WE Job No. 1317.00

Via Hand Delivery

Mr. Albert Sung, PE
City of Las Vegas Flood Control
333 Rancho Drive
Las Vegas, NV 89106

RE: Addendum #2 to the Technical Drainage Study for Doral Academy @ Fire Mesa & Trinity Peak (DS 4685)

Dear Albert,

This Letter is being submitted in response to Clark County Regional Flood Control District comments dated September 24, 2014. A copy of the comment letter is included in **Appendix A**. These comments have been reviewed and are addressed as follows:

Comment 1: An inlet control nomograph calculation indicates that the required headwater for the 18 cfs through an 18-inch RCP is approximately 5 feet. It does not appear that the proposed pipe is adequate to accommodate the 100-year storm event. Revise accordingly. The hydraulic calculation (standard form 6) must include existing facilities to verify that the additional flow does not negatively impact the existing storm drain system. Provide a profile view of the proposed connection and include hydraulic grade line and 100-year storm flow. The reference plan and profile sheet for the existing 42-inch storm drain facility was not included in the study, provide with the next submittal.

Response: The pipe has been increased to a 24-inch RCP. An inlet control nomograph is provided in **Appendix B** that shows the headwater depth to be 2.7'.

5765 South Rainbow Blvd.
Suite 101
Las Vegas, Nevada, 89118
Phone: 702.873.5197
Fax: 702.873.5346
www.walker-eng.com

A revised standard form 6 is also included in **Appendix C** for the existing 42-inch storm drain from the Buffalo Channel to storm drain manhole #3 in Fire Mesa. We only analyzed this portion of the storm drain due to the fact that the reference drainage studies and improvement plans from CLV have conflicting information for the existing storm drain upstream of SDMH #3 in Fire Mesa. The inlets at the northwest corner of the project site were relocated and we do not have the existing as-built information. However, the portion that we did analyze shows that the addition of the 18 cfs does not negatively impact the existing storm drain system.

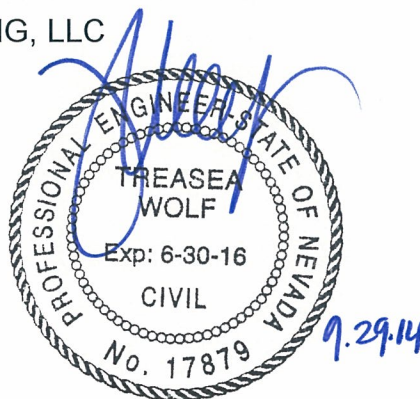
A profile view of the new 24-inch storm drain has been added to sheet D2 and is included in **Appendix E**. The reference plan for the existing 42-inch storm drain is included in **Appendix C**.

Comment 2: Clarify how onsite subbasin DON1 storm flow is diverted to concentration point CP1. Provide hydraulic cross section of the rock lined swale and demonstrate that the 100-year storm event is contained within the swale. Provide flow arrows of all subbasins on the basin maps. Address accordingly.

Response: There are curb openings that allow the flows from DON1 to drain to the swales and then to CP1. Hydraulic cross sections of the rock lined swales are provided in **Appendix D**. The flow used for proposed swale 2 is 1/3 of the total flows from DON1 and the flows used for proposed swale 3 are the remaining flows from DON1 plus the flows from DON2. Flow arrows have been added to the proposed basin map, PR-1. A revised copy is included in **Appendix E**.

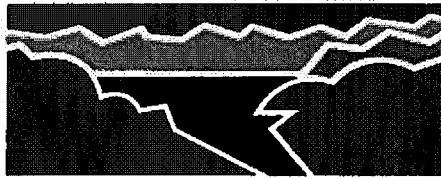
Please do not hesitate to contact me if you should have any questions or need additional information.

Sincerely,
WALKER ENGINEERING, LLC



Treasea Wolf, P.E.
Vice President

REGIONAL FLOOD CONTROL DISTRICT



Gale Wm. Fraser, II, P.E.
General Manager/Chief
Engineer

BOARD OF DIRECTORS

Lawrence L. Brown, III
Chairman
Clark County

Debra March
Vice-Chairman
City of Henderson

Chris Giunchigliani
Clark County

Mayor John J. Lee
City of North Las Vegas

Mayor Allan Litman
City of Mesquite

Steven D. Ross
City of Las Vegas

Dr. Lois Tarkanian
City of Las Vegas

Mayor Roger Tobler
City of Boulder City

September 24, 2014

Mr. Oh Sang Kwon, P.E.
City of Las Vegas
333 North Rancho Drive
Las Vegas, NV 89106

**DISTRICT COMMENT(S): DORAL ACADEMY FIRE MESA CAMPUS
(DS4685B) (RFCD No. 14-9395)**

Dear Mr. Kwon:

Clark County Regional Flood Control District (District) reviewed Technical Drainage Study dated July 4, 2014 and Addendum No. 1 dated August 20, 2014 for above-mentioned project as submitted by WALKER ENGINEERING, LLC. In addition, District is in receipt of the Conditional Letter of Acceptance from City of Las Vegas dated August 27, 2014.

District has the following comment(s):

1. An inlet control nomograph calculation indicates that the required headwater for 18 cfs through an 18-inch RCP is approximately 5 feet. It does not appear that the proposed pipe is adequate to accommodate the 100-year storm event. Revise accordingly. The hydraulic calculation (Standard Form 6) must include existing facilities to verify that the additional flow does not negatively impact the existing storm drain system. Provide a profile view of the proposed connection and include hydraulic grade line and 100-year storm flow. The reference plan and profile sheet for the existing 42-inch storm drain facility was not included in the study, provide with the next submittal.
2. Clarify how onsite subbasin DON1 storm flow is diverted to concentration point CPI. Provide a hydraulic cross section of the rock lined swale and demonstrate that the 100-year storm event is contained within the swale. Provide flow arrows of all subbasins on the basin maps. Address accordingly.

District's review of this project was limited to issues of Regional Flood Control Significance as defined in *Uniform Regulations for the Control of Drainage*.

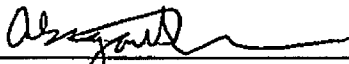
The consultant must be advised to submit any revisions to the Technical Drainage Study and Improvement Plans to City of Las Vegas for review/re-approval. District review of any such revisions will commence upon City of Las Vegas's acceptance.



Mr. Oh Sang Kwon, P.E.
September 24, 2014
Page 2

Please be aware that as additional information becomes available and/or restudies of Flood Insurance Studies are performed, information submitted by WALKER ENGINEERING, LLC may be superseded. Compliance with regulatory elements and design standards specified in *Uniform Regulations for the Control of Drainage* does not imply a guarantee that properties will be free from flooding or flood damage. The District, its officials, or employees assume no liability for information, data, or conclusions presented by consulting engineers. We, therefore, make no warranties, either expressed or implied, in conducting this review.

GALE WM. FRASER, II, P.E.
General Manager/Chief Engineer

BY: 
Abigail Mayrena, P.E., CFM
Senior Engineer

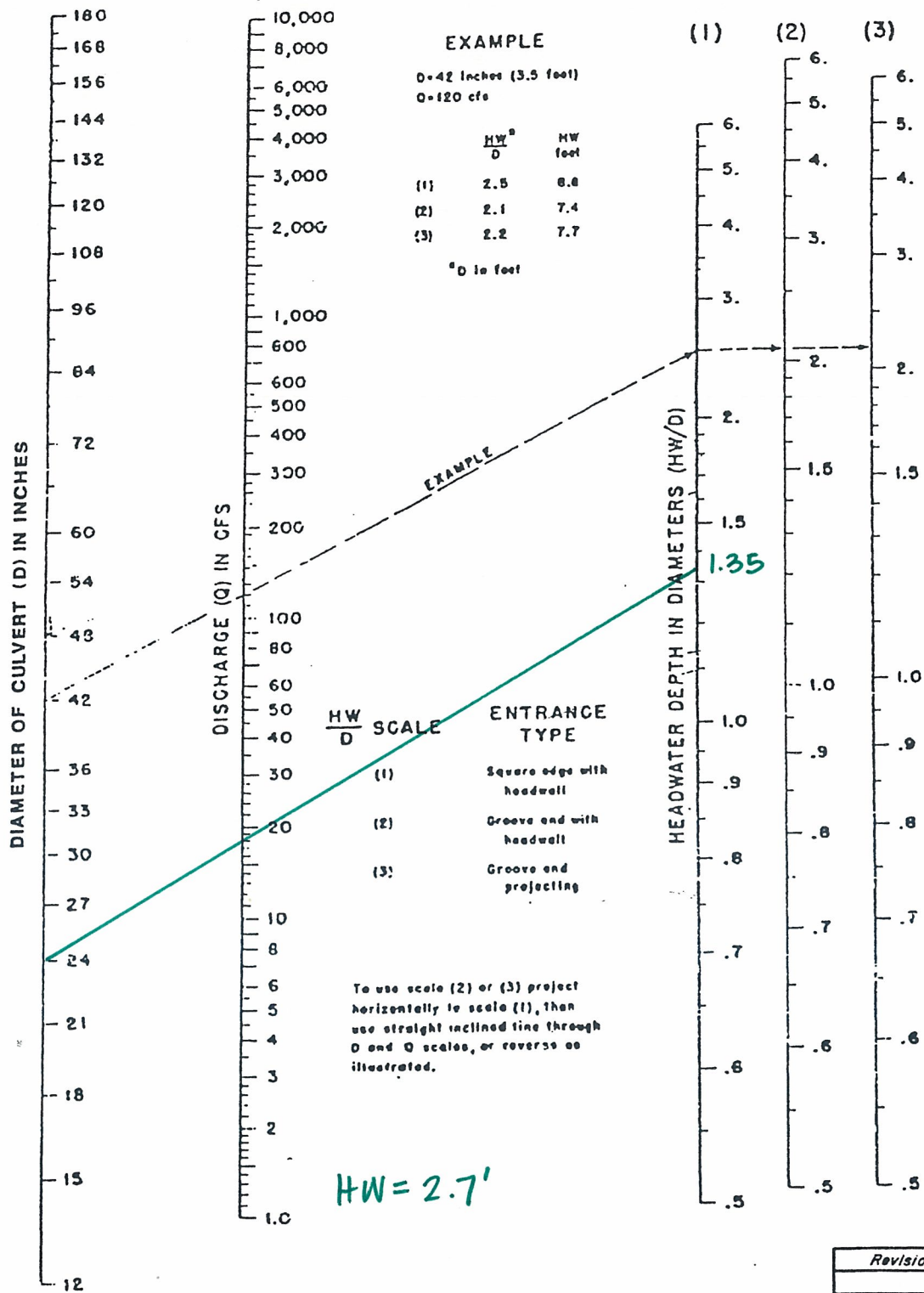
AM:eb

c: Treasea Wolf, P.E., Walker Engineering, LLC

P:\Letters and Memos\Local Drainage\Land Development & Drainage\2014\L-14-9395comment.doc

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

NOMOGRAPH - INLET CONTROL RCP



Revision	Date

Cross Section for 24" RCP

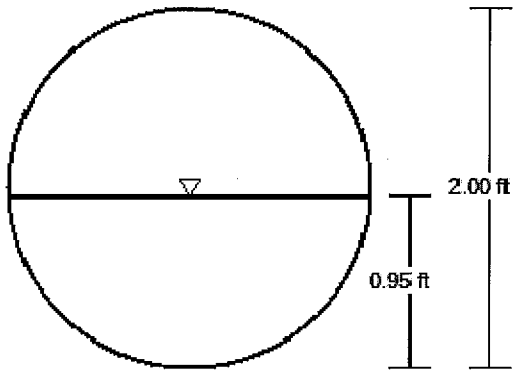
Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.03000	ft/ft
Normal Depth	0.95	ft
Diameter	2.00	ft
Discharge	18.00	ft ³ /s

Cross Section Image



V: 1
H: 1

Worksheet for 24" RCP

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.03000	ft/ft
Diameter	2.00	ft
Discharge	18.00	ft³/s

Results

Normal Depth	0.95	ft
Flow Area	1.47	ft²
Wetted Perimeter	3.04	ft
Hydraulic Radius	0.48	ft
Top Width	2.00	ft
Critical Depth	1.53	ft
Percent Full	47.6	%
Critical Slope	0.00730	ft/ft
Velocity	12.21	ft/s
Velocity Head	2.32	ft
Specific Energy	3.27	ft
Froude Number	2.51	
Maximum Discharge	42.15	ft³/s
Discharge Full	39.18	ft³/s
Slope Full	0.00633	ft/ft
Flow Type	SuperCritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	47.58	%
Downstream Velocity	Infinity	ft/s

Worksheet for 24" RCP

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.95	ft
Critical Depth	1.53	ft
Channel Slope	0.03000	ft/ft
Critical Slope	0.00730	ft/ft

1317SF6-EX42SD

Storm Drain Hydraulics Calculations

Walker Engineering, LLC

PROP. 24" LATERAL

Hydraulic Calculations for Example in Section 807.2 of CCRFCD Manual

DATE: 09/24/14 FILE: SF6.xls

[illegible]

Cross Section for SWALE #1 - 100 YR

Project Description

Friction Method

Manning Formula

Solve For

Normal Depth

Input Data

Channel Slope

0.00600 ft/ft

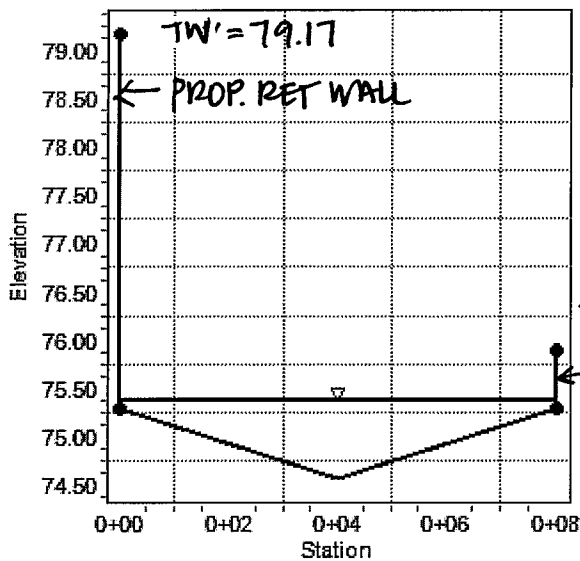
Normal Depth

0.82 ft

Discharge

6.00 ft³/s = DON2

Cross Section Image



WSE = 75.38'

$75.90' - 75.38' = 0.52' > 0.50'$ OK

TW = 75.90'

Ex WALL @ EAST P/L

100 yr FLOW IS CONTAINED

Project Description

Input Data

Station (ft)

0+00.00	79.17
0+00.00	75.29
0+04.00	74.56
0+08.00	75.29
0+08.00	75.90

Start Station

Roughness Coefficient

(0+00.00, 79.17)	(0+00.00, 75.29)	0.013
(0+00.00, 75.29)	(0+08.00, 75.29)	0.041
(0+08.00, 75.29)	(0+08.00, 75.90)	0.013

Current Roughness weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Normal Depth		0.82	ft
Elevation Range	74.56 to 79.17 ft		
Flow Area		3.66	ft²
Wetted Perimeter		8.32	ft
Hydraulic Radius		0.44	ft
Top Width		8.00	ft

Worksheet for SWALE #1 - 100 YR

Results

Normal Depth	0.82	ft
Critical Depth	0.59	ft
Critical Slope	0.03676	ft/ft
Velocity	1.64	ft/s < 5 ok
Velocity Head	0.04	ft
Specific Energy	0.86	ft
Froude Number	0.43	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.82	ft
Critical Depth	0.59	ft
Channel Slope	0.00600	ft/ft
Critical Slope	0.03676	ft/ft

Cross Section for SWALE #2 - 100 YR

Project Description

Friction Method

Manning Formula

Solve For

Normal Depth

Input Data

Channel Slope

0.00400 ft/ft

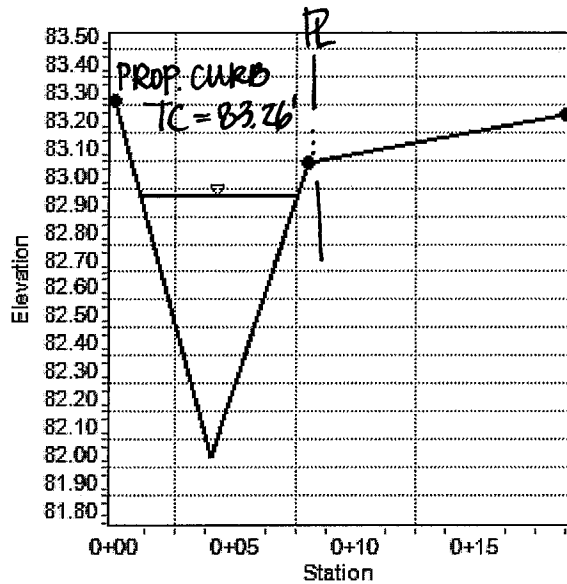
Normal Depth

0.93 ft

Discharge

4.00 ft³/s = 1/3 OF DON1

Cross Section Image



EX CURB
TC = 83.21'

WSE = 82.92'

83.21' > 82.92' OK

100 yr FLOW IS CONTAINED

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.00400	ft/ft
Discharge	4.00	ft ³ /s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	83.26
0+04.00	81.99
0+08.00	83.04
0+18.75	83.21

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 83.26)	(0+08.00, 83.04)	0.041
(0+08.00, 83.04)	(0+18.75, 83.21)	0.025

Options

Current Roughness weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth	0.93	ft
Elevation Range	81.99 to 83.26 ft	
Flow Area	2.99	ft²
Wetted Perimeter	6.71	ft
Hydraulic Radius	0.45	ft
Top Width	6.45	ft
Normal Depth	0.93	ft
Critical Depth	0.61	ft

Worksheet for SWALE #2 - 100 YR

Results

Critical Slope	0.03845	ft/ft	
Velocity	1.34	ft/s	< 5 OK
Velocity Head	0.03	ft	
Specific Energy	0.95	ft	
Froude Number	0.35		
Flow Type	Subcritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.93	ft
Critical Depth	0.61	ft
Channel Slope	0.00400	ft/ft
Critical Slope	0.03845	ft/ft

Cross Section for SWALE #3 - 100 YR

Project Description

Friction Method

Manning Formula

Solve For

Normal Depth

Input Data

Channel Slope

0.00400 ft/ft

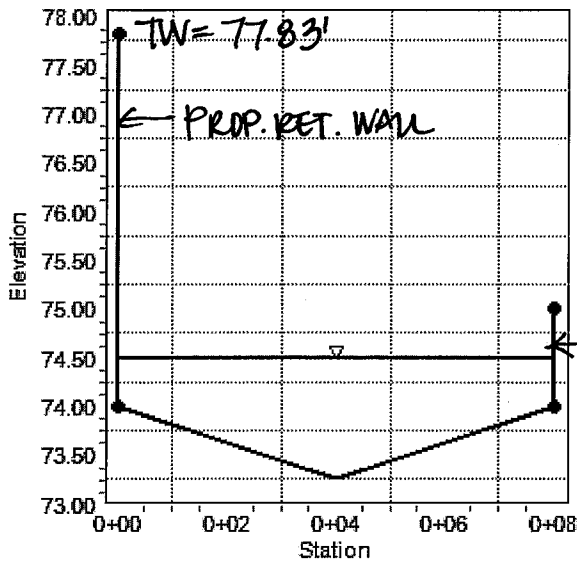
Normal Depth

1.24 ft

Discharge

14.00 ft³/s = $\frac{2}{3} \text{DON1} + \text{DON2} = 8+6$

Cross Section Image



WSE = 74.49'

75' - 74.49' = 0.51' > 0.50' OK

TW = 75.00'

EX. WALL @ EAST P/L

100 yr FLOW IS CONTAINED

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.00400	ft/ft
Discharge	14.00	ft ³ /s
Section Definitions		

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	77.83
0+00.00	74.00
0+04.00	73.25
0+08.00	74.00
0+08.00	75.00

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 77.83)	(0+00.00, 74.00)	0.013
(0+00.00, 74.00)	(0+08.00, 74.00)	0.041
(0+08.00, 74.00)	(0+08.00, 75.00)	0.013

Options

Current Roughness weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth	1.24	ft
Elevation Range	73.25 to 77.83 ft	
Flow Area	6.95	ft²
Wetted Perimeter	9.13	ft
Hydraulic Radius	0.76	ft
Top Width	8.00	ft

Worksheet for SWALE #3 - 100 YR

Results

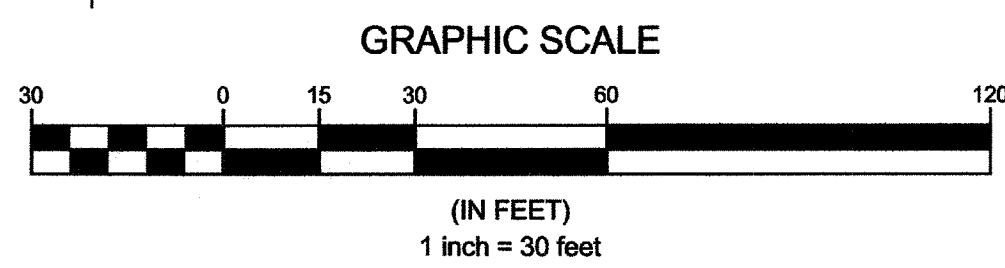
Normal Depth	1.24	ft
Critical Depth	0.83	ft
Critical Slope	0.03017	ft/ft
Velocity	2.01	ft/s < 5 OK
Velocity Head	0.06	ft
Specific Energy	1.31	ft
Froude Number	0.38	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	1.24	ft
Critical Depth	0.83	ft
Channel Slope	0.00400	ft/ft
Critical Slope	0.03017	ft/ft



LEGEND



BASIN ID

BASIN AREA

BASIN BOUNDARY

FLOW ARROW

Q10/Q100 FLOWRATE

CONCENTRATION POINT

REVISIONS						APPROVAL	
DATE	REV	DESCRIPTION OF REVISION				DATE	INITIALS

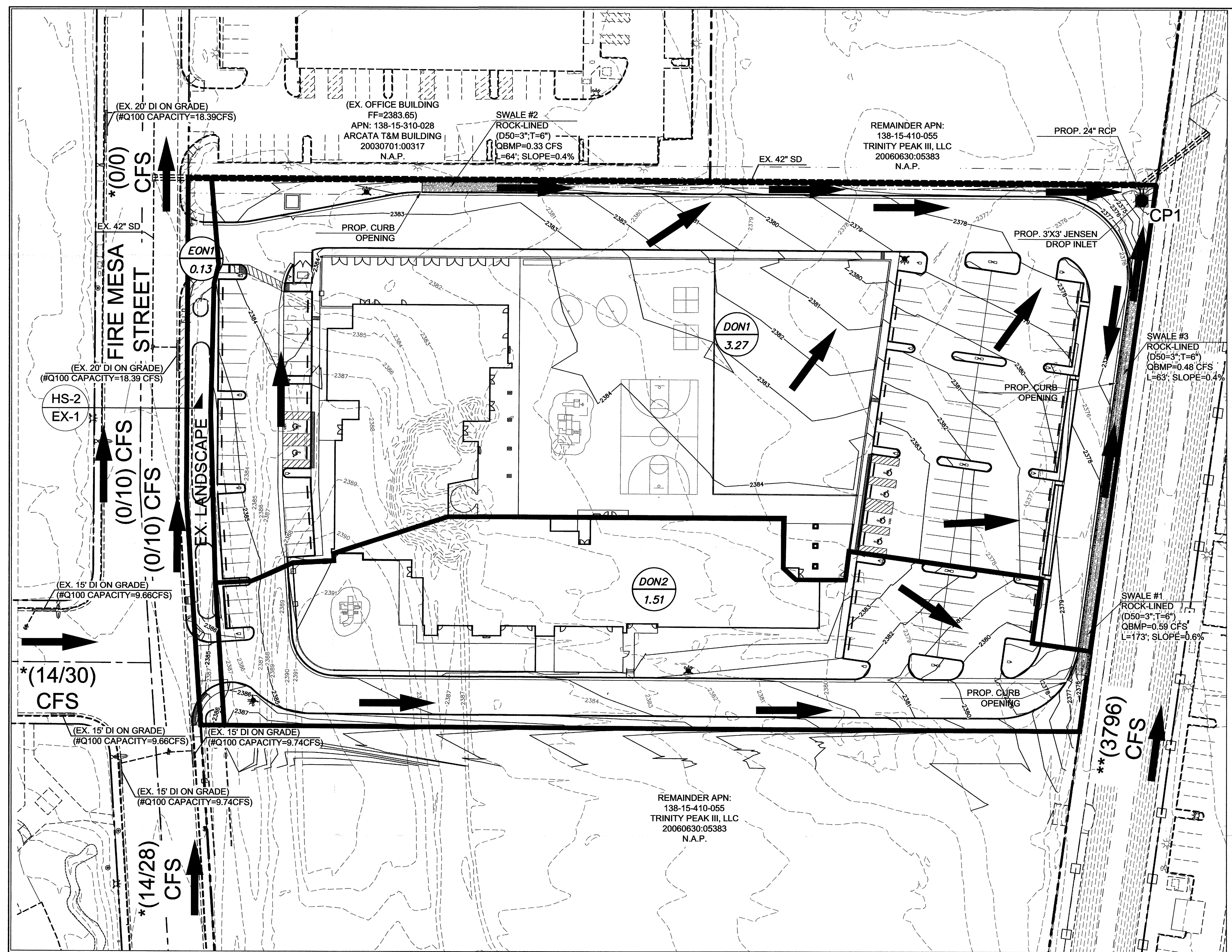
**DORAL ACADEMY
FIRE MESA CAMPUS**

PROPOSED CONDITION BASIN MAP

SUBMITTAL NO. ADD2
DATE: SEPT. 29, 2014
WE PROJECT NO. 1317.00
AGENCY NO. CLV: 4685
SHEET NO.:

PR-1

1 OF 1 SHEETS



*EXISTING CONDITION FLOW RATES REFERENCED FROM TECHNICAL DRAINAGE STUDY FOR LAS VEGAS TECHNOLOGY CENTER PHASE II OFFICE BUILDING #L-2. DS#3573

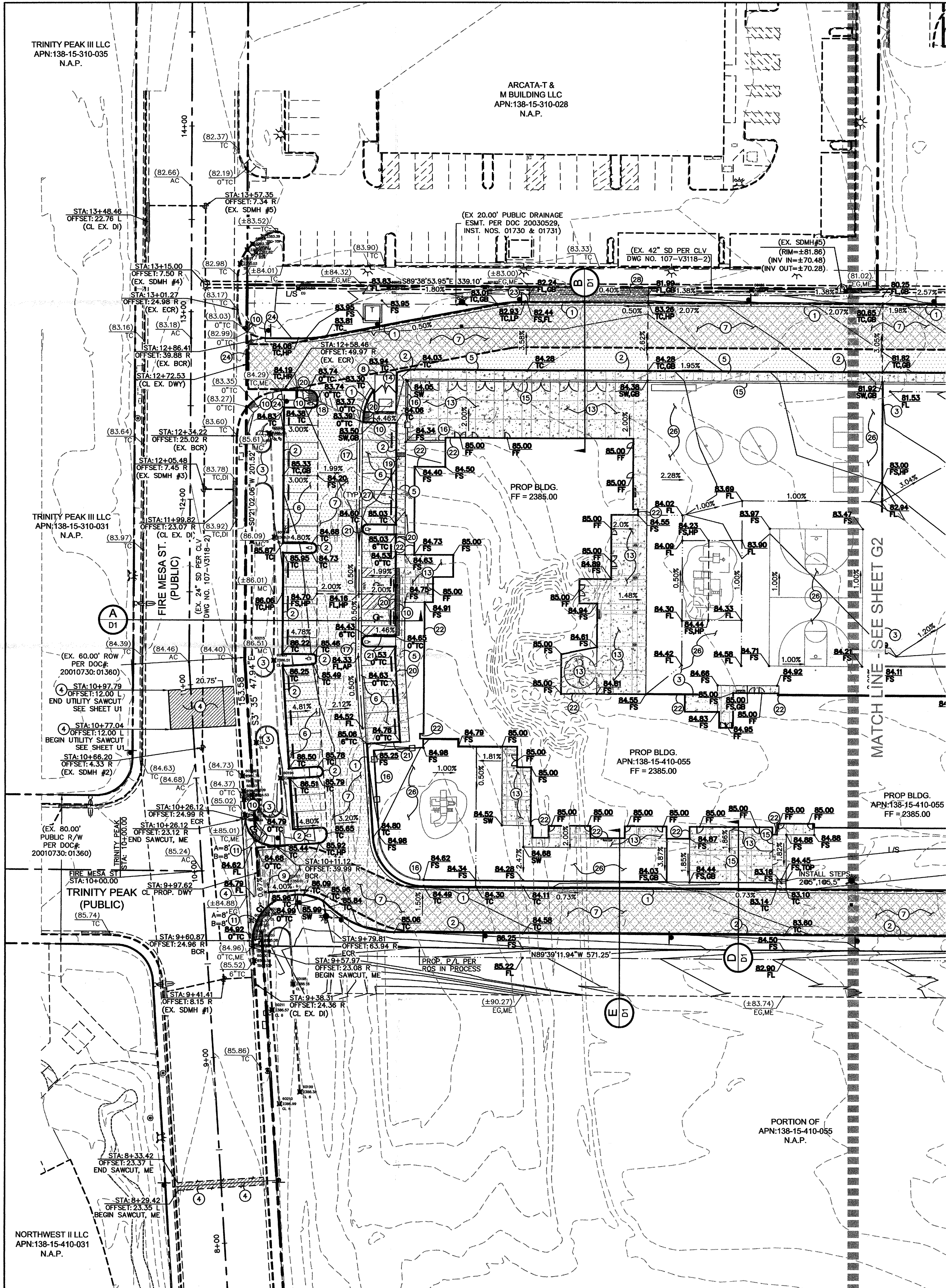
**EXISTING CONDITION FLOW RATES REFERENCED FROM 2013 LAS VEGAS VALLEY FLOOD CONTROL MASTER PLAN UPDATE FIGURE F-25.

#EXISTING DROP INLET CAPACITY REFERENCED FROM TECHNICAL DRAINAGE STUDY FOR LAS VEGAS TECHNOLOGY CENTER PHASE 2. DS#2440

BASIN	BASIN AREA (ACRES)	10-YEAR FLOW (CFS)	100-YEAR FLOW (CFS)
EON1	0.13	0	0
DON1	3.27	7	12
DON2	1.51	3	6
CP1	-	10	18

SECTION NAME	Q10 (CFS)	FLOW DEPTH (FT)	V10 (FPS)	D'V	Q100 (CFS)	FLOW DEPTH (FT)	V100 (FPS)	D'V	DRY LANE?
HS-1 FIRE MESA ST	0	-	-	-	10	0.30	2.34	0.70	N/A
HS-2 FIRE MESA ST (EAST 1/2)	0	-	-	-	10	0.46	2.43	1.12	N/A

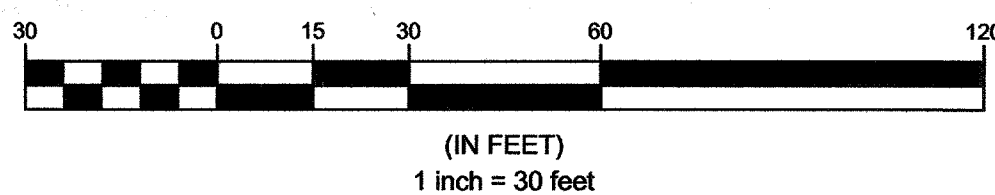
E:\1317_ETHOS\DWG\IMPRDWGS\05-1317G1.dwg, 9/26/2014 3:47:43 PM, DJ 1050c.pcs



ENGINEER'S NOTES:

1. ALL WORK SHALL CONFORM TO THE SOILS REPORT PREPARED BY TERRACON CONSULTANTS, INC. DATED SEPTEMBER 16, 2014 PROJECT NO. 64145020.
2. ALL OFF-SITE IMPROVEMENT CONSTRUCTION SHALL CONFORM TO THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA", LATEST EDITION.
3. FINAL ASPHALTIC CONCRETE (AC) PAVEMENT SURFACES SHALL BE ONE-HALF INCH ABOVE THE TOP OF THE GUTTER (INCLUDING OPEN GRADE).
4. CONTRACTOR IS RESPONSIBLE FOR DUST AND EROSION CONTROL DURING CONSTRUCTION.
5. THIS PLAN SHALL NOT, IN PART OR IN WHOLE, BE USED FOR CONSTRUCTION UNTIL APPROVED AND SIGNED BY ALL APPLICABLE GOVERNMENT AGENCIES.
6. ENGINEER TO BE NOTIFIED OF ANY DISCREPANCIES IMMEDIATELY.
7. MATCH ELEVATIONS SHOWN TO BE VERIFIED BY CONTRACTOR PRIOR TO CONSTRUCTION.
8. PROPERTY OWNER IS RESPONSIBLE TO MAINTAIN THE BEST MANAGEMENT PRACTICES SUCH AS BUT NOT LIMITED TO THE REMOVAL OF ACCUMULATED SEDIMENT AND DEBRIS AND CARE OF THE VEGETATION.

GRAPHIC SCALE



LEGAL DESCRIPTION:

THAT PORTION OF THE LAS VEGAS TECHNOLOGY CENTER BLOCK FIVE (5), LOT ONE (1) AS SHOWN UPON THAT CERTAIN PLAT MAP RECORDED AS BOOK 47, PAGE 35 OF PLATS, SAME BEING FURTHER SHOWN AS AREA E ON THAT CERTAIN RECORD OF SURVEY RECORDED AS FILE 155 PAGE 31 OF SURVEYS, CLARK COUNTY RECORDS SITUATED IN SECTION 15, TOWNSHIP 20 SOUTH, RANGE 60 EAST, M.D.M., CLARK COUNTY, NEVADA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHWESTERLY CORNER OF AREA "E" AS SHOWN UPON THAT CERTAIN RECORD OF SURVEY RECORDED AS FILE 155, OF SURVEYS, PAGE 31, SAID POINT BEING COINCIDENT WITH THE EASTERLY RIGHT OF WAY LINE OF FIRE MESA STREET PER GRANT DEED 01360 ON JULY 30, 2001, CLARK COUNTY, NEVADA; THENCE ALONG THE EASTERLY RIGHT OF WAY LINE OF FIRE MESA STREET (60.00 FEET WIDE), THE FOLLOWING THREE COURSES: NORTH 03°35'48" WEST, A DISTANCE OF 194.94 FEET TO THE POINT OF BEGINNING; THENCE NORTH 03°35'48" WEST, A DISTANCE OF 153.58 FEET; THENCE NORTH 00°21'02" EAST, A DISTANCE OF 201.20 FEET, SAID POINT BEING COINCIDENT WITH THE NORTHWESTERLY CORNER OF SAID AREA "E"; THENCE DEPARTING SAID EASTERLY RIGHT OF WAY LINE SOUTH 89°38'54" EAST ALONG THE NORTH LINE OF SAID AREA "E", A DISTANCE OF 339.10 FEET; THENCE DEPARTING SAID NORTH LINE SOUTH 89°38'54" EAST, A DISTANCE OF 290.34 FEET TO A POINT ON THE WESTERLY LINE PER GRANT DEED TO THE CITY OF LAS VEGAS, RECORDED IN OFFICIAL RECORDS, BOOK 2003029 AS INSTRUMENT 01729 ON MAY 29, 2003, CLARK COUNTY, NEVADA; THENCE SOUTH 07°59'50" WEST ALONG SAID WESTERLY LINE, A DISTANCE OF 357.87 FEET; THENCE DEPARTING SAID WESTERLY LINE NORTH 89°39'12" WEST, A DISTANCE OF 571.25 FEET TO THE POINT OF BEGINNING.

STORMWATER MANAGEMENT NOTES:

1. THE OWNER, SITE DEVELOPER, CONTRACTOR, AND/OR THEIR AUTHORIZED AGENTS SHALL EACH DAY REMOVE ALL SEDIMENT, MUD, CONSTRUCTION DEBRIS, OR OTHER POTENTIAL POLLUTANTS THAT MAY HAVE BEEN DISCHARGED TO, OR ACCUMULATED IN, THE PUBLIC RIGHTS OF WAY OF THE CLARK COUNTY AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THE DEVELOPMENT OF THE CONSTRUCTION PROJECT. SUCH MATERIALS SHALL BE PREVENTED FROM ENTERING THE STORM SEWER SYSTEM.
2. ADDITIONAL CONSTRUCTION SITE DISCHARGE BEST MANAGEMENT PRACTICES MAY BE REQUIRED OF THE OWNER AND HIS OR HER AGENTS DUE TO UNFORESEEN EROSION PROBLEMS OR IF THE SUBMITTED PLAN DOES NOT MEET THE PERFORMANCE STANDARDS SPECIFIED IN THE CLARK COUNTY BUILDING ADMINISTRATIVE CODE 24-40 AND THE LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDANCE MANUAL.
3. TEMPORARY OR PERMANENT STABILIZATION PRACTICES WILL BE INSTALLED ON DISTURBED AREAS AS SOON AS PRACTICABLE AND NO LATER THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. SOME EXCEPTIONS MAY APPLY; REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVRI00000, SECTION III.A.5.
4. AT A MINIMUM, THE CONTRACTOR OR HIS AGENT SHALL INSPECT ALL DISTURBED AREAS, AREAS USED FOR STORAGE OF MATERIALS AND EQUIPMENT THAT ARE EXPOSED TO PRECIPITATION, VEHICLE ENTRANCE AND EXIT LOCATIONS, AND ALL BMPs WEEKLY, AND WITHIN 24 HOURS AFTER ANY RAIN EVENT OF 0.5 INCHES OR MORE. THE CONTRACTOR OR HIS AGENT SHALL UPDATE OR MODIFY THE STORMWATER POLLUTION PREVENTION PLAN AS NECESSARY. SOME EXCEPTIONS TO WEEKLY INSPECTIONS MAY APPLY, SUCH AS SUSPENSION OF LAND DISTURBANCE ACTIVITIES. REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVRI00000, SECTION III.A.12.
5. ACCUMULATED SEDIMENT IN BMPs SHALL BE REMOVED WITHIN SEVEN DAYS AFTER A STORMWATER RUNOFF EVENT OR PRIOR TO THE NEXT ANTICIPATED STORM EVENT, WHICHEVER IS EARLIER. SEDIMENT MUST BE REMOVED WHEN BMP DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE.

STORM DRAIN DROP INLET NOTE:

CONSTRUCTION OF ALL STORM DRAIN DROP INLETS PER A NEWLY ADOPTED USDOCA DWG NO. 421 (STORMWATER QUALITY MANAGEMENT STAMP AND SIGN DETAIL).

BASIS OF BEARINGS:

NORTH 89°40'51" WEST, BEING THE BEARING OF THE CENTERLINE OF SMOKE RANCH ROAD AND THE SOUTH LINE OF THE SOUTHWEST QUARTER (SW 1/4) OF THE SOUTHWEST QUARTER (SW 1/4) OF SECTION 15, TOWNSHIP 20 SOUTH, RANGE 60 EAST, M.D.M., CLARK COUNTY, NEVADA, AS SHOWN FILE 155, PAGE 31 OF SURVEYS, OFFICIAL RECORDS OF CLARK COUNTY, NEVADA.

SIGHT VISIBILITY ZONES NOTE:

NO WALLS, FENCES, TREES, SHRUBS, UTILITY APPURTENANCES OR ANY OTHER OBJECT, OTHER THAN TRAFFIC CONTROL DEVICES (LIGHT POLES, POLES, MAY BE CONSTRUCTED OR INSTALLED WITHIN THE SIGHT VISIBILITY ZONE UNLESS SAID OBJECT IS MAINTAINED AT LESS THAN 24 INCHES IN HEIGHT, MEASURED FROM THE TOP OF CURB.

FLOODZONE:

THE PARCEL DESCRIBED HEREON LIES WITHIN THE FLOOD HAZARD ZONE HAVING A ZONE DESIGNATION "X" (AREAS DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN) BY THE SECRETARY OF HOUSING AND URBAN DEVELOPMENT, AS SHOWN ON FIRM MAP NO. 2135F DATED NOVEMBER 16, 2011.

NOTES:

ALL DIMENSIONS ARE TO BACK OF CURB UNLESS OTHERWISE NOTED.

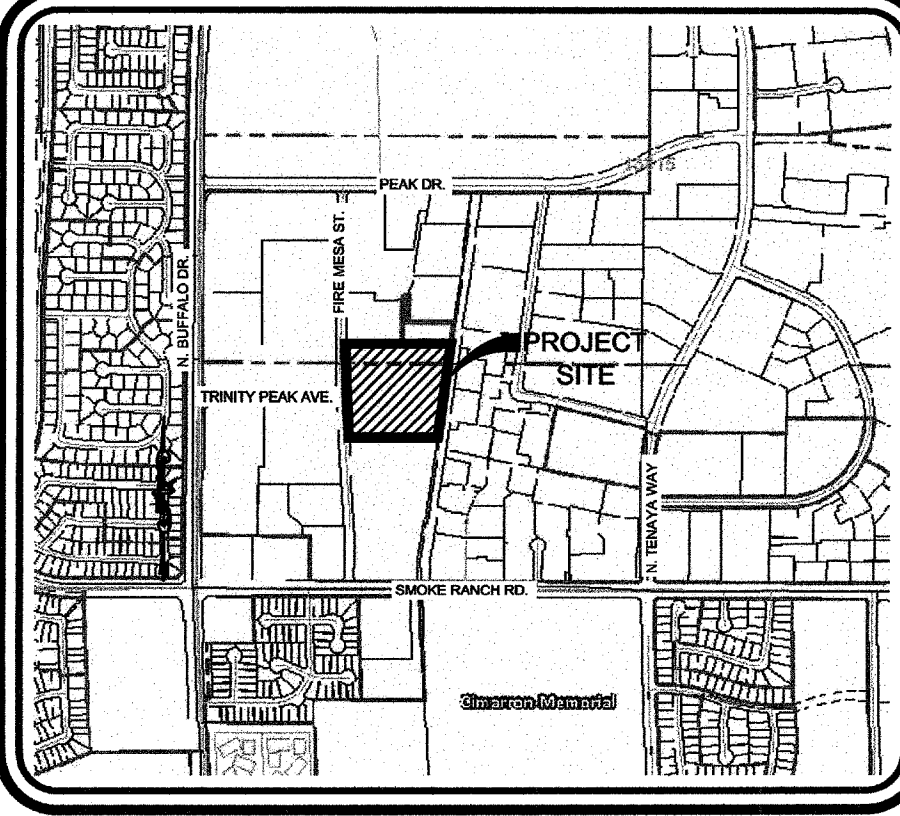
OWNER RESPONSIBLE TO PROVIDE SURVEY MONUMENTATION AS SHOWN AND TO REPLACE ALL SURVEY MONUMENTATION DAMAGED, DISTURBED, DESTROYED, OR OBLISCURED DURING CONSTRUCTION.

BENCHMARK:

CITY OF LAS VEGAS BM #0L000165EE6, BEING A RIVET PLATE IN THE TOP OF CURB WEST SIDE OF BUFFALO AT TRINITY PEAK AVENUE ELEVATION: 2401.52 (U.S. SURVEY FEET) 731.98 (METERS) BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).

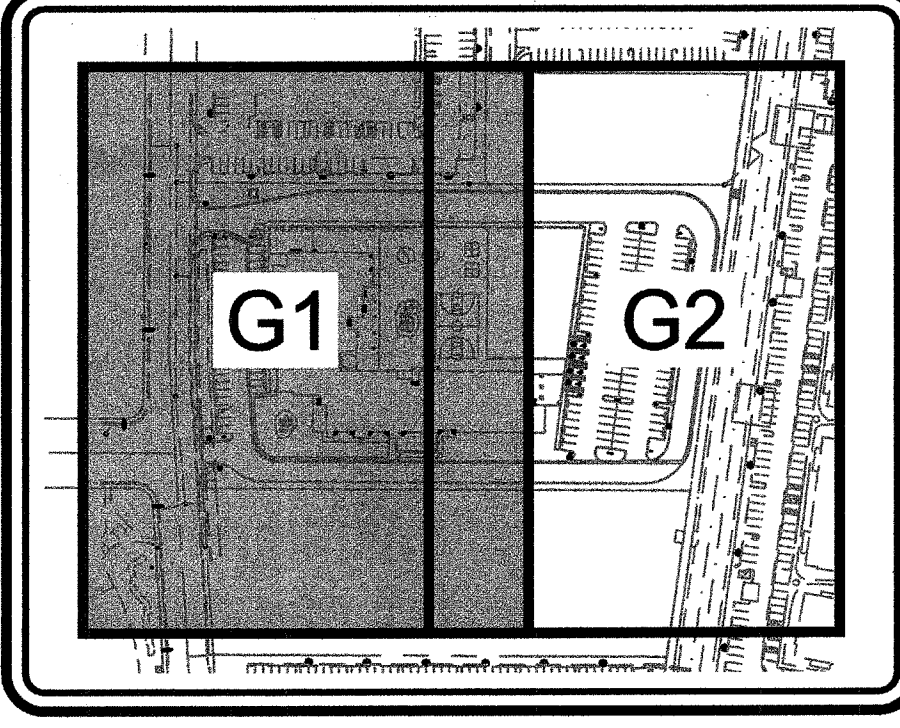
Call before you dig
Call 811
1-800-227-2600
CLARK COUNTY
1-702-455-7544

Call before you dig
UnderGround
1-702-455-7511
CLARK COUNTY
1-702-229-6611
LAS VEGAS AREA
1-702-593-6111



VICINITY MAP

N.T.S.



KEY MAP

N.T.S.

LEGEND

- PROPERTY LINE
- STREET CENTERLINE
- PROPOSED RETAINING WALL
- PROPOSED BUILDING
- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED CURB & GUTTER
- PROPOSED CURB
- PROPOSED EDGE OF PAVEMENT
- EXISTING CURB & GUTTER
- EXISTING CURB
- EXISTING BUILDING
- CONSTRUCTION NOTE
- CUT FILL TRANSITION
- SAWCUT LIMITS
- SCLOPE
- FLOW LINE
- EASEMENT LINE
- HANDICAP PARKING
- FINISHED SURFACE
- CURB FACE
- CURB BACK
- EDGE OF PAVEMENT
- TOP OF GRATE
- PROPOSED GRADE
- EXISTING GRADE
- PROP. AC PAVEMENT
- PROP. PCC PAVEMENT
- REMOVE & REPLACE EXISTING AC PAVEMENT

BACK OF CURB TABLE

CURVE	LENGTH	RADIUS	DELTA	TANGENT
C1	52.43	25.00	120°10'00"	43.45
C2	23.56	15.00	89°59'49"	15.00

BACK OF CURB LINE TABLE

LINE	LENGTH	BEARING
L1	2.91	S03°29'40"E

EARTHWORK QUANTITIES:

*NOTE: THESE QUANTITIES ARE APPROXIMATE AND ARE RAW VOLUMES ONLY. OVEREXCAVATION SUBSIDENCE, SHRINKAGE, & BULKING FACTORS ARE NOT TAKEN INTO ACCOUNT.

CUT = 47,710 C.Y.
FILL = 18,862 C.Y.

CONSTRUCTION NOTES

NO	ITEM
1	CONSTRUCT "L" TYPE CURB & GUTTER PER STD DWG NO. 216
2	CONSTRUCT "A" TYPE CURB ER STD DWG NO. 219
3	CONSTRUCT MOW CURB PER ARCHITECTURAL PLANS (BY OTHERS)
4	SAWCUT NEAT & MATCH EXISTING
5	CONSTRUCT CONCRETE SIDEWALK PER ARCHITECTURAL PLANS (BY OTHERS)
6	CONSTRUCT 2" STANDARD A.C. PAVEMENT OVER 4" TYPE II AGG. BASE PER SOILS REPORT BY TERRACON CONSULTANTS. SEE DETAIL 1 ON SHEET D2
7	CONSTRUCT 3" HEAVY A.C. PAVEMENT OVER 4" TYPE II AGG. BASE PER SOILS REPORT BY TERRACON CONSULTANTS. SEE DETAIL 2 ON SHEET D2
8	CONSTRUCT 5" PCC OVER 4" TYPE II AGG. BASE PER SOILS REPORT BY TERRACON CONSULTANTS. SEE DETAIL 3 ON SHEET D2
9	CONSTRUCT COMMERCIAL DRIVEWAY PER STD DWG NO. 226.S1
10	INSTALL ARMOR TILE TRUNCATED DOWNS OR EQUIVALENT PER DETAIL 4 ON SHEET D2
11	CONSTRUCT SIDEWALK RAMP PER STD DWG NO. 235 CASE 1
12	CONSTRUCT 4.0' MAX RETAINING WALL DESIGN & PERMITS (BY OTHERS)
13	CONSTRUCT CONCRETE WALKWAY PAVEMENT PER ARCHITECTURAL PLANS (BY OTHERS)
14	INSTALL TRASH ENCLOSURE PER ARCHITECTURAL PLANS (BY OTHERS)
15	INSTALL CHAIN LINK FENCE PER ARCHITECTURAL PLANS (BY OTHERS)
16	INSTALL DECORATIVE WROUGHT IRON FENCE PER ARCHITECTURAL PLANS (BY OTHERS)
17	CONSTRUCT 3.0' WIDE VALLEY GUTTER PER DETAIL 5 ON SHEET D2
18	CONSTRUCT SIDEWALK RAMP PER DETAIL 6 ON SHEET D2
19	CONSTRUCT SIDEWALK DRAIN PER STD DWG NO. 236
20	CONSTRUCT 0" CURB
21	TRANSITION FROM 6" CURB TO 0" CURB PER DETAIL 7 ON SHEET D2
22	INSTALL 4" PVC ROOF DRAIN. OUTLET TO GRADE WITH SPLASH BLOCK OR TERMINATE OVER CATCH BASIN. SEE ARCHITECTURAL PLANS (BY OTHERS)
23	CONSTRUCT 2.0' WIDE CURB OPENING PER DETAIL 8 ON SHEET D2
24	MATCH EXISTING
25	CONSTRUCT 2" CONCRETE FLUME PER DETAIL 9 ON SHEET D2
26	CONSTRUCT ASPHALT PLAYGROUND SURFACE PER ARCHITECTURAL PLANS (BY OTHERS)
27	INSTALL PRECAST CONCRETE WHEEL STOP BY JENSEN OR EQUIVALENT PER ARCHITECTURAL PLANS (BY OTHERS)
28	INSTALL RIP RAP (D50=6", T=12")
29	INSTALL 24" RCP CLASS III STORM DRAIN PIPE
30	INSTALL 3'X3' JENSEN DROP INLET (OR EQUIVALENT) PER DETAIL 10 ON SHEET D2
31	CONNECT TO EXISTING SDMH

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY ON FILE WITH CITY OF LAS VEGAS FOR THIS PROJECT, DS 4685.

TREASEA WOLF, P.E. No. 17879 DATE

CLV DRAWING NO. TBD

W E

WALKER ENGINEERING, LLC
5765 S. RAINBOW BLVD.
SUITE 101
LAS VEGAS, NV 89118
TEL: 702.873.5197
FAX: 702.873.5346

STATE OF NEVADA
TERRACE WOLF
P.E. No. 17879

APPROVAL	REVISIONS	DATE	INITIALS

SUBMITTAL NO. ADD#2
DATE: SEPTEMBER 29, 2014
WE PROJECT NO.
1317.00
AGENCY NO.
CLV:
SHEET NO.:
G1
7 OF 10 SHEETS

DORAL ACADEMY
FIRE MESA CAMPUS
PRECISE GRADING PLAN 1

