

DS #: 3911.

APN: 125-26-704-001 to -003 and more

PROJECT: Tropical Jones (update #5)

SUBMITTAL: 8th

SCANNED BY/DATE: _____

CHECKED BY/DATE: _____



CITY OF LAS VEGAS		DATE:
INTER-OFFICE MEMORANDUM		October 17, 2012
TO: Land Development Services Department of Public Works		FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	Drainage Study for:	COPIES TO:
	Tropical – Jones (Update #5)	Taney Engineering
Cross Streets:	SWC of Jones Blvd. & Tropical Pkwy.	William Lyon Homes
File Number:	F:\Depot\DSMemos\DS3911J.doc	Bart Anderson, P.E., DevCo
Parcel Number:	125-26-704-001 to -003 and more	CCDDS
Zoning Action:	ZON-6928; SDR-6929; VAR-6930; WVR-6931; TMP-8628 & VAC-8986	
FEMA Flood Zone	YES	NO X
Proposed Storm Drain	YES	NO X

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Transaction #
1 st Submittal	10/18/2005 & 11/30/2005	12/5/2005	Not Approved	\$400.00	31723: \$400
2 nd Submittal	3/10/2006, 4/4/2006 & 5/26/2006	6/6/2006	Conditional Approval	\$400.00	40296: \$400
CCDDS	7/7/2006	7/10/2006	Concurrence	N/C	N/C
3 rd Submittal	7/19/2006	8/2/2006	Approved	\$100.00	Paid: \$100
4 th Submittal	8/17/2006, 8/31/2006 & 9/13/2006	9/15/2006	Approved	\$400.00	52067: \$400
5 th Submittal & Supplement	12/11/2009 & 12/22/2009	12/22/2009	Approved	\$100.00	134955: \$100
6 th Submittal	1/13/2010	1/20/2010	Approved	\$100.00	136772: \$100
7 th Submittal & Supplement	7/24/2012 & 8/9/2012	8/9/2012	Approved	\$100.00	290591: \$100
8 th Submittal	10/3/2012	10/17/2012	See Comments Below	\$100.00	297655: \$100
TOTAL FEES (LDDRS):				\$1,700.00	----

REMARKS:

8th Submittal: Update #5 to revise roll curb section and to raise minimum interior street slope to be 0.6%

7th Submittal: Update #4

6th Submittal: Update to (i) Minor revision of F.F. on Lots 18, 30, 35, 40 & 42-49 &

(ii) Replace Neenah Inlets in Tropical Parkway with equivalent Type CM inlets

5th Submittal: Update to revise Bronco Street profile per as-built information

4th Submittal: Update to revise Bronco Street from Urban to Rural standard and revise slope in the public drainage easement

3rd Submittal: Stock Pile Permit Only

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

1. The original approved monolithic roll curb with cut-off wall has a function to prevent drainage seeping under the roll curb (if the cut-off wall is absent) and eventually damaging the pavement in the street section. With the proposed revision, a leak space is essentially created between the standard roll curb and the cut-off wall beneath, thus defeating the purpose of the modified roll curb. A variation of installing the cut-off wall behind instead of beneath the roll curb is more appealing. The City is also open to other acceptable alternatives. Please review and address in the next submittal.

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 Amendment 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: This drainage study assumes that the project will be constructed in one phase. If improvement plans are submitted to break the project into separate phases, a drainage study update will be required for each phase addressing the interim condition.

NOTE: Any proposed public drainage easement within a residential subdivision must also be dedicated as a "COMMON LOT" to be owned and maintained by the Homeowners Association.

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: T19S/R60E/26
AREA G-26

 *** FAX TX REPORT ***

TRANSMISSION OK

JOB NO. 0008
 DESTINATION ADDRESS 3625233
 PSWD/SUBADDRESS
 DESTINATION ID
 ST. TIME 10/17 15:42
 USAGE T 01' 53
 PGS. 2
 RESULT OK

CITY OF LAS VEGAS		DATE:
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TO: Land Development Services Department of Public Works		FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
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Zoning Action:	ZON-6928; SDR-6929; VAR-6930; WVR-6931; TMP-8628 & VAC-8986	
FEMA Flood Zone	YES NO X	
Proposed Storm Drain	YES NO X	

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Transaction #
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6 th Submittal	1/13/2010	1/20/2010	Approved	\$100.00	136772: \$100
7 th Submittal & Supplement	7/24/2012 & 8/9/2012	8/9/2012	Approved	\$100.00	290591: \$100
8 th Submittal	10/3/2012	10/17/2012	See Comments Below	\$100.00	297655: \$100
TOTAL FEES (LDDRS):				\$1,700.00	----

REMARKS:

8th Submittal: Update #5 to revise roll curb section and to raise minimum interior street slope to be 0.6%

7th Submittal: Update #4



TANEY ENGINEERING

**UPDATE #5 TO THE
TECHNICAL DRAINAGE STUDY
FOR
*TROPICAL - JONES***

**CITY OF LAS VEGAS,
NEVADA**

October 2012
Job No. WLL-05-035

Prepared by:

Taney Engineering
6030 South Jones Blvd #100
Las Vegas, Nevada 89118
Telephone: (702) 362-8844
Fax: (702) 362-5233

Prepared for:

William Lyon Homes
500 Pilot Rd. Ste. G
Las Vegas, NV 89119
Telephone: (702) 263-8200
Fax: (702) 263-8220

HYDROLOGIC CRITERIA AND DRAINAGE MANUAL
DRAINAGE STUDY INFORMATION FORM

Name of Development: Tropical and Jones Date: October 2012
Location of Development: a) Descriptive (Cross Streets) North/South: Jones Boulevard
East/West: Tropical Parkway
b) Section: 26 Township: 19 S Range: 60 E
c) APN : 125-26-704-001,002,003 and 125-26-707-001, 002,005

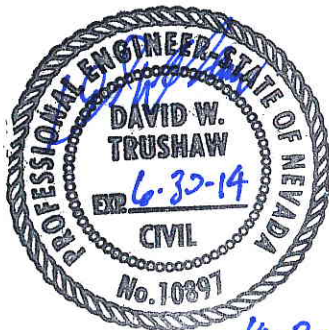
Name of Owner: William Lyon Homes
Telephone No.: (702) 263-8200 Fax No.: (702) 263-8220 E-Mail Address: _____
Address: 500 Pilot Road Suite G Las Vegas, NV 89119

Contact Person-Name: David W. Trushaw, P.E. Telephone No.: 702-362-8844
* E-Mail Address: dt@taneycorp.com Fax No.: 702-362-5233
Firm: Taney Engineering
Address: 6030 S. Jones Suite #100 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		

1. Total Owned Land Area: At Site: 11.30 AC Being Developed/Disturbed: 11.30 AC
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.): Residential
5. Approximate upstream land area which drains to the subject site: 0 AC
6. Has the site drainage been evaluated in the past? ☒ YES ☐ NO If yes, please identify documentation: Technical Drainage Study for Tropical and Jones, by Taney Engineering, dated October 2005
7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: Jones Boulevard
8. Briefly describe your proposed schedule for the subject project: A.S.A.P.



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.**

Local Entity File No.	Revision	Date

REFERENCE:

STANDARD FORM 1

**UPDATE #5 TO THE
TECHNICAL DRAINAGE STUDY
FOR
*Tropical- Jones***

Prepared by:



Taney Engineering
6030 South Jones Blvd #100
Las Vegas, NV 89118

Prepared for:

William Lyon Homes
500 Pilot Rd STE G
Las Vegas, Nevada 89119



TANEY ENGINEERING

6030 South Jones Blvd #100

Las Vegas, NV 89118

Telephone: 702-362-8844

Fax: 702-362-5233

October 2, 2012

Job No. WLL-05-035

Mr. Albert Sung, P.E.

City of Las Vegas Department of Public Works

Flood Control Section

731 South Fourth Street

Las Vegas, NV 89101

Subject: Update #5 to the Technical Drainage Study for the *Tropical – Jones* (DS3911F)

Mr. Sung:

Taney Engineering is pleased to provide one copy of the Update #5 to the Technical Drainage Study and improvement plans for the above-mentioned ***Tropical – Jones***.

The previous update was approved on August 9, 2012. A copy of the approval letter is included in Appendix A. This update also includes the following items:

1. The cut off wall under the 30" roll curb on Bronco Street has been revised. Presently it is shown as a monolithic pour under the curb. This is difficult and costly to construct. It is being revised to be 18" deep by 8" wide under the outside edge of the roll curb. Details B, P, and Q on Sheet GD1 have been revised, Sheet GD1 is included in Appendix C.
2. The onsite grading has been revised to have a minimum slope of 0.60% instead of 0.40%. The street sections have been revised with the results being shown below in Table A. The section locations are shown on Figure 6, located in Appendix C. The street calculations are included in Appendix B.

The revised improvement plans are included in Appendix C.

TABLE A
FLOW DEPTH ANALYSIS

Hydraulic Section	Flow (cfs)		Depth (ft)		Velocity (fps)		DV Product (ft ² /s)	
	10yr	100yr	10yr	100yr	10yr	100yr	10yr	100yr
Jasper Ridge HS1/6	7	17	0.40	0.52	2.1	2.4	0.8	1.3
Jasper Ridge HS2/6	3	8	0.32	0.42	1.8	2.1	0.6	0.9
Madison Falls HS3/6	3	8	0.32	0.42	1.8	2.1	0.6	0.9
Mills Creek HS10/6	31	65	0.61	0.73	2.6	3.4	1.6	2.5

Note: HS1 is the abbreviation for Hydraulic Section (HS) and the identified section number followed by the figure #.
All slopes are at 0.60%.

We hope that this letter satisfies your review concerns. If you need any additional information, please do not hesitate to call our office.

Sincerely,
TANEY ENGINEERING

David W. Trushaw, P.E.
Project Manager

APPENDICES

APPENDIX A

Approval Letter

APPENDIX B

Street Calculations

APPENDIX C

Improvement Plans

APPENDIX A

Approval Letter

WLL 05-035

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X	is approved subject to conformance to all City standards and the following conditions:
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The following comments are repeated until they are complete:

1. *The vacation of Corbett Street must be approved and recorded prior to the final approval of the improvement plans.*
2. *Private streets must be public drainage easements. Provide a note on the grading plans "Note: All private streets are P.U.E., public sewer easements and public drainage easements to be privately maintained by HOA".*

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 Amendment 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.

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END OF REMARKS
ays

T/R/S: T19S/R60E/26
AREA G-26

APPENDIX B

Street Calculations

HYDRAULIC SECTION HS1/6 - 10 YR JASPER RIDGE

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.60 %
Discharge 7.00 ft³/s
Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.50
0+00.50	0.50
0+00.50	0.00
0+01.50	0.13
0+01.50	0.17
0+18.50	0.51
0+35.50	0.17
0+35.50	0.14
0+36.50	0.00
0+36.50	0.50
0+37.00	0.50

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.50)	(0+01.50, 0.13)	0.013
(0+01.50, 0.13)	(0+35.50, 0.14)	0.016
(0+35.50, 0.14)	(0+37.00, 0.50)	0.013

Options

Current Roughness weighted Method Improved Lotter's Method
Open Channel Weighting Method Improved Lotter's Method
Closed Channel Weighting Method Horton's Method

HYDRAULIC SECTION HS1/6 - 10 YR JASPER RIDGE

Results

Normal Depth		0.40	ft
Elevation Range	0.00 to 0.51 ft		
Flow Area		3.42	ft ²
Wetted Perimeter		26.34	ft
Hydraulic Radius		0.13	ft
Top Width		25.44	ft
Normal Depth		0.40	ft
Critical Depth		0.40	ft
Critical Slope		0.00619	ft/ft
Velocity		2.05	ft/s
Velocity Head		0.07	ft
Specific Energy		0.47	ft
Froude Number		0.98	
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	0.40	ft
Critical Depth	0.40	ft
Channel Slope	0.60	%
Critical Slope	0.00619	ft/ft

Messages

Notes

DON1+DON2

HYDRAULIC SECTION HS1/6 - 10 YR JASPER RIDGE

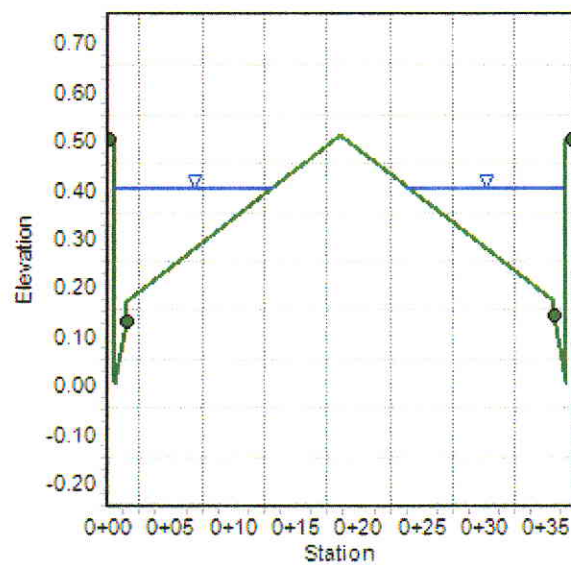
Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.60 %
Normal Depth 0.40 ft
Discharge 7.00 ft³/s

Cross Section Image



HYDRAULIC SECTION HS1/6 - 100 YR JASPER RIDGE

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.60 %
Discharge 17.00 ft³/s
Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.50
0+00.50	0.50
0+00.50	0.00
0+01.50	0.13
0+01.50	0.17
0+18.50	0.51
0+35.50	0.17
0+35.50	0.14
0+36.50	0.00
0+36.50	0.50
0+37.00	0.50

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.50)	(0+01.50, 0.13)	0.013
(0+01.50, 0.13)	(0+35.50, 0.14)	0.016
(0+35.50, 0.14)	(0+37.00, 0.50)	0.013

Options

Current Roughness Weighted Method Improved Lotter's Method
Open Channel Weighting Method Improved Lotter's Method
Closed Channel Weighting Method Horton's Method

HYDRAULIC SECTION HS1/6 - 100 YR JASPER RIDGE

Results

Normal Depth		0.52	ft
Elevation Range	0.00 to 0.51		
Flow Area		7.02	ft ²
Wetted Perimeter		38.13	ft
Hydraulic Radius		0.18	ft
Top Width		37.00	ft
Normal Depth		0.52	ft
Critical Depth		0.52	ft
Critical Slope		0.00629	ft/ft
Velocity		2.42	ft/s
Velocity Head		0.09	ft
Specific Energy		0.61	ft
Froude Number		0.98	
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	0.52	ft
Critical Depth	0.52	ft
Channel Slope	0.60	%
Critical Slope	0.00629	ft/ft

Messages

Notes

DON1+DON2

HYDRAULIC SECTION HS1/6 - 100 YR JASPER RIDGE

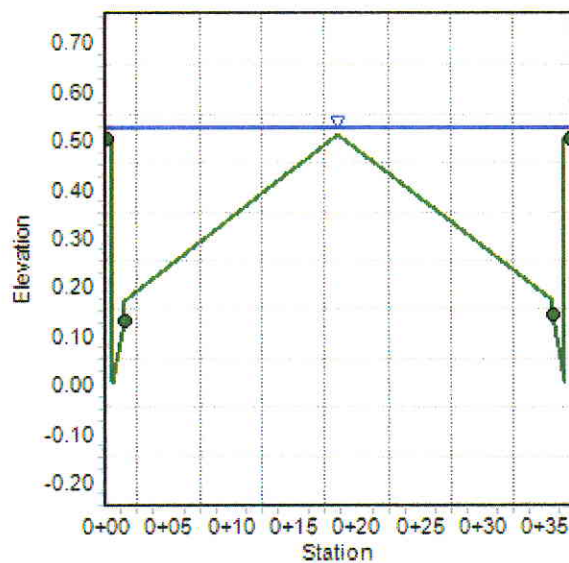
Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope	0.60	%
Normal Depth	0.52	ft
Discharge	17.00	ft ³ /s

Cross Section Image



HYDRAULIC SECTION HS2/6 - 10 YR JASPER RIDGE

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.60 %
Discharge 3.00 ft³/s
Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.50
0+00.50	0.50
0+00.50	0.00
0+01.50	0.13
0+01.50	0.17
0+18.50	0.51
0+35.50	0.17
0+35.50	0.14
0+36.50	0.00
0+36.50	0.50
0+37.00	0.50

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.50)	(0+01.50, 0.13)	0.013
(0+01.50, 0.13)	(0+35.50, 0.14)	0.016
(0+35.50, 0.14)	(0+37.00, 0.50)	0.013

Options

Current Roughness weighted Method Improved Lotter's Method
Open Channel Weighting Method Improved Lotter's Method
Closed Channel Weighting Method Horton's Method

HYDRAULIC SECTION HS2/6 - 10 YR JASPER RIDGE

Results

Normal Depth		0.32	ft
Elevation Range	0.00 to 0.51		
Flow Area		1.68	ft ²
Wetted Perimeter		18.00	ft
Hydraulic Radius		0.09	ft
Top Width		17.26	ft
Normal Depth		0.32	ft
Critical Depth		0.32	ft
Critical Slope		0.00581	ft/ft
Velocity		1.79	ft/s
Velocity Head		0.05	ft
Specific Energy		0.37	ft
Froude Number		1.01	
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
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.32	ft
Critical Depth	0.32	ft
Channel Slope	0.60	%
Critical Slope	0.00581	ft/ft

Messages

Notes

FLOW SPLIT- 8.75 cfs

HYDRAULIC SECTION HS2/6 - 10 YR JASPER RIDGE

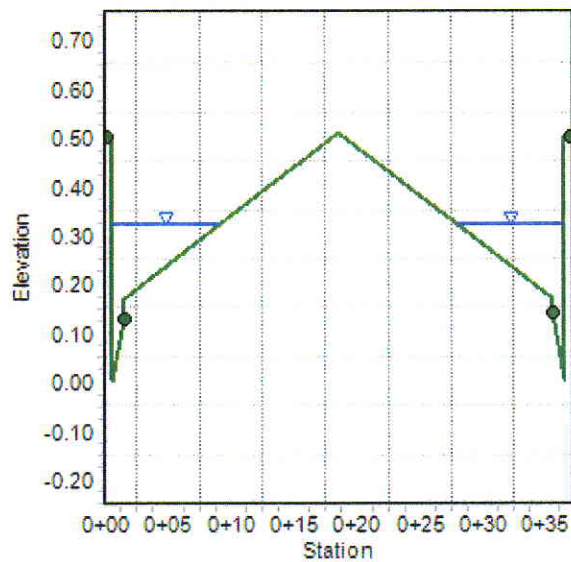
Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope	0.60	%
Normal Depth	0.32	ft
Discharge	3.00	ft ³ /s

Cross Section Image



HYDRAULIC SECTION HS2/6 - 100 YR JASPER RIDGE

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.60 %
Discharge 8.00 ft³/s
Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.50
0+00.50	0.50
0+00.50	0.00
0+01.50	0.13
0+01.50	0.17
0+18.50	0.51
0+35.50	0.17
0+35.50	0.14
0+36.50	0.00
0+36.50	0.50
0+37.00	0.50

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.50)	(0+01.50, 0.13)	0.013
(0+01.50, 0.13)	(0+35.50, 0.14)	0.016
(0+35.50, 0.14)	(0+37.00, 0.50)	0.013

Options

Current Roughness Weighted Method Improved Lotter's Method
Open Channel Weighting Method Improved Lotter's Method
Closed Channel Weighting Method Horton's Method

HYDRAULIC SECTION HS2/6 - 100 YR JASPER RIDGE

Results

Normal Depth		0.42	ft
Elevation Range	0.00 to 0.51 ft		
Flow Area		3.80	ft ²
Wetted Perimeter		27.84	ft
Hydraulic Radius		0.14	ft
Top Width		26.90	ft
Normal Depth		0.42	ft
Critical Depth		0.42	ft
Critical Slope		0.00619	ft/ft
Velocity		2.10	ft/s
Velocity Head		0.07	ft
Specific Energy		0.49	ft
Froude Number		0.99	
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	0.42	ft
Critical Depth	0.42	ft
Channel Slope	0.60	%
Critical Slope	0.00619	ft/ft

Messages

Notes

FLOW SPLIT- 19 cfs

HYDRAULIC SECTION HS2/6 - 100 YR JASPER RIDGE

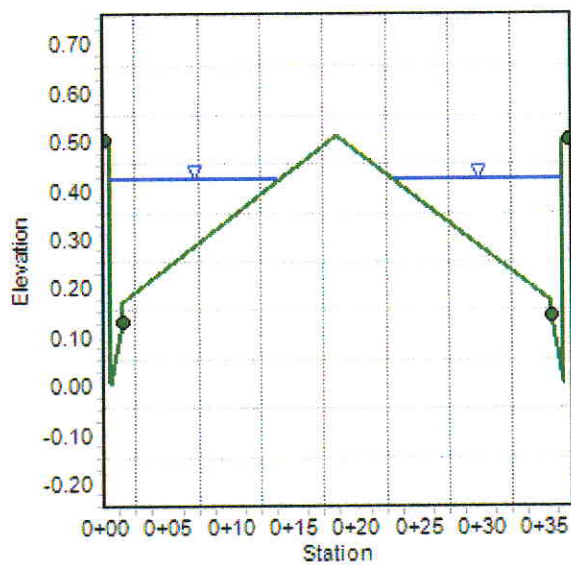
Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.60 %
Normal Depth 0.42 ft
Discharge 8.00 ft³/s

Cross Section Image



HYDRAULIC SECTION HS3/6 - 10 YR MADISON FALLS

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.60 %
Discharge 3.00 ft³/s
Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.50
0+00.50	0.50
0+00.50	0.00
0+01.50	0.13
0+01.50	0.17
0+18.50	0.51
0+35.50	0.17
0+35.50	0.14
0+36.50	0.00
0+36.50	0.50
0+37.00	0.50

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.50)	(0+01.50, 0.13)	0.013
(0+01.50, 0.13)	(0+35.50, 0.14)	0.016
(0+35.50, 0.14)	(0+37.00, 0.50)	0.013

Options

Current Roughness Weighted Method Improved Lotter's Method
Open Channel Weighting Method Improved Lotter's Method
Closed Channel Weighting Method Horton's Method

HYDRAULIC SECTION HS3/6 - 10 YR MADISON FALLS

Results

Normal Depth		0.32	ft
Elevation Range	0.00 to 0.51		
Flow Area		1.68	ft ²
Wetted Perimeter		18.00	ft
Hydraulic Radius		0.09	ft
Top Width		17.26	ft
Normal Depth		0.32	ft
Critical Depth		0.32	ft
Critical Slope		0.00581	ft/ft
Velocity		1.79	ft/s
Velocity Head		0.05	ft
Specific Energy		0.37	ft
Froude Number		1.01	
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
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.32	ft
Critical Depth	0.32	ft
Channel Slope	0.60	%
Critical Slope	0.00581	ft/ft

Messages

Notes

FLOW SPLIT- 8.75 cfs+DON3

HYDRAULIC SECTION HS3/6 - 10 YR MADISON FALLS

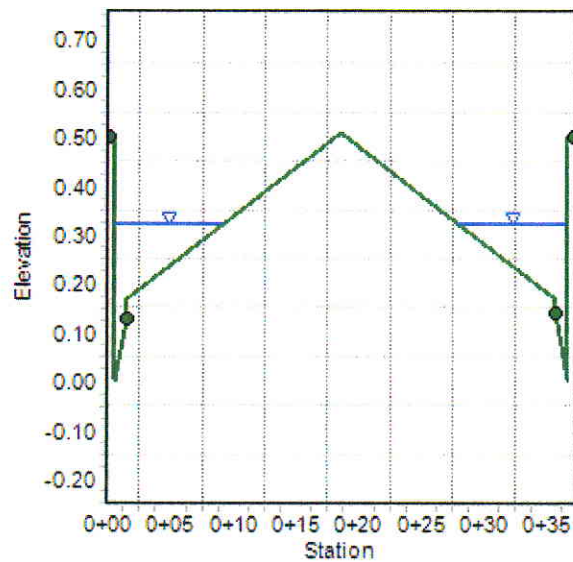
Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.60 %
Normal Depth 0.32 ft
Discharge 3.00 ft³/s

Cross Section Image



HYDRAULIC SECTION HS3/6 - 100 YR MADISON FALLS

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.60 %
Discharge 8.00 ft³/s
Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.50
0+00.50	0.50
0+00.50	0.00
0+01.50	0.13
0+01.50	0.17
0+18.50	0.51
0+35.50	0.17
0+35.50	0.14
0+36.50	0.00
0+36.50	0.50
0+37.00	0.50

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.50)	(0+01.50, 0.13)	0.013
(0+01.50, 0.13)	(0+35.50, 0.14)	0.016
(0+35.50, 0.14)	(0+37.00, 0.50)	0.013

Options

Current Roughness Weighted Method Improved Lotter's Method
Open Channel Weighting Method Improved Lotter's Method
Closed Channel Weighting Method Horton's Method

HYDRAULIC SECTION HS3/6 - 100 YR MADISON FALLS

Results

Normal Depth		0.42	ft
Elevation Range	0.00 to 0.51 ft		
Flow Area		3.80	ft ²
Wetted Perimeter		27.84	ft
Hydraulic Radius		0.14	ft
Top Width		26.90	ft
Normal Depth		0.42	ft
Critical Depth		0.42	ft
Critical Slope		0.00619	ft/ft
Velocity		2.10	ft/s
Velocity Head		0.07	ft
Specific Energy		0.49	ft
Froude Number		0.99	
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	0.42	ft
Critical Depth	0.42	ft
Channel Slope	0.60	%
Critical Slope	0.00619	ft/ft

Messages

Notes

FLOW SPLIT- 19 cfs + DON3

HYDRAULIC SECTION HS3/6 - 100 YR MADISON FALLS

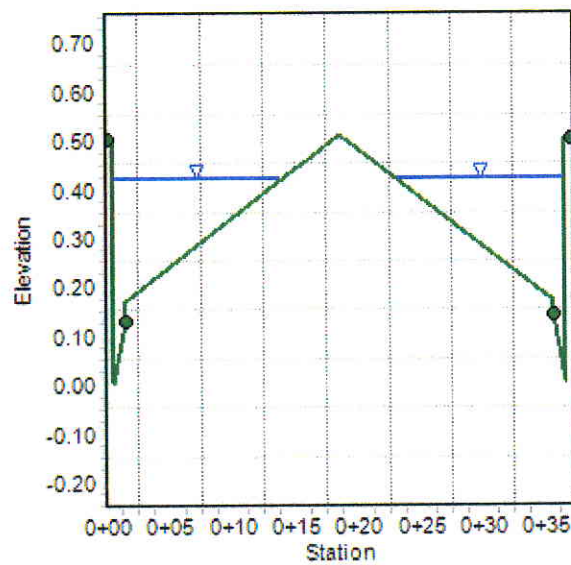
Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.60 %
Normal Depth 0.42 ft
Discharge 8.00 ft³/s

Cross Section Image



HYDRAULIC SECTIONr HS4/6 - 100 YR MADISON EASEMENT

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.70 %
Discharge 8.00 ft³/s
Section Definitions

Station (ft)	Elevation (ft)
0+00.00	2.87
0+00.00	0.37
0+18.50	0.00
0+37.00	0.37
0+37.00	2.87

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 2.87)	(0+37.00, 2.87)	0.013

Options

Current Roughness vweighted Method Improved Lotter's Method
Open Channel Weighting Method Improved Lotter's Method
Closed Channel Weighting Method Horton's Method

Results

Normal Depth 0.26 ft
Elevation Range 0.00 to 2.87
Flow Area 3.29 ft²
Wetted Perimeter 25.67 ft
Hydraulic Radius 0.13 ft
Top Width 25.66 ft
Normal Depth 0.26 ft
Critical Depth 0.28 ft

HYDRAULIC SECTIONr HS4/6 - 100 YR MADISON EASEMENT

Results

Critical Slope	0.00477	ft/ft
Velocity	2.43	ft/s
Velocity Head	0.09	ft
Specific Energy	0.35	ft
Froude Number	1.20	
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
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.26	ft
Critical Depth	0.28	ft
Channel Slope	0.70	%
Critical Slope	0.00477	ft/ft

Messages

Notes

FLOW SPLIT- 19 cfs + DON3

HYDRAULIC SECTIONr HS4/6 - 100 YR MADISON EASEMENT

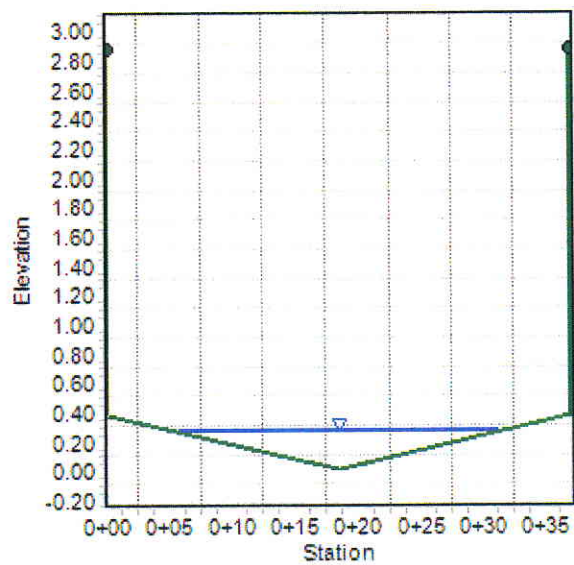
Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.70 %
Normal Depth 0.26 ft
Discharge 8.00 ft³/s

Cross Section Image



Project Description

Manning Formula

Normal Depth

Channel Slope

0.60 %

Discharge

31.00 ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	8.10
0+00.00	2.10
0+01.00	2.10
0+06.00	0.60
0+11.00	0.50
0+11.50	0.50
0+11.50	0.00
0+13.00	0.13
0+13.00	0.17
0+36.00	0.63
0+59.00	0.17
0+59.00	0.13
0+60.50	0.00
0+60.50	0.50
0+61.00	0.50
0+66.00	0.60
0+71.00	2.10
0+72.00	2.10
0+72.00	8.10

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 8.10)	(0+00.00, 2.10)	0.013
(0+00.00, 2.10)	(0+06.00, 0.60)	0.025

HYDRAULIC SECTION HS10/6 - 10 YR MILLS CREEK

Input Data

Start Station	Ending Station	Roughness Coefficient
(0+06.00, 0.60)	(0+13.00, 0.13)	0.013
(0+13.00, 0.13)	(0+59.00, 0.13)	0.016
(0+59.00, 0.13)	(0+66.00, 0.60)	0.013
(0+66.00, 0.60)	(0+72.00, 2.10)	0.025
(0+72.00, 2.10)	(0+72.00, 8.10)	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	0.61	ft
Elevation Range	0.00 to 8.10 ft	
Flow Area	11.96	ft ²
Wetted Perimeter	59.05	ft
Hydraulic Radius	0.20	ft
Top Width	57.94	ft
Normal Depth	0.61	ft
Critical Depth	0.61	ft
Critical Slope	0.00592	ft/ft
Velocity	2.59	ft/s
Velocity Head	0.10	ft
Specific Energy	0.71	ft
Froude Number	1.01	
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

HYDRAULIC SECTION HS10/6 - 10 YR MILLS CREEK

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	0.61	ft
Critical Depth	0.61	ft
Channel Slope	0.60	%
Critical Slope	0.00592	ft/ft

Project Description

Manning Formula

Normal Depth

Channel Slope	0.60	%
Normal Depth	0.61	ft
Discharge	31.00	ft ³ /s

HYDRAULIC SECTION HS10/6 - 100 YR MILLS CREEK

Input Data

Start Station	Ending Station	Roughness Coefficient
(0+06.00, 0.60)	(0+13.00, 0.13)	0.013
(0+13.00, 0.13)	(0+59.00, 0.13)	0.016
(0+59.00, 0.13)	(0+66.00, 0.60)	0.013
(0+66.00, 0.60)	(0+72.00, 2.10)	0.025
(0+72.00, 2.10)	(0+72.00, 8.10)	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	0.73	ft
Elevation Range	0.00 to 8.10	ft
Flow Area	19.15	ft²
Wetted Perimeter	61.99	ft
Hydraulic Radius	0.31	ft
Top Width	60.85	ft
Normal Depth	0.73	ft
Critical Depth	0.74	ft
Critical Slope	0.00520	ft/ft
Velocity	3.39	ft/s
Velocity Head	0.18	ft
Specific Energy	0.91	ft
Froude Number	1.07	
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

HYDRAULIC SECTION HS10/6 - 100 YR MILLS CREEK

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	0.73	ft
Critical Depth	0.74	ft
Channel Slope	0.60	%
Critical Slope	0.00520	ft/ft

HYDRAULIC SECTION HS10/6 - 100 YR MILLS CREEK

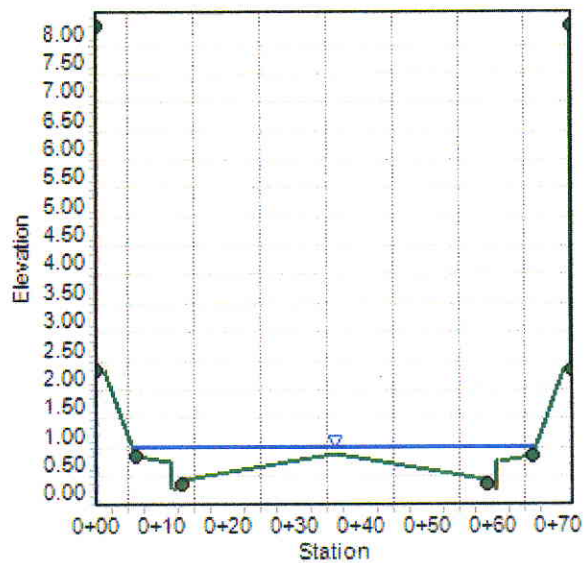
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.60	%
Normal Depth	0.73	ft
Discharge	65.00	ft ³ /s

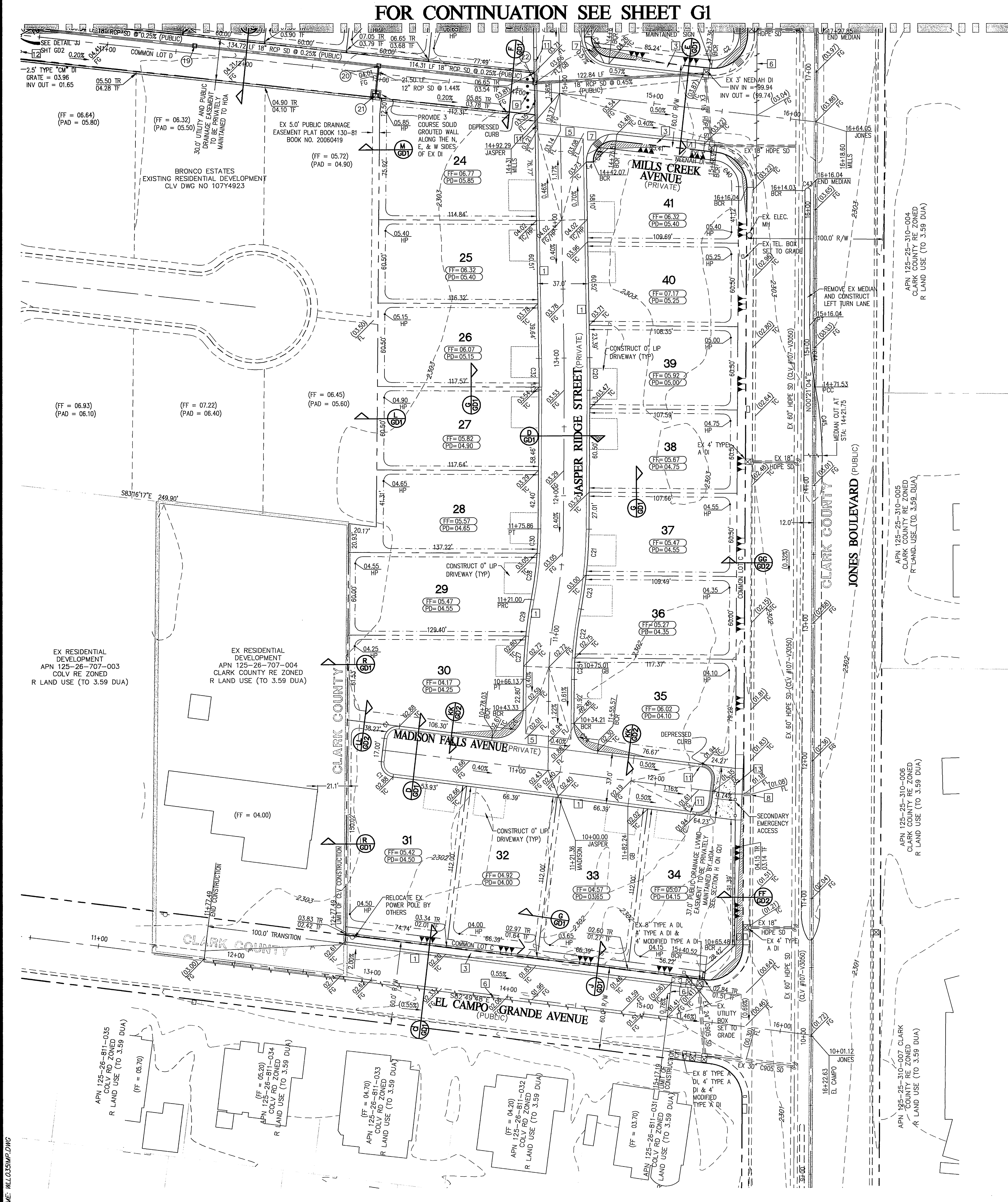
Cross Section Image



APPENDIX C

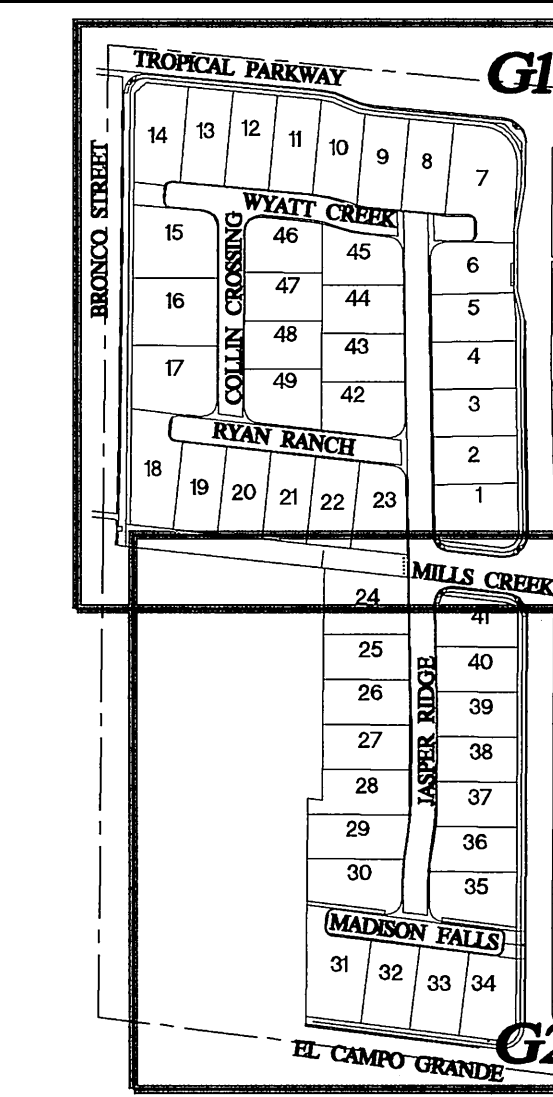
Improvement Plans

FILE NAME: WLO35MP.DWG



FOR CONTINUATION SEE SHEET G1

SHEET LEGEND



EARTHWORK

TOTAL FOR OVERALL DEVELOPMENT: 7,095 CY CUT
26,689 CY FILL

ADD 2300 FEET TO ALL GRADE TAGS TO GET ACTUAL ELEVATION.

THE ELEVATION DIFFERENCE BETWEEN THE PAD AND FINISH FLOOR HAS BEEN DETERMINED FROM THE MINIMUM THICKNESS REQUIRED PER THE STRUCTURAL FOUNDATION PLANS. FINISH FLOORS MAY INCREASE DEPENDING ON THE TYPE OF SOIL AND FOUNDATION PLAN USED. NOTE THAT THE STRUCTURAL PLANS SHALL SUPERSEDE THE CIVIL IMPROVEMENT PLANS.

ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS, AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION (H.O.A.).

ALL WORK TO BE PERFORMED OUTSIDE OF THE PROJECT BOUNDARY AND ON PRIVATE PROPERTY SHALL NOT BE PERFORMED UNTIL WRITTEN PERMISSION AND EASEMENTS HAVE BEEN OBTAINED FROM THE OFFSITE OWNER AND GIVEN TO CLARK COUNTY.

CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL LOCATION OF EXISTING UTILITIES AND NOTIFY THE DESIGN ENGINEER IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

GRADING NOTES

COMPLETION OF SECTION II OF DRAINAGE COMPLIANCE REPORT REQUIRED.

ADD 2300 FEET TO ALL GRADE TAGS TO GET ACTUAL ELEVATION.

THE ELEVATION DIFFERENCE BETWEEN THE PAD AND FINISH FLOOR HAS BEEN DETERMINED FROM THE MINIMUM THICKNESS REQUIRED PER THE STRUCTURAL FOUNDATION PLANS. FINISH FLOORS MAY INCREASE DEPENDING ON THE TYPE OF SOIL AND FOUNDATION PLAN USED. NOTE THAT THE STRUCTURAL PLANS SHALL SUPERSEDE THE CIVIL IMPROVEMENT PLANS.

ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS, AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION (H.O.A.).

ALL WORK TO BE PERFORMED OUTSIDE OF THE PROJECT BOUNDARY AND ON PRIVATE PROPERTY SHALL NOT BE PERFORMED UNTIL WRITTEN PERMISSION AND EASEMENTS HAVE BEEN OBTAINED FROM THE OFFSITE OWNER AND GIVEN TO CLARK COUNTY.

CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL LOCATION OF EXISTING UTILITIES AND NOTIFY THE DESIGN ENGINEER IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

LEGAL DESCRIPTION

PORTIONS OF THE NORTH HALF OF THE SOUTHEAST QUARTER OF SECTION 26, TOWNSHIP 19 SOUTH, RANGE 60 EAST, MDM, CLARK COUNTY, NEVADA

BENCHMARK

CLV BM # CLV8026SEE6 - RIVET & PLATE IN TOP OF CURB AT SW CORNER OF JONES & EL CAMPO GRANDE AVENUE
ELEVATION - 701.2212 M/2300.59 FT (NAVD 88 DATUM)

BASIS OF BEARINGS

SOUTH 00°21'04" WEST, BEING THE EAST LINE OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 26, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA.

APPROVAL BLOCK

ACCEPTANCE OF PLANS FOR FILING
(FOR CLARK COUNTY PORTION)

BY: _____ DATE: _____

CLARK COUNTY
DEPARTMENT OF DEVELOPMENT SERVICES

ACCEPTANCE OF THESE PLANS FOR FILING SHALL NOT BE CONSTRUED TO BE A PERMIT FOR OR AN APPROVAL OF ANY VIOLATION OF ANY OF THE PROVISIONS OF THE STATE OR COUNTY LAWS AND/OR SPECIFICATIONS. CLARK COUNTY SHALL BE HELD FREE FROM DAMAGES WHICH MAY RESULT FROM THE CONSTRUCTION OF THE IMPROVEMENTS FROM THE ENGINEERING DESIGN DEPICTED HEREIN.

NOTE: POWER POLES AND/OR OTHER EXISTING FACILITIES NOT IN PROPER LOCATION BASED ON PROPOSED IMPROVEMENTS SHOWN HEREON WILL BE RELOCATED AT NO EXPENSE TO CLARK COUNTY.

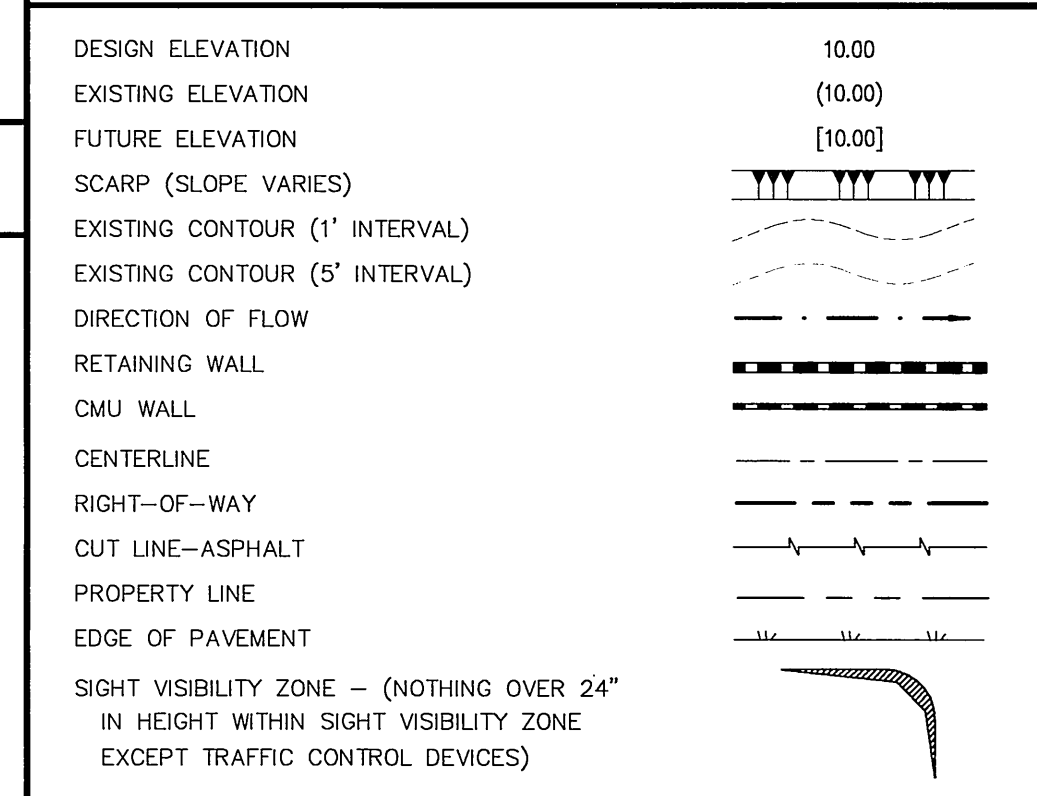
GRADING CERTIFICATION

I CERTIFY THIS GRADING PLAN COMPLIES WITH THE APPROVED DRAINAGE STUDY ON FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT. (DS3911A)

Robert D. Cunningham
ROBERT D. CUNNINGHAM, P.E. #15726

3/21/2007
DATE

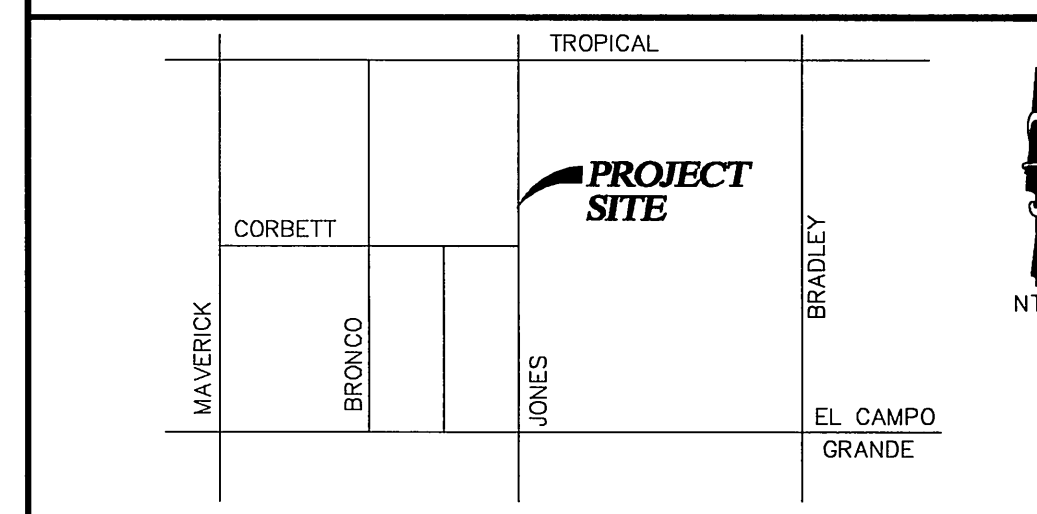
LEGEND



CONSTRUCTION NOTES

1. 24" L-TYPE CURB & GUTTER (USD #216)
2. A-TYPE CURB (USD #219)
3. 4" THICK CONCRETE SIDEWALK (USD #234)
4. 30" ROLL CURB AND GUTTER (USD #217A)
5. 8" PRIVATE CROSS GUTTER (USD #228)
6. SAWCUT & MATCH EXISTING AC PAVEMENT
7. SIDEWALK RAMP - CASE 1, A=B=8.0' (USD #235)
8. SIDEWALK DRAIN (USD #236)
9. PROVIDE FIXED BOLLARDS PER DETAIL ON G02
10. PROVIDE 5' ROLL TO "L" CURB TRANSITION (DET. CC SHT. G02)
11. PROVIDE 10' "L" TYPE CURB TO DEPRESSION CURB TRANSITION (DET. O SHT. G02)
12. PROVIDE 30" WROUGHT IRON GATE (PER DET. HH SHT. G02)
13. PROVIDE 37" WROUGHT IRON GATE FOR EMERGENCY ACCESS (PER DET. HH SHT. G02)
19. 24" X 24" JENSEN PRECAST TYPE II DI, TOP-OF-GRADE=04.19, INV THRU=01.31
20. 24" X 24" JENSEN PRECAST TYPE II DI, TOP-OF-GRADE=03.92, INV IN=01.17(S), INV THRU=00.97
21. EX. 24" X 36" JENSEN PRECAST TYPE II DI, TOP-OF-GRADE=02.95, INV OUT=01.48
22. 24" X 24" JENSEN PRECAST TYPE II DI, TOP-OF-GRADE=03.69, INV IN=00.69, INV OUT=00.49

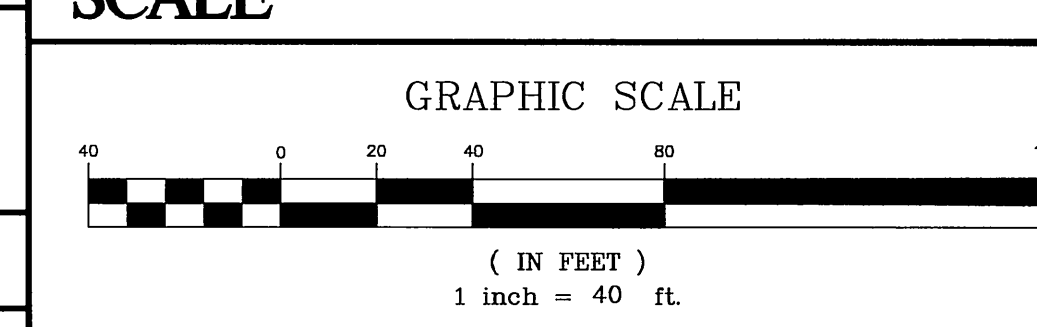
KEY MAP



NOTE

ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY H.O.A.

SCALE



GEOTECHNICAL

GEO TEK, INC.
6835 S. ESCONDIDO
LAS VEGAS, NEVADA 89119
702-897-1424

REPORT NO: WO 5444-1-LV6
DATE OCT. 11, 2005

ABBREVIATIONS

AC	ASPHALTIC CONCRETE	MH	MANHOLE
BC	BACK OF CURB	MIN	NOT TO SCALE
BPR	BACK OF CURB RADIUS	NTS	NOT TO SCALE
BM	BENCHMARK	OC	ON CENTER
BVC	BEGIN VERTICAL CURVE	PC	PULL BOX
SW	BOTTOM OF WALL	PR	POINT OF CURVE
CATV	CABLE TELEVISION	PCC	POINT OF COMPOUND CURVE
CL	CLARK COUNTY	PI	POINT OF INTERSECTION
CO	CLEAN OUT	PL	PROPERTY LINE
CLV	CITY OF LAS VEGAS	PP	POWER POLE
CLV	CITY OF NORTH LAS VEGAS	PS	POINT OF REVERSE CURVE
CN	CLEAN OUT	PROP	PROPOSED
CY	CUBIC YARD	PT	POINT OF TANGENCY
DI	DESIGN GRADE	R	RADIUS
DI	DROP INLET	RCP	REINFORCED CONCRETE PIPE
ED	EDGE OF PAVEMENT	ROW	RIGHT-OF-WAY
EV	END OF CURVE	RT	RIGHT
EVC	END VERTICAL CURVE	SD	STORM DRAIN
EX	EXISTING	SL	STREET LIGHT
FF	FINISH FLOOR ELEVATION	SS	SANITARY SEWER
FG	FINISH GRADE	ST	STATION
FI	FIRE HYDRANT	STD	STANDARD
FL	FLOW LINE	SVZ	SIGHT VISIBILITY ZONE
FT	FEET	SW	SIDEWALK
GB	GRADE BREAK	TC	TOP OF CURB
HP	HIGH POINT	TW	TOP OF WALL
INV	INVERT	TV	TYPICAL
LF	LINEAR FEET	VG	VERTICAL CURVE
MAX	LOWER FINISH FLOOR ELEVATION	W	WATER

JURISDICTION

CITY OF LAS VEGAS

HTE # 06-32891

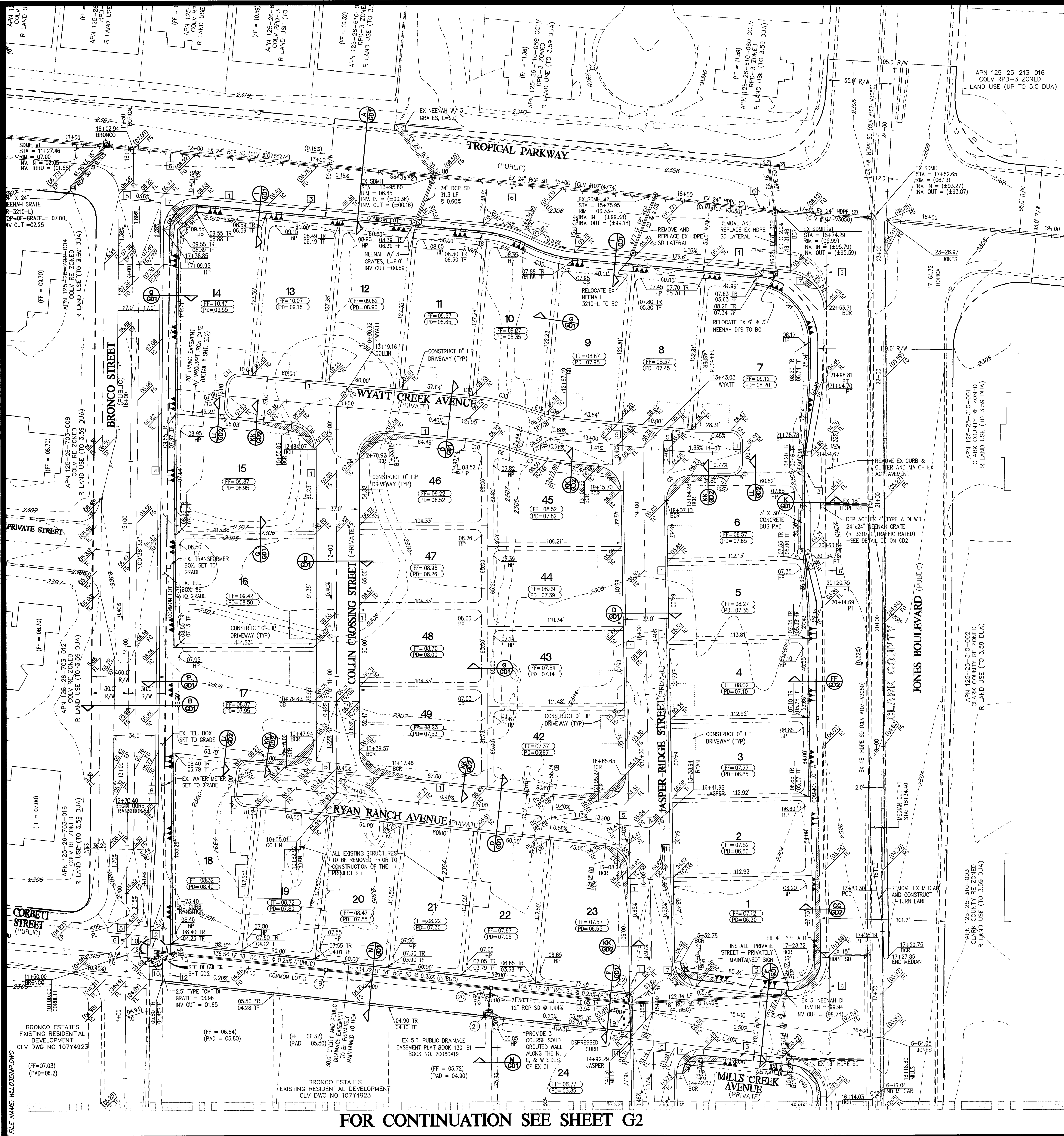
CLV DWG #

DATE:	12.5.06
SCALE:	1"=40'
JOB NO:	WLL-05-035
DESIGNED BY:	RPM
DRAWN BY:	RPM
SHEET NAME:	G2
SHEET:	4 OF 18

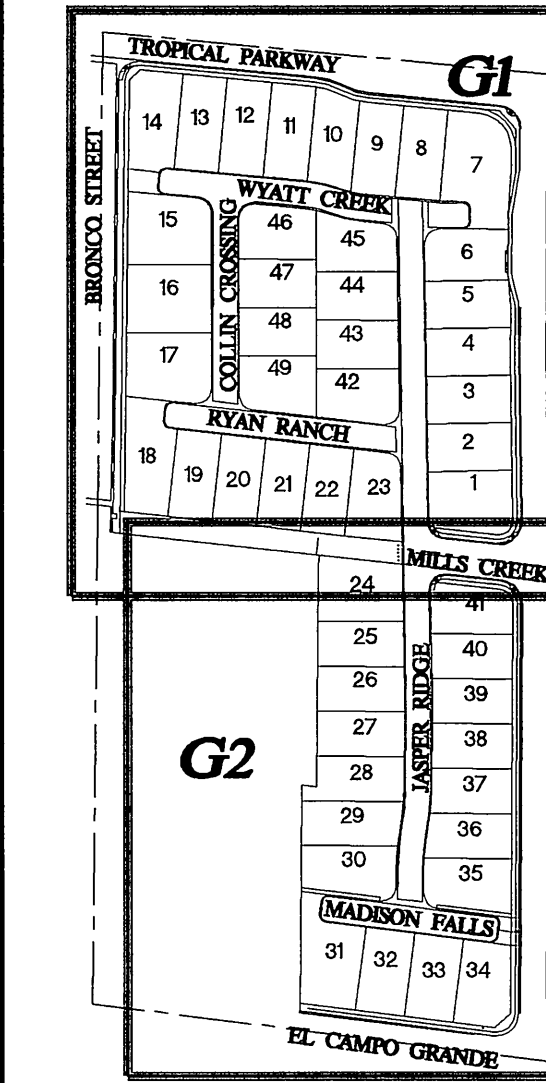
WILLIAM LYON HOMES, INC.
500 PILOT ROAD, SUITE G
LAS VEGAS, NV 89119
(702) 263-8200 FAX: (702) 263-8220

TANEY ENGINEERING
4445 S. JONES BLVD. SUITE #1
LAS VEGAS, NV 89103
(702) 342-8844 FAX: (702) 342-5233

TROPICAL AND JONES
GRADING PLAN SOUTH



SHEET LEGEND



EARTHWORK

TOTAL FOR OVERALL DEVELOPMENT: 7,095 CY CUT
26,689 CY FILL

THIS OPINION OF THE CUT AND FILL QUANTITIES IS PROVIDED AS REQUIRED BY CLARK COUNTY BUILDING CODE REQUIREMENTS. THIS INFORMATION SHOULD NOT BE USED FOR BIDDING PURPOSES. ALL CONTRACTORS ARE RESPONSIBLE FOR THEIR OWN QUANTITIES. THESE TOTALS ARE RAW AND DO NOT ACCOUNT FOR SHRINKAGE AND SUBSIDENCE.

GRADING NOTES

COMPLETION OF SECTION II OF DRAINAGE COMPLIANCE REPORT REQUIRED.
ADD 2300 FEET TO ALL GRADE TAGS TO GET ACTUAL ELEVATION.

THE ELEVATION DIFFERENCE BETWEEN THE PAD AND FINISH FLOOR HAS BEEN DETERMINED FROM THE MINIMUM THICKNESS REQUIRED PER THE STRUCTURAL FOUNDATION PLANS. FINISH FLOORS MAY INCREASE DEPENDING ON THE TYPE OF SOIL AND FOUNDATION PLAN USED. NOTE THAT THE STRUCTURAL PLANS SHALL SUPERSEDE THE CIVIL IMPROVEMENT PLANS.

ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS, AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION (H.O.A.).

ALL WORK TO BE PERFORMED OUTSIDE OF THE PROJECT BOUNDARY AND ON PRIVATE PROPERTY SHALL NOT BE PERFORMED UNTIL WRITTEN PERMISSION AND EASEMENTS HAVE BEEN OBTAINED FROM THE OFFSITE OWNER AND GIVEN TO CLARK COUNTY.

CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL LOCATION OF EXISTING UTILITIES AND NOTIFY THE DESIGN ENGINEER IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

LEGAL DESCRIPTION

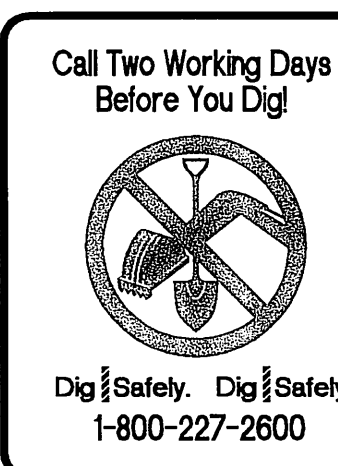
PORTIONS OF THE NORTH HALF OF THE SOUTHEAST QUARTER OF SECTION 26, TOWNSHIP 19 SOUTH, RANGE 60 EAST, MDM, CLARK COUNTY, NEVADA

BENCHMARK

CLV BM # 0LV9026SEE6 - RIVET & PLATE IN TOP OF CURB AT SW CORNER OF JONES & EL CAMPO
ELEVATION - 701.2212 M/2300.59 FT (NAVD 88 DATUM)

BASIS OF BEARINGS

SOUTH 00°21'04" WEST, BEING THE EAST LINE OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 26, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA.



GRADING CERTIFICATION

I CERTIFY THIS GRADING PLAN COMPLIES WITH THE APPROVED DRAINAGE STUDY ON FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT. (DS3911A)

Robert D. Cunningham
ROBERT D. CUNNINGHAM, #15726

3/21/2007
DATE

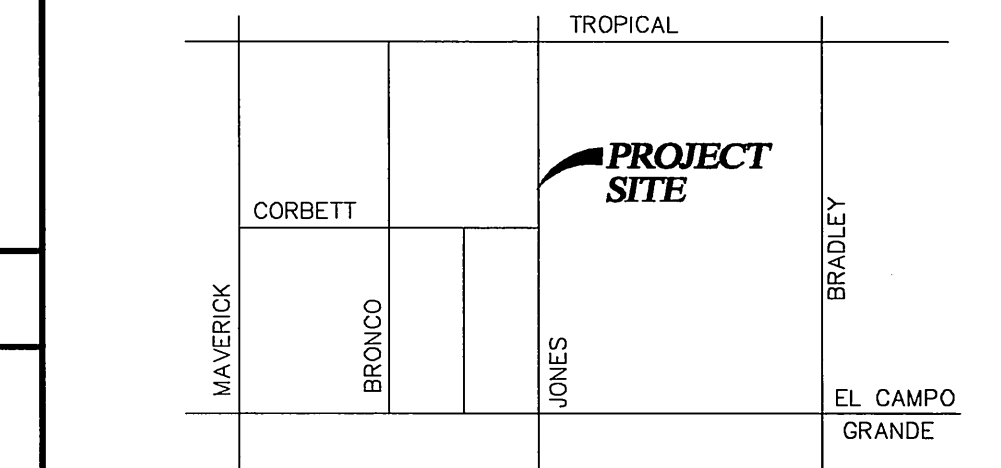
LEGEND

DESIGN ELEVATION	10.00
EXISTING ELEVATION	[10.00]
FUTURE ELEVATION	[10.00]
SCARP (SLOPE VARIES)	
EXISTING CONTOUR (1' INTERVAL)	
EXISTING CONTOUR (5' INTERVAL)	
DIRECTION OF FLOW	
RETAINING WALL	
CMU WALL	
CENTERLINE	
RIGHT-OF-WAY	
CUT LINE-ASPHALT	
PROPERTY LINE	
EDGE OF PAVEMENT	
SIGHT VISIBILITY ZONE - (NOTHING OVER 24" IN HEIGHT WITHIN SIGHT VISIBILITY ZONE EXCEPT TRAFFIC CONTROL DEVICES)	

CONSTRUCTION NOTES

1. 24" L-TYPE CURB & GUTTER (USD #216)
2. A-TYPE CURB (USD #219)
3. 4" THICK CONCRETE SIDEWALK (USD #234)
4. 30" ROLL CURB AND GUTTER (USD #217A)
5. 8" PRIVATE CROSS GUTTER (USD #228)
6. SAWCUT & MATCH EXISTING AC PAVEMENT
7. SIDEWALK RAMP - CASE 1, A=B=8.0' (USD #235)
8. SIDEWALK DRAIN (USD # 236)
9. PROVIDE FIXED BOLLARDS PER DETAIL ON G02
10. PROVIDE 5' ROLL TO "L" CURB TRANSITION (DET. CC SHT. G02)
11. PROVIDE 10' "L" TYPE CURB TO DEPRESSION CURB TRANSITION (DET. O. SHT. G02)
12. PROVIDE 30" WROUGHT IRON GATE (PER DET. HH SHT. G02)
13. PROVIDE 37" WROUGHT IRON GATE FOR EMERGENCY ACCESS (PER DET. HH SHT. G02)
14. 24" x 24" JENSEN PRECAST TYPE II DI, TOP-OF-GRADE=04.19, INV THRU=01.31
15. 24" x 24" JENSEN PRECAST TYPE II DI, TOP-OF-GRADE=03.92, INV IN=01.17(S), INV THRU=00.97
16. EX. 24" x 36" JENSEN PRECAST TYPE II DI, TOP-OF-GRADE=02.95, INV OUT=01.48
17. 24" x 24" JENSEN PRECAST TYPE II DI, TOP-OF-GRADE=03.69, INV IN=00.69, INV OUT=00.49

KEY MAP



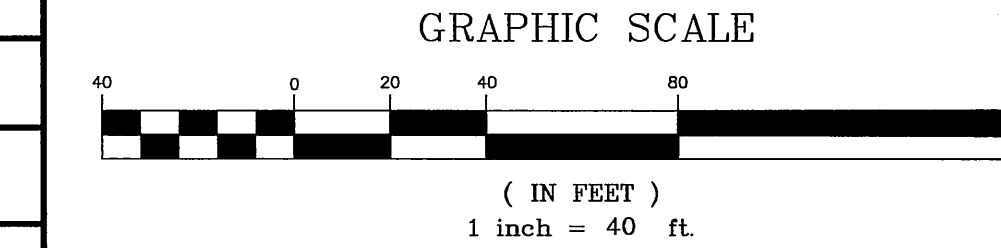
NOTE

ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY H.O.A.

CURVE/ LINE TABLE

CURVE/ LINE DATA IS LOCATED ON SHEET G2.

SCALE



GEOTECHNICAL

GEO TEK, INC.
6835 S. ESCONDIDO
LAS VEGAS, NEVADA 89119
702-897-1424

REPORT NO: WO 544.1-LV6
DATE OCT. 11, 2005

ABBREVIATIONS

AC	ASPHALTIC CONCRETE	MH	MANHOLE
BC	BACK OF CURB	MIN	MINIMUM
BR	BACK OF CURB RADIUS	NTS	NOT TO SCALE
BM	BENCHMARK	OC	ON CENTER
BVC	BEGIN VERTICAL CURVE	PB	PULL BOX
BW	BOTTOM OF WALL	PC	POINT OF CURVE
CATV	CABLE TELEVISION	PCC	POINT OF COMPOUND CURVE
CC	CLARK COUNTY	PI	POINT OF INTERSECTION
CLV	CITY OF LAS VEGAS	PL	PROPERTY LINE
CLV	CITY OF NORTH LAS VEGAS	PP	POINT OF REVERSE CURVE
CN	CLEAN OUT	PRC	PROPOSED
CO	CUBIC YARD	PROP	PROPOSED
CO	DESIGN GRADE	PT	POINT OF TANGENCY
DI	DROP INLET	R	REINFORCED CONCRETE PIPE
ED	END OF CURVE	RCW	RIGHT-OF-WAY
ED	EDGE OF PAVEMENT	RT	RIGHT
EV	END VERTICAL CURVE	SD	STORM DRAIN
EX	EXISTING	SL	STREET LIGHT
FF	FINISH FLOOR ELEVATION	STD	SANITARY SEWER
FG	FINISH GRADE	STA	STATION
FL	FIRE HYDRANT	STD	STANDARD
FL	FLOW LINE	SVZ	SIGHT VISIBILITY ZONE
FT	FEET	SW	SIDEWALK
GB	GRADE BREAK	TC	TOP OF CURB
GP	GRADE POINT	TO	TOP OF WALL
HP	HIGH POINT	TYP	TYPICAL
INV	INVERT	VC	VERTICAL CURVE
LF	LINEAR FEET	VG	VALLEY GUTTER
LV	LOWER FINISH FLOOR ELEVATION	W	WATER
MAX	MAXIMUM		

JURISDICTION

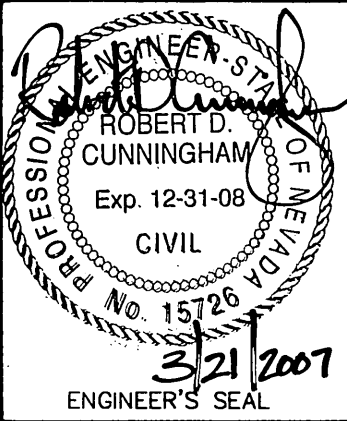
CITY OF LAS VEGAS

HTE # 06-32891

CLV DWG #

WILLIAM LYON HOMES, INC.
500 PLYMOUTH ROAD, SUITE G
LAS VEGAS, NV 89119
(702) 263-8200 FAX: (702) 263-8220

TROPICAL AND JONES



ENGINEER'S SEAL

DATE: 12.5.06

SCALE: 1"=40'

JOB NO: WLL-05-035

DESIGNED BY: RDM

DRAWN BY: RDM

SHEET NAME: G1

SHEET: 3 of 18



APPROVAL SIGNATURE

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT PROJECT #H 55298 DATE



HTE # 06-32891

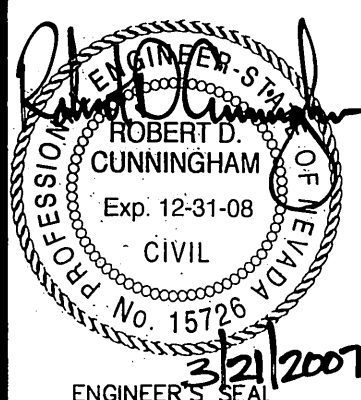
CLV DWG #

WILLIAM LYON HOMES, INC.
500 PILOT ROAD, SUITE G
LAS VEGAS, NV 89119
(702) 263-8200 FAX: (702) 263-8220

TANEY ENGINEERING
4445 S. JONES BLVD. SUITE #1
LAS VEGAS, NV 89103
(702) 362-8844 FAX: (702) 362-5233

TROPICAL AND JONES

GRADING DETAILS & CROSS SECTIONS



DATE: 12.5.06

SCALE: 1"=40'

JOB NO: WL-05-035

DESIGNED BY:

DRAWN BY: RMM

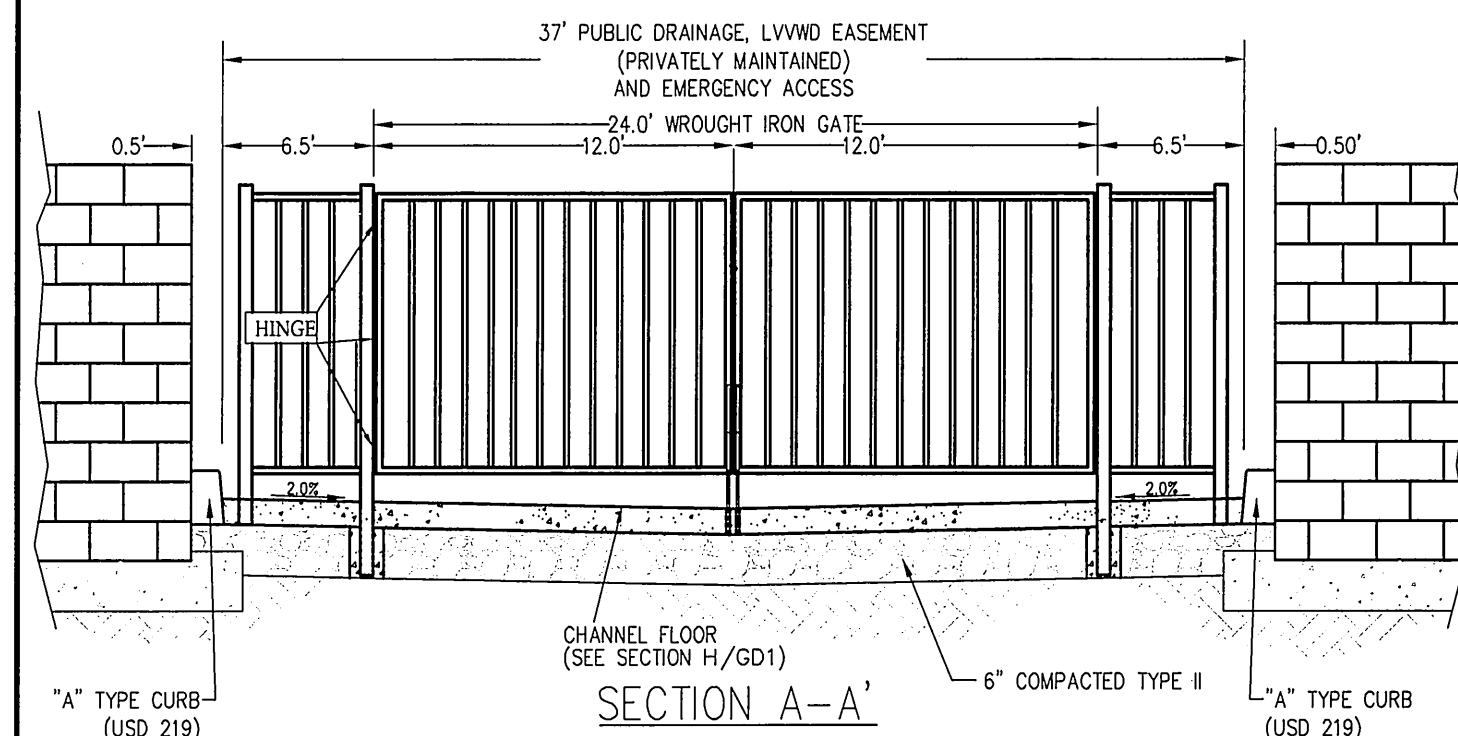
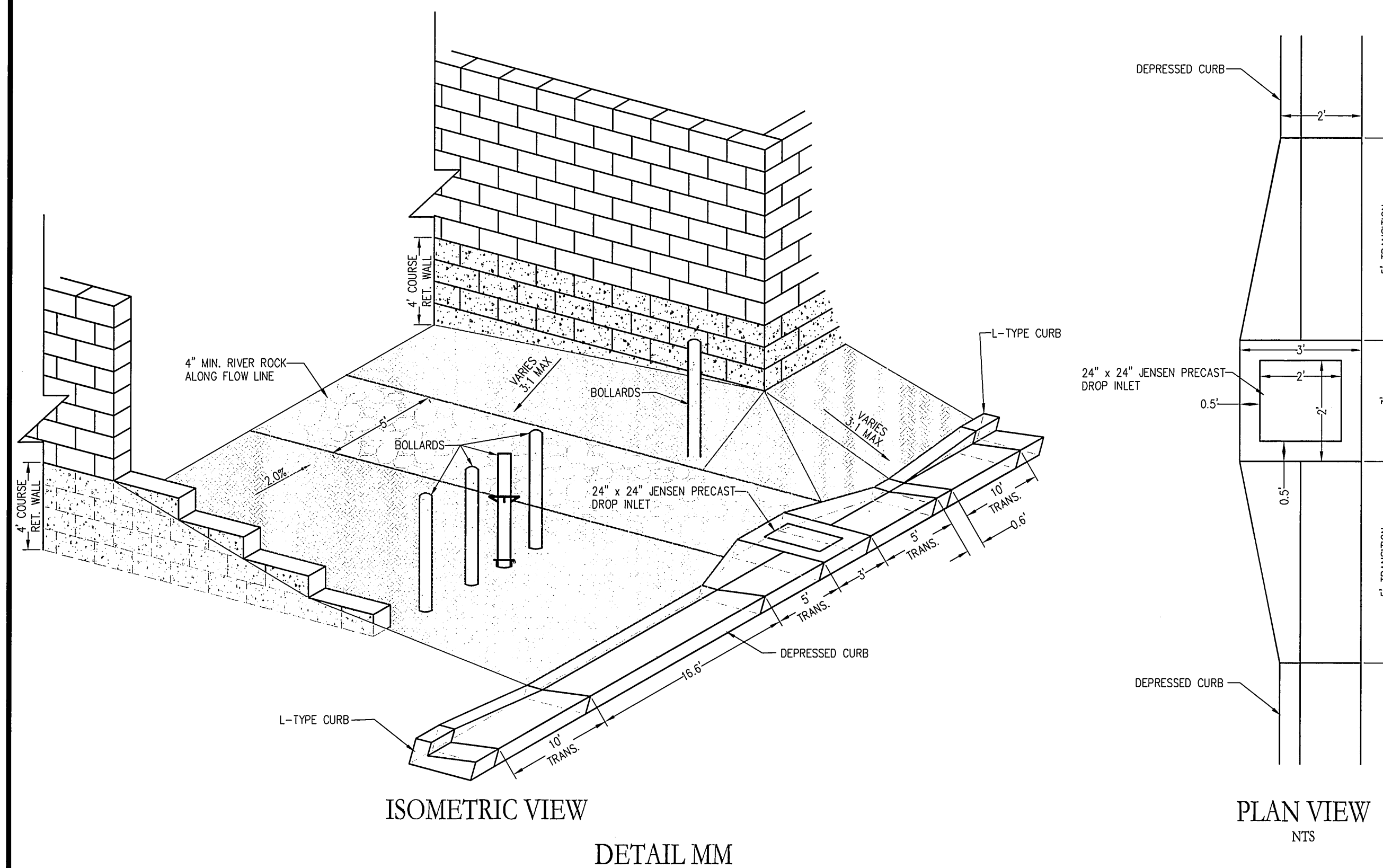
SHEET NAME:

GD1

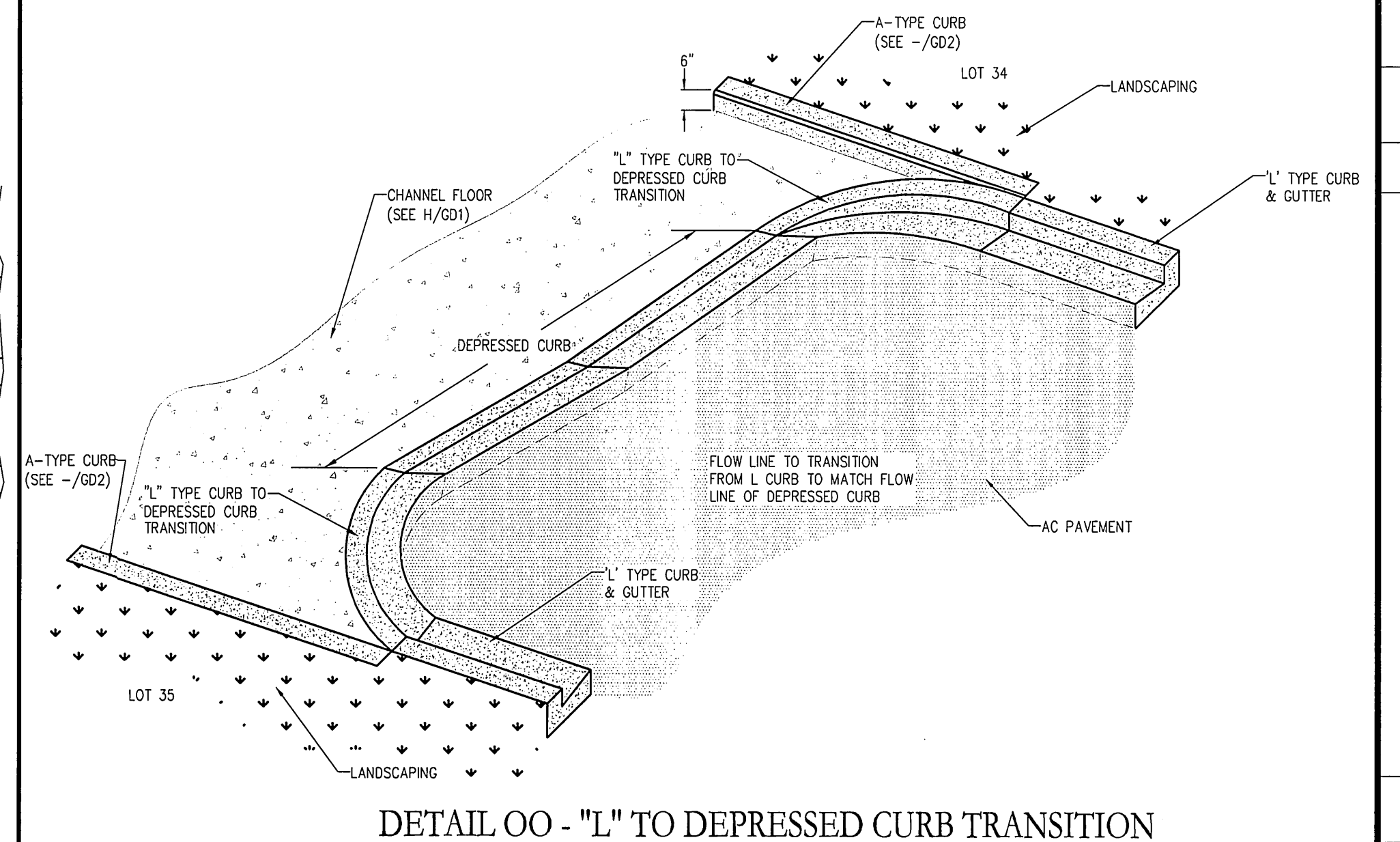
SHEET: **F 10**

5 OF 18

FILE NAME: WLL035IMP.DWG



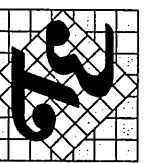
DETAIL NN - CLV DETAIL FOR WROUGHT IRON FENCE
W/ GATE PER STD. CLV DWG 421B



DETAIL OO - "L" TO DEPRESSED CURB TRANSITION

[illegible]

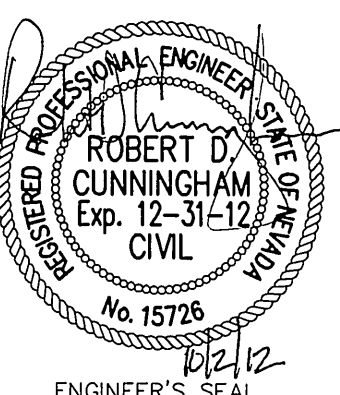
WILLIAM LYON HOMES, INC.
500 PILOT ROAD, SUITE G
LAS VEGAS, NV 89119
(702) 263-8200 FAX: (702) 263-8220



LANEY ENGINEERING
6030 S. JONES BLVD STE #100
LAS VEGAS, NV 89118
(702) 362-8844 FAX: (702) 362-5233

TROPICAL AND JONES A RESIDENTIAL SUBDIVISION

GRADING DETAILS & CROSS SECTIONS



ATE: 10/1/12

CALE:	NTS
-------	-----

OB NO: WLL-05-035

DESIGNED BY: RMM/MC

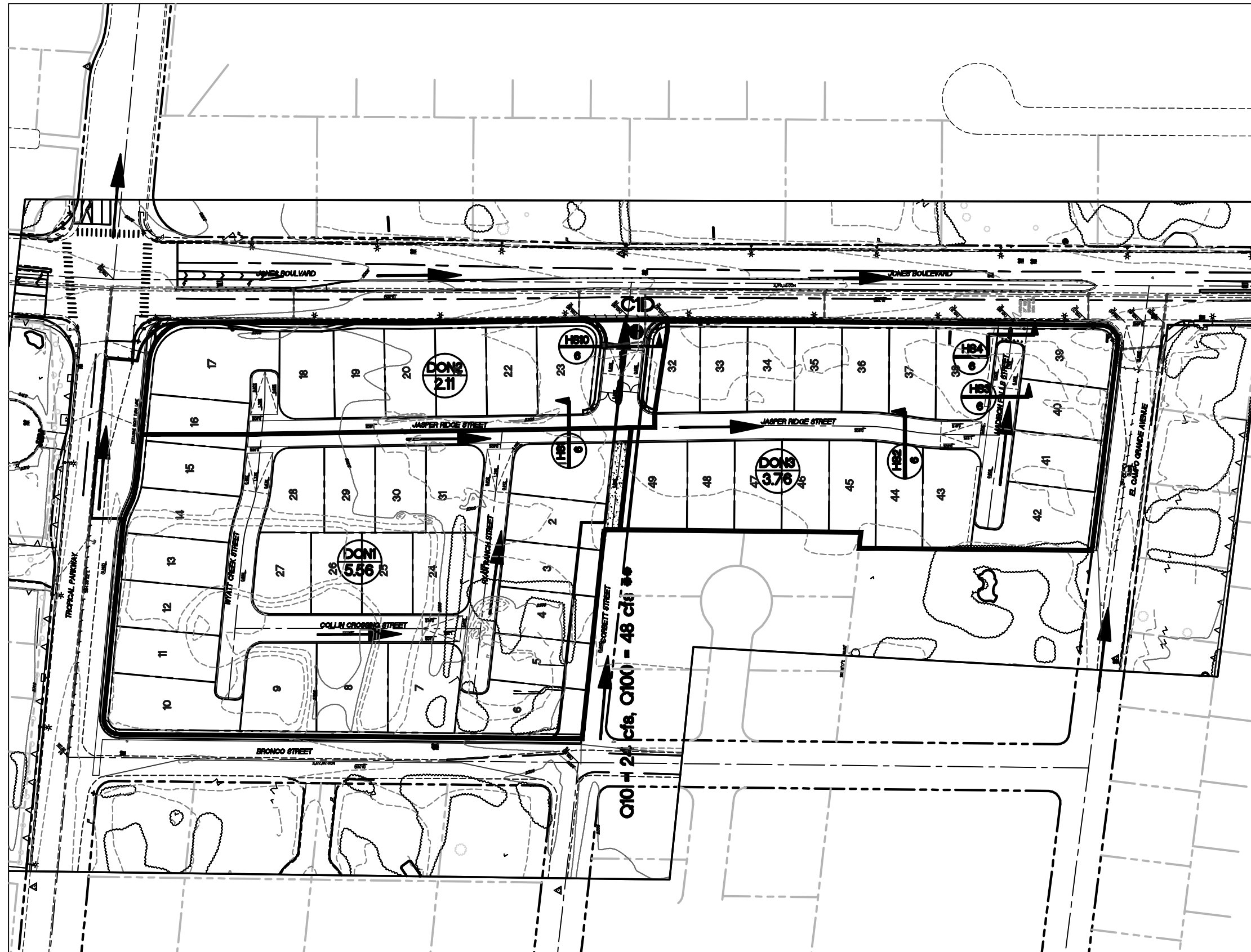
CHECKED BY: RDC

SHEET NAME: CD3

GD3

7 OF 19

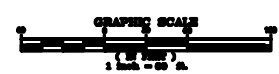
Ca	
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DRAINAGE LEGEND	
DON#	BASIN IDENTIFICATION
4/8	DETERMINED/ESTABLISHED 10-YR/100-YR FLOWS (CFS)
→	FLOW PATH
—	BASIN BOUNDARY
(DON#)	BASIN IDENTIFICATION
X	BASIN ACREAGE
● C/D	CONCENTRATION POINT #
H/S	HYDRAULIC SECTION (H/S) ID#
6	HYDRAULIC X-SECTION
FIGURE#	

10-YR/100-YR STORM FLOW RATES			
BASIN	AREA (AC)	Q10 (CFS)	Q100 (CFS)
DON#	5.56	5	12
DON#	2.11	2	5
DON#	9.76	9	21
C/D	—	81	65

—C/D+BRONCO ESTATES (Q10=24 cfs/Q100=48 cfs)
—FLOW SPLIT+DON#
**REFERENCED FLOW FROM THE BRONCO ESTATES - TREMILL COURT STUDY FROM BRONCO ESTATES





TANEY ENGINEERING
4445 S. JONES BLVD. SUITE #1
LAS VEGAS, NV 89103
(702) 362-8844 FAX: (702) 362-5233

FIGURE 6

DEVELOPED ONSITE DRAINAGE BASIN MAP