

DS #: 1519

APN: 137-25-517-007

PROJECT: DISCOVERY HILLS UNIT 1 - UPDATE

SUBMITTAL: 4TH

SCANNED BY/DATE: _____

CHECKED BY/DATE: _____



CITY OF LAS VEGAS		DATE:
INTER-OFFICE MEMORANDUM		February 2, 2001
TO: Land Development Services Department of Public Works		FROM: Randy Fultz, P.E. <i>RF</i> Flood Control Project Manager Department of Public Works
SUBJECT:	Drainage Study for:	
	Discovery Hills Unit-1 (Update)	
Cross Streets:	Falls Church & Snow Mountain	
FILE NO.:	F:\Depot\DSMEMOS\DS1519D.doc	
Parcel Number:	13725517007	
Zoning Action:		
FEMA Flood Zone	YES	No X
Proposed Storm Drain	YES X	No
COPIES TO:		Southwest Engineering Cheri Edelman, P.E., DEVCO

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES
1 st Submittal	1/26/2001	2/2/2001	See Comments Below	NC
TOTAL FEES (LDDRS):				NC

REMARKS:

Note: This drainage study update is for a remediation revision to an approved set of plans 107Y-4427-1
The Drainage Study for the subject project has been reviewed and:

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

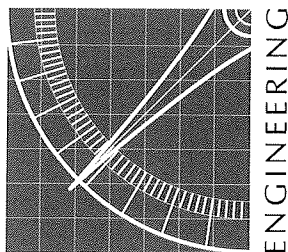
- The revised plans do not meet current design criteria standards. Provide a discussion comparing the weir flow depth in the street to the garage and Lot 1 finish floor. The calculations provided show the weir flow depth at 1 foot above the top of grate, which is at elevation 10.62. This gives a water surface elevation of 11.62, which is 0.26 feet above the garage finish floor and only 0.15 feet below the finish floor of the home. Provide a statement regarding the adequacy of the proposed changes to protect the existing structure.
- Show and label the existing drainage easement on sheet 4A. It appears that the proposed improvements encroach into Lot 1. Obtain a notarized letter of permission from the owner of Lot 1 and revise the existing easement and common lot to include the proposed improvements.
- It appears that the existing inlet will be modified (curb opening removed and new grate opening provided.) Provide a sizing calculation to determine the capacity of the new inlet using a 50% clogging factor.
- Provide a detail of the proposed wall. Indicate 8-inch block and solid grouting in the detail to at least 6 inches above the Q100 water surface elevation.

5. Label the HEC-RAS sections on sheet 4A or provide a separate exhibit showing the sections and add more sections upstream and downstream.
6. Provide cross section details for the modified area showing existing and proposed features. Provide sufficient elevations on plan to clarify the proposed modifications.
7. Revise sheet 4A to show existing bollards. Show proposed bollards, if necessary, to block access to the revised easement.
8. The following comments apply to the grading sheet 4A:
 - A. Show and label the existing storm drain pipe and inlets on sheet 4A.
 - B. Provide top of grate elevations for the revised inlet on the plan.
 - C. Label the "W" dimension on Section B. 5 feet as scaled from the plan view.
 - D. Label the existing storm drain size and slope on Section B.

END OF REMARKS

Jwb

T/R/S: T20S/R59E/25
AREA K25



SOUTHWEST

LAND PLANNING • MAPPING • DEVELOPMENT

January 25, 2001

Mr. Albert Sung, P.E.
City of Las Vegas-Flood Control
731 S. Fourth Street
Las Vegas, NV 89101

RE: Discovery Hills Unit 1
 SWE: 950125

Dear Mr. Sung:

As discussed in our meeting on January 22, 2001, the hydraulic calculations of the drainage condition at the knuckle intersection of Falls Church Avenue and Snow Mountain Street are attached. Please note that the situation was analyzed with a submerged weir calculation and using the HEC-RAS program. The results of these analyses were the same. Please approve these plan revisions so that we can make the appropriate changes to the originals in the City Plan Library and that construction can begin.

If you have any questions, please call me.

Sincerely,

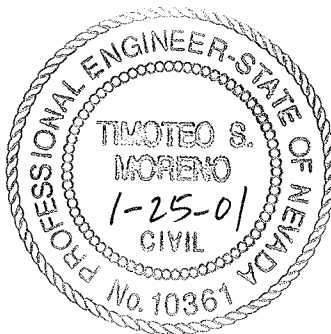
SOUTHWEST ENGINEERING

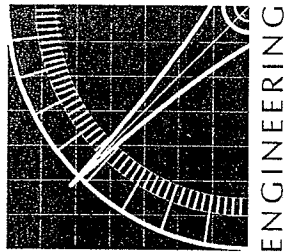
Tim S. Moreno, P.E.
Director of Engineering

TSM:jlj

Attachments

cc: Sally Pelham – SWE
 Rich Machacek – Woodside Homes





SOUTHWEST

LAND PLANNING • MAPPING • DEVELOPMENT

February 16, 2000

Peter Jackson
City of Las Vegas – Flood Control
731 S. Fourth Street
Las Vegas, Nevada 89101

RE: Discovery Hills Lot 1 Drainage Easement
950125

Dear Peter:

Attached, please find our analysis and calculations of the drainage situation at the knuckle intersection of Falls Church Avenue and Snow Mountain Street.

The discharge experienced at this location is 81 cfs based on the *Discovery Hills Technical Drainage Study*. Thirty-seven cubic feet per second (37 cfs) is intercepted by the drop inlets on both sides of the street and a design modification to the drainage inlet and drainage easement will convey the remaining 43 cfs. As depicted on the attached plan, a portion of Lot 1 will have to be dedicated as an additional drainage easement.

The submerged weir calculation suggests that the backwater at the entrance to the drainage easement is one foot above the grate elevation. Please review and approve the modification to the easement.

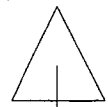
Sincerely,

SOUTHWEST ENGINEERING

Tim S. Moreno, P.E.
Director of Engineering

cc: Rich Machacek, Woodside Homes
 Jayne Leavitt, SWE

Outlet

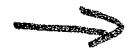
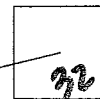


P-2

↑
37 cfs

I-1

P-1



43 cfs

into the
drain.

easement

I-2

← 32 cfs



5

DOT Report

Pipe	-Node- Up Dn	TC (min)	Inlet CA (acres)	-Ground- Up Dn (ft)	-HGL- Up Dn (ft)	-Slope- Energy Constructed (ft/ft)	-Section- Discharge Capacity (cfs)	-Section- Shape Size	Length (ft)	V avg (ft/s)
P-1	I-1	0.00	0.00	2,910.94	2,911.98	0.020011	32.00	Circular	81.00	10.19
	I-2			2,911.47	2,910.36	0.016049	28.66	24 inch		
P-2	I-2	0.00	0.00	2,911.47	2,907.07	0.026715	37.00	Circular	137.00	11.89
	Outlet			2,903.50	2,903.41	0.026715	36.97	24 inch		

Submerged Weir Calculation

$$Q_s = C_w \times L \times (H_1)^{3/2} \times \left[1 - (H_2/H_1)^{3/2} \right]^{0.385}$$

WHERE:

$Q_s = 43$ cfs Flow over Weir

$C_w = 3.33$ ft Weir coefficient

$L = 18$ ft Effective weir length (downstream)

$D_2 = 0.68$ ft Height of flow on downstream side as measured from gutter flow line

$Y_c = 0.00$ ft Depth of Flow from gutter flow line to top of weir

$H_2 = D_2 - Y_c$ Height of flow on downstream side as measured from top of weir

$H_2 = 0.68$ ft

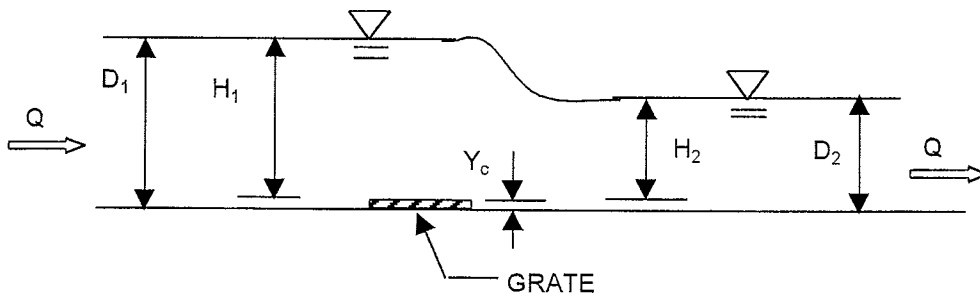
THEN:

$H_1 = 1.00$ ft Height of flow above grate

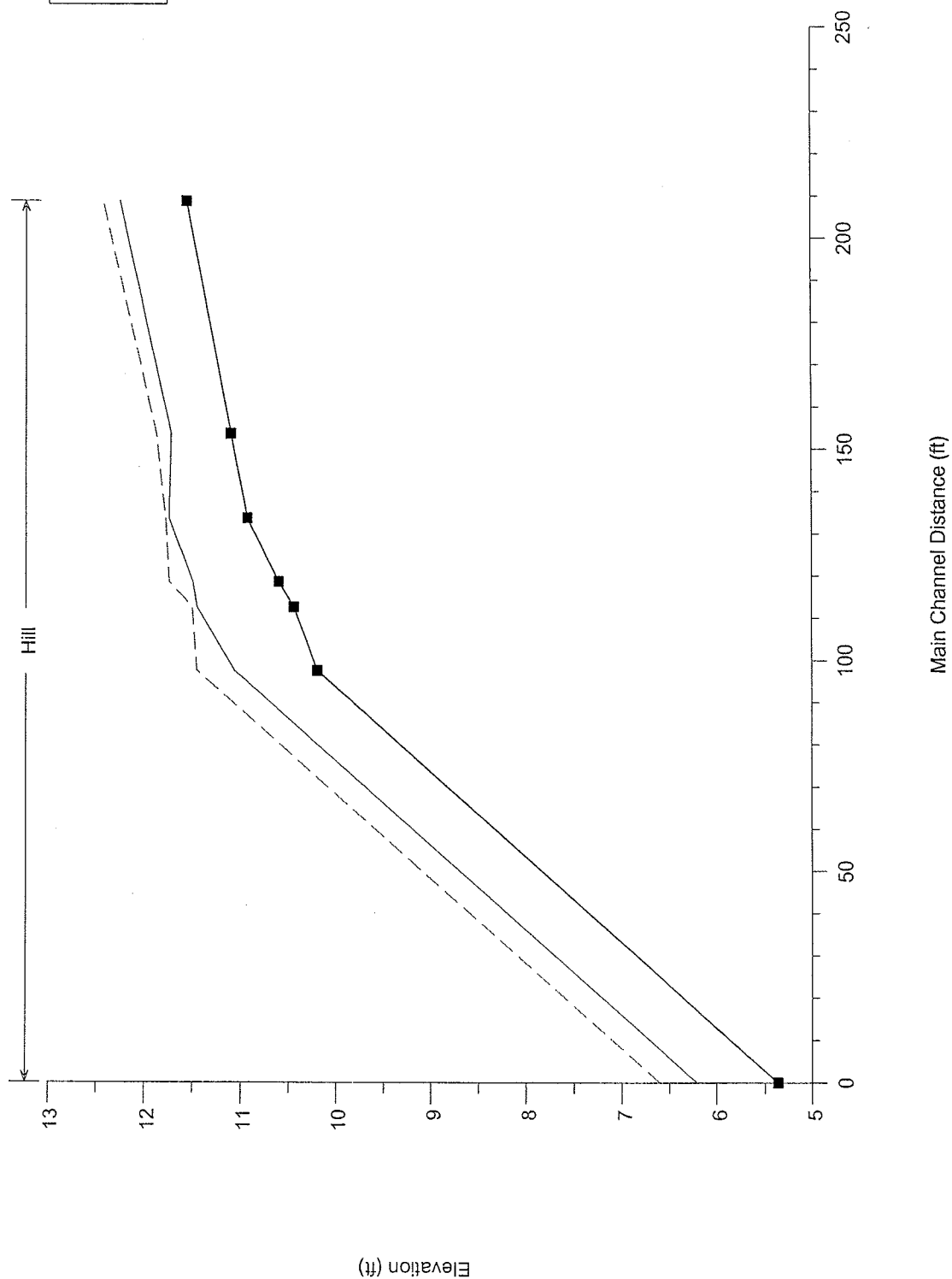
THEREFORE:

$D_1 = Y_c + H_1$ Depth of Flow on upstream side

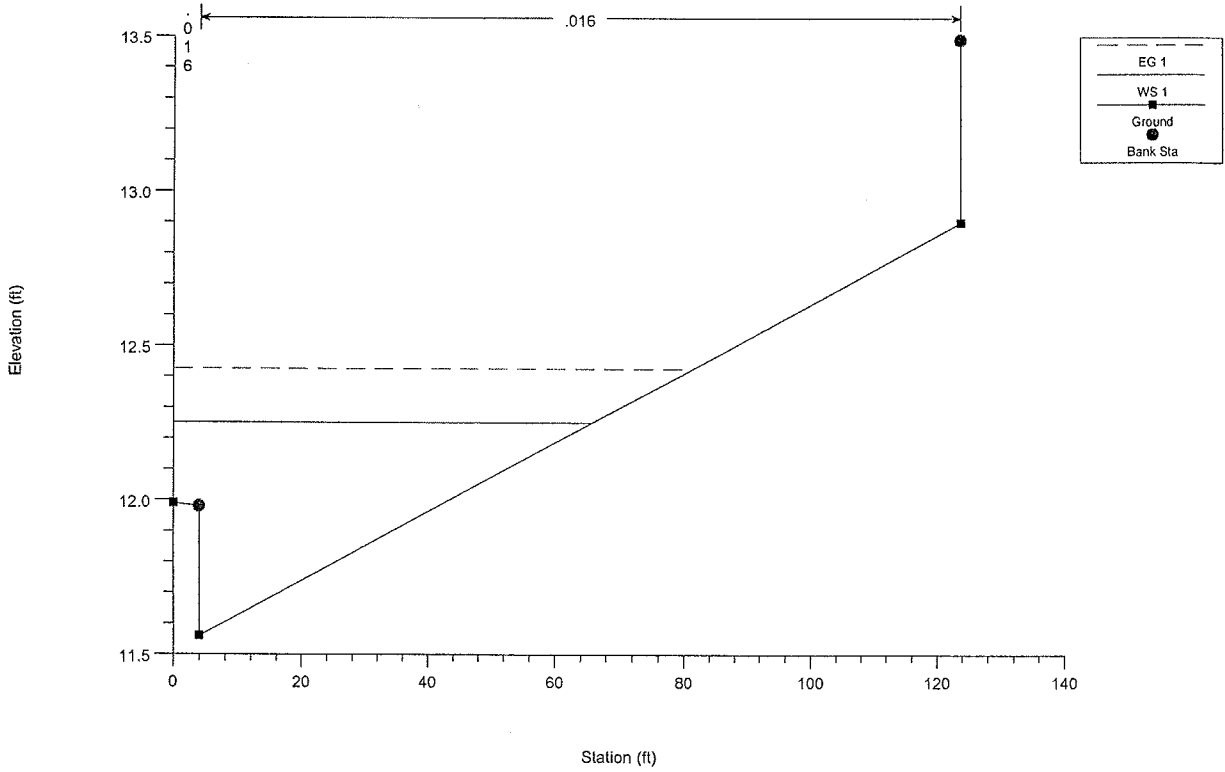
$D_1 = 1.00$ ft



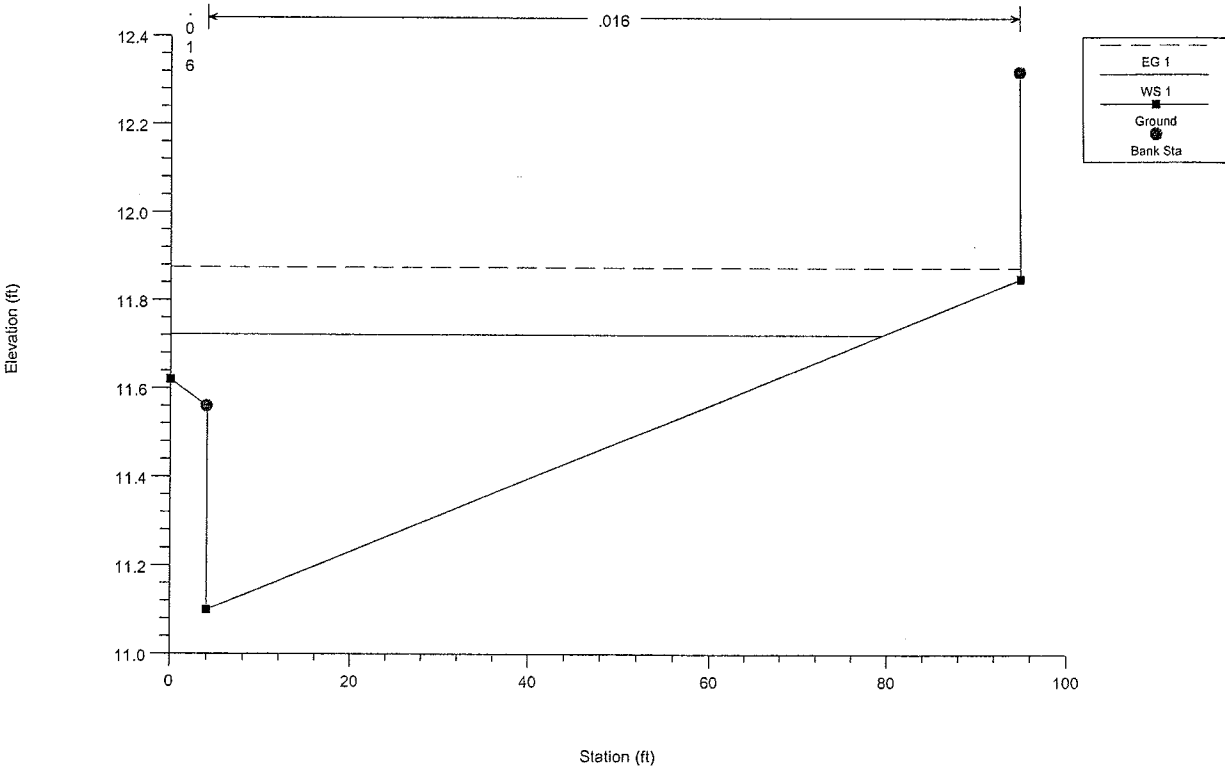
discoveryhills Plan: dh 06/19/2000



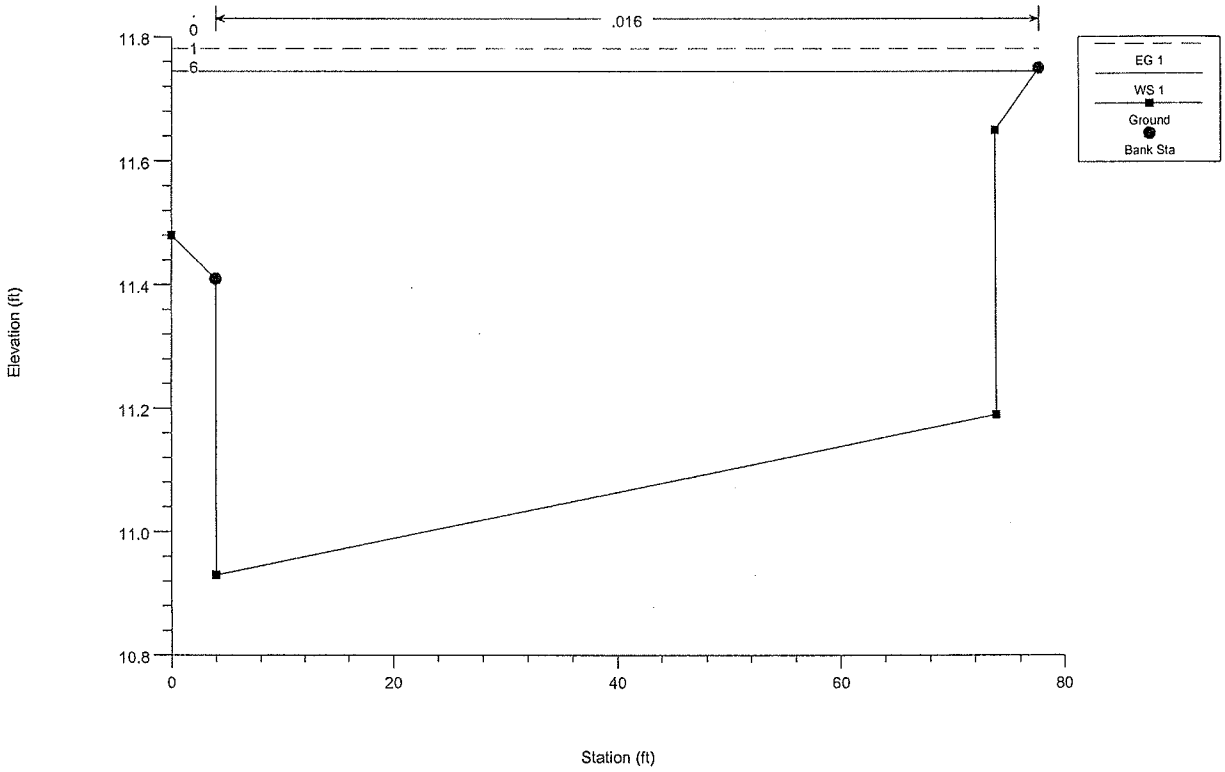
discoveryhills Plan: dh 06/19/2000
Riv Sta = 1000



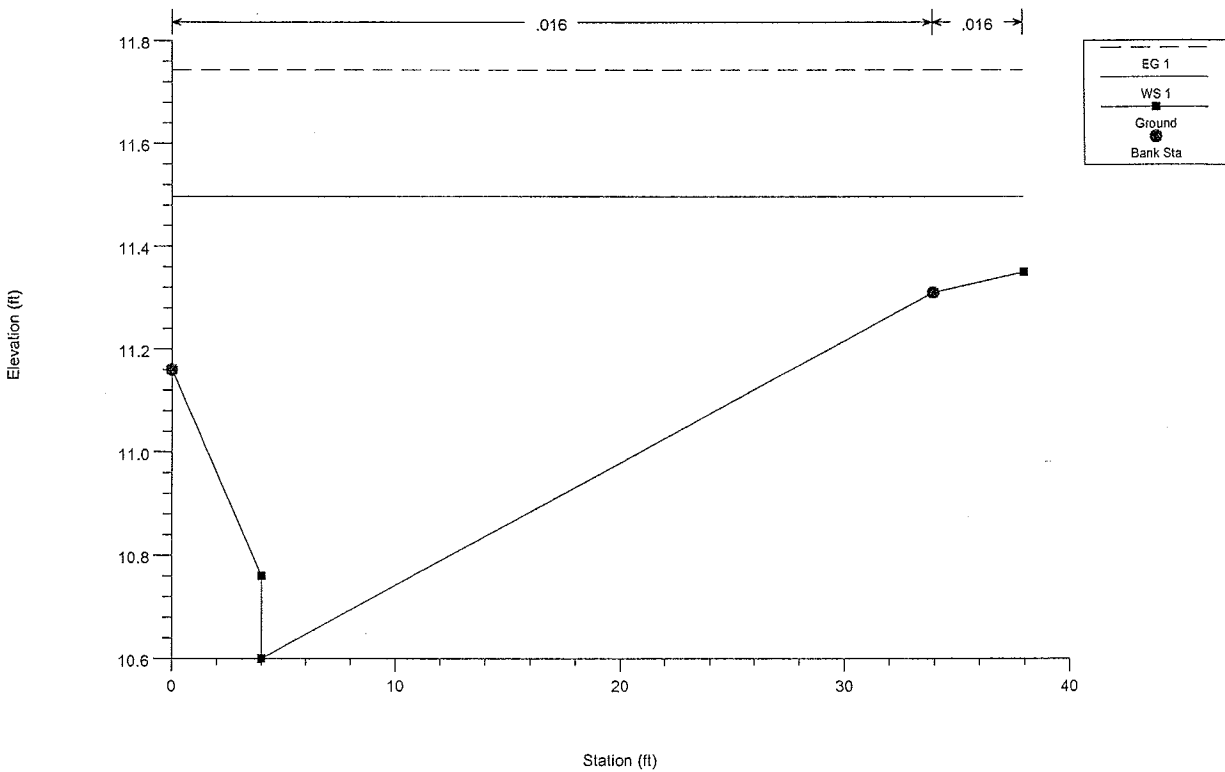
discoveryhills Plan: dh 06/19/2000
From 11.44 TC to 11.66 TC Riv Sta = 950



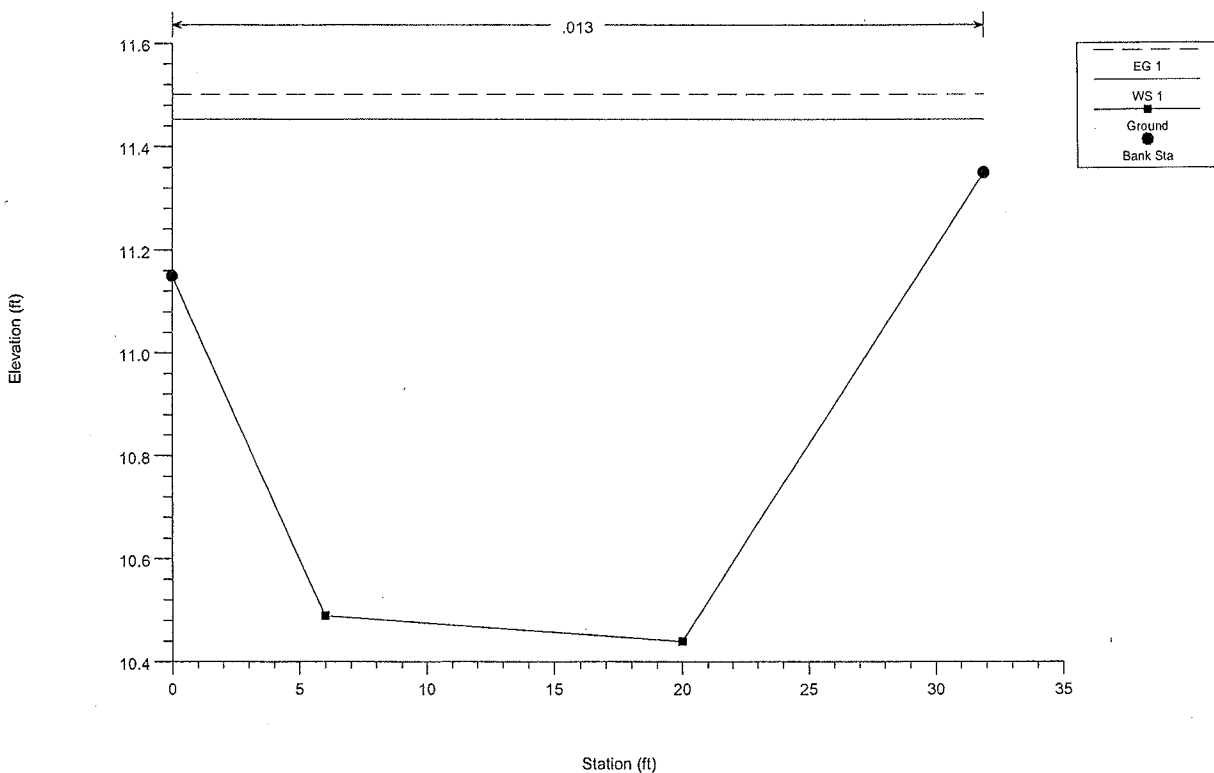
discoveryhills Plan: dh 06/19/2000
 From 11.44 TC to 11.66 TC Riv Sta = 900



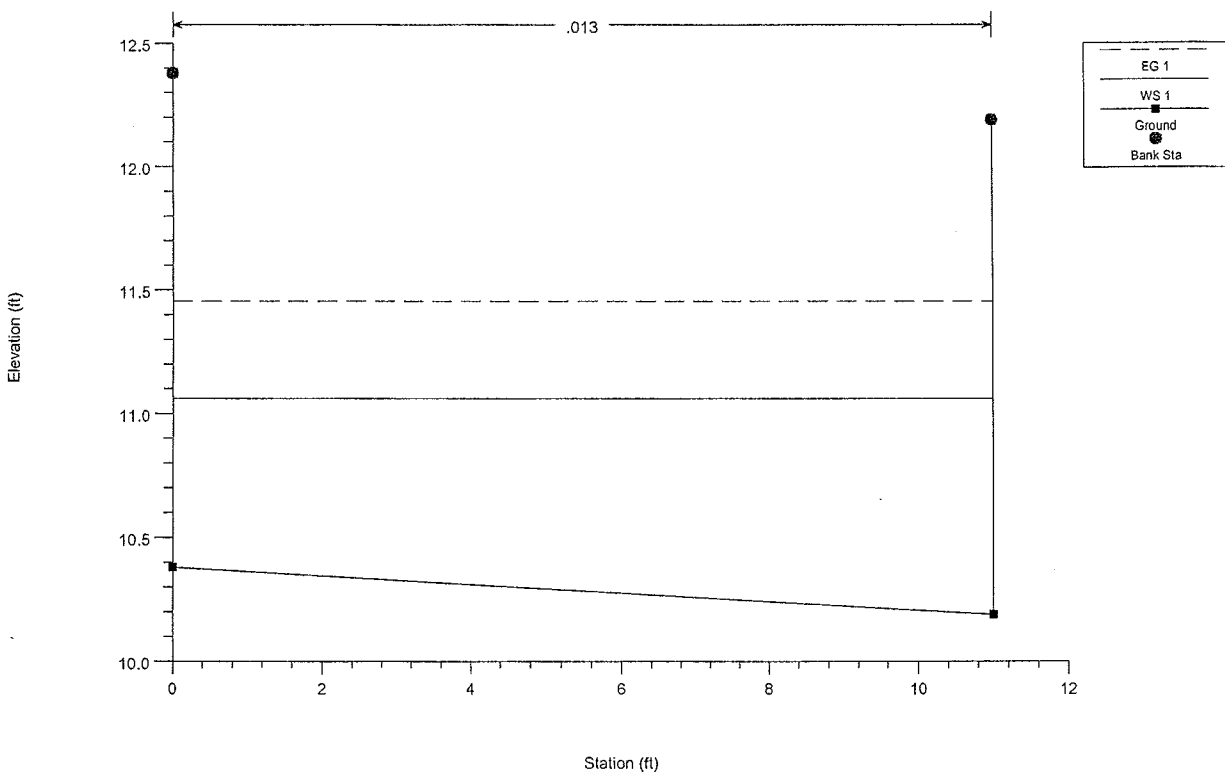
discoveryhills Plan: dh 06/19/2000
 Riv Sta = 800



discoveryhills Plan: dh 06/19/2000
Riv Sta = 700

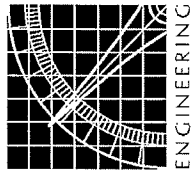


discoveryhills Plan: dh 06/19/2000
Riv Sta = 600



The plot displays a cross-section of a channel. The y-axis represents Elevation in feet, ranging from 5.0 to 7.5. The x-axis represents Station in feet, ranging from 0 to 12. The channel bed (Ground) is shown as a solid line sloping from 5.5 ft at Station 0 to 5.4 ft at Station 11. A water surface line (WS 1) is shown as a solid horizontal line at 6.2 ft. A dashed horizontal line (EG 1) is at 6.6 ft. A bank station (Bank Sta) is marked with a dot at 7.5 ft. A horizontal arrow at the top indicates a distance of 0.013.

Feature	Station (ft)	Elevation (ft)
Ground (Start)	0	5.5
Ground (End)	11	5.4
WS 1	0 to 11	6.2
EG 1	0 to 11	6.6
Bank Sta	0	7.5



SOUTHWEST

LAND PLANNING • MAPPING • DEVELOPMENT

SOUTHWEST ENGINEERING
3610 NORTH RANCHO DRIVE
LAS VEGAS, NEVADA 89130
702-648-9700 / FAX 702-648-4143

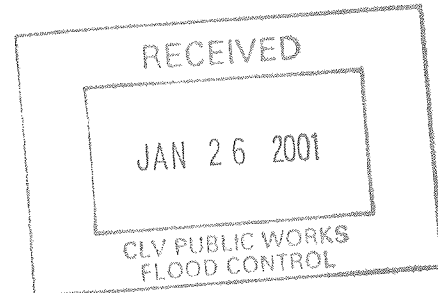
LETTER OF TRANSMITTAL

To: City of Las Vegas-Flood Control
Attn: Albert Sung

From: Sally Pelham
Processing Manager

Date: January 25, 2001

Subject: Discovery Hills-Unit 1
Improvement Plans
S W E Ref. No.950125



1519
K25
AC

Enclosed: 1 Redlined Checkprint Sheets 1, 3, 4A, 8 & 9
1 Copy Original Letter of Explanation

Comments: The attached are provided for your review and approval in order to release the original mylars for approved revisions.

If you have any questions, please call me.

Thank You.

Accepted By: _____ Date: _____ Time: _____

"We Build Relationships"