| CITY OF LAS VEGAS<br>INTER-OFFICE MEMORANDUM | | | | DATE:<br><br>March 26, 2020 |
|---|---|---|---|---|
| TO:<br>**Land Development Services**<br>Department of Public Works | | | | FROM:<br>Jennifer Shinn, P.E.<br>Flood Control, Engr. Associate<br>Department of Public Works |
| **SUBJECT:** | Drainage Study for: | | | **COPIES TO:** |
| **Savannah Summerlin Village 21 – Parcel E & F – Update #1** | | | | Actus |
| **Cross Streets:** | Desert Foothills & Far Hills | | | William Lyon Homes, LLC |
| **File Number:** | F:\PW_Flood\DSMEMOS\DS5152E.docx | | | Bart Anderson, P.E., DevCo |
| **Parcel Number:** | 137-27-614-001, 137-27-615-001 | | | |
| **Zoning Action:** | TMP-76874 | | | |
| **FEMA Flood Zone** | YES | NO | X | |
| **Proposed Storm Drain** | YES X | NO | | |

| HISTORY | DATE RECEIVED | DATE REVIEWED | COMMENTS | REVIEW FEES | FEES PAID Transaction # |
|---|---|---|---|---|---|
| 1st Submittal | 7/8/2019 | 7/25/2019 | See Comments Below | $400.00 | 3480927: $400 |
| 2nd Submittal | 8/26/2019 | 9/12/2019 | | $400.00 | 3542359: $400 |
| Structural Approval Recv'd | 9/16/2019 | 9/16/2019 | Conditional Approval | N/C | N/C |
| CCRFCD | 10/8/2019 | 10/23/2019 | Concurrence Recv'd | N/C | N/C |
| 5th Submittal | 3/2/2020 | 3/26/2020 | Approved | $100.00 | 3764604: $100 |
| | | | **TOTAL FEES (LDDRS):** | **$900.00** | **----** |

The Master 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. |
| | is conditionally approved subject to Nevada Department of Transportation concurrence. |

1. Show the sewer and storm drain locations on cross sectional details for the drainage easements.
2. Verify that the proposed sewer main is not located under the storm drain drop inlet.
3. Revise the Q100 value shown on the Sarabeth Street profile on Sheet C17 to match the WSPG model.
4. Revise the City Engineer's signature block to reflect Steven Ford.

**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**
JKS

T/R/S: T20S/R59E/S26
AREA K-27

February 27, 2020

3283 Warm Springs Road Suite 300
Las Vegas, NV 89120
(702) 586-9296

City of Las Vegas
333 N. Rancho Dr.
Las Vegas, NV 89106

Re.: CD Certification for the TDS for Savannah (Update No 1)

Dear Staff,

The pdfs on the submittal package CD matches the original submittal package.

We hope the above responses satisfy any concerns. If you have any questions or need any additional information, please feel free to call our office at (702) 586-9296.

Sincerely,




Darryl Lattimore, P.E.
President

2/27/2020

HYDROLOGIC CRITERIA AND DRAINAGE MANUAL

# DRAINAGE STUDY INFORMATION FORM

Name of Development: Savannah Summerlin Village 21 - Parcel E & F (Update#1) Date: 2/27/2020

Location of Development: a) Descriptive (Cross Streets) North/South: Desert Foothills Drive

East/West: Far Hills Avenue

b) Section: 26 and 27 Township: 20S Range: 59E

c) APN : 137-27-614-001, 137-27-615-001

Name of Owner: Willian Lyon Homes LLC

Telephone No.: 702-263-8200 Fax No.: N/A E-Mail Address: eddie.duenas@lyonhomes.com

Address: 1980 Festival Plaza Drive, Suite 500, Las Vegas, NV 89118

**Contact Person-Name:** Darryl Lattimore **Telephone No.:** (702) 586-9296

* **E-Mail Address:** darryl.lattimore@actus-nv.com **Fax No.:** N/A

**Firm:** Actus

**Address:** 3283 E. Warm Springs Road Suite 300, Las Vegas, NV 89120

Type of Land Development/Land Disturbance Process:

| | | | | | |
|---|---|---|---|---|---|
| | Rezoning | X | 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: 41.29+/- Being Developed/Disturbed: 41.29+/-
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.): Single Family Residential
5. Approximate upstream land area which drains to the subject site: 0 +/-
6. Has the site drainage been evaluated in the past? ■ **YES** ☐ **NO** If yes, please identify documentation: Savannah Summerlin Village 21 Parcels E & F TDS
7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: To the east into the two existing 36" SDs and ultimately into the 10'x 10' RCB SD in Desert Foothills Dr.
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 |
|---|---|
| | |
| | |
| | |

Local Entity File No.

REFERENCE:

STANDARD FORM 1

Updated 05/01/2008

TECHNICAL DRAINAGE STUDY

# UPDATE #1 TO THE TECHNICAL DRAINAGE STUDY

## For

# Savannah

## (aka Summerlin Village 21 – Parcel E & F)

## (APN: 137-27-614-001, 137-27-615-001)

Far Hills Avenue and Desert Foothills Drive

City of Las Vegas

Date: February 27, 2020

Prepared for:

Willian Lyon Homes
1980 Festival Plaza Drive, Suite 500
Las Vegas, NV 89118

Prepared by: Roshan Poudel, E.I.

Reviewed by: Darryl Lattimore, P.E.

February 27, 2020

3283 E. Warm Springs Road
Suite 300, Las Vegas, NV 89120
(702) 586-9296

Jennifer Shin, P.E.
Flood Control, Engr. Associate
Department of Public Works
City of Las Vegas
333 N. Rancho Dr.
Las Vegas, NV 89106

**Re: Update #1 to the Technical Drainage Study for Savannah (aka Summerlin Village 21 – Parcel E & F) (DS#5152)**

Ms. Shinn,

We have prepared the current update to reflect the storm drain facility changes and minor grading changes to the currently approved drainage study to meet requests from the Summerlin Design Review Committee (SDRC). The SDRC has asked the developer to minimize the use of concrete in both Common Element A (Unit 1) and Common Element D (Unit 2). We are extending the existing storm drain in both common elements and collecting runoff within proposed onsite drop inlets. Please note that the Unit 1 improvement plans were approved by the City of Las Vegas and we will be submitting improvement revisions for Unit 1, therefore said Unit 1 redlines are included in the Appendix of this update. The overall grading plans and details are included for the remaining portions of the project site.

This update addresses the necessary hydraulics associated with extending the storm drain RCPs in both common elements as well as new normal depth calculations in the streets based on updated grading to accommodate the proposed storm drain/drop inlet design. The drop inlets have been adequately sized to pick up all runoff ($Q_{100}$) generated within the project. Please note the none of the onsite basin delineations or estimated runoff amounts have changed with the updated grading design for the site.

We have included an updated Ultimate Condition Basins Map (*Figure 9*) with updated street normal depth calculations. The revised street sections are shaded in yellow within *Figure 9* for ease of review. Please note that the updated street flow depths on the four updated streets have only risen a maximum of 0.04'. The correlating update finished floor elevations continue to meet the minimum required street-flow freeboard criteria. Note that all corner lots that do not meet the requisite minimum freeboard of 6" above the high side TC will be provided with the required courses of solid grouted-screen walls as a mitigation for the said criteria (same lots as with the original study). The finished floors at T-intersection continue to remain above the street-flow EGL. A copy of updated Finished Floor analysis table (revised lots in green), storm drain WSPG calculations, street hydraulic calculations and updated *Figure 9* have been provided in the Appendix of this report, as well as the said Unit 1 redlines and the overall grading plans/details.

If you have any questions or need any additional information, please feel free to call our office at (702) 586-9296.

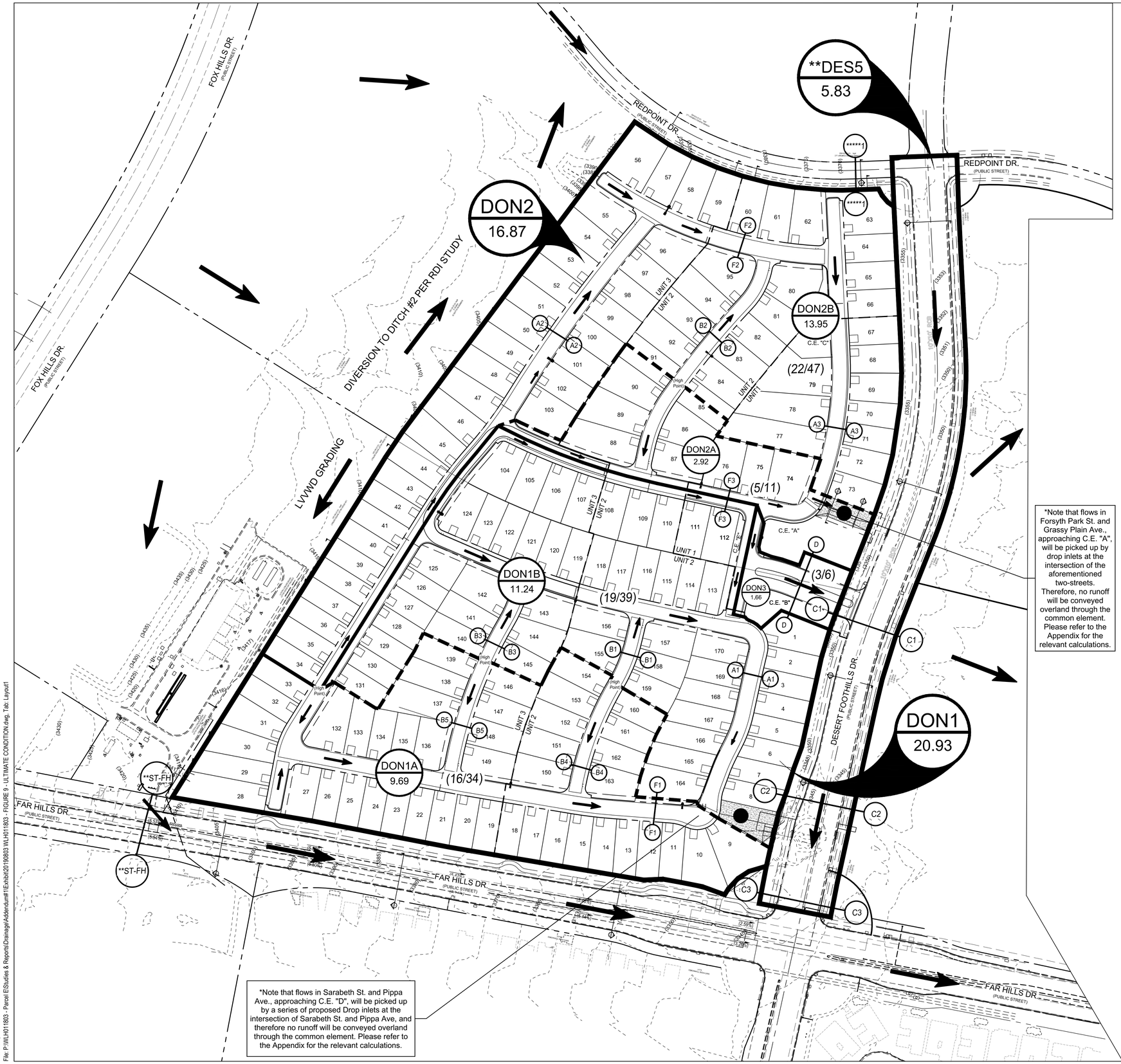
Sincerely,



Roshan Poudel, E.I.

Darryl Lattimore, P.E.
President

# APPENDIX




*Note that flows in Forsyth Park St. and Grassy Plain Ave., approaching C.E. "A", will be picked up by drop inlets at the intersection of the aforementioned two-streets. Therefore, no runoff will be conveyed overland through the common element. Please refer to the Appendix for the relevant calculations.

*Note that flows in Sarabeth St. and Pippa Ave., approaching C.E. "D", will be picked up by a series of proposed Drop inlets at the intersection of Sarabeth St. and Pippa Ave, and therefore no runoff will be conveyed overland through the common element. Please refer to the Appendix for the relevant calculations.

## DRAINAGE LEGEND

| | |
|---|---|
| XOF 1 / X.XX | BASIN IDENTIFICATION / BASIN AREA (ACRES) |
| | BASIN BOUNDARY |
| | SUB-BASIN BOUNDARY |
| C1 | CONCENTRATION POINT / FLOW PATH |
| A — A | CROSS SECTION |
| (XX/XXX) | REFERENCED Q10/Q100 FLOW (CFS) |
| XX/XXX | CONCENTRATION PT./ COMBINED Q10/Q100 FLOW (CFS) |
| [XX/XXX] | BASIN Q10/Q100 FLOW (CFS) |

N

100 50 0 100

SCALE: 1"= 100'

**TABLE 2**
**Flow Summary (Interim/Ultimate Condition)**

| BASIN ID/CONCENTRATION POINT | DRAINAGE AREA (acres) | Reference | Prorated Amount (10-year) cfs/acre | Prorated Amount (100-year) cfs/acre | $Q_{10}$ cfs | $Q_{100}$ cfs |
|---|---|---|---|---|---|---|
| DON1 | 20.93 | *HEC-1* | | | 35 | 73 |
| DON1A | 9.69 | | 1.67 | 3.49 | 16 | 34 |
| DON1B | 11.24 | | 1.67 | 3.49 | 19 | 39 |
| DON2 | 16.87 | *HEC-1* | | | 27 | 58 |
| DON2A | 2.92 | | 1.60 | 3.44 | 5 | 11 |
| DON2B | 13.95 | | 1.60 | 3.44 | 22 | 47 |
| DON3 | 1.66 | *HEC-1* | -- | -- | 3 | 6 |
| DES5 | *5.83 | *HEC-1* | -- | -- | 12 | 22 |
| **ST-FH | **13.14 | ***44 cfs* | N/A | 1/2 of basin | N/A | 22 |

*Referenced from Update #1 to the Flood Control Master Plan Update for Summerlin West Planning Area, DS#4926, and addenda. YTN (2019)
**Referenced from the approved TDS for the Conceptual Drainage Study for Summerlin Village 23B Update #3, DS#3420, GCW (2013)

**TABLE 3a**
**10-year Street Flow Analysis (Interim/Ultimate Condition)**

| Street | Section | Slope (%) | Flow (10 year) (cfs) | Velocity (ft/s) | Flow Depth (ft) | VxD |
|---|---|---|---|---|---|---|
| Desert Foothills Dr. (Half Street) | C1 | 0.68 | *3 | 1.97 | 0.38 | 0.75 |
| Desert Foothills Dr. (Half Street) | C2 | 1.20 | **6 | 2.87 | 0.42 | 1.21 |

*Flows (Basin DON3). All upstream runoff intercepted by upstream drop inlet
**Flows (Basin DON3+1/4 Basin DES5) prior to entering 15' drop inlet

**TABLE 3b**
**100-year Street Flow Analysis (Interim/Ultimate Condition)**

| Street | Section | Min Slope (%) | Flow (100 year) (cfs) | Velocity (ft/s) | Flow Depth (ft) | VxD |
|---|---|---|---|---|---|---|
| *Far Hills Avenue (Half Street) | *ST-FH2 | 5.44 | *22 | 6.95 | 0.49 | 3.41 |
| Desert Foothills Dr. (Half Street) | C1 | 0.68 | **6 | 2.31 | 0.45 | 1.04 |
| Desert Foothills Dr. (Half Street) | C2 | 1.20 | ***12 | 3.35 | 0.51 | 1.71 |
| Desert Foothills Dr. (Half Street) | C3 | Sump | ****4.3 | 0.00 | 0.39 | 0.00 |
| Redpoint Dr. | *****1 | 2.30 | 15 | 3.90 | 1.60 | 6.24 |

*Flows referenced from the approved TDS for the Conceptual Drainage Study for Summerlin Village 23B Update #3, DS#3420, GCW (2013)
**Flows (Basin DON3). All upstream runoff intercepted by upstream drop inlet
***Flows (Basin DON3+1/4 Basin DES5) prior to entering 15' drop inlet
****Flows (4.3 cfs Bypass from 15' DI above)
*****Flows and normal depth calculations referenced from the approved TDS & Addendums for the Technical Drainage Study for Summerlin Village 21 Redpoint Drive Improvements (Fox Hill Drive to Desert Foothills Drive), DS#5088, and addenda, GCW (2019)

**TABLE 4 (Overall Site Flattest Street Slope - Highest WSE)**
**100-year Street Flow Analysis - Interior Streets (Ultimate Condition)**

| Street | Section | Min Slope (%) | Flow (100 year) (cfs) | Velocity (ft/s) | Flow Depth (ft) | VxD |
|---|---|---|---|---|---|---|
| Sundrenched Ave | D | 3.10 | 6 | 3.90 | 0.30 | 1.17 |
| Sarabeth St | A1 | 0.60 | 39 | 3.50 | 0.59 | 2.07 |
| Southern Peach St | B1 | 2.28 | ***10 | 3.88 | 0.35 | 1.36 |
| Pippa Ave | F1 | 2.01 | 34 | 4.78 | 0.49 | 2.34 |
| Forsyth Park | A3 | 0.75 | 47 | 4.02 | 0.61 | 2.45 |
| Jackalberry | B2 | 1.06 | **12 | 2.92 | 0.41 | 1.20 |
| Clarabelle Ave | F2 | 3.30 | 47 | 6.28 | 0.50 | 3.14 |
| Agnew St | A2 | 1.25 | ****24 | 3.60 | 0.48 | 1.73 |
| Lisett St | B3 | 3.31 | ***10 | 4.46 | 0.34 | 1.52 |
| Grassy Plain Ave | F3 | 5.00 | *21 | 6.18 | 0.39 | 2.41 |
| Southern Peach St | B4 | 2.28 | ^9 | 3.77 | 0.34 | 1.28 |
| Lisett St | B5 | 3.31 | ^9 | 4.34 | 0.33 | 1.43 |

*Flows (25% of DON1B + DON2A) taken conservatively.
**Flows (25% of DON2B) taken conservatively.
***Flows (25% of DON1B) taken conservatively. ^Flows (25% of DON1A) taken conservatively.
****Flows (50% of DON2B) taken conservatively.

**TABLE 5 (Overall Site Steepest Slope)**
**100-year Street Flow Analysis - Interior Streets (Ultimate Condition)**

| Street | Section | Max Slope (%) | Flow (100 year) (cfs) | Velocity (ft/s) | Flow Depth (ft) | VxD |
|---|---|---|---|---|---|---|
| Sundrenched Ave | D | 4.00 | 6 | 4.30 | 0.29 | 1.25 |
| Sarabeth St | A1 | 1.06 | 39 | 4.15 | 0.55 | 2.28 |
| Southern Peach St | B1 | 4.00 | ***10 | 4.78 | 0.33 | 1.58 |
| Pippa Ave | F1 | 6.00 | 34 | 7.22 | 0.43 | 3.10 |
| Forsyth Park | A3 | 1.96 | 47 | 5.38 | 0.53 | 2.85 |
| Jackalberry | B2 | 3.85 | **12 | 4.93 | 0.34 | 1.68 |
| Clarabelle Ave | F2 | 5.00 | 47 | 7.16 | 0.48 | 3.44 |
| Agnew St | A2 | 2.13 | ****24 | 4.43 | 0.45 | 1.99 |
| Lisett St | B3 | 4.00 | ***10 | 4.78 | 0.33 | 1.58 |
| Grassy Plain Ave | F3 | 5.00 | *21 | 6.18 | 0.39 | 2.41 |
| Southern Peach St | B4 | 4.00 | ^9 | 4.68 | 0.32 | 1.50 |
| Lisett St | B5 | 4.00 | ^9 | 4.68 | 0.32 | 1.50 |

*Flows (25% of DON1B + DON2A) taken conservatively.
**Flows (25% of DON2B) taken conservatively.
***Flows (25% of DON1B) taken conservatively. ^Flows (25% of DON1A) taken conservatively.
****Flows (50% of DON2B) taken conservatively.


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FIGURE 9 - ULTIMATE CONDITION BASINS MAP ( UPD1 )

# SUMMERLIN VILLAGE 21 - PARCEL E & F

WILLIAM LYON HOMES
CITY OF LAS VEGAS

| BY | DESCRIPTION | DATE |
|---|---|---|
| A1 | | |

DATE 01/24/2020
DRAWN Ro.Po.
DESIGNED ALW
CHECKED DCL
PROJECT # WLH011803

SHEET TITLE
FIG 9

SHEET NUMBER
1


Plot Stamp: 8/16/2019 2:27:04 PM - Roshan Poudel
File: P:\WLH011803 - Parcel E\Studies & Reports\Drainage\Addendum#1\Exhibit\20190803 WLH011803 - FIGURE 9 - ULTIMATE CONDITION.dwg, Tab: Layout1

HYDRAULIC CALCULATIONS

# HYDRAULIC CALCULATIONS

100-yr Interior Street Calculations (Ultimate Condition)
Flattest Slope (Worst WSE)



# Worksheet for Section D - Sundrenched Ave - 66' ROW

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

## Input Data

| | | |
|---|---|---|
| Channel Slope | 3.10 | % |
| Discharge | 6.00 | ft³/s |

Section Definitions

| Station (ft) | Elevation (ft) |
|---|---|
| 0+00.00 | 0.50 |
| 0+00.50 | 0.50 |
| 0+00.50 | 0.00 |
| 0+02.00 | 0.13 |
| 0+02.00 | 0.17 |
| 0+25.50 | 0.64 |
| 0+25.50 | 1.14 |
| 0+40.50 | 1.14 |
| 0+40.50 | 0.64 |
| 0+64.00 | 0.17 |
| 0+64.00 | 0.13 |
| 0+65.50 | 0.00 |
| 0+65.50 | 0.50 |
| 0+66.00 | 0.50 |

Roughness Segment Definitions

| Start Station | Ending Station | Roughness Coefficient |
|---|---|---|
| (0+00.00, 0.50) | (0+02.00, 0.17) | 0.016 |
| (0+02.00, 0.17) | (0+25.50, 0.64) | 0.013 |
| (0+25.50, 0.64) | (0+40.50, 0.64) | 0.016 |
| (0+40.50, 0.64) | (0+64.00, 0.17) | 0.013 |
| (0+64.00, 0.17) | (0+66.00, 0.50) | 0.016 |

# Worksheet for Section D - Sundrenched Ave - 66' ROW

## 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 | | 0.30 | ft |
| Elevation Range | 0.00 to 1.14 ft | | |
| Flow Area | | 1.54 | ft² |
| Wetted Perimeter | | 16.62 | ft |
| Hydraulic Radius | | 0.09 | ft |
| Top Width | | 15.93 | ft |
| Normal Depth | | 0.30 | ft |
| Critical Depth | | 0.37 | ft |
| Critical Slope | | 0.00571 | ft/ft |
| Velocity | | 3.90 | ft/s |
| Velocity Head | | 0.24 | ft |
| Specific Energy | | 0.54 | ft |
| Froude Number | | 2.21 | |
| 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 | 0.30 | ft |
| Critical Depth | 0.37 | ft |
| Channel Slope | 3.10 | % |
| Critical Slope | 0.00571 | ft/ft |

# Cross Section for Section D - Sundrenched Ave - 66' ROW

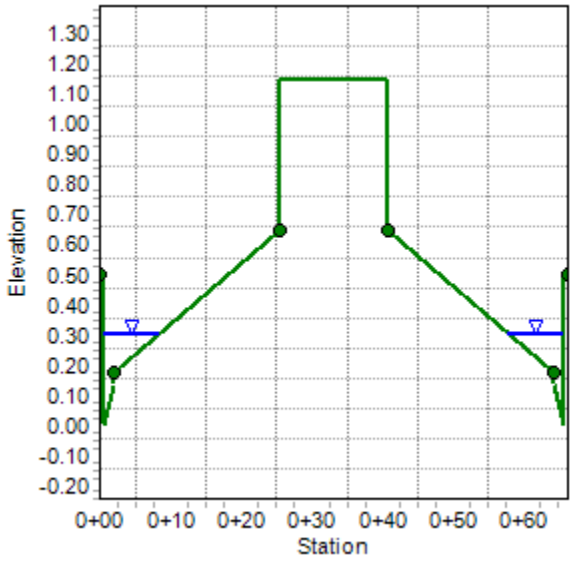
## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

## Input Data

| | | |
|---|---|---|
| Channel Slope | 3.10 | % |
| Normal Depth | 0.30 | ft |
| Discharge | 6.00 | ft³/s |

## Cross Section Image



# Worksheet for Section F1 - Pippa Ave - 41' ROW

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

## Input Data

| | | |
|---|---|---|
| Channel Slope | 2.01 | % |
| Discharge | 34.00 | ft³/s |

Section Definitions

| Station (ft) | Elevation (ft) |
|---|---|
| 0+00.48 | 0.48 |
| 0+05.00 | 0.38 |
| 0+05.35 | 0.37 |
| 0+06.33 | 0.06 |
| 0+06.33 | 0.00 |
| 0+07.50 | 0.13 |
| 0+07.50 | 0.17 |
| 0+23.00 | 0.48 |
| 0+39.00 | 0.17 |
| 0+39.00 | 0.13 |
| 0+40.50 | 0.00 |
| 0+40.50 | 0.50 |
| 0+41.00 | 0.50 |

Roughness Segment Definitions

| Start Station | Ending Station | Roughness Coefficient |
|---|---|---|
| (0+00.48, 0.48) | (0+07.50, 0.17) | 0.016 |
| (0+07.50, 0.17) | (0+39.00, 0.17) | 0.013 |
| (0+39.00, 0.17) | (0+41.00, 0.50) | 0.016 |

## Options

| | |
|---|---|
| Current Roughness Weighted Method | Pavlovskii's Method |
| Open Channel Weighting Method | Pavlovskii's Method |
| Closed Channel Weighting Method | Pavlovskii's Method |

# Worksheet for Section F1 - Pippa Ave - 41' ROW

## Results

| | | | |
|---|---|---|---|
| Normal Depth | | 0.49 | ft |
| Elevation Range | 0.00 to 0.50 ft | | |
| Flow Area | | 7.11 | ft² |
| Wetted Perimeter | | 40.74 | ft |
| Hydraulic Radius | | 0.17 | ft |
| Top Width | | 40.02 | ft |
| Normal Depth | | 0.49 | ft |
| Critical Depth | | 0.60 | ft |
| Critical Slope | | 0.00433 | ft/ft |
| Velocity | | 4.78 | ft/s |
| Velocity Head | | 0.36 | ft |
| Specific Energy | | 0.85 | ft |
| Froude Number | | 2.00 | |
| 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 | 0.49 | ft |
| Critical Depth | 0.60 | ft |
| Channel Slope | 2.01 | % |
| Critical Slope | 0.00433 | ft/ft |

# Cross Section for Section F1 - Pippa Ave - 41' ROW

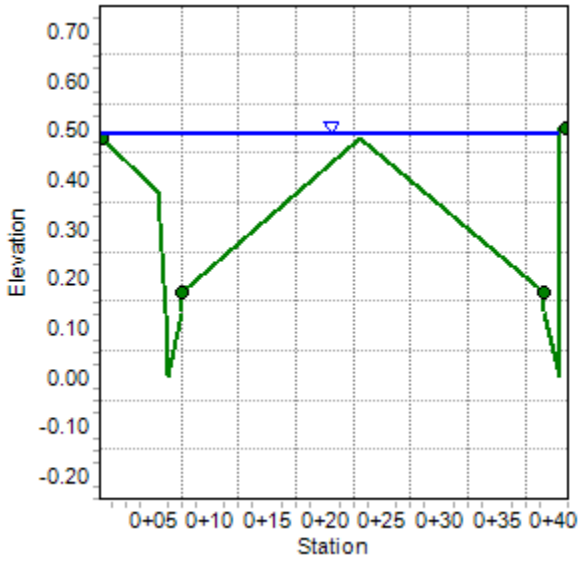
## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

## Input Data

| | | |
|---|---|---|
| Channel Slope | 2.01 | % |
| Normal Depth | 0.49 | ft |
| Discharge | 34.00 | ft³/s |

## Cross Section Image



# Worksheet for Section A3 - Forsyth Park St - 41' ROW

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

## Input Data

| | | |
|---|---|---|
| Channel Slope | 0.75 | % |
| Discharge | 47.00 | ft³/s |

Section Definitions

| Station (ft) | Elevation (ft) |
|---|---|
| 0+00.48 | 0.48 |
| 0+05.00 | 0.38 |
| 0+05.35 | 0.37 |
| 0+06.33 | 0.06 |
| 0+06.33 | 0.00 |
| 0+07.50 | 0.13 |
| 0+07.50 | 0.17 |
| 0+23.00 | 0.48 |
| 0+38.50 | 0.17 |
| 0+38.50 | 0.13 |
| 0+39.67 | 0.00 |
| 0+39.67 | 0.06 |
| 0+40.65 | 0.37 |
| 0+41.00 | 0.38 |

Roughness Segment Definitions

| Start Station | Ending Station | Roughness Coefficient |
|---|---|---|
| (0+00.48, 0.48) | (0+07.50, 0.17) | 0.016 |
| (0+07.50, 0.17) | (0+38.50, 0.17) | 0.013 |
| (0+38.50, 0.17) | (0+41.00, 0.38) | 0.016 |

## Options

| | |
|---|---|
| Current Roughness Weighted Method | Pavlovskii's Method |
| Open Channel Weighting Method | Pavlovskii's Method |

# Worksheet for Section A3 - Forsyth Park St - 41' ROW

## Options

| | | | |
|---|---|---|---|
| Closed Channel Weighting Method | Pavlovskii's Method | | |

## Results

| | | | |
|---|---|---|---|
| Normal Depth | | 0.61 | ft |
| Elevation Range | 0.00 to 0.48 ft | | |
| Flow Area | | 11.68 | ft² |
| Wetted Perimeter | | 41.19 | ft |
| Hydraulic Radius | | 0.28 | ft |
| Top Width | | 40.52 | ft |
| Normal Depth | | 0.61 | ft |
| Critical Depth | | 0.66 | ft |
| Critical Slope | | 0.00405 | ft/ft |
| Velocity | | 4.02 | ft/s |
| Velocity Head | | 0.25 | ft |
| Specific Energy | | 0.86 | ft |
| Froude Number | | 1.32 | |
| 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 | | 0.61 | ft |
| Critical Depth | | 0.66 | ft |
| Channel Slope | | 0.75 | % |
| Critical Slope | | 0.00405 | ft/ft |

# Cross Section for Section A3 - Forsyth Park St - 41' ROW

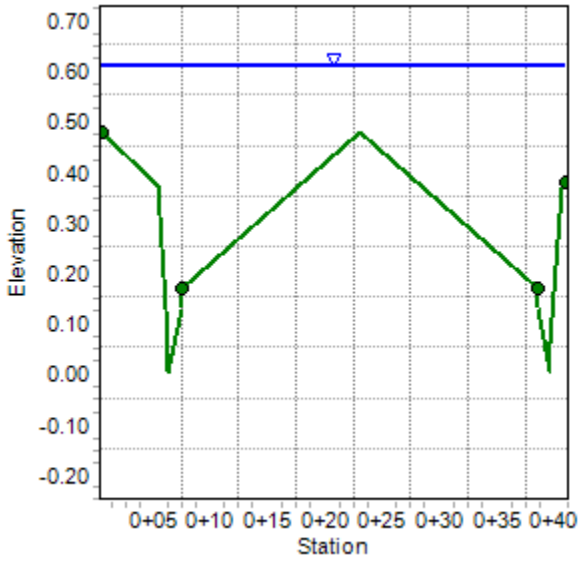
## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

## Input Data

| | | |
|---|---|---|
| Channel Slope | 0.75 | % |
| Normal Depth | 0.61 | ft |
| Discharge | 47.00 | ft³/s |

## Cross Section Image



# Worksheet for Section F2 - Clarabelle Ave - 41' ROW

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

## Input Data

| | | |
|---|---|---|
| Channel Slope | 3.30 | % |
| Discharge | 47.00 | ft³/s |

Section Definitions

| Station (ft) | Elevation (ft) |
|---|---|
| 0+00.48 | 0.48 |
| 0+05.00 | 0.38 |
| 0+05.35 | 0.37 |
| 0+06.33 | 0.06 |
| 0+06.33 | 0.00 |
| 0+07.50 | 0.13 |
| 0+07.50 | 0.17 |
| 0+23.00 | 0.48 |
| 0+39.00 | 0.17 |
| 0+39.00 | 0.13 |
| 0+40.50 | 0.00 |
| 0+40.50 | 0.50 |
| 0+41.00 | 0.50 |

Roughness Segment Definitions

| Start Station | Ending Station | Roughness Coefficient |
|---|---|---|
| (0+00.48, 0.48) | (0+07.50, 0.17) | 0.016 |
| (0+07.50, 0.17) | (0+39.00, 0.17) | 0.013 |
| (0+39.00, 0.17) | (0+41.00, 0.50) | 0.016 |

## Options

| | |
|---|---|
| Current Roughness Weighted Method | Pavlovskii's Method |
| Open Channel Weighting Method | Pavlovskii's Method |
| Closed Channel Weighting Method | Pavlovskii's Method |

# Worksheet for Section F2 - Clarabelle Ave - 41' ROW

## Results

| | | | |
|---|---|---|---|
| Normal Depth | | 0.50 | ft |
| Elevation Range | 0.00 to 0.50 ft | | |
| Flow Area | | 7.48 | ft² |
| Wetted Perimeter | | 41.26 | ft |
| Hydraulic Radius | | 0.18 | ft |
| Top Width | | 40.52 | ft |
| Normal Depth | | 0.50 | ft |
| Critical Depth | | 0.67 | ft |
| Critical Slope | | 0.00407 | ft/ft |
| Velocity | | 6.28 | ft/s |
| Velocity Head | | 0.61 | ft |
| Specific Energy | | 1.12 | ft |
| Froude Number | | 2.58 | |
| Flow Type | Supercritical | | |

This section is applicable to Lot 64 and Lot 65 for the EGL analysis. The finished floor for these lots are above the EGL.

## 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 | 0.50 | ft |
| Critical Depth | 0.67 | ft |
| Channel Slope | 3.30 | % |
| Critical Slope | 0.00407 | ft/ft |

# Cross Section for Section F2 - Clarabelle Ave - 41' ROW

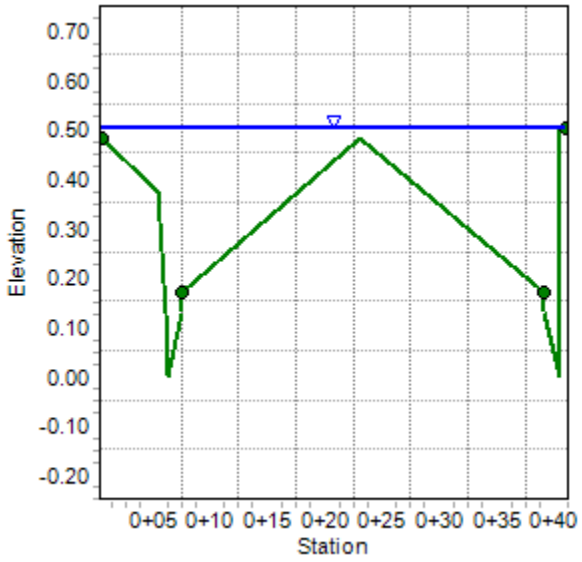
## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

## Input Data

| | | |
|---|---|---|
| Channel Slope | 3.30 | % |
| Normal Depth | 0.50 | ft |
| Discharge | 47.00 | ft³/s |

## Cross Section Image



# HYDRAULIC CALCULATIONS

100-yr Interior Street Calculations (Ultimate Condition)
Steepest Slope

# Worksheet for Section A1 - Sarabeth St - 41' ROW

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

## Input Data

| | | |
|---|---|---|
| Channel Slope | 1.06 | % |
| Discharge | 39.00 | ft³/s |

Section Definitions

| Station (ft) | Elevation (ft) |
|---|---|
| 0+00.48 | 0.48 |
| 0+05.00 | 0.38 |
| 0+05.35 | 0.37 |
| 0+06.33 | 0.06 |
| 0+06.33 | 0.00 |
| 0+07.50 | 0.13 |
| 0+07.50 | 0.17 |
| 0+23.00 | 0.48 |
| 0+38.50 | 0.17 |
| 0+38.50 | 0.13 |
| 0+39.67 | 0.00 |
| 0+39.67 | 0.06 |
| 0+40.65 | 0.37 |
| 0+41.00 | 0.38 |

Roughness Segment Definitions

| Start Station | Ending Station | Roughness Coefficient |
|---|---|---|
| (0+00.48, 0.48) | (0+07.50, 0.17) | 0.016 |
| (0+07.50, 0.17) | (0+38.50, 0.17) | 0.013 |
| (0+38.50, 0.17) | (0+41.00, 0.38) | 0.016 |

## Options

| | |
|---|---|
| Current Roughness Weighted Method | Pavlovskii's Method |
| Open Channel Weighting Method | Pavlovskii's Method |

# Worksheet for Section A1 - Sarabeth St - 41' ROW

## Options

| | | | |
|---|---|---|---|
| Closed Channel Weighting Method | Pavlovskii's Method | | |

## Results

| | | | |
|---|---|---|---|
| Normal Depth | | 0.55 | ft |
| Elevation Range | 0.00 to 0.48 ft | | |
| Flow Area | | 9.40 | ft² |
| Wetted Perimeter | | 41.08 | ft |
| Hydraulic Radius | | 0.23 | ft |
| Top Width | | 40.52 | ft |
| Normal Depth | | 0.55 | ft |
| Critical Depth | | 0.62 | ft |
| Critical Slope | | 0.00421 | ft/ft |
| Velocity | | 4.15 | ft/s |
| Velocity Head | | 0.27 | ft |
| Specific Energy | | 0.82 | ft |
| Froude Number | | 1.52 | |
| 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 | | 0.55 | ft |
| Critical Depth | | 0.62 | ft |
| Channel Slope | | 1.06 | % |
| Critical Slope | | 0.00421 | ft/ft |

# Cross Section for Section A1 - Sarabeth St - 41' ROW

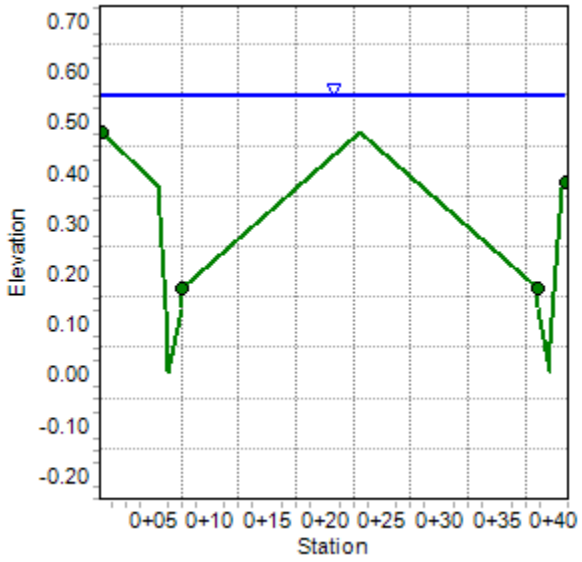
## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

## Input Data

| | | |
|---|---|---|
| Channel Slope | 1.06 | % |
| Normal Depth | 0.55 | ft |
| Discharge | 39.00 | ft³/s |

## Cross Section Image



# Worksheet for Section A3 - Forsyth Park St - 41' ROW

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

## Input Data

| | | |
|---|---|---|
| Channel Slope | 1.96 | % |
| Discharge | 47.00 | ft³/s |

Section Definitions

| Station (ft) | Elevation (ft) |
|---|---|
| 0+00.48 | 0.48 |
| 0+05.00 | 0.38 |
| 0+05.35 | 0.37 |
| 0+06.33 | 0.06 |
| 0+06.33 | 0.00 |
| 0+07.50 | 0.13 |
| 0+07.50 | 0.17 |
| 0+23.00 | 0.48 |
| 0+38.50 | 0.17 |
| 0+38.50 | 0.13 |
| 0+39.67 | 0.00 |
| 0+39.67 | 0.06 |
| 0+40.65 | 0.37 |
| 0+41.00 | 0.38 |

Roughness Segment Definitions

| Start Station | Ending Station | Roughness Coefficient |
|---|---|---|
| (0+00.48, 0.48) | (0+07.50, 0.17) | 0.016 |
| (0+07.50, 0.17) | (0+38.50, 0.17) | 0.013 |
| (0+38.50, 0.17) | (0+41.00, 0.38) | 0.016 |

## Options

| | |
|---|---|
| Current Roughness Weighted Method | Pavlovskii's Method |
| Open Channel Weighting Method | Pavlovskii's Method |

# Worksheet for Section A3 - Forsyth Park St - 41' ROW

## Options

| | | | |
|---|---|---|---|
| Closed Channel Weighting Method | Pavlovskii's Method | | |

## Results

| | | | |
|---|---|---|---|
| Normal Depth | | 0.53 | ft |
| Elevation Range | 0.00 to 0.48 ft | | |
| Flow Area | | 8.74 | ft² |
| Wetted Perimeter | | 41.04 | ft |
| Hydraulic Radius | | 0.21 | ft |
| Top Width | | 40.52 | ft |
| Normal Depth | | 0.53 | ft |
| Critical Depth | | 0.66 | ft |
| Critical Slope | | 0.00405 | ft/ft |
| Velocity | | 5.38 | ft/s |
| Velocity Head | | 0.45 | ft |
| Specific Energy | | 0.98 | ft |
| Froude Number | | 2.04 | |
| 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 | 0.53 | ft |
| Critical Depth | 0.66 | ft |
| Channel Slope | 1.96 | % |
| Critical Slope | 0.00405 | ft/ft |

# Cross Section for Section A3 - Forsyth Park St - 41' ROW

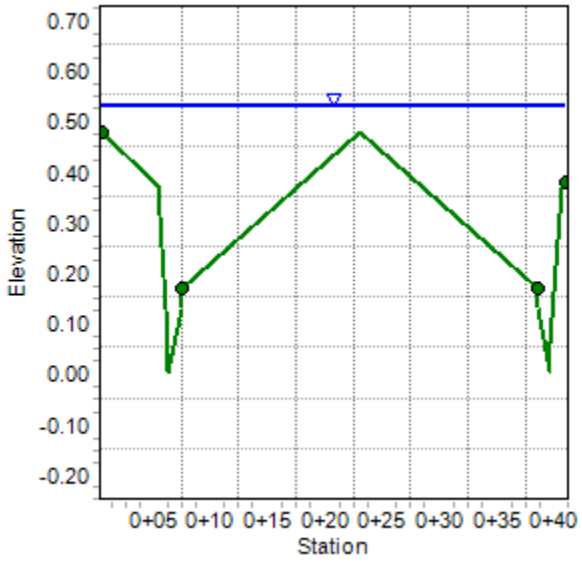
## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

## Input Data

| | | |
|---|---|---|
| Channel Slope | 1.96 | % |
| Normal Depth | 0.53 | ft |
| Discharge | 47.00 | ft³/s |

## Cross Section Image



# Worksheet for Section B2 - Jackalberry St - 36' ROW

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

## Input Data

| | | |
|---|---|---|
| Channel Slope | 3.85 | % |
| Discharge | 12.00 | ft³/s |

Section Definitions

| Station (ft) | Elevation (ft) |
|---|---|
| 0+00.00 | 0.48 |
| 0+05.00 | 0.38 |
| 0+05.35 | 0.37 |
| 0+06.33 | 0.06 |
| 0+06.33 | 0.00 |
| 0+07.50 | 0.13 |
| 0+07.50 | 0.17 |
| 0+20.50 | 0.43 |
| 0+33.50 | 0.17 |
| 0+33.50 | 0.13 |
| 0+34.67 | 0.00 |
| 0+34.67 | 0.06 |
| 0+35.65 | 0.37 |
| 0+36.00 | 0.38 |

Roughness Segment Definitions

| Start Station | Ending Station | Roughness Coefficient |
|---|---|---|
| (0+00.00, 0.48) | (0+07.50, 0.17) | 0.016 |
| (0+07.50, 0.17) | (0+33.50, 0.17) | 0.013 |
| (0+33.50, 0.17) | (0+36.00, 0.38) | 0.016 |

## Options

| | |
|---|---|
| Current Roughness Weighted Method | Pavlovskii's Method |
| Open Channel Weighting Method | Pavlovskii's Method |

# Worksheet for Section B2 - Jackalberry St - 36' ROW

## Options

| | |
|---|---|
| Closed Channel Weighting Method | Pavlovskii's Method |

## Results

| | | | |
|---|---|---|---|
| Normal Depth | | 0.34 | ft |
| Elevation Range | 0.00 to 0.48 ft | | |
| Flow Area | | 2.44 | ft² |
| Wetted Perimeter | | 21.91 | ft |
| Hydraulic Radius | | 0.11 | ft |
| Top Width | | 21.61 | ft |
| Normal Depth | | 0.34 | ft |
| Critical Depth | | 0.45 | ft |
| Critical Slope | | 0.00513 | ft/ft |
| Velocity | | 4.93 | ft/s |
| Velocity Head | | 0.38 | ft |
| Specific Energy | | 0.72 | ft |
| Froude Number | | 2.59 | |
| Flow Type | Supercritical | | |

This section is applicable to Lot 61 and Lot 62 for the EGL analysis. The finished floor for these lots are above the EGL.

## 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 | 0.34 | ft |
| Critical Depth | 0.45 | ft |
| Channel Slope | 3.85 | % |
| Critical Slope | 0.00513 | ft/ft |

# Cross Section for Section B2 - Jackalberry St - 36' ROW

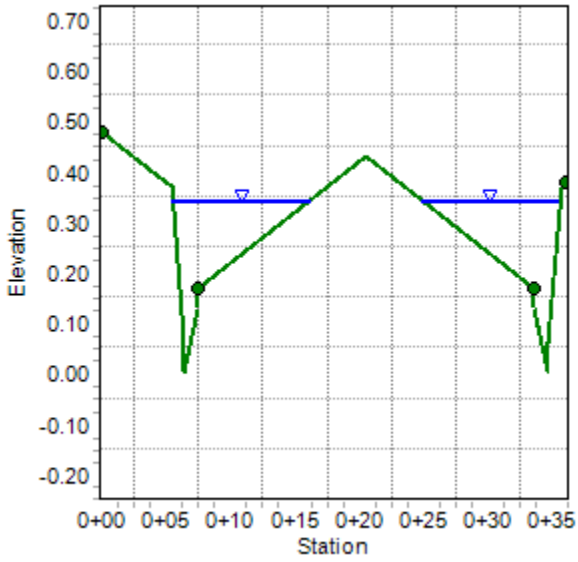
## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

## Input Data

| | | |
|---|---|---|
| Channel Slope | 3.85 | % |
| Normal Depth | 0.34 | ft |
| Discharge | 12.00 | ft³/s |

## Cross Section Image



HYDRAULIC CALCULATIONS

# HYDRAULIC CALCULATIONS

Finish Floor Analysis

| UPD#1 TO SAVANNAH SUMMERLIN VILLAGE 21 - PARCEL E & F | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FINISH FLOOR ANALYSIS (OVERALL) - CITY OF LAS VEGAS JURISDICTION | | | | | | | | | | | | | | |
| INPUT INFORMATION | | | | | | | FINISHED FLOORS | | | | | | | NOTES |
| Lot Number | Hydraulic Section Utilized | Centerline Elevation (ft) | T/C[1] (ft) | Mod Roll, Roll, or L Curb? Type | F/L[2] (ft) | $D_{100}$ (ft) | Flowline FF min[3] (ft) | Centerline (of TC) FF min[4] (ft) | Pad (ft) | Section (ft) | FF Design (ft) | Flowline Check (ft) | Centerline Check (ft) | |
| 1 | A1 | 3356.72 | 3356.67 | Roll | 3356.29 | 0.59 | 3357.47 | 3358.22 | 3357.6 | 1.00 | 3358.60 | OK | OK | |
| 2 | A1 | 3356.51 | 3356.46 | Roll | 3356.08 | 0.59 | 3357.26 | 3358.01 | 3357.4 | 1.00 | 3358.40 | OK | OK | |
| 3 | A1 | 3356.23 | 3356.18 | Roll | 3355.80 | 0.59 | 3356.98 | 3357.73 | 3357.2 | 1.00 | 3358.20 | OK | OK | |
| 4 | A1 | 3355.93 | 3355.88 | Roll | 3355.50 | 0.59 | 3356.68 | 3357.43 | 3356.9 | 1.00 | 3357.90 | OK | OK | |
| 5 | A1 | 3355.63 | 3355.58 | Roll | 3355.20 | 0.59 | 3356.38 | 3357.13 | 3356.6 | 1.00 | 3357.60 | OK | OK | |
| 6 | A1 | 3355.35 | 3355.30 | Roll | 3354.92 | 0.59 | 3356.10 | 3356.85 | 3356.3 | 1.00 | 3357.30 | OK | OK | |
| 7 | A1 | 3355.05 | 3355.00 | Roll | 3354.62 | 0.59 | 3355.80 | 3356.55 | 3356.2 | 1.00 | 3357.20 | OK | OK | |
| 8 | A1 | 3354.51 | 3354.46 | Roll | 3354.08 | 0.59 | 3355.26 | 3356.01 | 3355.6 | 1.00 | 3356.60 | OK | OK | |
| 9 | F1 | 3354.05 | 3354.00 | Roll | 3353.62 | 0.49 | 3354.60 | 3355.55 | 3355.1 | 1.00 | 3356.10 | OK | OK | |
| 10 | F1 | 3354.43 | 3354.38 | Roll | 3354.00 | 0.49 | 3354.98 | 3355.93 | 3355.4 | 1.00 | 3356.40 | OK | OK | |
| 11 | F1 | 3355.14 | 3355.09 | Roll | 3354.71 | 0.49 | 3355.69 | 3356.64 | 3356.1 | 1.00 | 3357.10 | OK | OK | |
| 12 | F1 | 3356.59 | 3356.54 | Roll | 3356.16 | 0.49 | 3357.14 | 3358.09 | 3357.3 | 1.00 | 3358.30 | OK | OK | |
| 13 | F1 | 3358.54 | 3358.49 | Roll | 3358.11 | 0.49 | 3359.09 | 3360.04 | 3359.2 | 1.00 | 3360.20 | OK | OK | |
| 14 | F1 | 3360.94 | 3360.89 | Roll | 3360.51 | 0.49 | 3361.49 | 3362.44 | 3361.6 | 1.00 | 3362.60 | OK | OK | |
| 15 | F1 | 3363.78 | 3363.73 | Roll | 3363.35 | 0.49 | 3364.33 | 3365.28 | 3364.5 | 1.00 | 3365.50 | OK | OK | |
| 16 | F1 | 3366.78 | 3366.73 | Roll | 3366.35 | 0.49 | 3367.33 | 3368.28 | 3367.5 | 1.00 | 3368.50 | OK | OK | |
| 17 | F1 | 3369.78 | 3369.73 | Roll | 3369.35 | 0.49 | 3370.33 | 3371.28 | 3370.5 | 1.00 | 3371.50 | OK | OK | |
| 18 | F1 | 3372.78 | 3372.73 | Roll | 3372.35 | 0.49 | 3373.33 | 3374.28 | 3373.5 | 1.00 | 3374.50 | OK | OK | |
| 19 | F1 | 3375.78 | 3375.73 | Roll | 3375.35 | 0.49 | 3376.33 | 3377.28 | 3376.5 | 1.00 | 3377.50 | OK | OK | |
| 20 | F1 | 3378.76 | 3378.71 | Roll | 3378.33 | 0.49 | 3379.31 | 3380.26 | 3379.5 | 1.00 | 3380.50 | OK | OK | |
| 21 | F1 | 3381.75 | 3381.70 | Roll | 3381.32 | 0.49 | 3382.30 | 3383.25 | 3382.4 | 1.00 | 3383.40 | OK | OK | |
| 22 | F1 | 3384.75 | 3384.70 | Roll | 3384.32 | 0.49 | 3385.30 | 3386.25 | 3385.4 | 1.00 | 3386.40 | OK | OK | |
| 23 | F1 | 3387.75 | 3387.70 | Roll | 3387.32 | 0.49 | 3388.30 | 3389.25 | 3388.4 | 1.00 | 3389.40 | OK | OK | |
| 24 | F1 | 3390.75 | 3390.70 | Roll | 3390.32 | 0.49 | 3391.30 | 3392.25 | 3391.4 | 1.00 | 3392.40 | OK | OK | |
| 25 | F1 | 3393.63 | 3393.58 | Roll | 3393.20 | 0.49 | 3394.18 | 3395.13 | 3394.3 | 1.00 | 3395.30 | OK | OK | |
| 26 | F1 | 3395.87 | 3395.82 | Roll | 3395.44 | 0.49 | 3396.42 | 3397.37 | 3396.6 | 1.00 | 3397.60 | OK | OK | |
| 27 | F1 | 3397.52 | 3397.47 | Roll | 3397.09 | 0.49 | 3398.07 | 3399.02 | 3398.1 | 1.00 | 3399.10 | OK | OK | |
| 28 | A2 | 3400.14 | 3400.09 | Roll | 3399.71 | 0.48 | 3400.67 | 3401.64 | 3400.8 | 1.00 | 3401.80 | OK | OK | |
| 29 | A2 | 3399.36 | 3399.31 | Roll | 3398.93 | 0.48 | 3399.89 | 3400.86 | 3400.2 | 1.00 | 3401.20 | OK | OK | |
| 30 | A2 | 3398.90 | 3398.85 | Roll | 3398.47 | 0.48 | 3399.43 | 3400.40 | 3399.7 | 1.00 | 3400.70 | OK | OK | |
| 31 | A2 | 3400.23 | 3400.18 | Roll | 3399.80 | 0.48 | 3400.76 | 3401.73 | 3401.0 | 1.00 | 3402.00 | OK | OK | |
| 32 | A2 | 3401.68 | 3401.63 | Roll | 3401.25 | 0.48 | 3402.21 | 3403.18 | 3402.5 | 1.00 | 3403.50 | OK | OK | |
| 33 | A2 | 3402.30 | 3402.25 | Roll | 3401.87 | 0.48 | 3402.83 | 3403.80 | 3403.1 | 1.00 | 3404.10 | OK | OK | |
| 34 | A2 | 3402.30 | 3402.25 | Roll | 3401.87 | 0.48 | 3402.83 | 3403.80 | 3403.1 | 1.00 | 3404.10 | OK | OK | |
| 35 | A2 | 3402.07 | 3402.02 | Roll | 3401.64 | 0.48 | 3402.60 | 3403.57 | 3402.9 | 1.00 | 3403.90 | OK | OK | |
| 36 | A2 | 3401.18 | 3401.13 | Roll | 3400.75 | 0.48 | 3401.71 | 3402.68 | 3402.0 | 1.00 | 3403.00 | OK | OK | |
| 37 | A2 | 3400.25 | 3400.20 | Roll | 3399.82 | 0.48 | 3400.78 | 3401.75 | 3401.1 | 1.00 | 3402.10 | OK | OK | |
| 38 | A2 | 3399.32 | 3399.27 | Roll | 3398.89 | 0.48 | 3399.85 | 3400.82 | 3400.1 | 1.00 | 3401.10 | OK | OK | |
| 39 | A2 | 3398.39 | 3398.34 | Roll | 3397.96 | 0.48 | 3398.92 | 3399.89 | 3399.2 | 1.00 | 3400.20 | OK | OK | |
| 40 | A2 | 3397.46 | 3397.41 | Roll | 3397.03 | 0.48 | 3397.99 | 3398.96 | 3398.3 | 1.00 | 3399.30 | OK | OK | |
| 41 | A2 | 3396.52 | 3396.47 | Roll | 3396.09 | 0.48 | 3397.05 | 3398.02 | 3397.3 | 1.00 | 3398.30 | OK | OK | |
| 42 | A2 | 3395.59 | 3395.54 | Roll | 3395.16 | 0.48 | 3396.12 | 3397.09 | 3396.4 | 1.00 | 3397.40 | OK | OK | |
| 43 | A2 | 3394.66 | 3394.61 | Roll | 3394.23 | 0.48 | 3395.19 | 3396.16 | 3395.5 | 1.00 | 3396.50 | OK | OK | |
| 44 | A2 | 3394.03 | 3393.98 | Roll | 3393.60 | 0.48 | 3394.56 | 3395.53 | 3394.8 | 1.00 | 3395.80 | OK | OK | |
| 45 | A2 | 3393.27 | 3393.22 | Roll | 3392.84 | 0.48 | 3393.80 | 3394.77 | 3394.1 | 1.00 | 3395.10 | OK | OK | |
| 46 | A2 | 3392.51 | 3392.46 | Roll | 3392.08 | 0.48 | 3393.04 | 3394.01 | 3393.3 | 1.00 | 3394.30 | OK | OK | |

| UPD#1 TO SAVANNAH SUMMERLIN VILLAGE 21 - PARCEL E & F | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FINISH FLOOR ANALYSIS (OVERALL) - CITY OF LAS VEGAS JURISDICTION | | | | | | | | | | | | | | |
| INPUT INFORMATION | | | | | | | FINISHED FLOORS | | | | | | | NOTES |
| Lot Number | Hydraulic Section Utilized | Centerline Elevation (ft) | T/C[1] (ft) | Mod Roll, Roll, or L Curb? Type | F/L[2] (ft) | $D_{100}$ (ft) | Flowline FF min[3] (ft) | Centerline (of TC) FF min[4] (ft) | Pad (ft) | Section (ft) | FF Design (ft) | Flowline Check (ft) | Centerline Check (ft) | |
| 47 | A2 | 3391.62 | 3391.57 | Roll | 3391.19 | 0.48 | 3392.15 | 3393.12 | 3392.4 | 1.00 | 3393.40 | OK | OK | |
| 48 | A2 | 3390.71 | 3390.66 | Roll | 3390.28 | 0.48 | 3391.24 | 3392.21 | 3391.5 | 1.00 | 3392.50 | OK | OK | |
| 49 | A2 | 3389.96 | 3389.91 | Roll | 3389.53 | 0.48 | 3390.49 | 3391.46 | 3390.8 | 1.00 | 3391.80 | OK | OK | |
| 50 | A2 | 3389.22 | 3389.17 | Roll | 3388.79 | 0.48 | 3389.75 | 3390.72 | 3390.0 | 1.00 | 3391.00 | OK | OK | |
| 51 | A2 | 3383.48 | 3383.43 | Roll | 3383.05 | 0.48 | 3384.01 | 3384.98 | 3389.3 | 1.00 | 3390.30 | OK | OK | |
| 52 | A2 | 3387.74 | 3387.69 | Roll | 3387.31 | 0.48 | 3388.27 | 3389.24 | 3388.5 | 1.00 | 3389.50 | OK | OK | |
| 53 | A2 | 3387.00 | 3386.95 | Roll | 3386.57 | 0.48 | 3387.53 | 3388.50 | 3387.8 | 1.00 | 3388.80 | OK | OK | |
| 54 | A2 | 3386.26 | 3386.21 | Roll | 3385.83 | 0.48 | 3386.79 | 3387.76 | 3387.1 | 1.00 | 3388.10 | OK | OK | |
| 55 | A2 | 3385.52 | 3385.47 | Roll | 3385.09 | 0.48 | 3386.05 | 3387.02 | 3386.6 | 1.00 | 3387.60 | OK | OK | |
| 56 | F2 | 3388.63 | 3390.23 | Roll | 3389.85 | 0.50 | 3390.85 | 3390.13 | 3390.2 | 1.00 | 3391.20 | OK | OK | |
| 57 | F2 | 3386.48 | 3386.43 | Roll | 3386.05 | 0.50 | 3387.05 | 3387.98 | 3387.2 | 1.00 | 3388.20 | OK | OK | |
| 58 | F2 | 3382.70 | 3382.65 | Roll | 3382.27 | 0.50 | 3383.27 | 3384.20 | 3383.4 | 1.00 | 3384.40 | OK | OK | |
| 59 | F2 | 3378.29 | 3378.24 | Roll | 3377.86 | 0.50 | 3378.86 | 3379.79 | 3379.0 | 1.00 | 3380.00 | OK | OK | |
| 60 | F2 | 3373.71 | 3373.66 | Roll | 3373.28 | 0.50 | 3374.28 | 3375.21 | 3374.4 | 1.00 | 3375.40 | OK | OK | |
| 61 | F2 | 3370.23 | 3370.18 | Roll | 3369.80 | 0.50 | 3370.80 | 3371.73 | 3371.9 | 1.00 | 3372.90 | OK | OK | |
| 62 | F2 | 3367.31 | 3367.26 | Roll | 3366.88 | 0.50 | 3367.88 | 3368.81 | 3368.0 | 1.00 | 3369.00 | OK | OK | |
| 63 | A3 | 3365.17 | 3365.12 | Roll | 3364.74 | 0.61 | 3365.96 | 3366.67 | 3366.2 | 1.00 | 3367.20 | OK | OK | |
| 64 | A3 | 3364.73 | 3364.68 | Roll | 3364.30 | 0.61 | 3365.52 | 3366.23 | 3365.7 | 1.00 | 3366.70 | OK | OK | |
| 65 | A3 | 3364.42 | 3364.37 | Roll | 3363.99 | 0.61 | 3365.21 | 3365.92 | 3365.2 | 1.00 | 3366.20 | OK | OK | |
| 66 | A3 | 3363.62 | 3363.57 | Roll | 3363.19 | 0.61 | 3364.41 | 3365.12 | 3364.4 | 1.00 | 3365.40 | OK | OK | |
| 67 | A3 | 3362.82 | 3362.77 | Roll | 3362.39 | 0.61 | 3363.61 | 3364.32 | 3363.6 | 1.00 | 3364.60 | OK | OK | |
| 68 | A3 | 3362.37 | 3362.32 | Roll | 3361.94 | 0.61 | 3363.16 | 3363.87 | 3363.2 | 1.00 | 3364.20 | OK | OK | |
| 69 | A3 | 3361.94 | 3361.89 | Roll | 3361.51 | 0.61 | 3362.73 | 3363.44 | 3363.6 | 1.00 | 3364.60 | OK | OK | |
| 70 | A3 | 3361.51 | 3361.46 | Roll | 3361.08 | 0.61 | 3362.30 | 3363.01 | 3362.9 | 1.00 | 3363.90 | OK | OK | |
| 71 | A3 | 3361.15 | 3361.10 | Roll | 3360.72 | 0.61 | 3361.94 | 3362.65 | 3362.2 | 1.00 | 3363.20 | OK | OK | |
| 72 | A3 | 3360.79 | 3360.74 | Roll | 3360.36 | 0.61 | 3361.58 | 3362.29 | 3361.6 | 1.00 | 3362.60 | OK | OK | |
| 73 | A3 | 3360.36 | 3360.31 | Roll | 3359.93 | 0.61 | 3361.15 | 3361.86 | 3361.2 | 1.00 | 3362.20 | OK | OK | |
| 74 | F3 | 3363.32 | 3363.27 | Roll | 3362.89 | 0.39 | 3363.67 | 3364.82 | 3364.0 | 1.00 | 3365.00 | OK | OK | |
| 75 | F3 | 3366.32 | 3366.27 | Roll | 3365.89 | 0.39 | 3366.67 | 3367.82 | 3367.0 | 1.00 | 3368.00 | OK | OK | |
| 76 | F3 | 3369.20 | 3369.15 | Roll | 3368.77 | 0.39 | 3369.55 | 3370.70 | 3369.9 | 1.00 | 3370.90 | OK | OK | |
| 77 | A3 | 3360.98 | 3360.93 | Roll | 3360.55 | 0.57 | 3361.69 | 3362.48 | 3361.8 | 1.00 | 3362.80 | OK | OK | |
| 78 | A3 | 3361.54 | 3361.49 | Roll | 3361.11 | 0.57 | 3362.25 | 3363.04 | 3362.3 | 1.00 | 3363.30 | OK | OK | |
| 79 | A3 | 3362.20 | 3362.15 | Roll | 3361.77 | 0.57 | 3362.91 | 3363.70 | 3362.8 | 1.00 | 3363.80 | OK | OK | |
| 80 | B2 | 3371.09 | 3371.04 | Roll | 3370.66 | 0.41 | 3371.48 | 3372.59 | 3371.9 | 1.00 | 3372.90 | OK | OK | |
| 81 | B2 | 3373.11 | 3373.06 | Roll | 3372.68 | 0.41 | 3373.50 | 3374.61 | 3373.9 | 1.00 | 3374.90 | OK | OK | |
| 82 | B2 | 3375.53 | 3375.48 | Roll | 3375.10 | 0.41 | 3375.92 | 3377.03 | 3376.3 | 1.00 | 3377.30 | OK | OK | |
| 83 | B2 | 3377.92 | 3377.87 | Roll | 3377.49 | 0.41 | 3378.31 | 3379.42 | 3378.7 | 1.00 | 3379.70 | OK | OK | |
| 84 | B2 | 3379.34 | 3379.29 | Roll | 3378.91 | 0.41 | 3379.73 | 3380.84 | 3380.1 | 1.00 | 3381.10 | OK | OK | |
| 85 | B2 | 3379.49 | 3379.44 | Roll | 3379.06 | 0.41 | 3379.88 | 3380.99 | 3380.4 | 1.00 | 3381.40 | OK | OK | |
| 86 | B2 | 3379.28 | 3379.23 | Roll | 3378.85 | 0.41 | 3379.67 | 3380.78 | 3380.1 | 1.00 | 3381.10 | OK | OK | |
| 87 | B2 | 3378.24 | 3378.19 | Roll | 3377.81 | 0.41 | 3378.63 | 3379.74 | 3379.0 | 1.00 | 3380.00 | OK | OK | |
| 88 | B2 | 3378.21 | 3378.16 | Roll | 3377.78 | 0.41 | 3378.60 | 3379.71 | 3379.3 | 1.00 | 3380.30 | OK | OK | |
| 89 | B2 | 3378.75 | 3378.70 | Roll | 3378.32 | 0.41 | 3379.14 | 3380.25 | 3379.6 | 1.00 | 3380.60 | OK | OK | |
| 90 | B2 | 3379.34 | 3379.29 | Roll | 3378.91 | 0.41 | 3379.73 | 3380.84 | 3380.1 | 1.00 | 3381.10 | OK | OK | |
| 91 | B2 | 3379.49 | 3379.44 | Roll | 3379.06 | 0.41 | 3379.88 | 3380.99 | 3380.4 | 1.00 | 3381.40 | OK | OK | |
| 92 | B2 | 3379.31 | 3379.26 | Roll | 3378.88 | 0.41 | 3379.70 | 3380.81 | 3380.1 | 1.00 | 3381.10 | OK | OK | |

| UPD#1 TO SAVANNAH SUMMERLIN VILLAGE 21 - PARCEL E & F | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FINISH FLOOR ANALYSIS (OVERALL) - CITY OF LAS VEGAS JURISDICTION | | | | | | | | | | | | | | |
| INPUT INFORMATION | | | | | | | FINISHED FLOORS | | | | | | | NOTES |
| Lot Number | Hydraulic Section Utilized | Centerline Elevation (ft) | T/C[1] (ft) | Mod Roll, Roll, or L Curb? Type | F/L[2] (ft) | $D_{100}$ (ft) | Flowline FF min[3] (ft) | Centerline (of TC) FF min[4] (ft) | Pad (ft) | Section (ft) | FF Design (ft) | Flowline Check (ft) | Centerline Check (ft) | |
| 93 | B2 | 3377.97 | 3377.92 | Roll | 3377.54 | 0.41 | 3378.36 | 3379.47 | 3378.8 | 1.00 | 3379.80 | OK | OK | |
| 94 | B2 | 3375.72 | 3375.67 | Roll | 3375.29 | 0.41 | 3376.11 | 3377.22 | 3376.5 | 1.00 | 3377.50 | OK | OK | |
| 95 | B2 | 3373.45 | 3373.40 | Roll | 3373.02 | 0.41 | 3373.84 | 3374.95 | 3374.2 | 1.00 | 3375.20 | OK | OK | |
| 96 | A2 | 3384.99 | 3384.94 | Roll | 3384.56 | 0.48 | 3385.52 | 3386.49 | 3385.8 | 1.00 | 3386.80 | OK | OK | |
| 97 | A2 | 3386.03 | 3385.98 | Roll | 3385.60 | 0.48 | 3386.56 | 3387.53 | 3386.8 | 1.00 | 3387.80 | OK | OK | |
| 98 | A2 | 3386.81 | 3386.76 | Roll | 3386.38 | 0.48 | 3387.34 | 3388.31 | 3387.6 | 1.00 | 3388.60 | OK | OK | |
| 99 | A2 | 3387.58 | 3387.53 | Roll | 3387.15 | 0.48 | 3388.11 | 3389.08 | 3388.4 | 1.00 | 3389.40 | OK | OK | |
| 100 | A2 | 3388.36 | 3388.31 | Roll | 3387.93 | 0.48 | 3388.89 | 3389.86 | 3389.2 | 1.00 | 3390.20 | OK | OK | |
| 101 | A2 | 3389.14 | 3389.09 | Roll | 3388.71 | 0.48 | 3389.67 | 3390.64 | 3389.9 | 1.00 | 3390.90 | OK | OK | |
| 102 | A2 | 3389.92 | 3389.87 | Roll | 3389.49 | 0.48 | 3390.45 | 3391.42 | 3390.7 | 1.00 | 3391.70 | OK | OK | |
| 103 | A2 | 3390.59 | 3390.54 | Roll | 3390.16 | 0.48 | 3391.12 | 3392.09 | 3391.4 | 1.00 | 3392.40 | OK | OK | |
| 104 | F3 | 3390.92 | 3390.87 | Roll | 3390.49 | 0.39 | 3391.27 | 3392.42 | 3391.6 | 1.00 | 3392.60 | OK | OK | |
| 105 | F3 | 3389.20 | 3389.15 | Roll | 3388.77 | 0.39 | 3389.55 | 3390.70 | 3389.9 | 1.00 | 3390.90 | OK | OK | |
| 106 | F3 | 3386.45 | 3386.40 | Roll | 3386.02 | 0.39 | 3386.80 | 3387.95 | 3387.2 | 1.00 | 3388.20 | OK | OK | |
| 107 | F3 | 3383.52 | 3383.47 | Roll | 3383.09 | 0.39 | 3383.87 | 3385.02 | 3384.2 | 1.00 | 3385.20 | OK | OK | |
| 108 | F3 | 3380.59 | 3380.54 | Roll | 3380.16 | 0.39 | 3380.94 | 3382.09 | 3381.3 | 1.00 | 3382.30 | OK | OK | |
| 109 | F3 | 3377.66 | 3377.61 | Roll | 3377.23 | 0.39 | 3378.01 | 3379.16 | 3378.4 | 1.00 | 3379.40 | OK | OK | |
| 110 | F3 | 3374.72 | 3374.67 | Roll | 3374.29 | 0.39 | 3375.07 | 3376.22 | 3375.4 | 1.00 | 3376.40 | OK | OK | |
| 111 | F3 | 3371.72 | 3371.67 | Roll | 3371.29 | 0.39 | 3372.07 | 3373.22 | 3372.4 | 1.00 | 3373.40 | OK | OK | |
| 112 | F3 | 3368.72 | 3368.67 | Roll | 3368.29 | 0.39 | 3369.07 | 3370.22 | 3369.4 | 1.00 | 3370.40 | OK | OK | |
| 113 | A1 | 3361.86 | 3361.81 | Roll | 3361.43 | 0.59 | 3362.61 | 3363.36 | 3362.6 | 1.00 | 3363.60 | OK | OK | |
| 114 | A1 | 3364.86 | 3364.81 | Roll | 3364.43 | 0.59 | 3365.61 | 3366.36 | 3365.6 | 1.00 | 3366.60 | OK | OK | |
| 115 | A1 | 3367.86 | 3367.81 | Roll | 3367.43 | 0.59 | 3368.61 | 3369.36 | 3368.6 | 1.00 | 3369.60 | OK | OK | |
| 116 | A1 | 3370.95 | 3370.90 | Roll | 3370.52 | 0.59 | 3371.70 | 3372.45 | 3371.6 | 1.00 | 3372.60 | OK | OK | |
| 117 | A1 | 3374.17 | 3374.12 | Roll | 3373.74 | 0.59 | 3374.92 | 3375.67 | 3374.9 | 1.00 | 3375.90 | OK | OK | |
| 118 | A1 | 3377.47 | 3377.42 | Roll | 3377.04 | 0.59 | 3378.22 | 3378.97 | 3378.2 | 1.00 | 3379.20 | OK | OK | |
| 119 | A1 | 3380.73 | 3380.68 | Roll | 3380.30 | 0.59 | 3381.48 | 3382.23 | 3381.4 | 1.00 | 3382.40 | OK | OK | |
| 120 | A1 | 3383.99 | 3383.94 | Roll | 3383.56 | 0.59 | 3384.74 | 3385.49 | 3384.7 | 1.00 | 3385.70 | OK | OK | |
| 121 | A1 | 3387.25 | 3387.20 | Roll | 3386.82 | 0.59 | 3388.00 | 3388.75 | 3388.0 | 1.00 | 3389.00 | OK | OK | |
| 122 | A1 | 3390.37 | 3390.32 | Roll | 3389.94 | 0.59 | 3391.12 | 3391.87 | 3391.1 | 1.00 | 3392.10 | OK | OK | |
| 123 | A1 | 3392.85 | 3392.80 | Roll | 3392.42 | 0.59 | 3393.60 | 3394.35 | 3393.5 | 1.00 | 3394.50 | OK | OK | |
| 124 | A1 | 3393.73 | 3394.61 | Roll | 3394.23 | 0.59 | 3395.41 | 3395.23 | 3395.1 | 1.00 | 3396.10 | OK | OK | Centerline check @ center of the lot |
| 125 | A2 | 3396.89 | 3396.84 | Roll | 3396.46 | 0.48 | 3397.42 | 3398.39 | 3397.7 | 1.00 | 3398.70 | OK | OK | |
| 126 | A2 | 3397.82 | 3397.77 | Roll | 3397.39 | 0.48 | 3398.35 | 3399.32 | 3398.6 | 1.00 | 3399.60 | OK | OK | |
| 127 | A2 | 3398.75 | 3398.70 | Roll | 3398.32 | 0.48 | 3399.28 | 3400.25 | 3399.6 | 1.00 | 3400.60 | OK | OK | |
| 128 | A2 | 3399.68 | 3399.63 | Roll | 3399.25 | 0.48 | 3400.21 | 3401.18 | 3400.5 | 1.00 | 3401.50 | OK | OK | |
| 129 | A2 | 3400.61 | 3400.56 | Roll | 3400.18 | 0.48 | 3401.14 | 3402.11 | 3401.4 | 1.00 | 3402.40 | OK | OK | |
| 130 | A2 | 3401.55 | 3401.50 | Roll | 3401.12 | 0.48 | 3402.08 | 3403.05 | 3402.3 | 1.00 | 3403.30 | OK | OK | |
| 131 | A2 | 3402.26 | 3402.21 | Roll | 3401.83 | 0.48 | 3402.79 | 3403.76 | 3403.1 | 1.00 | 3404.10 | OK | OK | |
| 132 | F1 | 3395.50 | 3396.98 | Roll | 3396.60 | 0.49 | 3397.58 | 3397.00 | 3396.9 | 1.00 | 3397.90 | OK | OK | Centerline check @ center of the lot |
| 133 | F1 | 3394.17 | 3394.12 | Roll | 3393.74 | 0.49 | 3394.72 | 3395.67 | 3394.9 | 1.00 | 3395.90 | OK | OK | |
| 134 | F1 | 3391.39 | 3391.34 | Roll | 3390.96 | 0.49 | 3391.94 | 3392.89 | 3392.1 | 1.00 | 3393.10 | OK | OK | |
| 135 | F1 | 3388.09 | 3388.04 | Roll | 3387.66 | 0.49 | 3388.64 | 3389.59 | 3388.8 | 1.00 | 3389.80 | OK | OK | |
| 136 | F1 | 3385.09 | 3385.04 | Roll | 3384.66 | 0.49 | 3385.64 | 3386.59 | 3385.8 | 1.00 | 3386.80 | OK | OK | |
| 137 | B3 | 3386.03 | 3385.98 | Roll | 3385.60 | 0.34 | 3386.28 | 3387.53 | 3386.7 | 1.00 | 3387.70 | OK | OK | |
| 138 | B3 | 3387.56 | 3387.51 | Roll | 3387.13 | 0.34 | 3387.81 | 3389.06 | 3388.3 | 1.00 | 3389.30 | OK | OK | |

## UPD#1 TO SAVANNAH SUMMERLIN VILLAGE 21 - PARCEL E & F

## FINISH FLOOR ANALYSIS (OVERALL) - CITY OF LAS VEGAS JURISDICTION

| INPUT INFORMATION | | | | | | | FINISHED FLOORS | | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lot Number | Hydraulic Section Utilized | Centerline Elevation (ft) | T/C[1] (ft) | Mod Roll, Roll, or L Curb? Type | F/L[2] (ft) | $D_{100}$ (ft) | Flowline FF min[3] (ft) | Centerline (of TC) FF min[4] (ft) | Pad (ft) | Section (ft) | FF Design (ft) | Flowline Check (ft) | Centerline Check (ft) | |
| 139 | B3 | 3388.28 | 3388.23 | Roll | 3387.85 | 0.34 | 3388.53 | 3389.78 | 3389.0 | 1.00 | 3390.00 | OK | OK | |
| 140 | B3 | 3388.28 | 3388.23 | Roll | 3387.85 | 0.34 | 3388.53 | 3389.78 | 3389.3 | 1.00 | 3390.30 | OK | OK | |
| 141 | B3 | 3388.18 | 3388.13 | Roll | 3387.75 | 0.34 | 3388.43 | 3389.68 | 3389.0 | 1.00 | 3390.00 | OK | OK | |
| 142 | B3 | 3387.28 | 3387.23 | Roll | 3386.85 | 0.34 | 3387.53 | 3388.78 | 3388.1 | 1.00 | 3389.10 | OK | OK | |
| 143 | B3 | 3386.70 | 3386.65 | Roll | 3386.27 | 0.34 | 3386.95 | 3388.20 | 3387.5 | 1.00 | 3388.50 | OK | OK | |
| 144 | B3 | 3387.95 | 3387.90 | Roll | 3387.52 | 0.34 | 3388.20 | 3389.45 | 3388.7 | 1.00 | 3389.70 | OK | OK | |
| 145 | B3 | 3388.29 | 3388.24 | Roll | 3387.86 | 0.34 | 3388.54 | 3389.79 | 3389.3 | 1.00 | 3390.30 | OK | OK | |
| 146 | B3 | 3388.29 | 3388.24 | Roll | 3387.86 | 0.34 | 3388.54 | 3389.79 | 3389.0 | 1.00 | 3390.00 | OK | OK | |
| 147 | B3 | 3387.28 | 3387.23 | Roll | 3386.85 | 0.34 | 3387.53 | 3388.78 | 3388.0 | 1.00 | 3389.00 | OK | OK | |
| 148 | B3 | 3385.03 | 3384.98 | Roll | 3384.60 | 0.34 | 3385.28 | 3386.53 | 3385.7 | 1.00 | 3386.70 | OK | OK | |
| 149 | B3 | 3382.53 | 3382.48 | Roll | 3382.10 | 0.34 | 3382.78 | 3384.03 | 3383.2 | 1.00 | 3384.20 | OK | OK | |
| 150 | B1 | 3365.87 | 3365.82 | Roll | 3365.44 | 0.35 | 3366.14 | 3367.37 | 3366.7 | 1.00 | 3367.70 | OK | OK | |
| 151 | B1 | 3367.65 | 3367.60 | Roll | 3367.22 | 0.35 | 3367.92 | 3369.15 | 3368.4 | 1.00 | 3369.40 | OK | OK | |
| 152 | B1 | 3369.68 | 3369.63 | Roll | 3369.25 | 0.35 | 3369.95 | 3371.18 | 3370.4 | 1.00 | 3371.40 | OK | OK | |
| 153 | B1 | 3370.93 | 3370.88 | Roll | 3370.50 | 0.35 | 3371.20 | 3372.43 | 3371.6 | 1.00 | 3372.60 | OK | OK | |
| 154 | B1 | 3371.22 | 3371.17 | Roll | 3370.79 | 0.35 | 3371.49 | 3372.72 | 3372.2 | 1.00 | 3373.20 | OK | OK | |
| 155 | B1 | 3371.22 | 3371.17 | Roll | 3370.79 | 0.35 | 3371.49 | 3372.72 | 3372.2 | 1.00 | 3373.20 | OK | OK | |
| 156 | B1 | 3370.30 | 3370.25 | Roll | 3369.87 | 0.35 | 3370.57 | 3371.80 | 3371.3 | 1.00 | 3372.30 | OK | OK | |
| 157 | B1 | 3369.86 | 3369.81 | Roll | 3369.43 | 0.35 | 3370.13 | 3371.36 | 3370.7 | 1.00 | 3371.70 | OK | OK | |
| 158 | B1 | 3370.91 | 3370.86 | Roll | 3370.48 | 0.35 | 3371.18 | 3372.41 | 3371.7 | 1.00 | 3372.70 | OK | OK | |
| 159 | B1 | 3371.25 | 3371.20 | Roll | 3370.82 | 0.35 | 3371.52 | 3372.75 | 3372.0 | 1.00 | 3373.00 | OK | OK | |
| 160 | B1 | 3371.25 | 3371.2 | Roll | 3370.82 | 0.35 | 3371.52 | 3372.75 | 3372.0 | 1.00 | 3373.00 | OK | OK | |
| 161 | B1 | 3370.61 | 3370.56 | Roll | 3370.18 | 0.35 | 3370.88 | 3372.11 | 3371.3 | 1.00 | 3372.30 | OK | OK | |
| 162 | B1 | 3368.72 | 3368.67 | Roll | 3368.29 | 0.35 | 3368.99 | 3370.22 | 3369.4 | 1.00 | 3370.40 | OK | OK | |
| 163 | B1 | 3366.33 | 3366.28 | Roll | 3365.90 | 0.35 | 3366.60 | 3367.83 | 3367.0 | 1.00 | 3368.00 | OK | OK | |
| 164 | A1 | 3354.43 | 3354.38 | Roll | 3354.00 | 0.59 | 3355.18 | 3355.93 | 3355.5 | 1.00 | 3356.50 | OK | OK | |
| 165 | A1 | 3354.84 | 3354.79 | Roll | 3354.41 | 0.59 | 3355.59 | 3356.34 | 3355.9 | 1.00 | 3356.90 | OK | OK | |
| 166 | A1 | 3355.26 | 3355.21 | Roll | 3354.83 | 0.59 | 3356.01 | 3356.76 | 3356.3 | 1.00 | 3357.30 | OK | OK | |
| 167 | A1 | 3355.58 | 3355.53 | Roll | 3355.15 | 0.59 | 3356.33 | 3357.08 | 3356.6 | 1.00 | 3357.60 | OK | OK | |
| 168 | A1 | 3355.88 | 3355.83 | Roll | 3355.45 | 0.59 | 3356.63 | 3357.38 | 3356.9 | 1.00 | 3357.90 | OK | OK | |
| 169 | A1 | 3356.18 | 3356.13 | Roll | 3355.75 | 0.59 | 3356.93 | 3357.68 | 3357.2 | 1.00 | 3358.20 | OK | OK | |
| 170 | A1 | 3356.42 | 3356.37 | Roll | 3355.99 | 0.59 | 3357.17 | 3357.92 | 3357.7 | 1.00 | 3358.70 | OK | OK | |

**Where:**

1: Top of Curb at High Side of Lot

2: Flowline = TC - 0.38 feet (for Mod Roll); or TC-0.5 (for L-Curb)

3: Minimum Allowable Finished Floor Elevation above flowline @ high side of lot = $(2 \times D_{100}) + F/L$

4: Minimum Allowable Finished Floor Elevation above centerline at the middle of the lot (using CL at high side TC to be conservative unless otherwise noted) = Centerline elevation (or Center TC) + 1.5 feet

# HYDRAULIC CALCULATIONS

Drop Inlet Calculations



| | | |
|---|---|---|
| Project Name: | Savannah Village 21 Parcel E & F (Upd#1) | |
| By: | Roshan Poudel | |
| Date: | 1/24/2020 | |
| **Notes:** | | |
| Facility ID: | **SDDI#1 Optimized - in Sarabeth St.** | |
| Drainage Condition | **Proposed** | |
| Source of Flow | **Q100 = DON1B** | |
| Design Flow (cfs) | **19.5 cfs (Flow in Western half of Sarabeth)** | |
| Inlet Type: | **Type CM2 (Continuous Grade)** | |
| Inlet Length: | 12.5 ft | |
| Number of Grates: | 4 | |

| | **Input:** | **Variable:** | **Input:** | |
|---|---|---|---|---|
| | Street Flow (cfs) | Q | 19.5 | |
| | Longitudinal Slope (ft/ft) | $S_o$ | 0.0050 | |
| | Manning's Coefficient | n | 0.016 | |
| | Street Flow Velocity (fps) | V | 3.31 | |
| | Street Flow Depth (ft) | D | 0.61 | |
| | Street Cross Slope (ft/ft) | $S_x$ | 0.02 | |
| | Grate Width (ft) | W | 1.50 | |
| | Grate Depression (in) | $D_g$ | 0.17 | 2 inches |
| | Length of Grate (ft) | $L_g$ | 10.00 | |
| | Length of Curb Opening (ft) | $L_c$ | 12.50 | |
| | Clogging Factor - Grate (%) | $CF_g$ | 50.00 | |
| | Clogging Factor - Curb (%) | $CF_c$ | 50.00 | |
| | Effective Grate Length (ft) | $L_{ge}$ | 5.00 | |
| | Effective Curb Opening Length (ft) | $L_{ce}$ | 6.25 | |

| | **Output (Grate):** | **Equation:** | **Output (Grate):** | |
|---|---|---|---|---|
| 1 | $R_f$ - Frontal Flow Factor | 1-0.09*(V-$V_x$) if V>$V_x$; else Frontal Flow Factor = 1 | 1.00 | |
| 2 | $V_o$ - Splash Over Velocity (fps) | $V_x$=p+q*$L_{ge}$-r*$L_{ge}$^2+sy*$L_{ge}$^3 ; where | 10.55 | |
| | | p=0.30,q=4.85,r=1.31,sy=0.15 (for Vane Grate) | | |
| 1 | E - Grate Flow Ratio | Frontal Flow/Side Flow | 0.17 | |
| 2 | $Q_w$ - Frontal Flow (cfs) | $Q_w = Q[1-(1-(W/T))^{2.67}]$ | 3.33 | |
| 1 | $Q_s$ - Side Flow (cfs) | $Q_s = Q-Q_w$ | 16.17 | |
| | T - Side Flow Spread (ft) | $(D-D_g)/S_x$ | 22.17 | |
| 1 | $R_s$ - Side Flow Factor | $1/(1+(0.15*V^{1.8})/(S_x*L_{ge}^{2.3})$ | 0.39 | |
| 1 | $Q_{gi}$ - Intercepted Flow (cfs) | $(R_f*E+R_s*(1-E))*Q$ | 9.56 | |

| | **Output (Curb):** | **Equation:** | **Output (Curb):** | |
|---|---|---|---|---|
| 1 | $S_e$ - Equivalent Cross Slope (ft/ft) | $S_x+S_g*E$ | 0.039 | |
| | $Q_{sx}$ - Remaining Flow After Grate Interception (cfs) | $Q-Q_{gi}$ | 9.944 | |
| | $S_g$ - Gutter Cross Slope (ft/ft) | $D_g/W$ | 0.11 | |
| 1 | $L_t$ - Effective Interception Length (ft) | $0.60*Q_{sx}^{0.42}*S_o^{0.30}*(1/(n*S_e))^{0.6}$ | 26.91 | |
| 1 | $Q_{ci}$ - Intercepted Flow (cfs) | $(1-(1-L_{ce}/L_t)^{1.8})*Q_{sx}$ | 3.76 | |
| | | or $Q_{sx}$ if $L_t$ is less than $L_{ce}$ | | |

| **Output (Total):** | **Equation:** | **Output (Total):** |
|---|---|---|
| Total Intercepted Flow (cfs) | Intercepted (Grate) + Intercepted (Curb) | 13.32 |
| Bypass Flow (cfs) | Street Flow - Total Intercepted Flow | 6.18 |

1 Formula referenced from the CCRFCD Manual
2 Formula referenced from FHWA Urban Drainage Design Manual (HEC-22)

| | | |
|---|---|---|
| Project Name: | Savannah Village 21 Parcel E & F (Upd#1) | |
| By: | Roshan Poudel | |
| Date: | 1/24/2020 | |
| **Notes:** | | |
| Facility ID: | **SDDI#2 Optimized - in Sarabeth St.** | |
| Drainage Condition | **Proposed** | |
| Source of Flow | **Q100 = DON1B** | |
| Design Flow (cfs) | **19.5 cfs (Flow in Eastern half of Sarabeth)** | |
| Inlet Type: | **Type CM2 (Continuous Grade)** | |
| Inlet Length: | 10 ft | |
| Number of Grates: | 3 | |

| | **Input:** | **Variable:** | **Input:** | |
|---|---|---|---|---|
| | Street Flow (cfs) | Q | 19.5 | |
| | Longitudinal Slope (ft/ft) | $S_o$ | 0.0080 | |
| | Manning's Coefficient | n | 0.016 | |
| | Street Flow Velocity (fps) | V | 3.81 | |
| | Street Flow Depth (ft) | D | 0.57 | |
| | Street Cross Slope (ft/ft) | $S_x$ | 0.02 | |
| | Grate Width (ft) | W | 1.50 | |
| | Grate Depression (in) | $D_g$ | 0.17 | 2 inches |
| | Length of Grate (ft) | $L_g$ | 7.50 | |
| | Length of Curb Opening (ft) | $L_c$ | 10.00 | |
| | Clogging Factor - Grate (%) | $CF_g$ | 50.00 | |
| | Clogging Factor - Curb (%) | $CF_c$ | 50.00 | |
| | Effective Grate Length (ft) | $L_{ge}$ | 3.75 | |
| | Effective Curb Opening Length (ft) | $L_{ce}$ | 5.00 | |

| | **Output (Grate):** | **Equation:** | **Output (Grate):** | |
|---|---|---|---|---|
| 1 | $R_f$ - Frontal Flow Factor | 1-0.09*(V-$V_x$) if V>$V_x$; else Frontal Flow Factor = 1 | 1.00 | |
| 2 | $V_o$ - Splash Over Velocity (fps) | $V_x$=p+q*$L_{ge}$-r*$L_{ge}$^2+sy*$L_{ge}$^3 ; where | 7.98 | |
| | | p=0.30,q=4.85,r=1.31,sy=0.15 (for Vane Grate) | | |
| 1 | E - Grate Flow Ratio | Frontal Flow/Side Flow | 0.19 | |
| 2 | $Q_w$ - Frontal Flow (cfs) | $Q_w = Q[1-(1-(W/T))^{2.67}]$ | 3.64 | |
| 1 | $Q_s$ - Side Flow (cfs) | $Q_s = Q-Q_w$ | 15.86 | |
| | T - Side Flow Spread (ft) | $(D-D_g)/S_x$ | 20.17 | |
| 1 | $R_s$ - Side Flow Factor | $1/(1+(0.15*V^{1.8})/(S_x*L_{ge}^{2.3})$ | 0.20 | |
| 1 | $Q_{gi}$ - Intercepted Flow (cfs) | $(R_f*E+R_s*(1-E))*Q$ | 6.82 | |

| | **Output (Curb):** | **Equation:** | **Output (Curb):** | |
|---|---|---|---|---|
| 1 | $S_e$ - Equivalent Cross Slope (ft/ft) | $S_x+S_g*E$ | 0.041 | |
| | $Q_{sx}$ - Remaining Flow After Grate Interception (cfs) | $Q-Q_{gi}$ | 12.682 | |
| | $S_g$ - Gutter Cross Slope (ft/ft) | $D_g/W$ | 0.11 | |
| 1 | $L_t$ - Effective Interception Length (ft) | $0.60*Q_{sx}^{0.42}*S_o^{0.30}*(1/(n*S_e))^{0.6}$ | 33.42 | |
| 1 | $Q_{ci}$ - Intercepted Flow (cfs) | $(1-(1-L_{ce}/L_t)^{1.8})*Q_{sx}$ | 3.21 | |
| | | or $Q_{sx}$ if $L_t$ is less than $L_{ce}$ | | |

| **Output (Total):** | **Equation:** | **Output (Total):** |
|---|---|---|
| Total Intercepted Flow (cfs) | Intercepted (Grate) + Intercepted (Curb) | 10.03 |
| Bypass Flow (cfs) | Street Flow - Total Intercepted Flow | 9.47 |

1 Formula referenced from the CCRFCD Manual

2 Formula referenced from FHWA Urban Drainage Design Manual (HEC-22)

| | | |
|---|---|---|
| Project Name: | Savannah Village 21 Parcel E & F (Upd#1) | |
| By: | Roshan Poudel | |
| Date: | 1/24/2020 | |
| **Notes:** | | |
| Facility ID: | **SDDI#3 Optimized - in Sarabeth St.** | |
| Drainage Condition | **Proposed** | |
| Source of Flow | **DI1 bypass + DI6 bypass** | |
| Design Flow (cfs) | **10.39 cfs** | |
| Inlet Type: | **Type CM2 (Sump)** | |
| Inlet Length: | 7.5 ft | |
| Number of Grates: | 2 | |

| **Input:** | **Variable:** | **Input:** |
|---|---|---|
| Depth at Inlet (ft) | D | 0.55 |
| Grate Width (ft) | W | 1.50 |
| Length of Grate (ft) | $L_g$ | 5.00 |
| Length of Curb Opening (ft) | $L_c$ | 7.50 |
| Height of Curb Opening (ft) | H | 0.50 |
| Weir Coef. - Curb Opening | $W_c$ | 2.30 |
| Weir Coef. - Grate | $W_g$ | 3.00 |
| Orifice Coef. | $O_c$ | 0.67 |
| Grate Coef. | $G_c$ | 0.60 |
| Clogging Factor - Grate (%) | $CF_g$ | 50.00 |
| Clogging Factor - Curb (%) | $CF_c$ | 50.00 |

| **Output (Grate):** | **Equation:** | **Output (Grate):** |
|---|---|---|
| Effective Weir Length (ft) | $2*W+L_g$ | 8.00 |
| Adjusted Effective Weir Length(ft) | $2*(1-CF_g/100)*W+(1-CF_g/100)*L_g$ | 4.00 |
| Grate Open Area (sf) | $W*L_g$ | 7.50 |
| Adjusted Grate Open Area (sf) | Grate Open Area * $G_c$ * $(1-CF_g/100)$ | 2.25 |
| Controlling Flow Type (weir/orifice) | If D<1.792*(Adj. Grate Open Area/Adj. Eff. Length) use weir, else orifice | weir |
| Intercepted Flow (cfs) | weir: $W_g$*(Adj. Eff. Weir Length) * $D^{1.5}$ | 4.89 |
| | orifice: $O_c$*(Adj. Grate Open Area)*$(64.4*D)^{0.5}$ | |

| **Output (Curb):** | **Equation:** | **Output (Curb):** |
|---|---|---|
| Effective Weir Length (ft) | L+1.8*W | 10.20 |
| Adjusted Effective Weir Length (ft) | $L+1.8*(1-CF_c/100)*W$ | 8.85 |
| Curb Open Area (sf) | L*H | 3.75 |
| Adjusted Curb Open Area (sf) | Curb Open Area*$(1-CF_c/100)$ | 1.88 |
| Controlling Flow Type (weir/orifice) | If D<H, weir, else orifice | orifice |
| Intercepted Flow (cfs) | weir: $W_c$*(Adj. Eff. Weir Length)*$D^{1.5}$ | |
| | orifice: $O_c$*(Adj. Curb Open Area)*$(64.4*(D-H/2))^{0.5}$ | 5.52 |

| **Output (Total):** | **Equation:** | **Output (Total):** |
|---|---|---|
| Capacity Intercepted Flow (cfs) | Intercepted (Grate) + Intercepted (Curb) | 10.42 |
| | | > 10.39 cfs. So, ok. |

| | | |
|---|---|---|
| Project Name: | Savannah Village 21 Parcel E & F (Upd#1) | |
| By: | Roshan Poudel | |
| Date: | 1/24/2020 | |
| **Notes:** | | |
| Facility ID: | **SDDI#4 Optimized - in Sarabeth St.** | |
| Drainage Condition | **Proposed** | |
| Source of Flow | **DI2 bypass + DI5 bypass** | |
| Design Flow (cfs) | **14.7 cfs** | |
| Inlet Type: | **Type CM2 (Sump)** | |
| Inlet Length: | 10 ft | |
| Number of Grates: | 3 | |

| **Input:** | **Variable:** | **Input:** |
|---|---|---|
| Depth at Inlet (ft) | D | 0.58 |
| Grate Width (ft) | W | 1.50 |
| Length of Grate (ft) | $L_g$ | 7.50 |
| Length of Curb Opening (ft) | $L_c$ | 10.00 |
| Height of Curb Opening (ft) | H | 0.50 |
| Weir Coef. - Curb Opening | $W_c$ | 2.30 |
| Weir Coef. - Grate | $W_g$ | 3.00 |
| Orifice Coef. | $O_c$ | 0.67 |
| Grate Coef. | $G_c$ | 0.60 |
| Clogging Factor - Grate (%) | $CF_g$ | 50.00 |
| Clogging Factor - Curb (%) | $CF_c$ | 50.00 |

| **Output (Grate):** | **Equation:** | **Output (Grate):** |
|---|---|---|
| Effective Weir Length (ft) | $2*W+L_g$ | 10.50 |
| Adjusted Effective Weir Length(ft) | $2*(1-CF_g/100)*W+(1-CF_g/100)*L_g$ | 5.25 |
| Grate Open Area (sf) | $W*L_g$ | 11.25 |
| Adjusted Grate Open Area (sf) | Grate Open Area * $G_c$ * $(1-CF_g/100)$ | 3.38 |
| Controlling Flow Type (weir/orifice) | If D<1.792*(Adj. Grate Open Area/Adj. Eff. Length) use weir, else orifice | weir |
| Intercepted Flow (cfs) | weir: $W_g$*(Adj. Eff. Weir Length) * $D^{1.5}$ | 6.96 |
| | orifice: $O_c$*(Adj. Grate Open Area)*$(64.4*D)^{0.5}$ | |

| **Output (Curb):** | **Equation:** | **Output (Curb):** |
|---|---|---|
| Effective Weir Length (ft) | L+1.8*W | 12.70 |
| Adjusted Effective Weir Length (ft) | $L+1.8*(1-CF_c/100)*W$ | 11.35 |
| Curb Open Area (sf) | L*H | 5.00 |
| Adjusted Curb Open Area (sf) | Curb Open Area*$(1-CF_c/100)$ | 2.50 |
| Controlling Flow Type (weir/orifice) | If D<H, weir, else orifice | orifice |
| Intercepted Flow (cfs) | weir: $W_c$*(Adj. Eff. Weir Length)*$D^{1.5}$ | |
| | orifice: $O_c$*(Adj. Curb Open Area)*$(64.4*(D-H/2))^{0.5}$ | 7.72 |

| **Output (Total):** | **Equation:** | **Output (Total):** |
|---|---|---|
| Capacity Intercepted Flow (cfs) | Intercepted (Grate) + Intercepted (Curb) | 14.7 |

| | | |
|---|---|---|
| Project Name: | Savannah Village 21 Parcel E & F (Upd#1) | |
| By: | Roshan Poudel | |
| Date: | 1/24/2020 | |
| **Notes:** | | |
| Facility ID: | **SDDI#5 Optimized - in Pippa Ave** | |
| Drainage Condition | **Proposed** | |
| Source of Flow | **Q100 = DON1A** | |
| Design Flow (cfs) | **17 cfs (Flow in Southern half of Pippa)** | |
| Inlet Type: | **Type CM2 (Continuous Grade)** | |
| Inlet Length: | 12.5 ft | |
| Number of Grates: | 4 | |

| | **Input:** | **Variable:** | **Input:** | |
|---|---|---|---|---|
| | Street Flow (cfs) | Q | 17.0 | |
| | Longitudinal Slope (ft/ft) | $S_o$ | 0.0063 | |
| | Manning's Coefficient | n | 0.016 | |
| | Street Flow Velocity (fps) | V | 3.35 | |
| | Street Flow Depth (ft) | D | 0.57 | |
| | Street Cross Slope (ft/ft) | $S_x$ | 0.02 | |
| | Grate Width (ft) | W | 1.50 | |
| | Grate Depression (in) | $D_g$ | 0.17 | 2 inches |
| | Length of Grate (ft) | $L_g$ | 10.00 | |
| | Length of Curb Opening (ft) | $L_c$ | 12.50 | |
| | Clogging Factor - Grate (%) | $CF_g$ | 50.00 | |
| | Clogging Factor - Curb (%) | $CF_c$ | 50.00 | |
| | Effective Grate Length (ft) | $L_{ge}$ | 5.00 | |
| | Effective Curb Opening Length (ft) | $L_{ce}$ | 6.25 | |

| | **Output (Grate):** | **Equation:** | **Output (Grate):** | |
|---|---|---|---|---|
| 1 | $R_f$ - Frontal Flow Factor | 1-0.09*(V-$V_x$) if V>$V_x$; else Frontal Flow Factor = 1 | 1.00 | |
| 2 | $V_o$ - Splash Over Velocity (fps) | $V_x$=p+q*$L_{ge}$-r*$L_{ge}$^2+sy*$L_{ge}$^3 ; where | 10.55 | |
| | | p=0.30,q=4.85,r=1.31,sy=0.15 (for Vane Grate) | | |
| 1 | E - Grate Flow Ratio | Frontal Flow/Side Flow | 0.19 | |
| 2 | $Q_w$ - Frontal Flow (cfs) | $Q_w = Q[1-(1-(W/T))^{2.67}]$ | 3.17 | |
| 1 | $Q_s$ - Side Flow (cfs) | $Q_s = Q-Q_w$ | 13.83 | |
| | T - Side Flow Spread (ft) | $(D-D_g)/S_x$ | 20.17 | |
| 1 | $R_s$ - Side Flow Factor | $1/(1+(0.15*V^{1.8})/(S_x*L_{ge}^{2.3})$ | 0.38 | |
| 1 | $Q_{gi}$ - Intercepted Flow (cfs) | $(R_f*E+R_s*(1-E))*Q$ | 8.43 | |

| | **Output (Curb):** | **Equation:** | **Output (Curb):** | |
|---|---|---|---|---|
| 1 | $S_e$ - Equivalent Cross Slope (ft/ft) | $S_x+S_g*E$ | 0.041 | |
| | $Q_{sx}$ - Remaining Flow After Grate Interception (cfs) | $Q-Q_{gi}$ | 8.574 | |
| | $S_g$ - Gutter Cross Slope (ft/ft) | $D_g/W$ | 0.11 | |
| 1 | $L_t$ - Effective Interception Length (ft) | $0.60*Q_{sx}^{0.42}*S_o^{0.30}*(1/(n*S_e))^{0.6}$ | 26.40 | |
| 1 | $Q_{ci}$ - Intercepted Flow (cfs) | $(1-(1-L_{ce}/L_t)^{1.8})*Q_{sx}$ | 3.30 | |
| | | or $Q_{sx}$ if $L_t$ is less than $L_{ce}$ | | |

| **Output (Total):** | **Equation:** | **Output (Total):** |
|---|---|---|
| Total Intercepted Flow (cfs) | Intercepted (Grate) + Intercepted (Curb) | 11.73 |
| Bypass Flow (cfs) | Street Flow - Total Intercepted Flow | 5.27 |

1 Formula referenced from the CCRFCD Manual
2 Formula referenced from FHWA Urban Drainage Design Manual (HEC-22)

| | | |
|---|---|---|
| Project Name: | Savannah Village 21 Parcel E & F (Upd#1) | |
| By: | Roshan Poudel | |
| Date: | 1/24/2020 | |
| **Notes:** | | |
| Facility ID: | **SDDI#6 Optimized - in Pippa Ave** | |
| Drainage Condition | **Proposed** | |
| Source of Flow | **Q100 = DON1A** | |
| Design Flow (cfs) | **17 cfs (Flow in Northern half of Pippa)** | |
| Inlet Type: | **Type CM2 (Continuous Grade)** | |
| Inlet Length: | 17.5 ft | |
| Number of Grates: | 6 | |

| | **Input:** | **Variable:** | **Input:** | |
|---|---|---|---|---|
| | Street Flow (cfs) | Q | 17.0 | |
| | Longitudinal Slope (ft/ft) | $S_o$ | 0.0212 | |
| | Manning's Coefficient | n | 0.016 | |
| | Street Flow Velocity (fps) | V | 4.86 | |
| | Street Flow Depth (ft) | D | 0.49 | |
| | Street Cross Slope (ft/ft) | $S_x$ | 0.02 | |
| | Grate Width (ft) | W | 1.50 | |
| | Grate Depression (in) | $D_g$ | 0.17 | 2 inches |
| | Length of Grate (ft) | $L_g$ | 15.00 | |
| | Length of Curb Opening (ft) | $L_c$ | 17.50 | |
| | Clogging Factor - Grate (%) | $CF_g$ | 50.00 | |
| | Clogging Factor - Curb (%) | $CF_c$ | 50.00 | |
| | Effective Grate Length (ft) | $L_{ge}$ | 7.50 | |
| | Effective Curb Opening Length (ft) | $L_{ce}$ | 8.75 | |

| | **Output (Grate):** | **Equation:** | **Output (Grate):** | |
|---|---|---|---|---|
| 1 | $R_f$ - Frontal Flow Factor | 1-0.09*(V-$V_x$) if V>$V_x$; else Frontal Flow Factor = 1 | 1.00 | |
| 2 | $V_o$ - Splash Over Velocity (fps) | $V_x$=p+q*$L_{ge}$-r*$L_{ge}$^2+sy*$L_{ge}$^3 ; where | 26.27 | |
| | | p=0.30,q=4.85,r=1.31,sy=0.15 (for Vane Grate) | | |
| 1 | E - Grate Flow Ratio | Frontal Flow/Side Flow | 0.23 | |
| 2 | $Q_w$ - Frontal Flow (cfs) | $Q_w = Q[1-(1-(W/T))^{2.67}]$ | 3.89 | |
| 1 | $Q_s$ - Side Flow (cfs) | $Q_s = Q-Q_w$ | 13.11 | |
| | T - Side Flow Spread (ft) | $(D-D_g)/S_x$ | 16.17 | |
| 1 | $R_s$ - Side Flow Factor | $1/(1+(0.15*V^{1.8})/(S_x*L_{ge}^{2.3})$ | 0.44 | |
| 1 | $Q_{gi}$ - Intercepted Flow (cfs) | $(R_f*E+R_s*(1-E))*Q$ | 9.71 | |

| | **Output (Curb):** | **Equation:** | **Output (Curb):** | |
|---|---|---|---|---|
| 1 | $S_e$ - Equivalent Cross Slope (ft/ft) | $S_x+S_g*E$ | 0.045 | |
| | $Q_{sx}$ - Remaining Flow After Grate Interception (cfs) | $Q-Q_{gi}$ | 7.293 | |
| | $S_g$ - Gutter Cross Slope (ft/ft) | $D_g/W$ | 0.11 | |
| 1 | $L_t$ - Effective Interception Length (ft) | $0.60*Q_{sx}^{0.42}*S_o^{0.30}*(1/(n*S_e))^{0.6}$ | 33.23 | |
| 1 | $Q_{ci}$ - Intercepted Flow (cfs) | $(1-(1-L_{ce}/L_t)^{1.8})*Q_{sx}$ | 3.09 | |
| | | or $Q_{sx}$ if $L_t$ is less than $L_{ce}$ | | |

| **Output (Total):** | **Equation:** | **Output (Total):** |
|---|---|---|
| Total Intercepted Flow (cfs) | Intercepted (Grate) + Intercepted (Curb) | 12.79 |
| Bypass Flow (cfs) | Street Flow - Total Intercepted Flow | 4.21 |

1 Formula referenced from the CCRFCD Manual
2 Formula referenced from FHWA Urban Drainage Design Manual (HEC-22)

| | | |
|---|---|---|
| Project Name: | Savannah Village 21 Parcel E & F (Upd#1) | |
| By: | Roshan Poudel | |
| Date: | 12/26/2019 | |
| **Notes:** | | |
| Facility ID: | **SDDI#7 Optimized - in Forsyth Park St** | |
| Drainage Condition | **Proposed** | |
| Source of Flow | **DON2** | |
| Design Flow (cfs) | **29 cfs (Flows in western half of Forsyth)** | |
| Inlet Type: | **Type CM2 (Sump)** | |
| Inlet Length: | 20 ft | |
| Number of Grates: | 7 | |

| **Input:** | **Variable:** | **Input:** |
|---|---|---|
| Depth at Inlet (ft) | D | 0.60 |
| Grate Width (ft) | W | 1.50 |
| Length of Grate (ft) | $L_g$ | 17.50 |
| Length of Curb Opening (ft) | $L_c$ | 20.00 |
| Height of Curb Opening (ft) | H | 0.50 |
| Weir Coef. - Curb Opening | $W_c$ | 2.30 |
| Weir Coef. - Grate | $W_g$ | 3.00 |
| Orifice Coef. | $O_c$ | 0.67 |
| Grate Coef. | $G_c$ | 0.60 |
| Clogging Factor - Grate (%) | $CF_g$ | 50.00 |
| Clogging Factor - Curb (%) | $CF_c$ | 50.00 |

| **Output (Grate):** | **Equation:** | **Output (Grate):** |
|---|---|---|
| Effective Weir Length (ft) | $2*W+L_g$ | 20.50 |
| Adjusted Effective Weir Length(ft) | $2*(1-CF_g/100)*W+(1-CF_g/100)*L_g$ | 10.25 |
| Grate Open Area (sf) | $W*L_g$ | 26.25 |
| Adjusted Grate Open Area (sf) | Grate Open Area * $G_c$ * $(1-CF_g/100)$ | 7.88 |
| Controlling Flow Type (weir/orifice) | If D<1.792*(Adj. Grate Open Area/Adj. Eff. Length) use weir, else orifice | weir |
| Intercepted Flow (cfs) | weir: $W_g$*(Adj. Eff. Weir Length) * $D^{1.5}$ | 14.29 |
| | orifice: $O_c$*(Adj. Grate Open Area)*$(64.4*D)^{0.5}$ | |

| **Output (Curb):** | **Equation:** | **Output (Curb):** |
|---|---|---|
| Effective Weir Length (ft) | L+1.8*W | 22.70 |
| Adjusted Effective Weir Length (ft) | $L+1.8*(1-CF_c/100)*W$ | 21.35 |
| Curb Open Area (sf) | L*H | 10.00 |
| Adjusted Curb Open Area (sf) | Curb Open Area*$(1-CF_c/100)$ | 5.00 |
| Controlling Flow Type (weir/orifice) | If D<H, weir, else orifice | orifice |
| Intercepted Flow (cfs) | weir: $W_c$*(Adj. Eff. Weir Length)*$D^{1.5}$ | |
| | orifice: $O_c$*(Adj. Curb Open Area)*$(64.4*(D-H/2))^{0.5}$ | 15.90 |

| **Output (Total):** | **Equation:** | **Output (Total):** |
|---|---|---|
| Capacity Intercepted Flow (cfs) | Intercepted (Grate) + Intercepted (Curb) | 30.20 |

| | | |
|---|---|---|
| Project Name: | Savannah Village 21 Parcel E & F (Upd#1) | |
| By: | Roshan Poudel | |
| Date: | 12/26/2019 | |
| **Notes:** | | |
| Facility ID: | **SDDI#8 Optimized - in Forsyth Park St** | |
| Drainage Condition | **Proposed** | |
| Source of Flow | **DON2** | |
| Design Flow (cfs) | **29 cfs (Flows in eastern half of Forsyth)** | |
| Inlet Type: | **Type CM2 (Sump)** | |
| Inlet Length: | 20 ft | |
| Number of Grates: | 7 | |

| **Input:** | **Variable:** | **Input:** |
|---|---|---|
| Depth at Inlet (ft) | D | 0.60 |
| Grate Width (ft) | W | 1.50 |
| Length of Grate (ft) | $L_g$ | 17.50 |
| Length of Curb Opening (ft) | $L_c$ | 20.00 |
| Height of Curb Opening (ft) | H | 0.50 |
| Weir Coef. - Curb Opening | $W_c$ | 2.30 |
| Weir Coef. - Grate | $W_g$ | 3.00 |
| Orifice Coef. | $O_c$ | 0.67 |
| Grate Coef. | $G_c$ | 0.60 |
| Clogging Factor - Grate (%) | $CF_g$ | 50.00 |
| Clogging Factor - Curb (%) | $CF_c$ | 50.00 |

| **Output (Grate):** | **Equation:** | **Output (Grate):** |
|---|---|---|
| Effective Weir Length (ft) | $2*W+L_g$ | 20.50 |
| Adjusted Effective Weir Length(ft) | $2*(1-CF_g/100)*W+(1-CF_g/100)*L_g$ | 10.25 |
| Grate Open Area (sf) | $W*L_g$ | 26.25 |
| Adjusted Grate Open Area (sf) | Grate Open Area * $G_c$ * $(1-CF_g/100)$ | 7.88 |
| Controlling Flow Type (weir/orifice) | If D<1.792*(Adj. Grate Open Area/Adj. Eff. Length) use weir, else orifice | weir |
| Intercepted Flow (cfs) | weir: $W_g$*(Adj. Eff. Weir Length) * $D^{1.5}$ | 14.29 |
| | orifice: $O_c$*(Adj. Grate Open Area)*$(64.4*D)^{0.5}$ | |

| **Output (Curb):** | **Equation:** | **Output (Curb):** |
|---|---|---|
| Effective Weir Length (ft) | L+1.8*W | 22.70 |
| Adjusted Effective Weir Length (ft) | $L+1.8*(1-CF_c/100)*W$ | 21.35 |
| Curb Open Area (sf) | L*H | 10.00 |
| Adjusted Curb Open Area (sf) | Curb Open Area*$(1-CF_c/100)$ | 5.00 |
| Controlling Flow Type (weir/orifice) | If D<H, weir, else orifice | orifice |
| Intercepted Flow (cfs) | weir: $W_c$*(Adj. Eff. Weir Length)*$D^{1.5}$ | |
| | orifice: $O_c$*(Adj. Curb Open Area)*$(64.4*(D-H/2))^{0.5}$ | 15.90 |

| **Output (Total):** | **Equation:** | **Output (Total):** |
|---|---|---|
| Capacity Intercepted Flow (cfs) | Intercepted (Grate) + Intercepted (Curb) | 30.20 |

# HYDRAULIC CALCULATIONS

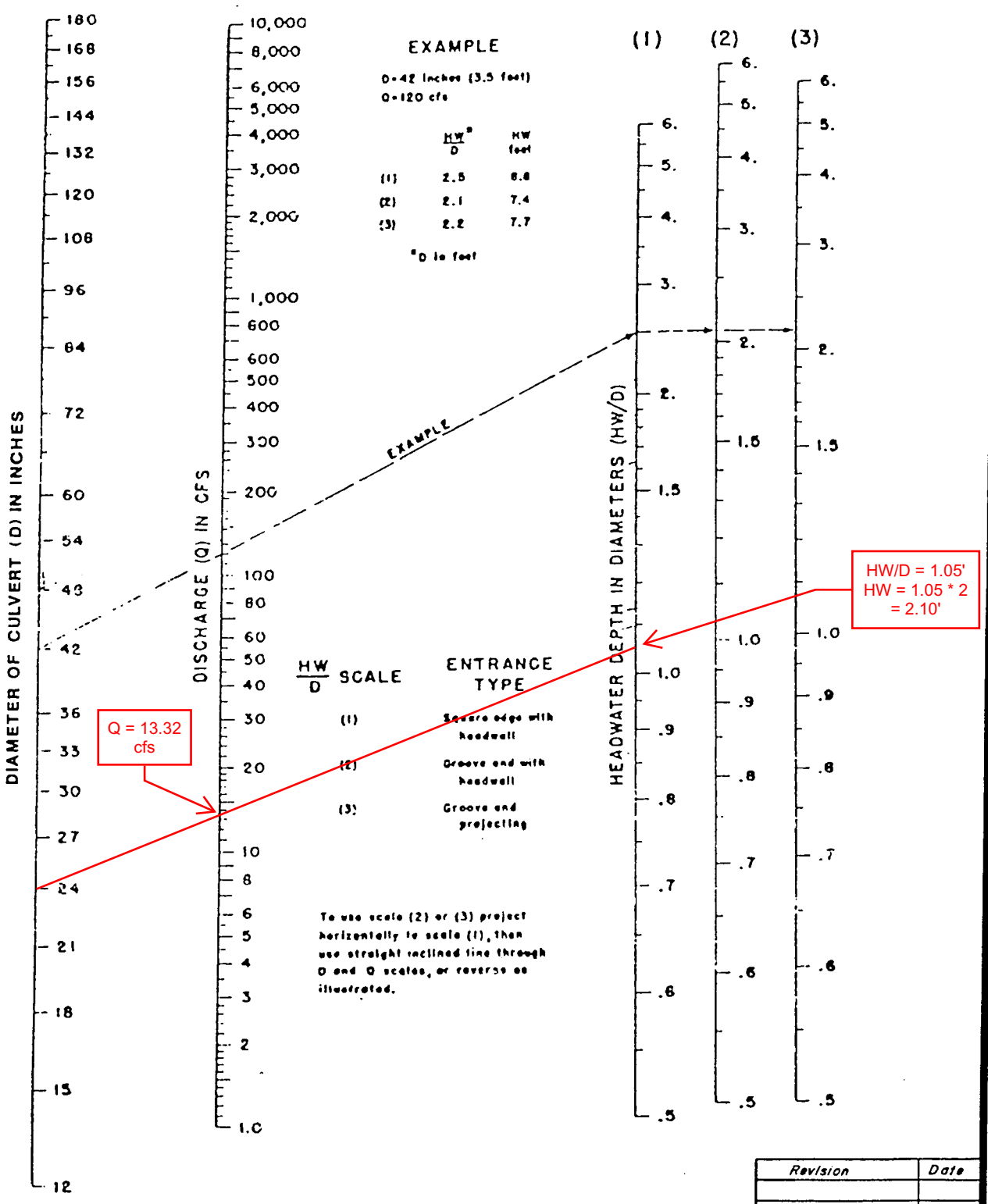
Nomograph Calculations



Nomograph for the Run 1 - DI#1

# HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

## NOMOGRAPH – INLET CONTROL RCP



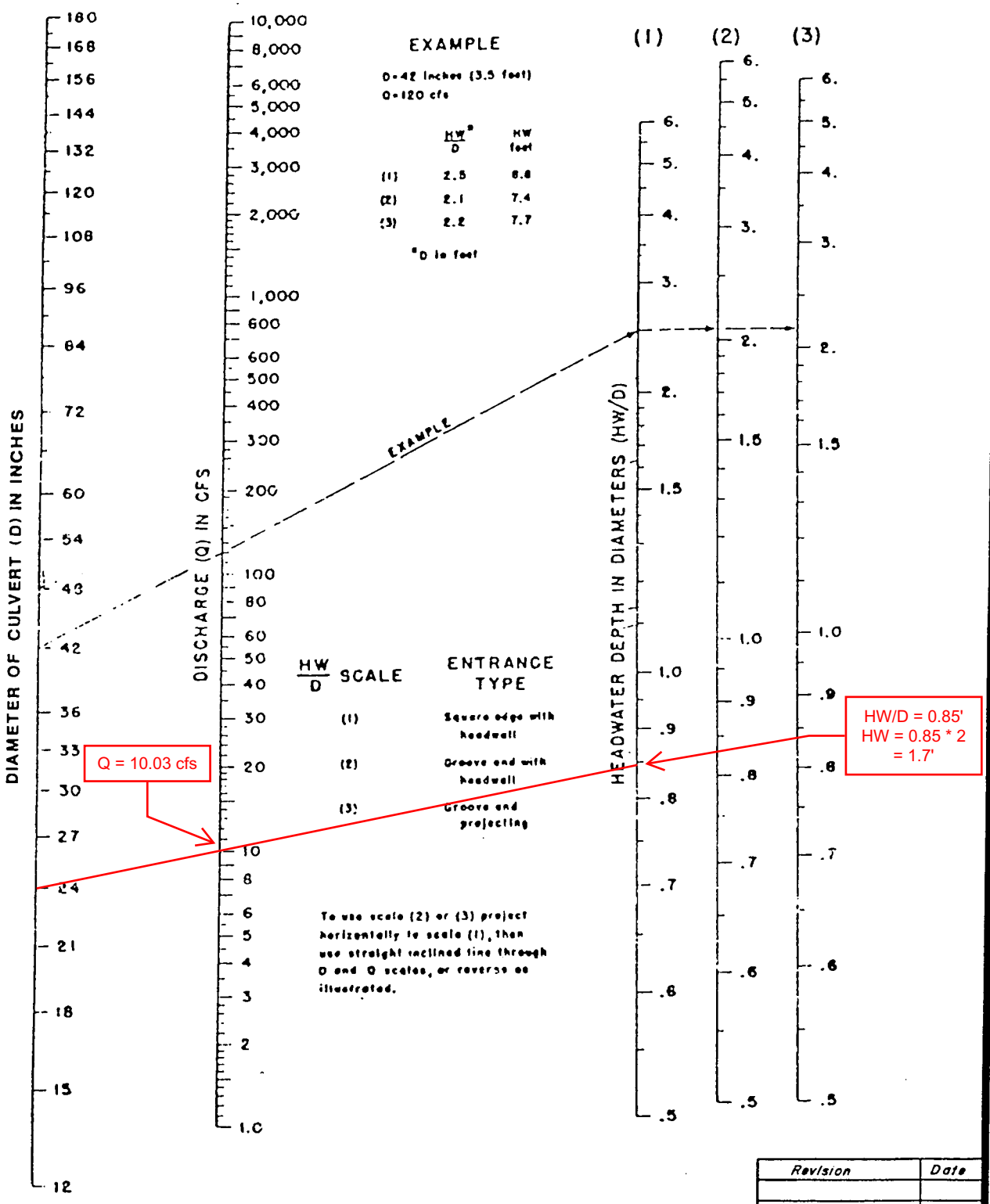

| Revision | Date |
|---|---|
| | |
| | |
| | |
| | |

| WRC ENGINEERING | REFERENCE: USDOT, FHWA, HDS, No. 5, 1985 | FIGURE 1005 |
|---|---|---|

Nomograph for the Run 1 - DI#2

# HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

## NOMOGRAPH – INLET CONTROL RCP




| Revision | Date |
|---|---|
| | |
| | |
| | |
| | |

WRC ENGINEERING

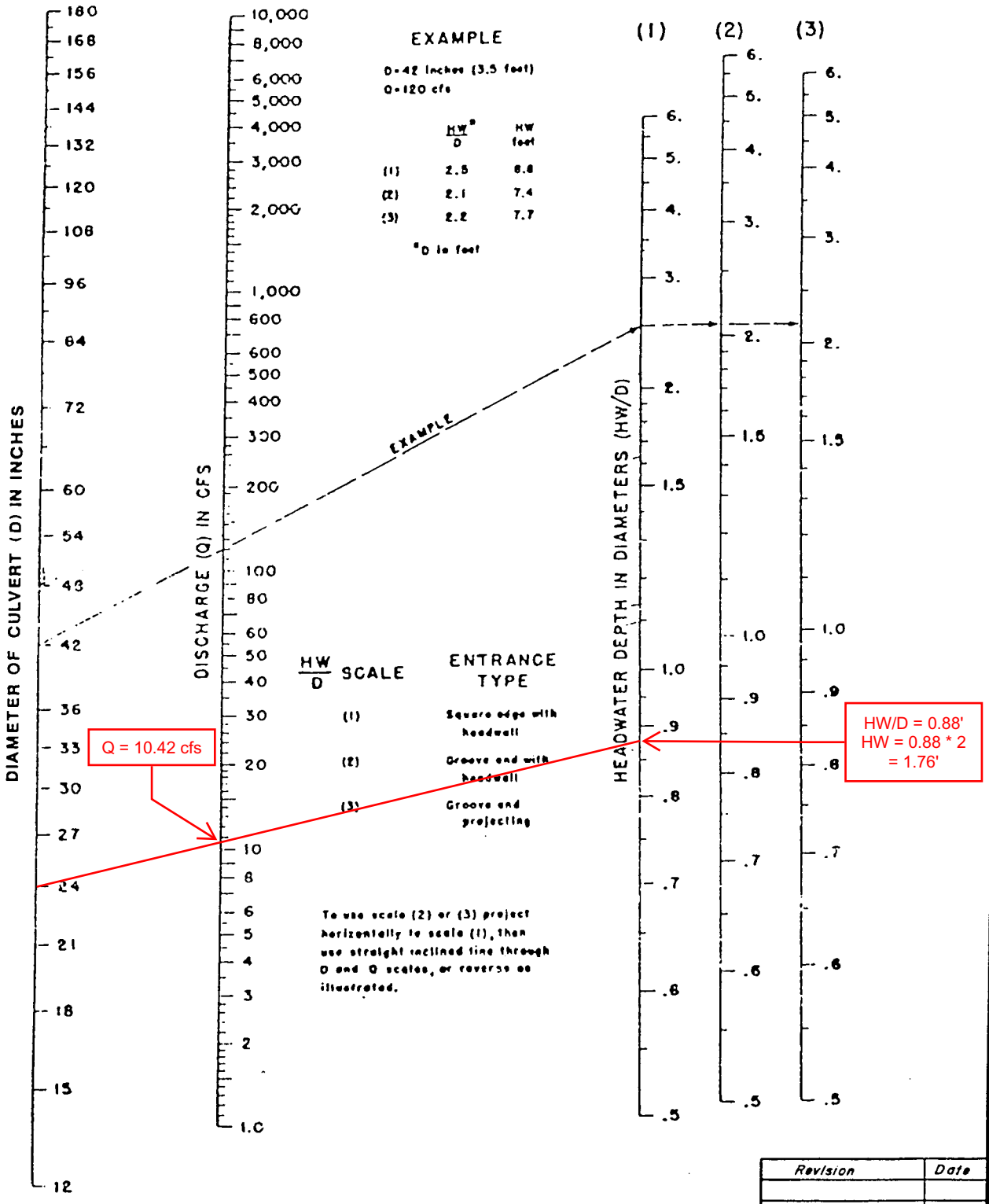
REFERENCE: USDOT, FHWA, HDS, No. 5, 1985

FIGURE 1005

Nomograph for the Run 1 - DI#3

# HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

## NOMOGRAPH – INLET CONTROL RCP




| Revision | Date |
|---|---|
| | |
| | |
| | |
| | |

WRC ENGINEERING

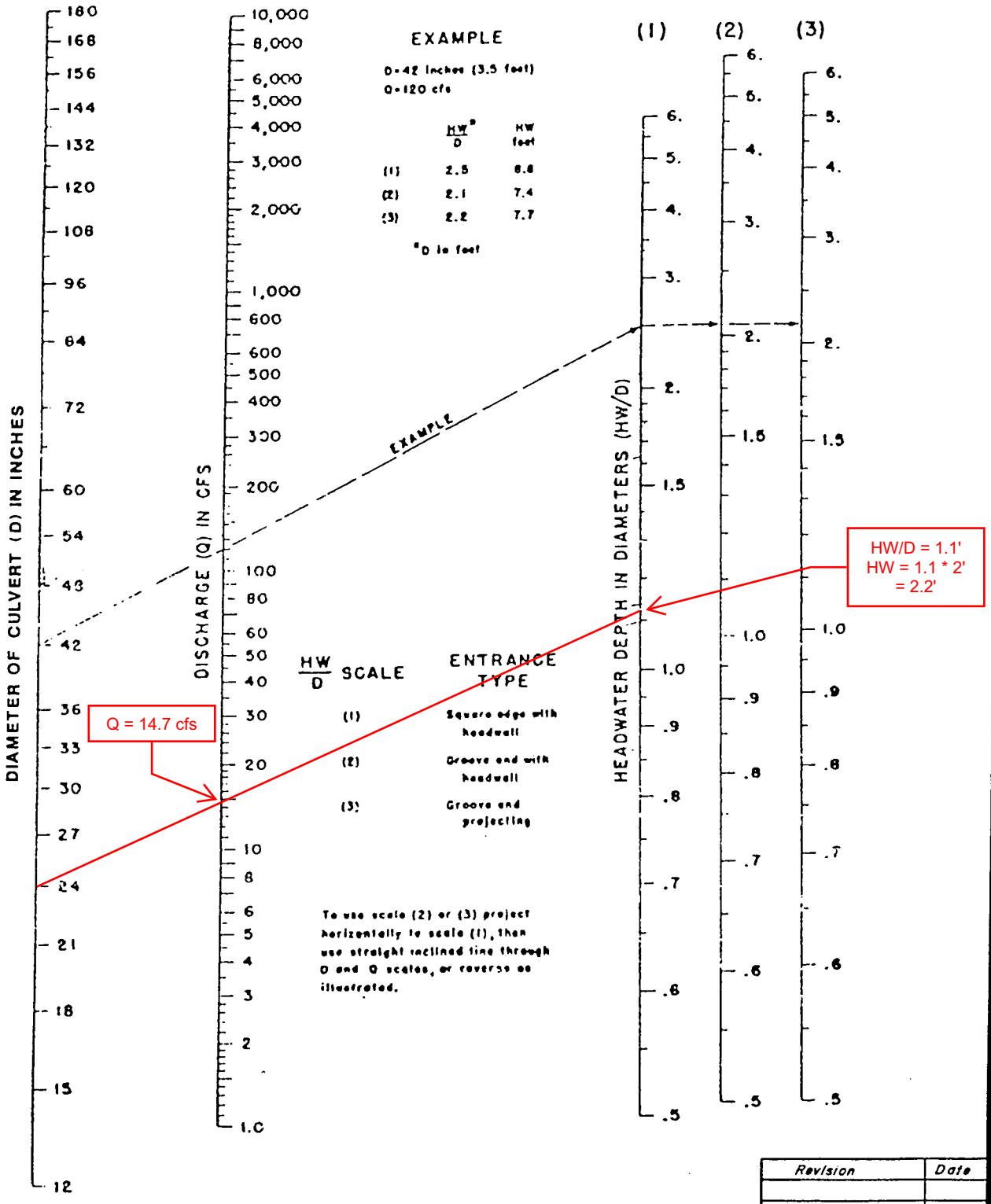
REFERENCE:
USDOT, FHWA, HDS, No. 5, 1985

FIGURE 1005

Nomograph for the Run 1 - DI#4

# HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

## NOMOGRAPH – INLET CONTROL RCP




| Revision | Date |
|---|---|
| | |
| | |
| | |
| | |

WRC ENGINEERING

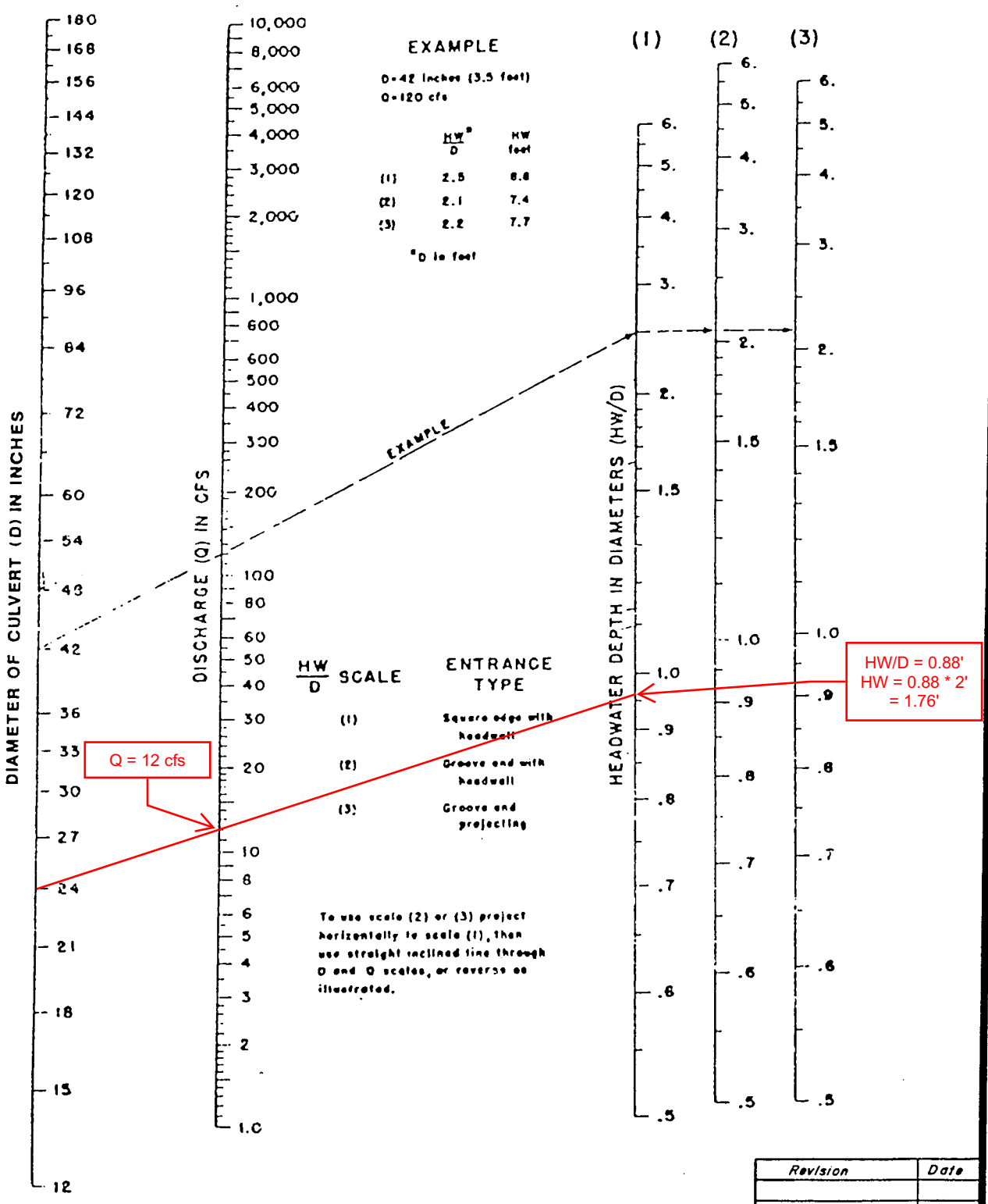
REFERENCE:
USDOT, FHWA, HDS, No. 5, 1985

FIGURE 1005

Nomograph for the Run 2 - DI#5

# HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

## NOMOGRAPH – INLET CONTROL RCP




| Revision | Date |
|---|---|
| | |
| | |
| | |
| | |

WRC ENGINEERING

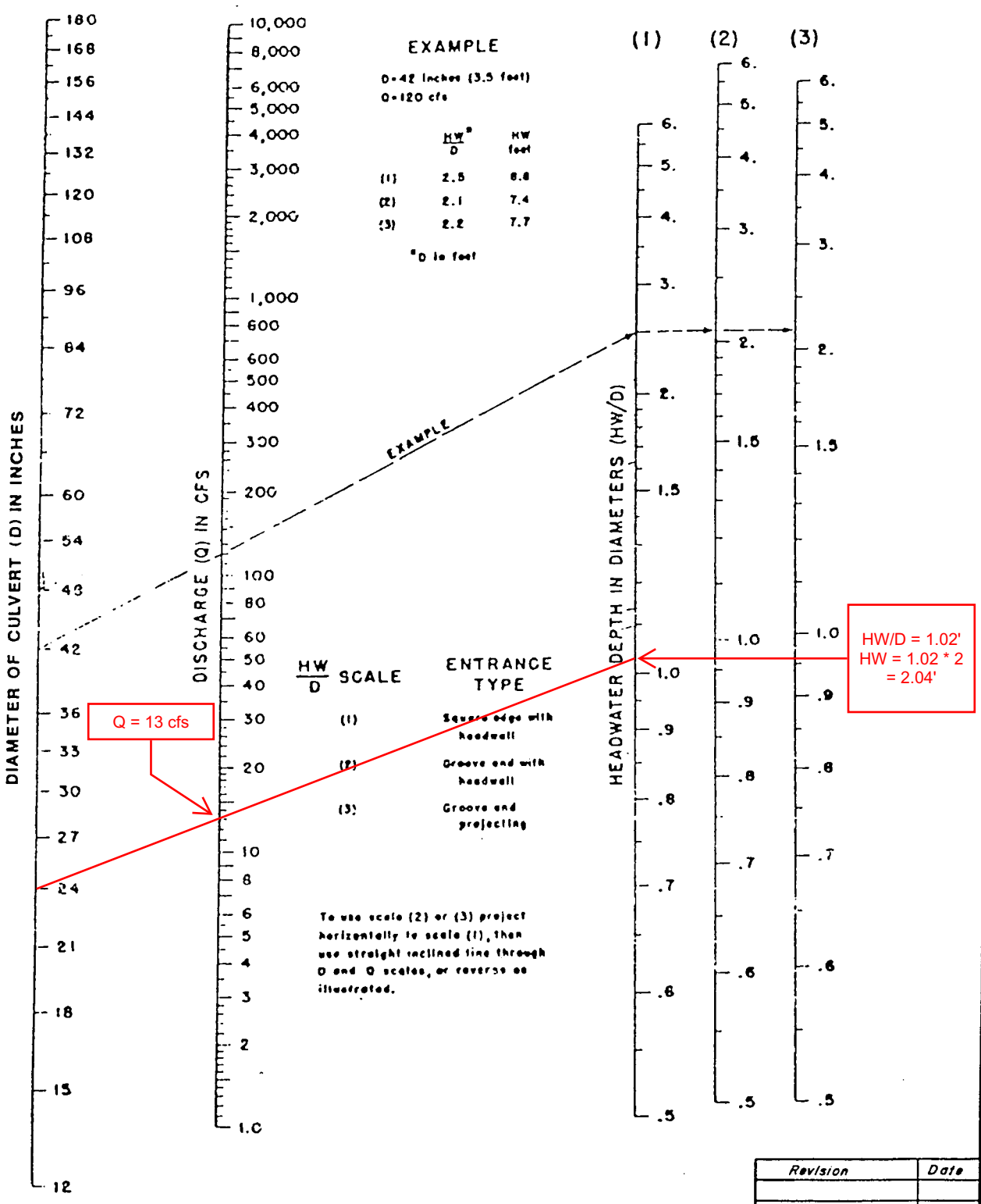
REFERENCE: USDOT, FHWA, HDS, No. 5, 1985

FIGURE 1005

Nomograph for the Run 2 - DI#6

# HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

## NOMOGRAPH – INLET CONTROL RCP




| Revision | Date |
|---|---|
| | |
| | |
| | |
| | |

WRC ENGINEERING

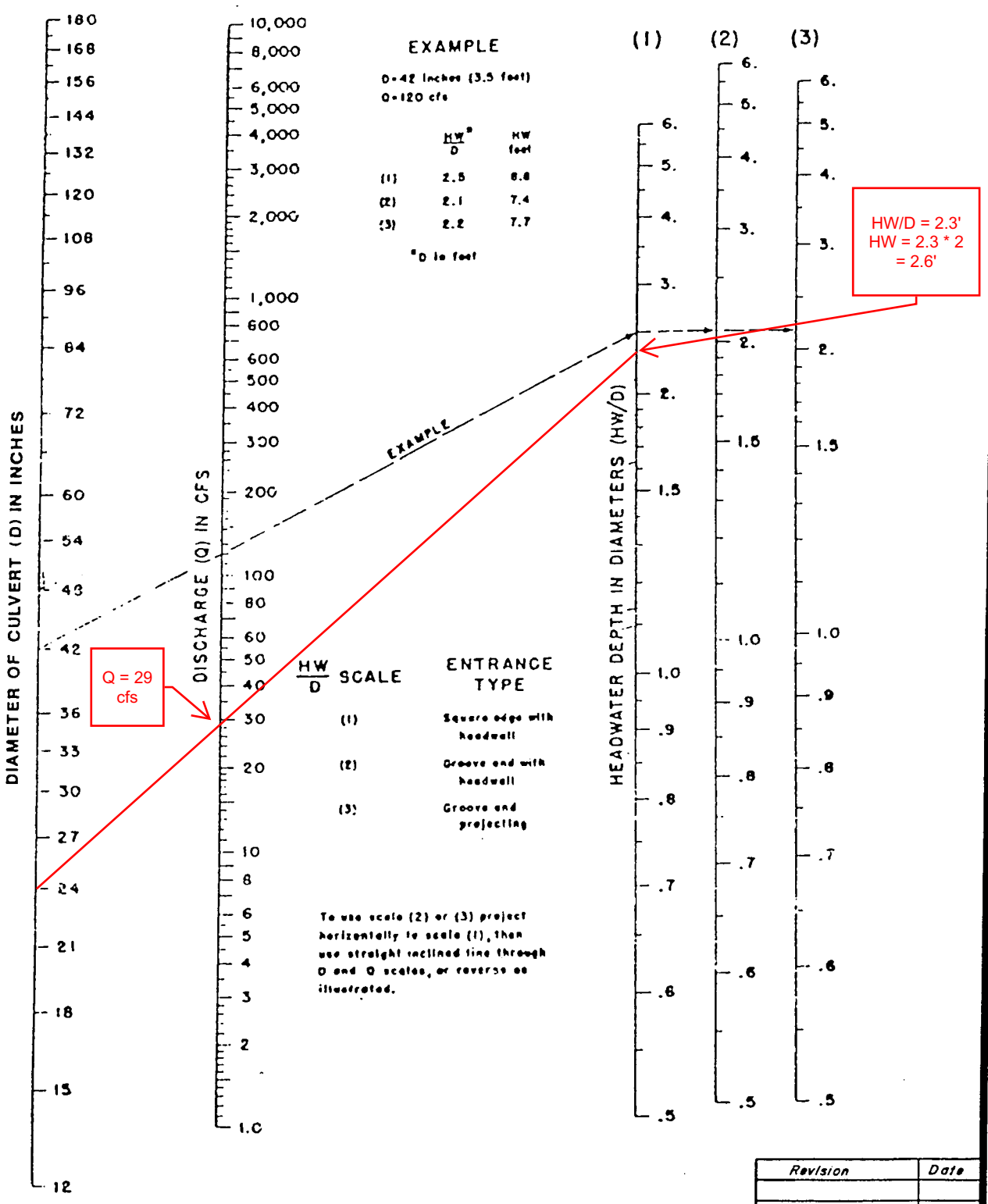
REFERENCE:
USDOT, FHWA, HDS, No. 5, 1985

FIGURE 1005

Nomograph for the Run 1 - DI#7

# HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

## NOMOGRAPH – INLET CONTROL RCP




| Revision | Date |
|---|---|
| | |
| | |
| | |
| | |

WRC ENGINEERING

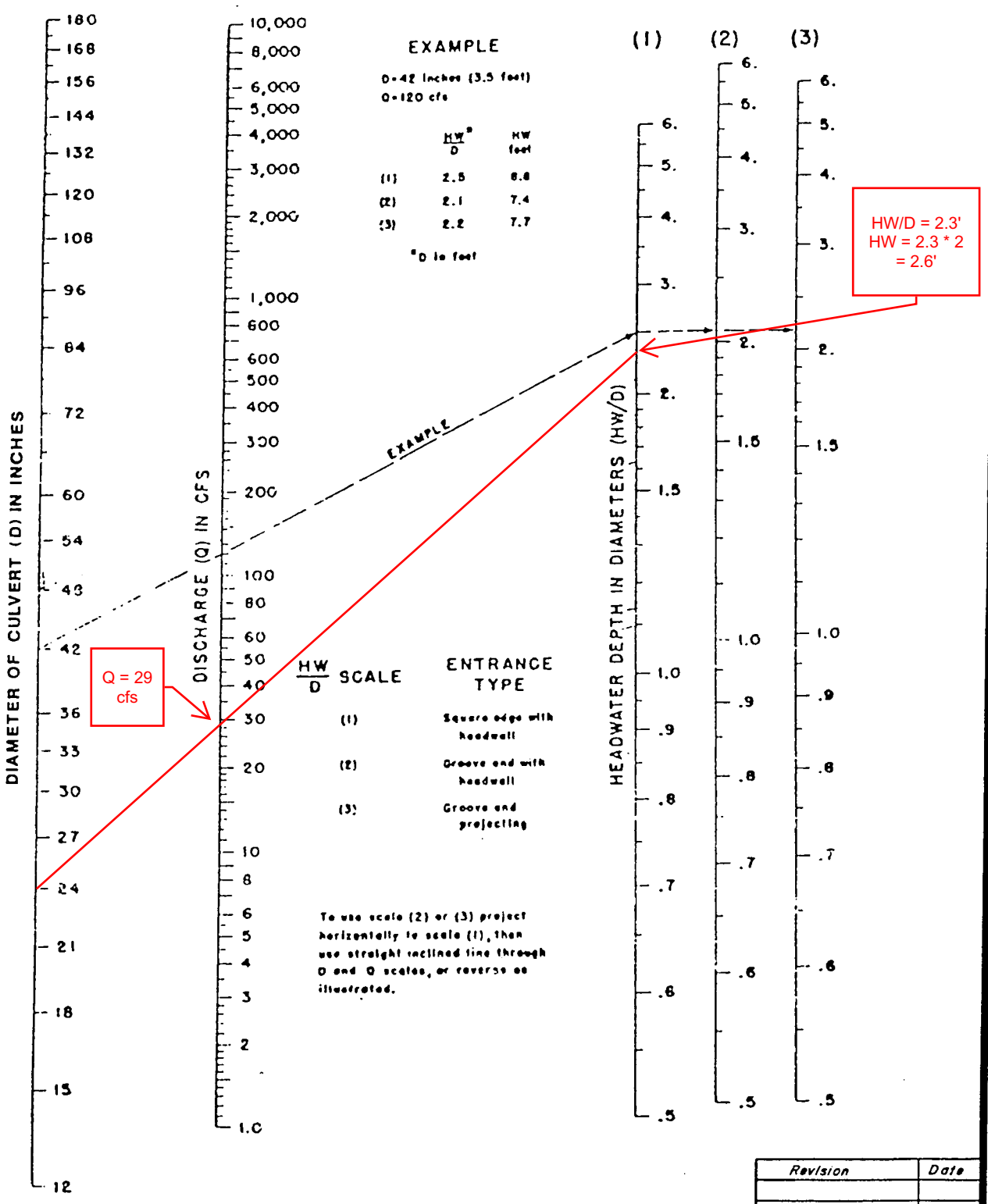
REFERENCE: USDOT, FHWA, HDS, No. 5, 1985

FIGURE 1005

Nomograph for the Run 1 - DI#8

# HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

## NOMOGRAPH – INLET CONTROL RCP




| Revision | Date |
|---|---|
| | |
| | |
| | |
| | |

WRC ENGINEERING

REFERENCE: USDOT, FHWA, HDS, No. 5, 1985

FIGURE 1005

# HYDRAULIC CALCULATIONS

WSPG FOR SD-1 (SD in PARCEL E)

Input for SD along Sarabeth St in Parcel E

```
T1 Savannah Summerlin Village 21 - Parcel E and F                              0
T2 By Roshan Poudel, Feb 07, 2020
T3 SD Desgin for SD-1 (Sarabeth St)
SO    100.0003327.500  1                          3334.500
R     101.0003327.600  1      .013                                .000    .000 0
R     176.6403334.830  1      .013                                .000   3.000 1
R     262.8103344.320  1      .013                                .000   9.000 1
JX    265.8103344.470  1  2   .013   14.740         3353.140          .0         .000
R     270.1103344.700  1      .013                                .000  76.000 1
JX    273.1103345.100  2  2   .013   24.520         3345.110        -31.0         .000
R     307.1103345.260  2      .013                                .000   7.000 1
JX    310.1103345.280  2  2   .013   10.390         3345.290        -76.0         .000
R     345.0403345.450  2      .013                                .000 -29.000 1
JX    348.0403345.470  2  2   .013   10.030         3345.480         68.0         .000
R     396.2503345.710  2      .013                                .000    .000 0
SH    396.2503345.710  2                          3347.810
CD   1  4   1    .000   3.000     .000  .000  .000   .00
CD   2  4   1    .000   2.000     .000  .000  .000   .00
Q            13.320   .0
```

Inflow into the SD system from DI#4 modeled as lateral inflow from a 2' diameter pipe.

Output for SD along Sarabeth St in Parcel E



Program Package Serial Number: 7156

WATER SURFACE PROFILE LISTING Date: 2- 6-2020 Time:10:14:14

Savannah Summerlin Village 21 - Parcel E and F

By Roshan Poudel, Feb 07, 2020

SD Desgin for SD-1 (Sarabeth St)

| Station / L/Elem | Invert Elev / Ch Slope | Depth (FT) | Water Elev | Q (CFS) | Vel (FPS) | Vel Head / SF Ave | Energy Grd.El. / HF | Super Elev / SE Dpth | Critical Depth / Froude N | Flow Top Width / Norm Dp | Height/ Dia.-FT / "N" | Base Wt or I.D. / X-Fall | ZL / ZR | No Wth Prs/Pip / Type Ch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 100.000 | 3327.500 | 7.000 | 3334.500 | 73.00 | 10.33 | 1.66 | 3336.16 | .00 | 2.70 | .00 | 3.000 | .000 | .00 | 1 .0 |
| 1.000 | .1001 | | | | | .0120 | .01 | 7.00 | .00 | 1.22 | .013 | .00 | .00 | PIPE |
| 101.000 | 3327.600 | 6.912 | 3334.512 | 73.00 | 10.33 | 1.66 | 3336.17 | .00 | 2.70 | .00 | 3.000 | .000 | .00 | 1 .0 |
| 3.908 | .0956 | | | | | .0120 | .05 | 6.91 | .00 | 1.23 | .013 | .00 | .00 | PIPE |
| 104.908 | 3327.974 | 6.588 | 3334.561 | 73.00 | 10.33 | 1.66 | 3336.22 | .00 | 2.70 | .00 | 3.000 | .000 | .00 | 1 .0 |
| HYDRAULIC JUMP | | | | | | | | | | | | | | |
| 104.908 | 3327.974 | 1.274 | 3329.248 | 73.00 | 25.53 | 10.12 | 3339.37 | .00 | 2.70 | 2.97 | 3.000 | .000 | .00 | 1 .0 |
| 30.244 | .0956 | | | | | .0826 | 2.50 | 1.27 | 4.58 | 1.23 | .013 | .00 | .00 | PIPE |
| 135.152 | 3330.865 | 1.294 | 3332.158 | 73.00 | 25.02 | 9.72 | 3341.88 | .00 | 2.70 | 2.97 | 3.000 | .000 | .00 | 1 .0 |
| 41.488 | .0956 | | | | | .0754 | 3.13 | 1.29 | 4.45 | 1.23 | .013 | .00 | .00 | PIPE |
| 176.640 | 3334.830 | 1.342 | 3336.171 | 73.00 | 23.85 | 8.84 | 3345.01 | .00 | 2.70 | 2.98 | 3.000 | .000 | .00 | 1 .0 |
| 7.868 | .1101 | | | | | .0687 | .54 | 1.34 | 4.15 | 1.19 | .013 | .00 | .00 | PIPE |
| 184.508 | 3335.696 | 1.362 | 3337.058 | 73.00 | 23.38 | 8.49 | 3345.55 | .00 | 2.70 | 2.99 | 3.000 | .000 | .00 | 1 .0 |
| 15.244 | .1101 | | | | | .0628 | .96 | 1.36 | 4.03 | 1.19 | .013 | .00 | .00 | PIPE |
| 199.752 | 3337.375 | 1.413 | 3338.788 | 73.00 | 22.30 | 7.72 | 3346.51 | .00 | 2.70 | 2.99 | 3.000 | .000 | .00 | 1 .0 |
| 11.820 | .1101 | | | | | .0553 | .65 | 1.41 | 3.76 | 1.19 | .013 | .00 | .00 | PIPE |
| 211.572 | 3338.677 | 1.467 | 3340.143 | 73.00 | 21.26 | 7.02 | 3347.16 | .00 | 2.70 | 3.00 | 3.000 | .000 | .00 | 1 .0 |
| 9.468 | .1101 | | | | | .0487 | .46 | 1.47 | 3.50 | 1.19 | .013 | .00 | .00 | PIPE |

Program Package Serial Number: 7156

WATER SURFACE PROFILE LISTING Date: 2- 6-2020 Time:10:14:14

Savannah Summerlin Village 21 - Parcel E and F

By Roshan Poudel, Feb 07, 2020

SD Desgin for SD-1 (Sarabeth St)

| Station | Invert Elev | Depth (FT) | Water Elev | Q (CFS) | Vel (FPS) | Vel Head | Energy Grd.El. | Super Elev | Critical Depth | Flow Top Width | Height/ Dia.-FT | Base Wt or I.D. | ZL | No Wth Prs/Pip |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L/Elem | Ch Slope | | | | | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch |
| 221.039 | 3339.719 | 1.522 | 3341.242 | 73.00 | 20.27 | 6.38 | 3347.62 | .00 | 2.70 | 3.00 | 3.000 | .000 | .00 | 1 .0 |
| 7.750 | .1101 | | | | | .0429 | .33 | 1.52 | 3.26 | 1.19 | .013 | .00 | .00 | PIPE |
| 228.789 | 3340.573 | 1.581 | 3342.154 | 73.00 | 19.33 | 5.80 | 3347.95 | .00 | 2.70 | 3.00 | 3.000 | .000 | .00 | 1 .0 |
| 6.435 | .1101 | | | | | .0378 | .24 | 1.58 | 3.03 | 1.19 | .013 | .00 | .00 | PIPE |
| 235.224 | 3341.282 | 1.643 | 3342.925 | 73.00 | 18.43 | 5.27 | 3348.20 | .00 | 2.70 | 2.99 | 3.000 | .000 | .00 | 1 .0 |
| 5.397 | .1101 | | | | | .0334 | .18 | 1.64 | 2.82 | 1.19 | .013 | .00 | .00 | PIPE |
| 240.621 | 3341.876 | 1.708 | 3343.584 | 73.00 | 17.57 | 4.79 | 3348.38 | .00 | 2.70 | 2.97 | 3.000 | .000 | .00 | 1 .0 |
| 4.552 | .1101 | | | | | .0295 | .13 | 1.71 | 2.62 | 1.19 | .013 | .00 | .00 | PIPE |
| 245.174 | 3342.378 | 1.776 | 3344.154 | 73.00 | 16.75 | 4.36 | 3348.51 | .00 | 2.70 | 2.95 | 3.000 | .000 | .00 | 1 .0 |
| 3.849 | .1101 | | | | | .0261 | .10 | 1.78 | 2.43 | 1.19 | .013 | .00 | .00 | PIPE |
| 249.023 | 3342.802 | 1.849 | 3344.650 | 73.00 | 15.97 | 3.96 | 3348.61 | .00 | 2.70 | 2.92 | 3.000 | .000 | .00 | 1 .0 |
| 3.254 | .1101 | | | | | .0231 | .08 | 1.85 | 2.25 | 1.19 | .013 | .00 | .00 | PIPE |
| 252.277 | 3343.160 | 1.926 | 3345.085 | 73.00 | 15.23 | 3.60 | 3348.69 | .00 | 2.70 | 2.88 | 3.000 | .000 | .00 | 1 .0 |
| 2.736 | .1101 | | | | | .0205 | .06 | 1.93 | 2.08 | 1.19 | .013 | .00 | .00 | PIPE |
| 255.013 | 3343.461 | 2.008 | 3345.469 | 73.00 | 14.52 | 3.27 | 3348.74 | .00 | 2.70 | 2.82 | 3.000 | .000 | .00 | 1 .0 |
| 2.281 | .1101 | | | | | .0182 | .04 | 2.01 | 1.92 | 1.19 | .013 | .00 | .00 | PIPE |
| 257.294 | 3343.712 | 2.096 | 3345.808 | 73.00 | 13.84 | 2.98 | 3348.78 | .00 | 2.70 | 2.75 | 3.000 | .000 | .00 | 1 .0 |
| 1.870 | .1101 | | | | | .0163 | .03 | 2.10 | 1.76 | 1.19 | .013 | .00 | .00 | PIPE |

Program Package Serial Number: 7156

WATER SURFACE PROFILE LISTING Date: 2- 6-2020 Time:10:14:14

Savannah Summerlin Village 21 - Parcel E and F

By Roshan Poudel, Feb 07, 2020

SD Desgin for SD-1 (Sarabeth St)

| Station | Invert Elev | Depth (FT) | Water Elev | Q (CFS) | Vel (FPS) | Vel Head | Energy Grd.El. | Super Elev | Critical Depth | Flow Top Width | Height/ Dia.-FT | Base Wt or I.D. | ZL | No Wth Prs/Pip |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L/Elem | Ch Slope | | | | | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch |
| 259.164 | 3343.918 | 2.191 | 3346.109 | 73.00 | 13.20 | 2.71 | 3348.81 | .00 | 2.70 | 2.66 | 3.000 | .000 | .00 | 1 .0 |
| 1.490 | .1101 | | | | | .0146 | .02 | 2.19 | 1.61 | 1.19 | .013 | .00 | .00 | PIPE |
| 260.654 | 3344.083 | 2.294 | 3346.377 | 73.00 | 12.59 | 2.46 | 3348.84 | .00 | 2.70 | 2.54 | 3.000 | .000 | .00 | 1 .0 |
| 1.122 | .1101 | | | | | .0131 | .01 | 2.29 | 1.47 | 1.19 | .013 | .00 | .00 | PIPE |
| 261.776 | 3344.206 | 2.409 | 3346.615 | 73.00 | 12.00 | 2.24 | 3348.85 | .00 | 2.70 | 2.39 | 3.000 | .000 | .00 | 1 .0 |
| .744 | .1101 | | | | | .0119 | .01 | 2.41 | 1.32 | 1.19 | .013 | .00 | .00 | PIPE |
| 262.520 | 3344.288 | 2.539 | 3346.827 | 73.00 | 11.44 | 2.03 | 3348.86 | .00 | 2.70 | 2.16 | 3.000 | .000 | .00 | 1 .0 |
| .290 | .1101 | | | | | .0110 | .00 | 2.54 | 1.17 | 1.19 | .013 | .00 | .00 | PIPE |
| 262.810 | 3344.320 | 2.696 | 3347.016 | 73.00 | 10.91 | 1.85 | 3348.86 | .00 | 2.70 | 1.81 | 3.000 | .000 | .00 | 1 .0 |
| JUNCT STR | .0500 | | | | | .0091 | .03 | 2.70 | 1.00 | | .013 | .00 | .00 | PIPE |
| 265.810 | 3344.470 | 3.999 | 3348.469 | 58.26 | 8.24 | 1.05 | 3349.52 | .00 | 2.47 | .00 | 3.000 | .000 | .00 | 1 .0 |
| 4.300 | .0535 | | | | | .0076 | .03 | 4.00 | .00 | 1.28 | .013 | .00 | .00 | PIPE |
| 270.110 | 3344.700 | 4.119 | 3348.819 | 58.26 | 8.24 | 1.05 | 3349.87 | .00 | 2.47 | .00 | 3.000 | .000 | .00 | 1 .0 |
| JUNCT STR | .1334 | | | | | .0149 | .04 | 4.12 | .00 | | .013 | .00 | .00 | PIPE |
| 273.110 | 3345.100 | 3.483 | 3348.583 | 33.74 | 10.74 | 1.79 | 3350.37 | .00 | 1.91 | .00 | 2.000 | .000 | .00 | 1 .0 |
| 34.000 | .0047 | | | | | .0222 | .76 | 3.48 | .00 | 2.00 | .013 | .00 | .00 | PIPE |
| 307.110 | 3345.260 | 4.210 | 3349.470 | 33.74 | 10.74 | 1.79 | 3351.26 | .00 | 1.91 | .00 | 2.000 | .000 | .00 | 1 .0 |
| JUNCT STR | .0067 | | | | | .0164 | .05 | 4.21 | .00 | | .013 | .00 | .00 | PIPE |

Program Package Serial Number: 7156

WATER SURFACE PROFILE LISTING Date: 2- 6-2020 Time:10:14:14

Savannah Summerlin Village 21 - Parcel E and F

By Roshan Poudel, Feb 07, 2020

SD Desgin for SD-1 (Sarabeth St)

| Station | Invert Elev | Depth (FT) | Water Elev | Q (CFS) | Vel (FPS) | Vel Head | Energy Grd.El. | Super Elev | Critical Depth | Flow Top Width | Height/ Dia.-FT | Base Wt or I.D. | ZL | No Wth Prs/Pip |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L/Elem | Ch Slope | | | | | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch |
| 310.110 | 3345.280 | 6.024 | 3351.304 | 23.35 | 7.43 | .86 | 3352.16 | .00 | 1.72 | .00 | 2.000 | .000 | .00 | 1 .0 |
| 34.930 | .0049 | | | | | .0107 | .37 | 6.02 | .00 | 2.00 | .013 | .00 | .00 | PIPE |
| 345.040 | 3345.450 | 6.351 | 3351.801 | 23.35 | 7.43 | .86 | 3352.66 | .00 | 1.72 | .00 | 2.000 | .000 | .00 | 1 .0 |
| JUNCT STR | .0067 | | | | | .0071 | .02 | 6.35 | .00 | | .013 | .00 | .00 | PIPE |
| 348.040 | 3345.470 | 7.391 | 3352.861 | 13.32 | 4.24 | .28 | 3353.14 | .00 | 1.31 | .00 | 2.000 | .000 | .00 | 1 .0 |
| 48.210 | .0050 | | | | | .0035 | .17 | 7.39 | .00 | 1.40 | .013 | .00 | .00 | PIPE |
| 396.250 | 3345.710 | 7.318 | 3353.028 | 13.32 | 4.24 | .28 | 3353.31 | .00 | 1.31 | .00 | 2.000 | .000 | .00 | 1 .0 |

Input for SD along Pippa Ave in Parcel E

```
T1 Savannah Summerlin Village 21 - Parcel E and F                              0
T2 By Roshan Poudel, Feb 07, 2020
T3 SD Desgin for SD-1 (Pippa Ave)
SO   1273.1103345.100  2                          3348.579
R    1275.1103345.110  2      .013                                 .000    .000 0
R    1319.9503345.330  2      .013                                 .000  40.000 1
JX   1322.9503345.350  2  2   .013   11.730         3345.360       -60.0         .000
R    1355.5703345.680  2      .013                                 .000   0.000 0
SH   1355.5703345.680  2                          3347.720
CD   2  4   1    .000   2.000     .000  .000  .000   .00
Q            12.790   .0
```

Output for SD along Pippa Ave in Parcel E



Program Package Serial Number: 7156

WATER SURFACE PROFILE LISTING Date: 2- 6-2020 Time:10:42:39

Savannah Summerlin Village 21 - Parcel E and F

By Roshan Poudel, Feb 07, 2020

SD Desgin for SD-1 (Pippa Ave)

| Station | Invert Elev | Depth (FT) | Water Elev | Q (CFS) | Vel (FPS) | Vel Head | Energy Grd.El. | Super Elev | Critical Depth | Flow Top Width | Height/ Dia.-FT | Base Wt or I.D. | ZL | No Wth Prs/Pip |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L/Elem | Ch Slope | | | | | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch |
| 1273.110 | 3345.100 | 3.479 | 3348.579 | 24.52 | 7.80 | .95 | 3349.52 | .00 | 1.75 | .00 | 2.000 | .000 | .00 | 1 .0 |
| 2.000 | .0050 | | | | | .0117 | .02 | 3.48 | .00 | 2.00 | .013 | .00 | .00 | PIPE |
| 1275.110 | 3345.110 | 3.492 | 3348.603 | 24.52 | 7.80 | .95 | 3349.55 | .00 | 1.75 | .00 | 2.000 | .000 | .00 | 1 .0 |
| 44.840 | .0049 | | | | | .0117 | .53 | 3.49 | .00 | 2.00 | .013 | .00 | .00 | PIPE |
| 1319.950 | 3345.330 | 3.971 | 3349.302 | 24.52 | 7.80 | .95 | 3350.25 | .00 | 1.75 | .00 | 2.000 | .000 | .00 | 1 .0 |
| JUNCT STR | .0067 | | | | | .0075 | .02 | 3.97 | .00 | | .013 | .00 | .00 | PIPE |
| 1322.950 | 3345.350 | 5.134 | 3350.485 | 12.79 | 4.07 | .26 | 3350.74 | .00 | 1.29 | .00 | 2.000 | .000 | .00 | 1 .0 |
| 32.620 | .0101 | | | | | .0032 | .10 | 5.13 | .00 | 1.07 | .013 | .00 | .00 | PIPE |
| 1355.570 | 3345.680 | 4.909 | 3350.589 | 12.79 | 4.07 | .26 | 3350.85 | .00 | 1.29 | .00 | 2.000 | .000 | .00 | 1 .0 |

# Input for SD along Forsyth Park St in Parcel F

```
T1 Savannah Summerlin Village 21 - Parcel E and F                              0
T2 By Roshan Poudel, Feb 07, 2020
T3 SD Desgin for SD-2 (Forsyth Park St)
SO    500.0003332.870  1                          3343.000
R     501.0003332.880  1      .013                                .000    .000 0
R     581.8103339.010  1      .013                                .000   0.000 0
R     650.9203344.200  1      .013                                .000  38.000 1
JX    653.9203344.420  1  2   .013   29.000         3345.360      .000         .000
R     692.0503344.800  2      .013                                .000   0.000 0
SH    692.0503344.800  2                          3347.400
CD   1  4   1    .000   3.000     .000  .000  .000   .00
CD   2  4   1    .000   2.000     .000  .000  .000   .00
Q        29.000   .0
```

Inflow into the SD system from DI#8 modeled as inflow from a 2' diameter pipe.

Output for SD along Forsyth Park St in Parcel F



Program Package Serial Number: 7156

WATER SURFACE PROFILE LISTING Date: 2- 6-2020 Time:10:45: 3

Savannah Summerlin Village 21 - Parcel E and F

By Roshan Poudel, Feb 07, 2020

SD Desgin for SD-2 (Forsyth Park St)

| Station / L/Elem | Invert Elev / Ch Slope | Depth (FT) | Water Elev | Q (CFS) | Vel (FPS) | Vel Head / SF Ave | Energy Grd.El. / HF | Super Elev / SE Dpth | Critical Depth / Froude N | Flow Top Width / Norm Dp | Height/ Dia.-FT / "N" | Base Wt or I.D. / X-Fall | ZL / ZR | No Wth Prs/Pip / Type Ch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 500.000 | 3332.870 | 10.130 | 3343.000 | 58.00 | 8.21 | 1.05 | 3344.05 | .00 | 2.47 | .00 | 3.000 | .000 | .00 | 1 .0 |
| 1.000 | .0098 | | | | | .0076 | .01 | 10.13 | .00 | 2.18 | .013 | .00 | .00 | PIPE |
| 501.000 | 3332.880 | 10.128 | 3343.008 | 58.00 | 8.21 | 1.05 | 3344.05 | .00 | 2.47 | .00 | 3.000 | .000 | .00 | 1 .0 |
| 80.810 | .0759 | | | | | .0076 | .61 | 10.13 | .00 | 1.16 | .013 | .00 | .00 | PIPE |
| 581.810 | 3339.010 | 4.609 | 3343.619 | 58.00 | 8.21 | 1.05 | 3344.66 | .00 | 2.47 | .00 | 3.000 | .000 | .00 | 1 .0 |
| 2.130 | .0751 | | | | | .0076 | .02 | 4.61 | .00 | 1.16 | .013 | .00 | .00 | PIPE |
| 583.940 | 3339.170 | 4.477 | 3343.647 | 58.00 | 8.21 | 1.05 | 3344.69 | .00 | 2.47 | .00 | 3.000 | .000 | .00 | 1 .0 |
| HYDRAULIC JUMP | | | | | | | | | | | | | | |
| 583.940 | 3339.170 | 1.341 | 3340.511 | 58.00 | 18.96 | 5.58 | 3346.09 | .00 | 2.47 | 2.98 | 3.000 | .000 | .00 | 1 .0 |
| 11.750 | .0751 | | | | | .0422 | .50 | 1.34 | 3.30 | 1.16 | .013 | .00 | .00 | PIPE |
| 595.690 | 3340.052 | 1.384 | 3341.437 | 58.00 | 18.19 | 5.14 | 3346.58 | .00 | 2.47 | 2.99 | 3.000 | .000 | .00 | 1 .0 |
| 11.039 | .0751 | | | | | .0375 | .41 | 1.38 | 3.11 | 1.16 | .013 | .00 | .00 | PIPE |
| 606.730 | 3340.881 | 1.436 | 3342.318 | 58.00 | 17.35 | 4.67 | 3346.99 | .00 | 2.47 | 3.00 | 3.000 | .000 | .00 | 1 .0 |
| 8.794 | .0751 | | | | | .0330 | .29 | 1.44 | 2.89 | 1.16 | .013 | .00 | .00 | PIPE |
| 615.524 | 3341.542 | 1.491 | 3343.032 | 58.00 | 16.54 | 4.25 | 3347.28 | .00 | 2.47 | 3.00 | 3.000 | .000 | .00 | 1 .0 |
| 7.145 | .0751 | | | | | .0290 | .21 | 1.49 | 2.70 | 1.16 | .013 | .00 | .00 | PIPE |
| 622.668 | 3342.078 | 1.548 | 3343.626 | 58.00 | 15.77 | 3.86 | 3347.49 | .00 | 2.47 | 3.00 | 3.000 | .000 | .00 | 1 .0 |
| 5.881 | .0751 | | | | | .0256 | .15 | 1.55 | 2.51 | 1.16 | .013 | .00 | .00 | PIPE |

Program Package Serial Number: 7156

WATER SURFACE PROFILE LISTING Date: 2- 6-2020 Time:10:45: 3

Savannah Summerlin Village 21 - Parcel E and F

By Roshan Poudel, Feb 07, 2020

SD Desgin for SD-2 (Forsyth Park St)

| Station | Invert Elev | Depth (FT) | Water Elev | Q (CFS) | Vel (FPS) | Vel Head | Energy Grd.El. | Super Elev | Critical Depth | Flow Top Width | Height/ Dia.-FT | Base Wt or I.D. | ZL | No Wth Prs/Pip |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L/Elem | Ch Slope | | | | | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch |
| 628.550 | 3342.520 | 1.608 | 3344.128 | 58.00 | 15.04 | 3.51 | 3347.64 | .00 | 2.47 | 2.99 | 3.000 | .000 | .00 | 1 .0 |
| 4.876 | .0751 | | | | | .0226 | .11 | 1.61 | 2.33 | 1.16 | .013 | .00 | .00 | PIPE |
| 633.426 | 3342.886 | 1.671 | 3344.557 | 58.00 | 14.34 | 3.19 | 3347.75 | .00 | 2.47 | 2.98 | 3.000 | .000 | .00 | 1 .0 |
| 4.053 | .0751 | | | | | .0199 | .08 | 1.67 | 2.17 | 1.16 | .013 | .00 | .00 | PIPE |
| 637.480 | 3343.191 | 1.737 | 3344.928 | 58.00 | 13.67 | 2.90 | 3347.83 | .00 | 2.47 | 2.96 | 3.000 | .000 | .00 | 1 .0 |
| 3.367 | .0751 | | | | | .0176 | .06 | 1.74 | 2.01 | 1.16 | .013 | .00 | .00 | PIPE |
| 640.847 | 3343.444 | 1.808 | 3345.251 | 58.00 | 13.03 | 2.64 | 3347.89 | .00 | 2.47 | 2.94 | 3.000 | .000 | .00 | 1 .0 |
| 2.779 | .0751 | | | | | .0156 | .04 | 1.81 | 1.87 | 1.16 | .013 | .00 | .00 | PIPE |
| 643.626 | 3343.652 | 1.882 | 3345.534 | 58.00 | 12.43 | 2.40 | 3347.93 | .00 | 2.47 | 2.90 | 3.000 | .000 | .00 | 1 .0 |
| 2.267 | .0751 | | | | | .0138 | .03 | 1.88 | 1.73 | 1.16 | .013 | .00 | .00 | PIPE |
| 645.892 | 3343.823 | 1.961 | 3345.783 | 58.00 | 11.85 | 2.18 | 3347.96 | .00 | 2.47 | 2.85 | 3.000 | .000 | .00 | 1 .0 |
| 1.808 | .0751 | | | | | .0123 | .02 | 1.96 | 1.59 | 1.16 | .013 | .00 | .00 | PIPE |
| 647.700 | 3343.958 | 2.046 | 3346.004 | 58.00 | 11.30 | 1.98 | 3347.99 | .00 | 2.47 | 2.79 | 3.000 | .000 | .00 | 1 .0 |
| 1.391 | .0751 | | | | | .0109 | .02 | 2.05 | 1.47 | 1.16 | .013 | .00 | .00 | PIPE |
| 649.091 | 3344.063 | 2.137 | 3346.199 | 58.00 | 10.77 | 1.80 | 3348.00 | .00 | 2.47 | 2.72 | 3.000 | .000 | .00 | 1 .0 |
| .999 | .0751 | | | | | .0098 | .01 | 2.14 | 1.35 | 1.16 | .013 | .00 | .00 | PIPE |
| 650.090 | 3344.138 | 2.235 | 3346.373 | 58.00 | 10.27 | 1.64 | 3348.01 | .00 | 2.47 | 2.62 | 3.000 | .000 | .00 | 1 .0 |
| .615 | .0751 | | | | | .0088 | .01 | 2.24 | 1.23 | 1.16 | .013 | .00 | .00 | PIPE |

Program Package Serial Number: 7156

WATER SURFACE PROFILE LISTING Date: 2- 6-2020 Time:10:45: 3

Savannah Summerlin Village 21 - Parcel E and F

By Roshan Poudel, Feb 07, 2020

SD Desgin for SD-2 (Forsyth Park St)

| Station / L/Elem | Invert Elev / Ch Slope | Depth (FT) | Water Elev | Q (CFS) | Vel (FPS) | Vel Head / SF Ave | Energy Grd.El. / HF | Super Elev / SE Dpth | Critical Depth / Froude N | Flow Top Width / Norm Dp | Height/ Dia.-FT / "N" | Base Wt or I.D. / X-Fall | ZL / ZR | No Wth Prs/Pip / Type Ch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 650.705 | 3344.184 | 2.343 | 3346.527 | 58.00 | 9.79 | 1.49 | 3348.02 | .00 | 2.47 | 2.48 | 3.000 | .000 | .00 | 1 .0 |
| .215 | .0751 | | | | | .0079 | .00 | 2.34 | 1.12 | 1.16 | .013 | .00 | .00 | PIPE |
| 650.920 | 3344.200 | 2.465 | 3346.665 | 58.00 | 9.33 | 1.35 | 3348.02 | .00 | 2.47 | 2.30 | 3.000 | .000 | .00 | 1 .0 |
| JUNCT STR | .0733 | | | | | | | 2.47 | 1.00 | | .013 | .00 | .00 | PIPE |
| 653.920 | 3344.420 | 1.743 | 3346.163 | 29.00 | 6.81 | .72 | 3346.88 | .00 | 1.74 | 2.96 | 3.000 | .000 | .00 | 1 .0 |
| 653.920 | 3344.420 | 1.846 | 3346.266 | 29.00 | 9.57 | 1.42 | 3347.69 | .00 | 1.85 | 1.07 | 2.000 | .000 | .00 | 1 .0 |
| 11.276 | .0100 | | | | | .0148 | .17 | 1.85 | 1.00 | 2.00 | .013 | .00 | .00 | PIPE |
| 665.196 | 3344.532 | 2.000 | 3346.532 | 29.00 | 9.23 | 1.32 | 3347.86 | .00 | 1.85 | .00 | 2.000 | .000 | .00 | 1 .0 |
| 26.854 | .0100 | | | | | .0159 | .43 | 2.00 | .00 | 2.00 | .013 | .00 | .00 | PIPE |
| 692.050 | 3344.800 | 2.173 | 3346.974 | 29.00 | 9.23 | 1.32 | 3348.30 | .00 | 1.85 | .00 | 2.000 | .000 | .00 | 1 .0 |

# HYDRAULIC CALCULATIONS

DI-Lateral Calculations



# Storm Drain Lateral Calculations (Ultimate Condition)

**Project Name:** Savannah Summerlin V21 - Parcel E and F
**Job Number:** WLH011803
**Location:** Summerlin, City of Las Vegas
**Designed By:** Roshan Poudel, Feb 7, 2020

Reference: Clark County Regional Flood Control Design Workshop, Jan 2007

$$DI_{\min} = CF + 0.5 + 1.2Hv + d$$

$$S_f = \frac{n^2 V^2}{1.486(D/4)^{1.33}}$$

$$V = Q / A$$

$$H_{fr} = L * S_f$$

$$H_{ent} = 0.2H_v$$

$$h_o = \frac{\left(Q/0.65A\right)^2}{2g}$$

$HGL_{mn}$: HGL in Main Line
HGLdn: HGL at downstream end of Lateral
$HGL_{up}$: HGL at upstream end of Lateral
$HGL_{di}$: HGL in Drop Inlet (greater of calc or Orifice)
$INV_{dn}$: Invert at downstream end of Lateral
$INV_{up}$: Invert at upstream end of Lateral
$DI_{act}$: Actual depth of drop inlet as shown on Uniform Standard Drawings

| Desc | $Q_{100}$ (cfs) | L (ft) | D (ft) | n | $INV_{dn}$ (ft) | $INV_{up}$ (ft) | V (fps) | $DI_{min}$ (ft) | $HGL_{mn}$ (ft) | $HGL_{dn}$ (ft) | $H_{fr}$ (ft) | $HGL_{up}$ (ft) | $H_{ent}$ (ft) | $h_o$ (ft) | $HGL_{di}$ (ft) | $DI_{act}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [1]*24" RCP | 10.03 | 9.33 | 2.0 | 0.013 | 3345.47 | 3345.52 | 3.19 | 3.36 | 3352.86 | 3352.861 | 0.02 | 3352.88 | 0.03 | 0.37 | 3352.91 | 8.4 |
| | | | | | | | | | | | | | | | | |
| [2]*24" RCP | 10.42 | 29.17 | 2.0 | 0.013 | 3345.28 | 3345.43 | 3.32 | 3.37 | 3351.30 | 3351.304 | 0.06 | 3351.37 | 0.03 | 0.40 | 3351.40 | 8.0 |
| | | | | | | | | | | | | | | | | |
| [3]*24" RCP | 11.73 | 23.54 | 2.0 | 0.013 | 3345.35 | 3346.41 | 3.73 | 3.43 | 3350.49 | 3350.485 | 0.06 | 3350.55 | 0.04 | 0.51 | 3350.59 | 7.5 |

[1]*24" RCP from SDDI#2 to SDMH#1 in Parcel E
[2]*24" RCP from SDDI#3 to SDMH#2 in Parcel E
[3]*24" RCP from SDDI#5 to SDMH#4 in Parcel E

# REFERENCES

**Savannah (Summerlin Village 21 Parcels E & F)**

Final Approval Letter (Includes CCRFCD Concurrence)
Figure 9 Ultimate Condition Basin Map (*Addendum #1*)

**Technical Drainage Study for Summerlin West**
**Village 21 Desert Foothills Drive (Far Hills Avenue to Street A),**
**DS#5013, VTN (2018 and 2019) and addenda**

**FOR STARTING HGL (as referenced in Original report)**
* Sheet GR1 - Grading Plans
* Sheet UT6 - Utility Plan & Profile 6 Storm Drain Lateral #4 (for Parcel E)
* Sheet UT9 - Utility Plan & Profile 6 Storm Drain Lateral #2 (for Parcel F)

Standard Form 6 for Lateral 4 (Update #2)
Standard Form 6 for Lateral 2 (Update #2)



| CITY OF LAS VEGAS<br>INTER-OFFICE MEMORANDUM | | | | DATE:<br>October 24, 2019 |
|---|---|---|---|---|
| TO:<br>**Land Development Services**<br>Department of Building & Safety | | | | FROM:<br>Jennifer Shinn, P.E.<br>Flood Control, Engr. Associate<br>Department of Public Works |
| **SUBJECT:** | Drainage Study for:<br>**Savannah Summerlin Village 21 – Parcel E & F** | | | **COPIES TO:**<br>Actus |
| **Cross Streets:** | Desert Foothills & Far Hills | | | William Lyon Homes, LLC |
| **File Number:** | F:\Depot\DSMemos\DS5152D.doc | | | Bart Anderson, P.E., DevCo |
| **Parcel Number:** | 137-27-614-001, 137-27-615-001 | | | CCRFCD |
| **Zoning Action:** | TMP-76874 | | | |
| **FEMA Flood Zone** | YES | NO **X** | | |
| **Proposed Storm Drain** | YES **X** | NO | | |

| HISTORY | DATE RECEIVED | DATE REVIEWED | COMMENTS | REVIEW FEES | FEES PAID Payment Trn # |
|---|---|---|---|---|---|
| 1st Submittal | 7/8/2019 | 7/25/2019 | See Comments Below | $400.00 | 3480927: $400 |
| 2nd Submittal | 8/26/2019 | 9/12/2019 | | $400.00 | 3542359: $400 |
| Structural Approval Recv'd | 9/16/2019 | 9/16/2019 | Conditional Approval | N/C | N/C |
| CCRFCD | 10/8/2019 | 10/23/2019 | Concurrence Recv'd | N/C | N/C |
| | | | **TOTAL FEES (LDDRS):** | **$800.00** | **----** |

## REMARKS:

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. |
| | is conditionally approved subject to Clark County Public Works Department concurrence. |

The following comments are repeated until they are complete:

1. The rough graded onsite without any permanent cover such as paving, building construction or planting, is considered an ongoing project under construction whereas a *Stormwater Pollution Prevention Plan* must be kept active under the NDEP Permit. In order to close out the permit, the developer must install permanent cover to the site to stabilize and control stormwater pollution to the satisfaction of NDEP.

2. Provide a low point grade at the proposed block wall opening at the northern drainage easement to direct flows and allow the area to drain.

3. Label proposed drainage easements as "**Public** Drainage Easement to be Privately Maintained by HOA" on Grading Plans and Detail Sheets.

4. Provide section detail for 32/C14 of the Unit 1 plans. Call out rip rap at the sump for water quality purposes.

**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**
jks

T/R/S: T20S/R59E/26
AREA K26

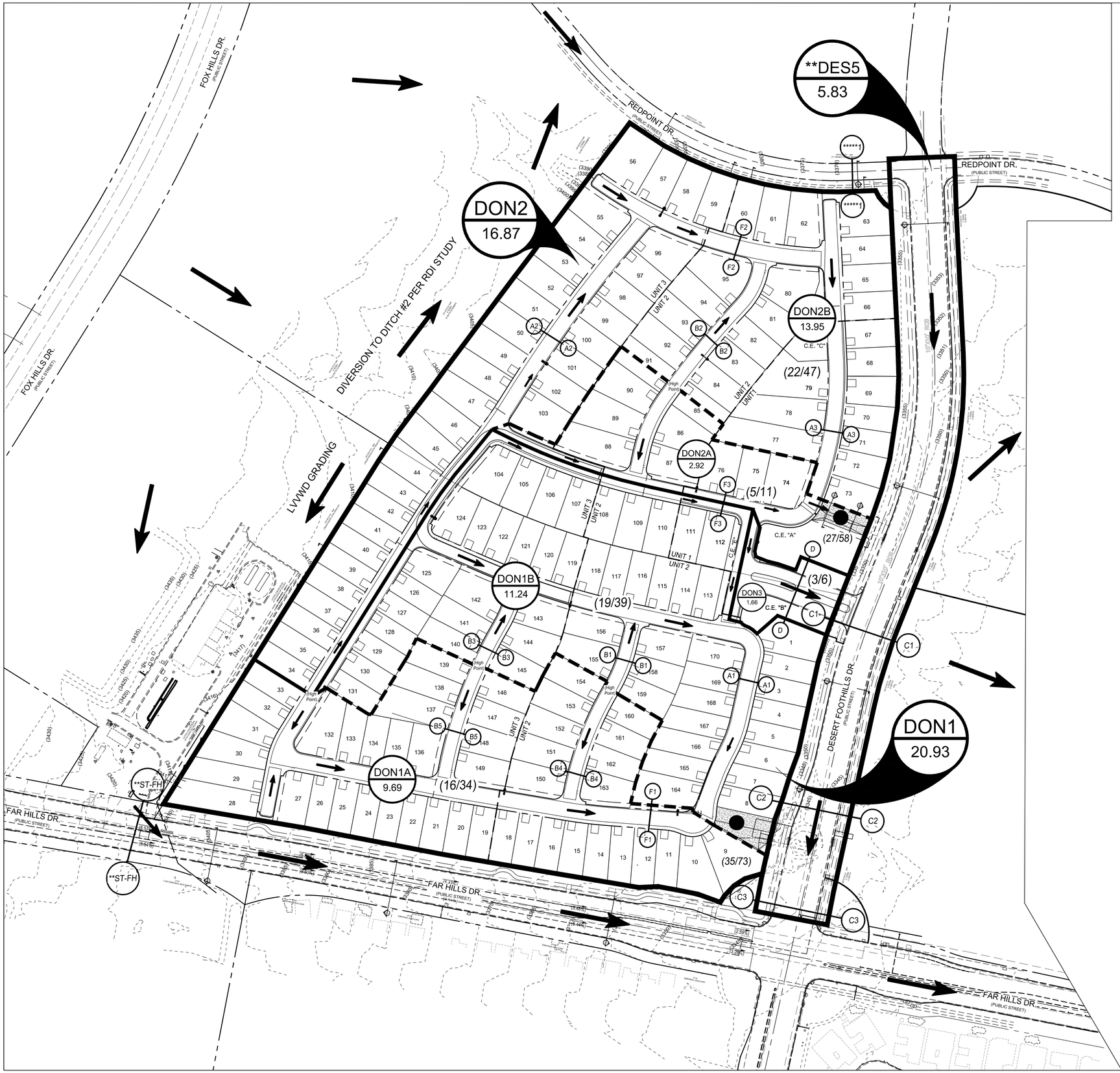



**TABLE 2**
**Flow Summary (Interim/Ultimate Condition)**

| BASIN ID/CONCENTRATION POINT | DRAINAGE AREA (acres) | Reference | Prorated Amount (10-year) cfs/acre | Prorated Amount (100-year) cfs/acre | $Q_{10}$ cfs | $Q_{100}$ cfs |
|---|---|---|---|---|---|---|
| DON1 | 20.93 | *HEC-1* | | | 35 | 73 |
| DON1A | 9.69 | | 1.67 | 3.49 | 16 | 34 |
| DON1B | 11.24 | | 1.67 | 3.49 | 19 | 39 |
| DON2 | 16.87 | *HEC-1* | | | 27 | 58 |
| DON2A | 2.92 | | 1.60 | 3.44 | 5 | 11 |
| DON2B | 13.95 | | 1.60 | 3.44 | 22 | 47 |
| DON3 | 1.66 | *HEC-1* | -- | -- | 3 | 6 |
| DES5 | *5.83 | *HEC-1* | -- | -- | 12 | 22 |
| **ST-FH | **13.14 | ***44 cfs* | N/A | 1/2 of basin | N/A | 22 |

*Referenced from Update #1to the Flood Control Master Plan Update for Summerlin West Planning Area, DS#4926, and addenda. VTN (2019)
**Referenced from the approved TDS for the Conceptual Drainage Study for Summerlin Village 23B Update #3, DS#3420, GCW (2013).

**TABLE 3a**
**10-year Street Flow Analysis (Interim/Ultimate Condition)**

| Street | Section | Slope (%) | Flow (10 year) (cfs) | Velocity (ft/s) | Flow Depth (ft) | VxD |
|---|---|---|---|---|---|---|
| Desert Foothills Dr. (Half Street) | C1 | 0.68 | *3 | 1.97 | 0.38 | 0.75 |
| Desert Foothills Dr. (Half Street) | C2 | 1.20 | **6 | 2.87 | 0.42 | 1.21 |

*Flows (Basin DON3). All upstream runoff intercepted by upstream drop inlet
**Flows (Basin DON3+1/4 Basin DES5) prior to entering 15' drop inlet

**TABLE 3b**
**100-year Street Flow Analysis (Interim/Ultimate Condition)**

| Street | Section | Min Slope (%) | Flow (100 year) (cfs) | Velocity (ft/s) | Flow Depth (ft) | VxD |
|---|---|---|---|---|---|---|
| *Far Hills Avenue (Half Street) | *ST-FH2 | 5.44 | *22 | 6.95 | 0.49 | 3.41 |
| Desert Foothills Dr. (Half Street) | C1 | 0.68 | **6 | 2.31 | 0.45 | 1.04 |
| Desert Foothills Dr. (Half Street) | C2 | 1.20 | ***12 | 3.35 | 0.51 | 1.71 |
| Desert Foothills Dr. (Half Street) | C3 | Sump | ****4.3 | 0.00 | 0.39 | 0.00 |
| Redpoint Dr. | *****1 | 2.30 | 15 | 3.90 | 1.60 | 6.24 |

*Flows referenced from the approved TDS for the Conceptual Drainage Study for Summerlin Village 23B Update #3, DS#3420, GCW (2013)
**Flows (Basin DON3). All upstream runoff intercepted by upstream drop inlet
***Flows (Basin DON3+1/4 Basin DES5) prior to entering 15' drop inlet
****Flows (4.3 cfs Bypass from 15' DI above)
*****Flows and normal depth calculations referenced from the approved TDS & Addendums for the Technical Drainage Study for Summerlin Village 21 Redpoint Drive Improvements (Fox Hill Drive to Desert Foothills Drive), DS#5088, and addenda, GCW (2019)

**TABLE 4 (Overall Site Flattest Street Slope - Highest WSE)**
**100-year Street Flow Analysis - Interior Streets (Ultimate Condition)**

| Street | Section | Min Slope (%) | Flow (100 year) (cfs) | Velocity (ft/s) | Flow Depth (ft) | VxD |
|---|---|---|---|---|---|---|
| Sundrenched Ave | D | 3.12 | 6 | 3.91 | 0.30 | 1.17 |
| Sarabeth St | A1 | 0.60 | 39 | 3.50 | 0.59 | 2.07 |
| Southern Peach St | B1 | 2.28 | ***10 | 3.88 | 0.35 | 1.36 |
| Pippa Ave | F1 | 2.12 | 34 | 4.86 | 0.49 | 2.38 |
| Forsyth Park | A3 | 1.21 | 47 | 4.65 | 0.57 | 2.65 |
| Jackalberry | B2 | 1.06 | **12 | 2.92 | 0.41 | 1.20 |
| Clarabelle Ave | F2 | 3.92 | 47 | 6.65 | 0.49 | 3.26 |
| Agnew St | A2 | 1.25 | ****24 | 3.60 | 0.48 | 1.73 |
| Lisett St | B3 | 3.31 | ***10 | 4.46 | 0.34 | 1.52 |
| Grassy Plain Ave | F3 | 5.00 | *21 | 6.18 | 0.39 | 2.41 |
| Southern Peach St | B4 | 2.28 | ^9 | 3.77 | 0.34 | 1.28 |
| Lisett St | B5 | 3.31 | ^9 | 4.34 | 0.33 | 1.43 |

*Flows (25% of DON1B + DON2A) taken conservatively.
**Flows (25% of DON2B) taken conservatively.
***Flows (25% of DON1B) taken conservatively. ^Flows (25% of DON1A) taken conservatively.
****Flows (50% of DON2B) taken conservatively.

**TABLE 5 (Overall Site Steepest Slope)**
**100-year Street Flow Analysis - Interior Streets (Ultimate Condition)**

| Street | Section | Max Slope (%) | Flow (100 year) (cfs) | Velocity (ft/s) | Flow Depth (ft) | VxD |
|---|---|---|---|---|---|---|
| Sundrenched Ave | D | 4.00 | 6 | 4.30 | 0.29 | 1.25 |
| Sarabeth St | A1 | 0.97 | 39 | 4.04 | 0.56 | 2.26 |
| Southern Peach St | B1 | 4.00 | ***10 | 4.78 | 0.33 | 1.58 |
| Pippa Ave | F1 | 6.00 | 34 | 7.22 | 0.43 | 3.10 |
| Forsyth Park | A3 | 1.21 | 47 | 4.65 | 0.57 | 2.65 |
| Jackalberry | B2 | 3.28 | **12 | 4.65 | 0.35 | 1.63 |
| Clarabelle Ave | F2 | 5.00 | 47 | 7.16 | 0.48 | 3.44 |
| Agnew St | A2 | 2.13 | ****24 | 4.43 | 0.45 | 1.99 |
| Lisett St | B3 | 4.00 | ***10 | 4.78 | 0.33 | 1.58 |
| Grassy Plain Ave | F3 | 5.00 | *21 | 6.18 | 0.39 | 2.41 |
| Southern Peach St | B4 | 4.00 | ^9 | 4.68 | 0.32 | 1.50 |
| Lisett St | B5 | 4.00 | ^9 | 4.68 | 0.32 | 1.50 |

*Flows (25% of DON1B + DON2A) taken conservatively.
**Flows (25% of DON2B) taken conservatively.
***Flows (25% of DON1B) taken conservatively. ^Flows (25% of DON1A) taken conservatively.
****Flows (50% of DON2B) taken conservatively.


Actus
3285 E. Warm Springs Rd., Suite 300
Las Vegas, NV 89120
www.Actus-NV.com
(702) 586-9286
Engineering - Surveying - Consulting - Planning


FIGURE 9 - ULTIMATE CONDITION BASINS MAP (UNIT 3)

# SUMMERLIN VILLAGE 21 - PARCEL E & F

WILLIAM LYON HOMES

CITY OF LAS VEGAS

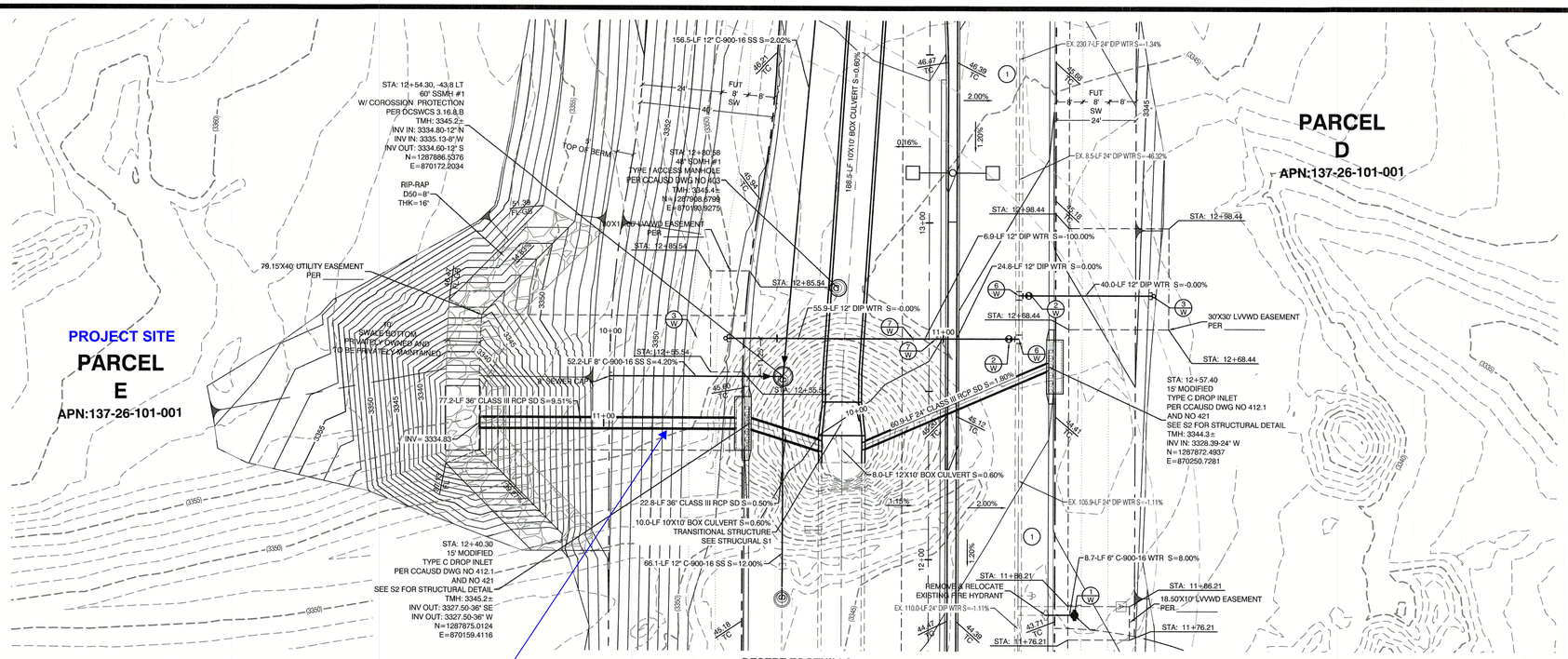
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|---|---|---|
| A | | |

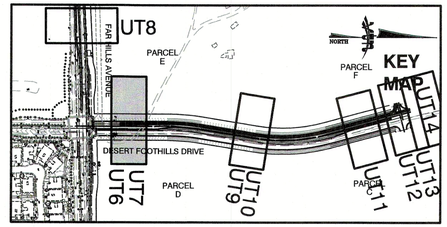
DATE 08-16-2019
DRAWN Ro.Po.
DESIGNED ALW
CHECKED DCL
PROJECT # WLH011803

SHEET TITLE
FIG 9

SHEET NUMBER
1


Plot Stamp: 8/16/2019 2:27:04 PM - Roshan Poudel
File: P:\WLH011803 - Parcel E&Studies & Reports\Drainage\Addendum#1\Exhibit\20190803 WLH011803 - FIGURE 9 - ULTIMATE CONDITION.dwg, Tab: Layout1




GRAPHIC SCALE

-20 0 10 20 40

1" = 20'

## CONSTRUCTION NOTES

| | WATER | PUBLIC |
|---|---|---|
| 1W | FIRE HYDRANT ASSEMBLY: (PER UDACS PLATE NO. 30, 39, 40 & 41) | 4 EA. |
| 2W | 12" GATE VALVE (PER UDACS PLATE 30 & 39) | 5 EA. |
| 3W | 12" CAP & BLOW OFF(PER UDACS PLATE 36) | 5 EA. |
| 4W | 24"X12" TAPPING SLEEVE W/12" TAPPING VALVE (PER UDACS PLATE 30, 34 & 39 & PER SECTION 2.24.01B) | 5 EA. |
| 5W | 12" 45° VERTICAL BEND (W/ RESTRAINTS) | 2 EA. |
| 6W | 12" 45° BEND (W/ RESTRAINTS) | 2 EA. |
| 7W | 1.5" TYPE K SOFT COPPER WATER LATERAL SERVICE WITH 1.5" METER PER UDACS PLATE #4 (IRRIGATION) AND 1.5" RPPA PER UDACS PLATE #8 PER DETAIL ON SHEET DT1 | 2 EA. |
| | 6" C-900-16 WATER LATERAL PER UDACS 2.06.01 & PLATE 17 | 170 LF. |
| | 12" DIP WATER PER UDACS 2.06.03 & PLATE 17 | 358 LF. |
| WPC | WATER POINT OF CONNECTION | |

| | SEWER | |
|---|---|---|
| S | STANDARD MANHOLE PER SD-1A & 1B W/ SINGLE 24" LID | 7 EA. |
| | 8" C-900-16 SANITARY SEWER MAIN | 100 LF. |
| | 12" C-900-16 SANITARY SEWER MAIN | 789 LF. |
| | 16" C-900-16 SANITARY SEWER MAIN | 156 LF. |
| | 8" SDR-35 PVC SANITARY SEWER MAIN | 2 EA. |
| | 12" SDR-35 PVC SANITARY SEWER MAIN | 1 EA. |
| | 16" SDR-35 PVC SANITARY SEWER MAIN | 2 EA. |
| SPC | SEWER POINT OF CONNECTION | |

## EASEMENT REFERENCE LEGEND

(1) 50' WIDE LAS VEGAS VALLEY WATER DISTRICT EASEMENT GRANTED PER OR: 20070529:0001401.

### FIRE HYDRANT NOTE:

(EXTENSION OF EXISTING LATERAL)
THE CONTRACTOR SHALL REMOVE AND RELOCATE BOTH THE UPPER AND LOWER BARRELS OF THE EXISTING FIRE HYDRANT(S) WHERE SHOWN, EXTEND THE EXISTING LATERAL AS REQUIRED, AND REINSTALL SUCH HYDRANT(S) AT THE NEW LOCATION(S) INDICATED. FIRE HYDRANTS SHALL BE TESTED PRIOR TO AND AFTER RELOCATION, UNDER THE DIRECTION OF LVVWD, TO ENSURE QUALITY. INSTALLATION SHALL BE IN ACCORDANCE WITH UDACS PLATE 40/41. LATERALS MADE OF UNAPPROVED MATERIALS SHALL BE REPLACED FROM THE MAIN TO THE FIRE HYDRANT. RELOCATIONS WHERE THE LATERAL CANNOT BE EXTENDED SHALL BE TREATED AS NEW INSTALLATIONS.

### DROP INLET NOTE:

WHERE 10 FEET PARALLEL SEPARATION IS NOT PRACTICABLE: CAST-IN-PLACE MONOLITHIC POUR WITH WATERSTOP BETWEEN SLAB AND WALLS. BASE, WALLS AND TOP TO BE CONSTRUCTED WITH WATERSTOPS, CENTER BULB, OR FLAT STRIP. (VINYLEX, GREENSTREAK PLASTIC PRODUCTS OR APPROVED EQUAL)

### LVVWD EXISTING FACILITIES NOTE:

PROTECT IN PLACE AND ADJUST LVVWD EXISTING FACILITIES TO FINISHED GRADE PER UDACS. ALL LVVWD FACILITIES SHALL BE ACCESSIBLE AT ALL TIMES.

### LVVWD NOTE:

CONTRACTOR SHALL SUBMIT STRUCTURAL CALCULATIONS PREPARED BY A NEVADA LICENSED STRUCTURAL ENGINEER FOR CROSSINGS WITH WATER WHERE THE TRENCH IS SIX (6) FEET OR GREATER. CONTACT ENGINEERING SERVICES FOR INDICATIONS ON PACKAGE SUBMITTAL. PIPE SUPPORT PLANS MUST BE SUBMITTED A MINIMUM OF 30 DAYS PRIOR TO COMMENCEMENT OF WORK. PIPE SUPPORTS FOR TRANSMISSION MAINS (24-INCH AND LARGER) WILL BE LIMITED TO A MAXIMUM OF 1 WEEK. A SCHEDULE OF WATER MAINS SUPPORTED MUST BE PROVIDED TO LVVWD ENGINEERING SERVICES.

### LVVWD NOTE:

IN AREAS WHERE THE EXCAVATION OR GROUND ELEVATION IS LESS THAN THREE (3) FEET, FROM THE TOP OF THE LVVWD TRANSMISSION MAIN, NO EXCAVATION EQUIPMENT, OTHER THAN HAND HELD EQUIPMENT WILL BE ALLOWED WITHIN TEN (10) FEET OF THE PIPELINE IN THESE AREAS. THE CONTRACTOR IS TO PLACE A CONCRETE BARRIER; I.E. JERSEY RAIL, TO IDENTIFY AND PROTECT THE "NO EQUIPMENT ZONE".

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT:135582 FIRST APPROVED DATE: _____

LVVWD APPROVED FIRE FLOW: TOTAL 1500 GPM/ONSITE N/A GPM

### OFFSITE FLOOD CONTROL NOTE:

ALL OFFSITE INTERIM FLOOD CONTROL FACILITIES SUCH AS BUT NOT LIMITED TO BERMS/DITCHES AND TEMPORARY SUMPS ARE PRIVATELY OWNED AND TO BE PRIVATELY MAINTAINED BY THE HOWARD HUGHES COMPANY.

### STORM DRAIN DROP INLET NOTE:

ALL STORM DRAIN INLETS SHALL INCLUDE A STORM WATER INLET CONCRETE STAMP IN ACCORDANCE WITH CCAUSD DWG NO. 421

### RESTRAINTS NOTE:

ALL FITTINGS AND JOINT ON 12 INCH DIP TO BE RESTRAINED.

### WATER PRESSURE ZONE:

WATER SERVICE LOCATED IN THE 3550 PRESSURE ZONE.

### WATER MAIN COVER NOTE:

ALL NEW WATER MAIN TO HAVE MINIMUM DEPTH OF COVER PER UDACS SECTION 2.08

### WATERLINE TRENCH NOTE:

CONSTRUCT WATERLINE TRENCH SECTION AND BACKFILL PER UDACS PLATE NO. 17.

### WATER LINE MARKER BALLS NOTE

INSTALL PIPELINE MARKER BALLS IN TRENCH ABOVE EACH HORIZONTAL ELBOW FITTING, PER UDACS PLATE No. 15

### FIRE HYDRANT MARKER NOTES

BLUE COLORED REFLECTIVE RAISED PAVEMENT MARKERS ARE TO BE INSTALLED:

1. ON ROADWAYS WITH NO PARKING PERMITTED ON HYDRANT SIDE; LOCATE MAKER 8' FROM FACE OF CURB ON HYDRANT SIDE.
2. ON ROADWAYS WITH PARKING PERMITTED ON HYDRANT SIDE; LOCATE MARKER 16' FROM FACE OF CURB ON HYDRANT SIDE.

### WATER MAIN JOINT DEFLECTION

PVC PIPE SHALL BE DEFLECTED AT THE JOINT ONLY. THE MAXIMUM ALLOWABLE DEFLECTION SHALL BE ONE (1) DEGREE PER JOINT WITH A MINIMUM RADIUS OF CURVATURE OF 1,150 FEET, PER UDACS 2.07.01 AND 2.07.02.

FOR CHANGES IN DIRECTION EXCEEDING THE MAXIMUM ALLOWABLE JOINT DEFLECTION, FITTINGS SHALL BE USED.

### UTILITY CROSSING NOTE:

ALL SEWER/STORM DRAINS CROSSING WATER LINES MUST CONFORM TO SECTION 2.22 OF UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR PORTABL WATER SYSTEMS (UDACS) FOR WATER AND STORM MAIN CROSSINGS AND CLEARANCES.

### ENGINEER DISCLAIMER NOTE:

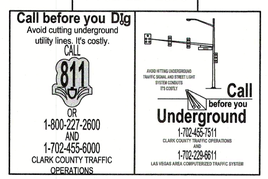
UTILITY LOCATIONS SHOWN HERE ON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UNDERGROUND AND OVERHEAD UTILITIES AND NOTIFY THE DESIGN ENGINEER IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HERE ON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION.

### LAS VEGAS FIRE & RESCUE APPROVAL

BY: _____ DATE: _____

APPROVAL OF THESE PLANS 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. FIRE FLOW 1500 GPM AT 20 P.S.I. RESIDUAL.




| REV | DATE | BY | REVISION |
|---|---|---|---|
| 2 | 02/12/2019 | BCC | REVERSED FLOW DIRECTION OF TEMPORARY CHANNEL<br>REMOVED HEADWALL ADDED INTERSECTION INFORMATION |
| | | | REVISED HGL'S & SD PIPE FROM 48" TO 54" PER REVISION 1 |

HOWARD HUGHES COMPANY, LLC
A DELAWARE LIMITED LIABILITY COMPANY
10801 W. CHARLESTON BLVD SUITE 300
LAS VEGAS, NEVADA 89135
702-791-4000

CITY OF LAS VEGAS

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LAS VEGAS, NEVADA 89146-5148
PH. (702) 873-7550 FAX (702) 362-2597 WEB WWW.VTNNV.COM
CONSULTING ENGINEERS ● PLANNERS ● LAND SURVEYORS

# UTILITY PLAN & PROFILE 6
# STORM DRAIN LATERAL

# SUMMERLIN WEST VILLAGE 21
# DESERT FOOTHILLS DRIVE
# FAR HILLS TO REDPOINT DRIVE

DRAWN BY: BCC
DESIGNED BY: DEH
CHECKED BY: WJM
PROJECT NO: 7951

06/18/2018
04/11/2018
02/12/2018

SCALE: HORIZ. 1"=20' VERT. 1"=4'

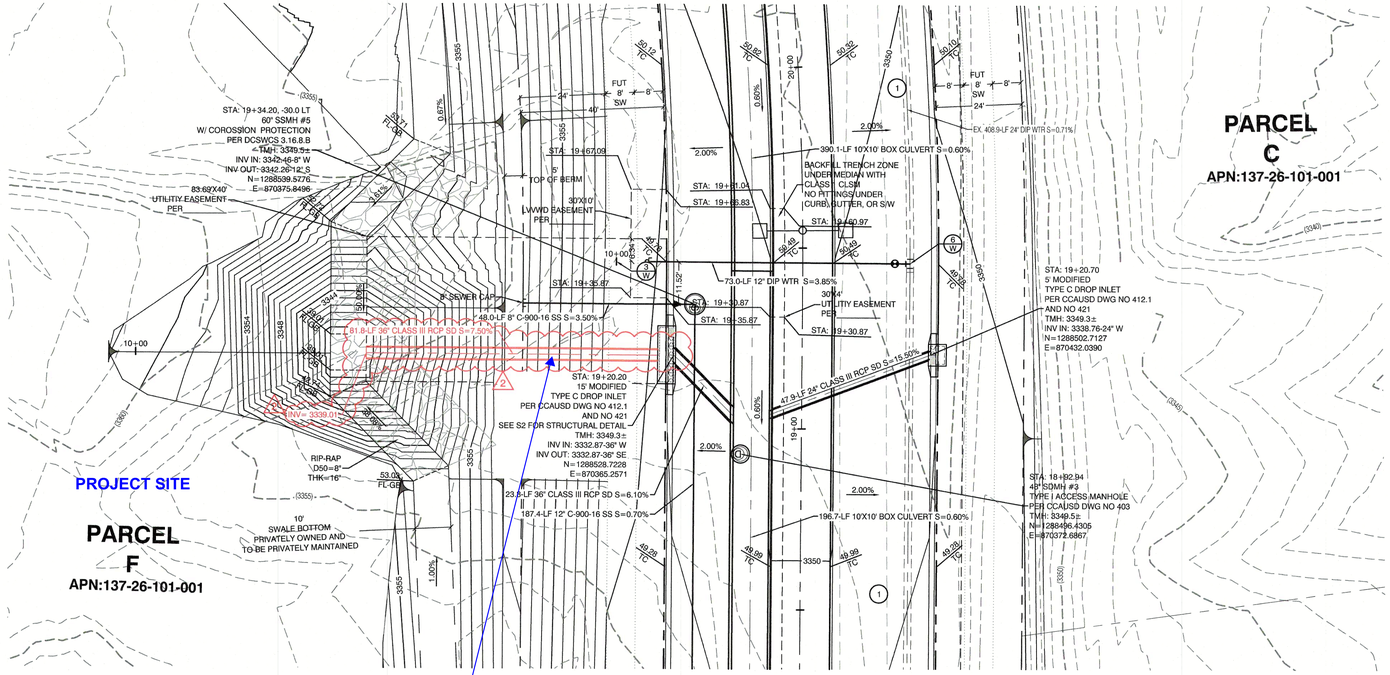
WILLIAM J. MEYER
EXP: 12/31/19
CIVIL
PROFESSIONAL ENGINEER - STATE OF NEVADA
No. 15745
2/12/19

SHEET
UT6
21 OF 37 SHEETS

DRAWING NO.
L18-01896

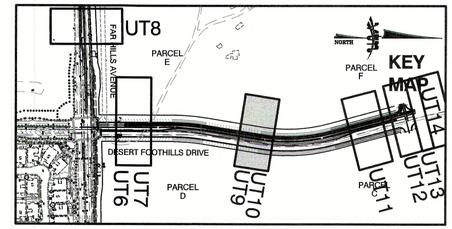
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107V7501




LATERAL #2 FROM FIGURE 9




GRAPHIC SCALE

40 0 20 40 80

1" = 40 '

## CONSTRUCTION NOTES

| | | WATER | PUBLIC |
|---|---|---|---|
| 4 W | | FIRE HYDRANT ASSEMBLY: (PER UDACS PLATE NO. 30, 39, 40 & 41) | 4 EA. |
| 5 W | | 12" GATE VALVE (PER UDACS PLATE 30 & 39) | 5 EA. |
| 5 W | | 12" CAP & BLOW OFF(PER UDACS PLATE 36) | 5 EA. |
| 4 W | | 24"X12" TAPPING SLEEVE W/12" TAPPING VALVE (PER UDACS PLATE 30, 34 & 39 & PER SECTION 2.24.01B) | 5 EA. |
| 5 W | | 12" 45° VERTICAL BEND (W/ RESTRAINTS) | 2 EA. |
| 6 W | | 12" 45° BEND (W/ RESTRAINTS) | 2 EA. |
| W | | 1.5" TYPE K SOFT COPPER WATER LATERAL SERVICE WITH 1.5" METER PER UDACS PLATE #4 (IRRIGATION) AND 1.5" RPPA PER UDACS PLATE #8 PER DETAIL ON SHEET DT1 | 2 EA. |
| | | 6" C-900-16 WATER LATERAL PER UDACS 2.06.01 & PLATE 17 | 170 LF. |
| | | 12" DIP WATER PER UDACS 2.06.03 & PLATE 17 | 358 LF. |
| | POC | WATER POINT OF CONNECTION | |

| | | SEWER | |
|---|---|---|---|
| | S | STANDARD MANHOLE PER SD-1A & 1B W/ SINGLE 24" LID | 7 EA. |
| | | 8" C-900-16 SANITARY SEWER MAIN | 100 LF. |
| | | 12" C-900-16 SANITARY SEWER MAIN | 789 LF. |
| | | 16" C-900-16 SANITARY SEWER MAIN | 156 LF. |
| | [ | 8" SDR-35 PVC SANITARY SEWER MAIN | 2 EA. |
| | [ | 12" SDR-35 PVC SANITARY SEWER MAIN | 1 EA. |
| | [ | 16" SDR-35 PVC SANITARY SEWER MAIN | 2 EA. |
| | POC | SEWER POINT OF CONNECTION | |

## EASEMENT REFERENCE LEGEND

(1) 50' WIDE LAS VEGAS VALLEY WATER DISTRICT EASEMENT GRANTED PER OR: 20070529:0001401.

## RESTRAINTS NOTE:

ALL FITTINGS AND JOINT ON 12 INCH DIP TO BE RESTRAINED.

## OFFSITE FLOOD CONTROL NOTE:

ALL OFFSITE INTERIM FLOOD CONTROL FACILITIES SUCH AS BUT NOT LIMITED TO BERMS/DITCHES AND TEMPORARY SUMPS ARE PRIVATELY OWNED AND TO BE PRIVATELY MAINTAINED BY THE HOWARD HUGHES COMPANY.

## LVVWD NOTE:

CONTRACTOR SHALL SUBMIT STRUCTURAL CALCULATIONS PREPARED BY A NEVADA LICENSED STRUCTURAL ENGINEER FOR CROSSINGS WITH WATER WHERE THE TRENCH IS SIX (6) FEET OR GREATER. CONTACT ENGINEERING SERVICES FOR INDICATIONS ON PACKAGE SUBMITTAL. PIPE SUPPORT PLANS MUST BE SUBMITTED A MINIMUM OF 30 DAYS PRIOR TO COMMENCEMENT OF WORK. PIPE SUPPORTS FOR TRANSMISSION MAINS (24-INCH AND LARGER) WILL BE LIMITED TO A MAXIMUM OF 1 WEEK. A SCHEDULE OF WATER MAINS SUPPORTED MUST BE PROVIDED TO LVVWD ENGINEERING SERVICES.

## LVVWD NOTE:

IN AREAS WHERE THE EXCAVATION OR GROUND ELEVATION IS LESS THAN THREE (3) FEET, FROM THE TOP OF THE LVVWD TRANSMISSION MAIN, NO EXCAVATION EQUIPMENT, OTHER THAN HAND HELD EQUIPMENT WILL BE ALLOWED WITHIN TEN (10) FEET OF THE PIPELINE IN THESE AREAS. THE CONTRACTOR IS TO PLACE A CONCRETE BARRIER; I.E. JERSEY RAIL, TO IDENTIFY AND PROTECT THE "NO EQUIPMENT ZONE".

## STORM DRAIN DROP INLET NOTE:

ALL STORM DRAIN INLETS SHALL INCLUDE A STORM WATER INLET CONCRETE STAMP IN ACCORDANCE WITH CCAUSD DWG NO. 421

## DROP INLET NOTE:

WHERE 10 FEET PARALLEL SEPARATION IS NOT PRACTICABLE: CAST-IN-PLACE MONOLITHIC POUR WITH WATERSTOP BETWEEN SLAB AND WALLS. BASE, WALLS AND TOP TO BE CONSTRUCTED WITH WATERSTOPS, CENTER BULB, OR FLAT STRIP. (VINYLEX, GREENSTREAK PLASTIC PRODUCTS OR APPROVED EQUAL)

## LVVWD EXISTING FACILITIES NOTE:

PROTECT IN PLACE AND ADJUST LVVWD EXISTING FACILITIES TO FINISHED GRADE PER UDACS. ALL LVVWD FACILITIES SHALL BE ACCESSIBLE AT ALL TIMES.

## WATER PRESSURE ZONE:

WATER SERVICE LOCATED IN THE 3550 PRESSURE ZONE.

## WATER MAIN COVER NOTE:

ALL NEW WATER MAIN TO HAVE MINIMUM DEPTH OF COVER PER UDACS SECTION 2.08

## WATERLINE TRENCH NOTE:

CONSTRUCT WATERLINE TRENCH SECTION AND BACKFILL PER UDACS PLATE NO. 17.

## WATER LINE MARKER BALLS NOTE

INSTALL PIPELINE MARKER BALLS IN TRENCH ABOVE EACH HORIZONTAL ELBOW FITTING, PER UDACS PLATE No. 15

## FIRE HYDRANT MARKER NOTES

BLUE COLORED REFLECTIVE RAISED PAVEMENT MARKERS ARE TO BE INSTALLED:

1. ON ROADWAYS WITH NO PARKING PERMITTED ON HYDRANT SIDE; LOCATE MAKER 8' FROM FACE OF CURB ON HYDRANT SIDE.
2. ON ROADWAYS WITH PARKING PERMITTED ON HYDRANT SIDE; LOCATE MARKER 16' FROM FACE OF CURB ON HYDRANT SIDE.

## WATER MAIN JOINT DEFLECTION

PVC PIPE SHALL BE DEFLECTED AT THE JOINT ONLY. THE MAXIMUM ALLOWABLE DEFLECTION SHALL BE ONE (1) DEGREE PER JOINT WITH A MINIMUM RADIUS OF CURVATURE OF 1,150 FEET, PER UDACS 2.07.01 AND 2.07.02.

FOR CHANGES IN DIRECTION EXCEEDING THE MAXIMUM ALLOWABLE JOINT DEFLECTION, FITTINGS SHALL BE USED.

## UTILITY CROSSING NOTE:

ALL SEWER/STORM DRAINS CROSSING WATER LINES MUST CONFORM TO SECTION 2.22 OF UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR PORTABL WATER SYSTEMS (UDACS) FOR WATER AND STORM MAIN CROSSINGS AND CLEARANCES.

## ENGINEER DISCLAIMER NOTE:

UTILITY LOCATIONS SHOWN HERE ON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UNDERGROUND AND OVERHEAD UTILITIES AND NOTIFY THE DESIGN ENGINEER IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HERE ON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION.

## LAS VEGAS FIRE & RESCUE APPROVAL

BY: _____ DATE: _____

APPROVAL OF THESE PLANS 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. FIRE FLOW 1500 GPM AT 20 P.S.I. RESIDUAL.

**APPROVED FOR CONSTRUCTION**

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT:135582 FIRST APPROVED DATE: _____

LVVWD APPROVED FIRE FLOW: TOTAL 1500 GPM/ONSITE N/A GPM




| REV | DATE | BY | REVISION |
|---|---|---|---|
| 2 | 02/12/2019 | BCC | REVERSED FLOW DIRECTION OF TEMPORARY CHANNEL |
| | | | REMOVED HEADWALL ADDED INTERSECTION INFORMATION |
| | | | REVISED HGL'S & SD PIPE FROM 48" TO 54" PER REVISION 1 |

CITY OF LAS VEGAS


HOWARD HUGHES COMPANY, LLC
A DELAWARE LIMITED LIABILITY COMPANY
10801 W CHARLESTON BLVD SUITE 300
LAS VEGAS, NEVADA 89135
(702) 476-3400

2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148
PH. (702) 873-7550 FAX (702) 362-2697 WEB WWW.VTNNV.COM
CONSULTING ENGINEERS ● PLANNERS ● LAND SURVEYORS


UTILITY PLAN & PROFILE 9
STORM DRAIN LATERAL

SUMMERLIN WEST VILLAGE 21
DESERT FOOTHILLS DRIVE
FAR HILLS TO REDPOINT DRIVE

| DRAWN BY: | DESIGNED BY: | CHECKED BY: | PROJECT NO: |
|---|---|---|---|
| BCC | DEH | WJM | 7851 |
| 06/18/2018 | 06/18/2018 | 02/12/2018 | SCALE: 1"=20' HORIZ. 1"=4' VERT. |

WILLIAM J. MEYER
EXP: 12/31/19
CIVIL
No. 15745
STATE OF NEVADA
PROFESSIONAL ENGINEER
2/12/19

SHEET
UT9
24 OF 37 SHEETS

DRAWING NO.
L18-01896

H:\7851\Desert Foothills Drive South\Sheet Set\7851-UT-LAT.dwg

107V7501

**Starting HGL and EGL**

| Tailwater Elevation | Outlet Invert Elevation | Tailwater Depth (ft) | Critical Depth-Dc (ft) | Pipe Diameter-D (ft) | (Dc+D)/2 (ft) | Starting HGL (ft) | Hv (ft) | Starting EGL (ft) |
|---|---|---|---|---|---|---|---|---|
| 3332.88 | 3327.38 | 5.49 | 1.70 | 3.0 | 2.349 | 3332.877 | 2.14 | 3335.02 |

$$Sf = \frac{\Phi Hv}{R^{1.33}} \qquad \Phi = \frac{2g\,(n^2)}{2.21}$$

# STANDARD FORM 6

**DEVELOPMENT:** Desert Foothills Drive (Far Hiis to Street A)
**CALCULATED BY:** JYA **WO#** 7851-5.1
**STORM DRAIN SEGMENT:** Lateral 4 West
**DESCRIPTION:** 100-YEAR ULTIMATE CONDITION

**Phi Index**

| n Value | Phi |
|---|---|
| 0.013 | 0.004925 |

$$H_j = ({V_2}^2/_{2g}) - K_j({V_1}^2/_{2g}) \qquad H_m = K_m({V_2}^2/_{2g}) \qquad H_b = K_b({V_2}^2/_{2g}) \qquad H_i = K_i({V_2}^2/_{2g})$$

| Segment Number | Segment Type | Starting Station | Ending Station | Diameter (ft) | D/S Invert | U/S Invert | Length (ft) | Area (sq, ft) | Phi | Flow (cfs) | Slope (%) | Velocity (fps) | Hv (ft) | Sf (ft/ft) | Ave. Sf (ft/ft) | Hf (ft) | Hj (ft) | Hm (ft) | Hb (ft) | Hi (ft) | H_ (ft) | H Total (ft) | U/S EGL Elevation | U/S HGL Elevation | Pressure Flow ? | D/S EGL of U/S Segment | Final U/S EGL | Final U/S HGL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | PIPE | 10+00.00 | 10+22.80 | 3 | 3327.38 | 3327.50 | 22.8 | 7.07 | 0.00492 | 83.0 | 0.50 | 11.74 | 2.14 | 0.01546 | 0.01546 | 0.35 | | | | | | 0.35 | 3335.37 | 3333.23 | Yes | 3332.64 | 3335.37 | 3333.23 |
| 2 | DI | 10+22.80 | 10+22.80 | 3 | 3327.50 | 3327.50 | 0.0 | 7.07 | 0.00492 | 83.0 | N/A | 11.74 | 2.14 | 0.01546 | 0.01546 | 0.00 | | 0.20 | | 1.07 | | 1.27 | 3336.64 | 3334.50 | Yes | 3332.39 | 3336.64 | 3334.50 |
| 3 | PIPE | 10+22.80 | 10+99.96 | 3 | 3327.50 | 3334.83 | 77.2 | 7.07 | 0.00492 | 78.0 | 9.51 | 11.03 | 1.89 | 0.01365 | 0.01455 | 1.12 | | | | | | 1.12 | 3337.77 | 3335.88 | Yes | 3339.72 | 3339.72 | 3337.83 |
| 4 | STUB | 10+99.96 | 10+99.96 | 3 | 3334.83 | 3334.83 | 0.0 | 7.07 | 0.00492 | 78.0 | N/A | 11.03 | 1.89 | 0.01365 | 0.01365 | 0.00 | | | | | | 0.00 | 3339.72 | 3337.83 | | | | |

**Manholes/Transition Losses**

| | Straight Through Manhole | | | | Junction Manhole | | | | | Bend Losses | | | | Inlet Losses | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Segment Number | Deflection Angle | Km | Hv (ft) | Hm (ft) | Junction Angle | Kj | D/S Hv (ft) | U/S Hv (ft) | Hj (ft) | Bend Angle | Kb | Hv (ft) | Hb (ft) | Ki | Hv (ft) | Hi (ft) |
| 1 | | | | | | | | | | | | | | | | |
| 2 | 17 | 0.095 | 2.141 | 0.203 | | | | | | | | | | 0.5 | 2.141 | 1.070 |
| 3 | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | |

| HGL Criteria Check | | | |
|---|---|---|---|
| Segment Description | TMH Elevation | Cover (ft) | Criteria Met? |
| PIPE | | | |
| DI | 3345.208 | 10.705 | Yes |
| PIPE | | | |
| STUB | 3354 | 16.166 | Yes |

| Box | | Elliptical/ Other | | | |
|---|---|---|---|---|---|
| Span (ft) | Rise (ft) | Rise (ft) | Area ($ft^2$) | Hyd. Rad. (ft) | # |
| | | | | | 1.00 |
| | | | | | 1.00 |
| | | | | | 1.00 |
| | | | | | 1.00 |

**LATERAL #4 FROM FIGURE 9**
**FOR PARCEL E RUNOFF**

**Starting HGL and EGL**

| Tailwater Elevation | Outlet Invert Elevation | Tailwater Depth (ft) | Critical Depth-Dc (ft) | Pipe Diameter-D (ft) | (Dc+D)/2 (ft) | Starting HGL (ft) | Hv (ft) | Starting EGL (ft) |
|---|---|---|---|---|---|---|---|---|
| 3341.39 | 3331.42 | 9.97 | 2.57 | 3.0 | 2.785 | 3341.394 | 1.52 | 3342.92 |

$$Sf = \frac{\Phi Hv}{R^{1.33}} \qquad \Phi = \frac{2g\,(n^2)}{2.21}$$

# STANDARD FORM 6

**DEVELOPMENT:** Desert Foothills Drive (Far Hiis to Street A)
**CALCULATED BY:** AH **WO#** 7851-5.1
**STORM DRAIN SEGMENT:** Lateral 2
**DESCRIPTION:** 100-YEAR ULTIMATE CONDITION

**Phi Index**

| n Value | Phi |
|---|---|
| 0.013 | 0.004925 |

$$H_j = ({V_2}^2/_{2g}) - K_j({V_1}^2/_{2g}) \qquad H_m = K_m({V_2}^2/_{2g}) \qquad H_b = K_b({V_2}^2/_{2g}) \qquad H_i = K_i({V_2}^2/_{2g})$$

| Segment Number | Segment Type | Starting Station | Ending Station | Diameter (ft) | D/S Invert | U/S Invert | Length (ft) | Area (sq, ft) | Phi | Flow (cfs) | Slope (%) | Velocity (fps) | Hv (ft) | Sf (ft/ft) | Ave. Sf (ft/ft) | Hf (ft) | Hj (ft) | Hm (ft) | Hb (ft) | Hi (ft) | H_ (ft) | H Total (ft) | U/S EGL Elevation | U/S HGL Elevation | Pressure Flow ? | D/S EGL of U/S Segment | Final U/S EGL | Final U/S HGL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | PIPE | 10+00.00 | 10+23.81 | 3 | 3331.42 | 3332.87 | 23.8 | 7.07 | 0.00492 | 70.0 | 6.10 | 9.90 | 1.52 | 0.01099 | 0.01099 | 0.26 | | | | | | 0.26 | 3343.18 | 3341.66 | Yes | 3337.39 | 3343.18 | 3341.66 |
| 2 | DI | 10+23.81 | 10+23.81 | 3 | 3332.87 | 3332.87 | 0.0 | 7.07 | 0.00492 | 70.0 | N/A | 9.90 | 1.52 | 0.01099 | 0.01099 | 0.00 | | 0.59 | | 0.76 | | 1.35 | 3344.53 | 3343.00 | Yes | 3337.18 | 3344.53 | 3343.00 |
| 3 | PIPE | 10+23.81 | 11+05.62 | 3 | 3332.87 | 3339.01 | 81.8 | 7.07 | 0.00492 | 65.0 | 7.50 | 9.20 | 1.31 | 0.00948 | 0.01024 | 0.84 | | | | | | 0.84 | 3345.36 | 3344.05 | Yes | 3343.32 | 3345.36 | 3344.05 |
| 4 | STUB | 11+05.62 | 11+05.62 | 3 | 3339.01 | 3339.01 | 0.0 | 7.07 | 0.00492 | 65.0 | N/A | 9.20 | 1.31 | 0.00948 | 0.00948 | 0.00 | | | | | | 0.00 | 3345.36 | 3344.05 | | | | |

**Manholes/Transition Losses**

| | Straight Through Manhole | | | | Junction Manhole | | | | | Bend Losses | | | | Inlet Losses | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Segment Number | Deflection Angle | Km | Hv (ft) | Hm (ft) | Junction Angle | Kj | D/S Hv (ft) | U/S Hv (ft) | Hj (ft) | Bend Angle | Kb | Hv (ft) | Hb (ft) | Ki | Hv (ft) | Hi (ft) |
| 1 | | | | | | | | | | | | | | | | |
| 2 | 45 | 0.385 | 1.523 | 0.586 | | | | | | | | | | 0.5 | 1.523 | 0.761 |
| 3 | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | |

| HGL Criteria Check | | | |
|---|---|---|---|
| Segment Description | TMH Elevation | Cover (ft) | Criteria Met? |
| PIPE | | | |
| DI | 3349.302 | 6.299 | Yes |
| PIPE | | | |
| STUB | 3358 | 13.949 | Yes |

| Box | | Elliptical/ Other | | | |
|---|---|---|---|---|---|
| Span (ft) | Rise (ft) | Rise (ft) | Area ($ft^2$) | Hyd. Rad. (ft) | # |
| | | | | | 1.00 |
| | | | | | 1.00 |
| | | | | | 1.00 |
| | | | | | 1.00 |

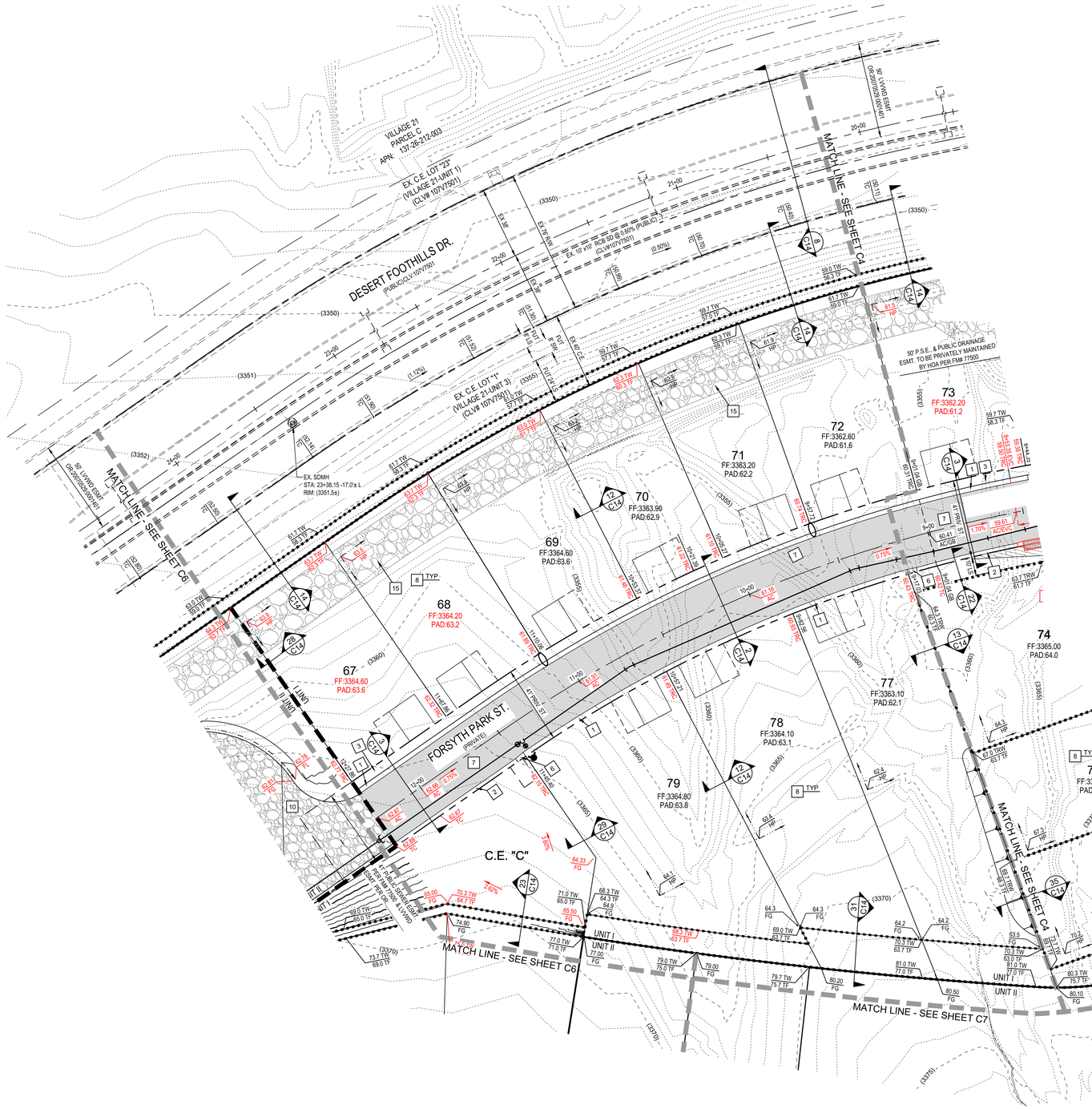
**LATERAL #2 FROM FIGURE 9**
**FOR PARCEL F RUNOFF**

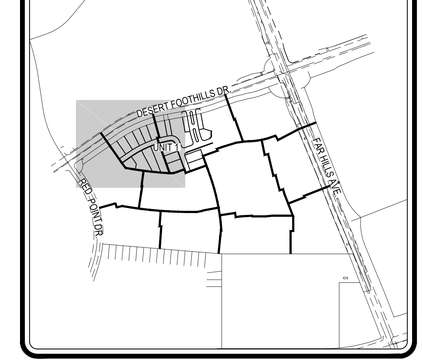
GRADING PLANS AND DETAILS

# REDLINED PLANS FROM APPROVED UNIT 1 - MODELS PLAN SETS

# GRADING PLANS AND DETAILS






KEY MAP
SCALE: NTS

SCALE: 1"= 30'
30 15 0 30

## DRAINAGE QUANTITIES

| DESCRIPTION | UNIT | PUBLIC | PRIVATE |
|---|---|---|---|
| TYPE CM2 DROP INLET | EA | 2 | - |
| 24" STORM DRAIN | LF | 38 | - |
| 36" STORM DRAIN | EA | 72 | - |
| DRAINAGE EASEMENT BOLLARD | EA | 8 | - |

## GRADING CONSTRUCTION NOTES

1. CONSTRUCT 30" MODIFIED ROLL CURB AND GUTTER PER CCAUSD #217.1
2. CONSTRUCT "L" CURB AND GUTTER PER CCAUSD #216
3. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234
4. CONSTRUCT 8' CROSS GUTTER PER CCAUSD #228
5. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE I. "A" & "B" = 8' UNLESS OTHERWISE NOTED
6. CONSTRUCT 5' TRANSITION "L" CURB TO TYPE 30" MODIFIED ROLL CURB PER DETAIL "A" ON SHEET C15
7. INSTALL 2" AC OVER 4" TYPE II AGGREGATE BASE
8. CONSTRUCT PAD PER TYPICAL PAD SECTION DETAIL "B" ON SHEET C15
9. MATCH EX. ASPHALT, CURB, SIDEWALK, GUTTER, OR VALLEY GUTTER. SAW CUT CLEAN EDGE FOR CONNECTION.
10. INSTALL TEMPORARY 2" OF TYPE II AGGREGATE BASE 95% COMPACTION MEETING REQUIREMENTS FOR H-20 LOADING.
11. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE II. "A" & "B" = 6.5' UNLESS OTHERWISE NOTED
12. CONNECT TO EX. SD LINE (CONTRACTOR TO VERIFY SIZE, INVERT AND LOCATION OF EX. SD)
13. CONSTRUCT WROUGHT IRON FENCE PER DETAIL "C", SHEET C15
14. CONSTRUCT SIDEWALK DRAIN PER CCAUSD #236
15. EXISTING RIP-RAP CHANNEL TO BE REMOVED.
16. EXISTING AC PAVEMENT TO BE REMOVED
17. EXISTING FENCE TO BE REMOVED
18. EXISTING CONCRETE PAD TO BE REMOVED
19. CONSTRUCT MODIFIED TYPE "CM2" DROP INLET PER STRUCTURAL DETAILS ON SHEET S0.00
20. INSTALL TEMPORARY RIP-RAP PAD ($D_{50}$=6", THICKNESS = 12")
21. CONSTRUCT GATES PER LANDSCAPE PLANS & DETAILS
22. INSTALL TYPE "A" ISLAND CURB PER CCAUSD #219
23. CONSTRUCT GATES PER CCAUSD #425.S1
24. INSTALL TEMPORARY RIP-RAP ($D_{50}$=8", THICKNESS = 16")
25. INSTALL 4" DIA. FIXED BOLLARDS SPACED 6' APART O.C., 1' BEHIND BACK OF SIDEWALK PER CCAUSD #425.S1
26. INSTALL CALL BOX FOR ENTRY GATES
27. INSTALL PEDESTRIAN ACCESS GATE PER DETAIL "D", SHEET C15

## LEGEND

| PROPOSED | EXISTING | DESCRIPTION |
|---|---|---|
| | | PUBLIC R/W LINE |
| | | PRIVATE R/W LINE |
| | | BOUNDARY LINE |
| | | EASEMENT LINE |
| | | MATCH LINE |
| CUT / FILL | | CUT / FILL LINE |
| | | CENTERLINE |
| | | EDGE OF ASPHALT |
| | | CURB & GUTTER |
| | | RETAINING WALL |
| | | SAWCUT LINE |
| | | FLOWLINE |
| | | GRADE BREAK |
| 2500 | (2500) | MAJOR CONTOUR - 5' |
| 2503 | (2503) | MINOR CONTOUR - 1' |
| | | FENCE |
| | | SCARP |
| | | CONCRETE SURFACE |
| | | PROPOSED ASPHALT PAVEMENT |
| | | REMOVE AND REPLACE ASPHALT |
| | | RIP-RAP |
| 98.76 XX 1.00% | (98.76) XX (1.00%) | ELEVATION GRADE TAG |
| | | GRADE SLOPE TAG |
| 1 C5 | | SECTION MARKER - DETAIL NUMBER ABOVE SHEET NUMBER |
| | | SIGHT VISIBILITY ZONE |

COMMON ABBREVIATIONS

| | | | |
|---|---|---|---|
| FF | - FINISHED FLOOR | TRC | - TOP OF 30" ROLL CURB |
| TC | - TOP OF CURB | AC | - TOP OF PAVEMENT |
| FL | - FLOWLINE GRADE | EP | - EDGE OF PAVEMENT |
| TB | - TOP OF BERM | TRW | - TOP OF RETAINING WALL |
| TF | - TOP OF WALL FOOTER | PRIV. | - PRIVATE |
| ST. | - STREET | TYP. | - TYPICAL |
| ESMT | - EASEMENT | R/W | - RIGHT-OF-WAY |
| TMH | - TOP OF MANHOLE (RIM ELEV.) | DG | - DESIGN GRADE |

## GRADING NOTES

1. ACTUS SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES IN THE PLANS OR CONDITIONS IN THE FIELD.
2. FOR ROADWAY WIDENING AND HALF STREET IMPROVEMENTS, THE CONTRACTOR SHALL VERIFY CROSS SLOPES FROM EXISTING PAVEMENT SAWCUT LINE TO PROPOSED EDGE OF PAVEMENT OR PROJECTED LIP OF CURB PRIOR TO SUBGRADE PREPARATION AND CONSTRUCTION OF PROPOSED CURB LINE. IF MINIMUM OR MAXIMUM CROSS SLOPES DO NOT MEET AGENCY STANDARDS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER.
3. WALL DETAILS ARE FOR REFERENCE ONLY AND DO NOT CONSTITUTE A STRUCTURAL DESIGN.
4. CONSTRUCTION OF BLOCK WALLS REQUIRE A SEPARATE BUILDING PERMIT AND APPROVAL BY THE BUILDING DEPARTMENT.

## SIGHT VISIBILITY ZONE NOTE

NO WALLS, FENCES SHRUBS, UTILITY APPURTENANCES OR ANY OTHER OBJECT, OTHER THAT TRAFFIC CONTROL DEVICES, FIRE HYDRANTS, TREES, AND STREET LIGHT 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 TOP OF CURB, OR WHERE NO CURB EXISTS, A HEIGHT OF 27 INCHES MEASURED FROM THE TOP OF ADJACENT ASPHALT, GRAVEL OR PAVEMENT STREET SURFACE. THIS RESTRICTION EXTENDS ALONG THE SIGHT VISIBILITY LINE THROUGH LANDSCAPED MEDIANS.

PLEASE REFER TO TRAFFIC PLANS FOR SIGHT VISIBILITY ZONE DIMENSIONS.

## ESTIMATED QUANTITIES

NOTE: QUANTITIES SHOWN ARE RAW QUANTITIES AND APPROXIMATE. CONTRACTOR TO DETERMINE HIS OWN QUANTITIES FOR GRADING PURPOSES.

WORK UNDER THIS PLAN CONSTITUTES GRADING IN ACCORDANCE WITH 2018 IBC. ENGINEERING REPORTS AND CERTIFICATIONS IN CONFORMANCE WITH IBC SHALL BE FILED WITH THE CITY OF LAS VEGAS PRIOR TO CITY OF LAS VEGAS APPROVAL AT FINAL INSPECTION.

CUT: 242,298 CY FILL: 59,941 CY BALANCE: 182,357 CY (CUT)

## ENGINEER'S CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED UPDATED DRAINAGE STUDY CLV# DS5152 ON FILE WITH THE CITY OF LAS VEGAS.

DARRYL LATTIMORE, P.E. — 2/25/2020 DATE

## LINE & CURVE DATA NOTE

PLEASE REFER TO TRAFFIC SHEETS FOR LINE AND CURVE DATA.

## BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV0926W6
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

## BASIS OF BEARINGS

SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27, TOWNSHIP 21 SOUTH, RANGE 59 EAST, M.D.M., CITY LAS VEGAS, CLARK COUNTY, NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS.

## DEDICATION NOTE

ALL EASEMENTS, RIGHT-OF-WAY, AND OTHER DEDICATIONS WITHIN THIS PLAN SET ARE GRANTED PER FM# 77500 UNLESS OTHERWISE NOTED

## PRIVATE STREET NOTE

ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS, AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA PER THE APPROVED FINAL MAP FOR THE PROJECT.

## COMMON LOT NOTE

ALL COMMON LOTS ARE TO BE PUBLIC DRAINAGE, PEDESTRIAN ACCESS, UTILITY, SEWER, AND PRIVATE LANDSCAPE EASEMENTS OVER THEIR ENTIRETY TO BE PRIVATELY MAINTAINED BY THE HOA PER THE APPROVED FINAL MAP FOR THE PROJECT.

## SOILS NOTE

ALL GRADING SHALL CONFORM TO GEOTECHNICAL REPORT
BY: GEOTEK RESIDENTIAL, LLC
ORIGINAL PROJECT NUMBER: 14658-LVR
DATED: MARCH 5, 2019
UPDATED APRIL 17, 2019

## STORM DRAIN CONNECTION NOTE

WHEN CONNECTING TO EXISTING RCP, CONTRACTOR SHALL REMOVE THE EXISTING RCP TO THE NEAREST BELL CONNECTION. CONNECT NEW RCP TO EXISTING RCP AND MATCH EXISTING PIPE SLOPE.

## FLOOD ZONE DESCRIPTION

THIS SITE IS LOCATED IN ZONE "X", AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN. PER THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL 32003C2150E CLARK COUNTY, NEVADA DATED SEPTEMBER 27, 2002.

FLOOD DESIGNATION PROVIDED BY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

## DISCLAIMER NOTE

THE UNDERGROUND UTILITIES AS SHOWN HEREON HAVE BEEN LOCATED FROM OBSERVED FIELD SURVEY EVIDENCE AND EXISTING DRAWINGS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING: PLANS PROVIDED BY THE CLIENT, UTILITY COMPANIES, AND MUNICIPAL AGENCIES. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

107V_____ L19-01866

FAST — Call before you Underground 1-702-432-5300 — FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (FAST)

Call before you Dig — AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY. CALL 811 OR 1-800-227-2600

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY. CALL BEFORE YOU DO OVERHEAD 1-702-227-2929


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Engineering - Surveying - Consulting - Planning


GRADING PLAN 1
SAVANNAH - UNIT 1
WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

| BY | DESCRIPTION | DATE | A |
|---|---|---|---|
| | | | |

PROFESSIONAL ENGINEER — STATE OF NEVADA — DARRYL C. LATTIMORE — EXP: 12/31/21 — CIVIL — No. 17516
2/25/2020

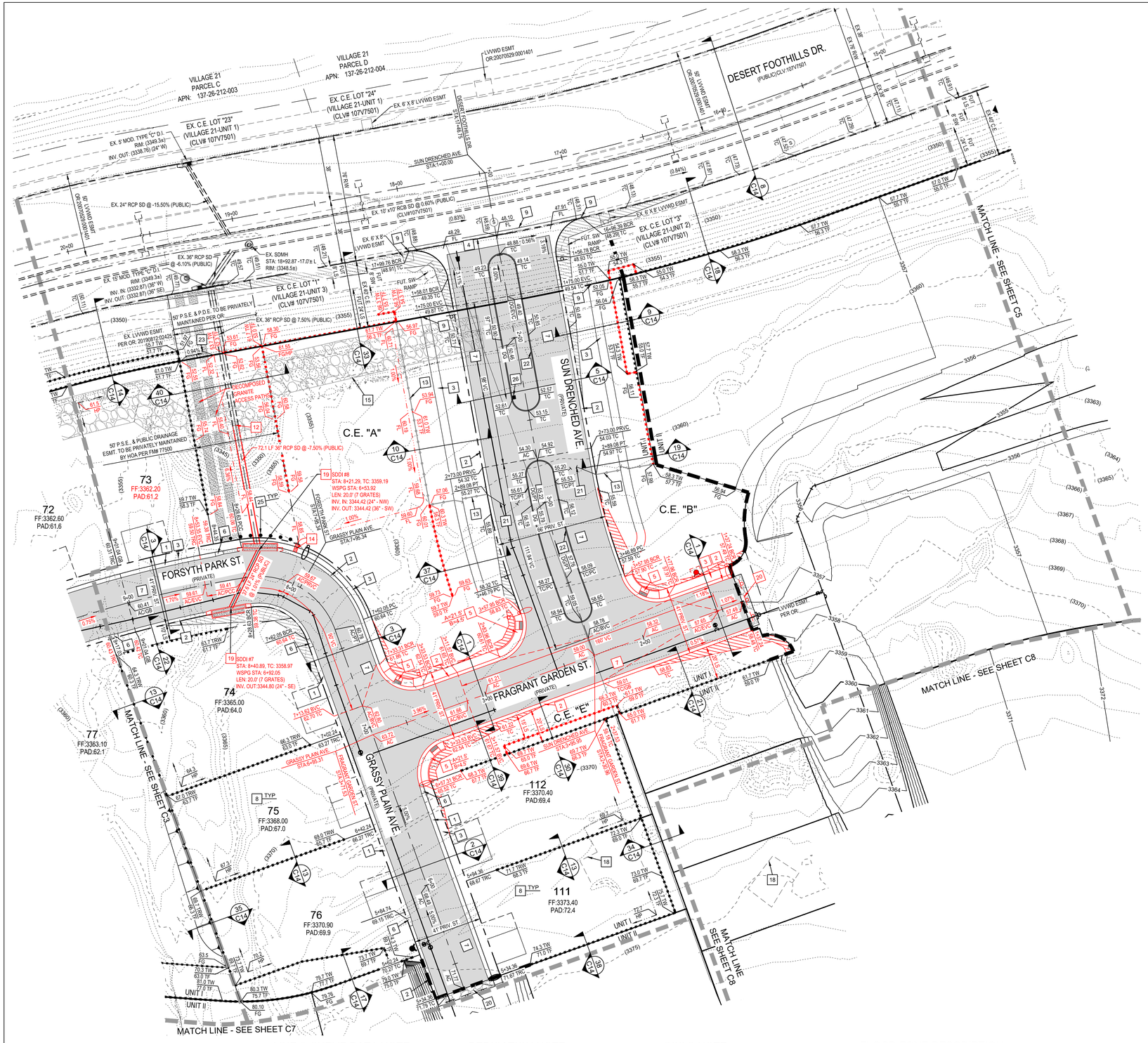
| | |
|---|---|
| DATE | 02/18/2020 |
| DRAWN | RWF/RLS |
| DESIGNED | RWF/RLS |
| CHECKED | ALW/DCL |
| PROJECT # | WLH011803 |

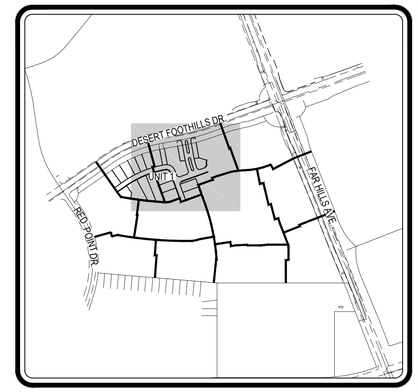
SHEET TITLE
GRADING

SHEET NUMBER
C3

SHEET 3 OF 28


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KEY MAP
SCALE: NTS

## DRAINAGE QUANTITIES

| DESCRIPTION | UNIT | PUBLIC | PRIVATE |
|---|---|---|---|
| TYPE CM2 DROP INLET | EA | 2 | - |
| 24" STORM DRAIN | LF | 38 | - |
| 36" STORM DRAIN | EA | 72 | - |
| DRAINAGE EASEMENT BOLLARD | EA | 8 | - |

## GRADING CONSTRUCTION NOTES

1. CONSTRUCT 30" MODIFIED ROLL CURB AND GUTTER PER CCAUSD #217.1
2. CONSTRUCT "L" CURB AND GUTTER PER CCAUSD #216
3. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234
4. CONSTRUCT 8' CROSS GUTTER PER CCAUSD #228
5. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE I. "A" & "B" = 8' UNLESS OTHERWISE NOTED
6. CONSTRUCT 8' TRANSITION "L" CURB TO TYPE 30" MODIFIED ROLL CURB PER DETAIL "A" ON SHEET C15
7. INSTALL 2" AC OVER 4" TYPE II AGGREGATE BASE
8. CONSTRUCT PAD PER TYPICAL PAD SECTION DETAIL "B" ON SHEET C15
9. MATCH EX. ASPHALT, CURB, SIDEWALK, GUTTER, OR VALLEY GUTTER. SAW CUT CLEAN EDGE FOR CONNECTION.
10. INSTALL TEMPORARY 2" OF TYPE II AGGREGATE BASE 95% COMPACTION MEETING REQUIREMENTS FOR H-20 LOADING.
11. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE II. "A" & "B" = 6.5' UNLESS OTHERWISE NOTED
12. CONNECT TO EX. SD LINE (CONTRACTOR TO VERIFY SIZE, INVERT AND LOCATION OF EX. SD)
13. CONSTRUCT WROUGHT IRON FENCE PER DETAIL "C", SHEET C15
14. CONSTRUCT SIDEWALK DRAIN PER CCAUSD #236
15. EXISTING RIP-RAP CHANNEL TO BE REMOVED.
16. EXISTING AC PAVEMENT TO BE REMOVED
17. EXISTING FENCE TO BE REMOVED
18. EXISTING CONCRETE PAD TO BE REMOVED
19. CONSTRUCT MODIFIED TYPE "CM2" DROP INLET PER STRUCTURAL DETAILS ON SHEET S0.00
20. INSTALL TEMPORARY RIP-RAP PAD ($D_{50}$=6", THICKNESS = 12")
21. CONSTRUCT GATES PER LANDSCAPE PLANS & DETAILS
22. INSTALL TYPE "A" ISLAND CURB PER CCAUSD #219
23. CONSTRUCT GATES PER CCAUSD #425.S1
24. INSTALL TEMPORARY RIP-RAP ($D_{50}$=8", THICKNESS = 16")
25. INSTALL 4" DIA. FIXED BOLLARDS SPACED 6' APART O.C., 1' BEHIND BACK OF SIDEWALK PER CCAUSD #425.S1
26. INSTALL CALL BOX FOR ENTRY GATES
27. INSTALL PEDESTRIAN ACCESS GATE PER DETAIL "D", SHEET C15

## LEGEND

| PROPOSED | EXISTING | DESCRIPTION |
|---|---|---|
| | | PUBLIC R/W LINE |
| | | PRIVATE R/W LINE |
| | | BOUNDARY LINE |
| | | EASEMENT LINE |
| | | MATCH LINE |
| CUT / FILL | | CUT / FILL LINE |
| | | CENTERLINE |
| | | EDGE OF ASPHALT |
| | | CURB & GUTTER |
| | | RETAINING WALL |
| | | SAWCUT LINE |
| | | FLOWLINE |
| | | GRADE BREAK |
| 2500 | (2500) | MAJOR CONTOUR - 5' |
| 2503 | (2503) | MINOR CONTOUR - 1' |
| | | FENCE |
| | | SCARP |
| | | CONCRETE SURFACE |
| | | PROPOSED ASPHALT PAVEMENT |
| | | REMOVE AND REPLACE ASPHALT |
| | | RIP-RAP |
| 98.76 XX 1.00% | (98.76) XX (1.00%) | ELEVATION GRADE TAG |
| | | GRADE SLOPE TAG |
| 1 C5 | | SECTION MARKER - DETAIL NUMBER ABOVE SHEET NUMBER |
| | | SIGHT VISIBILITY ZONE |

### COMMON ABBREVIATIONS

| | | | |
|---|---|---|---|
| FF | - FINISHED FLOOR | TRC | - TOP OF 30" ROLL CURB |
| TC | - TOP OF CURB | AC | - TOP OF PAVEMENT |
| FL | - FLOWLINE GRADE | EP | - EDGE OF PAVEMENT |
| TB | - TOP OF BERM | TRW | - TOP OF RETAINING WALL |
| TF | - TOP OF WALL FOOTER | PRIV. | - PRIVATE |
| ST. | - STREET | TYP. | - TYPICAL |
| ESMT | - EASEMENT | R/W | - RIGHT-OF-WAY |
| TMH | - TOP OF MANHOLE (RIM ELEV.) | DG | - DESIGN GRADE |

## GRADING NOTES

1. ACTUS SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES IN THE PLANS OR CONDITIONS IN THE FIELD.
2. FOR ROADWAY WIDENING AND HALF STREET IMPROVEMENTS, THE CONTRACTOR SHALL VERIFY CROSS SLOPES FROM EXISTING PAVEMENT SAWCUT LINE TO PROPOSED EDGE OF PAVEMENT OR PROJECTED LIP OF CURB PRIOR TO SUBGRADE PREPARATION AND CONSTRUCTION OF PROPOSED CURB LINE. IF MINIMUM OR MAXIMUM CROSS SLOPES DO NOT MEET AGENCY STANDARDS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER.
3. WALL DETAILS ARE FOR REFERENCE ONLY AND DO NOT CONSTITUTE A STRUCTURAL DESIGN.
4. CONSTRUCTION OF BLOCK WALLS REQUIRE A SEPARATE BUILDING PERMIT AND APPROVAL BY THE BUILDING DEPARTMENT.

## SIGHT VISIBILITY ZONE NOTE

NO WALLS, FENCES SHRUBS, UTILITY APPURTENANCES OR ANY OTHER OBJECT, OTHER THAT TRAFFIC CONTROL DEVICES, FIRE HYDRANTS, TREES, AND STREET LIGHT 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 TOP OF CURB, OR WHERE NO CURB EXISTS, A HEIGHT OF 27 INCHES MEASURED FROM THE TOP OF ADJACENT ASPHALT, GRAVEL OR PAVEMENT STREET SURFACE. THIS RESTRICTION EXTENDS ALONG THE SIGHT VISIBILITY LINE THROUGH LANDSCAPED MEDIANS.

PLEASE REFER TO TRAFFIC PLANS FOR SIGHT VISIBILITY ZONE DIMENSIONS.

## ESTIMATED QUANTITIES

NOTE: QUANTITIES SHOWN ARE RAW QUANTITIES AND APPROXIMATE. CONTRACTOR TO DETERMINE HIS OWN QUANTITIES FOR GRADING PURPOSES.

WORK UNDER THIS PLAN CONSTITUTES GRADING IN ACCORDANCE WITH 2018 IBC. ENGINEERING REPORTS AND CERTIFICATIONS IN CONFORMANCE WITH IBC SHALL BE FILED WITH THE CITY OF LAS VEGAS PRIOR TO CITY OF LAS VEGAS APPROVAL AT FINAL INSPECTION.

CUT: 242,298 CY FILL: 59,941 CY BALANCE: 182,357 CY (CUT)

## ENGINEER'S CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED UPDATED DRAINAGE STUDY CLV# DS5152 ON FILE WITH THE CITY OF LAS VEGAS.

DARRYL LATTIMORE, P.E. — 2/25/2020 DATE

FAST — Call before you Underground 1-702-432-5300 (FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (FAST))

Call before you Dig — AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY. CALL 811 OR 1-800-227-2600

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY. CALL BEFORE YOU DO OVERHEAD 1-702-227-2929

## LINE & CURVE DATA NOTE

PLEASE REFER TO TRAFFIC SHEETS FOR LINE AND CURVE DATA.

## BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV00269W6
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

## BASIS OF BEARINGS

SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27, TOWNSHIP 21 SOUTH, RANGE 59 EAST, M.D.M., CITY LAS VEGAS, CLARK COUNTY, NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS.

## DEDICATION NOTE

ALL EASEMENTS, RIGHT-OF-WAY, AND OTHER DEDICATIONS WITHIN THIS PLAN SET ARE GRANTED PER FM# 77500 UNLESS OTHERWISE NOTED

## PRIVATE STREET NOTE

ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS, AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA PER THE APPROVED FINAL MAP FOR THE PROJECT.

## COMMON LOT NOTE

ALL COMMON LOTS ARE TO BE PUBLIC DRAINAGE, PEDESTRIAN ACCESS, UTILITY, SEWER, AND PRIVATE LANDSCAPE EASEMENTS OVER THEIR ENTIRETY TO BE PRIVATELY MAINTAINED BY THE HOA PER THE APPROVED FINAL MAP FOR THE PROJECT.

## SOILS NOTE

ALL GRADING SHALL CONFORM TO GEOTECHNICAL REPORT
BY: GEOTEK RESIDENTIAL, LLC
ORIGINAL PROJECT NUMBER: 14658-LVR
DATED: MARCH 5, 2019
UPDATED APRIL 17, 2019

## STORM DRAIN CONNECTION NOTE

WHEN CONNECTING TO EXISTING RCP, CONTRACTOR SHALL REMOVE THE EXISTING RCP TO THE NEAREST BELL CONNECTION. CONNECT NEW RCP TO EXISTING RCP AND MATCH EXISTING PIPE SLOPE.

## FLOOD ZONE DESCRIPTION

THIS SITE IS LOCATED IN ZONE "X", AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN, PER THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL 32003C2150E CLARK COUNTY, NEVADA DATED SEPTEMBER 27, 2002.

FLOOD DESIGNATION PROVIDED BY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

## DISCLAIMER NOTE

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107V_____ L19-01866


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(702) 586-9286
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GRADING PLAN 2
SAVANNAH - UNIT 1
WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

| NO. | DATE | DESCRIPTION | BY |
|---|---|---|---|

DARRYL D LATTIMORE — STATE OF NEVADA — No. 17516 — EXP: 12/31/21 — CIVIL — PROFESSIONAL ENGINEER
2/25/2020

| | |
|---|---|
| DATE | 02/18/2020 |
| DRAWN | RWF/RLS |
| DESIGNED | RWF/RLS |
| CHECKED | ALW/DCL |
| PROJECT # | WLH011803 |

SHEET TITLE: GRADING
SHEET NUMBER: C4
SHEET 4 OF 28


Plot Stamp: 2/25/2020 11:57:08 AM - Alan Whittington
File: P:\WLH\011803 - Parcel E\Civil_CD\Models\WLH011802-UNIT 1 MODELS-CD-GRAD.dwg, Tab: C4







KEY MAP
SCALE: NTS

SCALE: 1"= 30'
30 15 0 30

## DRAINAGE QUANTITIES

| DESCRIPTION | UNIT | PUBLIC | PRIVATE |
|---|---|---|---|
| TYPE CM2 DROP INLET | EA | 2 | - |
| 24" STORM DRAIN | LF | 38 | - |
| 36" STORM DRAIN | EA | 72 | - |
| DRAINAGE EASEMENT BOLLARD | EA | 8 | - |

## GRADING CONSTRUCTION NOTES

1. CONSTRUCT 30" MODIFIED ROLL CURB AND GUTTER PER CCAUSD #217.1
2. CONSTRUCT "L" CURB AND GUTTER PER CCAUSD #216
3. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234
4. CONSTRUCT 8' CROSS GUTTER PER CCAUSD #228
5. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE I. "A" & "B" = 8' UNLESS OTHERWISE NOTED
6. CONSTRUCT 8' TRANSITION "L" CURB TO TYPE 30" MODIFIED ROLL CURB PER DETAIL "A" ON SHEET C15
7. INSTALL 2" AC OVER 4" TYPE II AGGREGATE BASE
8. CONSTRUCT PAD PER TYPICAL PAD SECTION DETAIL "B" ON SHEET C15
9. MATCH EX. ASPHALT, CURB, SIDEWALK, GUTTER, OR VALLEY GUTTER. SAW CUT CLEAN EDGE FOR CONNECTION.
10. INSTALL TEMPORARY 2" OF TYPE II AGGREGATE BASE 95% COMPACTION MEETING REQUIREMENTS FOR H-20 LOADING.
11. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE II. "A" & "B" = 6.5' UNLESS OTHERWISE NOTED
12. CONNECT TO EX. SD LINE (CONTRACTOR TO VERIFY SIZE, INVERT AND LOCATION OF EX. SD)
13. CONSTRUCT WROUGHT IRON FENCE PER DETAIL "C", SHEET C15
14. CONSTRUCT SIDEWALK DRAIN PER CCAUSD #236
15. EXISTING RIP-RAP CHANNEL TO BE REMOVED.
16. EXISTING AC PAVEMENT TO BE REMOVED
17. EXISTING FENCE TO BE REMOVED
18. EXISTING CONCRETE PAD TO BE REMOVED
19. CONSTRUCT MODIFIED TYPE "CM2" DROP INLET PER STRUCTURAL DETAILS ON SHEET S0.00
20. INSTALL TEMPORARY RIP-RAP PAD ($D_{50}$=6", THICKNESS = 12")
21. CONSTRUCT GATES PER LANDSCAPE PLANS & DETAILS
22. INSTALL TYPE "A" ISLAND CURB PER CCAUSD #219
23. CONSTRUCT GATES PER CCAUSD #425.S1
24. INSTALL TEMPORARY RIP-RAP ($D_{50}$=8", THICKNESS = 16")
25. INSTALL 4" DIA. FIXED BOLLARDS SPACED 6' APART O.C., 1' BEHIND BACK OF SIDEWALK PER CCAUSD #425.S1
26. INSTALL CALL BOX FOR ENTRY GATES
27. INSTALL PEDESTRIAN ACCESS GATE PER DETAIL "D", SHEET C15

## LEGEND

| PROPOSED | EXISTING | DESCRIPTION |
|---|---|---|
| | | PUBLIC R/W LINE |
| | | PRIVATE R/W LINE |
| | | BOUNDARY LINE |
| | | EASEMENT LINE |
| | | MATCH LINE |
| CUT | | CUT / FILL LINE |
| FILL | | |
| | | CENTERLINE |
| | | EDGE OF ASPHALT |
| | | CURB & GUTTER |
| | | RETAINING WALL |
| | | SAWCUT LINE |
| | | FLOWLINE |
| | | GRADE BREAK |
| 2500 | (2500) | MAJOR CONTOUR - 5' |
| 2503 | (2503) | MINOR CONTOUR - 1' |
| | | FENCE |
| | | SCARP |
| | | CONCRETE SURFACE |
| | | PROPOSED ASPHALT PAVEMENT |
| | | REMOVE AND REPLACE ASPHALT |
| | | RIP-RAP |
| 98.76 XX | (98.76) XX | ELEVATION GRADE TAG |
| 1.00% | (1.00%) | GRADE SLOPE TAG |
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CUT: 242,298 CY FILL: 59,941 CY BALANCE: 182,357 CY (CUT)

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2/25/2020
DARRYL LATTIMORE, P.E. DATE

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1-702-227-2929

## LINE & CURVE DATA NOTE

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## BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV0926W6
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

## BASIS OF BEARINGS

SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27, TOWNSHIP 21 SOUTH, RANGE 59 EAST, M.D.M., CITY LAS VEGAS, CLARK COUNTY, NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS.

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## SOILS NOTE

ALL GRADING SHALL CONFORM TO GEOTECHNICAL REPORT
BY: GEOTEK RESIDENTIAL, LLC
ORIGINAL PROJECT NUMBER: 14658-LVR
DATED: MARCH 5, 2019
UPDATED APRIL 17, 2019

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FLOOD DESIGNATION PROVIDED BY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

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107V_____ L19-01866


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Las Vegas, NV 89120
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(702) 586-9286
Engineering - Surveying - Consulting - Planning


# GRADING PLAN 3
# SAVANNAH - UNIT 1
## WILLIAM LYON HOMES
## CITY OF LAS VEGAS, NEVADA

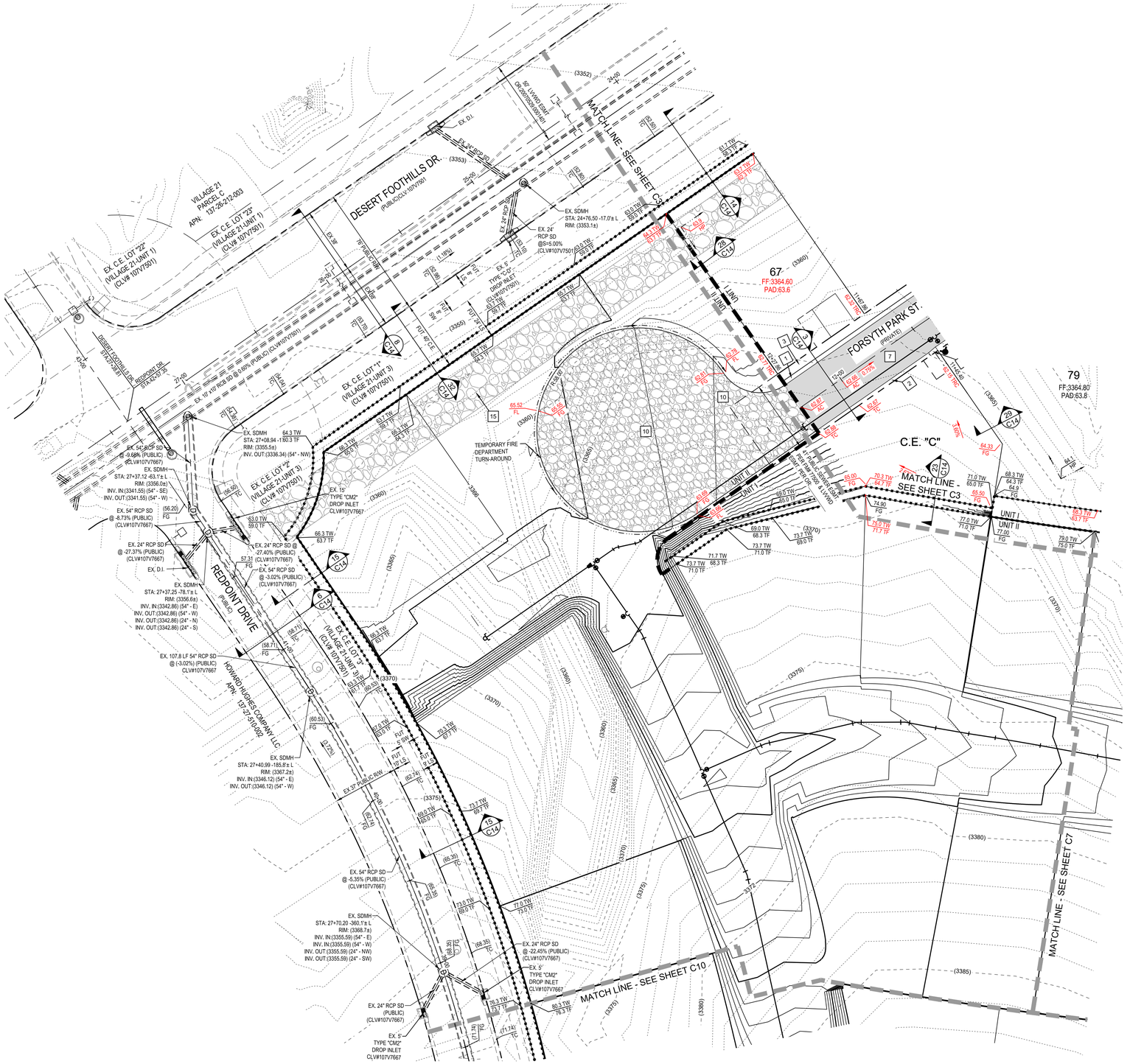
| NO. | DESCRIPTION | DATE | BY |
|---|---|---|---|
| A | | | |

DARRYL C. LATTIMORE
STATE OF NEVADA
EXP: 12/31/21
CIVIL
No. 17516
PROFESSIONAL ENGINEER
2/25/2020

| | |
|---|---|
| DATE | 02/18/2020 |
| DRAWN | RWF/RLS |
| DESIGNED | RWF/RLS |
| CHECKED | ALW/DCL |
| PROJECT # | WLH011803 |
| SHEET TITLE | GRADING |
| SHEET NUMBER | C5 |

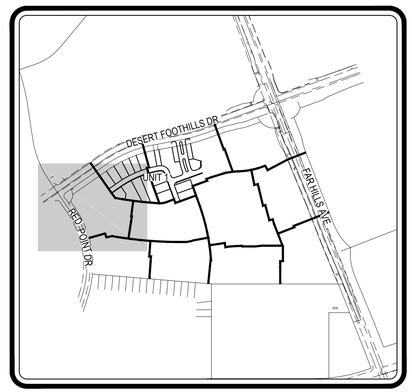
SHEET 5 OF 28

Plot Stamp: 2/25/2020 11:57:22 AM - Alan Whittington
File: P:\WLH011803 - Parcel E\Civil_CD\Models\WLH011803-UNIT 1 MODELS-CD-GRAD.dwg, Tab: C5










## KEY MAP
SCALE: NTS

## DRAINAGE QUANTITIES

| DESCRIPTION | UNIT | PUBLIC | PRIVATE |
|---|---|---|---|
| TYPE CM2 DROP INLET | EA | 2 | - |
| 24" STORM DRAIN | LF | 38 | - |
| 36" STORM DRAIN | EA | 72 | - |
| DRAINAGE EASEMENT BOLLARD | EA | 8 | - |

## GRADING CONSTRUCTION NOTES

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## LEGEND

| PROPOSED | EXISTING | DESCRIPTION |
|---|---|---|
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| | | PRIVATE R/W LINE |
| | | BOUNDARY LINE |
| | | EASEMENT LINE |
| | | MATCH LINE |
| CUT / FILL | | CUT / FILL LINE |
| | | CENTERLINE |
| | | EDGE OF ASPHALT |
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CUT: 242,298 CY FILL: 59,941 CY BALANCE: 182,357 CY (CUT)

## ENGINEER'S CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED UPDATED DRAINAGE STUDY CLV# DS5152 ON FILE WITH THE CITY OF LAS VEGAS.

DARRYL LATTIMORE, P.E. — 2/25/2020 DATE

## LINE & CURVE DATA NOTE

PLEASE REFER TO TRAFFIC SHEETS FOR LINE AND CURVE DATA.

## BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV0926W6
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

## BASIS OF BEARINGS

SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27, TOWNSHIP 21 SOUTH, RANGE 59 EAST, M.D.M., CITY LAS VEGAS, CLARK COUNTY, NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS.

## DEDICATION NOTE

ALL EASEMENTS, RIGHT-OF-WAY, AND OTHER DEDICATIONS WITHIN THIS PLAN SET ARE GRANTED PER FM# 77500 UNLESS OTHERWISE NOTED

## PRIVATE STREET NOTE

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## COMMON LOT NOTE

ALL COMMON LOTS ARE TO BE PUBLIC DRAINAGE, PEDESTRIAN ACCESS, UTILITY, SEWER, AND PRIVATE LANDSCAPE EASEMENTS OVER THEIR ENTIRETY TO BE PRIVATELY MAINTAINED BY THE HOA PER THE APPROVED FINAL MAP FOR THE PROJECT.

## SOILS NOTE

ALL GRADING SHALL CONFORM TO GEOTECHNICAL REPORT
BY: GEOTEK RESIDENTIAL, LLC
ORIGINAL PROJECT NUMBER: 14658-LVR
DATED: MARCH 5, 2019
UPDATED APRIL 17, 2019

## STORM DRAIN CONNECTION NOTE

WHEN CONNECTING TO EXISTING RCP, CONTRACTOR SHALL REMOVE THE EXISTING RCP TO THE NEAREST BELL CONNECTION, CONNECT NEW RCP TO EXISTING RCP AND MATCH EXISTING PIPE SLOPE.

## FLOOD ZONE DESCRIPTION

THIS SITE IS LOCATED IN ZONE "X", AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN, PER THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL 32003C2150E CLARK COUNTY, NEVADA DATED SEPTEMBER 27, 2002.

FLOOD DESIGNATION PROVIDED BY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

## DISCLAIMER NOTE

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107V_____ L19-01866

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# GRADING PLAN 4
# SAVANNAH - UNIT 1
WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

| NO. | DATE | DESCRIPTION | BY |
|---|---|---|---|
| | | | |

PROFESSIONAL ENGINEER — STATE OF NEVADA — DARRYL C. LATTIMORE — EXP: 12/31/21 — CIVIL — No. 17516
2/25/2020

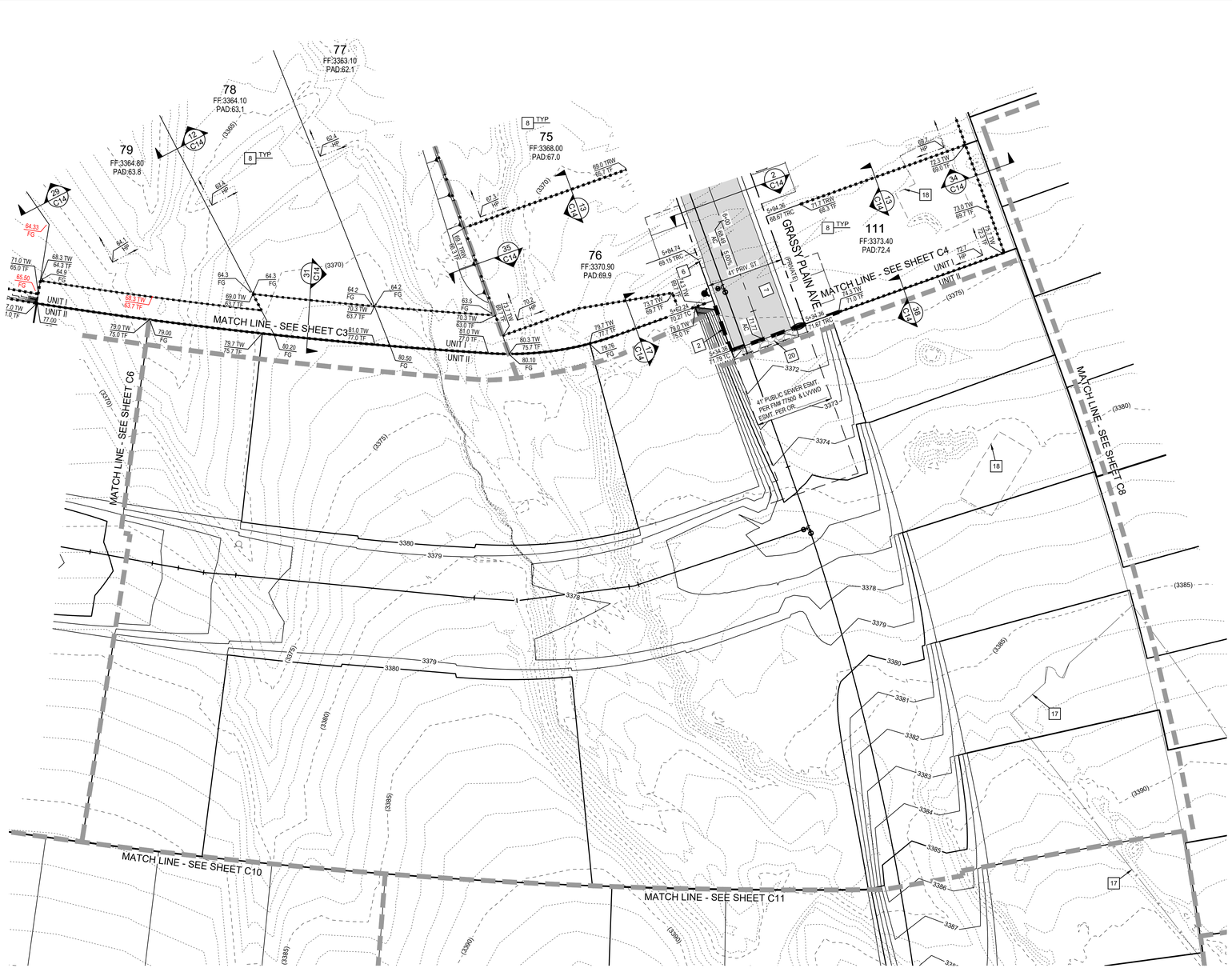
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|---|---|
| DATE | 02/18/2020 |
| DRAWN | RWF/RLS |
| DESIGNED | RWF/RLS |
| CHECKED | ALW/DCL |
| PROJECT # | WLH011803 |

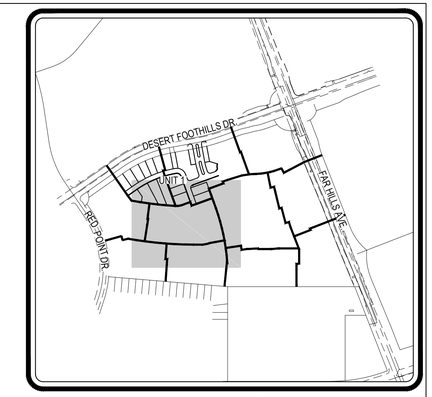
SHEET TITLE
GRADING

SHEET NUMBER
C6

SHEET 6 OF 28

Plot Stamp: 2/25/2020 11:57:39 AM - Alan Whittington
File: P:\WLH011803 - Parcel E\Civil_CD\Models\WLH011803-UNIT 1 MODELS-CD-GRAD.dwg, Tab: C6




SCALE: 1"= 30'

30 15 0 30

KEY MAP
SCALE: NTS

## DRAINAGE QUANTITIES

| DESCRIPTION | UNIT | PUBLIC | PRIVATE |
|---|---|---|---|
| TYPE CM2 DROP INLET | EA | 2 | - |
| 24" STORM DRAIN | LF | 38 | - |
| 36" STORM DRAIN | EA | 72 | - |
| DRAINAGE EASEMENT BOLLARD | EA | 8 | - |

## GRADING CONSTRUCTION NOTES

1. CONSTRUCT 30" MODIFIED ROLL CURB AND GUTTER PER CCAUSD #217.1
2. CONSTRUCT "L" CURB AND GUTTER PER CCAUSD #216
3. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234
4. CONSTRUCT 8' CROSS GUTTER PER CCAUSD #228
5. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE I. "A" & "B" = 8' UNLESS OTHERWISE NOTED
6. CONSTRUCT 8' TRANSITION "L" CURB TO TYPE 30" MODIFIED ROLL CURB PER DETAIL "A" ON SHEET C15
7. INSTALL 2" AC OVER 4" TYPE II AGGREGATE BASE
8. CONSTRUCT PAD PER TYPICAL PAD SECTION DETAIL "B" ON SHEET C15
9. MATCH EX. ASPHALT, CURB, SIDEWALK, GUTTER, OR VALLEY GUTTER. SAW CUT CLEAN EDGE FOR CONNECTION.
10. INSTALL TEMPORARY 2" OF TYPE II AGGREGATE BASE 95% COMPACTION MEETING REQUIREMENTS FOR H-20 LOADING.
11. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE II. "A" & "B" = 6.5' UNLESS OTHERWISE NOTED
12. CONNECT TO EX. SD LINE (CONTRACTOR TO VERIFY SIZE, INVERT AND LOCATION OF EX. SD)
13. CONSTRUCT WROUGHT IRON FENCE PER DETAIL "C", SHEET C15
14. CONSTRUCT SIDEWALK DRAIN PER CCAUSD #236
15. EXISTING RIP-RAP CHANNEL TO BE REMOVED.
16. EXISTING AC PAVEMENT TO BE REMOVED
17. EXISTING FENCE TO BE REMOVED
18. EXISTING CONCRETE PAD TO BE REMOVED
19. CONSTRUCT MODIFIED TYPE "CM2" DROP INLET PER STRUCTURAL DETAILS ON SHEET S0.00
20. INSTALL TEMPORARY RIP-RAP PAD ($D_{50}$=6", THICKNESS = 12")
21. CONSTRUCT GATES PER LANDSCAPE PLANS & DETAILS
22. INSTALL TYPE "A" ISLAND CURB PER CCAUSD #219
23. CONSTRUCT GATES PER CCAUSD #425.S1
24. INSTALL TEMPORARY RIP-RAP ($D_{50}$=8", THICKNESS = 16")
25. INSTALL 4" DIA. FIXED BOLLARDS SPACED 6' APART O.C., 1' BEHIND BACK OF SIDEWALK PER CCAUSD #425.S1
26. INSTALL CALL BOX FOR ENTRY GATES
27. INSTALL PEDESTRIAN ACCESS GATE PER DETAIL "D", SHEET C15

## LEGEND

| PROPOSED | EXISTING | DESCRIPTION |
|---|---|---|
| | | PUBLIC R/W LINE |
| | | PRIVATE R/W LINE |
| | | BOUNDARY LINE |
| | | EASEMENT LINE |
| CUT | | MATCH LINE |
| FILL | | CUT / FILL LINE |
| | | CENTERLINE |
| | | EDGE OF ASPHALT |
| | | CURB & GUTTER |
| | | RETAINING WALL |
| | | SAWCUT LINE |
| | | FLOWLINE |
| | | GRADE BREAK |
| 2500 | (2500) | MAJOR CONTOUR - 5' |
| 2503 | (2503) | MINOR CONTOUR - 1' |
| | | FENCE |
| | | SCARP |
| | | CONCRETE SURFACE |
| | | PROPOSED ASPHALT PAVEMENT |
| | | REMOVE AND REPLACE ASPHALT |
| | | RIP-RAP |
| 98.76 XX | (98.76) XX | ELEVATION GRADE TAG |
| 1.00% | (1.00%) | GRADE SLOPE TAG |
| 1 C5 | | SECTION MARKER - DETAIL NUMBER ABOVE SHEET NUMBER |
| | | SIGHT VISIBILITY ZONE |

COMMON ABBREVIATIONS

| | | | |
|---|---|---|---|
| FF | - FINISHED FLOOR | TRC | - TOP OF 30" ROLL CURB |
| TC | - TOP OF CURB | AC | - TOP OF PAVEMENT |
| FL | - FLOWLINE GRADE | EP | - EDGE OF PAVEMENT |
| TB | - TOP OF BERM | TRW | - TOP OF RETAINING WALL |
| TF | - TOP OF WALL FOOTER | PRIV. | - PRIVATE |
| ST. | - STREET | TYP. | - TYPICAL |
| ESMT | - EASEMENT | R/W | - RIGHT-OF-WAY |
| TMH | - TOP OF MANHOLE (RIM ELEV.) | DG | - DESIGN GRADE |

## GRADING NOTES

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2. FOR ROADWAY WIDENING AND HALF STREET IMPROVEMENTS, THE CONTRACTOR SHALL VERIFY CROSS SLOPES FROM EXISTING PAVEMENT SAWCUT LINE TO PROPOSED EDGE OF PAVEMENT OR PROJECTED LIP OF CURB PRIOR TO SUBGRADE PREPARATION AND CONSTRUCTION OF PROPOSED CURB LINE. IF MINIMUM OR MAXIMUM CROSS SLOPES DO NOT MEET AGENCY STANDARDS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER.
3. WALL DETAILS ARE FOR REFERENCE ONLY AND DO NOT CONSTITUTE A STRUCTURAL DESIGN.
4. CONSTRUCTION OF BLOCK WALLS REQUIRE A SEPARATE BUILDING PERMIT AND APPROVAL BY THE BUILDING DEPARTMENT.

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DARRYL LATTIMORE, P.E. — 2/25/2020 DATE

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## BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV0926W6
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

## BASIS OF BEARINGS

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BY: GEOTEK RESIDENTIAL, LLC
ORIGINAL PROJECT NUMBER: 14658-LVR
DATED: MARCH 5, 2019
UPDATED APRIL 17, 2019

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107V_____ L19-01866


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# GRADING PLAN 5
# SAVANNAH - UNIT 1
## WILLIAM LYON HOMES
## CITY OF LAS VEGAS, NEVADA

| BY | DESCRIPTION | DATE | # |
|---|---|---|---|

PROFESSIONAL ENGINEER — DARRYL C. LATTIMORE — EXP: 12/31/21 CIVIL — No. 17516 — STATE OF NEVADA

2/25/2020

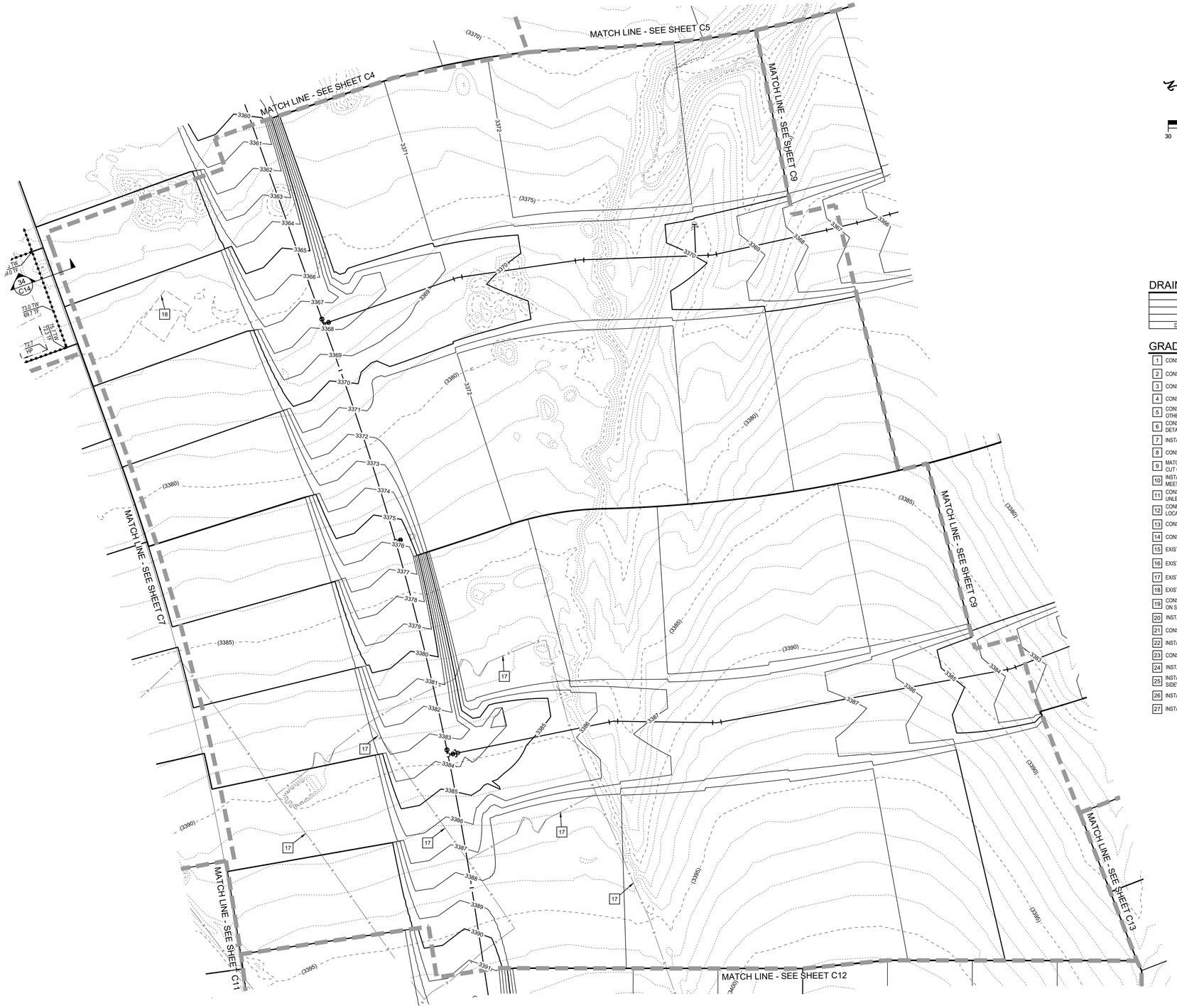
| | |
|---|---|
| DATE | 02/18/2020 |
| DRAWN | RWF/RLS |
| DESIGNED | RWF/RLS |
| CHECKED | ALW/DCL |
| PROJECT # | WLH011803 |

SHEET TITLE: GRADING

SHEET NUMBER: C7

SHEET 7 OF 28


Plot Stamp: 2/25/2020 11:57:51 AM - Alan Whittington
File: P:\WLH\011803 - Parcel E\Civil_CD\Models\WLH011803-UNIT 1 MODELS-CD-GRAD.dwg, Tab: C7




SCALE: 1"= 30'

30 15 0 30




KEY MAP

SCALE: NTS

## DRAINAGE QUANTITIES

| DESCRIPTION | UNIT | PUBLIC | PRIVATE |
|---|---|---|---|
| TYPE CMZ DROP INLET | EA | 2 | - |
| 24" STORM DRAIN | LF | 38 | - |
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|---|---|---|
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| | | EDGE OF ASPHALT |
| | | CURB & GUTTER |
| | | RETAINING WALL |
| | | SAWCUT LINE |
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| 2500 | (2500) | MAJOR CONTOUR - 5' |
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| | | FENCE |
| | | SCARP |
| | | CONCRETE SURFACE |
| | | PROPOSED ASPHALT PAVEMENT |
| | | REMOVE AND REPLACE ASPHALT |
| | | RIP-RAP |
| XX.76 | (XX.76) | ELEVATION GRADE TAG |
| 1.00% | (1.00%) | GRADE SLOPE TAG |
| 1 C-5 | | SECTION MARKER - DETAIL NUMBER ABOVE SHEET NUMBER |
| | | SIGHT VISIBILITY ZONE |

COMMON ABBREVIATIONS

| | | | |
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2/25/2020
DARRYL LATTIMORE, P.E. DATE

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MONUMENT ID: SLV0926W6
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
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## SOILS NOTE

ALL GRADING SHALL CONFORM TO GEOTECHNICAL REPORT
BY: GEOTEK RESIDENTIAL, LLC
ORIGINAL PROJECT NUMBER: 14658-LVR
DATED: MARCH 5, 2019
UPDATED APRIL 17, 2019

## STORM DRAIN CONNECTION NOTE

WHEN CONNECTING TO EXISTING RCP, CONTRACTOR SHALL REMOVE THE EXISTING RCP TO THE NEAREST BELL CONNECTION, CONNECT NEW RCP TO EXISTING RCP AND MATCH EXISTING PIPE SLOPE.

## FLOOD ZONE DESCRIPTION

THIS SITE IS LOCATED IN ZONE "X", AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN, PER THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL 32003C2150E CLARK COUNTY, NEVADA DATED SEPTEMBER 27, 2002.

FLOOD DESIGNATION PROVIDED BY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

## DISCLAIMER NOTE

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107V_____ L19-01866


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Engineering - Surveying - Consulting - Planning


GRADING PLAN 6
SAVANNAH - UNIT 1
WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

| NO. | DATE | DESCRIPTION | BY |
|---|---|---|---|
| 1 | | | |

PROFESSIONAL ENGINEER — STATE OF NEVADA — DARRYL C. LATTIMORE — EXP: 12/31/21 — CIVIL — No. 17516

2/25/2020

| | |
|---|---|
| DATE | 02/18/2020 |
| DRAWN | RWF/RLS |
| DESIGNED | RWF/RLS |
| CHECKED | ALW/DCL |
| PROJECT # | WLH011803 |

SHEET TITLE
GRADING

SHEET NUMBER
C8

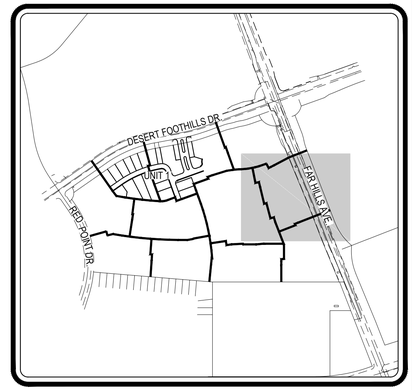
SHEET 8 OF 28


Plot Stamp: 2/25/2020 11:58:06 AM - Alan Whittington
File: P:\WLH\011803 - Parcel E\Civil_CD\Models\WLH011803-UNIT 1 MODELS-CD-GRAD.dwg, Tab: C8




SCALE: 1"= 30'

30 15 0 30




KEY MAP

SCALE: NTS

## DRAINAGE QUANTITIES

| DESCRIPTION | UNIT | PUBLIC | PRIVATE |
|---|---|---|---|
| TYPE CMP DROP INLET | EA | 2 | - |
| 24" STORM DRAIN | LF | 38 | - |
| 36" STORM DRAIN | EA | 72 | - |
| DRAINAGE EASEMENT BOLLARD | EA | 8 | - |

## GRADING CONSTRUCTION NOTES

1. CONSTRUCT 30" MODIFIED ROLL CURB AND GUTTER PER CCAUSD #217.1
2. CONSTRUCT "L" CURB AND GUTTER PER CCAUSD #216
3. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234
4. CONSTRUCT 8' CROSS GUTTER PER CCAUSD #228
5. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE I. "A" & "B" = 8' UNLESS OTHERWISE NOTED
6. CONSTRUCT 6' TRANSITION "L" CURB TO TYPE 30" MODIFIED ROLL CURB PER DETAIL "A" ON SHEET C15
7. INSTALL 2" AC OVER 4" TYPE II AGGREGATE BASE
8. CONSTRUCT PAD PER TYPICAL PAD SECTION DETAIL "B" ON SHEET C15
9. MATCH EX. ASPHALT, CURB, SIDEWALK, GUTTER, OR VALLEY GUTTER. SAW CUT CLEAN EDGE FOR CONNECTION.
10. INSTALL TEMPORARY 2" OF TYPE II AGGREGATE BASE 95% COMPACTION MEETING REQUIREMENTS FOR H-20 LOADING.
11. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE II. "A" & "B" = 6.5' UNLESS OTHERWISE NOTED
12. CONNECT TO EX. SD LINE (CONTRACTOR TO VERIFY SIZE, INVERT AND LOCATION OF EX. SD)
13. CONSTRUCT WROUGHT IRON FENCE PER DETAIL "C", SHEET C15
14. CONSTRUCT SIDEWALK DRAIN PER CCAUSD #236
15. EXISTING RIP-RAP CHANNEL TO BE REMOVED.
16. EXISTING AC PAVEMENT TO BE REMOVED
17. EXISTING FENCE TO BE REMOVED
18. EXISTING CONCRETE PAD TO BE REMOVED
19. CONSTRUCT MODIFIED TYPE "CM2" DROP INLET PER STRUCTURAL DETAILS ON SHEET S0.00
20. INSTALL TEMPORARY RIP-RAP PAD ($D_{50}$=6", THICKNESS = 12")
21. CONSTRUCT GATES PER LANDSCAPE PLANS & DETAILS
22. INSTALL TYPE "A" ISLAND CURB PER CCAUSD #219
23. CONSTRUCT GATES PER CCAUSD #425.S1
24. INSTALL TEMPORARY RIP-RAP ($D_{50}$=8", THICKNESS = 16")
25. INSTALL 4" DIA. FIXED BOLLARDS SPACED 6' APART O.C., 1' BEHIND BACK OF SIDEWALK PER CCAUSD #425.S1
26. INSTALL CALL BOX FOR ENTRY GATES
27. INSTALL PEDESTRIAN ACCESS GATE PER DETAIL "D", SHEET C15

## LEGEND

| PROPOSED | EXISTING | DESCRIPTION |
|---|---|---|
| | | PUBLIC R/W LINE |
| | | PRIVATE R/W LINE |
| | | BOUNDARY LINE |
| | | EASEMENT LINE |
| | | MATCH LINE |
| CUT / FILL | | CUT / FILL LINE |
| | | CENTERLINE |
| | | EDGE OF ASPHALT |
| | | CURB & GUTTER |
| | | RETAINING WALL |
| | | SAWCUT LINE |
| | | FLOWLINE |
| | | GRADE BREAK |
| 2500 | (2500) | MAJOR CONTOUR - 5' |
| 2503 | (2503) | MINOR CONTOUR - 1' |
| | | FENCE |
| | | SCARP |
| | | CONCRETE SURFACE |
| | | PROPOSED ASPHALT PAVEMENT |
| | | REMOVE AND REPLACE ASPHALT |
| | | RIP-RAP |
| 98.76 XX | (98.76) XX | ELEVATION GRADE TAG |
| 1.00% | (1.00%) | GRADE SLOPE TAG |
| 1 C5 | | SECTION MARKER - DETAIL NUMBER ABOVE SHEET NUMBER |
| | | SIGHT VISIBILITY ZONE |

### COMMON ABBREVIATIONS

| | | | |
|---|---|---|---|
| FF | - FINISHED FLOOR | TRC | - TOP OF 30" ROLL CURB |
| TC | - TOP OF CURB | AC | - TOP OF PAVEMENT |
| FL | - FLOWLINE GRADE | EP | - EDGE OF PAVEMENT |
| TB | - TOP OF BERM | TRW | - TOP OF RETAINING WALL |
| TF | - TOP OF WALL FOOTER | PRIV. | - PRIVATE |
| ST. | - STREET | TYP. | - TYPICAL |
| ESMT | - EASEMENT | R/W | - RIGHT-OF-WAY |
| TMH | - TOP OF MANHOLE (RIM ELEV.) | DG | - DESIGN GRADE |

## GRADING NOTES

1. ACTUS SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES IN THE PLANS OR CONDITIONS IN THE FIELD.
2. FOR ROADWAY WIDENING AND HALF STREET IMPROVEMENTS, THE CONTRACTOR SHALL VERIFY CROSS SLOPES FROM EXISTING PAVEMENT SAWCUT LINE TO PROPOSED EDGE OF PAVEMENT OR PROJECTED LIP OF CURB PRIOR TO SUBGRADE PREPARATION AND CONSTRUCTION OF PROPOSED CURB LINE. IF MINIMUM OR MAXIMUM CROSS SLOPES DO NOT MEET AGENCY STANDARDS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER.
3. WALL DETAILS ARE FOR REFERENCE ONLY AND DO NOT CONSTITUTE A STRUCTURAL DESIGN.
4. CONSTRUCTION OF BLOCK WALLS REQUIRE A SEPARATE BUILDING PERMIT AND APPROVAL BY THE BUILDING DEPARTMENT.

## SIGHT VISIBILITY ZONE NOTE

NO WALLS, FENCES SHRUBS, UTILITY APPURTENANCES OR ANY OTHER OBJECT, OTHER THAT TRAFFIC CONTROL DEVICES, FIRE HYDRANTS, TREES, AND STREET LIGHT 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 TOP OF CURB, OR WHERE NO CURB EXISTS, A HEIGHT OF 27 INCHES MEASURED FROM THE TOP OF ADJACENT ASPHALT, GRAVEL OR PAVEMENT STREET SURFACE. THIS RESTRICTION EXTENDS ALONG THE SIGHT VISIBILITY LINE THROUGH LANDSCAPED MEDIANS.

PLEASE REFER TO TRAFFIC PLANS FOR SIGHT VISIBILITY ZONE DIMENSIONS.

## ESTIMATED QUANTITIES

NOTE: QUANTITIES SHOWN ARE RAW QUANTITIES AND APPROXIMATE. CONTRACTOR TO DETERMINE HIS OWN QUANTITIES FOR GRADING PURPOSES.

WORK UNDER THIS PLAN CONSTITUTES GRADING IN ACCORDANCE WITH 2018 IBC; ENGINEERING REPORTS AND CERTIFICATIONS IN CONFORMANCE WITH IBC SHALL BE FILED WITH THE CITY OF LAS VEGAS PRIOR TO CITY OF LAS VEGAS APPROVAL AT FINAL INSPECTION.

CUT: 242,298 CY FILL: 59,941 CY BALANCE: 182,357 CY (CUT)

## ENGINEER'S CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED UPDATED DRAINAGE STUDY CLV# DS5152 ON FILE WITH THE CITY OF LAS VEGAS.

DARRYL LATTIMORE, P.E. — 2/25/2020 DATE

## LINE & CURVE DATA NOTE

PLEASE REFER TO TRAFFIC SHEETS FOR LINE AND CURVE DATA.

## BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV0926W6
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

## BASIS OF BEARINGS

SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27, TOWNSHIP 21 SOUTH, RANGE 59 EAST, M.D.M., CITY LAS VEGAS, CLARK COUNTY, NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS.

## DEDICATION NOTE

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BY: GEOTEK RESIDENTIAL, LLC
ORIGINAL PROJECT NUMBER: 14658-LVR
DATED: MARCH 5, 2019
UPDATED APRIL 17, 2019

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107V_____ L19-01866


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GRADING PLAN 7
SAVANNAH - UNIT 1
WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

| # | DATE | DESCRIPTION | BY |
|---|---|---|---|

PROFESSIONAL ENGINEER — DARRYL C. LATTIMORE — EXP: 12/31/21 — CIVIL — No. 17516 — STATE OF NEVADA

2/25/2020

| | |
|---|---|
| DATE | 02/18/2020 |
| DRAWN | RWF/RLS |
| DESIGNED | RWF/RLS |
| CHECKED | ALW/DCL |
| PROJECT # | WLH011803 |

SHEET TITLE: GRADING

SHEET NUMBER: C9

SHEET 9 OF 28

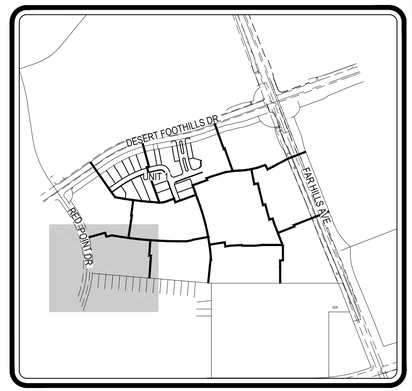

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File: P:\WLH\011803 - Parcel E\Civil_CD\Models\WLH011803-UNIT 1 MODELS-CD-GRAD.dwg, Tab: C9






SCALE: 1"= 30'

30 15 0 30




KEY MAP

SCALE: NTS

## DRAINAGE QUANTITIES

| DESCRIPTION | UNIT | PUBLIC | PRIVATE |
|---|---|---|---|
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| 24" STORM DRAIN | LF | 38 | - |
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| PROPOSED | EXISTING | DESCRIPTION |
|---|---|---|
| | | PUBLIC R/W LINE |
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| | | BOUNDARY LINE |
| | | EASEMENT LINE |
| | | MATCH LINE |
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| | | CENTERLINE |
| | | EDGE OF ASPHALT |
| | | CURB & GUTTER |
| | | RETAINING WALL |
| | | SAWCUT LINE |
| | | FLOWLINE |
| | | GRADE BREAK |
| 2500 | (2500) | MAJOR CONTOUR - 5' |
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| | | FENCE |
| | | SCARP |
| | | CONCRETE SURFACE |
| | | PROPOSED ASPHALT PAVEMENT |
| | | REMOVE AND REPLACE ASPHALT |
| | | RIP-RAP |
| 98.76 XX 1.00% | (98.76) XX (1.00%) | ELEVATION GRADE TAG |
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DARRYL LATTIMORE, P.E. — 2/25/2020 DATE

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## LINE & CURVE DATA NOTE

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## BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV0926W6
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

## BASIS OF BEARINGS

SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27, TOWNSHIP 21 SOUTH, RANGE 59 EAST, M.D.M., CITY LAS VEGAS, CLARK COUNTY, NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS.

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BY: GEOTEK RESIDENTIAL, LLC
ORIGINAL PROJECT NUMBER: 14658-LVR
DATED: MARCH 5, 2019
UPDATED APRIL 17, 2019

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GRADING PLAN 8
SAVANNAH - UNIT 1
WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

| NO. | DATE | DESCRIPTION | BY |
|---|---|---|---|
| 1 | | | |

DARRYL C. LATTIMORE
EXP: 12/31/21
CIVIL
No. 17516
STATE OF NEVADA
PROFESSIONAL ENGINEER

2/25/2020

| | |
|---|---|
| DATE | 02/18/2020 |
| DRAWN | RWF/RLS |
| DESIGNED | RWF/RLS |
| CHECKED | ALW/DCL |
| PROJECT # | WLH011803 |

SHEET TITLE: GRADING

SHEET NUMBER: C10

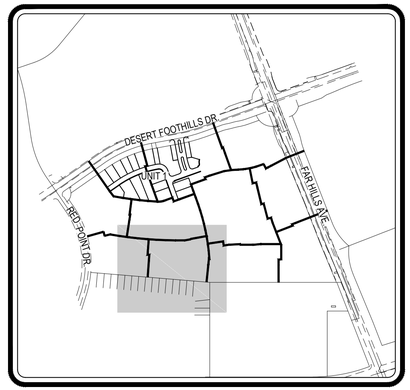
SHEET 10 OF 28


Plot Stamp: 2/25/2020 11:58:31 AM - Alan Whittington
File: P:\WLH\011803 - Parcel E\Civil_CD\Models\WLH011803-UNIT 1 MODELS-CD-GRAD.dwg, Tab: C10










KEY MAP
SCALE: NTS

## DRAINAGE QUANTITIES

| DESCRIPTION | UNIT | PUBLIC | PRIVATE |
|---|---|---|---|
| TYPE CM2 DROP INLET | EA | 2 | - |
| 24" STORM DRAIN | LF | 38 | - |
| 36" STORM DRAIN | EA | 72 | - |
| DRAINAGE EASEMENT BOLLARD | EA | 8 | - |

## GRADING CONSTRUCTION NOTES

1. CONSTRUCT 30" MODIFIED ROLL CURB AND GUTTER PER CCAUSD #217.1
2. CONSTRUCT "L" CURB AND GUTTER PER CCAUSD #216
3. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234
4. CONSTRUCT 8' CROSS GUTTER PER CCAUSD #228
5. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE I. "A" & "B" = 8' UNLESS OTHERWISE NOTED
6. CONSTRUCT 8' TRANSITION "L" CURB TO TYPE 30" MODIFIED ROLL CURB PER DETAIL "A" ON SHEET C15
7. INSTALL 2" AC OVER 4" TYPE II AGGREGATE BASE
8. CONSTRUCT PAD PER TYPICAL PAD SECTION DETAIL "B" ON SHEET C15
9. MATCH EX. ASPHALT, CURB, SIDEWALK, GUTTER, OR VALLEY GUTTER. SAW CUT CLEAN EDGE FOR CONNECTION.
10. INSTALL TEMPORARY 2" OF TYPE II AGGREGATE BASE 95% COMPACTION MEETING REQUIREMENTS FOR H-20 LOADING.
11. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE II. "A" & "B" = 6.5' UNLESS OTHERWISE NOTED
12. CONNECT TO EX. SD LINE (CONTRACTOR TO VERIFY SIZE, INVERT AND LOCATION OF EX. SD)
13. CONSTRUCT WROUGHT IRON FENCE PER DETAIL "C", SHEET C15
14. CONSTRUCT SIDEWALK DRAIN PER CCAUSD #236
15. EXISTING RIP-RAP CHANNEL TO BE REMOVED.
16. EXISTING AC PAVEMENT TO BE REMOVED
17. EXISTING FENCE TO BE REMOVED
18. EXISTING CONCRETE PAD TO BE REMOVED
19. CONSTRUCT MODIFIED TYPE "CM2" DROP INLET PER STRUCTURAL DETAILS ON SHEET S0.00
20. INSTALL TEMPORARY RIP-RAP PAD ($D_{50}$=6", THICKNESS = 12")
21. CONSTRUCT GATES PER LANDSCAPE PLANS & DETAILS
22. INSTALL TYPE "A" ISLAND CURB PER CCAUSD #219
23. CONSTRUCT GATES PER CCAUSD #425.S1
24. INSTALL TEMPORARY RIP-RAP ($D_{50}$=8", THICKNESS = 16")
25. INSTALL 4" DIA. FIXED BOLLARDS SPACED 6' APART O.C., 1' BEHIND BACK OF SIDEWALK PER CCAUSD #425.S1
26. INSTALL CALL BOX FOR ENTRY GATES
27. INSTALL PEDESTRIAN ACCESS GATE PER DETAIL "D", SHEET C15

## LEGEND

| PROPOSED | EXISTING | DESCRIPTION |
|---|---|---|
| | | PUBLIC R/W LINE |
| | | PRIVATE R/W LINE |
| | | BOUNDARY LINE |
| | | EASEMENT LINE |
| | | MATCH LINE |
| CUT / FILL | | CUT / FILL LINE |
| | | CENTERLINE |
| | | EDGE OF ASPHALT |
| | | CURB & GUTTER |
| | | RETAINING WALL |
| | | SAWCUT LINE |
| | | FLOWLINE |
| | | GRADE BREAK |
| 2500 | (2500) | MAJOR CONTOUR - 5' |
| 2503 | (2503) | MINOR CONTOUR - 1' |
| | | FENCE |
| | | SCARP |
| | | CONCRETE SURFACE |
| | | PROPOSED ASPHALT PAVEMENT |
| | | REMOVE AND REPLACE ASPHALT |
| | | RIP-RAP |
| 98.76 XX 1.00% | (98.76) XX (1.00%) | ELEVATION GRADE TAG |
| | | GRADE SLOPE TAG |
| 1 C5 | | SECTION MARKER - DETAIL NUMBER ABOVE SHEET NUMBER |
| | | SIGHT VISIBILITY ZONE |

### COMMON ABBREVIATIONS

| | | | |
|---|---|---|---|
| FF | - FINISHED FLOOR | TRC | - TOP OF 30" ROLL CURB |
| TC | - TOP OF CURB | AC | - TOP OF PAVEMENT |
| FL | - FLOWLINE GRADE | EP | - EDGE OF PAVEMENT |
| TB | - TOP OF BERM | TRW | - TOP OF RETAINING WALL |
| TF | - TOP OF WALL FOOTER | PRIV. | - PRIVATE |
| ST. | - STREET | TYP. | - TYPICAL |
| ESMT | - EASEMENT | R/W | - RIGHT-OF-WAY |
| TMH | - TOP OF MANHOLE (RIM ELEV.) | DG | - DESIGN GRADE |

## GRADING NOTES

1. ACTUS SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES IN THE PLANS OR CONDITIONS IN THE FIELD.
2. FOR ROADWAY WIDENING AND HALF STREET IMPROVEMENTS, THE CONTRACTOR SHALL VERIFY CROSS SLOPES FROM EXISTING PAVEMENT SAWCUT LINE TO PROPOSED EDGE OF PAVEMENT OR PROJECTED LIP OF CURB PRIOR TO SUBGRADE PREPARATION AND CONSTRUCTION OF PROPOSED CURB LINE. IF MINIMUM OR MAXIMUM CROSS SLOPES DO NOT MEET AGENCY STANDARDS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER.
3. WALL DETAILS ARE FOR REFERENCE ONLY AND DO NOT CONSTITUTE A STRUCTURAL DESIGN.
4. CONSTRUCTION OF BLOCK WALLS REQUIRE A SEPARATE BUILDING PERMIT AND APPROVAL BY THE BUILDING DEPARTMENT.

## SIGHT VISIBILITY ZONE NOTE

NO WALLS, FENCES SHRUBS, UTILITY APPURTENANCES OR ANY OTHER OBJECT, OTHER THAT TRAFFIC CONTROL DEVICES, FIRE HYDRANTS, TREES, AND STREET LIGHT 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 TOP OF CURB, OR WHERE NO CURB EXISTS, A HEIGHT OF 27 INCHES MEASURED FROM THE TOP OF ADJACENT ASPHALT, GRAVEL OR PAVEMENT STREET SURFACE. THIS RESTRICTION EXTENDS ALONG THE SIGHT VISIBILITY LINE THROUGH LANDSCAPED MEDIANS.

PLEASE REFER TO TRAFFIC PLANS FOR SIGHT VISIBILITY ZONE DIMENSIONS.

## ESTIMATED QUANTITIES

NOTE: QUANTITIES SHOWN ARE RAW QUANTITIES AND APPROXIMATE. CONTRACTOR TO DETERMINE HIS OWN QUANTITIES FOR GRADING PURPOSES.

WORK UNDER THIS PLAN CONSTITUTES GRADING IN ACCORDANCE WITH 2018 IBC. ENGINEERING REPORTS AND CERTIFICATIONS IN CONFORMANCE WITH IBC SHALL BE FILED WITH THE CITY OF LAS VEGAS PRIOR TO CITY OF LAS VEGAS APPROVAL AT FINAL INSPECTION.

CUT: 242,298 CY FILL: 59,941 CY BALANCE: 182,357 CY (CUT)

## ENGINEER'S CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED UPDATED DRAINAGE STUDY CLV# DS5152 ON FILE WITH THE CITY OF LAS VEGAS.

DARRYL LATTIMORE, P.E. — 2/25/2020 DATE

FAST — Call before you Dig Underground 1-702-432-5300 (FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (FAST))

Call before you Dig — AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY. CALL 811 OR 1-800-227-2600

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY. CALL BEFORE YOU DO OVERHEAD 1-702-227-2929

## LINE & CURVE DATA NOTE

PLEASE REFER TO TRAFFIC SHEETS FOR LINE AND CURVE DATA.

## BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV0926W6
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

## BASIS OF BEARINGS

SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27, TOWNSHIP 21 SOUTH, RANGE 59 EAST, M.D.M., CITY LAS VEGAS, CLARK COUNTY, NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS.

## DEDICATION NOTE

ALL EASEMENTS, RIGHT-OF-WAY, AND OTHER DEDICATIONS WITHIN THIS PLAN SET ARE GRANTED PER FM# 77500 UNLESS OTHERWISE NOTED

## PRIVATE STREET NOTE

ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS, AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA PER THE APPROVED FINAL MAP FOR THE PROJECT.

## COMMON LOT NOTE

ALL COMMON LOTS ARE TO BE PUBLIC DRAINAGE, PEDESTRIAN ACCESS, UTILITY, SEWER, AND PRIVATE LANDSCAPE EASEMENTS OVER THEIR ENTIRETY TO BE PRIVATELY MAINTAINED BY THE HOA PER THE APPROVED FINAL MAP FOR THE PROJECT.

## SOILS NOTE

ALL GRADING SHALL CONFORM TO GEOTECHNICAL REPORT
BY: GEOTEK RESIDENTIAL, LLC
ORIGINAL PROJECT NUMBER: 14658-LVR
DATED: MARCH 5, 2019
UPDATED APRIL 17, 2019

## STORM DRAIN CONNECTION NOTE

WHEN CONNECTING TO EXISTING RCP, CONTRACTOR SHALL REMOVE THE EXISTING RCP TO THE NEAREST BELL CONNECTION, CONNECT NEW RCP TO EXISTING RCP AND MATCH EXISTING PIPE SLOPE.

## FLOOD ZONE DESCRIPTION

THIS SITE IS LOCATED IN ZONE "X", AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN, PER THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL 32003C2150E CLARK COUNTY, NEVADA DATED SEPTEMBER 27, 2002.

FLOOD DESIGNATION PROVIDED BY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

## DISCLAIMER NOTE

THE UNDERGROUND UTILITIES AS SHOWN HEREON HAVE BEEN LOCATED FROM OBSERVED FIELD SURVEY EVIDENCE AND EXISTING DRAWINGS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING; PLANS PROVIDED BY THE CLIENT, UTILITY COMPANIES, AND MUNICIPAL AGENCIES. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

107V_____ L19-01866


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# GRADING PLAN 9
# SAVANNAH - UNIT 1
## WILLIAM LYON HOMES
## CITY OF LAS VEGAS, NEVADA

| NO. | DATE | DESCRIPTION | BY |
|---|---|---|---|
| | | | |

PROFESSIONAL ENGINEER — STATE OF NEVADA — DARRYL C. LATTIMORE — EXP: 12/31/21 — CIVIL — No. 17516

2/25/2020

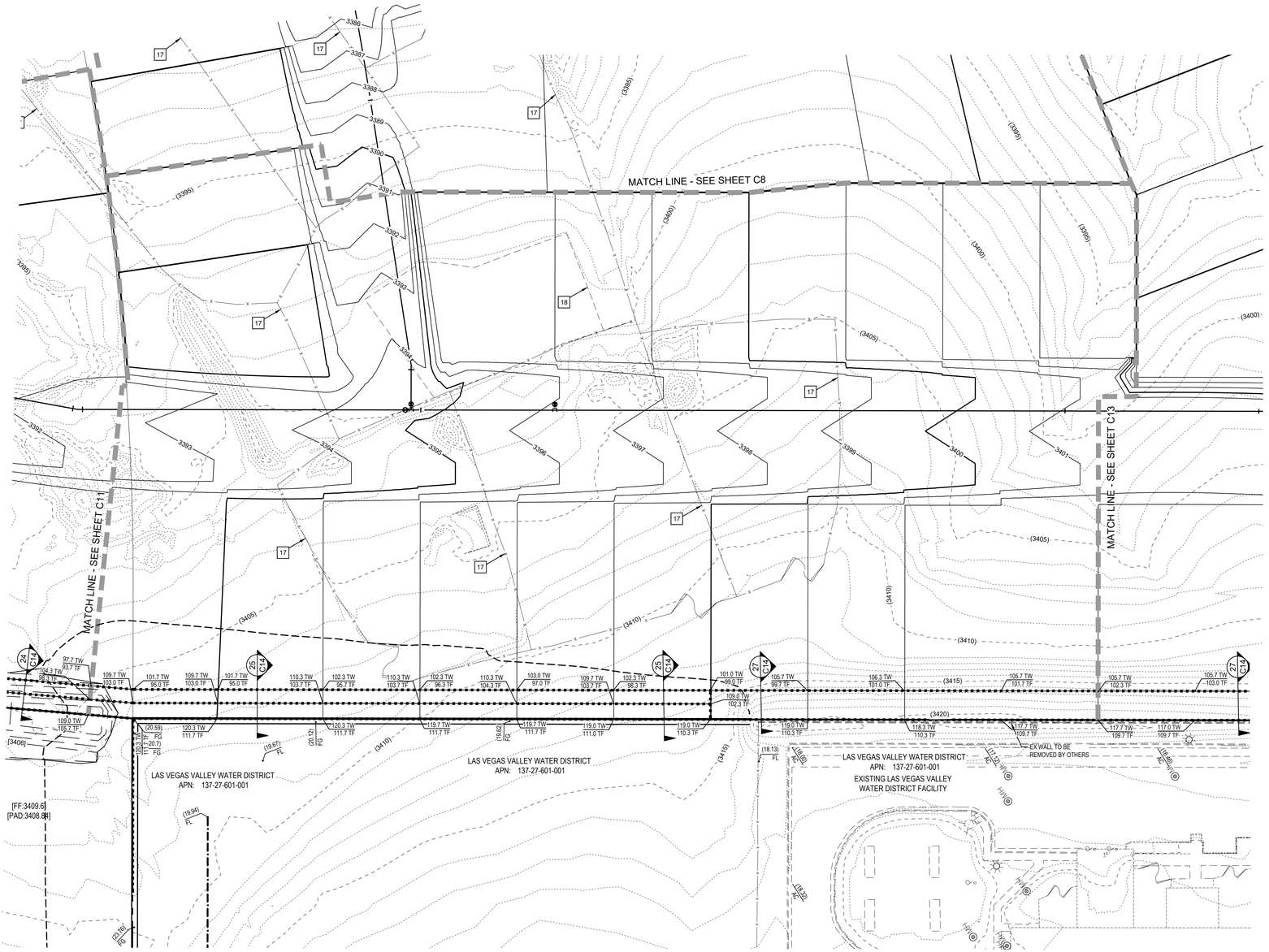
| | |
|---|---|
| DATE | 02/18/2020 |
| DRAWN | RWF/RLS |
| DESIGNED | RWF/RLS |
| CHECKED | ALW/DCL |
| PROJECT # | WLH011803 |

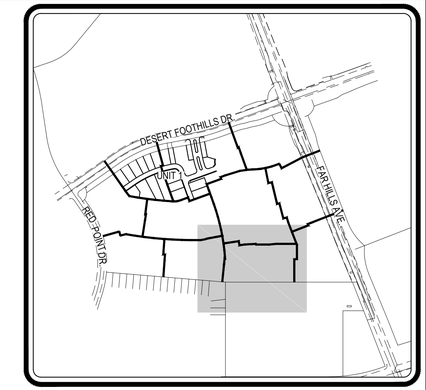
SHEET TITLE: GRADING

SHEET NUMBER: C11

SHEET 11 OF 28


Plot Stamp: 2/25/2020 11:58:40 AM - Alan Whittington
File: P:\WLH\011803 - Parcel E\Civil_CD\Models\WLH011803-UNIT 1 MODELS-CD-GRAD.dwg, Tab: C11




KEY MAP
SCALE: NTS

SCALE: 1"= 30'
30 15 0 30

## DRAINAGE QUANTITIES

| DESCRIPTION | UNIT | PUBLIC | PRIVATE |
|---|---|---|---|
| TYPE CMZ DROP INLET | EA | 2 | - |
| 24" STORM DRAIN | LF | 38 | - |
| 36" STORM DRAIN | EA | 72 | - |
| DRAINAGE EASEMENT BOLLARD | EA | 8 | - |

## GRADING CONSTRUCTION NOTES

1. CONSTRUCT 30" MODIFIED ROLL CURB AND GUTTER PER CCAUSD #217.1
2. CONSTRUCT "L" CURB AND GUTTER PER CCAUSD #216
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27. INSTALL PEDESTRIAN ACCESS GATE PER DETAIL "D", SHEET C15

## LEGEND

| PROPOSED | EXISTING | DESCRIPTION |
|---|---|---|
| | | PUBLIC R/W LINE |
| | | PRIVATE R/W LINE |
| | | BOUNDARY LINE |
| | | EASEMENT LINE |
| | | MATCH LINE |
| CUT | | CUT / FILL LINE |
| FILL | | |
| | | CENTERLINE |
| | | EDGE OF ASPHALT |
| | | CURB & GUTTER |
| | | RETAINING WALL |
| | | SAWCUT LINE |
| | | FLOWLINE |
| | | GRADE BREAK |
| 2500 | (2500) | MAJOR CONTOUR - 5' |
| 2503 | (2503) | MINOR CONTOUR - 1' |
| | | FENCE |
| | | SCARP |
| | | CONCRETE SURFACE |
| | | PROPOSED ASPHALT PAVEMENT |
| | | REMOVE AND REPLACE ASPHALT |
| | | RIP-RAP |
| 98.76 XX | (98.76) XX | ELEVATION GRADE TAG |
| 1.00% | (1.00%) | GRADE SLOPE TAG |
| 1 C5 | | SECTION MARKER - DETAIL NUMBER ABOVE SHEET NUMBER |
| | | SIGHT VISIBILITY ZONE |

COMMON ABBREVIATIONS

| | | | |
|---|---|---|---|
| FF | - FINISHED FLOOR | TRC | - TOP OF 30" ROLL CURB |
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| TB | - TOP OF BERM | TRW | - TOP OF RETAINING WALL |
| TF | - TOP OF WALL FOOTER | PRIV. | - PRIVATE |
| ST. | - STREET | TYP. | - TYPICAL |
| ESMT | - EASEMENT | R/W | - RIGHT-OF-WAY |
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## GRADING NOTES

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CUT: 242,298 CY FILL: 59,941 CY BALANCE: 182,357 CY (CUT)

## ENGINEER'S CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED UPDATED DRAINAGE STUDY CLV# DS5152 ON FILE WITH THE CITY OF LAS VEGAS.

DARRYL LATTIMORE, P.E. — 2/25/2020 DATE

## LINE & CURVE DATA NOTE

PLEASE REFER TO TRAFFIC SHEETS FOR LINE AND CURVE DATA.

## BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV05DBW6
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

## BASIS OF BEARINGS

SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27, TOWNSHIP 21 SOUTH, RANGE 59 EAST, M.D.M., CITY LAS VEGAS, CLARK COUNTY, NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS.

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## SOILS NOTE

ALL GRADING SHALL CONFORM TO GEOTECHNICAL REPORT
BY: GEOTEK RESIDENTIAL, LLC
ORIGINAL PROJECT NUMBER: 14658-LVR
DATED: MARCH 5, 2019
UPDATED APRIL 17, 2019

## STORM DRAIN CONNECTION NOTE

WHEN CONNECTING TO EXISTING RCP, CONTRACTOR SHALL REMOVE THE EXISTING RCP TO THE NEAREST BELL CONNECTION, CONNECT NEW RCP TO EXISTING RCP AND MATCH EXISTING PIPE SLOPE.

## FLOOD ZONE DESCRIPTION

THIS SITE IS LOCATED IN ZONE "X", AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN, PER THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL 32003C2150E CLARK COUNTY, NEVADA DATED SEPTEMBER 27, 2002.

FLOOD DESIGNATION PROVIDED BY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

## DISCLAIMER NOTE

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107V_____ L19-01866

FAST — Call before you Dig — AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY. CALL 811 OR 1-800-227-2600 — Call before you Underground 1-702-432-5300 (FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (FAST)) — AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY. CALL BEFORE YOU DO OVERHEAD 1-702-227-2929


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Engineering - Surveying - Consulting - Planning


# GRADING PLAN 10
# SAVANNAH - UNIT 1
## WILLIAM LYON HOMES
## CITY OF LAS VEGAS, NEVADA

| A. | DATE | DESCRIPTION | BY |
|---|---|---|---|

DARRYL C. LATTIMORE — STATE OF NEVADA — PROFESSIONAL ENGINEER — No. 17516 — EXP: 12/31/21 CIVIL
2/25/2020

| | |
|---|---|
| DATE | 02/18/2020 |
| DRAWN | RWF/RLS |
| DESIGNED | RWF/RLS |
| CHECKED | ALW/DCL |
| PROJECT # | WLH011803 |

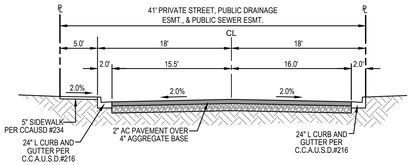
SHEET TITLE: GRADING

SHEET NUMBER: C12

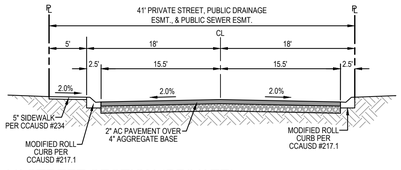
SHEET 12 OF 28


Plot Stamp: 2/25/2020 11:58:59 AM - Alan Whittington
File: P:\WLH\01803 - Parcel E\Civil_CD\Models\WLH011803-UNIT 1 MODELS-CD-GRAD.dwg, Tab: C12

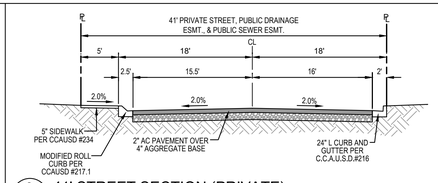

MATCH LINE - SEE SHEET C9
MATCH LINE - SEE SHEET C9
MATCH LINE SEE SHEET C8
MATCH LINE - SEE SHEET C12
MATCH LINE - SEE SHEET C12
50' LVWD ESMT. OR-20070525-0001401
24' ESMT
76' R/W
EX. C.E. LOT "I" (VILLAGE 21-UNIT 2)
EX. C.E. LOT "I" (VILLAGE 21-UNIT 2)
SANTA ROSE TOWNHOMES N.A.P.
SANTA ROSE TOWNHOMES UNIT 2 N.A.P.
FAR HILLS AVE
NV ENERGY TRANSMISSION POLE
EX 8" SAN @ 0.53%
EX 8" SAN @ 0.53%
EX 8" SAN @ 0.53%
EX WALL TO BE REMOVED BY OTHERS
EX WALL TO BE REMOVED BY OTHERS
LAS VEGAS VALLEY WATER DISTRICT
APN: 137-27-601-001
EXISTING LAS VEGAS VALLEY WATER DISTRICT FACILITY
LPVWD ESMT. OR-20070525-0001401
EX 6" LS
EX SW
EX 19' LS
EX 4" SS
EX 8" SS
EX 12" SS
EX 18" SD
EX 24" SD
EX 30" SD
EX 36" SD
EX 42" SD
EX 48" SD
EX 54" SD
EX 60" SD
EX 66" SD
EX 72" SD
EX 78" SD
EX 84" SD
EX 90" SD
EX



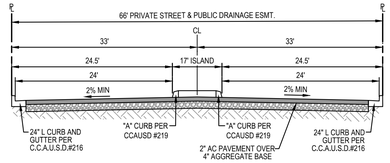

1 41' STREET SECTION (PRIVATE)
NOT TO SCALE



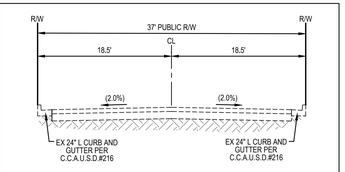

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NOT TO SCALE



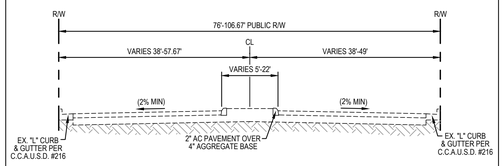

3 41' STREET SECTION (PRIVATE)
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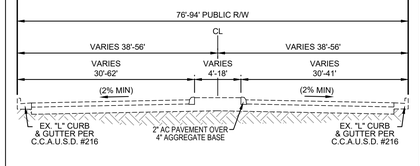

5 66' ENTRY (PRIVATE)
NOT TO SCALE



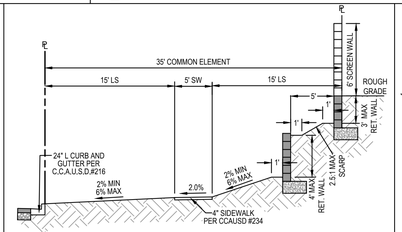

6 REDPOINT DRIVE (PUBLIC)
NOT TO SCALE PER CLV#62021-206



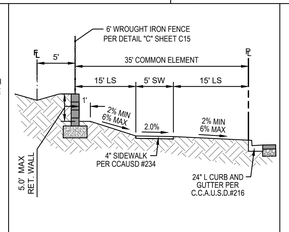

7 FAR HILLS AVENUE (PUBLIC)
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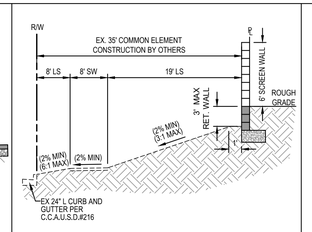

8 DESERT FOOTHILLS (PUBLIC)
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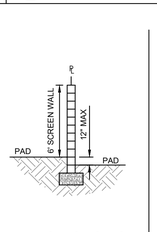

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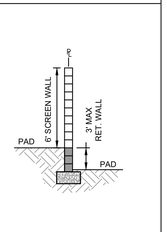

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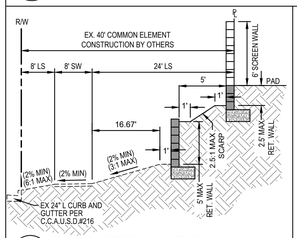

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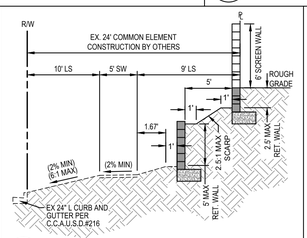

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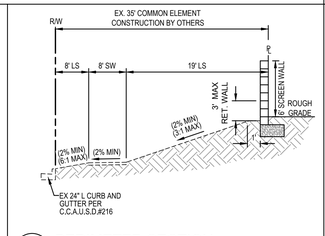

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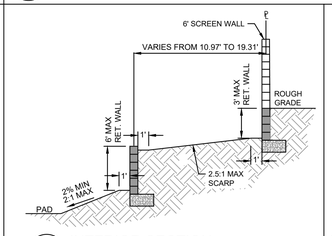

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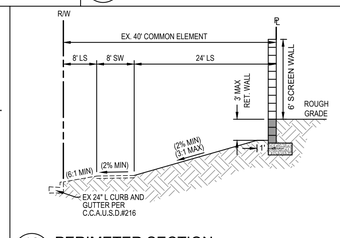

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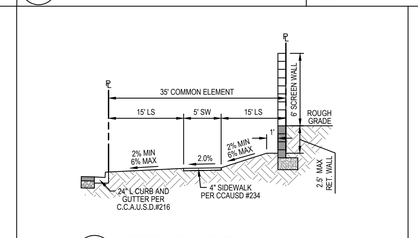

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NOT TO SCALE



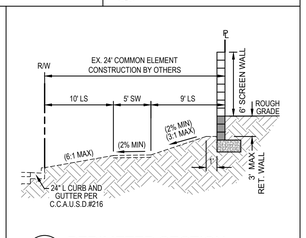

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NOT TO SCALE



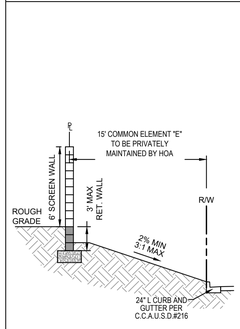

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NOT TO SCALE



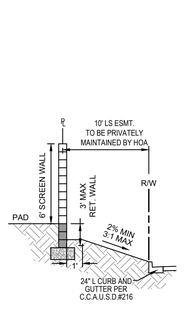

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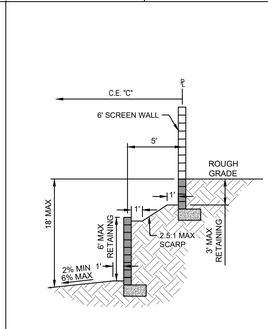

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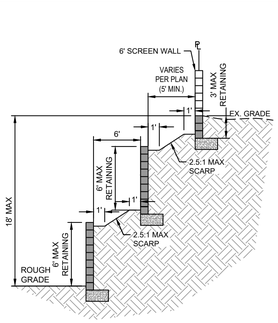

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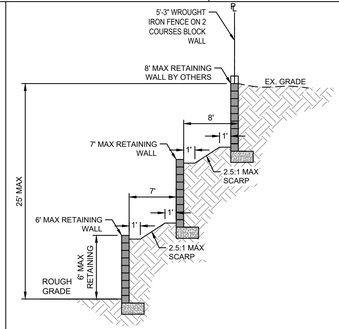

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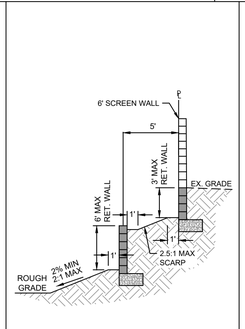

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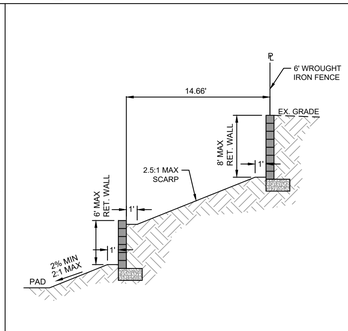

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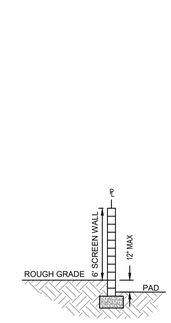

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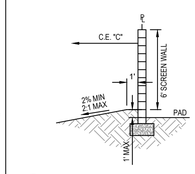

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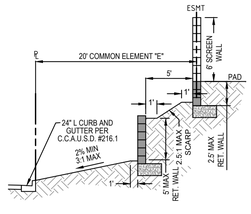

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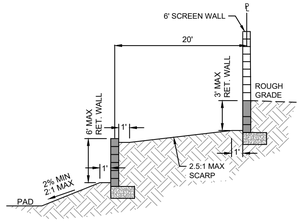

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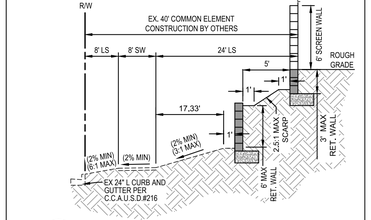

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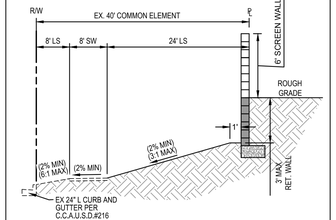

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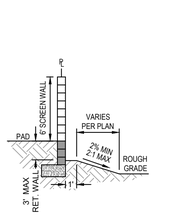

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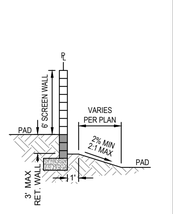

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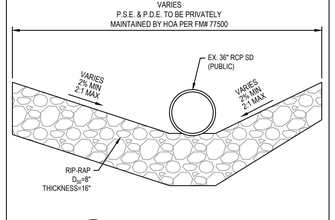

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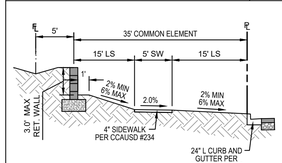

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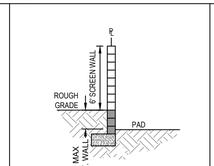

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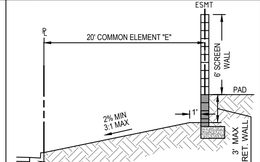

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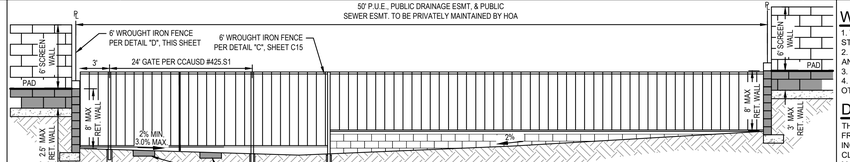

37 INTERIOR SECTION
NOT TO SCALE




38 INTERIOR SECTION
NOT TO SCALE




39 INTERIOR SECTION
NOT TO SCALE




40 GATE & WROUGHT IRON FENCE SECTION
NOT TO SCALE

## WALL NOTES

1. WALL DETAILS ARE FOR REFERENCE ONLY AND DO NOT CONSTITUTE A STRUCTURAL DESIGN.
2. CONSTRUCTION OF BLOCK WALLS REQUIRE A SEPARATE BUILDING PERMIT AND APPROVAL BY THE BUILDING DEPARTMENT.
3. ALL RETAINING WALLS SHALL BE WATER-PROOFED.
4. WROUGHT IRON FENCE GATE DETAILS, FOUNDATIONS AND PLANS BY OTHERS.

## DISCLAIMER NOTE

THE UNDERGROUND UTILITIES AS SHOWN HEREON HAVE BEEN LOCATED FROM OBSERVED FIELD SURVEY EVIDENCE AND EXISTING DRAWINGS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING. PLANS PROVIDED BY THE CLIENT, UTILITY COMPANIES, AND MUNICIPAL AGENCIES. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.










107V
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DETAIL SHEET 1
SAVANNAH - UNIT 1
WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

| NO. | DATE | DESCRIPTION | BY |
|---|---|---|---|
| 1 | | | |

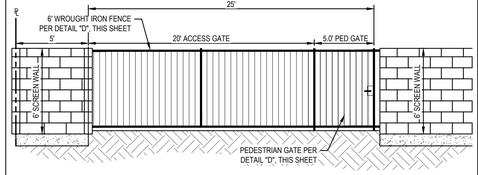
PROFESSIONAL ENGINEER
DARRYL C. LATTIMORE
EXP: 12/31/19
CIVIL
No. 17516
STATE OF NEVADA
2/25/2020

| | |
|---|---|
| DATE | 02/18/2020 |
| DRAWN | RWF/RLS |
| DESIGNED | RWF/RLS |
| CHECKED | ALW/DCL |
| PROJECT # | WLH011803 |

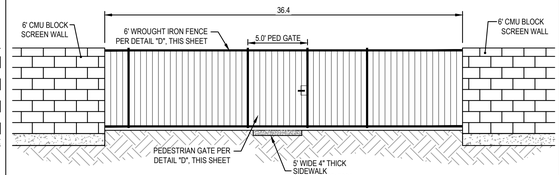
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DETAILS

SHEET NUMBER
C14
SHEET# 14 OF 28

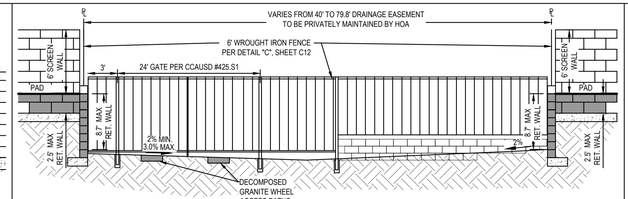
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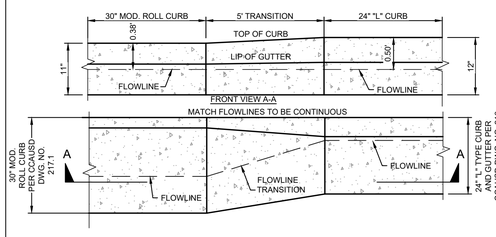

41 GATE & WROUGHT IRON FENCE SECTION
NOT TO SCALE




42 GATE & WROUGHT IRON FENCE SECTION
NOT TO SCALE



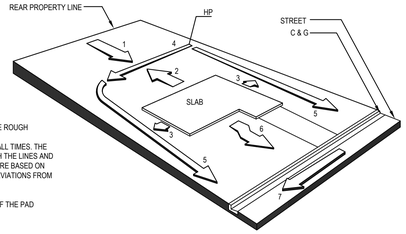

43 INTERIOR SECTION
NOT TO SCALE




A 5' CURB TRANSITION - 'L' CURB TO 30" MOD. ROLL CURB
NOT TO SCALE

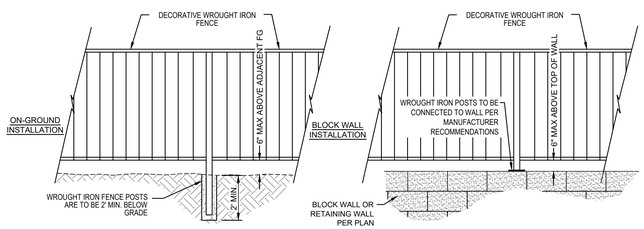
1. SLOPE FROM REAR TO SWALE (MIN. 2%)
2. SLOPE FROM HOUSE TO SWALE (MIN. 2%)
3. SLOPE FROM HOUSE TO SIDE SWALE (MIN. 2%)
4. REAR SWALE (10' MIN. FROM REAR OF HOUSE) (MIN. 1%)
5. SIDE SWALE (MIN. 1%)
6. SLOPE FROM HOUSE TO BACK OF CURB (MIN. 2% FOR 10 FEET, 2% BEYOND THAT)
7. SLOPE OF STREET

A. INDICATED GRADES OTHER THAN T.C., F.G. & GUTTER F.L. ARE ROUGH GRADES. (0.3' LOWER THAN FINISHED GRADE).
B. THE ROUGH GRADING PLANS SHALL BE ON THE JOB SITE AT ALL TIMES. THE ROUGH GRADING SHALL BE FINISHED IN CONFORMANCE WITH THE LINES AND GRADES SHOWN ON THE PLANS. THE GRADING QUANTITIES ARE BASED ON THE ELEVATION AND DETAILS SHOWN ON THE PLANS. ANY DEVIATIONS FROM THE PLANS WILL RESULT IN QUANTITY CHANGES.
C. CARE SHALL BE EXERCISED IN GRADING CORNER LOTS.
D. ROUGH PAD ELEVATIONS SHALL BE GRADED TO WITHIN 0.1' OF THE PAD ELEVATIONS SHOWN ON THE PLANS.

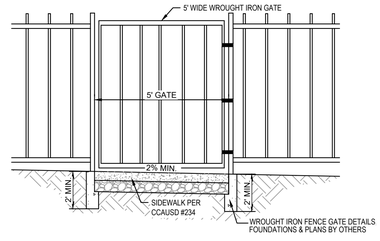



PERSPECTIVE VIEW

B TYPICAL TYPE "A" PAD GRADING
NOT TO SCALE




C WROUGHT IRON FENCE
NOT TO SCALE




D PEDESTRIAN GATE DETAIL
NOT TO SCALE

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4. WROUGHT IRON FENCE GATE DETAILS, FOUNDATIONS AND PLANS BY OTHERS.

## DISCLAIMER NOTE

THE UNDERGROUND UTILITIES AS SHOWN HEREON HAVE BEEN LOCATED FROM OBSERVED FIELD SURVEY EVIDENCE AND EXISTING DRAWINGS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING; PLANS PROVIDED BY THE CLIENT, UTILITY COMPANIES, AND MUNICIPAL AGENCIES. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.










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L19-01866

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DETAIL SHEET 2
SAVANNAH - UNIT 1
WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

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DARRYL C. LATTIMORE
EXP: 12/31/19
CIVIL
2/25/2020

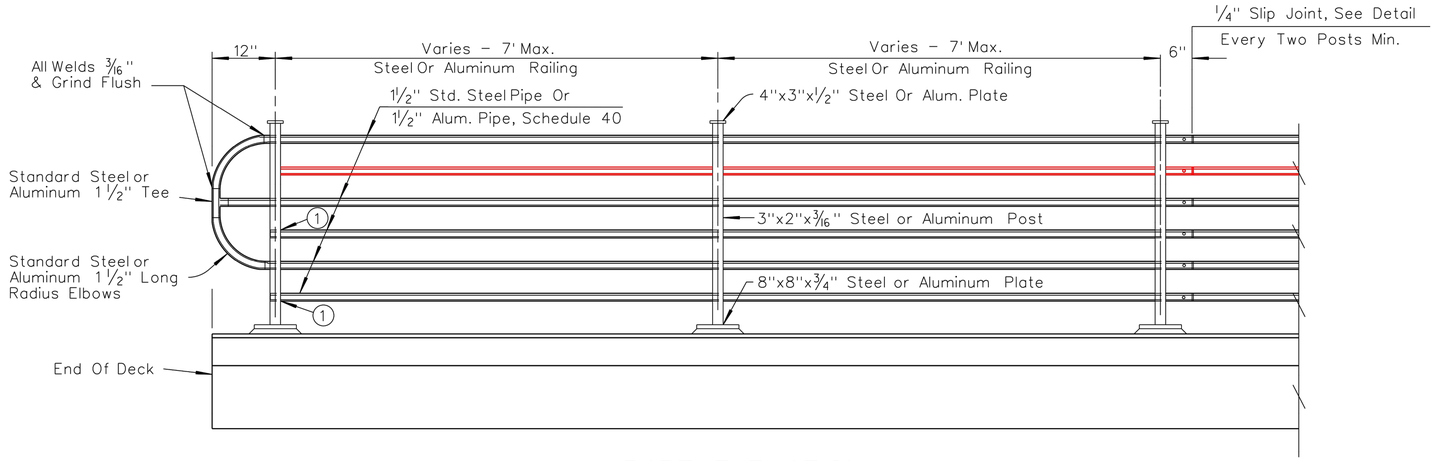
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| DATE | 02/18/2020 |
| DRAWN | RWF/RLS |
| DESIGNED | RWF/RLS |
| CHECKED | ALW/DCL |
| PROJECT # | WLH011803 |

SHEET TITLE
DETAILS

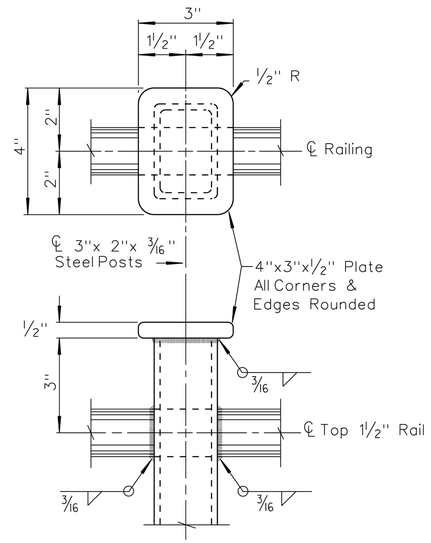
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C15

SHEET# 15 OF 28

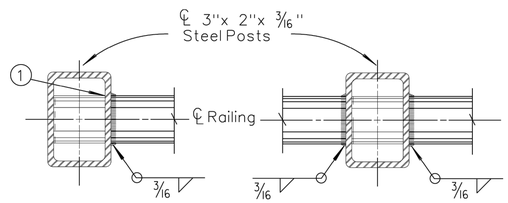
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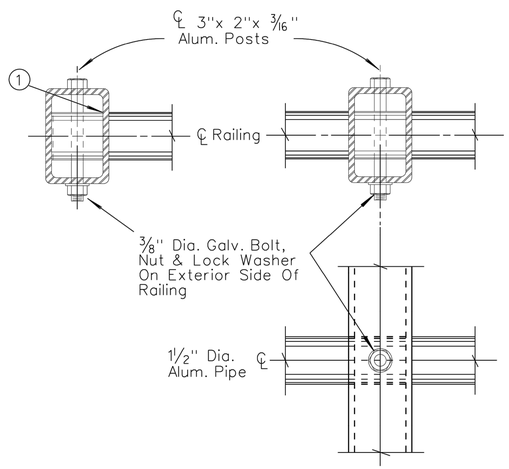

PART ELEVATION



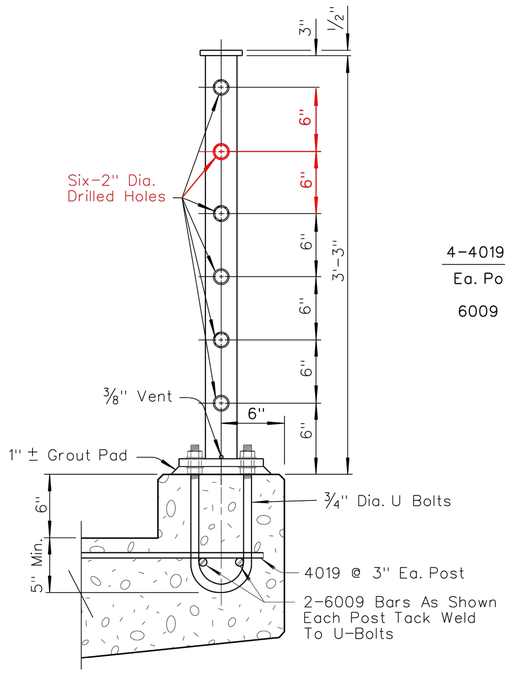

TOP POST PLATE DETAILS



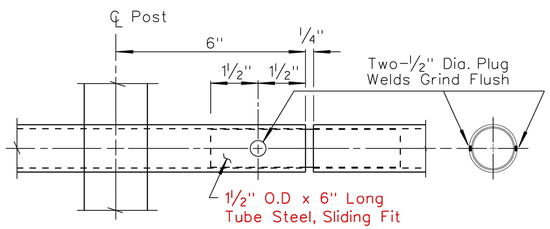

TYPICAL RAIL AND POST CONNECTION STEEL




TYPICAL RAIL AND POST CONNECTION ALUMINUM




TYPICAL SECTION



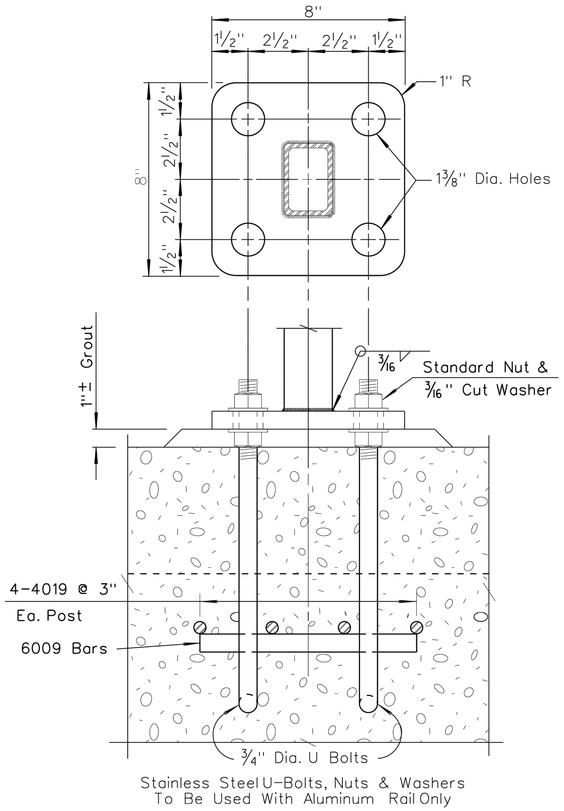

SLIP JOINT DETAILS

## NOTES:

1. All steel railing assembly shall be galvanized after fabrication.
2. All exposed surfaces of steel railing assembly shall be painted white.
3. Not intended to be used as handrail.

## LEGEND:

(1) – WHERE RAIL ENDS AT POST, DRILL POST ONE SIDE ONLY AND END RAIL WITHIN POST.




Stainless Steel U-Bolts, Nuts & Washers To Be Used With Aluminum Rail Only

BOTTOM PLATE DETAILS

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

# PEDESTRIAN RAIL TYPE R

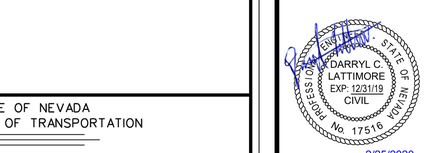
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| B-25.1.5 | (506) | Signed Original On File |
| ADOPTED 11/78 | REVISED 10/15 | CHIEF BRIDGE ENGR. |

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NDOT PEDESTRIAN RAIL TYPE R DETAIL VOID
SAVANNAH - UNIT 1
WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

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SHEET TITLE
DETAILS

SHEET NUMBER
C16
SHEET# 16 OF 28

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# GENERAL REQUIREMENTS

**DRAWINGS**

THESE DRAWINGS HAVE BEEN PREPARED USINGS STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE STRUCTURAL ENGINEERS IN THIS OR SIMILAR LOCALITIES. THEY NECESSARILY ASSUME THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKERS WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, IT IS UNDERSTOOD THAT THE CONTRACTOR WILL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR ALL MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.

**MISCELLANEOUS ITEMS**

CALCULATION AND DESIGN OF MISCELLANEOUS NON-STRUCTURAL ITEMS, SUCH AS STAIRS, RAILINGS, NON-STRUCTURAL WALLS AND PREFABRICATED STRUCTURAL ITEMS, SUCH AS FLOOR AND ROOF TRUSSES, ARE NOT INCLUDED AND ARE TO BE PROVIDED BY OTHERS UNLESS SPECIFICALLY NOTED ON THESE DRAWINGS.

**CONSTRUCTION MEANS AND METHODS**

THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DESIGN AND PROVIDE ADEQUATE SHORING, BRACING, FORM-WORK, ETC... AS REQUIRED FOR THE PROTECTION OF LIFE AND PROPERTY (INCLUDING UTILITIES) DURING CONSTRUCTION. CONSTRUCTION MATERIALS SHALL BE PLACED ON THE STRUCTURE SUCH THAT THE DESIGN LOADS ARE NOT EXCEEDED.

**DIMENSIONS, INSERTS AND OPENINGS**

THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL DIMENSIONS, CONDITIONS, AND ELEVATIONS WITH ARCHITECTURAL DRAWINGS PRIOR TO START OF CONSTRUCTION. THE CONTRACTOR SHALL INFORM THE ARCHITECT IN WRITING OF ANY DISCREPANCIES OR OMISSIONS NOTED ON THE DRAWINGS. ANY SUCH DISCREPANCY, OMISSION, OR VARIATION NOT REPORTED BEFORE START OF CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. WHERE DISCREPENCIES OCCUR IN THESE DRAWINGS, NOTES AND DETAILS ON DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL STUCTURAL NOTES AND TYPICAL DETAILS.

CONTRACTOR SHALL ESTABLISH AND VERIFY ALL OPENINGS AND INSERTS FOR ARCHITECTURAL, MECHANICAL, PLUMBING, AND ELECTRICAL WITH APPROPRIATE TRADES, DRAWINGS AND SUBCONTRACTORS PRIOR TO CONSTRUCTION.

**STANDARDS**

WHERE REFERENCE IS MADE TO VARIOUS TEST STANDARDS FOR MATERIALS, SUCH STANDARDS SHALL BE THE EDITION REFERENCED IN THE GOVERNING BUILDING CODE.

**TYPICAL DETAILS AND NOTES**

TYPICAL DETAILS AND NOTES SHALL APPLY, THOUGH NOT NECESSARILY INDICATED AT A SPECIFIC LOCATION ON PLANS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT. DETAILS MAY SHOW ONLY ONE SIDE OF CONNECTION OR MAY OMIT INFORMATION FOR CLARITY.

**SHOP DRAWINGS**

SHOP DRAWINGS SHALL BE SUBMITTED FOR ALL STRUCTURAL ITEMS. SHOP DRAWINGS ARE REVIEWED ONLY FOR GENEREAL COMPLIANCE WITH THE STRUCTURAL DRAWINGS. REVIEW DOES NOT INDICATE THAT THE SHOP DRAWINGS ARE CORRECT OR COMPLETE. RESPONSIBILITY FOR CORRECTNESS SHALL REST WITH THE CONTRACTOR. ANY CHANGES, SUBSTITUTIONS, OR DEVIATIONS FROM CONTRACT DRAWINGS SHALL BE CLOUDED. ANY OF THE AFOREMENTIONED SHALL NOT BE CONSIDERED APPROVED AFTER ENGINEER'S REVIEW UNLESS SPECIFICALLY NOTED ACCORDINGLY. THE SHOP DRAWINGS DO NOT SUPERSEDE OR REPLACE THE ORIGINAL CONTRACT DRAWINGS. ANY ENGINEERING PROVIDED BY OTHERS AND SUBMITTED FOR REVIEW SHALL BEAR THE SEAL OF AN APPROPRIATELY REGISTERED ENGINEER. ENGINEERING SYSTEM SOLUTIONS SHALL NOT BE RESPONSIBLE FOR THE ADEQUACY OF ENGINEERING DESIGNS PERFORMED BY OTHERS. FIVE WORKING DAYS SHALL BE ALLOWED FOR THE ENGINEER'S REVIEW. CONTRACTOR SHALL PROVIDE A COPY OF EACH SUBMITTAL FOR ENGINEERING SYSTEM SOLUTIONS RECORDS.

SHOP DRAWINGS SHALL REFERENCE DATE AND DELTA (IF ANY) OF CONTRACT DRAWINGS.

**MOLD**

MOLD CONCERNS AND PREVENTION IS OUT OF ENGINEERING SYSTEM SOLUTIONS SCOPE OF SERVICES. ENGINEERING SYSTEM SOLUTIONS SHALL BE HELD HARMLESS, TO THE EXTENT OF THE LAW, FOR ALL MOLD PREVENTION AND MOLD RELATED CONCERNS.

# BASIS FOR DESIGN

| | |
|---|---|
| GOVERNING BUILDING CODE | 2018 IBC (W/ SOUTHERN NEVADA AMENDMENTS) AND 2008 AASHTO STANDARD SPECIFICATIONS |
| DEAD LOAD | |
| STRUCTURE SELF-WEIGHT CONCRETE | 150 PCF |
| VARYING COVER WITH A SOIL BACKFULL DENSITY | 135 PCF |
| SOILS | |
| SOIL BEARING PRESSURE (D+L) | 2000 PSF |
| BEARING INCREASE PER FOOT / MAX BEARING | 350 / 3000 PSF |
| MINIMUM FOOTING EMBEDMENT DEPTH | 12 INCHES |
| AT REST EARTH PRESSURE - LEVEL BACKFILL | 65 PCF |
| PASSIVE EARTH PRESSURE | 350 PCF |
| COEFFICIENT OF FRICTION FOR LATERAL SLIDING RESISTANCE | 0.45 |
| SEISMIC | |
| SITE CLASS | D |
| SDS | 0.433 |
| *SEISMIC NOT REQ'D ON BURIED STRUCTURES PER AASHTO SECTION 3.10 | |

# DEFERRED SUBMITTALS

**SPECIALTY ITEMS**

PREFABRICATED OR SPECIALTY ITEMS AND THEIR COMPONENTS, WHICH ARE INDICATED BY THE STRUCTURAL DRAWINGS TO BE DESIGNED BY OTHERS, MAY BE SUBMITTED TO THE ARCHITECT AND/OR ENGINEER OF RECORD FOR REVIEW AS A DEFERRED SUBMITTAL PROVIDED THAT SUCH SUBMITTAL IS AUTHORIZED BY THE BUILDING DEPARTMENT. DEFERRED SUBMITTALS REQUIRED TO BE SUBMITTED TO THE STRUCTURAL ENGINEER OF RECORD SHALL INCLUDE BUT NOT BE LIMITED TO:

-CONCRETE MIX DESIGN

**PREPARATION**

ALL DEFERRED SUBMITTALS SHALL INCLUDE CALCULATIONS AND DRAWINGS PREPARED IN ACCORDANCE WITH ALL APPLICATION BUILDING CODES AND STAMPED BY AN APPROPRIATELY LICENSED PROFESSIONAL ENGINEER. SUBMITTALS SHALL SHOW LOCATION AND MAGNITUDE OF LOADS, SIZE AND CONFIGURATIONS OF MEMBERS, AND COMPATIBILITY WITH THE PRIMARY STRUCTURAL SYSTEM.

**REVIEW**

DEFERRED SUBMITTAL ITEMS SHALL BE REVIEWED IN ACCORDANCE WITH STANDARD SHOP DRAWING REVIEW PROCEDURES AS DESCRIBED IN THE GENERAL REQUIREMENTS SECTION OF THE GENERAL STRUCTURAL NOTES.

# CONCRETE

**MATERIAL**

MINIMUM 28 DAY COMPRESSIVE STRENGTH FOR SLAB ON GRADE, FOOTING, AND WALLS IS 4500 PSI. (DESIGNED FOR 4000 PSI)

CEMENT SHALL BE TYPE V.

MAXIMUM W/C RATIO SHALL BE 0.45.

CONCRETE SLUMP SHALL BE 4-6 INCHES.

ALL CONCRETE SHALL BE NORMAL WEIGHT OF 145 POUND PER CUBIC FOOT UNLESS NOTED OTHERWISE, USING HARD ROCK AGGREGATES CONFORMING TO ASTM C33.

**BATCHING, MIXING, AND TRANSPORTING**

BATCHING, MIXING, AND TRANSPORTING CONCRETE SHALL BE PER ACI 301.

CONCRETE MIXES SHALL BE DESIGNED BY A CERTIFIED LABORATORY AND APPROVED BY THE ENGINEER OF RECORD.

PORTLAND CEMENT SHALL CONFORM TO ACI 301.

WATER SHALL NOT BE ADDED AT THE JOB SITE SUCH THAT THE APPROVED MIX DESIGN W/C RATIO IS EXCEEDED.

**FORM WORK**

FORM WORK SHALL BE PER ACI 301.

**PLACING**

PLACING OF CONCRETE SHALL BE PER ACI 301.

PLACING OF CONCRETE BY MEANS OF PUMPING SHALL BE PER ACI 301.

WHERE THERE IS A RISK OF PREMATURE DRYING, SUCH AS IN HOT OR WINDY WEATHER, CURING MEASURES SHALL BE IMPLEMENTED PER THE RECOMMENDATIONS OF ACI 301.

**CONSOLIDATION**

CONSOLIDATION OF CONCRETE SHALL BE PER ACI 301.

**EMBEDDED ITEMS**

EMBEDDED ITEMS SHALL BE PLACED PER ACI 301.

CONDUITS AND PIPES SHALL NOT BE EMBEDDED IN STRUCTURAL CONCRETE WITHOUT WRITTEN APPROVAL FROM THE ENGINEER OF RECORD.

EMBEDDED CONDUITS, PIPES, AND SLEEVES SHALL NOT BE LARGER IN DIAMETER THAN 1/3 THE OVERALL THICKNESS OF THE SLAB, BEAM, OR WALL IN WHICH THEY ARE EMBEDDED AND SHALL NOT BE SPACED CLOSER THAN 3 DIAMETERS OR ELEMENT WIDTHS ON CENTER.

NO ALUMINUM EMBEDS SHALL BE IN DIRECT CONTACT WITH CONCRETE.

**COLD WEATHER CONCRETING**

WHEN THE AIR TEMPERATURE IS BELOW 40°F, COLD WEATHER CONCRETE PROCEDURES SHALL BE USED PER ACI 301.

A CONSTRUCTION PLAN SHALL BE SUBMITTED TO THE ENGINEER DETAILING THE PROTECTION PROCEDURES PRIOR TO PLACEMENT OF CONCRETE.

**HOT WEATHER CONCRETING**

PRIOR TO CONCRETE PLACEMENT, TOP 3 INCHES OF SUB-BASE SHALL BE WETTED SUFFICIENTLY TO SATURATE SUB-BASE WITHOUT ANY STANDING WATER.

CONCRETE PLACEMENT TEMPERATURE MAY NOT EXCEED 90° FAHRENHEIT WHEN MEASURED IN ACCORDANCE WITH ASTM C1064.

STEEL FORMS AND REINFORCEMENT SHALL BE COOLED PRIOR TO CONCRETE PLACEMENT WHEN STEEL TEMBERATURES EXCEED 120° FAHRENHEIT.

MIX WATER, AGGREGATES, CONVEYING AND PLACING EQUIPMENT OR ANY COMBINATION OF THE ABOVE SHALL BE COOLED IF NECESSARY TO MAINTAIN PROPER CONCRETE PLACING TEMPERATURE.

# FOUNDATION

**DESIGN RECOMMENDATIONS**

FIRM: GEOTEK RESIDENTIAL, LLC; REPORT NO.: 14658-LVR; DATE: MARCH 5, 2019 AND UPDATE REPORT DATED APRIL 17, 2019

**CONSTRUCTION**

ALL SITE PREPARATION, GRADING, COMPACTION TESTS, INSPECTIONS, ETC. SHALL BE FOLLOWED WITH STRICT ADHERENCE AND SHALL BE COMPLETED PRIOR TO ANY CONCRETE PLACEMENT. SEE ACI 325.3 FOR FURTHER REQUIREMENTS.

ENGINEERING SYSTEM SOLUTIONS ASSUMES NO LIABILITY FOR GROUNDWATER OR OTHER MEANS OF FLOODING.

**FOOTING EMBEDMENT**

ALL FOOTINGS SHALL EXTEND BELOW GRADE THE MINIMUM EMBEDMENT DEPTH AS NOTED ON THE FOUNDATION PLAN.

**GRADE IS DEFINED AS FOLLOWS**

INTERIOR FOOTINGS: TOP OF SLAB.

PERIMETER FOOTINGS: PAD GRADE OR NATURAL GRADE BEFORE LANDSCAPING.

EXTERIOR FOOTINGS: TOP OF PERMANENT EXTERIOR PAVING OR CONCRETE AT LEAST 5 FEET WIDE STARTING AT THE BUILDING PERIMETER.

**BACKFILL**

BACKFILL SHALL NOT BE PLACED AGAINST EXTERIOR WALLS UNTIL THE INTERIOR FLOOR SYSTEM CAN ADEQUATELY BRACE THE WALL.

BACKFILL AND RECOMPACT ALL TRENCHES PER THE GEOTECHNICAL REPORT. (MIN 90% DRY DENSITY)

**DRAINAGE**

PROVIDE ADEQUATE DRAINAGE AWAY FROM THE STRUCTURE.

# SPECIAL INSPECTIONS

A SPECIAL INSPECTOR SHALL BE PROVIDED TO OBSERVE WORK FOR CONFORMANCE WITH THE CONTRACT DOCUMENTS. THE INSPECTOR SHALL SUBMIT A SIGNED STATEMENT TO THE OWNER, CONTRACTOR, AND ENGINEER INDICATING THE SPECIAL INSPECTION WORK WAS IN COMPLIANCE WITH THE PLANS AND SPECIFICATIONS.

SPECIAL INSPECTIONS SHALL BE PROVIDED FOR THE FOLLOWING WORK:

- BACKFILL
- REINFORCEMENT
- CONCRETE
- ADHESIVE ANCHORING

# STRUCTURAL STEEL

**GENERAL**

DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL AND MISCELLANEOUS STEEL SHALL CONFORM TO THE SPECIFICATIONS AND STANDARDS OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION AS CONTAINED IN THE "AISC MANUAL OF STEEL CONSTRUCTION", CURRENT EDITION.

**MEMBERS**

STRUCTURAL STEEL MEMBERS SHALL CONFORM WITH THE ASTM STANDARDS AND MATERIAL PROPERTIES PER TYPICAL DETAIL "STEEL MEMBERS' ASTM STANDARDS AND PROPERTIES" UNLESS NOTED OTHERWISE.

**FABRICATION**

SHOP DRAWINGS SHALL SHOW MEMBER LAYOUT, SIZE, LENGTH, BOLT HOLE SIZES AND LOCATIONS, CONNECTION DETAILS, GRADE, AND ERECTION PROCEDURES CONFORMING TO AISC SPECIFICATIONS.

FABRICATORS SHALL BE PRE-QUALIFIED, APPROVED, AND RECOGNIZED BY THE BUILDING OFFICIAL AND CONTRACTOR AS COMPETENT TO COMPLETE REQUIRED FABRICATED ITEMS.

**WELDING**

WELDING PROCEDURES, ELECTRODES, AND WELDER QUALIFICATIONS SHALL CONFORM TO THE "CODE FOR WELDING IN BUILDING CONSTRUCTION", AMERICAN WELDING SOCIETY (AWS) AND THE AISC "SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL BUILDINGS".

ALL WELDS SHALL USE A FILLER MATERIAL WITH A TENSILE STRENGTH OF 70 KSI.

ALL WELDS INVOLVING REINFORCING BARS SHALL FOLLOW AISC SPECIFICATIONS.

WELDING OR TACK WELDING OF HIGH STRENGTH BOLTS (ASTM A325 OR A490) IS NOT PERMITTED.

ALL EXPOSED BUTT WELDS SHALL BE GROUND SMOOTH.

FOR ALL WELDS REQUIRING CONTINUOUS INSPECTION, FABRICATOR OR ERECTOR SHALL SUBMIT A WELDING PROCEDURE TO THE ENGINEER.

**BOLTING**

ALL BOLTED CONNECTIONS SHALL BE SNUG-TIGHTENED AS DEFINED PER AISC UNLESS NOTED OTHERWISE IN DRAWINGS. SEE DRAWINGS FOR BOLTS THAT ARE REQUIRED TO BE PRE-TENSIONED OR SLIP CRITICAL AS DEFINED PER AISC. ALL BOLTS SHALL BE INSTALLED USING AN APPROVED AISC PROCEDURE.

**GROUT**

GROUT SHALL BE 5,000 PSI (MINIMUM) NON-SHRINK FLOWABLE GROUT AND INSTALLED BEFORE ADDING VERTICAL LOAD.

**HOT DIP GALVANIZING**

ALL STRUCTURAL STEEL SHALL BE HOT DIP GALVANIZED PER ASTM A123. FASTENERS SHALL BE HOT DIP GALVANIZED PER ASTM F2329.

ALL TOUCH-UP OF GALVANIZED ITEMS TO BE PER ASTM A780.

# REINFORCING STEEL

REINFORCING BARS SHALL BE DEFORMED, EXCEPT AS NOTED IN ACI 301.

USE OF EPOXY-COATED BARS IS NOT PERMITTED.

**GRADE**

ALL WELDED BARS SHALL BE GRADE 60, REFER TO ASTM STANDARD A706.

#4 BARS OR LARGER SHALL BE GRADE 60, REFER TO ASTM STANDARD A615.

#3 BARS OR SMALLER SHALL BE GRADE 40, REFER TO ASTM STANDARD A615.

**CLEAR COVER**

ALL DIMENSIONS NOT NOTED AS "CLR" ARE TO THE CENTER OF THE BAR.

FOR CLEAR COVER REQUIREMENTS REFER TO TYPICAL DETAIL "MINIMUM COVER FOR NON-PRESTRESSED STEEL".

**REINFORCEMENT SUPPORTS**

REINFORCEMENT SUPPORT SHALL BE PROVIDED TO MAINTAIN CLEAR DIMENSIONS SHOWN ON PLANS AND SHALL CONFORM TO ONE OF THE FOLLOWING SUPPORT TYPES: WIRE, COATED WIRE, PRECAST CONCRETE, PLASTIC.

REINFORCEMENT SUPPORT SHALL COMPLY WITH ACI 301.

**LAP SPLICING**

UNLESS NOTED OTHERWISE TACK WELDING OF REINFORCING BARS NOT ALLOWED.

FOR LAP LENGTH REQUIREMENTS REFER TO TYPICAL DETAIL "LAP LENGTH SCHEDULE".

**MECHANICAL SPLICE COUPLERS**

MECHANICAL SPLICE COUPLERS SHALL HAVE CURRENT ICC-ES APPROVAL AND SHALL BE CAPABLE OF DEVELOPING 125% OF THE STRENGTH OF THE BAR.

**WELDING**

WELDING OF REINFORCING BARS, METAL INSERTS, AND CONNECTIONS SHALL CONFORM TO AWS D1.4. BENDING SHALL BE MADE ONLY AT LOCATIONS SHOWN ON PLANS OR DETAILS. ALL REINFORCING SHALL BE BENT COLD. BARS SHALL NOT BE UN-BENT AND RE-BENT.

**BENDING**

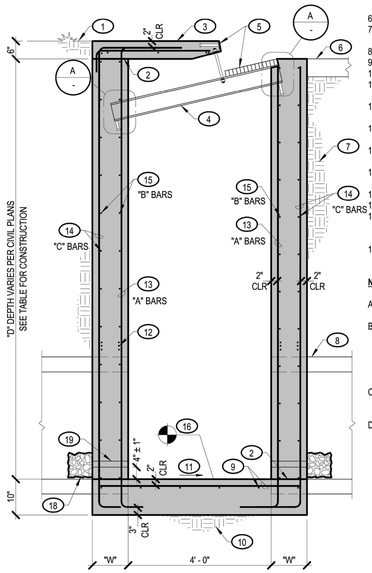
BENDING SHALL BE MADE ONLY AT LOCATIONS SHOWN ON PLANS OR DETAILS. ALL REINFORCING SHALL BE BENT COLD. BARS SHALL NOT BE UNBENT AND REBENT. #5 BAR AND SMALLER MAY BE COLD FIELD BENT. #6 BAR AND LARGER SHALL NOT BE FIELD BENT WITHOUT PRIOR APPROVAL FROM ENGINEER.

**PLACE AND DETAIL**

ALL BARS SHALL BE DETAILED AND PLACED PER CRSI SPECIFICATIONS AND HANDBOOK. DOWEL ALL VERTICAL REINFORCING TO FOUNDATION. SECURELY TIE ALL BARS IN LOCATION BEFORE PLACING CONCRETE.

**DESIGN CRITERIA:**

A. DESIGN FOR 2018 IBC AND 2008 AASHTO STD SPECIFICATIONS
B. SOIL DENSITY = 135 PCF
C. AT REST SOIL PRESSURE = 65 PCF

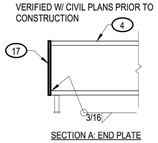



**KEYNOTES:**

1. T.O. FINISHED GRADE PER CIVIL
2. CONSTRUCTION JOINT ROUGHENED TO 1/4" AMPLITUDE
3. SIDEWALK SLAB AND REINF PER USDCCA DRAWING #412.1 FOR TYPE CM2
4. WBx16 AT 2'-6" O.C. W/ (2) 1/2"Øx4" HSA EA END, BEAM TO EXTEND TO MID THICKNESS OF WALL EA END. REFER TO USDCCA DWG #412.1 FOR HSA PLACEMENT AND BEAM SLOPE.
5. CURB FACE ANGLE, HEADED STUD ANCHORS, GRATE, CONNECTIONS, AND HARDWARE PER USDCCA DRAWING # 412.1 FOR TYPE CM2
6. CIVIL FLATWORK AS OCCURS
7. BACKFILL MATERIAL AND PROCEDURE PER GEOTECH REPORT
8. RCP PER PLAN AS OCCURS
9. #5 AT 11" O.C. EW TOP
10. PROPERLY PREPARED SUBGRADE
11. SLOPE AT INVERT TO DRAIN. VERIFY W/ CIVIL
12. ADDL BARS ABOVE RCP OPENING PER TYP REINF AT OPENING DETAIL
13. "A" BARS PER TABLE. PROVIDE STD HOOK T&B
14. SOIL FACE "C" BARS PER TABLE AS OCCURS W/ STD HOOK T&B
15. HORIZ "B" BARS PER TABLE W/ STD HOOK EA END
16. INVERT ELEVATION PER CIVIL
17. 1/4" END PLATE
18. (2) CUBIC FT OF FREE DRAIN MATERIAL WRAPPED IN FILTER FABRIC AT EA WEEP HOLE
19. 2" Ø WEEP HOLE EA SIDE OF STRUCTURE, LOCATE PER PLAN

**NOTES:**

A. END WALL CONSTRUCTION SHALL MATCH WALL CONSTRUCTION SHOWN
B. ALL EXPOSED STEEL SHALL BE HOT-DIPPED GALV. ANY GALVANIZING DAMAGED DURING CONSTRUCTION SHALL BE PAINTED W/ (2) COATS OF ALUMINUM PAINT (GALVANOX OR APPROVED EQ)
C. * DIMS SHOWN ARE BASED UPON THE CIVIL DWGS. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION
D. ACTUAL DEPTH OF DROP INLET TO BE VERIFIED W/ CIVIL PLANS PRIOR TO CONSTRUCTION




SECTION A: END PLATE

**NOTES:**

A. VALUES IN TABLE ARE IN INCHES. LENGTHS BASED ON 60 GRADE REINF (NOT COATED) WITH CLASS B LAP SPLICES
B. TOP REINF IS DEFINED AS HORIZ REINF W/ MORE THAN 12" OF CONC BELOW
C. CONC STRENGTH SELECTED IN TABLE SHALL NOT EXCEED DESIGN CONC STRENGTH

## REBAR LAP LENGTH SCHEDULE NORMAL-WEIGHT CONCRETE (145 PCF)

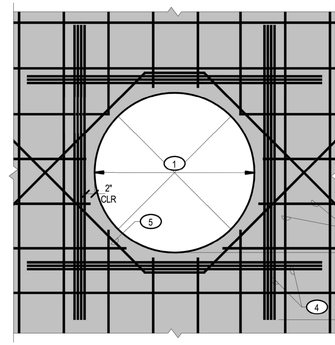
| BAR | MIN CLR COVER | MIN BAR SPACING | f'c = 4000 PSI | |
|---|---|---|---|---|
| | | | TOP * | OTHER |
| #3 | 1.5 | 4.5 | 16 | 12 |
| #4 | 1.5 | 4.0 | 20 | 16 |
| #5 | 1.5 | 3.8 | 26 | 20 |
| #6 | 2.0 | 3.0 | 38 | 28 |
| #7 | 2.0 | 3.5 | 54 | 42 |
| #8 | 2.0 | 3.0 | 82 | 62 |
| #9 | 2.0 | 3.4 | 92 | 70 |
| #10 | 2.0 | 3.8 | 102 | 80 |
| #11 | 2.0 | 4.2 | 114 | 88 |

## MODIFIED TYPE CM-2 WALL TABLE

| D (MAX) | "W" | "A" BARS | "B" BARS | "C" BARS - SOIL FACE |
|---|---|---|---|---|
| 10' - 0" AND LESS | SEE CCUSD DWG NO. 412.1 | | | |
| 12' - 0" | 10" | #5 VERTS AT 7" O.C. | #4 HORIZ AT 10" O.C. | NONE |
| 14' - 0" | 10" | #5 VERTS AT 4" O.C. | #4 HORIZ AT 10" O.C. | NONE |
| 16' - 0" | 12" | #5 VERTS AT 4" O.C. | #4 HORIZ AT 16" O.C. | #4 VERTS AT 16" O.C.<br>#4 HORIZ AT 16" O.C. |
| 18' - 6" | 14" | #6 VERTS AT 5" O.C. | #5 HORIZ AT 18" O.C. | #5 VERTS AT 18" O.C.<br>#5 HORIZ AT 18" O.C. |

## CONCRETE REBAR LAP SCHEDULE

1 S0.00 TDC001




**KEYNOTES:**

1. OPENING DIA 4'-0" MAX UNO
2. REINF PER PLAN
3. EXTEND BARS PAST EDGE OF OPENING EQ TO LAP LENGTH OF BAR UNO, SEE LAP SCHED
4. NUMBER OF ADDED BARS EQ TO THE NUMBER OF BARS INTERRUPTED BY OPENING
5. #4 DIAG BARS AROUND OPENING AS SHOWN

**NOTES:**

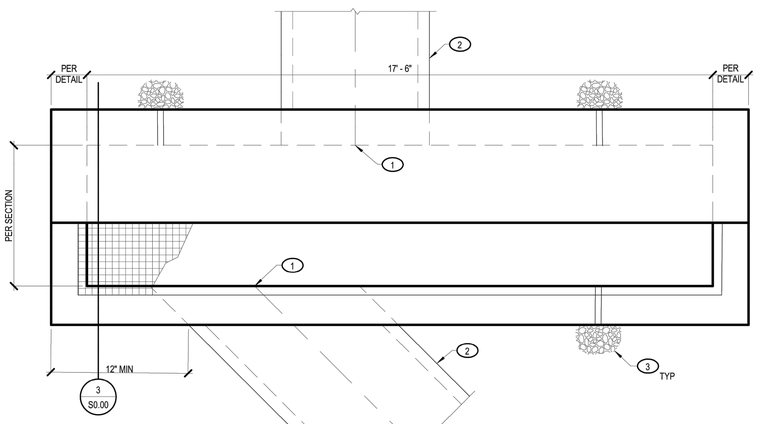
A. LOCATION AS SHOWN PER CIVIL

## SECTION AT DROP INLET

3 S0.00 D203

## TYPICAL REINFORCING AT OPENING

2 S0.00 TCV109DI




**KEYNOTES:**

1. END OF RCP TO TERMINATE FLUSH WITH INSIDE FACE OF DROP INLET WALL. REINF AROUND OPENING PER TYP REINF AT OPENING DETAIL
2. 36"Ø RCP PER CIVIL, AS OCCURS
3. WEEPHOLE, ROCK POCKET, AND FILTER FABRIC PER DETAIL. LOCATE AS SHOWN

**NOTES:**

A. DIMS SHOWN ARE BASED UPON THE CIVIL DWGS. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION
B. VERIFY RCP SIZE AND LOCATION W/ CIVIL PLANS PRIOR TO CONSTRUCTION. NUMBER OF PIPES AND LOCATION MAY VARY FROM THAT SHOWN. SEE CIVIL PLANS FOR INFO

## PLAN VIEW AT DROP INLET

4 S0.00 D104DI

107V_____ L19-01866

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SEAL: STATE OF NEVADA — SPENCER D. GRAY — No. 21821 — STRUCTURAL — PROFESSIONAL ENGINEER — 08/06/2019

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BUILDING RELATIONSHIPS
EXCEEDING EXPECTATIONS

1677 ELDORA ROAD STE. #101, ROSEVILLE, CA 95661, PHONE: (916) 780-2030
3432 N RANCHO DRIVE, LAS VEGAS, NV 89130, PHONE: (702) 616-3107
4043 NORTH 39TH LAST, STE A, IDAHO FALLS, IDAHO 83401, PHONE: (208) 552-9874

PROJECT: SAVANNAH - SUMMERLIN VILLAGE 21 PARCELS E AND F
ACTUS ENGINEERING
LAS VEGAS, NV

SHEET TITLE: **GENERAL NOTES AND DETAILS**

| REV | DESCRIPTION | DATE |
|---|---|---|
| | SUBMIT FOR PERMIT | 08/06/2019 |

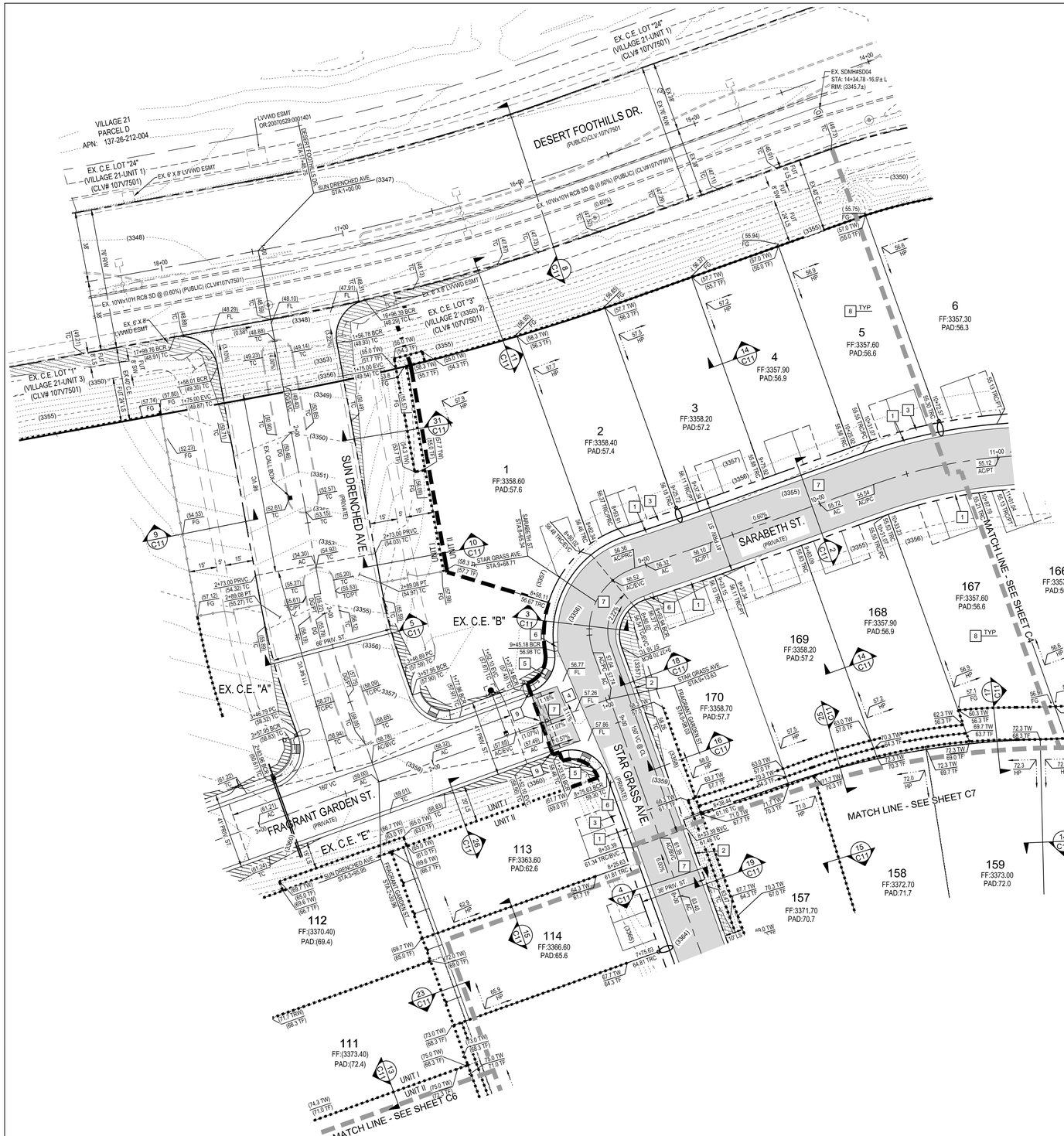
DRAWN: TLR | CHECKED: SDG

DATE: 08/06/2019
PROJECT NUMBER: 19.2623-L19
SHEET NUMBER: **S0.00**

GRADING PLANS AND DETAILS

# REDLINED PLANS FROM APPROVED UNIT 2 PLAN SETS

# GRADING PLANS AND DETAILS










KEY MAP
SCALE: NTS

## GRADING CONSTRUCTION NOTES

1. CONSTRUCT 30" MODIFIED ROLL CURB AND GUTTER PER CCAUSD #217.1
2. CONSTRUCT "L" CURB AND GUTTER PER CCAUSD #216
3. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234
4. CONSTRUCT 8' CROSS GUTTER PER CCAUSD #228
5. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE I. "A" & "B" = 8' UNLESS OTHERWISE NOTED
6. CONSTRUCT 5' TRANSITION "L" CURB TO TYPE 30" MODIFIED ROLL CURB PER DETAIL "B" ON SHEET C12
7. INSTALL 2" AC OVER 4" TYPE II AGGREGATE BASE
8. CONSTRUCT PAD PER TYPICAL PAD SECTION DETAIL "A" ON SHEET C12
9. MATCH EX. ASPHALT, CURB, SIDEWALK, GUTTER, OR VALLEY GUTTER. SAW CUT CLEAN EDGE FOR CONNECTION.
10. INSTALL TEMPORARY RIP-RAP PAD ($D_{50}$=6", THICKNESS = 12")
11. CONSTRUCT ACCESS GATES PER CCAUSD #425.S1
12. CONNECT TO EX. SD LINE (CONTRACTOR TO VERIFY SIZE, INVERT AND LOCATION OF EX. SD)
13. CONSTRUCT WROUGHT IRON FENCE PER DETAIL "C", SHEET C12
14. CONSTRUCT SIDEWALK DRAIN PER CCAUSD #236
15. CONSTRUCT TYPE "CM2" DROP INLET PER CCAUSD #422 & 421
16. CONSTRUCT CONCRETE LINED DRAINAGE EASEMENT PER CCAUSD #425.S1
17. INSTALL REMOVABLE 4" DIA. BOLLARDS SPACED 6' APART O.C., 1' BEHIND BACK OF SIDEWALK PER CCAUSD #425.S1
18. CONSTRUCT MODIFIED TYPE "CM2" DROP INLET PER STRUCTURAL DETAILS ON SHEET S0.00
19. EX. ACCESS GATE AND PED ACCESS GATE PER DETAIL "D", SHEET C12

## LEGEND

| PROPOSED | EXISTING | DESCRIPTION |
|---|---|---|
| | | PUBLIC R/W LINE |
| | | PRIVATE R/W LINE |
| | | BOUNDARY LINE |
| | | EASEMENT LINE |
| | | MATCH LINE |
| CUT / FILL | | CUT / FILL LINE |
| | | CENTERLINE |
| | | EDGE OF ASPHALT |
| | | CURB & GUTTER |
| | | RETAINING WALL |
| | | SAWCUT LINE |
| | | FLOWLINE |
| | | GRADE BREAK |
| 2500 | (2500) | MAJOR CONTOUR - 5' |
| 2503 | (2503) | MINOR CONTOUR - 1' |
| | | FENCE |
| | | SCARP |
| | | CONCRETE SURFACE |
| | | PROPOSED ASPHALT PAVEMENT |
| | | REMOVE AND REPLACE ASPHALT |
| | | RIP-RAP |
| 98.76 XX 1.00% | (98.76) XX (1.00%) | ELEVATION GRADE TAG |
| | | GRADE SLOPE TAG |
| | 1 C5 | SECTION MARKER - DETAIL NUMBER ABOVE SHEET NUMBER |
| | | SIGHT VISIBILITY ZONE |

COMMON ABBREVIATIONS

| | | | |
|---|---|---|---|
| FF | - FINISHED FLOOR | TRC | - TOP OF 30" ROLL CURB |
| TC | - TOP OF CURB | AC | - TOP OF PAVEMENT |
| FL | - FLOWLINE GRADE | EP | - EDGE OF PAVEMENT |
| TB | - TOP OF BERM | TRW | - TOP OF RETAINING WALL |
| TF | - TOP OF WALL FOOTER | PRIV. | - PRIVATE |
| ST. | - STREET | TYP. | - TYPICAL |
| ESMT | - EASEMENT | R/W | - RIGHT-OF-WAY |
| TMH | - TOP OF MANHOLE (RIM ELEV.) | DG | - DESIGN GRADE |

## GRADING NOTES

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2. FOR ROADWAY WIDENING AND HALF STREET IMPROVEMENTS, THE CONTRACTOR SHALL VERIFY CROSS SLOPES FROM EXISTING PAVEMENT SAWCUT LINE TO PROPOSED EDGE OF PAVEMENT OR PROJECTED LIP OF CURB PRIOR TO SUBGRADE PREPARATION AND CONSTRUCTION OF PROPOSED CURB LINE. IF MINIMUM OR MAXIMUM CROSS SLOPES DO NOT MEET AGENCY STANDARDS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER.
3. WALL DETAILS ARE FOR REFERENCE ONLY AND DO NOT CONSTITUTE A STRUCTURAL DESIGN.
4. CONSTRUCTION OF BLOCK WALLS REQUIRE A SEPARATE BUILDING PERMIT AND APPROVAL BY THE BUILDING DEPARTMENT.

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PLEASE REFER TO TRAFFIC PLANS FOR SIGHT VISIBILITY ZONE DIMENSIONS.

## DRAINAGE QUANTITIES

| DESCRIPTION | UNIT | PUBLIC | PRIVATE |
|---|---|---|---|
| TYPE CM2 DROP INLET | EA | 6 | - |
| 60" SD MAN HOLE | EA | 5 | - |
| 24" STORM DRAIN | LF | 268 | - |
| 36" STORM DRAIN | EA | 96 | - |
| DRAINAGE EASEMENT BOLLARD | EA | 7 | - |

## ESTIMATED QUANTITIES

NOTE: QUANTITIES SHOWN ARE RAW QUANTITIES AND APPROXIMATE. CONTRACTOR TO DETERMINE HIS OWN QUANTITIES FOR GRADING PURPOSES.

WORK UNDER THIS PLAN CONSTITUTES GRADING IN ACCORDANCE WITH 2018 IBC; ENGINEERING REPORTS AND CERTIFICATIONS IN CONFORMANCE WITH IBC SHALL BE FILED WITH THE CITY OF LAS VEGAS PRIOR TO CITY OF LAS VEGAS APPROVAL AT FINAL INSPECTION.

CUT: 242,298 CY FILL: 59,941 CY BALANCE: 182,357 CY (CUT)

## ENGINEER'S CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED UPDATED DRAINAGE STUDY CLV#DSS152 ON FILE WITH THE CITY OF LAS VEGAS.

DARRYL LATTIMORE, P.E. — 2/25/2020 DATE

## LINE & CURVE DATA NOTE

PLEASE REFER TO TRAFFIC SHEETS FOR LINE AND CURVE DATA.

## BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV0926W6
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

## BASIS OF BEARING

SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27, TOWNSHIP 21 SOUTH, RANGE 59 EAST, M.D.M., CITY LAS VEGAS, CLARK COUNTY, NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS.

## DEDICATION NOTE

ALL EASEMENTS, RIGHT-OF-WAY, AND OTHER DEDICATIONS WITHIN THIS PLAN SET ARE GRANTED PER FM #77599 UNLESS OTHERWISE NOTED

## PRIVATE STREET NOTE

ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS, AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA PER THE APPROVED FINAL MAP FOR THE PROJECT.

## COMMON LOT NOTE

ALL COMMON LOTS ARE TO BE PUBLIC DRAINAGE, PEDESTRIAN ACCESS, UTILITY, SEWER, AND PRIVATE LANDSCAPE EASEMENTS OVER THEIR ENTIRETY TO BE PRIVATELY MAINTAINED BY THE HOA PER THE APPROVED FINAL MAP FOR THE PROJECT.

## SOILS NOTE

ALL GRADING SHALL CONFORM TO GEOTECHNICAL REPORT
BY: GEOTEK RESIDENTIAL, LLC
ORIGINAL PROJECT NUMBER: 14658-LVR
DATED: MARCH 5, 2019
UPDATED APRIL 17, 2019

## STORM DRAIN CONNECTION NOTE

WHEN CONNECTING TO EXISTING RCP, CONTRACTOR SHALL REMOVE THE EXISTING RCP TO THE NEAREST BELL CONNECTION, CONNECT NEW RCP TO EXISTING RCP AND MATCH EXISTING PIPE SLOPE.

## FLOOD ZONE DESCRIPTION

THIS SITE IS LOCATED IN ZONE "X", AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN, PER THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL 32003C2150E CLARK COUNTY, NEVADA DATED SEPTEMBER 27, 2002.

FLOOD DESIGNATION PROVIDED BY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

## DISCLAIMER NOTE

THE UNDERGROUND UTILITIES AS SHOWN HEREON HAVE BEEN LOCATED FROM OBSERVED FIELD SURVEY EVIDENCE AND EXISTING DRAWINGS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING: PLANS PROVIDED BY THE CLIENT, UTILITY COMPANIES, AND MUNICIPAL AGENCIES. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

FAST — Call before you Underground 1-702-432-5300 (FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (FAST))

Call before you Dig — AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY. CALL 811 OR 1-800-227-2600

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY. CALL BEFORE YOU DO OVERHEAD 1-702-227-2929

107V_____ L19-02036


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# GRADING PLAN 1
# SAVANNAH - UNIT 2
## WILLIAM LYON HOMES
## CITY OF LAS VEGAS, NEVADA

| NO. | DATE | DESCRIPTION | BY |
|---|---|---|---|
| 1 | | | |

PROFESSIONAL ENGINEER — STATE OF NEVADA — DARRYL C. LATTIMORE — EXP: 12/31/21 — CIVIL — No. 17516

2/25/2020

| | |
|---|---|
| DATE | 02/18/2020 |
| DRAWN | RWF/RLS |
| DESIGNED | RWF/RLS |
| CHECKED | ALW/DCL |
| PROJECT # | WLH011803 |

SHEET TITLE: GRADING

SHEET NUMBER: C3

SHEET# 3 OF 41


Plot Stamp: 2/26/2020, 3:41:40 PM - Ryan Sicner
File: P:\WLH\011803 - Parcel E\Civil_CDUnit 1\WLH011803-UNIT 2-CD-GRAD.dwg, Tab: C3




## GRADING CONSTRUCTION NOTES

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| | | GRADE SLOPE TAG |
| 1 C5 | | SECTION MARKER - DETAIL NUMBER ABOVE SHEET NUMBER |
| | | SIGHT VISIBILITY ZONE |

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|---|---|---|---|
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| 36" STORM DRAIN | EA | 96 | - |
| DRAINAGE EASEMENT BOLLARD | EA | 7 | - |

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CUT: 242,298 CY FILL: 59,941 CY BALANCE: 182,357 CY (CUT)

## ENGINEER'S CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED UPDATED DRAINAGE STUDY CLWDSS5152 ON FILE WITH THE CITY OF LAS VEGAS.

DARRYL LATTIMORE, P.E. — 2/25/2020 DATE

107V_____ L19-02036

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## LINE & CURVE DATA NOTE

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## BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV0926W6
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

## BASIS OF BEARING

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BY: GEOTEK RESIDENTIAL, LLC
ORIGINAL PROJECT NUMBER: 14658-LVR
DATED: MARCH 5, 2019
UPDATED APRIL 17, 2019

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WHEN CONNECTING TO EXISTING RCP, CONTRACTOR SHALL REMOVE THE EXISTING RCP TO THE NEAREST BELL CONNECTION, CONNECT NEW RCP TO EXISTING RCP AND MATCH EXISTING PIPE SLOPE.

## FLOOD ZONE DESCRIPTION

THIS SITE IS LOCATED IN ZONE "X", AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN, PER THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL 32003C2150E CLARK COUNTY, NEVADA DATED SEPTEMBER 27, 2002.

FLOOD DESIGNATION PROVIDED BY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

## DISCLAIMER NOTE

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# GRADING PLAN 2
# SAVANNAH - UNIT 2
## WILLIAM LYON HOMES
## CITY OF LAS VEGAS, NEVADA

| BY | DESCRIPTION | DATE | A |
|---|---|---|---|

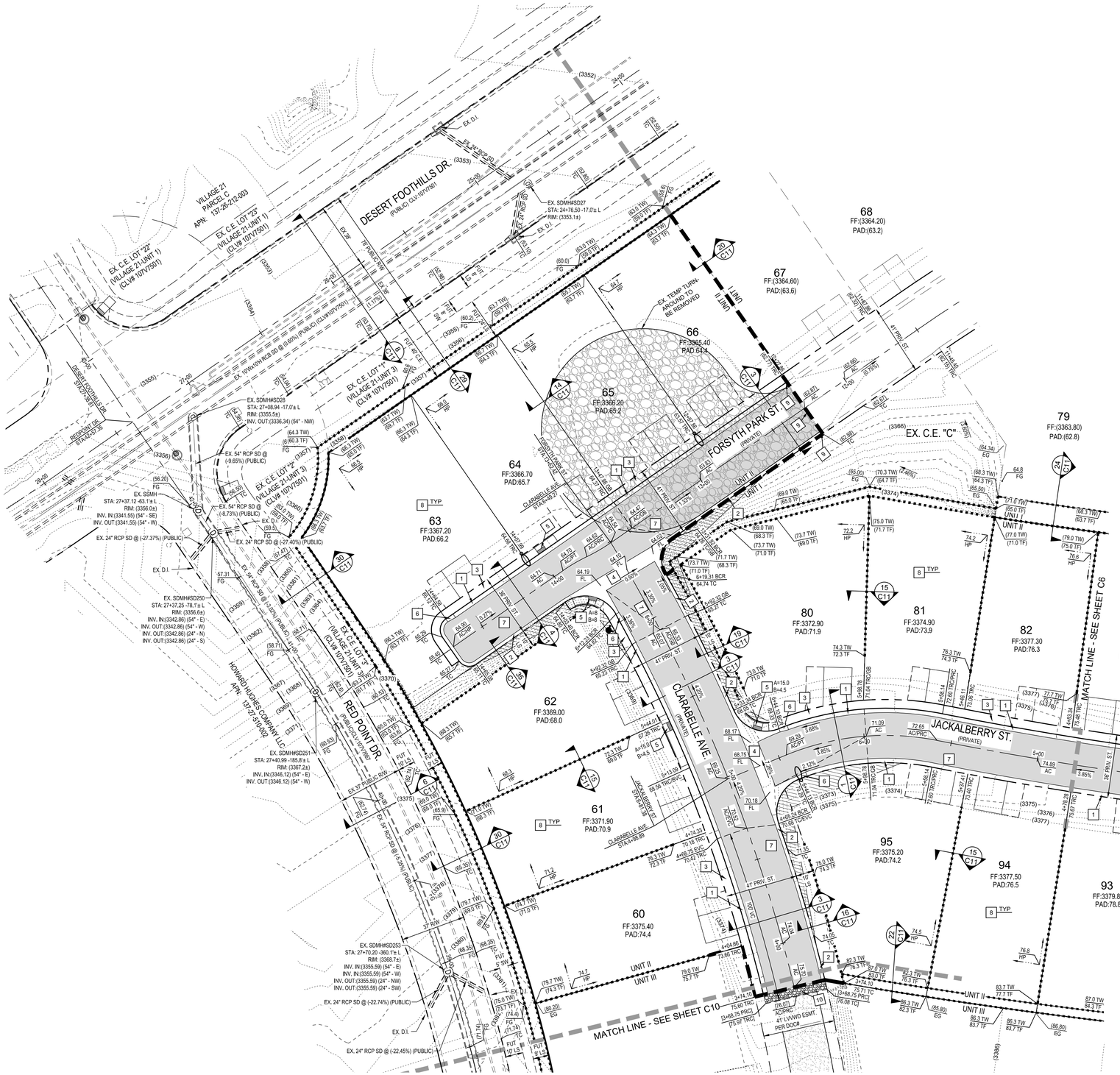
DARRYL C. LATTIMORE — STATE OF NEVADA — PROFESSIONAL ENGINEER — No. 17516 — EXP: 12/31/21 — CIVIL

2/25/2020

| | |
|---|---|
| DATE | 02/18/2020 |
| DRAWN | RWF/RLS |
| DESIGNED | RWF/RLS |
| CHECKED | ALW/DCL |
| PROJECT # | WLH011803 |
| SHEET TITLE | GRADING |
| SHEET NUMBER | C4 |

SHEET# 4 OF 41


Plot Stamp: 2/26/2020 3:41:49 PM - Ryan Sicrer
File: P:\WLH011803 - Parcel E\Civil_CD\Unit 1\WLH011803-UNIT 2-CD-GRAD.dwg, Tab: C4










KEY MAP
SCALE: NTS

## GRADING CONSTRUCTION NOTES

1. CONSTRUCT 30" MODIFIED ROLL CURB AND GUTTER PER CCAUSD #217.1
2. CONSTRUCT "L" CURB AND GUTTER PER CCAUSD #216
3. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234
4. CONSTRUCT 8' CROSS GUTTER PER CCAUSD #228
5. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE I. "A" & "B" = 8' UNLESS OTHERWISE NOTED
6. CONSTRUCT 5' TRANSITION "L" CURB TO TYPE 30" MODIFIED ROLL CURB PER DETAIL "B" ON SHEET C12
7. INSTALL 2" AC OVER 4" TYPE II AGGREGATE BASE
8. CONSTRUCT PAD PER TYPICAL PAD SECTION DETAIL "A" ON SHEET C12
9. MATCH EX. ASPHALT, CURB, SIDEWALK, GUTTER, OR VALLEY GUTTER. SAW CUT CLEAN EDGE FOR CONNECTION.
10. INSTALL TEMPORARY RIP-RAP PAD ($D_{50}$=6", THICKNESS = 12")
11. CONSTRUCT ACCESS GATES PER CCAUSD #425.S1
12. CONNECT TO EX. SD LINE (CONTRACTOR TO VERIFY SIZE, INVERT AND LOCATION OF EX. SD)
13. CONSTRUCT WROUGHT IRON FENCE PER DETAIL "C", SHEET C12
14. CONSTRUCT SIDEWALK DRAIN PER CCAUSD #236
15. CONSTRUCT TYPE "CM2" DROP INLET PER CCAUSD #422 & 421
16. CONSTRUCT CONCRETE LINED DRAINAGE EASEMENT PER CCAUSD #425.S1
17. INSTALL REMOVABLE 4" DIA. BOLLARDS SPACED 6' APART O.C., 1' BEHIND BACK OF SIDEWALK PER CCAUSD #425.S1
18. CONSTRUCT MODIFIED TYPE "CM2" DROP INLET PER STRUCTURAL DETAILS ON SHEET S0.00
19. EX. ACCESS GATE AND PED ACCESS GATE PER DETAIL "D", SHEET C12

## LEGEND

| PROPOSED | EXISTING | DESCRIPTION |
|---|---|---|
| | | PUBLIC R/W LINE |
| | | PRIVATE R/W LINE |
| | | BOUNDARY LINE |
| | | EASEMENT LINE |
| CUT / FILL | | MATCH LINE |
| | | CUT / FILL LINE |
| | | CENTERLINE |
| | | EDGE OF ASPHALT |
| | | CURB & GUTTER |
| | | RETAINING WALL |
| | | SAWCUT LINE |
| | | FLOWLINE |
| | | GRADE BREAK |
| 2500 | (2500) | MAJOR CONTOUR - 5' |
| 2503 | (2503) | MINOR CONTOUR - 1' |
| | | FENCE |
| | | SCARP |
| | | CONCRETE SURFACE |
| | | PROPOSED ASPHALT PAVEMENT |
| | | REMOVE AND REPLACE ASPHALT |
| | | RIP-RAP |
| 98.76 XX 1.00% | (98.76) XX (1.00%) | ELEVATION GRADE TAG |
| | | GRADE SLOPE TAG |
| 1 C5 | | SECTION MARKER - DETAIL NUMBER ABOVE SHEET NUMBER |
| | | SIGHT VISIBILITY ZONE |

### COMMON ABBREVIATIONS

| | | | |
|---|---|---|---|
| FF | - FINISHED FLOOR | TRC | - TOP OF 30" ROLL CURB |
| TC | - TOP OF CURB | AC | - TOP OF PAVEMENT |
| FL | - FLOWLINE GRADE | EP | - EDGE OF PAVEMENT |
| TB | - TOP OF BERM | TRW | - TOP OF RETAINING WALL |
| TF | - TOP OF WALL FOOTER | PRIV. | - PRIVATE |
| ST. | - STREET | TYP. | - TYPICAL |
| ESMT | - EASEMENT | R/W | - RIGHT-OF-WAY |
| TMH | - TOP OF MANHOLE (RIM ELEV.) | DG | - DESIGN GRADE |

## GRADING NOTES

1. ACTUS SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES IN THE PLANS OR CONDITIONS IN THE FIELD.
2. FOR ROADWAY WIDENING AND HALF STREET IMPROVEMENTS, THE CONTRACTOR SHALL VERIFY CROSS SLOPES FROM EXISTING PAVEMENT SAWCUT LINE TO PROPOSED EDGE OF PAVEMENT OR PROJECTED LIP OF CURB PRIOR TO SUBGRADE PREPARATION AND CONSTRUCTION OF PROPOSED CURB LINE. IF MINIMUM OR MAXIMUM CROSS SLOPES DO NOT MEET AGENCY STANDARDS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER.
3. WALL DETAILS ARE FOR REFERENCE ONLY AND DO NOT CONSTITUTE A STRUCTURAL DESIGN.
4. CONSTRUCTION OF BLOCK WALLS REQUIRE A SEPARATE BUILDING PERMIT AND APPROVAL BY THE BUILDING DEPARTMENT.

## SIGHT VISIBILITY ZONE NOTE

NO WALLS, FENCES SHRUBS, UTILITY APPURTENANCES OR ANY OTHER OBJECT, OTHER THAT TRAFFIC CONTROL DEVICES, FIRE HYDRANTS, TREES, AND STREET LIGHT 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 TOP OF CURB, OR WHERE NO CURB EXISTS, A HEIGHT OF 27 INCHES MEASURED FROM THE TOP OF ADJACENT ASPHALT, GRAVEL OR PAVEMENT STREET SURFACE. THIS RESTRICTION EXTENDS ALONG THE SIGHT VISIBILITY LINE THROUGH LANDSCAPED MEDIANS.

PLEASE REFER TO TRAFFIC PLANS FOR SIGHT VISIBILITY ZONE DIMENSIONS.

## DRAINAGE QUANTITIES

| DESCRIPTION | UNIT | PUBLIC | PRIVATE |
|---|---|---|---|
| TYPE CM2 DROP INLET | EA | 6 | - |
| 60" SD MAN HOLE | EA | 5 | - |
| 24" STORM DRAIN | LF | 268 | - |
| 36" STORM DRAIN | EA | 96 | - |
| DRAINAGE EASEMENT BOLLARD | EA | 7 | - |

## ESTIMATED QUANTITIES

NOTE: QUANTITIES SHOWN ARE RAW QUANTITIES AND APPROXIMATE. CONTRACTOR TO DETERMINE HIS OWN QUANTITIES FOR GRADING PURPOSES.

WORK UNDER THIS PLAN CONSTITUTES GRADING IN ACCORDANCE WITH 2018 IBC; ENGINEERING REPORTS AND CERTIFICATIONS IN CONFORMANCE WITH IBC SHALL BE FILED WITH THE CITY OF LAS VEGAS PRIOR TO CITY OF LAS VEGAS APPROVAL AT FINAL INSPECTION.

CUT: 242,298 CY FILL: 59,941 CY BALANCE: 182,357 CY (CUT)

## ENGINEER'S CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED UPDATED DRAINAGE STUDY CLV#DS5152 ON FILE WITH THE CITY OF LAS VEGAS.

DARRYL LATTIMORE, P.E. — 2/25/2020 DATE

FAST — Call before you Dig — Underground 1-702-432-5300 (FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (FAST)) — OR 1-800-227-2600 — AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY. CALL BEFORE YOU DO OVERHEAD 1-702-227-2929

## LINE & CURVE DATA NOTE

PLEASE REFER TO TRAFFIC SHEETS FOR LINE AND CURVE DATA.

## BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV0926W6
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

## BASIS OF BEARING

SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27, TOWNSHIP 21 SOUTH, RANGE 59 EAST, M.D.M., CITY LAS VEGAS, CLARK COUNTY, NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS.

## DEDICATION NOTE

ALL EASEMENTS, RIGHT-OF-WAY, AND OTHER DEDICATIONS WITHIN THIS PLAN SET ARE GRANTED PER FM #77599 UNLESS OTHERWISE NOTED

## PRIVATE STREET NOTE

ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS, AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA PER THE APPROVED FINAL MAP FOR THE PROJECT.

## COMMON LOT NOTE

ALL COMMON LOTS ARE TO BE PUBLIC DRAINAGE, PEDESTRIAN ACCESS, UTILITY, SEWER, AND PRIVATE LANDSCAPE EASEMENTS OVER THEIR ENTIRETY TO BE PRIVATELY MAINTAINED BY THE HOA PER THE APPROVED FINAL MAP FOR THE PROJECT.

## SOILS NOTE

ALL GRADING SHALL CONFORM TO GEOTECHNICAL REPORT
BY: GEOTEK RESIDENTIAL, LLC
ORIGINAL PROJECT NUMBER: 14658-LVR
DATED: MARCH 5, 2019
UPDATED APRIL 17, 2019

## STORM DRAIN CONNECTION NOTE

WHEN CONNECTING TO EXISTING RCP, CONTRACTOR SHALL REMOVE THE EXISTING RCP TO THE NEAREST BELL CONNECTION, CONNECT NEW RCP TO EXISTING RCP AND MATCH EXISTING PIPE SLOPE.

## FLOOD ZONE DESCRIPTION

THIS SITE IS LOCATED IN ZONE "X", AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN, PER THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL 32003C2150E CLARK COUNTY, NEVADA DATED SEPTEMBER 27, 2002.

FLOOD DESIGNATION PROVIDED BY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

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107V_____ L19-02036


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GRADING PLAN 3
SAVANNAH - UNIT 2
WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

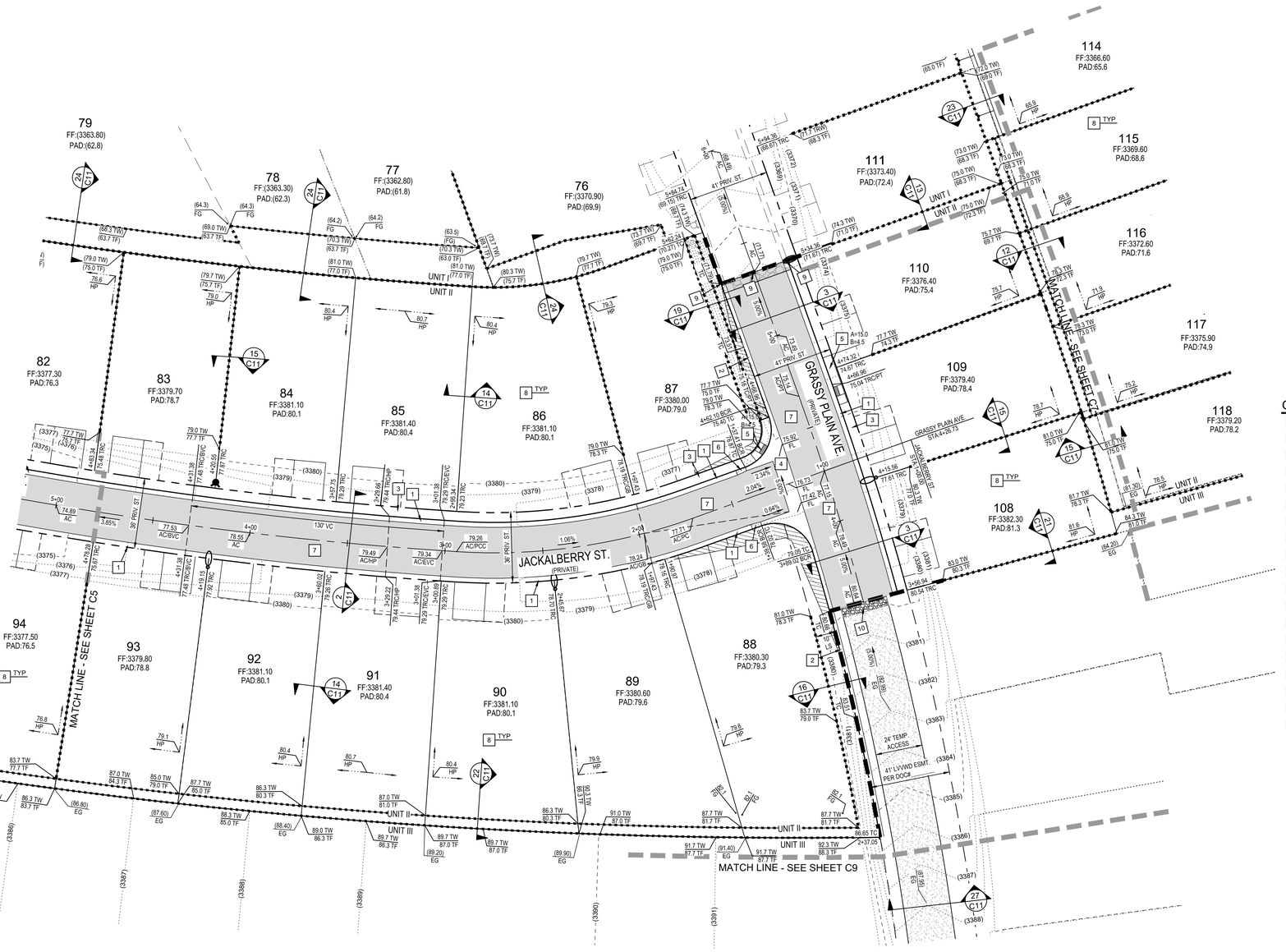
| BY | DATE | DESCRIPTION |
|---|---|---|
| A | | |

PROFESSIONAL ENGINEER — STATE OF NEVADA — DARRYL C. LATTIMORE EXP: 12/31/21 CIVIL No. 17516 — 2/25/2020

| | |
|---|---|
| DATE | 02/18/2020 |
| DRAWN | RWF/RLS |
| DESIGNED | RWF/RLS |
| CHECKED | ALW/DCL |
| PROJECT # | WLH011803 |

SHEET TITLE: GRADING
SHEET NUMBER: C5
SHEET# 5 OF 41


Plot Stamp: 2/26/2020 3:41:58 PM - Ryan Sicner
File: P:\WLH011803 - Parcel E\Civil_CD\Unit 1\WLH011803-UNIT 2-CD-GRAD.dwg, Tab: C5










## GRADING CONSTRUCTION NOTES

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## LEGEND

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| | | PRIVATE R/W LINE |
| | | BOUNDARY LINE |
| | | EASEMENT LINE |
| | | MATCH LINE |
| CUT | | CUT / FILL LINE |
| FILL | | |
| | | CENTERLINE |
| | | EDGE OF ASPHALT |
| | | CURB & GUTTER |
| | | RETAINING WALL |
| | | SAWCUT LINE |
| | | FLOWLINE |
| | | GRADE BREAK |
| 2500 | (2500) | MAJOR CONTOUR - 5' |
| 2503 | (2503) | MINOR CONTOUR - 1' |
| | | FENCE |
| | | SCARP |
| | | CONCRETE SURFACE |
| | | PROPOSED ASPHALT PAVEMENT |
| | | REMOVE AND REPLACE ASPHALT |
| | | RIP-RAP |
| (98.76) XX (1.00%) | | ELEVATION GRADE TAG |
| | | GRADE SLOPE TAG |
| 1 C5 | | SECTION MARKER - DETAIL NUMBER ABOVE SHEET NUMBER |
| | | SIGHT VISIBILITY ZONE |

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## DRAINAGE QUANTITIES

| DESCRIPTION | UNIT | PUBLIC | PRIVATE |
|---|---|---|---|
| TYPE CM2 DROP INLET | EA | 6 | - |
| 60" SD MAN HOLE | EA | 5 | - |
| 24" STORM DRAIN | LF | 298 | - |
| 36" STORM DRAIN | EA | 96 | - |
| DRAINAGE EASEMENT BOLLARD | EA | 7 | - |

## ESTIMATED QUANTITIES

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CUT: 242,298 CY FILL: 59,941 CY BALANCE: 182,357 CY (CUT)

## ENGINEER'S CERTIFICATION

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DARRYL LATTIMORE, P.E. — 2/25/2020 DATE

107V_____ L19-02036

Call before you Dig
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.
Call before you Dig
Underground
1-702-432-5300
FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (FAST)
CALL 811 OR 1-800-227-2600
AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY
CALL BEFORE YOU DO OVERHEAD
1-702-227-2929

## LINE & CURVE DATA NOTE

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## BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV0926W6
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

## BASIS OF BEARING

SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27, TOWNSHIP 21 SOUTH, RANGE 59 EAST, M.D.M., CITY LAS VEGAS, CLARK COUNTY, NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS.

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## SOILS NOTE

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BY: GEOTEK RESIDENTIAL, LLC
ORIGINAL PROJECT NUMBER: 14658-LVR
DATED: MARCH 5, 2019
UPDATED APRIL 17, 2019

## STORM DRAIN CONNECTION NOTE

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## FLOOD ZONE DESCRIPTION

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Engineering - Surveying - Consulting - Planning


# GRADING PLAN 4 - UNIT 2
# SAVANNAH
WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

| NO. | DATE | DESCRIPTION | BY |
|---|---|---|---|
| A | | | |

PROFESSIONAL ENGINEER — STATE OF NEVADA — DARRYL C. LATTIMORE — EXP: 12/31/21 — CIVIL — No. 17516

2/25/2020

| | |
|---|---|
| DATE | 02/18/2020 |
| DRAWN | RWF/RLS |
| DESIGNED | RWF/RLS |
| CHECKED | ALW/DCL |
| PROJECT # | WLH011803 |

SHEET TITLE
GRADING

SHEET NUMBER
C6

SHEET# 6 OF 41


Plot Stamp: 2/26/2020 3:42:06 PM - Ryan Sicner
File: P:\WLH\01803 - Parcel E\Civil_CD\Unit 1\WLH011803-UNIT 2-CD-GRAD.dwg, Tab: C6










KEY MAP
SCALE: NTS

## GRADING CONSTRUCTION NOTES

1. CONSTRUCT 30" MODIFIED ROLL CURB AND GUTTER PER CCAUSD #217.1
2. CONSTRUCT "L" CURB AND GUTTER PER CCAUSD #216
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## LEGEND

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| 2500 | (2500) | MAJOR CONTOUR - 5' |
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| | | FENCE |
| | | SCARP |
| | | CONCRETE SURFACE |
| | | PROPOSED ASPHALT PAVEMENT |
| | | REMOVE AND REPLACE ASPHALT |
| | | RIP-RAP |
| XX | (98.76) XX | ELEVATION GRADE TAG |
| 1.00% | (1.00%) | GRADE SLOPE TAG |
| C5 | | SECTION MARKER - DETAIL NUMBER ABOVE SHEET NUMBER |
| | | SIGHT VISIBILITY ZONE |

### COMMON ABBREVIATIONS

| | | | |
|---|---|---|---|
| FF | - FINISHED FLOOR | TRC | - TOP OF 30" ROLL CURB |
| TC | - TOP OF CURB | AC | - TOP OF PAVEMENT |
| FL | - FLOWLINE GRADE | EP | - EDGE OF PAVEMENT |
| TB | - TOP OF BERM | TRW | - TOP OF RETAINING WALL |
| TF | - TOP OF WALL FOOTER | PRIV. | - PRIVATE |
| ST. | - STREET | TYP. | - TYPICAL |
| ESMT | - EASEMENT | R/W | - RIGHT-OF-WAY |
| TMH | - TOP OF MANHOLE (RIM ELEV.) | DG | - DESIGN GRADE |

## GRADING NOTES

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## DRAINAGE QUANTITIES

| DESCRIPTION | UNIT | PUBLIC | PRIVATE |
|---|---|---|---|
| TYPE CM2 DROP INLET | EA | 6 | - |
| 60" SD MAN HOLE | EA | 5 | - |
| 24" STORM DRAIN | LF | 268 | - |
| 36" STORM DRAIN | EA | 96 | - |
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## ESTIMATED QUANTITIES

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WORK UNDER THIS PLAN CONSTITUTES GRADING IN ACCORDANCE WITH 2018 IBC; ENGINEERING REPORTS AND CERTIFICATIONS IN CONFORMANCE WITH IBC SHALL BE FILED WITH THE CITY OF LAS VEGAS PRIOR TO CITY OF LAS VEGAS APPROVAL AT FINAL INSPECTION.

CUT: 242,298 CY FILL: 59,941 CY BALANCE: 182,357 CY (CUT)

## ENGINEER'S CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED UPDATED DRAINAGE STUDY CLV#DSS152 ON FILE WITH THE CITY OF LAS VEGAS.

DARRYL LATTIMORE, P.E. — 2/25/2020 DATE

107V_____ L19-02036

FAST — Call before you Dig — Underground 1-702-432-5300 — FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (FAST)

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## LINE & CURVE DATA NOTE

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## BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV0926W6
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

## BASIS OF BEARING

SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27, TOWNSHIP 21 SOUTH, RANGE 59 EAST, M.D.M., CITY LAS VEGAS, CLARK COUNTY, NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS.

## DEDICATION NOTE

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## PRIVATE STREET NOTE

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## SOILS NOTE

ALL GRADING SHALL CONFORM TO GEOTECHNICAL REPORT
BY: GEOTEK RESIDENTIAL, LLC
ORIGINAL PROJECT NUMBER: 14658-LVR
DATED: MARCH 5, 2019
UPDATED APRIL 17, 2019

## STORM DRAIN CONNECTION NOTE

WHEN CONNECTING TO EXISTING RCP, CONTRACTOR SHALL REMOVE THE EXISTING RCP TO THE NEAREST BELL CONNECTION, CONNECT NEW RCP TO EXISTING RCP AND MATCH EXISTING PIPE SLOPE.

## FLOOD ZONE DESCRIPTION

THIS SITE IS LOCATED IN ZONE "X", AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN, PER THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL 32003C2150E CLARK COUNTY, NEVADA DATED SEPTEMBER 27, 2002.

FLOOD DESIGNATION PROVIDED BY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

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Actus
3283 E. Warm Springs Rd., Suite 300
Las Vegas, NV 89120
www.Actus-NV.com
(702) 586-9266
Engineering - Surveying - Consulting - Planning


# GRADING PLAN 5 — SAVANNAH - UNIT 2

WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

| NO. | DATE | DESCRIPTION | BY |
|---|---|---|---|
| | | | |

PROFESSIONAL ENGINEER — STATE OF NEVADA — DARRYL C. LATTIMORE — EXP: 12/31/21 — CIVIL — No. 17516

2/25/2020

| | |
|---|---|
| DATE | 02/18/2020 |
| DRAWN | RWF/RLS |
| DESIGNED | RWF/RLS |
| CHECKED | ALW/DCL |
| PROJECT # | WLH011803 |

SHEET TITLE: GRADING

SHEET NUMBER: C7

SHEET# 7 OF 41


Plot Stamp: 2/26/2020 3:42:16 PM - Ryan Sicner
File: P:\WLH\011803 - Parcel E\Civil_CD\Unit 1\WLH011803-UNIT 2-CD-GRAD.dwg, Tab: C7










KEY MAP
SCALE: NTS

## GRADING CONSTRUCTION NOTES

1. CONSTRUCT 30" MODIFIED ROLL CURB AND GUTTER PER CCAUSD #217.1
2. CONSTRUCT "L" CURB AND GUTTER PER CCAUSD #216
3. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234
4. CONSTRUCT 8' CROSS GUTTER PER CCAUSD #228
5. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE I. "A" & "B" = 8' UNLESS OTHERWISE NOTED
6. CONSTRUCT 5' TRANSITION "L" CURB TO TYPE 30" MODIFIED ROLL CURB PER DETAIL "B" ON SHEET C12
7. INSTALL 2" AC OVER 4" TYPE II AGGREGATE BASE
8. CONSTRUCT PAD PER TYPICAL PAD SECTION DETAIL "A" ON SHEET C12
9. MATCH EX. ASPHALT, CURB, SIDEWALK, GUTTER, OR VALLEY GUTTER. SAW CUT CLEAN EDGE FOR CONNECTION.
10. INSTALL TEMPORARY RIP-RAP PAD ($D_{50}$=6", THICKNESS = 12")
11. CONSTRUCT ACCESS GATES PER CCAUSD #425.S1
12. CONNECT TO EX. SD LINE (CONTRACTOR TO VERIFY SIZE, INVERT AND LOCATION OF EX. SD)
13. CONSTRUCT WROUGHT IRON FENCE PER DETAIL "C", SHEET C12
14. CONSTRUCT SIDEWALK DRAIN PER CCAUSD #236
15. CONSTRUCT TYPE "CM2" DROP INLET PER CCAUSD #422 & 421
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17. INSTALL REMOVABLE 4" DIA. BOLLARDS SPACED 6' APART O.C., 1' BEHIND BACK OF SIDEWALK PER CCAUSD #425.S1
18. CONSTRUCT MODIFIED TYPE "CM2" DROP INLET PER STRUCTURAL DETAILS ON SHEET S0.00
19. EX. ACCESS GATE AND PED ACCESS GATE PER DETAIL "D", SHEET C12

## LEGEND

| PROPOSED | EXISTING | DESCRIPTION |
|---|---|---|
| | | PUBLIC R/W LINE |
| | | PRIVATE R/W LINE |
| | | BOUNDARY LINE |
| | | EASEMENT LINE |
| | | MATCH LINE |
| CUT / FILL | | CUT / FILL LINE |
| | | CENTERLINE |
| | | EDGE OF ASPHALT |
| | | CURB & GUTTER |
| | | RETAINING WALL |
| | | SAWCUT LINE |
| | | FLOWLINE |
| | | GRADE BREAK |
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| | | PROPOSED ASPHALT PAVEMENT |
| | | REMOVE AND REPLACE ASPHALT |
| | | RIP-RAP |
| 98.76 XX 1.00% | (98.76) XX (1.00%) | ELEVATION GRADE TAG |
| | | GRADE SLOPE TAG |
| 1 C5 | | SECTION MARKER - DETAIL NUMBER ABOVE SHEET NUMBER |
| | | SIGHT VISIBILITY ZONE |

### COMMON ABBREVIATIONS

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## DRAINAGE QUANTITIES

| DESCRIPTION | UNIT | PUBLIC | PRIVATE |
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DARRYL LATTIMORE, P.E. — 2/25/2020 DATE

107V_____ L19-02036

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## LINE & CURVE DATA NOTE

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## BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV092BW6
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

## BASIS OF BEARING

SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27, TOWNSHIP 21 SOUTH, RANGE 59 EAST, M.D.M., CITY LAS VEGAS, CLARK COUNTY, NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS.

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BY: GEOTEK RESIDENTIAL, LLC
ORIGINAL PROJECT NUMBER: 14658-LVR
DATED: MARCH 5, 2019
UPDATED APRIL 17, 2019

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Engineering - Surveying - Consulting - Planning


GRADING PLAN 6
SAVANNAH - UNIT 2
WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

| BY | DESCRIPTION | DATE |
|---|---|---|
| | | |




2/25/2020

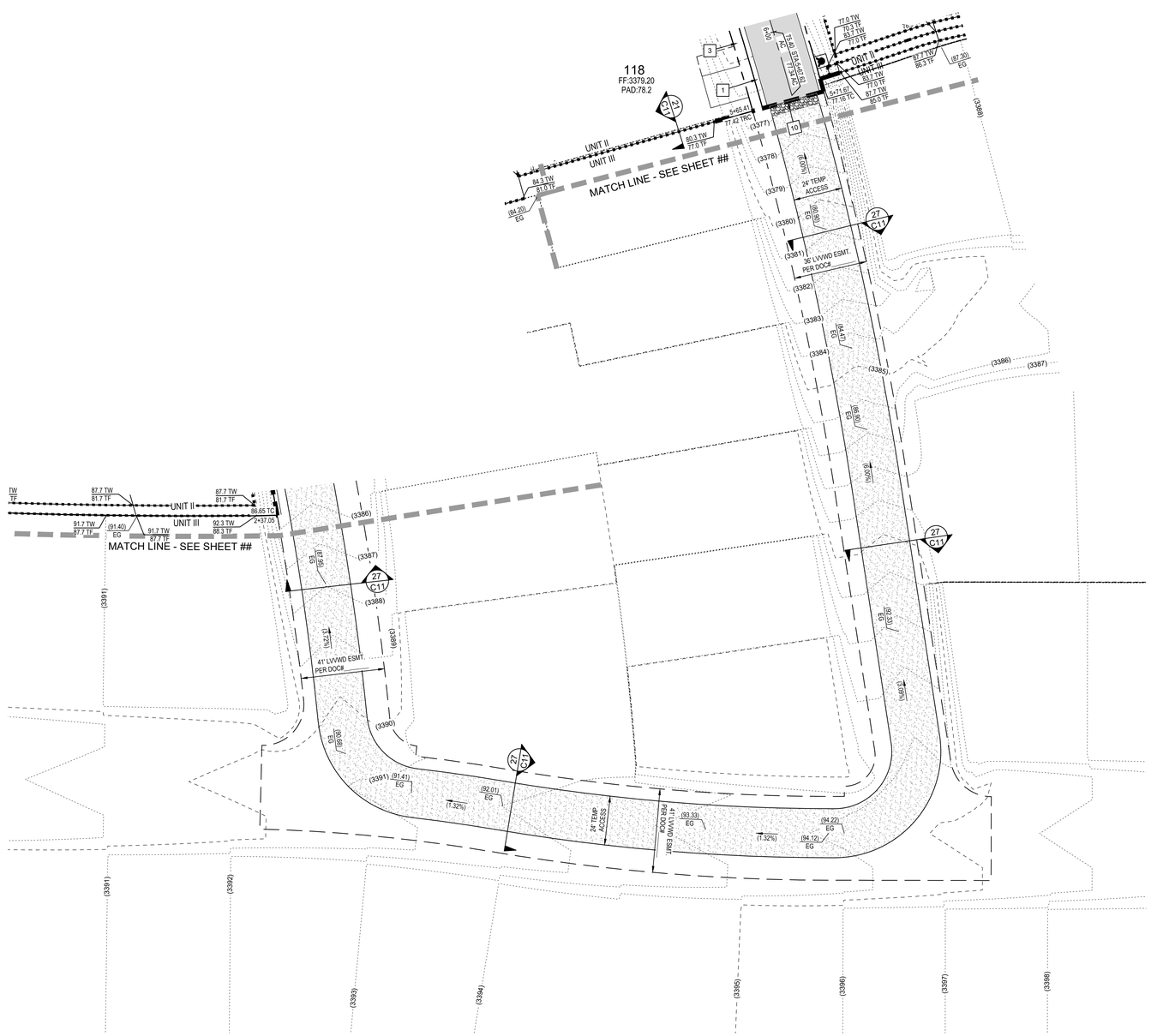
| | |
|---|---|
| DATE | 02/18/2020 |
| DRAWN | RWF/RLS |
| DESIGNED | RWF/RLS |
| CHECKED | ALW/DCL |
| PROJECT # | WLH011803 |

SHEET TITLE
GRADING

SHEET NUMBER
C8

SHEET# 8 OF 41


Plot Stamp: 2/25/2020 3:42:24 PM - Ryan Sicner
File: P:\WLH011803 - Parcel EC\civil_CD\Unit 1\WLH011803-UNIT 2-CO-GRAD.dwg, Tab: C8







KEY MAP
SCALE: NTS

SCALE: 1"= 30'
30 15 0 30

## GRADING CONSTRUCTION NOTES

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DARRYL LATTIMORE, P.E. — 2/25/2020 DATE

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ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

## BASIS OF BEARING

SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27, TOWNSHIP 21 SOUTH, RANGE 59 EAST, M.D.M., CITY LAS VEGAS, CLARK COUNTY, NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS.

## DEDICATION NOTE

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## SOILS NOTE

ALL GRADING SHALL CONFORM TO GEOTECHNICAL REPORT
BY: GEOTEK RESIDENTIAL, LLC
ORIGINAL PROJECT NUMBER: 14658-LVR
DATED: MARCH 5, 2019
UPDATED APRIL 17, 2019

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THIS SITE IS LOCATED IN ZONE "X", AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN, PER THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL 32003C2150E CLARK COUNTY, NEVADA DATED SEPTEMBER 27, 2002.

FLOOD DESIGNATION PROVIDED BY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

## DISCLAIMER NOTE

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107V_____ L19-02036

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GRADING PLAN 7 — SAVANNAH - UNIT 2
WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

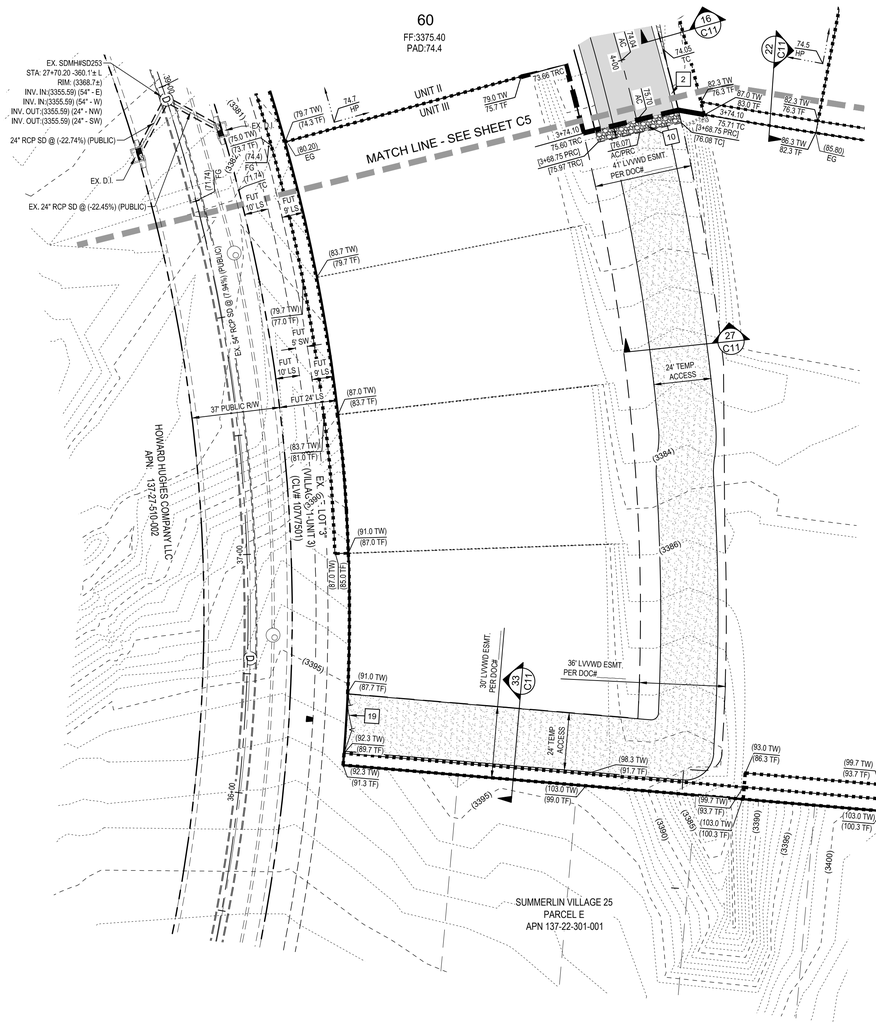
| BY | DESCRIPTION | DATE | # |
|---|---|---|---|

PROFESSIONAL ENGINEER — STATE OF NEVADA — DARRYL C. LATTIMORE — EXP: 12/31/21 — CIVIL — No. 17516
2/25/2020

| | |
|---|---|
| DATE | 02/18/2020 |
| DRAWN | RWF/RLS |
| DESIGNED | RWF/RLS |
| CHECKED | ALW/DCL |
| PROJECT # | WLH011803 |

SHEET TITLE: GRADING
SHEET NUMBER: C9
SHEET# 9 OF 41

Plot Stamp: 2/26/2020 3:42:31 PM - Ryan Sicner
File: P:\WLH\011803 - Parcel 8\Civil_CD\Unit 1\WLH011803-UNIT 2-CD-GRAD.dwg, Tab: C9







SCALE: 1"= 30'

30 15 0 30




KEY MAP

SCALE: NTS

## GRADING CONSTRUCTION NOTES

1. CONSTRUCT 30" MODIFIED ROLL CURB AND GUTTER PER CCAUSD #217.1
2. CONSTRUCT "L" CURB AND GUTTER PER CCAUSD #216
3. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234
4. CONSTRUCT 8' CROSS GUTTER PER CCAUSD #228
5. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE I. "A" & "B" = 8' UNLESS OTHERWISE NOTED
6. CONSTRUCT 5' TRANSITION "L" CURB TO TYPE 30" MODIFIED ROLL CURB PER DETAIL "B" ON SHEET C12
7. INSTALL 2" AC OVER 4" TYPE II AGGREGATE BASE
8. CONSTRUCT PAD PER TYPICAL PAD SECTION DETAIL "A" ON SHEET C12
9. MATCH EX. ASPHALT, CURB, SIDEWALK, GUTTER, OR VALLEY GUTTER. SAW CUT CLEAN EDGE FOR CONNECTION.
10. INSTALL TEMPORARY RIP-RAP PAD ($D_{50}$=6", THICKNESS = 12")
11. CONSTRUCT ACCESS GATES PER CCAUSD #425.S1
12. CONNECT TO EX. SD LINE (CONTRACTOR TO VERIFY SIZE, INVERT AND LOCATION OF EX. SD)
13. CONSTRUCT WROUGHT IRON FENCE PER DETAIL "C", SHEET C12
14. CONSTRUCT SIDEWALK DRAIN PER CCAUSD #236
15. CONSTRUCT TYPE "CM2" DROP INLET PER CCAUSD #422 & 421
16. CONSTRUCT CONCRETE LINED DRAINAGE EASEMENT PER CCAUSD #425.S1
17. INSTALL REMOVABLE 4" DIA. BOLLARDS SPACED 6' APART O.C., 1' BEHIND BACK OF SIDEWALK PER CCAUSD #425.S1
18. CONSTRUCT MODIFIED TYPE "CM2" DROP INLET PER STRUCTURAL DETAILS ON SHEET S0.00
19. EX. ACCESS GATE AND PED ACCESS GATE PER DETAIL "D", SHEET C12

## LEGEND

| PROPOSED | EXISTING | DESCRIPTION |
|---|---|---|
| | | PUBLIC R/W LINE |
| | | PRIVATE R/W LINE |
| | | BOUNDARY LINE |
| | | EASEMENT LINE |
| | | MATCH LINE |
| CUT | | CUT / FILL LINE |
| FILL | | |
| | | CENTERLINE |
| | | EDGE OF ASPHALT |
| | | CURB & GUTTER |
| | | RETAINING WALL |
| | | SAWCUT LINE |
| | | FLOWLINE |
| | | GRADE BREAK |
| 2500 | (2500) | MAJOR CONTOUR - 5' |
| 2503 | (2503) | MINOR CONTOUR - 1' |
| | | FENCE |
| | | SCARP |
| | | CONCRETE SURFACE |
| | | PROPOSED ASPHALT PAVEMENT |
| | | REMOVE AND REPLACE ASPHALT |
| | | RIP-RAP |
| 98.76 XX 1.00% | (98.76) XX (1.00%) | ELEVATION GRADE TAG |
| | | GRADE SLOPE TAG |
| 1 C5 | | SECTION MARKER - DETAIL NUMBER ABOVE SHEET NUMBER |
| | | SIGHT VISIBILITY ZONE |

COMMON ABBREVIATIONS

| | | | |
|---|---|---|---|
| FF | - FINISHED FLOOR | TRC | - TOP OF 30" ROLL CURB |
| TC | - TOP OF CURB | AC | - TOP OF PAVEMENT |
| FL | - FLOWLINE GRADE | EP | - EDGE OF PAVEMENT |
| TB | - TOP OF BERM | TRW | - TOP OF RETAINING WALL |
| TF | - TOP OF WALL FOOTER | PRIV. | - PRIVATE |
| ST. | - STREET | TYP. | - TYPICAL |
| ESMT | - EASEMENT | R/W | - RIGHT-OF-WAY |
| TMH | - TOP OF MANHOLE (RIM ELEV.) | DG | - DESIGN GRADE |

## GRADING NOTES

1. ACTUS SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES IN THE PLANS OR CONDITIONS IN THE FIELD.
2. FOR ROADWAY WIDENING AND HALF STREET IMPROVEMENTS, THE CONTRACTOR SHALL VERIFY CROSS SLOPES FROM EXISTING PAVEMENT SAWCUT LINE TO PROPOSED EDGE OF PAVEMENT OR PROJECTED LIP OF CURB PRIOR TO SUBGRADE PREPARATION AND CONSTRUCTION OF PROPOSED CURB LINE. IF MINIMUM OR MAXIMUM CROSS SLOPES DO NOT MEET AGENCY STANDARDS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER.
3. WALL DETAILS ARE FOR REFERENCE ONLY AND DO NOT CONSTITUTE A STRUCTURAL DESIGN.
4. CONSTRUCTION OF BLOCK WALLS REQUIRE A SEPARATE BUILDING PERMIT AND APPROVAL BY THE BUILDING DEPARTMENT.

## SIGHT VISIBILITY ZONE NOTE

NO WALLS, FENCES SHRUBS, UTILITY APPURTENANCES OR ANY OTHER OBJECT, OTHER THAT TRAFFIC CONTROL DEVICES, FIRE HYDRANTS, TREES, AND STREET LIGHT 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 TOP OF CURB, OR WHERE NO CURB EXISTS, A HEIGHT OF 27 INCHES MEASURED FROM THE TOP OF ADJACENT ASPHALT, GRAVEL OR PAVEMENT STREET SURFACE. THIS RESTRICTION EXTENDS ALONG THE SIGHT VISIBILITY LINE THROUGH LANDSCAPED MEDIANS.

PLEASE REFER TO TRAFFIC PLANS FOR SIGHT VISIBILITY ZONE DIMENSIONS.

## DRAINAGE QUANTITIES

| DESCRIPTION | UNIT | PUBLIC | PRIVATE |
|---|---|---|---|
| TYPE CM2 DROP INLET | EA | 6 | - |
| 60" SD MAN HOLE | EA | 5 | - |
| 24" STORM DRAIN | LF | 268 | - |
| 36" STORM DRAIN | EA | 96 | - |
| DRAINAGE EASEMENT BOLLARD | EA | 7 | - |

## ESTIMATED QUANTITIES

NOTE: QUANTITIES SHOWN ARE RAW QUANTITIES AND APPROXIMATE. CONTRACTOR TO DETERMINE HIS OWN QUANTITIES FOR GRADING PURPOSES.

WORK UNDER THIS PLAN CONSTITUTES GRADING IN ACCORDANCE WITH 2018 IBC; ENGINEERING REPORTS AND CERTIFICATIONS IN CONFORMANCE WITH IBC SHALL BE FILED WITH THE CITY OF LAS VEGAS PRIOR TO CITY OF LAS VEGAS APPROVAL AT FINAL INSPECTION.

CUT: 242,298 CY FILL: 59,941 CY BALANCE: 182,357 CY (CUT)

## ENGINEER'S CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED UPDATED DRAINAGE STUDY CLV#DSS152 ON FILE WITH THE CITY OF LAS VEGAS.

DARRYL LATTIMORE, P.E. — 2/25/2020 DATE

107V_____ L19-02036

FAST — Call before you Underground 1-702-432-5300 — FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (FAST)

Call before you Dig — AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY. CALL 811 OR 1-800-227-2600

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY. CALL BEFORE YOU DO OVERHEAD 1-702-227-2929

## LINE & CURVE DATA NOTE

PLEASE REFER TO TRAFFIC SHEETS FOR LINE AND CURVE DATA.

## BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV0926W6
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

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GRADING PLAN 8 — SAVANNAH - UNIT 2
WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

| BY | DESCRIPTION | DATE | # |
|---|---|---|---|

DARRYL C. LATTIMORE — EXP: 12/31/21 CIVIL — STATE OF NEVADA — No. 17516 — PROFESSIONAL ENGINEER

2/25/2020

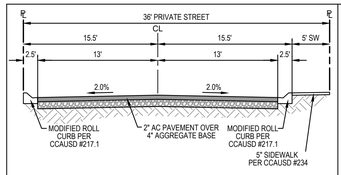
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|---|---|
| DATE | 02/18/2020 |
| DRAWN | RWF/RLS |
| DESIGNED | RWF/RLS |
| CHECKED | ALW/DCL |
| PROJECT # | WLH011803 |

SHEET TITLE: GRADING

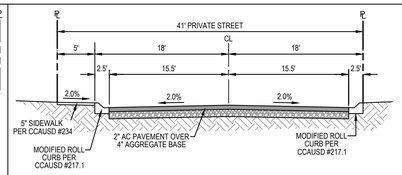
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SHEET# 10 OF 41

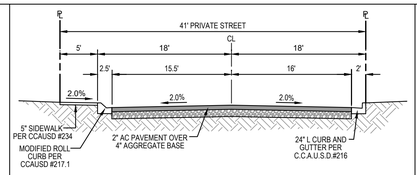

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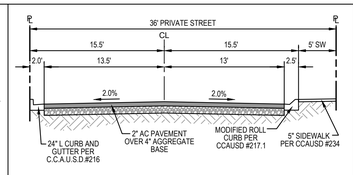

1 36' STREET SECTION (PRIVATE)
NOT TO SCALE



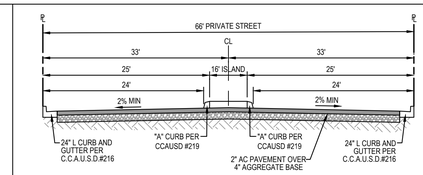

2 41' STREET SECTION (PRIVATE)
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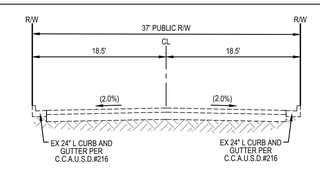

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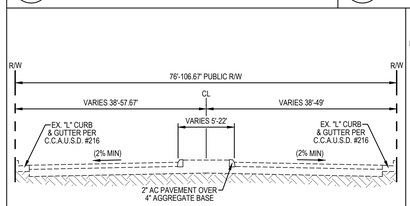

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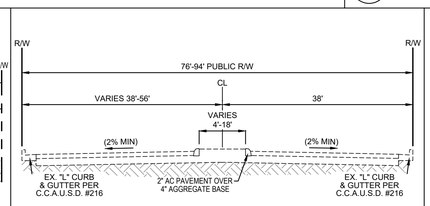

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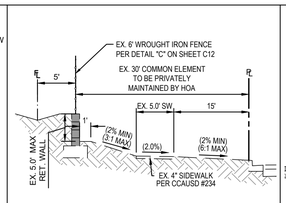

6 REDPOINT DRIVE (PUBLIC)
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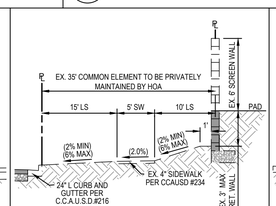

7 FAR HILLS AVENUE (PUBLIC)
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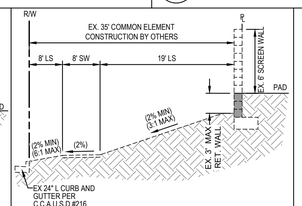

8 DESERT FOOTHILLS (PUBLIC)
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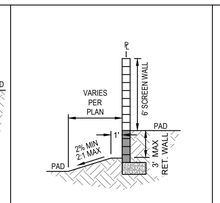

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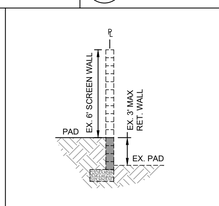

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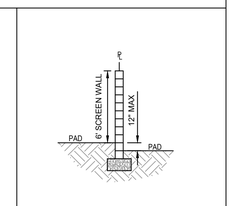

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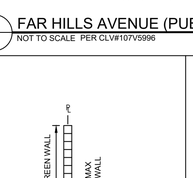

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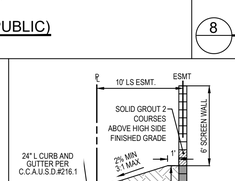

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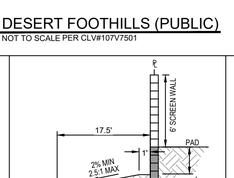

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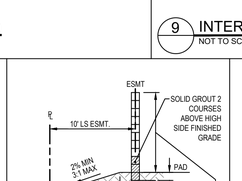

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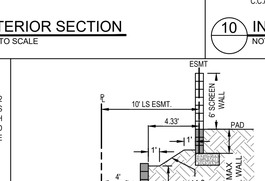

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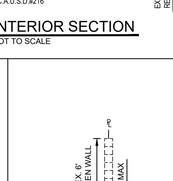

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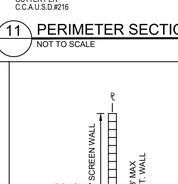

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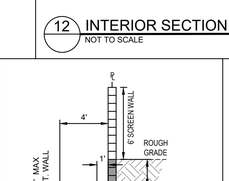

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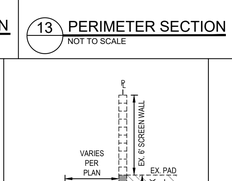

20 INTERIOR SECTION
NOT TO SCALE



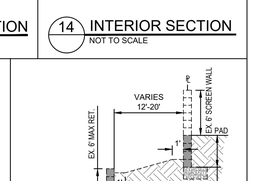

21 PERIMETER SECTION
NOT TO SCALE



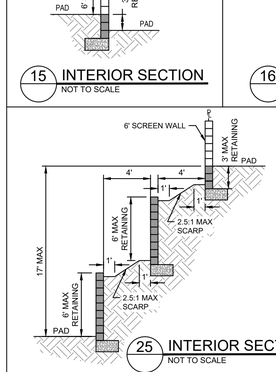

22 PERIMETER SECTION
NOT TO SCALE



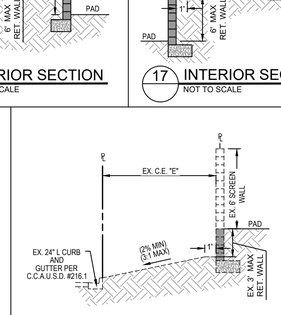

23 INTERIOR SECTION
NOT TO SCALE



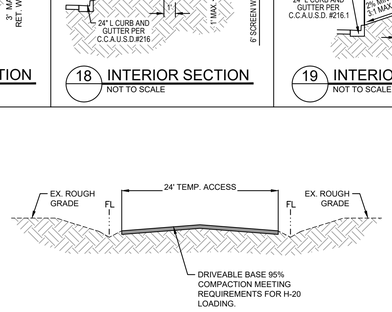

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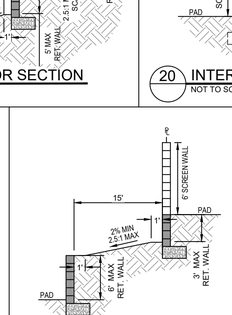

25 INTERIOR SECTION
NOT TO SCALE



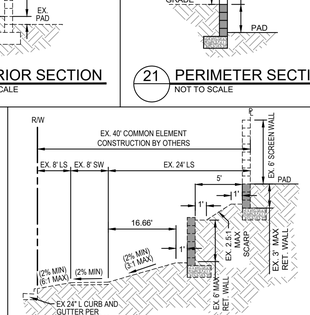

26 INTERIOR SECTION
NOT TO SCALE



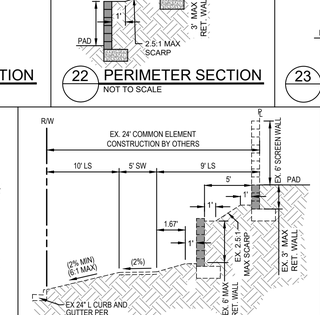

27 24' TEMP. ACCESS
NOT TO SCALE



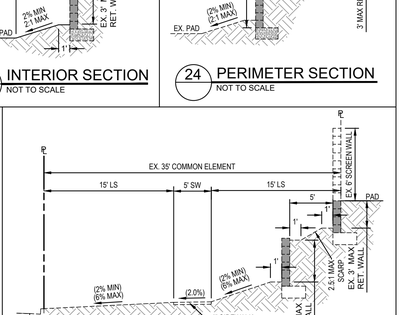

28 INTERIOR SECTION
NOT TO SCALE



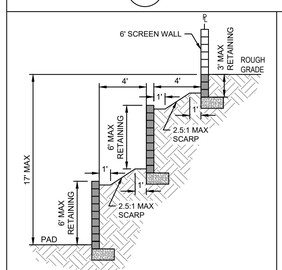

29 PERIMETER SECTION
NOT TO SCALE



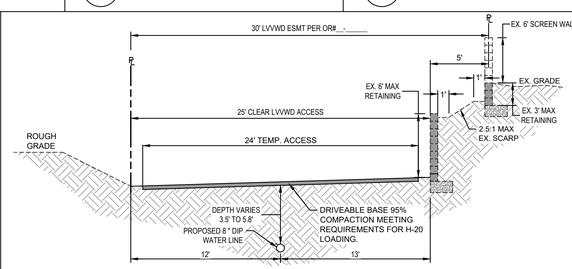

30 PERIMETER SECTION
NOT TO SCALE



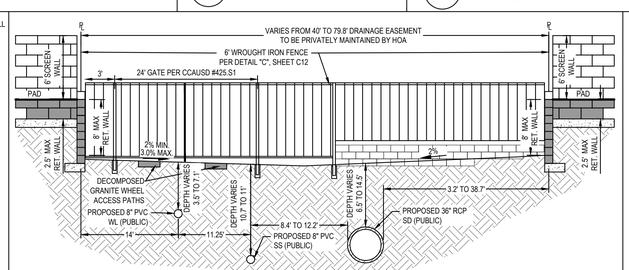

31 INTERIOR SECTION
NOT TO SCALE



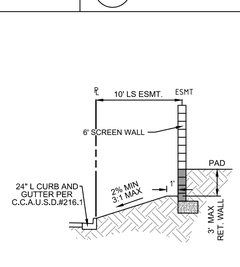

32 INTERIOR SECTION
NOT TO SCALE




33 LVVWD EASEMENT SECTION
NOT TO SCALE




34 INTERIOR SECTION
NOT TO SCALE




35 INTERIOR SECTION
NOT TO SCALE

## WALL NOTES

1. WALL DETAILS ARE FOR REFERENCE ONLY AND DO NOT CONSTITUTE A STRUCTURAL DESIGN.
2. CONSTRUCTION OF BLOCK WALLS REQUIRE A SEPARATE BUILDING PERMIT AND APPROVAL BY THE BUILDING DEPARTMENT.
3. PROVIDE WEEP HOLES & WATER PROOF ALL RETAINING WALLS PER GEOTECHNICAL REPORT RECOMMENDATIONS.
4. WROUGHT IRON FENCE GATE DETAILS, FOUNDATIONS AND PLANS BY OTHERS.

## DISCLAIMER NOTE

THE UNDERGROUND UTILITIES AS SHOWN HEREON HAVE BEEN LOCATED FROM OBSERVED FIELD SURVEY EVIDENCE AND EXISTING DRAWINGS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING; PLANS PROVIDED BY THE CLIENT, UTILITY COMPANIES, AND MUNICIPAL AGENCIES. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.




APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT NO. 136908 FIRST APPROVED DATE: _____

LVVWD APPROVED FIRE FLOW 1,500 GPM AT 20 PSI RESIDUAL MAXIMUM AVAILABLE FIRE SPRINKLER FLOW 30 GPM

SHEETS:
C1, C2, C11 - C33

107V_____ L19-02036

Actus
3203 E. Warm Springs Rd., Suite 400
Las Vegas, NV 89120
www.Actus-NV.com
(702) 586-9286
Engineering - Surveying - Consulting - Planning

DETAIL SHEET 1
SAVANNAH - UNIT 2
WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

| BY | DESCRIPTION | DATE | # |
|---|---|---|---|

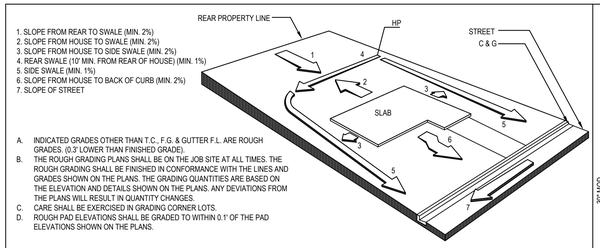
PROFESSIONAL ENGINEER STATE OF NEVADA
DARRYL C. LATTIMORE
EXP: 12/31/19
CIVIL
No. 17516
2/25/2020

| | |
|---|---|
| DATE | 02/18/2020 |
| DRAWN | RWF/RLS |
| DESIGNED | RWF/RLS |
| CHECKED | ALW/DCL |
| PROJECT # | WLH011803 |

SHEET TITLE
DETAILS

SHEET NUMBER
C11
SHEET# 11 OF 41

Plot Stamp: 2/6/2020 3:42:49 PM - Ryan Sicner
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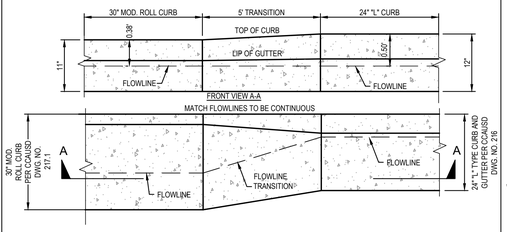



1. SLOPE FROM REAR TO SWALE (MIN. 2%)
2. SLOPE FROM HOUSE TO SWALE (MIN. 2%)
3. SLOPE FROM HOUSE TO SIDE SWALE (MIN. 2%)
4. REAR SWALE (10' MIN. FROM REAR OF HOUSE) (MIN. 1%)
5. SIDE SWALE (MIN. 1%)
6. SLOPE FROM HOUSE TO BACK OF CURB (MIN. 2%)
7. SLOPE OF STREET

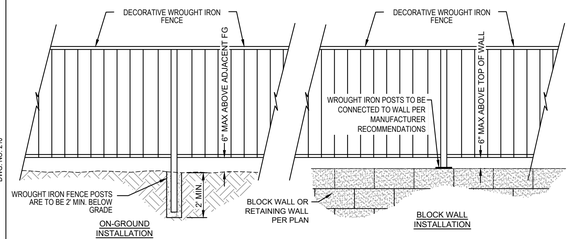
A. INDICATED GRADES OTHER THAN T.C., F.G. & GUTTER F.L. ARE ROUGH GRADES. (0.3' LOWER THAN FINISHED GRADE).
B. THE ROUGH GRADING PLANS SHALL BE ON THE JOB SITE AT ALL TIMES. THE ROUGH GRADING SHALL BE FINISHED IN CONFORMANCE WITH THE LINES AND GRADES SHOWN ON THE PLANS. THE GRADING QUANTITIES ARE BASED ON THE ELEVATION AND DETAILS SHOWN ON THE PLANS. ANY DEVIATIONS FROM THE PLANS WILL RESULT IN QUANTITY CHANGES.
C. CARE SHALL BE EXERCISED IN GRADING CORNER LOTS.
D. ROUGH PAD ELEVATIONS SHALL BE GRADED TO WITHIN 0.1' OF THE PAD ELEVATIONS SHOWN ON THE PLANS.

PERSPECTIVE VIEW

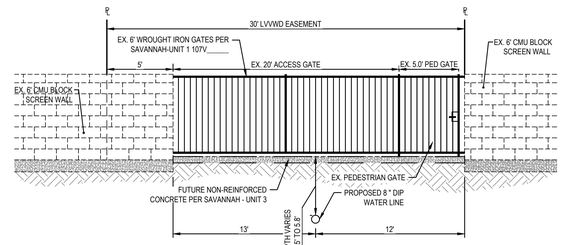
A TYPICAL TYPE "A" PAD GRADING
NOT TO SCALE




B 5' CURB TRANSITION - 'L' CURB TO 30" MOD. ROLL CURB
NOT TO SCALE




C WROUGHT IRON FENCE
NOT TO SCALE




D INTERIOR SECTION
NOT TO SCALE

## WALL NOTES

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2. CONSTRUCTION OF BLOCK WALLS REQUIRE A SEPARATE BUILDING PERMIT AND APPROVAL BY THE BUILDING DEPARTMENT.
3. ALL RETAINING WALLS SHALL BE WATER-PROOFED.
4. WROUGHT IRON FENCE GATE DETAILS, FOUNDATIONS AND PLANS BY OTHERS.

## DISCLAIMER NOTE

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APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT NO. 136908 FIRST APPROVED DATE: _____

LVVWD APPROVED FIRE FLOW 1,500 GPM AT 20 PSI RESIDUAL
MAXIMUM AVAILABLE FIRE SPRINKLER FLOW 30 GPM

SHEETS:
C1, C2, C11 - C33

107V_____ L19-02036

Actus
3200 E. Warm Springs Rd., Suite 400
Las Vegas, NV 89120
www.Actus-NV.com
(702) 586-9286
Engineering - Surveying - Consulting - Planning

DETAIL SHEET 2
SAVANNAH - UNIT 2
WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

| BY | DESCRIPTION | DATE |
|---|---|---|
| | | |

PROFESSIONAL ENGINEER
DARRYL C. LATTIMORE
EXP: 12/31/19
CIVIL
STATE OF NEVADA
No. 17516

2/25/2020

| | |
|---|---|
| DATE | 02/18/2020 |
| DRAWN | RWF/IRLS |
| DESIGNED | RWF/IRLS |
| CHECKED | ALW/DCL |
| PROJECT # | WLH011803 |

SHEET TITLE
DETAILS

SHEET NUMBER
C12

SHEET# 12 OF 41

Plot Stamp: 2/6/2020 3:42:51 PM - Ryan Sicner
File: P:\WLH\011803 - Parcel E\Civil_CD\Unit 1\WLH011803-UNIT 2-CD-DETL.dwg, Tab: C12

GRADING PLANS AND DETAILS

# OVERALL
# GRADING PLANS AND DETAILS

# SAVANNAH

PREPARED FOR:

## WILLIAM LYON HOMES

APN:137-27-614-001 & 615-001

CITY OF LAS VEGAS, NEVADA

## SITE INFORMATION

| | |
|---|---|
| APN: | A PORTION OF 137-26-101-001 |
| EXISTING ZONING: | (P-C) PLANNED COMMUNITY / SF3 (SINGLE FAMILY) |
| PROPOSED ZONING: | (P-C) PLANNED COMMUNITY / SF3 (SINGLE FAMILY) |
| ACREAGE: | 41.29 (GROSS)<br>39.46 (NET) |
| TOTAL LOTS: | 170 RESIDENTIAL LOTS & 10 COMMON LOTS (180 TOTAL) |
| DENSITY: | 4.12± DUA (GROSS) |
| MINIMUM LOT SIZE: | 5,250 SQ FT |
| MAXIMUM LOT SIZE: | 13,206 SQ FT |
| AVERAGE LOT SIZE: | 7,256 SQ FT |
| TOTAL OPEN SPACE: | 55,690 SQ FT |

NOTE: ALL LOT AREA LABELS ARE GROSS SIZE UNLESS OTHERWISE NOTED.

## ESTIMATED AVERAGE DAILY SEWER CONTRIBUTIONS

| | |
|---|---|
| 170 UNITS X 250 GDP/UNIT | 42,500 GPD |
| TOTAL AVG. CONTRIBUTION (GPD / 1,000,000) | 0.043 MGD |
| TOTAL PEAK FLOW (AVG. X 3.5) | 0.1488 MGD |

## LOT SCHEDULE

| | |
|---|---|
| 60' X 110' LOTS | 69 |
| 50' X 110' LOTS | 101 |
| PHASE I LOTS 60' X 110' | 39 |
| PHASE I LOTS 50' X 110' | 40 |
| PHASE II LOTS 60' X 110' | 30 |
| PHASE II LOTS 50' X 110' | 61 |
| TOTAL LOTS | 170 |

## BASIS OF BEARING

SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27, TOWNSHIP 21 SOUTH, RANGE 59 EAST, M.D.M., CITY LAS VEGAS, CLARK COUNTY, NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS.

## LEGAL DESCRIPTION

PARCEL E IS A PORTION OF THE REMAINDER OF LOT 1 MAPPED WITH THE PARCEL MAP RECORDED IN FILE 123 PAGE 36 OF PARCEL MAPS, AND RECORDED MAY 1, 2018.

APN# 137-26-101-001
PARCEL E WILL BE ESTABLISHED AS A SEPARATE LEGAL PARCEL BY THE HOWARD HUGHES CORPORATION WITH THE VILLAGE 21 UNIT 2 FINAL MAP.

## BENCHMARK

CITY OF LAS VEGAS BENCHMARK

MONUMENT ID: 5LV0926W6

RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS

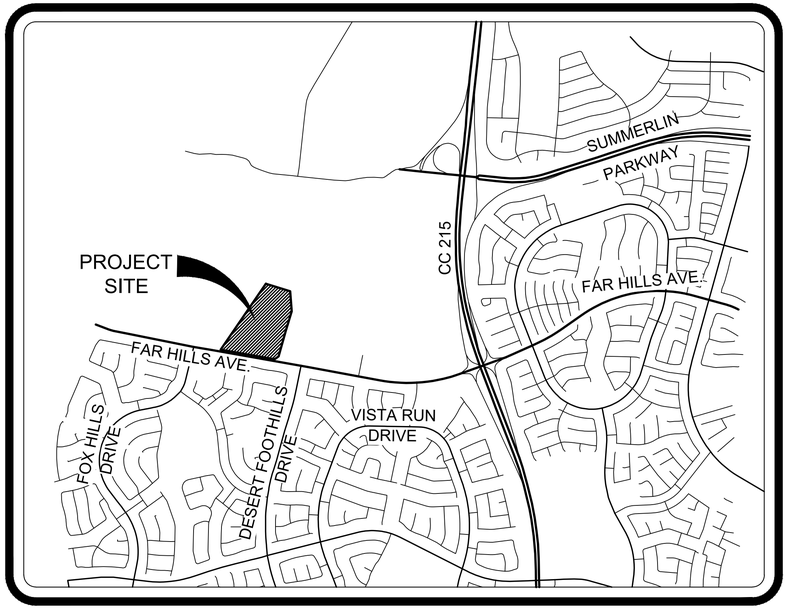
ELEVATION:
FEET = 3229.29' (NAVD88)
METERS = 984.29 M (NAVD88)

## DISCLAIMER NOTE

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## SHEET INDEX


| SHEET # | SHEET TITLE |
|---|---|
| C1 | COVER SHEET |
| C2 | GENERAL NOTES |
| C3 | OVERALL GRADING PLAN 1 |
| C4 | OVERALL GRADING PLAN 2 |
| C5 | OVERALL GRADING PLAN 3 |
| C6 | OVERALL GRADING PLAN 4 |
| C7 | OVERALL GRADING PLAN 5 |
| C8 | OVERALL GRADING PLAN 6 |
| C9 | OVERALL GRADING PLAN 7 |
| C10 | OVERALL GRADING PLAN 8 |
| C11 | OVERALL GRADING PLAN 9 |
| C12 | OVERALL GRADING PLAN 10 |
| C13 | OVERALL GRADING PLAN 11 |
| C14 | DETAIL SHEET 1 |
| C15 | DETAIL SHEET 2 |
| C16 | PLAN & PROFILE - COMMON ELEMENT "D" STORM DRAIN |
| C17 | PLAN & PROFILE - SARABETH STREET STORM DRAIN |
| C18 | PLAN & PROFILE - STORM DRAIN LATERALS |
| C19 | PLAN & PROFILE - COMMON ELEMENT "A" STORM DRAIN |
| S0.00 | STRUCTURAL DETAILS |


VICINITY MAP
SCALE: NTS

## PROJECT TEAM

### DEVELOPER

WILLIAM LYON HOMES
1980 FESTIVAL PLAZA DRIVE, SUITE 500
LAS VEGAS, NV 89134
PH: 702-263-8200

### CIVIL ENGINEER

ACTUS
ATTN: DARRYL LATTIMORE, P.E.
3283 E. WARM SPRINGS RD., SUITE 300
LAS VEGAS, NV 89120
T: 702-586-9296
E-MAIL: DARRYL.LATTIMORE@ACTUS-NV.COM

### OWNER

REDPOINT VILLAGE SUMMERLIN L P
1980 FESTIVAL PLAZA
SUITE 500
LAS VEGAS, NV 89135

## UTILITY CONTACTS

### POWER

NV ENERGY
ATTN: NEW DEVELOPMENT
7155 LINDELL ROAD
LAS VEGAS, NEVADA 89118

### WATER

LAS VEGAS VALLEY WATER DISTRICT
ATTN: ENGINEERING SERVICES
1001 S VALLEY VIEW BLVD
LAS VEGAS, NV 89107
T: 702-870-2011

### SEWER

CITY OF LAS VEGAS PUBLIC WORKS
ATTN: ENGINEERING PLANNING
333 N. RANCHO DRIVE 7TH FLOOR
LAS VEGAS, NEVADA 89106
PHONE: 702-229-2178

### GAS

SOUTHWEST GAS CORPORATION
ATTN: ENGINEERING SERVICES
6355 SHATZ STREET
NORTH LAS VEGAS, NV 89115

### TELEPHONE

CENTRAL TELEPHONE D/B/A CENTURY LINK
6700 VIA AUSTI PARKWAY
LAS VEGAS, NEVADA 89119

### DISPOSAL

REPUBLIC SERVICES, INC.
770 E. SAHARA AVE. - P.O. BOX 98508
LAS VEGAS, NEVADA 89193-8508

### CABLE

COX COMMUNICATIONS LAS VEGAS, INC.
1700 VEGAS DRIVE
LAS VEGAS, NEVADA 89106

## SUMMERLIN

SUMMERLIN RESIDENTIAL DESIGN REVIEW COMMITTEE — DATE

THIS SIGNATURE IS LIMITED TO APPROVAL OF THESE DOCUMENTS FOR CONFORMANCE TO THE DESIGN INTENT OF THE APPLICABLE DESIGN CRITERIA. NEITHER SUMMERLIN NOR THE SUMMERLIN RESIDENTIAL DESIGN REVIEW COMMITTEE ASSUMES RESPONSIBILITY FOR PLAN CONFORMANCE WITH APPLICABLE LAWS, ORDINANCES, AND CODES.

## APPROVALS

ALLEN PAVELKA PE. PE# 9029 — DATE
CITY ENGINEER - CITY OF LAS VEGAS

APPROVAL OF THESE PLANS BY THE CITY ENGINEER IS LIMITED TO THOSE IMPROVEMENTS CONSTRUCTED IN THE DEDICATED RIGHT-OF-WAY AND/OR DEDICATED EASEMENTS. THIS APPROVAL DOES NOT AUTHORIZE THE CONSTRUCTION OF ANY IMPROVEMENTS THAT DEVIATE FROM ADOPTED STANDARDS AND/OR SPECIFICATIONS EXCEPT THOSE SPECIFICALLY LISTED UNDER DEVIATIONS FROM STANDARD THE ENGINEER SHALL RESOLVE ANY DEVIATION OTHER THAN THOSE LISTED IN DEVIATIONS FROM STANDARDS IN FAVOR OF THE UNIFORM STANDARD DRAWINGS AND SPECIFICATIONS CLARK COUNTY AREA NEVADA.

CITY OF LAS VEGAS PLANNING DEPARTMENT — DATE

THIS PLAN MEETS THE APPLICABLE STANDARDS OF THE PLANNING DEPARTMENT

LAS VEGAS FIRE & RESCUE — DATE

FIRE DEPARTMENT APPROVAL
APPROVAL BY THE FIRE DEPARTMENT HAVING JURISDICTION IS REQUIRED PRIOR TO OBTAINING FINAL APPROVAL FROM THE LVVWD.

NV ENERGY — DATE
NV ENERGY ACKNOWLEDGES THAT WE HAVE RECEIVED YOUR PLANS AND WILL PROVIDED SERVICE TO ALL ELECTRICAL NEEDS ASSOCIATED WITH THIS PROJECT. NV ENERGY RESERVES THE RIGHT TO ADDRESS ANY EXISTING OR FUTURE CONFLICTS ONCE THE FINAL DESIGN IS COMPLETED. THE NEW SERVICE AND THE RESOLUTION OF ANY CONFLICTS WILL BE ACCOMPLISHED PURSUANT TO THE NEVADA PUBLIC UTILITY COMMISSION'S RULES AND REGULATIONS

SOUTHWEST GAS CORPORATION — DATE

CENTRAL TELEPHONE DBA CENTURY LINK — DATE

"THE AFFIXED CENTURY LINK APPROVAL DOES NOT ASSUME OR GUARANTEE LIABILITY FOR KNOWN OR UNKNOWN CONFLICTS WITH EXISTING OR PROPOSED IMPROVEMENTS. RESOLUTION OR PROPOSED IMPROVEMENTS, RESOLUTION OF ANY CONFLICT WILL BE ACCOMPLISHED PURSUANT TO LOCAL ORDINANCES, NEVADA REVISED STATUTES AND/OR PUBLIC UTILITY COMMISSION RULES AND REGULATIONS."

COX COMMUNICATIONS LAS VEGAS, INC — DATE

APPROVED FOR CONSTRUCTION

**Las Vegas Valley Water District Engineering Services**

**Project No.____X____ First Approved Date:_____**
**LVVWD Approved Fire Flow____X____ GPM at 20 PSI Residual**
**Maximum Available Fire Sprinkler Flow_____GPM**
(SHEETS: _____x_____)


Actus
3283 E. Warm Springs Rd., Suite 300
Las Vegas, NV 89120
www.Actus-NV.com
(702) 586-9296
Engineering - Surveying - Consulting - Planning


COVER SHEET — SAVANNAH — WILLIAM LYON HOMES — CITY OF LAS VEGAS, NEVADA

| BY | DESCRIPTION | DATE | NO. |
|---|---|---|---|
| | | | |

PROFESSIONAL ENGINEER — STATE OF NEVADA
DARRYL C. LATTIMORE
EXP: 12/31/21
CIVIL
No. 17516

2/25/2020

| | |
|---|---|
| DATE | 02/26/2020 |
| DRAWN | RLS |
| DESIGNED | ALW |
| CHECKED | DCL |
| PROJECT # | WLH011803 |

SHEET TITLE
COVER

SHEET NUMBER
C1

CLV/IN/A — SHEET 1 OF 20

FAST — Call before you Underground 1-702-432-5300 — FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (FAST)

Call before you DIG — AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY. CALL 811 OR 1-800-227-2600

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY — CALL BEFORE YOU DO OVERHEAD — 1-702-227-2929


Plot Stamp: 2/26/2020 3:20:20 PM - Ryan Sicner
File: P:\WLH011803 - Parcel E\Civil_CD\WLH011803-CD-COVR.dwg Tab: C1

## CITY OF LAS VEGAS GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFFSITE IMPROVEMENTS, CLARK COUNTY AREA NEVADA", LATEST ISSUE; THE "UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION, CLARK COUNTY AREA NEVADA", LATEST REVISED EDITION; THE "SUMMERLIN IMPROVEMENT STANDARDS" FOR WORK IN THE SUMMERLIN AREA; AND OTHER APPLICABLE APPROVED STANDARDS ISSUED BY THE CONTROLLING AGENCY; THE UNIFORM BUILDING CODE; AND ALL LOCAL CITY CODES AND ORDINANCES APPLICABLE, EXCEPT AS NOTED ON THIS SHEET AS "DEVIATIONS FROM STANDARDS".
2. THE EXISTENCE AND LOCATION OF ANY OVERHEAD OR UNDERGROUND UTILITY LINES, PIPES, OR STRUCTURES SHOWN ON THESE PLANS ARE OBTAINED BY A RESEARCH OF THE AVAILABLE RECORDS. EXISTING UTILITIES AS SHOWN FROM CLV PLANS LIBRARY ARE APPROXIMATE AND FOR RECORD PURPOSES. EXISTING UTILITIES ARE LOCATED ON PLANS ONLY FOR THE CONVENIENCE OF THE CONTRACTOR. EXISTING UTILITY SERVICE LATERALS MAY NOT BE SHOWN ON THE PLANS. THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, LOCATE ALL UNDERGROUND AND OVERHEAD INTERFERENCE'S WHICH MAY AFFECT HIS OPERATION DURING CONSTRUCTION AND SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID DAMAGE TO SAME. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING NEAR OVERHEAD UTILITIES SO AS TO SAFELY PROTECT ALL PERSONNEL AND EQUIPMENT, AND SHALL BE RESPONSIBLE FOR ALL COST AND LIABILITY IN CONNECTION THEREWITH.
3. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING UTILITY LINES, STRUCTURES AND STREET IMPROVEMENTS WHICH ARE TO REMAIN IN PLACE, FROM DAMAGE, AND ALL SUCH IMPROVEMENTS OR STRUCTURES DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED OR REPLACED SATISFACTORY TO THE CITY ENGINEER AND OWNING UTILITY COMPANY AT THE EXPENSE OF THE CONTRACTOR.
4. ALL CONSTRUCTION SHALL BE AS SHOWN ON THESE PLANS, ANY REVISIONS SHALL HAVE THE PRIOR WRITTEN APPROVAL OF THE CITY ENGINEER.
5. TYPE V CEMENT SHALL BE USED IN ALL OFF-SITE CONCRETE WORK. CONCRETE TO BE 3000 P.S.I. MINIMUM @ 28 DAYS. MIX DESIGNS TO BE APPROVED BY THE CITY, PRIOR TO THE USE ON THE PROJECT.
6. PERMITS ARE REQUIRED FOR ANY WORK IN THE PUBLIC RIGHT-OF-WAY. THE CONTRACTOR SHALL SECURE ALL PERMITS AND INSPECTIONS REQUIRED FOR THIS CONSTRUCTION.
7. EXPANSION JOINTS REQUIRED, MAXIMUM EVERY 300' IN EXTRUDED-TYPE CURB.
8. AC PAVEMENT TO BE ONE-HALF INCH (½") ABOVE LIP OF ALL GUTTERS AFTER COMPACTION, EXCEPT AT SIDEWALK RAMPS AND CROSS GUTTERS
9. CURB AND GUTTER FOUND TO BE UNACCEPTABLE TO THE CITY OF LAS VEGAS SHALL BE REMOVED AND REPLACED PER STANDARD DRAWING 216.
10. SIDEWALK RAMPS SHALL BE CONSTRUCTED IN EACH QUADRANT OF AN INTERSECTION PER STANDARD DRAWING 235. EXACT LOCATION OF RAMPS MAY BE ADJUSTED IN THE FIELD BY A CITY INSPECTOR
11. CONTRACTOR SHALL PROVIDE ALL NECESSARY HORIZONTAL AND VERTICAL TRANSITIONS BETWEEN NEW CONSTRUCTION AND EXISTING SURFACES TO PROVIDE FOR PROPER DRAINAGE AND FOR INGRESS AND EGRESS TO NEW CONSTRUCTION. THE EXTENT OF THE TRANSITIONS TO BE AS SHOWN ON PLANS.
12. ALL GRADING WORK SHALL CONFORM TO THE SOILS REPORT AS PREPARED BY THE (GEOTEK RESIDENTIAL, REPORT 14658-LVR, UPDATED APRIL 17, 2019) APPROVED BY THE CITY ENGINEER, AND AS SHOWN ON THESE PLANS.
13. EXACT LOCATION OF ALL SAWCUT LINES MAY BE ADJUSTED OR DETERMINED IN THE FIELD BY A CITY OF LAS VEGAS ENGINEER IF LOCATION ON PLANS IS NOT CLEARLY SHOWN, OR EXISTING PAVEMENT CONDITION REQUIRES RELOCATIONS.
14. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PROTECT EXISTING PERMANENT SURVEY MONUMENTS. ANY MONUMENTS DISTURBED SHALL BE REPLACED AND ADJUSTED PER AVAILABLE RECORDS IN ACCORDANCE WITH N.R.S. STATUTE NO. 625.380 & CITY OF LAS VEGAS TITLE 18, APPENDIX D.
15. UTILITY COMPANY METER BOXES, MANHOLE LIDS, VALVE COVERS, ETC., SHALL BE LOCATED OUT OF DRIVEWAYS, DRIVEWAY APRONS, FLOWLINES, AND CROSS GUTTERS UNLESS WRITTEN APPROVAL IS GRANTED BY THE UTILITY COMPANY AND THE CITY ENGINEER.

WALL NOTES:

16. ALL WALLS, NEW OR EXISTING, ARE ONLY SHOWN ON CIVIL PLANS FOR THE PURPOSE OF REVIEWING GRADING RELATIONSHIPS; FLOOD CONTROL AND SIGHT DISTANCE AT INTERSECTIONS. NEW WALLS REQUIRE A SEPARATE PERMIT AND INSPECTION BY THE BUILDING DEPARTMENT.
17. ASPHALT MIX DESIGN MUST BE SUBMITTED AND APPROVED BY THE CITY ENGINEER PRIOR TO THE PLACEMENT OF ASPHALT WITHIN CITY RIGHT OF WAY.
18. CONTRACTOR SHALL ADJUST ALL NEW AND EXISTING INLETS, VALVE BOXES, MANHOLE RIMS, AND SEWER CLEAN OUTS, ETC. TO FINISH GRADE AS APPLICABLE WHETHER OR NOT THEY ARE SHOWN ON THE PLANS.
19. MATERIALS, HANDLING AND PLACEMENT OF PORTLAND CEMENT CONCRETE SHALL BE IN ACCORDANCE WITH APPLICABLE SECTIONS OF NDOT OR THE CLARK COUNTY AREA SPECIFICATIONS (AS APPLICABLE) AND THE PLANS AND DETAILS SHOWN HEREON.
20. WHEN INSTALLING UNDERGROUND FACILITIES THAT REQUIRE UNDERGROUND LOCATING DEVICES SUCH AS MARKER BALLS, LOCATING RIBBON, ETC, THE CONTRACTOR SHALL PROVIDE WRITTEN DOCUMENTATION TO OFFSITE INSPECTION AND TESTING CERTIFYING THAT ALL DEVICES HAVE BEEN PLACED AND VERIFIED TO BE IN GOOD WORKING CONDITION PRIOR TO THE CONSTRUCTION OF ANY ROAD BASE.
21. AFTER HAUNCHING AND PRIOR TO BACKFILL OPERATIONS WHICH WOULD COVER SANITARY SEWER AND STORM DRAIN FACILITIES, CONTRACTOR IS REQUIRED TO SCHEDULE CLV OPEN-TRENCH UTILITY SURVEY INSPECTION FOR DETERMINATION OF FINAL LOCATION COORDINATES. FACILITIES TO BE LOCATED BY CLV SHALL INCLUDE AT A MINIMUM THE HORIZONTAL AND VERTICAL (INVERT) LOCATION OF PUBLIC SEWER MANHOLES, STORM DRAIN MANHOLES AND TRANSITION STRUCTURES, STORM DRAIN LATERALS AT THE CONNECTION TO THE STORM DRAIN MAIN AND AT THE CONNECTION TO A DROP INLET, THE CONNECTION OF SEWER SERVICE LATERALS TO THE SEWER MAIN AND WHERE THE SEWER SERVICE LATERALS EXIT THE PUBLIC RIGHT-OF-WAY, SEWER AND STORM DRAIN MAIN ALIGNMENT, INCLUDING DEFLECTION POINTS.
22. CCTV VIDEO INSPECTION IS REQUIRED FOR ALL SEWER AND STORM DRAINS. THE CCTV VIDEO INSPECTIONS NEED TO BE PERFORMED PER THE DESIGN AND CONSTRUCTION STANDARDS FOR WASTEWATER COLLECTION SYSTEMS LATEST EDITION.
23. A SEPARATE BORING PERMIT IS REQUIRED FOR ALL BORING ACTIVITIES.

## CITY OF LAS VEGAS GRADING NOTES

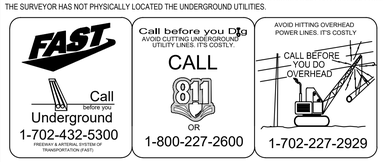
1. IN THE EVENT THAT ANY UNFORESEEN CONDITIONS NOT COVERED BY THESE NOTES ARE ENCOUNTERED DURING GRADING OPERATIONS, THE OWNER/ENGINEER SHALL BE IMMEDIATELY NOTIFIED FOR DIRECTION.
2. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM ALL NECESSARY CUTS AND FILLS WITHIN THE LIMITS OF THIS PROJECT AND THE RELATED OFF-SITE WORK, SO AS TO GENERATE THE DESIRED SUBGRADE, FINISH GRADES AND SLOPES SHOWN.
3. CONTRACTOR SHALL TAKE FULL RESPONSIBILITY FOR ALL EXCAVATION. ADEQUATE SHORING SHALL BE DESIGNED AND PROVIDED BY THE CONTRACTOR TO PREVENT UNDERMINING OF ANY ADJACENT FEATURES OR FACILITIES AND/OR CAVING OF THE EXCAVATION.
4. THE CONTRACTOR IS WARNED THAT AN EARTHWORK BALANCE WAS NOT NECESSARILY THE INTENT OF THIS PROJECT. ANY ADDITIONAL MATERIAL REQUIRED OR LEFTOVER MATERIAL FOLLOWING EARTHWORK OPERATIONS BECOMES THE RESPONSIBILITY OF THE CONTRACTOR.
5. THE GRADING CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH THE OWNER TO PROVIDE FOR THE REQUIREMENTS OF THE PROJECT STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND ASSOCIATED PERMIT.
6. CONTRACTOR SHALL GRADE TO THE LINES AND ELEVATIONS SHOWN ON THE PLANS WITHIN THE FOLLOWING HORIZONTAL AND VERTICAL TOLERANCES AND DEGREES OF COMPACTION, IN THE AREAS INDICATED: HORIZONTAL VERTICAL COMPACTION A. PAVEMENT AREA SUBGRADE 0.1'+ +0.0' TO -0.1' SEE SOILS REPORT B. ENGINEERED FILL 0.5'+ +0.1' TO -0.1' SEE SOILS REPORT COMPACTION TESTING WILL BE PERFORMED BY THE OWNER OR HIS REPRESENTATIVE.
7. ALL CUT AND FILL SLOPES SHALL BE PROTECTED UNTIL EFFECTIVE EROSION CONTROL HAS BEEN ESTABLISHED.
8. THE USE OF POTABLE WATER WITHOUT A SPECIAL PERMIT FOR BUILDING OR CONSTRUCTION PURPOSES INCLUDING CONSOLIDATION OF BACKFILL OR DUST CONTROL IS PROHIBITED. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FOR CONSTRUCTION WATER.
9. THE CONTRACTOR SHALL MAINTAIN THE STREETS, SIDEWALKS AND ALL OTHER PUBLIC RIGHT-OF-WAY IN A CLEAN, SAFE AND USABLE CONDITION. ALL SPILLS OF SOIL, ROCK OR CONSTRUCTION DEBRIS SHALL BE PROMPTLY REMOVED FROM THE PUBLICLY OWNED PROPERTY DURING CONSTRUCTION AND UPON COMPLETION OF THE PROJECT. ALL ADJACENT PROPERTY, PRIVATE OR PUBLIC SHALL BE MAINTAINED IN A CLEAN, SAFE AND USABLE CONDITION.
10. IN THE EVENT THAT ANY TEMPORARY CONSTRUCTION ITEM IS REQUIRED THAT IS NOT SHOWN ON THESE DRAWINGS, THE OWNER AGREES TO PROVIDE AND INSTALL SUCH ITEM AT HIS OWN EXPENSE AND AT THE DIRECTION OF THE CITY ENGINEER. TEMPORARY CONSTRUCTION INCLUDES DITCHES, BERMS, ROAD SIGNS AND BARRICADES, ETC.

## CITY OF LAS VEGAS SEWER NOTES

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE DESIGN AND CONSTRUCTION STANDARDS FOR WASTEWATER COLLECTION SYSTEMS AND THE UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA, AS AMENDED. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO BE AWARE OF THE CONTENTS OF THE ABOVE SPECIFICATIONS.
2. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PERFORM CONSTRUCTION AS PER PLANS. ANY ADDITIONS, DELETIONS, OR CHANGES SHALL FIRST MEET WITH THE APPROVAL OF THE CITY ENGINEER.
3. CHISEL "S" OR "C" IN CURBS WHERE SEWER OR GAS LATERALS PASS UNDER THE CURB.
4. POLYVINYL (PVC) SEWER PIPE SHALL MEET ASTM D-3034 SDR 35 SPECIFICATIONS, INSTALLED WITH SAND BEDDING AND BACKFILL OF TYPE II AGGREGATE BASE.
5. ALL MANHOLES PAVED IN STREETS EIGHTY (80) FOOT R/W AND LARGER SHALL HAVE CONCRETE COLLARS. STREETS LESS THAN EIGHTY (80') FOOT R/W WILL REQUIRE RETROFIT IF PAVING DOES NOT CONFORM TO CITY STANDARDS AT THE MANHOLE.
6. TEE SADDLES SHALL BE USED TO CONNECT SEWER LATERALS TO EXISTING MAIN LINES UP TO TWELVE INCH (12") DIAMETER. CONNECTIONS TO FIFTEEN INCH (15") OR LARGER MAINS SHALL REQUIRE SPECIAL PROCEDURES. IN LINE "Y" 'S SHALL BE USED ON LINES TWELVE INCHES (12") OR ABOVE.
7. WATER MAINS SHALL BE PROTECTED IN ACCORDANCE WITH LVVWD STANDARDS WHENEVER A SEWER MAIN CROSSES OVER A WATER MAIN OR THE SEWER IS LESS THAN EIGHTEEN INCH (18") UNDER A WATER MAIN.
8. ALL CONTRACTORS INSTALLING SEWER MAINS THAT WILL BE UNDER THE JURISDICTION OF THE CITY OF LAS VEGAS MUST BE STATE OF NEVADA CLASS "A" CONTRACTORS.
9. THE CITY OF LAS VEGAS WILL NOT ACCEPT ANY SEWER MAINS WHICH HAVE A VERTICAL DEFLECTION OF MORE THAN ONE TENTH (0.1) OF A FOOT FROM THE APPROVED CONSTRUCTION PLANS AT ANY LOCATION. SEWER MAINS FOUND TO EXCEED THIS TOLERANCE WILL HAVE TO BE REPAIRED OR REMOVED OR REPLACED TO THE SATISFACTION OF THE CITY ENGINEER PRIOR TO ACCEPTANCE BY THE CITY OF LAS VEGAS.
10. INSTALLATION OF CURVED SEWER REQUIRES THE USE OF C-900 PIPE WHICH ALLOWS FOR PIPE DEFLECTION AT THE JOINTS.

## DISCLAIMER NOTE

THE UNDERGROUND UTILITIES AS SHOWN HEREON HAVE BEEN LOCATED FROM OBSERVED FIELD SURVEY EVIDENCE AND EXISTING DRAWINGS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING; PLANS PROVIDED BY THE CLIENT, UTILITY COMPANIES, AND MUNICIPAL AGENCIES. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.










## CITY OF LAS VEGAS TRAFFIC NOTES (LD)

1. ALL WORK PERFORMED ON ANY TRAFFIC SIGNAL COMPONENT MUST BE UNDER THE DIRECT ON-SITE SUPERVISION OF AN IMSA CERTIFIED TECHNICIAN. THE LEVEL OF CERTIFICATION REQUIRED SHALL BE LEVEL II.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO ALL EXISTING UTILITIES. THE LOCATIONS OF UNDERGROUND UTILITIES AS SHOWN ON THE PLANS ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES TO VERIFY IN THE FIELD THE LOCATIONS OF THEIR INSTALLATIONS 72 HOURS PRIOR TO CONSTRUCTION.

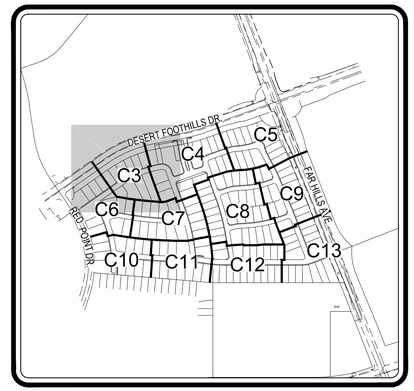
CALL-BEFORE-YOU-OVERHEAD 1-702-227-2929
CALL-BEFORE-YOU-DIG 1-800-227-2600
STREETLIGHTS 1-702-229-6331
F.A.S.T. 1-702-432-5300

3. ALL TRAFFIC SIGNAL INSTALLATIONS SHALL CONFORM TO THE UNIFORM STANDARD DRAWINGS SPECIFICATIONS AND SPECIAL PROVISIONS FOR PUBLIC WORKS' CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA, VOLUMES I AND II, ADOPTED BY THE REGIONAL TRANSPORTATION COMMISSION APRIL 8, 1992 WITH ALL SUBSEQUENT REVISIONS. BRACKET MOUNTED (SIDE-MOUNTED) VEHICLE SIGNAL ASSEMBLIES WITH 2 OR MORE SIGNAL HEADS SHALL HAVE AN ADDITIONAL ELBOW AS SHOWN IN UNIFORM STANDARD DRAWING NUMBER 863 AND SHOWN AS OPTION B IN UNIFORM STANDARD DRAWING NUMBER 844, AND SHALL HAVE A MENERALLAC SUPPORT AS SHOWN IN UNIFORM STANDARD DRAWING NUMBER 863 IF ONE OF THE SIGNAL HEADS CONTAINS 4 OR MORE SIGNAL MODULES.
4. SERVICE SHALL HAVE 1-60 AMP SINGLE POLE BREAKER FOR SIGNAL, AND ONE 40 AMP SINGLE POLE BREAKERS FOR STREET LIGHTS. SERVICE SHALL BE 200 AMP PADMOUNT.
5. LINE SIDE OF METER TO BE WIRED WITH THREE #3/0 AWG THW. LOAD SIDE SHALL BE WIRED WITH FOUR #4 AWG THW (2 BLACK, 2 WHITE) AND ONE #6 AWG THW (GREEN)
6. LUMINAIRES ON ALL SIGNAL POLES SHALL BE L.E.D. AS APPROVED BY THE CITY OF LAS VEGAS (CLV). DESIGN PROFESSIONAL AND CONTRACTOR SHALL VERIFY CITY'S LATEST LED FIXTURE SPECIFICATIONS AND APPROVED FIXTURES PER CLV WEBSITE, UNDER BUILDING AND SAFETY FORMS, PRIOR TO ORDERING MATERIALS. INTERSECTION LIGHTING SHALL MEET THE REQUIREMENTS OF UNIFORM STANDARD DRAWING NUMBER 300.53. EACH LUMINAIRE SHALL HAVE AN INDIVIDUAL 1000 WATT P.E. CONTROL. FOR LUMINAIRES THERE SHALL BE 2(TWO)-#4 AWG THW CONDUCTORS FROM THE SERVICE TO THE CABINET. IN THE CABINET, THE #4 AWG THW CONDUCTORS SHALL BRANCH OFF INTO #10 AWG THW CONDUCTORS INDIVIDUALLY FUSED WITH 10 AMP FUSES. THERE SHALL BE NO SPLICES BETWEEN THE CABINET AND LUMINAIRE FIXTURES.
7. THE INTERNALLY ILLUMINATED STREET NAME SIGNS SHALL BE WIRED TO THE LUMINAIRES PHOTO CELL FOR CONTROL WITH #10 AWG THW COPPER STRANDED WIRE (TYPICAL). THE SIGN SHALL BE WIRED TO THE LUMINAIRE ABOVE IT. IN THE EVENT THERE IS NO LUMINAIRE ON THE TRAFFIC SIGNAL POLE, THE 1000 WATT P.E. CONTROL SHALL BE MOUNTED ON THE POLE
CAP. ALL NEW ILLUMINATED STREET NAME SIGNS SHALL HAVE LIGHT EMITTING DIODE (LED) LAMPS PER SECTION 623 T.02.16 OF THE SPECIAL PROVISIONS.
8. CHECK CONDUIT AND CABLE SCHEDULE FOR CONDUIT, CABLE, AND WIRE SIZE. VERIFY ALL EXISTING CONDUIT RUNS.
9. ALL PULLBOXES SHALL BE IN ACCORDANCE WITH UNIFORM STANDARD DRAWINGS NO. 705, NO. 706, AND NO. 707
10. TRAFFIC SIGNAL CABLE SHALL BE 15 OR 25 CONDUCTOR #14 AWG SOLID (TYPICAL) CABLE AND SHALL CONFORM TO IMSA SPEC. NO. 20-1.
11. PEDESTRIAN PUSH BUTTONS SHALL BE AUDIBLE TACTILE "POLARA iNAVIGATOR" TYPE (2-WIRE PEDESTRIAN PUSHBUTTON SYSTEM WITH iN2 PUSH BUTTON STATIONS AND SHELF-MOUNT BIU CONTROL UNIT WITH SDLC CABLE) OR CAMPBELL COMPANY WAPPS WIRELESS PEDESTRIAN PUSHBUTTON SYSTEM WITH ADA AND IN ACCORDANCE WITH CITY OF LAS VEGAS SPECIAL PROVISIONS AND SECTION 623 OF THE CCA USS. PUSH BUTTON SIGNS SHALL BE R10-3e PER MUTCD, 2009 EDITION, WITH FULL MOUNTING BRACKETS, AS MODIFIED BY THE MANUFACTURER TO FIT ON A 9'X12" SIGN, AND SHALL BE PORCELAIN-ENAMELED METAL. ALL PUSH BUTTONS TO BE MOUNTED 42" ABOVE SIDEWALK. THE MAXIMUM HORIZONTAL REACH DISTANCE IS TO BE 10'. SIDEWALK RAMPS WILL BE ACCORDING TO U.S.D. No. 235 (1-4) LATEST EDITION. WHEN AN EXISTING SIGNAL WITH EXISTING AUDIBLE-TACILE PUSH BUTTONS IS MODIFIED, THE CONTRACTOR SHALL VERIFY WHETHER EXISTING PUSH BUTTONS OR CABINET EQUIPMENT MATCHES THE MANUFACTURE AND MODEL OF ANY EXISTING EQUIPMENT SCHEDULED TO REMAIN, TO PROVIDE A FULLY FUNCTIONING SYSTEM. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL CABINET EQUIPMENT, INCLUDING THE PEDESTRIAN PUSH BUTTON CONTROL UNIT, INTERFACE PANEL AND ANY REQUIRED HARNESSES, TO PROVIDE A FULLY FUNCTIONING SYSTEM.
12. THE ROUTING AND TERMINATION OF CONDUITS AND THE PLACING OF POLES AND CABINETS SHALL BE AS INDICATED ON THE PLANS. ALL CHANGES SHALL BE APPROVED BY THE ENGINEER.
13. MAST ARM R10-12 SIGNS TO BE ADJACENT (NO GAP) TO THE M-5 SIGNAL HEAD. WHERE FLASHING YELLOW ARROW LEFT TURN SIGNALS ARE USED, A MAST ARM R10-12P "LEFT TURN YIELD ON FLASHING YELLOW ARROW" SIGN SHALL BE MOUNTED ADJACENT TO THE M-4 SIGNAL HEAD.
14. TRAFFIC SIGNAL CABINET SHALL BE A TYPE VIII CABINET UNLESS OTHERWISE SPECIFIED IN THE PLANS. THIS IS COMMONLY REFERRED TO AS AN "R" CABINET. THE CABINET SHALL CONFORM TO THE CLARK COUNTY AREA UNIFORM STANDARD DRAWINGS AND SPECIFICATIONS AND THE CITY OF LAS VEGAS SPECIAL PROVISIONS. INSTALL CABINET NEAR THE R.O.W. LINE OR AS SHOWN ON THE DRAWINGS. THE TRAFFIC SIGNAL CONTROLLER CABINET, SHALL BE EQUIPPED WITH 16 LOAD BAY POSITIONS,SHALL BE A 48 DETECTOR CHANNEL R CABINET AND SHALL INCLUDE TWO (2) RACK-MOUNTED, 12 SLOT, CARD DETECTION RACKS. WITH 2 DETECTOR LOOP CHANNELS PER SLOT FULLY WIRED SO THAT ALL CHANNELS ARE USABLE AND 4 CHANNEL SLOTS THAT CAN ACCOMMODATE VIDEO DETECTION CARDS. THE CABINET SHALL CONTAIN A 764 OPTICOM PHASE SELECTOR IN A 760 RACK, WITH A 768 AUXILIARY INTERFACE PANEL MOUNTED IN THE CABINET AND FULLY WIRED FOR GREEN SENSE CAPABILITIES.
15. THE CONTRACTOR SHALL SUPPLY A MALFUNCTION MANAGEMENT UNIT (MMU) AND TRAFFIC SIGNAL CONTROLLER TO THE CITY OF LAS VEGAS TRAFFIC SIGNAL REPAIR SHOP A MINIMUM OF FOURTEEN DAYS PRIOR TO SIGNAL TURN-ON OR PRIOR TO CONVERTING TO A NEW PHASING SCHEME, FOR TESTING AND PROGRAMMING PURPOSES. THE CONTROLLER SHALL BE A NAZTEC 980 ATC TS2 TYPE 2 NTCIP COMPLIANT SIGNAL CONTROLLER WITH INSTALLED AND LICENSED APOGEE CONTROLLER SOFTWARE, LATEST VERSION, AND THE MMU SHALL BE A MODEL MMU-1600GE AS MANUFACTURED BY RENO A&E, OR APPROVED EQUAL. THE CONTRACTOR SHALL DELIVER THE CONTROLLER AND MMU TO, AND PICKUP THE CONTROLLER AT 2985 ROMEMUS DRIVE. CONTRACTOR SHALL NOTIFY THE TRAFFIC SIGNAL REPAIR SHOP (229-6076) SEVEN DAYS PRIOR TO PICK UP. THE CITY, AT ITS DISCRETION, MAY PROVIDE A DIFFERENT MODEL OF MMU OR CONTROLLER FOR INITIAL TURN-ON, IN WHICH CASE CITY PERSONNEL WILL SWAP THE CONTROLLER OR MMU AFTER THE PROJECT IS ACCEPTED.
16. CONTRACTOR SHALL POTHOLE SIGNAL POLE LOCATIONS PRIOR TO ORDERING OF POLES.
17. ALL MAST ARMS TO BE HOT-DIP GALVANIZED BY THE MANUFACTURER THE MAST ARM IS TO BE FABRICATED WITH END TENON ONLY. THE END TENON SHALL BE FACTORY INSTALLED AND THE REMAINING TENONS SHALL BE FABRICATED IN THE FIELD AT THE LOCATION SHOWN ON THE PLANS OR AS DIRECTED BY THE TRAFFIC ENGINEER AND/OR HIS AUTHORIZED REPRESENTATIVE. FOR TENON FABRICATION DETAILS SEE CLARK COUNTY AREA U.S.D. NO. 808 SHEET 2. ALL WELDING SHALL CONFORM TO AWS D 2.0, "SPECIFICATION FOR WELDED HIGHWAYS AND RAILWAY BRIDGES," AND TO ANY ADDITIONAL REQUIREMENTS OF SECTION 623 OF THE SPECIFICATIONS. ALL EXPOSED WELDS, SHALL BE PAINTED AS PROVIDED FOR REPAIRING DAMAGED GALVANIZED SURFACES.
18. ALL VEHICLE AND PEDESTRIAN SIGNAL INDICATIONS SHALL HAVE LIGHT EMITTING DIODE (LED) TYPE INDICATIONS, IN CONFORMANCE TO CITY OF LAS VEGAS SPECIAL PROVISIONS AND TO SECTION 623 OF THE CCA USS. ALL PEDESTRIAN SIGNAL FACES SHALL PROVIDE "WALKING PERSON", "HAND", AND "COUNTDOWN" MESSAGES AS PROVIDED BY DURALIGHT MODEL #DMI-400-VIEL OR DIALIGHT MODEL #430-6479-001X, OR APPROVED EQUAL. THE "COUNTDOWN" MESSAGE SHALL NOT FLASH. WHERE EXISTING SIGNALS ARE MODIFIED, THE CONTRACTOR SHALL VERIFY THAT LED PEDESTRIAN INDICATIONS FOR A SPECIFIC PHASE ARE OF THE SAME MANUFACTURE SO THAT THEY FUNCTION CORRECTLY, OR SHALL REPLACE ALL COUNTDOWN PEDESTRIAN INDICATIONS FOR THAT PHASE.
19. VIDEO DETECTION SYSTEMS SHALL BE TS2 COMPATIBLE AND SHALL INPUT DETECTOR CALLS TO THE CONTROLLER THROUGH AN SDLC CABLE. SYSTEMS WILL BE EITHER ITERIS EDGE 2-1IN PROCESSORS WITH VRACKS-PS, EDGE2-TS2IM-PAK AND EDGECONNECT PAK, (IP ADDRESSABLE); PEEK VIDEOTRAK IQ (WITH ETHERNET PORT AND SDLC); OR TRAFICON VIP WITH VIEWCOM (IP ADDRESSABLE) AND PIM (SDLC). WHEN VIDEO DETECTION IS SPECIFIED ON THE TRAFFIC SIGNAL PLANS. ALL VIDEO DETECTION SYSTEMS WILL BE STAND ALONE SYSTEMS TO INCLUDE ALL NECESSARY EQUIPMENT TO PROGRAM THE VIDEO DETECTION SYSTEM. A PROGRAMMING "MOUSE", KEYPAD OR LAPTOP COMPUTER (IF REQUIRED FOR PROGRAMMING THE VIDEO DETECTION SYSTEM) AND APPROPRIATE SOFTWARE WILL BE SUPPLIED WITH EACH VIDEO SYSTEM. PERSONAL COMPUTERS (PCs) MAY NOT BE SUBSTITUTED FOR LAPTOPS. A VIDEO MONITOR (COLOR FLAT SCREEN) 9" TO 13" WILL BE SUPPLIED WITH EACH VIDEO DETECTION SYSTEM. EACH VIDEO CAMERA WILL HAVE POWER AND VIDEO CABLE DIRECTLY FROM THE CABINET. COAXIAL CABLE WILL BE TYPE 6281 (SOLID CENTER CONDUCTOR). CAMERAS THAT USE A PREFABRICATED CABLE INTEGRATING POWER AND COAXIAL CABLE INTO A SINGLE WEATHERPROOF CONNECTOR ARE ACCEPTABLE. "BNC" ARE THE ONLY ACCEPTABLE TERMINATION OF COAXIAL CABLES. CAMERAS WILL BE MOUNTED PER MANUFACTURER'S RECOMMENDATIONS AND PER CLV TRAFFIC ENGINEER APPROVAL. VIDEO CAMERAS SHALL BE COLOR AND SHALL BE MOUNTED ON A MINIMUM 6 FOOT RISER ON THE SIGNAL MAST ARM WITH EXTENSION BRACKETS (TYPE AG-0175-74-62 OR EQUIVALENT). THE LOCATION OF THE CAMERA ON THE MAST ARM SHALL BE APPROVED BY THE TEFO TRAFFIC SIGNAL SUPERVISOR. A VIDEO FILTER (CX06-BNYC-RR EQUIVALENT) WILL BE INSTALLED IN THE SIGNAL CABINET FOR EACH CAMERA VIDEO INPUT. VIDEO DETECTION PROCESSORS AND COMMUNICATIONS CARDS SHALL BE PROVIDED WITH THE LATEST VERSIONS OF THE MANUFACTURER'S SOFTWARE. THE CONTRACTOR SHALL AIM CAMERAS AND PROGRAM AND CONFIGURE THE VIDEO DETECTION PROCESSORS TO PROVIDE A FULLY FUNCTIONING SYSTEM.
20. WHERE NEW LOOPS WILL BE OVERLAID WITH NEW PAVEMENT, LOOP DETECTORS SHALL BE PREFORMED LOOPS AS MANUFACTURED BY RENO A & E OR NEVER-FAIL LOOP SYSTEMS, AND ALL LOOPS SHALL BE INSTALLED IN THE ROADWAY PRIOR TO PLACEMENT OF THE FINAL PAVEMENT LIFT. WHERE NEW LOOPS ARE INSTALLED THAT ARE NOT OVERLAID WITH NEW PAVEMENT, LOOPS SHALL BE CABLE-IN-DUCT PER SECTION 623 T.02.04.C OF THE CITY OF LAS VEGAS SPECIAL PROVISIONS. LOOP LEAD-IN CABLE SHALL BE 6-PAIR 18 AWG MULTIPLE CONDUCTOR CABLE AS SPECIFIED IN SECTION 623T.02.04 OF THE CLV SPECIAL PROVISIONS. ALL WIRING HARNESSES, RACK POSITIONS, AND LOOP LEAD-IN CABLE SHALL BE CLEARLY MARKED AS TO THE APPROPRIATE PHASE AND LETTER DESIGNATION TO WHICH IT BELONGS AS SHOWN ON THE TRAFFIC SIGNAL PLANS. LOOPS SHALL BE LOCATED AS SHOWN ON THE TRAFFIC SIGNAL PLANS AND APPROVED BY THE CLV TRAFFIC ENGINEERING DIVISION PRIOR TO INSTALLATION. REFER TO SECTION 623T.02.04 OF THE CLV SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS.
21. OPTICAL PREEMPTION UNITS WILL BE GLOBAL TRAFFIC TECHNOLOGIES (ENCODING CAPABLE), MODEL 764 OPTICOM PHASE SELECTOR INSTALLED IN A MODEL 760 RACK WITH A MODEL 768 AUXILIARY INTERFACE PANEL (AIP) MOUNTED IN THE CABINET AND FULLY WIRED FOR GREEN SENSE CAPABILITIES. OPTICAL SENSORS WILL BE MODEL 721 WITH ONE DETECTOR PER DIRECTION, UNLESS SHOWN OTHERWISE IN THE PLANS, AND WILL BE INTERFACED TO THE TRAFFIC SIGNAL CONTROLLER CABINET WITH M-138 CABLE. THE SOUTHBOUND OPTICOM DETECTOR SHALL BE WIRED TO INPUT FREEMPTS ON CHANNEL 1 IN THE PHASE SELECTOR, EASTBOUND ON CHANNEL 2, NORTHBOUND ON CHANNEL 3, AND WESTBOUND ON CHANNEL 4, UNLESS VARIATIONS ARE APPROVED BY THE TRAFFIC SIGNAL SUPERVISOR. WHEN 764 PHASE SELECTORS ARE ADDED TO A CABINET WITHOUT A 768 AIP, THE CONTRACTOR SHALL INSTALL AND WIRE A NEW 768 










KEY MAP
SCALE: NTS

## GRADING CONSTRUCTION NOTES

1. CONSTRUCT 30" MODIFIED ROLL CURB AND GUTTER PER CCAUSD #217.1
2. CONSTRUCT "L" CURB AND GUTTER PER CCAUSD #216
3. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234
4. CONSTRUCT 8' CROSS GUTTER PER CCAUSD #228
5. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE I. "A" & "B" = 8' UNLESS OTHERWISE NOTED
6. CONSTRUCT 5' TRANSITION "L" CURB TO TYPE 30" MODIFIED ROLL CURB PER DETAIL "B" ON SHEET C15
7. INSTALL 2" AC OVER 4" TYPE II AGGREGATE BASE
8. CONSTRUCT PAD PER TYPICAL PAD SECTION DETAIL "A" ON SHEET C15
9. MATCH EX. ASPHALT, CURB, SIDEWALK, GUTTER, OR VALLEY GUTTER. SAW CUT CLEAN EDGE FOR CONNECTION.
10. INSTALL CALL BOX FOR ENTRY GATES
11. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE II. "A" & "B" = 6.5' UNLESS OTHERWISE NOTED
12. CONNECT TO EX. SD LINE (CONTRACTOR TO VERIFY SIZE, INVERT AND LOCATION OF EX. SD)
13. CONSTRUCT WROUGHT IRON FENCE PER DETAIL "C", SHEET C15
14. CONSTRUCT SIDEWALK DRAIN PER CCAUSD #236
15. EXISTING RIP-RAP CHANNEL TO BE REMOVED.
16. EXISTING AC PAVEMENT TO BE REMOVED
17. EXISTING FENCE TO BE REMOVED
18. EXISTING CONCRETE PAD TO BE REMOVED
19. INSTALL TYPE "A" ISLAND CURB PER CCAUSD #219
20. CONSTRUCT TYPE "CM2" DROP INLET PER CCAUSD #412.1 & 421
21. CONSTRUCT GATES PER CCAUSD #425.S1
22. CONSTRUCT CONCRETE LINED DRAINAGE EASEMENT PER CCAUSD #425.S1
23. INSTALL 4" DIA. FIXED BOLLARDS SPACED 8' APART O.C., 1' BEHIND BACK OF SIDEWALK PER CCAUSD #425.S1
24. INSTALL NDOT TYPE R PEDESTRIAN RAIL ON RETAINING WALL PER NDOT STD. DWG B-25.1.5
25. INSTALL BLOCK WALL OPENING PER DETAIL F, SHEET C15
26. INSTALL PEDESTRIAN ACCESS GATE PER DETAIL G, SHEET C15
27. CONSTRUCT MODIFIED TYPE "CM2" DROP INLET PER STRUCTURAL DETAILS ON SHEET S0.00

## LEGEND

| PROPOSED | EXISTING | DESCRIPTION |
|---|---|---|
| | | PUBLIC R/W LINE |
| | | PRIVATE R/W LINE |
| | | BOUNDARY LINE |
| | | EASEMENT LINE |
| | | MATCH LINE |
| CUT / FILL | | CUT / FILL LINE |
| | | CENTERLINE |
| | | EDGE OF ASPHALT |
| | | CURB & GUTTER |
| | | RETAINING WALL |
| | | SAWCUT LINE |
| | | FLOWLINE |
| | | GRADE BREAK |
| 2500 | (2500) | MAJOR CONTOUR - 5' |
| 2503 | (2503) | MINOR CONTOUR - 1' |
| | | FENCE |
| | | SCARP |
| | | CONCRETE SURFACE |
| | | PROPOSED ASPHALT PAVEMENT |
| | | REMOVE AND REPLACE ASPHALT |
| | | RIP-RAP |
| 98.76 XX 1.00% | (98.76) XX (1.00%) | ELEVATION GRADE TAG |
| | | GRADE SLOPE TAG |
| | 1 C5 | SECTION MARKER - DETAIL NUMBER ABOVE SHEET NUMBER |
| | | SIGHT VISIBILITY ZONE |

COMMON ABBREVIATIONS

| | | | |
|---|---|---|---|
| FF | - FINISHED FLOOR | TRC | - TOP OF 30" ROLL CURB |
| TC | - TOP OF CURB | AC | - TOP OF PAVEMENT |
| FL | - FLOWLINE GRADE | EP | - EDGE OF PAVEMENT |
| TB | - TOP OF BERM | TRW | - TOP OF RETAINING WALL |
| TF | - TOP OF WALL FOOTER | PRIV. | - PRIVATE |
| ST. | - STREET | TYP. | - TYPICAL |
| ESMT | - EASEMENT | R/W | - RIGHT-OF-WAY |
| TMH | - TOP OF MANHOLE (RIM ELEV.) | DG | - DESIGN GRADE |

## GRADING NOTES

1. ACTUS SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES IN THE PLANS OR CONDITIONS IN THE FILED.
2. FOR ROADWAY WIDENING AND HALF STREET IMPROVEMENTS, THE CONTRACTOR SHALL VERIFY CROSS SLOPES FROM EXISTING PAVEMENT SAWCUT LINE TO PROPOSED EDGE OF PAVEMENT OR PROJECTED LIP OF CURB PRIOR TO SUBGRADE PREPARATION AND CONSTRUCTION OF PROPOSED CURB LINE. IF MINIMUM OR MAXIMUM CROSS SLOPES DO NOT MEET AGENCY STANDARDS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER.
3. WALL DETAILS ARE FOR REFERENCE ONLY AND DO NOT CONSTITUTE A STRUCTURAL DESIGN.
4. CONSTRUCTION OF BLOCK WALLS REQUIRE A SEPARATE BUILDING PERMIT AND APPROVAL BY THE BUILDING DEPARTMENT.

## SIGHT VISIBILITY ZONE NOTE

NO WALLS, FENCES SHRUBS, UTILITY APPURTENANCES OR ANY OTHER OBJECT, OTHER THAT TRAFFIC CONTROL DEVICES, FIRE HYDRANTS, TREES, AND STREET LIGHT 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 TOP OF CURB, OR WHERE NO CURB EXISTS, A HEIGHT OF 27 INCHES MEASURED FROM THE TOP OF ADJACENT ASPHALT, GRAVEL OR PAVEMENT STREET SURFACE. THIS RESTRICTION EXTENDS ALONG THE SIGHT VISIBILITY LINE THROUGH LANDSCAPED MEDIANS.

PLEASE REFER TO TRAFFIC SHEETS FOR SIGHT VISIBILITY ZONE DIMENSIONS.

## ESTIMATED QUANTITIES

NOTE: QUANTITIES SHOWN ARE RAW QUANTITIES AND APPROXIMATE. CONTRACTOR TO DETERMINE HIS OWN QUANTITIES FOR GRADING PURPOSES.

WORK UNDER THIS PLAN CONSTITUTES GRADING IN ACCORDANCE WITH 2012 IBC; ENGINEERING REPORTS AND CERTIFICATIONS IN CONFORMANCE WITH IBC SHALL BE FILED WITH THE CITY OF LAS VEGAS PRIOR TO CITY OF LAS VEGAS APPROVAL AT FINAL INSPECTION.

| | |
|---|---|
| CUT: | 242,298 CY |
| FILL: | 59,941 CY |
| BALANCE: | 182,357 CY (CUT) |

## ENGINEER'S CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED UPDATED DRAINAGE STUDY CLV# DS5152 ON FILE WITH THE CITY OF LAS VEGAS.

DARRYL LATTIMORE, P.E. — 2/25/2020 DATE

## LINE & CURVE DATA NOTE

REFER TO TRAFFIC SHEETS FOR LINE AND CURVE DATA.

## BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV0926W6
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

## BASIS OF BEARING

SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27, TOWNSHIP 21 SOUTH, RANGE 59 EAST, M.D.M., CITY LAS VEGAS, CLARK COUNTY, NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS.

## PRIVATE STREET NOTE

ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS, AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA PER THE APPROVED FINAL MAP FOR THE PROJECT.

## COMMON LOT NOTE

ALL COMMON LOTS ARE TO BE PUBLIC DRAINAGE, PEDESTRIAN ACCESS, UTILITY, SEWER, AND PRIVATE LANDSCAPE EASEMENTS OVER THEIR ENTIRETY TO BE PRIVATELY MAINTAINED BY THE HOA PER THE APPROVED FINAL MAP FOR THE PROJECT.

## SOILS NOTE

ALL GRADING SHALL CONFORM TO GEOTECHNICAL REPORT
BY: GEOTEK RESIDENTIAL, LLC
ORIGINAL PROJECT NUMBER: 14658-LVR
DATED: MARCH 5, 2019
UPDATED APRIL 17, 2019

## STORM DRAIN CONNECTION NOTE

WHEN CONNECTING TO EXISTING RCP, CONTRACTOR SHALL REMOVE THE EXISTING RCP TO THE NEAREST BELL CONNECTION, CONNECT NEW RCP TO EXISTING RCP AND MATCH EXISTING PIPE SLOPE.

## FLOOD ZONE DESCRIPTION

THIS SITE IS LOCATED IN ZONE "X", AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN, PER THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL 32003C2150E CLARK COUNTY, NEVADA DATED SEPTEMBER 27, 2002.

FLOOD DESIGNATION PROVIDED BY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

## DISCLAIMER NOTE

THE UNDERGROUND UTILITIES AS SHOWN HEREON HAVE BEEN LOCATED FROM OBSERVED FIELD SURVEY EVIDENCE AND EXISTING DRAWINGS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING: PLANS PROVIDED BY THE CLIENT, UTILITY COMPANIES, AND MUNICIPAL AGENCIES. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

FAST — Call before you Dig Underground 1-702-432-5300 (FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (FAST))
Call before you Dig — AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY. CALL 811 OR 1-800-227-2600
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Engineering - Surveying - Consulting - Planning


OVERALL GRADING PLAN 1
SAVANNAH
WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

| NO. | DATE | DESCRIPTION | BY |
|---|---|---|---|
| A. | | | |

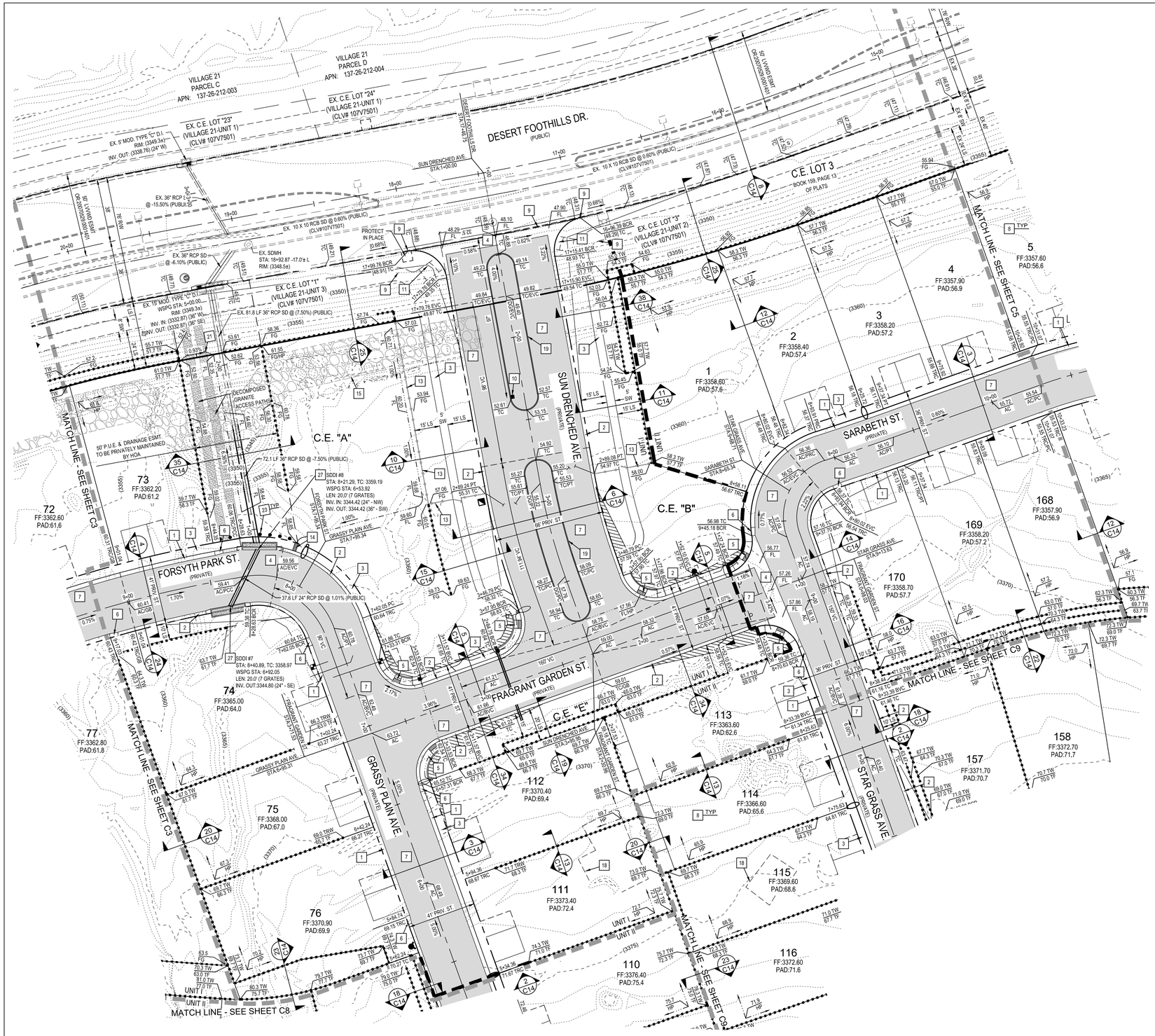
PROFESSIONAL ENGINEER — DARRYL C. LATTIMORE — EXP: 12/31/21 CIVIL — No. 17516 — STATE OF NEVADA

2/25/2020

| | |
|---|---|
| DATE | 02/26/2020 |
| DRAWN | RLS |
| DESIGNED | ALW |
| CHECKED | DCL |
| PROJECT # | WLH011803 |

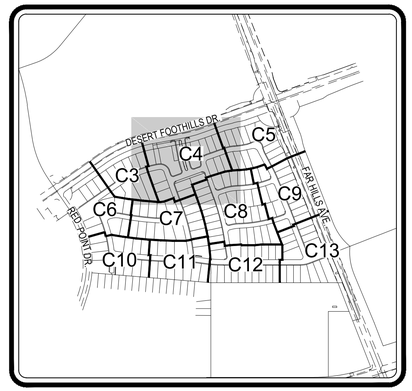
SHEET TITLE: GRADING
SHEET NUMBER: C3
CLV#N/A
SHEET 3 OF 20


Plot Stamp: 2/26/2020 3:20:31 PM - Ryan Sicner
File: P:\WLH011803 - Parcel E\Civil_CD\WLH011803-CG-GRAD.dwg, Tab: C3










KEY MAP
SCALE: NTS

## GRADING CONSTRUCTION NOTES

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| | |
|---|---|
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| FILL: | 59,941 CY |
| BALANCE: | 182,357 CY (CUT) |

## ENGINEER'S CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED UPDATED DRAINAGE STUDY CLV# DSS152 ON FILE WITH THE CITY OF LAS VEGAS.

DARRYL LATTIMORE, P.E. — 2/5/2020 DATE

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## LINE & CURVE DATA NOTE

REFER TO TRAFFIC SHEETS FOR LINE AND CURVE DATA.

## BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV0926W6
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

## BASIS OF BEARING

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## SOILS NOTE

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BY: GEOTEK RESIDENTIAL, LLC
ORIGINAL PROJECT NUMBER: 14658-LVR
DATED: MARCH 5, 2019
UPDATED APRIL 17, 2019

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## FLOOD ZONE DESCRIPTION

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FLOOD DESIGNATION PROVIDED BY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

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Engineering - Surveying - Consulting - Planning


OVERALL GRADING PLAN 2
SAVANNAH
WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

| NO. | DATE | DESCRIPTION | BY |
|---|---|---|---|
| 1 | | | |

DARRYL C. LATTIMORE — STATE OF NEVADA — No. 17516 — EXP: 12/31/21 — CIVIL — PROFESSIONAL ENGINEER
2/25/2020

| | |
|---|---|
| DATE | 02/26/2020 |
| DRAWN | RLS |
| DESIGNED | ALW |
| CHECKED | DCL |
| PROJECT # | WLH011803 |

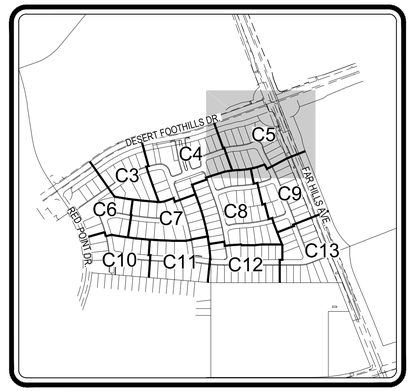
SHEET TITLE: GRADING
SHEET NUMBER: C4
CLV#N/A
SHEET 4 OF 20


Plot Stamp: 2/26/2020 3:20:43 PM - Ryan Sicner
File: P:\WLH011803 - Parcel E\Civil_CD\WLH011803-CD-GRAD.dwg, Tab: C4










KEY MAP
SCALE: NTS

## GRADING CONSTRUCTION NOTES

1. CONSTRUCT 30" MODIFIED ROLL CURB AND GUTTER PER CCAUSD #217.1
2. CONSTRUCT "L" CURB AND GUTTER PER CCAUSD #216
3. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234
4. CONSTRUCT 8' CROSS GUTTER PER CCAUSD #228
5. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE I. "A" & "B" = 8' UNLESS OTHERWISE NOTED
6. CONSTRUCT 5' TRANSITION "L" CURB TO TYPE 30" MODIFIED ROLL CURB PER DETAIL "B" ON SHEET C15
7. INSTALL 2" AC OVER 4" TYPE II AGGREGATE BASE
8. CONSTRUCT PAD PER TYPICAL PAD SECTION DETAIL "A" ON SHEET C15
9. MATCH EX. ASPHALT, CURB, SIDEWALK, GUTTER, OR VALLEY GUTTER. SAW CUT CLEAN EDGE FOR CONNECTION.
10. INSTALL CALL BOX FOR ENTRY GATES
11. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE II. "A" & "B" = 6.5' UNLESS OTHERWISE NOTED
12. CONNECT TO EX. SD LINE (CONTRACTOR TO VERIFY SIZE, INVERT AND LOCATION OF EX. SD)
13. CONSTRUCT WROUGHT IRON FENCE PER DETAIL "C", SHEET C15
14. CONSTRUCT SIDEWALK DRAIN PER CCAUSD #236
15. EXISTING RIP-RAP CHANNEL TO BE REMOVED.
16. EXISTING AC PAVEMENT TO BE REMOVED
17. EXISTING FENCE TO BE REMOVED
18. EXISTING CONCRETE PAD TO BE REMOVED
19. INSTALL TYPE "A" ISLAND CURB PER CCAUSD #219
20. CONSTRUCT TYPE "CM2" DROP INLET PER CCAUSD #412.1 & 421
21. CONSTRUCT GATES PER CCAUSD #425.S1
22. CONSTRUCT CONCRETE LINED DRAINAGE EASEMENT PER CCAUSD #425.S1
23. INSTALL 4" DIA. FIXED BOLLARDS SPACED 6' APART O.C., 1' BEHIND BACK OF SIDEWALK PER CCAUSD #425.S1
24. INSTALL NDOT TYPE R PEDESTRIAN RAIL ON RETAINING WALL PER NDOT STD. DWG B-25.1.5
25. INSTALL BLOCK WALL OPENING PER DETAIL F, SHEET C15
26. INSTALL PEDESTRIAN ACCESS GATE PER DETAIL G, SHEET C15
27. CONSTRUCT MODIFIED TYPE "CM2" DROP INLET PER STRUCTURAL DETAILS ON SHEET S0.00

## LEGEND

| PROPOSED | EXISTING | DESCRIPTION |
|---|---|---|
| | | PUBLIC R/W LINE |
| | | PRIVATE R/W LINE |
| | | BOUNDARY LINE |
| | | EASEMENT LINE |
| | | MATCH LINE |
| CUT / FILL | | CUT / FILL LINE |
| | | CENTERLINE |
| | | EDGE OF ASPHALT |
| | | CURB & GUTTER |
| | | RETAINING WALL |
| | | SAWCUT LINE |
| | | FLOWLINE |
| | | GRADE BREAK |
| 2500 | (2500) | MAJOR CONTOUR - 5' |
| 2503 | (2503) | MINOR CONTOUR - 1' |
| | | FENCE |
| | | SCARP |
| | | CONCRETE SURFACE |
| | | PROPOSED ASPHALT PAVEMENT |
| | | REMOVE AND REPLACE ASPHALT |
| | | RIP-RAP |
| 98.76 XX 1.00% | (98.76) XX (1.00%) | ELEVATION GRADE TAG |
| | | GRADE SLOPE TAG |
| 1 C5 | | SECTION MARKER - DETAIL NUMBER ABOVE SHEET NUMBER |
| | | SIGHT VISIBILITY ZONE |

COMMON ABBREVIATIONS

| | | | |
|---|---|---|---|
| FF | - FINISHED FLOOR | TRC | - TOP OF 30" ROLL CURB |
| TC | - TOP OF CURB | AC | - TOP OF PAVEMENT |
| FL | - FLOWLINE GRADE | EP | - EDGE OF PAVEMENT |
| TB | - TOP OF BERM | TRW | - TOP OF RETAINING WALL |
| TF | - TOP OF WALL FOOTER | PRIV. | - PRIVATE |
| ST. | - STREET | TYP. | - TYPICAL |
| ESMT | - EASEMENT | R/W | - RIGHT-OF-WAY |
| TMH | - TOP OF MANHOLE (RIM ELEV.) | DG | - DESIGN GRADE |

## GRADING NOTES

1. ACTUS SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES IN THE PLANS OR CONDITIONS IN THE FILED.
2. FOR ROADWAY WIDENING AND HALF STREET IMPROVEMENTS, THE CONTRACTOR SHALL VERIFY CROSS SLOPES FROM EXISTING PAVEMENT SAWCUT LINE TO PROPOSED EDGE OF PAVEMENT OR PROJECTED LIP OF CURB PRIOR TO SUBGRADE PREPARATION AND CONSTRUCTION OF PROPOSED CURB LINE. IF MINIMUM OR MAXIMUM CROSS SLOPES DO NOT MEET AGENCY STANDARDS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER.
3. WALL DETAILS ARE FOR REFERENCE ONLY AND DO NOT CONSTITUTE A STRUCTURAL DESIGN.
4. CONSTRUCTION OF BLOCK WALLS REQUIRE A SEPARATE BUILDING PERMIT AND APPROVAL BY THE BUILDING DEPARTMENT.

## SIGHT VISIBILITY ZONE NOTE

NO WALLS, FENCES SHRUBS, UTILITY APPURTENANCES OR ANY OTHER OBJECT, OTHER THAT TRAFFIC CONTROL DEVICES, FIRE HYDRANTS, TREES, AND STREET LIGHT 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 TOP OF CURB, OR WHERE NO CURB EXISTS, A HEIGHT OF 27 INCHES MEASURED FROM THE TOP OF ADJACENT ASPHALT, GRAVEL OR PAVEMENT STREET SURFACE. THIS RESTRICTION EXTENDS ALONG THE SIGHT VISIBILITY LINE THROUGH LANDSCAPED MEDIANS.

PLEASE REFER TO TRAFFIC SHEETS FOR SIGHT VISIBILITY ZONE DIMENSIONS.

## ESTIMATED QUANTITIES

NOTE: QUANTITIES SHOWN ARE RAW QUANTITIES AND APPROXIMATE. CONTRACTOR TO DETERMINE HIS OWN QUANTITIES FOR GRADING PURPOSES.

WORK UNDER THIS PLAN CONSTITUTES GRADING IN ACCORDANCE WITH 2012 IBC; ENGINEERING REPORTS AND CERTIFICATIONS IN CONFORMANCE WITH IBC SHALL BE FILED WITH THE CITY OF LAS VEGAS PRIOR TO CITY OF LAS VEGAS APPROVAL AT FINAL INSPECTION.

| | |
|---|---|
| CUT: | 242,298 CY |
| FILL: | 59,941 CY |
| BALANCE: | 182,357 CY (CUT) |

## ENGINEER'S CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED UPDATED DRAINAGE STUDY CLV# DS5152 ON FILE WITH THE CITY OF LAS VEGAS.

DARRYL LATTIMORE, P.E. — 2/25/2020 DATE

FAST — Call before you Dig — Underground 1-702-432-5300 (FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (FAST)) — OR 1-800-227-2600

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY. CALL BEFORE YOU DO OVERHEAD 1-702-227-2929

## LINE & CURVE DATA NOTE

REFER TO TRAFFIC SHEETS FOR LINE AND CURVE DATA.

## BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV0026W6
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

## BASIS OF BEARING

SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27, TOWNSHIP 21 SOUTH, RANGE 59 EAST, M.D.M., CITY LAS VEGAS, CLARK COUNTY, NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS.

## PRIVATE STREET NOTE

ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS, AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA PER THE APPROVED FINAL MAP FOR THE PROJECT.

## COMMON LOT NOTE

ALL COMMON LOTS ARE TO BE PUBLIC DRAINAGE, PEDESTRIAN ACCESS, UTILITY, SEWER, AND PRIVATE LANDSCAPE EASEMENTS OVER THEIR ENTIRETY TO BE PRIVATELY MAINTAINED BY THE HOA PER THE APPROVED FINAL MAP FOR THE PROJECT.

## SOILS NOTE

ALL GRADING SHALL CONFORM TO GEOTECHNICAL REPORT
BY: GEOTEK RESIDENTIAL, LLC
ORIGINAL PROJECT NUMBER: 14658-LVR
DATED: MARCH 5, 2019
UPDATED APRIL 17, 2019

## STORM DRAIN CONNECTION NOTE

WHEN CONNECTING TO EXISTING RCP, CONTRACTOR SHALL REMOVE THE EXISTING RCP TO THE NEAREST BELL CONNECTION, CONNECT NEW RCP TO EXISTING RCP AND MATCH EXISTING PIPE SLOPE.

## FLOOD ZONE DESCRIPTION

THIS SITE IS LOCATED IN ZONE "X", AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN, PER THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL 32003C2150E CLARK COUNTY, NEVADA DATED SEPTEMBER 27, 2002.

FLOOD DESIGNATION PROVIDED BY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

## DISCLAIMER NOTE

THE UNDERGROUND UTILITIES AS SHOWN HEREON HAVE BEEN LOCATED FROM OBSERVED FIELD SURVEY EVIDENCE AND EXISTING DRAWINGS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING: PLANS PROVIDED BY THE CLIENT, UTILITY COMPANIES, AND MUNICIPAL AGENCIES. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.


Actus
3283 E. Warm Springs Rd., Suite 300
Las Vegas, NV 89120
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(702) 586-9266
Engineering - Surveying - Consulting - Planning


OVERALL GRADING PLAN 3
SAVANNAH
WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

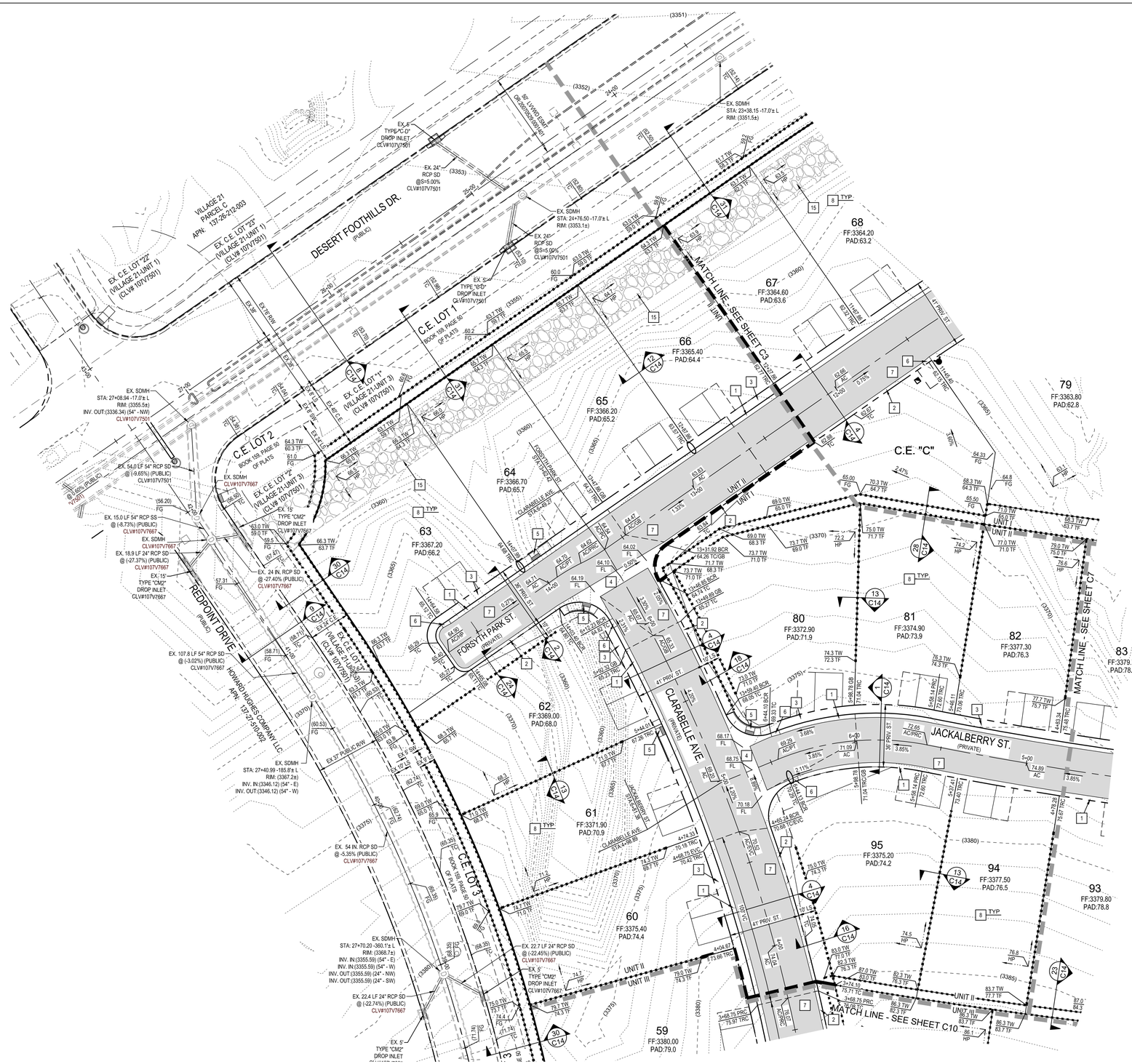
| NO. | DATE | DESCRIPTION | BY |
|---|---|---|---|
| A | | | |

PROFESSIONAL ENGINEER — STATE OF NEVADA — DARRYL C. LATTIMORE — EXP: 12/31/21 — CIVIL — No. 17516
2/25/2020

| | |
|---|---|
| DATE | 02/26/2020 |
| DRAWN | RLS |
| DESIGNED | ALW |
| CHECKED | DCL |
| PROJECT # | WLH011803 |

SHEET TITLE: GRADING
SHEET NUMBER: C5
CLV#N/A
SHEET 5 OF 20

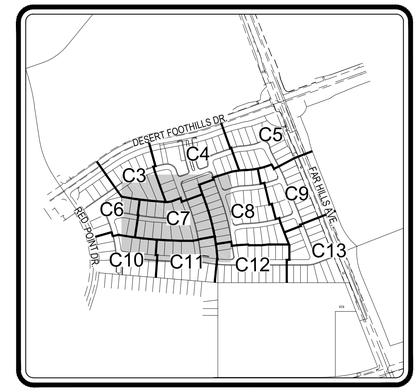

Plot Stamp: 2/26/2020 3:20:55 PM - Ryan Sicner
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DESERT FOOTHILLS DR.
(PUBLIC)
C.E. LOT 1
BOOK 159 PAGE 50
OF PLATS
C.E. LOT 2
BOOK 159 PAGE 50
OF PLATS
C.E. LOT 3
BOOK 159 PAGE 50
OF PLATS
C.E. LOT 4
BOOK 159 PAGE 50
OF PLATS
C.E. "C"
REDPOINT DRIVE
(PUBLIC)
FORSYTH PARK ST.
(PRIVATE)
CLARABELLE AVE
(PRIVATE)
JACKALBERRY ST.
(PRIVATE)
MATCH LINE - SEE SHEET C3
MATCH LINE - SEE SHEET C7
MATCH LINE - SEE SHEET C10
UNIT I
UNIT II
UNIT III
63
FF:3367.20
PAD:66.2
64
FF:3366.70
PAD:65.7
65
FF:3366.20
PAD:65.2
66
FF:3365.40
PAD:64.4
67
FF:3364.60
PAD:63.6
68
FF:3364.20
PAD:63.2
79
FF:3363.80
PAD:62.8
60
FF:3375.40
PAD:74.4
61
FF:3371.90
PAD:70.9
62
FF:3369.00
PAD:68.0
59
FF:3380.00
PAD:79.0
80
FF:3372.90
PAD:71.9
81
FF:3374.90
PAD:73.9
82
FF:3377.30
PAD:76.3
83
FF:3379.70
PAD:78.7
93
FF:3379.80
PAD:78.8
94
FF:3377.50
PAD:76.5
95
FF:3375.20
PAD:74.2
VILLAGE 21
PARCEL C
APN: 137-26-212-003
EX. C.E. LOT "23"
(VILLAGE 21-UNIT 1)
(CLV# 107V7501)
EX. C.E. LOT "22"
(VILLAGE 21-UNIT 1)
(CLV# 107V7501)
EX. C.E. LOT "1"
(VILLAGE 21-UNIT 3)
(CLV# 107V7501)
EX. C.E. LOT "2"
(VILLAGE 21-UNIT 3)
(CLV# 107V7501)
EX. C.E. LOT "3"
(VILLAGE 21-UNIT 3)
(CLV# 107V7501)
EX. C.E. LOT "4"
(VILLAGE 21-UNIT 3)
(CLV# 107V7501)
HOWARD HUGHES COMPANY, LLC.
APN: 137-27-510-002
EX. SDMH
STA: 27+08.94 -17.0'± L
RIM: (3355.5±)
INV. OUT: (3336.34) (54" - NW)
CLV#107V7501
EX. SDMH
STA: 23+38.15 -17.0'± L
RIM: (3351.5±)
EX. SDMH
STA: 24+76.50 -17.0'± L
RIM: (3353.1±)
EX. SDMH
STA: 27+40.99 -185.8'± L
RIM: (3367.2±)
INV. IN: (3346.12) (54" - E)
INV. OUT: (3345.12) (54" - W)
EX. SDMH
STA: 27+70.20 -390.1'± L
RIM: (3368.7±)
INV. IN: (3355.59) (54" - E)
INV. IN: (3355.59) (54" - W)
INV. OUT: (3355.59) (24" - NW)
INV. OUT: (3355.59) (24" - SW)
EX. 54.0 LF 54" RCP SD
@ (-9.65%) (PUBLIC)
CLV#107V7501
EX. 15.0 LF 54" RCP SS
@ (-8.73%) (PUBLIC)
CLV#107V7667
EX. 18.9 LF 24" RCP SD
@ (-27.37%) (PUBLIC)
CLV#107V7667
EX. 107.6 LF 54" RCP SD
@ (-3.02%) (PUBLIC)
CLV#107V7667
EX. 54 IN. RCP SD
@ -5.35% (PUBLIC)
CLV#107V7667
EX. 22.7 LF 24" RCP SD
@ (-22.45%) (PUBLIC)
CLV#107V7667
EX. 22.4 LF 24" RCP SD
@ (-22.74%) (PUBLIC)
CLV#107V7667
EX. 24 IN. RCP SD
@ -27.40% (PUBLIC)
CLV#107V7667
EX. 24" RCP SD
@S=5.00%
CLV#107V7501
EX. 24" RCP SD
@S=5.00%
CLV#107V7501
EX. 18" RCP SD
@S=5.00%
CLV#107V7501
EX. 6' TYPE "C-D" DROP INLET
CLV#107V7501
EX. 6' TYPE "D-D" DROP INLET
CLV#107V7501
EX. 15' TYPE "CM2" DROP INLET
CLV#107V7667
TYPE "CM2" DROP INLET
CLV#107V7667
EX. 5' TYPE "CM2" DROP INLET
CLV#107V7667
EX. 5' TYPE "CM2" DROP INLET
CLV#107V7667
EX. 15










KEY MAP
SCALE: NTS

## GRADING CONSTRUCTION NOTES

1. CONSTRUCT 30" MODIFIED ROLL CURB AND GUTTER PER CCAUSD #217.1
2. CONSTRUCT "L" CURB AND GUTTER PER CCAUSD #216
3. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234
4. CONSTRUCT 8' CROSS GUTTER PER CCAUSD #228
5. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE I. "A" & "B" = 8' UNLESS OTHERWISE NOTED
6. CONSTRUCT 5' TRANSITION "L" CURB TO TYPE 30" MODIFIED ROLL CURB PER DETAIL "B" ON SHEET C15
7. INSTALL 2" AC OVER 4" TYPE II AGGREGATE BASE
8. CONSTRUCT PAD PER TYPICAL PAD SECTION DETAIL "A" ON SHEET C15
9. MATCH EX. ASPHALT, CURB, SIDEWALK, GUTTER, OR VALLEY GUTTER. SAW CUT CLEAN EDGE FOR CONNECTION.
10. INSTALL CALL BOX FOR ENTRY GATES
11. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE II. "A" & "B" = 6.5' UNLESS OTHERWISE NOTED
12. CONNECT TO EX. SD LINE (CONTRACTOR TO VERIFY SIZE, INVERT AND LOCATION OF EX. SD)
13. CONSTRUCT WROUGHT IRON FENCE PER DETAIL "C", SHEET C15
14. CONSTRUCT SIDEWALK DRAIN PER CCAUSD #236
15. EXISTING RIP-RAP CHANNEL TO BE REMOVED.
16. EXISTING AC PAVEMENT TO BE REMOVED
17. EXISTING FENCE TO BE REMOVED
18. EXISTING CONCRETE PAD TO BE REMOVED
19. INSTALL TYPE "A" ISLAND CURB PER CCAUSD #219
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22. CONSTRUCT CONCRETE LINED DRAINAGE EASEMENT PER CCAUSD #425.S1
23. INSTALL 4" DIA. FIXED BOLLARDS SPACED 6' APART O.C., 1' BEHIND BACK OF SIDEWALK PER CCAUSD #425.S1
24. INSTALL NDOT TYPE R PEDESTRIAN RAIL ON RETAINING WALL PER NDOT STD. DWG B-25.1.5
25. INSTALL BLOCK WALL OPENING PER DETAIL F, SHEET C15
26. INSTALL PEDESTRIAN ACCESS GATE PER DETAIL G, SHEET C15
27. CONSTRUCT MODIFIED TYPE "CM2" DROP INLET PER STRUCTURAL DETAILS ON SHEET S0.00

## LEGEND

| PROPOSED | EXISTING | DESCRIPTION |
|---|---|---|
| | | PUBLIC R/W LINE |
| | | PRIVATE R/W LINE |
| | | BOUNDARY LINE |
| | | EASEMENT LINE |
| | | MATCH LINE |
| CUT / FILL | | CUT / FILL LINE |
| | | CENTERLINE |
| | | EDGE OF ASPHALT |
| | | CURB & GUTTER |
| | | RETAINING WALL |
| | | SAWCUT LINE |
| | | FLOWLINE |
| | | GRADE BREAK |
| 2500 | (2500) | MAJOR CONTOUR - 5' |
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| | | FENCE |
| | | SCARP |
| | | CONCRETE SURFACE |
| | | PROPOSED ASPHALT PAVEMENT |
| | | REMOVE AND REPLACE ASPHALT |
| | | RIP-RAP |
| 98.76 XX 1.00% | (98.76) XX (1.00%) | ELEVATION GRADE TAG |
| | | GRADE SLOPE TAG |
| 1 C5 | | SECTION MARKER - DETAIL NUMBER ABOVE SHEET NUMBER |
| | | SIGHT VISIBILITY ZONE |

### COMMON ABBREVIATIONS

| | | | |
|---|---|---|---|
| FF | - FINISHED FLOOR | TRC | - TOP OF 30" ROLL CURB |
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| ST. | - STREET | TYP. | - TYPICAL |
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## GRADING NOTES

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| | |
|---|---|
| CUT: | 242,298 CY |
| FILL: | 59,941 CY |
| BALANCE: | 182,357 CY (CUT) |

## ENGINEER'S CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED UPDATED DRAINAGE STUDY CLV# DS5152 ON FILE WITH THE CITY OF LAS VEGAS.

DARRYL LATTIMORE, P.E. — 2/25/2020 DATE

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AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY — CALL BEFORE YOU DO OVERHEAD — 1-702-227-2929

## LINE & CURVE DATA NOTE

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## BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV08286W6
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

## BASIS OF BEARING

SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27, TOWNSHIP 21 SOUTH, RANGE 59 EAST, M.D.M., CITY LAS VEGAS, CLARK COUNTY, NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS.

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## SOILS NOTE

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BY: GEOTEK RESIDENTIAL, LLC
ORIGINAL PROJECT NUMBER: 14658-LVR
DATED: MARCH 5, 2019
UPDATED APRIL 17, 2019

## STORM DRAIN CONNECTION NOTE

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## FLOOD ZONE DESCRIPTION

THIS SITE IS LOCATED IN ZONE "X", AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN, PER THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL 32003C2150E CLARK COUNTY, NEVADA DATED SEPTEMBER 27, 2002.

FLOOD DESIGNATION PROVIDED BY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

## DISCLAIMER NOTE

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Las Vegas, NV 89120
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(702) 586-9266
Engineering - Surveying - Consulting - Planning


OVERALL GRADING PLAN 5
SAVANNAH
WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

| BY | DESCRIPTION | DATE | # |
|---|---|---|---|
| | | | |

DARRYL C. LATTIMORE
EXP: 12/31/21
CIVIL
No. 17516
STATE OF NEVADA
PROFESSIONAL ENGINEER
2/25/2020

| | |
|---|---|
| DATE | 02/26/2020 |
| DRAWN | RLS |
| DESIGNED | ALW |
| CHECKED | DCL |
| PROJECT # | WLH011803 |

SHEET TITLE
GRADING

SHEET NUMBER
C7

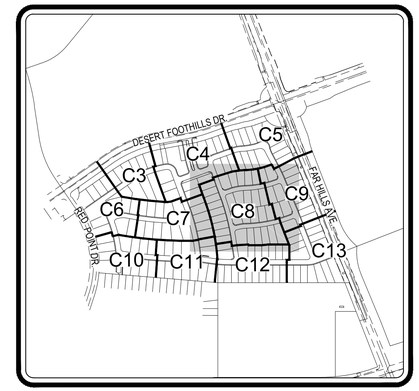
CLV#N/A SHEET 7 OF 20


Plot Stamp: 2/26/2020 3:21:15 PM - Ryan Stoner
File: P:\WLH011803 - Parcel E\Civil_CD\WLH011803-C0-GRAD.dwg, Tab: C7










KEY MAP
SCALE: NTS

## GRADING CONSTRUCTION NOTES

1. CONSTRUCT 30" MODIFIED ROLL CURB AND GUTTER PER CCAUSD #217.1
2. CONSTRUCT "L" CURB AND GUTTER PER CCAUSD #216
3. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234
4. CONSTRUCT 8' CROSS GUTTER PER CCAUSD #228
5. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE I. "A" & "B" = 8' UNLESS OTHERWISE NOTED
6. CONSTRUCT 5' TRANSITION "L" CURB TO TYPE 30" MODIFIED ROLL CURB PER DETAIL "B" ON SHEET C15
7. INSTALL 2" AC OVER 4" TYPE II AGGREGATE BASE
8. CONSTRUCT PAD PER TYPICAL PAD SECTION DETAIL "A" ON SHEET C15
9. MATCH EX. ASPHALT, CURB, SIDEWALK, GUTTER, OR VALLEY GUTTER. SAW CUT CLEAN EDGE FOR CONNECTION.
10. INSTALL CALL BOX FOR ENTRY GATES
11. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE II. "A" & "B" = 6.5' UNLESS OTHERWISE NOTED
12. CONNECT TO EX. SD LINE (CONTRACTOR TO VERIFY SIZE, INVERT AND LOCATION OF EX. SD)
13. CONSTRUCT WROUGHT IRON FENCE PER DETAIL "C", SHEET C15
14. CONSTRUCT SIDEWALK DRAIN PER CCAUSD #236
15. EXISTING RIP-RAP CHANNEL TO BE REMOVED.
16. EXISTING AC PAVEMENT TO BE REMOVED
17. EXISTING FENCE TO BE REMOVED
18. EXISTING CONCRETE PAD TO BE REMOVED
19. INSTALL TYPE "A" ISLAND CURB PER CCAUSD #219
20. CONSTRUCT TYPE "CM2" DROP INLET PER CCAUSD #412.1 & 421
21. CONSTRUCT GATES PER CCAUSD #425.S1
22. CONSTRUCT CONCRETE LINED DRAINAGE EASEMENT PER CCAUSD #425.S1
23. INSTALL 4" DIA. FIXED BOLLARDS SPACED 6' APART O.C., 1' BEHIND BACK OF SIDEWALK PER CCAUSD #425.S1
24. INSTALL NDOT TYPE R PEDESTRIAN RAIL ON RETAINING WALL PER NDOT STD. DWG B-25.1.5
25. INSTALL BLOCK WALL OPENING PER DETAIL F, SHEET C15
26. INSTALL PEDESTRIAN ACCESS GATE PER DETAIL G, SHEET C15
27. CONSTRUCT MODIFIED TYPE "CM2" DROP INLET PER STRUCTURAL DETAILS ON SHEET S0.00

## LEGEND

| | PROPOSED | EXISTING | DESCRIPTION |
|---|---|---|---|
| | | | PUBLIC R/W LINE |
| | | | PRIVATE R/W LINE |
| | | | BOUNDARY LINE |
| | | | EASEMENT LINE |
| | | | MATCH LINE |
| | CUT / FILL | | CUT / FILL LINE |
| | | | CENTERLINE |
| | | | EDGE OF ASPHALT |
| | | | CURB & GUTTER |
| | | | RETAINING WALL |
| | | | SAWCUT LINE |
| | | | FLOWLINE |
| | | | GRADE BREAK |
| | 2500 | (2500) | MAJOR CONTOUR - 5' |
| | 2503 | (2503) | MINOR CONTOUR - 1' |
| | | | FENCE |
| | | | SCARP |
| | | | CONCRETE SURFACE |
| | | | PROPOSED ASPHALT PAVEMENT |
| | | | REMOVE AND REPLACE ASPHALT |
| | | | RIP-RAP |
| | XX | XX | ELEVATION GRADE TAG |
| | 1.00% | (1.00%) | GRADE SLOPE TAG |
| | | | SECTION MARKER - DETAIL NUMBER ABOVE SHEET NUMBER |
| | | | SIGHT VISIBILITY ZONE |

### COMMON ABBREVIATIONS

| | | | |
|---|---|---|---|
| FF | - FINISHED FLOOR | TRC | - TOP OF 30" ROLL CURB |
| TC | - TOP OF CURB | AC | - TOP OF PAVEMENT |
| FL | - FLOWLINE GRADE | EP | - EDGE OF PAVEMENT |
| TB | - TOP OF BERM | TRW | - TOP OF RETAINING WALL |
| TF | - TOP OF WALL FOOTER | PRIV. | - PRIVATE |
| ST. | - STREET | TYP. | - TYPICAL |
| ESMT | - EASEMENT | R/W | - RIGHT-OF-WAY |
| TMH | - TOP OF MANHOLE (RIM ELEV.) | DG | - DESIGN GRADE |

## GRADING NOTES

1. ACTUS SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES IN THE PLANS OR CONDITIONS IN THE FILED.
2. FOR ROADWAY WIDENING AND HALF STREET IMPROVEMENTS, THE CONTRACTOR SHALL VERIFY CROSS SLOPES FROM EXISTING PAVEMENT SAWCUT LINE TO PROPOSED EDGE OF PAVEMENT OR PROJECTED LIP OF CURB PRIOR TO SUBGRADE PREPARATION AND CONSTRUCTION OF PROPOSED CURB LINE. IF MINIMUM OR MAXIMUM CROSS SLOPES DO NOT MEET AGENCY STANDARDS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER.
3. WALL DETAILS ARE FOR REFERENCE ONLY AND DO NOT CONSTITUTE A STRUCTURAL DESIGN.
4. CONSTRUCTION OF BLOCK WALLS REQUIRE A SEPARATE BUILDING PERMIT AND APPROVAL BY THE BUILDING DEPARTMENT.

## SIGHT VISIBILITY ZONE NOTE

NO WALLS, FENCES SHRUBS, UTILITY APPURTENANCES OR ANY OTHER OBJECT, OTHER THAT TRAFFIC CONTROL DEVICES, FIRE HYDRANTS, TREES, AND STREET LIGHT 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 TOP OF CURB, OR WHERE NO CURB EXISTS, A HEIGHT OF 27 INCHES MEASURED FROM THE TOP OF ADJACENT ASPHALT, GRAVEL OR PAVEMENT STREET SURFACE. THIS RESTRICTION EXTENDS ALONG THE SIGHT VISIBILITY LINE THROUGH LANDSCAPED MEDIANS.

PLEASE REFER TO TRAFFIC SHEETS FOR SIGHT VISIBILITY ZONE DIMENSIONS.

## ESTIMATED QUANTITIES

NOTE: QUANTITIES SHOWN ARE RAW QUANTITIES AND APPROXIMATE. CONTRACTOR TO DETERMINE HIS OWN QUANTITIES FOR GRADING PURPOSES.

WORK UNDER THIS PLAN CONSTITUTES GRADING IN ACCORDANCE WITH 2012 IBC; ENGINEERING REPORTS AND CERTIFICATIONS IN CONFORMANCE WITH IBC SHALL BE FILED WITH THE CITY OF LAS VEGAS PRIOR TO CITY OF LAS VEGAS APPROVAL AT FINAL INSPECTION.

| | |
|---|---|
| CUT: | 242,298 CY |
| FILL: | 59,941 CY |
| BALANCE: | 182,357 CY (CUT) |

## ENGINEER'S CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED UPDATED DRAINAGE STUDY CLVB DS5152 ON FILE WITH THE CITY OF LAS VEGAS.

DARRYL LATTIMORE, P.E. — 2/25/2020 DATE

FAST — Call before you Dig Underground 1-702-432-5300 (FREEWAY & ARTERIAL SYSTEMS OF TRANSPORTATION (FAST))

Call before you Dig — AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY. CALL 811 OR 1-800-227-2600

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY. CALL BEFORE YOU DO OVERHEAD 1-702-227-2929

## LINE & CURVE DATA NOTE

REFER TO TRAFFIC SHEETS FOR LINE AND CURVE DATA.

## BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV0926W6
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

## BASIS OF BEARING

SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27, TOWNSHIP 21 SOUTH, RANGE 59 EAST, M.D.M., CITY LAS VEGAS, CLARK COUNTY, NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS.

## PRIVATE STREET NOTE

ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS, AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA PER THE APPROVED FINAL MAP FOR THE PROJECT.

## COMMON LOT NOTE

ALL COMMON LOTS ARE TO BE PUBLIC DRAINAGE, PEDESTRIAN ACCESS, UTILITY, SEWER, AND PRIVATE LANDSCAPE EASEMENTS OVER THEIR ENTIRETY TO BE PRIVATELY MAINTAINED BY THE HOA PER THE APPROVED FINAL MAP FOR THE PROJECT.

## SOILS NOTE

ALL GRADING SHALL CONFORM TO GEOTECHNICAL REPORT
BY: GEOTEK RESIDENTIAL, LLC
ORIGINAL PROJECT NUMBER: 14658-LVR
DATED: MARCH 5, 2019
UPDATED APRIL 17, 2019

## STORM DRAIN CONNECTION NOTE

WHEN CONNECTING TO EXISTING RCP, CONTRACTOR SHALL REMOVE THE EXISTING RCP TO THE NEAREST BELL CONNECTION, CONNECT NEW RCP TO EXISTING RCP AND MATCH EXISTING PIPE SLOPE.

## FLOOD ZONE DESCRIPTION

THIS SITE IS LOCATED IN ZONE "X", AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN, PER THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL 32003C2150E CLARK COUNTY, NEVADA DATED SEPTEMBER 27, 2002.

FLOOD DESIGNATION PROVIDED BY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

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OVERALL GRADING PLAN 6

SAVANNAH

WILLIAM LYON HOMES

CITY OF LAS VEGAS, NEVADA

| BY | DESCRIPTION | DATE |
|---|---|---|
| A | | |

DARRYL C. LATTIMORE — EXP: 12/31/21 — CIVIL — No. 17516 — STATE OF NEVADA — PROFESSIONAL ENGINEER

2/25/2020

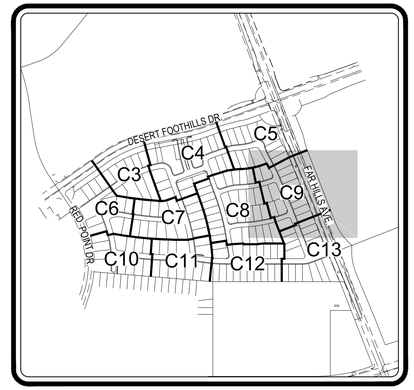
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|---|---|
| DATE | 02/26/2020 |
| DRAWN | RLS |
| DESIGNED | ALW |
| CHECKED | DCL |
| PROJECT # | WLH011803 |
| SHEET TITLE | GRADING |
| SHEET NUMBER | C8 |
| CLVBN/A | SHEET 8 OF 20 |


Plot Stamp: 2/26/2020 3:21:27 PM - Ryan Sicner
File: P:\WLH\011803 - Parcel E\Civil_CD\WLH011803-CD-GRAD.dwg, Tab: C8










KEY MAP
SCALE: NTS

## GRADING CONSTRUCTION NOTES

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2. CONSTRUCT "L" CURB AND GUTTER PER CCAUSD #216
3. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234
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## LEGEND

| PROPOSED | EXISTING | DESCRIPTION |
|---|---|---|
| | | PUBLIC R/W LINE |
| | | PRIVATE R/W LINE |
| | | BOUNDARY LINE |
| | | EASEMENT LINE |
| | | MATCH LINE |
| CUT / FILL | | CUT / FILL LINE |
| | | CENTERLINE |
| | | EDGE OF ASPHALT |
| | | CURB & GUTTER |
| | | RETAINING WALL |
| | | SAWCUT LINE |
| | | FLOWLINE |
| | | GRADE BREAK |
| 2500 | (2500) | MAJOR CONTOUR - 5' |
| 2503 | (2503) | MINOR CONTOUR - 1' |
| | | FENCE |
| | | SCARP |
| | | CONCRETE SURFACE |
| | | PROPOSED ASPHALT PAVEMENT |
| | | REMOVE AND REPLACE ASPHALT |
| | | RIP-RAP |
| 98.76 XX 1.00% | (98.76) XX (1.00%) | ELEVATION GRADE TAG |
| | | GRADE SLOPE TAG |
| | 1 C5 | SECTION MARKER - DETAIL NUMBER ABOVE SHEET NUMBER |
| | | SIGHT VISIBILITY ZONE |

### COMMON ABBREVIATIONS

| | | | |
|---|---|---|---|
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| TF | - TOP OF WALL FOOTER | PRIV. | - PRIVATE |
| ST. | - STREET | TYP. | - TYPICAL |
| ESMT | - EASEMENT | R/W | - RIGHT-OF-WAY |
| TMH | - TOP OF MANHOLE (RIM ELEV.) | DG | - DESIGN GRADE |

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| | |
|---|---|
| CUT: | 242,298 CY |
| FILL: | 59,941 CY |
| BALANCE: | 182,357 CY (CUT) |

## ENGINEER'S CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED UPDATED DRAINAGE STUDY CLV# DS5152 ON FILE WITH THE CITY OF LAS VEGAS.

DARRYL LATTIMORE, P.E. — 2/25/2020 DATE

## LINE & CURVE DATA NOTE

REFER TO TRAFFIC SHEETS FOR LINE AND CURVE DATA.

## BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV0926W6
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

## BASIS OF BEARING

SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27, TOWNSHIP 21 SOUTH, RANGE 59 EAST, M.D.M., CITY LAS VEGAS, CLARK COUNTY, NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS.

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## SOILS NOTE

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BY: GEOTEK RESIDENTIAL, LLC
ORIGINAL PROJECT NUMBER: 14658-LVR
DATED: MARCH 5, 2019
UPDATED APRIL 17, 2019

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## FLOOD ZONE DESCRIPTION

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Engineering - Surveying - Consulting - Planning


OVERALL GRADING PLAN 7
SAVANNAH
WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

| NO. | DATE | DESCRIPTION | BY |
|---|---|---|---|

PROFESSIONAL ENGINEER — DARRYL C. LATTIMORE — EXP: 12/31/21 CIVIL — No. 17516 — STATE OF NEVADA
2/25/2020

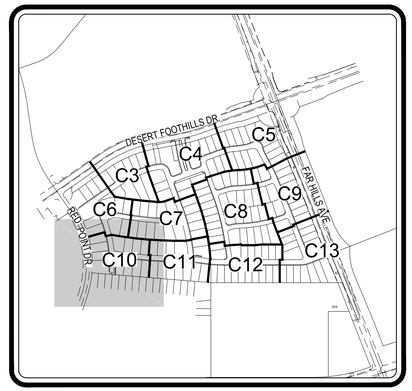
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|---|---|
| DATE | 02/26/2020 |
| DRAWN | RLS |
| DESIGNED | ALW |
| CHECKED | DCL |
| PROJECT # | WLH011803 |
| SHEET TITLE | GRADING |
| SHEET NUMBER | C9 |
| CLV#N/A | SHEET 9 OF 20 |


Plot Stamp: 2/26/2020, 3:21:37 PM - Ryan Sicner
File: P:\WLH011803 - Parcel E\Civil_CD\WLH011803-CG-GRAD.dwg, Tab: C9










KEY MAP
SCALE: NTS

## GRADING CONSTRUCTION NOTES

1. CONSTRUCT 30" MODIFIED ROLL CURB AND GUTTER PER CCAUSD #217.1
2. CONSTRUCT "L" CURB AND GUTTER PER CCAUSD #216
3. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234
4. CONSTRUCT 8' CROSS GUTTER PER CCAUSD #228
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20. CONSTRUCT TYPE "CM2" DROP INLET PER CCAUSD #412.1 & 421
21. CONSTRUCT GATES PER CCAUSD #425.S1
22. CONSTRUCT CONCRETE LINED DRAINAGE EASEMENT PER CCAUSD #425.S1
23. INSTALL 4" DIA. FIXED BOLLARDS SPACED 8' APART O.C., 1' BEHIND BACK OF SIDEWALK PER CCAUSD #425.S1
24. INSTALL NDOT TYPE R PEDESTRIAN RAIL ON RETAINING WALL PER NDOT STD. DWG B-25.1.5
25. INSTALL BLOCK WALL OPENING PER DETAIL F, SHEET C15
26. INSTALL PEDESTRIAN ACCESS GATE PER DETAIL G, SHEET C15
27. CONSTRUCT MODIFIED TYPE "CM2" DROP INLET PER STRUCTURAL DETAILS ON SHEET S0.00

## LEGEND

| DESCRIPTION | PROPOSED | EXISTING |
|---|---|---|
| PUBLIC R/W LINE | | |
| PRIVATE R/W LINE | | |
| BOUNDARY LINE | | |
| EASEMENT LINE | | |
| MATCH LINE | | |
| CUT / FILL LINE | CUT / FILL | |
| CENTERLINE | | |
| EDGE OF ASPHALT | | |
| CURB & GUTTER | | |
| RETAINING WALL | | |
| SAWCUT LINE | | |
| FLOWLINE | | |
| GRADE BREAK | | |
| MAJOR CONTOUR - 5' | 2500 | (2500) |
| MINOR CONTOUR - 1' | 2503 | (2503) |
| FENCE | | |
| SCARP | | |
| CONCRETE SURFACE | | |
| PROPOSED ASPHALT PAVEMENT | | |
| REMOVE AND REPLACE ASPHALT | | |
| RIP-RAP | | |
| ELEVATION GRADE TAG | 98.76 XX | (98.76) XX |
| GRADE SLOPE TAG | 1.00% | (1.00%) |
| SECTION MARKER - DETAIL NUMBER ABOVE SHEET NUMBER | 1 C5 | |
| SIGHT VISIBILITY ZONE | | |

### COMMON ABBREVIATIONS

| | | | |
|---|---|---|---|
| FF | - FINISHED FLOOR | TRC | - TOP OF 30" ROLL CURB |
| TC | - TOP OF CURB | AC | - TOP OF PAVEMENT |
| FL | - FLOWLINE GRADE | EP | - EDGE OF PAVEMENT |
| TB | - TOP OF BERM | TRW | - TOP OF RETAINING WALL |
| TF | - TOP OF WALL FOOTER | PRIV. | - PRIVATE |
| ST. | - STREET | TYP. | - TYPICAL |
| ESMT | - EASEMENT | R/W | - RIGHT-OF-WAY |
| TMH | - TOP OF MANHOLE (RIM ELEV.) | DG | - DESIGN GRADE |

## GRADING NOTES

1. ACTUS SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES IN THE PLANS OR CONDITIONS IN THE FILED.
2. FOR ROADWAY WIDENING AND HALF STREET IMPROVEMENTS, THE CONTRACTOR SHALL VERIFY CROSS SLOPES FROM EXISTING PAVEMENT SAWCUT LINE TO PROPOSED EDGE OF PAVEMENT OR PROJECTED LIP OF CURB PRIOR TO SUBGRADE PREPARATION AND CONSTRUCTION OF PROPOSED CURB LINE. IF MINIMUM OR MAXIMUM CROSS SLOPES DO NOT MEET AGENCY STANDARDS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER.
3. WALL DETAILS ARE FOR REFERENCE ONLY AND DO NOT CONSTITUTE A STRUCTURAL DESIGN.
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## SIGHT VISIBILITY ZONE NOTE

NO WALLS, FENCES SHRUBS, UTILITY APPURTENANCES OR ANY OTHER OBJECT, OTHER THAT TRAFFIC CONTROL DEVICES, FIRE HYDRANTS, TREES, AND STREET LIGHT 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 TOP OF CURB, OR WHERE NO CURB EXISTS, A HEIGHT OF 27 INCHES MEASURED FROM THE TOP OF ADJACENT ASPHALT, GRAVEL OR PAVEMENT STREET SURFACE. THIS RESTRICTION EXTENDS ALONG THE SIGHT VISIBILITY LINE THROUGH LANDSCAPED MEDIANS.

PLEASE REFER TO TRAFFIC SHEETS FOR SIGHT VISIBILITY ZONE DIMENSIONS.

## ESTIMATED QUANTITIES

NOTE: QUANTITIES SHOWN ARE RAW QUANTITIES AND APPROXIMATE. CONTRACTOR TO DETERMINE HIS OWN QUANTITIES FOR GRADING PURPOSES.

WORK UNDER THIS PLAN CONSTITUTES GRADING IN ACCORDANCE WITH 2012 IBC; ENGINEERING REPORTS AND CERTIFICATIONS IN CONFORMANCE WITH IBC SHALL BE FILED WITH THE CITY OF LAS VEGAS PRIOR TO CITY OF LAS VEGAS APPROVAL AT FINAL INSPECTION.

| | |
|---|---|
| CUT: | 242,298 CY |
| FILL: | 59,941 CY |
| BALANCE: | 182,357 CY (CUT) |

## ENGINEER'S CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED UPDATED DRAINAGE STUDY CLV# DS5152 ON FILE WITH THE CITY OF LAS VEGAS.

DARRYL LATTIMORE, P.E. — 2/25/2020 DATE

FAST — Call before you Dig — Underground 1-702-432-5300 (FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (FAST)) OR CALL 811 OR 1-800-227-2600

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY. CALL BEFORE YOU DO OVERHEAD 1-702-227-2929

## LINE & CURVE DATA NOTE

REFER TO TRAFFIC SHEETS FOR LINE AND CURVE DATA.

## BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV09266W6
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

## BASIS OF BEARING

SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27, TOWNSHIP 21 SOUTH, RANGE 59 EAST, M.D.M., CITY LAS VEGAS, CLARK COUNTY, NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS.

## PRIVATE STREET NOTE

ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS, AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA PER THE APPROVED FINAL MAP FOR THE PROJECT.

## COMMON LOT NOTE

ALL COMMON LOTS ARE TO BE PUBLIC DRAINAGE, PEDESTRIAN ACCESS, UTILITY, SEWER, AND PRIVATE LANDSCAPE EASEMENTS OVER THEIR ENTIRETY TO BE PRIVATELY MAINTAINED BY THE HOA PER THE APPROVED FINAL MAP FOR THE PROJECT.

## SOILS NOTE

ALL GRADING SHALL CONFORM TO GEOTECHNICAL REPORT
BY: GEOTEK RESIDENTIAL, LLC
ORIGINAL PROJECT NUMBER: 14658-LVR
DATED: MARCH 5, 2019
UPDATED APRIL 17, 2019

## STORM DRAIN CONNECTION NOTE

WHEN CONNECTING TO EXISTING RCP, CONTRACTOR SHALL REMOVE THE EXISTING RCP TO THE NEAREST BELL CONNECTION, CONNECT NEW RCP TO EXISTING RCP AND MATCH EXISTING PIPE SLOPE.

## FLOOD ZONE DESCRIPTION

THIS SITE IS LOCATED IN ZONE "X", AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN, PER THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL 32003C2150E CLARK COUNTY, NEVADA DATED SEPTEMBER 27, 2002.

FLOOD DESIGNATION PROVIDED BY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

## DISCLAIMER NOTE

THE UNDERGROUND UTILITIES AS SHOWN HEREON HAVE BEEN LOCATED FROM OBSERVED FIELD SURVEY EVIDENCE AND EXISTING DRAWINGS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING: PLANS PROVIDED BY THE CLIENT, UTILITY COMPANIES, AND MUNICIPAL AGENCIES. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.


Actus
3283 E. Warm Springs Rd., Suite 300
Las Vegas, NV 89120
www.Actus-NV.com
(702) 586-9266
Engineering - Surveying - Consulting - Planning


| NO. | DATE | DESCRIPTION | BY |
|---|---|---|---|
| | | | |

OVERALL GRADING PLAN 8
SAVANNAH
WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

PROFESSIONAL ENGINEER — DARRYL C. LATTIMORE — STATE OF NEVADA — EXP: 12/31/21 CIVIL — No. 17516

2/25/2020

| | |
|---|---|
| DATE | 02/26/2020 |
| DRAWN | RLS |
| DESIGNED | ALW |
| CHECKED | DCL |
| PROJECT # | WLH011803 |

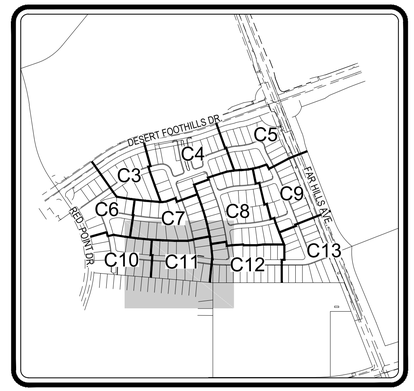
SHEET TITLE: GRADING
SHEET NUMBER: C10
CLV#N/A SHEET 10 OF 20


Plot Stamp: 2/26/2020, 3:21:45 PM - Ryan Sicner
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KEY MAP
SCALE: NTS

## GRADING CONSTRUCTION NOTES

1. CONSTRUCT 30" MODIFIED ROLL CURB AND GUTTER PER CCAUSD #217.1
2. CONSTRUCT "L" CURB AND GUTTER PER CCAUSD #216
3. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234
4. CONSTRUCT 8' CROSS GUTTER PER CCAUSD #228
5. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE I. "A" & "B" = 8' UNLESS OTHERWISE NOTED
6. CONSTRUCT 5' TRANSITION "L" CURB TO TYPE 30" MODIFIED ROLL CURB PER DETAIL "B" ON SHEET C15
7. INSTALL 2" AC OVER 4" TYPE II AGGREGATE BASE
8. CONSTRUCT PAD PER TYPICAL PAD SECTION DETAIL "A" ON SHEET C15
9. MATCH EX. ASPHALT, CURB, SIDEWALK, GUTTER, OR VALLEY GUTTER. SAW CUT CLEAN EDGE FOR CONNECTION.
10. INSTALL CALL BOX FOR ENTRY GATES
11. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE II. "A" & "B" = 6.5' UNLESS OTHERWISE NOTED
12. CONNECT TO EX. SD LINE (CONTRACTOR TO VERIFY SIZE, INVERT AND LOCATION OF EX. SD)
13. CONSTRUCT WROUGHT IRON FENCE PER DETAIL "C", SHEET C15
14. CONSTRUCT SIDEWALK DRAIN PER CCAUSD #236
15. EXISTING RIP-RAP CHANNEL TO BE REMOVED.
16. EXISTING AC PAVEMENT TO BE REMOVED
17. EXISTING FENCE TO BE REMOVED
18. EXISTING CONCRETE PAD TO BE REMOVED
19. INSTALL TYPE "A" ISLAND CURB PER CCAUSD #219
20. CONSTRUCT TYPE "CM2" DROP INLET PER CCAUSD #412.1 & 421
21. CONSTRUCT GATES PER CCAUSD #425.S1
22. CONSTRUCT CONCRETE LINED DRAINAGE EASEMENT PER CCAUSD #425.S1
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## LEGEND

| PROPOSED | EXISTING | DESCRIPTION |
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| | | PUBLIC R/W LINE |
| | | PRIVATE R/W LINE |
| | | BOUNDARY LINE |
| | | EASEMENT LINE |
| | | MATCH LINE |
| CUT | | CUT / FILL LINE |
| FILL | | |
| | | CENTERLINE |
| | | EDGE OF ASPHALT |
| | | CURB & GUTTER |
| | | RETAINING WALL |
| | | SAWCUT LINE |
| | | FLOWLINE |
| | | GRADE BREAK |
| 2500 | (2500) | MAJOR CONTOUR - 5' |
| 2503 | (2503) | MINOR CONTOUR - 1' |
| | | FENCE |
| | | SCARP |
| | | CONCRETE SURFACE |
| | | PROPOSED ASPHALT PAVEMENT |
| | | REMOVE AND REPLACE ASPHALT |
| | | RIP-RAP |
| 98.76 XX 1.00% | (98.76) XX (1.00%) | ELEVATION GRADE TAG |
| | | GRADE SLOPE TAG |
| | 1 C5 | SECTION MARKER - DETAIL NUMBER ABOVE SHEET NUMBER |
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| | | | |
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| | |
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| CUT: | 242,298 CY |
| FILL: | 59,941 CY |
| BALANCE: | 182,357 CY (CUT) |

## ENGINEER'S CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED UPDATED DRAINAGE STUDY CLV# DS5152 ON FILE WITH THE CITY OF LAS VEGAS.

DARRYL LATTIMORE, P.E. — 2/25/2020 DATE

FAST
Call before you Dig
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.
CALL
OR
1-800-227-2600
Call before you Dig
Underground
1-702-432-5300
FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (FAST)
AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY
CALL BEFORE YOU DO OVERHEAD
1-702-227-2929

## LINE & CURVE DATA NOTE

REFER TO TRAFFIC SHEETS FOR LINE AND CURVE DATA.

## BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV0926W6
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

## BASIS OF BEARING

SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27, TOWNSHIP 21 SOUTH, RANGE 59 EAST, M.D.M., CITY LAS VEGAS, CLARK COUNTY, NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS.

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BY: GEOTEK RESIDENTIAL, LLC
ORIGINAL PROJECT NUMBER: 14658-LVR
DATED: MARCH 5, 2019
UPDATED APRIL 17, 2019

## STORM DRAIN CONNECTION NOTE

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## FLOOD ZONE DESCRIPTION

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FLOOD DESIGNATION PROVIDED BY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

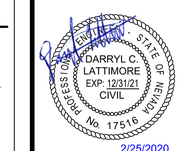
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Actus
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(702) 586-9266
Engineering - Surveying - Consulting - Planning

OVERALL GRADING PLAN 9
SAVANNAH
WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

| NO. | DATE | DESCRIPTION | BY |
|---|---|---|---|
| | | | |




2/25/2020

| | |
|---|---|
| DATE | 02/26/2020 |
| DRAWN | RLS |
| DESIGNED | ALW |
| CHECKED | DCL |
| PROJECT # | WLH011803 |

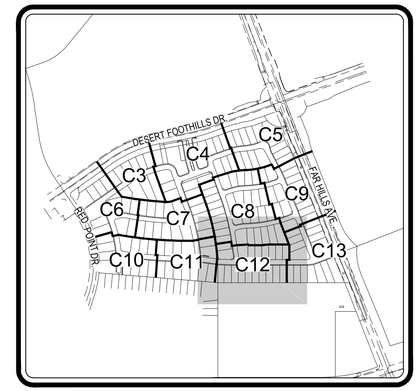
SHEET TITLE
GRADING

SHEET NUMBER
C11

CLV#N/A SHEET 11 OF 20

Plot Stamp: 2/26/2020, 3:21:55 PM - Ryan Sicner
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KEY MAP
SCALE: NTS

SCALE: 1"= 30'
30 15 0 30

## GRADING CONSTRUCTION NOTES

1. CONSTRUCT 30" MODIFIED ROLL CURB AND GUTTER PER CCAUSD #217.1
2. CONSTRUCT "L" CURB AND GUTTER PER CCAUSD #216
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## SIGHT VISIBILITY ZONE NOTE

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## ESTIMATED QUANTITIES

NOTE: QUANTITIES SHOWN ARE RAW QUANTITIES AND APPROXIMATE. CONTRACTOR TO DETERMINE HIS OWN QUANTITIES FOR GRADING PURPOSES.

WORK UNDER THIS PLAN CONSTITUTES GRADING IN ACCORDANCE WITH 2012 IBC; ENGINEERING REPORTS AND CERTIFICATIONS IN CONFORMANCE WITH IBC SHALL BE FILED WITH THE CITY OF LAS VEGAS PRIOR TO CITY OF LAS VEGAS APPROVAL AT FINAL INSPECTION.

| | |
|---|---|
| CUT: | 242,298 CY |
| FILL: | 59,941 CY |
| BALANCE: | 182,357 CY (CUT) |

## ENGINEER'S CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED UPDATED DRAINAGE STUDY CLV# DS5152 ON FILE WITH THE CITY OF LAS VEGAS.

DARRYL LATTIMORE, P.E. — 2/25/2020 DATE

FAST — Call before you Underground 1-702-432-5300 FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (FAST)

Call before you Dig — AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY. CALL 811 OR 1-800-227-2600

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY. CALL BEFORE YOU DO OVERHEAD 1-702-227-2929

## LINE & CURVE DATA NOTE

REFER TO TRAFFIC SHEETS FOR LINE AND CURVE DATA.

## BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV0926W6
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

## BASIS OF BEARING

SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27, TOWNSHIP 21 SOUTH, RANGE 59 EAST, M.D.M., CITY LAS VEGAS, CLARK COUNTY, NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS.

## PRIVATE STREET NOTE

ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS, AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA PER THE APPROVED FINAL MAP FOR THE PROJECT.

## COMMON LOT NOTE

ALL COMMON LOTS ARE TO BE PUBLIC DRAINAGE, PEDESTRIAN ACCESS, UTILITY, SEWER, AND PRIVATE LANDSCAPE EASEMENTS OVER THEIR ENTIRETY TO BE PRIVATELY MAINTAINED BY THE HOA PER THE APPROVED FINAL MAP FOR THE PROJECT.

## SOILS NOTE

ALL GRADING SHALL CONFORM TO GEOTECHNICAL REPORT
BY: GEOTEK RESIDENTIAL, LLC
ORIGINAL PROJECT NUMBER: 14658-LVR
DATED: MARCH 5, 2019
UPDATED APRIL 17, 2019

## STORM DRAIN CONNECTION NOTE

WHEN CONNECTING TO EXISTING RCP, CONTRACTOR SHALL REMOVE THE EXISTING RCP TO THE NEAREST BELL CONNECTION, CONNECT NEW RCP TO EXISTING RCP AND MATCH EXISTING PIPE SLOPE.

## FLOOD ZONE DESCRIPTION

THIS SITE IS LOCATED IN ZONE "X", AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN, PER THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL 32003C2150E CLARK COUNTY, NEVADA DATED SEPTEMBER 27, 2002.

FLOOD DESIGNATION PROVIDED BY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

## DISCLAIMER NOTE

THE UNDERGROUND UTILITIES AS SHOWN HEREON HAVE BEEN LOCATED FROM OBSERVED FIELD SURVEY EVIDENCE AND EXISTING DRAWINGS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING: PLANS PROVIDED BY THE CLIENT, UTILITY COMPANIES, AND MUNICIPAL AGENCIES. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.


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OVERALL GRADING PLAN 10

SAVANNAH

WILLIAM LYON HOMES

CITY OF LAS VEGAS, NEVADA

| NO. | DATE | DESCRIPTION | BY |
|---|---|---|---|
| | | | |

PROFESSIONAL ENGINEER — STATE OF NEVADA — DARRYL C. LATTIMORE — EXP: 12/31/21 — CIVIL — No. 17516

2/25/2020

| | |
|---|---|
| DATE | 02/26/2020 |
| DRAWN | RLS |
| DESIGNED | ALW |
| CHECKED | DCL |
| PROJECT # | WLH011803 |

SHEET TITLE: GRADING

SHEET NUMBER: C12

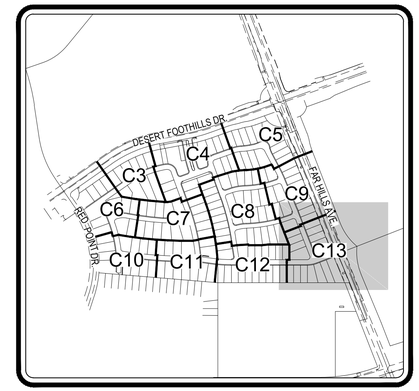
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Plot Stamp: 2/26/2020 3:22:05 PM - Ryan Sicner
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KEY MAP
SCALE: NTS

## GRADING CONSTRUCTION NOTES

1. CONSTRUCT 30" MODIFIED ROLL CURB AND GUTTER PER CCAUSD #217.1
2. CONSTRUCT "L" CURB AND GUTTER PER CCAUSD #216
3. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234
4. CONSTRUCT 8' CROSS GUTTER PER CCAUSD #228
5. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE I. "A" & "B" = 8' UNLESS OTHERWISE NOTED
6. CONSTRUCT 5' TRANSITION "L" CURB TO TYPE 30" MODIFIED ROLL CURB PER DETAIL "B" ON SHEET C15
7. INSTALL 2" AC OVER 4" TYPE II AGGREGATE BASE
8. CONSTRUCT PAD PER TYPICAL PAD SECTION DETAIL "A" ON SHEET C15
9. MATCH EX. ASPHALT, CURB, SIDEWALK, GUTTER, OR VALLEY GUTTER. SAW CUT CLEAN EDGE FOR CONNECTION.
10. INSTALL CALL BOX FOR ENTRY GATES
11. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE II. "A" & "B" = 6.5' UNLESS OTHERWISE NOTED
12. CONNECT TO EX. SD LINE (CONTRACTOR TO VERIFY SIZE, INVERT AND LOCATION OF EX. SD)
13. CONSTRUCT WROUGHT IRON FENCE PER DETAIL "C", SHEET C15
14. CONSTRUCT SIDEWALK DRAIN PER CCAUSD #236
15. EXISTING RIP-RAP CHANNEL TO BE REMOVED.
16. EXISTING AC PAVEMENT TO BE REMOVED
17. EXISTING FENCE TO BE REMOVED
18. EXISTING CONCRETE PAD TO BE REMOVED
19. INSTALL TYPE "A" ISLAND CURB PER CCAUSD #219
20. CONSTRUCT TYPE "CM2" DROP INLET PER CCAUSD #412.1 & 421
21. CONSTRUCT GATES PER CCAUSD #425.S1
22. CONSTRUCT CONCRETE LINED DRAINAGE EASEMENT PER CCAUSD #425.S1
23. INSTALL 4" DIA. FIXED BOLLARDS SPACED 6' APART O.C., 1' BEHIND BACK OF SIDEWALK PER CCAUSD #425.S1
24. INSTALL NDOT TYPE R PEDESTRIAN RAIL ON RETAINING WALL PER NDOT STD. DWG B-25.1.5
25. INSTALL BLOCK WALL OPENING PER DETAIL F, SHEET C15
26. INSTALL PEDESTRIAN ACCESS GATE PER DETAIL G, SHEET C15
27. CONSTRUCT MODIFIED TYPE "CM2" DROP INLET PER STRUCTURAL DETAILS ON SHEET S0.00

## LEGEND

| PROPOSED | EXISTING | DESCRIPTION |
|---|---|---|
| | | PUBLIC R/W LINE |
| | | PRIVATE R/W LINE |
| | | BOUNDARY LINE |
| | | EASEMENT LINE |
| | | MATCH LINE |
| CUT | | CUT / FILL LINE |
| FILL | | |
| | | CENTERLINE |
| | | EDGE OF ASPHALT |
| | | CURB & GUTTER |
| | | RETAINING WALL |
| | | SAWCUT LINE |
| | | FLOWLINE |
| | | GRADE BREAK |
| 2500 | (2500) | MAJOR CONTOUR - 5' |
| 2503 | (2503) | MINOR CONTOUR - 1' |
| | | FENCE |
| | | SCARP |
| | | CONCRETE SURFACE |
| | | PROPOSED ASPHALT PAVEMENT |
| | | REMOVE AND REPLACE ASPHALT |
| | | RIP-RAP |
| 98.76 XX 1.00% | (98.76) (1.00%) | ELEVATION GRADE TAG |
| | | GRADE SLOPE TAG |
| 1 C5 | | SECTION MARKER - DETAIL NUMBER ABOVE SHEET NUMBER |
| | | SIGHT VISIBILITY ZONE |

### COMMON ABBREVIATIONS

| | | | |
|---|---|---|---|
| FF | - FINISHED FLOOR | TRC | - TOP OF 30" ROLL CURB |
| TC | - TOP OF CURB | AC | - TOP OF PAVEMENT |
| FL | - FLOWLINE GRADE | EP | - EDGE OF PAVEMENT |
| TB | - TOP OF BERM | TRW | - TOP OF RETAINING WALL |
| TF | - TOP OF WALL FOOTER | PRIV. | - PRIVATE |
| ST. | - STREET | TYP. | - TYPICAL |
| ESMT | - EASEMENT | R/W | - RIGHT-OF-WAY |
| TMH | - TOP OF MANHOLE (RIM ELEV.) | DG | - DESIGN GRADE |

## GRADING NOTES

1. ACTUS SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES IN THE PLANS OR CONDITIONS IN THE FILED.
2. FOR ROADWAY WIDENING AND HALF STREET IMPROVEMENTS, THE CONTRACTOR SHALL VERIFY CROSS SLOPES FROM EXISTING PAVEMENT SAWCUT LINE TO PROPOSED EDGE OF PAVEMENT OR PROJECTED LIP OF CURB PRIOR TO SUBGRADE PREPARATION AND CONSTRUCTION OF PROPOSED CURB LINE. IF MINIMUM OR MAXIMUM CROSS SLOPES DO NOT MEET AGENCY STANDARDS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER.
3. WALL DETAILS ARE FOR REFERENCE ONLY AND DO NOT CONSTITUTE A STRUCTURAL DESIGN.
4. CONSTRUCTION OF BLOCK WALLS REQUIRE A SEPARATE BUILDING PERMIT AND APPROVAL BY THE BUILDING DEPARTMENT.

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DARRYL LATTIMORE, P.E. — 2/25/2020 DATE

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OVERALL GRADING PLAN 11

# SAVANNAH

WILLIAM LYON HOMES

CITY OF LAS VEGAS, NEVADA

| BY | DESCRIPTION | DATE |
|---|---|---|
| A | | |

DARRYL C. LATTIMORE — STATE OF NEVADA — No. 17516 — EXP: 12/31/21 — CIVIL — PROFESSIONAL ENGINEER

2/25/2020

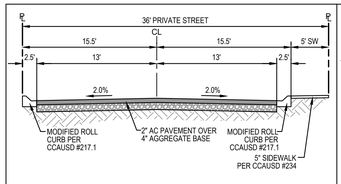
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|---|---|
| DATE | 02/26/2020 |
| DRAWN | RLS |
| DESIGNED | ALW |
| CHECKED | DCL |
| PROJECT # | WLH011803 |

SHEET TITLE: GRADING

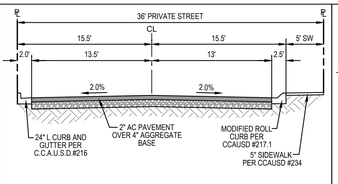
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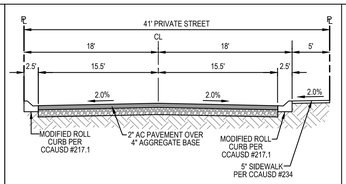

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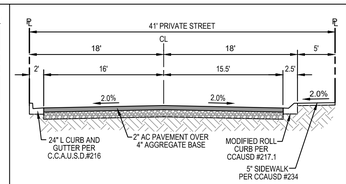

1 36' STREET SECTION (PRIVATE)
NOT TO SCALE



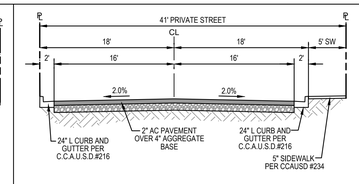

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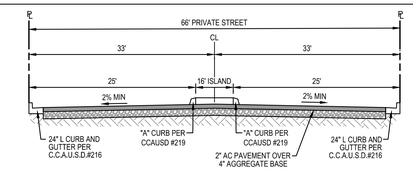

3 41' STREET SECTION (PRIVATE)
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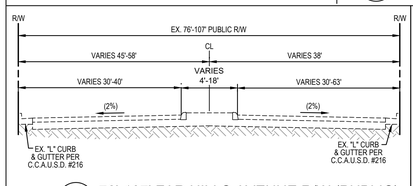

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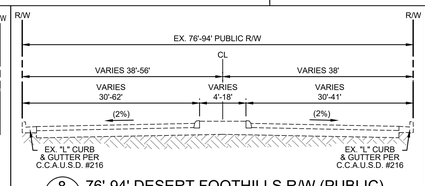

5 41' STREET SECTION (PRIVATE)
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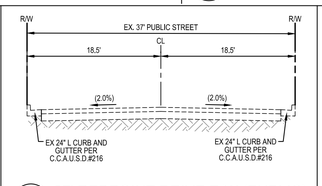

6 66' ENTRY (PRIVATE)
NOT TO SCALE



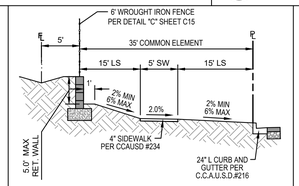

7 76'-107' FAR HILLS AVENUE R/W (PUBLIC)
NOT TO SCALE PER CLV#107V5996



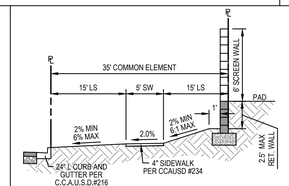

8 76'-94' DESERT FOOTHILLS R/W (PUBLIC)
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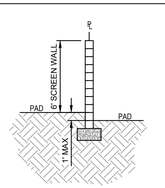

9 37' REDPOINT DRIVE R/W (PUBLIC)
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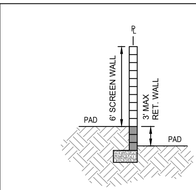

10 INTERIOR SECTION
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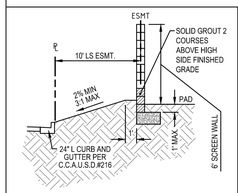

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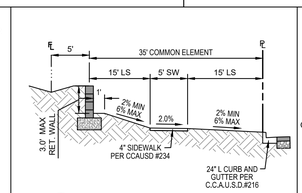

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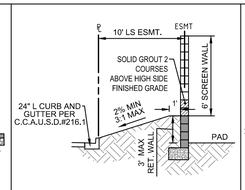

13 INTERIOR SECTION
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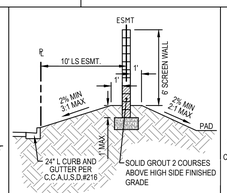

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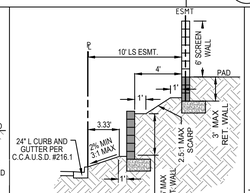

15 INTERIOR SECTION
NOT TO SCALE



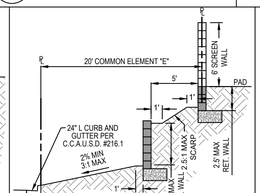

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NOT TO SCALE



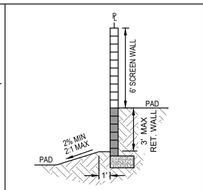

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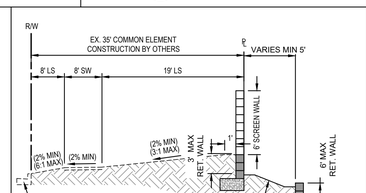

18 INTERIOR SECTION
NOT TO SCALE SEE WALL NOTE #3



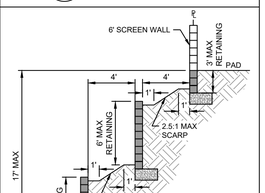

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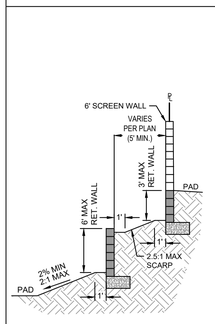

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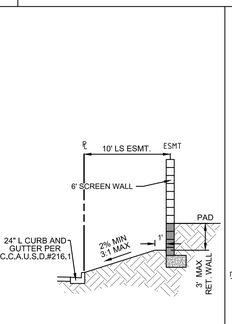

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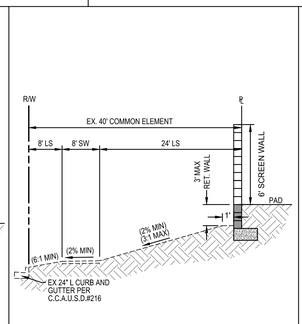

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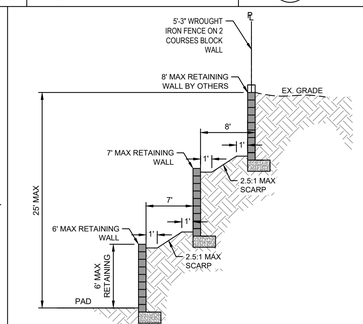

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NOT TO SCALE SEE WALL NOTE #3



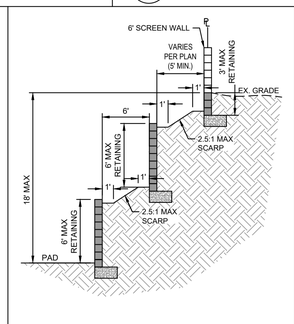

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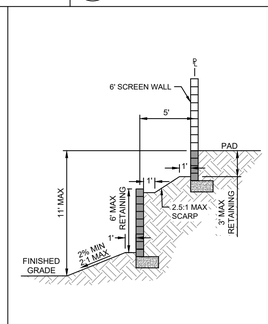

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NOT TO SCALE



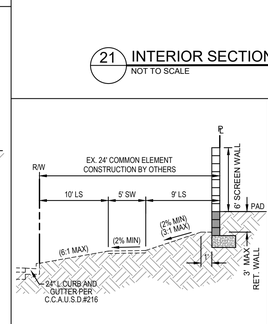

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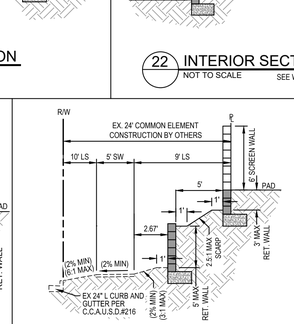

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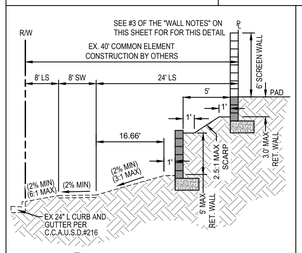

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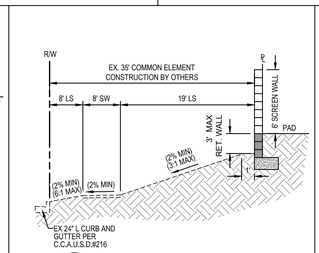

29 PERIMETER SECTION
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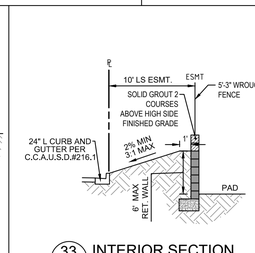

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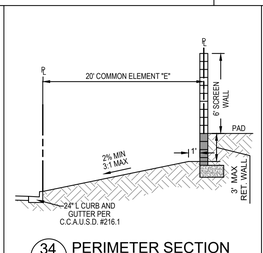

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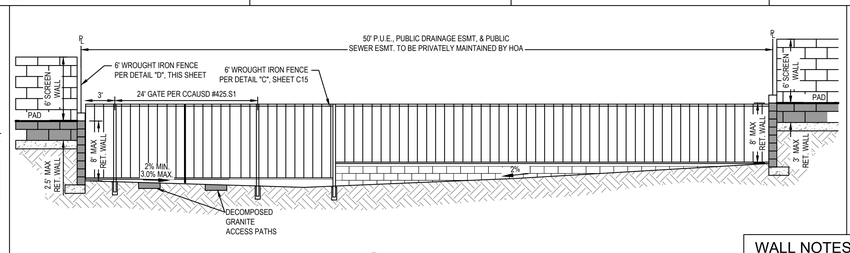

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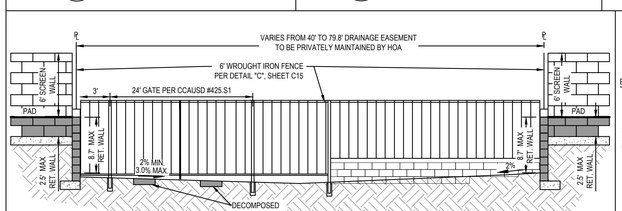

33 INTERIOR SECTION
NOT TO SCALE SEE WALL NOTE #4



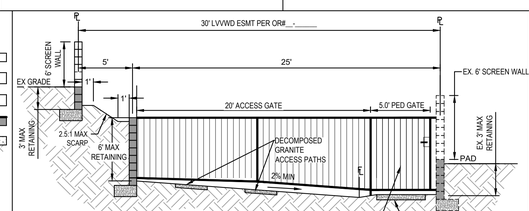

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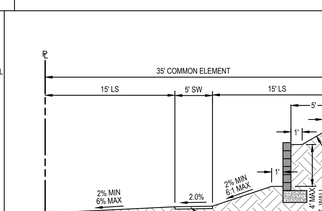

35 DRAINAGE SECTION
NOT TO SCALE SEE WALL NOTE #4



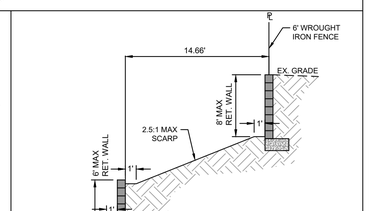

36 DRAINAGE SECTION
NOT TO SCALE SEE WALL NOTE #4




37 PERIMETER SECTION
NOT TO SCALE SEE WALL NOTE #4




38 INTERIOR SECTION
NOT TO SCALE




39 PERIMETER SECTION
NOT TO SCALE SEE WALL NOTE #4

## WALL NOTES

1. WALL DETAILS ARE FOR REFERENCE ONLY AND DO NOT CONSTITUTE A STRUCTURAL DESIGN.
2. CONSTRUCTION OF BLOCK WALLS REQUIRE A SEPARATE BUILDING PERMIT AND APPROVAL BY THE BUILDING DEPARTMENT.
3. MAXIMUM WALL HEIGHTS COMPLY WITH "REDPOINT VILLAGE 21-ADDENDUM" DATED 2/11/2019.
4. WROUGHT IRON FENCE DETAILS ARE REFERENCE ONLY. CONTRACTOR SHALL CONSTRUCT ALL WROUGHT IRON FENCES PER SUMMERLIN WEST DESIGN CRITERIA DATED SEPTEMBER 30, 2019 FIGURE 7-E.

## DISCLAIMER NOTE

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AVOID HITTING UNDERGROUND UTILITIES SUCH AS GAS AND ELECTRIC LIGHT SYSTEM CONDUIT. ITS COSTLY
CALL BEFORE YOU DIG UNDERGROUND
Call before you
Underground
1-702-432-5300
FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (FAST)

Call before you Dig
Avoid cutting underground utility lines. It's costly.
CALL 811

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY
CALL BEFORE YOU DO OVERHEAD
1-702-227-2929

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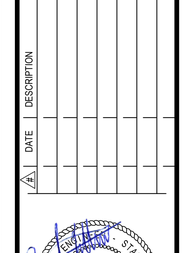
DETAIL SHEET 1

# SAVANNAH

WILLIAM LYON HOMES

CITY OF LAS VEGAS, NEVADA

| BY | DESCRIPTION | DATE |
|---|---|---|
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| A | | |




2/25/2020

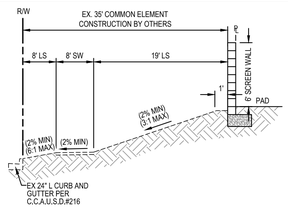
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|---|---|
| DATE | 02/26/2020 |
| DRAWN | RLS |
| DESIGNED | ALW |
| CHECKED | DCL |
| PROJECT # | WLH011803 |

SHEET TITLE
DETAILS

SHEET NUMBER
C14

CLV#N/A SHEET 14 OF 20

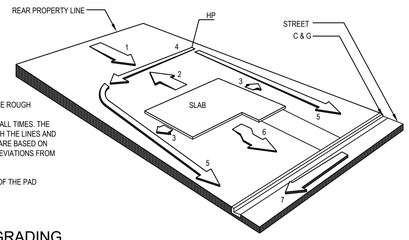
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40 PERIMETER SECTION
NOT TO SCALE

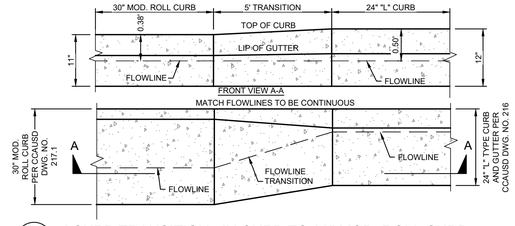
1. SLOPE FROM REAR TO SWALE (MIN. 2%)
2. SLOPE FROM HOUSE TO SWALE (MIN. 2%)
3. SLOPE FROM HOUSE TO SIDE SWALE (MIN. 2%)
4. REAR SWALE (10' MIN. FROM REAR OF HOUSE) (MIN. 1%)
5. SIDE SWALE (MIN. 1%)
6. SLOPE FROM HOUSE TO BACK OF CURB (MIN. 2%)
7. SLOPE OF STREET

A. INDICATED GRADES OTHER THAN T.C., F.G. & GUTTER F.L. ARE ROUGH GRADES. (0.1' LOWER THAN FINISHED GRADE).
B. THE ROUGH GRADING PLANS SHALL BE ON THE JOB SITE AT ALL TIMES. THE ROUGH GRADING SHALL BE FINISHED IN CONFORMANCE WITH THE LINES AND GRADES SHOWN ON THE PLANS. THE GRADING QUANTITIES ARE BASED ON THE ELEVATION AND DETAILS SHOWN ON THE PLANS. ANY DEVIATIONS FROM THE PLANS WILL RESULT IN QUANTITY CHANGES.
C. CARE SHALL BE EXERCISED IN GRADING CORNER LOTS.
D. ROUGH PAD ELEVATIONS SHALL BE GRADED TO WITHIN 0.1' OF THE PAD ELEVATIONS SHOWN ON THE PLANS.

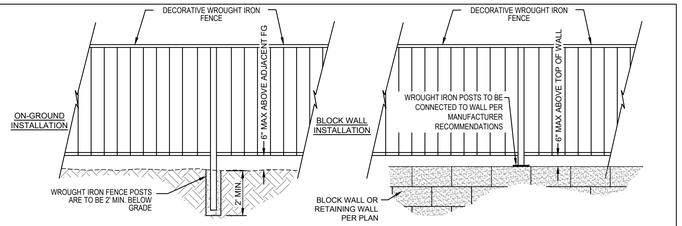



A TYPICAL TYPE "A" PAD GRADING
NOT TO SCALE

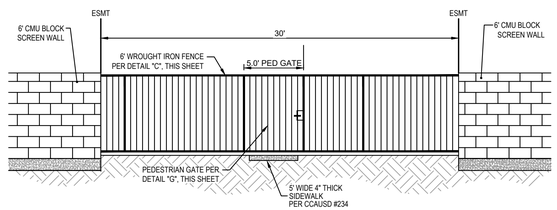
PERSPECTIVE VIEW



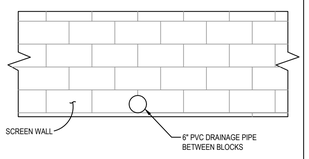

B 5' CURB TRANSITION - 'L' CURB TO 30" MOD. ROLL CURB
NOT TO SCALE



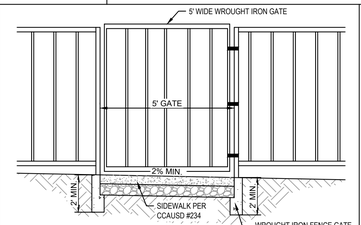

C WROUGHT IRON FENCE
NOT TO SCALE
SEE WALL NOTE #4




D INTERIOR SECTION
NOT TO SCALE
SEE WALL NOTE #4




F BLOCK WALL DRAINAGE OPENING
NOT TO SCALE




G PEDESTRIAN GATE DETAIL
NOT TO SCALE
SEE WALL NOTE #4

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DETAIL SHEET 2
SAVANNAH
WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

| BY | DESCRIPTION | DATE |
|---|---|---|
| A | | |

DARRYL C. LATTIMORE
EXP: 12/31/21
CIVIL
STATE OF NEVADA
No. 17516
PROFESSIONAL ENGINEER
2/25/2020

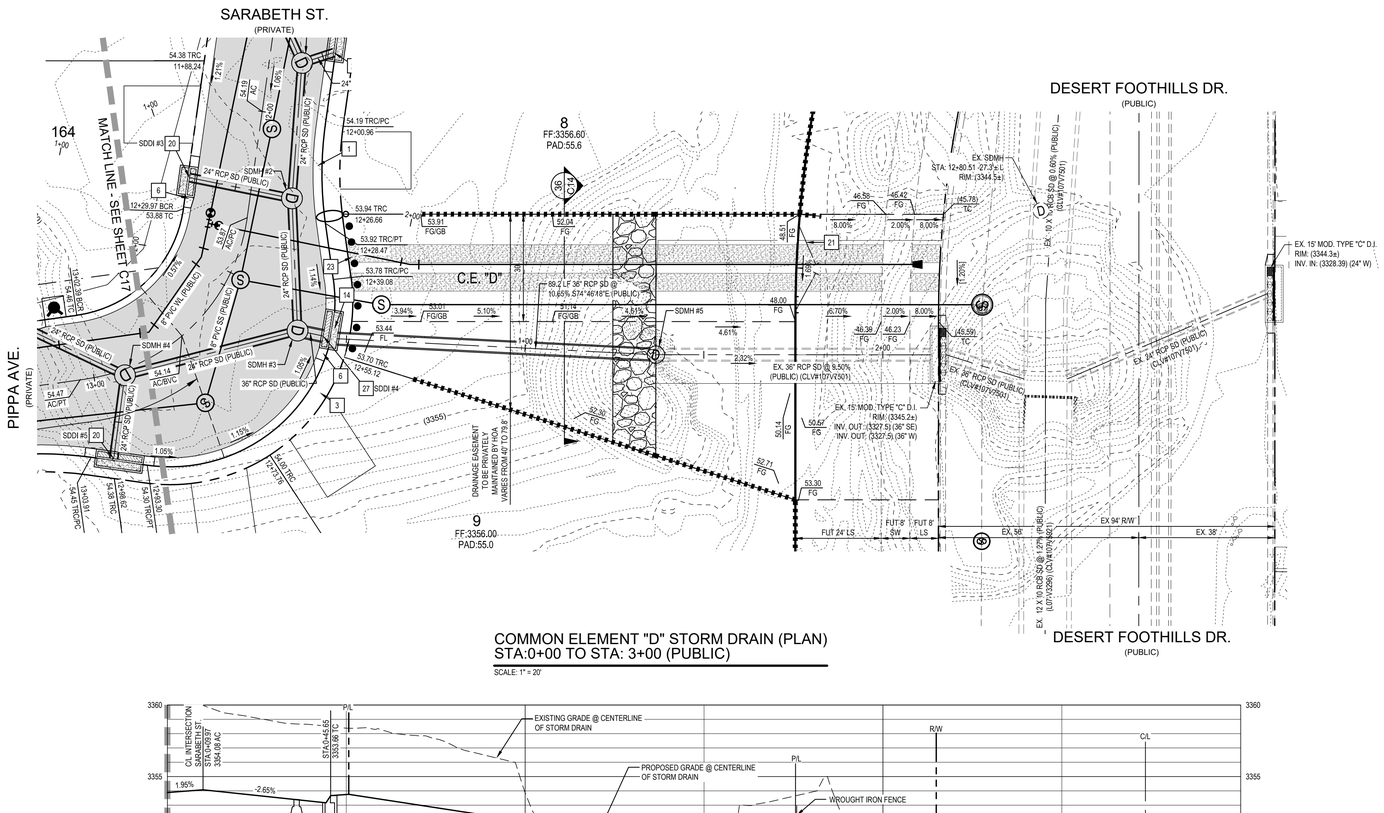
| | |
|---|---|
| DATE | 02/26/2020 |
| DRAWN | RLS |
| DESIGNED | ALW |
| CHECKED | DCL |
| PROJECT # | WLH011803 |

SHEET TITLE
DETAILS

SHEET NUMBER
C15

CLV#N/A
SHEET 15 OF 20

Plot Stamp: 2/26/2020 3:22:28 PM - Ryan Sicner
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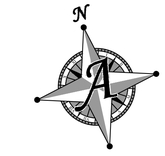

## COMMON ELEMENT "D" STORM DRAIN (PLAN)
## STA:0+00 TO STA: 3+00 (PUBLIC)

SCALE: 1" = 20'




## COMMON ELEMENT "D" STORM DRAIN (PROFILE)
## STA:0+00 TO STA: 3+00 (PUBLIC)

HORIZ. SCALE: 1" = 20' | VERT. SCALE 1" = 5'







KEY MAP

SCALE: NTS

## GRADING CONSTRUCTION NOTES

1. CONSTRUCT 30" MODIFIED ROLL CURB AND GUTTER PER CCAUSD #217.1
2. CONSTRUCT "L" CURB AND GUTTER PER CCAUSD #216
3. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234
4. CONSTRUCT 8' CROSS GUTTER PER CCAUSD #228
5. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE I. "A" & "B" = 8' UNLESS OTHERWISE NOTED
6. CONSTRUCT 5' TRANSITION "L" CURB TO TYPE 30" MODIFIED ROLL CURB PER DETAIL "B" ON SHEET C15
7. INSTALL 2" AC OVER 4" TYPE II AGGREGATE BASE
8. CONSTRUCT PAD PER TYPICAL PAD SECTION DETAIL "A" ON SHEET C15
9. MATCH EX. ASPHALT, CURB, SIDEWALK, GUTTER, OR VALLEY GUTTER. SAW CUT CLEAN EDGE FOR CONNECTION.
10. INSTALL CALL BOX FOR ENTRY GATES
11. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE II. "A" & "B" = 6.5' UNLESS OTHERWISE NOTED
12. CONNECT TO EX. SD LINE (CONTRACTOR TO VERIFY SIZE, INVERT AND LOCATION OF EX. SD)
13. CONSTRUCT WROUGHT IRON FENCE PER DETAIL "C", SHEET C15
14. CONSTRUCT SIDEWALK DRAIN PER CCAUSD #236
15. EXISTING RIP-RAP CHANNEL TO BE REMOVED.
16. EXISTING AC PAVEMENT TO BE REMOVED
17. EXISTING FENCE TO BE REMOVED
18. EXISTING CONCRETE PAD TO BE REMOVED
19. INSTALL TYPE "A" ISLAND CURB PER CCAUSD #219
20. CONSTRUCT TYPE "CM2" DROP INLET PER CCAUSD #412.1 & 421
21. CONSTRUCT GATES PER CCAUSD #425.S1
22. CONSTRUCT CONCRETE LINED DRAINAGE EASEMENT PER CCAUSD #425.S1
23. INSTALL 4" DIA. FIXED BOLLARDS SPACED 6' APART O.C., 1' BEHIND BACK OF SIDEWALK PER CCAUSD #425.S1
24. INSTALL NDOT TYPE R PEDESTRIAN RAIL ON RETAINING WALL PER NDOT STD. DWG B-25.1.5
25. INSTALL BLOCK WALL OPENING PER DETAIL F, SHEET C15
26. INSTALL PEDESTRIAN ACCESS GATE PER DETAIL G, SHEET C15
27. CONSTRUCT MODIFIED TYPE "CM2" DROP INLET PER STRUCTURAL DETAILS ON SHEET S0.00

## LEGEND

| PROPOSED | EXISTING | DESCRIPTION |
|---|---|---|
| | | PUBLIC R/W LINE |
| | | PRIVATE R/W LINE |
| | | BOUNDARY LINE |
| | | EASEMENT LINE |
| | | MATCH LINE |
| CUT / FILL | | CUT / FILL LINE |
| | | CENTERLINE |
| | | EDGE OF ASPHALT |
| | | CURB & GUTTER |
| | | RETAINING WALL |
| | | SAWCUT LINE |
| | | FLOWLINE |
| | | GRADE BREAK |
| 2500 | (2500) | MAJOR CONTOUR - 5' |
| 2503 | (2503) | MINOR CONTOUR - 1' |
| | | FENCE |
| | | SCARP |
| | | CONCRETE SURFACE |
| | | PROPOSED ASPHALT PAVEMENT |
| | | REMOVE AND REPLACE ASPHALT |
| | | RIP-RAP |
| 98.76 XX 1.00% | (98.76) XX (1.00%) | ELEVATION GRADE TAG |
| | | GRADE SLOPE TAG |
| 1 C5 | | SECTION MARKER - DETAIL NUMBER ABOVE SHEET NUMBER |
| | | SIGHT VISIBILITY ZONE |

### COMMON ABBREVIATIONS

| | | | |
|---|---|---|---|
| FF | - FINISHED FLOOR | TRC | - TOP OF 30" ROLL CURB |
| TC | - TOP OF CURB | AC | - TOP OF PAVEMENT |
| FL | - FLOWLINE GRADE | EP | - EDGE OF PAVEMENT |
| TB | - TOP OF BERM | TRW | - TOP OF RETAINING WALL |
| TF | - TOP OF WALL FOOTER | PRIV. | - PRIVATE |
| ST. | - STREET | TYP. | - TYPICAL |
| ESMT | - EASEMENT | R/W | - RIGHT-OF-WAY |
| TMH | - TOP OF MANHOLE (RIM ELEV.) | DG | - DESIGN GRADE |

## GRADING NOTES

1. ACTUS SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES IN THE PLANS OR CONDITIONS IN THE FILED.
2. FOR ROADWAY WIDENING AND HALF STREET IMPROVEMENTS, THE CONTRACTOR SHALL VERIFY CROSS SLOPES FROM EXISTING PAVEMENT SAWCUT LINE TO PROPOSED EDGE OF PAVEMENT OR PROJECTED LIP OF CURB PRIOR TO SUBGRADE PREPARATION AND CONSTRUCTION OF PROPOSED CURB LINE. IF MINIMUM OR MAXIMUM CROSS SLOPES DO NOT MEET AGENCY STANDARDS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER.
3. WALL DETAILS ARE FOR REFERENCE ONLY AND DO NOT CONSTITUTE A STRUCTURAL DESIGN.
4. CONSTRUCTION OF BLOCK WALLS REQUIRE A SEPARATE BUILDING PERMIT AND APPROVAL BY THE BUILDING DEPARTMENT.

## SIGHT VISIBILITY ZONE NOTE

NO WALLS, FENCES SHRUBS, UTILITY APPURTENANCES OR ANY OTHER OBJECT, OTHER THAT TRAFFIC CONTROL DEVICES, FIRE HYDRANTS, TREES, AND STREET LIGHT 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 TOP OF CURB, OR WHERE NO CURB EXISTS, A HEIGHT OF 27 INCHES MEASURED FROM THE TOP OF ADJACENT ASPHALT, GRAVEL OR PAVEMENT STREET SURFACE. THIS RESTRICTION EXTENDS ALONG THE SIGHT VISIBILITY LINE THROUGH LANDSCAPED MEDIANS.

PLEASE REFER TO TRAFFIC SHEETS FOR SIGHT VISIBILITY ZONE DIMENSIONS.

## ESTIMATED QUANTITIES

NOTE: QUANTITIES SHOWN ARE RAW QUANTITIES AND APPROXIMATE. CONTRACTOR TO DETERMINE HIS OWN QUANTITIES FOR GRADING PURPOSES.

WORK UNDER THIS PLAN CONSTITUTES GRADING IN ACCORDANCE WITH 2012 IBC; ENGINEERING REPORTS AND CERTIFICATIONS IN CONFORMANCE WITH IBC SHALL BE FILED WITH THE CITY OF LAS VEGAS PRIOR TO CITY OF LAS VEGAS APPROVAL AT FINAL INSPECTION.

| | |
|---|---|
| CUT: | 242.298 CY |
| FILL: | 59.941 CY |
| BALANCE: | 182.357 CY (CUT) |

## ENGINEER'S CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED UPDATED DRAINAGE STUDY CLV# DS5152 ON FILE WITH THE CITY OF LAS VEGAS.

DARRYL LATTIMORE, P.E. — 2/25/2020 DATE

## LINE & CURVE DATA NOTE

REFER TO TRAFFIC SHEETS FOR LINE AND CURVE DATA.

## BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV0926W6
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

## BASIS OF BEARING

SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27, TOWNSHIP 21 SOUTH, RANGE 59 EAST, M.D.M., CITY LAS VEGAS, CLARK COUNTY, NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS.

## PRIVATE STREET NOTE

ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS, AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA PER THE APPROVED FINAL MAP FOR THE PROJECT.

## COMMON LOT NOTE

ALL COMMON LOTS ARE TO BE PUBLIC DRAINAGE, PEDESTRIAN ACCESS, UTILITY, SEWER, AND PRIVATE LANDSCAPE EASEMENTS OVER THEIR ENTIRETY TO BE PRIVATELY MAINTAINED BY THE HOA PER THE APPROVED FINAL MAP FOR THE PROJECT.

## SOILS NOTE

ALL GRADING SHALL CONFORM TO GEOTECHNICAL REPORT
BY: GEOTEK RESIDENTIAL, LLC
ORIGINAL PROJECT NUMBER: 14658-LVR
DATED: MARCH 5, 2019
UPDATED APRIL 17, 2019

## STORM DRAIN CONNECTION NOTE

WHEN CONNECTING TO EXISTING RCP, CONTRACTOR SHALL REMOVE THE EXISTING RCP TO THE NEAREST BELL CONNECTION. CONNECT NEW RCP TO EXISTING RCP AND MATCH EXISTING PIPE SLOPE.

## FLOOD ZONE DESCRIPTION

THIS SITE IS LOCATED IN ZONE "X", AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN, PER THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL 32003C2150E CLARK COUNTY, NEVADA DATED SEPTEMBER 27, 2002.

FLOOD DESIGNATION PROVIDED BY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

## DISCLAIMER NOTE

THE UNDERGROUND UTILITIES AS SHOWN HEREON HAVE BEEN LOCATED FROM OBSERVED FIELD SURVEY EVIDENCE AND EXISTING DRAWINGS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING: PLANS PROVIDED BY THE CLIENT, UTILITY COMPANIES, AND MUNICIPAL AGENCIES. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

FAST — Call before you Dig Underground 1-702-432-5300 — FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (FAST)

Call before you Dig — AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY. CALL 811 OR 1-800-227-2600

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY — CALL BEFORE YOU DO OVERHEAD — 1-702-227-2929


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Engineering - Surveying - Consulting - Planning


PLAN & PROFILE - COMMON ELEMENT "D" STORM DRAIN
SAVANNAH
WILLIAM LYON HOMES
CITY OF LAS VEGAS, NEVADA

| BY | DESCRIPTION | DATE |
|---|---|---|
| A | | |

DARRYL C. LATTIMORE — STATE OF NEVADA — PROFESSIONAL ENGINEER — No. 17516 — EXP: 12/31/21 CIVIL

2/25/2020

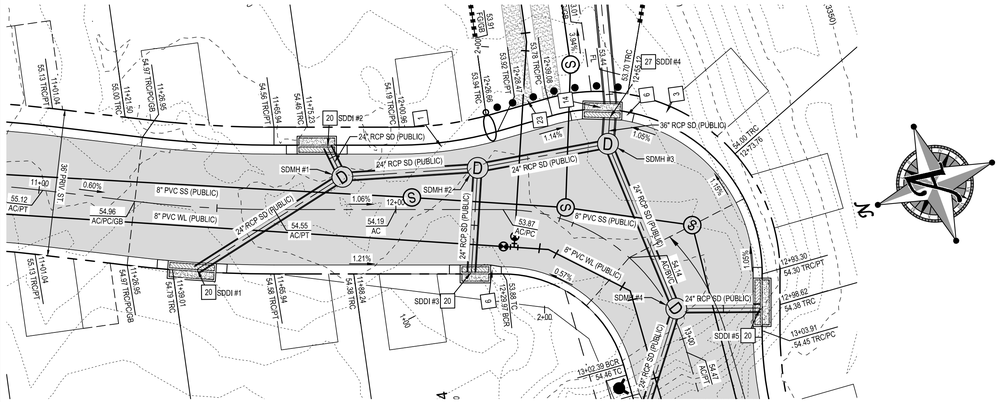
| | |
|---|---|
| DATE | 02/26/2020 |
| DRAWN | RLS |
| DESIGNED | ALW |
| CHECKED | DCL |
| PROJECT # | WLH011803 |

SHEET TITLE
PLAN & PROFILES

SHEET NUMBER
C16

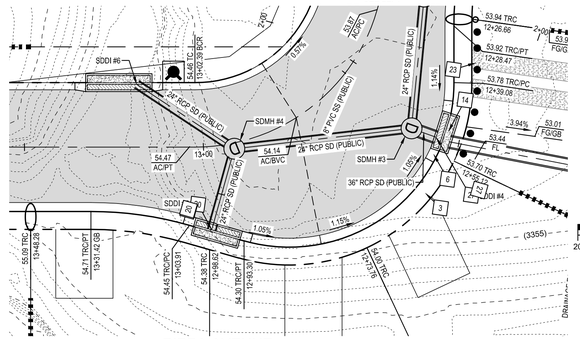
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## SARABETH STREET
## STA:11+00 TO STA: 13+00 (PUBLIC)

SCALE: 1" = 20'



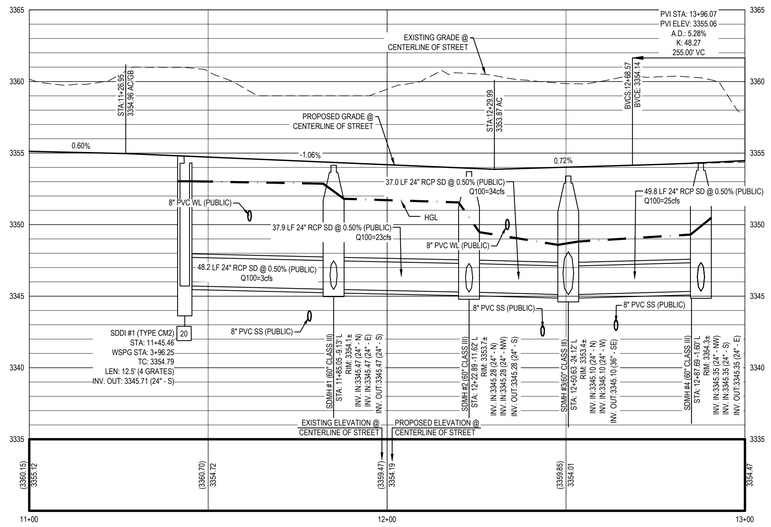

## PIPPA AVENUE
## STA:12+00 TO STA: 13+50 (PUBLIC)

SCALE: 1" = 20'



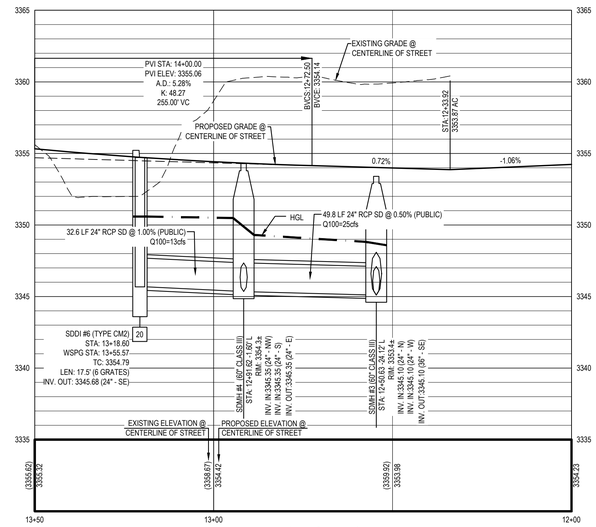

## KEY MAP

SCALE: NTS




## SARABETH STREET (PROFILE)
## STA:11+00 TO STA: 13+00 (PUBLIC)

HORIZ. SCALE: 1" = 20' | VERT. SCALE 1" = 5'




## PIPPA AVENUE (PROFILE)
## STA:12+00 TO STA: 13+50 (PUBLIC)

HORIZ. SCALE: 1" = 20' | VERT. SCALE 1" = 5'

## GRADING CONSTRUCTION NOTES

1. CONSTRUCT 30" MODIFIED ROLL CURB AND GUTTER PER CCAUSD #217.1
2. CONSTRUCT "L" CURB AND GUTTER PER CCAUSD #216
3. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234
4. CONSTRUCT 8' CROSS GUTTER PER CCAUSD #228
5. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE I. "A" & "B" = 8' UNLESS OTHERWISE NOTED
6. CONSTRUCT 5' TRANSITION "L" CURB TO TYPE 30" MODIFIED ROLL CURB PER DETAIL "B" ON SHEET C15
7. INSTALL 2" AC OVER 4" TYPE II AGGREGATE BASE
8. CONSTRUCT PAD PER TYPICAL PAD SECTION DETAIL "A" ON SHEET C15
9. MATCH EX. ASPHALT, CURB, SIDEWALK, GUTTER, OR VALLEY GUTTER. SAW CUT CLEAN EDGE FOR CONNECTION.
10. INSTALL CALL BOX FOR ENTRY GATES
11. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE II. "A" & "B" = 6.5' UNLESS OTHERWISE NOTED
12. CONNECT TO EX. SD LINE (CONTRACTOR TO VERIFY SIZE, INVERT AND LOCATION OF EX. SD)
13. CONSTRUCT WROUGHT IRON FENCE PER DETAIL "C", SHEET C15
14. CONSTRUCT SIDEWALK DRAIN PER CCAUSD #236
15. EXISTING RIP-RAP CHANNEL TO BE REMOVED.
16. EXISTING AC PAVEMENT TO BE REMOVED
17. EXISTING FENCE TO BE REMOVED
18. EXISTING CONCRETE PAD TO BE REMOVED
19. INSTALL TYPE "A" ISLAND CURB PER CCAUSD #219
20. CONSTRUCT TYPE "CM2" DROP INLET PER CCAUSD #412.1 & 421
21. CONSTRUCT GATES PER CCAUSD #425.S1
22. CONSTRUCT CONCRETE LINED DRAINAGE EASEMENT PER CCAUSD #425.S1
23. INSTALL 4" DIA. FIXED BOLLARDS SPACED 6' APART O.C., 1' BEHIND BACK OF SIDEWALK PER CCAUSD #425.S1
24. INSTALL NDOT TYPE R PEDESTRIAN RAIL ON RETAINING WALL PER NDOT STD. DWG B-25.1.5
25. INSTALL BLOCK WALL OPENING PER DETAIL F, SHEET C15
26. INSTALL PEDESTRIAN ACCESS GATE PER DETAIL G, SHEET C15
27. CONSTRUCT MODIFIED TYPE "CM2" DROP INLET PER STRUCTURAL DETAILS ON SHEET S0.00

## LEGEND

| PROPOSED | EXISTING | DESCRIPTION |
|---|---|---|
| | | PUBLIC R/W LINE |
| | | PRIVATE R/W LINE |
| | | BOUNDARY LINE |
| | | EASEMENT LINE |
| | | MATCH LINE |
| CUT / FILL | | CUT / FILL LINE |
| | | CENTERLINE |
| | | EDGE OF ASPHALT |
| | | CURB & GUTTER |
| | | RETAINING WALL |
| | | SAWCUT LINE |
| | | FLOWLINE |
| | | GRADE BREAK |
| 2500 | (2500) | MAJOR CONTOUR - 5' |
| 2503 | (2503) | MINOR CONTOUR - 1' |
| | | FENCE |
| | | SCARP |
| | | CONCRETE SURFACE |
| | | PROPOSED ASPHALT PAVEMENT |
| | | REMOVE AND REPLACE ASPHALT |
| | | RIP-RAP |
| 98.76 XX 1.00% | (98.76) (1.00%) | ELEVATION GRADE TAG |
| | | GRADE SLOPE TAG |
| | 1 C5 | SECTION MARKER - DETAIL NUMBER ABOVE SHEET NUMBER |
| | | SIGHT VISIBILITY ZONE |

### COMMON ABBREVIATIONS

| | | | |
|---|---|---|---|
| FF | - FINISHED FLOOR | TRC | - TOP OF 30" ROLL CURB |
| TC | - TOP OF CURB | AC | - TOP OF PAVEMENT |
| FL | - FLOWLINE GRADE | EP | - EDGE OF PAVEMENT |
| TB | - TOP OF BERM | TRW | - TOP OF RETAINING WALL |
| TF | - TOP OF WALL FOOTER | PRIV. | - PRIVATE |
| ST. | - STREET | TYP. | - TYPICAL |
| ESMT | - EASEMENT | R/W | - RIGHT-OF-WAY |
| TMH | - TOP OF MANHOLE (RIM ELEV.) | DG | - DESIGN GRADE |

## GRADING NOTES

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2. FOR ROADWAY WIDENING AND HALF STREET IMPROVEMENTS, THE CONTRACTOR SHALL VERIFY CROSS SLOPES FROM EXISTING PAVEMENT SAWCUT LINE TO PROPOSED EDGE OF PAVEMENT OR PROJECTED LIP OF CURB PRIOR TO SUBGRADE PREPARATION AND CONSTRUCTION OF PROPOSED CURB LINE. IF MINIMUM OR MAXIMUM CROSS SLOPES DO NOT MEET AGENCY STANDARDS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER.
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| | |
|---|---|
| CUT: | 242,298 CY |
| FILL: | 59,941 CY |
| BALANCE: | 182,357 CY (CUT) |

## ENGINEER'S CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED UPDATED DRAINAGE STUDY CLVII DSS152 ON FILE WITH THE CITY OF LAS VEGAS.

DARRYL LATTIMORE, P.E. — 2/25/2020 DATE

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## LINE & CURVE DATA NOTE

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## BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV092W6
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

## BASIS OF BEARING

SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27, TOWNSHIP 21 SOUTH, RANGE 59 EAST, M.D.M., CITY LAS VEGAS, CLARK COUNTY, NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS.

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## SOILS NOTE

ALL GRADING SHALL CONFORM TO GEOTECHNICAL REPORT
BY: GEOTEK RESIDENTIAL, LLC
ORIGINAL PROJECT NUMBER: 14658-LVR
DATED: MARCH 5, 2019
UPDATED APRIL 17, 2019

## STORM DRAIN CONNECTION NOTE

WHEN CONNECTING TO EXISTING RCP, CONTRACTOR SHALL REMOVE THE EXISTING RCP TO THE NEAREST BELL CONNECTION, CONNECT NEW RCP TO EXISTING RCP AND MATCH EXISTING PIPE SLOPE.

## FLOOD ZONE DESCRIPTION

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FLOOD DESIGNATION PROVIDED BY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

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# PLAN & PROFILE - SARABETH STREET STORM DRAIN
# SAVANNAH
## WILLIAM LYON HOMES
## CITY OF LAS VEGAS, NEVADA

| NO. | DATE | DESCRIPTION | BY |
|---|---|---|---|
| 1 | 2/25/2020 | PER CITY COMMENTS | ALW |

DARRYL C. LATTIMORE — STATE OF NEVADA — PROFESSIONAL ENGINEER — No. 17516 — EXP: 12/31/21 — CIVIL

2/25/2020

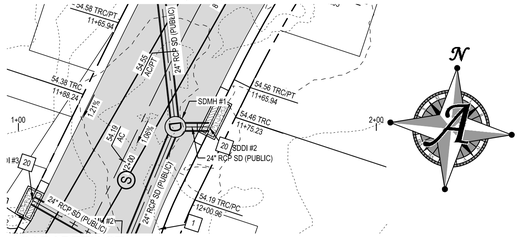
| | |
|---|---|
| DATE | 02/26/2020 |
| DRAWN | RLS |
| DESIGNED | ALW |
| CHECKED | DCL |
| PROJECT # | WLH011803 |

SHEET TITLE
PLAN & PROFILES

SHEET NUMBER
C17

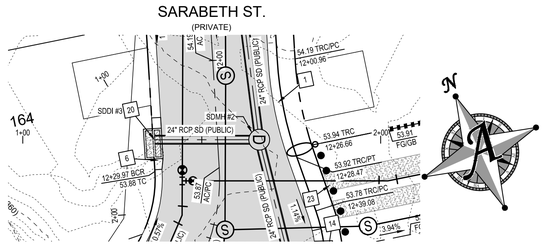
CLV#N/A — SHEET 17 OF 20


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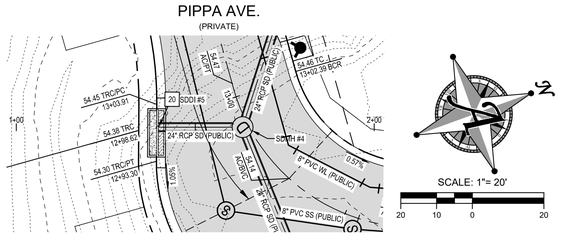

STORM DRAIN LATERAL 1
SARABETH ST. STA:11+80.93 (PUBLIC)

SCALE: 1" = 20'




STORM DRAIN LATERAL 2
SARABETH ST. STA:12+21.12 (PUBLIC)

SCALE: 1" = 20'



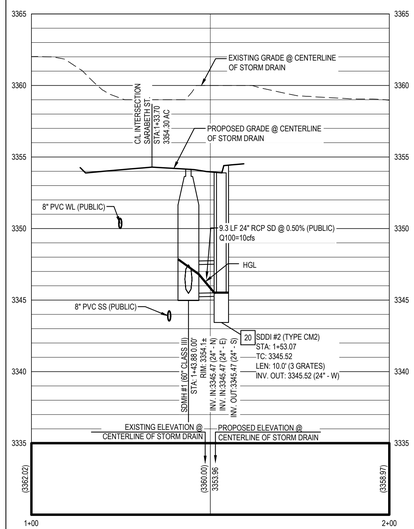

STORM DRAIN LATERAL 3
PIPPA AVE. STA:12+99.12 (PUBLIC)

SCALE: 1" = 20'



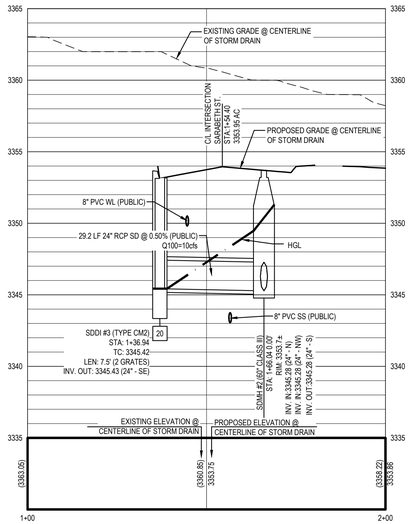

KEY MAP

SCALE: NTS



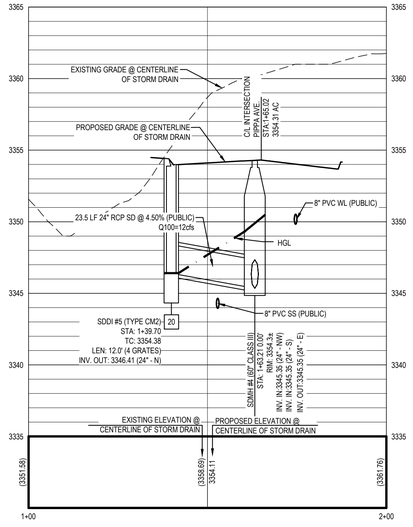

STORM DRAIN LATERAL 1 (PROFILE)
SARABETH ST. STA:11+80.93 (PUBLIC)

HORIZ. SCALE: 1" = 20' | VERT. SCALE 1" = 5'




STORM DRAIN LATERAL 2 (PROFILE)
SARABETH ST. STA:12+21.12 (PUBLIC)

HORIZ. SCALE: 1" = 20' | VERT. SCALE 1" = 5'




STORM DRAIN LATERAL 3 (PROFILE)
PIPPA AVE. STA:12+99.12 (PUBLIC)

HORIZ. SCALE: 1" = 20' | VERT. SCALE 1" = 5'

## GRADING CONSTRUCTION NOTES

1. CONSTRUCT 30" MODIFIED ROLL CURB AND GUTTER PER CCAUSD #217.1
2. CONSTRUCT "L" CURB AND GUTTER PER CCAUSD #216
3. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234
4. CONSTRUCT 8' CROSS GUTTER PER CCAUSD #228
5. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE I. "A" & "B" = 8' UNLESS OTHERWISE NOTED
6. CONSTRUCT 5' TRANSITION "L" CURB TO TYPE 30" MODIFIED ROLL CURB PER DETAIL "B" ON SHEET C15
7. INSTALL 2" AC OVER 4" TYPE II AGGREGATE BASE
8. CONSTRUCT PAD PER TYPICAL PAD SECTION DETAIL "A" ON SHEET C15
9. MATCH EX. ASPHALT, CURB, SIDEWALK, GUTTER, OR VALLEY GUTTER. SAW CUT CLEAN EDGE FOR CONNECTION.
10. INSTALL CALL BOX FOR ENTRY GATES
11. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE II. "A" & "B" = 6.5' UNLESS OTHERWISE NOTED
12. CONNECT TO EX. SD LINE (CONTRACTOR TO VERIFY SIZE, INVERT AND LOCATION OF EX. SD)
13. CONSTRUCT WROUGHT IRON FENCE PER DETAIL "C", SHEET C15
14. CONSTRUCT SIDEWALK DRAIN PER CCAUSD #236
15. EXISTING RIP-RAP CHANNEL TO BE REMOVED.
16. EXISTING AC PAVEMENT TO BE REMOVED
17. EXISTING FENCE TO BE REMOVED
18. EXISTING CONCRETE PAD TO BE REMOVED
19. INSTALL TYPE "A" ISLAND CURB PER CCAUSD #219
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23. INSTALL 4" DIA. FIXED BOLLARDS SPACED 6' APART O.C., 1' BEHIND BACK OF SIDEWALK PER CCAUSD #425.S1
24. INSTALL NDOT TYPE R PEDESTRIAN RAIL ON RETAINING WALL PER NDOT STD. DWG B-25.1.5
25. INSTALL BLOCK WALL OPENING PER DETAIL F, SHEET C15
26. INSTALL PEDESTRIAN ACCESS GATE PER DETAIL G, SHEET C15
27. CONSTRUCT MODIFIED TYPE "CM2" DROP INLET PER STRUCTURAL DETAILS ON SHEET S0.00

## LEGEND

| PROPOSED | EXISTING | DESCRIPTION |
|---|---|---|
| | | PUBLIC R/W LINE |
| | | PRIVATE R/W LINE |
| | | BOUNDARY LINE |
| | | EASEMENT LINE |
| | | MATCH LINE |
| CUT / FILL | | CUT / FILL LINE |
| | | CENTERLINE |
| | | EDGE OF ASPHALT |
| | | CURB & GUTTER |
| | | RETAINING WALL |
| | | SAWCUT LINE |
| | | FLOWLINE |
| | | GRADE BREAK |
| 2500 | (2500) | MAJOR CONTOUR - 5' |
| 2503 | (2503) | MINOR CONTOUR - 1' |
| | | FENCE |
| | | SCARP |
| | | CONCRETE SURFACE |
| | | PROPOSED ASPHALT PAVEMENT |
| | | REMOVE AND REPLACE ASPHALT |
| | | RIP-RAP |
| 98.76 XX 1.00% | (98.76) XX (1.00%) | ELEVATION GRADE TAG |
| | | GRADE SLOPE TAG |
| 1 C5 | | SECTION MARKER - DETAIL NUMBER ABOVE SHEET NUMBER |
| | | SIGHT VISIBILITY ZONE |

### COMMON ABBREVIATIONS

| | | | |
|---|---|---|---|
| FF | - FINISHED FLOOR | TRC | - TOP OF 30" ROLL CURB |
| TC | - TOP OF CURB | AC | - TOP OF PAVEMENT |
| FL | - FLOWLINE GRADE | EP | - EDGE OF PAVEMENT |
| TB | - TOP OF BERM | TRW | - TOP OF RETAINING WALL |
| TF | - TOP OF WALL FOOTER | PRIV. | - PRIVATE |
| ST. | - STREET | TYP. | - TYPICAL |
| ESMT | - EASEMENT | R/W | - RIGHT-OF-WAY |
| TMH | - TOP OF MANHOLE (RIM ELEV.) | DG | - DESIGN GRADE |

## GRADING NOTES

1. ACTUS SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES IN THE PLANS OR CONDITIONS IN THE FILED.
2. FOR ROADWAY WIDENING AND HALF STREET IMPROVEMENTS, THE CONTRACTOR SHALL VERIFY CROSS SLOPES FROM EXISTING PAVEMENT SAWCUT LINE TO PROPOSED EDGE OF PAVEMENT OR PROJECTED LIP OF CURB PRIOR TO SUBGRADE PREPARATION AND CONSTRUCTION OF PROPOSED CURB LINE. IF MINIMUM OR MAXIMUM CROSS SLOPES DO NOT MEET AGENCY STANDARDS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER.
3. WALL DETAILS ARE FOR REFERENCE ONLY AND DO NOT CONSTITUTE A STRUCTURAL DESIGN.
4. CONSTRUCTION OF BLOCK WALLS REQUIRE A SEPARATE BUILDING PERMIT AND APPROVAL BY THE BUILDING DEPARTMENT.

## SIGHT VISIBILITY ZONE NOTE

NO WALLS, FENCES SHRUBS, UTILITY APPURTENANCES OR ANY OTHER OBJECT, OTHER THAT TRAFFIC CONTROL DEVICES, FIRE HYDRANTS, TREES, AND STREET LIGHT 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 TOP OF CURB, OR WHERE NO CURB EXISTS, A HEIGHT OF 27 INCHES MEASURED FROM THE TOP OF ADJACENT ASPHALT, GRAVEL OR PAVEMENT STREET SURFACE. THIS RESTRICTION EXTENDS ALONG THE SIGHT VISIBILITY LINE THROUGH LANDSCAPED MEDIANS.

PLEASE REFER TO TRAFFIC SHEETS FOR SIGHT VISIBILITY ZONE DIMENSIONS.

## ESTIMATED QUANTITIES

NOTE: QUANTITIES SHOWN ARE RAW QUANTITIES AND APPROXIMATE. CONTRACTOR TO DETERMINE HIS OWN QUANTITIES FOR GRADING PURPOSES.

WORK UNDER THIS PLAN CONSTITUTES GRADING IN ACCORDANCE WITH 2012 IBC; ENGINEERING REPORTS AND CERTIFICATIONS IN CONFORMANCE WITH IBC SHALL BE FILED WITH THE CITY OF LAS VEGAS PRIOR TO CITY OF LAS VEGAS APPROVAL AT FINAL INSPECTION.

| | |
|---|---|
| CUT: | 242.298 CY |
| FILL: | 59.941 CY |
| BALANCE: | 182.357 CY (CUT) |

## ENGINEER'S CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED UPDATED DRAINAGE STUDY CLV# DS5152 ON FILE WITH THE CITY OF LAS VEGAS.

DARRYL LATTIMORE, P.E. — 2/25/2020 DATE




## LINE & CURVE DATA NOTE

REFER TO TRAFFIC SHEETS FOR LINE AND CURVE DATA.

## BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV09269W6
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

## BASIS OF BEARING

SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27, TOWNSHIP 21 SOUTH, RANGE 59 EAST, M.D.M., CITY LAS VEGAS, CLARK COUNTY, NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS.

## PRIVATE STREET NOTE

ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS, AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA PER THE APPROVED FINAL MAP FOR THE PROJECT.

## COMMON LOT NOTE

ALL COMMON LOTS ARE TO BE PUBLIC DRAINAGE, PEDESTRIAN ACCESS, UTILITY, SEWER, AND PRIVATE LANDSCAPE EASEMENTS OVER THEIR ENTIRETY TO BE PRIVATELY MAINTAINED BY THE HOA PER THE APPROVED FINAL MAP FOR THE PROJECT.

## SOILS NOTE

ALL GRADING SHALL CONFORM TO GEOTECHNICAL REPORT
BY: GEOTEK RESIDENTIAL, LLC
ORIGINAL PROJECT NUMBER: 14658-LVR
DATED: MARCH 5, 2019
UPDATED APRIL 17, 2019

## STORM DRAIN CONNECTION NOTE

WHEN CONNECTING TO EXISTING RCP, CONTRACTOR SHALL REMOVE THE EXISTING RCP TO THE NEAREST BELL CONNECTION, CONNECT NEW RCP TO EXISTING RCP AND MATCH EXISTING PIPE SLOPE.

## FLOOD ZONE DESCRIPTION

THIS SITE IS LOCATED IN ZONE "X", AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN, PER THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL 32003C2150E CLARK COUNTY, NEVADA DATED SEPTEMBER 27, 2002.

FLOOD DESIGNATION PROVIDED BY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

## DISCLAIMER NOTE

THE UNDERGROUND UTILITIES AS SHOWN HEREON HAVE BEEN LOCATED FROM OBSERVED FIELD SURVEY EVIDENCE AND EXISTING DRAWINGS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING: PLANS PROVIDED BY THE CLIENT, UTILITY COMPANIES, AND MUNICIPAL AGENCIES. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

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Engineering - Surveying - Consulting - Planning

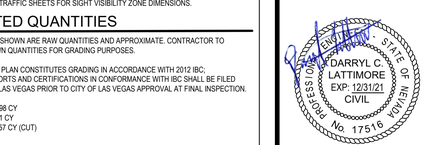
PLAN & PROFILE - STORM DRAIN LATERALS

SAVANNAH

WILLIAM LYON HOMES

CITY OF LAS VEGAS, NEVADA

| NO. | DATE | DESCRIPTION | BY |
|---|---|---|---|
| 1 | | | |




2/25/2020

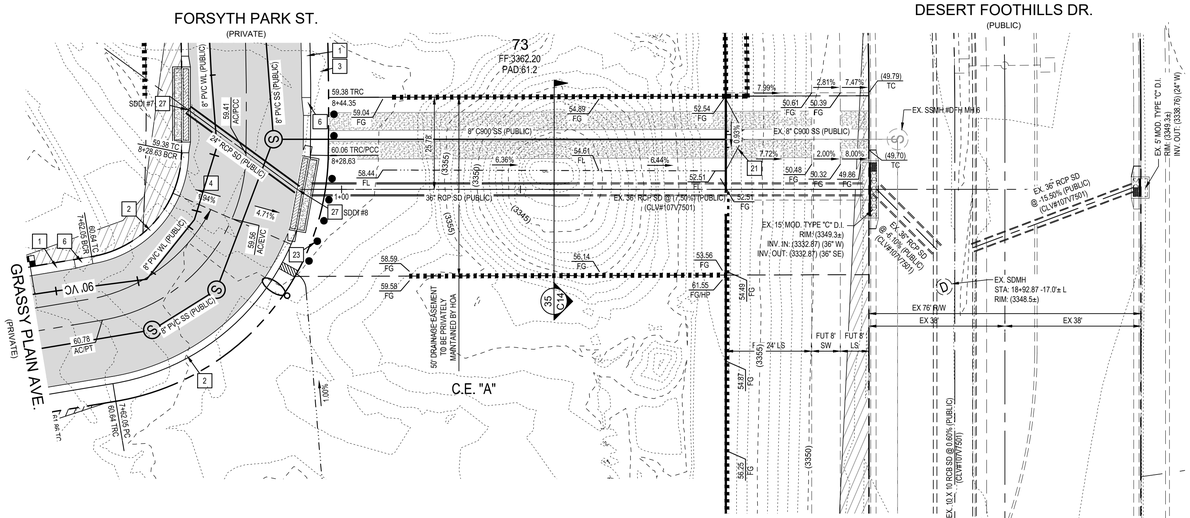
| | |
|---|---|
| DATE | 02/26/2020 |
| DRAWN | RLS |
| DESIGNED | ALW |
| CHECKED | DCL |
| PROJECT # | WLH011803 |

SHEET TITLE
PLAN & PROFILES

SHEET NUMBER
C18

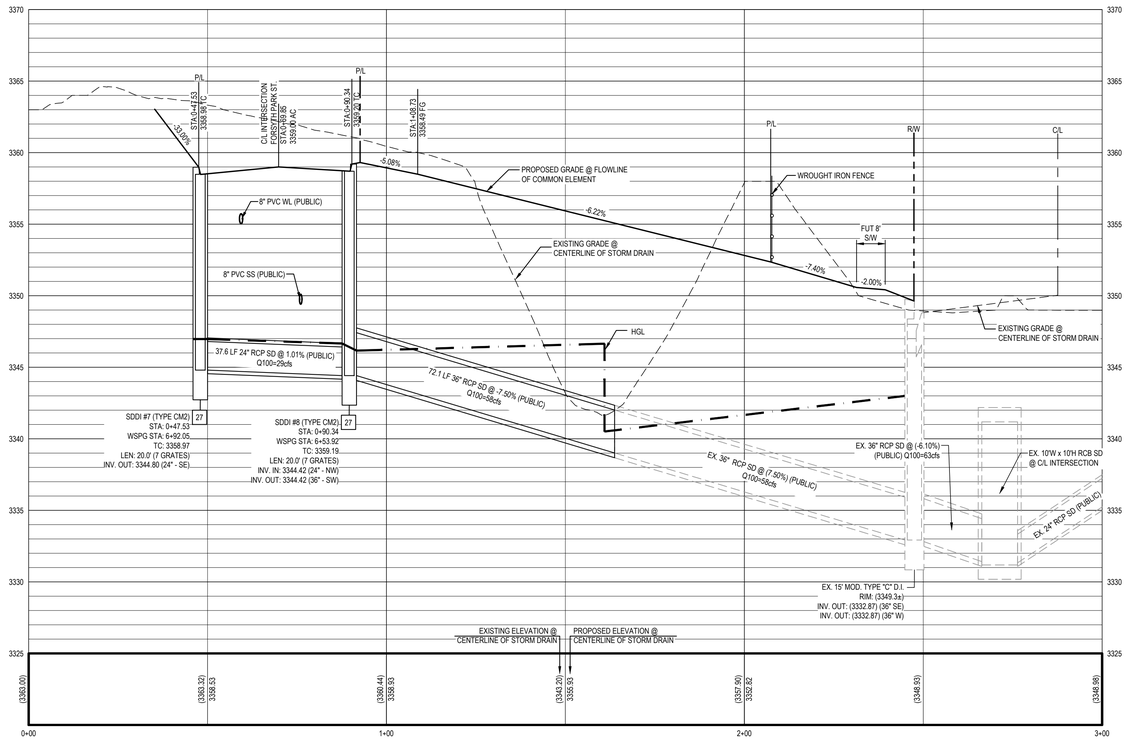
CLV#N/A SHEET 18 OF 20

Plot Stamp: 2/27/2020 4:09:12 PM - Ryan Sicner
File: P:\WLH011803 - Parcel E\Civil_CD\WLH011803-CD-SD-PROF.dwg, Tab: SD-3




## COMMON ELEMENT "A" STORM DRAIN (PLAN) STA:0+00 TO STA: 2+50 (PUBLIC)

SCALE: 1" = 20'




## COMMON ELEMENT "A" STORM DRAIN (PROFILE) STA:0+00 TO STA: 2+50 (PUBLIC)

HORIZ. SCALE: 1" = 20' | VERT. SCALE 1" = 5'




## KEY MAP

SCALE: NTS

## GRADING CONSTRUCTION NOTES

1. CONSTRUCT 30" MODIFIED ROLL CURB AND GUTTER PER CCAUSD #217.1
2. CONSTRUCT "L" CURB AND GUTTER PER CCAUSD #216
3. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234
4. CONSTRUCT 8' CROSS GUTTER PER CCAUSD #228
5. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE I. "A" & "B" = 8' UNLESS OTHERWISE NOTED
6. CONSTRUCT 5' TRANSITION "L" CURB TO TYPE 30" MODIFIED ROLL CURB PER DETAIL "B" ON SHEET C15
7. INSTALL 2" AC OVER 4" TYPE II AGGREGATE BASE
8. CONSTRUCT PAD PER TYPICAL PAD SECTION DETAIL "A" ON SHEET C15
9. MATCH EX. ASPHALT, CURB, SIDEWALK, GUTTER, OR VALLEY GUTTER. SAW CUT CLEAN EDGE FOR CONNECTION.
10. INSTALL CALL BOX FOR ENTRY GATES
11. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE II. "A" & "B" = 6.5' UNLESS OTHERWISE NOTED
12. CONNECT TO EX. SD LINE (CONTRACTOR TO VERIFY SIZE, INVERT AND LOCATION OF EX. SD)
13. CONSTRUCT WROUGHT IRON FENCE PER DETAIL "C", SHEET C15
14. CONSTRUCT SIDEWALK DRAIN PER CCAUSD #236
15. EXISTING RIP-RAP CHANNEL TO BE REMOVED.
16. EXISTING AC PAVEMENT TO BE REMOVED
17. EXISTING FENCE TO BE REMOVED
18. EXISTING CONCRETE PAD TO BE REMOVED
19. INSTALL TYPE "A" ISLAND CURB PER CCAUSD #219
20. CONSTRUCT TYPE "CM2" DROP INLET PER CCAUSD #412.1 & 421
21. CONSTRUCT GATES PER CCAUSD #425.S1
22. CONSTRUCT CONCRETE LINED DRAINAGE EASEMENT PER CCAUSD #425.S1
23. INSTALL 4" DIA. FIXED BOLLARDS SPACED 6' APART O.C., 1' BEHIND BACK OF SIDEWALK PER CCAUSD #425.S1
24. INSTALL NDOT TYPE R PEDESTRIAN RAIL ON RETAINING WALL PER NDOT STD. DWG B-25.1.5
25. INSTALL BLOCK WALL OPENING PER DETAIL F, SHEET C15
26. INSTALL PEDESTRIAN ACCESS GATE PER DETAIL G, SHEET C15
27. CONSTRUCT MODIFIED TYPE "CM2" DROP INLET PER STRUCTURAL DETAILS ON SHEET S0.00

## LEGEND

| PROPOSED | EXISTING | DESCRIPTION |
|---|---|---|
| | | PUBLIC R/W LINE |
| | | PRIVATE R/W LINE |
| | | BOUNDARY LINE |
| | | EASEMENT LINE |
| | | MATCH LINE |
| CUT / FILL | | CUT / FILL LINE |
| | | CENTERLINE |
| | | EDGE OF ASPHALT |
| | | CURB & GUTTER |
| | | RETAINING WALL |
| | | SAWCUT LINE |
| | | FLOWLINE |
| | | GRADE BREAK |
| 2500 | (2500) | MAJOR CONTOUR - 5' |
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| | |
|---|---|
| CUT: | 242,298 CY |
| FILL: | 59,941 CY |
| BALANCE: | 182,357 CY (CUT) |

## ENGINEER'S CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED UPDATED DRAINAGE STUDY CLV# DSS152 ON FILE WITH THE CITY OF LAS VEGAS.

DARRYL LATTIMORE, P.E. — 2/25/2020 DATE

FAST — Call before you Dig — Underground 1-702-432-5300 (FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (FAST)) — OR — CALL 811 OR 1-800-227-2600 — AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY. — AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY — CALL BEFORE YOU DO OVERHEAD — 1-702-227-2929

## LINE & CURVE DATA NOTE

REFER TO TRAFFIC SHEETS FOR LINE AND CURVE DATA.

## BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV09289W6
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

## BASIS OF BEARING

SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27, TOWNSHIP 21 SOUTH, RANGE 59 EAST, M.D.M., CITY LAS VEGAS, CLARK COUNTY, NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS.

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## SOILS NOTE

ALL GRADING SHALL CONFORM TO GEOTECHNICAL REPORT
BY: GEOTEK RESIDENTIAL, LLC
ORIGINAL PROJECT NUMBER: 14658-LVR
DATED: MARCH 5, 2019
UPDATED APRIL 17, 2019

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Engineering - Surveying - Consulting - Planning


PLAN & PROFILE - COMMON ELEMENT "A" STORM DRAIN

SAVANNAH

WILLIAM LYON HOMES

CITY OF LAS VEGAS, NEVADA

| NO. | DATE | DESCRIPTION | BY |
|---|---|---|---|
| | | | |

DARRYL C. LATTIMORE — STATE OF NEVADA — PROFESSIONAL ENGINEER — No. 17516 — EXP: 12/31/21 CIVIL

2/25/2020

| | |
|---|---|
| DATE | 02/26/2020 |
| DRAWN | RLS |
| DESIGNED | ALW |
| CHECKED | DCL |
| PROJECT # | WLH011803 |

SHEET TITLE: PLAN & PROFILES

SHEET NUMBER: C19

CLV#N/A — SHEET 19 OF 20


Plot Stamp: 2/27/2020 4:10:06 PM - Ryan Sicner
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