DS #: 05207

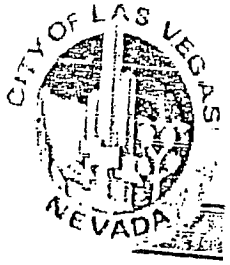
APN: 125-20-601-000; 125-20-602-002,-005-009,-010; 125-20-603-001,-003; 125-21-201-004

PROJECT: Montecito CO. Unit 3

SUBMITTAL: 1st

SCANNED BY/DATE: _____

CHECKED BY/DATE: _____



CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM				DATE: November 27, 2019
TO: **Land Development Services** Department of Building & Safety				FROM: Jennifer Shinn, P.E. Flood Control, Engr. Associate Department of Public Works
SUBJECT:	Drainage Study for: **Montecito 60 – Unit 3**			**COPIES TO:** Slater Hanifan
Cross Streets:	NWC of Deer Springs & Grand Montecito			KB Home Nevada
File Number:	F:\Depot\DSMemos\DS5207A.doc			Bart Anderson, P.E., DevCo
Parcel Number:	125-20-601-006;125-20-602-002, -005, -009, -010;125-20-603-001, -003;125-21-201-004			
Zoning Action:	SDR-74638			
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	10/23/2019	11/26/2019	See Comments Below	$400.00	3621409: $400
			TOTAL FEES (LDDRS):	**$400.00**	----

REMARKS:

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

	is approved subject to conformance to all City standards and the following conditions:
X	must be 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.

Note that the Clark County Regional Flood Control District (District) has begun efforts to update the *Hydrologic Criteria and Drainage Design Manual* (HCDDM) and is requesting participation from the engineering community. The District is collecting comments and suggestions on errors, clarifications, or changes needed to the current Manual and/or content and usability enhancements to be incorporated into the updated Manual. Additional information on procedures and deadline to provide feedback and comments are available online at (http://www.ccrfcd.org/hcddmupdate.html).

1. The velocity of flow along the northern wall is erosive. Provide scour calculations to demonstrate the wall and footing are adequately designed.
2. Show and label the existing public drainage easement with the recorded document number on the Grading Plans and Detail Sheets.
3. The engineer must provide a table on the grading plans that shows a quantity estimate of all drainage improvements within Public Drainage Easements. All drainage improvements within Public Drainage Easements must be bonded and inspected.

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: T19S/R60E/20 & 21
AREA G-20

TRANSMITTAL

To: Jennifer Shinn, P.E.
City of Las Vegas
333 Rancho Drive
Las Vegas, NV 89106

Date: October 23, 2019
Project No.: KBH1805.003

From: Jonathan Rocha, E.I.

Subject: Technical Drainage Study for Montecito 60 – Unit 3

CC: Stanley Okey Amadi, P.E., SHG
CC: Matt Key, SHG
CC: Hung Nguyen, SHG
CC: Mark Failla, P.E., CFM, SHG
CC: Chelsea Jensen, SHG
CC:

Transmitting Via:
- ☐ Mail
- ☒ Messenger / MDS
- ☐ Federal Express
- ☐ Pickup

For:
- ☒ Review & Comment
- ☐ Per your Request
- ☐ Information/File

Acknowledgement of Receipt:
- ☐ Not Required
- ☒ Acknowledgement Required

Received By:
Date: Time:

Copies	Description
1	Subject Study with Improvement Plans
1	Stamped and Signed Standard Form 1
1	$400 Submittal Fee (KB Home - Check #20357222)
1	CD containing PDF of submittal documents

Comments:
Enclosed please find the above listed items in support of our application of the *Technical Drainage Study for Montecito 60 – Unit 3.*

Please contact us if there are any questions at 702-284-5300. Thank you.

Signed:
Jonathan S. Rocha, E.I.
Flood Control Division

TECHNICAL DRAINAGE STUDY

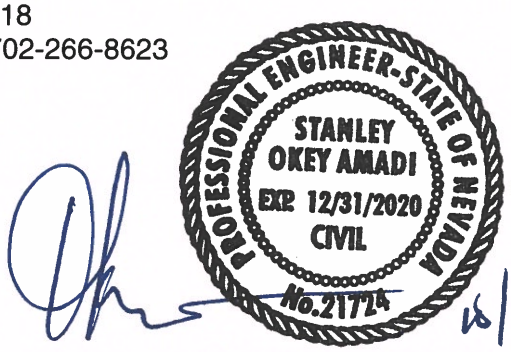
Montecito 60 - Unit 3

City of Las Vegas, Nevada

Job No.: KBH1805.003
Date: October 2019

Prepared By:
Slater Hanifan Group, A Westwood Team
5740 S. Arville Street, Suite 216
Las Vegas, Nevada 89118
Phone: 702-284-5300 ▪ Fax: 702-284-5399

Prepared For:
KB Home
5795 Badura Avenue, Ste 180
Las Vegas, NV 89118
Phone: 702-266-8400 ▪ Fax: 702-266-8623



10/23/19

Stanley Okey Amadi, P.E., CFM
NV Professional Engineer No. 21724

Assisted By: Jonathan S. Rocha, E.I.

KBH1805-003

October 23, 2019

Ms. Jennifer Shinn, P.E.
Flood Control Engineering Associate
City of Las Vegas Department of Public Works
333 N. Rancho Drive
Las Vegas, Nevada 89106

Subject: Technical Drainage Study for Montecito 60 - Unit 3

Ms. Shinn:

This letter certifies that all items provided within the *Technical Drainage Study for Montecito 60 - Unit 3* submittal CD match the paper version bound into the study.

Respectfully Submitted,
SLATER HANIFAN GROUP

Jonathan S. Rocha, E.I.
Graduate Engineer – Flood Control Division

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

DRAINAGE STUDY INFORMATION FORM

Name of Development: Montecito 60 - Unit 3 Date: October 2019

Location of Development: a) Descriptive (Cross Streets): North/South: Grand Montecito Parkway

East/West: Deer Springs Way

b) Section: 20 & 21 Township: 19 South Range: 60 East

c) APN: 125-20-601-006, 125-20-602-002, -005, -009, -010; 125-20-603-001, -003 & 125-21-201-004

Name of Owner: KB Home Nevada Acquisition, LLC

Telephone No.: (702) 266-8400 Fax No.: (702)266-8623 E-mail Address: pchao@kbhome.com

Address: 5795 Badura Ave, Suite 180 Las Vegas NV 89118

Contact Person – Name: Stanley Okey Amadi, P.E., CFM Telephone No.: (702) 284-5300

*E-mail Address: stanley.amadi@westwoodps.com Fax No.: (702) 284-5399

Firm: Slater Hanifan Group, A Westwood Team

Address: 5740 S. Arville #216 Las Vegas NV 89118

Type of Land Development/Land Disturbance Process:

☐	Rezoning	☐	Subdivison 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: ± 52.4 acres Being Developed/Disturbed: 12.8 +/- acres

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

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

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

5. Approximate upstream land area which drains to the subject site: 58 +/- acres

6. Has the site drainage been evaluated in the past? ☒ Yes** ☐ No If yes, please identify documentation:

TDS for Montecito Storm Drain Infrastructure (DS-5108), TDS for Montecito Unit 1 (DS-5114)

Final Design Report for Centennial Parkway Channel West – US95 CC215 to Durango Drive

7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: To Montecito Pointe as surface flows and captured by storm drain before Oso Blanca Road.

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



10/23/19

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.

*Newly 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

CITY OF LAS VEGAS

MINIMUM DRAINAGE STUDY CRITERIA
STANDARD FORM 2 CHECKLIST SUPPLEMENT

(Revised 5/18/11)

The following checklist is intended as a supplemental guide for the engineer preparing a Technical Drainage Study submittal to the City of Las Vegas. This supplement focuses on requirements specific to the City of Las Vegas. The requirements presented are in addition to the Clark County Regional Flood Control District (CCRFCD) Manual Standard Form 2. The listed items are the minimum information required prior to the City performing a review. The engineer will remain responsible to ensure the Technical Drainage Study is prepared within the guidelines as set forth in the CCRFCD Hydrologic Criteria and Drainage Design Manual (Design Manual).

An appointment must be made to preview this checklist in conjunction with CCRFCD Standard Form 2 prior to the City accepting a new drainage study for review. The engineer must contact the Flood Control Section at (702) 229-6541 to schedule a submittal appointment.

If items are not applicable for the subject site, provide N/A.

I. GENERAL REQUIREMENT		
Yes	No	
-	N/A	A notarized letter from the adjacent property owner(s) allowing off-site grading. (A copy of the letter must be received prior to final acceptance of the drainage study.)
X	-	Copies of all conditions of approval for development related to this property. (e.g. zoning, use permit, tentative map, etc.) Verify compliance with conditions.
X	-	An electronic copy of the complete submittal is required to be submitted with one original hard copy of the study. Electronic documents should be on a universal computer-readable digital output device replicating your submittal. An Indexed Portable Document Format (PDF) or Print Ready CAD file formats with a minimum of 300dpi are the desired formats. If figures are in color, they must be scanned in color and saved as a separate file. _____ by initial here, the engineer on record acknowledges that the electronic copy is an identical replicate of the original hard copy submitted to the City of Las Vegas.

II. GRADING PLAN INFORMATION		
Yes	No	
X	-	(1) 24" X 36" copy of the Grading Plan, (including all Detail Sheets) sealed by the engineer.
X	-	Proposed future and existing spot grades for top of curbs and street crowns at lot lines, grade breaks, and along curb returns on both sides of the street. Note: Proposed top of curb elevations must be provided for both sides of roadways even if only half street construction is required.
X	-	Label existing topography at a minimum 5 foot elevation interval including adjacent developments, finished floor elevations of existing buildings and top of existing curbs extending 100 feet* around the perimeter of the site. (*Measured from the centerline of the adjacent roadway.)

II. GRADING PLAN INFORMATION		
Yes	No	
-	N/A	Proposed on-site and off-site storm drains and other flood control facilities with plan and profile sheets for public storm drains showing the class of pipe, (Class III, IV, V, etc.), design hydraulic grade line, (HGL) and 100 year storm flow. A public drainage easement must be provided over on-site storm drains conveying off-site flows. An overflow path must be provided over all storm drains.
-	N/A	All existing and "to be constructed" walls with cross-sections showing wall type, (e.g. block wall, retaining wall, flood wall, etc.), with limits clearly defined, adjacent ground elevations. Wall heights must meet current ordinances and in no case exceed 14 feet above the adjacent property.
X	-	Street slopes for both interior and perimeter streets. Note: The minimum slope for a roadway is 0.4 percent, a minimum 18-inch storm drain must be provided where minimum slopes cannot be met.
X	-	Back of lot elevations and lot drainage pattern for all lots including common lots.
X	-	Sites with a grade difference two feet above or below existing ground are required to have approval from City of Las Vegas Current Planning. Current Planning approval is required prior to final approval of the drainage study.
X	-	On-site facilities must perpetuate flows through or around the site without significantly impacting adjacent property owners. (The project must pass flows through the site every 600 feet where the project is blocking flow paths.)
-	N/A	This project uses a solid grouted stem wall (or approved alternate) at the back of sidewalk to provide erosion protection for landscaped areas where the depth of flow in the roadway exceeds the back of walk elevation. A corresponding cross-section detail is included.
-	N/A	Commercial and Common Lot Landscape areas are not allowed to drain over the sidewalk. The grading plans show flow lines with grades and sidewalk under drains for all landscape areas draining to the public ROW.

III. Local Entity Criteria - City of Las Vegas – Manual Section 1600		
Yes	No	
-	N/A	Concrete valley gutters are required in parking lots with slopes less than 1 percent. Slopes through cul-de-sac must be at a 1 percent minimum where flow is drained through the cul-de-sac.
X	-	Ten-foot wide public drainage easements to be privately maintained are allowed for flow less than 20 cfs. The depth of flow entering the easement must be checked using the submerged weir calculation.
-	N/A	The limits of the flood zones and the base flood elevations (BFE) must be shown on all grading plans for all developments within a Special Flood Hazard Zone A, AO, AE, etc.
X	-	Minimum finish floor elevation is 6 inches above highest adjacent top of curb. Finish floor calculations must include allowances for super elevations on curves and velocity head for tee intersections.
X	-	Finished floor elevations for buildings adjacent to public drainage easements must be a minimum of 18 inches above the Q100 weir of submerged weir elevation, whichever is greater.

III. Local Entity Criteria - City of Las Vegas – Manual Section 1600		
Yes	No	
-	N/A	Lots with "B and C Type Drainage" that drain from one lot to another through a drainage easement shall be required to install an underground nuisance drainage system or a 2-foot valley gutter. 16" x 24" minimum block wall openings are required for both options.
-	N/A	Bubblers are required across 80 foot and greater ROW streets. When flows exceed 10 cfs, bubblers larger than 18 inches will be required up to a maximum of 36". Inlets must be sized to match the pipe size provided.

- Contact the Flood Control Section regarding the drainage study review fee. These fees are payable at the time of submittal.
- The Drainage Study must be conditionally approved prior to submitting improvement plans to the Civil and Planning Development of the Department of Building and Safety for review.

This document is intended as an **aid** in preparing Technical Drainage Studies for the City of Las Vegas. Each study submitted is reviewed for compliance with local and regional criteria. This form is not intended to be all-inclusive and does not limit the extent of the information, calculations or exhibits which may be necessary to properly evaluate the intended land use.

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

DRAINAGE SUBMITTAL CHECKLIST

Project Name: Montecito 60 - Unit 3	Map ID:
Firm Name: Slater Hanifan Group, A Westwood Team	Engineer: Stanley Okey Amadi, P.E., CFM
Address: 5740 S. Arville #216	
City: Las Vegas	State: NV Zip: 89118
Phone Number: (702) 284-5300	Fax Number: (702) 284-5399
Property Owner: KB Home Nevada Acquisition, LLC	
Address: 5795 Badura Ave, Suite 180	
City: Las Vegas	State: NV Zip: 89118

Reviewed By:	Date Received:	Date Accepted for Review:

The following checklist is intended as a guide for the engineer preparing a Technical Drainage Study to submit to the local entity and Clark County Regional Flood Control District (if necessary). The listed items are the minimum information required prior to the entity performing a review. The engineer will remain responsible to ensure the Technical Drainage Study is prepared within the guidelines as set forth in the Clark County Regional Flood Control District (CCRFCD) Hydrologic Criteria and Drainage Design Manual (MANUAL).

This document is intended as an aid in preparing Technical Drainage Studies. Each study submitted is reviewed for compliance with local and regional criteria. This form is not intended to be all inclusive and does not limit the extent of the information, calculations or exhibits which may be necessary to properly evaluate the intended land use.

If items are not applicable for the subject site, provide N/A.

I. GENERAL REQUIREMENT

Yes	No	
X	-	Design Manual **Standard Form 1** with the engineer's seal and signature.
X	-	Design Manual **Standard Form 4**.
X	-	2 copies of the 24" x 36" Drainage Plan.
-	N/A	A notarized letter from the adjacent property owner(s) allowing off-site grading or discharge.

II. MAPS AND EXHIBITS

Yes	No	
X	-	A copy of a current Flood Insurance Rate Map (FIRM) with the site delineated.
X	-	A copy of the current CCRFCD Master Plan Update Figure, (F-x), for Flood Control Facilities and Environmental areas with the site delineated.

REFERENCE:	**STANDARD FORM 2**

DRAINAGE SUBMITTAL CHECKLIST

II. MAPS AND EXHIBITS (Continued)

Yes	No	
X	-	Off-site drainage basin maps for existing, interim and future conditions showing the existing topography, basin boundaries, concentration points, and flows in cfs.
X	-	On-site drainage basin maps for existing and proposed conditions showing the existing topography, basin boundaries, concentration points, and on-site and off-site flows in cfs.
X	-	Vicinity Map with local and major cross streets identified and a north arrow.

III. DRAINAGE PLAN

Yes	No	
X	-	Sheet size: 24" x 36" sealed by a registered engineer in the State of Nevada.
X	-	Minimum scale: 1" = 60'.
X	-	Project name.
X	-	Vicinity Map with local and major cross streets.
X	-	Revision box.
X	-	North arrow and bar scale.
X	-	Engineer's/consultant's address and phone number.
X	-	Elevation datum and benchmark.
X	-	Legend for symbols and abbreviations.
X	-	Cut/fill scarps, where applicable.
X	-	Street names, grades, widths.
X	-	Proposed future and existing spot grades for top of curbs and street crowns at lot lines, grade breaks, and along curb returns on both sides of the street.
X	-	Existing contours encompassing the site and 100 feet beyond with spot elevations for important locations, where appropriate.
X	-	Minimum finish floor elevations with top-of-curb elevations at upstream end of lot.
X	-	Proposed typical street sections.

REFERENCE:	STANDARD FORM 2

DRAINAGE SUBMITTAL CHECKLIST

III. DRAINAGE PLAN (Continued)

Yes	No	
-	N/A	Streets with off-set crowns.
X	-	Proposed contours or spot elevations in sufficient detail to exhibit intended drainage patterns and slopes.
X	-	Property lines.
X	-	Right-of-way lines and widths, existing and proposed.
X	-	Existing improvements and their elevations.
X	-	Delineation of proposed on-site drainage basins indicating area and 10-year and 100-year storm peak flows at basin concentration points.
X	-	Concentration points and drainage flow direction with Q_{100} and V_{100} and D_{100} in streets.
X	-	Cumulative flows, velocity, and direction of flow at upstream and downstream ends of site for the 10-year and 100-year flows.
X	-	Location and cross-section of street capacity calculations.
X	-	Cross-sectional detail for channels, including cutoff wall locations.
X	-	Existing and proposed drainage facilities, appurtenances, and connections (i.e., sidewalk, ditches, swales, storm drain systems, unimproved and improved channels, and culverts, etc.) stating size, material, shape, and slope with plan and profile and HGL calculations.
X	-	Existing and proposed drainage easements and widths shown with sufficient detail. A cross sectional detail must be provided that shows appropriate lining and reinforcement.
X	-	Location and detail of existing, proposed, and future block wall openings. Minimum size is 16" x 48". Wrought iron gate is required for flows > 10 cfs.
-	N/A	Location and detail of flood walls illustrating depth of flow, proposed grouting height, etc.
X	-	Perimeter retaining wall locations. All existing and proposed walls (retaining screen and flood) must be shown with adjacent ground elevations. Flood walls with 8-inch concrete masonry unit.
X	-	Building and/or lot numbers.
-	N/A	Alignment of all existing, proposed, or future Regional Facilities adjacent to the site.
-	N/A	Limits of existing floodplain based on current FIRM or best available information; limits of proposed floodplains based on best available information.

REFERENCE:	**STANDARD FORM 2**

DRAINAGE SUBMITTAL CHECKLIST

III. DRAINAGE PLAN (Continued)

Yes	No	
-	N/A	For areas in Zone A, AE, AH, and AO, base flood elevations (BFEs) must be shown for each lot; BFEs may be listed on each lot, or in a table. Finish floor elevations must be a minimum of 18 inches above BFE.
-	N/A	Appropriately elevated "humps" 6 inches above the 100 year water surface elevation at site accesses where the intent is to protect the site from the Q_{100} flows.
X	-	Street slopes for perimeter and interior streets. The minimum slope is 0.4 percent.
-	N/A	Location and detail of best management practice (BMP) for parking lots and low impact development (LID) (if required).

IV. HYDROLOGIC ANALYSIS

Yes	No	
X	-	Appropriate soil information and Soils Map for existing and future conditions with subbasins and property delineated.
X	-	Input and output information for existing conditions from computer models (HEC-1 or TR-55). The flow routing diagram must be provided with HEC-1 models.
X	-	Input and output information for future conditions from computer models (HEC-1 or TR-55). The flow routing diagram must be provided with HEC-1 models.
X	-	Use of correct precipitation values in and around the McCarran Airport rainfall area.
X	-	A discussion in the text of the hydrologic analysis justifying subbasin boundaries and cutoffs, supporting assumptions, and calculations.
X	-	A summary table of stormwater flows showing basin area, Q_{10} and Q_{100} for both individual basins and combined basin flows, where applicable.
X	-	Copies of supporting technical information referenced from a previously approved study and a statement accepting these results.
X	-	On-site facilities must perpetuate flows through or around the site without significantly impacting adjacent property owners in accordance with current Nevada Drainage Law.
-	N/A	Calculation for impervious area for parking lots and LIDs (if required).

REFERENCE:	**STANDARD FORM 2**

DRAINAGE SUBMITTAL CHECKLIST

V. HYDRAULIC ANALYSIS

Yes	No	
-	N/A	Flow split calculations and supporting documentation or reference for the method of flow split calculations used.
X	-	Normal depth street flow calculations and cross section diagrams for all interior and perimeter streets. Provide "d x v" products for the Q_{100} and Q_{10} flows representing the worst case for interior and all perimeter streets. Q_{100} d x v $\leq$ 8. Q_{10} d x v $\leq$ 6 and 12 foot dry lane for rights-of-way $\geq$ 80 feet. Calculations must be labeled by street name as indicated on the Grading Plan.
X	-	A summary table of interior and exterior street capacity calculations showing the street name, Q_{100} flow, slope, depth of flow, velocity and depth times velocity product and streets needing to meet 12 foot dry lane criteria.
-	N/A	Appropriate hydraulic calculations for block wall openings assuming a 50 percent vertical clogging factor. (Assume the lower half of the opening is plugged.)
X	-	Appropriate hydraulic calculations at drainage easement entrance and discharge locations to set finish floor elevations. Hydraulic calculations must include submerged weir, superelevation and tee intersection losses, where appropriate.
X	-	Provide necessary freeboard requirements to set the finished floor elevations of all proposed buildings, 2 x depth of flow or depth of flow plus 18 inches of freeboard, whichever is less. The minimum requirement is 6 inches above adjacent upstream top of curb. Buildings adjacent to drainage easements must always be provided with 18 inches of freeboard above the Q_{100} weir height or flow depth, whichever is greater.
-	N/A	A complete water surface profile analysis (HEC-2, HEC-RAS, etc.) for channel flows and FEMA Zone A flood zones. • Field survey data. • Input and output information. • Plotted cross-sections based on survey with proper encroachments. • A map showing the location of the cross-sections. • Analysis of both sub and super-critical flow segments. • A summary table and a discussion of the results in the text of the report.
-	N/A	Provide a 50 percent clogging factor in the capacity calculation for drop inlets.
-	N/A	Hydraulic calculations for culverts and storm drains. D-Load calculations must be provided for storm drain pipes in public rights-of-way, including headwater pool inundation.
X	-	The mitigation of nuisance water, both during construction and in the fully developed condition, must be addressed.
-	N/A	Provide BMP type, size and supporting calculations for parking lots and LIDs (if required).

REFERENCE:	STANDARD FORM 2

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1 INTRODUCTION

1.1 Project Overview & Study Purpose

KB Home is proposing to develop a 12.80 ± acre site, located northeast of the Grand Montecito Parkway and Deer Springs Drive intersection, within the City of Las Vegas, Nevada. The proposed project is identified as *Montecito 60 - Unit 3* (hereinafter referred to as the Project Site or Unit 3 Site). The proposed improvements include single-family lots and private right-of-way street improvements. The proposed average lot size is less than 6,000 square feet. The Unit 3 Site is part of a larger residential development identified as Montecito 60 Site, hereby identified as the Montecito residential development.

The purpose of this study is to provide a detailed hydrologic and hydraulic analysis for the project site in order to protect the property from onsite and offsite runoff in accordance with local storm water management criteria as well as to support the finished floor elevation design of the proposed lots.

1.2 Site Description

The project site is located within the following APNs: 125-20-601-006; 125-20-602-002, -005, -009, -010; 125-20-603-001, -003; 125-21-201-004. The project site is located within Township 19 South, Range 60 East, and Sections 20 & 21. The project site is currently mass graded and drains in a southeasterly direction towards an open inlet-sump culvert. The project site is bound by Montecito Pointe to the south, Grand Montecito Parkway to the west, the existing Mountain Ridge Park to the north, and the Elysian site to the east. A location map identified as Exhibit A has been included in Appendix A for reference.

1.3 FEMA Flood Zone Designation

The project site is located within a portion of the current Flood Insurance Rate Map (FIRM) Panel 32003C1745E, effective date September 27, 2002. Review of the Panel indicates that the project site is located within a FEMA designated Zone 'X' (unshaded). Zone 'X' (unshaded) is described by FEMA as areas determined to be outside the 0.2% annual chance flood plain. Exhibit B, identifying the site on the above-mentioned current FIRM Panel, has been included in Appendix A for reference.

1.4 Northwest Neighborhood Study

The project site has been illustrated on the existing and future drainage condition maps from the Northwest Neighborhood Study. Refer to Exhibits C1 and C2 provided in Appendix A.

1.5 CCRFCD Facility Information

Figure F-11 from the 2018 Las Vegas Valley Flood Control Master Plan Update (2018 MPU, Reference 1) shows that the project site is not adjacent to any existing or proposed CCRFCD MPU regional facility. However, the Centennial Parkway Channel West/US-95 Branch Facility CN95-000; Facility CN95-000 identified as a 20'Wx7'H RCB is located

downstream and accepts flows from the site. Exhibit D1 identifying the project site on the 2018 MPU facilities figure and Exhibit D2 indicating the facility inventory summary, have been included in Appendix A for reference.

1.6 CCRFCD Hydrology Information

Figure W-2B from the 2018 Las Vegas Valley Flood Control Master Plan Update (2018 MPU, Reference 1) shows the project site on the 2018 MPU watershed figure. Exhibit D3 indicating the location of the project site on the figure has been included in Appendix A for reference.

1.7 Reference Studies

The following prior approved studies listed below have been utilized in the preparation of this study. The studies have been reviewed and are considered acceptable for reference with exceptions as noted in this report. Slater Hanifan Group concurs with all referenced and adopted hydrologic and hydraulic analyses from the studies and the results established therein.

- *Technical Drainage Study for Montecito Offsite Storm Drain Infrastructure,* (hereinafter referred to as the Infrastructure Study, Reference 4) updates and addenda (DS 5108), prepared by Slater Hanifan Group. The study has been utilized to reference drainage patterns and storm drain improvements for the Montecito Site. The study has been referenced for hydraulic analyses of perimeter street sections. Relevant reference materials from the Infrastructure Study have been included in Appendix D.

- *Technical Drainage Study for Montecito Unit 1* (hereinafter referred to as the Unit 1 Study, Reference 5) and addenda (DS 5114), prepared by Slater Hanifan Group, has established the drainage patterns and hydrologic data. Relevant reference materials from the Unit 1 Study have been included in Appendix F.

- *Final Design Report for Centennial Parkway Channel West – US95 CC215 to Durango Drive (DS 4893 & Drawing No. 107v6574)* (hereinafter referred to as the Centennial Study, Reference 6) and prepared by CH2M, has conceptually established drainage patterns and flow rates for the Montecito Site. The Centennial Study's hydrologic analysis was adopted in the Unit 1 Study. Therefore, no reference material has been provided from the Centennial Study as the Unit 1 and Infrastructure Study concurs with the hydrologic data adopted from the Centennial Study.

2 METHODOLOGY

2.1 Compliance

The methodologies utilized in the preparation of this study are in compliance with the Clark County Regional Flood Control District's Hydrologic Criteria and Drainage Design Manual (CCRFCD Manual, Reference 2).

2.2 Hydrologic Modeling

Modeling:

No hydrologic modelling was provided or utilized in this study. Hydrologic analysis for the Unit 3 project site has been referenced from the Unit 1 Study which technically addressed the Unit 1 development as well as mass grading of the remainder portions of the overall Montecito site.

The SCS Unit Hydrograph Method (SCS Method) was previously utilized to determine peak flow rates. The SCS Method utilizes precipitation, drainage area, curve number and lag time parameters to determine peak flow rates. The SCS Method routine within the U.S. Army Corp of Engineers HEC-1 Flood Hydrograph Package program was utilized to model the analyzed drainage basins.

Precipitation:

Precipitation data has been referenced from both the Infrastructure Study and Unit 1 Study. The Infrastructure Study has established the overall Montecito site as both within and outside of the McCarran Airport Rainfall Area, therefore the conservative value was utilized in the referenced hydrologic analysis.

The Unit 3 project site is located within the McCarran Airport Rainfall Area. The conservative precipitation values utilized in the HEC-1 models by the Unit 1 Study, per the CCRFCD Manual Figures 513 and 505, are 1.55 inches and 2.80 inches for the 10-year and 100-year storm events, respectively. In addition, since the drainage area of the contributing watershed is less than 8 square miles, the SDN 3 design storm distribution as taken from Table 503 in the CCRFCD Manual was used. Referenced precipitation data has been included in Appendix E.

Curve Number:

The SCS curve number loss rate methodology was utilized to approximate infiltration for the drainage basins. The soils information within the watershed was obtained from the US Department of Agriculture (USDA) Natural Resources Conservation Service NRCS Soil Survey of the Las Vegas Valley Area, Nevada, Part of Clark County (Soil Survey, Reference 3).

Exhibit E depicts the project site boundary on the soils map and have been included in Appendix A. Per the Soil Survey, the project site and all tributary areas lie within the following soil type:

- Soil Type 191, which is comprised of 100% Hydrologic Soil Group (HSG) 'A'. Soil Type 191 is described as Dalian very cobbly fine sandy loam, 2 to 8 percent slopes.

The following land uses were utilized for the previously analyzed ultimate condition model referenced from the Unit 1 Study:

- "Desert shrub (poor)" land use for existing undeveloped land
- "Commercial" land use for future onsite residential lots with average size of <6,000 square feet;

- "Apartments and condominiums" land use for future onsite apartments/condos.
- "Newly Graded" land use for pervious mass graded areas with no vegetation.

All referenced soil and curve number data and computations, including CCRFCD Manual reference tables, have been included in Appendix E.

A discussion of the curve number data between the Unit 1 Study and Centennial study has been included in Appendix F to indicate that the site is adequately flood protected using a conservative hydrologic analysis.

Lag Time:

The lag time is defined as the time measured from the center of mass of excess rainfall to the time to peak of the outflow hydrograph. The lag time is related to the time of concentration as 0.6 times the time of concentration. The time of concentration is defined as the time required for runoff to flow from the hydraulically most distant point of a basin to the outlet point of the basin. Standard Form 4, as outlined in the CCRFCD Manual, was utilized to determine the lag times for the basins modeled. The lag time computations have been included in Appendix E.

2.3 Hydraulic Modeling

Street Flow: Street flows have been analyzed utilizing the FlowMaster Version v8i software by Haestad Methods. In accordance with the CCRFCD Manual, the velocity times depth factor (v x d) for street flow for the 10-year storm event must be less than or equal to 6, with a maximum depth of 1-ft. The velocity times depth factor (v x d) for street flow for the 100-year storm event must be less than or equal to 8, with a maximum depth of 2-ft.

Drainage Easements: Drainage easements have been analyzed utilizing the Flowmaster Version v8i software by Haestad Methods. A submerged weir computation is provided at the upstream end of the drainage easement and a normal depth computation is provided through the drainage easement. The finished floor elevations (FFE) of lots immediately adjacent to the drainage easement are compared to the drainage easement water surface elevation. The FFE of the lots immediately adjacent to the drainage easements are to be elevated a minimum of 18-inches above the weir or normal depth WSE of the drainage easement, whichever is greater.

3 EXISTING DRAINAGE CONDITION

3.1 Definition of Existing Drainage Condition

The existing drainage condition is defined as the current state of the onsite and offsite watershed. The offsite watershed is considered fully developed while the onsite is undeveloped but mass graded. The analysis of the offsite tributary as well as the mass graded onsite area has been referenced from the Unit 1 Study.

3.2 Discussion of Existing Drainage Condition

The proposed improvements from the Centennial Study, Infrastructure Study and Unit 1 Study are considered existing. Refer to referenced Exhibit G in Appendix E for an illustration of the existing drainage condition.

Onsite: The existing onsite drainage condition is defined as mass graded which drains in an easterly/southeasterly direction as sheet flow per Unit 1 Study improvements. The surface flows are collected by an existing 60"x38 HERCP open sump pipe inlet.

Offsite: The offsite watershed is defined as fully developed with fully improved roadways surrounding the project site.

- Northwest - Offsite storm event runoff from Grand Montecito Parkway and Dorrell Lane drains east thru the existing 60" RCP storm drain system per the Infrastructure Study improvements.
- West - Existing storm drain improvements within Unit 1 site convey storm drain flow from Grand Montecito Parkway and then discharges into an interim trapezoidal earthen daylight channel within the Montecito Unit-2 project site.
- East - Multiple drainage culvert facilities, from the Centennial Study improvements, are located along Oso Blanca and are intended to collect the existing surface runoff from onsite Basin NWBB3-B. CCRFCD Facility CN95-0000 is considered existing and located adjacent to the US-95 which connects to the existing Centennial Study culverts. Note that the improvements for Oso Blanca Road which includes drop inlets to capture flows and drain into the CCRFCD CN95-0000 facility is currently under review.

3.3 Summary of Existing Condition Flows

A summary of the Existing Condition flowrates, as determined by the HEC-1 models has been referenced from the Unit 1 Study. Refer to Appendix E for the referenced Exhibit G and HEC-1 model.

4 UNIT 3 DEVELOPED DRAINAGE CONDITION

4.1 Definition of Unit 3 Developed Condition

The Unit 3 Developed Condition assumes that the entire offsite watershed and roadways are fully developed; with proposed improvements for Unit 3 as fully constructed. Therefore, the Unit 3 Developed Condition and the Ultimate Condition are defined as the same.

Two residential developments (Montecito Unit 2 and Elysian Sites) located downstream of the Unit 3 site are assumed as developed in this condition. Note that the Unit 3 Site proposes to discharge site flows into Montecito Pointe and does not discharge into the Elysian Site which is in conformance to the master plan by the Infrastructure Study.

the Unit 3 Site is independent of the Elysian Site as no flows discharge into the adjacent multi-family residential development.

4.2 Discussion of Unit 3 Developed Condition

The Unit 3 Developed Condition drainage patterns are illustrated on Exhibit F provided in Appendix A.

Onsite: Onsite Sub-basin NWBB3-B(B) is proposed to drain south towards Montecito Pointe. The basin has been provided for the Unit 3 project site improvements.

Note that an existing 60" RCP, proposed by the Infrastructure Study improvements, is located onsite within the proposed onsite roadway; Zacatin Avenue. The existing drainage facility drains storm drain flows in an easterly direction thru the Elysian Site.

Offsite: Surface flow from Sub-basins NWBB3-B(B & C) are conveyed within the central roadway (Montecito Pointe) to the 36" RCP storm drain system proposed by the Unit 2 Site. The 36" RCP storm drain connects to existing offsite storm drain system in Oso Blanca Road. Flows from the north drain towards the proposed block wall at the northern perimeter of the site. The flows drain in an easterly direction adjacent the site to be intercepted by a field inlet at Oso Blanca Road.

4.3 Summary of Unit 3 Developed Condition Flows

A summary of the Unit 3 Developed Condition flowrates as determined by the HEC-1 models has been presented in a summary table on Exhibit F. Refer to Appendix A for Exhibit F and Appendix E for the referenced HEC-1 model.

Basins are further divided into subbasins to quantify the flows in the offsite hydraulic sections to accurately determine flow depths used for finished floor analysis and street flow sections.

4.4 Summary of Unit 3 Developed Condition Street Flows

Since the Unit 3 Condition and Ultimate Condition are identical in drainage patterns, the Unit 3 Condition has been utilized for the worst-case flowrates for the project site and therefore, have been utilized for the hydraulic analysis of the street flows.

Street hydraulic sections have been provided for the onsite improvements and identified as Section 1. Where multiple street grades are provided for the street section, the hydraulic section has been analyzed for the minimum and maximum slopes.

Referenced street sections GM1 (Grand Montecito Parkway) and N1 (Montecito Pointe) were referenced from the Unit 1 Study. These sections analyzed the perimeter streets for the Unit 3 Site and were utilized in the finished floor analysis of the site. Note that Section GM1 is provided for Grand Montecito Parkway which drains towards a low point to be collected by storm drain facilities. Therefore, GM1 has been analyzed with the total flow from both directions upstream of the Grand Montecito Parkway low point and is conservative for the street flow depth analysis adjacent to the Unit 3 Site.

The street flow summary table have been included on Exhibit F, and the supporting FlowMaster street flow computations have been included in Appendix B. Review of the street flow calculations indicate that the DxV and 100-year depth criteria has been met, furthermore, the 100-year flows satisfied the 10-year criteria; thus, no 10-year street flow calculations have been provided. Additionally, the proposed streets are less than 80-ft in ROW width and are thus are not required to adhere to 10-year dry lane criteria; therefore, 10-year dry lane computations have not been analyzed.

5 ULTIMATE DRAINAGE CONDITION

5.1 Definition of Ultimate Condition

In the ultimate condition, the future residential developments for the Montecito residential development are considered fully developed and all roadways are fully improved. As previously stated in Section 4.1 above, the Unit 3 developed condition is the same as the ultimate condition. Therefore, no additional analysis for the ultimate condition is necessary nor provided.

6 SUMMARY OF RECOMMENDED FACILITIES

Locations of the existing drainage facilities has been illustrated on Exhibit F in Appendix A. No storm drain facilities are proposed with the project site.

Drainage Easement: A proposed 10-ft drainage easement drains onsite flows south into Montecito Pointe. The drainage easement has been identified as Section E1 and utilized a prorated flowrate.

Offsite Section: A section has been provided for the offsite flows located at the northern perimeter of the site behind Lots 218 thru 240. The section has been identified as S1 and utilized the most conservative location to generate a higher flow depth near the lots.

The hydraulic sections have been analyzed for the finished floor computations. FlowMaster computations have been provided for the hydraulic sections and included in Appendix B.

7 SUMMARY OF FINISHED FLOORS

The developed/ultimate condition was used to assess finished floor elevations. All the proposed finished floors have been adequately elevated or flood protected above twice the depth of flow in the adjacent streets, up to 18-inches, measured at the high side of the lot and 18-inches above the top of curb or centerline elevations measured at the middle of the lot, whichever is higher. The finished floor elevations for the lots adjacent to the drainage easement have also be flood protected to 18-inches above the weir or normal depth water surface elevation in the easement. The finished floor elevation assessments have been included in Appendix C.

8 CONCLUSIONS & RECOMMENDATIONS

1. The project site is not located within a FEMA designated SFHA. Therefore, notification to FEMA will not be required for this study.

2. The project site is not adjacent to a CCRFCD regional facility. The Unit 3 Site does not impact or alter the drainage analysis performed by the Infrastructure Study. Therefore, concurrence from CCRFCD is not anticipated for this study.

3. The interior and perimeter roadways meet all CCRFCD Manual criteria as discussed in Section 2.3.

4. All drainage facilities proposed by the project site are in conformance with the Infrastructure Study drainage patterns and anticipated peak flows and have been designed to satisfy the storm drain criteria.

5. The recommended drainage patterns by this study are in conformance with the anticipated drainage patterns by adjacent and downstream properties and result in no adverse impacts. Therefore, the development of the proposed project site is considered acceptable.

6. Finished floor elevations have been elevated at least to a height of two times the depth of flow in the adjacent streets measured from the high side of the building.

7. The improvement plans have been included with this study to support the drainage pattern, conclusions and/or recommendations detailed in this study.

9 REFERENCES

1. *Las Vegas Valley Flood Control Master Plan Update.* Clark County Regional Flood Control District, 2018.

2. *Hydrologic Criteria and Drainage Design Manual.* Clark County Regional Flood Control District, 1999.

3. *Soil Survey of Las Vegas Valley Area, Nevada.* U.S. Department of Agriculture, Natural Resources Conservation Service, Web accessed February 11, 2019.

4. *Technical Drainage Study for Montecito Storm Drain Infrastructure;* SHG, February 2019.

5. *Technical Drainage Study for Montecito Unit 1*; SHG, March 2019.

6. *Final Design Report for Centennial Parkway Channel West – US95 CC215 to Durango Drive, CH2M, November 2016.*

LIST OF APPENDICES

Appendix A **Drainage Exhibits**
- Exhibit A – Location Map
- Exhibit B – FEMA FIRM Panel Map
- Exhibit C1 – Northwest Neighborhood Study Existing Drainage Condition Map
- Exhibit C2 – Northwest Neighborhood Study Future Drainage Condition Map
- Exhibit D1 – CCRFCD MPU Facility Map
- Exhibit D2 – CCRFCD MPU Facility Inventory List
- Exhibit D3 – CCRFCD MPU Watershed Map
- Exhibit E – Soils Map
- Exhibit F – Unit 3 Developed Condition Drainage Map

Appendix B **Hydraulic Analyses**
- 100-YR Street Computations
- Drainage Easement Computations
- Hydraulic Sections

Appendix C **Finished Floor Analysis**

Appendix D **Reference Material**
Technical Drainage Study for Montecito Storm Drain Infrastructure (DS 5108), By SHG
- Approval Letter
- Referenced Drainage Exhibits

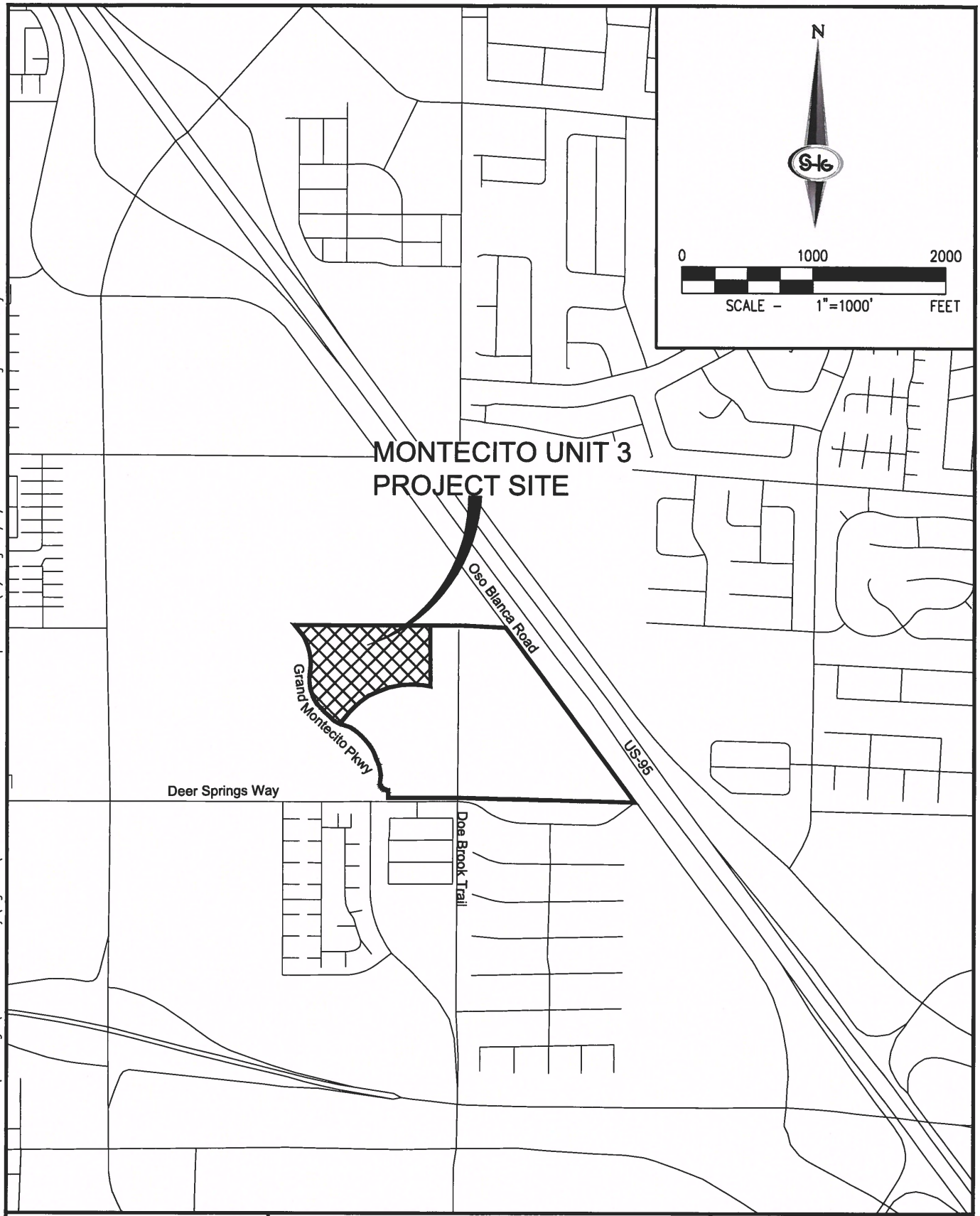
Appendix E **Reference Material**
Technical Drainage Study for Montecito Unit 1 (DS 5114, By SHG
- Approval Letters
- Referenced Drainage Exhibits
- Referenced Report Excerpt
- Referenced Hydrologic Data
- Referenced Hydraulic Data

Appendix F **Entitlement Information**

Appendix G **CD & Improvement Plans**

APPENDIX A

Drainage Exhibits



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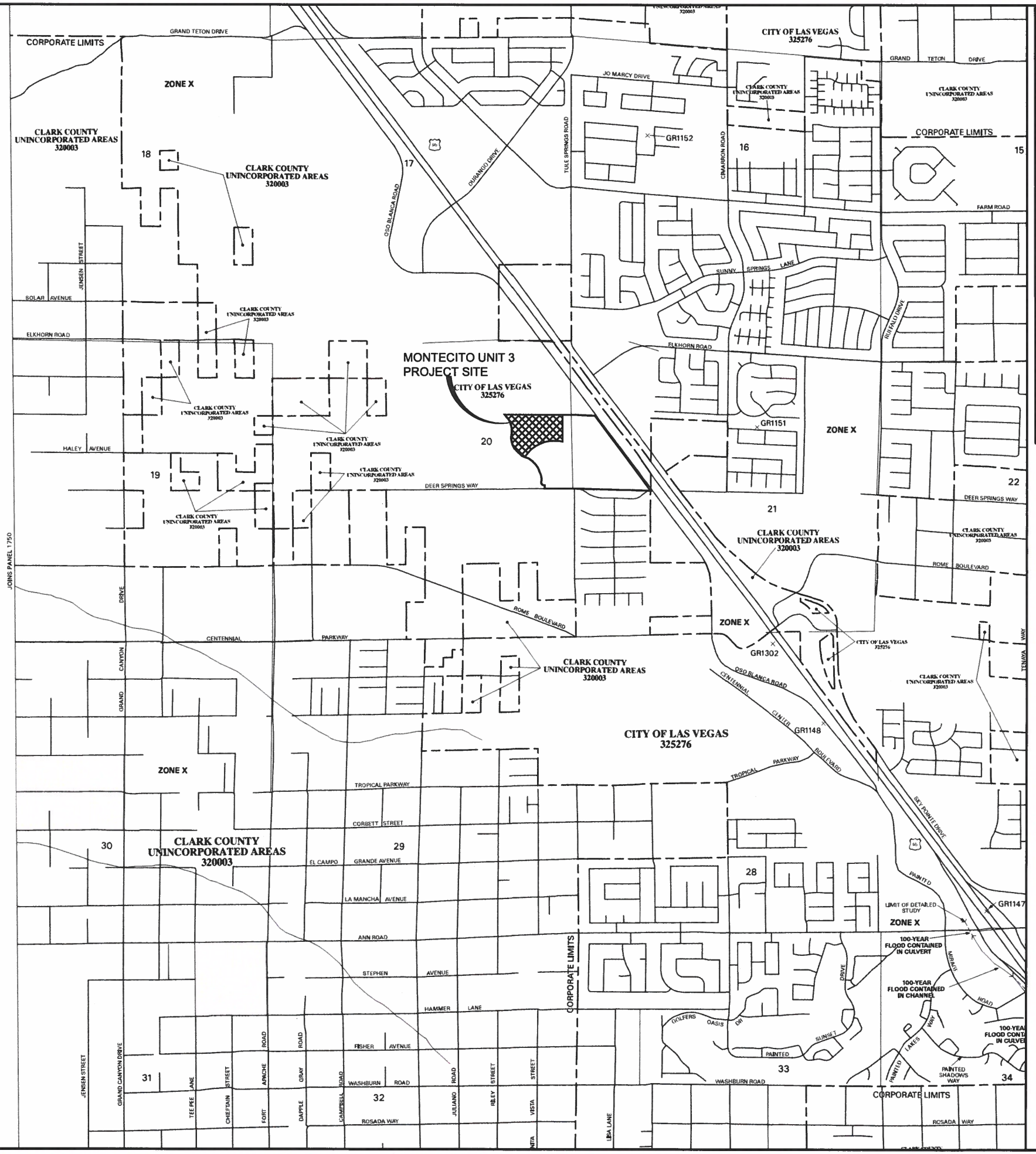
SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

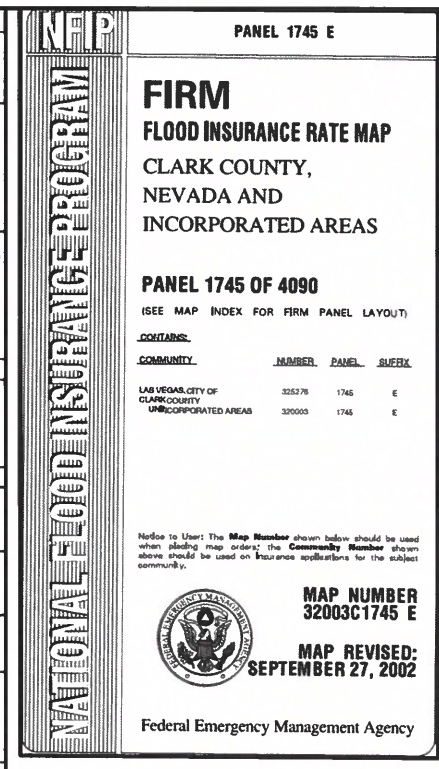
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MONTECITO UNIT 3

LOCATION MAP

DATE: OCT. 2019	PROJECT NO. KBH1805.003
DRAFTER: GND	
DESIGNER: GND	EXHIBIT A
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PANEL 1745 E

FIRM
FLOOD INSURANCE RATE MAP
CLARK COUNTY, NEVADA AND INCORPORATED AREAS

PANEL 1745 OF 4090

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
LAS VEGAS, CITY OF	325276	1745	E
CLARK COUNTY UNINCORPORATED AREAS	320003	1745	E

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER 32003C1745 E

MAP REVISED: SEPTEMBER 27, 2002

Federal Emergency Management Agency

LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD EVENT

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water surface elevation of the 1% annual chance flood.

ZONE A No base flood elevations determined.

ZONE AE Base flood elevations determined.

ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.

ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE AR Area of special flood hazard formerly protected from the 1% annual chance flood event by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood event.

ZONE A99 Area to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no base flood elevations determined.

ZONE V Coastal flood zone with velocity hazard (wave action); no base flood elevations determined.

ZONE VE Coastal flood zone with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- Floodplain Boundary
- Floodway Boundary
- Zone D Boundary
- Coastal Barrier Boundary
- Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or velocities.
- 513 — Base Flood Elevation line and value; elevation in feet*
- (EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

*Referenced to the North American Vertical Datum of 1988

- (A)—(A) Cross Section Line
- (23)—(23) Transect Line
- 97°07'30", 32°22'30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
- 4276000M — 1000-meter Universal Transverse Mercator grid values, zone 11
- 600000 FT — 5000-foot grid ticks
- DX5510 — Bench mark (see explanation in Notes to Users section of this FIRM panel).
- M1.5 — River Mile

MAP REPOSITORY
Refer to Repository Listing on Index Map

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
AUGUST 16, 1995

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

September 27, 2002: to update corporate limits, to change base flood elevations, to add base flood elevations, to add special flood hazard areas, to change special flood hazard areas, to delete special flood hazard areas, to change zone designations, to add roads and road names, to incorporate previously issued letters of map revision, to incorporate previously issued letters of map amendment, and to change floodway.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at (800) 638-6620.

N

0 2000 4000

SCALE - 1"=2000' FEET

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

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MONTECITO UNIT 3

FEMA FIRM PANEL MAP

DATE: OCT. 2019
DRAFTER: GND
DESIGNER: GND
CHECKED: SOA
PROJECT NO. KBH1805.003

EXHIBIT B
SHEET 1 OF 1

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CITY OF LAS VEGAS
NEVADA

NORTHWEST NEIGHBORHOOD STUDY

LEGEND

SUB-BASIN BOUNDARY

FLOW ARROW

250	10-YEAR STREET FLOW
500	100-YEAR STREET FLOW
300	10-YEAR FACILITY FLOW
800	100-YEAR FACILITY FLOW

(FLOWS IN CFS)

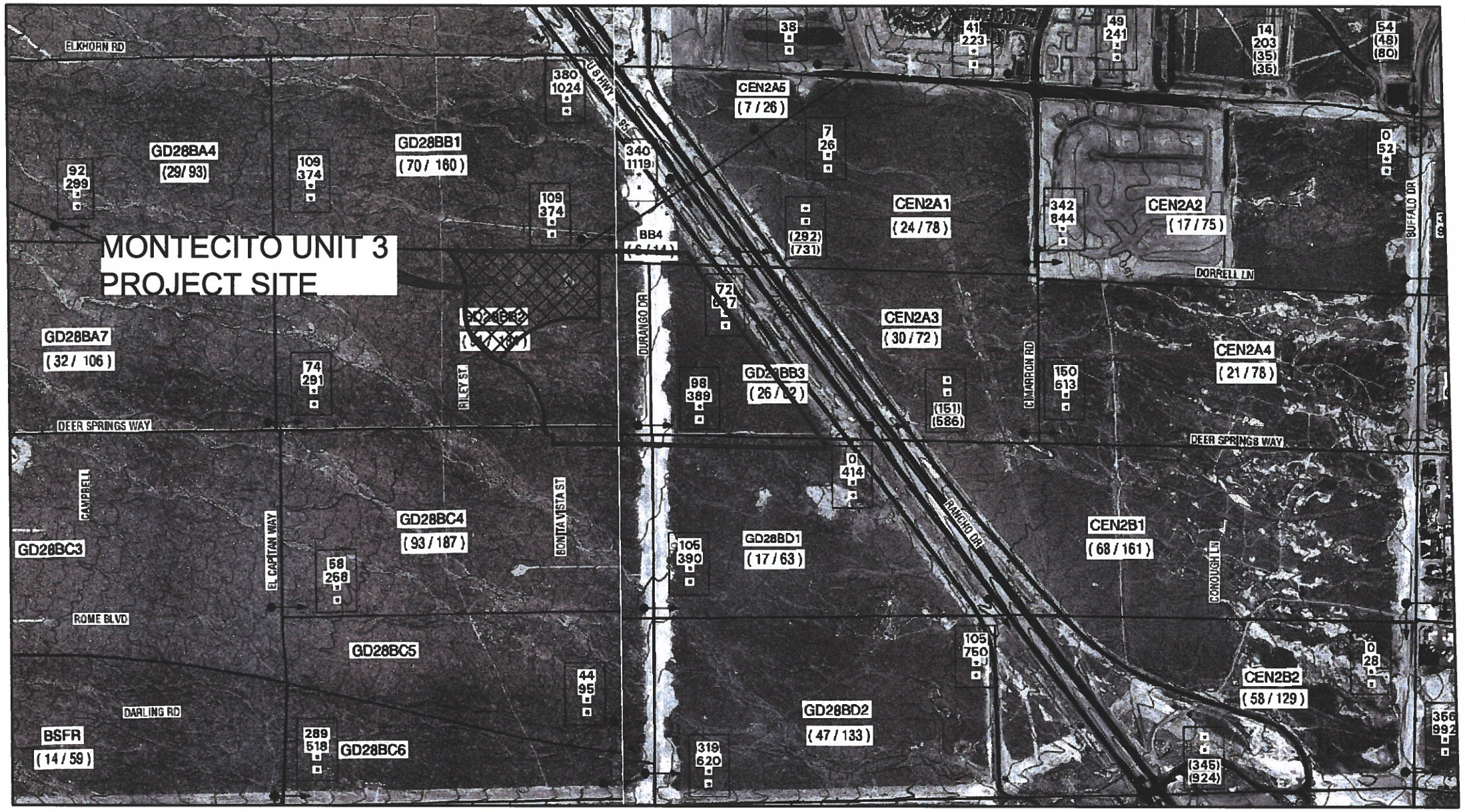
BWJS ⟷ Basin-ID

(13 / 59) ⟷ Contributing flow (10-Year / 100-Year) from the basin (cfs)

PHOTO DATE: APRIL 1998

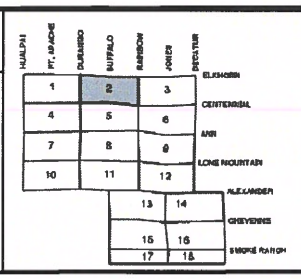
FIGURE E-1

FIGURE E-2



EXISTING DRAINAGE CONDITIONS

PBS&J
POST, BUCKLEY, SCHUH & JERNIGAN, INC.
ENGINEERING PLANNING SURVEYING GIS
901, N. Green Valley Pkwy., Ste 100, Henderson NV 89014
Phone: (702) 269-7275 Fax: (702) 269-7200



REVISED SEPTEMBER 1999

NOTE:
Existing conditions are based on future CN values with only existinig local and CCRFCD facilities in place

N
W
E
S
800 600 400 200 0 400 800
(IN FEET)
SCALE: 1 INCH = 800 FEET

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PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP

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MONTECITO UNIT 3

NORTHWEST NEIGHBORHOOD STUDY EXISTING CONDITION DRAINAGE MAP

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PROJECT NO.	KBH1805.003

EXHIBIT C1

SHEET 1 OF 1

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CITY OF LAS VEGAS NEVADA

NORTHWEST NEIGHBORHOOD STUDY

LEGEND

SUB-BASIN BOUNDARY

FLOW ARROW

250	10-YEAR STREET FLOW
500	100-YEAR STREET FLOW
300	10-YEAR FACILITY FLOW
800	100-YEAR FACILITY FLOW

(FLOWS IN CFS)

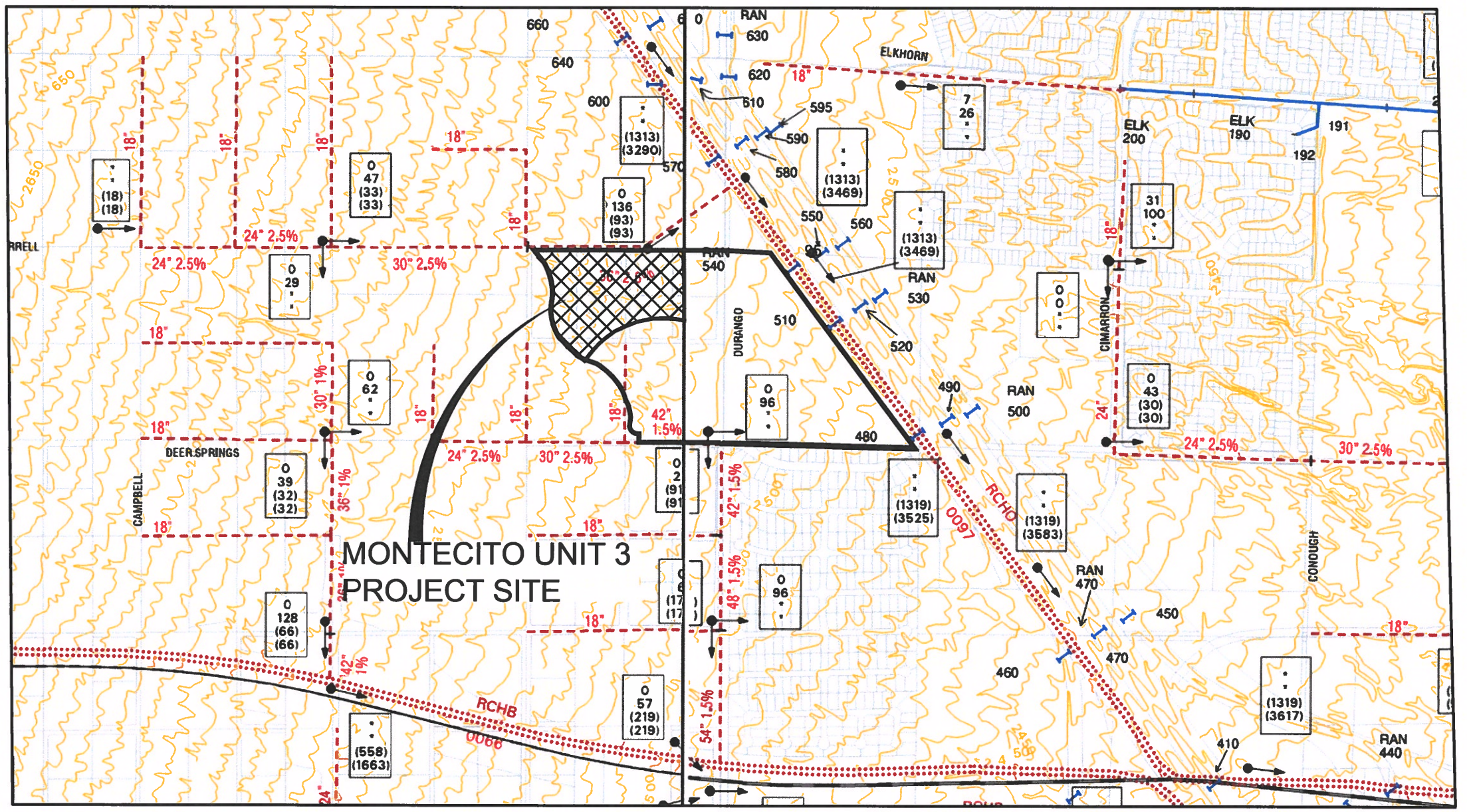
BWJS — Basin-ID

(13 / 59) — Contributing flow (10-Year / 100-Year) from the basin (cfs)

PHOTO DATE: APRIL 1996

FIGURE E-1

FIGURE E-2



N

S

800 600 400 200 0 400 800

(IN FEET)

SCALE: 1 INCH = 800 FEET

FLOW ARROW

250	10-YEAR STREET FLOW
500	100-YEAR STREET FLOW
(300)	10-YEAR FACILITY FLOW
(800)	100-YEAR FACILITY FLOW

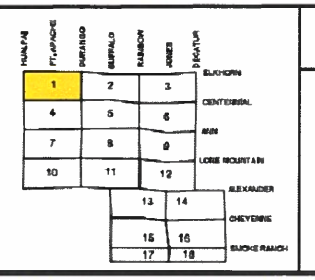
(FLOWS IN CFS)

NOTE:

Ultimate drainage conditions are based on future CN values with all flood control facilities in place

See the "September 1999 City of Las Vegas Northwest Neighborhood Study Phase 2" for proposed facilities in and north of Elkhorn.

REVISED SEPTEMBER 1999



FUTURE DRAINAGE CONDITIONS

PBSJ
991 North Green Valley Parkway, Suite 100
Henderson, Nevada 89074-0138
Phone 702.253-7276
Fax 702.269-7200
engineering planning environmental construction services

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PHONE (702) 284-5300
FAX (702) 284-5399

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MONTECITO UNIT 3

NORTHWEST NEIGHBORHOOD STUDY FUTURE CONDITION DRAINAGE MAP

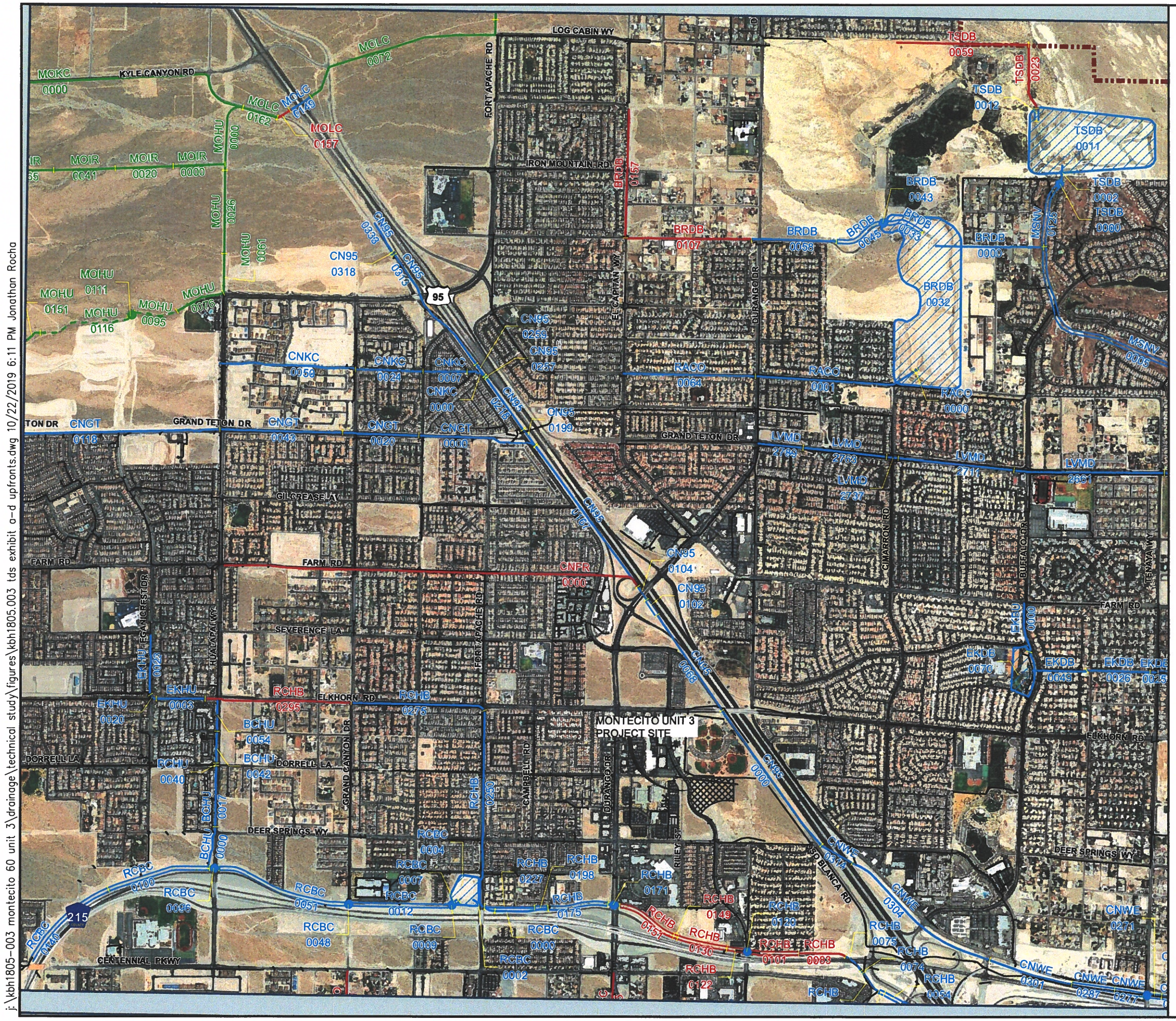
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LOG CABIN WY
KYLE CANYON RD
FORT APACHE RD
IRON MOUNTAIN RD
GRAND TETON DR
FARM RD
SEVERENCE LA
ELKHORN RD
DORRELL LA
DEER SPRINGS WY
GILCREASE LA
CENTENNIAL PKWY
GRAND CANYON DR
MONTECITO UNIT 3
PROJECT SITE
MOKC 0000
MOLC 0072
MOLC 0162
MOLC 0149
MOLC 0157
MOIR 0041
MOIR 0020
MOIR 0000
MOHU 0000
MOHU 0026
MOHU 0061
MOHU 0111
MOHU 0151
MOHU 0116
MOHU 0095
MOHU 0076
CN95 0339
CN95 0315
CN95 0318
CN95 0259
CN95 0257
CN95 0216
CN95 0199
CN95 0104
CN95 0102
CN95 0068
CN95 0000
CNKC 0056
CNKC 0024
CNKC 0007
CNKC 0000
CNGT 0118
CNGT 0043
CNGT 0020
CNGT 0000
BRDB 0157
BRDB 0107
BRDB 0058
BRDB 0045
BRDB 0053
BRDB 0043
BRDB 0000
BRDB 0032
TSDB 0059
TSDB 0023
TSDB 0012
TSDB 0011
TSDB 0002
TSDB 0000
MSNV 0025
MSNV 0005
RACO 0064
RACO 0001
RACO 0000
LVMD 2783
LVMD 2763
LVMD 2711
LVMD 2737
LVMD 2661
CHARLESTON BLVD
CHARLESTON BLVD
CHARLESTON BLVD

ID / Mile	Status	Facility Description	Length (ft.)	Flow (cfs)	HEC-1 Node	HEC-1 Model	Tributary Area (sq.mi.)	Channel Slope (%) **
BCHU		**BELTWAY CHANNEL - HUALAPAI**						
0000	E	12' X 5' RCAP	853	206	DBA3-C	WEST3	0.84	1.11
0017	E	8' X 5' RCAP	1216	218	CBA3-C	WEST3	0.84	1.33
0040	E	66" RCP	60	57	DNW26-C	WEST3	0.51	1.04
0042	E	60" RCP	615	57	DNW26-C	WEST3	0.51	1.42
0054	E	54" RCP	615	57	DNW26-C	WEST3	0.51	1.23
BRDB		**BRENT DRAINAGE SYSTEM**						
0000	E	36" RCP WITH 18" ORIFICE PLATE	2170	36	BRDB	WEST3	2.37	0.40
0031	E	45,080 CFS PMF SPILLWAY		45080	CBRDB	WEST3	2.37	
0032	E	450 AC-FT SOUTH ENVIRONMENTAL ENHANCEMENT AREA		1685	CBRDB	WEST3	2.37	
0033	E	ENERGY DISSIPATOR	100	1052	CNW147W	WEST3	1.75	
0043	E	20' X 7' RCBC	135	1052	CNW147W	WEST3	1.75	0.50
0045	E	CONC CHNL 12'W 7'D 2:1 SS	983	1052	CNW147W	WEST3	1.75	2.00
0058	E	12' X 6' RCB	1688	951	CNW113-C	WEST3	1.47	1.81
0107	P	8' X 6' RCB	2560	951	CNW113-C	WEST3	1.47	2.40
0157	P	12' X 7' RCB	2580	621	CNW96-C	WEST3	0.84	0.25
CN95		**CENTENNIAL PKWY CHANNEL WEST / U.S 95 BRANCH**						
0000	E	20' X 7' RCB	3335	2778	CNWBB3-C	WEST3	3.35	2.00
0068	E	20' X 7' RCB	2300	2725	CNW103-C	WEST3	3.04	2.10
0102	E	CONC CHNL 20'W 9'D 0:1 SS	375	2548	2CNW89-C	WEST3	2.65	1.77
0104	E	2- 12' X 10' RCB	300	2548	2CNW89-C	WEST3	2.65	1.10
0187	E	16' X 8' RCB	3521	2548	2CNW89-C	WEST3	2.65	1.58
0199	E	15' X 9' RCB	407	1467	2CNW72-C	WEST3	1.13	0.41
0218	E	15' X 9' RCB	1227	1467	2CNW72-C	WEST3	1.13	0.82
0257	E	TRANSITION STRUCTURE	59	1467	2CNW72-C	WEST3	1.13	0.77
0259	E	15' X 9' RCB	284	599	CNW74-C	WEST3	0.40	0.77
0313	E	10' X 6' RCB	2680	599	CNW74-C	WEST3	0.40	2.50
0318	E	TRANSITION STRUCTURE	60	599	CNW74-C	WEST3	0.40	1.50
0333	E	5' X 5' RCB	670	259	NW62-S	WEST3	0.16	1.50
CNFR		**CENTENNIAL PKWY CHANNEL WEST / FARM ROAD**						
0000	P	8' X 6' RCB	8350	776	CNW89-C	WEST3	1.05	2.00
CNGT		**CENTENNIAL PKWY CHANNEL WEST / GRAND TETON BRANCH**						
0000	E	10' X 5' RCB	2376	543	CNW71-E	WEST3	0.47	2.58
0020	E	10' X 5' RCB	1570	543	CNW71-E	WEST3	0.47	3.50
0043	E	8' X 6' RCB	2470	543	CNW71-E	WEST3	0.47	3.60
0118	E	6' X 5' RCAP	5472	349	KYLEDET	KYLEDB	58.61	3.72
CNKC		**CENTENNIAL PKWY CHANNEL WEST / KYLE CANYON BRANCH**						
0000	E	12' X 4' RCB	377	954	CNW72-C	WEST3	0.74	4.58
0007	E	10' X 5' RCB	874	954	CNW72-C	WEST3	0.74	3.28
0024	E	8' X 5' RCB	1385	954	CNW72-C	WEST3	0.74	2.40
0050	E	72" RCP	2757	437	NW45-S	WEST3	0.31	3.60
CNWE		**CENTENNIAL PKWY CHANNEL WEST**						
0195	E	CONC CHNL 36'W 9'D 0:1 SS	1130	3771	CNW3B3-C	WEST3	5.64	0.60
0200	E	CONC CHNL 36'W 9'D 0:1 SS	1340	3523	CNW2D4-C	WEST3	5.14	1.00
0226	E	2- 18' X 8.5' RCBC @ RIO VISTA	100	3523	CNW2D4-C	WEST3	5.14	0.51
0241	E	CONC CHNL 36'W 9.5'D 0:1 SS	405	3523	CNW2D4-C	WEST3	5.14	0.51
0251	E	CONC CHNL 36'W 9'D 0:1 SS	575	3234	CNW2D3-C	WEST3	4.64	0.51
0271	E	CONC CHNL 32'W 10'D 0:1 SS	229	3234	CNW2D3-C	WEST3	4.64	0.51
0274	E	32' X 10' RCBC @ TENAYA	142	3234	CNW2D3-C	WEST3	4.64	0.51
0277	E	CONC CHNL 32'W 9'D 0:1 SS	579	3234	CNW2D3-C	WEST3	4.64	0.64
0287	E	CONC CHNL 32'W 8'D 0:1 SS	885	2992	CNW2B2-C	WEST3	3.83	1.59
0301	E	2- 15' X 7' RCB	1738	2992	CNW2B2-C	WEST3	3.83	1.30
0304	E	22' X 7' RCB	3410	2992	CNW2B2-C	WEST3	3.83	1.85
0314	E	22' X 7' RCB	703	2822	CNWB02-N	WEST3	3.45	1.94
EKBU		**ELKHORN SPRINGS AND BUFFALO**						
0000	E	60" RCP	1046	255	NW134-C	WEST3	0.46	0.89
EKDB		**ELKHORN SPRINGS DETENTION BASIN**						
0000	E	GRASS CHNL 15'W 5.8'D 3.5:1 SS	2575	221	CNW150-C	WEST3	1.41	0.39
0025	E	4' X 3' RCB	160	106	ELKBASIN	WEST3	0.84	0.50
0026	E	48" RCP	1270	106	ELKBASIN	WEST3	0.84	1.23
0049	E	60" RCP	1095	106	ELKBASIN	WEST3	0.84	0.13
0070	E	48 AC-FT ELKHORN SPRINGS DETENTION BASIN		456	CNW133-C	WEST3	0.84	

ID / Mile	Status	Facility Description	Length (ft.)	Flow (cfs)	HEC-1 Node	HEC-1 Model	Tributary Area (sq.mi.)	Channel Slope (%) **
EKHU		**ELKHORN AND HUALAPAI**						
0003	E	6' X 4' RCAP	980	393	CNW26-C	WEST3	0.51	3.61
0020	E	6' X 5' RCAP	150	393	CNW26-C	WEST3	0.51	3.61
0023	E	8' X 5' RCAP	1200	393	CNW26-C	WEST3	0.51	0.90
GOEC		**GOWAN NORTH - EL CAPITAN BRANCH**						
0176	P	78" RCP	1320	190	CCPFR-C	GOW3A	0.46	1.15
GONO		**GOWAN NORTH SYSTEM**						
0511	P	6' X 5' RCB	1320	326	CCPHW-C	GOW3A	0.60	1.14
LVMD		**LAS VEGAS WASH - MIDDLE**						
2507	E	2- 13' X 8' RCB	2831	1808	CNW168-C	CWEST3	4.43	0.36
2525	E	24' X 8' RCB	1140	1598	CNW159-C	CWEST3	3.92	0.40
2550	E	24' X 8' RCB	1445	1312	CD161-C	CWEST3	3.42	0.40
2574	E	24' X 8' RCB	1430	1312	CD161-C	CWEST3	3.42	0.41
2599	E	CONC CHNL 24'W 7'D 2:1 SS	1577	1268	CNW162-C	CWEST3	3.10	0.51
2632	E	18' X 5' RCB	1443	695	CNW138-C	WEST3	1.16	0.47
2661	E	18' X 5' RCB	3003	695	CNW138-C	WEST3	1.16	0.78
2711	E	10' X 5' RCB	2440	560	CNW139-C	WEST3	0.93	2.00
2737	E	8' X 5' RCB	265	560	CNW139-C	WEST3	0.93	2.25
2763	E	6' X 5' RCB	1565	560	CNW139-C	WEST3	0.93	2.41
2789	E	6' X 5' RCB	910	560	CNW139-C	WEST3	0.93	2.00
MOHU		**MOCCASIN-HUALAPAI BRANCH**						
0000	P0	13' X 6' RCB	1476	924	2CNW33-C	LOWER3	2.08	1.80
0026	P0	11' X 6' RCB	1654	560	CNW45-N	LOWER3	1.25	0.50
0061	P0	9' X 6' RCB	779	560	CNW45-N	LOWER3	1.25	0.50
0076	P0	60" RCP	1000	263	CNW45-C	LOWER3	1.03	3.00
0095	P0	NATURAL WASH	865	263	CNW45-C	LOWER3	1.03	3.00
0111	P0	6' X 5' RCBC @ EGAN CREB DR	164	263	CNW45-C	LOWER3	1.03	6.10
0116	P0	NATURAL WASH	1900	263	CNW45-C	LOWER3	1.03	3.00
0151	P0	54" RCPC @ SHAUMBER	438	72	MODB1	LOWER3	0.86	2.00
MOIR		**MOCCASIN - IRON MOUNTAIN BRANCH**						
0000	P0	60" RCP	1060	410	CNW33-C	LOWER3	0.83	4.50
0020	P0	54" RCP	1161	71	MODB2	LOWER3	0.56	3.20
0041	P0	42" RCP	1236	71	MODB2	LOWER3	0.56	5.00
0065	P0	60" RCP	1099	71	MODB2	LOWER3	0.56	0.40
MOKC		**MOCCASIN AND KYLE CANYON**						
0000	P0	9' X 6' RCB	6140	1072	CNW35-C	LOWER3	2.69	3.40
MOLC		**MOCCASIN - LOG CABIN BRANCH**						
0000	P0	20' X 10' RCB	2206	2265	2CNW64	LOWER3	6.06	0.65
0072	P0	12' X 8' RCB	4493	2265	2CNW64	LOWER3	6.06	2.66
0149	E	13' X 8' RCB	520	1817	CNW62-N	LOWER3	4.88	2.00
0157	P	13' X 8' RCB	288	1817	CNW62-N	LOWER3	4.88	1.40
0162	P0	13' X 6' RCB	435	1817	CNW62-N	LOWER3	4.88	1.80
MSNV		**MOUNTAIN SPA/VISTA RANCH**						
0000	E	6- 12' X 5' RCBC @ GRAND TETON	273	639	CNW163-C	CWEST3	1.69	0.40
0005	E	GRASS CHNL 100'W 4.5'D 10:1 SS	6325	259	CNW155-C	WEST3	4.46	0.40
0125	E	GRASS CHNL 100'W 4.5'D 10:1 SS	1300	66	CNW147E	WEST3	1.55	0.40
RACO		**RACEL STREET COLLECTOR**						
0000	E	14' X 7' RCB BAFFLED ENERGY DISSIPATOR	87	424	CNW111S	WEST3	0.55	0.29
0001	E	78" RCP	3245	424	CNW111S	WEST3	0.55	2.46
0064	E	78" RCP	2650	347	DNW111S	WEST3	0.44	2.09
RCBC		**RANCHO ROAD SYSTEM - BELTWAY CHANNEL**						
0000	E	6' X 5' RCB	1062	173	FADB	WEST3	1.54	1.04
0002	E	54" RCP OUTLET WITH 41" ORIFICE	503	173	FADB	WEST3	1.54	2.38
0003	E	2,341 CFS PMF SPILLWAY		2341	FADBIN	WEST3	1.54	
0004	E	78 AC-FT FORT APACHE DETENTION BASIN		658	FADBIN	WEST3	1.54	
0007	E	ENERGY DISSIPATOR	100	658	FADBIN	WEST3	1.54	
0009	E	12' X 6' RCBC @ FORT APACHE DETENTION BASIN	133	658	FADBIN	WEST3	1.54	1.79
0012	E	CONC CHNL 12'W 6'-7'D 0:1 SS	1937	658	FADBIN	WEST3	1.54	3.15
0048	E	12' X 6' RCBC @ GRAND CANYON	140	559	CMNA1	WEST3	1.27	3.15
0051	E	CONC CHNL 12'W 6'-8'D 0:1 SS	2660	559	CMNA1	WEST3	1.27	3.44
0096	E	1. 10' X 6' AND 1. 6' X 6' RCBC @ HUALAPAI WAY	190	559	CMNA1	WEST3	1.27	1.93
0100	E	CONC CHNL 12'W 5.5'D 0:1 SS	2085	475	CDMNA1	WEST3	0.43	2.88

ID / Mile	Status	Facility Description	Length (ft.)	Flow (cfs)	HEC-1 Node	HEC-1 Model	Tributary Area (sq.mi.)	Channel Slope (%) **
RCBC		**RANCHO ROAD SYSTEM - BELTWAY CHANNEL**						
0140	E	CONC CHNL 10'W 5'D 0:1 SS	2155	475	CDMNA1	WEST3	0.43	1.65
RCHB		**RANCHO ROAD SYSTEM - BELTWAY**						
0053	E	2- 12' X 8' RCBC @ SOUTH RAMP CONNECTOR	85	1465	CDW1C1-C	WEST3	3.55	1.40
0054	E	CONC CHNL 21'W 8'D 0:1 SS	432	1465	CDW1C1-C	WEST3	3.55	1.51
0062	E	TRANSITION STRUCTURE	130	1465	CDW1C1-C	WEST3	3.55	1.51
0065	E	24' X 7' RCB	480	1465	CDW1C1-C	WEST3	3.55	0.30
0074	E	24' X 6' RCB	50	1414	CNWBC6-C	WEST3	3.41	0.30
0075	E	20' X 6' RCBC @ BELTWAY	428	1414	CNWBC6-C	WEST3	3.41	2.81
0083	P	20' X 4' RCB	950	1414	CNWBC6-C	WEST3	3.41	2.49
0101	P	CONC CHNL 20'W 5'D 0:1 SS	980	1414	CNWBC6-C	WEST3	3.41	2.38
0120	E	20' X 6' RCBC @ GRAND MONTECITO	120	1414	CNWBC6-C	WEST3	3.41	1.00
0122	P	CONC CHNL 16'-20'W 6'D 0:1 SS	350	1414	CNWBC6-C	WEST3	3.41	1.84
0130	P	CONC CHNL 16'W 5.5'D 0:1 SS	1012	1414	CNWBC6-C	WEST3	3.41	2.67
0149	P	CONC CHNL 16'W 5-5.5'D 0:1 SS	87	1115	CNWBC3	WEST3	2.99	2.27
0151	P	CONC CHNL 16'W 5'D 0:1 SS	1255	1115	CNWBC3	WEST3	2.99	2.65
0171	E	16' X 6' RCBC @ EL CAPITAN WAY	234	1115	CNWBC3	WEST3	2.99	1.75
0175	E	CONC CHNL 14'W 7'D 0:1 SS	1220	1115	CNWBC3	WEST3	2.99	2.93
0198	E	CONC CHNL 14'W 7'D 0:1 SS	225	788	CNWBA6-C	WEST3	1.88	2.93
0227	E	12' X 6' RCB	995	788	CNWBA6-C	WEST3	1.88	1.73
0250	E	12' X 6' RCB	4020	788	CNWBA6-C	WEST3	1.88	1.12
0275	E	7' X 6' RCB	2650	535	CNW66-C	WEST3	1.04	3.30
0295	P	7' X 6' RCB	2980	431	CNW53-C	WEST3	0.80	3.60
TSDB		**TULE SPRINGS DRAINAGE SYSTEM**						
0000	E	2- 10' X 4' RCBC @ ECHO GRANDE	100	25	TULEDB	WEST3	1.37	1.04
0002	E	36" RCP WITH 22" ORIFICE PLATE	320	25	TULEDB	WEST3	1.37	0.33
0010	E	14,013 CFS PMF SPILLWAY		14013	CTULEDB	WEST3	1.37	
0011	E	117 AC-FT NORTH ENVIRONMENTAL ENHANCEMENT AREA		551	CTULEDB	WEST3	1.37	
0012	E	ENERGY DISSIPATOR	260	333	CNW148-C	WEST3	0.59	
0023	P	78" RCP	1320	333	CNW148-C	WEST3	0.59	0.80
0059	P	72" RCP	2640	333	CNW148-C	WEST3	0.59	1.03

*The HEC-1 node shown identifies the controlling concentration point for the associated facility and is located upstream of this facility due to decreasing peak flow with increasing tributary area caused by storm distribution transitions, depth area reduction factors, or attenuation of flow from routing.
**As-built or design slopes were used when available. All other slopes are based on existing topography. The user should verify the facility slope listed prior to performing any facility specific analysis.
^ For parallel facilities, the existing facility flow equals its normal depth capacity, and the proposed parallel facility flow equals the remaining flow (i.e. HEC-1 Node flow = existing facility normal depth capacity + proposed parallel facility flow).

REGIONAL FLOOD CONTROL DISTRICT

2018 LAS VEGAS VALLEY FLOOD CONTROL MASTER PLAN UPDATE

FACILITY INVENTORY FIGURE F-11

LEGEND

ID (Facility Identifier) AABB
Parent Stream Name
Stream Name
Mile 0000
Distance Above Confluence with Parent Stream (Miles)
Miles in Hundredths

Existing Facility..... E
Proposed or Modified Facility..... P
Contingency Level
Category A..... P
Category B..... P0

Bottom Width..... W
Depth..... D
Side Slope, H:V..... SS

Construction Features

Cast in Place Concrete Pipe	CIPCP
Corrugated Metal Arch Pipe Culvert	CMAP
Corrugated Metal Pipe Culvert	CMPC
High Density Polyethylene	HDPE
Horizontal Elliptical Reinforced Concrete Pipe	HERCP
Reinforced Concrete Arch Pipe	RCAP
Reinforced Concrete Arch Culvert	RCAC
Reinforced Concrete Box	RCB
Reinforced Concrete Box Culvert	RCBC
Reinforced Concrete Pipe	RCP
Reinforced Concrete Pipe Culvert	RCPC
Storm Sewer Pipe	SSP

ATKINS
Member of the SNC Lavalin Group
Louis Berger

SLATER HANIFAN GROUP
a Westwood team
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NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

KB HOME

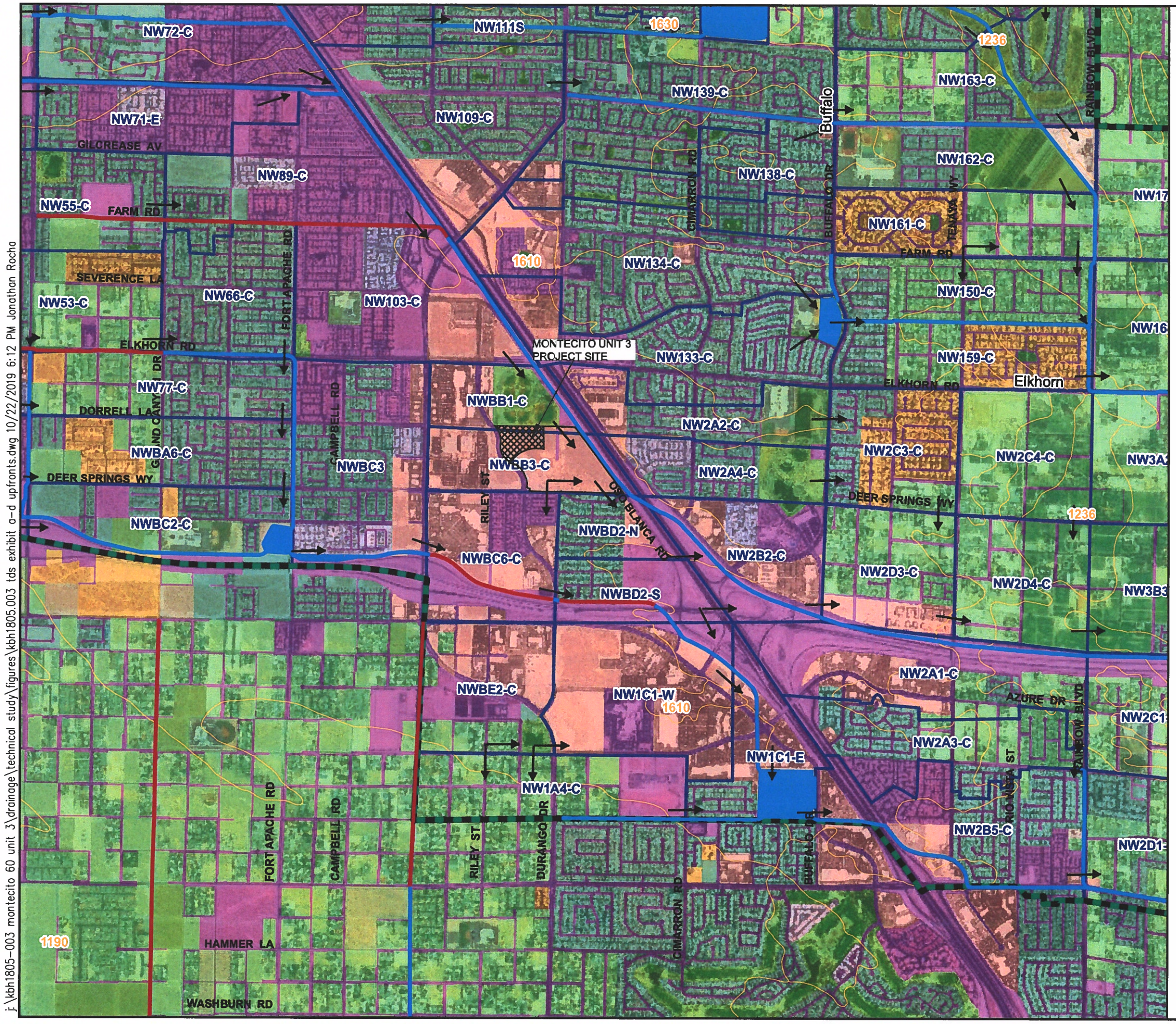
MONTECITO UNIT 3

CCRFCD MPU FACILITY INVENTORY

DATE: OCT. 2019
DRAFTER: GND
DESIGNER: GND
CHECKED: SOA
PROJECT NO. KBH1805.003

EXHIBIT D2
SHEET 1 OF 1

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2018 Las Vegas Valley Master Plan Update

Figure W-2B
Upper Northern Las Vegas Wash Watershed

Legend

- Flow Arrows
- NodeID flow(cfs) Concentration Points
- Existing Facilities
- Category A Proposed Facilities
- Category B Proposed Facilities
- Ultimate Development Boundary
- Watershed
- BasinID Subbasins
- MUSYM Soils
- 1: Undeveloped Land, Open desert
- 2: Parks, Golf Courses
- 3: Rural, 0.5-1 units per acre (uses 1 unit/acre)
- 4: Low-Density Residential, 1-2 units per acre (uses 2 units/acre)
- 5: Medium-Density Residential, 2-4 units per acre (uses 3 units/acre)
- 6: High-Density Residential, 4-8 units per acre (uses 6 units/acre)
- 7: Public Facility and Residential, 8-12 units/acre
- 8: Very High-Density Residential, 12 units/acre or more
- 9: Commercial, Retail, Casino, High Rise Condominiums
- 10: Light Industrial
- 11: Heavy Industrial
- 12: Schools
- 13: Lakes

1 Range
2 Upper Northern Las Vegas Wash
3 Lower Northern Las Vegas Wash
4 Gowan
5 Central
6 Flamingo/Tropicana
7 Duck Creek/Blue Diamond
8 Pittman
9 C-1
10 Lower Las Vegas Wash
11 Apex

N

0 2000 4000

SCALE - 1"=2000' FEET

REGIONAL FLOOD CONTROL DISTRICT

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NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

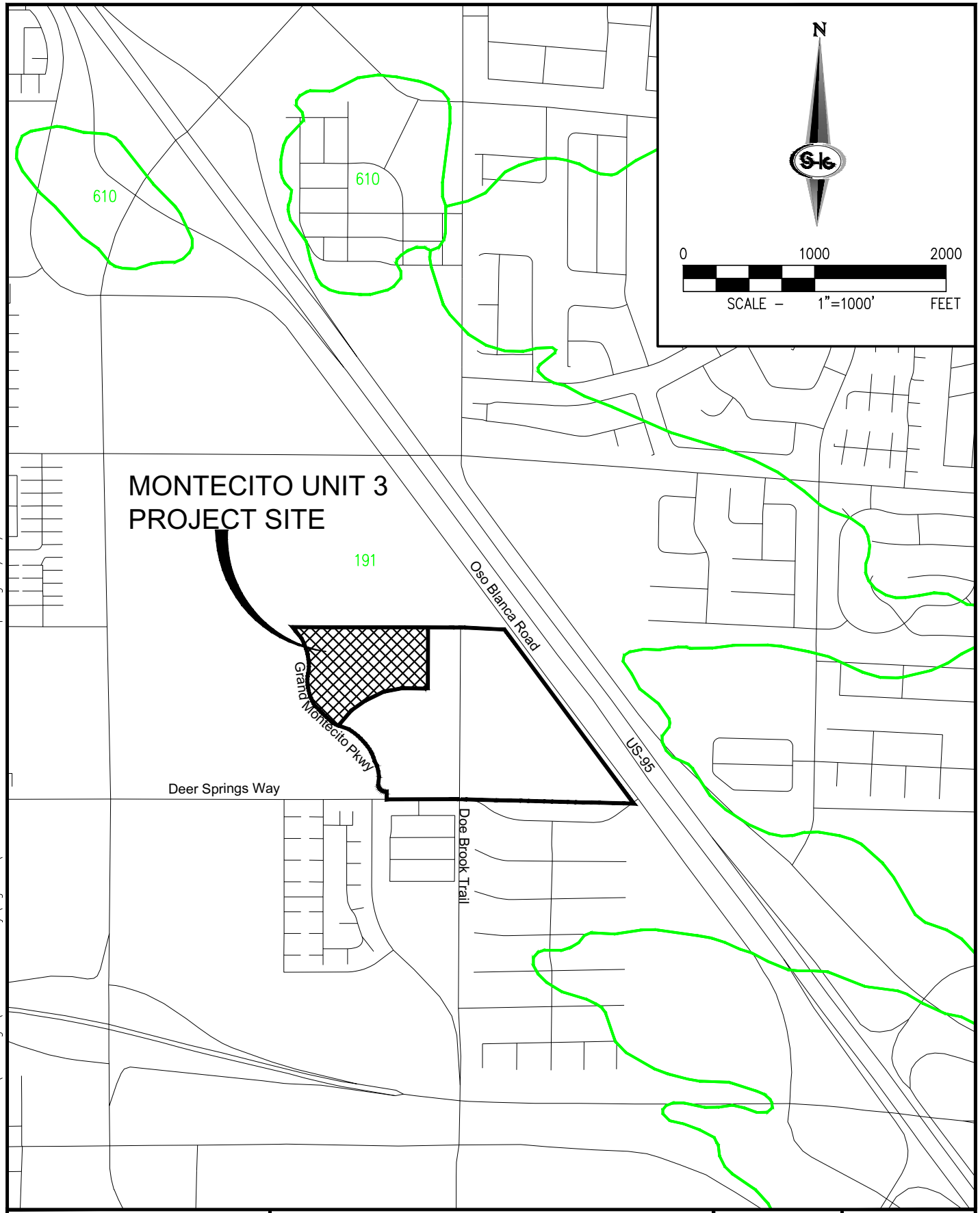
KB HOME

MONTECITO UNIT 3
CCRFCD MPU WATERSHED

DATE:	OCT. 2019
DRAFTER:	GND
DESIGNER:	GND
CHECKED:	SOA
PROJECT NO.	KBH1805.003

EXHIBIT D3
SHEET 1 OF 1

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MONTECITO UNIT 3

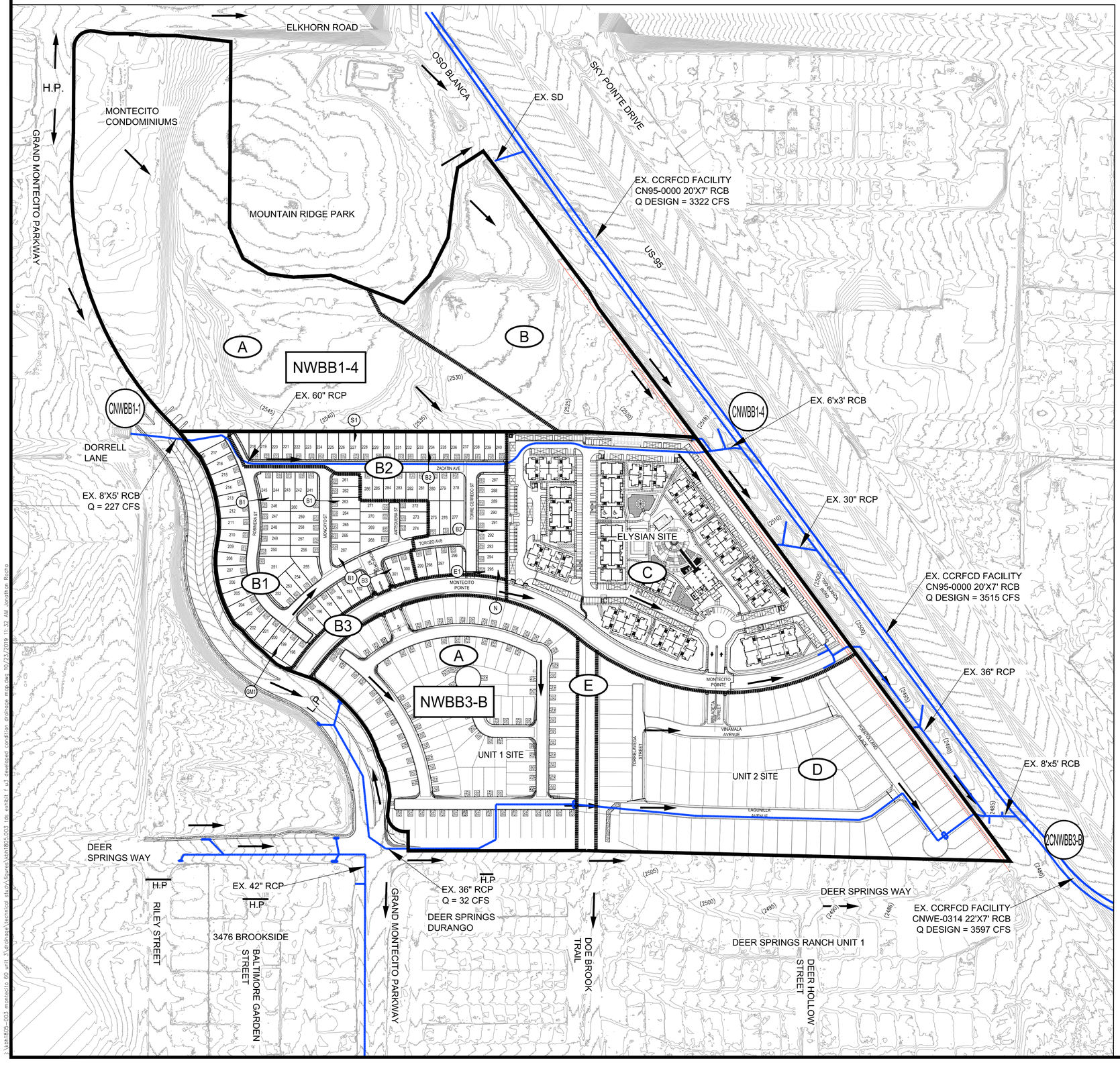
SOILS MAP

DATE:	OCT. 2019
DRAFTER:	GND
DESIGNER:	GND
CHECKED:	SOA

PROJECT NO. KBH1805.003

EXHIBIT E

SHEET 1 OF 1



NOTES:

* DENOTES REFERENCED FROM INFRASTRUCTURE STUDY

** DENOTES REFERENCED FROM UNIT 1 STUDY

LEGEND

- BASIN BOUNDARY
- PRO-RATED SUBBASIN BOUNDARY
- EXISTING DRAINAGE FACILITIES
- ID — BASIN ID
- ID — PRO-RATED SUBBASIN ID
- ID — CONCENTRATION POINT ID
- FLOW DIRECTION
- ID — FLOWMASTER SECTION

Unit 3 Developed Condition Flow Rate Summary

Basin/Concentration Point ID	Area (ac)	Q_{100} (cfs)	Q_{10} (cfs)
NWBB3-B*	53.0	135	(74)
NWBB1-4*	33.0	30	(17)
CNWBB1-1 Q = REF*	N/A	227	(125)
CNBB1-4 Q = REF*	N/A	3334	(1834)
2CNWBB3-B* Q = REF*	N/A	3579	(1968)

(Q10) VALUES DENOTED IN PARENTHESIS HAVE BEEN ALGEBRAICALLY PRODUCED FROM 0.55 PRECIPITATION RATIO.

Prorated Flow Summary

Basin ID	Q_{100} (cfs)	Area (acres)	100-yr Unit Flow (cfs/acre)
NWBB1-4	30	33.0	0.9
NWBB3-B	137	53.0	2.6
Subbasin ID	**Q_{100} (cfs)**	**Area (acres)**	**100-yr Unit Flow (cfs/acre)**
NWBB1-4(A)	22	24.5	0.9
NWBB1-4(B)	8	8.6	0.9
TOTAL	***30***	***33.0***	
NWBB3-B(A)	30	11.6	2.6
NWBB3-B(B1)	18	7.0	2.6
NWBB3-B(B2)	12	4.8	2.6
NWBB3-B(B3)	3	1.1	2.6
NWBB3-B(C)	36	14.1	2.6
NWBB3-B(D)	35	13.7	2.6
NWBB3-B(E)	2	0.8	2.6
TOTAL	***137***	***53.0***	

Prorated flowrates have been rounded up

100-Year Street Flow Summary

Section ID	Q_{100} (cfs)	Slope (%)	Depth (ft)	Velocity (fps)	DxV
B1 Q = NWBB3-B(B1)	18	0.60	0.51	2.42	1.2
		3.65	0.41	4.69	1.9
B2 Q = NWBB3-B(B2)	12	1.00	0.43	2.58	1.1
		4.92	0.35	4.88	1.7
B3 Q = NWBB3-B(B1)	18	1.15	0.48	3.10	1.5
		2.15	0.44	3.93	1.7
N1** Q = NWBB3-B(B)	33	1.00	0.60	3.0	1.8
GM1** Q = REF	32	1.16	0.58	3.7	2.2

Hydraulic Section Summary

Section ID	Section Description	Q_{100} (cfs)	Slope (%)	Depth (ft)	Velocity (fps)
Section S1 Q = NWBB1-4(A)	E.G to Perimeter wall	22.0	2.19	0.94	5.89
Section E1 Q = NWBB3-B(B2)	4' Wide U-channel	12.0	2.00	0.39	7.68
	4' Wide U-channel (Weir)			0.99	N/A

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS, NV

KB HOME

MONTECITO 60 UNIT 3
UNIT 3 DEVELOPED CONDITION DRAINAGE MAP

S 25
T 22S
R 60E

DATE: OCT. 2019
DRAFTER: JSR
DESIGNER: JSR
CHECKED: SOA
PROJECT NO.
KBH1805.003

EXHIBIT F
SHEET 1 OF 1

I:\kbh1805-003 montecito 60 unit 3\drainage\technical studi\figures\kbh1805_003 tds exhibit f u3 developed condition drainage map.dwg 10/23/2019 11:32 AM jonathan Rocha

APPENDIX B

Hydraulic Analyses

100-YR Street Computations

Worksheet for Section B1 - Ultimate 100-YR (min%)

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.60	%
Discharge	18.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.38
0+00.49	0.30
0+00.98	0.08
0+01.00	0.00
0+02.00	0.13
0+02.00	0.17
0+17.50	0.48
0+33.00	0.17
0+33.00	0.13
0+34.00	0.00
0+34.02	0.08
0+34.51	0.30
0+35.00	0.38
0+40.00	0.48

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.38)	(0+02.00, 0.13)	0.013
(0+02.00, 0.13)	(0+33.00, 0.13)	0.016
(0+33.00, 0.13)	(0+40.00, 0.48)	0.013

Options

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

Worksheet for Section B1 - Ultimate 100-YR (min%)

Options

Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth		0.51	ft
Elevation Range	0.00 to 0.48 ft		
Flow Area		7.43	ft²
Wetted Perimeter		40.49	ft
Hydraulic Radius		0.18	ft
Top Width		40.00	ft
Normal Depth		0.51	ft
Critical Depth		0.51	ft
Critical Slope		0.00613	ft/ft
Velocity		2.42	ft/s
Velocity Head		0.09	ft
Specific Energy		0.60	ft
Froude Number		0.99	
Flow Type	Subcritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.51	ft
Critical Depth	0.51	ft
Channel Slope	0.60	%
Critical Slope	0.00613	ft/ft

Cross Section for Section B1 - Ultimate 100-YR (min%)

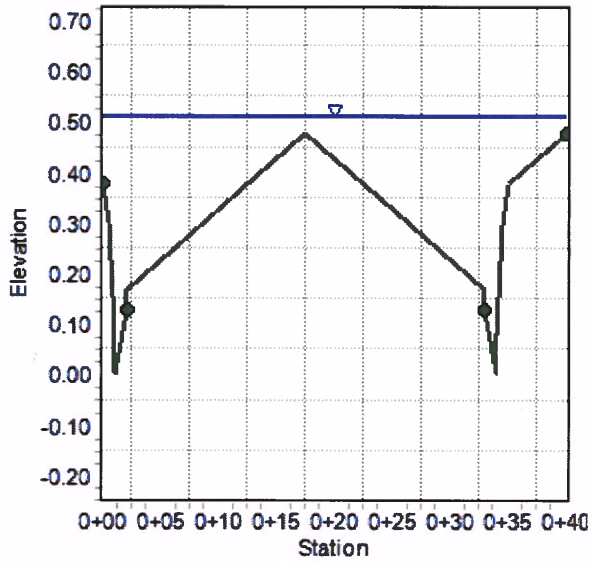
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.60	%
Normal Depth	0.51	ft
Discharge	18.00	ft³/s

Cross Section Image



Worksheet for Section B1 - Ultimate 100-YR (max%)

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	3.65	%
Discharge	18.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.38
0+00.49	0.30
0+00.98	0.08
0+01.00	0.00
0+02.00	0.13
0+02.00	0.17
0+17.50	0.48
0+33.00	0.17
0+33.00	0.13
0+34.00	0.00
0+34.02	0.08
0+34.51	0.30
0+35.00	0.38
0+40.00	0.48

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.38)	(0+02.00, 0.13)	0.013
(0+02.00, 0.13)	(0+33.00, 0.13)	0.016
(0+33.00, 0.13)	(0+40.00, 0.48)	0.013

Options

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

Worksheet for Section B1 - Ultimate 100-YR (max%)

Options

Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth		0.41	ft
Elevation Range	0.00 to 0.48 ft		
Flow Area		3.84	ft²
Wetted Perimeter		29.58	ft
Hydraulic Radius		0.13	ft
Top Width		29.22	ft
Normal Depth		0.41	ft
Critical Depth		0.51	ft
Critical Slope		0.00622	ft/ft
Velocity		4.69	ft/s
Velocity Head		0.34	ft
Specific Energy		0.75	ft
Froude Number		2.28	
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	0.41	ft
Critical Depth	0.51	ft
Channel Slope	3.65	%
Critical Slope	0.00622	ft/ft

Cross Section for Section B1 - Ultimate 100-YR (max%)

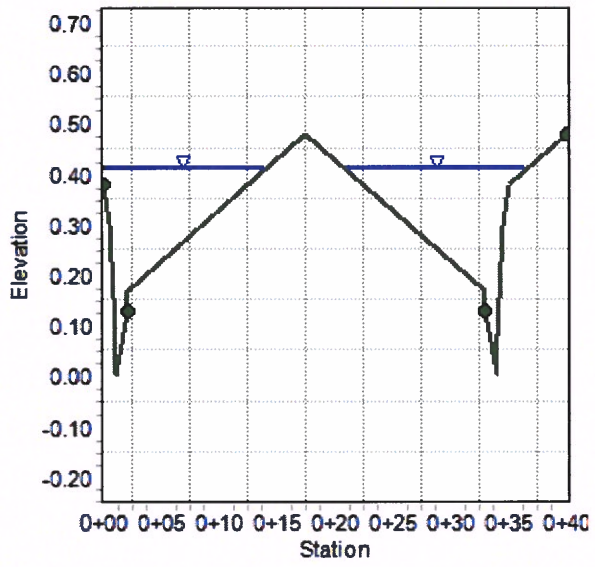
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	3.65	%
Normal Depth	0.41	ft
Discharge	18.00	ft³/s

Cross Section Image



Worksheet for Section B2 - Ultimate 100-YR (min%)

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	1.00	%
Discharge	12.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.38
0+00.49	0.30
0+00.98	0.08
0+01.00	0.00
0+02.00	0.13
0+02.00	0.17
0+17.50	0.48
0+33.00	0.17
0+33.00	0.13
0+34.00	0.00
0+34.02	0.08
0+34.51	0.30
0+35.00	0.38
0+40.00	0.48

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.38)	(0+02.00, 0.13)	0.013
(0+02.00, 0.13)	(0+33.00, 0.13)	0.016
(0+33.00, 0.13)	(0+40.00, 0.48)	0.013

Options

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

Worksheet for Section B2 - Ultimate 100-YR (min%)

Options

Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth		0.43	ft
Elevation Range	0.00 to 0.48 ft		
Flow Area		4.64	ft²
Wetted Perimeter		33.49	ft
Hydraulic Radius		0.14	ft
Top Width		33.11	ft
Normal Depth		0.43	ft
Critical Depth		0.46	ft
Critical Slope		0.00663	ft/ft
Velocity		2.58	ft/s
Velocity Head		0.10	ft
Specific Energy		0.54	ft
Froude Number		1.22	
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	0.43	ft
Critical Depth	0.46	ft
Channel Slope	1.00	%
Critical Slope	0.00663	ft/ft

Cross Section for Section B2 - Ultimate 100-YR (min%)

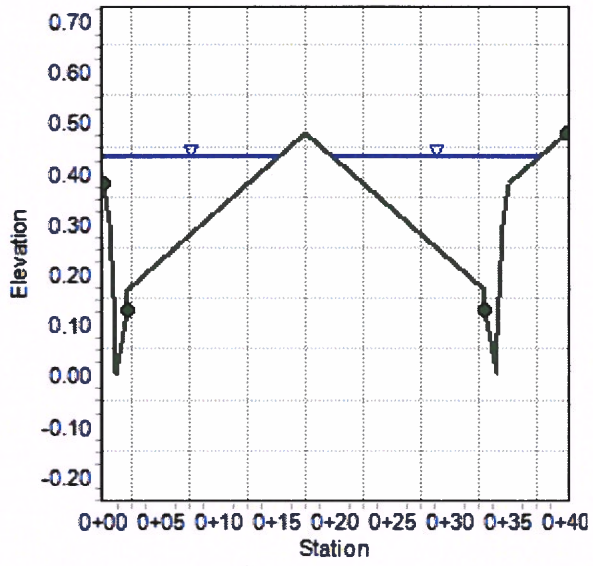
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	1.00	%
Normal Depth	0.43	ft
Discharge	12.00	ft³/s

Cross Section Image



Worksheet for Section B2 - Ultimate 100-YR (max%)

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	4.92	%
Discharge	12.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.38
0+00.49	0.30
0+00.98	0.08
0+01.00	0.00
0+02.00	0.13
0+02.00	0.17
0+17.50	0.48
0+33.00	0.17
0+33.00	0.13
0+34.00	0.00
0+34.02	0.08
0+34.51	0.30
0+35.00	0.38
0+40.00	0.48

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.38)	(0+02.00, 0.13)	0.013
(0+02.00, 0.13)	(0+33.00, 0.13)	0.016
(0+33.00, 0.13)	(0+40.00, 0.48)	0.013

Options

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

Worksheet for Section B2 - Ultimate 100-YR (max%)

Options

Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth		0.35	ft
Elevation Range	0.00 to 0.48 ft		
Flow Area		2.46	ft²
Wetted Perimeter		22.40	ft
Hydraulic Radius		0.11	ft
Top Width		22.08	ft
Normal Depth		0.35	ft
Critical Depth		0.46	ft
Critical Slope		0.00671	ft/ft
Velocity		4.88	ft/s
Velocity Head		0.37	ft
Specific Energy		0.72	ft
Froude Number		2.58	
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	0.35	ft
Critical Depth	0.46	ft
Channel Slope	4.92	%
Critical Slope	0.00671	ft/ft

Cross Section for Section B2 - Ultimate 100-YR (max%)

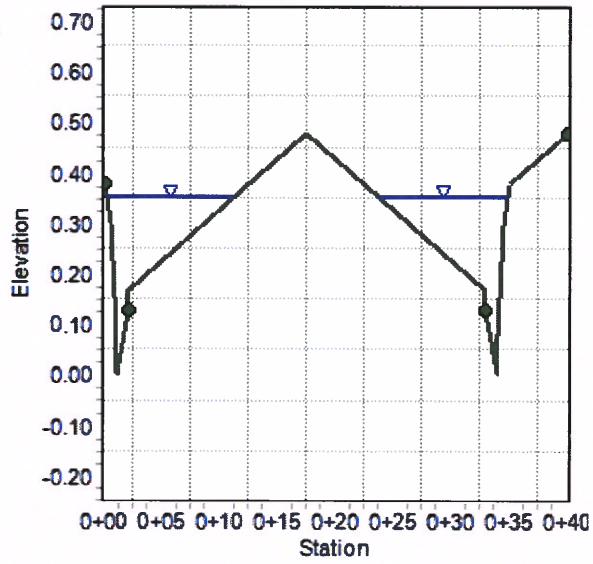
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	4.92	%
Normal Depth	0.35	ft
Discharge	12.00	ft^3/s

Cross Section Image



Worksheet for Section B3 - Ultimate 100-YR (min%)

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	1.15	%
Discharge	18.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+13.50	0.50
0+14.00	0.48
0+14.00	0.00
0+15.00	0.13
0+15.50	0.17
0+38.00	0.62
0+38.01	0.70
0+38.26	1.01
0+38.68	1.03
0+40.00	1.06
0+41.32	1.03
0+41.74	1.01
0+41.99	0.70
0+42.00	0.62
0+64.50	0.17
0+65.00	0.13
0+66.00	0.00
0+66.00	0.48
0+66.50	0.50

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+13.50, 0.50)	(0+15.50, 0.17)	0.013
(0+15.50, 0.17)	(0+38.00, 0.62)	0.016

Worksheet for Section B3 - Ultimate 100-YR (min%)

Input Data

Start Station	Ending Station	Roughness Coefficient
(0+38.00, 0.62)	(0+42.00, 0.62)	0.013
(0+42.00, 0.62)	(0+64.50, 0.17)	0.016
(0+64.50, 0.17)	(0+66.50, 0.50)	0.013

Options

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

Results

Normal Depth		0.48	ft
Elevation Range	0.00 to 1.06 ft		
Flow Area		5.81	ft²
Wetted Perimeter		34.51	ft
Hydraulic Radius		0.17	ft
Top Width		33.53	ft
Normal Depth		0.48	ft
Critical Depth		0.52	ft
Critical Slope		0.00647	ft/ft
Velocity		3.10	ft/s
Velocity Head		0.15	ft
Specific Energy		0.62	ft
Froude Number		1.31	
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		

Worksheet for Section B3 - Ultimate 100-YR (min%)

GVF Output Data

Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.48	ft
Critical Depth	0.52	ft
Channel Slope	1.15	%
Critical Slope	0.00647	ft/ft

Cross Section for Section B3 - Ultimate 100-YR (min%)

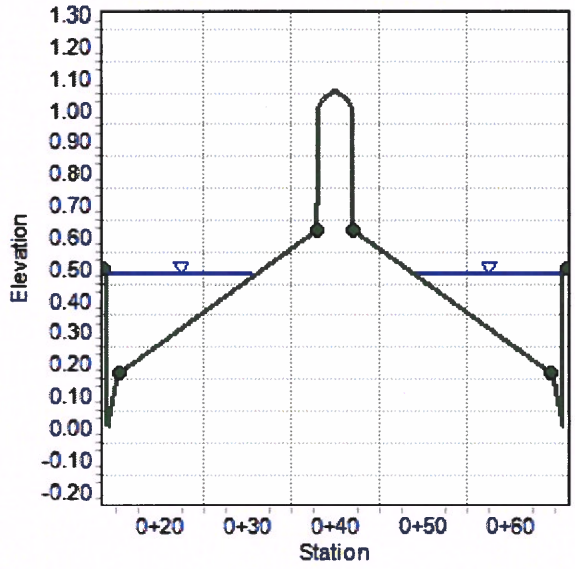
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	1.15	%
Normal Depth	0.48	ft
Discharge	18.00	ft³/s

Cross Section Image



Worksheet for Section B3 - Ultimate 100-YR (max%)

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	2.15	%
Discharge	18.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+13.50	0.50
0+14.00	0.48
0+14.00	0.00
0+15.00	0.13
0+15.50	0.17
0+38.00	0.62
0+38.01	0.70
0+38.26	1.01
0+38.68	1.03
0+40.00	1.06
0+41.32	1.03
0+41.74	1.01
0+41.99	0.70
0+42.00	0.62
0+64.50	0.17
0+65.00	0.13
0+66.00	0.00
0+66.00	0.48
0+66.50	0.50

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+13.50, 0.50)	(0+15.50, 0.17)	0.013
(0+15.50, 0.17)	(0+38.00, 0.62)	0.016

Worksheet for Section B3 - Ultimate 100-YR (max%)

Input Data

Start Station	Ending Station	Roughness Coefficient
(0+38.00, 0.62)	(0+42.00, 0.62)	0.013
(0+42.00, 0.62)	(0+64.50, 0.17)	0.016
(0+64.50, 0.17)	(0+66.50, 0.50)	0.013

Options

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

Results

Normal Depth		0.44	ft
Elevation Range	0.00 to 1.06 ft		
Flow Area		4.58	ft²
Wetted Perimeter		30.55	ft
Hydraulic Radius		0.15	ft
Top Width		29.65	ft
Normal Depth		0.44	ft
Critical Depth		0.52	ft
Critical Slope		0.00644	ft/ft
Velocity		3.93	ft/s
Velocity Head		0.24	ft
Specific Energy		0.68	ft
Froude Number		1.76	
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		

Worksheet for Section B3 - Ultimate 100-YR (max%)

		ft
	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.44	ft
Critical Depth	0.52	ft
Channel Slope	2.15	%
Critical Slope	0.00644	ft/ft

Cross Section for Section B3 - Ultimate 100-YR (max%)

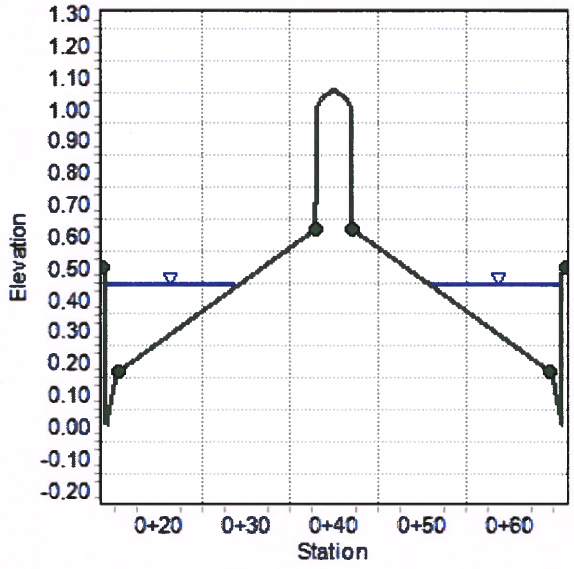
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	2.15	%
Normal Depth	0.44	ft
Discharge	18.00	ft³/s

Cross Section Image



Drainage Easement Computations

Worksheet for Section E1 - U-Channel Section

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	2.00	%
Bottom Width	4.00	ft
Discharge	12.00	ft^3/s

Results

Normal Depth	0.39	ft
Flow Area	1.56	ft^2
Wetted Perimeter	4.78	ft
Hydraulic Radius	0.33	ft
Top Width	4.00	ft
Critical Depth	0.65	ft
Critical Slope	0.00414	ft/ft
Velocity	7.68	ft/s
Velocity Head	0.92	ft
Specific Energy	1.31	ft
Froude Number	2.17	
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	0.39	ft
Critical Depth	0.65	ft
Channel Slope	2.00	%
Critical Slope	0.00414	ft/ft

Cross Section for Section E1 - U-Channel Section

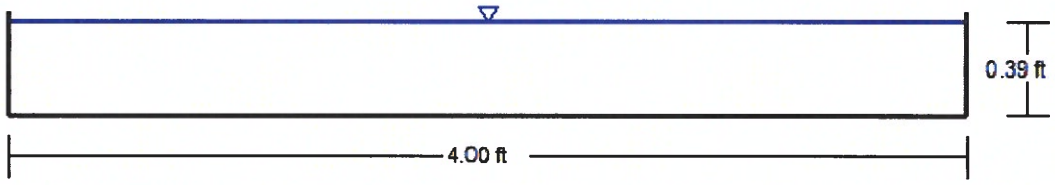
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	2.00	%
Normal Depth	0.39	ft
Bottom Width	4.00	ft
Discharge	12.00	ft³/s

Cross Section Image



V: 1
H: 1

Worksheet for Section E1 - U-Channel Section (Weir)

Project Description

Solve For	Headwater Elevation

Input Data

Discharge		12.00	ft³/s
Crest Elevation		0.00	ft
Tailwater Elevation		0.39	ft
Crest Surface Type	Paved		
Crest Breadth		5.00	ft
Crest Length		4.00	ft

Results

Headwater Elevation	0.99	ft
Headwater Height Above Crest	0.99	ft
Tailwater Height Above Crest	0.39	ft
Weir Coefficient	3.06	US
Submergence Factor	1.00	
Adjusted Weir Coefficient	3.06	US
Flow Area	3.94	ft²
Velocity	3.04	ft/s
Wetted Perimeter	5.97	ft
Top Width	4.00	ft

Cross Section for Section E1 - U-Channel Section (Weir)

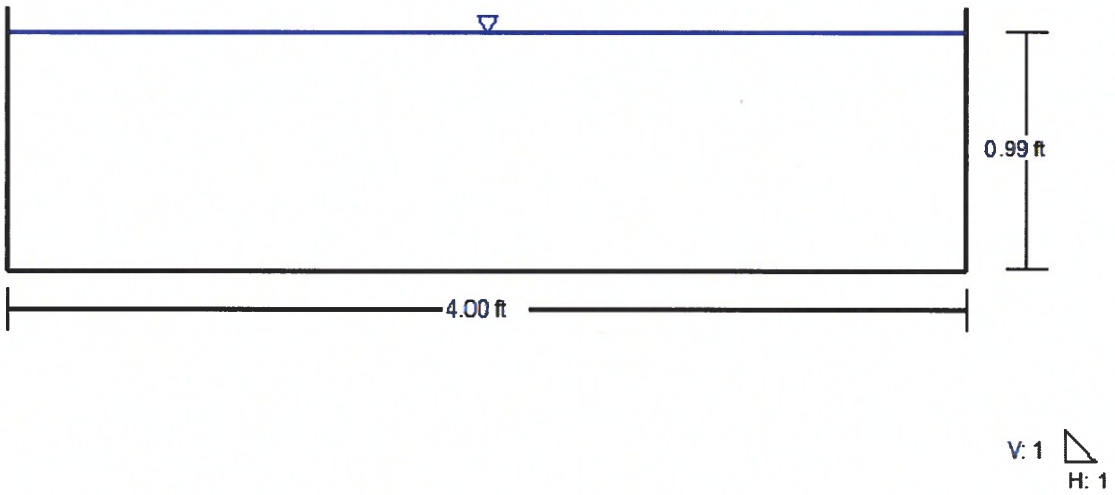
Project Description

Solve For	Headwater Elevation

Input Data

Discharge		12.00	ft³/s
Headwater Elevation		0.99	ft
Crest Elevation		0.00	ft
Tailwater Elevation		0.39	ft
Crest Surface Type	Paved		
Crest Breadth		5.00	ft
Crest Length		4.00	ft

Cross Section Image



Hydraulic Sections

Worksheet for Section S1 - Perimeter Wall Section

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	2.19	%
Discharge	22.00	ft^3/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	44.00
0+18.00	43.00
0+21.00	42.00
0+26.00	41.50
0+26.00	43.00

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 44.00)	(0+26.00, 41.50)	0.025
(0+26.00, 41.50)	(0+26.00, 43.00)	0.013

Options

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

Results

Normal Depth	0.94	ft
Elevation Range	41.50 to 44.00 ft	
Flow Area	3.74	ft^2
Wetted Perimeter	7.35	ft
Hydraulic Radius	0.51	ft
Top Width	6.32	ft
Normal Depth	0.94	ft

Worksheet for Section S1 - Perimeter Wall Section

Results

Critical Depth		1.08	ft
Critical Slope		0.01162	ft/ft
Velocity		5.89	ft/s
Velocity Head		0.54	ft
Specific Energy		1.48	ft
Froude Number		1.35	
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	0.94	ft
Critical Depth	1.08	ft
Channel Slope	2.19	%
Critical Slope	0.01162	ft/ft

Cross Section for Section S1 - Perimeter Wall Section

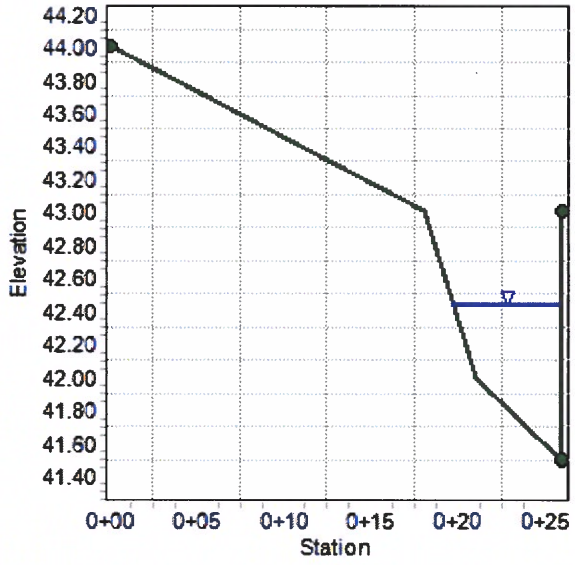
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	2.19	%
Normal Depth	0.94	ft
Discharge	22.00	ft³/s

Cross Section Image



APPENDIX C

Finished Floor Analysis

MONTECITO 60 UNIT 3 - TDS
FINISH FLOOR - CITY OF LAS VEGAS JURISDICTION

INPUT INFORMATION					FINISHED FLOORS					NOTES
Lot Number	Hydraulic Section Utilized	T/C[1] (ft)	F/L[2] (ft)	D_{100} (ft)	Flowline F.F.-min[3] (ft)	T/C + 6" F.F.-min[4] (ft)	F.F.-Design (ft)	Flowline Check	T/C + 6" Check	See References on Last Sheet
192	B1	2527.33	2526.95	0.51	2527.97	2527.83	2529.1	OK	OK	
193	B1	2527.58	2527.20	0.51	2528.22	2528.08	2529.4	OK	OK	
194	B1	2527.82	2527.44	0.51	2528.46	2528.32	2529.6	OK	OK	
195	B1	2528.07	2527.69	0.51	2528.71	2528.57	2529.9	OK	OK	
196	B1	2528.32	2527.94	0.51	2528.96	2528.82	2530.1	OK	OK	
197	B1	2528.52	2528.14	0.51	2529.16	2529.02	2530.4	OK	OK	
198	B1	2529.49	2529.11	0.51	2530.13	2529.99	2531.2	OK	OK	
199	B1	2529.34	2528.96	0.51	2529.98	2529.84	2531.0	OK	OK	
200	B1	2529.20	2528.82	0.51	2529.84	2529.70	2531.0	OK	OK	
201	B1	2529.45	2529.07	0.51	2530.09	2529.95	2531.2	OK	OK	
202	B1	2530.02	2529.64	0.51	2530.66	2530.52	2531.7	OK	OK	
203	B1	2530.60	2530.22	0.51	2531.24	2531.10	2532.3	OK	OK	
204	B1	2531.18	2530.80	0.51	2531.82	2531.68	2532.9	OK	OK	
205	B1	2531.77	2531.39	0.51	2532.41	2532.27	2533.5	OK	OK	
206	B1	2532.35	2531.97	0.51	2532.99	2532.85	2534.1	OK	OK	
207	B1	2532.93	2532.55	0.51	2533.57	2533.43	2534.6	OK	OK	
208	B1	2533.50	2533.12	0.51	2534.14	2534.00	2535.2	OK	OK	
209	B1	2534.31	2533.93	0.51	2534.95	2534.81	2536.0	OK	OK	
210	B1	2535.68	2535.30	0.51	2536.32	2536.18	2537.4	OK	OK	
211	B1	2537.40	2537.02	0.51	2538.04	2537.90	2539.1	OK	OK	
212	B1	2539.18	2538.80	0.51	2539.82	2539.68	2540.9	OK	OK	
213	B1	2540.96	2540.58	0.51	2541.60	2541.46	2542.7	OK	OK	
214	B1	2542.74	2542.36	0.51	2543.38	2543.24	2544.4	OK	OK	
215	B1	2544.36	2543.98	0.51	2545.00	2544.86	2546.1	OK	OK	
216	B1	2545.70	2545.32	0.51	2546.34	2546.20	2547.4	OK	OK	
217	B1	2547.03	2546.65	0.51	2547.67	2547.53	2548.7	OK	OK	
218	B2	2544.17	2543.79	0.43	2544.65	2544.67	2544.9	OK	OK	
219	B2	2542.34	2541.96	0.43	2542.82	2542.84	2544.1	OK	OK	
220	B2	2541.24	2540.86	0.43	2541.72	2541.74	2543.0	OK	OK	
221	B2	2540.33	2539.95	0.43	2540.81	2540.83	2542.0	OK	OK	
222	B2	2539.58	2539.20	0.43	2540.06	2540.08	2541.3	OK	OK	
223	B2	2538.83	2538.45	0.43	2539.31	2539.33	2540.5	OK	OK	
224	B2	2538.07	2537.69	0.43	2538.55	2538.57	2539.8	OK	OK	

MONTECITO 60 UNIT 3 - TDS FINISH FLOOR - CITY OF LAS VEGAS JURISDICTION										
INPUT INFORMATION					FINISHED FLOORS					NOTES
Lot Number	Hydraulic Section Utilized	T/C[1] (ft)	F/L[2] (ft)	D_{100} (ft)	Flowline $F.F._{min}$[3] (ft)	T/C + 6" $F.F._{min}$[4] (ft)	$F.F._{Design}$ (ft)	Flowline Check	T/C + 6" Check	See References on Last Sheet
225	B2	2537.32	2536.94	0.43	2537.80	2537.82	2539.0	OK	OK	
226	B2	2536.57	2536.19	0.43	2537.05	2537.07	2538.3	OK	OK	
227	B2	2535.82	2535.44	0.43	2536.30	2536.32	2537.5	OK	OK	
228	B2	2535.06	2534.68	0.43	2535.54	2535.56	2536.8	OK	OK	
229	B2	2534.31	2533.93	0.43	2534.79	2534.81	2536.0	OK	OK	
230	B2	2533.56	2533.18	0.43	2534.04	2534.06	2535.3	OK	OK	
231	B2	2532.81	2532.43	0.43	2533.29	2533.31	2534.5	OK	OK	
232	B2	2532.05	2531.67	0.43	2532.53	2532.55	2533.8	OK	OK	
233	B2	2531.30	2530.92	0.43	2531.78	2531.80	2533.0	OK	OK	
234	B2	2530.55	2530.17	0.43	2531.03	2531.05	2532.3	OK	OK	
235	B2	2529.81	2529.43	0.43	2530.29	2530.31	2531.5	OK	OK	
236	B2	2529.22	2528.84	0.43	2529.70	2529.72	2531.0	OK	OK	
237	B2	2529.12	2528.74	0.43	2529.60	2529.62	2530.9	OK	OK	
238	B2	2529.47	2529.09	0.43	2529.95	2529.97	2531.3	OK	OK	
239	B2	2529.82	2529.44	0.43	2530.30	2530.32	2531.6	OK	OK	
240	B2	2530.07	2529.69	0.43	2530.55	2530.57	2531.9	OK	OK	
241	B1	2538.73	2538.35	0.51	2539.37	2539.23	2540.4	OK	OK	
242	B1	2539.48	2539.10	0.51	2540.12	2539.98	2541.2	OK	OK	
243	B1	2540.24	2539.86	0.51	2540.88	2540.74	2541.9	OK	OK	
244	B1	2541.10	2540.72	0.51	2541.74	2541.60	2542.8	OK	OK	
245	B1	2542.28	2541.90	0.51	2542.92	2542.78	2544.0	OK	OK	
246	B1	2539.35	2538.97	0.51	2539.99	2539.85	2541.2	OK	OK	
247	B1	2537.99	2537.61	0.51	2538.63	2538.49	2539.8	OK	OK	
248	B1	2536.63	2536.25	0.51	2537.27	2537.13	2538.4	OK	OK	
249	B1	2535.37	2534.99	0.51	2536.01	2535.87	2537.2	OK	OK	
250	B1	2534.33	2533.95	0.51	2534.97	2534.83	2536.1	OK	OK	
251	B1	2533.49	2533.11	0.51	2534.13	2533.99	2535.3	OK	OK	
252	B1	2528.97	2528.59	0.51	2529.61	2529.47	2530.3	OK	OK	
253	B1	2528.37	2527.99	0.51	2529.01	2528.87	2530.1	OK	OK	
254	B1	2528.17	2527.79	0.51	2528.81	2528.67	2529.9	OK	OK	
255	B1	2527.96	2527.58	0.51	2528.60	2528.46	2529.7	OK	OK	
256	B1	2530.37	2529.99	0.51	2531.01	2530.87	2532.1	OK	OK	
257	B1	2531.50	2531.12	0.51	2532.14	2532.00	2533.2	OK	OK	

MONTECITO 60 UNIT 3 - TDS FINISH FLOOR - CITY OF LAS VEGAS JURISDICTION										
INPUT INFORMATION					FINISHED FLOORS					NOTES
Lot Number	Hydraulic Section Utilized	T/C[1] (ft)	F/L[2] (ft)	D_{100} (ft)	Flowline F.F.$_{min}$[3] (ft)	T/C + 6" F.F.$_{min}$[4] (ft)	F.F.$_{Design}$ (ft)	Flowline Check	T/C + 6" Check	See References on Last Sheet
258	B1	2532.53	2532.15	0.51	2533.17	2533.03	2534.2	OK	OK	
259	B1	2533.52	2533.14	0.51	2534.16	2534.02	2535.2	OK	OK	
260	B1	2534.51	2534.13	0.51	2535.15	2535.01	2536.2	OK	OK	
261	B1	2536.44	2536.06	0.51	2537.08	2536.94	2538.6	OK	OK	
262	B1	2535.78	2535.40	0.51	2536.42	2536.28	2537.6	OK	OK	
263	B1	2534.78	2534.40	0.51	2535.42	2535.28	2536.6	OK	OK	
264	B1	2533.79	2533.41	0.51	2534.43	2534.29	2535.6	OK	OK	
265	B1	2532.80	2532.42	0.51	2533.44	2533.30	2534.6	OK	OK	
266	B1	2531.79	2531.41	0.51	2532.43	2532.29	2533.6	OK	OK	
267	B1	2530.69	2530.31	0.51	2531.33	2531.19	2532.5	OK	OK	
268	B1	2528.43	2528.05	0.51	2529.07	2528.93	2530.1	OK	OK	
269	B1	2529.53	2529.15	0.51	2530.17	2530.03	2531.2	OK	OK	
270	B1	2530.88	2530.50	0.51	2531.52	2531.38	2532.6	OK	OK	
271	B1	2531.84	2531.46	0.51	2532.48	2532.34	2533.5	OK	OK	
272	B1	2531.84	2531.46	0.51	2532.48	2532.34	2533.5	OK	OK	
273	B1	2530.88	2530.50	0.51	2531.52	2531.38	2532.6	OK	OK	
274	B1	2529.53	2529.15	0.51	2530.17	2530.03	2531.2	OK	OK	
275	B2	2527.45	2527.07	0.43	2527.93	2527.95	2529.2	OK	OK	
276	B2	2526.48	2526.10	0.43	2526.96	2526.98	2528.2	OK	OK	
277	B2	2525.48	2525.10	0.43	2525.96	2525.98	2527.2	OK	OK	
278	B2	2529.10	2528.72	0.43	2529.58	2529.60	2530.8	OK	OK	
279	B2	2529.80	2529.42	0.43	2530.28	2530.30	2531.5	OK	OK	
280	B2	2530.54	2530.16	0.43	2531.02	2531.04	2532.2	OK	OK	
281	B2	2531.29	2530.91	0.43	2531.77	2531.79	2533.0	OK	OK	
282	B2	2532.05	2531.67	0.43	2532.53	2532.55	2533.8	OK	OK	
283	B2	2532.80	2532.42	0.43	2533.28	2533.30	2534.5	OK	OK	
284	B2	2533.55	2533.17	0.43	2534.03	2534.05	2535.3	OK	OK	
285	B2	2534.30	2533.92	0.43	2534.78	2534.80	2536.0	OK	OK	
286	B2	2535.12	2534.74	0.43	2535.60	2535.62	2536.8	OK	OK	
287	B2	2527.85	2527.47	0.43	2528.33	2528.35	2529.9	OK	OK	
288	B2	2527.43	2527.05	0.43	2527.91	2527.93	2529.2	OK	OK	
289	B2	2526.70	2526.32	0.43	2527.18	2527.20	2528.5	OK	OK	
290	B2	2525.96	2525.58	0.43	2526.44	2526.46	2527.8	OK	OK	

MONTECITO 60 UNIT 3 - TDS
FINISH FLOOR - CITY OF LAS VEGAS JURISDICTION

INPUT INFORMATION					FINISHED FLOORS					NOTES
Lot Number	Hydraulic Section Utilized	T/C[1] (ft)	F/L[2] (ft)	D_{100} (ft)	Flowline $F.F._{min}$[3] (ft)	T/C + 6" $F.F._{min}$[4] (ft)	$F.F._{Design}$ (ft)	Flowline Check	T/C + 6" Check	See References on Last Sheet
291	B2	2525.23	2524.85	0.43	2525.71	2525.73	2527.0	OK	OK	
292	B2	2524.54	2524.16	0.43	2525.02	2525.04	2526.3	OK	OK	
293	B2	2523.98	2523.60	0.43	2524.46	2524.48	2525.8	OK	OK	
294	B2	2523.44	2523.06	0.43	2523.92	2523.94	2525.2	OK	OK	
295	B2	2522.96	2522.58	0.43	2523.44	2523.46	2524.7	OK	OK	
296	B2	2525.58	2525.20	0.43	2526.06	2526.08	2527.4	OK	OK	
297	B2	2526.99	2526.61	0.43	2527.47	2527.49	2528.8	OK	OK	
298	B2	2527.82	2527.44	0.43	2528.30	2528.32	2529.6	OK	OK	
299	B2	2527.93	2527.55	0.43	2528.41	2528.43	2529.7	OK	OK	
300	B1	2527.93	2527.55	0.51	2528.57	2528.43	2529.7	OK	OK	
301	B1	2527.68	2527.30	0.51	2528.32	2528.18	2529.5	OK	OK	

Where:

1: Top of Curb at High Side of Lot

2: TC-0.38 (For Roll Curb), TC-0.5 (For L Curb)

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

4: City of Las Vegas minimum allowable finished floor elevation = T.C. @ high side of lot + 6-inches

5: These lots have an adjacent solid grouted wall that protects the FF.

City of Las Vegas Finished Floor Criteria:

-The finished floor shall be set a vertical distance above the gutter flowline of at least twice the depth of flow in the gutter flowline up to a maximum of 18 inches above the WSEL in the street.

-The finished floor shall be set a vertical distance of at least 6-inches above the highest adjacent top of curb.

Supplemental Finish Floor Checks

Adjacent/Perimeter Street Check

Lot Number	Street	High TC[1]	High FL[2]	Section	Flow Depth[3]	Min FF[4]	Design FF	Check	Solid Grout
192	MONFORTE	2526.55	2526.05	B3	0.48	2527.01	2529.1	OK	No
192	MONTECITO POINTE	2526.22	2525.72	N1**	0.60	2526.92	2529.1	OK	No
193	MONTECITO POINTE	2526.22	2525.72	N1**	0.60	2526.92	2529.4	OK	No
194	MONTECITO POINTE	2526.77	2526.27	N1**	0.60	2527.47	2529.6	OK	No
195	MONTECITO POINTE	2527.32	2526.82	N1**	0.60	2528.02	2529.9	OK	No
196	MONTECITO POINTE	2527.77	2527.27	N1**	0.60	2528.47	2530.1	OK	No
197	MONTECITO POINTE	2527.85	2527.35	N1**	0.60	2528.55	2530.4	OK	No
197	ROBINERA	2529.18	2528.80	B1	0.51	2529.82	2530.4	OK	No
198	MONTECITO POINTE	2526.84	2526.34	N1**	0.60	2527.54	2531.2	OK	No
198	G MONTECITO PKWY	2526.46	2525.96	GM1**	0.58	2527.12	2531.2	OK	No
199	G MONTECITO PKWY	2527.41	2526.91	GM1**	0.58	2528.07	2531.0	OK	No
200	G MONTECITO PKWY	2527.41	2526.91	GM1**	0.58	2528.07	2531.0	OK	No
201	G MONTECITO PKWY	2528.96	2528.46	GM1**	0.58	2529.62	2531.2	OK	No
202	G MONTECITO PKWY	2528.96	2528.46	GM1**	0.58	2529.62	2531.7	OK	No
203	G MONTECITO PKWY	2529.39	2528.89	GM1**	0.58	2530.05	2532.3	OK	No
204	G MONTECITO PKWY	2530.37	2529.87	GM1**	0.58	2531.03	2532.9	OK	No
205	G MONTECITO PKWY	2531.47	2530.97	GM1**	0.58	2532.13	2533.5	OK	No
206	G MONTECITO PKWY	2533.33	2532.83	GM1**	0.58	2533.99	2534.1	OK	No
207	G MONTECITO PKWY	2535.34	2534.84	GM1**	0.58	2536.00	2534.6	CHECK	Yes
208	G MONTECITO PKWY	2537.37	2536.87	GM1**	0.58	2538.03	2535.2	CHECK	Yes
209	G MONTECITO PKWY	2539.52	2539.02	GM1**	0.58	2540.18	2536.0	CHECK	Yes
210	G MONTECITO PKWY	2539.52	2539.02	GM1**	0.58	2540.18	2537.4	CHECK	Yes
211	G MONTECITO PKWY	2542.08	2541.58	GM1**	0.58	2542.74	2539.1	CHECK	Yes
212	G MONTECITO PKWY	2543.79	2543.29	GM1**	0.58	2544.45	2540.9	CHECK	Yes
213	G MONTECITO PKWY	2543.79	2543.29	GM1**	0.58	2544.45	2542.7	CHECK	Yes
214	G MONTECITO PKWY	2545.43	2544.93	GM1**	0.58	2546.09	2544.4	CHECK	Yes
215	G MONTECITO PKWY	2546.78	2546.28	GM1**	0.58	2547.44	2546.1	CHECK	Yes
216	G MONTECITO PKWY	2547.37	2546.87	GM1**	0.58	2548.03	2547.4	CHECK	Yes
217	G MONTECITO PKWY	2547.63	2547.13	GM1**	0.58	2548.29	2548.7	OK	No
241	MONCAYO	2536.44	2536.06	B1	0.51	2537.08	2540.4	OK	No
245	ROBINERA	2541.10	2540.72	B1	0.51	2541.74	2544.0	OK	No
252	ROBINERA	2531.11	2530.73	B1	0.51	2531.75	2530.3	CHECK	Yes
255	MONCAYO	2529.01	2528.63	B1	0.51	2529.65	2529.7	OK	No
261	ZACATIN AVE	2536.69	2536.31	B2	0.43	2537.17	2538.6	OK	No

Adjacent/Perimeter Street Check (CONTINUED)									
Lot Number	Street	High TC[1]	High FL[2]	Section	Flow Depth[3]	Min FF[4]	Design FF	Check	Solid Grout
267	TOROZO	2527.35	2526.97	B1	0.51	2527.99	2532.5	OK	No
268	ANTEQUERA	2527.68	2527.30	B1	0.51	2528.32	2530.1	OK	No
277	TORRE CERREDO	2524.69	2524.31	B2	0.43	2525.17	2527.2	OK	No
278	TORRE CERREDO	2527.85	2527.47	B2	0.43	2528.33	2530.8	OK	No
287	ZACATIN AVE	2529.45	2529.07	B2	0.43	2529.93	2529.9	CHECK	Yes
295	MONTECITO POINTE	2521.69	2521.19	N1**	0.60	2522.39	2524.7	OK	No
296	TORRE CERREDO	2523.49	2523.11	B2	0.43	2523.97	2527.4	OK	No
296	MONTECITO POINTE	2522.57	2522.07	N1**	0.60	2523.27	2527.4	OK	No
297	MONTECITO POINTE	2522.96	2522.46	N1**	0.60	2523.66	2528.8	OK	No
298	MONTECITO POINTE	2523.33	2522.83	N1**	0.60	2524.03	2529.6	OK	No
299	MONTECITO POINTE	2523.93	2523.43	N1**	0.60	2524.63	2529.7	OK	No
300	MONTECITO POINTE	2523.93	2523.43	N1**	0.60	2524.63	2529.7	OK	No
301	MONTECITO POINTE	2524.53	2524.03	N1**	0.60	2525.23	2529.5	OK	No
301	MONFORTE	2526.15	2525.65	B3	0.48	2526.61	2529.5	OK	No

1: High TC is the elevation at the high side of the adjacent perimeter street

2: 0.5-ft is subtracted from the High TC to obain the High FL elevation

3: Flow depth is the normal depth in adjacent perimeter street

4: Min FF is the High FL plus twice the depth of flow.

Drainage Easements Check							
Lot Number	High TC/FL[1]	Section	Flow Depth[2]	Min FF[3]	Design FF	Check	Solid Grout
295	2522.00	E1	0.99	2524.49	2524.70	OK	No
296	2522.00	E1	0.99	2524.49	2527.40	OK	No
218	2545.79	S1	0.94	2548.23	2544.90	CHECK	Yes
219	2544.96	S1	0.94	2547.40	2544.10	CHECK	Yes
220	2543.19	S1	0.94	2545.63	2543.00	CHECK	Yes
221	2542.00	S1	0.94	2544.44	2542.00	CHECK	Yes
222	2541.87	S1	0.94	2544.31	2541.30	CHECK	Yes
223	2541.00	S1	0.94	2543.44	2540.50	CHECK	Yes
224	2540.80	S1	0.94	2543.24	2539.80	CHECK	Yes
225	2539.17	S1	0.94	2541.61	2539.00	CHECK	Yes
226	2539.00	S1	0.94	2541.44	2538.30	CHECK	Yes
227	2538.00	S1	0.94	2540.44	2537.50	CHECK	Yes
228	2537.39	S1	0.94	2539.83	2536.80	CHECK	Yes
229	2536.74	S1	0.94	2539.18	2536.00	CHECK	Yes
230	2536.60	S1	0.94	2539.04	2535.30	CHECK	Yes
231	2536.50	S1	0.94	2538.94	2534.50	CHECK	Yes
232	2536.00	S1	0.94	2538.44	2533.80	CHECK	Yes
233	2535.50	S1	0.94	2537.94	2533.00	CHECK	Yes
234	2534.27	S1	0.94	2536.71	2532.30	CHECK	Yes
235	2533.00	S1	0.94	2535.44	2531.50	CHECK	Yes
236	2532.31	S1	0.94	2534.75	2531.00	CHECK	Yes
237	2531.51	S1	0.94	2533.95	2530.90	CHECK	Yes
238	2531.00	S1	0.94	2533.44	2531.30	CHECK	Yes
239	2530.06	S1	0.94	2532.50	2531.60	CHECK	Yes
240	2528.78	S1	0.94	2531.22	2531.90	OK	No

1: High TC/FL is at the high side of the drainage easement flowline or the highest TC adjacent to the easement if flow is weiring over the curb.

2: Flow depth is either normal depth or weir depth (whichever is higher).

3: Min FF is the High TC/FL plus the Flow Depth plus 18 inches.

Specific Energy Check							
Lot Number	High TC[1]	High FL[2]	Section	Specific Energy[3]	Min FF[4]	Design FF	Check
193	2527.58	2527.20	B1	0.72	2527.92	2529.40	OK
194	2527.58	2527.20	B1	0.72	2527.92	2529.60	OK
292	2524.34	2523.96	B2	0.72	2524.68	2526.30	OK
293	2523.98	2523.60	B2	0.72	2524.32	2525.80	OK
300	2527.68	2527.30	B1	0.86	2528.16	2529.70	OK
301	2527.68	2527.30	B1	0.86	2528.16	2529.50	OK

1: High TC is the elevation at the high side of the adjacent perimeter street

2: 0.38-ft is subtracted from the High TC to obain the High FL elevation

2: Specific energy depth is taken from FlowMaster calculation for street directing flow toward lot.

3: Min FF is the High FL plus the specific energy depth.

APPENDIX D

Reference Material

Technical Drainage Study for Montecito Storm Drain Infrastructure (DS 5108)

Approval Letter

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM				DATE: 7/10/2019
TO: **Land Development Services** Department of Building & Safety				FROM: Jennifer Shinn, P.E. Flood Control, Engr. Associate Department of Public Works
SUBJECT:	Drainage Study for: **Montecito Storm Drain Infrastructure - Update #1**			**COPIES TO:** Slater Hanifan Group
Cross Streets:	Grand Montecito Pkwy & Deer Springs Way			KB Home
File Number:	F:\Depot\DSMemos\DS5108C.doc			Bart Anderson, P.E., DevCo
Parcel Number:	125-20-601-003			CCRFCD NDOT
Zoning Action:	TMP-74639			
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	3/6/2019 & 3/20/2019	3/18/2019 & 4/3/2019	See Comments Below	$400.00	$400.00
2nd Submittal	4/23/2019, 5/13/2019 (Swapped), & 6/20/2019	5/13/2019, 5/28/2019 & 6/20/2019		$400.00	3101697: $400
3rd Submittal	7/1/2019	7/10/2019		$100.00	3468829: $100
			TOTAL FEES (LDDRS):	**$900.00**	**----**

REMARKS:

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

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

Remarks: Update #1 Storm Drain system revised and resized due to existing utility conflicts

1. **This drainage study is acceptable in concept**; however, City of La Vegas will not formally accept the study until the *Clark County Regional Flood Control District* (CCRFCD) has issued a letter of concurrence. The engineer should contact the CCRFCD to confirm that they have begun their review.

   Please note that effective March 15, 2019, the CCRFCD adopted new requirements for drainage study concurrence submittal. Follow the link below for specific guidance.

   http://gustfront.ccrfcd.org/LandDev/LandDev.aspx

   When it is applicable, structural calculations of facilities must be approved by the *City* prior to submittal to the *Clark County Regional Flood Control District* for their review and concurrence.

2. The project proposes to construct facilities and/or increase flows within Nevada Department of Transportation (NDOT) right-of-way. The engineer must contact NDOT for encroachment permit for the proposed project.
3. Structural plans for the storm drain improvements (i.e. junction structures, wall plug with penetration, etc.) must be submitted for review. Provide a soils report, structural calculations and specifications, two wet stamped structural sets, and a grading plan to the Building Department for processing. The engineer must provide a copy of Building Department approval of the structures to Flood Control prior to final acceptance of the drainage study.
4. Continue coordination with NDOT Project Engineer for existing utility locations and proposed relocations within NDOT right-of-way.
5. This site accepts offsite flows and conveys them through the site. Public drainage easements must be recorded by separate document prior to the final acceptance of the improvement plans unless they are to be recorded by parcel or final map.
6. The project proposes to build temporary drainage facilities including drainage berms/swales at the southeast portion of the site. Prior to final plan approval the developer must complete a Maintenance & Liability Agreement for the interim drainage improvements and post a minimum maintenance bond of $50,000 or 50-percent of the construction cost for the improvements, whichever is greater. The engineer must submit an estimate of the quantities for constructing the facilities and an exhibit that adequately shows the location and limits of the drainage facilities to City of Las Vegas Flood Control for approval. Once the drainage study is conditionally approved, the engineer should contact the City's Land Development Section (702-229-6371) to begin the agreement process.
7. Provide a connection detail for the lateral tying in to the RCB.

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: T19S/R60E/S20
AREA G-20

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM				DATE: 6/20/2019
TO: **Land Development Services** Department of Building & Safety				**FROM:** Jennifer Shinn, P.E. Flood Control, Engr. Associate Department of Public Works
SUBJECT:	Drainage Study for: **Montecito Storm Drain Infrastructure**			**COPIES TO:** Slater Hanifan Group
Cross Streets:	Grand Montecito Pkwy & Deer Springs Way			KB Home
File Number:	F:\Depot\DSMemos\DS5108B.doc			Bart Anderson, P.E., DevCo
Parcel Number:	125-20-601-003			CCRFCD NDOT
Zoning Action:	TMP-74639			
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	3/6/2019 & 3/20/2019	3/18/2019 & 4/3/2019	See Comments Below	$400.00	$400.00
2nd Submittal	4/23/2019, 5/13/2019 (Swapped), & 6/20/2019	5/13/2019, 5/28/2019 & 6/20/2019		$400.00	$400.00
			TOTAL FEES (LDDRS):	**$800.00**	**----**

REMARKS:

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

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

1. **This drainage study is acceptable in concept**; however, City of La Vegas will not formally accept the study until the *Clark County Regional Flood Control District* (CCRFCD) has issued a letter of concurrence. The engineer should contact the CCRFCD to confirm that they have begun their review.

   Please note that effective March 15, 2019, the CCRFCD adopted new requirements for drainage study concurrence submittal. Follow the link below for specific guidance.

   http://gustfront.ccrfcd.org/LandDev/LandDev.aspx

   When it is applicable, structural calculations of facilities must be approved by the *City* prior to submittal to the *Clark County Regional Flood Control District* for their review and concurrence.

2. The project proposes to construct facilities and/or increase flows within Nevada Department of Transportation (NDOT) right-of-way. The engineer must contact NDOT for encroachment permit for the proposed project.

3. Structural plans for the storm drain improvements (i.e. junction structures, wall plug with penetration, etc.) must be submitted for review. Provide a soils report, structural calculations and specifications, two wet stamped structural sets, and a grading plan to the Building Department for processing. The engineer must provide a copy of Building Department approval of the structures to Flood Control prior to final acceptance of the drainage study.
4. Continue coordination with NDOT Project Engineer for existing utility locations and proposed relocations within NDOT right-of-way.
5. This site accepts offsite flows and conveys them through the site. Public drainage easements must be recorded by separate document prior to the final acceptance of the improvement plans unless they are to be recorded by parcel or final map.
6. The project proposes to build temporary drainage facilities including drainage berms/swales at the southeast portion of the site. Prior to final plan approval the developer must complete a Maintenance & Liability Agreement for the interim drainage improvements and post a minimum maintenance bond of $50,000 or 50-percent of the construction cost for the improvements, whichever is greater. The engineer must submit an estimate of the quantities for constructing the facilities and an exhibit that adequately shows the location and limits of the drainage facilities to City of Las Vegas Flood Control for approval. Once the drainage study is conditionally approved, the engineer should contact the City's Land Development Section (702-229-6371) to begin the agreement process.
7. Revise the pipe call out on Sheet PP-10 to reflect RCP.

In an effort to increase administrative efficiency, for all original and re-submittal packages including updates and the addenda, the City of Las Vegas Public Works Department requires both a hardcopy and a digital copy (PDF) on CD for the drainage study.

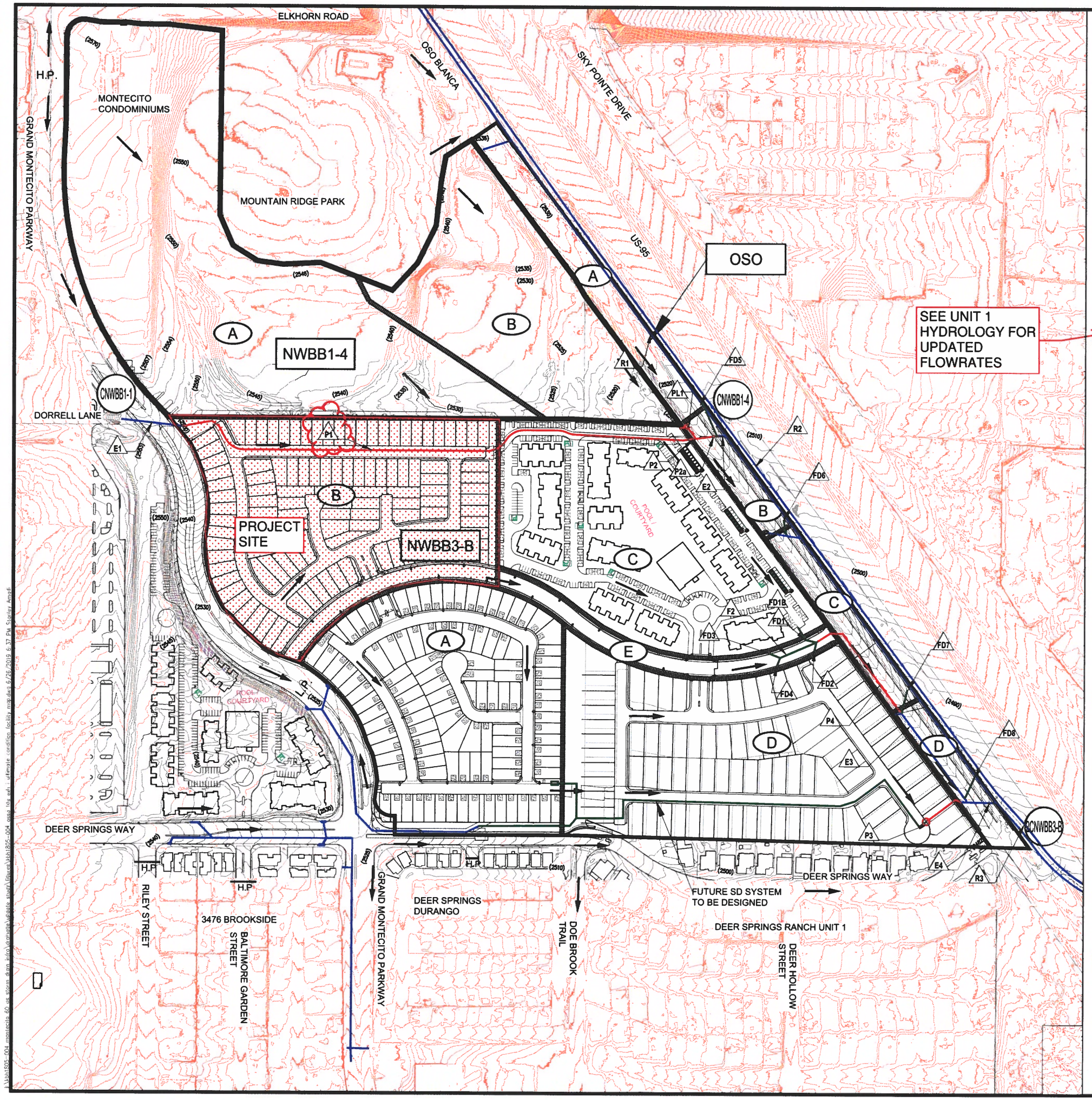
A letter sealed and signed by a Nevada registered civil engineer must be included in every submittal certifying documents on the electronic CD matches 100% of the hardcopy submittal. The new submittal requirement is effective on May 1, 2019. If there are any questions regarding these new requirements, please contact Albert Sung in the City Flood Control Section at (702) 229-6541.

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: T19S/R60E/S20
AREA G-20

Referenced Drainage Exhibits



Ultimate Condition Flow Rate Summary

Basin/Concentration Point ID	Area (ac)	Q_{100} (cfs)	Q_{10} (cfs)
NWBB3-B*	53.0	135	(74)
NWBB1-4*	33.0	30	(17)
ROFF1	7.9	23	9
RON1	2.7	10	5
OSO	6.3	18	10
CNWBB1-1 Q = REF*	N/A	227	(125)
CNBB1-4 Q = REF*	N/A	3334	(1834)
2CNWBB3-B* Q = REF*	N/A	3579	(1968)

(Q10) VALUES DENOTED IN PARENTHESIS HAVE BEEN
* DENOTES REFERENCED FROM CENTENNIAL CHANNEL STUDY

Ultimate Condition Prorated Flow Summary

Basin ID	Q_{100} (cfs)	Q_{10} (cfs)	Area (acres)	100-yr Unit Flow (cfs/acre)	10-yr Unit Flow (cfs/acre)
NWBB1-4	30	17	33.0	0.9	0.5
NWBB3-B	135	74	53.0	2.5	1.4
OSO	18	10	6.3	2.9	1.6
Subbasin ID	**Q_{100} (cfs)**	**Q_{10} (cfs)**	**Area (acres)**	**100-yr Unit Flow (cfs/acre)**	**10-yr Unit Flow (cfs/acre)**
NWBB1-4(A)	22	13	24.5	0.9	0.5
NWBB1-4(B)	8	4	8.6	0.9	0.5
TOTAL	***30***	***17***	***33.0***		
NWBB3-B(A)	30	16	11.6	2.5	1.4
NWBB3-B(B)	33	18	13.0	2.5	1.4
NWBB3-B(C)	31	17	12.2	2.5	1.4
NWBB3-B(D)	37	20	14.6	2.5	1.4
NWBB3-B(E)	4	2	1.7	2.5	1.4
TOTAL	***135***	***74***	***53.0***		
OSO(A)	7	4	2.5	2.9	1.6
OSO(B)	3	2	1.0	2.9	1.6
OSO(C)	4	2	1.5	2.9	1.6
OSO(D)	4	2	1.3	2.9	1.6
TOTAL	***18***	***10***	***6.3***		

LEGEND

- BASIN BOUNDARY
- PRO-RATED SUBBASIN BOUNDARY
- EXISTING DRAINAGE FACILITIES
- PROPOSED DRAINAGE FACILITIES
- FUTURE DRAINAGE FACILITIES
- ID — BASIN ID
- ID — PRO-RATED SUBBASIN ID
- ID — CONCENTRATION POINT ID
- FLOW DIRECTION
- ID — FLOWMASTER SECTION
- ID — FACILITY ID

N

SCALE – 1"=150' (0, 150, 300 FEET)

Ultimate Condition Recommended Flood Control Facility Summary

Facility ID	Facility Description	Total/Approaching Flow (cfs) Q_{100}	Facility Flow (cfs) Q_{100}	Surface/Bypass Flow (cfs) Q_{100}	Notes
R3	Existing 20'x7' RCB	-	3597	-	CCRFCD Regional Facility
E4	Existing 8'x5' RCB	-	172	-	
P3	Proposed 38"x60" HERCP	99	99	-	Connect to Facility E4
E3	Existing NDOT Type 7 D.I. & 36" RCP	-	73	-	Collects flow from Facility FD7 & FD8
P4	Proposed 36" RCP	-	65	-	Connect to Facility E3.
FD1B	Future D.I.	19	19	0	Collects all NWBB3-B(C). Connects into Facility FD1.
FD1	Future 12.5' Type CM2 D.I.	3.5	3.5	0	No bypass to Oso Blanca Road
FD2	Future 12.5' Type CM2 D.I.	3.5	3.5	0	No bypass to Oso Blanca Road
F2	Future 30" RCP	-	41	-	
FD3	Future 20' Type CM2 D.I.	23.5	20.5	3	4-cfs bypass to FD1&2. Assumed 12-cfs collection from NWBB3-B(C)
FD4	Future 20' Type CM2 D.I.	23.5	20.5	3	4-cfs bypass to FD1&2. Assumed 12-cfs collection from NWBB3-B(C)
R2	Existing 20'x7' RCB	-	3515	-	CCRFCD Regional Facility
E2	Existing 6'X3' RCB	-	264	-	Remove and replace for Connection of Proposed Facility P2
P2	Proposed 7'x3' RCB	-	227	-	
P2a	Proposed 7'x3' RCB	-	264	-	
PL1	Proposed 4.5'x6' NDOT Type II & 30" RCP Lateral	37	37	0	
P1	Proposed 60" RCP	-	227	-	
E1	Existing 8'X5' RCB	227	227	0	
R1	Existing 20'x7' RCB	-	3322	-	CCRFCD Regional Facility

Proposed Condition Recommended Flood Control Facility Summary

Facility ID	Facility Description	Total/Approaching Flow (cfs) Q_{100}	Facility Flow (cfs) Q_{100}	Surface/Bypass Flow (cfs) Q_{100}	Notes
R3	Existing 20'x7' RCB	-	3597	-	CCRFCD Regional Facility
E4	Existing 8'x5' RCB	-	115	-	
P3	Proposed 38"x60" HERCP	49	49	-	Open Sump inlet in Proposed Condition.
E3	Existing NDOT Type 7 D.I. & 36" RCP	-	66	-	
P4	Proposed 36" RCP	-	-	-	Capped stub in proposed condition. Intended for future development.
FD1B	Future D.I.	-	-	-	
FD1	Future 12.5' Type CM2 D.I.	-	-	-	
FD2	Future 12.5' Type CM2 D.I.	-	-	-	
F2	Future 30" RCP	-	-	-	
FD3	Future 20' Type CM2 D.I.	-	-	-	
FD4	Future 20' Type CM2 D.I.	-	-	-	
R2	Existing 20'x7' RCB	-	3515	-	CCRFCD Regional Facility
E2	Existing 6'X3' RCB	-	264	-	Remove and replace for Connection of Proposed Facility P2
P2	Proposed 7'x3' RCB	-	227	-	
P2a	Proposed 7'x3' RCB	-	264	-	
PL1	Proposed 4.5'x6' NDOT Type II & 30" RCP Lateral	37	37	0	
P1	Proposed 60" RCP	-	227	-	
E1	Existing 8'X5' RCB	227	227	0	
R1	Existing 20'x7' RCB	-	3322	-	CCRFCD Regional Facility

OSO BLANCA DRAINAGE FACILITIES

Facility ID	Facility Description	Total/Approaching Flow (cfs) Q_{100}	Facility Flow (cfs) Q_{100}	Surface/Bypass Flow (cfs) Q_{100}	Notes
FD5	Future D.I.	7.5	7.5	0	D.I.s to be designed with future Oso Blanca ROW improvements.
FD6	Future D.I.	3	3	0	See Notes from Facility FD5
FD7	Future D.I.	4	4	0	See Notes from Facility FD5
FD8	Future D.I.	4	4	0	See Notes from Facility FD5

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP

CITY OF LAS VEGAS, NV

KB HOME

MONTECITO STORM DRAIN INFRASTRUCTURE
ULTIMATE CONDITION FACILITY MAP

S 21
T 19S
R 60E

DATE: APRIL 2019
DRAFTER: JSR
DESIGNER: JSR
CHECKED: SOA

PROJECT NO.
KBH1805.004

EXHIBIT I
SHEET 1 OF 1

DS-5108 UP MAPS - REFERENCED FOR ONSITE DRAINAGE FACILITIES

k:\kbh1805--004 montecito 60 os storm drain jobs\dynamic\hydrology\plots\ exhibits\figures\kbh1805--004_exhibit_title_only_ultimate_condition_facility_mapdwg 5/16/2019 8:37 PM Stanley Arnold

APPENDIX E

Reference Material

Technical Drainage Study for Montecito Unit 1 (DS 5114)

Approval Letter

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM				DATE: July 10, 2019
TO: **Land Development Services** Department of Building & Safety				FROM: Jennifer Shinn, P.E. Flood Control, Engr. Associate Department of Public Works
SUBJECT:	Drainage Study for: **Montecito Unit 1**			**COPIES TO:** Slater Hanifan Group
Cross Streets:	NEC of Grand Montecito & Deer Springs			KB Home
File Number:	F:\Depot\DSMemos\DS5114B.doc			Bart Anderson, P.E., DevCo
Parcel Number:	125-20-601-003			
Zoning Action:	SDR-74638			
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	3/18/2019	4/22/2019	Not Approved	$400.00	3055931:$400
2nd Submittal	6/28/2019	7/9/2019		$400.00	
			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.

1. This site accepts offsite flows and conveys them through the site. Provide a "Public Drainage Easement to be Privately Maintained" and show the easement on the grading plan. Public drainage easements must be recorded by separate document prior to the final acceptance of the improvement plans unless they are to be recorded by parcel or final map.

2. Structural plans for the deep drop inlet. Provide a soils report, structural calculations and specifications, two wet stamped structural sets, and a grading plan to the Building Department for processing. The engineer must provide a copy of the Building Department approval of the structures to Flood Control prior to final acceptance of the drainage study.

3. 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.

4. The grading plan shows a significant area of inundation for the 100-year storm. Provide a notarized letter from the property owner acknowledging the inundation and associated maintenance and liability prior to final plan approval.

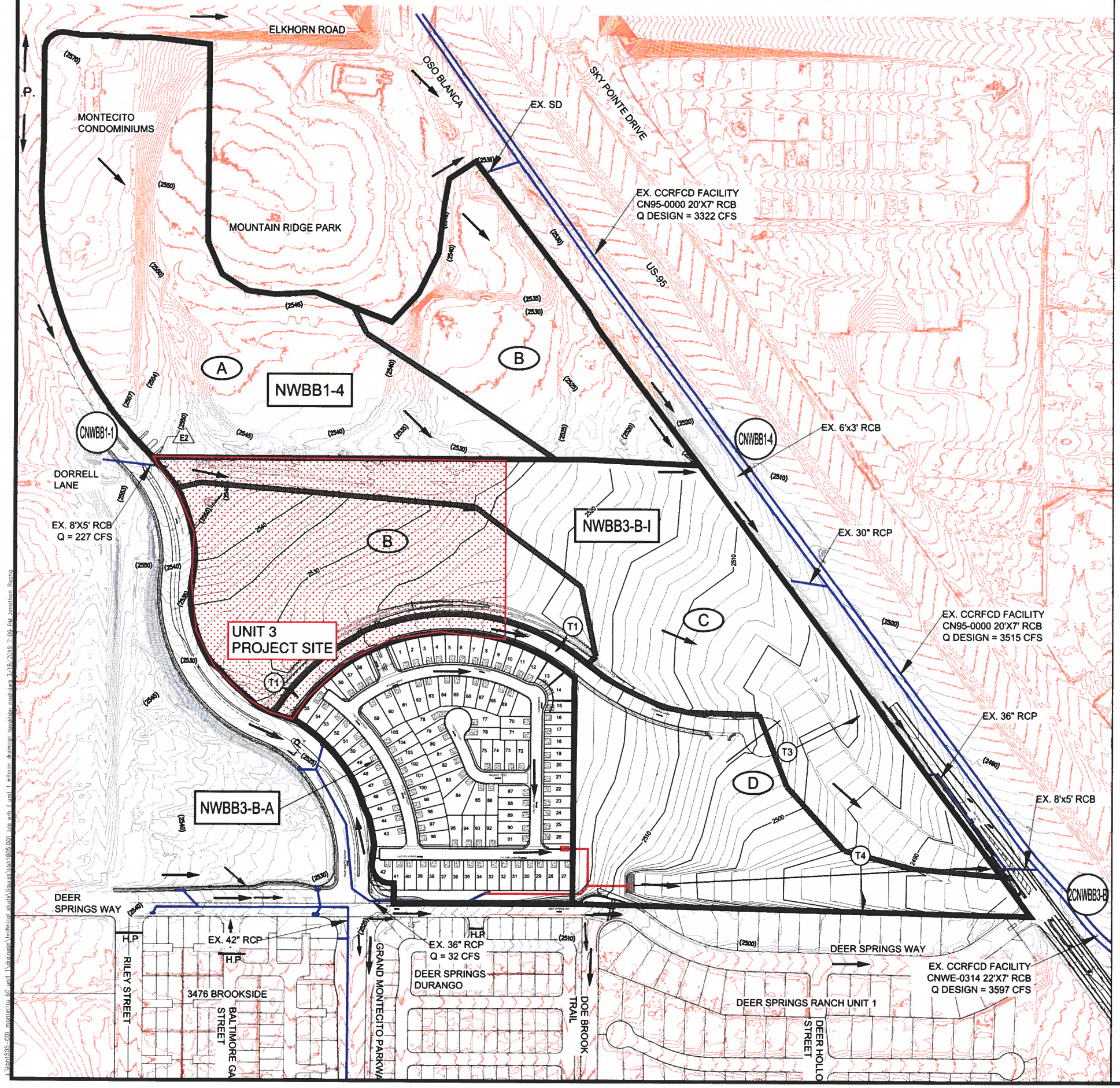
NOTE: Any future changes to the proposed design (or design assumptions) as outlined in the approved drainage study and attached preliminary grading plan which affect drainage must be addressed in a Drainage Study Update and accepted by the *City of Las Vegas Flood Control Section.* Additionally, conditional 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: T19S/R60E/20 & 21
AREA G-20

Referenced Drainage Exhibits



0 150 300
SCALE – 1"=150' FEET

N

LEGEND

- BASIN BOUNDARY
- PRO-RATED SUBBASIN BOUNDARY
- EXISTING DRAINAGE FACILITIES
- PROPOSED DRAINAGE FACILITIES
- FUTURE DRAINAGE FACILITIES
- ID — BASIN ID
- ID — PRO-RATED SUBBASIN ID
- ID — CONCENTRATION POINT ID
- FLOW DIRECTION
- ID — FLOWMASTER SECTION
- ID — FACILITY ID

Unit 1 Interim Condition Flow Rate Summary

Basin/Concentration Point ID	Area (ac)	Q_{100} (cfs)	Q_{10} (cfs)
NWBB3-B-A	11.6	26	10
NWBB3-B-I	41.4	45	10
NWBB1-4*	33.0	30	(17)
CNWBB1-1 Q = REF*	N/A	227	(125)
CNBB1-4 Q = REF*	N/A	3334	(1834)
2CNWBB3-B* Q = REF*	N/A	3579	(1968)
DSM-E Q = FLOWSPLIT EAST	N/A	117	(64)
DSM-S Q = FLOWSPLIT SOUTH	N/A	38	(21)

(Q10) VALUES DENOTED IN PARENTHESIS HAVE BEEN ALGEBRAICALLY PRODUCED FROM 0.55 PRECIPITATION RATIO.
* DENOTES REFERENCED FROM CENTENNIAL CHANNEL STUDY

Unit 1 Interim Prorated Flow Summary

Basin ID	Q_{100} (cfs)	Area (acres)	100-yr Unit Flow (cfs/acre)
NWBB1-4	30	33.0	0.9
NWBB3-B-I	45	41.4	1.1
Subbasin ID	**Q_{100} (cfs)**	**Area (acres)**	**100-yr Unit Flow (cfs/acre)**
NWBB1-4(A)	22	24.5	0.9
NWBB1-4(B)	8	8.6	0.9
TOTAL	***30***	***33.0***	
NWBB3-B-I(B)	12	10.8	1.1
NWBB3-B-I(C)	20	18.1	1.1
NWBB3-B-I(D)	14	12.5	1.1
TOTAL	***45***	***41.4***	

Hydraulic Section Summary

Section ID	Section Description	Q_{100} (cfs)	Slope (%)	Depth (ft)	Velocity (fps)
Section T1 Q = NWBB3-B-I(B)	Trap Channel, 3:1 SS, 5' BW	12.0	0.92	0.55	3.26
			1.16	0.52	3.53
Section T3 Q = 227-CFS + NWBB3-B-I(B+C)	Trap Channel, 5:1 SS, 110' BW	259.0	2.00	0.46	4.97
Section T4 Q = 32-CFS + NWBB3-B-A + NWBB3-B-I(D)	Trap Channel, 5:1 SS, 110' BW	74.0	1.16	0.37	3.20
			2.00	0.31	3.82

NOTE: UNIT 1 SITE GENERATED 30-CFS IN ULTIMATE CONDITION, THEREFORE SECTION T4 UTILIZED THE WORST-CASE FLOWRATE

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NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

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MONTECITO UNIT 1

UNIT 1 INTERIM CONDITION DRAINAGE MAP

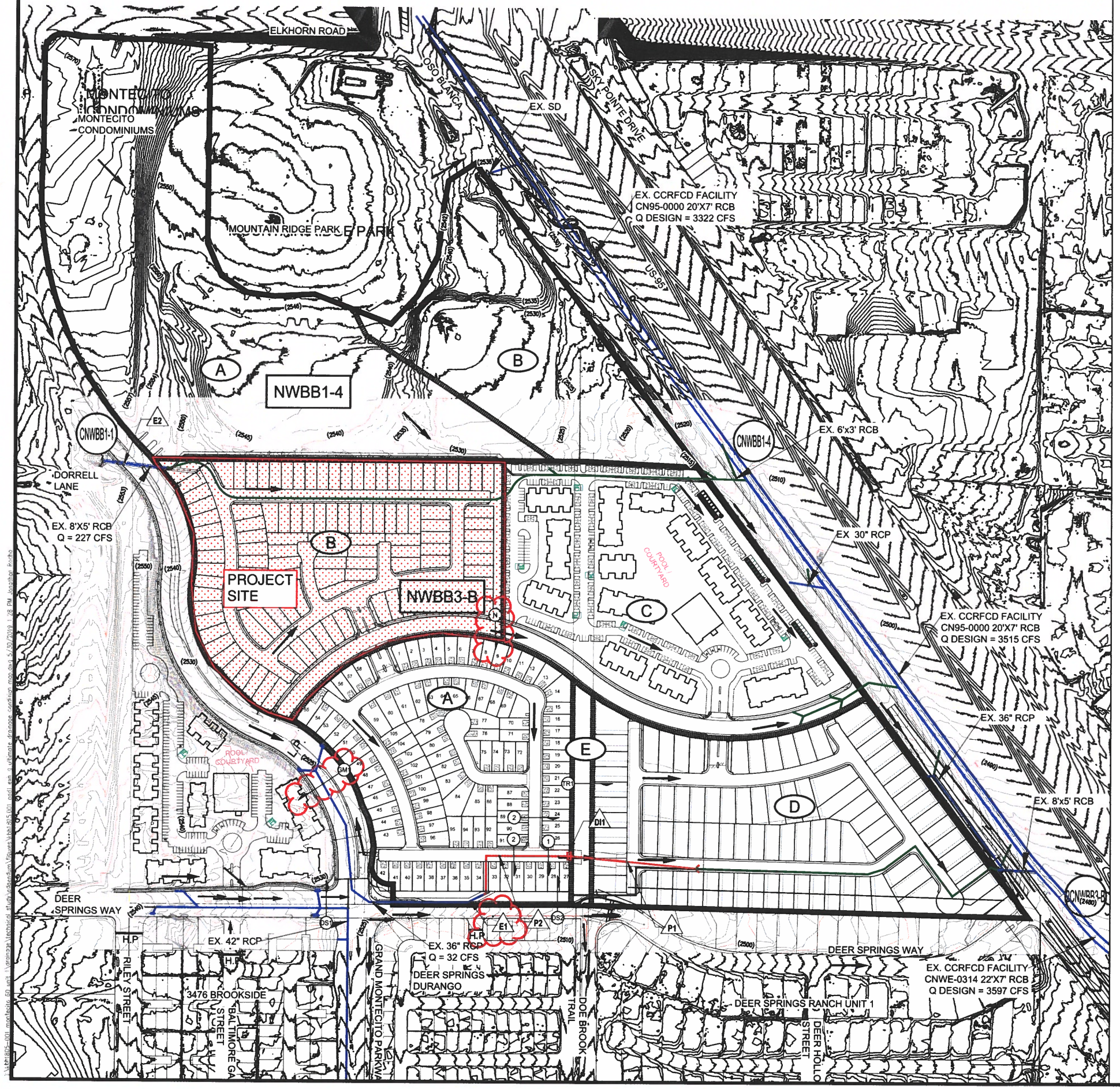
S 25
T 22S
R 60E

DATE: MAR 2019
DRAFTER: DCH
DESIGNER: DCH
CHECKED: SOA
PROJECT NO.
KBH1805.001

EXHIBIT G
SHEET 1 OF 1

DS-5114 TDS MAP - REFERENCED FOR EXISTING CONDITION

J:\kbh1805-001 montecito 60 unit 1\drainage\technical study\figures\kbh1805.001 site exh 1 unit 1 interim drainage condition map dated 3-18-2019 2:09 PM by Jonathon Rocha



0 150 300
SCALE – 1"=150' FEET

N

LEGEND

- BASIN BOUNDARY
- PRO-RATED SUBBASIN BOUNDARY
- EXISTING DRAINAGE FACILITIES
- PROPOSED DRAINAGE FACILITIES
- FUTURE DRAINAGE FACILITIES
- ID — BASIN ID
- ID — PRO-RATED SUBBASIN ID
- ID — CONCENTRATION POINT ID
- FLOW DIRECTION
- ID — FLOWMASTER SECTION
- ID — FACILITY ID

Ultimate Condition Flow Rate Summary

Basin/Concentration Point ID	Area (ac)	Q_{100} (cfs)	Q_{10} (cfs)
NWBB3-B*	53.0	135	(74)
NWBB1-4*	33.0	30	(17)
CNWBB1-1 Q = REF*	N/A	227	(125)
CNBB1-4 Q = REF*	N/A	3334	(1834)
2CNWBB3-B* Q = REF*	N/A	3579	(1968)

(Q10) VALUES DENOTED IN PARENTHESIS HAVE BEEN ALGEBRAICALLY PRODUCED FROM 0.55 PRECIPITATION RATIO.
* DENOTES REFERENCED FROM CENTENNIAL CHANNEL STUDY

PRORATED BASIN ENCOMPASSING PROJECT SITE

Ultimate Prorated Flow Summary

Basin ID	Q_{100} (cfs)	Area (acres)	100-yr Unit Flow (cfs/acre)
NWBB1-4	30	33.0	0.9
NWBB3-B	137	53.0	2.6
Subbasin ID	**Q_{100} (cfs)**	**Area (acres)**	**100-yr Unit Flow (cfs/acre)**
NWBB1-4(A)	22	24.5	0.9
NWBB1-4(B)	8	8.6	0.9
TOTAL	***30***	***33.0***	
NWBB3-B(A)	30	11.6	2.6
NWBB3-B(B)	34	13.0	2.6
NWBB3-B(C)	36	13.9	2.6
NWBB3-B(D)	35	13.7	2.6
NWBB3-B(E)	2	0.8	2.6
TOTAL	***137***	***53.0***	

100-Year Street Flow Summary

Section ID	Q_{100} (cfs)	Slope (%)	Depth (ft)	Velocity (fps)	DxV
DS1 Q = CNWBB3-A - SD COLLECTION	155	2.82	0.87	7.39	6.4
1 Q = NWBB3-B(A)	30	1.63	0.51	4.17	2.1
2 Q = NWBB3-B(A)	30	0.60	0.57	2.97	1.7
		1.75	0.51	4.10	2.1
N1 Q = NWBB3-B(B)	34	1.00	0.60	3.04	1.8
DS2 Q = DS1 Flowsplit	117	0.48	1.18	5.02	5.9
		3.00	0.88	8.75	7.7
GM1 Q = RCP1	32	1.16	0.58	3.73	2.2

Recommended Flood Control Facility Summary

Facility ID	Facility Description	Total/Approaching Flow (cfs) Q_{100}/Q_{10}	Facility Flow (cfs) Q_{100}/Q_{10}	Surface/Bypass Flow (cfs) Q_{100}/Q_{10}	Notes
E1	Ex. 36" RCP	-	32	-	
P2	Proposed 36" RCP	-	32	-	
DI1	Proposed 12.5' Type CM2 D.I.	30	30	0	In Sump. 4 Grate
P1	Proposed 36" RCP	-	62	-	
E2	Ex. 8'X5' RCB	-	227	-	

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MONTECITO UNIT 1

ULTIMATE CONDITION DRAINAGE MAP

S 25 T 20S R 60E

DATE: MAR 2019
DRAFTER: DCH
DESIGNER: DCH
CHECKED: SOA
PROJECT NO.
KBH1805.001

EXHIBIT H
SHEET 1 OF 1

DS-5114 TDS ADD MAP - REFERENCED FOR HYDRAULIC STREET SECTION

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Referenced Report Excerpt

Curve Number Comparison

The Centennial Channel Study had previously analyzed the onsite and offsite watershed impacting the project site based on the anticipated development of the site. The conceptual curve numbers utilized in the hydrologic computations and HEC-1 modeling have been determined to be more conservative in comparison to the curve numbers proposed for development of the project site. Therefore, this study has referenced the ultimate developed condition hydrologic computations and peak flow rates from the Centennial Channel Study as the previous analysis remains accurate and more conservative to the proposed improvements. Refer to Appendix B for the hydrologic computations and to Appendix F for relevant referenced hydrologic computations from the Centennial Channel Study.

Lag Time:

The lag time is defined as the time measured from the center of mass of excess rainfall to the time to peak of the outflow hydrograph. The lag time is related to the time of concentration as 0.6 times the time of concentration. The time of concentration is defined as the time required for runoff to flow from the hydraulically most distant point of a basin to the outlet point of the basin. Standard Form 4, as outlined in the CCRFCD Manual, was utilized to determine the lag times for the basins modeled. The lag time computations have been included in Appendix B.

2.3 Hydraulic Modeling

Street Flow: Street flows have been analyzed utilizing the FlowMaster Version v8i software by Haestad Methods. In accordance with the CCRFCD Manual, the velocity times depth factor (v x d) for street flow for the 10-year storm event must be less than or equal to 6, with a maximum depth of 1-ft. The velocity times depth factor (v x d) for street flow for the 100-year storm event must be less than or equal to 8, with a maximum depth of 2-ft.

Swales and Channels: Swales and channels have been analyzed utilizing the FlowMaster Version v8i software by Haestad Methods. Consideration for erosion protection has been analyzed where velocities become erosive.

Drop Inlet: Drop inlets have been assessed using an in-house computation spreadsheet which utilizes equations outlined in Section 805 of the CCRFCD Manual, which includes a 50% clogging factor in determining sizes.

Storm Drain: The hydraulic gradient line (HGL) for all storm drain modeling has been determined utilizing the windows version of the Water Surface and Pressure Gradient (WSPGW) Hydraulic Analysis System software by the Los Angeles County Department of Public Works.

As outlined in the CCRFCD Manual, storm drain facilities are designed to maintain their hydraulic gradient line (HGL) at a minimum 1-ft below the finished grade elevations and limit the flow velocities in the facility between 3 ft/s and 25 ft/s.

Referenced Hydrologic Data

SLATER HANIFAN GROUP
CONSULTING ENGINEERS & PLANNERS

Rainfall and Precipitation Computation

Project Name: KBH1805.004 Montecito Offsite Storm Drain
Date: 3/17/2019
File Name: KBH1805 TDS Precipitation Calcs.xls
By: J. Rocha

Data:

Reference:

Project is located in: Township: 19 S. Range: 60 E. Section: 20 — APN Map

Site is NOT located in the McCarran Airport Rainfall Area — Figure 513*

Rainfall Depth-Duration-Frequency 10-Year, 6-Hour: 1.25 inches — Figure 503*

Rainfall Depth-Duration-Frequency 100-Year, 6-Hour: 1.96 inches — Figure 506*

Precipitation Adjustment Ratios:

10-Year: 1.24 — Table 501*
100-Year: 1.43 — Table 501*

Six Hour Depth Area Reduction Factors (DARF):

Area (gross acres): 53.0 = 0.0828 square miles — Table 502*
DARF = 1.00

Calculations:

P_{10} = 1.55 — 10-Year Precipitation (in)
P_{100} = 2.80 — 100-Year Precipitation (in)

P10/P100= 0.55 — HEC-1 Multiple Ratio Value

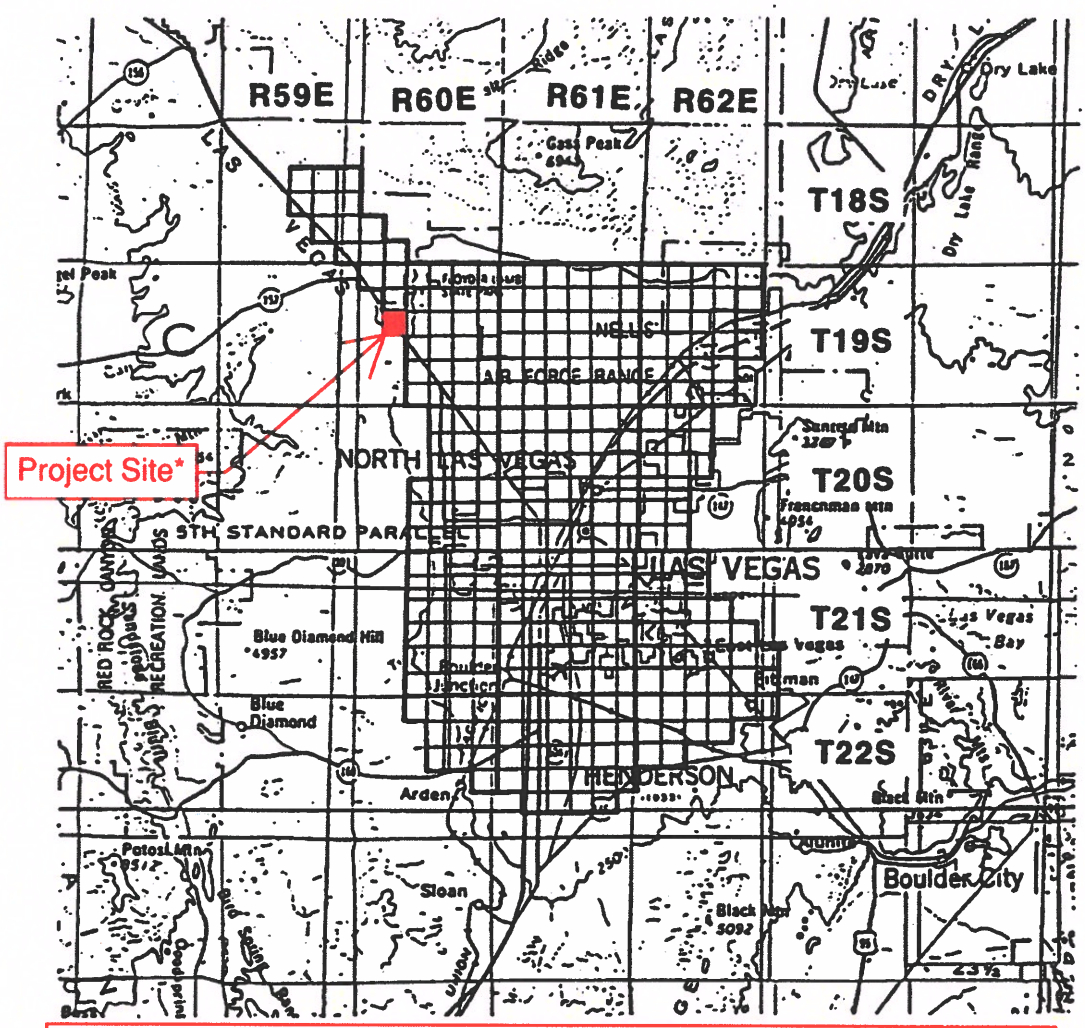
Equations:

P=(Rainfall)*(Precipitation Adjustment Ratio)*(Depth Area Reduction Factor)

* Equations taken from the Clark County Regional Flood Control District - Hydrologic Criteria and Drainage Desi

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McCARRAN AIRPORT RAINFALL AREA



*Project site not located within the McCarran Rainfall area (T19-R60-S20)

TOWNSHIP	RANGE	SECTIONS	TOWNSHIP	RANGE	SECTIONS
18 South	59 East	13-15,22-26,36	20 South	62 East	4-9,16-20,29-32
18 South	60 East	30-32	21 South	60 East	1-4,9-16,21-28,33-36
19 South	60 East	1-6,8-16,21-28,33-36	21 South	61 East	ALL SECTIONS
19 South	61 East	ALL SECTIONS	21 South	62 East	4-9,15-23, 25-36
19 South	62 East	2-11,14-23,27-34	22 South	60 East	1-4,10-15,24
20 South	60 East	1-3,10-15,21-28,33-36	22 South	61 East	1-24,26-29
20 South	61 East	ALL SECTIONS	22 South	62 East	1-10,17-18

Notes:
1. Refer to Table 505 and Figure 516 Depth-Duration- Frequency values in the McCarran Airport Rainfall Area.
2. Refer to Table 506 and Figure 517 for Time-Intensity-Frequency values on the McCarran Airport Rainfall Area.

Revision	Date

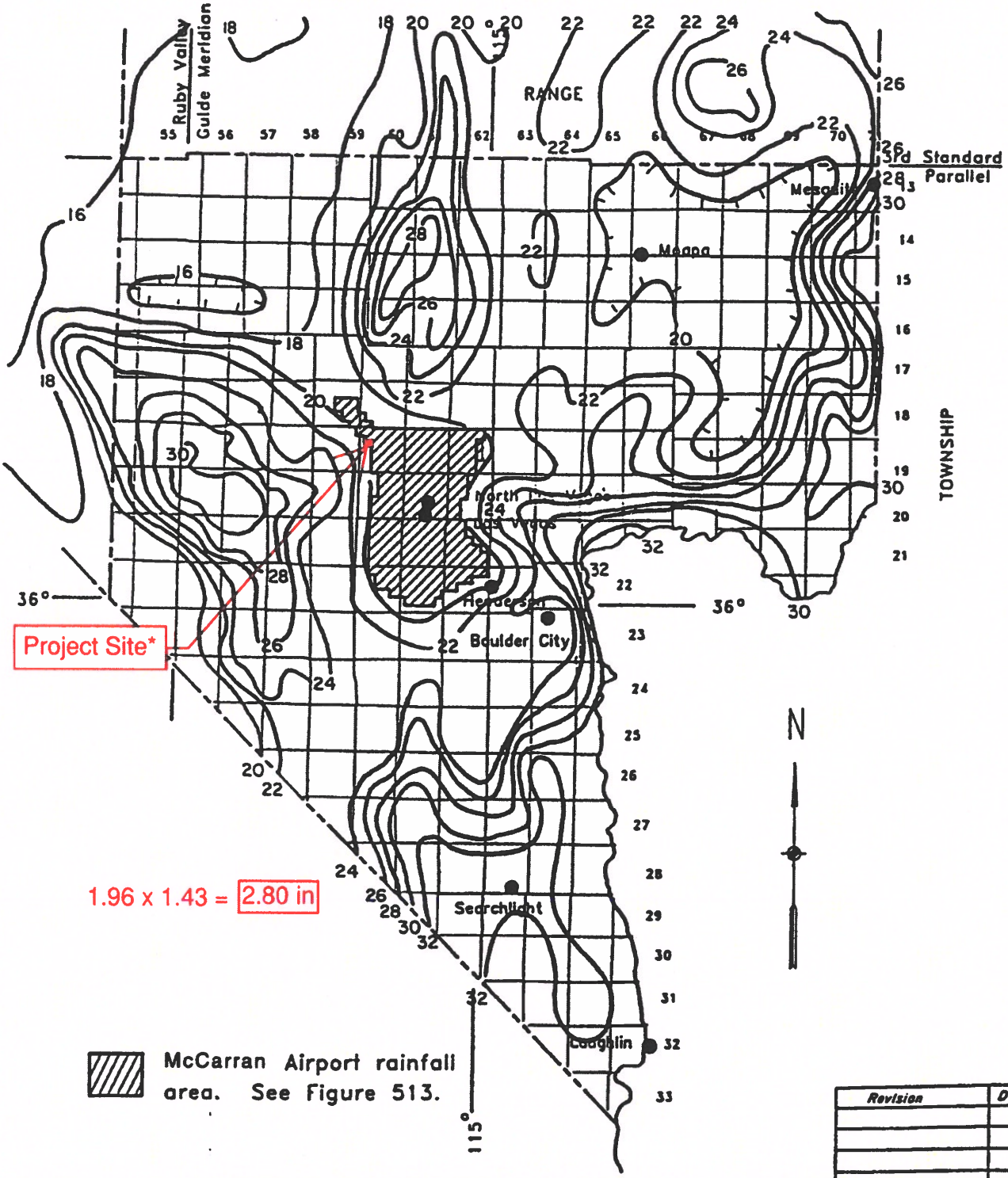
WRC ENGINEERING

REFERENCE:
USACE, Los Angeles District, 1988

FIGURE 513

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

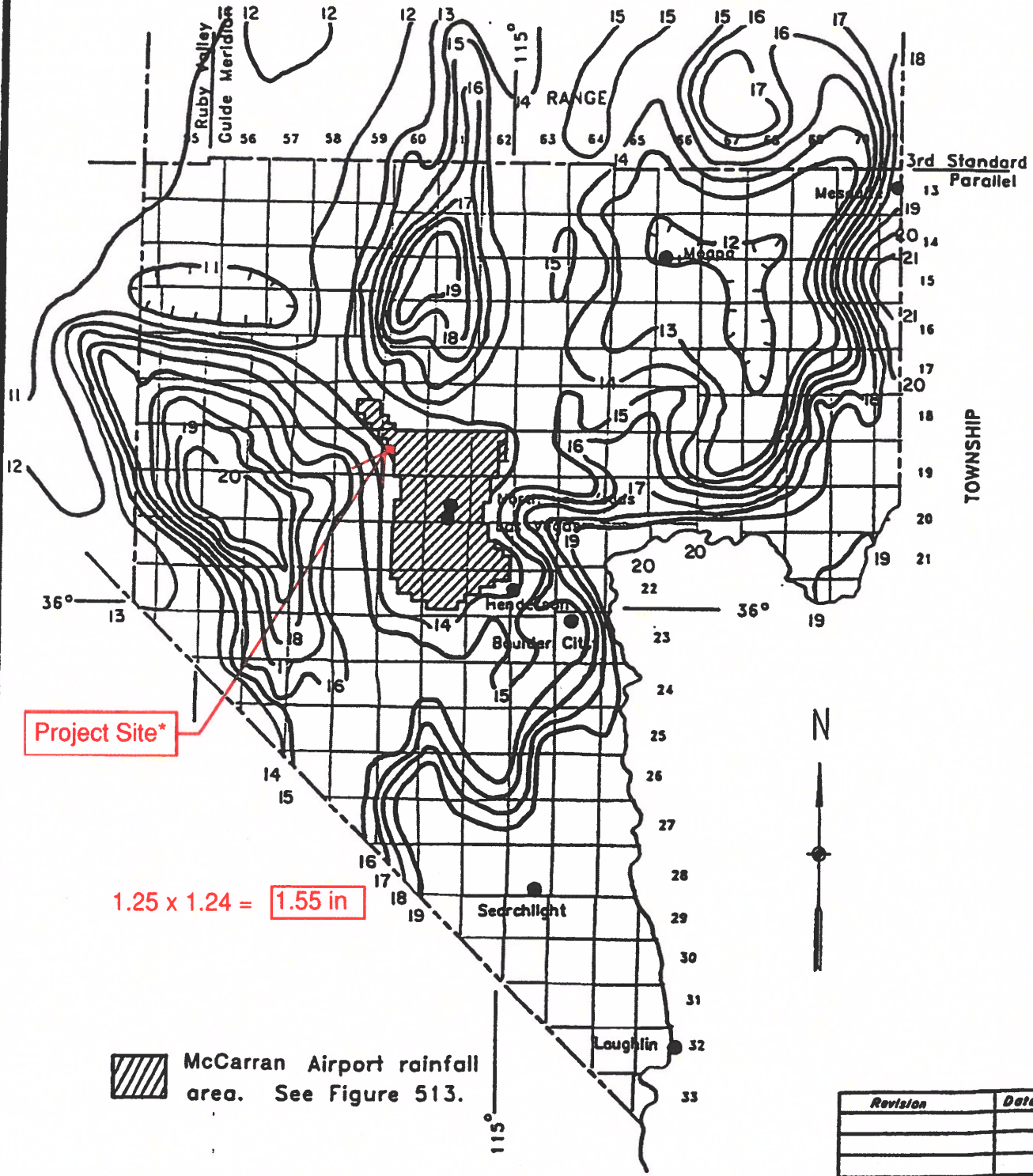
RAINFALL DEPTH-DURATION-FREQUENCY
100-YEAR, 6-HOUR
(DEPTHS IN TENTHS OF INCHES)



Revision	Date

WRC ENGINEERING	REFERENCE: NOAA ATLAS 2, VOLUME VII NEVADA, 1973	FIGURE 506

RAINFALL DEPTH-DURATION-FREQUENCY
10-YEAR, 6-HOUR
(DEPTHS IN TENTHS OF INCHES)



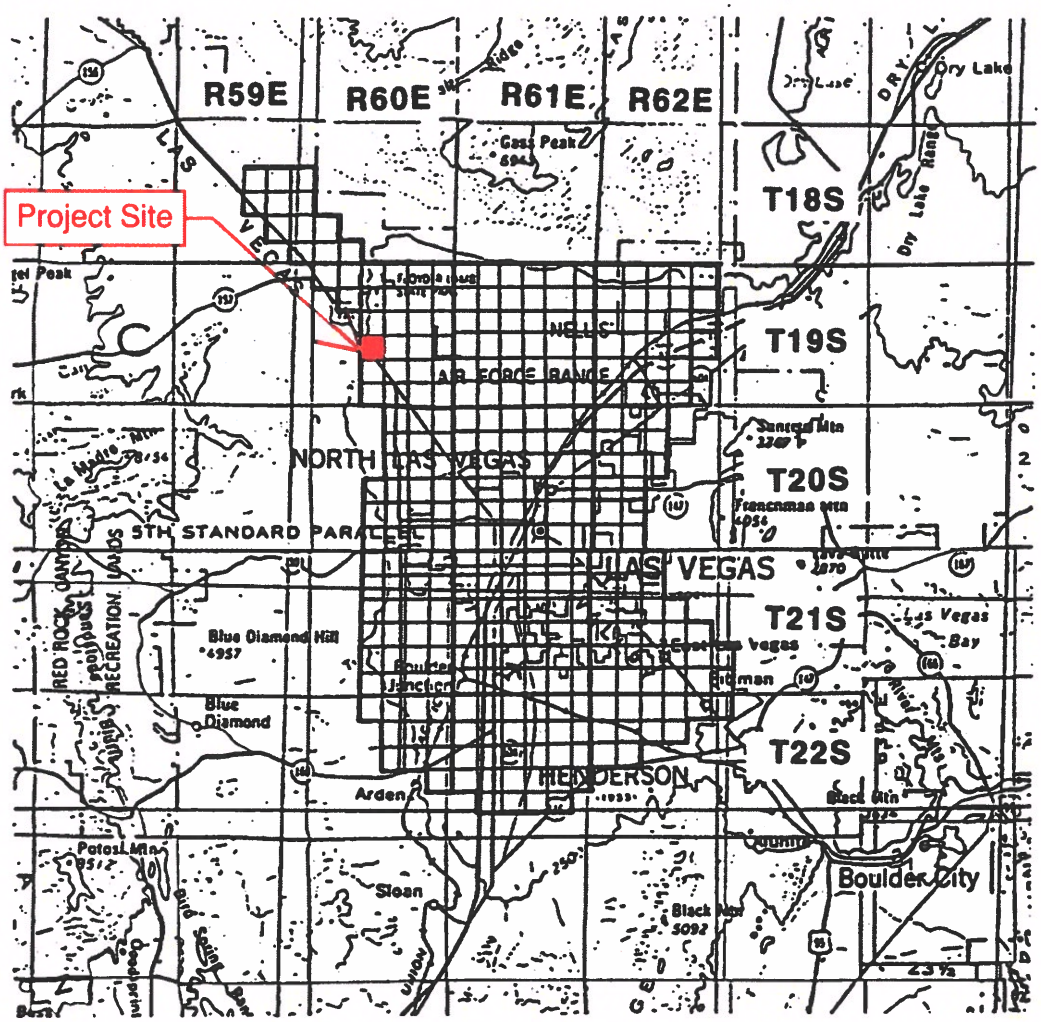
Revision	Date

WRC ENGINEERING

REFERENCE:
NOAA ATLAS 2, VOLUME VII NEVADA, 1973

FIGURE 503

McCARRAN AIRPORT RAINFALL AREA



TOWNSHIP	RANGE	SECTIONS	TOWNSHIP	RANGE	SECTIONS
18 South	59 East	13-15,22-26,36	20 South	62 East	4-9,16-20,29-32
18 South	60 East	30-32	21 South	60 East	1-4,9-16,21-28,33-36
19 South	60 East	1-6,8-16,21-28,33-36	21 South	61 East	ALL SECTIONS
19 South	61 East	ALL SECTIONS	21 South	62 East	4-9,15-23, 25-36
19 South	62 East	2-11,14-23,27-34	22 South	60 East	1-4,10-15,24
20 South	60 East	1-3,10-15,21-28,33-36	22 South	61 East	1-24,26-29
20 South	61 East	ALL SECTIONS	22 South	62 East	1-10,17-18

Notes:
1. Refer to Table 505 and Figure 516 Depth-Duration- Frequency values in the McCarran Airport Rainfall Area.
2. Refer to Table 506 and Figure 517 for Time-Intensity-Frequency values on the McCarran Airport Rainfall Area.

Revision	Date

WRC ENGINEERING

REFERENCE:
USACE, Los Angeles District, 1988

FIGURE 513

DEPTH-DURATION-FREQUENCY VALUES FOR McCARRAN AIRPORT RAINFALL AREA

(IN INCHES)

	RECURRENCE INTERVAL					
TIME	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
5 min.	0.15	0.27	0.35	0.46	0.54	0.63
10 min.	0.25	0.44	0.57	0.74	0.89	1.02
15 min.	0.33	0.57	0.74	0.97	1.15	1.32
30 min.	0.44	0.78	1.01	1.31	1.55	1.79
1 hour	0.52	0.89	1.15	1.50	1.78	2.06
2 hour	0.59	1.01	1.30	1.70	2.01	2.30
3 hour	0.64	1.08	1.39	1.82	2.15	2.48
6 hour	0.72	1.22	1.58	2.05	2.41	2.77
24 hour (TR-55)	1.20	1.60	1.80	2.40	2.70	2.96

NOTE: 1. Refer to Figure 513 for a description and drawing of the area included in the McCarran Airport Rainfall Area.

2. The 24 hour values presented above are for use with TR-55 only.

3. Table 501 adjustments not required.

Revision	Date

PRECIPITATION ADJUSTMENT RATIOS

Recurrence Interval	Ratio to NOAA Atlas 2
2-year	1.00
5-year	1.16
10-year	1.24
25-year	1.33
50-year	1.39
100-year	1.43

NOTE:
1. Multiply the values obtained from the NOAA Atlas 2 by the above ratios to obtain the adjusted precipitation values.
2. NOAA Atlas 2 values for use with TR-55 shall not be adjusted by the above ratios.
3. Tables 505 and 506 require no adjustments.

Revision	Date

SIX HOUR DEPTH-AREA REDUCTION FACTORS

Drainage Area (Square Miles)	Six-Hour Depth-Area Reduction Factor
0.0	1.00
0.5	0.98
1.0	0.97
2.0	0.93
4.0	0.91
6.0	0.90
8.0	0.88
10.0	0.86
20.0	0.79
30.0	0.74
50.0	0.68
100.0	0.60
150.0	0.55
200.0	0.51
300.0	0.46
400.0	0.42
500.0	0.39

NOTES: 1. A graphical representation of these factors is presented in Figure 514.

2. Consult with the local entity and/or the CCRFCD for guidance in using the Depth-Area Reduction Factors for drainage areas greater than 200 square miles.

Revision	Date

SIX-HOUR STORM DISTRIBUTIONS

Storm Time (In Minutes)	Percent of Total Storm Depth SDN3	SDN4	SDN5	Storm Time (In Minutes)	Percent of Total Storm Depth SDN3	SDN4	SDN5
0	0.0	0.0	0.0	185	32.2	37.6	43.0
5	2.0	2.0	2.0	190	35.2	41.5	47.7
10	5.7	5.8	5.9	195	40.9	46.2	51.4
15	7.0	7.5	8.0	200	49.9	53.0	56.1
20	8.7	9.9	11.0	205	59.0	61.0	63.0
25	10.8	12.6	14.4	210	71.0	71.0	71.0
30	12.4	13.7	15.0	215	74.4	73.2	72.0
35	13.0	14.5	16.0	220	78.1	75.6	73.1
40	13.0	14.9	16.8	225	81.2	78.2	75.2
45	13.0	15.1	17.1	230	81.9	79.9	77.9
50	13.0	15.5	18.0	235	83.5	81.3	79.0
55	13.0	15.6	18.2	240	85.1	82.3	79.5
60	13.0	15.9	18.7	245	85.6	83.0	80.4
65	13.3	16.2	19.0	250	86.0	83.5	81.0
70	14.0	16.9	19.7	255	86.8	84.4	82.0
75	14.2	17.2	20.2	260	87.6	85.1	82.6
80	14.8	17.9	21.0	265	88.8	86.4	84.0
85	15.8	18.9	22.0	270	91.0	88.5	85.9
90	17.2	20.1	23.0	275	92.6	90.8	88.9
95	18.1	21.1	24.1	280	93.7	92.4	91.0
100	19.0	22.0	25.0	285	95.0	94.4	93.8
105	19.7	22.8	25.9	290	97.0	96.8	96.6
110	19.9	23.2	26.5	295	97.6	97.3	97.0
115	20.0	24.0	28.0	300	98.2	97.8	97.4
120	20.1	24.6	29.0	305	98.5	98.2	97.9
125	20.4	25.2	30.0	310	98.7	98.4	98.1
130	21.4	26.0	30.5	315	98.9	98.6	98.3
135	22.9	26.9	30.9	320	99.0	98.8	98.5
140	24.1	27.6	31.0	325	99.3	99.1	98.9
145	24.9	28.3	31.7	330	99.3	99.2	99.0
150	25.1	28.6	32.1	335	99.4	99.3	99.2
155	25.6	29.2	32.7	340	99.5	99.4	99.3
160	27.0	30.2	33.3	345	99.8	99.7	99.6
165	27.8	31.2	34.6	350	99.8	99.8	99.7
170	28.1	32.1	36.1	355	99.9	99.9	99.9
175	28.3	33.2	38.1	360	100.0	100.0	100.0
180	29.5	35.2	40.8				

Notes
1. For drainage areas less than 8 square miles in size, use SDN 3.
2. For drainage areas greater than or equal to 8 square miles and less than 12 square miles in size, use SDN 4.
3. For drainage areas greater than or equal to 12 square miles, use SDN 5.
4. A graphical representation of these values is presented on **Figure 515.**

Revision	Date

REFERENCE:

TABLE 503

RUNOFF CURVE NUMBERS
(URBAN AREAS[1])

Cover description		Curve numbers for hydrologic soil group–			
Cover type and hydrologic condition	Average percent impervious area[2]	A	B	C	D
Fully developed urban areas (vegetation established)					
Open space (lawns, parks, golf courses, cemeteries, etc.)[3]:					
Poor condition (grass cover < 50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover > 75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved: curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved: open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only)[4]		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)		96	96	96	96
Urban districts:					
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					
See Table 602A					
Developing urban areas					
Newly graded areas (pervious areas only, no vegetation)[5]		77	86	91	94

1 Average runoff condition, and $I_a = 0.2S$.

2 The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system. Impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using Figure 603.

3 CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.

4 Composite CN's for natural desert landscaping should be computed using Figure 603 based on the impervious area percentage (CN #98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.

5 Composite CN's to use for the design of temporary measures during grading and construction should be computed using Figure 603 based on the degree of development impervious area percentage) and the CN's for the newly graded pervious areas.

Revision	Date

RUNOFF CURVE NUMBERS
(SEMIARID RANGELANDS[1])

Cover description		Curve numbers for hydrologic soil group—			
Cover type	Hydrologic condition[2]	A[3]	B	C	D
Herbaceous—mixture of grass, weeds, and low-growing brush, with brush the minor element.	Poor		80	87	93
	Fair		71	81	89
	Good		62	74	85
Oak-aspen—mountain brush mixture of oak brush, aspen, mountain mahogany, bitter brush, maple, and other brush.	Poor		66	74	79
	Fair		48	57	63
	Good		30	41	48
Pinyon-juniper—pinyon, juniper, or both; grass understory.	Poor		75	85	89
	Fair		58	73	80
	Good		41	61	71
Sagebrush with grass understory.	Poor		67	80	85
	Fair		51	63	70
	Good		35	47	55
Desert shrub—major plants include saltbush, greasewood, creosotebush, blackbrush, bursage, palo verde, mesquite, and cactus.	Poor	63	77	85	88
	Fair	55	72	81	86
	Good	49	68	79	84

[1]Average runoff condition, and $I_a = 0.2S$.

[2]*Poor:* <30% ground cover (litter, grass, and brush overstory).
Fair: 30 to 70% ground cover.
Good: >70% ground cover.

[3]Curve numbers for group A have been developed only for desert shrub.

Revision	Date

RUNOFF CURVE NUMBERS - RESIDENTIAL DISTRICTS

Average Lot Size or Usage[1]	Percent Impervious[2]	Curve Number for Hydrologic Soil Groups			
		A	B	C	D
Apartments/Condos	72	81	88	91	93
Townhouses/6,000 sq ft lots or less[3]	69	80	87	90	92
7,000 sq ft lots	63	76	84	89	91
8,000 sq ft lots	58	73	82	88	90
10,000 sq ft lots	38	61	75	83	87
14,000 sq ft lots	30	57	72	81	86
20,000 sq ft lots	25	54	70	80	85
40,000 sq ft lots	20	51	68	79	84
80,000 sq ft lots	12	46	65	77	82

1 Lot size should represent the size of the average lot and not the gross acreage divided by the number of lots.

2 Actual percent impervious value should be compared to selected land use type.

3 In cases where average residential lots are smaller than 6,000 sq ft, commercial/business/industrial land use should be used.

Revision	Date

REFERENCE:

TABLE 602A

United States Department of Agriculture

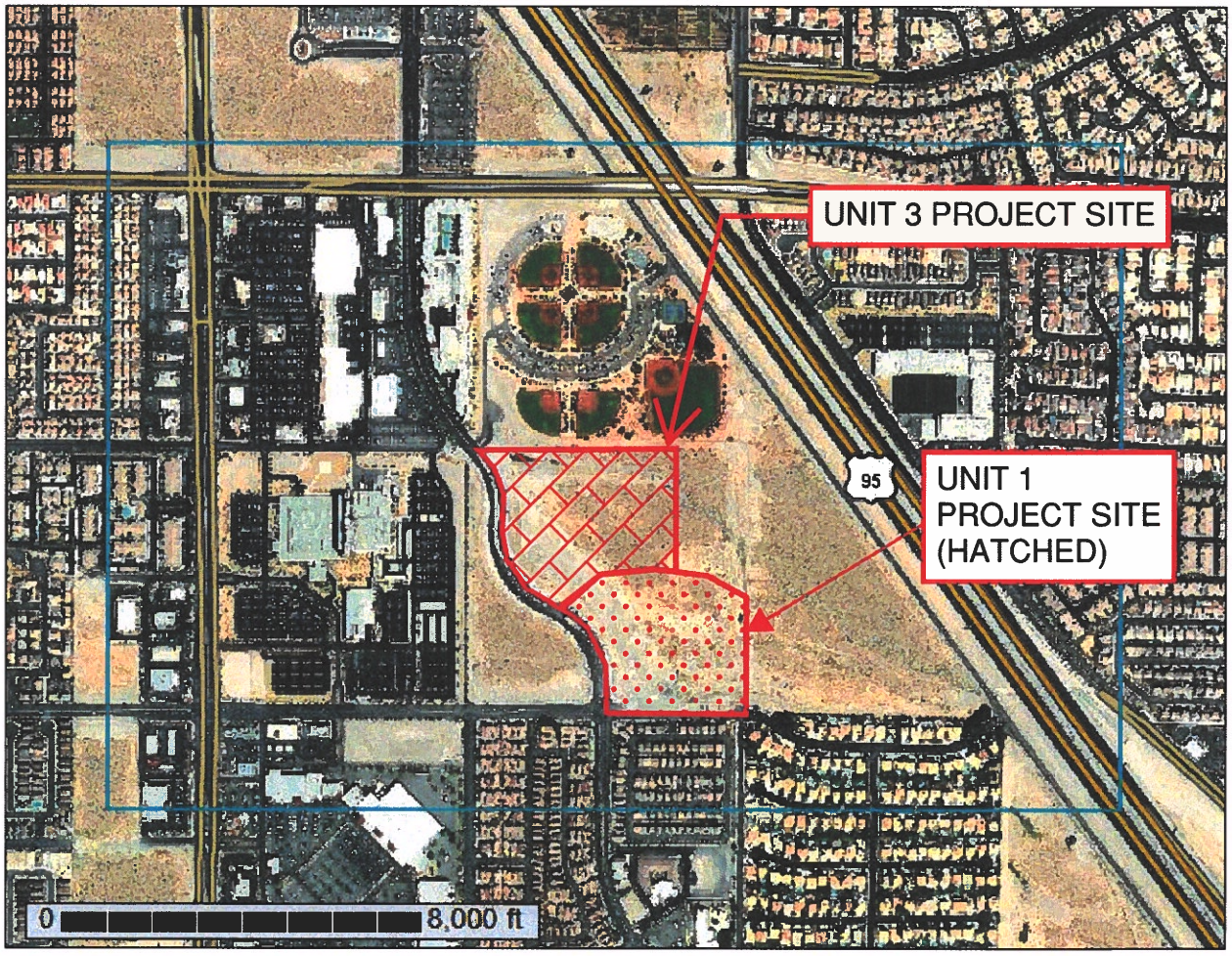
NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Las Vegas Valley Area, Nevada, Part of Clark County

Montecito



February 11, 2019

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

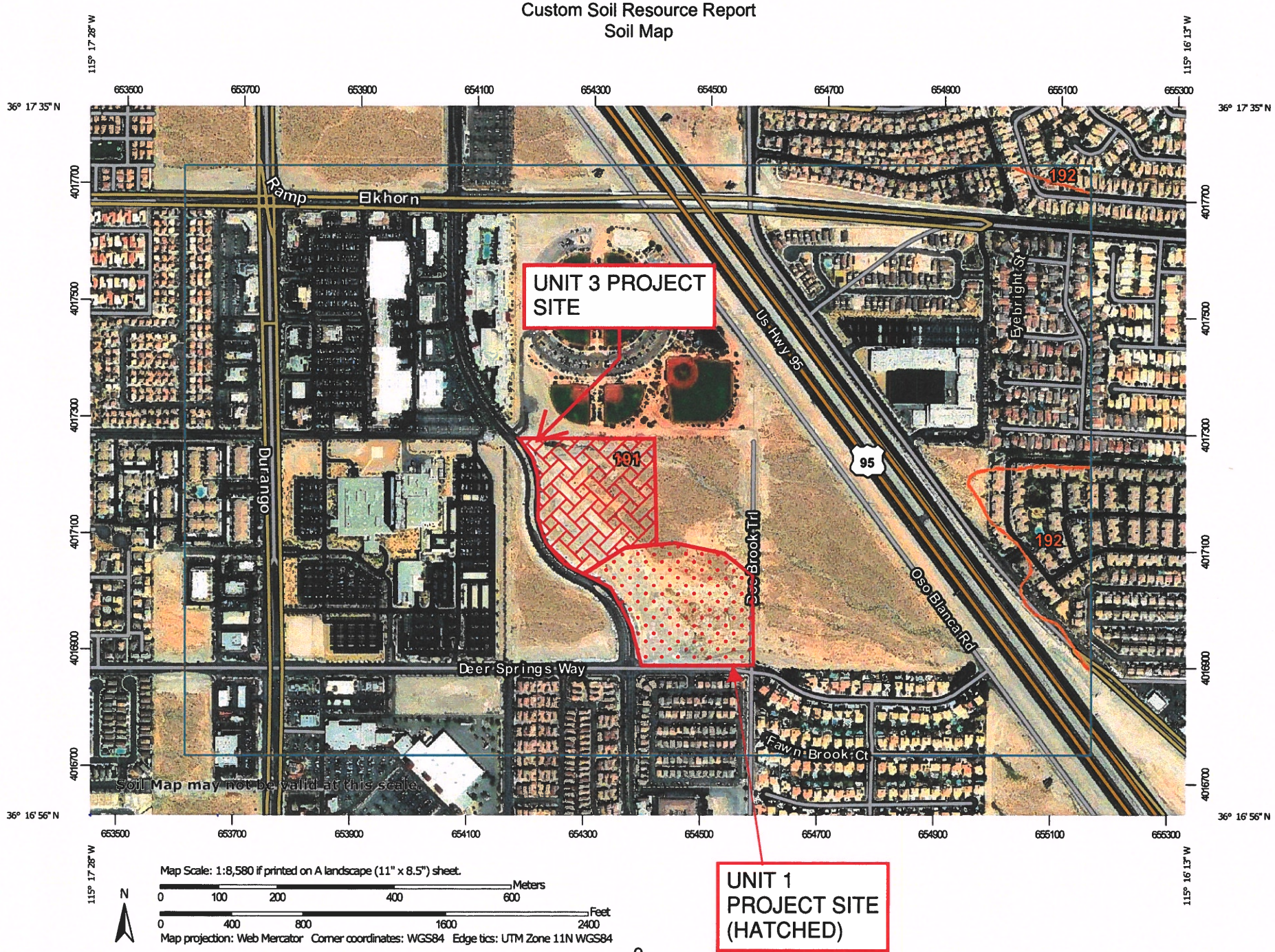
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Las Vegas Valley Area, Nevada, Part of Clark County
Survey Area Data: Version 13, Sep 14, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 3, 2016—Oct 1, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND	MAP INFORMATION
	imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
191	Dalian very cobbly fine sandy loam, 2 to 8 percent slopes	378.8	97.2%
192	Dalian-McCullough complex, 0 to 4 percent slopes	11.0	2.8%
Totals for Area of Interest		**389.8**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Las Vegas Valley Area, Nevada, Part of Clark County

191—Dalian very cobbly fine sandy loam, 2 to 8 percent slopes

Map Unit Setting

National map unit symbol: hrb4
Elevation: 2,200 to 3,400 feet
Mean annual precipitation: 4 to 6 inches
Mean annual air temperature: 61 to 66 degrees F
Frost-free period: 210 to 250 days
Farmland classification: Not prime farmland

Map Unit Composition

Dalian and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Dalian

Setting

Landform: Fan skirts
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Alluvium derived from limestone and dolostone

Typical profile

H1 - 0 to 5 inches: very cobbly fine sandy loam
H2 - 5 to 60 inches: very gravelly fine sandy loam

Properties and qualities

Slope: 2 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 60 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Hydric soil rating: No

192—Dalian-McCullough complex, 0 to 4 percent slopes

Map Unit Setting

National map unit symbol: hrb5
Elevation: 1,800 to 5,700 feet
Mean annual precipitation: 4 to 10 inches
Mean annual air temperature: 57 to 68 degrees F
Frost-free period: 170 to 260 days
Farmland classification: Not prime farmland

Map Unit Composition

Dalian and similar soils: 55 percent
Mccullough and similar soils: 35 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Dalian

Setting

Landform: Fan skirts
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Alluvium derived from limestone and dolostone

Typical profile

H1 - 0 to 5 inches: very gravelly fine sandy loam
H2 - 5 to 60 inches: very gravelly fine sandy loam

Properties and qualities

Slope: 0 to 4 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 60 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Hydric soil rating: No

Description of Mccullough

Setting

Landform: Fan skirts
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Mixed alluvium

Typical profile

H1 - 0 to 5 inches: very gravelly very fine sandy loam
H2 - 5 to 30 inches: stratified sandy loam to loam
H3 - 30 to 40 inches: stratified coarse sand to loamy fine sand
H4 - 40 to 60 inches: extremely gravelly loamy sand

Properties and qualities

Slope: 0 to 4 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 20 percent
Gypsum, maximum in profile: 15 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 5.0
Available water storage in profile: Low (about 5.8 inches)

Interpretive groups

Land capability classification (irrigated): 4s
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B
Other vegetative classification: LIMY 3-5" P.Z. (030XB019NV_3)
Hydric soil rating: No

Minor Components

Las vegas

Percent of map unit: 5 percent
Landform: Basin-floor remnants
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: LIMY 3-5" P.Z. (030XB019NV_3)
Hydric soil rating: No

Tencee

Percent of map unit: 5 percent
Landform: Fan remnants
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Soil Information for All Uses

Soil Reports

The Soil Reports section includes various formatted tabular and narrative reports (tables) containing data for each selected soil map unit and each component of each unit. No aggregation of data has occurred as is done in reports in the Soil Properties and Qualities and Suitabilities and Limitations sections.

The reports contain soil interpretive information as well as basic soil properties and qualities. A description of each report (table) is included.

Water Features

This folder contains tabular reports that present soil hydrology information. The reports (tables) include all selected map units and components for each map unit. Water Features include ponding frequency, flooding frequency, and depth to water table.

Hydrologic Soil Group and Surface Runoff

This table gives estimates of various soil water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or

soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas.

Surface runoff refers to the loss of water from an area by flow over the land surface. Surface runoff classes are based on slope, climate, and vegetative cover. The concept indicates relative runoff for very specific conditions. It is assumed that the surface of the soil is bare and that the retention of surface water resulting from irregularities in the ground surface is minimal. The classes are negligible, very low, low, medium, high, and very high.

Report—Hydrologic Soil Group and Surface Runoff

Absence of an entry indicates that the data were not estimated. The dash indicates no documented presence.

Hydrologic Soil Group and Surface Runoff–Las Vegas Valley Area, Nevada, Part of Clark County			
Map symbol and soil name	**Pct. of map unit**	**Surface Runoff**	**Hydrologic Soil Group**
191—Dalian very cobbly fine sandy loam, 2 to 8 percent slopes			
Dalian	100	Low	A
192—Dalian-McCullough complex, 0 to 4 percent slopes			
Dalian	55	Very low	A
Mccullough	35	Low	B
Las vegas	5	Very high	D
Tencee	5	Very high	D

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SLATER HANIFAN GROUP
CONSULTING ENGINEERS & PLANNERS

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL
TIME OF CONCENTRATION

Project Name & Number: KBH1805.001 Montecito - Unit 1
Description: STANDARD FORM 4
By: J.Rocha
Date: 3/17/2019

SUB-BASIN DATA						INITIAL / OVERLAND TIME (Ti)			TRAVEL TIME (Tt)					Tc	Tc Check Urbanized Basins		Tlag
DESIG:	DEV./EX. (D or E)	CN	K [1]	AREA Ac	AREA Mi^2 [2]	INITIAL LENGTH Feet	SLOPE %	Ti Min [3]	TRAVEL LENGTH Feet	SLOPE %	V1 VELOCITY FPS [4]	V2 VELOCITY FPS [5]	Tt Min [6]	Tc Calc. [7]	Total Length Feet [8]	Tc Check [9]	Tlag Hours [10]
EXISTING CONDITION																	
NWBB3-B	E	63.0	0.442	53.0	0.0828	300	3.16	13.99	2830	2.12	2.15	4.28	12.94	26.93			0.269
UNIT 1 INTERIM CONDITION																	
NWBB3-B-A	D	89.0	0.785	11.6	0.0181	100	1.00	5.67	1290	0.93	1.95	2.95	8.74	14.41	1390	17.722	0.144
NWBB3-B-I	D	77.0	0.626	41.4	0.0646	300	3.16	10.06	2830	2.12	2.94	4.46	11.55	21.61	3130	27.389	0.216
ULTIMATE CONDITION																	
NWBB3-B	D	86.9	0.757	53.0	0.0828	100	1.00	6.17	3440	1.98	2.84	4.30	14.32	20.50	3540	29.667	0.205

[1] K = 0.0132 (CN) - 0.39
[2] A = Area/640
[3] Ti = (1.8 (1.1-K) L^0.5)/S^0.33
[4] For Existing Conditions: V1 = 14.8 * (S/100)^0.5
For Developed Conditions: V1 = 20.2 * (S/100)^0.5
[5] For Existing Conditions: V2 = 29.4 * (S/100)^0.5
For Developed Conditions: V2 = 30.6 * (S/100)^0.5
[6] Tt = L/(60*V)
[7] Tc = Ti + Tt
[8] Total L = Initial L + Travel L
[9] Tc = (L/180) + 10
[10] Tlag = (0.6*Tc)/60
[11] Min Tlag =0.05
Note: For Travel Time Calcs: V1 applies to first 500 feet and V2 applies to remaining distance.

REFERENCE : STANDARD FORM 4

HIGHLIGHTED DENOTES REFERENCED DATA

FOR COMPARISON BETWEEN CENTENNIAL
FLOWRATES AND UPDATED SOILS AND CN ANALYSIS


```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*              JUN   1998               *
*            VERSION 4.1                *
*                                       *
*  RUN DATE   17MAR19  TIME  14:30:43   *
*                                       *
*****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 756-1104              *
*                                       *
*****************************************
```

```
X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X              X
XXXXXXX  XXXX     X        XXXXX  X
X     X  X        X              X
X     X  X        X     X        X
X     X  XXXXXXX   XXXXX         XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

```
          LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

                        *DIAGRAM
 *** FREE ***
               1        ID     SLATER HANIFAN GROUP, A WESTWOOD TEAM
               2        ID     MONTECITO 60 UNIT 1
               3        ID     TECHNICAL DRAINAGE STUDY
               4        ID     MARCH 2019
               5        ID     EXISTING DRAINAGE CONDITION
               6        ID
               7        ID     RETURN PERIOD ------- 100 & 10-YEAR
               8        ID     DISTRIBUTION -------- 6-HOUR SDN3
               9        ID     PROJECT NO. --------- KBH1805.001
              10        ID     FILENAME ------------ EX.H1
              11        ID     DATE ---------------- 03/17/2019
              12        ID     MODELED BY ---------- JSR
              13        ID
              14        ID        PRECIPITATION STORM EVENT RATIOS
              15        ID        STORM EVENT            RATIO
              16        ID        100-YR                 1.00
              17        ID        10-YR                  0.55
              18        ID
              19        IT      5       0       0     300
              20        IO      5       0       0
              21        IN      5       0       0
              22        JR    PREC    1.00    0.55
                        *
              23        KK NWBB3-B
              24        KM   ONSITE BASIN
              25        BA  0.0828
              26        PB    2.80
              27        PC       0   0.020   0.057   0.070   0.087   0.108   0.124   0.130   0.130   0.130
              28        PC   0.130   0.130   0.130   0.133   0.140   0.142   0.148   0.158   0.172   0.181
              29        PC   0.190   0.197   0.199   0.200   0.201   0.204   0.214   0.229   0.241   0.249
              30        PC   0.251   0.256   0.270   0.278   0.281   0.283   0.295   0.322   0.352   0.409
              31        PC   0.499   0.590   0.710   0.744   0.781   0.812   0.819   0.835   0.851   0.856
              32        PC   0.860   0.868   0.876   0.888   0.910   0.926   0.937   0.950   0.970   0.976
              33        PC   0.982   0.985   0.987   0.989   0.990   0.993   0.993   0.994   0.995   0.998
              34        PC   0.998   0.999   1.000
              35        LS       0    63.0
              36        UD   0.269
                        *
              37        ZZ
```

1

SCHEMATIC DIAGRAM OF STREAM NETWORK

```
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

    23     NWBB3-B

 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
```

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*              JUN   1998               *
*                                       *
*****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*                                       *
*****************************************
```

```
*          VERSION 4.1              *
*                                   *
*  RUN DATE   17MAR19  TIME  14:30:43  *
*                                   *
*************************************
```


```
*        609 SECOND STREET          *
*      DAVIS, CALIFORNIA 95616      *
*         (916) 756-1104            *
*                                   *
*************************************
```


```
                        SLATER HANIFAN GROUP, A WESTWOOD TEAM
                        MONTECITO 60 UNIT 1
                        TECHNICAL DRAINAGE STUDY
                        MARCH 2019
                        EXISTING DRAINAGE CONDITION

                        RETURN PERIOD ------- 100 & 10-YEAR
                        DISTRIBUTION -------- 6-HOUR SDN3
                        PROJECT NO. --------- KBH180S.001
                        FILENAME ------------ EX.H1
                        DATE ---------------- 03/17/2019
                        MODELED BY ---------- JSR

                           PRECIPITATION STORM EVENT RATIOS
                           STORM EVENT             RATIO
                           100-YR                  1.00
                           10-YR                   0.55


  20 IO          OUTPUT CONTROL VARIABLES
                      IPRNT          5  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

     IT          HYDROGRAPH TIME DATA
                       NMIN          5  MINUTES IN COMPUTATION INTERVAL
                      IDATE      1   0  STARTING DATE
                      ITIME       0000  STARTING TIME
                         NQ        300  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE      2   0  ENDING DATE
                     NDTIME       0055  ENDING TIME
                     ICENT         19  CENTURY MARK

                   COMPUTATION INTERVAL     .08 HOURS
                        TOTAL TIME BASE   24.92 HOURS

          ENGLISH UNITS
               DRAINAGE AREA         SQUARE MILES
               PRECIPITATION DEPTH   INCHES
               LENGTH, ELEVATION     FEET
               FLOW                  CUBIC FEET PER SECOND
               STORAGE VOLUME        ACRE-FEET
               SURFACE AREA          ACRES
               TEMPERATURE           DEGREES FAHRENHEIT

     JP          MULTI-PLAN OPTION
                      NPLAN          1  NUMBER OF PLANS

     JR          MULTI-RATIO OPTION
                     RATIOS OF PRECIPITATION
                    1.00       .55
1

               PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
                              FLOWS IN CUBIC FEET PER SECOND,  AREA IN SQUARE MILES
                                          TIME TO PEAK IN HOURS


                                                                  RATIOS APPLIED TO PRECIPITATION
 OPERATION       STATION     AREA    PLAN                 RATIO 1  RATIO 2
                                                             1.00      .55

 HYDROGRAPH AT
+                NWBB3-B       .08     1   FLOW            17.       1.
                                             TIME           3.83     5.00


 *** NORMAL END OF HEC-1 ***
```

FOR COMPARISON BETWEEN CENTENNIAL
FLOWRATES AND UPDATED SOILS AND CN ANALYSIS


```
1*****************************************
 *                                       *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
 *              JUN  1998                *
 *            VERSION 4.1                *
 *                                       *
 *  RUN DATE   17MAR19  TIME  14:43:39   *
 *                                       *
 *****************************************
```

```
*************************************
*                                   *
*    U.S. ARMY CORPS OF ENGINEERS   *
*    HYDROLOGIC ENGINEERING CENTER  *
*          609 SECOND STREET        *
*       DAVIS, CALIFORNIA 95616     *
*           (916) 756-1104          *
*                                   *
*************************************
```

```
X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X              X
XXXXXXX  XXXX     X        XXXXX  X
X     X  X        X              X
X     X  X        X     X        X
X     X  XXXXXXX   XXXXX         XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

```
         LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
 *** FREE ***
                       *DIAGRAM
             1         ID     SLATER HANIFAN GROUP, A WESTWOOD TEAM
             2         ID     MONTECITO 60 UNIT 1
             3         ID     TECHNICAL DRAINAGE STUDY
             4         ID     MARCH 2019
             5         ID     UNIT 1 INTERIM DRAINAGE CONDITION
             6         ID
             7         ID     RETURN PERIOD ------- 100 & 10-YEAR
             8         ID     DISTRIBUTION -------- 6-HOUR SDN3
             9         ID     PROJECT NO. --------- KBH1805.001
            10         ID     FILENAME ------------ UNIT1.H1
            11         ID     DATE ---------------- 03/17/2019
            12         ID     MODELED BY ---------- JSR
            13         ID
            14         ID        PRECIPITATION STORM EVENT RATIOS
            15         ID        STORM EVENT            RATIO
            16         ID        100-YR                  1.00
            17         ID        10-YR                   0.55
            18         ID
            19         IT      5       0       0     300
            20         IO      5       0       0
            21         IN      5       0       0
            22         JR    PREC    1.00    0.55
                       *

            23         KKNWBB3-B-A
            24         KM   ONSITE INTERIM BASIN
            25         BA  0.0181
            26         PB    2.80
            27         PC       0   0.020   0.057   0.070   0.087   0.108   0.124   0.130   0.130   0.130
            28         PC   0.130   0.130   0.130   0.133   0.140   0.142   0.148   0.158   0.172   0.181
            29         PC   0.190   0.197   0.199   0.200   0.201   0.204   0.214   0.229   0.241   0.249
            30         PC   0.251   0.256   0.270   0.278   0.281   0.283   0.295   0.322   0.352   0.409
            31         PC   0.499   0.590   0.710   0.744   0.781   0.812   0.819   0.835   0.851   0.856
            32         PC   0.860   0.868   0.876   0.888   0.910   0.926   0.937   0.950   0.970   0.976
            33         PC   0.982   0.985   0.987   0.989   0.990   0.993   0.993   0.994   0.995   0.998
            34         PC   0.998   0.999   1.000
            35         LS       0    89.0
            36         UD   0.144
                       *

            37         KKNWBB3-B-I
            38         KM   OFFSITE INTERIM BASIN
            39         BA  0.0646
            40         LS       0    77.0
            41         UD   0.216
                       *
            42         ZZ
```

1

SCHEMATIC DIAGRAM OF STREAM NETWORK

INPUT LINE NO.

(V) ROUTING (---->) DIVERSION OR PUMP FLOW

(.) CONNECTOR (<---) RETURN OF DIVERTED OR PUMPED FLOW

```
   23    NWBB3-B-
                .
                .
   37           .    NWBB3-B-

 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1*****************************************
 *                                       *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
 *              JUN   1998               *
 *            VERSION 4.1                *
 *                                       *
 *  RUN DATE   17MAR19  TIME  14:43:39   *
 *                                       *
 *****************************************

                                          ***************************************
                                          *                                     *
                                          *    U.S. ARMY CORPS OF ENGINEERS     *
                                          *    HYDROLOGIC ENGINEERING CENTER    *
                                          *         609 SECOND STREET           *
                                          *       DAVIS, CALIFORNIA 95616       *
                                          *           (916) 756-1104            *
                                          *                                     *
                                          ***************************************

                          SLATER HANIFAN GROUP, A WESTWOOD TEAM
                          MONTECITO 60 UNIT 1
                          TECHNICAL DRAINAGE STUDY
                          MARCH 2019
                          UNIT 1 INTERIM DRAINAGE CONDITION

                          RETURN PERIOD ------- 100 & 10-YEAR
                          DISTRIBUTION -------- 6-HOUR SDN3
                          PROJECT NO. --------- KBH1805.001
                          FILENAME ------------ UNIT1.H1
                          DATE ---------------- 03/17/2019
                          MODELED BY ---------- JSR

                             PRECIPITATION STORM EVENT RATIOS
                             STORM EVENT            RATIO
                             100-YR                 1.00
                             10-YR                  0.55


  20 IO        OUTPUT CONTROL VARIABLES
                    IPRNT          5  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE

     IT         HYDROGRAPH TIME DATA
                     NMIN          5  MINUTES IN COMPUTATION INTERVAL
                    IDATE      1   0  STARTING DATE
                    ITIME       0000  STARTING TIME
                       NQ        300  NUMBER OF HYDROGRAPH ORDINATES
                    NDDATE     2   0  ENDING DATE
                    NDTIME      0055  ENDING TIME
                    ICENT         19  CENTURY MARK

                  COMPUTATION INTERVAL     .08 HOURS
                      TOTAL TIME BASE   24.92 HOURS

          ENGLISH UNITS
               DRAINAGE AREA         SQUARE MILES
               PRECIPITATION DEPTH   INCHES
               LENGTH, ELEVATION     FEET
               FLOW                  CUBIC FEET PER SECOND
               STORAGE VOLUME        ACRE-FEET
               SURFACE AREA          ACRES
               TEMPERATURE           DEGREES FAHRENHEIT

     JP         MULTI-PLAN OPTION
                    NPLAN          1  NUMBER OF PLANS

     JR         MULTI-RATIO OPTION
                   RATIOS OF PRECIPITATION
                  1.00       .55
1

               PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
                                FLOWS IN CUBIC FEET PER SECOND,  AREA IN SQUARE MILES
                                          TIME TO PEAK IN HOURS


                                                                  RATIOS APPLIED TO PRECIPITATION
 OPERATION       STATION     AREA    PLAN                    RATIO 1  RATIO 2
                                                               1.00      .55

 HYDROGRAPH AT
+               NWBB3-B-       .02     1   FLOW              26.      10.
                                           TIME              3.58     3.58

 HYDROGRAPH AT
+               NWBB3-B-       .06     1   FLOW              45.      10.
                                           TIME              3.67     3.75


 *** NORMAL END OF HEC-1 ***
```

FOR COMPARISON BETWEEN CENTENNIAL
FLOWRATES AND UPDATED SOILS AND CN ANALYSIS


```
1*****************************************
 *                                       *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
 *              JUN   1998               *
 *            VERSION 4.1                *
 *                                       *
 *  RUN DATE   17MAR19  TIME  14:43:11   *
 *                                       *
 *****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*         609 SECOND STREET             *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 756-1104              *
*                                       *
*****************************************
```

```
X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X              X
XXXXXXX  XXXX     X        XXXXX  X
X     X  X        X               X
X     X  X        X     X         X
X     X  XXXXXXX   XXXXX          XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
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DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

```
          LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

                        *DIAGRAM
 *** FREE ***
              1         ID    SLATER HANIFAN GROUP, A WESTWOOD TEAM
              2         ID    MONTECITO 60 UNIT 1
              3         ID    TECHNICAL DRAINAGE STUDY
              4         ID    MARCH 2019
              5         ID    ULTIMATE DRAINAGE CONDITION
              6         ID
              7         ID    RETURN PERIOD ------- 100 & 10-YEAR
              8         ID    DISTRIBUTION -------- 6-HOUR SDN3
              9         ID    PROJECT NO. --------- KBH1805.001
             10         ID    FILENAME ------------ ULT.H1
             11         ID    DATE ---------------- 03/17/2019
             12         ID    MODELED BY ---------- JSR
             13         ID
             14         ID       PRECIPITATION STORM EVENT RATIOS
             15         ID       STORM EVENT            RATIO
             16         ID       100-YR                 1.00
             17         ID       10-YR                  0.55
             18         ID
             19         IT      5       0       0     300
             20         IO      5       0       0
             21         IN      5       0       0
             22         JR    PREC    1.00    0.55
                        *

             23         KK NWBB3-B
             24         KM   ONSITE BASIN
             25         PB    2.80
             26         PC       0   0.020   0.057   0.070   0.087   0.108   0.124   0.130   0.130   0.130
             27         PC   0.130   0.130   0.130   0.133   0.140   0.142   0.148   0.158   0.172   0.181
             28         PC   0.190   0.197   0.199   0.200   0.201   0.204   0.214   0.229   0.241   0.249
             29         PC   0.251   0.256   0.270   0.278   0.281   0.283   0.295   0.322   0.352   0.409
             30         PC   0.499   0.590   0.710   0.744   0.781   0.812   0.819   0.835   0.851   0.856
             31         PC   0.860   0.868   0.876   0.888   0.910   0.926   0.937   0.950   0.970   0.976
             32         PC   0.982   0.985   0.987   0.989   0.990   0.993   0.993   0.994   0.995   0.998
             33         PC   0.998   0.999   1.000
             34         BA  0.0828
             35         LS       0    86.9
             36         UD   0.205
                        *
             37         ZZ
```

1 SCHEMATIC DIAGRAM OF STREAM NETWORK

```
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

    23     NWBB3-B

 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
```


```
1*****************************************
 *                                       *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
 *              JUN   1998               *
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
```

```
*          VERSION 4.1              *
*                                   *
*  RUN DATE   17MAR19  TIME  14:43:11  *
*                                   *
*************************************
```


```
*        609 SECOND STREET          *
*      DAVIS, CALIFORNIA 95616      *
*          (916) 756-1104           *
*                                   *
*************************************
```


```
                    SLATER HANIFAN GROUP, A WESTWOOD TEAM
                    MONTECITO 60 UNIT 1
                    TECHNICAL DRAINAGE STUDY
                    MARCH 2019
                    ULTIMATE DRAINAGE CONDITION

                    RETURN PERIOD ------- 100 & 10-YEAR
                    DISTRIBUTION -------- 6-HOUR SDN3
                    PROJECT NO. --------- KBH1805.001
                    FILENAME ------------ ULT.H1
                    DATE ---------------- 03/17/2019
                    MODELED BY ---------- JSR

                       PRECIPITATION STORM EVENT RATIOS
                       STORM EVENT            RATIO
                       100-YR                 1.00
                       10-YR                  0.55

  20 IO         OUTPUT CONTROL VARIABLES
                      IPRNT          5  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE

     IT         HYDROGRAPH TIME DATA
                       NMIN          5  MINUTES IN COMPUTATION INTERVAL
                      IDATE      1   0  STARTING DATE
                      ITIME       0000  STARTING TIME
                         NQ        300  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE      2   0  ENDING DATE
                     NDTIME       0055  ENDING TIME
                     ICENT          19  CENTURY MARK

                   COMPUTATION INTERVAL     .08 HOURS
                        TOTAL TIME BASE   24.92 HOURS

          ENGLISH UNITS
               DRAINAGE AREA         SQUARE MILES
               PRECIPITATION DEPTH   INCHES
               LENGTH, ELEVATION     FEET
               FLOW                  CUBIC FEET PER SECOND
               STORAGE VOLUME        ACRE-FEET
               SURFACE AREA          ACRES
               TEMPERATURE           DEGREES FAHRENHEIT

     JP         MULTI-PLAN OPTION
                     NPLAN          1  NUMBER OF PLANS

     JR         MULTI-RATIO OPTION
                    RATIOS OF PRECIPITATION
                   1.00       .55
1

               PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
                                FLOWS IN CUBIC FEET PER SECOND,  AREA IN SQUARE MILES
                                          TIME TO PEAK IN HOURS


                                                          RATIOS APPLIED TO PRECIPITATION
 OPERATION       STATION     AREA    PLAN                RATIO 1  RATIO 2
                                                            1.00      .55

 HYDROGRAPH AT
+                NWBB3-B      .08     1   FLOW             95.      35.
                                          TIME            3.67     3.67


 *** NORMAL END OF HEC-1 ***
```

CENTENNIAL STUDY FLOWRATE Q100=135-CFS IS MORE CONSERVATIVE, THEREFORE UTILIZED HIGHER FLOWRATE.

Referenced Hydraulic Data

PER TDS

Worksheet for Section N - Perimeter 64' ROW

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	1.00	%
Discharge	34.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.70
0+05.00	0.60
0+10.00	0.50
0+10.00	0.50
0+10.50	0.48
0+10.50	0.00
0+12.00	0.13
0+12.00	0.17
0+32.00	0.57
0+32.00	0.57
0+52.00	0.17
0+52.00	0.13
0+53.50	0.00
0+53.50	0.48
0+54.00	0.50
0+54.00	0.50
0+59.00	0.60
0+64.00	0.70

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.70)	(0+05.00, 0.60)	0.013
(0+05.00, 0.60)	(0+10.00, 0.50)	0.022
(0+10.00, 0.50)	(0+12.00, 0.13)	0.013

Worksheet for Section N - Perimeter 64' ROW

Input Data

Start Station	Ending Station	Roughness Coefficient
(0+12.00, 0.13)	(0+52.00, 0.13)	0.016
(0+52.00, 0.13)	(0+54.00, 0.50)	0.013
(0+54.00, 0.50)	(0+59.00, 0.60)	0.022
(0+59.00, 0.60)	(0+64.00, 0.70)	0.013

Options

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

Results

Normal Depth		0.60	ft
Elevation Range	0.00 to 0.70 ft		
Flow Area		11.18	ft²
Wetted Perimeter		54.63	ft
Hydraulic Radius		0.20	ft
Top Width		53.57	ft
Normal Depth		0.60	ft
Critical Depth		0.62	ft
Critical Slope		0.00708	ft/ft
Velocity		3.04	ft/s
Velocity Head		0.14	ft
Specific Energy		0.74	ft
Froude Number		1.17	
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

Worksheet for Section N - Perimeter 64' ROW

GVF Output Data

Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.60	ft
Critical Depth	0.62	ft
Channel Slope	1.00	%
Critical Slope	0.00708	ft/ft

Cross Section for Section N - Perimeter 64' ROW

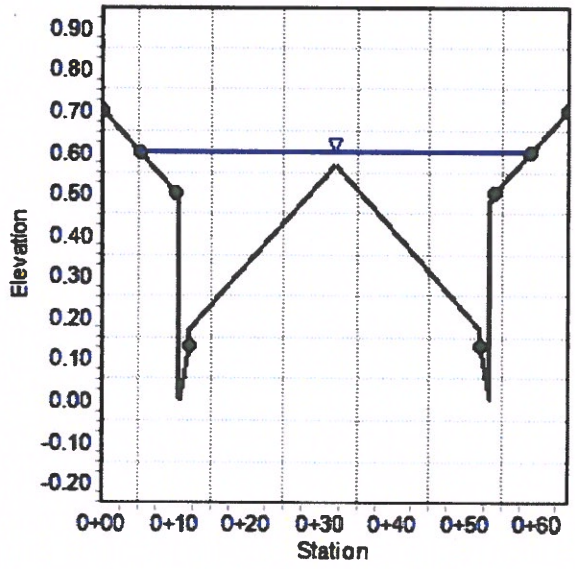
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	1.00	%
Normal Depth	0.60	ft
Discharge	34.00	ft³/s

Cross Section Image



PER TDS

Worksheet for Section GM1 - Perimeter 90' ROW

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	1.16	%
Discharge	32.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.50
0+00.50	0.48
0+00.50	0.00
0+02.00	0.13
0+02.00	0.17
0+48.50	1.10
0+48.50	1.51
0+53.50	1.41
0+53.50	1.00
0+80.00	0.17
0+80.00	0.13
0+81.50	0.00
0+81.50	0.48
0+82.00	0.50
0+82.00	0.50

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.50)	(0+02.00, 0.13)	0.013
(0+02.00, 0.13)	(0+48.50, 1.10)	0.016
(0+48.50, 1.10)	(0+53.50, 1.00)	0.013
(0+53.50, 1.00)	(0+80.00, 0.13)	0.016
(0+80.00, 0.13)	(0+82.00, 0.50)	0.013

Worksheet for Section GM1 - Perimeter 90' 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		0.58	ft
Elevation Range	0.00 to 1.51 ft		
Flow Area		8.57	ft²
Wetted Perimeter		38.93	ft
Hydraulic Radius		0.22	ft
Top Width		37.71	ft
Normal Depth		0.58	ft
Critical Depth		0.64	ft
Critical Slope		0.00583	ft/ft
Velocity		3.73	ft/s
Velocity Head		0.22	ft
Specific Energy		0.80	ft
Froude Number		1.38	
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	0.58	ft
Critical Depth	0.64	ft
Channel Slope	1.16	%
Critical Slope	0.00583	ft/ft

Cross Section for Section GM1 - Perimeter 90' ROW

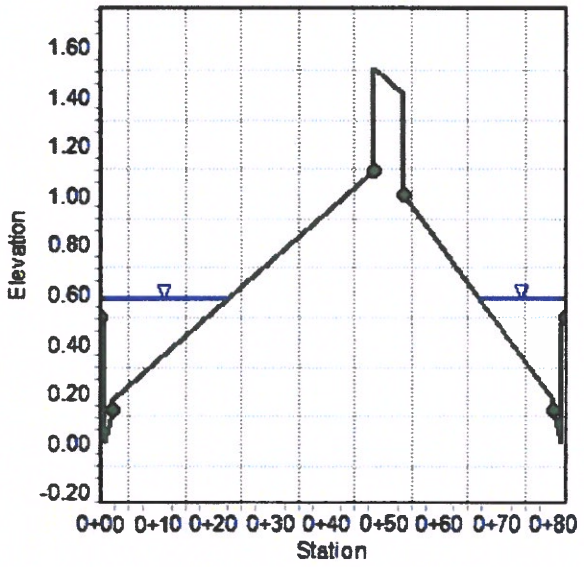
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	1.16	%
Normal Depth	0.58	ft
Discharge	32.00	ft³/s

Cross Section Image



APPENDIX F

Entitlement Information

MONTECITO

January 17, 2019

Mr. Frank Pankratz
MS Northwest Land, LLC
1215 S. Fort Apache Road, Ste. 120
Las Vegas, Nevada 89117

RE: GPA-74633 [PRJ-74608] - GENERAL PLAN AMENDMENT RELATED TO VAR-75154, SUP-74637, SDR-74638 AND TMP-74639
CITY COUNCIL MEETING OF JANUARY 16, 2019

Dear Applicant:

The City Council at a regular meeting held on January 16, 2019 voted to ***APPROVE*** a request for a General Plan Amendment to amend the Trails Element of the Las Vegas 2020 Master Plan and all related maps on 60.39 acres at the northwest and northeast corners of Deer Springs Way and Grand Montecito Parkway (APNs 125-21-201-001; 125-20-601-003, 005 and 006; 125-20-602-002, 005, 006, 009, 010 and 011; and 125-20-603-001 through 004), T-C (Town Center) Zone [MC-TC (Montecito - Town Center) and UC-TC (Urban Center - Town Center) Special Land Use Designations], Ward 6 (Fiore) [PRJ-74608].

The Notice of Final Action was filed with the Las Vegas City Clerk on January 17, 2019.

Sincerely,

Robert Summerfield

Robert Summerfield, AICP
Director
Department of Planning

RTS:nl

cc:

Christa Bilbrey
KB Home
5795 W. Badura Ave., Ste. 180
Las Vegas, Nevada 89118

Ms. Roxanne Leigh
Slater Hanifan Group
5740 S. Arville St., Ste. 216
Las Vegas, Nevada 89118

CITY OF LAS VEGAS NEVADA

LAS VEGAS CITY COUNCIL
CAROLYN G. GOODMAN
Mayor
LOIS TARKANIAN
Mayor Pro Tem
STAVROS S. ANTHONY
BOB COFFIN
STEVEN G. SEROKA
MICHELE FIORE
CEDRIC CREAR

SCOTT D. ADAMS
City Manager

DEPARTMENT OF PLANNING
ROBERT SUMMERFIELD
DIRECTOR

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MONTECITO

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January 17, 2019

Mr. Frank Pankratz
MS Northwest Land, LLC
1215 S. Fort Apache Road, Ste. 120
Las Vegas, Nevada 89117

RE: VAR-75154 [PRJ-74608] - VARIANCE RELATED TO GPA-74633, SUP-74637, SDR-74638 AND TMP-74639
CITY COUNCIL MEETING OF JANUARY 16, 2019

Dear Applicant:

The City Council at a regular meeting held on January 16, 2019 voted to ***APPROVE*** a request for a Variance TO ALLOW 641 PARKING SPACES WHERE 811 IS THE MINIMUM REQUIRED FOR TWO MULTI-FAMILY DEVELOPMENTS on 60.39 acres at the northwest and northeast corners of Deer Springs Way and Grand Montecito Parkway (APNs 125-21-201-001; 125-20-601-003, 005 and 006; 125-20-602-002, 005, 006, 009, 010 and 011; and 125-20-603-001 through 004), T-C (Town Center) Zone [MC-TC (Montecito - Town Center) and UC-TC (Urban Center - Town Center) Special Land Use Designations], Ward 6 (Fiore) [PRJ-74608].

This approval is subject to the following conditions:

Planning

1. The Variance is approved for a total of 460 parking spaces where 501 parking spaces are required for the Multi-Family Unit 4 development only. The Multi-Family Unit 5 requested parking variance is not a part of this approval.

2. Approval of General Plan Amendment (GPA-74633) and conformance to the Conditions of Approval for Special Use Permit (SUP-74637), Site Development Plan Review (SDR-74638) and Tentative Map (TMP-74639) shall be required, if approved.

3. This approval shall be void two years from the date of final approval, unless exercised pursuant to the provisions of LVMC Title 19.16. An Extension of Time may be filed for consideration by the City of Las Vegas.

4. All necessary building permits shall be obtained and final inspections shall be completed in compliance with Title 19 and all codes as required by the Department of Building and Safety.

5. These Conditions of Approval shall be affixed to the cover sheet of any plan set submitted for building permit.

6. All City Code requirements and design standards of all City departments must be satisfied, except as modified herein.

The Notice of Final Action was filed with the Las Vegas City Clerk on January 17, 2019.

Sincerely,

Robert Summerfield

Robert Summerfield, AICP
Director
Department of Planning

pp
RTS:nl

cc:

Christa Bilbrey
KB Home
5795 W. Badura Ave., Ste. 180
Las Vegas, Nevada 89118

Ms. Roxanne Leigh
Slater Hanifan Group
5740 S. Arville St., Ste. 216
Las Vegas, Nevada 89118

MONTECITO

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January 17, 2019

Mr. Frank Pankratz
MS Northwest Land, LLC
1215 S. Fort Apache Road, Ste. 120
Las Vegas, Nevada 89117

RE: SUP-74637 [PRJ-74608] - SPECIAL USE PERMIT RELATED TO GPA-74633, VAR-75154, SDR-74638 AND TMP-74639
CITY COUNCIL MEETING OF JANUARY 16, 2019

Dear Applicant:

The City Council at a regular meeting held on January 16, 2019 voted to ***APPROVE*** a request for a Special Use Permit FOR A PROPOSED PRIVATE STREET WITHOUT A GATE AND MULTIPLE GATED COMMUNITIES WITH PRIVATE STREETS WITHIN TOWN CENTER at the northwest and northeast corners of Deer Springs Way and Grand Montecito Parkway (APNs 125-21-201-001; 125-20-601-003, 005 and 006; 125-20-602-002, 005, 006, 009, 010 and 011; and 125-20-603-001 through 004), T-C (Town Center) Zone [MC-TC (Montecito - Town Center) and UC-TC (Urban Center - Town Center) Special Land Use Designations], Ward 6 (Fiore) [PRJ-74608].

This approval is subject to the following conditions:

Planning

1. Conformance to all requirements under the Town Center Development Standards Manual for a Gated Community with Private Street use.

2. Approval of General Plan Amendment (GPA-74633) and conformance to the Conditions of Approval for Variance (VAR-75154), Site Development Plan Review (SDR-74638) and Tentative Map (TMP-74639) shall be required.

3. This approval shall be void two years from the date of final approval, unless exercised pursuant to the provisions of LVMC Title 19.16. An Extension of Time may be filed for consideration by the City of Las Vegas.

4. All necessary building permits shall be obtained and final inspections shall be completed in compliance with Title 19 and all codes as required by the Department of Building and Safety.

5. These Conditions of Approval shall be affixed to the cover sheet of any plan set submitted for building permit, as well as submitted as part of any business license application.

6. All City Code requirements and design standards of all City departments must be satisfied, except as modified herein.

The Notice of Final Action was filed with the Las Vegas City Clerk on January 17, 2019.

Sincerely,

Robert Summerfield, AICP
Director
Department of Planning

RTS:nl

cc:

Christa Bilbrey
KB Home
5795 W. Badura Ave., Ste. 180
Las Vegas, Nevada 89118

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January 17, 2019

Mr. Frank Pankratz
MS Northwest Land, LLC
1215 S. Fort Apache Road, Ste. 120
Las Vegas, Nevada 89117

RE: SDR-74638 [PRJ-74608] - SITE DEVELOPMENT PLAN REVIEW RELATED TO GPA-74633, VAR-75154, SUP-74637 AND TMP-74639
CITY COUNCIL MEETING OF JANUARY 16, 2019

Dear Applicant:

The City Council at a regular meeting held on January 16, 2019 voted to ***APPROVE*** a request for a Site Development Plan Review FOR A PROPOSED 303-LOT SINGLE FAMILY DETACHED RESIDENTIAL SUBDIVISION AND TWO, MULTI-FAMILY RESIDENTIAL DEVELOPMENTS, CONSISTING OF THREE-STORY BUILDINGS WITH A TOTAL UNIT COUNT OF 491 APARTMENTS on 60.39 acres at the northwest and northeast corners of Deer Springs Way and Grand Montecito Parkway (APNs 125-21-201-001; 125-20-601-003, 005 and 006; 125-20-602-002, 005, 006, 009, 010 and 011; and 125-20-603-001 through 004), T-C (Town Center) Zone [MC-TC (Montecito - Town Center) and UC-TC (Urban Center - Town Center) Special Land Use Designations], Ward 6 (Fiore) [PRJ-74608].

This approval is subject to the following amended conditions:

Planning

1. The applicant shall work with staff to provide preventative measures to mitigate the potential for errant balls from the existing park to the north from impacting the proposed residents along the northern property line of the development.

2. The setbacks for Units 1, 2 and 3 within the development shall be a minimum of 10 feet to the front of the house, 18 feet to the front of the garage as measured from back of sidewalk or from back of curb if no sidewalk is provided, 5 feet on the side, 10 feet on the corner side, 10 feet in the rear to the house, and 5 feet in the rear to a patio.

3. The Site Development Plan Review is approved for a total of 306 multi-family units for Multi-Family Unit 4 only. Multi-Family Unit 5 shall not be part of this approval.

4. Approval of General Plan Amendment (GPA-74633) and conformance to the Conditions of Approval for Variance (VAR-75154), Special Use Permit (SUP-74637) and Tentative Map (TMP-74639) shall be required.

5. This approval shall be void two years from the date of final approval, unless exercised pursuant to the provisions of LVMC Title 19.16. An Extension of Time may be filed for consideration by the City of Las Vegas.

6. Trash enclosures shall be provided in sufficient size and numbers to meet the needs of each multi-family development.

7. Trash and refuse collection areas, and mechanical equipment located within each multi-family development shall be designed and screened in accordance with Title 19.08.

8. All perimeter walls, fences, screen and retaining walls shall be designed and constructed in conformance with Town Center Development Standards Manual, except as amended herein.

9. All necessary building permits shall be obtained and final inspections shall be completed in compliance with Title 19 and all codes as required by the Department of Building and Safety.

10. These Conditions of Approval shall be affixed to the cover sheet of any plan set submitted for building permit.

11. The applicant shall coordinate with the City Surveyor and other city staff to determine the most appropriate mapping action necessary to consolidate the existing lots. The mapping action shall be completed and recorded prior to the issuance of any building permits.

12. A technical landscape plan, signed and/or sealed by a Registered Architect, Landscape Architect, Residential Designer or Civil Engineer, must be submitted prior to or at the same time as Final Map submittal. A permanent underground sprinkler system is required, and shall be permanently maintained in a satisfactory manner; the landscape plan shall include irrigation specifications. Installed landscaping shall not impede visibility of any traffic control device.

13. No turf shall be permitted in the non-recreational common areas, such as medians and amenity zones in this development.

14. A fully operational fire protection system, including fire apparatus roads, fire hydrants and water supply, shall be installed and shall be functioning prior to construction of any combustible structures.

15. A Comprehensive Construction Staging Plan shall be submitted to the Department of Planning for review and approval prior to the issuance of any building permits. The Construction Staging Plan shall include the following information: Design and location of construction trailer(s); design and location of construction fencing; all proposed temporary construction signage; location of materials staging area; and the location and design of parking for all construction workers.

16. All City Code requirements and design standards of all City Departments must be satisfied, except as modified herein.

Public Works

17. Dedicate additional right-of-way up to a total width of 80 feet for Oso Blanca Road as a Town Center Arterial prior to issuance of permits for adjacent development. No dedication is required if an 80-foot dedication for Oso Blanca Road already exists. Additionally, grant 9-foot wide easements adjacent to the western edge of Oso Blanca Road for roadway, public sewer, and public drainage prior to issuance of permits for adjacent development. This 9-foot easement includes the required 6-foot perimeter landscape buffer and may be reduced or eliminated if it is determined by the City Engineer that it is not required.

18. Unless otherwise allowed by the City Engineer, submit all required documentation and support materials to the Right of way Section of the Department of Public Works to modify the City's Bureau of Land Management (BLM) Plan of development to include the construction of storm drain facilities on the south side of Assessor's Parcel (APN) #125-20-501-007 to obtain legal right to construct the proposed off-site storm drain prior to constructing improvements on APN #125-20-501-007. If legal right cannot be obtained, Unit 2 of this Site Plan shall be revised to addresses accommodation for existing storm drain facilities on this site. No permits for areas dependent on the proposed storm drain facility shall be issued until such legal right is obtained.

19. Street "A" between Grand Montecito and Oso Blanca shall be constructed as shown on the approved Site Plan to include traffic signal underground infrastructure at both the intersection with Grand Montecito Parkway and Oso Blanca Road. A Public Access Easement for vehicular, bicycle and pedestrian traffic shall be granted across the entire length of Street "A". Street "A" shall be privately maintained and shall not be gated. Any public easements needed to accommodate future traffic signals at both ends of this street shall be granted concurrent with the development of this site. This street may be dedicated to the City at the request of the applicant if the Director of Public Works determines it is necessary for regional street network connectivity.

20. Construct full-width street improvements per Title 19.04.120.B including appropriate transition paving on Oso Blanca Road as a Town Center Arterial and as modified by the City Engineer to match Nevada Department of Transportation's (NDOT's) construction on Oso Blanca Road with a 12-foot trail on the west side of Oso Blanca Road along the entire frontage. Provide written documentation that this project has been coordinated with NDOT and the City Engineer. Additionally, construct all incomplete half street improvements on Deer Springs Road adjacent to this site and modify the Deer Springs Way/Grand Montecito Parkway intersection and the Deer Springs Way/Doe Brook Trail intersection to meet the approval of the City Traffic Engineer concurrent with the development of this site. Deer Springs Way modifications associated with Unit 5 shall be finalized through the required Traffic Impact Analysis. All existing paving damaged or removed by this development shall be restored at its original location and to its original width concurrent with development of this site.

21. All landscaping and private improvements installed with this project shall be situated and maintained so as to not create sight visibility obstructions for vehicular traffic at all development access drives and abutting street intersections.

22. Provide public sewer easements for all public sewers not located within existing public street right-of-way prior to the issuance of any permits. Improvement Drawings submitted to the City for review shall not be approved for construction until all required Public Sewer Easements necessary to connect this site to the existing public sewer system have been granted to the City.

23 Construct off-site sewer in Oso Blanca Road to the intersection of Centennial Center Boulevard at a depth and location acceptable to the Sanitary Sewer Section of the Department of Public Works concurrent with development of any portion of this site that cannot be serviced by gravity to the existing public sewer system. Alternatively, the City Engineer may approve an alternate public sewer route that can be serviced by gravity.

24. No structures (covered parking) and no trees or vegetation taller than three feet shall be allowed within any Public Sewer Easements or Public Drainage Easements. Permanent structures shall be set back sufficient distance from public infrastructure to meet required excavation limits.

25. Modify the existing downstream public sewer at the intersection of Deer Springs Way and Doe Brook Trail to send flow southward to existing manhole LT-62.

26. The applicant shall maintain the approved landscaping in Deer Springs Way and Grand Montecito Parkway, including the median, adjacent to this site, per the existing recorded Encroachment Agreement. The applicant shall either amend the existing agreement, or submit a new License Agreement for landscaping and private improvements in the Deer Springs Road public right-of-way, if any, prior to the issuance of permits for these improvements. The applicant must carry an insurance policy for the term of the License Agreement and add the City of Las Vegas as an additionally insured entity on this insurance policy. If requested by the City, the applicant shall remove property encroaching in the public right-of-way at the applicant's expense pursuant to the terms of the City's License Agreement. The installation and maintenance of all private improvements in the public right of way shall be the responsibility of the applicant and any successors in interest to the property and assigns pursuant to the terms of the License Agreement. Coordinate all requirements for the License Agreement with the Land Development Section of the Department of Building and Safety (229-4836).

27. A Traffic Impact Analysis must be submitted to and approved by the Department of Public Works prior to the issuance of any building or grading permits, submittal of any construction drawings or the recordation of a Map subdividing this site, whichever may occur first. Comply with the recommendations of the approved Traffic Impact Analysis prior to occupancy of the site. The Traffic Impact Analysis shall also include a section addressing Standard Drawings #234.1 #234.2 and #234.3 to determine additional right-of-way requirements for bus turnouts adjacent to this site, if any; dedicate all areas recommended by the approved Traffic Impact Analysis. All additional rights of way required by Standard Drawing #201.1 for exclusive right turn lanes and dual left turn lanes shall be dedicated prior to or concurrent with the commencement of on site development activities unless specifically noted as not required in the approved Traffic Impact Analysis. Phased compliance will be allowed if recommended by the approved Traffic Impact Analysis. No recommendation of the approved Traffic Impact Analysis, nor compliance therewith, shall be deemed to modify or eliminate any condition of approval imposed by the Planning Commission or the City Council on the development of this site. Private Street "A" shall not be gated.

28. A Drainage Plan and Technical Drainage Study must be submitted to and approved by the Department of Public Works prior to the issuance of any building or grading permits or submittal of any construction drawings, whichever may occur first. Provide and improve all drainageways recommended in the approved drainage plan/study. The developer of this site shall be responsible to construct such neighborhood or local drainage facility improvements as are recommended by the City of Las Vegas Neighborhood Drainage Studies and approved Drainage Plan/Study concurrent with development of this site.

29. Site Development to comply with all applicable conditions of approval for TMP-74639.

The Notice of Final Action was filed with the Las Vegas City Clerk on January 17, 2019.

Sincerely,

Robert Summerfield, AICP
Director
Department of Planning

for RTS:nl

cc:

Christa Bilbrey
KB Home
5795 W. Badura Ave., Ste. 180
Las Vegas, Nevada 89118

Ms. Roxanne Leigh
Slater Hanifan Group
5740 S. Arville St., Ste. 216
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January 17, 2019

Mr. Frank Pankratz
MS Northwest Land, LLC
1215 S. Fort Apache Road, Ste. 120
Las Vegas, Nevada 89117

RE: TMP-74639 [PRJ-74608] - TENTATIVE MAP RELATED TO GPA-74633, VAR-75154, SUP-74637 AND SDR-74638
CITY COUNCIL MEETING OF JANUARY 16, 2019

Dear Applicant:

The City Council at a regular meeting held on January 16, 2019 voted to ***APPROVE*** a request for a Tentative Map FOR A PROPOSED 303-LOT SINGLE FAMILY RESIDENTIAL SUBDIVISION AND TWO, 491-UNIT MULTI-FAMILY RESIDENTIAL DEVELOPMENTS WITH A WAIVER TO ALLOW PRIVATE STREETS TO TERMINATE IN DEAD-END STUBS AND MODIFIED HAMMERHEADS WHERE CULS-DE-SAC OR HAMMERHEADS ARE REQUIRED on 60.39 acres at the northwest and northeast corners of Deer Springs Way and Grand Montecito Parkway (APNs 125-21-201-001; 125-20-601-003, 005 and 006; 125-20-602-002, 005, 006, 009, 010 and 011; and 125-20-603-001 through 004), T-C (Town Center) Zone [MC-TC (Montecito - Town Center) and UC-TC (Urban Center - Town Center) Special Land Use Designations], Ward 6 (Fiore) [PRJ-74608].

This approval is subject to the following amended conditions:

Planning

1. Multi-Family Unit 5 shall not be part of the Tentative Map approval.

2. Approval of the Tentative Map shall be for no more than four (4) years. If a Final Map is not recorded on all or a portion of the area embraced by the Tentative Map within four (4) years of the approval of the Tentative Map, this action is void.

3. Approval of General Plan Amendment (GPA-74633) and conformance to the Conditions of Approval for Variance (VAR-75154), Special Use Permit (SUP-74637) and Site Development Plan Review (SDR-74638) shall be required.

4. Prior to the submittal of any Final Map, the applicant shall coordinate with the City Surveyor and other city staff to determine the most appropriate mapping action necessary to create a separate parcel from APNs 125-20-603-002 and 004. Subsequent to that new parcel's creation the applicant shall modify the existing land use district as depicted on Map 4 Town Center Land Use to that of the district found on APN 125-21-201-001 for the newly created parcel. The applicant shall file a Major Modification with the Department in accordance with the procedures and standards applicable to a rezoning application as set forth in LVMC 19.16.090.

5. Street names must be provided in accordance with the City's Street Naming Regulations.

6. A fully operational fire protection system, including fire apparatus roads, fire hydrants and water supply, shall be installed and shall be functioning prior to construction of any combustible structures.

7. In conjunction with creation, declaration and recordation of the subject common-interest community, and prior to recordation of the Covenants, Codes and Restrictions ("CC&R"), or conveyance of any unit within the community, the Developer is required to record a Declaration of Private Maintenance Requirements ("DPMR") as a covenant on all associated properties, and on behalf of all current and future property owners. The DPMR is to include a listing of all privately owned and/or maintained infrastructure improvements, along with assignment of maintenance responsibility for each to the common interest community or the respective individual property owners, and is to provide a brief description of the required level of maintenance for privately maintained components. The DPMR must be reviewed and approved by the City of Las Vegas Department of Field Operations prior to recordation, and must include a statement that all properties within the community are subject to assessment for all associated costs should private maintenance obligations not be met, and the City of Las Vegas be required to provide for said maintenance. Also, the CC&R are to include a statement of obligation of compliance with the DPMR. Following recordation, the Developer is to submit copies of the recorded DPMR and CC&R documents to the City of Las Vegas Department of Field Operations.

8. All development is subject to the conditions of City Departments and State Subdivision Statutes.

Public Works

9. Prior to the recordation of a Final Map for this site, a Petition of Vacation for any public right-of-way or City easements in conflict with the recordation of such a Final Map must be recorded. The Order of Vacation for such conflicts must record immediately prior to and concurrent with the recordation of the appropriate Final Map.

10. Prior to the recordation of a Final Map for individual lots along the southern property line east of the Doe Brook Trail alignment, the applicant shall determine the final disposition of the existing private improvements on Assessor's Parcel Number 125-21-201-001 that are not maintained by the applicant. Any solution that involves the areas in question becoming public right-of-way shall meet the approval of the City Engineer.

11. Dedicate additional right-of-way up to a total width of 80 feet for Oso Blanca Road as a Town Center Arterial on the Final Map for this site. Additionally, dedicate 10 feet on Deer Springs Road to accommodate the cross section provided on the approved site plan. No dedication on Oso Blanca Road is required if an 80-foot dedication for Oso Blanca Road already exists. Grant a 9-foot wide easement adjacent to the western edge of Oso Blanca Road for roadway, public sewer, and public drainage on the Final Map for this site. This 9-foot easement includes the required 6-foot perimeter landscape buffer and may be reduced or eliminated if it is determined by the City Engineer that it is not required.

12. Unless otherwise allowed by the City Engineer, submit all required documentation and support materials to the Right of way Section of the Department of Public Works to modify the City's Bureau of Land Management (BLM) Plan of development to include the construction of storm drain facilities on the south side of Assessor's Parcel (APN) #125 20 501-007 to obtain legal right to construct the proposed off-site storm drain prior to constructing improvements on APN #125-20-501-007. If legal right cannot be obtained, Unit 2 of this Tentative Map shall be revised to addresses accommodation for existing storm drain facilities on this site. No permits for areas dependent on the proposed storm drain facility shall be issued until such legal right is obtained.

13. Street "A" between Grand Montecito and Oso Blanca shall be constructed as shown on the approved Site Plan to include traffic signal underground infrastructure at both the intersection with Grand Montecito Parkway and Oso Blanca Road. A Public Access Easement for vehicular, bicycle and pedestrian traffic shall be granted across the entire length of Street "A". Street "A" shall be privately maintained and shall not be gated. Any public easements needed to accommodate future traffic signals at both ends of this street shall be granted concurrent with the development of this site. This street may be dedicated to the City at the request of the applicant if the Director of Public Works determines it is necessary for regional street network connectivity.

14. Internal private streets must be granted and labeled on the Final Map for this site as Public Utility Easements (P.U.E.), Public Sewer Easements, and Public Drainage Easements to be privately maintained by the Homeowner's Association.

15. Construct full-width street improvements per Title 19.04.120.B including appropriate transition paving on Oso Blanca Road as a Town Center Arterial and as modified by the City Engineer to match Nevada Department of Transportation's (NDOT's) construction on Oso Blanca Road with a 12-foot trail on the west side of Oso Blanca Road along the entire frontage. Provide written documentation that this project has been coordinated with NDOT and the City Engineer. Additionally, construct all incomplete half street improvements on Deer Springs Road adjacent to this site and modify the Deer Springs Way/Grand Montecito Parkway intersection and the Deer Springs Way/Doe Brook Trail intersection to meet the approval of the City Traffic Engineer concurrent with the development of this site. All existing paving damaged or removed by this development shall be restored at its original location and to its original width concurrent with development of this site.

16. All landscaping and private improvements installed with this project shall be situated and maintained so as to not create sight visibility obstructions for vehicular traffic at all development access drives and abutting street intersections.

17. Provide public sewer easements for all public sewers not located within existing public street right-of-way prior to the issuance of any permits. Improvement Drawings submitted to the City for review shall not be approved for construction until all required off-site Public Sewer Easements necessary to connect this site to the existing public sewer system have been granted to the City.

18. Construct off-site sewer in Oso Blanca Road to the intersection of Centennial Center Boulevard at a depth and location acceptable to the Sanitary Sewer Section of the Department of Public Works concurrent with development of any portion of this site that cannot be serviced by gravity to the existing public sewer system. Alternatively, the City Engineer may approve an alternate public sewer route that can be serviced by gravity.

19. The onsite public sewers within public easements must comply with current City standards. Meet with the Sanitary Sewer Section of the Department of Public Works to discuss sewer setbacks from property lines and parking spaces.

20. Modify the existing downstream public sewer at the intersection of Deer Springs Way and Doe Brook Trail to send flow southward to existing manhole LT-62.

21. Grant a 30-foot wide "Public Sewer Easement and Public Utility Easement, Surface to be Privately Maintained over the Common Element "Y".

22. Construct a minimum 5-foot wide paved surface over the proposed public sewer in Common Element "DD". The width of Common Element "DD" may need to be increased during civil plan review.

23. Construct a minimum 12-foot wide paved surface over the proposed public sewer in Common Element "Y" to provide maintenance vehicle access to all public sewer manholes. Construct vehicular access gates at the north and south ends of Common Element "Y" for city maintenance vehicles.

24. Grant a "Public Sewer Easement, Surface to be Privately Maintained" over the entirety of Common Element "Y". No trees and no landscaping over 3-feet tall shall be allowed within any of the proposed sewer easements.

25. A working sanitary sewer connection shall be in place prior to final inspection of any units within this development. Full permanent improvements on all major access streets, including all required landscaped areas between the perimeter wall and adjacent public street, shall be constructed and accepted by the City prior to issuance of any building permits beyond 50% of all units within this development. All off-site improvements adjacent to this site, including all required landscaped areas between the perimeter walls and adjacent public streets, shall be constructed and accepted prior to issuance of building permits beyond 75%. The above thresholds notwithstanding, all required Improvements shall be constructed in accordance with Title19.02.130.D.

26. The applicant shall maintain the approved landscaping in Grand Montecito Parkway, including the median, adjacent to this site, per the existing recorded Encroachment Agreement. The applicant shall either amend the existing agreement, or submit a new License Agreement for landscaping and private improvements in the Deer Springs Road public right-of-way, if any, prior to the issuance of permits for these improvements. The applicant must carry an insurance policy for the term of the License Agreement and add the City of Las Vegas as an additionally insured entity on this insurance policy. If requested by the City, the applicant shall remove property encroaching in the public right-of-way at the applicant's expense pursuant to the terms of the City's License Agreement. The installation and maintenance of all private improvements in the public right of way shall be the responsibility of the applicant and any successors in interest to the property and assigns pursuant to the terms of the License Agreement. Coordinate all requirements for the License Agreement with the Land Development Section of the Department of Building and Safety (229-4836).

27. A Traffic Impact Analysis must be submitted to and approved by the Department of Public Works prior to the issuance of any building or grading permits, submittal of any construction drawings or the recordation of a Map subdividing this site, whichever may occur first. Comply with the recommendations of the approved Traffic Impact Analysis prior to occupancy of the site. The Traffic Impact Analysis shall also include a section addressing Standard Drawings #234.1 #234.2 and #234.3 to determine additional right-of-way requirements for bus turnouts adjacent

to this site, if any; dedicate all areas recommended by the approved Traffic Impact Analysis. All additional rights of way required by Standard Drawing #201.1 for exclusive right turn lanes and dual left turn lanes shall be dedicated prior to or concurrent with the commencement of on site development activities unless specifically noted as not required in the approved Traffic Impact Analysis. Phased compliance will be allowed if recommended by the approved Traffic Impact Analysis. No recommendation of the approved Traffic Impact Analysis, nor compliance therewith, shall be deemed to modify or eliminate any condition of approval imposed by the Planning Commission or the City Council on the development of this site. Private Street "A" shall not be gated.

28. A Drainage Plan and Technical Drainage Study must be submitted to and approved by the Department of Public Works prior to the issuance of any building or grading permits or submittal of any construction drawings, whichever may occur first. Provide and improve all drainageways recommended in the approved drainage plan/study. The developer of this site shall be responsible to construct such neighborhood or local drainage facility improvements as are recommended by the City of Las Vegas Neighborhood Drainage Studies and approved Drainage Plan/Study concurrent with development of this site.

29. The approval of all Public Works related improvements shown on this Tentative Map is in concept only. Specific design and construction details relating to size, type and/or alignment of improvements, including but not limited to street, sewer and drainage improvements, shall be resolved prior to approval of the construction plans by the City. No deviations from adopted City Standards shall be allowed unless specific written approval for such is received from the City Engineer prior to the recordation of a Final Map or the approval of subdivision-related construction plans, whichever may occur first. Approval of this Tentative Map does not constitute approval of any deviations. If such approval cannot be obtained, a revised Tentative Map must be submitted showing elimination of such deviations.

The Notice of Final Action was filed with the Las Vegas City Clerk on January 17, 2019.

Sincerely,

Robert Summerfield

Robert Summerfield, AICP
Director
Department of Planning

RTS:nl

cc:

Christa Bilbrey
KB Home
5795 W. Badura Ave., Ste. 180
Las Vegas, Nevada 89118

Ms. Roxanne Leigh
Slater Hanifan Group
5740 S. Arville St., Ste. 216
Las Vegas, Nevada 89118

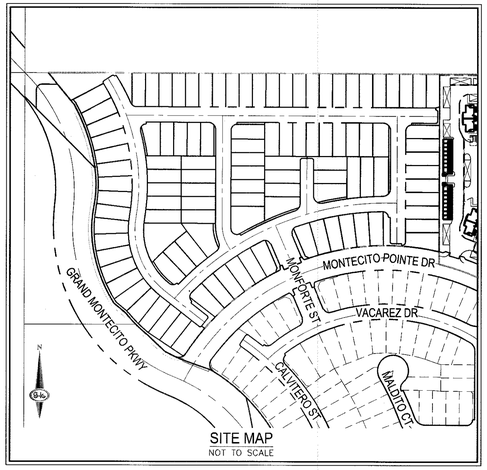
APPENDIX G

CD & Improvement Plans



VICINITY MAP
NOT TO SCALE

REVISION	SHEETS	DESCRIPTION



SITE MAP
NOT TO SCALE

IMPROVEMENT PLANS FOR
MONTECITO 60 - UNIT 3

CITY OF LAS VEGAS, NEVADA
RESIDENTIAL SUBDIVISION

APN: 125-20-601-006, 125-20-602-002, -005, -009, -010, 125-20-603-001, -003, 125-21-201-004

SHEET INDEX		
NO	SHEET	TITLE
1	C-1	COVER SHEET
2	C-2	GENERAL NOTES
3	C-3	LEGEND, ABBREVIATIONS, & QUANTITIES
4	G-1	GRADING PLAN I
5	G-2	GRADING PLAN II
6	G-3	GRADING PLAN III
7	G-4	GRADING PLAN IV
8	G-5	GRADING PLAN V
9	G-6	GRADING PLAN VI
10	D-1	STREET SECTIONS & GRADING DETAILS I
11	D-2	GRADING DETAILS II

APPROVALS

CITY ENGINEER–ALLEN PAVELKA PE, #9029 DATE

APPROVAL OF THESE PLANS BY THE CITY ENGINEER IS LIMITED TO THOSE IMPROVEMENTS CONSTRUCTED IN THE DEDICATED OF RIGHT-OF-WAY, AND/OR DEDICATED EASEMENTS. THIS APPROVAL DOES NOT AUTHORIZE CONSTRUCTION OF ANY IMPROVEMENTS THAT DEVIATE FROM ADOPTED STANDARDS AND/OR SPECIFICATIONS EXCEPT THOSE SPECIALLY LISTED UNDER DEVIATIONS FORM STANDARDS. 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.

LAS VEGAS FIRE AND RESCUE DATE

CITY OF LAS VEGAS – PLANNING DEPARTMENT DATE

THIS PLAN MEETS THE APPLICABLE STANDARDS OF THE PLANNING DEPARTMENT.

CENTRAL TELEPHONE CO. DBA CENTURYLINK DATE

THE AFFIXED CENTURYLINK APPROVAL DOES NOT ASSUME OR GUARANTEE LIABILITY FOR KNOWN OR UNKNOWN CONFLICTS WITH EXISTING OR PROPOSED IMPROVEMENTS. RESOLUTION OF ANY CONFLICT WILL BE ACCOMPLISHED PURSUANT TO LOCAL ORDINANCES, NEVADA REVISED STATUES AND / OR PUBLIC UTILITY COMMISSION RULES AND REGULATIONS.

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ##### FIRST APPROVED DATE:
LVVWD APPROVED FIRE FLOW 1,500 GPM AT 20 PSI RESIDUAL
MAXIMUM AVAILABLE FIRE SPRINKLER FLOW 30 GPM
SHEETS:

NV ENERGY DATE

NV ENERGY ACKNOWLEDGES THAT WE HAVE RECEIVED YOUR PLANS AND WILL PROVIDE 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

COX COMMUNICATIONS LAS VEGAS, INC. DATE

OWNER	DEVELOPER	ENGINEER
KB HOME NV ACQUISITION LLC 5795 BADURA AVE. SUITE 180 LAS VEGAS, NV 89118 PH: 702-266-8400 FX: 702-266-8623	KB HOME INC. 5795 BADURA AVE. SUITE 180 LAS VEGAS, NV 89118 PH: 702-266-8400 FX: 702-266-8623 CONTACT: PAUL CHAO	SLATER HANIFAN GROUP, A WESTWOOD TEAM 5740 S. ARVILLE STREET, SUITE 216 LAS VEGAS, NV 89118 PH: (702) 284-5300 FX: (702) 284-5399 CONTACT: TIMOTHY MULROONEY

LEGAL DESCRIPTION

A PORTION OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 20, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA

BENCHMARK

CITY OF LAS VEGAS BENCHMARK SLV90 2OE6

RIVET & PLATE IN TOP OF CURB AT SW CORNER OF RILEY ST. & DEER SPRINGS.

ELEVATION=774.781 METERS (NAVD'88)
ELEVATION=2541.93 US SURVEY FEET (NAVD'88)

BASIS OF BEARINGS

NORTH 89°56'20" EAST, BEING THE BEARING OF THE SOUTH LINE OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 20, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA, AS SHOWN BY MAP THEREOF ON FILE IN THE CLARK COUNTY, NEVADA RECORDER'S OFFICE IN FILE 118, PAGE 89 OF SURVEYS.

FEMA FLOOD ZONE INFORMATION

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE X (UNSHADED) AS DEPICTED ON FLOOD INSURANCE RATE MAP (FIRM) PANEL 32003C1745E, DATED SEPTEMBER 27, 2002. A ZONE X (UNSHADED) IS DESCRIBED AS AN AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN.

DEVIATIONS FROM STANDARDS

PER M.O.U. DATED 2/12/2018

4. *MINIMUM STREET WIDTHS AS DESCRIBED WITHIN GATED PRIVATE COMMUNITY INTERIOR STREETS AS FOLLOWS:
b. 28' WITH PARKING RESTRICTED TO ONE SIDE MEASURED TO FACE OF CURB.

5. CUL-DE-SAC RADIUS REDUCTION TO 40.5' BACK OF CURB AND ALLOW SUCH TO OCCUR UP TO 600' IN LENGTH.

APPROVED ENTITLEMENTS

TMP-74639, SDR-74638, SUP-74637, GPA-74633, VAR-75154

SWPPP NOTE

NOTE: ALL LAND SURFACE AREA DISTURBANCES OVER 1 ACRE REQUIRE A STORMWATER DISCHARGE PERMIT ISSUED BY THE NEVADA DIVISION OF ENVIRONMENTAL PROTECTION (NDEP). A PHASED CONSTRUCTION UNIT IN A CONTIGUOUS SUBDIVISION IS CONSIDERED UNDER CONSTRUCTION UNTIL ALL STRIPPED SURFACE AREAS HAVE BEEN COVERED BY PAVING, BUILDING CONSTRUCTION OR PLANTING. A STORMWATER DISCHARGE PERMIT APPLICATION AND ASSOCIATED INFORMATION MAY BE DOWNLOADED FROM THE WEB SITE: HTTP://WWW.STATE.NV.US/SHPC/STORMOI.HTM PROJECTS THAT DISTURB MORE THAN ONE ACRE OF LAND MUST SUBMIT TO NDEP A "NOTICE OF INTENT" FOR INCLUSION UNDER STORMWATER PERMIT NO. NVR100000 ALONG WITH THE APPROPRIATE FILLING FEE.

PROJECT INFORMATION

ACREAGE (GROSS):	= 11.69 AC
DENSITY (LOTS/NET ACRE):	= 9.41 DU/NET AC
PROPOSED ZONING:	= MC-TC
TOTAL NO. OF RESIDENTIAL LOTS	= 110
TOTAL NO. OF COMMON ELEMENTS *	= 14
MINIMUM LOT SIZE	= 3,032 SF± (LOT 287)
MAXIMUM LOT SIZE	= 6,887 SF± (LOT 251)
PROVIDED OPEN SPACE	= 21,789 SF±

EARTHWORK SUMMARY (UNADJUSTED)

CUT	##,### CY.
FILL	##,### CY.
NET	----- CY.

GEOTECHNICAL ENGINEER

PREPARED BY: SOUTHWEST GEOTECHNICAL
ADDRESS: 5275 ARVILLE ST, SUITE 108, LAS VEGAS, NV. 89118
PHONE: 702-323-6000
PROJECT No. 182358
DATED: 10/17/18, UPDATED: 10/03/19

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

FAST
Call before you UnderGround
1-702-432-5300
FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (F.A.S.T.)

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

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS, NV

kb HOME
MONTECITO 60 - UNIT 3
COVER SHEET

S20 S19S R60E

DATE: 10/14/19
DRAFTER: BCS
DESIGNER: BCS
CHECKED: MAK

PROJECT NO.
KBH1805-003

PROFESSIONAL ENGINEER STATE OF NEVADA
TIMOTHY M. MULROONEY
Exp. 12/31/2019
CIVIL
No. 22938
10/23/19

C-1
SHEET 1 OF 11

I:\kbh1805-003 montecito 60 unit 3\dwg\improv\kbh1805-003 cvr dwn 10/23/2019 10:52 AM Bryan Sorrentino

STORMWATER RUNOFF MANAGEMENT

(REQUIRED FOR ALL SITES GREATER THAN 1 ACRE (43,560 SQ.FT.))

1. THE OWNER, SITE DEVELOPER, CONTRACTOR AND/OR THEIR AUTHORIZED AGENTS SHALL EACH DAY REMOVE ALL SEDIMENT ,MUD, CONSTRUCTION DEBRIS, OR OTHER POTENTIAL POLLUTANTS THAT MAY HAVE BEEN DISCHARGED TO, OR ACCUMULATE IN, THE PUBLIC RIGHTS OF WAYS OF CLARK COUNTY AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS SITE DEVELOPMENT OR CONSTRUCTION PROJECT. SUCH MATERIALS SHALL BE PREVENTED FROM ENTERING THE STORM SEWER SYSTEM.
2. ADDITIONAL CONSTRUCTION SITE DISCHARGE BEST MANAGEMENT PRACTICES MAY BE REQUIRED OF THE OWNER AND HIS OR HER AGENTS DUE TO UNFORESEEN EROSION PROBLEMS OR IF THE SUBMITTED BMPS DOES NOT MEET THE PERFORMANCE STANDARDS SPECIFIED IN TITLE 24.40 AND THE LAS VEGAS VALLEY CONSTRUCTION SITE BEST MANAGEMENT PRACTICES MANUAL.
3. TEMPORARY OR PERMANENT STABILIZATION PRACTICES WILL BE INSTALLED ON DISTURBED AREAS AS SOON AS PRACTICABLE AND NO LATER THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. SOME EXCEPTIONS MAY APPLY; REFER TO NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.5.
4. AT A MINIMUM, THE CONTRACTOR OR HIS AGENT SHALL INSPECT ALL DISTURBED AREAS, AREAS USED FOR STORAGE OF MATERIALS AND EQUIPMENT THAT ARE EXPOSED TO PRECIPITATION, VEHICLE ENTRANCE AND EXIT LOCATIONS AND ALL BMPS WEEKLY, AND WITHIN 24 HOURS AFTER ANY ACTUAL RAIN EVENT OF 0.5 INCHES OR MORE. THE CONTRACTOR OR HIS AGENT SHALL UPDATE OR MODIFY THE STORMWATER POLLUTION PREVENTION PLAN AS NECESSARY. SOME EXCEPTIONS TO WEEKLY INSPECTIONS MAY APPLY, SUCH AS SUSPENSION OF LAND DISTURBANCE ACTIVITIES. REFER TO NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.12.
5. ACCUMULATED SEDIMENT IN BMPS SHALL BE REMOVED WITHIN SEVEN DAYS AFTER A STORMWATER RUNOFF EVENT OR PRIOR TO THE NEXT ANTICIPATED STORM EVENT, WHICHEVER IS EARLIER. SEDIMENT MUST BE REMOVED WHEN BMP DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE.

LEGAL DESCRIPTION

A PORTION OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 20, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA

BENCHMARK

CITY OF LAS VEGAS BENCHMARK 5LV90 2OE6

RIVET & PLATE IN TOP OF CURB AT SW CORNER OF RILEY ST. & DEER SPRINGS.

ELEVATION=774.781 METERS (NAVD'88)
ELEVATION=2541.93 US SURVEY FEET (NAVD'88)

BASIS OF BEARINGS

NORTH 89°56'20" EAST, BEING THE BEARING OF THE SOUTH LINE OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 20, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA, AS SHOWN BY MAP THEREOF ON FILE IN THE CLARK COUNTY, NEVADA RECORDER'S OFFICE IN FILE 118, PAGE 89 OF SURVEYS.

SOUTHERN NEVADA - SOUTHWEST GAS CORPORATION GENERAL NOTES

1. IN THE EVENT OF NATURAL GAS EMERGENCIES CALL 911 AND 1-877-860-6020
2. MINIMUM HORIZONTAL AND VERTICAL CLEARANCES BETWEEN NATURAL GAS FACILITIES AND ANY UNDERGROUND UTILITIES AND/OR STRUCTURES, INCLUDING BUT NOT LIMITED TO WATER, SEWER, STORM DRAIN, COMMUNICATIONS, AND ELECTRICAL SHALL BE AT LEAST 12-INCHES OR GREATER AS DICTATED BY LOCAL CODES AND STANDARDS.
   A) ANY DEVIATION FROM SPECIFIED MINIMUM CLEARANCES MUST BE APPROVED BY ALL AFFECTED UTILITIES AND/OR MUNICIPALITIES
3. FOR VALVE ADJUSTMENT CONTACT 702-668-6107 48 HOURS PRIOR TO CONSTRUCTION.
4. IN THE EVENT OF NATURAL GAS CONFLICT WITH PROPOSED UTILITIES AND STRUCTURES CONTACT 702-365-2099

CAUTION: HIGH PRESSURE GAS

CALL SOUTHWEST GAS AT 702-400-1789 FOR STANDBY WHEN EXCAVATING OVER OR NEAR HIGH PRESSURE GAS LINES 48 HOURS PRIOR TO CONSTRUCTION

SOUTHWEST GAS APPROVAL

SOUTHWEST GAS CORPORATION _____ DATE _____

2.2 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 "G" 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.

LAS VEGAS VALLEY WATER DISTRICT (LVVWD) STANDARD NOTES

LVVWD PROJECT #_####/#____ (REVISED 08/01/2017)

1. NO WORK SHALL BEGIN UNTIL THE WATER PLANS HAVE BEEN APPROVED FOR CONSTRUCTION BY THE LVVWD. FOLLOWING WATER PLAN APPROVAL, NOTICE SHALL BE GIVEN TO THE LVVWD COMMUNICATION SUPPORT CENTER (258-7171) TWO (2) WORKING DAYS PRIOR TO THE START OF CONSTRUCTION. FOR FUTURE INSPECTIONS, NOTICE MUST BE GIVEN BY 2:00 P.M. THE BUSINESS DAY PRIOR TO THE REQUESTED LVVWD INSPECTION. WHEN REQUESTING INSPECTIONS, PLEASE REFER TO THE PROJECT # IDENTIFIED ABOVE.
2. ALL WORK SHALL CONFORM TO LVVWD STANDARD PLATES, DRAWINGS, AND SPECIFICATIONS, AND TO THE 2010 EDITION OF THE UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR POTABLE WATER SYSTEMS (UDACS). THE LATEST EDITION OF UDACS SHALL SUPERSEDE ANY CONFLICTS CONTAINED IN THE APPROVED DRAWINGS AND/OR SPECIFICATIONS.
3. ALL WORK, EXCEPT AS MODIFIED BY THESE PLANS OR BY NOTE 2 ABOVE, SHALL BE DONE IN ACCORDANCE WITH THE MOST RECENT DRAFT OR EDITION OF THE UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFFSITE IMPROVEMENT, CLARK COUNTY AREA.
4. A SINGLE PIPE MATERIAL SHALL BE USED THROUGHOUT THE PROJECT UNLESS OTHERWISE APPROVED BY THE LVVWD.
5. ALL SERVICE LATERALS TWO (2) INCHES IN DIAMETER AND SMALLER SHALL BE TYPE K COPPER TUBING WITH LVVWD APPROVED SERVICE SADDLES.
6. ALL WATER METER BOXES SHALL BE LOCATED OUTSIDE OF DRIVEWAY AREAS.
7. ALL VALVES SHALL BE LOCATED OUTSIDE OF DRIVEWAYS, VALLEY AND CURB GUTTERS.
8. ALL WATER AND STORM DRAIN OR SANITARY SEWER CROSSINGS SHALL CONFORM TO SECTION 2.22 OF THE 2010 EDITION OF THE UDACS.
9. ALL WATER FACILITIES AND APPURTENANCES SHALL BE DISINFECTED, PRESSURE TESTED, AND HAVE AN ACCEPTABLE PASSING HEALTH WATER SAMPLE OBTAINED, PRIOR TO OPERATION AND USE.
10. THE CONTRACTOR MUST OBTAIN ALL METERS TWO (2) INCHES AND SMALLER FROM LVVWD CENTRAL STORES. TELEPHONE 258-3152 OR 258-3802, TWO (2) WORKING DAYS PRIOR TO METER PICKUP.
11. ANY INTERRUPTION OF SERVICE MUST BE PERFORMED IN ACCORDANCE WITH UDACS SECTION 3.14.01, AND APPROVED BY THE LVVWD INSPECTION DIVISION PRIOR TO SHUTDOWN. PROPER WRITTEN NOTIFICATION MUST BE GIVEN TO ALL AFFECTED CUSTOMERS.
12. ALL WATER FACILITY CONSTRUCTION MATERIALS USED MUST BE AS LISTED ON THE LVVWD APPROVED PRODUCT'S LIST FOR NEW FACILITIES, LATEST REVISION, OR SPECIFICALLY APPROVED ON THESE PLANS BY SUBMITTING SHOP DRAWINGS.
13. TELEPHONE "CALL BEFORE YOU DIG" AT "811" OR 1-800-227-2600.
14. THE INSTALLATION OF LVVWD MUNICIPAL WATER FACILITIES WITHIN ALL STREETS IS ASSUMED TO BE IN COMPLIANCE WITH THE UNIFORM STANDARDS, INCLUDING THE PLACEMENT OF ASPHALT PAVING STREET SURFACES. ANY REPAIR WORK DONE BY THE LVVWD TO THE MUNICIPAL WATER FACILITIES WILL INCLUDE THE PLACEMENT OF AN APPROPRIATELY SIZED ASPHALT REPAIR PATCH ON THE STREET SURFACE.

    ANY DECORATIVE PAVING SURFACE WITHIN THE STREET IS THE RESPONSIBILITY OF THE OWNER'S ASSOCIATION, OR THE INDIVIDUAL PROPERTY OWNERS IF NO OWNER'S ASSOCIATION IS IN EXISTENCE, OR THE AGENCY HAVING JURISDICTION. DECORATIVE SURFACE MATERIALS PLACED WITHIN THE TEN FOOT EASEMENT ABUTTING A PUBLIC OR PRIVATE STREET, IF DISTURBED BY THE LVVWD DURING THE REPAIR OR OPERATION OF ITS FACILITIES, WILL BE REPLACED BY LVVWD WITH AN APPROPRIATELY SIZED PLAIN FINISH CONCRETE PATCH. THE LVVWD WILL NOT RESTORE, AND WILL NOT BE RESPONSIBLE FOR THE RESTORATION OF, ANY DECORATIVE PAVING SURFACE WITHIN THE STREET. THE LVVWD WILL NOT ATTEMPT TO MATCH COLOR OR FINISH OF ANY ADJACENT MATERIALS.

15. NO LEAD COMPLIANCE NOTE:
TO COMPLY WITH THE FEDERAL SAFE DRINKING WATER ACT, ALL WATER WORKS BRASS PRODUCTS PROPOSED TO BE RELOCATED, OR INSTALLED AS NEW MUST BE INSTALLED WITH THE LEAD FREE APPROVED PRODUCT. THE OLD LEADED PRODUCT MAY NOT BE REUSED.

GRADING NOTES

1. INDICATED GRADES OTHER THAN T.C., F.G. & GUTTER F.L. ARE ROUGH GRADES.
2. 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.
3. CARE SHALL BE EXERCISED IN GRADING CORNER LOTS.
4. ROUGH PAD ELEVATIONS SHALL BE GRADED TO WITHIN 0.1' OF THE PAD ELEVATIONS SHOWN ON THE PLANS. WHEN GRADING IS COMPLETE PER THE PLANS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE LOTS CAN BE INSPECTED. AT THAT TIME THE ENGINEER SHALL ALSO DECIDE IF ANY ADDITIONAL DITCHES OR BERMS ARE REQUIRED. THE CONTRACTOR IS REQUESTED NOT TO REMOVE ANY OF HIS ROUGH GRADING EQUIPMENT UNTIL HE RECEIVES GRADING APPROVAL FROM THE ENGINEER.
5. SOILS REPORT PREPARED BY SOUTHWEST GEOTECHNICAL, PROJECT NO. 182358, DATED 10/17/18, UPDATED 10/03/19
6. EARTHWORK QUANTITIES (RAW):
   -CUT = #,### CUBIC YARDS
   -FILL = #,### CUBIC YARDS

   A) THE ABOVE QUANTITIES DO NOT REFLECT LOSSES DUE TO SUBSIDENCE OR SHRINKAGE.
   B) THE ABOVE QUANTITIES DO REFLECT USING NATIVE MATERIAL IN LIEU OF TYPE I GRAVEL BASE MATERIAL FOR STREET SECTIONS.
   C) THE ABOVE QUANTITIES DO NOT REFLECT ANY EARTHWORK WHICH MAY BE REQUIRED BY THE ENGINEER TO CONSTRUCT ADDITIONAL PROTECTIVE DITCHES OR BERMS NOT SHOWN ON THESE DRAWINGS.

CITY OF LAS VEGAS FIRE AND RESCUE GENERAL NOTES

1. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE LAS VEGAS FIRE AND RESCUE ADOPTED FIRE CODE ORDINANCE # 6631 FOR HYDRANT SPECIFICATIONS AND HYDRANT INSTALLATION SPECIFICATIONS.
2. ONLY FIRE HYDRANTS THAT ARE ON THE LAS VEGAS VALLEY WATER DISTRICTS – APPROVED PRODUCTS LIST ARE ALLOWED TO BE INSTALLED.
3. A PERMIT IS REQUIRED FROM LAS VEGAS FIRE AND RESCUE FOR THE INSTALLATION OF ON-SITE WATER LINES AND FIRE HYDRANTS. THE PERMIT AND CONTRACTORS MATERIAL TEST CERTIFICATE FOR UNDERGROUND PIPING FORM SHALL BE OBTAINED FROM THE FIRE PROTECTION ENGINEER BEFORE COMMENCEMENT OF WORK. IFC § 105.6.15
4. ON ANY RESIDENTIAL OR COMMERCIAL INSTALLATIONS, FIRE HYDRANTS SHALL BE INSTALLED AND FIRE APPARATUS ACCESS ROADS SHALL BE MAINTAINED BEFORE COMMENCEMENT OF ANY COMBUSTIBLE CONSTRUCTION. ALL FIRE HYDRANTS SHALL BE IN GOOD WORKING ORDER AND SHALL BE CAPABLE OF DELIVERING THE REQUIRED FIRE FLOW. IFC § 3310, § 3312
5. TO IDENTIFY THE FIRE HYDRANT LOCATIONS, THE CONTRACTOR SHALL PLACE A BLUE REFLECTIVE MARKER AT THE CENTER LINE OF THE STREET ADJACENT TO THE FIRE HYDRANTS. IFC § 507.5.7.3
6. ALL UNDERGROUND INSPECTIONS, PRESSURE AND FLUSH VERIFICATIONS OF ALL FIRE HYDRANTS AND FIRE LINES, SHALL BE CONDUCTED BEFORE COVERING THE LINES. CENTER LOADING IS ACCEPTABLE FOR THE HYDRO TESTS WITH PRIOR FIRE PREVENTION APPROVAL. IFC § 105.3
7. ALL ON-SITE UNDERGROUND WATER MAINS AND MATERIALS SHALL BE U.L. LISTED, A.W.W.A APPROVED AND SHALL BE RATED FOR THE APPROPRIATE WORKING PRESSURE. IFC § 507.2.1, NFPA 24
8. PAINTING OF CURBS, FIRE HYDRANTS, PADS, PROTECTION OF FIRE HYDRANTS FROM PHYSICAL DAMAGE, AND ALL OTHER WORK NECESSARY PER PLANS SHALL BE COMPLETED BEFORE APPROVAL BY LAS VEGAS FIRE AND RESCUE, FIRE PREVENTION DIVISION. IFC § 507
9. PRIVATE HYDRANTS SHALL BE PAINTED RED. IFC § 507.5.7.1
10. PRIOR TO THE FINAL OCCUPANCY, A FIRE FLOW TEST SHALL BE WITNESSED BY LAS VEGAS FIRE AND RESCUE, FIRE PREVENTION DIVISION TO VERIFY AVAILABILITY OF THE REQUIRED FIRE FLOW. IFC § 507
11. FIRE HYDRANT SPACING SHALL BE AS FOLLOWS: IFC § C102
    - RESIDENTIAL – 500 FT UNSPRINKLERED; 600 FT SPRINKLERED.
    - COMMERCIAL – 300 FT UNSPRINKLERED; 400 FT SPRINKLERED.
12. WHERE THE WATER MAINS ARE EXTENDED ALONG STREETS OR NEW STREETS ARE INSTALLED WHERE FIRE HYDRANTS ARE NOT NEEDED FOR PROTECTION OF THE STRUCTURES, FIRE HYDRANTS SHALL BE INSTALLED AT A MAXIMUM OF 1000 FT SPACING, TO PROVIDE FOR TRANSPORTATION HAZARDS. WHERE STREETS ARE PROVIDED WITH MEDIAN DIVIDERS OR HAVE FOUR (4) OR MORE TRAFFIC LANES AND HAVE A TRAFFIC COUNT OF MORE THAN 30,000 PER DAY, HYDRANTS ARE REQUIRED ON EACH SIDE OF THE STREET SPACED AT 500 FT ON AN ALTERNATING BASIS. IFC § C102.8
13. NO FIRE HYDRANTS SHALL BE LOCATED WITHIN THE RADIUS OF A CUL-DE-SAC OR WITHIN 20 FT OF THE PERIMETER OF THE RADIUS OF THE CUL-DE-SAC.
14. NO FIRE HYDRANTS SHALL BE LOCATED WITHIN 6 FT OF ANY CURB RETURN, DRIVEWAY, POWER POLE, STREETLIGHT OR ANY OTHER OBSTRUCTION. IFC § C102.10
15. A MAXIMUM DISTANCE FROM A FIRE HYDRANT TO A ONE-TWO FAMILY DWELLING SHALL NOT EXCEED 300 FT, AS MEASURED BY AN APPROVED ROUTE. IFC § C102.4
16. THE MAXIMUM DISTANCE FROM A FIRE HYDRANT TO A FIRE DEPARTMENT CONNECTION (FDC) SHALL NOT EXCEED 100 FT, AS MEASURED BY AN APPROVED ROUTE. IFC § C102.7
17. THE MAXIMUM DISTANCE FROM A HYDRANT TO THE END OF A DEAD-END STREET SHALL NOT EXCEED 200 FT. IFC § C102.6
18. TWO (2) SOURCES OF SUPPLY ARE REQUIRED WHENEVER THERE IS 4 OR MORE FIRE HYDRANTS/SPRINKLER LEAD-INS ARE INSTALLED ON A SINGLE SYSTEM. FOR SYSTEMS REQUIRED TO HAVE TWO (2) SOURCES OF WATER SUPPLY, SECTIONAL CONTROL VALVES SHALL BE INSTALLED SO THAT NO MORE THAN 2 FIRE HYDRANTS AND/OR FIRE SPRINKLER LEAD-INS CAN BE OUT OF SERVICE DUE TO A SERVICE INTERRUPTION. FOR SYSTEMS PERMITTED TO HAVE ONE SOURCE OF WATER SUPPLY, SECTIONAL CONTROL VALVES SHALL BE INSTALLED SO THAT NO MORE THAN 5 FIRE HYDRANTS AND/OR FIRE SPRINKLER LEAD-INS CAN BE OUT OF SERVICE DUE TO A SERVICE INTERRUPTION. IFC § C104
19. ALL FIRE APPARATUS ACCESS ROADS SHALL BE PAVED TO PROVIDE ALL-WEATHER DRIVING CAPABILITIES, AND SHALL BE DESIGNED AND MAINTAINED TO SUPPORT THE IMPOSED LOADS OF THE FIRE APPARATUS. IFC § 503.2.3
20. THE GRADIENT FOR THE FIRE APPARATUS ACCESS ROADS SHALL NOT EXCEED 12% ANGLES OF APPROACH AND ANGLES OF DEPARTURE SHALL NOT EXCEED 6% FOR 25 FT PRIOR TO OR AFTER THE GRADE CHANGE. ADJACENT TO THE STRUCTURES GRADIENT SHALL NOT EXCEED 6%. IFC § 503.2.7, § 503.2.8
21. THE TURNING RADIUS OF THE FIRE APPARATUS ACCESS ROADS SHALL BE NO LESS THAN 52 FT OUTSIDE AND 28 FT INSIDE TURNING RADIUS. IFC § 503.2.4
22. VERTICAL CLEARANCE OF ALL FIRE APPARATUS ACCESS ROADS SHALL NOT BE LESS THAN 13FT 6 INS. IFC § 503.2.1
23. FIRE DEPARTMENT ACCESS ROADS SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF NOT LESS THAN 33 FT WITH PARKING ON BOTH SIDES MEASURED TO FACE OF CURB. NOT LESS THAN 28 FT WIDE WITH PARKING RESTRICTED TO ONE SIDE MEASURED TO FACE OF CURB. NOT LESS THAN 24 FT WIDE WITH NO PARKING ON EITHER SIDE MEASURED TO FACE OF CURB. FIRE LANES THROUGH PARKING LOTS SHALL BE NOT LESS THAN 24 FT. IFC § 503.2.1.1
24. A FIRE APPARATUS ACCESS ROAD SHALL BE REQUIRED WHEN ANY PORTION OF AN EXTERIOR WALL OF THE FIRST STORY IS LOCATED MORE THAN 150 FT FROM A FIRE DEPARTMENT VEHICLE ACCESS. IFC § 503.1.1
25. APPROVED SECONDARY FIRE APPARATUS ACCESS SHALL BE PROVIDED FOR 200 OR MORE DWELLING UNITS, ROAD(S) WITH DEAD- ENDS OR A SINGLE POINT OF ACCESS IN EXCESS OF 600 FT. CLV REGULATION AND MOU
26. ALL DEAD-END FIRE APPARATUS ROADS AND/OR FIRE LANES, PUBLIC OR PRIVATE, IN EXCESS OF 150 FT IN LENGTH SHALL BE PROVIDED WITH AN APPROVED TURN AROUND HAVING A MINIMUM DIAMETER OF 81 FT. CLV REGULATION
27. ALL FIRE APPARATUS ACCESS ROADS SHALL BE MARKED BY PLACING APPROVED SIGNS AT THE START OF THE DESIGNATED FIRE LANE, ONE SIGN AT THE END OF THE FIRE LANE AND WITH SIGNS AT INTERVALS OF 100 FT ALONG THE DESIGNATED FIRE LANES. SIGNS TO BE PLACED ON BOTH SIDES OF AN ACCESS ROADWAY IF NEEDED TO PREVENT PARKING ON EITHER SIDE. SIGNS TO BE INSTALLED NO HIGHER THAN 10 FT OR LESS THAN 6 FT FROM THE ROADWAY LEVEL. THE CURB ALONG OR ON THE PAVEMENT OR CEMENT (IF NO CURB IS PROVIDED) SHALL BE PAINTED WITH A RED WEATHER RESISTANT PAINT IN ADDITION TO THE SIGNS. IFC § 503.3
28. ELECTRICALLY CONTROLLED ACCESS GATES SHALL BE PROVIDED WITH AN APPROVED EMERGENCY VEHICLE DETECTOR/RECEIVER SYSTEM. IFC § 503.6
29. WHERE STREETS ARE PROVIDED WITH MEDIAN DIVIDERS, OR HAVING FOUR OR MORE TRAVEL LANES AND A TRAFFIC COUNT OF MORE THAN 30,000 VEHICLES PER DAY, ALL HYDRANTS BEING UTILIZED TO DELIVER FIRE FLOW TO THE PROPOSED LOCATION SHALL BE LOCATED ON THE SAME SIDE OF THE STREET AS THE PROPOSED DEVELOPMENT. CLV REGULATION

2.5 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.

UTILITY LOCATION NOTE TO CONTRACTOR

EXISTING UTILITY LOCATIONS SHOWN HEREIN ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATIONS. CALL BEFORE YOU DIG: 1 (800) 227-2600; SOUTHWEST GAS CORPORATION: 702-400-1789 (STANDBY CONTACT NUMBER)

2.1 CITY OF LAS VEGAS GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE 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 VERT

ABBREVIATIONS

AC	ASPHALTIC CONCRETE OR ACRE	FL	FLOWLINE	PVI	POINT OF VERTICAL INTERSECTION
AGG	AGGREGATE BASE	FT	FEET OR FOOT	QTY	QUANTITY
APN	ASSESSORS PARCEL NUMBER	FUT	FUTURE	R	RADIUS
APPROX OR ~	APPROXIMATE	GRD	GRADE OR GROUND	RCA	REINFORCED CONCRETE ARCH
AVE	AVENUE	GB	GRADE BREAK OR GRADE CHANGE	RCB	REINFORCED CONCRETE BOX
@	AT	GV	GATE VALVE	RCP	REINFORCED CONCRETE PIPE
BC	BEGIN CURVE OR BACK OF CURB	HDPE	HIGH DENSITY POLYETHYLENE	RD	ROAD
BCR	BEGINNING OF CURB RETURN	HOA	HOME OWNERS ASSOCIATION	RDWY ESMT	ROADWAY EASEMENT
BHW	BOTTOM OF HEADWALL	HORZ	HORIZONTAL	REQD	REQUIRED
BLDG	BUILDING	HP	HIGH POINT	REV	REVISION
BLVD	BOULEVARD	HWL	HIGH WATER LEVEL	RG	ROUGH GRADE
BM	BENCHMARK	HDWL OR HW	HEADWALL	RT OR R	RIGHT
BVC	BEGIN VERTICAL CURVE	HYD	HYDRAULIC OR HYDRANT	RW, ROW	RIGHT OF WAY
BWV	BACK WATER VALVE	ID	INSIDE DIAMETER	S	SLOPE
CC	CLARK COUNTY	IN	INCH	SCH	SCHEDULE
CCAUSD	CLARK COUNTY AREA UNIFORM STANDARD DRAWINGS	INT	INTERSECTION	SD	STORM DRAIN
CCPW	CLARK COUNTY PUBLIC WORKS	INV	INVERT ELEVATION	SDDI	STORM DRAIN DROP INLET
CCRFCD	CLARK COUNTY REGIONAL FLOOD DISTRICT	IP	IRON PIPE	SDMH	STORM DRAIN MANHOLE
CCWRD	CLARK COUNTY WATER RECLAMATION DISTRICT	IRRG	IRRIGATION	SEC	SECTION
CE	COMMON ELEMENT	LF	LINEAR FEET	SF	SQUARE FEET
CL,C/L,C	CENTERLINE	LMC	LANDSCAPE MAINTENANCE CORPORATION	SHT	SHEET
CLR	CLEAR OR CLEARANCE	LP	LOW POINT	SLTC	STREET LIGHT & TRAFFIC CONTROL ESMT
CLSM	CONTROLLED LOW STRENGTH MATERIAL	LT OR L	LEFT	SNWA	SOUTHERN NEVADA WATER AUTHORITY
CLV	CITY OF LAS VEGAS	LVVWD	LAS VEGAS VALLEY WATER DISTRICT	SPECS	SPECIFICATIONS
CML&C	CEMENT MORTAR LINED AND COATED	LWL	LOW WATER LEVEL	ST	STREET
CMU	CONCRETE MASONRY UNIT	MAX	MAXIMUM	SSMH	SANITARY SEWER MANHOLE
CNLV	CITY OF NORTH LAS VEGAS	MECH	MECHANICAL	STA	STATION
COH	CITY OF HENDERSON	MH	MANHOLE	STD	STANDARD
CONC	CONCRETE	MIN	MINIMUM	STL	STEEL
CT	COURT	MISC	MISCELLANEOUS	STLT	STREET LIGHT
CY OR CU YD	CUBIC YARD	MUE	MUNICIPAL UTILITY EASEMENT	SW	SIDEWALK
DCWCS	DESIGN AND CONSTRUCTION FOR WASTEWATER COLLECTION SYSTEMS	NDOT	NEVADA DEPARTMENT OF TRANSPORTATION	SWG	SOUTHWEST GAS
		NTS	NOT TO SCALE	SWR OR SS	SANITARY SEWER
DE	DRAINAGE EASEMENT	NUE	NONEXCLUSIVE UTILITY EASEMENT	SY	SQUARE YARD
DET	DETAIL	NVE	NV ENERGY	TAN	TANGENT
DI	DUCTILE IRON OR DRAIN INLET	OC	ON CENTER	TC	TOP OF CURB
DIA, ø	DIAMETER	OD	OUTSIDE DIAMETER OR OVERALL DIMENSION	TF	TOP OF FLOOR OR TOP OF FOOTING
DIP	DUCTILE IRON PIPE	OFF	OFFSET	TG	TOP OF GRATE
DR	DRIVE	ORIG	ORIGINAL	THRU	THROUGH
DWG(S)	DRAWING	PAE	PUBLIC OR PEDESTRIAN ACCESS EASEMENT	THW	TOP OF HEADWALL
DWY	DRIVEWAY	PB	PULL BOX	TP	TOP OF PIPE
EA	EACH	PC	POINT OF CURVE	TW	TOP OF WALL
ECR	END CURB RETURN	PCC	POINT OF COMPOUND CURVE	TRW	TOP OF RETAINING WALL
EG	EXISTING GROUND	PDE	PUBLIC DRAINAGE EASEMENT	TSW	TOP OF SCREEN WALL
ELEV	ELEVATION	℄ OR PL	PROPERTY LINE	TYP	TYPICAL
ESMT	EASEMENT	POB	POINT OF BEGINNING	UDACS	UNIFORM DESIGN AND CONSTRUCTION STANDARDS
EP	EDGE OF PAVEMENT	POC	POINT OF CURVATURE		
ERU	EQUIVALENT RESIDENTIAL UNIT	POE	POINT OF ENDING	UE	UTILITY EASEMENT
EVC	END VERTICAL CURVE	PRC	POINT OF REVERSE CURVATURE	VC	VERTICAL CURVE
EX OR EXIST	EXISTING	PRELIM	PRELIMINARY	VERT	VERTICAL
FC	FACE OF CURB	PROP	PROPOSED	VG	VALLEY GUTTER
FF	FINISHED FLOOR	PRV	PRESSURE REDUCING VALVE	WI	WROUGHT IRON
FG	FINISHED GRADE	PUE	PUBLIC UTILITY EASEMENT	WL	WATER LINE
FGH	FINISHED GRADE, HIGH SIDE	PT	POINT OF TANGENT OR POINT	WPZ	WATER PRESSURE ZONE
FGL	FINISHED GRADE, LOW SIDE	PVC	POLYVINYL CHLORIDE	WT	WEIGHT
FH	FIRE HYDRANT			WTR	WATER LINE

SPECIAL NOTE

IN THE EVENT THAT ANY TEMPORARY CONSTRUCTION ITEM IS REQUIRED WHICH 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 OF LAS VEGAS DEPT. OF PUBLIC WORKS. TEMPORARY CONSTRUCTION ITEMS INCLUDE: PAVEMENT TRANSITIONS, PROTECTIVE DITCHES AND BERMS, ROAD SIGNS AND BARRICADES, ETC.

NOTICE TO CONTRACTOR

-QUANTITIES SHOWN ARE ESTIMATES ONLY AND ARE INTENDED TO ILLUSTRATE SCOPE OF WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE EXACT QUANTITIES INVOLVED.

-EXISTING UTILITY LOCATIONS SHOWN HEREIN ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATIONS. CALL BEFORE YOU DIG: (800) 227-2600

LEGEND

EXISTING	PROPOSED	DESCRIPTION
(1900)	1900	5' CONTOUR
		1' CONTOUR
		STRIPING
		SEWER MANHOLE
		CURB AND GUTTER
EX 8" PVC SS	8" PVC SS	SANITARY SEWER PIPE AND FLOW ARROW
EX 8" PVC WTR	8" PVC WTR	WATER PIPE
		WATER GATE VALVE
		FIRE HYDRANT
		WATER BLOW-OFF
		WATER LATERAL W/ METER
		SANITARY SEWER LATERAL
		STREETLIGHT
		EDGE OF PAVEMENT
		TRAFFIC SIGN
PAD= XXX.X FF = XXX.X	PAD= XXX.X FF = XXX.X	PAD ELEVATION FINISHED FLOOR ELEVATION
(00.00) TC	00.00 TC	ELEVATION
		RETAINING WALL
		STORM DRAIN W/ MANHOLE

	EXISTING GAS GATE VALVE
@MH	EXISTING UNKNOWN MANHOLE
GAS	EXISTING GAS, SIZE PER PLAN
	EXISTING POWER POLE
(0.0.0)	EXISTING TRAFFIC SIGNAL
	EXISTING WALL
	WATER PIPE FITTING
POC	WATER POINT OF CONNECTION
POC	SEWER POINT OF CONNECTION
	DAYLIGHT LINE
	STREET CENTERLINE
	RIGHT-OF-WAY
	MATCHLINE
	BOUNDARY LINE
	PHASE LINE
	PROPERTY LINE
	FLOWLINE
	SAWCUT
FILL / CUT	CUT/FILL TRANSITION LINE
	SIDEWALK
	EX STRIPING TO BE OBLITERATED
	GRADE BREAK LINE
	REFLECTIVE RAISED PAVEMENT MARKERS
BWV	BACK WATER VALVE
	WROUGHT IRON FENCE
	PONY WALL
	DECORATIVE PERIMETER WALL
	DECORATIVE PERIMETER RETAINING WALL
	PROPOSED CURB AND GUTTER WITH RIGHT-OF-WAY AT BACK OF CURB
	EXISTING CURB AND GUTTER WITH RIGHT-OF-WAY AT BACK OF CURB
	FUTURE CURB AND GUTTER WITH RIGHT-OF-WAY AT BACK OF CURB

	PROPOSED SCARP AREA
	DRIVEWAY
	PROPOSED RIP RAP
	SIGHT VISIBILITY ZONE PER STD DWG NO. 201.2
	HANDICAP RAMP

QUANTITIES

			PRIVATE	PUBLIC
DRAINAGE				
1.	60" TYPE III STORM DRAIN MANHOLE	EA	–	–
2.	5.0' TYPE "CM2" DROP INLET	EA	–	–
3.	10.0' TYPE "CM2" DROP INLET	EA	–	–
4.	12.5' TYPE "CM2" DROP INLET	EA	–	–
5.	20.0' TYPE "CM2" DROP INLET	EA	–	–
6.	18" RCP CLASS IV STORM DRAIN	LF	–	–
7.	24" RCP CLASS IV STORM DRAIN	LF	–	–
8.	30" RCP CLASS IV STORM DRAIN	LF	–	–
9.	36" RCP CLASS IV STORM DRAIN	LF	–	–
10.	RIPRAP D50=8", THK=16"	SF	–	–
11.	8' WIDE CONCRETE VALLEY GUTTER W/10" TYPE I AGGREGATE BASE	SF	3,166	–
12.	SIDEWALK UNDER DRAIN	SF	2	–
13.				
SEWER SYSTEM				
1.	4" PVC SEWER LATERAL (PRIVATE)	LF	–	–
2.	8" PVC SEWER PIPE (PUBLIC)	LF	–	–
3.	STANDARD 48" SEWER MANHOLE (PUBLIC)	EA	–	–
4.	8" SEWER PIPE CAP	EA	–	–
5.	BACK WATER VALVE	EA	–	–
6.	8" C-900 WATER QUALITY SEWER PIPE (PUBLIC)	EA	–	–
7.				
WATER SYSTEM				
1.	FIRE HYDRANT ASSEMBLY W/6" GATE VALVE PER UDACS PLATE NO. 40	EA	–	–
2.	6" PVC WATER PIPE (CLASS 150)	LF	–	–
3.	8" PVC WATER PIPE (CLASS 150)	LF	–	–
4.	8" DIP WATER PIPE (CLASS 53)	LF	–	–
5.	8" GATE VALVE WITH VALVE BOX PER UDACS PLATE NO. 30 & 39	EA	–	–
6.	8" X 6" TEE PER UDACS PLATE NO. 31	EA	–	–
7.	8" X 8" TEE PER UDACS PLATE NO. 31	EA	–	–
8.	8" 5 DEGREE BEND WITH RESTRAINED JOINTS	EA	–	–
9.	8" 11.25 DEGREE BEND PER UDACS PLATE NO. 31	EA	–	–
10.	8" 22.5 DEGREE BEND PER UDACS PLATE NO. 31	EA	–	–
11.	8" 45 DEGREE BEND PER UDACS PLATE NO. 31	EA	–	–
12.	8" 90 DEGREE BEND PER UDACS PLATE NO. 31	EA	–	–
13.	CAP AND 2" BLOW-OFF ASSEMBLY W/CAP PER UDACS PLATE NO. 36	EA	–	–
14.	1" COPPER SERVICE W/ 3/4" METER PER UDACS PLATE NO. 2	EA	–	–
15.	1" COPPER SERVICE W/ 1" METER PER UDACS PLATE NO. 4	EA	–	–
16.	1" COPPER SERVICE W/ 3/4" METER & 1" RPPA PER UDACS PLATE NO. 4 & 8	EA	–	–
		EA	–	
STREET IMPROVEMENTS				
1.	2" A.C. PAVEMENT W/ 4" TYPE II OVER 6" TYPE I AGGREGATE BASE	SY	–	–
2.	STANDARD 18" TYPE "L" ISLAND CURB & GUTTER W/6" TYPE I AGGREGATE BASE	LF	–	–
3.	STANDARD 8" TYPE "A" ISLAND CURB W/6" TYPE I AGGREGATE BASE	LF	–	–
4.	STANDARD 30" TYPE "ROLL" CURB & GUTTER W/6" TYPE I AGGREGATE BASE	LF	–	–
5.	4' WIDE CONCRETE SIDEWALK W/4" TYPE II AGGREGATE BASE	SF	–	–
6.				–
7.				
TRAFFIC SIGNALS				
1.	30" STOP SIGN WITH POST (R1-1)	EA	–	–
2.	9" STREET NAME SIGN (D-3, BROWN W/ WHITE LETTERS)(6 POLES x 2 PER POLE=12)	EA	–	–
3.	BLUE COLORED REFLECTIVE RAISED PAVEMENT MARKER	EA	–	–
4.	CROSSWALK MARKINGS	LF	–	–
5.				
6.				
7.				
8.				
DRY UTILITIES				
1.	100W H.P.S. LUMINAIRE STREET LIGHT W/DECORATIVE POLE	EA	–	–
2.	1-1/4" PVC STREET LIGHT CONDUIT WITH (2) #4 AND (1) #8 CONDUCTORS	LF	–	–
3.	NO. 3-1/2 PULL BOX W/METAL COVER	EA	–	–
4.	150 AMP SERVICE PEDESTAL (IRR)	EA	–	–
5.	200 AMP SERVICE PEDESTAL (STLT)	EA	–	–
6.				

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT NO. ###### FIRST APPROVED DATE: _____







SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP

CITY OF LAS VEGAS, NV

kb HOME

MONTECITO 60 - UNIT 3

LEGEND, ABBREVIATIONS, & QUANTITIES

S20 T19S R60E

DATE: 10/14/19

DRAFTER: BCS

DESIGNER: BCS

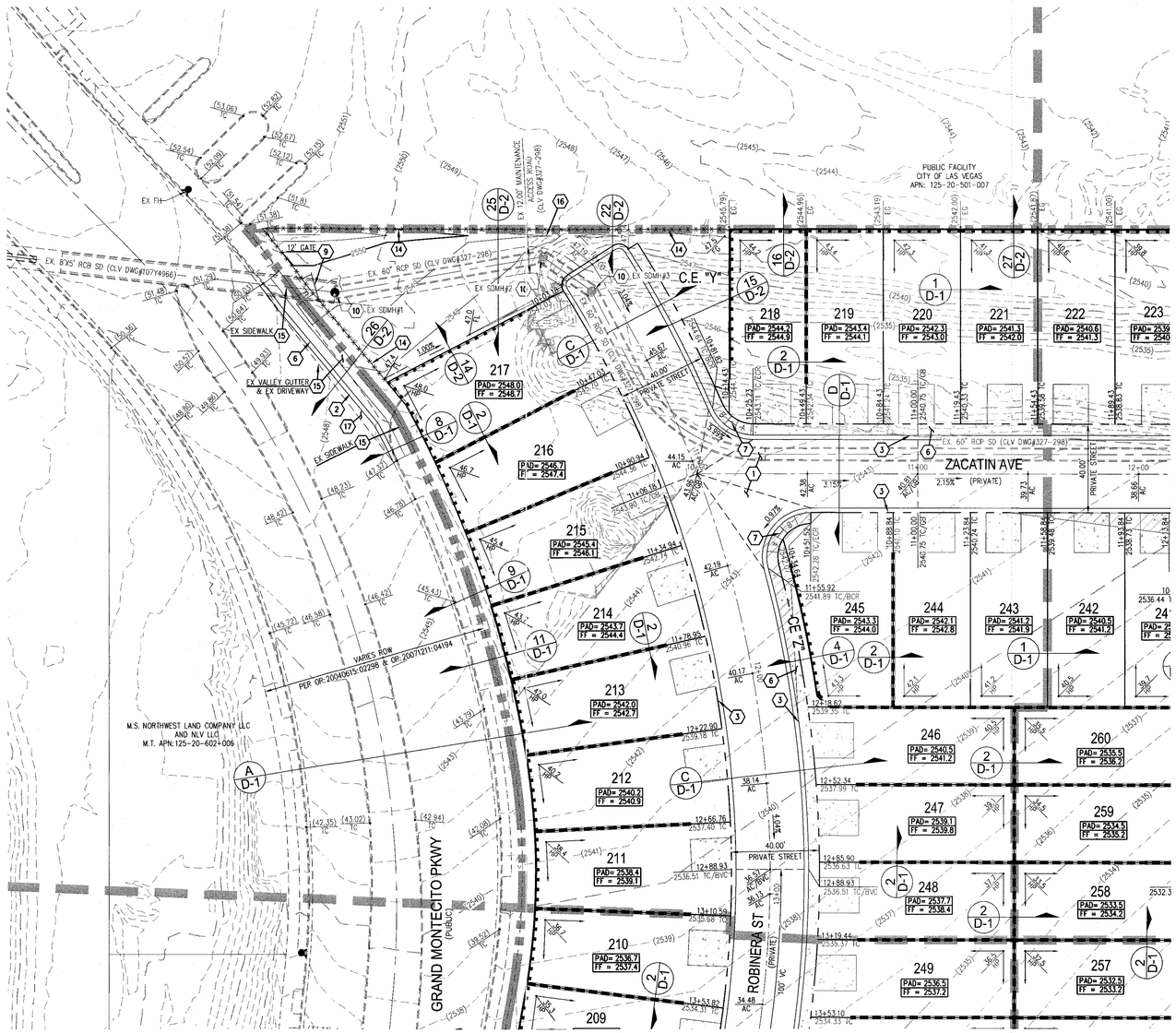
CHECKED: MAK

PROJECT NO.
KBH1805-003

PROFESSIONAL ENGINEER — STATE OF NEVADA — TIMOTHY M. MULROONEY — Exp. 12/31/2019 — CIVIL — No. 22938 — 10/23/19

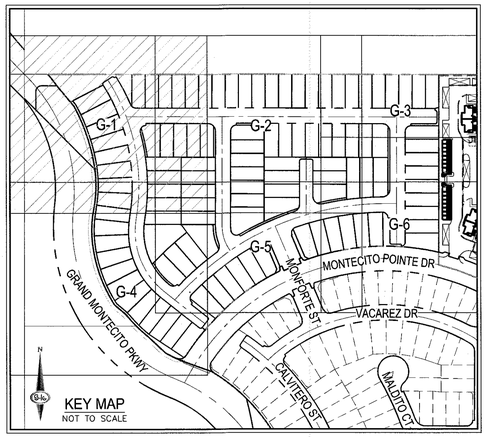
C-3
SHEET 3 OF 11

J:\kbh1805-003 montecito 60 unit 3\dwg\improv\kbh1805-003 cvr.dwg 10/23/2019 10:52 AM Byam Sorrentino



N

SCALE - 1"=30' (0, 30, 60 FEET)



RETAINING WALL TABLE

NUMBER OF COURSES	HEIGHT OF RETAINING WALL
3	1.0'-1.7'
4	1.7'-2.3'
5	2.3'-3.0'
6	3.0'-3.7'
7	3.7'-4.3'
8	4.3'-5.0'
9	5.0'-5.7'
10	5.7'-6.0'

1. ALL OF THE RETAINING WALL HEIGHTS ARE DETERMINED WITH THE TOP OF THE FOOTING BEING APPROXIMATELY 4" BELOW EXISTING GRADE WITH THE EXCEPTION OF RETAINING WALLS WHICH ARE NEXT TO A SIDEWALK ALL OF THESE ARE FIGURED TO HAVE THE TOP OF FOOTING BEING 8" BELOW THE ELEVATION OF THE SIDEWALK.
2. ELEVATION DIFFERENCE OF 1' OR LESS DOES NOT REQUIRE RETAINING.
3. SEE DETAIL SHEETS FOR MAX WALL HEIGHTS.

CALL SOUTHWEST GAS AT 702-651-2111 FOR STANDBY WHEN EXCAVATING OVER OR NEAR HIGH PRESSURE GAS LINES

SOILS REPORT

SOILS REPORT BY SOUTHWEST GEOTECHNICAL
PROJECT NO. 182358 DATED 10/17/18
UPDATED 10/03/19

EARTHWORKS

EARTHWORK QUANTITIES (RAW):
CUT= #,###.## CU YDS
FILL= #,###.## CU YDS

EXPORTED MATERIAL TO BE DISPOSED OF AT AN APPROVED LICENSED DISPOSAL FACILITY OR AT A SITE WITH AN APPROVED AND ACTIVE GRADING PERMIT.

BENCHMARK

CITY OF LAS VEGAS BENCHMARK SLV90 20E6

RIVET & PLATE IN TOP OF CURB AT SW CORNER OF RILEY ST. & DEER SPRINGS.

ELEVATION=774.781 METERS (NAVD'88)
ELEVATION=2541.93 US SURVEY FEET (NAVD'88)

BASIS OF BEARING

NORTH 89°56'20" EAST, BEING THE BEARING OF THE SOUTH LINE OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 20, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA, AS SHOWN BY MAP THEREOF ON FILE IN THE CLARK COUNTY, NEVADA RECORDER'S OFFICE IN FILE 118, PAGE 89 OF SURVEYS.

ELEVATION NOTE

ADD 2500 TO ALL SPOT GRADES WHERE THE HUNDREDS AND THOUSANDS PLACES ARE OMITTED FOR ACTUAL ELEVATION (I.E. 01.00 REPRESENTS 2501.00)

GRADING NOTES

1. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AND REPORT ALL DISCREPANCIES TO THE ENGINEER.
2. ALL IMPROVEMENTS TO BE PROTECTED FROM EROSION BY SWPPP.
3. MAXIMUM /MINIMUM SLOPES AND MINIMUM STREET SECTIONS NOT TO EXCEED THAT SHOWN ON GEOTECH REPORT.
4. SEE DETAIL SHEET FOR STREET SECTIONS AND DETAILS.
5. ALL PUBLIC AND PRIVATE DRAINAGE IMPROVEMENTS TO BE BONDED FOR AND INSPECTED.
6. CONSTRUCTION OF BLOCK WALLS REQUIRES A SEPARATE BUILDING PERMIT AND APPROVAL BY THE CITY OF LAS VEGAS BUILDING DEPARTMENT.
7. CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF EXISTING UTILITY STRUCTURES AND FACILITIES AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION. CONTRACTOR TO PROTECT IN PLACE DURING CONSTRUCTION. ENGINEER/OWNER SHALL BE NOTIFIED OF PRIOR DAMAGE TO EXISTING FACILITIES PRIOR TO CONSTRUCTION. CONTRACTOR WILL BE RESPONSIBLE FOR REPAIR/REPLEPING FACILITIES IF ENGINEER/OWNER IS NOT NOTIFIED OF EXISTING DAMAGE PRIOR TO CONSTRUCTION COMMENCING.
8. NO STRUCTURE, VEGETATION, OR OBJECTS OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF THE ADJACENT CURB IF CURB EXIST) WITHIN THE SIGHT VISIBILITY ZONES.

SURVEY NOTE

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

DRAINAGE EASEMENT NOTE

ALL PRIVATE STREETS, DRAINAGE EASEMENTS, AND COMMON ELEMENTS ARE PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA.

CONSTRUCTION NOTES

1. INSTALL 2" ASPHALT PAVEMENT OVER 4" TYPE II AGGREGATE BASE
2. INSTALL L TYPE CURB PER CCAUSD NO. 216
3. INSTALL R-TYPE CURB & GUTTER PER CCAUSD NO. 217.3.S1
4. INSTALL A TYPE CURB PER CCAUSD NO. 219
5. INSTALL 3' CURB TRANSITION PER CCAUSD NO. 223
6. INSTALL 5' WIDE SIDEWALK PER CCAUSD NO. 234
7. INSTALL SIDEWALK RAMP PER CCAUSD NO. 235, CASE I AND CCAUSD NO. 235.1
8. INSTALL 8' VALLEY GUTTER PER CCAUSD NO. 228
9. INSTALL STEEL TUBING FENCE & MAINTENANCE ACCESS GATE PER CCAUSD NO. 425.S1 (GATE WIDTH PER PLAN)
10. ADJUST MANHOLE RIM TO FINISH GRADE
11. INSTALL 4' WIDE CONCRETE U-CHANNEL PER DETAIL 19 ON SHEET D-2
12. INSTALL SIDEWALK DRAIN PER CCAUSD NO. 236
13. INSTALL U-CHANNEL TO "L" CURB OPENING PER DETAIL 21 ON SHEET D-2
14. INSTALL WROUGHT IRON FENCE
15. REMOVE EXISTING IMPROVEMENTS
16. CONSTRUCT 1' TALL, 6' WIDE BERM @ 90% COMPACTION. SEE DETAIL 22 ON SHEET D-2
17. INSTALL 6" ASPHALT PAVEMENT OVER 4" TYPE II AGGREGATE BASE

DISCLAIMER NOTE

1) EXISTING UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION.

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.

LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDELINES

(REQUIRED FOR ALL SITES GREATER THAN 1 ACRE (43,560 SQ.FT.))

1. THE OWNER, SITE DEVELOPER, CONTRACTOR, AND/OR THEIR AUTHORIZED AGENTS SHALL EACH DAY REMOVE ALL SEDIMENT, MUD, CONSTRUCTION DEBRIS, OR OTHER POTENTIAL POLLUTANTS THAT MAY HAVE BEEN DISCHARGED TO, OR ACCUMULATED IN, THE PUBLIC RIGHTS OF WAY OF CLARK COUNTY AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS SITE DEVELOPMENT OR CONSTRUCTION PROJECT. SUCH MATERIALS SHALL BE PREVENTED FROM ENTERING THE STORM SEWER SYSTEM.
2. ADDITIONAL CONSTRUCTION SITE DISCHARGE BEST MANAGEMENT PRACTICES MAY BE REQUIRED OF THE OWNER AND HIS OR HER AGENTS DUE TO UNFORESEEN EROSION PROBLEMS OR IF THE SUBMITTED PLAN DOES NOT MEET THE PERFORMANCE STANDARDS SPECIFIED IN CLARK COUNTY TITLE 24.40 AND IN THE LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDANCE MANUAL.
3. TEMPORARY OR PERMANENT STABILIZATION PRACTICES WILL BE INSTALLED ON DISTURBED AREAS AS SOON AS PRACTICABLE AND NO LATER THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. SOME EXCEPTIONS MAY APPLY; REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.5.
4. AT A MINIMUM, THE CONTRACTOR OR HIS AGENT SHALL INSPECT ALL DISTURBED AREAS, AREAS USED FOR STORAGE OF MATERIALS AND EQUIPMENT THAT ARE EXPOSED TO PRECIPITATION, VEHICLE ENTRANCE AND EXIT LOCATIONS, AND ALL BMPS WEEKLY, AND WITHIN 24 HOURS AFTER A RAIN EVENT OF 0.5 INCHES OR MORE. THE CONTRACTOR OR HIS AGENT SHALL UPDATE OR MODIFY THE STORMWATER POLLUTION PREVENTION PLAN AS NECESSARY. SOME EXCEPTIONS TO WEEKLY INSPECTIONS MAY APPLY, SUCH AS SUSPENSION OF LAND DISTURBANCE ACTIVITIES. REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.12.
5. ACCUMULATED SEDIMENT IN BMPS SHALL BE REMOVED WITHIN SEVEN DAYS AFTER A STORMWATER RUNOFF EVENT OR PRIOR TO THE NEXT ANTICIPATED STORM EVENT, WHICHEVER IS EARLIER. SEDIMENT MUST BE REMOVED WHEN BMP DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE.

FLOOD ZONE

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE X (UNSHADED) AS DEPICTED ON FLOOD INSURANCE RATE MAP (FIRM) PANEL 32003C1745E, DATED SEPTEMBER 27, 2002. A ZONE X (UNSHADED) IS DESCRIBED AS AN AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN.

FLOOD CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED TECHNICAL DRAINAGE STUDY ??????? ON FILE AT CITY OF LAS VEGAS FOR THE SUBJECT PROJECT.

TIMOTHY M. MULROONEY, P.E. 22938 DATE

DRAINAGE QUANTITIES		PRIV.	PUBLIC
1. SIDEWALK UNDER DRAIN	EA	3	-
2. 8' WIDE CONCRETE VALLEY GUTTER W/10" TYPE I AGGREGATE BASE	SF	3,166	-
3.			
4.			
5.			
6.			
7.			

FAST
Call before you UnderGround
1-702-432-5300
FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (F.A.S.T)

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

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

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS, NV

kb HOME

MONTECITO 60 - UNIT 3

GRADING PLAN I

S20 T19S R60E

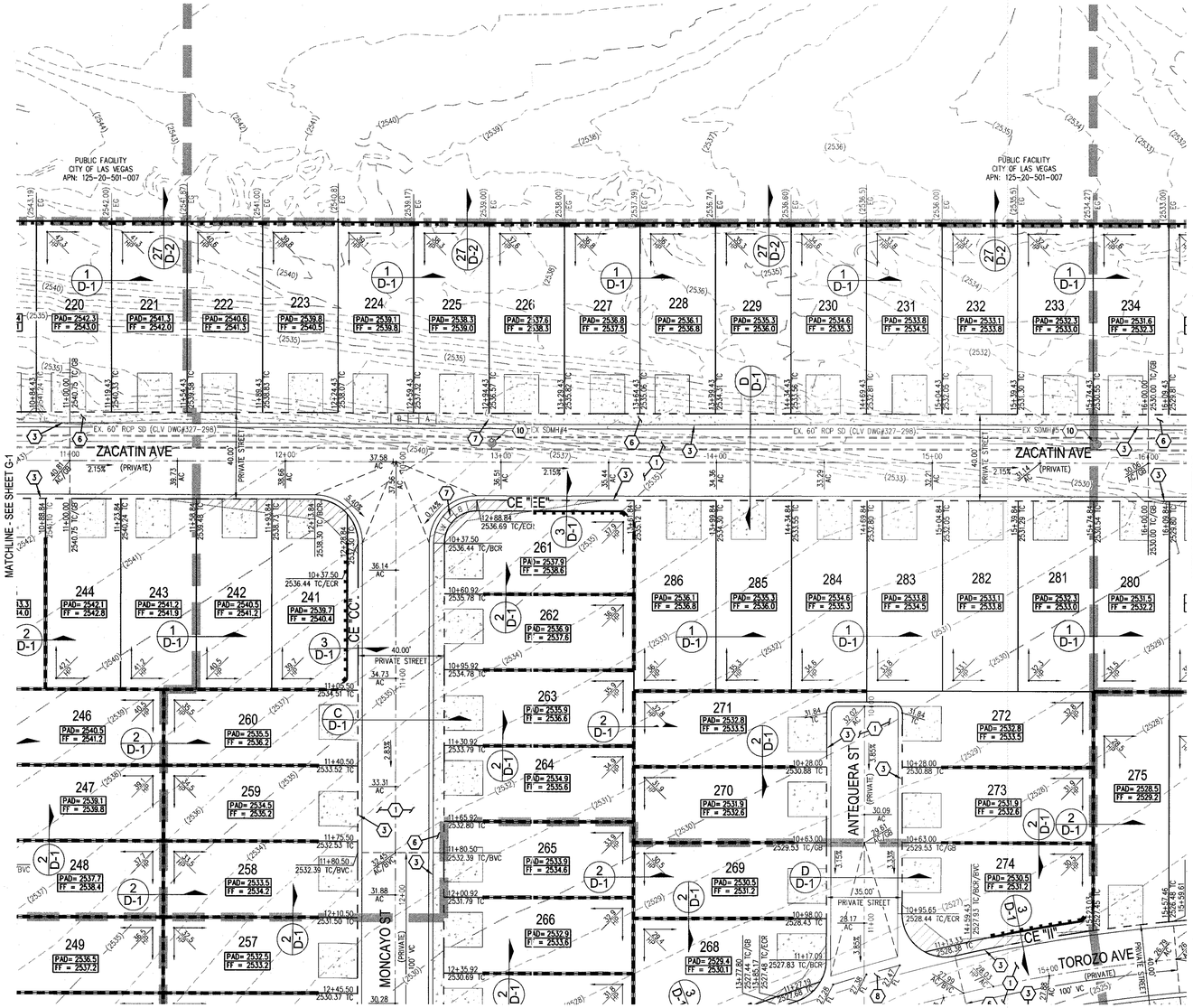
DATE: 10/14/19
DRAFTER: BCS
DESIGNER: BCS
CHECKED: MAK

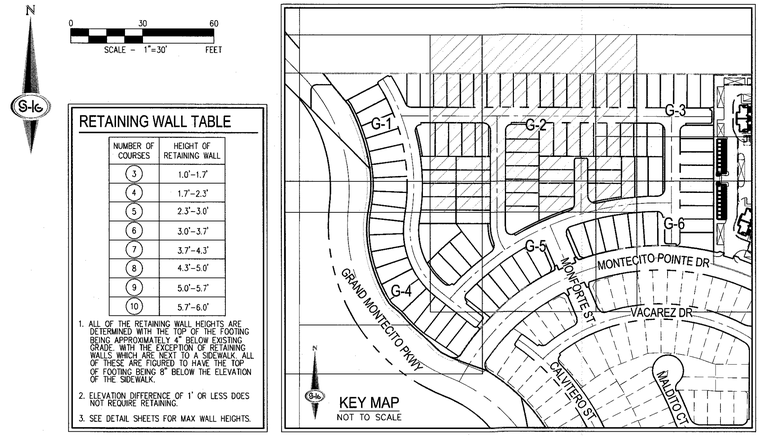
PROJECT NO.
KBH1805-003

TIMOTHY M. MULROONEY, Exp. 12/31/2019, CIVIL, No. 22938, STATE OF NEVADA, PROFESSIONAL ENGINEER
10/23/19

G-1
SHEET 4 OF 11

J:\Kbh1805-003_montesito 60 unit 3\Civil\Improv\Kbh1805_003_grd.dwg 10/23/2019 11:27 AM Bryan Sarmiento





N

SCALE = 1"=30' (0, 30, 60 FEET)

S-16

RETAINING WALL TABLE

NUMBER OF COURSES	HEIGHT OF RETAINING WALL
3	1.0'–1.7'
4	1.7'–2.3'
5	2.3'–3.0'
6	3.0'–3.7'
7	3.7'–4.3'
8	4.3'–5.0'
9	5.0'–5.7'
10	5.7'–6.0'

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3. SEE DETAIL SHEETS FOR MAX WALL HEIGHTS.

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SOILS REPORT

SOILS REPORT BY SOUTHWEST GEOTECHNICAL
PROJECT NO. 182358 DATED 10/17/18
UPDATED 10/03/19

EARTHWORKS

EARTHWORK QUANTITIES (RAW):
CUT= ##### CU YDS
FILL= ##### CU YDS

EXPORTED MATERIAL TO BE DISPOSED OF AT AN APPROVED LICENSED DISPOSAL FACILITY OR AT A SITE WITH AN APPROVED AND ACTIVE GRADING PERMIT.

BENCHMARK

CITY OF LAS VEGAS BENCHMARK SLV90 20E6

RIVET & PLATE IN TOP OF CURB AT SW CORNER OF RILEY ST. & DEER SPRINGS.

ELEVATION=774.781 METERS (NAVD'88)
ELEVATION=2541.93 US SURVEY FEET (NAVD'88)

BASIS OF BEARING

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SURVEY NOTE

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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.

LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDELINES

(REQUIRED FOR ALL SITES GREATER THAN 1 ACRE (43,560 SQ.FT.))

1. THE OWNER, SITE DEVELOPER, CONTRACTOR, AND/OR THEIR AUTHORIZED AGENTS SHALL EACH DAY REMOVE ALL SEDIMENT, MUD, CONSTRUCTION DEBRIS, OR OTHER POTENTIAL POLLUTANTS THAT MAY HAVE BEEN DISCHARGED TO, OR ACCUMULATED IN, THE PUBLIC RIGHTS OF WAY OF CLARK COUNTY AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS SITE DEVELOPMENT OR CONSTRUCTION PROJECT. SUCH MATERIALS SHALL BE PREVENTED FROM ENTERING THE STORM SEWER SYSTEM.
2. ADDITIONAL CONSTRUCTION SITE DISCHARGE BEST MANAGEMENT PRACTICES MAY BE REQUIRED OF THE OWNER AND HIS OR HER AGENTS DUE TO UNFORESEEN EROSION PROBLEMS OR IF THE SUBMITTED PLAN DOES NOT MEET THE PERFORMANCE STANDARDS SPECIFIED IN CLARK COUNTY TITLE 24.40 AND IN THE LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDANCE MANUAL.
3. TEMPORARY OR PERMANENT STABILIZATION PRACTICES WILL BE INSTALLED ON DISTURBED AREAS AS SOON AS PRACTICABLE AND NO LATER THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. SOME EXCEPTIONS MAY APPLY; REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.5.
4. AT A MINIMUM, THE CONTRACTOR OR HIS AGENT SHALL INSPECT ALL DISTURBED AREAS, AREAS USED FOR STORAGE OF MATERIALS AND EQUIPMENT THAT ARE EXPOSED TO PRECIPITATION, VEHICLE ENTRANCE AND EXIT LOCATIONS, AND ALL BMPS WEEKLY, AND WITHIN 24 HOURS AFTER A RAIN EVENT OF 0.5 INCHES OR MORE. THE CONTRACTOR OR HIS AGENT SHALL UPDATE OR MODIFY THE STORMWATER POLLUTION PREVENTION PLAN AS NECESSARY. SOME EXCEPTIONS TO WEEKLY INSPECTIONS MAY APPLY, SUCH AS SUSPENSION OF LAND DISTURBANCE ACTIVITIES. REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.12.
5. ACCUMULATED SEDIMENT IN BMPS SHALL BE REMOVED WITHIN SEVEN DAYS AFTER A STORMWATER RUNOFF EVENT OR PRIOR TO THE NEXT ANTICIPATED STORM EVENT, WHICHEVER IS EARLIER. SEDIMENT MUST BE REMOVED WHEN BMP DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE.

GRADING NOTES

1. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AND REPORT ALL DISCREPANCIES TO THE ENGINEER.
2. ALL IMPROVEMENTS TO BE PROTECTED FROM EROSION BY SWPPP.
3. MAXIMUM/MINIMUM SLOPES AND MINIMUM STREET SECTIONS NOT TO EXCEED THAT SHOWN ON GEOTECH REPORT.
4. SEE DETAIL SHEET FOR STREET SECTIONS AND DETAILS.
5. ALL PUBLIC AND PRIVATE DRAINAGE IMPROVEMENTS TO BE BONDED FOR AND INSPECTED.
6. CONSTRUCTION OF BLOCK WALLS REQUIRES A SEPARATE BUILDING PERMIT AND APPROVAL BY THE CITY OF LAS VEGAS BUILDING DEPARTMENT.
7. CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF EXISTING UTILITY STRUCTURES AND FACILITIES AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION. CONTRACTOR TO PROTECT IN PLACE DURING CONSTRUCTION. ENGINEER/OWNER SHALL BE NOTIFIED OF PRIOR DAMAGE TO EXISTING FACILITIES PRIOR TO CONSTRUCTION. CONTRACTOR WILL BE RESPONSIBLE FOR REPAIR/REPLEPING FACILITIES IF ENGINEER/OWNER IS NOT NOTIFIED OF EXISTING DAMAGE PRIOR TO CONSTRUCTION COMMENCING.
8. NO STRUCTURE, VEGETATION, OR OBJECTS OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF THE ADJACENT CURB IF CURB EXIST) WITHIN THE SIGHT VISIBILITY ZONES.

CONSTRUCTION NOTES

1. INSTALL 2" ASPHALT PAVEMENT OVER 4" TYPE II AGGREGATE BASE
2. INSTALL L TYPE CURB PER CCAUSD NO. 216
3. INSTALL R-TYPE CURB & GUTTER PER CCAUSD NO. 217.3.S1
4. INSTALL A TYPE CURB PER CCAUSD NO. 219
5. INSTALL 3' CURB TRANSITION PER CCAUSD NO. 223
6. INSTALL 5' WIDE SIDEWALK PER CCAUSD NO. 234
7. INSTALL SIDEWALK RAMP PER CCAUSD NO. 235, CASE I AND CCAUSD NO. 235.1
8. INSTALL 8' VALLEY GUTTER PER CCAUSD NO. 228
9. INSTALL STEEL TUBING FENCE & MAINTENANCE ACCESS GATE PER CCAUSD NO. 425.S1 (GATE WIDTH PER PLAN)
10. ADJUST MANHOLE RIM TO FINISH GRADE
11. INSTALL 4' WIDE CONCRETE U-CHANNEL PER DETAIL 19 ON SHEET D-2
12. INSTALL SIDEWALK DRAIN PER CCAUSD NO. 236
13. INSTALL U-CHANNEL TO "L" CURB OPENING PER DETAIL 21 ON SHEET D-2
14. INSTALL WROUGHT IRON FENCE
15. REMOVE EXISTING IMPROVEMENTS
16. CONSTRUCT 1' TALL, 6' WIDE BERM @ 90% COMPACTION. SEE DETAIL 22 ON SHEET D-2
17. INSTALL 6" ASPHALT PAVEMENT OVER 4" TYPE II AGGREGATE BASE

FLOOD ZONE

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE X (UNSHADED) AS DEPICTED ON FLOOD INSURANCE RATE MAP (FIRM) PANEL 32003C1745E, DATED SEPTEMBER 27, 2002. A ZONE X (UNSHADED) IS DESCRIBED AS AN AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN.

FLOOD CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED TECHNICAL DRAINAGE STUDY ??????? ON FILE AT CITY OF LAS VEGAS FOR THE SUBJECT PROJECT.

TIMOTHY M. MULROONEY, P.E. 22938 DATE







SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300
FAX (702) 284-5399

NO	DESCRIPTION	DATE	BY	APP DATE	APP

CITY OF LAS VEGAS, NV

kb HOMES

MONTECITO 60 - UNIT 3

GRADING PLAN II

S20 T19S R60E

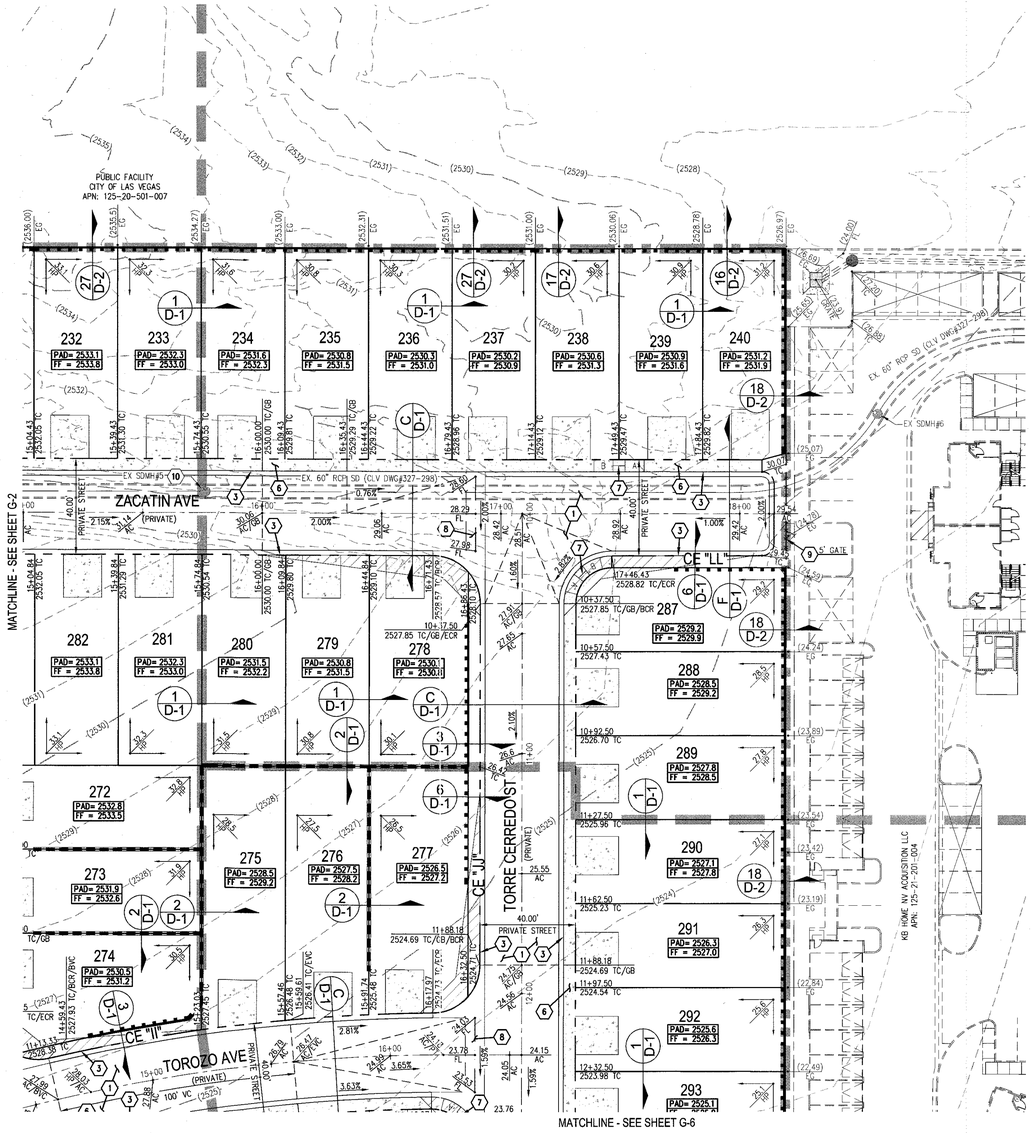
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DRAFTER: BCS
DESIGNER: BCS
CHECKED: MAK

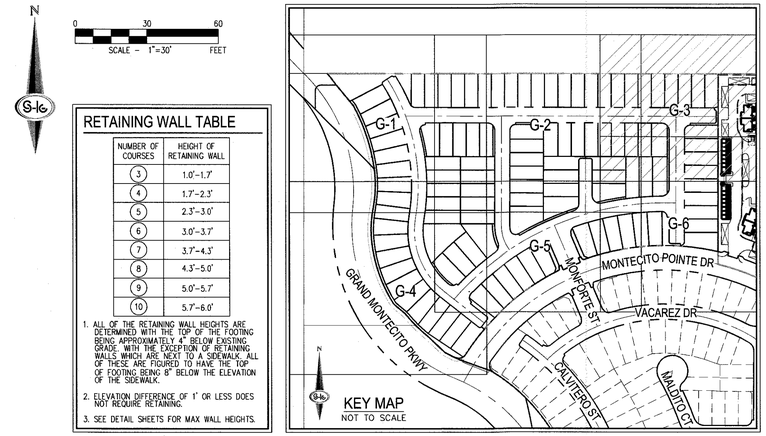
PROJECT NO.
KBH1805-003

ENGINEER'S CERTIFICATE OF NEVADA — TIMOTHY M. MULROONEY — Exp. 12/31/2019 — CIVIL — No. 22938 — 10/23/19

G-2
SHEET 5 OF 11

J:\kbh1805-003 montecito 60 unit 3\dwg\xmproj\kbh1805-003 grd.dwg 10/23/2019 10:53 AM Brynn Sorrentino





RETAINING WALL TABLE

NUMBER OF COURSES	HEIGHT OF RETAINING WALL
3	1.0'-1.7'
4	1.7'-2.3'
5	2.3'-3.0'
6	3.0'-3.7'
7	3.7'-4.3'
8	4.3'-5.0'
9	5.0'-5.7'
10	5.7'-6.0'

1. ALL OF THE RETAINING WALL HEIGHTS ARE DETERMINED WITH THE TOP OF THE FOOTING BEING APPROXIMATELY 4" BELOW EXISTING GRADE, WITH THE EXCEPTION OF RETAINING WALLS WHICH ARE NEXT TO A SIDEWALK. ALL OF THESE ARE FIGURED TO HAVE THE TOP OF FOOTING BEING 8" BELOW THE ELEVATION OF THE SIDEWALK.
2. ELEVATION DIFFERENCE OF 1' OR LESS DOES NOT REQUIRE RETAINING.
3. SEE DETAIL SHEETS FOR MAX WALL HEIGHTS.

CALL SOUTHWEST GAS AT 702-651-2111 FOR STANDBY WHEN EXCAVATING OVER OR NEAR HIGH PRESSURE GAS LINES

SOILS REPORT

SOILS REPORT BY SOUTHWEST GEOTECHNICAL
PROJECT NO. 182358 DATED 10/17/18
UPDATED 10/03/19

EARTHWORKS

EARTHWORK QUANTITIES (RAW):
CUT= ##### CU YDS
FILL= ##### CU YDS

EXPORTED MATERIAL TO BE DISPOSED OF AT AN APPROVED LICENSED DISPOSAL FACILITY OR AT A SITE WITH AN APPROVED AND ACTIVE GRADING PERMIT.

BENCHMARK

CITY OF LAS VEGAS BENCHMARK SLV90 20E6

RIVET & PLATE IN TOP OF CURB AT SW CORNER OF RILEY ST. & DEER SPRINGS.

ELEVATION=774.781 METERS (NAVD'88)
ELEVATION=2541.93 US SURVEY FEET (NAVD'88)

BASIS OF BEARING

NORTH 89°56'20" EAST, BEING THE BEARING OF THE SOUTH LINE OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 20, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA, AS SHOWN BY MAP THEREOF ON FILE IN THE CLARK COUNTY, NEVADA RECORDER'S OFFICE IN FILE 118, PAGE 89 OF SURVEYS.

ELEVATION NOTE

ADD 2500 TO ALL SPOT GRADES WHERE THE HUNDREDS AND THOUSANDS PLACES ARE OMITTED FOR ACTUAL ELEVATION (I.E. 01.00 REPRESENTS 2501.00)

SURVEY NOTE

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

DRAINAGE EASEMENT NOTE

ALL PRIVATE STREETS, DRAINAGE EASEMENTS, AND COMMON ELEMENTS ARE PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA.

DISCLAIMER NOTE

1) EXISTING UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION.

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.

LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDELINES

(REQUIRED FOR ALL SITES GREATER THAN 1 ACRE (43,560 SQ.FT.))

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TIMOTHY M. MULROONEY, P.E. 22938 DATE

FAST
Call before you UnderGround
1-702-432-5300
FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (F.A.S.T.)

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

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

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300
FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS, NV

kb HOME

MONTECITO 60 - UNIT 3

GRADING PLAN III

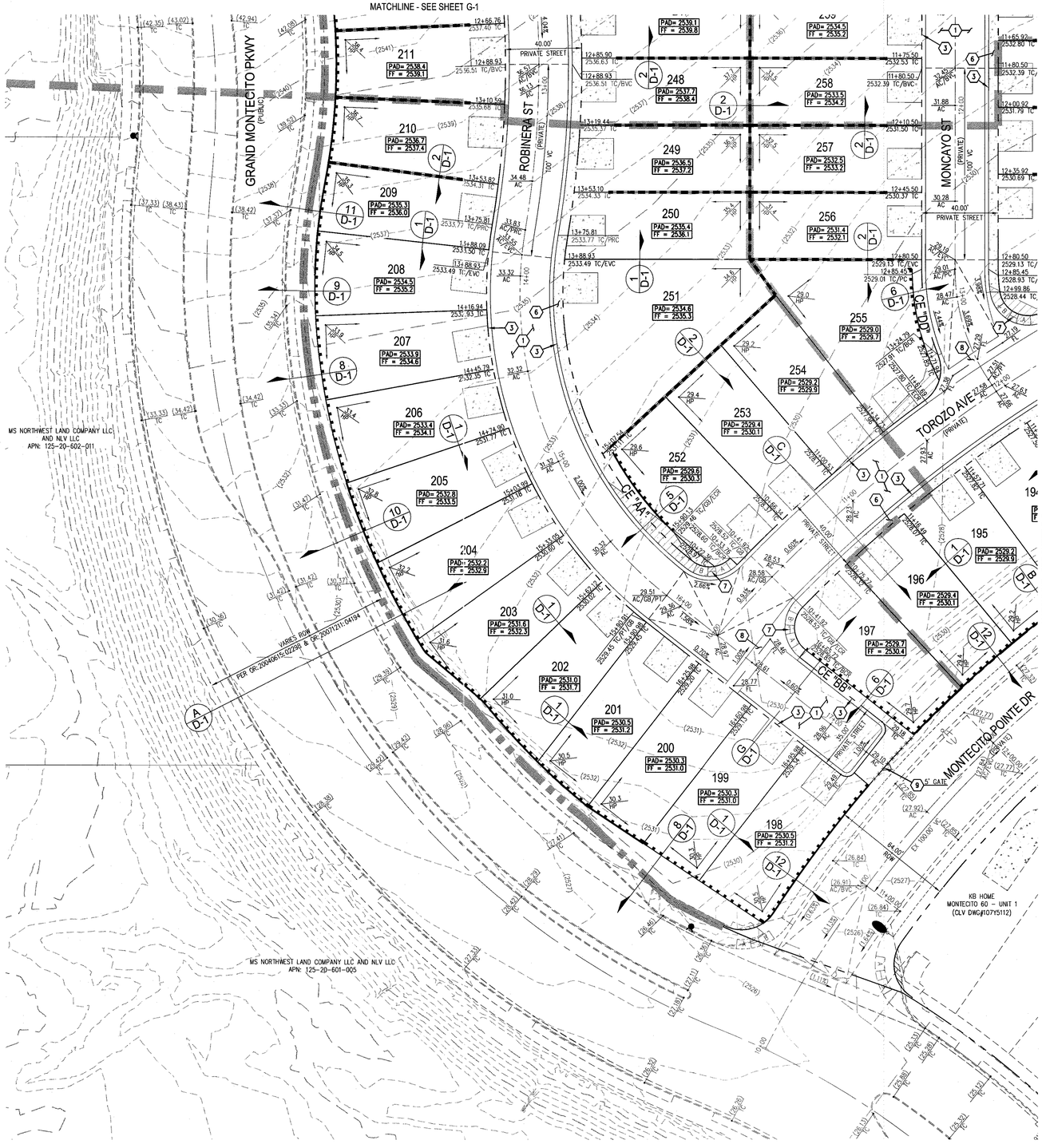
S20 T19S R60E

DATE: 10/14/19
DRAFTER: BCS
DESIGNER: BCS
CHECKED: MAK
PROJECT NO.
KBH1805-003

TIMOTHY M. MULROONEY Exp. 12/31/2019 CIVIL No. 22938 PROFESSIONAL ENGINEER STATE OF NEVADA
10/23/19

G-3
SHEET 6 OF 11

J:\kbh1805-003 montecito 60 unit 3\dwg\improv\kbh1805-003 grd.dwg 10/23/2019 10:53 AM Bryan Sarmiento



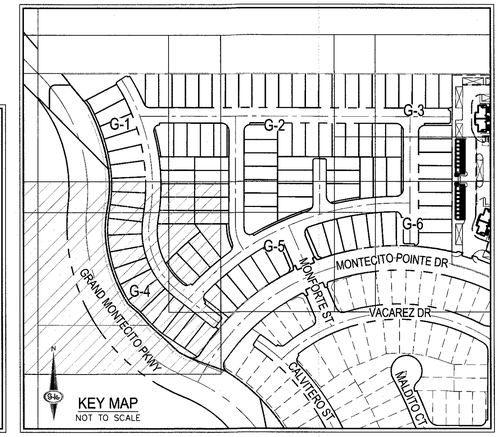
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0 30 60
SCALE - 1"=30' FEET

RETAINING WALL TABLE

NUMBER OF COURSES	HEIGHT OF RETAINING WALL
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SOILS REPORT

SOILS REPORT BY SOUTHWEST GEOTECHNICAL
PROJECT NO. 182358 DATED 10/17/18
UPDATED 10/03/19

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CITY OF LAS VEGAS BENCHMARK SLV90 20E6

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LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDELINES

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5. ACCUMULATED SEDIMENT IN BMPS SHALL BE REMOVED WITHIN SEVEN DAYS AFTER A STORMWATER RUNOFF EVENT OR PRIOR TO THE NEXT ANTICIPATED STORM EVENT, WHICHEVER IS EARLIER. SEDIMENT MUST BE REMOVED WHEN BMP DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE.

FLOOD ZONE

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE X (UNSHADED) AS DEPICTED ON FLOOD INSURANCE RATE MAP (FIRM) PANEL 32003C1745E, DATED SEPTEMBER 27, 2002. A ZONE X (UNSHADED) IS DESCRIBED AS AN AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN.

FLOOD CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED TECHNICAL DRAINAGE STUDY ??????? ON FILE AT CITY OF LAS VEGAS FOR THE SUBJECT PROJECT.

TIMOTHY M. MULROONEY, P.E. 22938 DATE

FAST Call before you UnderGround 1-702-432-5300 FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (F.A.S.T.)

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

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

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP DATE	APP

CITY OF LAS VEGAS, NV

kb HOME

MONTECITO 60 - UNIT 3

GRADING PLAN IV

S20 T19S R60E

DATE: 10/14/19
DRAFTER: BCS
DESIGNER: BCS
CHECKED: MAK

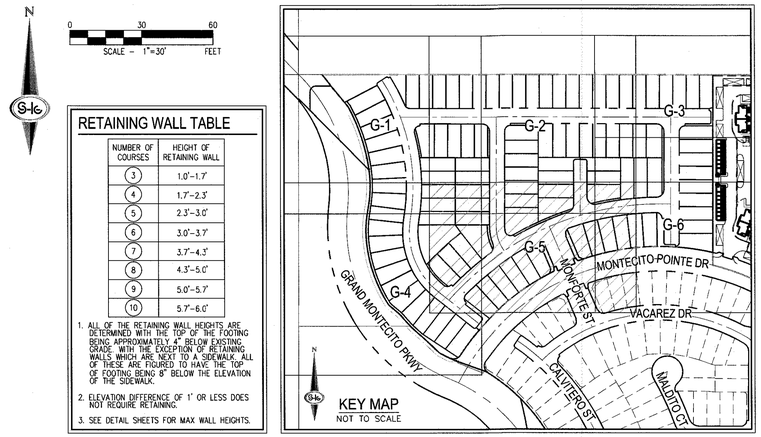
PROJECT NO.
KBH1805-003

TIMOTHY M. MULROONEY Exp. 12/31/2019 CIVIL No. 22938 PROFESSIONAL ENGINEER STATE OF NEVADA
10/23/19

G-4
SHEET 7 OF 11

P:\kbh1805-003 montecito 60 unit 3\Dwg\Improv\kbh1805-003 grd.dwg 10/23/2019 10:54 AM Bryan Sorrentino





N

SCALE - 1"=30' (0, 30, 60 FEET)

RETAINING WALL TABLE

NUMBER OF COURSES	HEIGHT OF RETAINING WALL
3	1.0'-1.7'
4	1.7'-2.3'
5	2.3'-3.0'
6	3.0'-3.7'
7	3.7'-4.3'
8	4.3'-5.0'
9	5.0'-5.7'
10	5.7'-6.0'

1. ALL OF THE RETAINING WALL HEIGHTS ARE DETERMINED WITH THE TOP OF THE FOOTING BEING APPROXIMATELY 4" BELOW EXISTING GRADE WITH THE EXCEPTION OF RETAINING WALLS WHICH ARE NEXT TO A SIDEWALK ALL OF THESE ARE FIGURED TO HAVE THE TOP OF FOOTING BEING 8" BELOW THE ELEVATION OF THE SIDEWALK.
2. ELEVATION DIFFERENCE OF 1' OR LESS DOES NOT REQUIRE RETAINING.
3. SEE DETAIL SHEETS FOR MAX WALL HEIGHTS.

CALL SOUTHWEST GAS AT 702-651-2111 FOR STANDBY WHEN EXCAVATING OVER OR NEAR HIGH PRESSURE GAS LINES

SOILS REPORT

SOILS REPORT BY SOUTHWEST GEOTECHNICAL
PROJECT NO. 182358 DATED 10/17/18
UPDATED 10/03/19

EARTHWORKS

EARTHWORK QUANTITIES (RAW):
CUT= ##### CU YDS
FILL= ##### CU YDS

EXPORTED MATERIAL TO BE DISPOSED OF AT AN APPROVED LICENSED DISPOSAL FACILITY OR AT A SITE WITH AN APPROVED AND ACTIVE GRADING PERMIT.

BENCHMARK

CITY OF LAS VEGAS BENCHMARK SLV90 20E6

RIVET & PLATE IN TOP OF CURB AT SW CORNER OF RILEY ST. & DEER SPRINGS.

ELEVATION=774.781 METERS (NAVD'88)
ELEVATION=2541.93 US SURVEY FEET (NAVD'88)

BASIS OF BEARING

NORTH 89°56'20" EAST, BEING THE BEARING OF THE SOUTH LINE OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 20, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA, AS SHOWN BY MAP THEREOF ON FILE IN THE CLARK COUNTY, NEVADA RECORDER'S OFFICE IN FILE 118, PAGE 89 OF SURVEYS.

ELEVATION NOTE

ADD 2500 TO ALL SPOT GRADES WHERE THE HUNDREDS AND THOUSANDS PLACES ARE OMITTED FOR ACTUAL ELEVATION (I.E. 01.00 REPRESENTS 2501.00)

GRADING NOTES

1. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AND REPORT ALL DISCREPANCIES TO THE ENGINEER.
2. ALL IMPROVEMENTS TO BE PROTECTED FROM EROSION BY SWPPP.
3. MAXIMUM/MINIMUM SLOPES AND MINIMUM STREET SECTIONS NOT TO EXCEED THAT SHOWN ON GEOTECH REPORT.
4. SEE DETAIL SHEET FOR STREET SECTIONS AND DETAILS.
5. ALL PUBLIC AND PRIVATE DRAINAGE IMPROVEMENTS TO BE BONDED FOR AND INSPECTED.
6. CONSTRUCTION OF BLOCK WALLS REQUIRES A SEPARATE BUILDING PERMIT AND APPROVAL BY THE CITY OF LAS VEGAS BUILDING DEPARTMENT.
7. CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF EXISTING UTILITY STRUCTURES AND FACILITIES AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION. CONTRACTOR TO PROTECT IN PLACE DURING CONSTRUCTION. ENGINEER/OWNER SHALL BE NOTIFIED OF PRIOR DAMAGE TO EXISTING FACILITIES PRIOR TO CONSTRUCTION. CONTRACTOR WILL BE RESPONSIBLE FOR REPAIR/REPLEPING FACILITIES IF ENGINEER/OWNER IS NOT NOTIFIED OF EXISTING DAMAGE PRIOR TO CONSTRUCTION COMMENCING.
8. NO STRUCTURE, VEGETATION, OR OBJECTS OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF THE ADJACENT CURB IF CURB EXIST) WITHIN THE SIGHT VISIBILITY ZONES.

SURVEY NOTE

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

DRAINAGE EASEMENT NOTE

ALL PRIVATE STREETS, DRAINAGE EASEMENTS, AND COMMON ELEMENTS ARE PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA.

DISCLAIMER NOTE

1) EXISTING UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION.

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.

LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDELINES

(REQUIRED FOR ALL SITES GREATER THAN 1 ACRE (43,560 SQ.FT.))

1. THE OWNER, SITE DEVELOPER, CONTRACTOR, AND/OR THEIR AUTHORIZED AGENTS SHALL EACH DAY REMOVE ALL SEDIMENT, MUD, CONSTRUCTION DEBRIS, OR OTHER POTENTIAL POLLUTANTS THAT MAY HAVE BEEN DISCHARGED TO, OR ACCUMULATED IN, THE PUBLIC RIGHTS OF WAY OF CLARK COUNTY AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS SITE DEVELOPMENT OR CONSTRUCTION PROJECT. SUCH MATERIALS SHALL BE PREVENTED FROM ENTERING THE STORM SEWER SYSTEM.
2. ADDITIONAL CONSTRUCTION SITE DISCHARGE BEST MANAGEMENT PRACTICES MAY BE REQUIRED OF THE OWNER AND HIS OR HER AGENTS DUE TO UNFORESEEN EROSION PROBLEMS OR IF THE SUBMITTED PLAN DOES NOT MEET THE PERFORMANCE STANDARDS SPECIFIED IN CLARK COUNTY TITLE 24.40 AND IN THE LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDANCE MANUAL.
3. TEMPORARY OR PERMANENT STABILIZATION PRACTICES WILL BE INSTALLED ON DISTURBED AREAS AS SOON AS PRACTICABLE AND NO LATER THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. SOME EXCEPTIONS MAY APPLY; REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.5.
4. AT A MINIMUM, THE CONTRACTOR OR HIS AGENT SHALL INSPECT ALL DISTURBED AREAS, AREAS USED FOR STORAGE OF MATERIALS AND EQUIPMENT THAT ARE EXPOSED TO PRECIPITATION, VEHICLE ENTRANCE AND EXIT LOCATIONS, AND ALL BMPS WEEKLY, AND WITHIN 24 HOURS AFTER A RAIN EVENT OF 0.5 INCHES OR MORE. THE CONTRACTOR OR HIS AGENT SHALL UPDATE OR MODIFY THE STORMWATER POLLUTION PREVENTION PLAN AS NECESSARY. SOME EXCEPTIONS TO WEEKLY INSPECTIONS MAY APPLY, SUCH AS SUSPENSION OF LAND DISTURBANCE ACTIVITIES. REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.12.
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CONSTRUCTION NOTES

1. INSTALL 2" ASPHALT PAVEMENT OVER 4" TYPE II AGGREGATE BASE
2. INSTALL L TYPE CURB PER CCAUSD NO. 216
3. INSTALL R-TYPE CURB & GUTTER PER CCAUSD NO. 217.3.S1
4. INSTALL A TYPE CURB PER CCAUSD NO. 219
5. INSTALL 3' CURB TRANSITION PER CCAUSD NO. 223
6. INSTALL 5' WIDE SIDEWALK PER CCAUSD NO. 234
7. INSTALL SIDEWALK RAMP PER CCAUSD NO. 235, CASE I AND CCAUSD NO. 235.1
8. INSTALL 8' VALLEY GUTTER PER CCAUSD NO. 228
9. INSTALL STEEL TUBING FENCE & MAINTENANCE ACCESS GATE PER CCAUSD NO. 425.S1 (GATE WIDTH PER PLAN)
10. ADJUST MANHOLE RIM TO FINISH GRADE
11. INSTALL 4' WIDE CONCRETE U-CHANNEL PER DETAIL 19 ON SHEET D-2
12. INSTALL SIDEWALK DRAIN PER CCAUSD NO. 236
13. INSTALL U-CHANNEL TO "L" CURB OPENING PER DETAIL 21 ON SHEET D-2
14. INSTALL WROUGHT IRON FENCE
15. REMOVE EXISTING IMPROVEMENTS
16. CONSTRUCT 1' TALL, 6' WIDE BERM @ 90% COMPACTION. SEE DETAIL 22 ON SHEET D-2.
17. INSTALL 6" ASPHALT PAVEMENT OVER 4" TYPE II AGGREGATE BASE

FLOOD ZONE

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE X (UNSHADED) AS DEPICTED ON FLOOD INSURANCE RATE MAP (FIRM) PANEL 32003C1745E, DATED SEPTEMBER 27, 2002. A ZONE X (UNSHADED) IS DESCRIBED AS AN AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN.

FLOOD CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED TECHNICAL DRAINAGE STUDY ??????? ON FILE AT CITY OF LAS VEGAS FOR THE SUBJECT PROJECT.

TIMOTHY M. MULROONEY, P.E. 22938 DATE

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FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (F.A.S.T)

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CALL BEFORE YOU DO OVERHEAD
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SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS, NV

kb HOME

MONTECITO 60 - UNIT 3

GRADING PLAN V

S20 T19S R60E

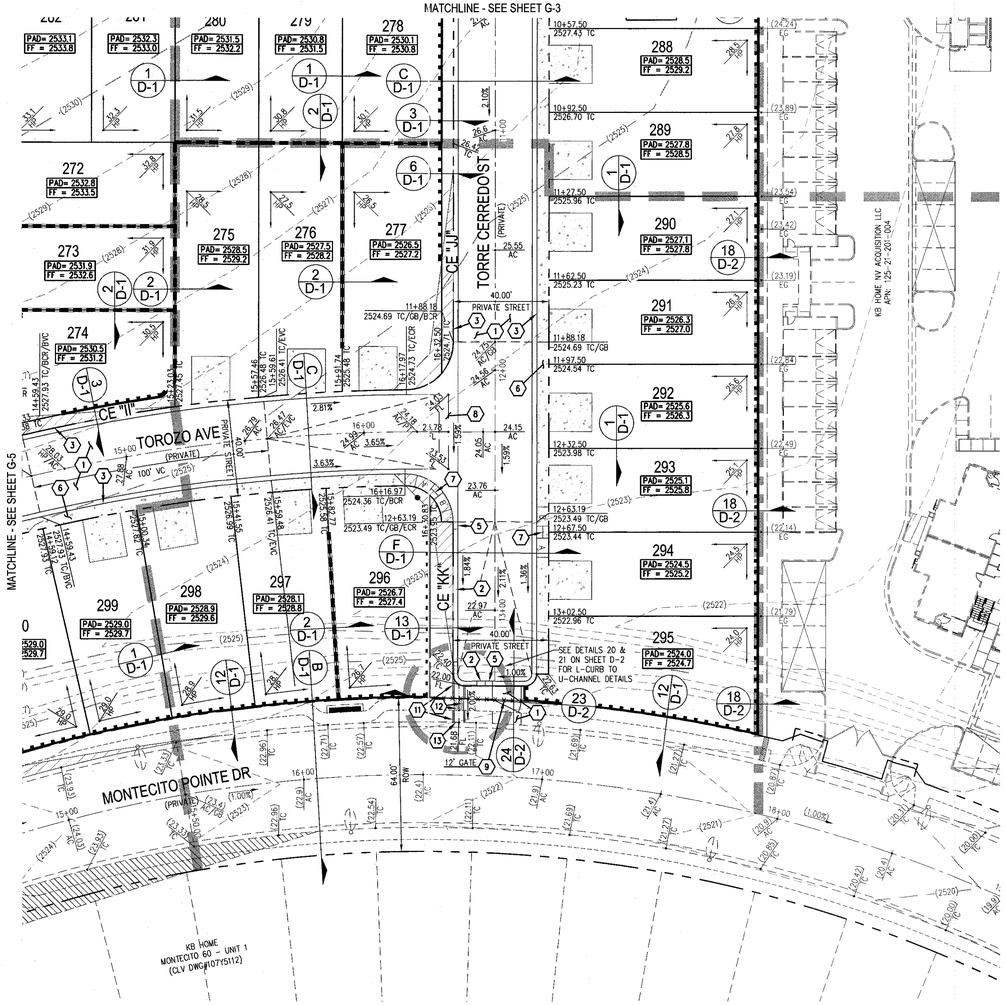
DATE: 10/14/19
DRAFTER: BCS
DESIGNER: BCS
CHECKED: MAK

PROJECT NO.
KBH1805-003

PROFESSIONAL ENGINEER — STATE OF NEVADA — TIMOTHY M. MULROONEY — Exp. 12/31/2019 — CIVIL — No. 22938
10/23/19

G-5
SHEET 8 OF 11

F:\Kbh1805-003 montecito 60 unit 3\dwg\mpreu\Kbh1805-003 grd.dwg 10/23/2019 10:54 AM Bryan Sarmiento



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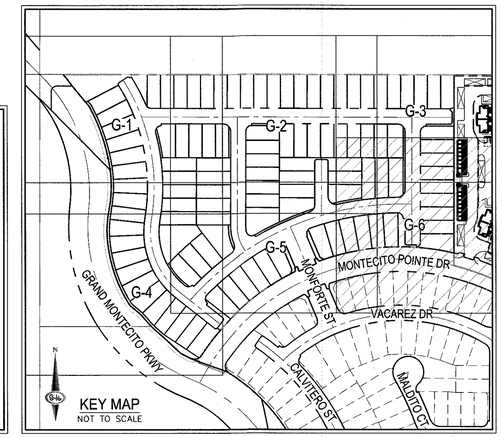
SCALE - 1"=30' (0, 30, 60 FEET)

S-1c

RETAINING WALL TABLE

NUMBER OF COURSES	HEIGHT OF RETAINING WALL
3	1.0'–1.7'
4	1.7'–2.3'
5	2.3'–3.0'
6	3.0'–3.7'
7	3.7'–4.3'
8	4.3'–5.0'
9	5.0'–5.7'
10	5.7'–6.0'

1. ALL OF THE RETAINING WALL HEIGHTS ARE DETERMINED WITH THE TOP OF THE FOOTING BEING APPROXIMATELY 4" BELOW EXISTING GRADE, WITH THE EXCEPTION OF RETAINING WALLS WHICH ARE NEXT TO A SIDEWALK, ALL OF THESE ARE FIGURED TO HAVE THE TOP OF FOOTING BEING 8" BELOW THE ELEVATION OF THE SIDEWALK.
2. ELEVATION DIFFERENCE OF 1' OR LESS DOES NOT REQUIRE RETAINING.
3. SEE DETAIL SHEETS FOR MAX WALL HEIGHTS.



CALL SOUTHWEST GAS AT 702-651-2111 FOR STANDBY WHEN EXCAVATING OVER OR NEAR HIGH PRESSURE GAS LINES

SOILS REPORT

SOILS REPORT BY SOUTHWEST GEOTECHNICAL
PROJECT NO. 182358 DATED 10/17/18
UPDATED 10/03/19

EARTHWORKS

EARTHWORK QUANTITIES (RAW):
CUT= ##,### CU YDS
FILL= ##,### CU YDS

EXPORTED MATERIAL TO BE DISPOSED OF AT AN APPROVED LICENSED DISPOSAL FACILITY OR AT A SITE WITH AN APPROVED AND ACTIVE GRADING PERMIT.

BENCHMARK

CITY OF LAS VEGAS BENCHMARK 5LV90 20E6

RIVET & PLATE IN TOP OF CURB AT SW CORNER OF RILEY ST. & DEER SPRINGS.

ELEVATION=774.781 METERS (NAVD'88)
ELEVATION=2541.93 US SURVEY FEET (NAVD'88)

BASIS OF BEARING

NORTH 89°56'20" EAST, BEING THE BEARING OF THE SOUTH LINE OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 20, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA, AS SHOWN BY MAP THEREOF ON FILE IN THE CLARK COUNTY, NEVADA RECORDER'S OFFICE IN FILE 118, PAGE 89 OF SURVEYS.

ELEVATION NOTE

ADD 2500 TO ALL SPOT GRADES WHERE THE HUNDREDS AND THOUSANDS PLACES ARE OMITTED FOR ACTUAL ELEVATION (I.E. 01.00 REPRESENTS 2501.00)

GRADING NOTES

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1. INSTALL 2" ASPHALT PAVEMENT OVER 4" TYPE II AGGREGATE BASE
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3. INSTALL R-TYPE CURB & GUTTER PER CCAUSD NO. 217.3.S1
4. INSTALL A TYPE CURB PER CCAUSD NO. 219
5. INSTALL 3' CURB TRANSITION PER CCAUSD NO. 223
6. INSTALL 5' WIDE SIDEWALK PER CCAUSD NO. 234
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15. REMOVE EXISTING IMPROVEMENTS
16. CONSTRUCT 1' TALL, 6' WIDE BERM @ 90% COMPACTION. SEE DETAIL 22 ON SHEET D-2.
17. INSTALL 6" ASPHALT PAVEMENT OVER 4" TYPE II AGGREGATE BASE

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LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDELINES

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TIMOTHY M. MULROONEY, P.E. 22938 DATE

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FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (F.A.S.T.)

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CALL BEFORE YOU DO OVERHEAD
1-702-227-2929

Call before you Dig
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Call 811
OR
1-800-227-2600

SLATER HANIFAN GROUP
a Westwood team
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300
FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS, NV

kb HOME

MONTECITO 60 - UNIT 3

GRADING PLAN VI

S20 T19S R60E

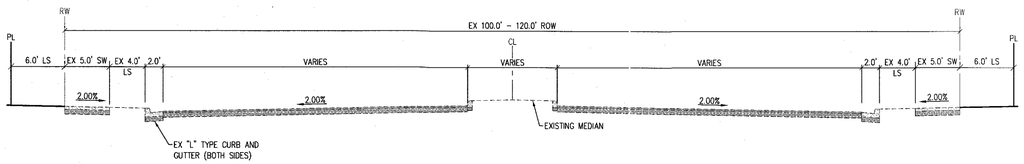
DATE: 10/14/19
DRAFTER: BCS
DESIGNER: BCS
CHECKED: MAK

PROJECT NO.
KBH1805-003

NEVADA LICENSED PROFESSIONAL ENGINEER
TIMOTHY M. MULROONEY
Exp. 12/31/2019
CIVIL
No. 22938
STATE OF NEVADA
11/23/19

G-6
SHEET 9 OF 11

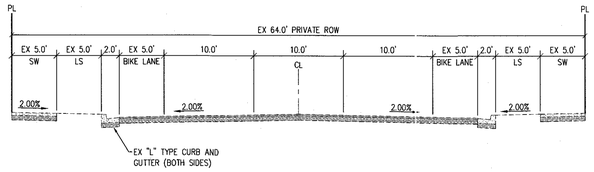
P:\kbh1805-003 montecito 60 unit 3\dwg\Improv\kbh1805-003 grd.dwg 10/23/2019 10:54 AM Bryan Sammiento



A. 100'-120' PUBLIC STREET SECTION

NOT TO SCALE

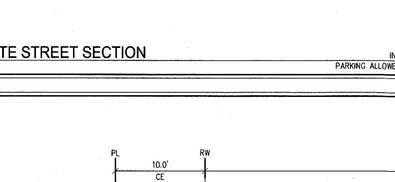
GRAND MONTECITO PKWY



B. PRIVATE STREET SECTION

NOT TO SCALE

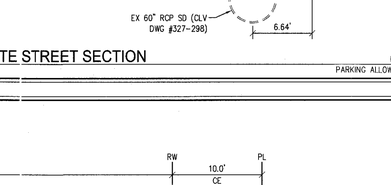
MONTECITO POINTE DR



C. PRIVATE STREET SECTION

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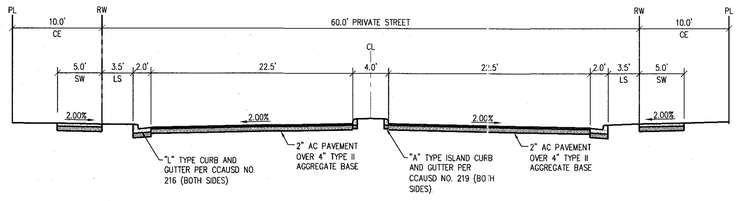
INTERNAL STREET
PARKING ALLOWED (BOTH SIDES)



D. PRIVATE STREET SECTION

NOT TO SCALE

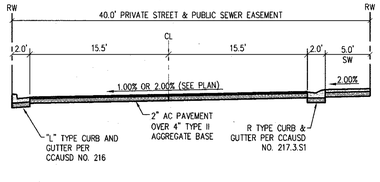
INTERNAL STREET
PARKING ALLOWED (BOTH SIDES)



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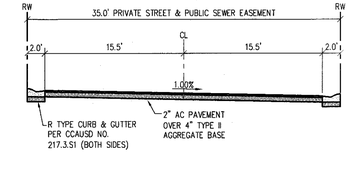
INTERNAL ENTRY



F. PRIVATE STREET SECTION

NOT TO SCALE

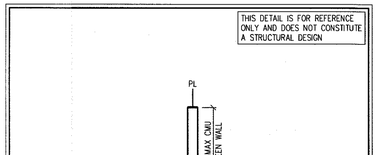
INTERNAL STREET
PARKING ALLOWED (BOTH SIDES)



G. PRIVATE STUB STREET SECTION

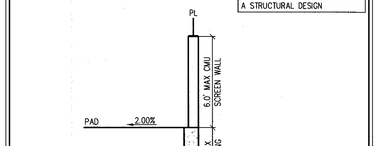
NOT TO SCALE

INTERNAL STREET
PARKING ALLOWED (BOTH SIDES)



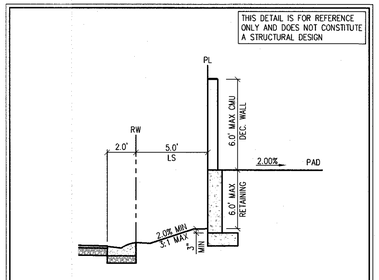
1. WALL SECTION

NOT TO SCALE



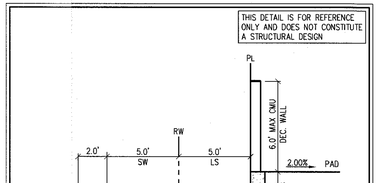
2. WALL SECTION

NOT TO SCALE



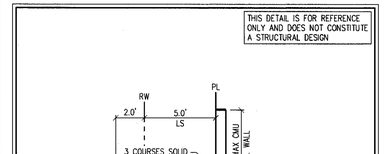
3. WALL SECTION

NOT TO SCALE



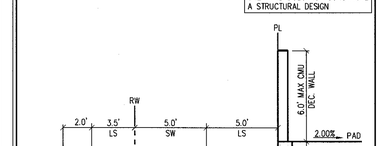
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NOT TO SCALE



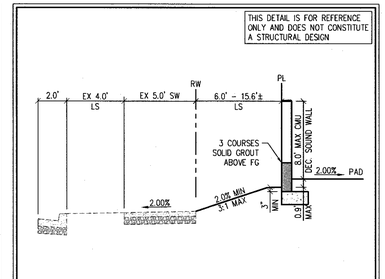
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NOT TO SCALE



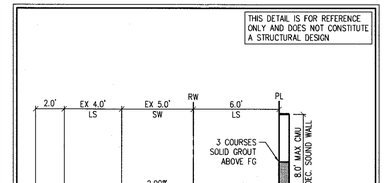
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NOT TO SCALE



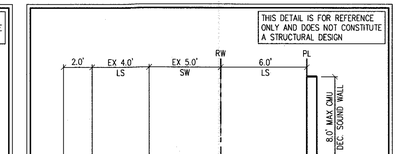
8. PERIMETER WALL SECTION

NOT TO SCALE



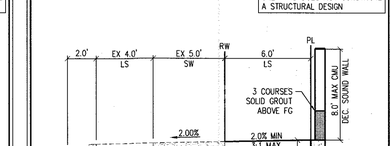
9. PERIMETER WALL SECTION

NOT TO SCALE



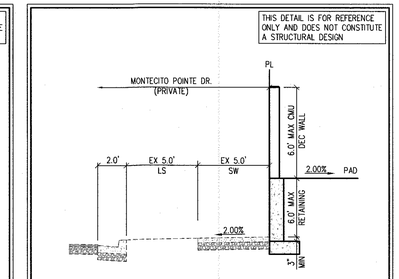
10. PERIMETER WALL SECTION

NOT TO SCALE



11. PERIMETER WALL SECTION

NOT TO SCALE



12. PERIMETER WALL SECTION

NOT TO SCALE

13. WALL SECTION

NOT TO SCALE

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

FAST
Call before you UnderGround
1-702-432-5300
FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (F.A.S.T.)

Call before you Dig
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Call 811
OR
1-800-227-2600

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CONSULTING ENGINEERS & PLANNERS
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300
FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS, NV

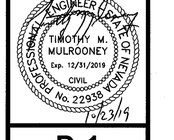
kb HOME

MONTECITO 60 - UNIT 3

STREET SECTIONS & GRADING DETAILS I

S20
T19S
R60E

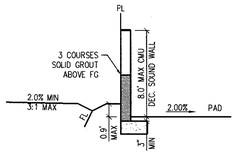
DATE: 10/14/19
DRAFTER: BCS
DESIGNER: BCS
CHECKED: MAK
PROJECT NO.
KBH1805-003



D-1
SHEET 10 OF 11

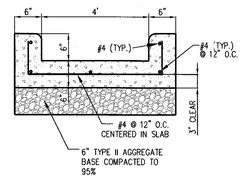
j:\kbh1805-003 montecito 60 unit 3\cwp\improv\kbh1805-003 dtl.dwg 10/23/2019 10:54 AM Bryan Sorrentino

THIS DETAIL IS FOR REFERENCE ONLY AND DOES NOT CONSTITUTE A STRUCTURAL DESIGN

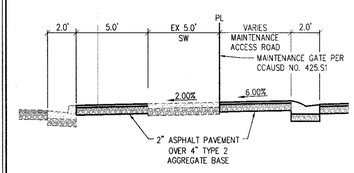


14. PERIMETER WALL SECTION
NOT TO SCALE

THIS DETAIL IS FOR REFERENCE ONLY AND DOES NOT CONSTITUTE A STRUCTURAL DESIGN

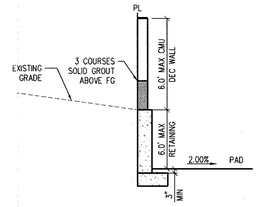


19. 4' CONCRETE U-CHANNEL
NOT TO SCALE



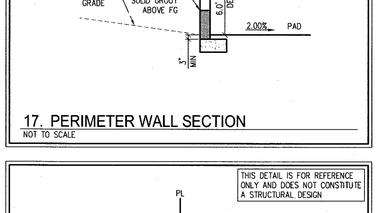
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NOT TO SCALE

THIS DETAIL IS FOR REFERENCE ONLY AND DOES NOT CONSTITUTE A STRUCTURAL DESIGN



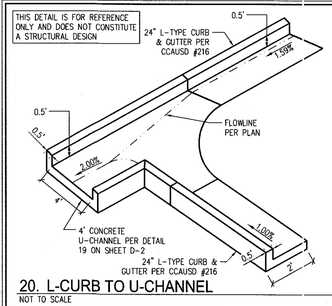
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NOT TO SCALE

THIS DETAIL IS FOR REFERENCE ONLY AND DOES NOT CONSTITUTE A STRUCTURAL DESIGN



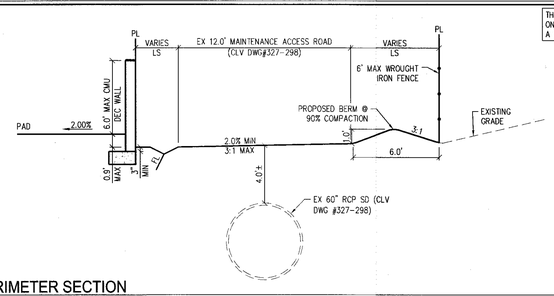
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NOT TO SCALE

THIS DETAIL IS FOR REFERENCE ONLY AND DOES NOT CONSTITUTE A STRUCTURAL DESIGN



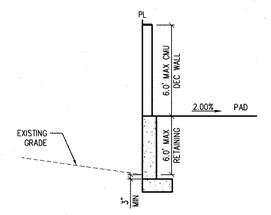
20. L-CURB TO U-CHANNEL
NOT TO SCALE

THIS DETAIL IS FOR REFERENCE ONLY AND DOES NOT CONSTITUTE A STRUCTURAL DESIGN



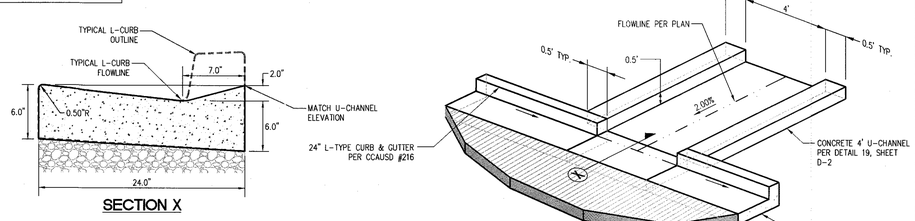
25. PERIMETER SECTION
NOT TO SCALE

THIS DETAIL IS FOR REFERENCE ONLY AND DOES NOT CONSTITUTE A STRUCTURAL DESIGN



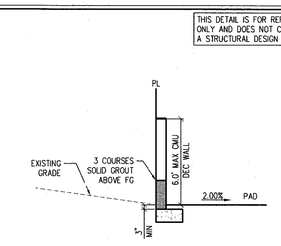
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NOT TO SCALE

THIS DETAIL IS FOR REFERENCE ONLY AND DOES NOT CONSTITUTE A STRUCTURAL DESIGN

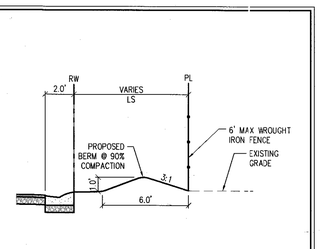


21. L-CURB TO U-CHANNEL
NOT TO SCALE

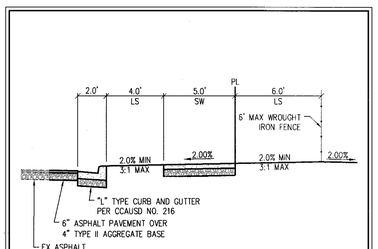
THIS DETAIL IS FOR REFERENCE ONLY AND DOES NOT CONSTITUTE A STRUCTURAL DESIGN



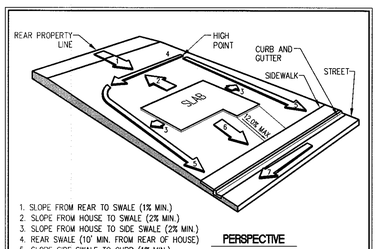
17. PERIMETER WALL SECTION
NOT TO SCALE



22. PERIMETER SECTION
NOT TO SCALE

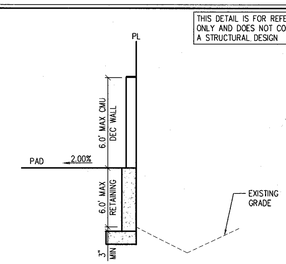


26. PERIMETER SECTION
NOT TO SCALE



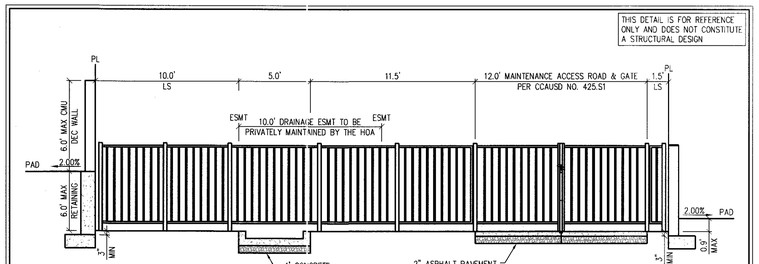
TYPE "A" LOT GRADING
NOT TO SCALE

THIS DETAIL IS FOR REFERENCE ONLY AND DOES NOT CONSTITUTE A STRUCTURAL DESIGN



18. PERIMETER WALL SECTION
NOT TO SCALE

THIS DETAIL IS FOR REFERENCE ONLY AND DOES NOT CONSTITUTE A STRUCTURAL DESIGN



23. DRAINAGE EASEMENT
NOT TO SCALE

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY.
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FAST
Call before you UnderGround
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OR
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CONSULTING ENGINEERS & PLANNERS
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP

CITY OF LAS VEGAS, NV

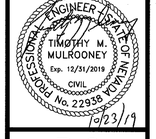
kb HOME

MONTECITO 60 - UNIT 3

GRADING DETAILS II

S20 T19S R60E

DATE: 10/14/19
DRAFTER: BCS
DESIGNER: BCS
CHECKED: MAK
PROJECT NO. KBH1805-003



D-2
SHEET 11 OF 11

F:\Kbh1805-003 montecito 60 unit 3\dwg\Improv\Kbh1805-003 dtl.dwg 10/23/2019 11:27 AM Bryan Sarmiento