

DS #: 4512

APN: 138-02-101-015

Update #3 to the

PROJECT: Lone Mountain Senior Apartments

SUBMITTAL: 6th

SCANNED BY/DATE:

CHECKED BY/DATE:



CITY OF LAS VEGAS		DATE:
INTER-OFFICE MEMORANDUM		May 9, 2012 <i>MS</i>
TO: Land Development Services Department of Building and Safety		FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	Drainage Study for: Update # 3 to the Lone Mountain Senior Apartments	COPIES TO: Impulse Engineering
Cross Streets:	SEC of Lone Mountain & Rainbow	Ovation Development
File Number:	F:\Depot\DSMemos\DS4512G.ZNAE.doc	Bart Anderson, P.E., DevCo
Parcel Number:	13802101015	CCRFCFCD
Zoning Action:	NEW SDR-41043, SUP-41039	
FEMA Flood Zone	YES X NO	
Proposed Storm Drain	YES X NO	

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Transaction #
1 st Submittal	11/24/2010 & Supplemental 11/29/2010	12/7/2010	Not Approved	\$400.00	158043: \$400
2 nd Submittal	12/21/2010	1/3/2011	Conditional Approval	\$400.00	159673: \$400
3 rd Submittal	1/25/2011	2/3/2011	CCRFCFCD Conc. Recv'd	N/C	N/C
4 rd Submittal	2/7/2011 & Supplemental 2/23/2011	3/3/2011	Not Approved	\$100.00	162205: \$100
5 th Submittal	4/14/2011 & 5/9/2011	4/14/2011 5/17/2011	Conditionally Approved CCRFCFCD Conc. Recv'd Approved	\$400.00 N/C	166635: \$400 N/C
6 th Submittal	4/19/2012 & 5/9/2012	4/23/2012 5/9/2012	Conditionally Approved CCRFCFCD Conc. Recv'd Approved	\$100.00 N/C	166635: \$100 N/C
TOTAL FEES (LDDRS):				\$1400.00	----

REMARKS: 6th Submittal : Update # 3: Proposes a new inlet along Rainbow to eliminate low point.

A small portion of this site is located in a FEMA Special Flood Hazard Area, Zone AE. No changes to the Flood Zone are proposed.

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 Department of Development Services concurrence.
	is conditionally approved subject to FEMA approval of CLOMR.

1. Flood Control concurs with the addition of the drop inlet along Rainbow Blvd. to intercept the on-site low point due to existing utility vaults. Submit the revision to add the inlet through Land Development for approval. Include the plan and profile, manhole type, pipe material & slope and inlet type.
2. Flood Control will not recommend FEMA review and approval based upon the revised site plan and the reduced flood zone impacts. No structures are proposed within the FEMA Flood Zone.
3. This site is adjacent to an ongoing CCRFCD Master Plan facility. The Gowan Outfall – Lone Mountain Branch project is nearly complete and installed a storm drain lateral with a 12.5-foot DM drop inlet on the south side of Lone Mountain Road immediately east of this development. Continue to coordinate the site construction with the Gowan Outfall – Lone Mountain Branch project through Engineering Design; contact Gina Venglass @ 229-6790.
4. The engineer has provided a table on the grading plans that shows the quantity estimate of all drainage improvements within Public Drainage Easements. All drainage improvements within Public Drainage Easements must be bonded and inspected.
5. This site accepts offsite flows and conveys them through the site. The provided "Public Drainage Easement to be Privately Maintained" is shown on the plans. The proposed easement includes the 100-year flood zone within the project site. Public drainage easements must be recorded by separate document prior to the final acceptance of the improvement plans.

In an effort to increase administrative efficiency, the City of Las Vegas Public Works will be requiring all soils report, drainage study and traffic impact analysis submittals to be accompanied by an electronic copy of the submittal. Electronic documents must be submitted with one original hard copy of the study. Electronic documents should be on a universal computer-readable digital output replicating your submittal to be used for archival or display purposes. This may be more than one file if necessary. An Indexed Portable Document Format (PDF) or Print Ready CAD file formats with a minimum of 300dpi are the desired formats, but provided it is a high quality digitized replication of the submittal, other formats may be acceptable. If figures are in color, they must be scanned in color and saved as a separate file. The new submittal requirements will become effective on July 1, 2011. If there are any questions regarding these new requirements, please contact Albert Sung in the Flood Section at (702) 229-2001 or Rick Schroder in Traffic Engineering at (702) 229-6327.

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

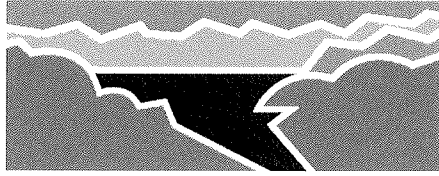
NOTE: Please be advised that all land surface area disturbances over 1 acre or any area adjacent to a water way must submit to the *Nevada Division of Environmental Protection* a "Notice of Intent" to discharge that certifies a stormwater pollution prevention plan has been developed and is maintained 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.

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

END OF REMARKS
PBJ

T/R/S: T20S/R60E/S02
AREA L02

REGIONAL FLOOD CONTROL DISTRICT



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

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Steven D. Ross
City of Las Vegas

Dr. Lois Tarkanian
City of Las Vegas

Mayor Roger Tobler
City of Boulder City

April 25, 2012

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

DISTRICT CONCURRENCE: UPDATE #3 FOR LONE MOUNTAIN SENIOR APARTMENTS - (DS4512G) (RFCD No. 12-8057)

Dear Mr. Kwon:

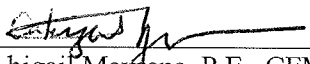
Clark County Regional Flood Control District (District) reviewed Technical Drainage Study dated April 18, 2012 for above-mentioned project as submitted by IMPULSE CIVIL ENGINEERING. In addition, District is in receipt of the Conditional Letter of Acceptance from City of Las Vegas dated April 23, 2012.

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

District's review of this project was limited to issues of Regional Flood Control Significance as defined in *Uniform Regulations for the Control of Drainage*. As noted in study, site resides in a Special Flood Hazard Area (SFHA) designated as "Zone AE" per the effective Flood Insurance Rate Map (FIRM). Therefore, consultant should be advised that this acceptance does not serve to amend the FIRM or remove the SFHA.

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

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

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


Andrew R. Trelease, P.E., CFM
Principal Civil Engineer

AM:ART:sa

c: Peter J. Laas, P.E., Impulse Civil Engineering

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600 S. Grand Central Parkway, Suite 300 • Las Vegas, Nevada 89106-4511
(702) 685-0000 • FAX: (702) 685-0001
Website: <http://www.regionalflood.org>

UPDATE #3 TO THE
TECHNICAL DRAINAGE STUDY
FOR
LONE MOUNTAIN SENIOR APARTMENTS

W.O. #2010017

April 18, 2012

Prepared for:

OVATION DEVELOPMENT
6021 S. Fort Apache Road, Suite 100
Las Vegas, Nevada 89148
Phone: (702) 990-2350

Prepared by:

Impulse

Civil Engineering & Planning
625 Dinard Way
North Las Vegas, NV 89031
Phone: 702-308-7115 · Fax: 702-478-8535



4/18/12

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Civil Engineering



Land Planning



Flood Control



Utilities

April 18, 2012

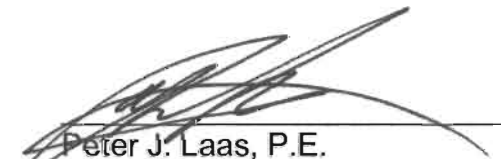
City of Las Vegas
Public Works – Flood Control
333 North Rancho Drive
Las Vegas, Nevada 89107

**Re: Update #3 to the
Lone Mountain Senior Apartments
Technical Drainage Study (CLV#4512)**

Submitted for your approval is Update #3 to the **Technical Drainage Study for Lone Mountain Senior Apartments** a proposed 1.77 acre senior affordable apartment development. The site is in a FEMA Special Flood Hazard, Zone AE as shown on Community Panel Number 32003C2155E and is not adjacent to any Clark County Regional Flood Control District (CCRFCD) Master Planned Facilities according to the CCRFCD Master Plan Update, Figure F-19. CCRFCD concurrence is required. A copy of this study will be provided to CCRFCD after approval from the City of Las Vegas.

If you have any questions or require additional information, please call me at (702) 308-7115.

Sincerely,
IMPULSE CIVIL ENGINEERING



Peter J. Laas, P.E.
Principal

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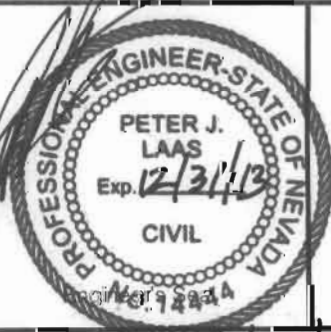
HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

DRAINAGE STUDY INFORMATION FORM

Name of Development: Lone Mountain Senior Apartments Date: April 18, 2012Location of Development: a) Descriptive (Cross Streets) North/South: Rainbow West: Lone Mountain
b) Sect. 02 Town 20S Range 60EName of Owner Ovation Development Assessors Parcel No.: 138-02-101-015Telephone No.: (702) 990-2390 Facsimile No.: (702) 990-2391Address: 6021 S. Fort Apache Road, Suite 100Las Vegas, Nevada 89148Contact Person - Name: Pete Laas, P.E. Telephone No.: (702) 308-7115Firm: Impulse Civil EngineeringAddress: 625 Dinard Way, North Las Vegas, NV 89031

Type of Land Development/ Land Disturbance Process:

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

1. Total Owned Land Area: At Site: 3+/- acres Being Developed/Disturbed: 3+/- acres2. Is a portion or all of the subject property located in a designated FEMA Flood Hazard Area? ☒ YES ☐ NO3. Is the property bordered or crossed by an existing or proposed Clark County Regional Flood Control District Master Planned Facility? ☐ YES ☒ NO4. Proposed type of development (Residential, Commercial, etc.)? Multi-Family Residential5. Approximate upstream land area which drains to the subject site? 0 Acres6. Has the site drainage been evaluated in the past? ☒ YES ☐ NO If yes, please identify documentation: City of Las Vegas Neighborhood Flood Control Master Plan, Technical Drainage Study for Lone Mountain Senior Apartments, Gowan Outfall Lone Mountain Branch, Rancho to Decatur7. If known, please briefly identify the proposed discharge point (s) of runoff from the site:
The proposed discharge points are into public streets, Rainbow Avenue and Lone Mountain Road8. Briefly describe your proposed schedule for the subject project: A.S.A.P.

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.

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

Local Entity File No. _____

Revision	Date

REFERENCE: 4/18/12

STANDARD FORM 1



CITY OF LAS VEGAS

MINIMUM DRAINAGE STUDY CRITERIA STANDARD FORM 2 CHECKLIST SUPPLEMENT

(Revised 06/06/01)

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 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 Clark County Regional Flood Control District (CCRFCD) Hydrologic Criteria and Drainage Design Manual (Design Manual).

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

I. GENERAL REQUIREMENT		
Yes	No	
		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.)
		Copies of all conditions of approval for development related to this property. (e.g. zoning, use permit, tentative map, etc.) Verify compliance with conditions.

II. GRADING PLAN INFORMATION		
Yes	No	
		(1) 24" X 36" copy of the Grading Plan, (including all Detail Sheets) sealed by the engineer.
		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.
		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.)
		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.
		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.
		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.

CITY OF LAS VEGAS MINIMUM DRAINAGE STUDY CRITERIA CHECKLIST

II. GRADING PLAN INFORMATION		
Yes	No	
		Back of lot elevations and lot drainage pattern for all lots including common lots.
		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.
		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.)
		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.
		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	
		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.
		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.
		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.
		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.
		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.
		Lots with "B and C Type Drainage" shall be required to install an underground nuisance drainage system or a 2-foot valley gutter through the lot. 16" x 24" minimum block wall openings are required for both options.
		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.

CITY OF LAS VEGAS MINIMUM DRAINAGE STUDY CRITERIA CHECKLIST

- An appointment must be made to preview this checklist in conjunction with Clark County Regional Flood Control District Manual Standard Form 2 prior to the City accepting a new Drainage Study for review. The engineer may contact the Flood Control Section at 229-6541.
- Following the acceptance of the Drainage Study (meeting the minimum acceptable information above), there will be a charge of \$250 for each Drainage Study review submittal. These fees are payable at the time the Grading Permit is obtained.
- The Drainage Study must be accepted prior to submitting grading plans to the Land Development Section 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.

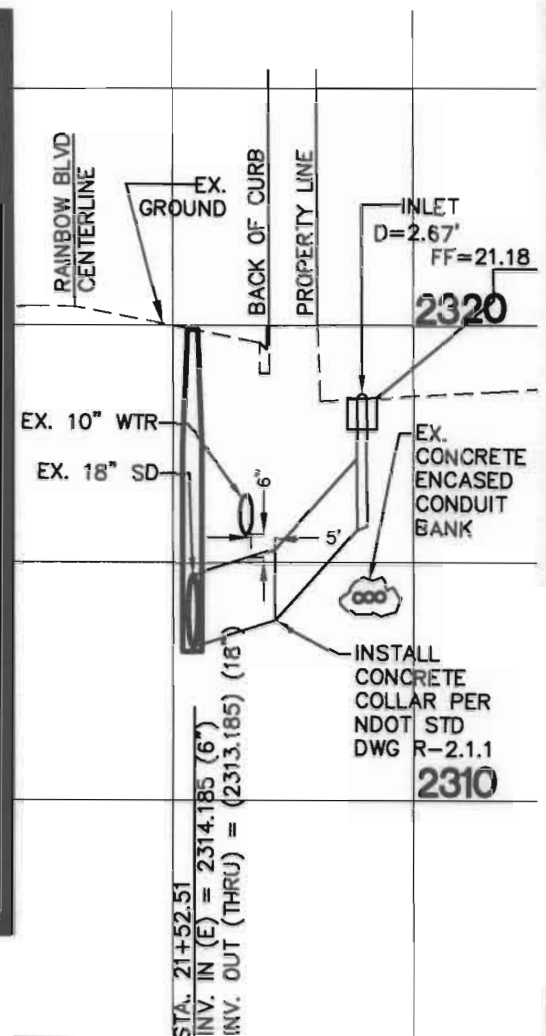
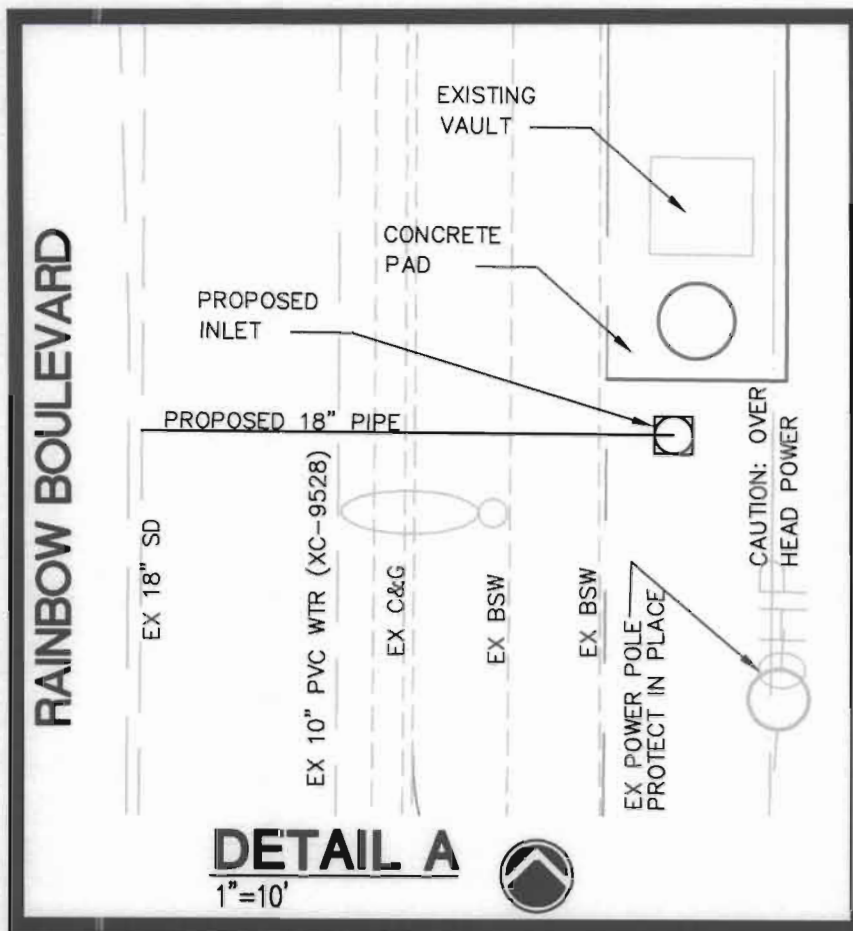
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6-Jun-01

The purpose of this study is to update the drainage study for Lone Mountain Senior Apartments (CLV# 4512). Both previous updates have been approved. This update is required because when we construct the project, the existing NV Energy vaults will be in a sump condition. The finished floor elevation was established based on six inches (6") above the elevation of the adjacent top of curb. Positive surface drainage out of the sump is not possible with the existing grades of Rainbow Boulevard, which are fifteen inches (15") above the vault slab. In order to provide positive drainage, we are proposing a private drop inlet and public lateral to the existing eighteen inch (18") RCP in Rainbow Boulevard and a standard forty-eight inch (48") manhole in Rainbow Boulevard. Due to existing utility conflicts, the eighteen inch (18") lateral will have to have a bend. We are treating the bend in accordance with NDOT standard drawing R-2.1.1. Figure 1 depicts the proposed design.

Once this update is approved, we will submit appropriate revisions to DEVCO to update the plans.

The previous approval letters are included after Figure 1 located at the rear of this letter.

LONE MOUNTAIN SENIOR APARTMENTS



DETAIL B

HORIZ: 1"=40'
VERT: 1"=10'

FIGURE 1

Impulse

Civil Engineering & Planning

PLANNERS • CIVIL ENGINEERS

625 DINARD WAY • NORTH LAS VEGAS, NEVADA 89031 • (702) 308-7115

$$I = \int F \cdot dt$$



CITY OF LAS VEGAS		DATE:
INTER-OFFICE MEMORANDUM		March 3, 2011
TO: Land Development Services Department of Public Works		FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	Drainage Study for: Update # 2 to the Lone Mountain Senior Apartments	COPIES TO: Impulse Engineering
Cross Streets:	Lone Mountain & Rainbow	Ovation Development
File Number:	F:\Depot\DSMemos\DS4512E.ZNAE.doc	Bart Anderson, P.E., DevCo
Parcel Number:	13802101015	CCRFCD
Zoning Action:	NEW SDR-41043, SUP-41039	
FEMA Flood Zone	YES ☒ NO	
Proposed Storm Drain	YES NO ☒	

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Transaction #
1 st Submittal	11/24/2010 & Supplemental 11/29/2010	12/7/2010	Not Approved	\$400.00	158043: \$400
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3 rd Submittal	1/25/2011	2/3/2011	CCRFCD Conc. Recv'd	N/C	N/C
4 th Submittal	2/7/2011 & Supplemental 2/23/2011	3/3/2011	Not Approved	\$100	162205: \$100
5th Submittal	4/14/2011 &	4/14/2011	Conditionally Approved	\$400	166635: \$400
TOTAL FEES (LDDRS):				\$1,300.00	----

REMARKS: Update # 2 provides the new SDR 41043 and SUP 41039 approvals.

Submittal # 4 Updated the site. The Site Plan has been modified and the development area is reduced in size. A small portion of this site is located in a FEMA Special Flood Hazard Area, Zone AE. No changes to the Flood Zone are proposed.

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 Department of Development Services concurrence.
	is conditionally approved subject to FEMA approval of CLOMR.

1. The Updated Drainage Study is required to obtain Clark County Regional Flood Control District concurrence for the revised site improvements. Flood Control will not recommend FEMA review and approval based upon the revised site plan and the reduced flood zone impacts. No structures are proposed within the FEMA Flood Zone.
2. The provided HEC-RAS analysis has made adjustments to the Mannings n-values. Flood Control takes no exception to these revisions as there are appropriate based upon a more detailed review and analysis.

3. This site is adjacent to an ongoing CCRFCD Master Plan facility. The Gowan Outfall – Lone Mountain Branch project has begun construction and the Gowan Outfall project proposes to install a storm drain lateral with a 12.5-foot DM drop inlet on the south side of Lone Mountain Road immediately east of this development. Continue to coordinate the site construction with the Gowan Outfall – Lone Mountain Branch project through Engineering Design; contact Gina Venglass @ 229-6790.
4. The engineer has provided a table on the grading plans that shows the quantity estimate of all drainage improvements within Public Drainage Easements. All drainage improvements within Public Drainage Easements must be bonded and inspected.
5. This site accepts offsite flows and conveys them through the site. The provided "Public Drainage Easement to be Privately Maintained" is shown on the plans. The proposed easement includes the 100-year flood zone within the project site. Public drainage easements must be recorded by separate document prior to the final acceptance of the improvement plans.

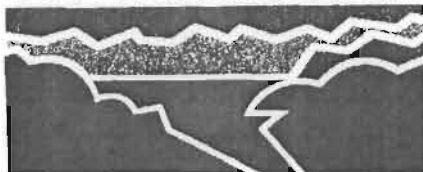
NOTE: Please be advised that all land surface area; disturbances over 1 acre or any area adjacent to a water way must submit to the *Nevada Division of Environmental Protection* a "Notice of Intent" to discharge that certifies a stormwater pollution prevention plan has been developed and is maintained 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.

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

END OF REMARKS
PBJ

T/R/S: T20S/R60E/S02
AREA L02

REGIONAL FLOOD CONTROL DISTRICT



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

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Clark County

Mayor Oscar Goodman
City of Las Vegas

Debra March
City of Henderson

Steven D. Ross
City of Las Vegas

Mayor Roger Tobler
City of Boulder City

April 28, 2011

Mr. Robert Welch, P.E., CFM
City of Las Vegas Public Works
333 North Rancho Drive
Las Vegas, NV 89106

**DISTRICT CONCURRENCE: UPDATE #1 AND #2 LONE MOUNTAIN SENIOR
APARTMENTS
(DS4512E) (RFCD No. 11-7987)**

Dear Mr. Welch:

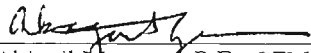
Clark County Regional Flood Control District (District) reviewed Technical Drainage Study dated April 12, 2011, and Addendum No. 1 dated April 13, 2011 for above-mentioned project as submitted by IMPULSE CIVIL ENGINEERING. In addition, District is in receipt of the Conditional Letter of Acceptance from City of Las Vegas Public Works dated March 3, 2011.

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

District's review of this project was limited to issues of Regional Flood Control Significance as defined in *Uniform Regulations for the Control of Drainage*. As noted in study, site resides in a Special Flood Hazard Area (SFHA) designated as "Zone AE" per the effective Flood Insurance Rate Map (FIRM). Therefore, consultant should be advised that this acceptance does not serve to amend the FIRM or remove the SFHA.

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

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

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


Andrew R. Trelease, P.E., CFM
Principal Civil Engineer

AM:ART:sa

c: Peter J. Laas, P.E., Impulse Civil Engineering

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