

DS #:

4811

APN:

137.12.361.009

PROJECT:

Caballos De Oro Estates

SUBMITTAL:

2nd

SCANNED BY/DATE:

CHECKED BY/DATE:



CITY OF LAS VEGAS		DATE:
INTER-OFFICE MEMORANDUM		August 23, 2016
TO: Land Development Services Department of Building & Safety		FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	Drainage Study for:	COPIES TO:
	Caballos De Oro Estates	Balova Engineering
Cross Streets:	NWC of Cliff Shadows Pkwy & Buckskin Ave.	Caballos De Oro Estates, LLC
File Number:	F:\Depot\DSMemos\DS4811B.doc	Bart Anderson, P.E., DevCo
Parcel Number:	137-12-301-009	CCRFCD
Zoning Action:	SDR-XXXXX etc.	CCPW
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	6/30/2016	7/21/2016	Not Approved	\$400.00	449739: \$400
2 nd Submittal	8/11/2016	8/25/2016	See Comments Below	\$400.00	454517: \$400
TOTAL FEES (LDDRS):				\$800.00	----

REMARKS:

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

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

1. **This drainage study is acceptable in concept;** however, *City of Las Vegas* will not formally accept the study until the *Clark County Regional Flood Control District* (CCRFCD) has issued a letter of concurrence. The engineer should contact the CCRFCD to confirm that they have begun their review.
2. The site is also adjacent to the jurisdiction of *Clark County* to the west. Obtain concurrence from *Clark County Public Works Department* for the subject development prior to the final approval of the subject drainage study.
3. The proposed 10'-public drainage easement (privately maintained) must be dedicated by separate document prior to the final approval 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.

END OF REMARKS

ays

T/R/S: T20S/R59E/12
AREA K-12

TECHNICAL DRAINAGE STUDY

Addendum 1

Prepared for:
Caballos De Oro Estates
Buckskin and Cliff Shadows Parkway
Las Vegas, NV 89129

Prepared by:

BALOVA ENGINEERING
6130 ELTON AVENUE
LAS VEGAS, NV 89107
TEL 702-216-0330

08/01/2016

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

DRAINAGE STUDY INFORMATION FORM

Name of Development: Caballos De Oro Estates Date: June 30, 2016
Location of Development: a) Descriptive (Cross Streets) North/South: Cliff Shadows Parkway
East/West: Buckskin Avenue
b) Section: 12 Township: 20 S Range: 59 E
c) APN: Portion of 137-12-301-009

Name of Owner: Caballos De Oro Estates, LLC
Telephone No.: 702-624-5792 Facsimile No.: _____ Email Address: arnoldstalk@gmail.com
Address: 6040 S. Durango Drive, #105 Las Vegas NV 89113
Contact Person Name: Petya Balova, PE Telephone No.: (702) 682-1706
E-mail Address: petya@balovaengineering.com
Firm: Balova Engineering
Address: 6130 Elton Avenue, Suite 104, Las Vegas, NV 89107

Type of Land Development/Land Disturbance Process:

☐
☐
☐

Rezoning
Parcel Map
Large Parcel Map

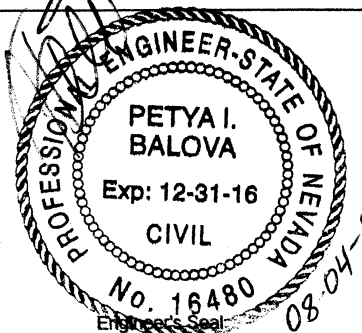
☐
☐
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Subdivision Map
Planned Unit Development
Building Permit

☐
☐

Clearing and Grading Only
Other (Please specify below)

1. Total Owned Land Area: At Site: 5.00 +/- ac Being Developed/Disturbed: 3.00 +/- ac
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.)? Apartment Complex
5. Approximate upstream land area which drains to the subject site? 5 +/- ac
6. Has the site drainage been evaluated in the past? YES ☐ NO ☐ If yes, please identify documentation:
Technical Drainage Study for Caballos De Oro, approved on February 15, 2007. City of Las Vegas file No. DS 3964
7. If known, please briefly identify the proposed discharge point(s) of runoff from the site:
Easterly onto existing Drainage Easement within the existing Cliffs Office Park
8. Briefly describe your proposed schedule for the subject project: As soon as possible



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:

STANDARD FORM 1

CITY OF LAS VEGAS		DATE:
INTER-OFFICE MEMORANDUM		July 23, 2016
TO: Land Development Services Department of Building & Safety		FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	Drainage Study for:	
	Caballos De Oro Estates	
Cross Streets:	NWC of Cliff Shadows Pkwy & Buckskin Ave.	COPIES TO:
File Number:	F:\Depot\DSMemos\DS4811A.doc	Balova Engineering
Parcel Number:	137-12-301-009	Caballos De Oro Estates, LLC
Zoning Action:	SDR-XXXXX etc.	Bart Anderson, P.E., DevCo
FEMA Flood Zone	YES	CCRFCD
	NO	CCPW
Proposed Storm Drain	YES	
	NO	

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1 st Submittal	6/30/2016	7/21/2016	See Comments Below	\$400.00	449739: \$400
TOTAL FEES (LDDRS):				\$400.00	----

REMARKS:

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

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

1. Provide a copy of the zoning/planning conditions associated with this site (such as SDR-XXXXX) 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.
2. Sites with a grade difference of 2 feet above or below existing are required to have approval from the *City Planning and Development Department*. The engineer must submit copies of the grading plans and detail sheet with a letter justifying the grade difference to the *City Planning Department* (229-6301). The engineer must provide Planning approval with the next submittal.
3. The site is adjacent to or crosses an existing or proposed *Clark County Regional Flood Control District* (CCRFCD) master planned facility. Therefore, CCRFCD concurrence is required prior to final approval of the drainage study.
4. The site is also adjacent to the jurisdiction of *Clark County* to the west. Obtain concurrence from *Clark County Public Works Department* for the subject development prior to the final approval of the subject drainage study.

5. On the **Onsite Drainage Map (Developed Condition) Sheet D1:**

- Identify and label basins "OFX1", "OND1" and concentration point "CP1" which are missing in the last submittal.
- The flow summary for *Hydraulic Sections 1, 2 and 3* are missing in the last submittal. Provide as such in the next submittal.
- It appears that the northern half of the west property line of the subject development is used as a basin boundary for "OFX1". However, the west property line is not a logical basin boundary. Review and revise the offsite basins accordingly.
- The scale of the proposed onsite drainage map is not adequate. Use a larger scale to include the whole scope of the onsite and offsite basins.

6. **Sheet C5: Section I** (East Property Line): There is a 1.9'-wide gap between the proposed retaining wall and the adjacent existing wall. Provide a cap to close off the gap.

7. The proposed 10'-public drainage easement (privately maintained) must be dedicated by separate document prior to the final approval of the improvement plans.

8. Identify and label an existing drainage easement in the adjacent property to the east with recorded document number on the grading plan.

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
ays

T/R/S: T20S/R59E/12
AREA K-12

August 11, 2016

Albert Sung, P.E.
City of Las Vegas
Department of Public Works/Flood Control
333 N. Rancho Drive
Las Vegas, NV 89106

SUBJECT: TECHNICAL DRAINAGE STUDY FOR CABALLOS DE ORO ESTATES
CLV DS 4811A
ADDENDUM 1

Dear Mr. Sung:

The following is a response to your comments from July 23, 2016 on an item by item basis.

COMMENT 1 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 site falls in the category of a Hillside Development, which requires a Drainage Study to be approved before an application for Design Review is accepted by CLV Planning and Zoning Department. A copy of the relevant section of the CLV Development Code is reattached.

A Design Review for a Hillside Development application will be submitted to Planning and Zoning upon approval of the drainage study.

COMMENT 2 Sites with a grade difference of 2 feet above or below existing are required to have approval from the City Planning and Development Department. The engineer must submit copies of the grading plans and detail sheet with a letter justifying the grade difference to the City Planning Department (229-6301). The engineer must provide Planning approval with the next submittal.

A Design Review for a Hillside Development application will be submitted to Planning and Zoning upon approval of the drainage study. Please refer to response to Comment 1 above.

COMMENT 3 The site is adjacent to or crosses an existing or proposed CCRFCD master planned facility. Therefore, CCRFCD concurrence is required prior to final approval of the drainage study.

Noted

August 11, 2016

COMMENT 4

The site is also adjacent to the jurisdiction of Clark County to the west. Obtain concurrence from CCPWD for the subject development prior to final approval of the subject drainage study.

Noted

COMMENT 5

On the Onsite Drainage Map (Developed Conditions) Sheet D1:

- *Identify and label basins "OFX1", "OND1" and concentration point "CP1" which are missing in the last submittal*
- *The flow summary for Hydraulic Sections 1, 2 and 3 are missing in the last submittal. Provide as such in the next submittal.*
- *It appears that the northern half of the west property line of the subject development is used as a basin boundary for "OFX1". However, the west property line of the subject development is used as a basin boundary. Review and revise the offsite basins accordingly.*
- *The scale of the proposed onsite drainage map is not adequate. Use a larger scale to include the whole scope of the onsite and the offsite basins.*

Sheet D1 has been revised as requested and a copy is attached.

COMMENT 6

Sheet C5: Section I (East Property Line): There is a 1.9'-wide gap between the proposed retaining wall and the adjacent existing wall. Provide a cap to close off the gap.

A cap added to the cross section detail and a copy is attached

COMMENT 7

The proposed 10' public drainage easement (privately maintained) must be dedicated by separate document prior to the final approval of the improvement plans.

Noted

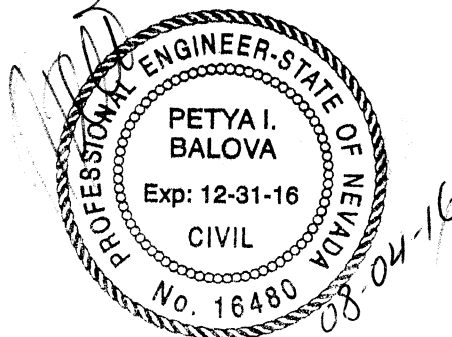
COMMENT 8

Identify and label an existing drainage easement in the adjacent property to the east with recorded document number on the grading plan.

The recorded document number was added to the Grading Plan and a copy is attached.

Sincerely,

Petya Balova
Petya Balova, P.E.
Balova Engineering



than altering the earth forms to create a flatland type of development.

2. Project design should:

- a. Initially identify the existing geographic, topographic, and environmental features of the site (such as geological hazards, steep slopes, ridges, valleys, streams, views, existing drainage patterns, significant biota, and outcroppings); and
 - b. Then determine the impact the proposed project will have on these elements.
3. Preparation of a site plan should be based upon a determination concerning how traffic circulation, fire protection and access, drainage, sound barriers, buffers, land alteration, and other measures will be employed to limit any negative impacts of the development. The final site plan should reflect how all of these impacts are successfully solved or mitigated.
4. Other elements that should be considered in a successful design and, where indicated, reflected in submittal documents are the following:
- a. Preservation of distinctive natural features, the general existing topographical forms, significant trees, landscaping, natural water courses and wildlife corridors, with data and aerial maps to be provided showing the location, type and nature of existing major vegetation, including significant clusters or contiguous areas of dense growth and existing vegetation to be preserved;
 - b. Preservation of prominent skyline ridges, which must be shown by providing a graph or other visual analysis indicating rooftop in relation to ridgeline; (See Figure 13)
 - c. The location of roads and structures below the skyline ridge, with a visual analysis to be provided indicating circulation related to existing contours;
 - d. The location and construction of roadways, with drawings and explanations to be provided showing how roadways will be constructed in a manner compatible with the natural terrain and with scarring eliminated;
 - e. Incorporation of hiking, biking, walking and equestrian trails, where appropriate;

- f. Variation in lot size, building placements, setbacks, and orientation;
- g. Variable changes in elevation and siting of buildings to ensure views and avoid monotony;
- h. Preservation of steep hillsides by clustering buildings or use of other innovative approaches;
- i. Sensitivity to the project's appearance from lower or adjacent development;
- j. Placement of equipment and other unsightly forms below ridgelines and in bermed and landscaped areas.
- k. Dwelling design, with documentation to be provided indicating that significant effort has been made towards incorporating energy conservation and water saving techniques;
- l. Maintenance of natural drainage/water runoff characteristics where possible;
- m. The use of exterior lighting for buildings that is:
 - i. Of a "cut off" type designed to ensure that excess light does not spill over; and
 - ii. Of the lowest intensity feasible so as to be adequate for the purposes intended but not likely to attract undue attention.

5. Prior to the submittal of an application for Site Development Plan Review, a grading plan and drainage plan must be submitted to and approved by the Department of Public Works. The plans must clearly identify the topography of the land and how it relates to the development. Areas known or suspected to be hazardous, as determined by the Department of Public Works, shall not be disturbed without a geological survey, other data and tests, or a combination thereof, as required by the Department of Public Works. The submittal must include or be accompanied by a topographic map of the area proposed for development and shall show the location of, and distinguish, each of the following slope categories:

- a. Slope less than 15%
- b. Slope between 15% - 20%
- c. Slope between 20.01% - 25%
- d. Slope greater than 25%

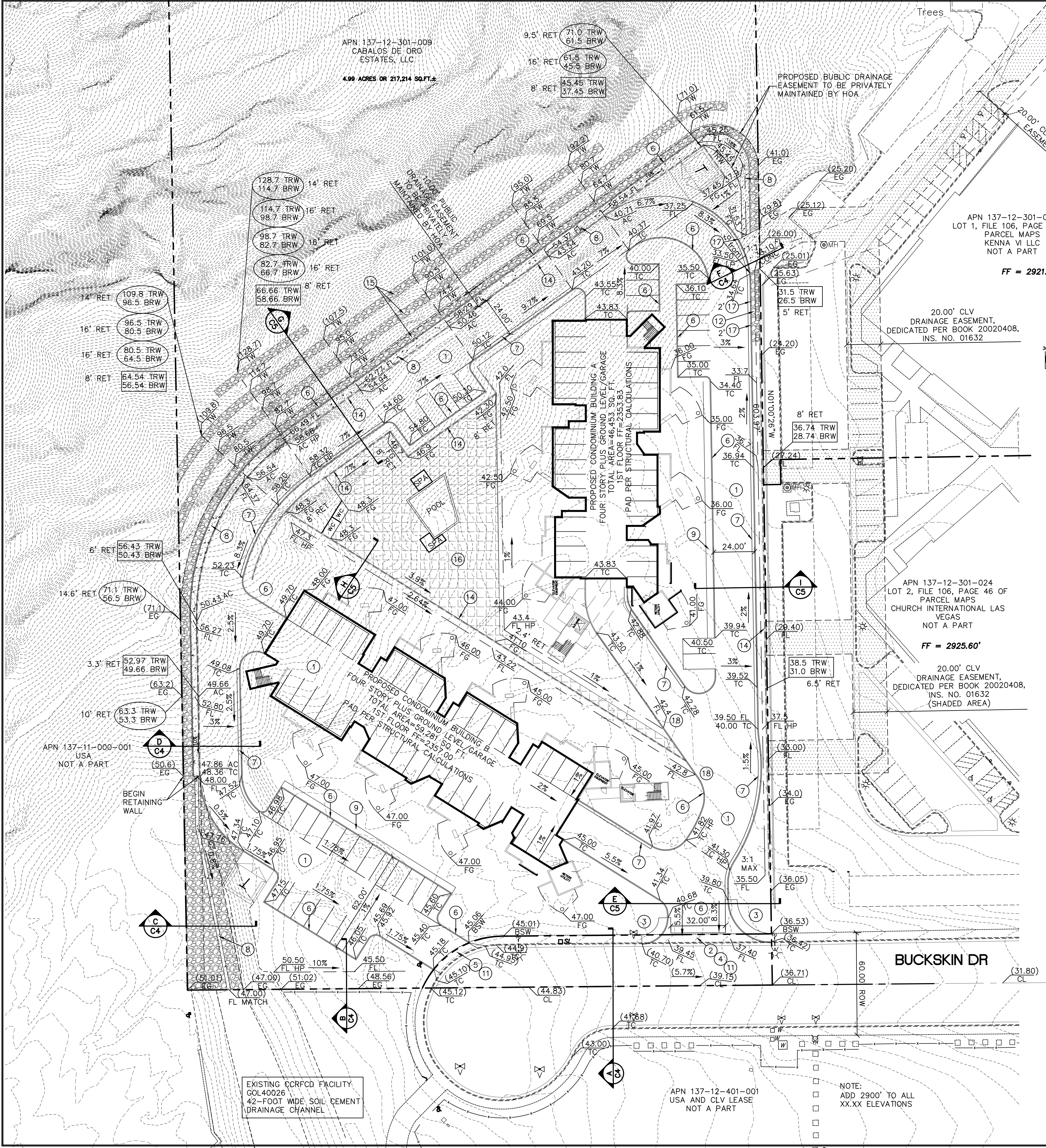
For Hillside Dev.



6. A final grading plan must first be approved by the Director before Site Development Plan Review is considered by the Planning Commission. The Director's review shall coincide with staff review of the Site Development Plan and drainage study.
7. Site Development Plan Review for all hillside area development shall be processed as a public hearing item. In order to address the sensitive nature of hillside development, the final grading plan that was approved with the Drainage Study and by the Director shall be submitted with the design review applications.
8. The burden of proof is on the applicant to demonstrate that the proposed development:
 - a. Is located and designed so as to protect the safety of residents and will not create significant threats to life or property by reason of the presence of hazards relating to geology, slope instability, flood, fire or erosion;
 - b. Is compatible with the natural, biotic, cultural, scenic and open space resources of the area;
 - c. Can be conveniently served by neighborhood shopping and provided essential public services without imposing significant costs on the total community;
 - d. Is consistent with the objectives and policies of the General Plan; and
 - e. Incorporates creative and imaginative design, resulting in a visual quality that will complement community character and benefit residents.
9. Any variance from or adjustment to any requirement set forth in this Subchapter may be obtained by means of a Variance application in accordance with LVMC 19.16.140.

} Hillside Dev.





STORM WATER MANAGEMENT NOTES

- Standard Note No. 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 CLV 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.
- Standard Note No. 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 Title 24.40 and the Las Vegas Valley Construction Site BMP Guidance Manual.
- Standard Note No. 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.
- Standard Note No. 4:
At a minimum, the Contractor or his agent shall inspect all disturbed areas, areas used for storage of materials and equipment that are exposed to precipitation, vehicle entrance and exit locations, and all BMPs weekly, and within 24 hours after any 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.
- Standard Note No. 5:
Accumulated sediment in BMPs shall be removed within seven days after a stormwater runoff event or prior to the next anticipated storm event, whichever is earlier. Sediment must be removed when BMP design capacity has been reduced by 50 percent or more.

GRADING NOTES

- ALL ENTRY SIDEWALKS >5% WILL REQUIRE HANDRAILS ON BOTH SIDES OF SIDEWALK IF CONVERTED TO HANDICAP ACCESSIBLE (SEE ARCH. PLANS FOR DETAILS.)
- ACCESSIBLE ROUTE SHOWN NOT TO EXCEED 5% IN DIRECTION OF TRAVEL AND 2% IN CROSS SLOPE.
- ALL SWALES SHALL DRAIN AT MIN. 1% SLOPE. CONTRACTOR SHALL ADJUST ALL SCARP SLOPES (MAX 3:1) TO ACCOMMODATE ALL SWALES.

CONSTRUCTION NOTES:

- INSTALL 2" AC/4" TYPE II/6" TYPE I MIN OR AS RECOMMENDED BY SOILS REPORT
- REMOVE CURB, GUTTER AND SIDEWALK AND CONSTRUCT A COMMERCIAL DRIVEWAY PER CCAUSD DWG. 222A AND 225
- CONSTRUCT HC RAMP W/ TRUNCATED DOMES PER CCAUSD 235, CASE I
- CONSTRUCT 8-FOOT VALLEY GUTTER PER CCAUSD DWG. 228
- CONSTRUCT A COMMERCIAL DRIVEWAY PER CCAUSD DWG. 224
- CONSTRUCT A-TYPE CURB PER STD. DWG. 219
- CONSTRUCT L-TYPE CURB & GUTTER PER STD.DWG. 216
- INSTALL CONCRETE GUTTER, WIDTH PER PLANS
- CONSTRUCT 4-FOOT WIDE CONCRETE SIDEWALK
- CONSTRUCT 2-FOOT WIDE DEPRESSED CURB
- EXIST. DRY UTILITIES: CABLE, TEL, STREET LIGHT CONDUIT - PROTECT IN PLACE
- RIP RAP SWALE, D50=6", THICKNESS 8", W&L AS SHOWN DRAINAGE AREA LANDSCAPE SWALE; SLOPE AND LENGTH AS SHOWN; DRAUGHT TOLERANT VEGETATION
- INSTALL 4-FOOT MAX MASONRY RETAINING WALL PER SOUTHERN NEVADA BUILDING OFFICIALS REGIONAL STANDARDS DETAIL B-100-2
- INSTALL 8-FOOT MAX MASONRY RETAINING WALL PER STRUCTURAL CALCULATIONS
- INSTALL 16-FOOT MAX ROCKERY RETAINING WALL PER STRUCTURAL CALCULATIONS
- COMMON AREA PER ARCHITECTURAL DESIGN
- DEPRESS CURB
- 1' WIDE CURB CUT

PROPERTY OWNER

CABALLOS DE ORO ESTATES, LLC
6040 S. DURANGO DRIVE, #105
LAS VEGAS, NV 89113

FLOOD ZONE DESIGNATION

THE SUBJECT SITE IS LOCATED IN A FLOOD ZONE DESIGNATED "ZONE X", DETERMINED TO BE AN AREA OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN AS SHOWN ON FEMA FIRM NO. 32003C2150 E, REVISED SEPTEMBER 27, 2002.

BASIS OF BEARING

NORTH 89°30'05" EAST, BEING THE BEARING OF THE SOUTH LINE OF THE NORTHWEST QUARTER (NW 1/4) OF THE SOUTHWEST QUARTER (SW 1/4) OF SECTION 12, TOWNSHIP 20 SOUTH, RANGE 59 EAST, M.D.M., CLARK COUNTY, NEVADA, AS SHOWN IN FILE 106 AT PAGE 46 OF PARCEL MAPS, OFFICIAL RECORDS CLARK COUNTY, NEVADA.

I CERTIFY THAT THIS GRADING PLAN CONFORMS TO THE APPROVED TECHNICAL DRAINAGE STUDY FOR THIS SITE ON FILE AT CLV, DS #

PETYA BALOVA, P.E. 16480 DATE

BENCHMARK:

CITY OF LAS VEGAS VERTICAL CONTROL POINT "5LV09 12SWW6", BEING A RIVET AND PLATE IN TOP OF CURB E/S OF CLIFF SHADOWS & BUCKSKIN

ELEVATION: 2924.27 (US SURVEY FEET)
891.318 (METERS)

CITY OF LAS VEGAS VERTICAL CONTROL, 2008 ADJUSTMENT
NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).

Call before you Dig

AVOID HITTING UNDERGROUND UTILITY LINES. IT'S COSTLY.



OR 1-800-227-2600

FAST

Call before UnderGround

1-702-432-5300
FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

AVOID HITTING OVERHEAD POWERLINES. IT'S COSTLY.

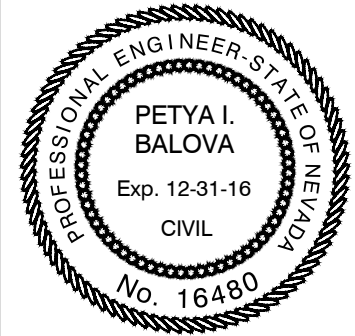
Call Before You OverHead

1-702-227-2929

CABALLOS DE ORO ESTATES
GRADING PLAN

BUCKSKIN
LAS VEGAS, NV 89101

DESIGNED BY : PB
CHECKED BY : PB
DATE : 08/01/16
JOB # : 16-060
APN : 137-12-301-009
SECT 12 T 203R 59E
SCALE : HORIZ 1" = 30'



SHEET #

C3

3 OF 8

BALOVA ENGINEERING
6130 ELTON AVENUE
LAS VEGAS, NV 89107
702-682-1706 TEL

REV. DATE: BY: REVISION:

THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND REPORT ANY ERRORS TO THE ENGINEER PRIOR TO COMMENCING WORK. ALL DRAWINGS, SPECIFICATIONS AND COPIES THEREOF FURNISHED BY THE ENGINEER ARE AND SHALL REMAIN THE PROPERTY OF THE ENGINEER. NO PART OF THESE PLANS ARE TO BE CONSIDERED PRELIMINARY AND USED AT THE OWNER'S/DEVELOPER'S/CONTRACTOR'S RISK.

PROPERTY OWNER
CABALLOS DE ORO ESTATES, LLC
6040 S. DURANGO DRIVE, #105
LAS VEGAS, NV 89113

BASIS OF BEARING

NORTH 89°30'05" EAST, BEING THE BEARING OF THE SOUTH LINE OF THE NORTHWEST QUARTER (NW 1/4) OF THE SOUTHWEST QUARTER (SW 1/4) OF SECTION 12, TOWNSHIP 20 SOUTH, RANGE 59 EAST, M.D.M., CLARK COUNTY, NEVADA, AS SHOWN IN FILE 106 AT PAGE 46 OF PARCEL MAPS, OFFICIAL RECORDS CLARK COUNTY, NEVADA.

OFX2*
3.20 ACRES

OFX1*
1.70 ACRES

OND1*
2.40 ACRES

CP1*

OND3A
0.82 ACRES

OND3B

1.13 ACRES

OND4

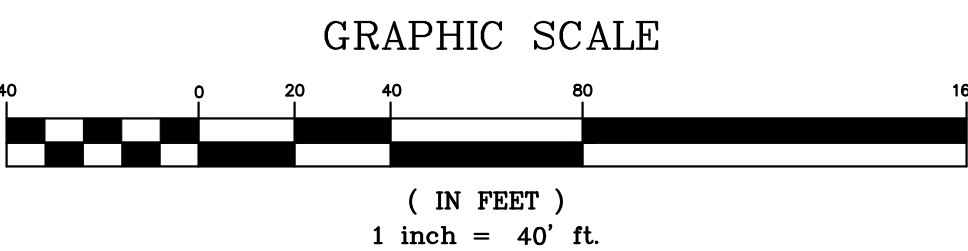
1.05 ACRES

OND2
0.23 ACRES

CP3

BUCKSKIN

FLOOD ZONE DESIGNATION
THE SUBJECT SITE IS LOCATED IN A FLOOD ZONE DESIGNATED "ZONE X", DETERMINED TO BE AN AREA OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN AS SHOWN ON FEMA FIRM NO. 32003C2150 E, REVISED SEPTEMBER 27, 2002.



Peak Flow Summary
Developed Condition

HEC-1 I.D.	Area (acres)	10-year Flow (cfs)	100-year Flow (cfs)
OFX1*	1.70*	2*	5*
OND1	2.40*	3*	7*
CP1*	-	*5	13*
OND3A	0.82	2	4
OND3B	1.13	3	5
CP1&2	-	9	21
OFX2*	3.20*	4*	10*
OND2	0.23	<1	1
CP3	-	4	11
OND4	1.05	2	5

* As referenced from the approved
"Technical Drainage Study Caballos De Oro", DS 3964

Street Flow Summary
(Developed Condition)

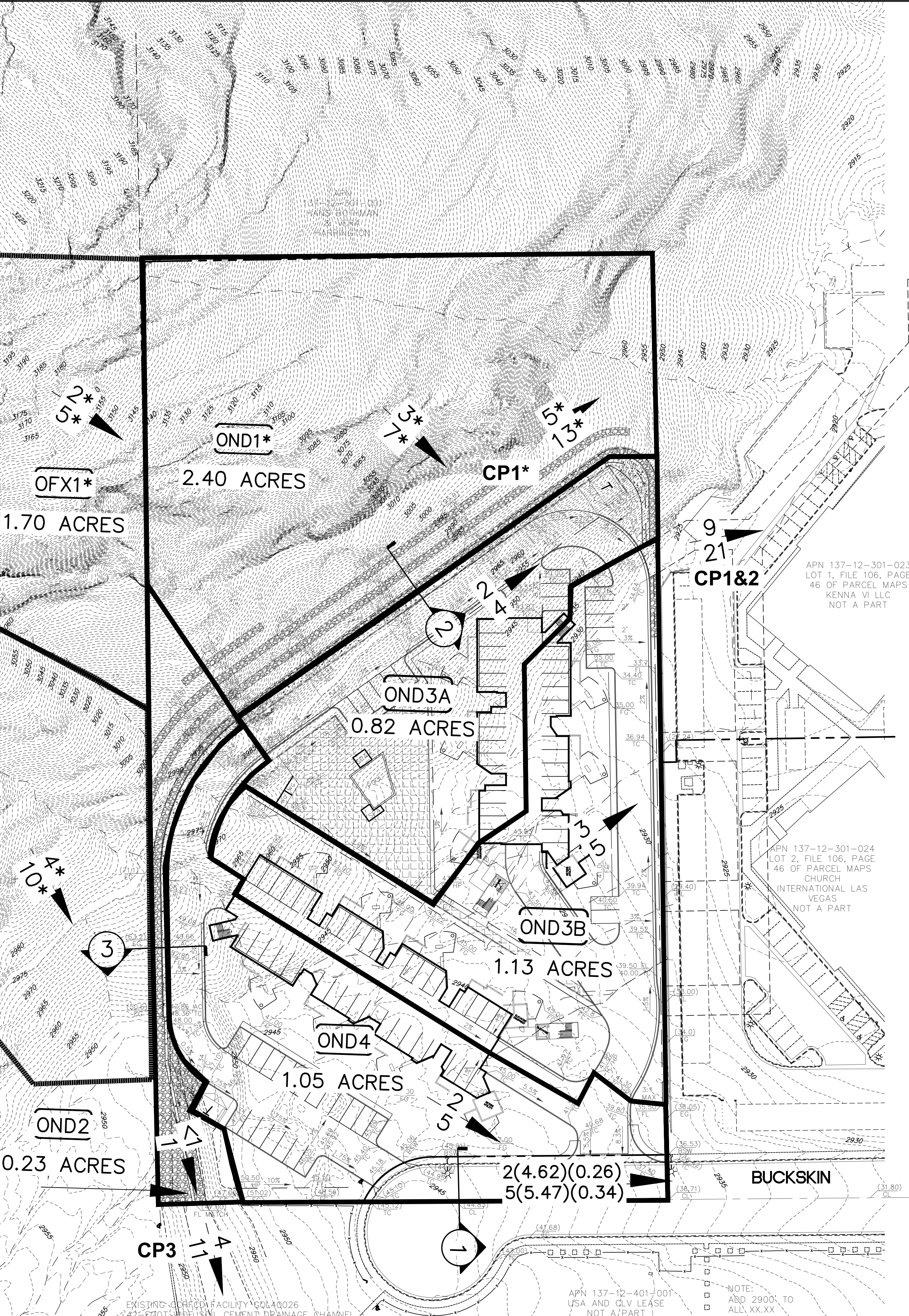
10-year, 6-hour Storm

Street	Right of Way Width (ft)	Hydraulic Cross-Section Identifier	10-Year Flow [Q(10)] (cfs)	10-year Velocity [v] (fps)	10-year Flow Depth [d] (ft)	10-year Velocity x Depth [v x d]
Buckskin Drive	60	1	2	4.62	0.26	1.20

Street Flow Summary
(Developed Condition)

100-year, 6-hour Storm

Street	Right of Way Width (ft)	Hydraulic Cross-Section Identifier	100-Year Flow [Q(100)] (cfs)	100-year Velocity [v] (fps)	100-year Flow Depth [d] (ft)	100-year Velocity x Depth [v x d]
Buckskin Drive	60	1	5	5.47	0.34	1.86



ONSITE DRAINAGE MAP
(DEVELOPED CONDITION)

BALOVA ENGINEERING
6130 ELTON AVENUE
LAS VEGAS, NV 89107
702-682-1706 TEL

BUCKSKIN
LAS VEGAS, NV 89101

DESIGNED BY : PB

CHECKED BY : PB

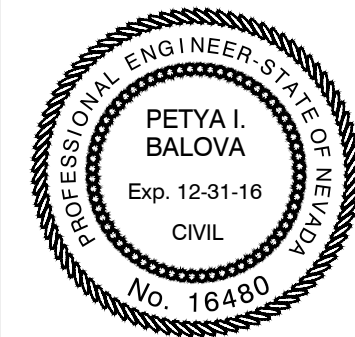
DATE : 08/10/16

JOB # : 16-060

APN : 137-12-301-009

SECT 12 T 20SR 59E

SCALE : HORIZ 1" = 40'



SHEET #

D1

1 OF 1

REV. DATE: BY: REVISION:
THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND REPORT ANY ERRORS TO THE ENGINEER PRIOR TO COMMENCING WORK. ALL DRAWINGS, SPECIFICATIONS AND COPIES THEREOF FURNISHED BY THE ENGINEER ARE AND SHALL REMAIN THE PROPERTY OF BALOVA ENGINEERING. THESE PLANS ARE TO BE CONSIDERED PRELIMINARY AND USED AT THE OWNER'S RISK. CONTRACTORS RISK.