



**Update to the
Technical Drainage Study
for**

***Best in the West Commercial Center –
McDonald's Restaurant***

Date Prepared:
July 2022

Prepared for:
McDonald's USC, LLC
18565 Jamboree Road, Suite 850
Irvine, CA 92612
951.323.3002

Prepared by:
Kimley-Horn and Associates, Inc.
6671 Las Vegas Boulevard South, Suite 320
Las Vegas, NV 89119
702.862.3600

Kimley»Horn



July 14, 2022

Mr. Albert Sung, P.E.
City of Las Vegas Flood Control
333 Rancho Drive
Las Vegas, NV 89106

RE: *Update to the Technical Drainage Study for Best in the West Commercial Center – McDonald's Restaurant*

Dear Mr. Sung,

This letter certifies that all items provided on the *Update to the Technical Drainage Study for Best in the West Commercial Center – McDonald's Restaurant* electronic submittal matches the paper version bound into the study.

With Kimley-Horn, you should expect more and will experience better. Please contact me at (702) 790-0206 or michael.schwab@kimley-horn.com should you have any questions or concerns.

Sincerely,

A handwritten signature in black ink, appearing to read "Michael Schwab", with a long horizontal flourish extending to the right.

Michael Schwab, P.E.

HYDROLOGIC CRITERIA AND DRAINAGE MANUAL
DRAINAGE STUDY INFORMATION FORM

Name of Development: Update - the Best in the West Commercial Center - McDonald's Restaurant Date: July 2022

Location of Development: a) Descriptive (Cross Streets) North/South: North Rainbow Boulevard
East/West: West Lake Mead Boulevard

b) Section: 23 Township: 20 Range: 60

c) APN : 138-23-215-004

Name of Owner: McDonald's USC, LLC

Telephone No.: 951.323.3002 Fax No.: _____ E-Mail Address: scott.wilkenson@us.mcd.com

Address: 18565 Jamboree Road, Suite 850 Irvine, CA 92612

Contact Person-Name: Michael Schwab, P.E. Telephone No.: 702.734.5666

* E-Mail Address: michael.schwab@kimley-horn.com Fax No.: N/A

Firm: KIMLEY-HORN

Address: 6671 Las Vegas Boulevard South, Suite 320 Las Vegas, NV 89119

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	GRADING PERMIT	

1. Total Owned Land Area: At Site: +/- 0.69 acres Being Developed/Disturbed: +/- 0.69 acres

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

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

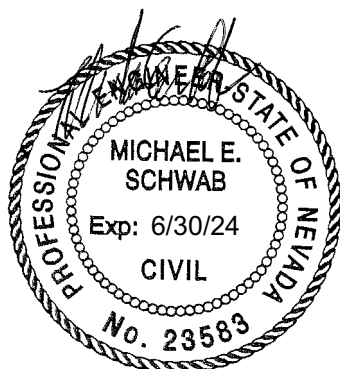
4. Proposed type of development (Residential, Commercial, Etc.): Industrial

5. Approximate upstream land area which drains to the subject site: +/- 0 acres

6. Has the site drainage been evaluated in the past? ☒ YES ☐ NO If yes, please identify documentation: Technical Drainage Study for The Best in the West Commercial Center

7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: 1. Surface flow to Lake Mead Boulevard,
2. East of the project site

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



Engineer's Seal

7/14/22

Submit this form as part of the required drainage study to the local entity which has jurisdiction over the subject property. This form may provide sufficient information to serve as the Conceptual Drainage Study.

***New Required Field**

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

	Revision	Date

Local Entity File No.

REFERENCE:

STANDARD FORM 1

**Update to the
Technical Drainage Study
for**

*Best in the West Commercial Center –
McDonald's Restaurant*

Date Prepared:
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18565 Jamboree Road, Suite 850
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951.323.3002

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July 14, 2022

Mr. Albert Sung, P.E.
City of Las Vegas Flood Control
333 Rancho Drive
Las Vegas, NV 89106

RE: *Update to the Technical Drainage Study for Best in the West Commercial Center – McDonald's Restaurant (DS-1714)*

Dear Mr. Sung,

The purpose of this letter is to serve as the **Update** to the subject project. The *Technical Drainage Study for Best in the West Commercial Center* (hereinafter referred to as **TDS**) was approved by CLV on March 25, 1996. Pertinent reference material has been included in **Appendix C**. The **Update** included herein, is intended to supersede data contained in previous studies. Please note that Administrative Site Development Plan Approval for the site is included in **Appendix A**.

Since approval of **TDS**, some site revisions are proposed in the southwest area of the site, which is one of the entryways of the site, as shown on the referenced **Figure 7 – Drainage Map** found in **Appendix C** and the improvement plans in **Appendix D**. The proposed revisions include:

- Removal of the two-way entry way and relocation of entry way further north from previous location with only one way for exit only purposes.
- Removal of three parking spaces north of the existing entry way.
- Addition of drive thru lane with second order location at the previous entry way space.
- Addition of more landscape areas as a result of removal and relocation of the entry way.

The proposed project generally maintains existing drainage patterns and the existing building meets finished floor elevation criteria as the building remains unchanged. The methodologies and calculations presented in this report are in compliance with the CCRFCD Hydrologic Criteria and Drainage Design Manual (Manual).

The proposed revisions did not require any revisions to the hydrology as the revised grading does not change the drainage patterns from the approved **TDS** of the site. The onsite has been prorated into subbasins to show the drainage patterns of the site and it remains similar to the existing condition. The pertinent reference material from the approved **TDS** has been included in **Appendix C**. The hydraulic analysis to check the finished floor elevations of the existing building at the site is not expected to change as the existing grading along the adjacent drive aisles remains the same and even the changes made along the entry way region does not significantly impact the existing grading. However, two hydraulic sections have been analyzed at the drive aisles to the west and south of the building with the overall site flow rate to be conservative. Refer to **Appendix B** for the hydraulic calculations. The results from the computation clearly show that the finished floor of the building meets the drainage criteria. Refer to the hydraulic section summary table provided in **Figure PRO** in **Appendix A**.

In general, the overall drainage patterns for the site are consistent with the original **TDS** and the proposed site plan does not significantly alter existing peak flows or the character of flows downstream of the development and do not pose any negative impacts on the downstream facilities and development.

With Kimley-Horn, you should expect more and will experience better. Please contact me at (702) 790-0206 or michael.schwab@kimley-horn.com should you have any questions.

Sincerely,



Michael Schwab, P.E.



Abhusan Achhami, EI



LIST OF APPENDICES

Appendix A – Documents & Figures

- PRO Proposed Condition Basin Map
- Administrative Site Development Plan Approval

Appendix B – Hydraulic Calculations

- Normal Depth Calculations - Onsite

Appendix C – Reference Material

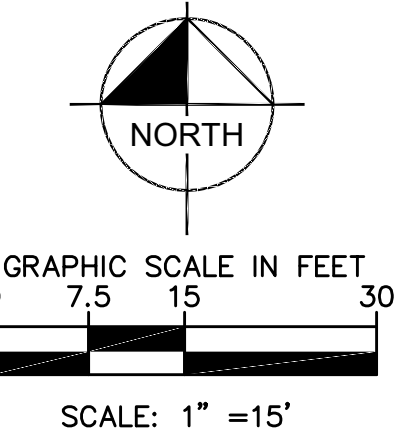
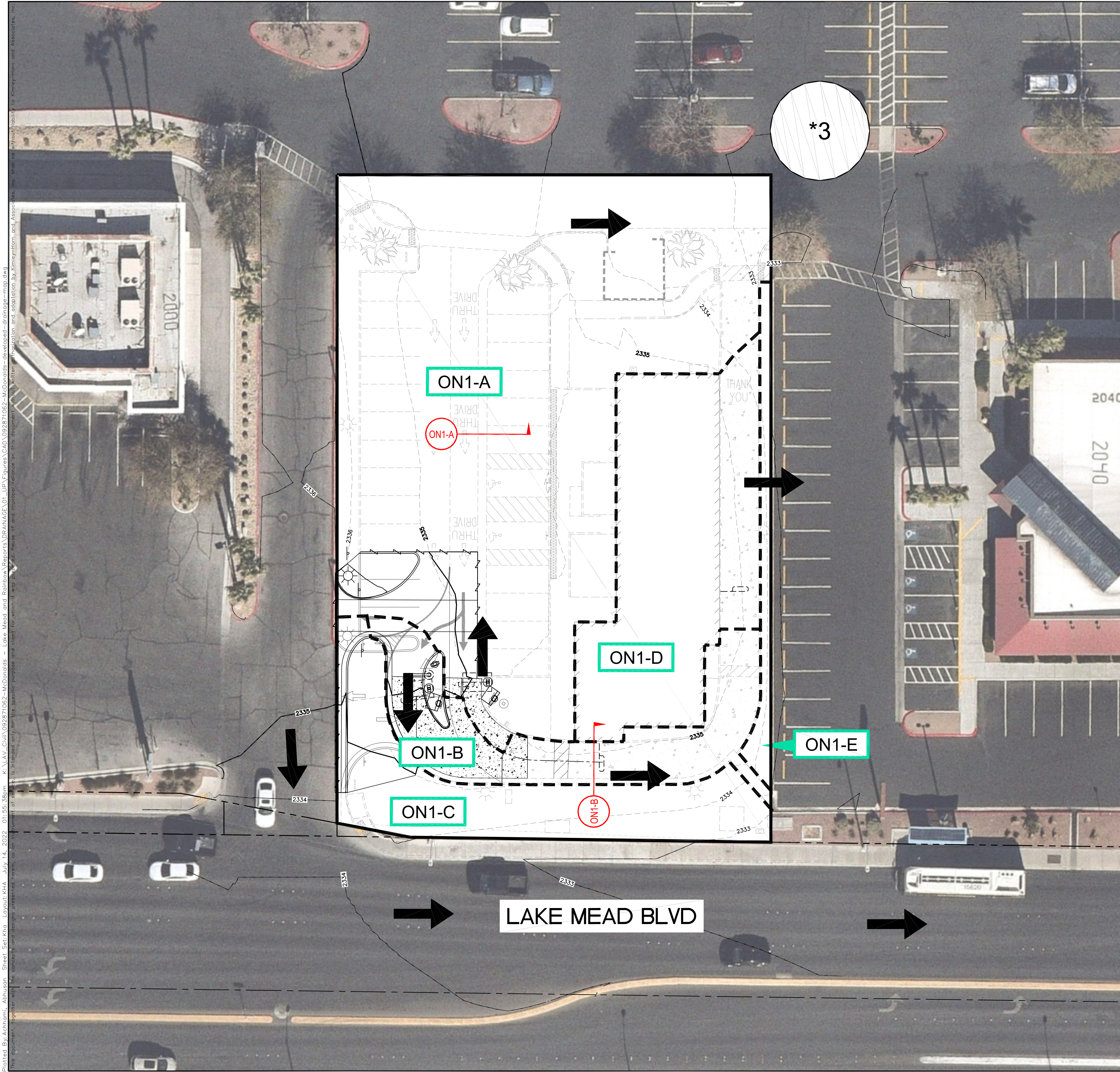
- Technical Drainage Study for The Best in the West Commercial Center; Prepared by G.C. Wallace, Inc. Approved March 25, 1996. DS-1714.

Appendix D – Improvement Plans

Appendix E – Data CD

Appendix A – Documents & Figures

- PRO Proposed Condition Basin Map
- Administrative Site Development Plan Approval



LEGEND

- XX BASIN ID
- ON1-B PRORATED BASIN BOUNDARY ID
- BASIN BOUNDARY
- - - PRORATED BASIN BOUNDARY
- FLOW ARROW
- ON1 1 SECTION ID

PROPOSED CONDITION PRORATED FLOW SUMMARY					
Developed Onsite					
SUBBASIN	Q ₁₀₀ (cfs)	Q ₁₀ (cfs)	AREA (ac)	CFS ₁₀₀ /ACRE	CFS ₁₀ /ACRE
*3	2.0	1.00	0.69	2.90	1.45
Developed Onsite Prorated Basins					
SUBBASIN	Q ₁₀₀ (cfs)	Q ₁₀ (cfs)	AREA (ac)	CFS ₁₀₀ /ACRE	CFS ₁₀ /ACRE
ON1-A	1.2	0.6	0.40	2.90	1.45
ON1-B	0.2	0.1	0.07	2.90	1.45
ON1-C	0.2	0.1	0.08	2.90	1.45
ON1-D	0.3	0.2	0.12	2.90	1.45
ON1-E	0.1	0.0	0.02	2.90	1.45
TOTAL	2.0	1.00	0.69	NA	NA

*3 Referenced from Best in the West Study (DS1714)

PROPOSED ONSITE HYDRAULIC SECTIONS								
SECTION	TRIBUTARY BASINS	CHANNEL SLOPE	Q ₁₀₀ (cfs)	FLOW DEPTH (ft)	^FLOW LINE (ft)	^FLOW LINE + 2D (ft)	^FFE BLDG (ft)	BLDG PROTEC TED?
		%						
ON1A	ON1	0.40	2	0.20	34.73	35.13	35.59	YES
ON1B	ON1	0.60	2	0.36	34.42	35.14	35.67	YES

^Add 2300 ft

Plotted By: Acham, Abhuson Sheet Set: KHA Layout: KHA July 14, 2022 01:55:35pm K:\LAV_CIV\092871062-McDonalds - Lake Mead and Rainbow\Reports\DRAINAGE\01_UPI\Figures\CAD\092871062-McDonalds-developed-drainage-map.dwg
This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

PRO

MCDONALDS
LAKE MEAD AND RAINBOW

CITY OF LAS VEGAS

NEVADA

PROPOSED
CONDITION BASIN
MAP

KHA PROJECT
092871062

DATE
JULY 11, 2022

SCALE
AS SHOWN

DESIGNED BY
AA

DRAWN BY
ANCL

CHECKED BY
RD

Kimley»Horn

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6671 LAS VEGAS BLVD. S. SUITE 320, LAS VEGAS, NV 89119
PHONE: 702-862-3600
WWW.KIMLEY-HORN.COM

No.

REVISIONS

DATE

BY



**LAS VEGAS
CITY COUNCIL**

CAROLYN G. GOODMAN
Mayor

STAVROS S. ANTHONY
Mayor Pro Tem

MICHELE FIORE
CEDRIC CREAR
BRIAN KNUDSEN
VICTORIA SEAMAN
OLIVIA DIAZ

JORGE CERVANTES
City Manager

DEPARTMENT OF PLANNING

SETH T. FLOYD

DIRECTOR OF
COMMUNITY DEVELOPMENT

CITY HALL

495 S. MAIN ST.
3RD FLOOR
LAS VEGAS, NV 89101
702.229.6301 | VOICE
702.464.2545 | FAX
711 | TTY



cityoflasvegas
lasvegasnevada.gov

April 19, 2022

Mr. Mathew Taylor
Vestar Best in the West Property, LLC
2425 E. Camelback Road, Ste. #750
Phoenix, AZ 85016

**RE: 21-0407-SDR1 - ADMINISITRATIVE SITE DEVELOPMENT PLAN
REVIEW
ADMINISTRATIVE CYCLE – MARCH 2022**

Dear Applicant:

Your Land Use Entitlement request FOR THE ADDITION OF A SECOND DRIVE-THROUGH LANE AT AN EXISTING RESTAURANT on 0.68 acres at 2020 North Rainbow Boulevard (APN 138-23-215-004), C-1 (Limited Commercial) Zone, Ward 5 (Crear), was considered administratively by the Department of Planning staff.

The Department of Planning has administratively **APPROVED** your request subject to the following:

Planning

1. 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.
2. All development shall be in conformance with the site plan and landscape plan date stamped 07/29/21, except as amended by conditions herein
3. 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.
4. These Conditions of Approval shall be affixed to the cover sheet of any plan set submitted for building permit.

5. A technical landscape plan, signed and sealed by a Registered Architect, Landscape Architect, Residential Designer or Civil Engineer, must be submitted prior to or at the same time application is made for a building permit. A permanent underground sprinkler system is required, which 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.
6. All City Code requirements and design standards of all City Departments must be satisfied, except as modified herein.

Public Works

7. An update to the previously approved Drainage Plan and Technical Drainage Study must be submitted to and approved by the Department of Public Works prior to submittal of any construction drawings or the issuance of any building or grading permits, whichever may occur first. Provide and improve all drainageways recommended in the approved drainage study update.

This action by the Department of Planning staff on **April 19, 2022** is final unless a written appeal is filed with the Director of the Department of Planning within ten days of the date of this letter.

Sincerely,



Steve Swanton, AICP
Senior Planner
Department of Planning

SS:nl

cc:

Mr. Kurtis DeMarse
McDonald's USA, LLC
18565 Jamboree Road, Ste. 850
Irvine CA. 92612

Mr. Keith Nelms
Kimley-Horn & Associates
6671 S. Las Vegas Blvd., Ste. 320
Las Vegas, NV 89119

Appendix B – Hydraulic Computations

- Normal Depth Calculations - Onsite

Worksheet for ON1-A

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth
Input Data	
Channel Slope	0.40 %
Discharge	2.00 cfs

Section Definitions

Station (ft)	Elevation (ft)
0+00.0	0.31
0+20.0	0.07
0+21.5	0.00
0+23.0	0.07
0+43.0	0.31

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.0, 0.31)	(0+43.0, 0.31)	0.016

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	0.20 ft
Roughness Coefficient	0.016
Elevation	0.20 ft
Elevation Range	0.00 to 0.31 ft
Flow Area	1.9 ft ²
Wetted Perimeter	24.51 ft
Hydraulic Radius	0.08 ft
Top Width	24.51 ft
Normal Depth	0.20 ft
Critical Depth	0.18 ft
Critical Slope	0.92 %
Velocity	1.06 ft/s
Velocity Head	0.02 ft
Specific Energy	0.22 ft
Froude Number	0.677
Flow Type	Subcritical

Worksheet for ON1-A

GVF Input Data

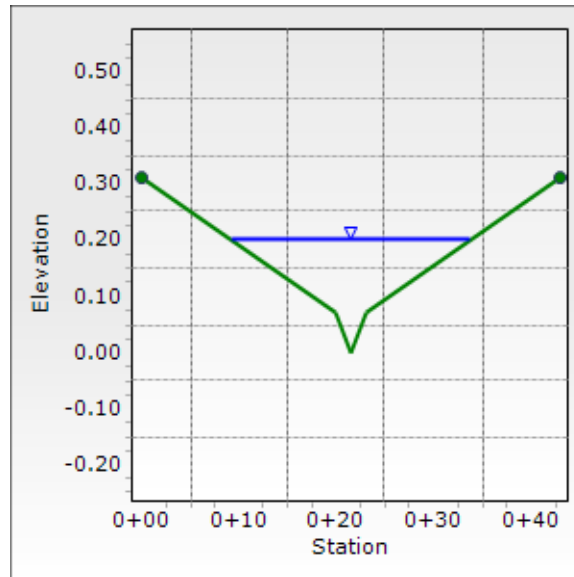
Downstream Depth	0.00 ft
Length	0.00 ft
Number Of Steps	0

GVF Output Data

Upstream Depth	0.00 ft
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	0.00 ft/s
Upstream Velocity	0.00 ft/s
Normal Depth	0.20 ft
Critical Depth	0.18 ft
Channel Slope	0.40 %
Critical Slope	0.92 %

Cross Section for ON1-A

Project Description	
Friction Method	Manning
	Formula
Solve For	Normal Depth
Input Data	
Channel Slope	0.40 %
Normal Depth	0.20 ft
Discharge	2.00 cfs



Worksheet for ON1-B

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth
Input Data	
Channel Slope	0.60 %
Discharge	2.00 cfs

Section Definitions

Station (ft)	Elevation (ft)
0+00.0	0.50
0+00.5	0.50
0+00.5	0.00
0+02.0	0.17
0+14.0	0.46

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.0, 0.50)	(0+14.0, 0.46)	0.016

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	0.36 ft
Roughness Coefficient	0.016
Elevation	0.36 ft
Elevation Range	0.00 to 0.50 ft
Flow Area	1.2 ft ²
Wetted Perimeter	9.70 ft
Hydraulic Radius	0.12 ft
Top Width	9.33 ft
Normal Depth	0.36 ft
Critical Depth	0.35 ft
Critical Slope	0.80 %
Velocity	1.74 ft/s
Velocity Head	0.05 ft
Specific Energy	0.41 ft
Froude Number	0.871
Flow Type	Subcritical

Worksheet for ON1-B

GVF Input Data

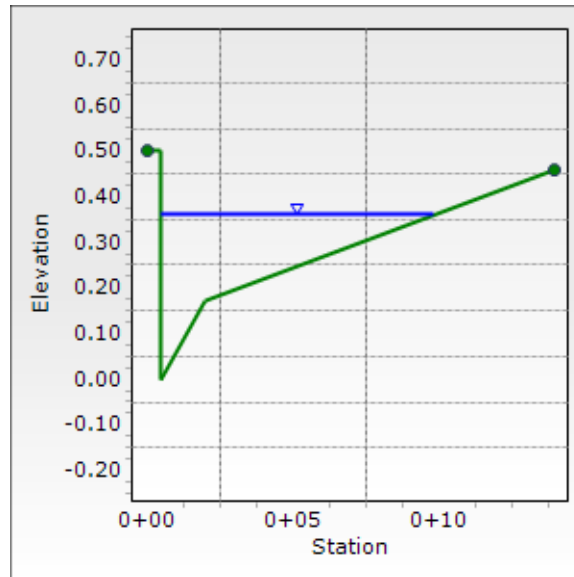
Downstream Depth	0.00 ft
Length	0.00 ft
Number Of Steps	0

GVF Output Data

Upstream Depth	0.00 ft
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	0.00 ft/s
Upstream Velocity	0.00 ft/s
Normal Depth	0.36 ft
Critical Depth	0.35 ft
Channel Slope	0.60 %
Critical Slope	0.80 %

Cross Section for ON1-B

Project Description	
Friction Method	Manning
	Formula
Solve For	Normal Depth
Input Data	
Channel Slope	0.60 %
Normal Depth	0.36 ft
Discharge	2.00 cfs



Appendix C – Reference Material

- Technical Drainage Study for The Best in the West Commercial Center;
Prepared by G.C. Wallace, Inc. Approved March 25, 1996. DS-1714.

497.954

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM		DATE: March 25, 1996
TO: Joel Harris Land Development Services Department of Public Works		FROM:  Dennis W. Stransky, P.E. Flood Control Project Manager Department of Public Works
SUBJECT: Technical Drainage Study for: The Best in the West Commercial Center (revised grading plan) FILE NO. H:\DS\DS1714C.DOC		COPIES TO: G. C. Wallace, Inc. Pacific Properties John McNellis, P.E. Dan Muirhead, P.E.

MAR 27 1996

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES
1st Submittal	12/07/95	12/11/95	Not Acceptable	\$250.00
2nd Submittal	12/20/95	01/02/96	Conditional Acceptance	\$250.00
3rd Submittal	01/25/96	02/02/96	Approved	\$100.00
4th Submittal	03/22/96	03/25/96	See Comments Below	\$100.00
TOTAL FEES				\$600.00

REMARKS:

(Revised Grading Plan)

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

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

1. It is our understanding that this site is currently owned and will be maintained by one owner. If the site is later subdivided, an easement must be granted for the storm drain as determined by the City of Las Vegas at that time.

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 Addendum and accepted by CLV Flood Control. Additionally, conditional acceptance of a drainage study is valid for a period of one 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 the project.

END OF REMARKS

dws

T/R/S 20S/60E/23
AREA L-23

PLANS SENT TO LAND DEVELOPMENT  (initial)

PC: G. Patch
D. Letey
C-Black-
Original

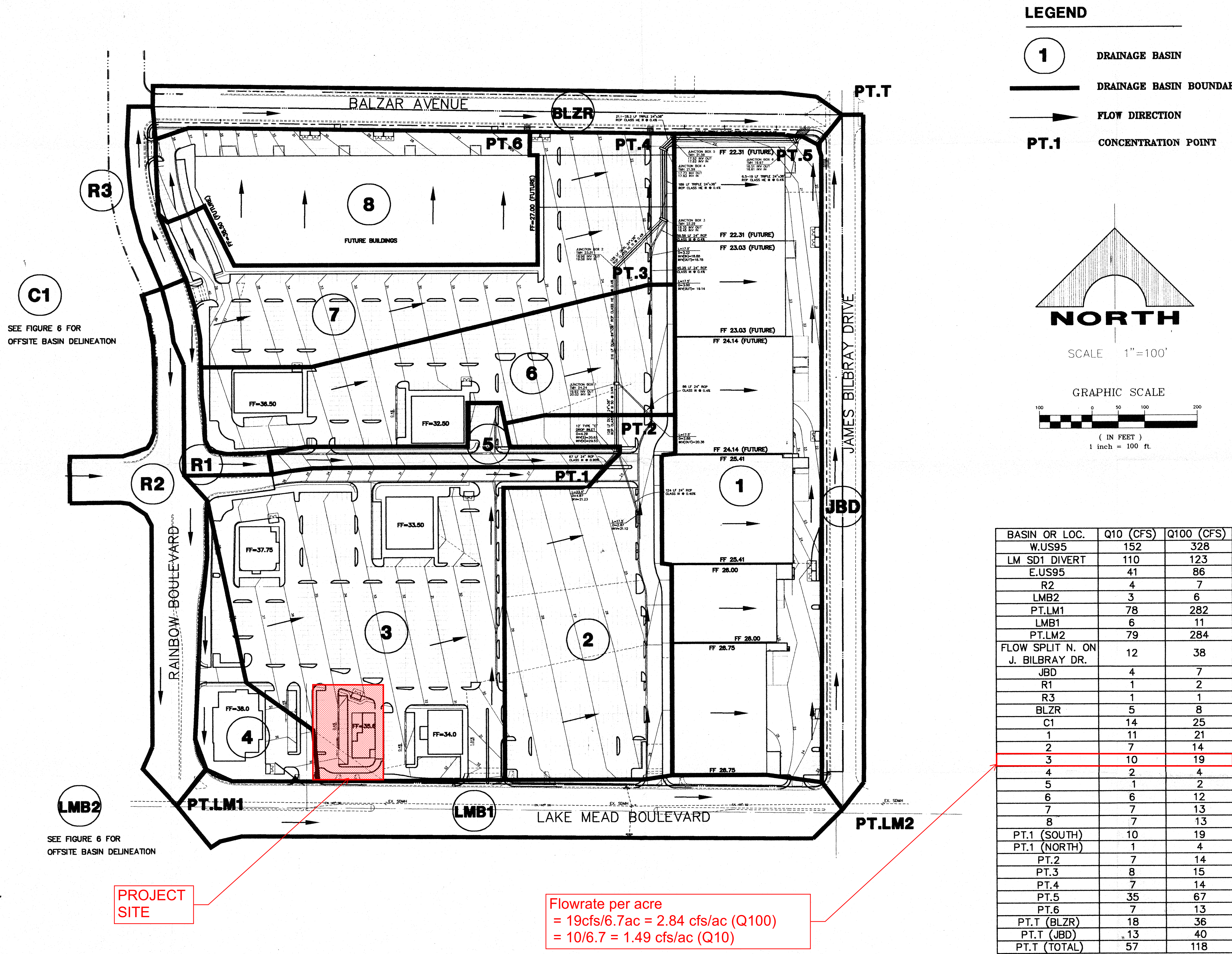
**BEST IN THE WEST
COMMERCIAL CENTER
TECHNICAL DRAINAGE STUDY
AMENDMENT**

497.954

March 1996



G.C. WALLACE, INC.
Engineering/Architecture




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*****
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* FLOOD HYDROGRAPH PACKAGE (HEC-1)
* SEPTEMBER 1990
* VERSION 4.0
*
* RUN DATE 03/22/1996 TIME 10:02:52
*
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*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
* (916) 756-1104
*
*****

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X   X  XXXXXXX  XXXX      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  XXXX      XXX

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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

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

140	KK	BASIN3								
141	KM	FLows IN ENTRANCE (SOUTH HALF)								
142	KM									
143	KM	AREA	6.70		AC					
144	KM	TL	0.135		HR.					
145	KM	CN	95							
146	BA	.01047								
147	LS	0	95							
148	UD	.135								
149	KK	PT.1S								
150	KM	FLows INTERCEPTED BY DROP INLET (SOUTH HALF)								
151	DT	D11S								
152	DI	0	10		19					
153	DQ	0	10		18.9					
154	KK	PT.1								
155	KM	COMBINED FLows IN ENTRANCE (TOTAL STREET FLows)								
156	HC	2								
157	KK	RPT.2								
158	KM	ROUTE NORTH TO PT.2								
159	RD	200	.01	.016		0	TRAP	0		50
160	KK	BASIN2								
161	KM									
162	KM									
163	KM	AREA	4.82		AC					
164	KM	TL	0.143		HR.					
165	KM	CN	95							
166	BA	.00753								
167	LS	0	95							
168	UD	.143								
169	KK	D12S								
170	KM	FLows INTERCEPTED BY DROP INLET								
171	DT	D12S								
172	DI	0	7		14					
173	DQ	0	3.5		7					
174	KK	PT.2								
175	KM	COMBINED FLows AT PT.2								
176	HC	2								
177	KK	RPT.3								
178	KM	ROUTE NORTH TO PT.3								
179	RD	250	.004	.016		0	TRAP	0		50
180	KK	BASIN6								
181	KM									
182	KM									
183	KM	AREA	3.95		AC					
184	KM	TL	0.119		HR.					
185	KM	CN	95							

				TIME	3.60	3.60
HYDROGRAPH AT	BASIN5	.00	1	FLOW	1.	2.
				TIME	3.50	3.50
2 COMBINED AT	PT.1	.00	1	FLOW	2.	4.
				TIME	3.50	3.50
DIVERSION TO	DI1N	.00	1	FLOW	2.	4.
				TIME	3.50	3.50
HYDROGRAPH AT	PT.1N	.00	1	FLOW	0.	0.
				TIME	3.50	3.50
HYDROGRAPH AT	BASIN3	.01	1	FLOW	10.	19.
				TIME	3.57	3.57
DIVERSION TO	DI1S	.01	1	FLOW	10.	19.
				TIME	3.57	3.57
HYDROGRAPH AT	PT.1S	.01	1	FLOW	0.	0.
				TIME	.03	3.57
2 COMBINED AT	PT.1	.01	1	FLOW	0.	0.
				TIME	3.50	3.53
ROUTED TO	RPT.2	.01	1	FLOW	0.	0.
				TIME	3.67	3.57
HYDROGRAPH AT	BASIN2	.01	1	FLOW	7.	14.
				TIME	3.57	3.57
DIVERSION TO	DI2S	.01	1	FLOW	4.	7.
				TIME	3.57	3.57
HYDROGRAPH AT	DI2S	.01	1	FLOW	4.	7.
				TIME	3.57	3.57
2 COMBINED AT	PT.2	.02	1	FLOW	4.	7.
				TIME	3.57	3.57
ROUTED TO	RPT.3	.02	1	FLOW	3.	7.
				TIME	3.60	3.60
HYDROGRAPH AT	BASIN6	.01	1	FLOW	6.	12.
				TIME	3.57	3.53
2 COMBINED AT	PT.3	.03	1	FLOW	9.	18.
				TIME	3.57	3.57
ROUTED TO	RPT.4	.03	1	FLOW	9.	18.
				TIME	3.60	3.60
HYDROGRAPH AT	BASIN7	.01	1	FLOW	7.	13.
				TIME	3.57	3.57
2 COMBINED AT	PT.4	.03	1	FLOW	16.	31.
				TIME	3.57	3.57
ROUTED TO	ROUTE	.03	1	FLOW	16.	31.

Appendix D – Improvement Plans

STORMWATER COMPLIANCE NOTES

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 THE CLARK COUNTY ORDINANCES AND 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 MATERIALS AND EQUIPMENT THAT ARE EXPOSED TO PRECIPITATION, VEHICLE ENTRANCE AND EXIT LOCATIONS, AND ALL BMPs WEEKLY, AND WITHIN 24 HOURS AFTER ANY 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 PLAN
FOR
McDONALD'S
2020 NORTH RAINBOW BOULEVARD
APN: 138-23-215-004
LAS VEGAS, NEVADA

LEGEND

- SAWCUT LINE
- PROPOSED PCC PAVING
- PROPOSED AC PAVING
- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION
- EXISTING FLOW (DIRECTION/SLOPE)
- PROPOSED FLOW (DIRECTION/SLOPE)

ABBREVIATIONS

- AC ASPHALT CONCRETE PAVING
- EX EXISTING
- FF FINISHED FLOOR
- FFE FINISHED FLOOR ELEVATION
- FG FINISHED GRADE
- FL FLOW LINE
- GB GRADE BREAK
- HP HIGH POINT
- LS LANDSCAPE AREA
- PCC PORTLAND CEMENT CONCRETE
- P/L PROPERTY LINE
- PR PROPOSED
- ROW RIGHT-OF-WAY
- TC TOP OF CURB
- TW TOP OF WALL



VICINITY MAP

SITE DATA

OWNER:	McDONALD'S CORPORATION
PROJECT ADDRESS:	2020 NORTH RAINBOW BOULEVARD
PARCEL NUMBER:	138-23-215-004
EXISTING ZONING:	LIMITED COMMERCIAL DISTRICT (C-1)
NET SITE AREA:	±0.68 AC
JURISDICTION:	CITY OF LAS VEGAS

GENERAL NOTES

1. CONTRACTOR TO VERIFY EXISTING IMPROVEMENTS SHOWN ON THE PLAN, AND NOTIFY ENGINEER IMMEDIATELY IF DISCREPANCIES ARE PRESENT.
2. CONTRACTOR TO PROTECT IN PLACE, DURING DEMOLITION AND CONSTRUCTION, ALL EXISTING IMPROVEMENTS THAT ARE TO REMAIN AS NOTED ON THE PLAN.
3. ANY EXISTING STRUCTURE, IMPROVEMENT, OR APPURTENANCE TO REMAIN THAT IS DAMAGED DURING DEMOLITION OR CONSTRUCTION SHALL BE IMMEDIATELY REPAIRED OR REPLACED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.
4. CONTRACTOR SHALL VERIFY AND LOCATE ALL EXISTING UNDERGROUND UTILITIES BEFORE CONSTRUCTION AND PROTECT IN PLACE UNLESS NOTED ON THE PLANS.
5. ALL DIMENSIONS ARE MEASURED FROM BACK OF CURB UNLESS OTHERWISE NOTED ON PLANS.

CONSTRUCTION NOTES

- 1 MATCH EXISTING
- 2 INSTALL MODIFIED "A" TYPE CURB PER DETAIL 1 ON SHEET C1.3
- 3 INSTALL "L" TYPE CURB AND GUTTER PER CCAUSD DRAWING No. 216
- 4 INSTALL PCC PAVING AND BASE MATERIAL TO MATCH EXISTING PAVEMENT SECTION AND GEOTECH RECOMMENDATION
- 5 INSTALL AC PAVING AND BASE MATERIAL TO MATCH EXISTING PAVEMENT SECTION AND GEOTECH RECOMMENDATION
- 6 INSTALL SPILL GUTTER PER DETAIL 2 ON SHEET C1.3
- 7 INSTALL 4" WHITE LINE (PAINT)
- 8 PROTECT EXISTING UTILITY IN PLACE
- LS LANDSCAPING PER LANDSCAPE PLAN

FLOOD ZONE NOTE

THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) INDICATES THAT THE SITE IS LOCATED IN ZONE "X" OF THE FLOOD INSURANCE RATE MAP (FIRM) No. 3200302155F AS SHOWN ON THE FIRM INDEX, REVISED NOVEMBER 16, 2011. ZONE "X" IS DEFINED BY FEMA AS AN AREA DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN.

BASIS OF BEARING

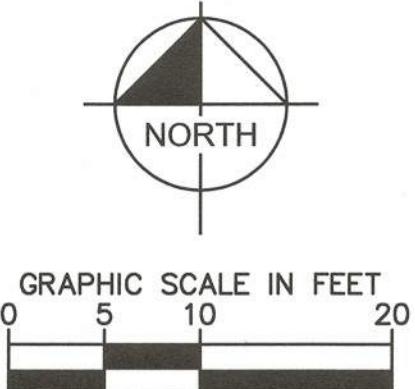
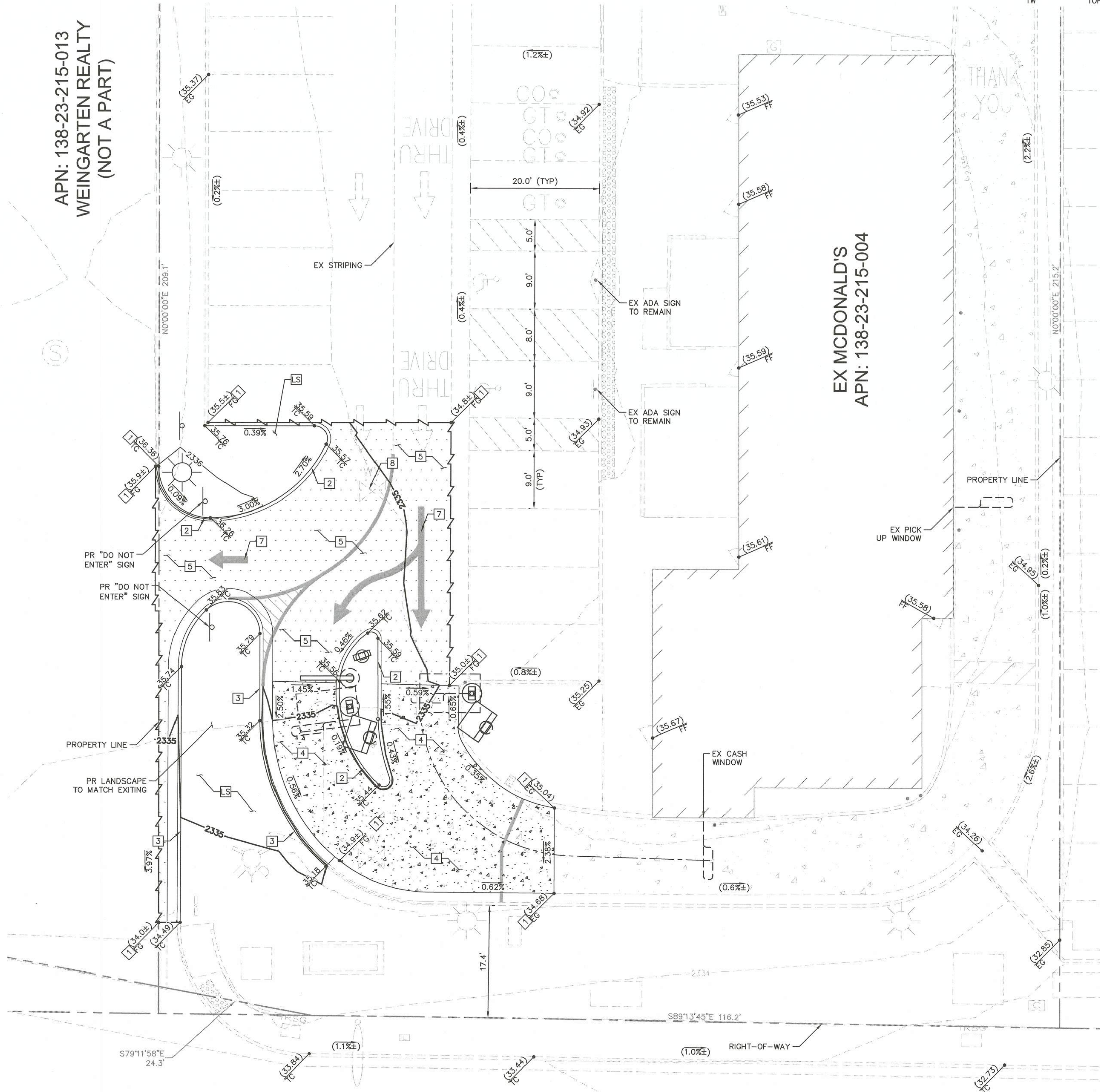
NORTH 89°13'45" WEST BEING THE SOUTH LINE OF THE SOUTHWEST QUARTER (SW ¼) OF THE NORTHWEST QUARTER (NW ¼) OF SECTION 23, TOWNSHIP 20 SOUTH, RANGE 60 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA AS SHOWN ON THAT CERTAIN MAP ON FILE IN THE CLARK COUNTY RECORDER'S OFFICE IN BOOK 72, PAGE 73 OF PLATS.

BENCHMARK

CITY OF LAS VEGAS BENCHMARK: 7LV00 23W4

A RIVET AND PLATE IN THE TOP OF CURB AT THE NORTHEAST CORNER OF THE LAKE MEAD AND RAINBOW.

ELEVATION=711.858 METERS (NAVD'88 V.2008)
ELEVATION=2335.49 U.S SURVEY FEET (NAVD'88 V. 2008)



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1-800-227-2600

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Revisions		
No.	Date	Description

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RENOVATIONS FOR:
McDONALD'S RESTAURANT
2020 N RAINBOW BLVD
LAS VEGAS, NV
STATE SITE # 27-0157 NATIONAL # 19451

McDonald's

Nicholas K. Zahedi, PE
Engineer

PROFESSIONAL ENGINEER - STATE OF NEVADA
NICHOLAS K. ZAHEDI
Exp. 06/30/24
CIVIL
No. 27021
1/14/22

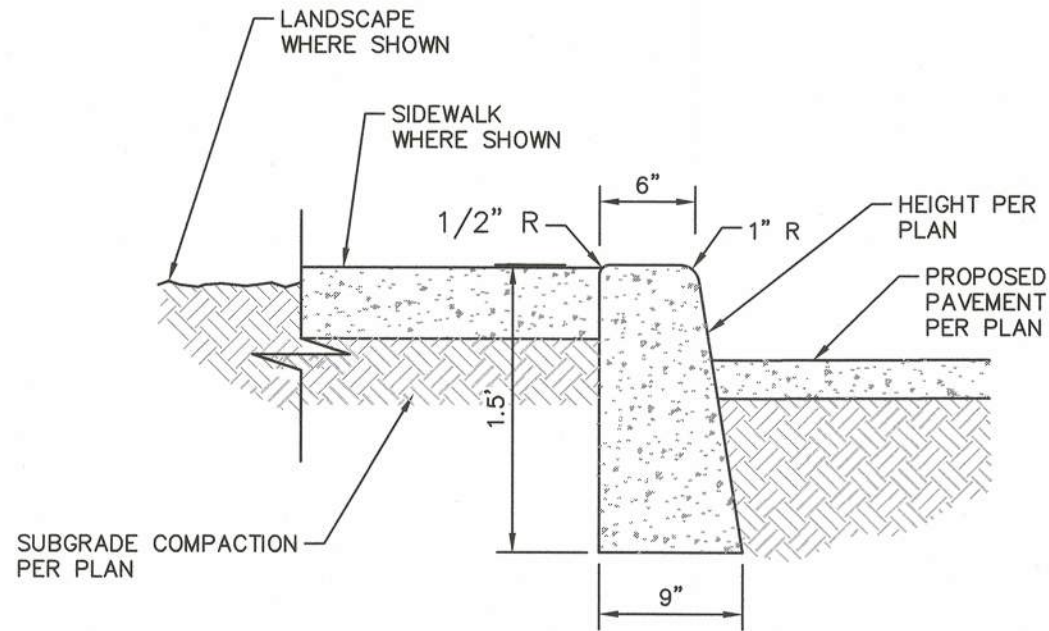
EXPIRES: 06.30.2024
Nicholas K. Zahedi, PE
Nevada Registration #27027

Kimley»Horn

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6671 LAS VEGAS BOULEVARD S., SUITE 320, LAS VEGAS, NV 89119
PHONE: 702-862-3600
WWW.KIMLEY-HORN.COM

GRADING PLAN
C1.2

Date: 6-29-22
Project No: 092871062

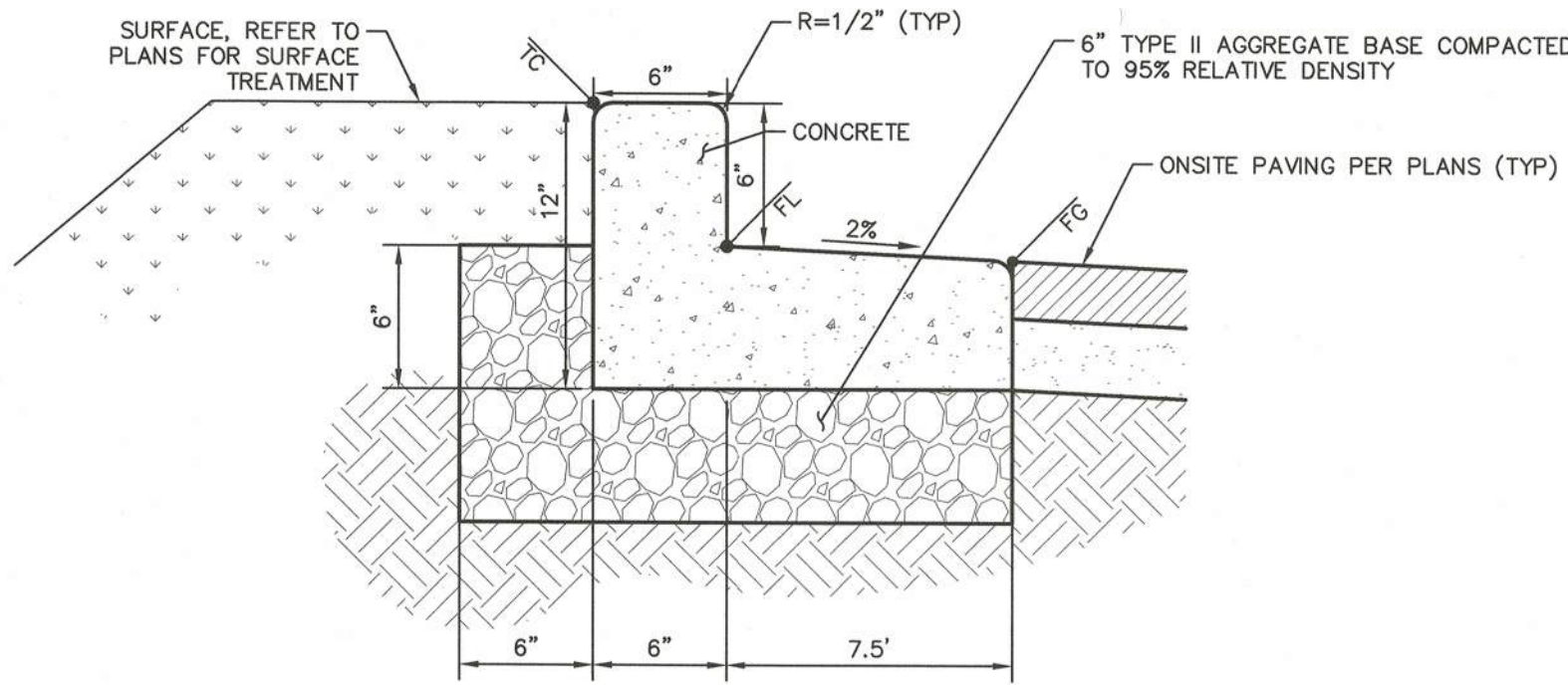


NOTES:

1. CONCRETE SHALL MEET CLARK COUNTY STANDARDS.
2. ISOLATION JOINTS SHALL BE PLACED ONLY AS SPECIFIED
3. CONTRACTION JOINTS CONSISTING OF 1" DEEP SCORES SHALL BE PLACED AT 15' INTERVALS O.C.
4. WHERE A WALK IS ADJACENT TO THE CURB THE JOINTS SHALL ALIGN WITH JOINTS IN THE WALK.

1
—
MODIFIED "A" TYPE CURB DETAIL

NTS



2
—
ONSITE MODIFIED TYPE "L" SPILL CURB DETAIL

NTS

Revisions		
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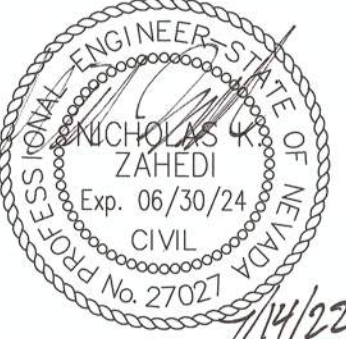
RENOVATIONS FOR:

McDONALD'S RESTAURANT

2020 N RAINBOW BLVD
LAS VEGAS, NV

STATE SITE # 27-0157 NATIONAL # 19451

Nicholas K. Zahedi, PE
Engineer

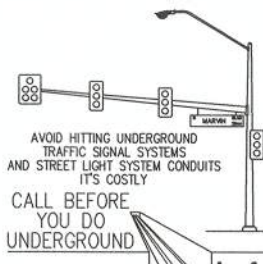


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DETAILS C1.3	
Date:	6-29-22
Project No:	092871062



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Appendix E – Data CD