

DS #: 4979

APN: 138-15-502-006

PROJECT: Floor 5 Decor

SUBMITTAL: 2nd

SCANNED BY/DATE:

CHECKED BY/DATE:



CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM		DATE: June 5, 2018
TO: Land Development Services Department of Building & Safety		FROM: Jennifer Shinn Flood Control Engr. Associate Department of Public Works
SUBJECT:	Drainage Study for: Floor & Decor	COPIES TO: CenterPoint Engineering, LLC
Cross Streets:	SWC of Rainbow Blvd. and Cheyenne Ave.	Floor & Decor
File Number:	F:\Depot\DSMemos\DS4979B.doc	Bart Anderson, P.E., DevCo
Parcel Number:	138-15-502-006	
Zoning Action:	SUP-72991	
FEMA Flood Zone	YES NO X	
Proposed Storm Drain	YES NO X	

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1 st Submittal	4/12/2018	4/24/2018	Not Approved	\$400.00	495087: \$400
2 nd Submittal	5/22/2018	6/5/2018	See Comments Below	\$400.00	496031: \$400
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.

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

NOTE: Please be advised that all land surface area disturbances over 1 acre or any area adjacent to a water way must submit to the Nevada Division of Environmental Protection a "Notice of Intent" to discharge that certifies a stormwater pollution prevention plan has been developed and is maintained on site; for inclusion in the Stormwater General Permit No. NVR100000. A phased construction unit in a contiguous subdivision is considered under construction until all stripped or disturbed surface areas have been covered by paving, building construction or planting. For more information, including forms and applications see <http://ndep.nv.gov/bwpc/storm01.htm> or call (775) 687-9429.

END OF REMARKS

jks

T/R/S: T20S/R560E/15
AREA L-15

Jennifer Shinn

From: Lucien Paet
Sent: Tuesday, May 15, 2018 5:24 PM
To: Jennifer Shinn
Cc: Albert Sung
Subject: RE: SUP-72991: Floor & Decor 3071 N Rainbow Blvd

Thank you. I forwarded to the person Paul Bengtson copied on his email (Parker Lange)

Thanks,

Lucien Paet

Engineering Project Manager
Public Works | Transportation Engineering
702-229-6145 | Fax: 702 382-3901
333 N. Rancho Drive 8th floor| Las Vegas, NV 89106



lasvegasnevada.gov



Your opinion is important! Click [here](#) to take a short survey.

From: Jennifer Shinn
Sent: Tuesday, May 15, 2018 5:17 PM
To: Lucien Paet
Cc: Albert Sung
Subject: RE: SUP-72991: Floor & Decor 3071 N Rainbow Blvd

Lucien,

We will remove Comment #3. The engineer may proceed with the resubmittal of the study to address the remaining comments. Please have the engineer respond to Comment #3 as being removed per this email.

Thank you,

Jennifer Shinn

Engineering Associate
Public Works | Flood Control
702.229.6131
333 North Rancho Drive | Las Vegas, NV 89106



lasvegasnevada.gov



From: Lucien Paet
Sent: Tuesday, May 15, 2018 3:31 PM
To: Albert Sung <YSung@LasVegasNevada.GOV>; Jennifer Shinn <jshinn@LasVegasNevada.GOV>
Subject: FW: SUP-72991: Floor & Decor 3071 N Rainbow Blvd

Hi Albert and Jen,

Please remove any hold for DS4979 for needing any entitlements. No SDR is required and SUP-72991 will not have PW conditions.

Thanks,

Lucien Paet

Engineering Project Manager
Public Works | Transportation Engineering
702-229-6145 | Fax: 702 382-3901
333 N. Rancho Drive 8th floor| Las Vegas, NV 89106



lasvegasnevada.gov



Your opinion is important! Click [here](#) to take a short survey.

From: Paul Bengtson
Sent: Tuesday, May 15, 2018 3:22 PM
To: Parker Lange
Cc: Lucien Paet
Subject: RE: SUP-72991: Floor & Decor 3071 N Rainbow Blvd

Lucien can be reached at (702) 229-6145 and I've copied him on this email.

Lucien, can you let Parker know when he's okay to proceed with the drainage study.

Thanks,

Paul Bengtson

Senior Management Analyst / Historic Preservation Officer
Department of Planning | Case Planning Division
(702) 229 - 6196
333 N. Rancho Drive | Las Vegas, NV 89106



lasvegasnevada.gov



Your opinion is important! Click [here](#) to take a short survey.

This e-mail transmission, and any documents, files, or previous e-mail messages attached to it may contain confidential information that is legally privileged. If you are not the intended recipient, or a person responsible for delivering it to the intended recipient, you are hereby notified that any disclosure, copying, distribution or use of any of the information contained in or attached to this transmission is prohibited. If you have received this transmission in error, please immediately notify us by reply e-mail, by forwarding this to sender, or by telephone at (702) 229-6281, and destroy the original transmission and its attachments without reading or saving them in any manner. Thank you.

From: Parker Lange <plange@centerpoint-is.com>
Sent: Tuesday, May 15, 2018 3:20 PM
To: Paul Bengtson <pbengtson@LasVegasNevada.gov>
Subject: RE: SUP-72991: Floor & Decor 3071 N Rainbow Blvd

Thanks Paul! Can you provide me with Lucien's contact info so I can follow up separately?

Parker Lange

T 303.679.6977 | C 209.595.8620
E plange@centerpoint-is.com

From: Paul Bengtson [<mailto:pbengtson@LasVegasNevada.gov>]
Sent: Tuesday, May 15, 2018 4:17 PM
To: Parker Lange <plange@centerpoint-is.com>
Subject: RE: SUP-72991: Floor & Decor 3071 N Rainbow Blvd

Parker,

I forwarded your information on to Harry Williams in CM Crear's office. That's the most I can do to help you in that regard.

As for the drainage study issue I've spoken with Lucien Paet in Public Works and he is going to reach out to try and eliminate the stop on your study. Should be resolved shortly.

Thanks,

Paul Bengtson

Senior Management Analyst / Historic Preservation Officer
Department of Planning | Case Planning Division
(702) 229 - 6196
333 N. Rancho Drive | Las Vegas, NV 89106



lasvegasnevada.gov



Your opinion is important! Click [here](#) to take a short survey.

This e-mail transmission, and any documents, files, or previous e-mail messages attached to it may contain confidential information that is legally privileged. If you are not the intended recipient, or a person responsible for delivering it to the intended recipient, you are hereby notified that any disclosure, copying, distribution or use of any of the information contained in or attached to this transmission is prohibited. If you have received this transmission in error, please immediately notify us by reply e-mail, by forwarding this to sender, or by telephone at (702) 229-6281, and destroy the original transmission and its attachments without reading or saving them in any manner. Thank you.

From: Parker Lange <plange@centerpoint-is.com>
Sent: Tuesday, May 15, 2018 2:40 PM
To: Paul Bengtson <pbengtson@LasVegasNevada.gov>
Subject: SUP-72991: Floor & Decor 3071 N Rainbow Blvd

Hi Paul-

Following up with you on our discussion this morning. Were you able to track down someone to provide us a resolution in order to wrap up our drainage study for the project?

I have still been unsuccessful reaching Cedric Crear to discuss the application and would appreciate if there is anything you can do on your end to help push that as well.

Much appreciated,

Parker Lange

Development Coordinator

CENTERPOINT INTEGRATED SOLUTIONS

Project Management | Civil Design | Real Estate Development

355 Union Boulevard, Suite 301 | Lakewood, CO 80228

T 303.679.6977 | C 209.595.8620

E plange@centerpoint-is.com | www.centerpoint-is.com



May 17, 2018

Jennifer Shinn
Engineering Associate
Public Works | Flood Control
333 N. Rancho Drive
Las Vegas, NV 89106
702-229-6131

RE: DS4979
Floor & Decor
Drainage Study Resubmittal

Dear Ms. Shinn:

Please note the following in response to comments received for the above referenced Drainage Study.

1. Provide a Standard Form 1 referencing the correct Assessor Parcel Number (APN) 138-15-502-006

Updated SF1 is attached.

2. Provide a CD that includes an electronic copy of the complete initial submittal and provide a CD containing an electronic copy of each subsequent submittal.

Two CDs are attached. One with the initial submittal and one with this resubmittal.

3. Provide a copy of the zoning/planning conditions associated with this site with the next submittal to verify compliance with conditions. Flood Control will not issue conditional approval of the drainage study without the associated zoning/planning conditions (issued by the City Council). Any associated conditions of approval that revise the site drainage parameters will require that the drainage study be revised and resubmitted.

This comment has been removed per your e-mail of 5/15/18.

4. Provide the standard drainage compliance note on the grading plan: "I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY ON FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT (DS4979)."

The note has been added to the Grading Plans, Sheet C4.0 and Sheet C4.1.



5. Add construction notes to the grading plan to clarify what improvements are to be constructed. Include type of curbs, valley gutters, pavement, etc. Include references to standard plans or provide details.

Proposed construction has been noted with specific call-outs on the Grading Plans, Sheet C4.0 and C4.1. Detail Sheet, C6.0, includes specific details for each item.

6. Provide a section detail of the raised trash compactor pad.

A section detail of the raised trash compactor pad has been added to the Grading Plan, Sheet C4.1.

Additionally, we acknowledge the note regarding requirements for a Notice of Intent from the State of Nevada. Our area of disturbance will be less than 1 acre and we are not adjacent to a water way. Therefore, a Notice of Intent will not be required.

Should you have questions, or require additional information, please do not hesitate to call me at 303-679-6962.

Thank you for your assistance.

Fred Banfield, PE

HYDROLOGIC CRITERIA AND DRAINAGE MANUAL

DRAINAGE STUDY INFORMATION FORM

Name of Development: Floor & Decor Date: 05/16/18

Location of Development: a) Descriptive (Cross Streets) North/South: North Rainbow Boulevard
East/West: West Cheyenne Avenue
b) Section: 15 Township: 20 South Range: 60 East
c) APN : 138-15-502-006

Name of Owner: Floor & Decor
Telephone No.: 404-471-1634 Fax No.: _____ E-Mail Address: julie.starzynski@flooranddecor.com
Address: 2233 Lake Park Drive, Suite 400, Smyrna, GA 30080

Contact Person-Name: Fred Banfield Telephone No.: 303-679-6962
* E-Mail Address: fbanfield@centerpoint-is.com Fax No.: _____
Firm: CenterPoint Engineering, LLC
Address: 355 Union Boulevard, Suite 301, Lakewood, CO 80228

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		

- Total Owned Land Area: At Site: 33.28 acres (total center) Being Developed/Disturbed: 14,845 SF (disturbed)
- Is a portion or all of the subject property located in a designated FEMA Flood Hazard Area? ☐ Yes** ☒ No
- Is the property bordered or crossed by an existing or proposed Clark County Regional Flood Control District Master Planned Facility? ☐ Yes** ☒ No
- Proposed type of development (Residential, Commercial, Etc.): Commercial (redevelopment)
- Approximate upstream land area which drains to the subject site: No upstream land drains to/thru the subject site
- Has the site drainage been evaluated in the past? ☒ YES ☐ NO If yes, please identify documentation: Original study (DS684) and update for Wal-Mart (DS3355)
- If known, please briefly identify the proposed discharge point(s) of runoff from the site: The site is completely developed. Runoff is all overland flow. Some runoff discharges to West Cheyenne Avenue and some discharges to North Rainbow Boulevard. Discharge points are not being altered.
- Briefly describe your proposed schedule for the subject project: Interior modifications (demo) to a portion of the building are in process. Exterior modifications associated with this permit are scheduled to begin mid June.



REFERENCE: 3117118

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. _____

STANDARD FORM 1

DRAINAGE STUDY

FLOOR & DECOR

3071 N. RAINBOW BOULEVARD

LAS VEGAS, NEVADA

PREPARED BY:

FRED BANFIELD, PE #025492, CE

CENTERPOINT ENGINEERING, LLC

355 UNION BOULEVARD, SUITE 301

LAKEWOOD, CO 80228

303.679.6962

APRIL 9, 2018

REVISED 05/17/18



Fred Banfield 5/17/18

TABLE OF CONTENTS

Contents

TABLE OF CONTENTS.....	2
I. GENERAL LOCATION AND DESCRIPTION.....	3
II. DRAINAGE BASINS AND SUB-BASINS	4
III. CONCLUSIONS.....	6
IV. APPENDICES	7

I. GENERAL LOCATION AND DESCRIPTION

A. Location

1. A location map is included in the Appendix.
2. The project is located in the NE ¼ of the NE ¼ of the SE ¼ of the NE ¼ of Section 15, Township 20 South, Range 60 East, M.D.B & M.
3. The project is bound as follows:

North	-	West Cheyenne Avenue
South	-	Multi-family development
East	-	North Rainbow Boulevard
West	-	Interstate 95
4. There are no major drainageways located on or adjacent to the site.

B. Description of Property

1. The subject property is approximately 33.28 acres in size.
2. The site is developed as a commercial center with multiple buildings, parking and landscape islands. The site generally slopes from west to east at approximately 1-2%.
3. The site is located in Zone X outside of the 100 year floodplain and is included on Panel Map Number 32003C2155F. A copy of the FEMA map is included in the Appendix.
4. There are no major drainageways located on or adjacent to the site.
5. A portion of the site is to be redeveloped as a Floor & Décor retail center. The Floor & Décor will take over an existing Marshall's tenant space along with an adjacent unoccupied tenant space. Construction activities will consist of interior remodeling and the following exterior improvements:
 - Construction of a Customer Pickup Area
 - Construction of a slab storage area
 - Modification of existing trash compactor elevations
 - Modification of the existing sidewalk to accommodate entrance changes

Total impervious area for the site will not be increased.

6. The site is currently zoned C-1 and the proposed use is allowed.

II. DRAINAGE BASINS AND SUB-BASINS

A. Major Basin Description

1. The overall site generally drains west to east toward North Rainbow Boulevard. A small portion of the northern site drains to West Cheyenne Avenue. All drainage is via overland flow across the parking lots. Miscellaneous concrete pans are located throughout the site to aid in drainage.

There are no underground storm systems associated with the site.

There is no site detention\water quality associated with the site.

2. A portion of the site was included in a Drainage Study dated June 3, 2003. The study was prepared in support of a 10,000 square foot stock room expansion. As with this project, there was no increase in impervious area and no modifications to the on-site drainage system were required.

Other than the above referenced study, there are no additional studies available.

3. Historically, the site has not had drainage problems.

B. Sub-Basin Description

1. Site improvements associates with the project will consist of the following:

- Construction of a Customer Pickup Area (CPU) at the back of the store - Reference Grading Detail #1 on Sheet C4.0

A CPU will be constructed at the southwest corner of the vacant tenant space. The CPU will have doors for access to the building along with parking for 4 vehicles. The CPU will be used for larger customer orders that may require use of a forklift. Due to the possible use of a forklift, the adjacent pavement will be regraded for a maximum slope of 1% within the parking areas. Transitional grading will be provided to existing pavement.

The CPU will have a self supported canopy for weather protection.

There will be no increase in overall site impervious area associated with this improvement.

Drainage from this area historically flows west to curb\gutter then continues north, along the curb\gutter, with ultimate discharge into West Cheyenne Avenue.

Historical drainage patterns will be maintained.

- Construction of a slab storage area - Reference Grading Detail #1 on Sheet C4.0

A slab storage area will be constructed at the southwest corner of the vacant tenant space. The storage area will be used for outdoor storage of countertop slabs. Slabs will be maneuvered by a fork lift. Due to the use of a fork lift, the adjacent pavement will be regraded for a maximum slope of 1% adjacent to the storage area. Transitional grading will be provided to existing pavement.

There will be no increase in overall site impervious area associated with this improvement.

Drainage from this area historically flows south to an existing concrete pan then continues west to curb\gutter with ultimate discharge into West Cheyenne Avenue. Due to condition of the pan, it will be reconstructed. However, existing location and elevations will be maintained with the reconstruction.

Historical drainage patterns will be maintained.

- Modification of existing trash compactor elevations - Reference Grading Detail #3 on Sheet C4.1

An existing trash compactor is located at the northwest corner of the Marshall's tenant space. The existing pad has a slope that is not compatible with the prototype system used by Floor & Décor. The existing pad will be removed and a new pad constructed, at different elevations, to meet the prototype compactor requirements.

There will be no increase in overall site impervious area associated with this improvement.

Drainage from this area historically flows west to curb\gutter then continues north, along the curb\gutter, with ultimate discharge into West Cheyenne Avenue.

Historical drainage patterns will be maintained.

- Modification of the existing sidewalk to accommodate entrance changes - Reference Grading Detail #2 on Sheet C4.1

As noted earlier, the redevelopment will combine two existing tenant spaces with individual doors into each space. The existing doors will be replaced with a single entrance located near the middle of the overall space.

There is an existing pedestrian ramp in front of the Marshall's tenant space. This pedestrian ramp will be relocated to align with the new entrance.

The existing sidewalk in front of the building is approximately 20' in width. All grading associated with the new ramp can be accommodated within the sidewalk with no changes required in the parking lot

There will be no increase in overall site impervious area associated with this improvement.

Drainage from this area historically flows east across the parking lot, via overland flow, with ultimate discharge into North Rainbow Boulevard.

Historical drainage patterns will be maintained.

III. CONCLUSIONS

- The project proposes redevelopment of two existing tenant spaces located in the Cheyenne Commons Shopping Center.
- Minor construction will be required during redevelopment.
- Existing impervious area of the site will not be increased
- Historical drainage patterns will be maintained.

In conclusion, the project will not have negative impacts to the existing on-site, or adjacent, drainage system.

IV. APPENDICES

APPENDIX A

- City of Las Vegas Standard Form 1
- City of Las Vegas Standard Form 2 Checklist
- Vicinity Map
- FIRM Map

APPENDIX B

- Drainage Plan
- Grading Plans
- Detail Sheet

APPENDIX A

- CITY OF LAS VEGAS STANDARD FORM 1
- CITY OF LAS VEGAS STANDARD FORM 2 CHECKLIST
- VICINITY MAP
- FIRM MAP

HYDROLOGIC CRITERIA AND DRAINAGE MANUAL
DRAINAGE STUDY INFORMATION FORM

Name of Development: Floor & Decor Date: 05/16/18
Location of Development: a) Descriptive (Cross Streets) North/South: North Rainbow Boulevard
East/West: West Cheyenne Avenue
b) Section: 15 Township: 20 South Range: 60 East
c) APN: 138-15-502-006
Name of Owner: Floor & Decor
Telephone No.: 404-471-1634 Fax No.: _____ E-Mail Address: julie.starzynski@flooranddecor.com
Address: 2233 Lake Park Drive, Suite 400, Smyrna, GA 30080

Contact Person-Name: Fred Banfield Telephone No.: 303-679-6962
* E-Mail Address: fbanfield@centerpoint-is.com Fax No.: _____
Firm: CenterPoint Engineering, LLC
Address: 355 Union Boulevard, Suite 301, Lakewood, CO 80228

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: 33.28 acres (total center) Being Developed/Disturbed: 14,845 SF (disturbed)
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.): Commercial (redevelopment)
5. Approximate upstream land area which drains to the subject site: No upstream land drains to/thru the subject site
6. Has the site drainage been evaluated in the past? ☒ YES ☐ NO If yes, please identify documentation: Original study (DS684) and update for Wal-Mart (DS3355)
7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: The site is completely developed. Runoff is all overland flow. Some runoff discharges to West Cheyenne Avenue and some discharges to North Rainbow Boulevard. Discharge points are not being altered.
8. Briefly describe your proposed schedule for the subject project: Interior modifications (demo) to a portion of the building are in process. Exterior modifications associated with this permit are scheduled to begin mid June.



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.**

Local Entity File No. _____

Revision

Date

REFERENCE: 5/17/18

STANDARD FORM 1



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.)
	N/A	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.)

CITY OF LAS VEGAS MINIMUM DRAINAGE STUDY CRITERIA CHECKLIST

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.
	N/A	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.
	N/A	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.
	N/A	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.

CITY OF LAS VEGAS MINIMUM DRAINAGE STUDY CRITERIA CHECKLIST

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.

National Flood Hazard Layer FIRMette



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

Without Base Flood Elevation (BFE) Zone A, V, A99	Regulatory Floodway Zone AE, AO, AH, VE, AF
With BFE or Depth	
SPECIAL FLOOD HAZARD AREAS	

0.2% Annual Chance Flood Hazard. Area of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X	Future Conditions 1% Annual Chance Flood Hazard Zone X
Area with Reduced Flood Risk due to Levee. See Notes. Zone X	Area with Flood Risk due to Levee Zone D
OTHER AREAS OF FLOOD HAZARD	

NO SCREEN	Area of Minimal Flood Hazard Zone X
Effective LOMRs	
Area of Undetermined Flood Hazard Zone	
OTHER AREAS	
GENERAL STRUCTURES	Channel, Culvert, or Storm Sewer Levee, Dike, or Floodwall

20.2	Cross Sections with 1% Annual Chance Water Surface Elevation
17.5	Coastal Transsect
Base Flood Elevation Line (BFE)	
Limit of Study	
Jurisdiction Boundary	
Coastal Transsect Baseline	
Profile Baseline	
Hydrographic Feature	
OTHER FEATURES	

Digital Data Available	
No Digital Data Available	
Unmapped	
MAP PANELS	

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The base map shown complies with FEMA's base map accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 3/7/2018 at 1:52:54 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: base map imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



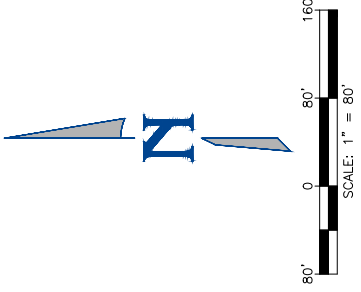
115°14'23.76"W

36°12'41.12"N

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

APPENDIX B

- DRAINAGE PLAN
- GRADING PLANS
- DETAIL SHEET



1. EXISTING DRAINAGE PATTERNS DETERMINED FROM SURVEY AND VISUAL OBSERVATIONS.
2. HISTORICAL DRAINAGE PATTERNS TO REMAIN UNALTERED.
3. NO INCREASE IN SITE IMPERVIOUS AREA.



811
CALL 2-BUSINESS DAYS IN
ADVANCE BEFORE YOU DIG,
GRADE, OR EXCAVATE FOR THE
MARKING OF UNDERGROUND
MEMBER UTILITIES.

REUSE OF DOCUMENT
THE IDEAS & DESIGN INCORPORATED
HEREON, AS AN INSTRUMENT OF
PROFESSIONAL SERVICE, IS THE PROPERTY
OF CENTERPOINT ENGINEERING & IS NOT TO
BE USED FOR ANY OTHER PROJECT WITHOUT
WRITTEN AUTHORIZATION OF CENTERPOINT
ENGINEERING.

SCALE VERIFICATION
 BAR IS ONE INCH ON ORIGINAL DRAWING
 IF NOT ONE INCH ON THIS SHEET
 ADJUST SCALES ACCORDINGLY

NOT RELEASED FOR CONSTRUCTION

[illegible]

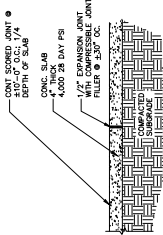
3071 N RAINBOW BLVD
LAS VEGAS, NV

902
04/19/2018

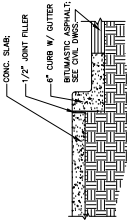
DRAINAGE PLAN

104 *Journal of Law, Economics, & Organization*, V16 N1

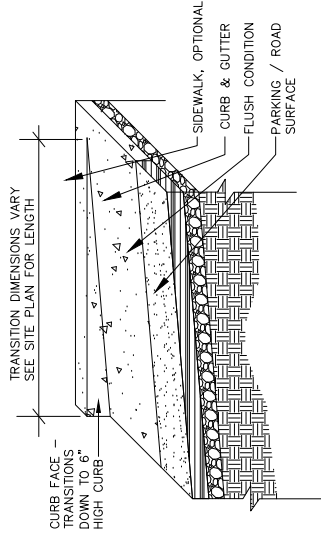
C5.0



TYP. SIDEWALK DTL
SCALE: NTS

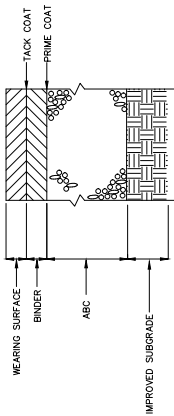


TYP. SIDEWALK @ CURB
SCALE: NTS



TRANSITION CURB DETAIL
SCALE : N.T.S.

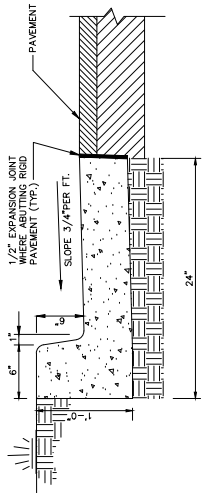
- NOTES:
- SUBGRADE SOILS TO BE SCARIFIED TO AT LEAST 12 INCHES AND COMPACTED TO AT LEAST 95 PERCENT STANDARD PROCTOR DENSITY. BRUSH AND GRASS TO BE BROUGHT TO MOISTURE CONTENTS WITHIN 0-2 PERCENT ABOVE OPTIMUM PER ASTM D1557.
 - AGGREGATE BASE SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF ASTM D1557 WITH MOISTURE ABOVE OPTIMUM PER ASTM D1557.
 - AGGREGATE BASE MATERIALS SHALL CONFORM TO THE REQUIREMENTS OF THE LOCAL REGULATORY AGENCY.
 - ALL MATERIALS SHALL CONFORM TO AND BE PLACED IN ACCORDANCE WITH THE LATEST REVISIONS OF THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (N.B.S. 2018 EDITION), THE AMERICAN CONCRETE INSTITUTE (ACI) AND THE PORTLAND CEMENT ASSOCIATION (PCA) SUPERPAVE MIXTURES IN THE NEMO, NEVADA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS AND STANDARD PLANS FOR ROAD AND BRIDGE CONSTRUCTION.
 - ASPHALTIC CONCRETE SHALL MEET THE FOLLOWING:
 - ASPHALT CEMENT - PG 64-22 OR PG 64-28
 - FILLER - 100% PASSING 75 MICRON SIEVE
 - PERCENT AIR Voids - 2.5% - 4.5%
 - MATERIALS AND CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH NEVADA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS AND STANDARD PLANS FOR ROAD AND BRIDGE CONSTRUCTION.
 - SECTION SHALL INCLUDE REQUIRED COATS (TACK, PRIME, SLURRY, ETC.)
 - ASPHALT SHALL BE PLACED IN MIN. 2 LIFTS AND EACH LAYER SHALL BE A MINIMUM OF 2 TIMES THE MAXIMUM AGGREGATE SIZE.
 - ASPHALT TO BE SEALED AT ALL TRANSITION JOINTS.



PAVING SECTION
N.T.S.

HOT MIX ASPHALT CONCRETE	4"	3"
AGGREGATE BASE COURSE	4"	5.5"
COMPACTED FILL/SUBGRADE	12"	12"

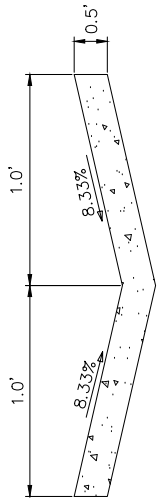
DETAIL – ASPHALT PAVEMENT
SCALE: N.T.S.



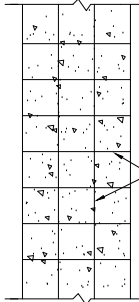
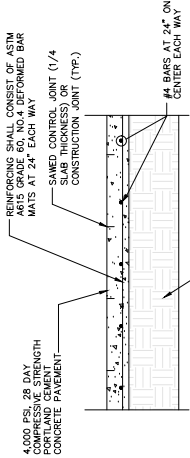
CONCRETE CURB & GUTTER
N.T.S.

- NOTES:
- FOR SPILL CURB SLOPE 3/4" PER FOOT AWAY FROM THE FACE OF CURB.
 - CONCRETE TO HAVE A MIN. 28 DAY COMPRESSIVE STRENGTH OF 4000 PSI.

DETAIL – CURB & GUTTER
SCALE: NTS

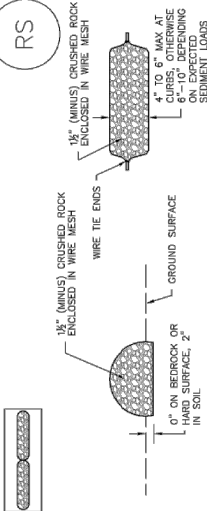


CONCRETE
GUTTER SECTION
N.T.S.



SECTION
CONCRETE PAVEMENT DETAIL
N.T.S.

DETAIL – CONCRETE PAVEMENT
SCALE: NTS



ROCK SOCK SECTION

ROCK SOCK PLAN



ROCK SOCK JOINTING

SIDE SIZE	MASS PERCENT PASSING SQUARE MESH SIEVES	NO. 4
2"	100	100
1 1/2"	20 - 55	20 - 55
1"	0 - 15	0 - 15
3/4"	0 - 15	0 - 15

ROCK SOCK INSTALLATION NOTES

- SEE PLAN VIEW FOR:
 - LOCATIONS OF ROCK SOCKS.
- CRUSHED ROCK SHALL BE 1/2" (MINUS) IN SIZE WITH A FRACTURED FACE (ALL SIDES) AND SHALL COMPLY WITH GRADATION SHOWN ON THIS SHEET (1/2" MINUS).
- WIRE MESH SHALL BE FABRICATED OF 10 GAGE POLYTRY MESH, OR EQUIVALENT, WITH A MAXIMUM OPENING OF 3/4". RECOMMENDED MINIMUM ROLL WIDTH OF 48"
- WIRE MESH SHALL BE SECURED USING "HOG RINGS" OR WIRE TIES AT 6" CENTERS ALONG ALL JOINTS AND AT 2' CENTERS ON ENDS OF SOCKS.
- SOME MUNICIPALITIES MAY ALLOW THE USE OF FILTER FABRIC AS AN ALTERNATIVE TO WIRE MESH FOR THE ROCK ENCLOSURE.

RS-1. ROCK SOCK PERIMETER CONTROL

ROCK SOCK MAINTENANCE NOTES

- INSPECT BMPs EACH WINTER, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- ROCK SOCKS SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED, OR DAMAGED BEYOND REPAIR.
- SEEDS AND MULCH UPSTREAM OF ROCK SOCKS SHALL BE PROVIDED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP. TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 1/2 OF THE HEIGHT OF THE ROCK SOCK.
- ROCK SOCKS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.
- WHEN ROCK SOCKS ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

(SCALE: ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF ALBUQUERQUE, NEW MEXICO)

NOTE: THE DETAILS INCLUDED WITH THIS PLAN SHEET SHOW COMMONLY USED CONVENTIONAL METHODS OF ROCK SOCK INSTALLATION IN THE DENVER METROPOLITAN AREA. THERE ARE MANY OTHER SIMILAR PROPRIETARY PRODUCTS ON THE MARKET. UPON NEITHER NORDESIGN'S PART, NOR THE PROJECT OWNER'S PART, NEITHER NORDESIGN NOR THE PROJECT OWNER MAKES ANY REPRESENTATION OR WARRANTY REGARDING THE PROPRIETARY METHODS ARE USED. THE APPROPRIATE DETAIL FROM THE MANUFACTURER MUST BE INCLUDED IN THE SWMP AND THE BMP MUST BE INSTALLED AND MAINTAINED AS SHOWN IN THE MANUFACTURER'S DETAILS.

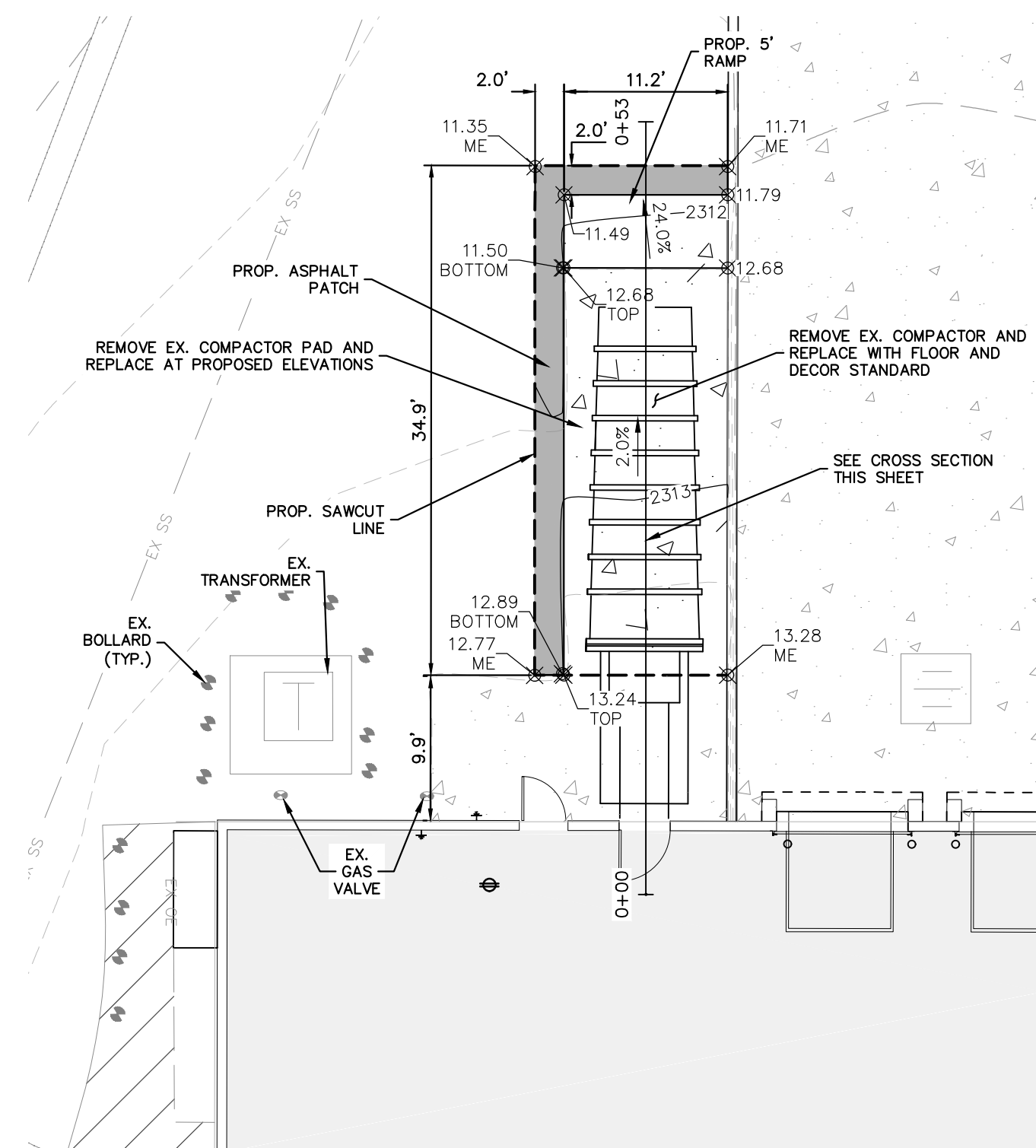
- NOTES:
- REFERENCE ASPHALT PAVEMENT NOTES FOR SUBGRADE AND BASE PREPARATION.
 - CONCRETE SHALL BE PLACED IN MIN. 2 LIFTS AND EACH LAYER SHALL BE A MINIMUM OF 2 TIMES THE MAXIMUM AGGREGATE SIZE.
 - MAXIMUM WATER CEMENT RATIO OF 0.45 AND AN AIR ENTRAINMENT SPECIFICATION OF 5% (+/- 1.5%).
 - REINFORCING TO BE PROVIDED AND PLACED APPROXIMATELY 1/2 THE SLAB THICKNESS BELOW THE SLAB BUT NOT LESS THAN 2 INCHES.
 - LONGITUDINAL AND TRANSVERSE JOINTS SHALL BE SAWED AS INDICATED AND IN ACCORDANCE WITH ACI 302.6R GUIDELINES.
 - CONCRETE SHALL BE PLACED TO A DEPTH OF AT LEAST 1/4 THE THICKNESS OF THE CONCRETE SLAB AND SHOULD HAVE A MINIMUM WIDTH OF 1/8 INCH AND A MINIMUM WIDTH OF 5 INCHES.
 - CONTROL JOINTS SHALL BE SAWED WITHIN 24 HOURS OF PLACEMENT.
 - WIRE BARS SHALL BE PLACED AT ALL CONSTRUCTION JOINTS PARALLEL TO TRAFFIC AND SHALL CONSIST OF #4 BARS 15 INCHES IN LENGTH AND PLACED AT NO MORE THAN 24 INCHES ON CENTER.
 - WIRE BARS SHALL BE PLACED AT ALL CONTROL JOINTS PERPENDICULAR TO TRAFFIC.
 - DOVEL BARS SHALL BE PLACED AT A MINIMUM OF 18" ON CENTER AND IN THE MIDDLE OF THE SLAB.
 - LUBRICATED SMOOTH DOVEL BARS SHALL BE COMPATIBLE WITH THE JOINT CONFIGURATION. PROVIDE TYPICAL DETAILS FOR CONSTRUCTION & EXP.
 - THE JOINT SEAL MANUFACTURER'S SPECIFICATIONS SHALL BE COMPATIBLE WITH THE JOINT CONFIGURATION. PROVIDE TYPICAL DETAILS FOR CONSTRUCTION & EXP.
 - THE JOINT SEALANT OPERATION.
 - THE JOINT SEALANT SHALL BE CORRECTED FOR 48 DEGREE F.
 - EXPANSION JOINTS SHALL BE USED AT ALL LOCATIONS WHERE PAVEMENT ABUTS A PERMANENT STRUCTURE.

CONCRETE	6"
AGGREGATE BASE COURSE	4"
COMPACTED FILL/SUBGRADE	12"
JOINT SPACING	12.5'

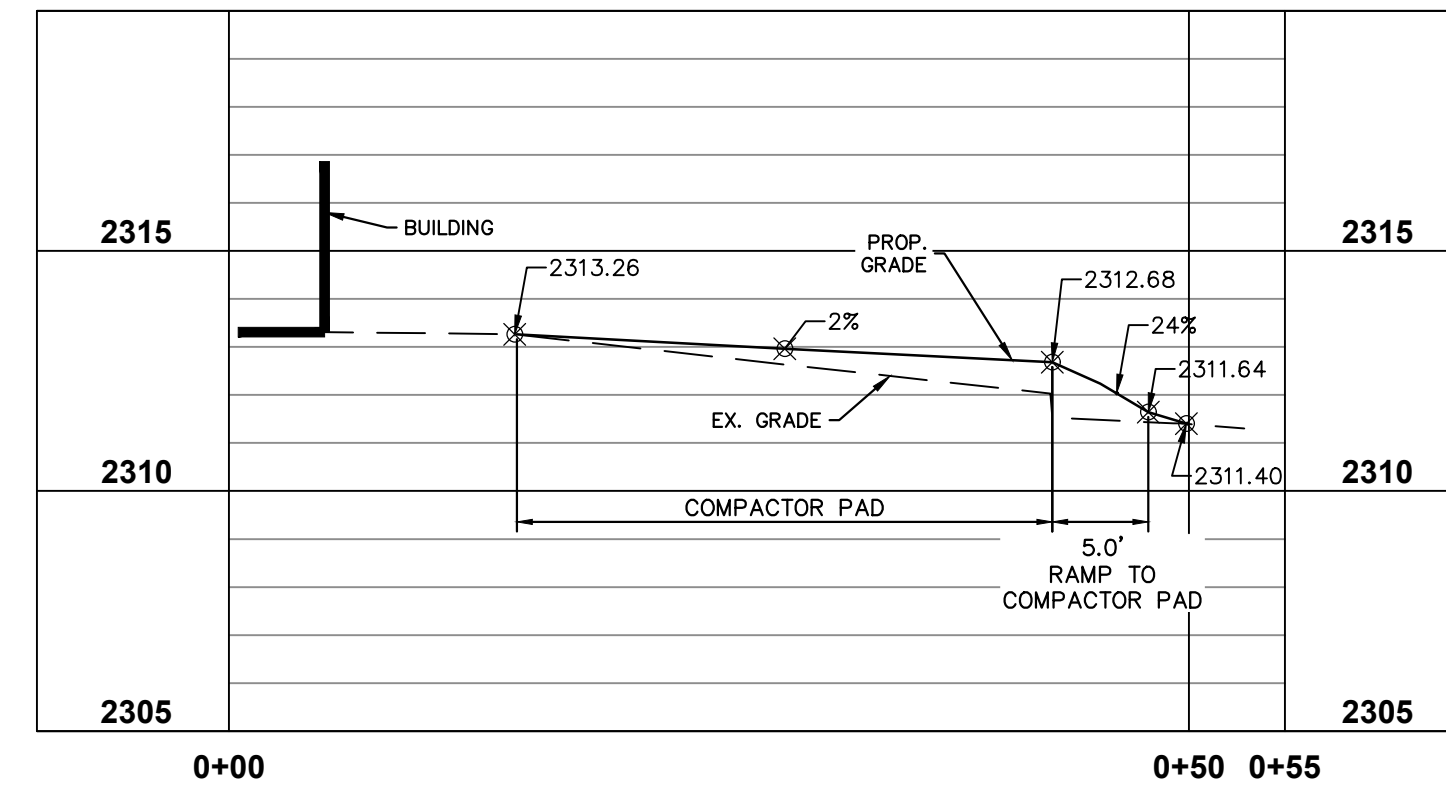
DETAIL – CONCRETE PAVEMENT
SCALE: NTS

DETAIL – CURB & GUTTER
SCALE: NTS

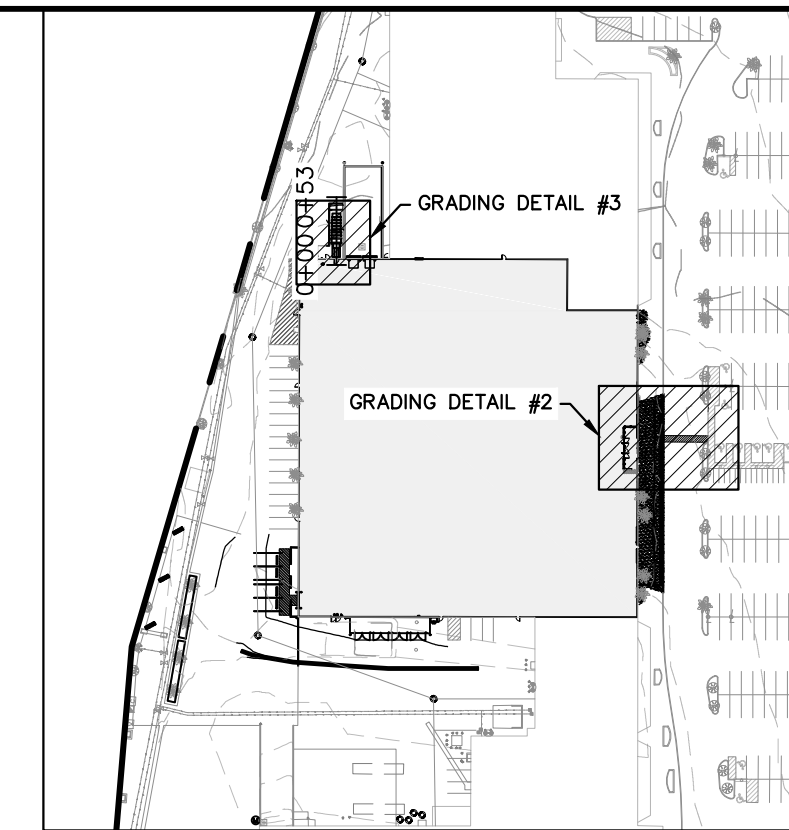
REV.	NO.	DATE	DESCRIPTION	BY
1	05/07/18	05/07/18	DRAINAGE STUDY	FB



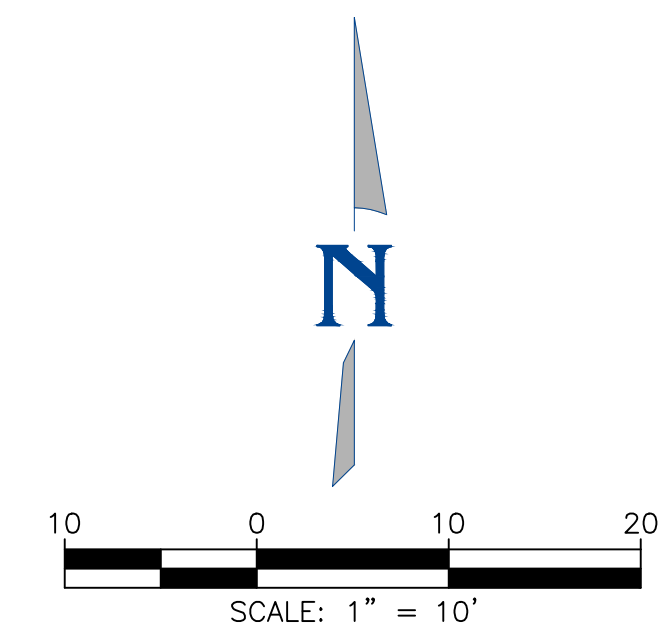
GRADING DETAIL #3
SCALE: 1" = 10'



COMPACTOR PAD
CROSS-SECTION
SCALE: 1" = 10'



VICINITY MAP
SCALE: 1" = 100'



NOTES

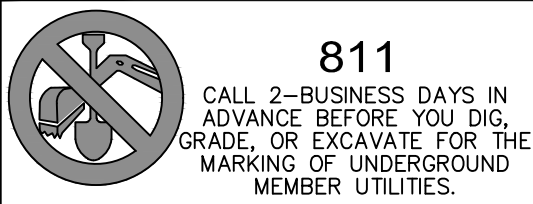
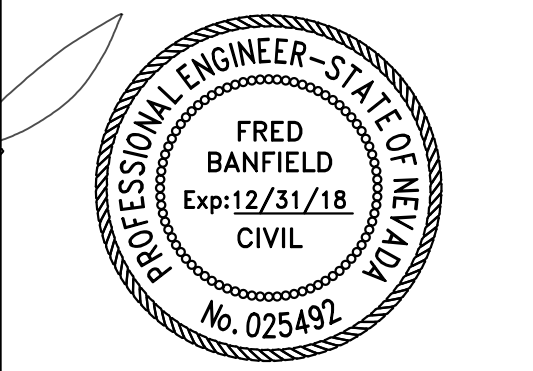
1. ALL SPOT ELEVATIONS ARE TO TOP OF PAVEMENT
UNLESS OTHERWISE LISTED.
2. REFERENCE SHEET C6.0 FOR DETAILS.

LEGEND

PROPERTY LINE	
PROPERTY LINE (OFFSITE)	
EXISTING RIGHT OF WAY	
EXISTING EASEMENT	
EXISTING BUILDING	
PROPOSED BUILDING	
PROPOSED SITE WALL	
EXISTING CURB & GUTTER	
PROPOSED CURB & GUTTER	
EXISTING FENCE	
PROPOSED FENCE	
PROPOSED CONCRETE WALK	
PROPOSED CONCRETE PAVEMENT	
EXISTING STORM PIPE	
EXISTING STORM STRUCTURES	
PROPOSED STORM PIPE	
PROPOSED STORM STRUCTURES	
EXISTING MAJOR CONTOUR	
EXISTING MINOR CONTOUR	
PROPOSED MAJOR CONTOUR	
PROPOSED MINOR CONTOUR	

DRAINAGE COMPLIANCE

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY ON FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT (DS4979).

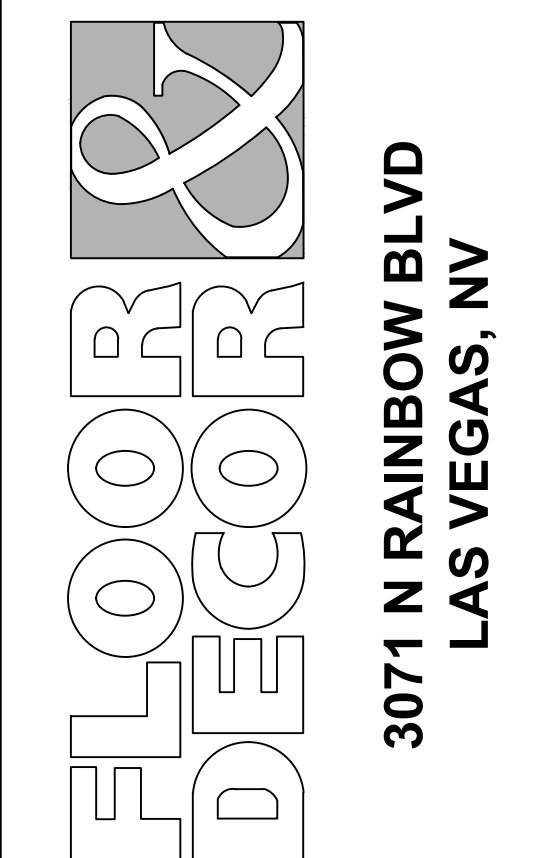


REUSE OF DOCUMENT
THE IDEAS & DESIGN INCORPORATED
HEREON, AS AN INSTRUMENT OF
PROFESSIONAL SERVICE, IS THE PROPERTY
OF CENTERPOINT ENGINEERING & IS NOT TO
BE USED FOR ANY OTHER PROJECT WITHOUT
WRITTEN AUTHORIZATION OF CENTERPOINT
ENGINEERING.

SCALE VERIFICATION
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET
ADJUST SCALES ACCORDINGLY

NOT RELEASED FOR CONSTRUCTION

APPROVAL

[illegible]

PROJECT NO. 902

DATE 04/19/2018

SHEET TITLE _____

GRADING PLAN

SITE PLAN NO.

C4.1

SHEET NO. **C4.1**

TYP. SIDEWALK DTL
SCALE: NTS

TYP. SIDEWALK @ CURB
SCALE: NTS

TRANSITION CURB DETAIL

PAVING SECTION

DETAIL – ASPHALT PAVEMENT

CONCRETE CURB & GUTTER

- NOTES:
1. FOR SPILL CURB SLOPE $3/4"$ PER FOOT AWAY FROM THE FACE OF CURB.
 2. CONCRETE TO HAVE A MIN. 28 DAY COMPRESSIVE STRENGTH OF 4000 PSI.

PLAN

SECTION

CONCRETE
GUTTER SECTION

ROCK SOCK SECTION

ROCK SOCK JOINTING

GRADATION TABLE	
SIEVE SIZE	MASS PERCENT PASSING SQUARE MESH SIEVES
	NO. 4
2"	100
1½"	90 - 100
1"	20 - 55
¾"	0 - 15
¾"	0 - 5

MATCHES SPECIFICATIONS FOR NO. 4
COARSE AGGREGATE FOR CONCRETE
PER AASHTO M43. ALL ROCK SHALL BE
FRACTURED FACE, ALL SIDES.

ROCK SOCK INSTALLATION NOTES

- SEE PLAN VIEW FOR
-LOCATION(S) OF ROCK SOCKS.
- CRUSHED ROCK SHALL BE 1½" (MINUS) IN SIZE WITH A FRACTURED FACE (ALL SIDES) AND SHALL COMPLY WITH GRADATION SHOWN ON THIS SHEET (1½" MINUS).
- WIRE MESH SHALL BE FABRICATED OF 1/4" GAUGE POLYETHYLENE MESH, OR EQUIVALENT, WITH A MAXIMUM OPENING OF 1½". RECOMMENDED MINIMUM ROLL WIDTH OF 48".
- WIRE MESH SHALL BE SECURED USING "HOG RINGS" OR WIRE TIES AT 6" CENTERS ALONG ALL JOINTS AND AT 2" CENTERS ON ENDS OF SOCKS.
- SOME MUNICIPALITIES MAY ALLOW THE USE OF FILTER FABRIC AS AN ALTERNATIVE TO WIRE MESH FOR THE ROCK ENCLOSURE.
- CONCRETE AGGREGATE FOR CONCRETE SHALL BE 3/4" MAX. ALL SHALL BE FRACTURED FACE, ALL SIDES.

RS-1. ROCK SOCK PERIMETER CONTROL

ROCK SOCK MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. INSPECT BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. ROCK SOCKS SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED, OR DAMAGED BEYOND REPAIR.
5. SEDIMENT ACCUMULATED UPSTREAM OF ROCK SOCKS SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP. TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY $\frac{1}{2}$ OF THE HEIGHT OF THE ROCK SOCK.
6. ROCK SOCKS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.
7. WHEN ROCK SOCKS ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

(DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)

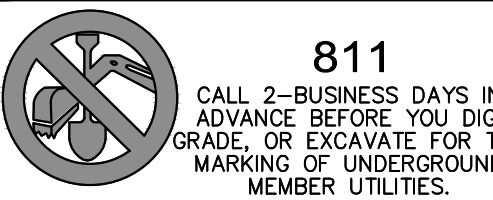
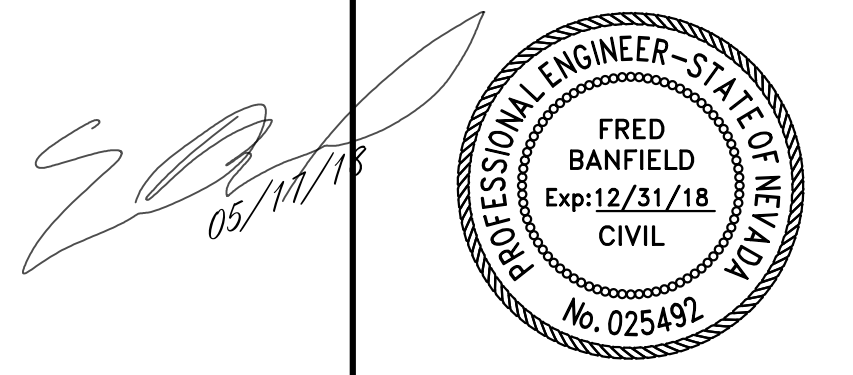
NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN

NOTE: THE DETAILS INCLUDED WITH THIS FACT SHEET SHOW COMMONLY USED, CONVENTIONAL METHODS OF ROCK SOCK INSTALLATION IN THE DENVER METROPOLITAN AREA. THERE ARE MANY OTHER SIMILAR PROPRIETARY PRODUCTS ON THE MARKET. UDFCD NEITHER ENDORSES NOR DISCOURAGES USE OF PROPRIETARY PROTECTION PRODUCTS; HOWEVER, IN THE EVENT PROPRIETARY METHODS ARE USED, THE APPROPRIATE DETAIL FROM THE MANUFACTURER MUST BE INCLUDED IN THE SWMP AND THE BMP MUST BE INSTALLED AND MAINTAINED AS SHOWN IN THE MANUFACTURER'S DETAILS.

HOT MIX ASPHALT CONCRETE	4"	3"
AGGREGATE BASE COURSE	4"	5.5"
COMPACTED FILL/SUBGRADE	12"	12"

- NOTES:
1. REFERENCE ASPHALT PAVEMENT NOTES FOR SUBGRADE AND BASE PREPARATION.
 2. CONCRETE SHALL BE MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4,000 PSI.
 3. MAXIMUM WATER CEMENT RATIO OF 0.45 AND AN AIR ENTRAINMENT SPECIFICATION OF 5% (+/- 1.5%).
 4. REINFORCING TO BE PROVIDED AND PLACED APPROXIMATELY 1/2 THE SLAB THICKNESS BELOW THE SLAB BUT NOT LESS THAN 2 INCHES.
 5. LONGITUDINAL AND TRANSVERSE JOINTS SHALL BE SAWS AS INDICATED AND IN ACCORDANCE WITH ACI 302.69 GUIDELINES.
 6. CONTROL JOINTS SHALL BE SAWS TO A DEPTH OF AT LEAST 1/4 THE THICKNESS OF THE CONCRETE SLAB AND SHOULD HAVE A MINIMUM WIDTH OF 1/8 INCH AND A MAXIMUM WIDTH OF 5/8 INCHES.
 7. CONTROL JOINTS SHALL BE SAWS WITHIN 24 HOURS OF PLACEMENT.
 8. THE BARS SHALL BE PLACED AT ALL CONSTRUCTION JOINTS PARALLEL TO TRAFFIC AND SHALL CONSIST OF #4 BARS 15 INCHES IN LENGTH AND PLACED AT NO MORE THAN 24 INCHES ON CENTER.
 9. LUBRICATED SMOOTH DOWEL BARS SHALL BE PLACED AT ALL CONTROL JOINTS PERPENDICULAR TO TRAFFIC.
 10. DOWEL BARS SHALL BE 18 INCHES LONG AND SPACED AT A MINIMUM OF 18" ON CENTER AND IN THE MIDDLE OF THE SLAB.
 11. THE JOINT SEAL MANUFACTURER'S SPECIFICATIONS SHALL BE COMPATIBLE WITH THE JOINT CONFIGURATION. PROVIDE TYPICAL DETAILS FOR CONSTRUCTION & EXP.
 12. FOR ALL JOINTS THE BACKER ROD MATERIAL SHALL BE COMPATIBLE WITH THE COLD POURED SEALANT AND SLIGHTLY OVERSIZED TO PREVENT MOVEMENT DURING THE JOINT SEALANT OPERATION.
 13. THE WIDTH OF ALL JOINTS SHALL BE CORRECTED FOR 68 DEGREE F.
 14. EXPANSION JOINTS SHALL BE USED AT ALL LOCATIONS WHERE PAVEMENT ABUTS A PERMANENT STRUCTURE.

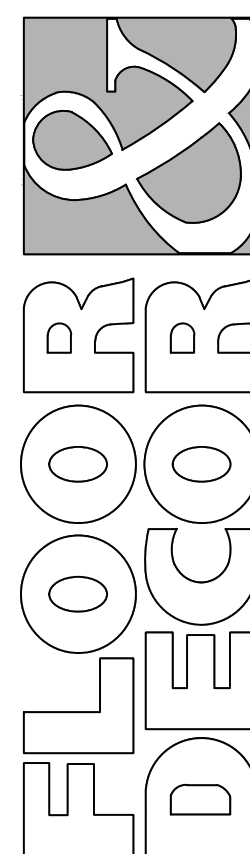
CONCRETE	6"
AGGREGATE BASE COURSE	4"
COMPACTED FILL/SUBGRADE	12"
JOINT SPACING	12.5'



REUSE OF DOCUMENT
THE IDEAS & DESIGN INCORPORATED
HEREON, AS AN INSTRUMENT OF
PROFESSIONAL SERVICE, IS THE PROPERTY
OF CENTERPOINT ENGINEERING & IS NOT TO
BE USED FOR ANY OTHER PROJECT WITHOUT
WRITTEN AUTHORIZATION OF CENTERPOINT
ENGINEERING.

SCALE VERIFICATION
 BAR IS ONE INCH ON ORIGINAL DRAWING
 IF NOT ONE INCH ON THIS SHEET
 ADJUST SCALES ACCORDINGLY

NOT RELEASED FOR CONSTRUCTION

[illegible]

**3071 N RAINBOW BLVD
LAS VEGAS, NV**

PROJECT NO. 90

DATE: 04/19/2011

SHEET TITLE :

SITE DETAILS

SITE PLAN NO. _____

SHEET NO. **C6.0**