DS #: 4570-1

APN: 125-21-102-001

PROJECT: Somerset Academy

SUBMITTAL: 1st

SCANNED BY/DATE:

CHECKED BY/DATE:

CITY OF LAS VEGAS NEVADA

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM			DATE: June 11, 2013
TO: **Land Development Services** Department of Public Works			FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	Drainage Study for: **Somerset Academy – Update #1**		**COPIES TO:** Lochsa Engineering
Cross Streets:	SEC of Elkhorn Road & Sky Pointe Drive		Rancho – Tule Springs LP
File Number:	F:\Depot\DSMemos\DS4570F.doc		Bart Anderson, P.E., DevCo
Parcel Number:	125-21-102-001		CCRFCD
Zoning Action:	VAR-45939; GPA-45940; SUP-45941; SDR-45943; MOD-45944 & PMP-46559		NDOT
FEMA Flood Zone	YES	NO X	
Proposed Storm Drain	YES X	NO	

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1st Submittal	8/28/2012	9/12/2012	Not Approved	$400.00	294474: $400
2nd Submittal	11/8/2012	11/21/2012	Not Approved	$400.00	301477: $400
Supplement	12/3/2012	12/12/2012	Conditional Approval	N/C	N/C
CCRFCD	1/3/2013	1/17/2013	Concurrence Recv'd	N/C	N/C
Notarized Letter from School	1/24/2013	1/24/2013	Approved	N/C	N/C
3rd Submittal	6/3/2013	6/11/2013	See Comments Below	$100.00	321617: $100
			TOTAL FEES (LDDRS):	**$900.00**	**----**

REMARKS:

3rd Submittal: Update #1 to add a screen wall at the eastern boundary of the subject development

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 the satisfaction of the following Comment #1

1. The project proposes to construct and improve *Sky Pointe Drive* (NDOT ROW). The engineer must contact NDOT for encroachment permit for the proposed project.
2. All drainage easements must be "Public Drainage Easements to be Privately Maintained" and to be granted and recorded as such by a separate document prior to the final acceptance of the improvement plans.

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

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

END OF REMARKS
ays

T/R/S: T19S/R60E/21
AREA G-21

Update to the Technical Drainage Study
For
Somerset Academy

May 2013

Prepared for:

Ethos Three Architecture
8985 South Eastern Avenue
Suite 220
Las Vegas, Nevada 89123
(702) 456-1070

Prepared By:
LOCHSA ENGINEERING
6345 South Jones Boulevard
Suite 100
Las Vegas, Nevada 89118
(702) 365-9312

Lochsa Job # 121075

HYDROLOGIC CRITERIA AND DRAINAGE MANUAL

DRAINAGE STUDY INFORMATION FORM

Name of Development: Somerset Academy Date: May 30, 2013

Location of Development: a) Descriptive (Cross Streets) North/South: Sky Pointe Drive

East/West: Elkhorn Road

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

c) APN : 125-21-102-001

Name of Owner: Rancho Drive - Tule Springs Road Limited Partnership

Telephone No.: 702-456-1070 Fax No.: (702) 365-9317 E-Mail Address:

Address: 6767 West Charleston Boulevard, Suite 150, Las Vegas, Nevada 89146

Contact Person-Name: Stanley Okey Amadi, P.E. **Telephone No.:** (702) 365-9312

* **E-Mail Address:** stanley@lochsa.com **Fax No.:** (702) 365-9317

Firm: Lochsa Engineering

Address: 6345 South Jones Boulevard, Suite 100, Las Vegas, Nevada 89118

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: 24.45 +/- Acres Being Developed/Disturbed: 12.20 +/- 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.): Residential (Multi-Family)
5. Approximate upstream land area which drains to the subject site: 15.0 +/- Acres
6. Has the site drainage been evaluated in the past? ☒ YES ☐ NO If yes, please identify documentation: Technical Drainage Study for Somerset Academy (DS 4570)
7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: Southeasterly into the adjacent Elkhorn-Cimarron Estates Residential Subdivision Following Existing Drainage Patterns
8. Briefly describe your proposed schedule for the subject project: ASAP

PROFESSIONAL ENGINEER
HANI M. NOSHI
Exp: 12/31/13
CIVIL
No. 15747
STATE OF NEVADA

05/30/13

Engineer's Seal

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

***New Required Field**

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

Local Entity File No.

Revision	Date

REFERENCE:

STANDARD FORM 1

Updated 05/01/2008

T 702-365-9312 | F 702-365-9317
6345 S Jones Blvd, Suite 100
Las Vegas, NV 89118

Lochsa engineering

May 30, 2013

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

Subject: **Update to the Technical Drainage Study for Somerset Academy**
Previous DS4570
Lochsa Job # 121075

Dear Mr. Sung,

This letter is intended as an update to the recently approved "*Technical Drainage Study for Somerset Academy*", hereinafter will be referred to as the 'Original Study'. The original study was prepared by Lochsa Engineering and was approved on January 24, 2013 (DS 4570). Since the approval of the original study, the previously approved grading plans have been slightly revised near the eastern boundary of the project site. This update is being submitted to address these proposed revisions to the approved grading plans. To address neighbors' concerns to the east of the site, a screen wall is being proposed along a portion of the project's east side. As shown in the included copies of the approved and revised grading plans (Sheets 4.03 and 4.05), the previously approved retaining wall is being eliminated. The slope along the approved 6-ft flume along the eastern boundary has also been revised at some section to 0.50% from the previous 0.90%. As shown in the attached excerpts from the Original Study, the flume was designed to convey the combined runoff flows at combination point CMF1(8/16cfs, 10-year/100-year). The normal depth calculation is therefore revised in this update to utilize the revised flume slope. As shown in the attached FlowMaster output, the 100-year flow depth is determined to be 0.55ft. Therefore, the flume is being constructed with an 8-inch west wall, instead of the previously approved 6-inch (Detail 5, Sheet 6.01).

As described in the Original Study, the project area represents 12.20acres within the entire 24.45-acre property. The project site is located at the southeast corner of the intersection of Elkhorn Road and Sky Pointe Drive. The site occupies a portion of the Northern Half (N1/2) of the Northwest Quarter (NW1/4) of Section 21, Township 19 South, Range 60 East, of the M.D.M., in the City of Las Vegas, Nevada. The project site is also identified as a portion of Assessor's Parcel Number (APN) 125-21-102-001. Please refer to the attached referenced copy of the Assessor's parcel map and Vicinity Map (Figure 1) from the Original Study.

The "*2008 Las Vegas Valley Flood Control Master Plan Update*", as prepared by Post Buckley Schuh and Jernigan, Inc. (PBS&J), in association with Louis Berger Group and Parsons Brinckerhoff, for the Clark County Regional Flood Control District (CCRFCD) illustrates the existing and proposed master planned facilities. As shown in Figure F-13 of the 2008 MPU, as referenced from the Original Study, the future CCRFCD Centennial Parkway Channel West US-95 Branch facilities (CN95-0000 through CN95-0167) will be constructed along the US-95 Highway west of the project site.

The project site is covered by Flood Insurance Rate Map (FIRM) for Clark County, Nevada, and unincorporated areas, community panel number: 32003C1745F, effective date: November 16, 2011. Review of Panel 1745 indicates that the site entirely located within Zone "X" (unshaded), described by FEMA as: "*Areas determined to be outside the 0.2% annual chance floodplain*". Please refer to the attached referenced Figure 2 from the Original Study for the location of the site on a portion of the above referenced FIRM.

The subject drainage study update is specifically provided as a support document for the aforementioned revisions to the proposed Somerset Academy. This update is in conformance with the approved "*Technical Drainage Study* for Somerset Academy" (DS4570). The drainage design associated with the proposed revisions is based on generally accepted engineering practices and is in compliance with the CCRFCD's "*Hydrologic Criteria and Drainage Design Manual*" and 2008 MPU. The proposed revisions will not introduce any negative impact to the existing drainage patterns. Please refer to the attached grading plan and details for further clarification of the proposed improvements.

If you have any questions or comments, please do not hesitate to contact our office at your earliest convenience.

Sincerely,
LOCHSA ENGINEERING

PROFESSIONAL ENGINEER
HANI M. NOSHI
Exp: 12/31/13
CIVIL
No. 15747
STATE OF NEVADA

05/30/13

Hani M. Noshi, Ph.D., P.E., CFM
Principal

HYDRAULIC CALCULATIONS

Revised Normal Flow Depth Calculations for the 6-FT Flume

(Developed Condition)

6-foot U-Gutter Conveying Concentration Point CMF1 Flows
Worksheet for Rectangular Channel

Project Description	
Worksheet	6-foot U-Gutter Conveying Concentration Point CMF1 Flows
Flow Element	Rectangular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.013	
Slope	0.005000	ft/ft ← Revised from 0.0%
Bottom Width	6.00	ft
Discharge	16.00	cfs

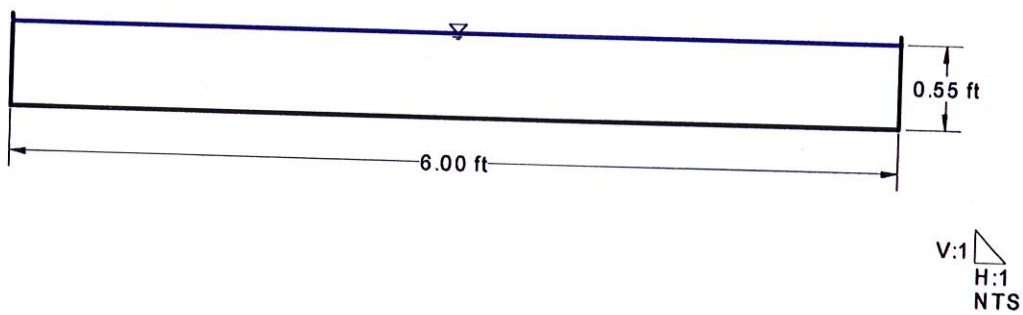
Results		
Depth	0.55	ft ←
Flow Area	3.3	ft²
Wetted Perimeter	7.10	ft
Top Width	6.00	ft
Critical Depth	0.60	ft
Critical Slope	0.003720	ft/ft
Velocity	4.85	ft/s
Velocity Head	0.37	ft
Specific Energy	0.92	ft
Froude Number	1.15	
Flow Type	Supercritical	

Notes:
* The only revision from the approved TDS is the slope being revised to 0.50%

6-foot U-Gutter Conveying Concentration Point CMF1 Flows
Cross Section for Rectangular Channel

Project Description	
Worksheet	6-foot U-Gutter Conveying Concentration Point CMF1 Flows
Flow Element	Rectangular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data	
Mannings Coefficient	0.013
Slope	0.005000 ft/ft
Depth	0.55 ft
Bottom Width	6.00 ft
Discharge	16.00 cfs



Referenced Excerpts from

"Technical Drainage Study for Somerset Academy"

(DS 4570)

CITY OF LAS VEGAS
INTER-OFFICE MEMORANDUM

DATE: January 24, 2013

TO:
Land Development Services
Department of Public Works

FROM:
Albert Sung, P.E.
Flood Control Project Engineer
Department of Public Works

COPIES TO:
Lochsa Engineering
Rancho – Tule Springs LP
Bart Anderson, P.E., DevCo
CCRFCD
NDOT

SUBJECT:	Drainage Study for: **Somerset Academy**		
Cross Streets:	SEC of Elkhorn Road & Sky Pointe Drive		
File Number:	F:\Depot\DSMemos\DS4570E.doc		
Parcel Number:	125-21-102-001		
Zoning Action:	VAR-45939; GPA-45940; SUP-45941; SDR-45943; MOD-45944 & PMP-46559		
FEMA Flood Zone	YES	NO X	
Proposed Storm Drain	YES X	NO	

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1st Submittal	8/28/2012	9/12/2012	Not Approved	$400.00	294474: $400
2nd Submittal	11/8/2012	11/21/2012	Not Approved	$400.00	301477: $400
Supplement	12/3/2012	12/12/2012	Conditional Approval	N/C	N/C
CCRFCD	1/3/2013	1/17/2013	Concurrence Recv'd	N/C	N/C
Notarized Letter from School	1/24/2013	1/24/2013	Approved	N/C	N/C
			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 the satisfaction of the following Comment #1

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

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

END OF REMARKS
ays

T/R/S: T19S/R60E/21
AREA G-21

REGIONAL FLOOD CONTROL DISTRICT

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

BOARD OF DIRECTORS

Lawrence L. Brown, III
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Clark County

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City of North Las Vegas

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City of Mesquite

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City of Henderson

Steven D. Ross
City of Las Vegas

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City of Las Vegas

Mayor Roger Tobler
City of Boulder City

December 27, 2012

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

DISTRICT CONCURRENCE: SOMERSET ACADEMY (DS4570C) (RFCD No. 12-8110)

Dear Mr. Kwon:

Clark County Regional Flood Control District (District) reviewed Technical Drainage Study dated August 27, 2012, Addendum No. 1 dated November 6, 2012, and Supplement No. 1 dated December 3, 2012 for above-mentioned project as submitted by LOCHSA ENGINEERING. In addition, District is in receipt of the Conditional Letter of Acceptance from City of Las Vegas dated December 12, 2012.

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

District's review of this project was limited to issues of Regional Flood Control Significance as defined in *Uniform Regulations for the Control of Drainage*.

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

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

BY:

Abigail Mayrena, P.E., CFM
Senior Engineer

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

AM:ART:sa

c: Guy M. Morris, P.E., Lochsa Engineering

P:\Letters and Memos\Local Drainage\Land Development & Drainage\2012\L-12-8110.doc

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

Technical Drainage Study
For
Somerset Academy
(Addendum)

JOB# 121075

November 2012

Prepared for:

Ethos Three Architecture
8985 South Eastern Avenue
Suite 220
Las Vegas, Nevada 89123
(702) 456-1070

Prepared By:
LOCHSA ENGINEERING
6345 South Jones Boulevard
Suite 100
Las Vegas, Nevada 89118
(702) 365-9312

HYDROLOGIC CRITERIA AND DRAINAGE MANUAL

DRAINAGE STUDY INFORMATION FORM

Name of Development: Somerset Academy Date: November 06, 2012

Location of Development: a) Descriptive (Cross Streets) North/South: Sky Pointe Drive

East/West: Elkhorn Road

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

c) APN : 125-21-102-001

Name of Owner: Rancho Drive - Tule Springs Road Limited Partnership

Telephone No.: 702-456-1070 Fax No.: (702) 365-9317 E-Mail Address:

Address: 6767 West Charleston Boulevard, Suite 150, Las Vegas, Nevada 89146

Contact Person-Name: Stanley Okey Amadi, P.E. **Telephone No.:** (702) 365-9312

*** E-Mail Address:** stanley@lochsa.com **Fax No.:** (702) 365-9317

Firm: Lochsa Engineering

Address: 6345 South Jones Boulevard, Suite 100, Las Vegas, Nevada 89118

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: 24.45 +/- Acres Being Developed/Disturbed: 12.20 +/- 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.): Residential (Multi-Family)
5. Approximate upstream land area which drains to the subject site: 15.0 +/- Acres
6. Has the site drainage been evaluated in the past? ☐ YES ☒ NO If yes, please identify documentation:
7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: Southeasterly into the adjacent Elkhorn-Cimarron Estates Residential Subdivision Following Existing Drainage Patterns
8. Briefly describe your proposed schedule for the subject project: ASAP

PROFESSIONAL ENGINEER-STATE OF NEVADA
GUY M. MORRIS
EXP. 12-31-13
CIVIL
No. 14526

11-7-12

Engineer's Seal

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

***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

Updated 05/01/2008

T 702-365-9312 | F 702-365-9317
6345 S Jones Blvd, Suite 100
Las Vegas, NV 89118

Lochsa engineering

November 06, 2012

Mr. Albert Sung, P.E.
Flood Control Project Engineer
City of Las Vegas
Department of Public Works
333 North Rancho Drive
Las Vegas, Nevada 89106

Subject: Addendum to the Technical Drainage Study for **Somerset Academy**
City of Las Vegas DS #4570
Lochsa Engineering Project No. 121075

Dear Mr. Sung,

Lochsa Engineering has received your review memorandum dated September 12, 2012, regarding the above referenced drainage study. A few design changes have been made since the last submittal due to staff recommendations during the design review process. The main change involves the widening of Sky Pointe Drive to consist of an 80-foot right-of-way with a 10-foot wide sidewalk extending beyond the right-of-way width but within a 20-foot multi-use non-equestrian trail easement. As a result of this change, the hydrologic analysis for the site has been revised to modify the areas of the street offsite basins SPD1 through SPD3 to account for the wider right-of-way. Likewise, the street capacity calculations for Sky Pointe Drive are also revised to address the changes to the right-of-way design, and to reflect the entire cross-section of the right-of-way in the capacity calculations. The revised HEC-1 output and the output for street capacity calculations have been provided in the appendix. In addition, a driveway access to the site has been graded through the northern portion of the existing parcel to provide additional access from Elkhorn Road.

Furthermore, the current phase of the project will now include the middle school building located downstream of the soccer field and directly east of the playground and basket ball court. Hence, the upstream flows generated by majority of basin ND2 (3/10 cfs) are now designed to be captured by a proposed 3'x'3 Jensen Precast inlet and conveyed east with an 18" RCP to the concrete channel along the eastern boundary of the site. Inlet capacity calculation provided for the 3'x3' Jensen Inlet indicates that the 100-year flows (10 cfs) from basin ND2 will be intercepted at a ponding depth of 0.37-feet. Overflow path for the proposed storm drain system is designed to be between the Elementary School and the Middle School buildings. Both normal depth (Section CC and DD) and weir flow calculations have been provided through the overflow path to ensure the proposed buildings will be adequately protected during a storm event. Please refer to the Onsite Drainage Basin Map (Sheet DR2) for the location the hydraulic cross-sections along the overflow path. The proposed grading plans and details for the site have been revised to reflect the subject the design changes. The comments in the review memorandum have been restated below followed by our respective responses:

Comment 1: Provide a copy of the zoning/planning conditions associated with the site **(VAR-45939; GPA-45940; SUP-45941; SDR-45943; MOD-45944 & PMP-46559)** with the next

algebraically added to the flows from basins SPD1 (2/4 cfs) and PPX1 (1/7 cfs). Therefore, the algebraically combined flows do not match the resulting flows in the HEC-1 output file.

Comment 6: Per the ***Town Center Loop Road East & West (Elkhorn to Tenaya) Project,*** developers along the frontage road (i.e. Sky Pointe Drive) are required to construct full street improvements (curb & gutter, sidewalk/trail) with a 24" storm drain system (with nuisance inlets at 600' intervals maximum) to collect flows from the culverts crossing the US95 freeway. The adjacent project to the south (*Centennial Hills – Sky Pointe Condominiums)* had put in a 24" storm drain in their *Sky Pointe Drive* frontage to conform with the *Town Center Loop Road plan.*

Construct full street improvement and provide a 24" storm drain with nuisance inlets at 600' maximum spacing and storm drain manholes at 400' maximum spacing in *Sky Pointe Drive*. The storm drain shall tie to an existing 6'x3' culvert adjacent to the south of the subject property in the interim condition.

Identify and label with sizes of all existing culverts on all pertinent grading plans.

Response 6: Noted. The proposed plans have been designed to include full offsite improvements along Sky Pointe Drive adjacent to the site. The improvements also includes a 24" RCP nuisance storm drain with 4' Type CM inlets spaced at not more than 600-feet apart and storm drain manholes at not more than 400-feet apart. The 24" storm drain ties into the existing 6'x3' RCBC directly south of the site. It should also be noted that in order to construct the full street improvements on Sky Pointe Drive, the existing 6'x3' RCBC had to be extended at both the upstream and downstream ends to accommodate the right-of-way improvements. The connection and extensions including the details for the 6'x3' RCBC have been provided on the detail sheets.

Comment 7: **Sheet C4.00 (Overall Grading Plan):** The southern parcel (Somerset Academy) accepts flow from the northern parcel. Dedicate a 20'-wide public drainage easement (privately maintained) along the eastern landscaping and U-channel corridor to perpetuate flow from the north. The public drainage easement must be granted and recorded as such in the parcel map prior to the final acceptance of the improvement plans.

Response 7: Noted. A 20' wide public drainage easement to be privately maintained has been dedicated along the eastern boundary of the site over the proposed 6-foot wide concrete U-channel. The drainage easement will be recorded prior to the issuance of construction permits.

6-FT Flume

Comment 8: The proposed onsite and building elevations are lower than the street elevations in *Sky Pointe Drive*. Provide a flood wall for onsite protection from a major storm event. The top of the flood wall must be at least 18" above the 100-year water surface elevations in the street. The wall must be 8"-CMU and to be solid grouted. Review and revise all pertinent grading plans and detail sheets accordingly.

Response 8: It is noted that the proposed onsite building elevations are lower than the street elevations in Sky Pointe Drive. Conversely, it should also be noted that the 100-

year flows in Sky Pointe Drive are very minimal and contained by the curb. Therefore, a flood wall will not be necessary for the protection of the site. However, there is a proposed retaining wall along Sky Pointe Drive with a 10-foot wide detached sidewalk and an 8-foot wide landscape area between the retaining wall and the sidewalk. The top of the retaining wall elevations have been set at more than 18" above the water surface elevation in Sky Pointe Drive. Additionally, the proposed driveway entrances to the site have been designed with humps maintaining a freeboard of more than 6" above the 100-year water surface. Therefore, the site will be adequately protected from the 100-year flows in Sky Point Drive with a flood wall.

Comment 9: **Sheet C4.04:** Per the study, a 100-year flow of 19cfs is anticipated to enter an existing drainage easement in the adjacent development at *Hesperides Avenue*. However, a landscape island is right in front of the easement entrance which will cause hydraulic jump and erosion. It is recommended to remove the island. Address and resolve in the next submittal.

Response 9: **A 2-foot wide concrete U-gutter was proposed to convey the subject flows from the parking lot and drive aisle towards the existing drainage easement onto Hesperides Avenue. However, the subject U-gutter has been upsized to 5-foot wide to ensure that the entire 100-year flows of 19 cfs are contained by the gutter. The subject landscape island will not obstruct the flows from getting to the proposed U-gutter. Please refer to the revised u-gutter calculation and the revised grading plan details provided in the appendix.**

Comment 10: A small portion of the site drains at the southeast corner through a proposed wall opening. Address whether an overflow path is available under a worst case scenario when the opening is completely clogged.

Response 10: **The overflow path for the subject portion of the site is directly east towards the drainage easement at the cul-de-sac end of Hesperides Avenue. If the wall opening becomes completely clogged, flows from ND3 (2/4 cfs) will continue east and eventually north to be conveyed through the existing 20' Drainage Easement.**

Comment 11: **Details 4/C4.02 & 7/C4.04:** The two details show a U-channel against an existing wall which belongs to the adjacent residential properties to the east. The proposed 6" deep channel does not provide adequate freeboard to prevent inundation of the existing wall during a major flood event. It is recommended to providing 18" height at the east side of the channel.

Revised to 8" on west side too

Response 11: **The details have been revised as noted. The eastern channel height has been revised to 18" to avoid inundation of the adjacent existing perimeter wall. Please note that detail 7/C4.04 is now 7/C4.05 while detail 4/C4.02 is now 4/C4.03.**

Comment 12: **Sheet C6.01:** Revise Detail 5 to show a **72"** concrete channel instead of 60".

Response 12: **Revised as noted. Please refer to the appendix for the revised normal depth hydraulic calculations for the U-channel and the revised grading plan and details provided.**

Comment 13: Provide preliminary plan and profile sheets for all proposed perimeter streets including storm drain plan. Plan and profile sheets must show existing and proposed grade at centerline, but may be preliminary in all other respects. These plans are necessary to determine the effect of the proposed development on the adjacent properties.

Response 13: Noted. Please refer to the revised plan set provided for the street and storm drain plan and profile sheets along Sky Pointe Drive adjacent to the site.

Comment 14: *City of Las Vegas* does not allow HDPE pipe in public right-of-ways or public drainage easements. Note that *The City of Las Vegas* only allows the use of HDPE storm drain pipes for privately owned and privately maintained storm drain systems which serve and are located exclusively on private properties. Any proposed HDPE storm drain pipes must also meet all design criteria established by the *Clark County Regional Flood Control District* and must be installed per *Clark County Regional Transportation Commission Uniform Standards Drawings and Specifications.*

Response 14: Noted. The proposed 24" nuisance storm drain system in Sky Pointe Drive will consist of Reinforced Concrete Pipe and is designed to meet all design criteria established by the *Clark County Regional Flood Control District* and must be installed per *Clark County Regional Transportation Commission Uniform Standards Drawings and Specification.*

Comment 15: Add a note in all pertinent sheets for the construction of all storm drain drop inlets per a newly adopted USDCCA Drawing No. 421 (*Stormwater Quality Management Stamp and Sign Detail).*

Response 15: The subject note has been added as noted. Please refer to the storm drain note #5 provided on the revised grading plans attached.

We believe that the above responses coupled with the revisions on the plans have adequately addressed your concerns as indicated on the subject memorandum. Please do not hesitate to contact our office at your earliest convenience, if you have any further concerns.

Sincerely,
LOCHSA ENGINEERING

Stanley Okey Amadi, P.E.
Senior Project Engineer

Attachments

PROFESSIONAL ENGINEER - STATE OF NEVADA
GUY M. MORRIS
EXP. 12-31-13
CIVIL
No. 14526

11-7-12

REVISED HYDROLOGIC ANALYSIS

Standard Form 4 and HEC-1 Output Files

(Existing, Interim and Future Conditions)

DEVELOPMENT: Somerset Academy
CALCULATED BY: SOA
PROJECT NUMBER: 121075

DATE: October 23, 2012

SUB-BASIN DATA				INITIAL/OVERLAND TIME (ti)			TRAVEL TIME (tt)				tc CHECK (URBANIZED BASINS)		FINAL tc				REMARKS
DESIGN (1)	K (2)	AREA Ac (3)	AREA Sq. Mile (4)	LENGTH Ft (5)	SLOPE % (6)	ti Min (7)	LENGTH Ft (8)	SLOPE % (9)	VELOCITY FPS (10)	tt Min (11)	TOTAL LENGTH Ft (12)	tc =(L/180)+10 Min (13)	Min (14)	CN (15)	tL Hrs (16)	Urbanized? (17)	Soil Type (18)
PPX1	0.6264	5.57	0.00870	135	2.2	7.6	900	2.0	1.9	7.8	-	-	15.4	77.0	0.154	NO	B
PPX2	0.6264	6.93	0.01083	100	5.0	5.0	1,010	2.0	2.7	6.3	-	-	11.3	77.0	0.113	NO	B
NX1	0.6264	5.49	0.00858	160	3.8	6.9	865	2.4	2.4	6.0	-	-	12.9	77.0	0.129	NO	B
NX2	0.6264	4.00	0.00626	150	2.7	7.5	780	2.2	1.8	7.3	-	-	14.9	77.0	0.149	NO	B
NX3	0.6264	2.10	0.00327	140	2.9	7.1	515	2.1	1.6	5.4	-	-	12.5	77.0	0.125	NO	B
SPD1	0.9036	1.16	0.00181	30	2.0	1.5	600	1.5	2.4	4.2	630	13.5	5.7	98.0	0.057	YES	B
SPD2	0.9036	1.05	0.00164	30	2.0	1.5	570	1.5	2.4	4.0	600	13.3	5.5	98.0	0.055	YES	B
SPD3	0.9036	0.64	0.00100	30	2.0	1.5	350	1.7	2.1	2.8	380	12.1	4.3	98.0	0.050	YES	B
ND1	0.8157	3.87	0.00605	200	3.8	4.6	870	1.2	2.8	5.2	1,070	15.9	9.8	91.3	0.098	YES	B
ND2	0.6887	5.98	0.00934	250	2.6	8.5	890	1.2	2.8	5.3	1,140	16.3	13.8	81.7	0.138	YES	B
ND3	0.7913	1.54	0.00241	150	5.0	4.0	340	2.7	3.0	1.9	490	12.7	5.9	89.5	0.059	YES	B
ND4	0.5617	0.19	0.00030	20	0.5	5.5	366	0.5	1.7	3.7	386	12.1	9.1	72.1	0.091	YES	B
PPD1	0.8244	5.57	0.00870	135	2.2	4.4	900	2.0	3.8	3.9	1,035	15.8	8.4	92.0	0.084	YES	B
PPD2	0.8244	6.93	0.01083	100	5.0	2.9	1,010	2.0	3.8	4.4	1,110	16.2	7.3	92.0	0.073	YES	B

ti = 1.8 (1.1 - K) L^(0.5) / S^(1/3)

K = 0.0132 CN - 0.39

tc = ti + tt

tL= tLAG = 0.6 tc

LOCATION: Onsite and Offsite.
HYDROLOGIC CONDITION: Existing and Developed

TRIAL: Final Iteration

Curve Number Calculations
Somerset Academy

Sub-Basin: **SPD1**
Total Area: 1.16 Acres

Land Use/Cover type	Area [A] (acres)	Soil Type	Percentage, P [P]	Cruve Number [CN]	Product (CN x P)
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)	1.16	B	100%	98	98.0
Total:	1.16	-	100%	-	98.0

Curve Number Calculations
Somerset Academy

Sub-Basin: **SPD2**
Total Area: 1.05 Acres

Land Use/Cover type	Area [A] (acres)	Soil Type	Percentage, P [P]	Cruve Number [CN]	Product (CN x P)
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)	1.05	B	100%	98	98.0
Total:	1.05	-	100%	-	98.0

Curve Number Calculations
Somerset Academy

Sub-Basin: **SPD3**
Total Area: 0.64 Acres

Land Use/Cover type	Area [A] (acres)	Soil Type	Percentage, P [P]	Cruve Number [CN]	Product (CN x P)
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)	0.64	B	100%	98	98.0
Total:	0.64	-	100%	-	98.0

AVERAGE VELOCITY

Input Variables	Basin PPX1	Basin PPX2	Basin NX1	Basin NX2	Basin NX3	Basin SPD1	Basin SPD2	Basin SPD3	Basin ND1	Basin ND2	Basin ND3	Basin ND4	Basin PPD1	Basin PPD2		
Bottom Width, B, (ft):	5.0	5.0	5.0	10.0	10.0	2.0	2.0	2.0	2.0	2.0	2.0	5.0	2.0	2.0		
Right Side Slope, Zr:	30	5	10	15	10	50	50	50	50	50	50	0	50	50		
Left Side Slope, Zl:	15	5	10	15	10	0	0	0	0	0	0	0	0	0		
Manning's n:	0.030	0.030	0.030	0.030	0.030	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015		
Geometric Slope, So (ft/ft):	0.020	0.020	0.024	0.022	0.021	0.015	0.015	0.017	0.012	0.012	0.027	0.005	0.020	0.020		
Flowrate, Q (cfs):	4	5	4	3	2	2	2	1	5	5	2	1	8	8		
Output Variables																
Normal Depth, Yn (ft):	0.21	0.29	0.23	0.14	0.11	0.15	0.15	0.10	0.23	0.23	0.13	0.12	0.25	0.25		
Area of Flow, A, (sf):	2.08	1.88	1.66	1.69	1.26	0.83	0.83	0.47	1.79	1.79	0.67	0.60	2.10	2.10		
Velocity, V (fps):	1.92	2.67	2.41	1.77	1.59	2.40	2.40	2.11	2.79	2.79	2.99	1.66	3.81	3.81		
Wetted Perimeter, p (ft):	14.59	7.96	9.59	14.20	12.27	9.48	9.49	7.27	13.76	13.76	8.55	5.24	14.88	14.88		
Hydraulic Radius, Rh (ft):	0.14	0.24	0.17	0.12	0.10	0.09	0.09	0.07	0.13	0.13	0.08	0.11	0.14	0.14		
Free SurfaceTop Width, T (ft):	14.58	7.91	9.56	14.19	12.26	9.34	9.35	7.17	13.53	13.53	8.42	5.00	14.63	14.63		
Centroid, Y*, (ft):	0.09	0.13	0.10	0.07	0.05	0.06	0.06	0.04	0.09	0.09	0.05	0.06	0.09	0.09		

*** NOTE : HALF OF THE 100-YEAR STORM RUNOFF FLOWS IS USED TO DETERMINE THE BASIN TRAVEL VELOCITY REQUIRED FOR THE LAG TIME CALCULATIONS**

Somerset Academy
(Addendum to Technical Drainage Study)

10-Year and 100-Year,
Six Hour Storm:
Future Condition

FILE: 121075F.DAT

Peak Flow Summary
Future Condition

HEC-1 I.D.	Area (acres)	10-year Flow (cfs)	100-year Flow (cfs)
PPD1	5.57	7	16
PPD2	6.93	8	16
RPPD2	-	8	16
ND4	0.19	<1	<1
CMF1	-	8	16
ND1	3.87	5	10
RND1	-	4	10
ND2	5.98	3	10
CMF2	-	8	19
ND3	1.54	2	4
SPD1	1.16	2	4
RSPD1	-	2	4
SPD2	1.05	2	4
CMF3	-	4	8
RCMF3	-	4	7
SPD3	0.64	1	2
CMF4	-	5	10

Runoff conveyed in the revised 6-FT Flume

```
1****************************************                    121075f
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*             JUN   1998               *
*           VERSION 4.1                *
*                                      *
*  RUN DATE   23OCT12  TIME  12:22:29  *
*                                      *
****************************************

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

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

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

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

1                                          HEC-1 INPUT                                                    PAGE  1
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
   1          ID        SOMERSET ACADEMY - TECHNICAL DRAINAGE STUDY
   2          ID        FUTURE CONDITIONS - ONSITE AND OFFSITE
   3          ID        USING SCS METHODS AND KINEMATIC WAVE ROUTING
   4          ID        MASTER PLAN ADJUSTED 6-HOUR RAINFALL AND STORM DISTRIBUTION
   5          ID        LOCHSA JOB# 121075
   6          ID
   7          ID        INPUT FILE NAME:  121075F.DAT
   8          ID
   9          ID        AUGUST 2012
  10          ID        ***********************************************************************
  11          ID        ***********************************************************************
  12          ID             McCARRAN AIRPORT RAINFALL AREA
  13          ID             10 & 100 YEAR - 6 HOUR STORM EVENT
  14          ID             PRECIPITATION:
  15          ID                   10-YEAR:  1.58 INCHES
  16          ID                   100-YEAR: 2.77 INCHES
  17          ID
  18          ID                   10-YEAR/100-YEAR RATIO:  1.58/2.77 = 0.5704
  19          ID        ***********************************************************************
  20          ID        ***********************************************************************
              *DIAGRAM
  21          IT      5                    300
  22          IO      5       0
  23          IN      5
  24          JR    PREC   .5704     1.0

  25          KK    PPD1
  26          KM    NORTHWESTERN PORTION OF THE SUBJECT PROJECT PARCEL. THIS AREA WILL
  27          KM    BE DEVELOPED IN THE FUTURE BY OTHERS DRAINING NORTHEASTERLY
  28          KM    TOWARDS ELKHORN ROAD
  29          PB    2.770
  30          PC      0.0     .02    .057     .07    .087    .108    .124     .13     .13     .13
  31          PC      .13     .13     .13    .133     .14    .142    .148    .158    .172    .181
  32          PC      .19    .197    .199      .2    .201    .204    .214    .229    .241    .249
  33          PC     .251    .256     .27    .278    .281    .283    .295    .322    .352    .409
  34          PC     .499     .59     .71    .744    .781    .812    .819    .835    .851    .856
  35          PC      .86    .868    .876    .888     .91    .926    .937     .95     .97    .976
  36          PC     .982    .985    .987    .989     .99    .993    .993    .994    .995    .998
  37          PC     .998    .999     1.0
  38          BA   .00870
  39          LS       0    92.0
  40          UD     .084

  41          KK    PPD2
  42          KM    REMAINDER NORTHERN PORTION OF THE PROJECT PARCEL TO BE DEVELOPED IN THE
  43          KM    FUTURE BY OTHERS DRAINING EASTERLY AND DIVERTED SOUTHERLY THROUGH ONSITE
  44          KM    BASIN ND4
  45          BA   .00870
  46          LS       0    92.0
  47          UD     .071
1                                          HEC-1 INPUT                                                    PAGE  2
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  48          KK    RPPD2
  49          KM    ROUTE RUNOFF FROM PPD2 SOUTHERLY THROUGH ND4 TOWARDS THE NORTHERN
  50          KM    WROUGHT IRON GATE AND 20' DRAINAGE EASEMENT
  51          RK      360   0.005   0.015              RECT       4       0

  52          KK      ND4
  53          KM    ONSITE BASIN ND4. NORTHERN PORTION OF THE SUBJECT PROJECT SITE
  54          KM    DRAINING EASTERLY TOWARDS THE EXISTING NORTHERN WROUGHT IRON GATE
  55          KM    INTO THE ADJACENT ELKHORN-CIMARRON ESTATES RESIDENTIAL SUBDIVSION
  56          BA   .00030
  57          LS       0    72.1
  58          UD     .091

  59          KK    CMF1
  60          KM    COMBINE RPPD2 AND ND4
  61          KM    TOTAL ONSITE FLOWS DRAINING TOWARDS THE EXISTING 20' DRAINAGE EASEMENT ONTO
  62          KM    DENAIDES COURT THROUGH THE NORTHERN WROUGHT IRON GATE
  63          HC       2
```

Future (Worst Case)

Flows into Flume

CMF1

```
 64          KK    ND1
 65          KM   ONSITE BASIN ND1. NORTHERN PORTION OF THE SUBJECT PROJECT SITE
 66          KM   DRAINING EASTERLY TOWARDS THE EXISTING NORTHERN WROUGHT IRON GATE
 67          KM   INTO THE ADJACENT ELKHORN-CIMARRON ESTATES RESIDENTIAL SUBDIVSION
 68          BA  .00605
 69          LS      0     91.3
 70          UD    .098

 71          KK    RND1
 72          KM   ROUTE RUNOFF FROM ND1 SOUTHEASTERLY THROUGH BASIN ND2 ALONG THE ONSITE DRIVE
 73          KM   AISLE TO THE SOUTHWEST CORNER OF THE SITE
 74          RK     425    0.018    0.015              TRAP        2       50

 75          KK    ND2
 76          KM   ONSITE BASIN ND2. MIDDLE PORTION OF THE SUBJECT PROJECT SITE.
 77          KM   DRAINING SOUTHEASTERLY TOWARDS THE EXISTING SOUTHERN WROUGHT IRON GATE
 78          KM   INTO THE ADJACENT ELKHORN-CIMARRON ESTATES RESIDENTIAL SUBDIVSION
 79          BA  .00934
 80          LS      0     81.7
 81          UD    .138

 82          KK    CMF2
 83          KM   COMBINE RND1 AND ND2
 84          KM   TOTAL ONSITE FLOWS DRAINING TOWARDS THE EXISTING 20' DRAINAGE EASEMENT ONTO
 85          KM   HESPERIDES AVENUE THROUGH THE SOUTHERN WROUGHT IRON GATE
 86          HC       2

 87          KK    ND3
 88          KM   ONSITE BASIN ND3. SOUTHERN PORTION OF THE SUBJECT PROJECT SITE.
 89          KM   DRAINING SOUTHEASTERLY TOWARDS THE VACANT PARCEL TO THE SOUTH
 90          BA  .00241
 91          LS      0     89.5
 92          UD    .059
```

1

HEC-1 INPUT

PAGE 3

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

 93          KK    SPD1
 94          KM   THE PORTION OF SKY POINTE DRIVE ALONG BASIN PPX1
 95          KM   SINCE LARGE PORTION OF THIS BASIN IS ALREADY PAVED, THE BASIN IS ASSUMED
 96          KM   TO BE ENTIRELY DEVELOPED
 97          BA  .00181
 98          LS      0     98.0
 99          UD    .057

100          KK   RSPD1
101          KM   ROUTE RUNOFF FROM SPD1 SOUTHEASTERLY THROUGH SPD2 ADJACENT TO THE SITE
102          RK     590    0.018    0.015              TRAP        2       50

103          KK    SPD2
104          KM   THE CENTRAL PORTION OF SKY POINTE DRIVE ADJACENT TO THE NORTHERN HALF OF THE
105          KM   SINCE LARGE PORTION OF THIS BASIN IS ALREADY PAVED, THE BASIN IS ASSUMED
106          KM   TO BE ENTIRELY DEVELOPED
107          BA  .00164
108          LS      0     98.0
109          UD    .055

110          KK    CMF3
111          KM   COMBINE RSPD1 AND SPD2
112          KM   TOTAL RUNOFF FLOWS DRAINING SOUTHEASTERLY PAST THE NORTHWESTERN DRIVEWAY
113          HC       2

114          KK   RCMF3
115          KM   ROUTE RUNOFF FROM CMF2 SOUTHEASTERLY ALONG SKY POINTE DRIVE THRU BASIN SPD3
116          KM   TO THE SOUTHWEST CORNER OF THE SITE
117          RK     365    0.018    0.015              TRAP        2       50

118          KK    SPD3
119          KM   THE SOUTHERN PORTION OF SKY POINTE DRIVE ADJACENT TO THE SOUTHERN HALF OF THE
120          KM   SINCE LARGE PORTION OF THIS BASIN IS ALREADY PAVED, THE BASIN IS ASSUMED
121          KM   TO BE ENTIRELY DEVELOPED
122          BA  .00100
123          LS      0     98.0
124          UD    .050

125          KK    CMF4
126          KM   COMBINE RSPD2 AND SPD3
127          KM   TOTAL RUNOFF FLOWS DRAINING SOUTHEASTERLY IN SKY POINTE DRIVE DOWNSTREAM OF T
128          HC       2
129          ZZ
```

1

SCHEMATIC DIAGRAM OF STREAM NETWORK

```
INPUT
 LINE     (V) ROUTING          (--->) DIVERSION OR PUMP FLOW
 NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

 25        PPD1
            :
 41         :        PPD2
            :          V
            :          V
 48         :       RPPD2
            :          :
 52         :          :          ND4
            :          :           :
 59         :       CMF1.........
            :          :
 64         :          :          ND1
            :          :           V
            :          :           V
 71         :          :         RND1
            :          :           :
 75         :          :           :        ND2
            :          :           :         :
```

CMF1

```
                                                                    121075F
  82          .           .        CMF2............
                          .           .
  87          .           .           .        ND3
                          .           .          .
  93          .           .           .          .        SPD1
                          .           .          .          V
 100          .           .           .          .        V
                          .           .          .      RSPD1
 103          .           .           .          .          .
                          .           .          .          .        SPD2
                          .           .          .          .\          .
 110          .           .           .          .      CMF3............
                          .           .          .          V
 114          .           .           .          .          V
                          .           .          .      RCMF3
 118          .           .           .          .          .
                          .           .          .          .        SPD3
                          .           .          .          .          .
 125          .           .           .          .      CMF4............
(***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*             JUN   1998               *
*           VERSION 4.1                *
*                                      *
*  RUN DATE   23OCT12  TIME  12:22:29  *
*                                      *
****************************************
```

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

```
SOMERSET ACADEMY - TECHNICAL DRAINAGE STUDY
FUTURE CONDITIONS - ONSITE AND OFFSITE
USING SCS METHODS AND KINEMATIC WAVE ROUTING
MASTER PLAN ADJUSTED 6-HOUR RAINFALL AND STORM DISTRIBUTION
LOCHSA JOB# 121075

INPUT FILE NAME:  121075F.DAT

AUGUST 2012
*********************************************************************
*********************************************************************
     McCARRAN AIRPORT RAINFALL AREA
     10 & 100 YEAR - 6 HOUR STORM EVENT
     PRECIPITATION:
            10-YEAR:  1.58 INCHES
            100-YEAR: 2.77 INCHES

            10-YEAR/100-YEAR RATIO:  1.58/2.77 = 0.5704
*********************************************************************
*********************************************************************
 22 IO        OUTPUT CONTROL VARIABLES
                  IPRNT          5  PRINT CONTROL
                  IPLOT          0  PLOT CONTROL
                  QSCAL         0.  HYDROGRAPH PLOT SCALE

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

              COMPUTATION INTERVAL     .08 HOURS
                   TOTAL TIME BASE   24.92 HOURS

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

    JP          MULTI-PLAN OPTION
                     NPLAN          1  NUMBER OF PLANS

    JR          MULTI-RATIO OPTION
                   RATIOS OF PRECIPITATION
                   .57      1.00

        *** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

1

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

                                                    RATIOS APPLIED TO PRECIPITATION
 OPERATION      STATION     AREA    PLAN            RATIO 1  RATIO 2
                                                      .57      1.00
 HYDROGRAPH AT
+                PPD1       .01     1   FLOW          7.       16.
```

121075f

```
                                        TIME        3.50      3.50
 HYDROGRAPH AT
+                PPD2     .01    1   FLOW          8.        16.
                                     TIME        3.50      3.50
 ROUTED TO
+               RPPD2     .01    1   FLOW          8.        16.
                                     TIME        3.50      3.50
 HYDROGRAPH AT
+                 ND4     .00    1   FLOW          0.         0.
                                     TIME        3.58      3.50
  2 COMBINED AT
+                CMF1     .01    1   FLOW          8.        16.
                                     TIME        3.50      3.50
 HYDROGRAPH AT
+                 ND1     .01    1   FLOW          5.        10.
                                     TIME        3.50      3.50
 ROUTED TO
+               RND1     .01    1   FLOW          4.        10.
                                     TIME        3.58      3.50
 HYDROGRAPH AT
+                 ND2     .01    1   FLOW          3.        10.
                                     TIME        3.58      3.58
  2 COMBINED AT
+                CMF2     .02    1   FLOW          8.        19.
                                     TIME        3.58      3.58
 HYDROGRAPH AT
+                 ND3     .00    1   FLOW          2.         4.
                                     TIME        3.50      3.50
 HYDROGRAPH AT
+                SPD1     .00    1   FLOW          2.         4.
                                     TIME        3.50      3.50
 ROUTED TO
+               RSPD1     .00    1   FLOW          2.         4.
                                     TIME        3.50      3.50
 HYDROGRAPH AT
+                SPD2     .00    1   FLOW          2.         4.
                                     TIME        3.50      3.50
  2 COMBINED AT
+                CMF3     .00    1   FLOW          4.         8.
                                     TIME        3.50      3.50
 ROUTED TO
+               RCMF3     .00    1   FLOW          4.         7.
                                     TIME        3.50      3.50
 HYDROGRAPH AT
+                SPD3     .00    1   FLOW          1.         2.
                                     TIME        3.50      3.50
  2 COMBINED AT
+                CMF4     .00    1   FLOW          5.        10.
                                     TIME        3.50      3.50
1
                                  SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
                                      (FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)
                                                                  INTERPOLATED TO
                                                                  COMPUTATION INTERVAL
          ISTAQ    ELEMENT      DT        PEAK     TIME TO      VOLUME      DT       PEAK     TIME TO      VOLUME
                                                                                                PEAK
                                (MIN)     (CFS)     (MIN)       (IN)      (MIN)     (CFS)     (MIN)       (IN)
        FOR PLAN = 1  RATIO=  .57
           RPPD2  MANE          .33      7.70    210.61        .87       5.00      7.51    210.00        .87

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4031E+00 EXCESS= .0000E+00 OUTFLOW= .4035E+00 BASIN STORAGE= .1838E-06 PERCENT ERROR=   -.1

        FOR PLAN = 1  RATIO= 1.00
           RPPD2  MANE          .28     16.27    210.44       1.95       5.00     16.08    210.00       1.95

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9023E+00 EXCESS= .0000E+00 OUTFLOW= .9029E+00 BASIN STORAGE= .1865E-06 PERCENT ERROR=   -.1

        FOR PLAN = 1  RATIO=  .57
            RND1  MANE          .71      4.57    211.32        .83       5.00      4.41    215.00        .83

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2659E+00 EXCESS= .0000E+00 OUTFLOW= .2662E+00 BASIN STORAGE= .1198E-09 PERCENT ERROR=   -.1

        FOR PLAN = 1  RATIO= 1.00
            RND1  MANE          .66     10.05    211.31       1.88       5.00      9.61    210.00       1.89

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6078E+00 EXCESS= .0000E+00 OUTFLOW= .6082E+00 BASIN STORAGE= .9675E-10 PERCENT ERROR=   -.1

        FOR PLAN = 1  RATIO=  .57
           RSPD1  MANE          1.19      2.26    212.22       1.36       5.00      2.09    210.00       1.36

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1312E+00 EXCESS= .0000E+00 OUTFLOW= .1316E+00 BASIN STORAGE= .3707E-09 PERCENT ERROR=   -.3

        FOR PLAN = 1  RATIO= 1.00
           RSPD1  MANE          1.06      4.03    212.16       2.55       5.00      3.81    210.00       2.54
```

CMF1 (8/16 cfs)
Runoff through
the 6-FT Flume

```
CONTINUITY SUMMARY (AC-FT) - INFLOW= .2451E+00 EXCESS= .0000E+00 OUTFLOW= .2458E+00 BASIN STORAGE= .3768E-09 PERCENT ERROR=   -.3

        FOR PLAN = 1  RATIO=  .57
           RCMF3  MANE          .73      4.12    211.43      1.36      5.00      4.00    210.00       1.36

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2504E+00 EXCESS= .0000E+00 OUTFLOW= .2506E+00 BASIN STORAGE= .8195E-09 PERCENT ERROR=   -.1

        FOR PLAN = 1  RATIO= 1.00
           RCMF3  MANE          .66      7.43    211.17      2.54      5.00      7.27    210.00       2.55

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4676E+00 EXCESS= .0000E+00 OUTFLOW= .4679E+00 BASIN STORAGE= .7925E-09 PERCENT ERROR=   -.1


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

REVISED HYDRAULIC CALCULATIONS

Normal Depth Calculations for 6-foot U-gutter-Eastern Boundary of Site

Normal Flow Depth Calculations for 6-foot U-gutter – CMF2 Flows from Parking Lots and Drive Aisle (Future Condition)

Overflow Path Analysis (Weir and Normal Depth @ Sections CC and DD)

Drop Inlet Capacity Calculation for 3'x3' Jensen Precast Inlet

Standard Form 6 - Analysis for Proposed 18" Storm Drain

6-foot U-Gutter Conveying Concentration Point CMF1 Flows
Worksheet for Rectangular Channel

Project Description	
Worksheet	6-foot U-Gutter Conveying Concentration Point CMF1 Flows
Flow Element	Rectangular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.013	
Slope	0.010000	ft/ft
Bottom Width	6.00	ft
Discharge	16.00	cfs

Results		
Depth	0.44	ft
Flow Area	2.6	ft²
Wetted Perimeter	6.88	ft
Top Width	6.00	ft
Critical Depth	0.60	ft
Critical Slope	0.003720	ft/ft
Velocity	6.04	ft/s
Velocity Head	0.57	ft
Specific Energy	1.01	ft
Froude Number	1.60	
Flow Type	Supercritical	

Previously approved slope for 6-FT Flume.

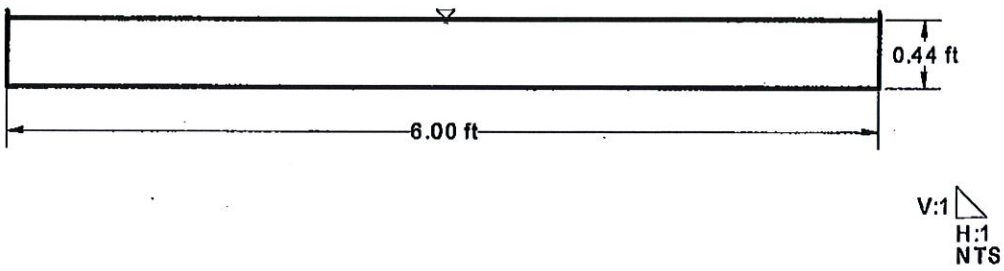
Now being revised to 0.50 %.

Q100 from CMF1 (8/16 cfs)

6-foot U-Gutter Conveying Concentration Point CMF1 Flows
Cross Section for Rectangular Channel

Project Description	
Worksheet	6-foot U-Gutter Conveying Concentration Point CMF1 Flows
Flow Element	Rectangular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.013	
Slope	0.010000	ft/ft
Depth	0.44	ft
Bottom Width	6.00	ft
Discharge	16.00	cfs



Technical Drainage Study
For
Somerset Academy

JOB# 121075

August 2012

Prepared for:

Ethos Three Architecture
8985 South Eastern Avenue
Suite 220
Las Vegas, Nevada 89123
(702) 456-1070

Prepared By:
LOCHSA ENGINEERING
6345 South Jones Boulevard
Suite 100
Las Vegas, Nevada 89118
(702) 365-9312

HYDROLOGIC CRITERIA AND DRAINAGE MANUAL

DRAINAGE STUDY INFORMATION FORM

Name of Development: Somerset Academy Date: August 27, 2012

Location of Development: a) Descriptive (Cross Streets) North/South: Sky Pointe Drive

East/West: Elkhorn Road

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

c) APN : 125-21-102-001

Name of Owner: Rancho Drive - Tule Springs Road Limited Partnership

Telephone No.: 702-456-1070 Fax No.: (702) 365-9317 E-Mail Address:

Address: 6767 West Charleston Boulevard, Suite 150, Las Vegas, Nevada 89146

Contact Person-Name: Stanley Okey Amadi, P.E. **Telephone No.:** (702) 365-9312

*** E-Mail Address:** stanley@lochsa.com **Fax No.:** (702) 365-9317

Firm: Lochsa Engineering

Address: 6345 South Jones Boulevard, Suite 100, Las Vegas, Nevada 89118

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: 24.45 +/- Acres Being Developed/Disturbed: 12.20 +/- 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.): Residential (Multi-Family)
5. Approximate upstream land area which drains to the subject site: 15.0 +/- Acres
6. Has the site drainage been evaluated in the past? ☐ YES ☒ NO If yes, please identify documentation:
7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: Southeasterly into the adjacent Elkhorn-Cimarron Estates Residential Subdivision Following Existing Drainage Patterns
8. Briefly describe your proposed schedule for the subject project: ASAP

PROFESSIONAL ENGINEER - STATE OF NEVADA
GUY M. MORRIS
EXP. 12-31-13
CIVIL
No. 14526

8-28-12

Engineer's Seal

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

***New Required Field**

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

Local Entity File No.

Revision	Date

REFERENCE:

STANDARD FORM 1

Updated 05/01/2008

1. GENERAL LOCATION AND DEVELOPMENT DESCRIPTION

1.1 Purpose

Lochsa Engineering has been retained by Ethos Three Architecture, to provide a technical drainage study for the proposed Sky Pointe Multi-Family and Somerset Academy. The proposed development will be located at the southeast corner of Elkhorn Road and Sky Pointe Drive intersection within the City of Las Vegas, Nevada. The purpose of this study is to provide a detailed hydrologic analysis of the site and offsite watersheds impacting the site, and to substantiate the hydraulic design for the proposed multi-family and academy development. This report will examine the existing and developed conditions of the site and will explore any potential future impacts to the site as a result of development of the onsite and offsite tributaries. The site will be developed in two phases with the first phase within the southern half of site consisting of the Somerset Academy, while the second phase on the northern half of the site will consist of the multi-family development. The Clark County Regional Flood Control District (CCRFCD) Hydrologic Criteria and Drainage Design Manual (HCDDM) and the CCRFCD 2008 Master Plan Update have been compiled and utilized in the preparation of this study. This report presents a summary of the hydrologic and hydraulic analyses, methodology, and results of the study.

1.2 Location of Property

The project site is located at the southeast corner of the intersection of Elkhorn Road and Sky Pointe Drive within the City of Las Vegas jurisdiction in Clark County, Nevada. Sky Pointe Drive adjacent to the site is the eastern frontage road to US-95 highway and traverses in a northwest to southeast direction. Elkhorn Road which boarders the northern boundary of the site consists of an

overpass across US-95 highway. Directly east of the site is the existing Elkhorn Cimarron Estates residential subdivision, while directly south of the site is an undeveloped parcel. Full offsite half street improvements will be constructed within the eastern half of Sky Pointe Drive adjacent to the site. Full offsite improvements in Elkhorn Road adjacent to the site have already been constructed with the overpass to US-95 highway. The site is specifically located within a portion of the Northern Half (N 1/2) of the Northwest Quarter (NW 1/4) of Section 21, Township 19 South, Range 60 East, of the M.D.M., in the City of Las Vegas, Nevada. The centerline of Elkhorn Road forms the section line between Sections 16 and 21 of Township 19 South and Range 60 East of the MDM. The project site is also identified as a portion of Assessor's Parcel Number (APN) 125-21-102-001. Please refer to the copy of the Assessor's Parcel Map provided in Appendix A. Figure 1 also provided in Appendix C, shows the vicinity and area map of the subject site in relation to the surrounding streets.

1.3 Description of Property

The project parcel consists of approximately 24.45 acres of natural desert land that generally slopes southeast at approximately 1.60%. The old alignment of Elkhorn Road traverses through the northern half of the site. The area for the proposed Somerset Academy comprises of the southern half of the project parcel and spans approximately 12.20 acres. A review of the 2008 Las Vegas Valley Flood Control Master Plan Update (Reference 2), Figure H-13 and the Natural Resources Conservation Service (NRCS) Web Soil Survey 2.0 (Reference 3), indicates that the site is located within the hydrologic soil group B. Soil group B is defined as soils with "Moderate infiltration rate, and moderately low runoff potential." The Curve Numbers (CNs) for the existing and developed conditions have been determined from Table 602 of the CCRFCD Hydrologic Criteria and Drainage Design Manual.

2.3 Future Drainage Condition

A. Onsite and Offsite Drainage

For the future condition, the proposed CCRFCD facilities (CN950000 through CN950167) to be constructed in the alignment of US-95 Highway is assumed to be fully in place. These facilities will intercept and convey all the upstream offsite flows from the watersheds west of the US-95 Highway alignment. Therefore, no offsite flows will perpetuate east across the highway as analyzed for the existing and interim conditions. Consequently, all the flows impacting the project parcel through the existing aforementioned culverts will be completely eliminated. Similarly, upstream flows within Tule Springs Road will be completely captured by the existing 36" RCP storm drain and the 6'x3' RCBC, since adequate capacity will exist as a result of the offsite flows eliminated by the CCRFCD facility. Hence, no flows are anticipated to convey south from Tule Springs Road towards Sky Pointe Drive adjacent to the site. The surface flows in Sky Point Drive adjacent to the site will only consist of the runoff generated by basins SPD1, SPD2 and SPD3. Basins SPD1 and SPD2 will combine at concentration point CMF3 (2/5 cfs) just downstream of the upstream driveway entrance to the site. Likewise, basin SPD3 will combined with other surface flows from CMF3 at concentration point CMF4 (3/6 cfs) in Sky Pointe Drive downstream of the site.

On the contrary, the northern portion of the project parcel is anticipated to be developed into a commercial and/or public facility. Therefore, basins PPX1 and PPX2 have been respectively reanalyzed as PPD1 (7/16 cfs) and PPD2 (8/16 cfs) to estimate the future runoff due to the anticipated development. In order to maintain the existing drainage pattern in the future condition, runoff from basin PPD1 is assumed to discharge east into Elkhorn Road, while basin PPD2 will discharge south and eventually east through the northern 20' drainage easement at the cul-de-sac end of Danaides Court. Runoff from basin PPD2 will combine with onsite basin ND4 at concentration point CMF1 (8/16 cfs) to discharge east into Danaides Court. Basins ND1 and ND2 will combine at

concentration point CMF2 (8/19 cfs) and the combined runoff will also discharge east into the Elkhorn-Cimarron Estates through the existing southern 20' drainage easement the cul-de-sac end of Hesperides Avenue. It is worthy to restate that although portions of basins ND1 and ND2 are rough graded in the interim condition, the interim condition analysis reflects the anticipated ultimate development of the site. Therefore, a future condition re-analysis of the onsite basins will not be necessary and has not been provided. Basin ND3 will also discharge south into the adjacent undeveloped parcel (APN: 125-21-202-001) through the proposed 48"x16" wall opening as designed for in the interim condition. Please refer to the Future Condition Onsite Drainage Map (Sheet DR3) for the basins and concentration points described above.

As previously stated, the "*Drainage Study for Elkhorn-Cimarron Estates*" (Reference 7) indicates that the future (developed) condition flows expected to traverse the two drainage easements in the alignments of Danaides Court and Hesperides Avenue were estimated at concentration points C1 (13/19 cfs) and C2 (13/19 cfs). Similarly, the ultimate (developed) condition flows designed to discharge south into the adjacent undeveloped parcel (APN: 125-21-202-001) were estimated at concentration point C3 (<1/17 cfs) in Reference 7. The subject study has estimated the ultimate developed condition flows at the corresponding concentration locations to be approximately CMF1 (8/16 cfs), CMF2 (8/19 cfs) and ND3 (2/4 cfs). Therefore, by comparison of the estimated flows, it can be concluded that the development of the proposed Somerset Academy will not cause any negative impact to the adjacent downstream properties.

2.4 Master Planning Information

The "*2008 Las Vegas Valley Flood Control Master Plan Update*", dated September 2008, as prepared by Post Buckley Schuh and Jernigan, Inc. (PBS&J), in association with Louis Berger Group and Parsons Brinckerhoff, for the Clark County Regional Flood Control District (CCRFCD),

(Reference 2) illustrates the existing and proposed regional master planned facilities around the site as shown on Figure F-13.

Review of the Master Plan Update (Reference 3), indicates no existing or proposed CCRFCD Master Plan facilities crossing through the site. However, the future CCRFCD Centennial Parkway Channel West-US-95 Branch facilities (CN950000 through CN950167) will be constructed in the alignment of US-95 Highway west of the site. The subject facility will intercept all offsite flows impacting the site from the watersheds west of US-95 Highway. The portion of the facility adjacent to the site is identified as CN95 0000; and will consist of a 2,690 lineal feet Concrete Channel of approximately 22' Wide, 10' Deep and 0:1 Side Slopes. The channel is currently in preliminary design (Status P2) with a design capacity 3,340 cfs, and will be constructed at a bed slope of 2.17%. There is also an existing City of Las Vegas local facility in the alignment of Elkhorn Road upstream of the site. This local facility is identified in the City of Las Vegas Northwest Neighborhood Study Phase I as an 18" RCP storm drain.

2.5 Flood Plain Information

The project site is covered by Flood Insurance Rate Map (FIRM) for the Clark County, Nevada, and unincorporated areas, Community Panel Numbers: 32003C1745F, Effective Date: November 16, 2011.

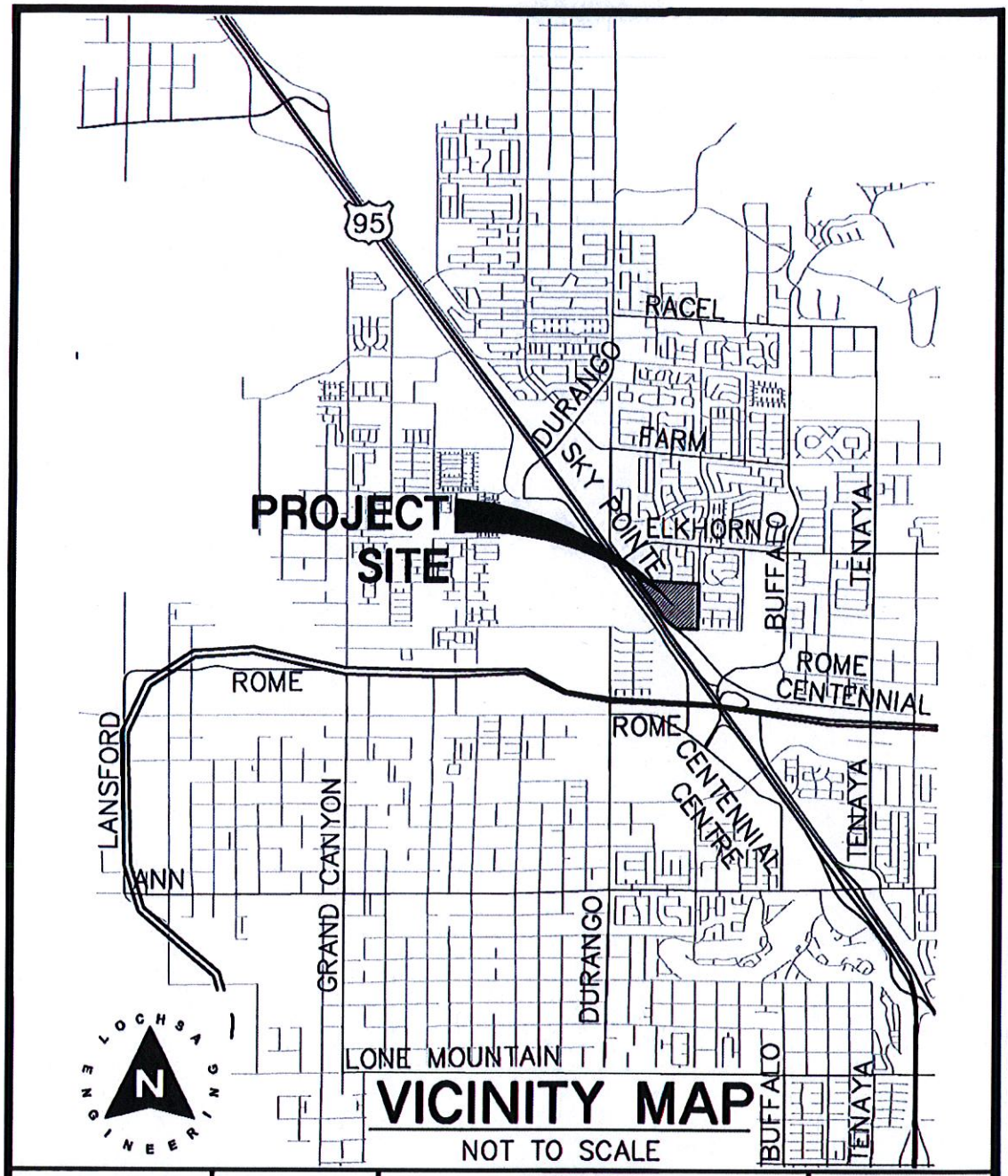
Review of Panel 32003C1745F indicates that site is located within an area designated as FEMA Flood Zone "X" (unshaded). Zone "X" (unshaded), is described by FEMA as:

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

Figure 2 in the Appendix illustrates the location of the site on a portion of the above referenced Flood Insurance Rate Map.

APPENDIX C

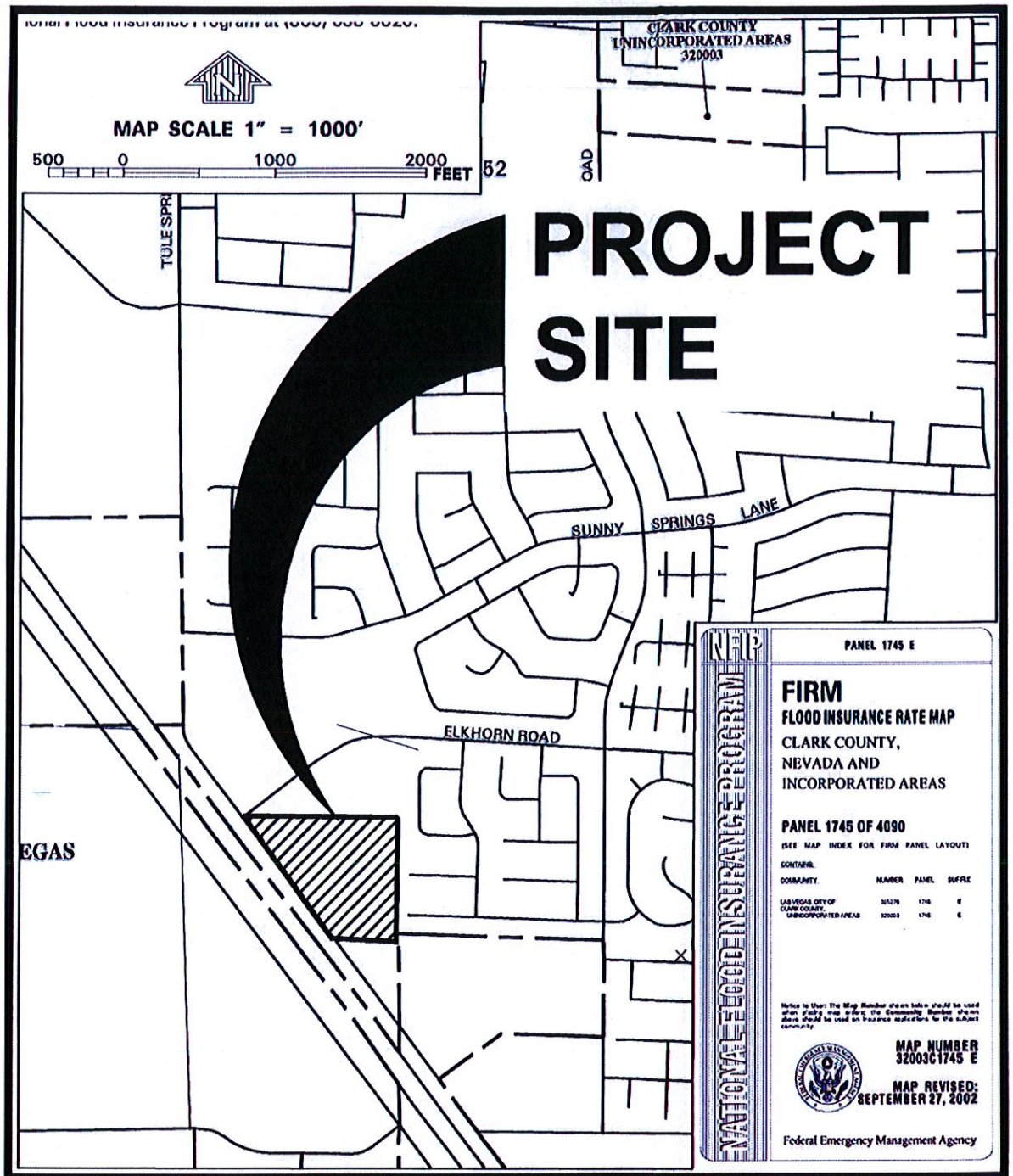
FIGURES



VICINITY MAP

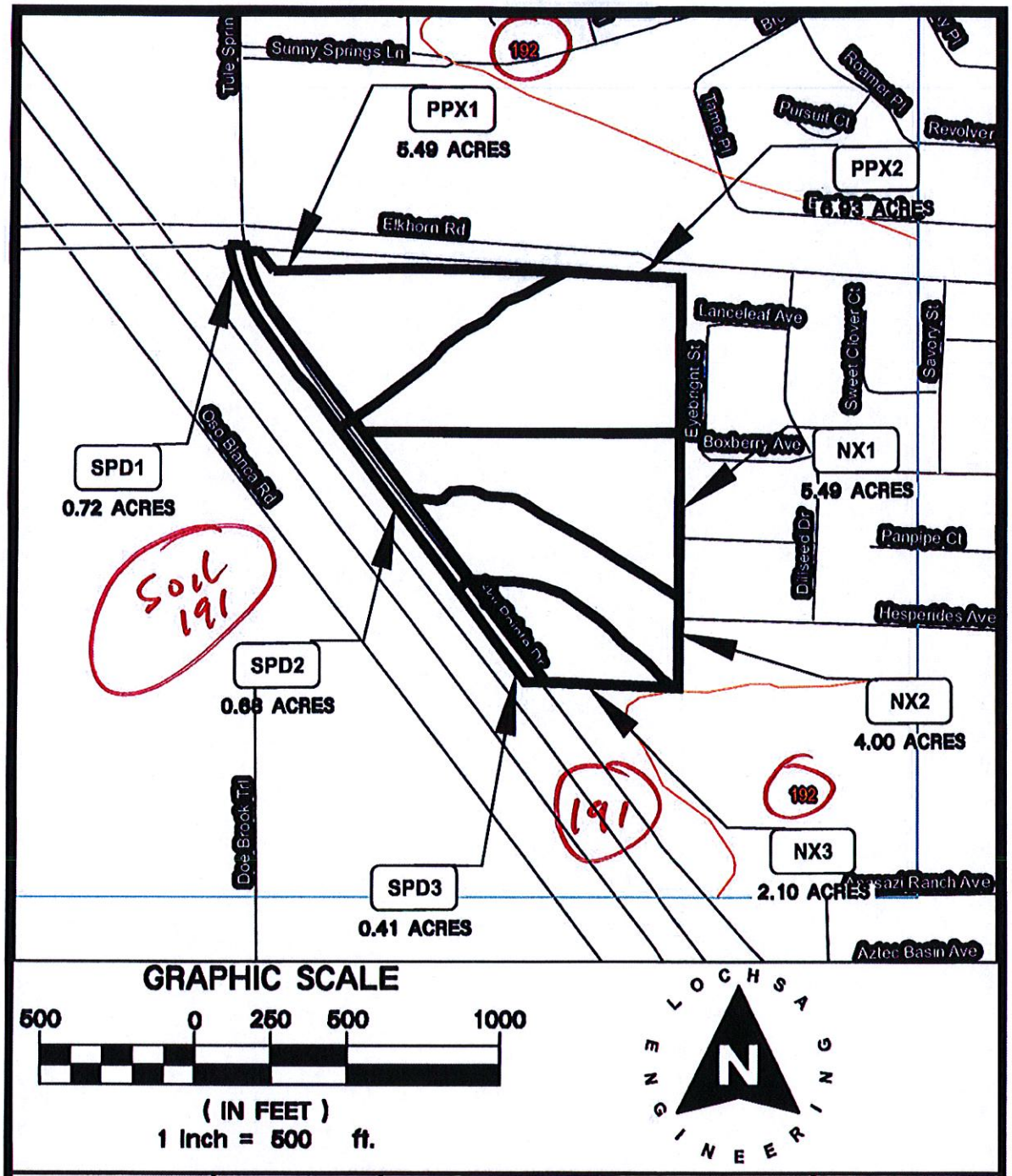
NOT TO SCALE

DRAWN BY: SOA	SCALE: N.T.S.	VICINITY MAP (FIGURE 1)	PROJECT No.: 121075
CHECKED BY: HMN	DATE: 08/27/12		SHEET No.
Lochsa engineering 6345 South Jones Blvd. Suite 100 Las Vegas, NV 89118 Phone (702) 365-9312 - Fax (702) 365-9317		SOMERSET ACADEMY	V-M SHEET 1 OF 1



DRAWN BY: SOA	SCALE:1"=1000	FLOOD INSURANCE RATE MAP (FIGURE 2)	PROJECT No.: 121075
CHECKED BY: HMN	DATE:08/27/12		SHEET No. F-M
Lochsa engineering		SOMERSET ACADEMY	SHEET 1 OF 1

6345 South Jones Blvd. Suite 100
Las Vegas, NV 89118
Phone (702) 365-9312 - Fax (702) 365-9317



GRAPHIC SCALE

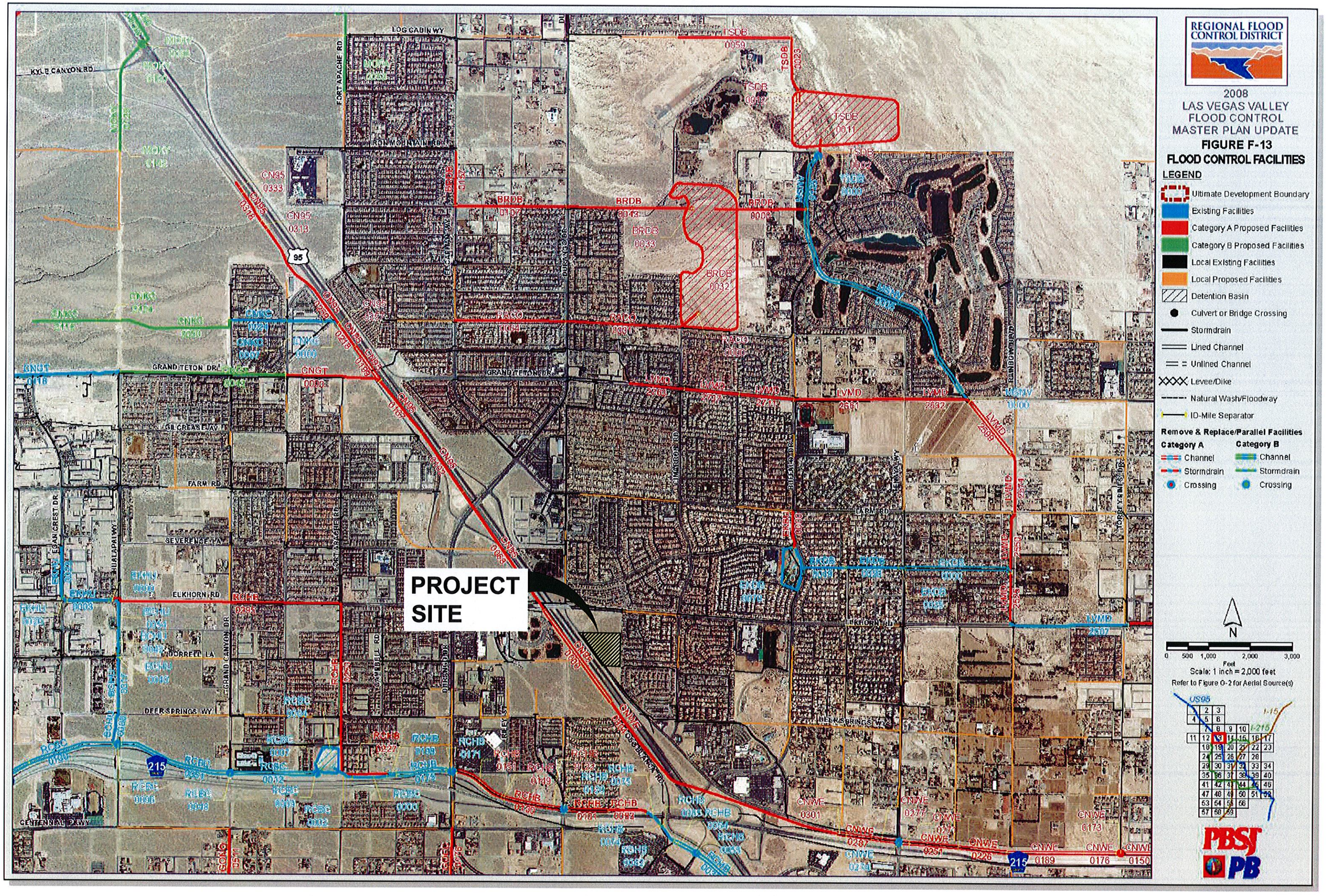
500 0 250 500 1000

(IN FEET)
1 inch = 500 ft.

N

LOCHSA ENGINEERING

DRAWN BY: SOA	SCALE: 1"=500'	Soil Map Hydrologic Groups (Figure 3)	PROJECT No.: 121075
CHECKED BY: HMN	DATE: 08/24/12		SHEET No. S-1
Lochsa engineering 6345 South Jones Blvd. Suite 100 Las Vegas, NV 89118 Phone (702) 365-9312 - Fax (702) 365-9317		SOMERSET ACADEMY	SHEET 1 OF 1


REGIONAL FLOOD CONTROL DISTRICT
2008
LAS VEGAS VALLEY
FLOOD CONTROL
MASTER PLAN UPDATE
FIGURE F-13
FLOOD CONTROL FACILITIES
LEGEND
Ultimate Development Boundary
Existing Facilities
Category A Proposed Facilities
Category B Proposed Facilities
Local Existing Facilities
Local Proposed Facilities
Detention Basin
Culvert or Bridge Crossing
Stormdrain
Lined Channel
Unlined Channel
Levee/Dike
Natural Wash/Floodway
10-Mile Separator
Remove & Replace/Parallel Facilities
Category A
Channel
Stormdrain
Crossing
Category B
Channel
Stormdrain
Crossing
N
0 500 1,000 2,000 3,000
Feet
Scale: 1 inch = 2,000 feet
Refer to Figure G-2 for Aerial Source(s)
PROJECT SITE
KYLE CANYON RD
LOG CABIN WY
FORT APACHE RD
IRON MOUNTAIN RD
GRAND TETON DR
GILCREASE AV
FARM RD
SEVERENGETA
ELKHORN RD
DORRELL LA
DEER SPRINGS WY
CENTENNIAL PKWY
RAINBOW BLVD
TORREYPINES DR
GRAND CANYON DR
CAMPBELL RD
DURANGO DR
BUFFALO DR
HUALAPAI WY
ESAN CREST DR
95
215
TSDB 0059
TSDB 0012
TSDB 0011
TSDB 0002
TSDB 0000
BRDB 0107
BRDB 0043
BRDB 0033
BRDB 0032
BRDB 0000
CN95 0333
CN95 0313
CNKC 0104
CNKC 0116
CNKC 0050
CNKC 0021
CNKC 0007
CNKC 0000
CNGT 0018
CNGT 0000
PACO 0084
PACO 0001
PACO 0000
LVMD 2763
LVMD 2797
LVMD 2661
LVMD 2632
LVMD 2599
LVMD 2514
LVMD 2507
MSNV 0000
EKOB 0000
RCHB 0295
RCHB 0171
RCHB 0151
RCHB 0149
RCHB 0139
RCHB 0173
RCHB 0174
RCHB 0092
RCHB 0059
RCBC 0100
RCBC 0051
RCBC 0048
RCBC 0012
RCBC 0009
RCBC 0002
RCBC 0000
CNWE 0301
CNWE 0277
CNWE 0274
CNWE 0287
CNWE 0251
CNWE 0228
CNWE 0189
CNWE 0176
CNWE 0150
CNWE 0173
SONC 0511
US95
I-15
I-215
PBSJ
PB

ID / River Mile	Status	Facility Description	Length (ft.)	Flow (cfs)	HEC-1 Node	HEC-1 Model	Tributary Area (sq.mi.)	Channel Slope (%) **
BCHU		BELTWAY CHANNEL - HUALAPAI						
0000	E	12' X 5' RCAP	853	501	CBA3-C	WEST3	0.84	1.11
0017	E	8' X 5' RCAP	1216	501	CBA3-C	WEST3	0.84	1.33
0040	E	66" RCP	60	222	DNW26-C	WEST3	0.51	1.04
0042	E	60" RCP	615	222	DNW26-C	WEST3	0.51	1.42
0054	E	54" RCP	770	222	DNW26-C	WEST3	0.51	1.23
BRDB		BRENT DRAINAGE SYSTEM						
0000	P3	36" RCP with 18" Orifice Plate	2170	37	BRDB	WEST3	2.48	0.40
0031	P3	45,060 cfs PMF Spillway		45080	CBRDB	WEST3	2.48	
0032	P3	450 ac-ft South Environmental Enhancement Area		1902	CBRDB	WEST3	2.48	
0033	P3	Energy Dissipator	100	957	CNW113-C	WEST3	1.58	
0043	P1	8' X 6' RCB	2920	957	CNW113-C	WEST3	1.58	2.10
0107	P1	8' X 6' RCB	2660	957	CNW113-C	WEST3	1.58	2.40
0157	P1	12' X 6' RCB	1260	741	CNW96-C	WEST3	0.95	0.25
CN95		CENTENNIAL PKWY CHANNEL WEST / U.S 95 BRANCH						
0000	P2	Conc Chnl 22'W 10'D 0:1 SS	2690	3340	CNWBB3-C	WEST3	3.36	2.17
0068	P1	3: 8' X 7' RCB	3380	3216	CNW103-C	WEST3	3.05	2.12
0102	P1	3: 8' X 6' RCB	1710	2888	2CNW89-C	WEST3	2.66	2.09
0187	P1	2: 10' X 6' RCB	1580	2160	2CNW71-E	WEST3	1.64	1.50
0199	P3	Conc Chnl 15'W 11'D 0:1 SS	1015	1609	2CNW72-C	WEST3	1.17	0.82
0218	P3	16' X 8' RCB	556	1609	2CNW72-C	WEST3	1.17	0.77
0257	P3	Transition Structure	100	1609	2CNW72-C	WEST3	1.17	0.77
0269	P3	16' X 8' RCB	2848	674	CNW74-C	WEST3	0.45	2.06
0313	P3	Transition Structure	240	674	CNW74-C	WEST3	0.45	1.50
0318	P3	14' X 6' RCB	797	333	NW62-S	WEST3	0.21	1.47
0333	P3	12' X 6' RCB	300	333	NW62-S	WEST3	0.21	5.50
CNGT		CENTENNIAL PKWY CHANNEL WEST / GRAND TETON BRANCH						
0000	P3	10' X 5' RCB	2290	600	CNW71-E	WEST3	0.47	2.63
0043	P0	6' X 6' RCB	3980	600	CNW71-E	WEST3	0.47	3.00
0118	E	6' X 5' RCAP	5472	363	KYLEDET*	KYLEDB	57.73	3.72
CNKC		CENTENNIAL PKWY CHANNEL WEST / KYLE CANYON BRANCH						
0000	E	12' X 4' RCB	377	999	CNW72-C	WEST3	0.71	4.58
0007	E	10' X 5' RCB	874	999	CNW72-C	WEST3	0.71	3.28
0024	E	6' X 5' RCB	1385	999	CNW72-C	WEST3	0.71	2.40
0050	P0	6' X 5' RCB	2830	999	CNW72-C	WEST3	0.71	3.00
0104	P0	6' X 5' RCB	565	452	NW45-S	WEST3	0.27	3.00
0115	P0	72" RCP	1513	452	NW45-S	WEST3	0.27	3.00
CNWE		CENTENNIAL PKWY CHANNEL WEST						
0150	P2	Conc Chnl 42'W 10'D 0:1 SS	720	4233	CNW3B3-C	WEST3	5.64	0.40
0173	P2	42' X 10' RCBC @ Torrey Pines	190	4233	CNW3B3-C	WEST3	5.64	0.40
0176	P2	Conc Chnl 32'W 12'D 0:1 SS	795	4233	CNW3B3-C	WEST3	5.64	0.40
0189	P2	Conc Chnl 32'W 10'D 0:1 SS	1845	4067	CNW2D4-C	WEST3	5.15	0.54
0226	P2	Conc Chnl 12'W 12'D 2:1 SS	1165	4067	CNW2D4-C	WEST3	5.15	1.00
0251	P2	Conc Chnl 12'W 12'D 2:1 SS	1135	3951	CNW2D3-C	WEST3	4.65	0.59
0271	P2	Conc Chnl 32'W 10'D 0:1 SS	185	3951	CNW2D3-C	WEST3	4.65	0.59
0274	E	32' X 10' RCBC @ Tenaya	130	3951	CNW2D3-C	WEST3	4.65	0.45
0277	P2	Conc Chnl 13'W 10'D 2:1 SS	590	3951	CNW2D3-C	WEST3	4.65	0.45
0287	P2	Conc Chnl 13'W 10'D 2:1 SS	605	3593	CNW2B2-C	WEST3	3.84	1.19
0301	P2	Conc Chnl 32'W 10'D 0:1 SS	235	3593	CNW2B2-C	WEST3	3.84	1.19
0304	P2	32' X 10' RCB	6510	3593	CNW2B2-C	WEST3	3.84	1.75
EKBU		ELKHORN SPRINGS AND BUFFALO						
0000	P1	78" RCP	860	375	NW134-C	WEST3	0.46	1.00
EKDB		ELKHORN SPRINGS DETENTION BASIN						
0000	E	Grass Chnl 15'W 5.6'D 3.5:1 SS	2575	238	CNW150-C	WEST3	1.41	0.39
0025	E	4' X 3' RCB	160	120	ELKBASIN	WEST3	0.84	0.50
0026	E	48" RCP	1270	120	ELKBASIN	WEST3	0.84	1.23
0049	E	60" RCP	1095	120	ELKBASIN	WEST3	0.84	0.13
0070	E	48 ac-ft Elkhorn Springs Detention Basin		629	CNW133-C	WEST3	0.84	
EKHU		ELKHORN AND HUALAPAI						
0000	E	6' X 5' RCB Overflow Structure	48	638	CNW26-C	WEST3	0.51	0.91
0001	E	6' X 5' RCAP	72	638	CNW26-C	WEST3	0.51	0.91
EKHU		ELKHORN AND HUALAPAI						
0003	E	6' X 4' RCAP	980	638	CNW26-C	WEST3	0.51	3.61
0020	E	6' X 5' RCAP	150	638	CNW26-C	WEST3	0.51	3.61
0023	E	8' X 5' RCAP	1200	638	CNW26-C	WEST3	0.51	0.90
GOEC		GOWAN NORTH - EL CAPITAN BRANCH						
0176	P1	78" RCP	1320	363	CCPFR-C	ALLGOW3	0.46	1.15
GONO		GOWAN NORTH SYSTEM						
0511	P1	7' X 6' RCB	1320	648	CCP1HW-C	ALLGOW3	0.60	1.14
LVMD		LAS VEGAS WASH - MIDDLE						
2490	P2	2: 13' X 7' RCB	2555	2278	CNW168-C	CWEST3	4.69	0.40
2507	E	2: 13' X 6' RCB	2831	2278	CNW168-C	CWEST3	4.69	0.36
2525	P1	21' X 6' RCB	1140	1913	CNW159-C	CWEST3	3.91	0.40
2550	P1	21' X 6' RCB	1445	1664	CD161-C	CWEST3	3.41	0.40
2574	P1	21' X 6' RCB	1430	1664	CD161-C	CWEST3	3.41	0.60
2599	P1	Conc Chnl 30'W 5'D 2:1 SS	1577	1585	CNW162-C	CWEST3	3.08	0.40
2632	P1	13' X 5' RCB	1580	968	CNW138-C	WEST3	1.16	0.69
2661	P1	11' X 5' RCB	2640	968	CNW138-C	WEST3	1.16	1.00
2711	P1	8' X 5' RCB	1320	968	CNW138-C	WEST3	1.16	1.80
2737	P1	8' X 5' RCB	1320	818	CNW139-C	WEST3	0.93	1.81
2763	P1	78" RCP	1320	818	CNW139-C	WEST3	0.93	2.40
MOFA		MOCCASIN - FORT APACHE						
0024	P0	12' X 6' RCB	1520	394	DNW100-W	LOWER3	0.46	0.25
0053	P0	10' X 6' RCB	1345	258	DNW78-C	LOWER3	0.24	0.25
MOKY		MOCCASIN - KYLE CANYON BRANCH						
0078	P0	2: 13' X 7' RCB	965	1205	CNW50-E	LOWER3	1.06	0.40
0096	P0	2: 13' X 7' RCBC @ US 95	210	1066	CNW35-C	LOWER3	0.89	1.70
0100	P0	2: 13' X 7' RCB	1515	1066	CNW35-C	LOWER3	0.89	0.40
0129	P0	2: 11' X 7' RCB	675	779	CNW33-C	LOWER3	0.64	0.40
0142	P0	2: 9' X 7' RCB	430	779	CNW33-C	LOWER3	0.64	0.40
MSNV		MOUNTAIN SPA/MSTA RANCH						
0000	E	6: 12' X 5' RCBC @ Grand Teton	273	679	CNW163-C	CWEST3	1.67	0.40
0005	E	Grass Chnl 100'W 4.5'D 10:1 SS	6325	679	CNW163-C	CWEST3	1.67	0.40
0125	E	Grass Chnl 100'W 4.5'D 10:1 SS	1300	116	CNW147E	WEST3	1.54	0.40
RACO		RACEL STREET COLLECTOR						
0000	P3	96" RCP Baffled Energy Dissipator	54	497	CNW111S	WEST3	0.55	4.20
0001	P3	78" RCP	3245	497	CNW111S	WEST3	0.55	2.46
0064	P3	78" RCP	2650	423	DNW111S	WEST3	0.44	2.09
RCBC		RANCHO ROAD SYSTEM - BELTWAY CHANNEL						
0000	E	6' X 5' RCB	1062	222	FADB	WEST3	1.60	1.04
0002	E	54" RCP Outlet with 41" Orifice	503	222	FADB	WEST3	1.60	2.38
0003	E	2,341 cfs PMF Spillway		2341	FADBIN	WEST3	1.60	
0004	E	76 ac-ft Fort Apache Detention Basin		1255	FADBIN	WEST3	1.60	
0007	E	Energy Dissipator	100	1255	FADBIN	WEST3	1.60	
0009	E	12' X 6' RCBC @ Fort Apache Detention Basin	133	1255	FADBIN	WEST3	1.60	1.79
0012	E	Conc Chnl 12'W 6'-7'D 0:1 SS	1937	1255	FADBIN	WEST3	1.60	3.15
0048	E	12' X 6' RCBC @ Grand Canyon	140	1040	CMNA1	WEST3	1.32	3.15
0051	E	Conc Chnl 12'W 6'-8'D 0:1 SS	2660	1040	CMNA1	WEST3	1.32	3.44
0096	E	1: 10' X 6' and 1: 6' X 6' RCBC @ Hualapai Way	190	1040	CMNA1	WEST3	1.32	1.93
0100	E	Conc Chnl 12'W 5.5'D 0:1 SS	2085	598	CDMNA1	WEST3	0.48	2.68
0140	E	Conc Chnl 10'W 5'D 0:1 SS	2155	598	CDMNA1	WEST3	0.48	1.65
RCHB		RANCHO ROAD SYSTEM - BELTWAY						
0034	E	Conc Chnl 21'W 8'D 0:1 SS	1000	2631	CNW1C-W	WEST3	4.68	1.19
0053	E	2: 12' X 8' RCBC @ South Ramp Connector	85	2304	CDW1C1	WEST3	4.31	1.40
0054	E	Conc Chnl 21'W 8'D 0:1 SS	432	2304	CDW1C1	WEST3	4.31	1.51
0062	E	Transition Structure	130	2304	CDW1C1	WEST3	4.31	1.51
0065	E	24' X 7' RCB	480	2304	CDW1C1	WEST3	4.31	0.30
0074	E	24' X 6' RCB	50	2226	CNWBC6-C	WEST3	4.17	0.30
0075	E	20' X 6' RCBC @ Beltway	428	2226	CNWBC6-C	WEST3	4.17	2.81
0083	P2	20' X 6' RCB	950	2226	CNWBC6-C	WEST3	4.17	2.49
0101	P2	Conc Chnl 20'W 7'D 0:1 SS	980	2226	CNWBC6-C	WEST3	4.17	2.38
0120	E	20' X 6' RCBC @ Grand Montecito	120	2226	CNWBC6-C	WEST3	4.17	1.00
RCHB		RANCHO ROAD SYSTEM - BELTWAY						
0122	P2	Conc Chnl 16'-20'W 6'D 0:1 SS	350	2226	CNWBC6-C	WEST3	4.17	1.84
0130	P2	Conc Chnl 16'W 6'D 0:1 SS	1012	2226	CNWBC6-C	WEST3	4.17	2.67
0149	P2	Conc Chnl 16'W 6'-7'D 0:1 SS	87	1888	CNWBC3	WEST3	3.75	2.27
0151	P2	Conc Chnl 16'W 7'D 0:1 SS	1255	1888	CNWBC3	WEST3	3.75	2.65
0171	E	16' X 6' RCBC @ El Capitan Way	234	1888	CNWBC3	WEST3	3.75	1.75
0175	E	Conc Chnl 14'W 7'D 0:1 SS	1220	1888	CNWBC3	WEST3	3.75	2.93
0198	E	Conc Chnl 14'W 7'D 0:1 SS	225	1402	CNWBA6-C	WEST3	3.61	2.93
0227	P1	11' X 6' RCB	1885	1402	CNWBA6-C	WEST3	3.61	2.17
0250	P1	11' X 6' RCB	3200	1402	CNWBA6-C	WEST3	3.61	1.06
0295	P1	7' X 6' RCB	5525	973	CNW66-C	WEST3	1.75	3.30
TSDB		TULE SPRINGS DRAINAGE SYSTEM						
0000	E	2: 10' X 4' RCBC @ Echo Grande	100	26	TULEDB	WEST3	1.35	1.04
0002	P3	36" RCP with 22" Orifice Plate	320	26	TULEDB	WEST3	1.35	0.33
0010	P3	14,013 cfs PMF Spillway		14013	CTULEDB	WEST3	1.35	
0011	P3	117 ac-ft North Environmental Enhancement Area		804	CTULEDB	WEST3	1.35	
0012	P3	Energy Dissipator	260	376	CNW148-C	WEST3	0.52	
0023	P1	84" RCP	1320	376	CNW148-C	WEST3	0.52	0.80
0059	P1	78" RCP	2640	376	CNW148-C	WEST3	0.52	1.03

* The HEC-1 node shown identifies the controlling concentration point for the associated facility and is located upstream of this facility due to decreasing peak flow with increasing tributary area caused by storm distribution transitions, depth area reduction factors, or attenuation of flow from routing.

** As-built or design slopes were used when available. All other slopes are based on existing topography. The user should verify the facility slope listed prior to performing any facility specific analysis.

^ For parallel facilities, the existing facility flow equals its normal depth capacity, and the proposed parallel facility flow equals the remaining flow (i.e., HEC-1 Node flow = existing facility normal depth capacity + proposed parallel facility flow).

REGIONAL FLOOD CONTROL DISTRICT

2008 LAS VEGAS VALLEY
FLOOD CONTROL
MASTER PLAN UPDATE

FACILITY INVENTORY
FIGURE F - 13

LEGEND

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

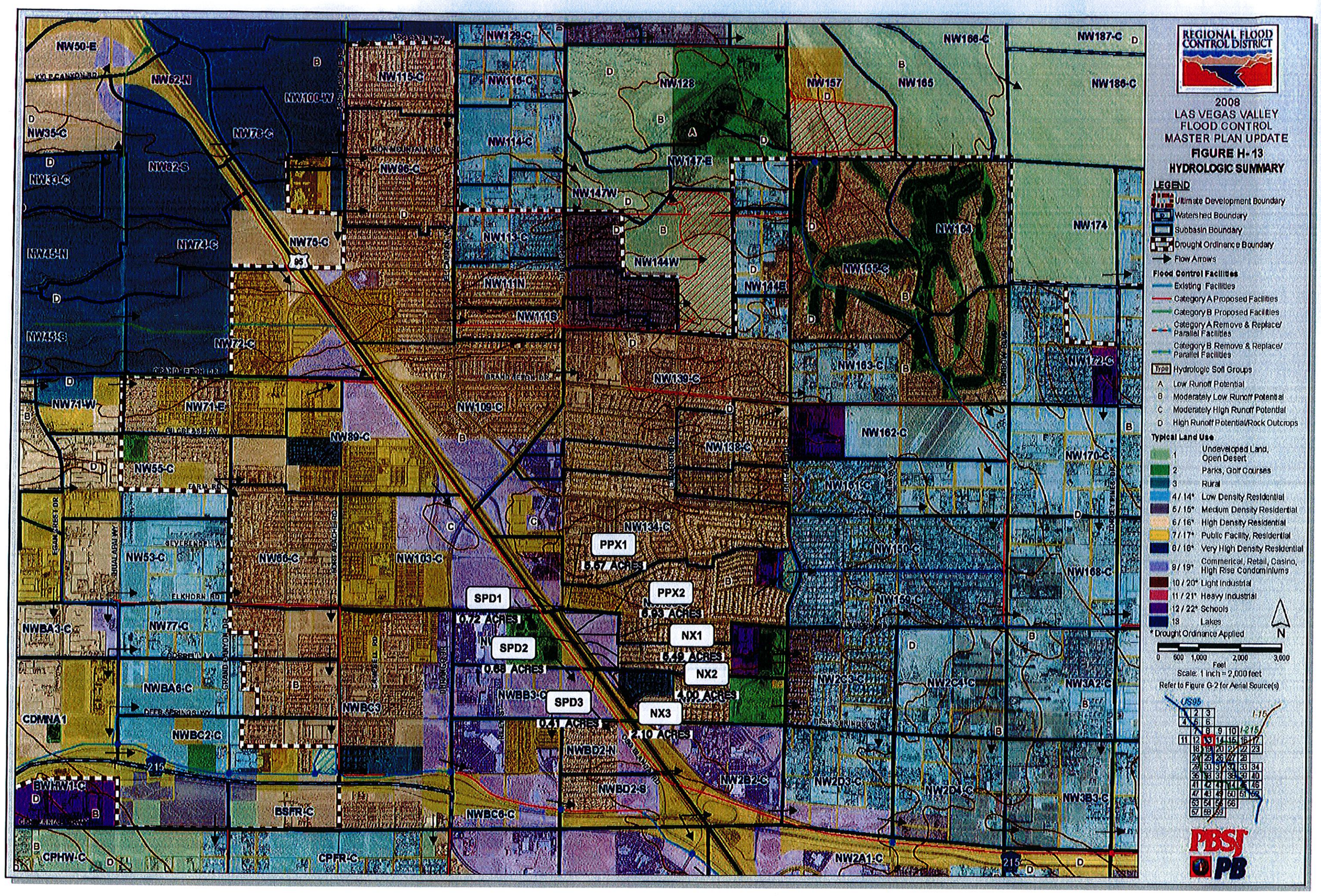
Existing Facility..... E
Proposed or Modified Facility..... P
Contingency Level
Category B..... P0
Master Plan..... P1
Preliminary Design..... P2
Design..... P3

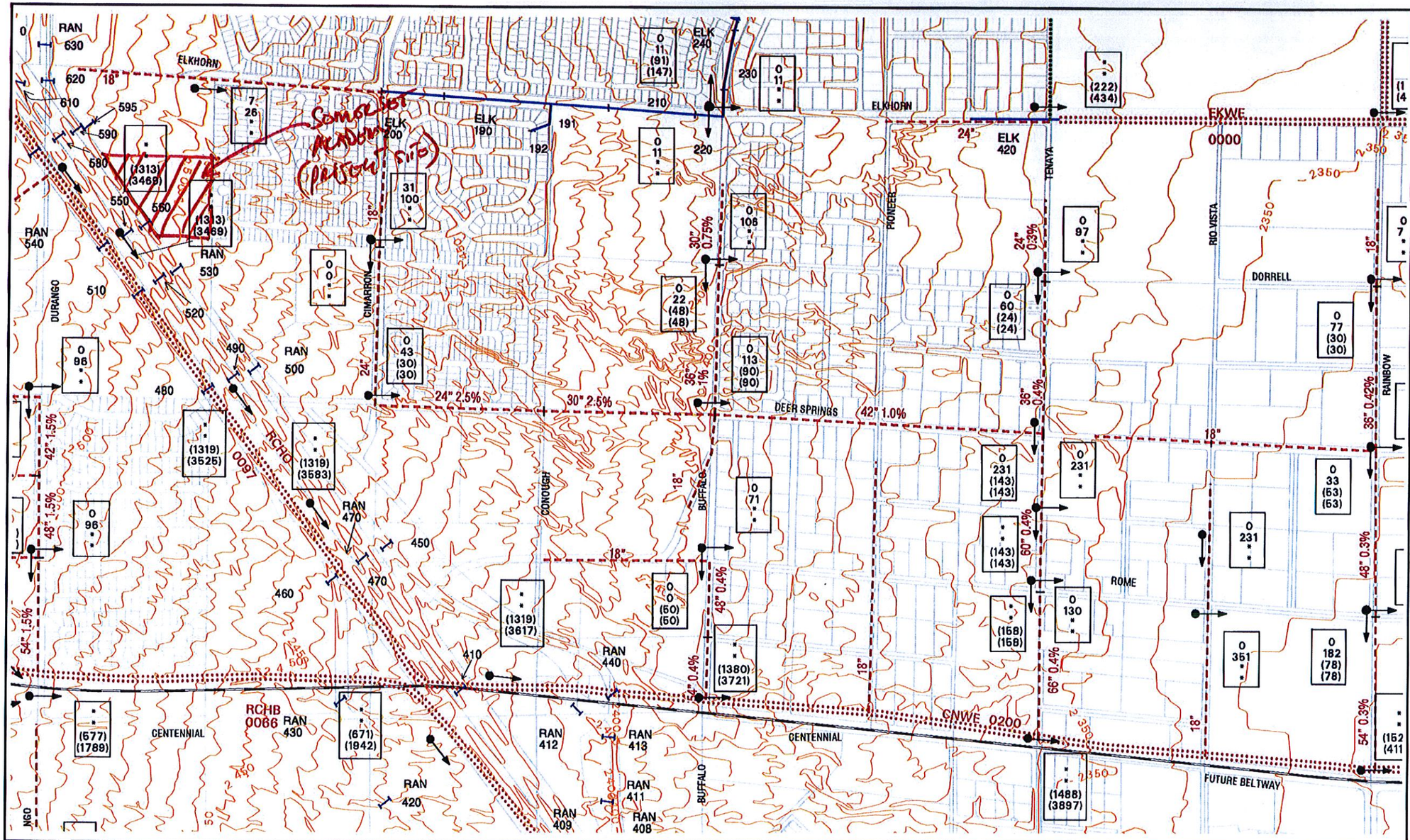
Bottom Width..... W
Depth..... D
Side Slope, H:V..... SS

Construction Features

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

PBSJ
PB


REGIONAL FLOOD CONTROL DISTRICT
2008
LAS VEGAS VALLEY
FLOOD CONTROL
MASTER PLAN UPDATE
FIGURE H-13
HYDROLOGIC SUMMARY
LEGEND
Ultimate Development Boundary
Watershed Boundary
Subbasin Boundary
Drought Ordinance Boundary
Flow Arrows
Flood Control Facilities
Existing Facilities
Category A Proposed Facilities
Category B Proposed Facilities
Category A Remove & Replace/ Parallel Facilities
Category B Remove & Replace/ Parallel Facilities
Type Hydrologic Soil Groups
A Low Runoff Potential
B Moderately Low Runoff Potential
C Moderately High Runoff Potential
D High Runoff Potential/Rock Outcrops
Typical Land Use
1 Undeveloped Land, Open Desert
2 Parks, Golf Courses
3 Rural
4 / 14* Low Density Residential
5 / 15* Medium Density Residential
6 / 16* High Density Residential
7 / 17* Public Facility, Residential
8 / 18* Very High Density Residential
9 / 19* Commerical, Retail, Casino, High Rise Condominiums
10 / 20* Light Industrial
11 / 21* Heavy Industrial
12 / 22* Schools
13 Lakes
* Drought Ordinance Applied
N
0 500 1,000 2,000 3,000
Feet
Scale: 1 inch = 2,000 feet
Refer to Figure G-2 for Aerial Source(s)
PBSJ
PB
PPX1
PPX2
SPD1
SPD2
SPD3
NX1
NX2
NX3
NW50-E
NW62-N
NW100-W
NW35-C
NW78-C
NW62-S
NW33-C
NW45-N
NW74-C
NW76-C
NW45-S
NW72-C
NW71-W
NW71-E
NW89-C
NW55-C
NW53-C
NW66-C
NW103-C
NW77-C
NWBA3-C
NWBA6-C
CDMNA1
NWBC2-C
BWKW1-C
BSFR-C
CPHW-C
CPFR-C
NW129-C
NW115-C
NW110-C
NW96-C
NW114-C
NW147W
NW113-C
NW144W
NW111N
NW111S
NW109-C
NWBB3-C
NWBC3
NWBD2-N
NWBD2-S
NWBC0-C
NW128
NW117-E
NW139-C
NW138-C
NW134-C
NW157
NW166-C
NW165
NW187-C
NW186-C
NW164
NW174
NW165-C
NW141E
NW163-C
NW172-C
NW162-C
NW170-C
NW161-C
NW150-C
NW168-C
NW159-C
NW2C3-C
NW2C4-C
NW3A2-C
NW2B2-C
NW2D3-C
NW2D1-C
NW3B3-C
NW2A1-C



NORTHWEST NEIGHBORHOOD STUDY

LEGEND

- EXISTING REGIONAL DETENTION BASINS
- PROPOSED REGIONAL DETENTION BASINS
- EXISTING LOCAL DETENTION BASINS
- EXISTING REGIONAL BRIDGES
- PROPOSED REGIONAL BRIDGES
- EXISTING LOCAL BRIDGES
- EXISTING REGIONAL CULVERT
- PROPOSED REGIONAL CULVERT
- EXISTING LOCAL CULVERT
- EXISTING REGIONAL PIPELINE
- PROPOSED REGIONAL PIPELINE
- EXISTING LOCAL PIPELINE
- PROPOSED LOCAL PIPLINE
- EXISTING REGIONAL CHANNEL
- PROPOSED REGIONAL CHANNEL
- EXISTING LOCAL CHANNEL
- PROPOSED REGIONAL PIPELINE (Not Included in 1996 MPU)
- PROPOSED REGIONAL CHANNEL (Not Included in 1996 MPU)
- EXISTING REGIONAL DIKE/LEVEE
- PROPOSED REGIONAL DIKE/LEVEE
- EXISTING LOCAL DIKE/LEVEE
- EXISTING STORM WATER PUMPING STATION
- PROPOSED BELTWAY ALIGNMENT

FIGURE F-2

N W E S

800 600 400 200 0 400 800

(IN FEET)

SCALE: 1 INCH = 800 FEET

FLOW ARROW

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

(FLOWS IN CFS)

NOTE:

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

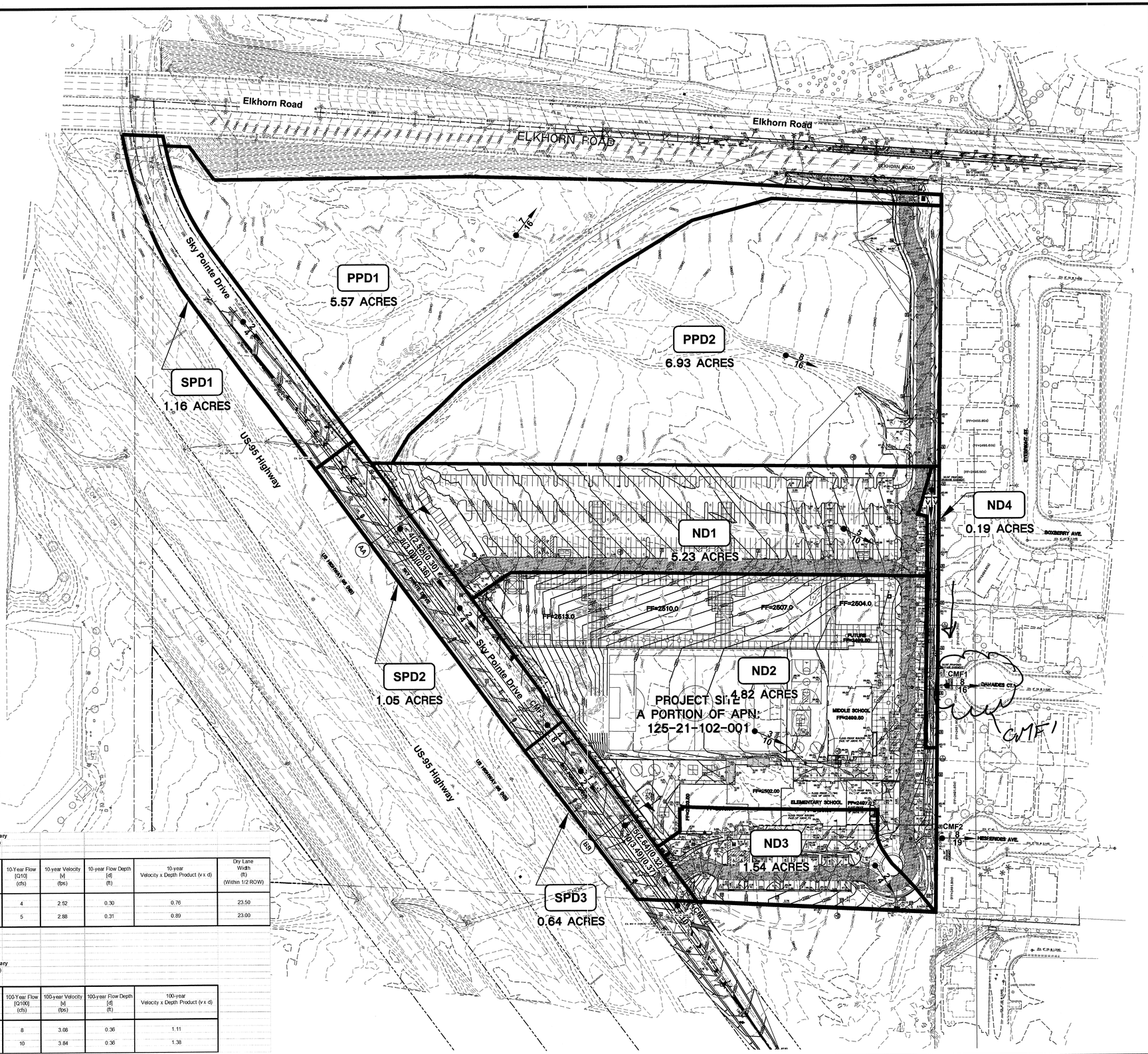
See the "September 1999 City of Las Vegas Northwest Neighborhood Study Phase 2" for proposed facilities in and north of Elkhorn.

REVISED SEPTEMBER 1999

MAULPAI	FT. APACHE	DURANGO	BUFFALO	RAINBOW	JONES	DECATUR	
1		2		3			ELKHORN
4		5		6			CENTENNIAL
7		8		9			ANN
10		11		12			LONE MOUNTAIN
		13		14			ALEXANDER
		15		16			CHEYENNE
		17		18			SMOKE RANCH

FUTURE DRAINAGE CONDITIONS

PBSJ
ENGINEERING PLANNING GIS SURVEYING CONSTRUCTION SERVICES
901 North Green Valley Parkway, Suite 100
Henderson, Nevada 89014-8139
Phone: 702/263-7276
Fax: 702/263-7200



Peak Flow Summary
Future Condition

HEC-1 I.D.	Area (acres)	10-year Flow (cfs)	100-year Flow (cfs)
PPD1	5.57	7	16
PPD2	6.93	8	16
RPPD2	-	8	16
ND4	0.19	<1	<1
CMF1	-	8	16
ND1	3.87	5	10
RND1	-	4	10
ND2	5.98	3	10
CMF2	-	8	19
ND3	1.54	2	4
SPD1	1.16	2	4
RSPD1	-	2	4
SPD2	1.05	2	4
CMF3	-	4	8
RCMF3	-	4	7
SPD3	0.64	1	2
CMF4	-	5	10

Street Flow Summary
(Future Condition)

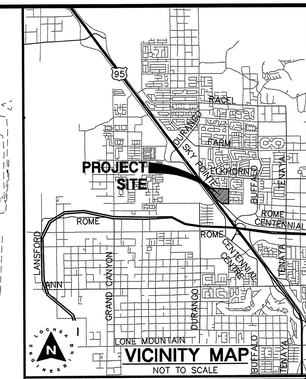
10-year, 6-hour Storm

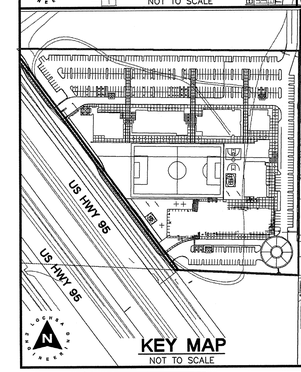
Street	Right of Way Width (ft)	Roadway Carriage Width BC-BC (ft)	Hydraulic Cross-Section Identifier	10-Year Flow [Q10] (cfs)	10-year Velocity [v] (fps)	10-year Flow Depth [d] (ft)	10-year Velocity x Depth Product (v x d)	Dry Lane Width (ft) (Within 1/2 ROW)
Sky Pointe Drive	80	64	AA	4	2.52	0.30	0.76	23.50
Sky Pointe Drive	80	64	BB	5	2.88	0.31	0.89	23.00

Street Flow Summary
(Future Condition)

100-year, 6-hour Storm

Street	Right of Way Width (ft)	Roadway Carriage Width BC-BC (ft)	Hydraulic Cross-Section Identifier	100-Year Flow [Q100] (cfs)	100-year Velocity [v] (fps)	100-year Flow Depth [d] (ft)	100-year Velocity x Depth Product (v x d)
Sky Pointe Drive	80	64	AA	8	3.08	0.36	1.11
Sky Pointe Drive	80	64	BB	10	3.84	0.36	1.38





DRAINAGE LEGEND

ND1	DRAINAGE BASIN LABEL
•	CONCENTRATION POINT
CMD1	COMBINATION POINT
	BASIN BOUNDARY LINE
SUMP-1	STORAGE POINT
1 (1.0)(1.2) / 1 (1.0)(1.2)	Q10 (V10)(D10) / Q100 (V100)(D100)
2 / 3	Q10 FLOW IN CFS (10 YR.) / Q100 FLOW IN CFS (100 YR.)
	FLOW DIRECTION
1D	HYDRAULIC CROSS-SECTION

HEC-RAS

	HEC-RAS CONTROL LINE
	LIMITS OF FEMA ZONE "A"
100	HEC-RAS CROSS-SECTION AND STATION NUMBER
	100 YR. WATER SURFACE ELEV.

GRAPHIC SCALE
80 0 40 80 160
(IN FEET)
1 inch = 80 ft.

NOTE:
LOCHSA ENGINEERING ASSUMES NO RESPONSIBILITY FOR EXISTING UTILITY LOCATIONS AND ELEVATIONS. THE UTILITIES SHOWN ON THIS PLAN ARE FROM THE BEST AVAILABLE INFORMATION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE LOCATION AND ELEVATION OF ALL UTILITIES, INCLUDING BUT NOT LIMITED TO, THE WATER, FIRE, SANITARY SEWER, STORM SEWER, TELEPHONE, POWER, GAS, AND IRRIGATION LINES PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. IF CONFLICT EXISTS IN THE FIELD, THE CONTRACTOR IS TO NOTIFY THE PROJECT ARCHITECT, OWNER'S REPRESENTATIVE AND THE PROJECT ENGINEER IMMEDIATELY.

SAFETY ALERT
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Avoid cutting underground utility lines. It's costly.
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OR
RECEIVING AND MATERIAL SYSTEM OF OPERATIONS 1-800-227-2600

REV.:	DATE:	BY:	DESCRIPTION:

Lochsa engineering
6345 South Jones Blvd.
Suite 100
Las Vegas, NV 89118
Phone (702) 365-9312
Fax (702) 365-9317
www.lochsa.com

ONSITE DRAINAGE MAP (FUTURE CONDITION)

SOMERSET ACADEMY

SHEET
TITLE

PROJECT No.: 121075
DATE: 08/27/12
SCALE: 1"=80'
DRAWN BY: SOA
DESIGNED BY: SOA
CHECKED BY: HMN

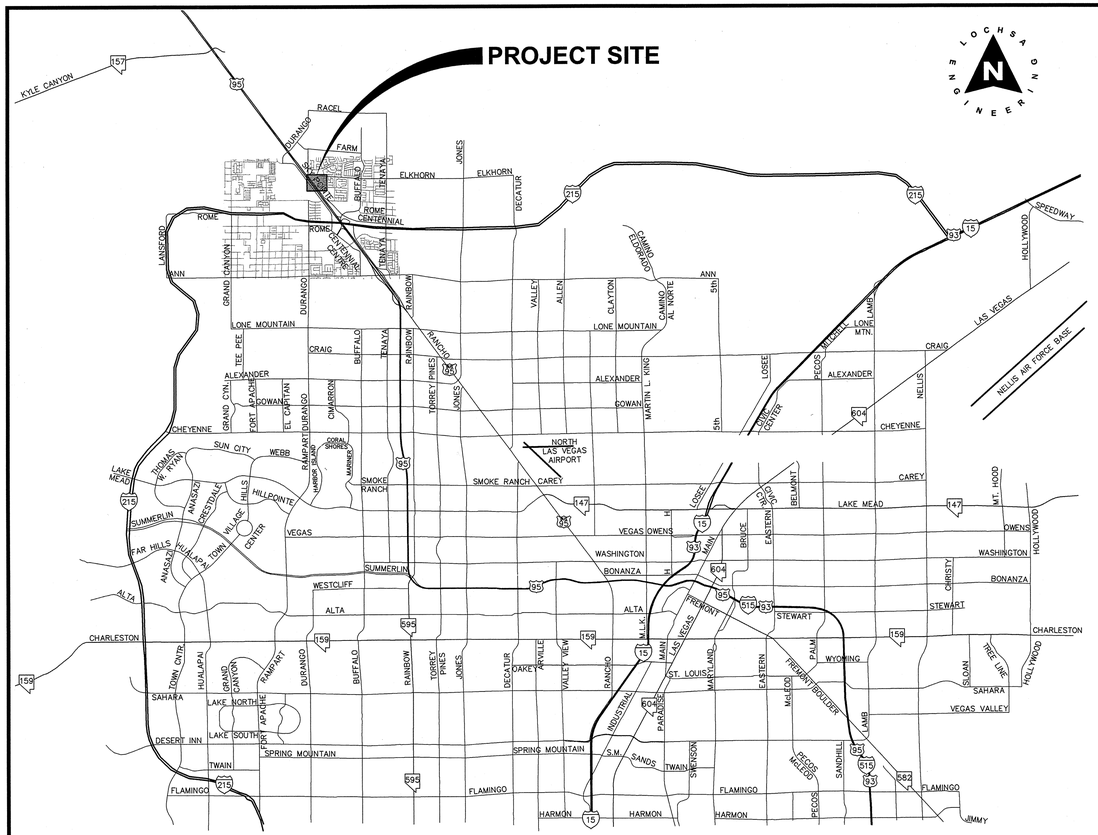
SEAL
PROFESSIONAL ENGINEER - STATE OF NEVADA
GUY M. MORRIS
EXP. 12-31-13
CIVIL
No. 14526

SHEET No.
DR3
SHEET 3 OF 3
HTE No.

LEGEND

CL OR SURVEY LINE	EASEMENT LINE	DESCRIPTION:	CONTOUR LINES	EDGE OF PAVEMENT	"A" TYPE CURBS	"L" TYPE CURBS	WALLS	FENCES	AC PAVEMENT	CONCRETE	SPOT ELEVATIONS	SIGNS	MANHOLE W/ DESCRIPTION	MANHOLE DESCRIPTIONS	FIRE HYDRANTS	GATE VALVES	REDUCERS	CLEAN OUTS	UTILITY BOX OR VAULT	BACKWATER VALVES	100w HPS STREETLIGHTS	150w HPS STREETLIGHTS	200w HPS STREETLIGHTS	250w HPS STREETLIGHTS
PROPERTY LINE	SAWCUT LINE	EXISTING:	(2210)								(12.34) BC		Ⓢ	Ⓢ = SANITARY SEWER						BWV				
ROW LINE	SCARP LINE	PROPOSED:	2122								12.34 BC		Ⓢ	Ⓓ = STORM DRAIN						BWV				
														Ⓔ = ELECTRICAL										
														Ⓣ = TELEPHONE										

11/7/2012 10:25 AM
N:\SOA\121075\Drawings\Drainage\Lo-121075-102-DR.dwg



IMPROVEMENT PLANS FOR
SOMERSET ACADEMY
SKY POINTE & ELKHORN
LAS VEGAS, NV

A PORTION OF THE NORTHWEST QUARTER (NW 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF SECTION 21, TOWNSHIP 19S, RANGE 60E
A.P.N.: PORTION OF 125-21-102-001 CONTAINS 12.14 ACRES

ABBREVIATIONS

ABAN	ABANDON	INV	INVERT
AIP	ABANDON IN PLACE	ISL	ISLAND
AGG	AGGREGATE	JB	JUNCTION BOX
ALT	ALTERNATE	LOC	LENGTH OF CURB
A	ANODE, GAS	LT	LEFT
ACP	ASBESTOS CEMENT PIPE	LF	LINEAR FEET
ACP	ASPHALTIC CONCRETE	LVVWD	LAS VEGAS VALLEY WATER DISTRICT
AVE	AVENUE	MH	MANHOLE
BC	BACK OF CURB	MAX	MAXIMUM
BCR	BACK OF CURB RADIUS	MIN	MINIMUM
BVC	BEGINNING OF VERTICAL CURVE	MON	MONOLITHIC
BM	BENCHMARK	N/O	NORTH OF
BDRY LINE	BOUNDARY LINE	NTS	NOT TO SCALE
CATV	CABLE TELEVISION	OC	ON CENTER
C-C	CENTER TO CENTER	OG	OPEN-GRADED PAVEMENT, ORIGINAL GROUND
CL	CENTERLINE	PVMT	PAVEMENT
CBC	CITY OF BOULDER CITY	PI	POINT OF INTERSECITON
CLV	CITY OF LAS VEGAS	PRC	POINT OF REVERSE CURVE
COH	CITY OF HENDERSON	PC	POINT OF CURVE
CM	CITY OF MESQUITE	PT	POINT OF TANGENCY
CNLV	CITY OF NORTH LAS VEGAS	PCC	POINT OF COMPOUND CURVE
CC	CLARK COUNTY	PCC, CONC	PORTLAND CEMENT CONCRETE
CCSD	CLARK COUNTY SANITATION DISTRICT	PP	POWER POLE
CO	CLEAN OUT, SEWER	P	POWER
COMM	COMMERCIAL	PL	PROPERTY LINE
CONC, PCC	CONCRETE	PROP	PROPOSED
CONST	CONSTRUCTION OR CONSTRUCT	PB	PULL BOX
COR	CORNER	RP	RADIUS POINT
CMP	CORRUGATED METAL PIPE	R	RADIUS
CSAP	CORRUGATED STEEL ARCH PIPE	RR	RAILROAD
CSP	CORRUGATED STEEL PIPE	REINF	REINFORCED
C&G	CURB & GUTTER	RC	REINFORCED CONCRETE
CIP	CAST IRON PIPE	RCB	REINFORCED CONCRETE BOX
COL	COLUMN	RCP	REINFORCED CONCRETE PIPE
CU YD, CY	CUBIC YARD	RELOC	RELOCATE
CU FT, CF	CUBIC FOOT	RT	RIGHT
CULV	CULVERT	R/W	RIGHT-OF-WAY
CF	CURB FACE	RD	ROAD
DEPT	DEPARTMENT	SS	SANITARY SEWER
DIA	DIAMETER	SHT	SHEET
DWY	DRIVEWAY	S/O	SOUTH OF
DI	DROP INLET	SW	SIDEWALK
ESMT	EASEMENT	SQ FT, SF	SQUARE FOOT
E/O	EAST OF	SQ YD,SY	SQUARE YARD
EP	EDGE OF PAVEMENT	STA	STATION
EO	EDGE OF OIL	SHP	STEEL HIGHPRESSURE PIPE
E	ELECTRIC	SD	STORM DRAIN
EM	ELECTRIC METER	STD	STANDARD
ELEV	ELEVATION	STRUCT	STRUCTURAL OR STRUCTURE
EMBK	EMBANKMENT	SURV	SURVEY
ECR	END OF CURB RETURN	SLT	STREETLIGHT
EC	END OF CURVE	TL	TELEPHONE
EBS	CATHODE PROTECTION BOND STATION	TEMP	TEMPORARY
ETS	CATHODE PROTECTION TEST STATION	TBA	TO BE ADJUSTED
EVC	END OF VERTICAL CURVE	TBR	TO BE REMOVED
EXIST	EXISTING	TC	TOP OF CURB
FT	FEET/FOOT	TP	TOP OF PIPE
FG	FINISH GRADE	TS	TRAFFIC SIGNAL
FA	FIRE ALARM	TSI	TRAFFIC SIGNAL INTERCONNECT
FH	FIRE HYDRANT	TRANS	TRANSITION
FL	FLOW LINE	TYP	TYPICAL
GALV	GLAVANIZED	UG	UNDERGROUND
GM	GAS METER	VAR	VARIABLE
GR	GAS PRESSURE REGULATOR	VERT	VERTICAL
PL-G	PLASTIC GAS	VC	VERTICAL CURVE
SG	STEEL GAS	VG	VALLEY GUTTER
GB	GRADE BREAK	VCP	VITRIFIED CLAY PIPE
GUT	GUTTER	W	WATER
HDWL	HEADWALL	WM	WATER METER
IN	INCH	W/O	WEST OF
INT	INTERSECTION	YD	YARD

DEVELOPER

THE BOYER COMPANY
90 S. 400 WEST
SUITE 200
SALT LAKE CITY, UT 84101
CONTACT: BRIAN GOCHNOUR
PHONE: 801-366-7169
FAX: 801-521-4793

OWNER

RANCHO DRIVE-TULE SPRINGS RD
LIMITED PARTNERSHIP
6767 W. CHARLESTON BOULEVARD
LAS VEGAS, NV 89146
CONTACT: VINCE SHETTLER
PHONE: 702-528-8800

UTILITY PROVIDERS

WATER: . . . . . LAS VEGAS VALLEY WATER DISTRICT
SEWER: . . . . . CITY OF LAS VEGAS
GAS: . . . . . SOUTHWEST GAS CORPORATION
ELECTRIC: . . . . . NV ENERGY
TELEPHONE: . . . . . CENTURYLINK
CABLE TV: . . . . . COX COMMUNICATIONS LAS VEGAS, INC.
TRASH: . . . . . REPUBLIC SILVER STATE DISPOSAL SERVICE

APPROVALS

DAVID BOWERS, P.E., #16736 P.T.O.E. — DATE
CITY ENGINEER

APPROVAL OF THESE PLANS IS LIMITED TO THOSE IMPROVEMENTS CONSTRUCTED IN THE DEDICATED RIGHT-OF-WAY AND/OR DEDICATED EASEMENTS. THIS APPROVAL DOES NOT AUTHORIZE THE CONSTRUCTION OF ANY IMPROVEMENTS THAT DEVIATE FROM ADOPTED STANDARDS AND/OR SPECIFICATIONS, EXCEPT THOSE SPECIFICALLY LISTED UNDER DEVIATIONS FROM STANDARD. THE ENGINEER SHALL RESOLVE ANY DEVIATION OTHER THAN THOSE LISTED IN DEVIATIONS FROM STANDARDS IN FAVOR OF THE UNIFORM STANDARDS DRAWINGS AND SPECIFICATIONS CLARK COUNTY AREA, NEVADA.

DOUG RANKIN, AICP, PLANNING MANAGER — DATE

NOTE:
THIS PLAN CONFORMS TO THE APPLICABLE STANDARDS OF THE PLANNING DEPARTMENT.

LAS VEGAS FIRE AND RESCUE — DATE

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES MANAGER — DATE
PROJECT 121161 SHEETS C1.01, C1.02, C3.02, C3.03, C5.01, C5.02, C5.03 AND C6.02

SOUTHWEST GAS CORPORATION — DATE

NV ENERGY — DATE

NV ENERGY ACKNOWLEDGES THAT WE HAVE RECEIVED YOUR PLANS AND WILL PROVIDE SERVICE TO ALL ELECTRICAL NEEDS ASSOCIATED WITH THIS PROJECT. NV ENERGY RESERVES THE RIGHT TO ADDRESS ANY EXISTING OR FUTURE CONFLICTS ONCE THE FINAL DESIGN IS COMPLETED. THE NEW SERVICE AND THE RESOLUTION OF ANY CONFLICTS WILL BE ACCOMPLISHED PURSUANT TO THE NEVADA PUBLIC UTILITY COMMISSION'S RULES AND REGULATIONS.

COX COMMUNICATIONS LAS VEGAS, INC. — DATE

CENTURYLINK — DATE

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

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NONE	L2.02	IRRIGATION PLAN
NONE	L3.01	PLANTING DETAILS
NONE	L3.02	IRRIGATION DETAILS
NONE	LP4.01	LANDSCAPE SPECIFICATIONS
NONE	LP4.02	LANDSCAPE SPECIFICATIONS
NONE	LP4.03	LANDSCAPE SPECIFICATIONS

GENERAL SITE INFORMATION

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A.P.N.:

PORTION OF 125-21-102-001 CONTAINS 12.14 ACRES

BASIS OF BEARINGS:

NORTH 85°49'07" WEST, BEING THE NORTH LINE OF THE NORTHWEST QUARTER (NW 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF SECTION 21, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., AS SHOWN ON A RECORD OF SURVEY IN FILE 73, PAGE 26 IN THE CLARK COUNTY, NEVADA, RECORDER'S OFFICE.

BENCHMARK:

CITY OF LAS VEGAS BENCHMARK (2008 ADJUSTED) 6LV90 21NNW6 A RIVET AND PLATE IN TOP CURB ON THE SOUTH SIDE OF ELKHORN ROAD APPROXIMATELY 1/4 MILE WEST OF CIMARRON ROAD. ELEVATION=2498.19 FEET (761.449 METERS) (NAVD'88)

SAFETY ALERT
AVOID HITTING UNDERGROUND TRAFFIC SIGNAL, STREETLIGHT AND LIGHT STATION CONDUITS. IT'S COSTLY.
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Call before you UnderGround 1-702-432-5300
Call before you dig. Avoid cutting underground utility lines. It's costly.
Call 811 or 1-800-227-2600
EMERGENCY AND INTERNAL SYSTEM OF OPERATIONS

LEGEND

CL OR SURVEY LINE
PROPERTY LINE
ROW LINE
EASEMENT LINE
SAWCUT LINE
SCARP LINE

DESCRIPTION:	CONTOUR LINES	EDGE OF PAVEMENT	"A" TYPE CURBS	"L" TYPE CURBS	WALLS	FENCES	AC PAVEMENT	CONCRETE	SPOT ELEVATIONS	SIGNS	MANHOLE W/ DESCRIPTION	MANHOLE DESCRIPTIONS	FIRE HYDRANTS	GATE VALVES	REDUCERS	CLEAN OUTS	UTILITY BOX OR VAULT	BACKWATER VALVES	100w HPS STREETLIGHTS	150w HPS STREETLIGHTS	200w HPS STREETLIGHTS	250w HPS STREETLIGHTS
EXISTING:	(2210)								(12.34) BC		S	(S) = SANITARY SEWER						BWV				
PROPOSED:	2122								12.34 BC		S	(D) = STORM DRAIN						BWV				
												(E) = ELECTRICAL										
												(T) = TELEPHONE										

GENERAL COVER SHEET
SOMERSET ACADEMY
SKY POINTE & ELKHORN
LAS VEGAS, NV

REV.:	DATE:	BY:	DESCRIPTION:

Lochsa engineering
6345 South Jones Blvd.
Las Vegas, NV 89118
Phone (702) 365-8312
Fax (702) 365-8317
www.lochsa.com

PROJECT No.: 121075
DATE: 05/30/13
SCALE: NTS
DRAWN BY: MW
DESIGNED BY: MW
CHECKED BY: GM

SEAL
PROFESSIONAL ENGINEER - STATE OF NEVADA
GUY M. MORRIS
EXP. 12-31-13
CIVIL
No. 14526
05-30-13

SHEET No. C1.01
SHEET 1 OF 27

5/30/2013 12:08 PM
L:\Jobs\121075\Drawings\Plot Drawings\C-121075-100v-CV-NS.dwg

CITY OF LAS VEGAS GRADING NOTES

1. IN THE EVENT THAT ANY UNFORESEEN CONDITIONS NOT COVERED BY THESE NOTES ARE ENCOUNTERED DURING GRADING OPERATIONS, THE OWNER/ENGINEER SHALL BE IMMEDIATELY NOTIFIED FOR DIRECTION.

2. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM ALL NECESSARY CUTS AND FILLS WITHIN THE LIMITS OF THIS PROJECT AND THE RELATED OFF-SITE WORK, SO AS TO GENERATE THE DESIRED SUBGRADE, FINISH GRADES AND SLOPES SHOWN.
3. CONTRACTOR SHALL TAKE FULL RESPONSIBILITY FOR ALL EXCAVATION. ADEQUATE SHORING SHALL BE DESIGNED AND PROVIDED BY THE CONTRACTOR TO PREVENT UNDERMINING OF ANY ADJACENT FEATURES OR FACILITIES AND/OR CAVING OF THE EXCAVATION.

4. THE CONTRACTOR IS WARNED THAT AN EARTHWORK BALANCE WAS NOT NECESSARILY THE INTENT OF THIS PROJECT. ANY ADDITIONAL MATERIAL REQUIRED OR LEFTOVER MATERIAL FOLLOWING EARTHWORK OPERATIONS BECOMES THE RESPONSIBILITY OF THE CONTRACTOR.

5. THE GRADING CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH THE OWNER TO PROVIDE FOR THE REQUIREMENTS OF THE PROJECT STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND ASSOCIATED PERMIT.

6. CONTRACTOR SHALL GRADE TO THE LINES AND ELEVATIONS SHOWN ON THE PLANS WITHIN THE FOLLOWING HORIZONTAL AND VERTICAL TOLERANCES AND DEGREES OF COMPACTION, IN THE AREAS INDICATED: HORIZONTAL VERTICAL COMPACTION
   A. PAVEMENT AREA SUBGRADE 0.1'+ +0.0'TO -0.1'SEE SOILS REPORT

   B. ENGINEERED FILL 0.5'+ +0.1'TO -0.1'SEE SOILS REPORT
   COMPACTION TESTING WILL BE PERFORMED BY THE OWNER OR HIS REPRESENTATIVE.

7. ALL CUT AND FILL SLOPES SHALL BE PROTECTED UNTIL EFFECTIVE EROSION CONTROL HAS BEEN ESTABLISHED.

8. THE USE OF POTABLE WATER WITHOUT A SPECIAL PERMIT FOR BUILDING OR CONSTRUCTION PURPOSES INCLUDING CONSOLIDATION OF BACKFILL OR DUST CONTROL IS PROHIBITED. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FOR CONSTRUCTION WATER.

9. THE CONTRACTOR SHALL MAINTAIN THE STREETS, SIDEWALKS AND ALL OTHER PUBLIC RIGHT-OF-WAY IN A CLEAN, SAFE AND USABLE CONDITION. ALL SPILLS OF SOIL, ROCK OR CONSTRUCTION DEBRIS SHALL BE PROMPTLY REMOVED FROM THE PUBLICLY OWNED PROPERTY DURING CONSTRUCTION AND UPON COMPLETION OF THE PROJECT. ALL ADJACENT PROPERTY, PRIVATE OR PUBLIC SHALL BE MAINTAINED IN A CLEAN, SAFE AND USABLE CONDITION.

10. IN THE EVENT THAT ANY TEMPORARY CONSTRUCTION ITEM IS REQUIRED THAT IS NOT SHOWN ON THESE DRAWINGS, THE OWNER AGREES TO PROVIDE AND INSTALL SUCH ITEM AT HIS OWN EXPENSE AND AT THE DIRECTION OF THE CITY ENGINEER. TEMPORARY CONSTRUCTION INCLUDES DITCHES, BERMS, ROAD SIGNS AND BARRICADES, ETC.

REVISED 04/15/10

CITY OF LAS VEGAS SEWER NOTES

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE DESIGN AND CONSTRUCTION STANDARDS FOR WASTEWATER COLLECTION SYSTEMS AND THE UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA, AS AMENDED. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO BE AWARE OF THE CONTENTS OF THE ABOVE SPECIFICATIONS.

2. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PERFORM CONSTRUCTION AS PER PLANS. ANY ADDITIONS, DELETIONS, OR CHANGES SHALL FIRST MEET WITH THE APPROVAL OF THE CITY ENGINEER.

3. CHISEL "S"OR "G"IN CURBS WHERE SEWER OR GAS LATERALS PASS UNDER THE CURB.
4. POLYVINYL (PVC) SEWER PIPE SHALL MEET ASTM D-3034 SDR 35 SPECIFICATIONS, INSTALLED WITH SAND BEDDING AND BACKFILL OF TYPE II AGGREGATE BASE.

5. ALL MANHOLES PAVED IN STREETS EIGHTY (80') FOOT R/W AND LARGER SHALL HAVE CONCRETE COLLARS. STREETS LESS THAN EIGHTY (80') FOOT R/W WILL REQUIRE RETROFIT IF PAVING DOES NOT CONFORM TO CITY STANDARDS AT THE MANHOLE.

6. TEE SADDLES SHALL BE USED TO CONNECT SEWER LATERALS TO EXISTING MAIN LINES UP TO TWELVE INCH (12") DIAMETER. CONNECTIONS TO FIFTEEN INCH (15") OR LARGER MAINS SHALL REQUIRE SPECIAL PROCEDURES. IN LINE "Y"S SHALL BE USED ON LINES TWELVE INCHES (12") OR ABOVE.

7. WATER MAINS SHALL BE PROTECTED IN ACCORDANCE WITH LVVWD STANDARDS WHENEVER A SEWER MAIN CROSSES OVER A WATER MAIN OR THE SEWER IS LESS THAN EIGHTEEN INCH (18") UNDER A WATER MAIN.

8. ALL CONTRACTORS INSTALLING SEWER MAINS THAT WILL BE UNDER THE JURISDICTION OF THE CITY OF LAS VEGAS MUST BE STATE OF NEVADA CLASS "A"CONTRACTORS.

9. THE CITY OF LAS VEGAS WILL NOT ACCEPT ANY SEWER MAINS WHICH HAVE A VERTICAL DEFLECTION OF MORE THAN ONE TENTH (0.1) OF A FOOT FROM THE APPROVED CONSTRUCTION PLANS AT ANY LOCATION. SEWER MAINS FOUND TO EXCEED THIS TOLERANCE WILL HAVE TO BE REPAIRED OR REMOVED OR REPLACED TO THE SATISFACTION OF THE CITY ENGINEER PRIOR TO ACCEPTANCE BY THE CITY OF LAS VEGAS.

10. INSTALLATION OF CURVED SEWER REQUIRES THE USE OF C-900 PIPE WHICH ALLOWS FOR PIPE DEFLECTION AT THE JOINTS.

LAS VEGAS VALLEY WATER DISTRICT NOTES

LVVWD PROJECT # 121161

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

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

CITY OF LAS VEGAS TRAFFIC NOTES

1. ALL CONSTRUCTION SIGNING, BARRICADING, AND TRAFFIC DELINEATION SHALL CONFORM TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", LATEST EDITION.

2. THE STREET SIGN CONTRACTOR SHALL OBTAIN STREET NAMES AND BLOCK NUMBERING FROM THE PLANNING DEPARTMENT PRIOR TO CONSTRUCTION.

3. BEFORE ANY WORK IS STARTED IN THE RIGHT-OF-WAY, THE CONTRACTOR SHALL INSTALL ALL ADVANCE WARNING SIGNS FOR THE CONSTRUCTION ZONE. THE CONTRACTOR SHALL INSTALL TEMPORARY STOP SIGNS AT ALL NEW STREET ENCROACHMENTS INTO EXISTING CITY STREETS WHERE WARRANTED IMMEDIATELY AFTER FIRST GRADING WORK IS ACCOMPLISHED, AND SHALL MAINTAIN SAID SIGNS UNTIL PERMANENT SIGNS ARE INSTALLED.

4. WHEN A DESIGNATED "SAFE ROUTE TO SCHOOL" IS ENCROACHED UPON BY A CONSTRUCTION WORK ZONE AND PUBLIC WORKS STAFF IDENTIFIES A NEED FOR STUDENTS TO BE ASSISTED IN THE SAFE CROSSING THROUGH THAT WORK ZONE, THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE A QUALIFIED "CROSSING GUARD". THE GUARD SHALL BE PRESENT FOR THE FULL DURATION OF TIME THAT CHILDREN ARE LIKELY TO BE PRESENT.

5. IF THE IMPROVEMENTS NECESSITATE THE OBLITERATION, TEMPORARY OBSTRUCTION, TEMPORARY REMOVAL OR RELOCATION OF ANY EXISTING TRAFFIC PAVEMENT MARKING, SUCH PAVEMENT MARKING SHALL BE RESTORED OR REPLACED WITH LIKE MATERIALS TO THE SATISFACTION OF THE CITY TRAFFIC ENGINEER.

6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ALL PERMANENT SIGNS SHOWN ON THE PLANS. ALL NEW TRAFFIC SIGNS SHALL BE FABRICATED WITH DIAMOND GRADE VIP CLASS 6 REFLECTIVE SHEETING OR APPROVED EQUAL. ALL NEW TRAFFIC SIGNS, EXCEPT STREETNAME AND SCHOOL SPEED LIMIT SIGNS, SHALL HAVE 3M SERIES 1160 OR APPROVED EQUIVALENT ANTI-GRAFFITI PROTECTIVE OVERLAY FILM; SCHOOL ZONE SIGNS SHALL HAVE 3M SERIES 1150 ANTI-GRAFFITI PROTECTIVE OVERLAY FILM. STREET NAME SIGNS SHALL CONFORM IN THEIR ENTIRETY TO CURRENT CITY STANDARDS. ALL OTHER SIGNS SHALL BE STANDARD SIZE UNLESS OTHERWISE SPECIFIED ON THE PLANS. ALL SIGN POSTS SHALL BE INSTALLED IN ACCORDANCE WITH THE CURRENT CITY STANDARDS.

7. WHEN A PROPOSED STREET LIGHT STANDARD IS LOCATED WITHIN FIVE (5') FEET OF ANY PROPOSED SIGN SHOWN ON THE PLANS TO BE MOUNTED ON A SIGNPOST, THE SIGN SHALL BE MOUNTED ON THE STREET LIGHT STANDARD AND THE SIGNPOST SHALL BE ELIMINATED.

8. ALL PERMANENT TRAFFIC CONTROL DEVICES CALLED FOR HEREON SHALL BE IN PLACE AND IN FINAL POSITION PRIOR TO ALLOWING ANY PUBLIC TRAFFIC ONTO THE PORTIONS OF THE ROAD(S) BEING IMPROVED HERE UNDER, REGARDLESS OF THE STATUS OF COMPLETION OF PAVING OR OTHER OFF-SITE IMPROVEMENTS CALLED FOR BY THESE PLANS.

9. STREET SIGNS AND STOPS SIGNS SHALL BE INSTALLED PER CITY STANDARD SPECIFICATIONS FOR PLACEMENT OF STREET NAME SIGNS.

10. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY TRAFFIC CONTROL DEVICES AND FLAGGERS TO INSURE THE SAFETY OF THE PUBLIC IN OR AROUND THE WORK AREA. THE CONTRACTOR SHALL HAVE A CERTIFIED ATSSA TRAFFIC CONTROL TECHNICIAN OR IMSA WORK ZONE SAFETY SPECIALIST SET UP, MAINTAIN AND/OR REMOVE ALL TRAFFIC CONTROL DEVICES IN THE CITY OF LAS VEGAS RIGHT OF WAY.

11. WORK IN PUBLIC STREETS, ONCE BEGUN, SHALL BE EXPEDITED TO COMPLETION SO AS TO PROVIDE MINIMUM INCONVENIENCE TO ADJACENT PROPERTY OWNERS AND TO THE TRAVELING PUBLIC.

12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING CITIZENS AREA TRANSIT (C.A.T.) IF THE CONSTRUCTION INTERRUPTS OR RELOCATES A BUS STOP OR HAS AN ADVERSE EFFECT ON BUS SERVICE ON THAT STREET TO ARRANGE FOR TEMPORARY RELOCATION OF STOP.

13. GUARDS SHALL BE OBTAINED BY CONTACTING THE METROPOLITAN POLICE DEPARTMENT SPECIAL EVENTS UNIT (PHONE # 828-3442) WHO WILL PROVIDE OFFICERS PROPERLY TRAINED IN TRAFFIC CONTROL. FEES FOR THE USE OF THESE OFFICERS SHALL BE SET BY METRO AND WILL BE PAID BY THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR ALL ARRANGEMENTS WITH METRO.

14. ANY WORK WITHIN 300' OF A SIGNALIZED INTERSECTION WILL BE NIGHT WORK, UNLESS OTHERWISE DIRECTED BY THE CITY OF LAS VEGAS TRAFFIC ENGINEER.

15. THE CONTRACTOR SHALL CONTACT THE TRAFFIC ENGINEERING DIVISION (TRANSPORTATION SECTION) THROUGH THE PROJECT'S OFFSITE INSPECTOR PRIOR TO INITIATING PAVING TO RECEIVE DIRECTION FOR ANY PERMANENT OR TEMPORARY MODIFICATIONS TO THE APPROVED DRAWINGS REGARDING FINAL PAVEMENT TRANSITIONS, MARKINGS AND SIGNING THAT ARE REQUIRED TO MATCH ADJACENT ROADWAY SEGMENTS. THE CONTRACTOR SHALL PROVIDE A DRAWING FOR APPROVAL BY THE TRAFFIC ENGINEERING DIVISION DEPICTING ANY ADJUSTMENTS TO THE FINAL PAVEMENT MARKINGS AND SIGNAGE, WHICH MAY INCLUDE OMITTING, ADDING OR MODIFYING PAVEMENT MARKINGS AND TRAFFIC CONTROL SIGNS SUCH THAT ADEQUATE TRANSITIONS AND LANE TERMINATIONS BETWEEN ADJACENT ROADWAY SEGMENTS ARE CONSTRUCTED.

REVISED 04/15/10

CITY OF LAS VEGAS STREETLIGHT NOTES

1. ALL STREET LIGHTING INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE STREET LIGHTING PLANS, THE UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA', LATEST REVISION, AND THE UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA', LATEST REVISION, AND ANY ADOPTED SPECIAL AREA STANDARDS.

2. NO DEVIATION OF STREET LIGHT, PULL BOX, CONDUITS (ETC.) LOCATIONS SHALL BE PERMITTED WITHOUT WRITTEN APPROVAL OF TRAFFIC ENGINEERING AND THE CITY ENGINEER.

3. ALL EXISTING STREET LIGHTING SHALL REMAIN OPERATIONAL DURING CONSTRUCTION.

4. ALL STREET LIGHTING CONDUITS STUB SHALL HAVE AT LEAST ONE GREEN #8 THW WIRE INSTALLED, AS TRACER WIRE. WHEN "EMPTY"CONDUIT IS COMPLETELY INSTALLED FROM PB TO PB, IT SHALL HAVE MINIMUM OF 2 #4 AND 1 #8 THW WIRE WITH THE ENDS TAPED OR "SAFE OFF"PRIOR TO FINAL INSPECTION.

5. ANY STRUCTURE SUCH AS BLOCK WALLS, CHAIN LINK FENCES, RETAINING WALLS, ETC., SHALL LEAVE A MINIMUM CLEARANCE IN ACCORDANCE WITH THE USD NO. 320A.

6. AS-BUILT DRAWINGS SHALL BE SUPPLIED TO THE TEFO PRIOR TO ANY PRE-FINAL INSPECTION. THE ASBUILT DRAWING NEEDS TO BE STAMPED AS-BUILT AND SIGNED BY THE PREPARER.

7. SERVICE POINT SHALL BE COORDINATED WITH NV ENERGY COMPANY, AND WHEREVER POSSIBLE, BE LOCATED NEAR THE CENTER OF THE CIRCUIT. SERVICE POINTS SHALL BE SHOWN ON THE CIVIL PLANS.

8. IT SHALL BE ASSUMED THAT IN THE ABSENCE OF AN EXISTING, WORKABLE CIRCUIT TO ATTACH TO, ALL INSTALLATIONS SHALL REQUIRE A NEW SERVICE FOR OPERATION OF THE CIRCUIT.

9. WHEREVER THERE IS AN OVERHEAD UTILITY THAT MAY CONFLICT WITH THE INSTALLATION OF STREET LIGHTING CIRCUITS AND/OR POLES, THESE CONFLICTS MUST BE RESOLVED BETWEEN THE DEVELOPER AND THE UTILITIES INVOLVED, AT NO EXPENSE TO THE CITY OF LAS VEGAS, BEFORE STREETLIGHT BASES ARE INSTALLED.

10. THE CONTRACTOR SHALL FURNISH COMPLETE SERVICE TO TRANSFORMERS AND CONTROL SYSTEMS IF REQUIRED ON PLANS.

11. THE DEVELOPER/OWNER WILL BE REQUIRED TO SUPPLY POWER TO ALL NEW PUBLIC STREET LIGHTS INSTALLED UNDER THIS DESIGN PRIOR TO BOND RELEASE OR PROJECT COMPLETION. THE DEVELOPER/OWNER WILL BE RESPONSIBLE FOR ALL ITEMS ASSOCIATED WITH THE INSTALLATION, CONSTRUCTION, ENERGIZING, MAINTENANCE AND OPERATIONAL COST OF SAID STREET LIGHTS PRIOR TO PROJECT COMPLETION. REFER TO THE PLAN FOR ANY NEW SERVICE REQUIREMENTS. THE TRANSFER OF OWNERSHIP FROM THE DEVELOPER/OWNER TO THE CITY OF LAS VEGAS FOR ALL NEW PUBLIC STREET LIGHT/S AND/OR SERVICE/S INSTALLED UNDER THIS PLAN DESIGN WILL BE IN CONJUNCTION WITH THIS PROJECT COMPLETION. COORDINATE ALL MAINTENANCE AND OPERATIONAL TRANSFERS WITH THE CITY OF LAS VEGAS TRAFFIC ENGINEERING DEPARTMENT (TEFO) AT (702) 229-6331.

REVISED 04/15/10

DEVIATIONS FROM STANDARDS

NONE

CITY OF LAS VEGAS FIRE DEPARTMENT NOTES

1. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE LAS VEGAS FIRE & RESCUE ADOPTED FIRE CODE ORDINANCE #6124 FOR HYDRANT SPECIFICATIONS AND HYDRANT INSTALLATION SPECIFICATIONS.

AUTHORIZED FIRE HYDRANTS ARE AS FOLLOWS:
   A. - KENNEDY - GUARDIAN MODELS K81A AND K81D
   B. - MUELLER - SUPER CENTURION 250 MODEL A-423
   C. - CLOW - MEDALLION MODEL F-2546LVD
   D. - TROY VALVE - PATRIOT MODEL PTB100N, NEVADA HYDRANT
   E. - U.S. PIPE - METROFLOW/M-03

2. A PERMIT IS REQUIRED FROM LAS VEGAS FIRE & RESCUE FOR THE INSTALLATION OF ON-SITE WATER LINES AND FIRE HYDRANTS. THE PERMIT AND CONTRACTORS MATERIAL TEST CERTIFICATE FOR UNDERGROUND PIPING FORM SHALL BE OBTAINED FROM THE FIRE PROTECTION ENGINEER BEFORE COMMENCEMENT OF WORK.

3. ON ANY RESIDENTIAL OR COMMERCIAL INSTALLATIONS, FIRE HYDRANTS SHALL BE INSTALLED AND FIRE APPARATUS ACCESS ROADS SHALL BE MAINTAINED BEFORE COMMENCEMENT OF ANY COMBUSTIBLE CONSTRUCTION. ALL FIRE HYDRANTS SHALL BE IN GOOD WORKING ORDER AND SHALL BE CAPABLE OF DELIVERING THE REQUIRED FLOW.

4. TO IDENTIFY THE FIRE HYDRANT LOCATIONS, THE CONTRACTOR SHALL PLACE A BLUE REFLECTIVE MARKER AT THE CENTER LINE OF STREET ADJACENT TO THE FIRE HYDRANTS.

5. ALL UNDERGROUND INSPECTIONS, PRESSURE AND FLUSH VERIFICATIONS OF ALL FIRE HYDRANTS AND FIRE LINES, SHALL BE CONDUCTED BEFORE COVERING THE LINES. CENTER LOADING IS ACCEPTABLE FOR THE HYDRO TESTS WITH PRIOR FIRE PREVENTION APPROVAL.

6. ALL ON-SITE UNDERGROUND WATER MAINS AND MATERIALS SHALL BE U.L. LISTED A.W.W.A. APPROVED AND SHALL BE RATED FOR THE APPROPRIATE WORKING PRESSURE.

7. PAINTING OF CURBS, FIRE HYDRANTS, PADS, PROTECTION OF FIRE HYDRANTS FROM PHYSICAL DAMAGE, AND ALL OTHER WORK NECESSARY SHALL BE COMPLETED BEFORE APPROVAL BY LAS VEGAS FIRE AND RESCUE, FIRE PREVENTION DIVISION.

8. PRIVATE FIRE HYDRANTS SHALL BE PAINTED RED.

9. PRIOR TO THE FINAL OCCUPANCY, A FIRE FLOW TEST SHALL BE WITNESSED BY LAS VEGAS FIRE AND RESCUE, FIRE PREVENTION DIVISION TO VERIFY AVAILABILITY OF THE REQUIRED FIRE FLOW.

10. FIRE HYDRANT SPACING SHALL BE:
   RESIDENTIAL - 500 FEET UNSPRINKLERED; 600 FEET SPRINKLERED.
   COMMERCIAL - 300 FEET UNSPRINKLERED; 400 FEET SPRINKLERED.

11. WHERE THE WATER MAINS ARE EXTENDED ALONG STREETS OR NEW STREETS ARE INSTALLED WHERE FIRE HYDRANTS ARE NOT NEEDED FOR PROTECTION OF STRUCTURES, FIRE HYDRANTS SHALL BE INSTALLED AT A MAXIMUM OF 1000 FT SPACING, TO PROVIDE FOR TRANSPORTATION HAZARDS. WHERE STREETS ARE PROVIDED WITH MEDIAN DIVIDERS OR HAVE FOUR (4) OR MORE TRAFFIC LANES AND HAVE A TRAFFIC COUNT OF MORE THAN 30,000 PER DAY, HYDRANTS ARE REQUIRED ON EACH SIDE OF THE STREET SPACED AT 500FT ON AN ALTERNATING BASIS.

12. NO FIRE HYDRANTS SHALL BE LOCATED WITHIN THE RADIUS OF A CUL-DE-SAC OR WITHIN 20 FT OF THE PRIMETER.

13. NO FIRE HYDRANTS SHALL BE LOCATED WITHIN 6 FT OF ANY CURB RETURN. DRIVEWAY, POWER POLE, STREETLIGHT OR ANY OTHER OBSTRUCTION.

14. A MAXIMUM DISTANCE FROM A FIRE HYDRANT TO A ONE-TWO FAMILY DWELLING SHALL NOT EXCEED 300 FT, AS MEASURED BY AN APPROVED ROUTE.

15. THE MAXIMUM DISTANCE FROM A FIRE HYDRANT TO A FIRE DEPARTMENT CONNECTION (FDC) SHALL NOT EXCEED 100 FT, AS MEASURED BY AN APPROVED ROUTE.

16. THE MAXIMUM DISTANCE FROM A HYDRANT TO THE END OF A DEAD-END STREET SHALL NOT EXCEED 200 FT.

17. TWO (2) SOURCES OF SUPPLY ARE REQUIRED WHENEVER THERE IS 4 OR MORE FIRE HYDRANTS,/SPRINKLER LEAD-INS ARE INSTALLED ON A SINGLE SYSTEM. SECTIONAL CONTROL VALVES SHALL BE INSTALLED SO THAT NO MORE THAN 2 FIRE HYDRANTS CAN BE OUT OF SERVICE DUE TO A BREAK IN A WATER MAIN.

18. ALL FIRE APPARATUS ACCESS ROADS SHALL BE PAVED TO PROVIDE ALL-WEATHER DRIVING CAPABILITIES, AND SHALL BE DESIGNED AND MAINTAINED TO SUPPORT THE IMPOSED LOADS OF THE FIRE APPARATUS.

19. THE GRADIENT FOR THE FIRE APPARATUS ROADS SHALL NOT EXCEED 12%. ANGLES OF APPROACH AND ANGLES OF DEPARTURE SHALL NOT EXCEED 6% FOR 25 FT PRIOR TO OR AFTER THE GRADE CHANGE. ADJACENT TO THE STRUCTURES GRADIENT SHALL NOT EXCEED 6%.

20. THE TURNING RADIUS OF THE FIRE APPARATUS ACCESS ROADS SHALL BE NO LESS THAN 52 FT OUTSIDE AND 28 FT INSIDE TURNING RADIUS.

21. VERTICAL CLEARANCE OF ALL FIRE APPARATUS ROADS SHALL NOT BE LESS THAN 13 FT 6 INS.

22. FIRE DEPARTMENT ACCESS ROADS IN ALL RESIDENTIAL DEVELOPMENTS (EXCEPT APARTMENT BUILDINGS) SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF NOT LESS THAN 36 FT FLOW LINE TO FLOW LINE (THIS WIDTH MAY BE REDUCED TO 24 FT IF ALL BUILDINGS FRONTING THE STREET, PRIVATE DRIVE AISLES, DRIVEWAYS, ETC. SHALL BE ALLOWED TO BE REDUCED TO A MINIMUM WIDTH OF 24 FT FLOW LINE TO FLOW LINE WHEN SERVING NO MORE THAN 6 RESIDENTS, AND WHEN ON STREET PARKING IS DISALLOWED.

23. ALL FIRE APPARATUS ACCESS ROADS IN COMMERCIAL DEVELOPMENTS AND APARTMENT COMPLEXES SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF NOT LESS THAN 24 FT (FLOW LINE TO FLOW LINE), PROVIDED NO PARKING IS ALLOWED ON EITHER SIDE; 32 FT (FLOW LINE TO FLOW LINE), WITH PARALLEL PARKING ON ONE SIDE, AND 36 FT (FLOW LINE TO FLOW LINE), IF PARALLEL PARKING IS ALLOWED ON BOTH SIDES. THESE WIDTHS MAY BE REDUCED TO 24 FT IF SPRINKLERED.

24. FIRE APPARATUS ACCESS ROAD SHALL BE REQUIRED WHEN ANY PORTION OF AN EXTERIOR WALL OF THE FIRST STORY IS LOCATED MORE THAN 150 FT FROM A FIRE DEPARTMENT VEHICLE ACCESS. THIS DISTANCE COULD BE INCREASED TO 250 FT IF THE BUILDING IS SPRINKLERED.

25. APPROVED SECONDARY FIRE APPARATUS ACCESS SHALL BE PROVIDED FOR 100 OR MORE DWELLING UNITS, ROAD(S) WITH DEAD-ENDS OR WITH A SINGLE POINT OF ACCESS IN EXCESS OF 600 FT, AND FOR ALL COMMERCIAL, INDUSTRIAL, AND MULTI-FAMILY RESIDENTIAL DEVELOPMENTS.

26. ALL DEAD-END FIRE APPARATUS ROADS AND/OR FIRE LANES PUBLIC OR PRIVATE, IN EXCESS OF 150 FT IN LENGTH SHALL BE PROVIDED WITH AN APPROVED TURN AROUND HAVING A MINIMUM DIAMETER OF 81 FT.

27. AL FIRE APPARATUS ROADS SHALL BE MARKED BY PLACING APPROVED SIGNS AT THE START OF THE DESIGNATED FIRE LANE, ONE SIGN AT THE END OF THE FIRE LANE AND WITH SIGNS AT INTERVALS OF 100 FT ALONG THE DESIGNATED FIRE LANES. SIGNS TO BE PLACES ON BOTH SIDES OF AN ACCESS ROADWAY IF NEEDED TO PREVENT PARKING ON EITHER SIDE. SIGNS TO BE INSTALLED NO HIGHER THAN 10FT OR LESS THAN 6 FT FROM THE ROADWAY LEVEL. THE CURB ALONG OR ON THE PAVEMENT OR CEMENT (IF NO CURB IS PROVIDED) SHALL BE PAINTED WITH RED WEATHER RESISTANT PAINT IN ADDITION TO THE SIGNS.

28. ELECTRONICALLY CONTROLLED ACCESS GATES SHALL BE PROVIDED WITH AN APPROVED EMERGENCY VEHICLE DETECTOR/RECEIVER SYSTEM. SAID SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE CITY OF LAS VEGAS GUIDELINES FOR AUTOMATIC EMERGENCY ACCESS GATES.

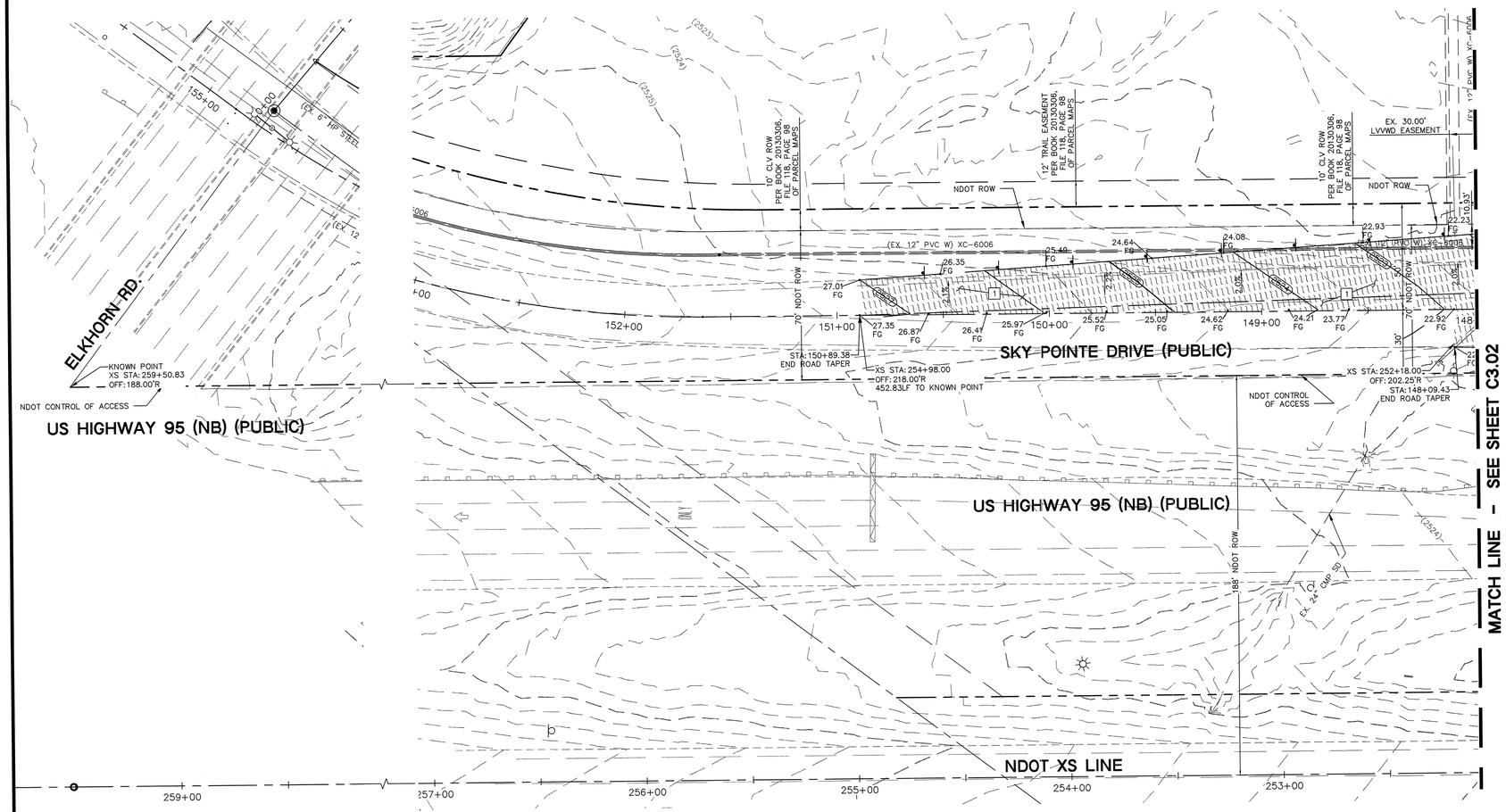
EFFECTIVE DATE 02-01-2011

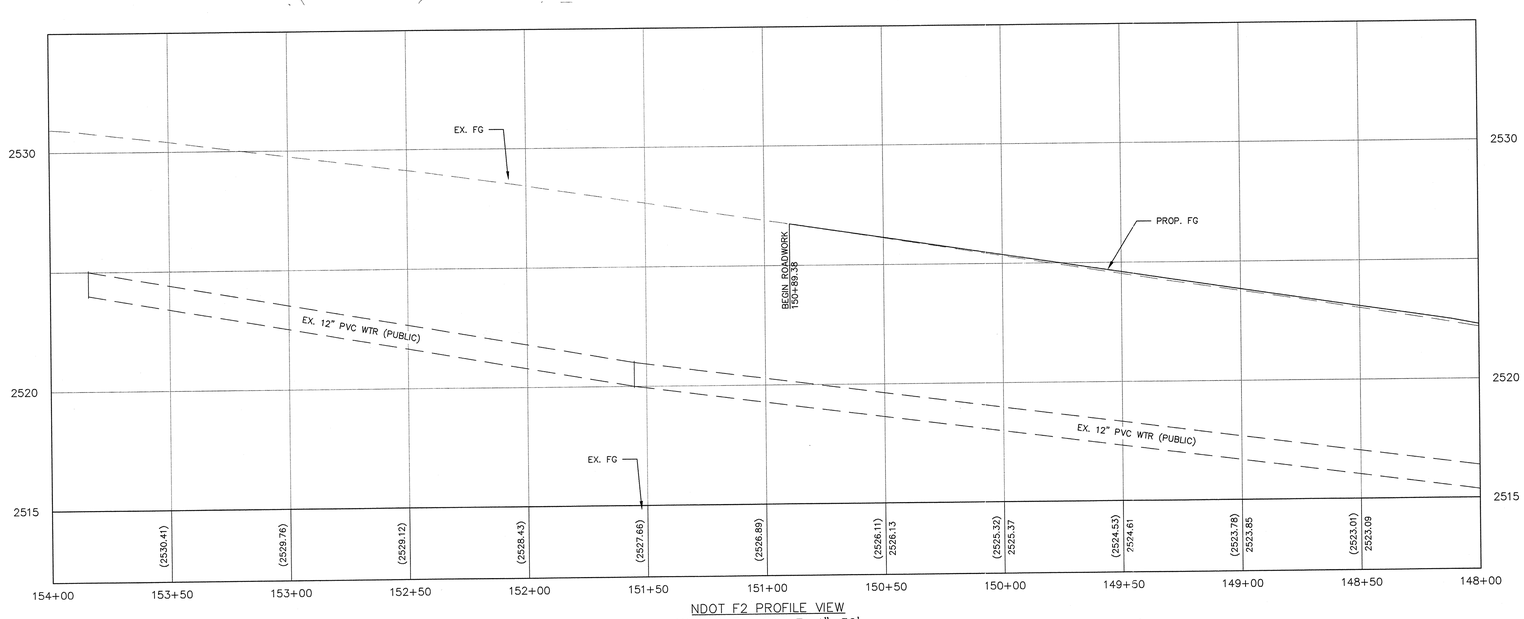
CITY OF LAS VEGAS GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA NEVADA", LATEST ISSUE; THE "UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION, CLARK COUNTY AREA NEVADA", LATEST REVISED EDITION; THE "SUMMERLIN IMPROVEMENT STANDARDS"FOR WORK IN THE SUMMERLIN AREA; AND OTHER APPLICABLE APPROVED STANDARDS ISSUED BY THE CONTROLLING AGENCY; THE UNIFORM BUILDING CODE; AND ALL LOCAL CITY CODES AND ORDINANCES APPLICABLE, EXCEPT AS NOTED ON THIS SHEET AS "DEVIATIONS FROM STANDARDS".

2. THE EXISTENCE AND LOCATION OF ANY OVERHEAD OR UNDERGROUND UTILITY LINES, PIPES, OR STRUCTURES SHOWN ON THESE PLANS ARE OBTAINED BY A RESEARCH OF THE AVAILABLE RECORDS. EXISTING UTILITIES AS SHOWN FROM CLV PLANS LIBRARY ARE APPROXIMATE AND FOR RECORD PURPOSES. EXISTING UTILITIES ARE LOCATED ON PLANS ONLY FOR THE CONVENIENCE OF THE CONTRACTOR. EXISTING UTILITY SERVICE LATERALS MAY NOT BE SHOWN ON THE PLANS. THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, LOCATE ALL UNDERGROUND AND OVERHEAD INTERFERENCES WHICH MAY AFFECT HIS OPERATION DURING CONSTRUCTION AND SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID DAMAGE TO SAME. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING NEAR OVERHEAD UTILITIES SO AS TO SAFELY PROTECT ALL PERSONNEL AND EQUIPMENT, AND SHALL BE RESPONSIBLE FOR ALL COST AND LIABILITY IN CONNECTION THEREWITH.

3. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING UTILITY LINES, STRUCTURES AND STREET IMPROVEMENT





NDOT F2 PROFILE VIEW
HORIZONTAL SCALE: 1"=30'
VERTICAL SCALE: 1"=3'

GRAPHIC SCALE
30 0 15 30 60
(IN FEET)
1 inch = 30 ft.

CONSTRUCTION NOTES:

– ALL CONSTRUCTION TO BE DONE IN ACCORDANCE WITH "CLARK COUNTY AREA UNIFORM STANDARD DRAWINGS (C.C.A.U.S.D.)" LATEST EDITION AND/OR REGULATING ENTITY HAVING JURISDICTION.
– NOT ALL NOTES USED ON THIS SHEET –

1. CONSTRUCT AC PAVEMENT PER DETAIL 2 ON C6.01.
2. CONSTRUCT CONC. PAVEMENT PER DETAIL 3 ON C6.01.
3. CONSTRUCT "A" TYPE CURB PER DETAIL 1 ON C6.01.
4. CONSTRUCT "L" TYPE CURB PER CCAUSD No. 216.
5. CONSTRUCT CONC. SIDEWALK PER CCAUSD No. 234. SEE DETAIL 4/C6.02 FOR FINISHING SPECIFICATIONS.
7. CONSTRUCT SIDEWALK RAMP CCAUSD No. 235 CASE II.
8. CONSTRUCT 72" WIDE "U" CHANNEL PER DETAIL 5 ON C6.01.
9. CONSTRUCT 24" WIDE "U" CHANNEL PER DETAIL 4 ON C6.01.
10. CONSTRUCT COMMERCIAL DRIVEWAY PER CCAUSD No. 225 AND CCAUSD No. 228.
11. LANDSCAPING. REFER TO LANDSCAPE ARCH. PLANS FOR SPECIFICATIONS.
14. SEE STRUCTURAL DETAILS BY OTHERS FOR STAIRS AND STRUCTURAL SLAB.
16. CONSTRUCT SIDEWALK DRAIN PER C.C.A.U.S.D. No. 236.
17. CONSTRUCT 2' VALLEY GUTTER PER DETAIL 11 ON C6.01.
18. CONSTRUCT SIDEWALK RAMP PER DETAIL 10 ON C6.01
19. CONSTRUCT 60" WIDE "U" CHANNEL PER DETAIL 12 ON C6.01
20. CONSTRUCT SIDEWALK RAMP PER DETAIL 9 ON C6.01.
21. INSTALL MIN. 36" HIGH RAIL ON TOP OF RETAINING WALL WHERE GRADE DIFFERENCE IS 18" OR GREATER.
22. CONSTRUCT SCREEN WALL PER ARCHITECTURAL PLAN.
23. CONSTRUCT 2' WIDE CONCRETE STRIP FOR GATE PATH. NOTCH CURB AS NECESSARY FOR THE GATE BYPASS. GATE PER ARCHITECTURAL PLANS.
24. CMU SCREEN WALL PER ARCHITECTURAL PLANS. WALL TO BE SOLID GROUTED 18" ABOVE FLOWLINE OF ROADWAY.
25. CONSTRUCT SIDEWALK RAMP CCAUSD No. 235 CASE I.
26. CONSTRUCT RETAINING WALL PER DETAILS 9 ON SHEET C6.03 AND ARCHITECTURAL PLAN.
27. CONSTRUCT PLAYGROUND AREA PER ARCHITECTURAL PLANS.

NEVADA DEPARTMENT OF TRANSPORTATION (NDOT) PERMIT REQUIRED:

AN APPROVED NDOT OCCUPANCY PERMIT SHALL BE OBTAINED THROUGH THE DISTRICT PRIOR TO ANY CONSTRUCTION WITHIN THE NDOT RIGHT OF WAY. PLANS SHOWING WORK IN NDOT RIGHT OF WAY MUST SHOW NDOT STATIONING. THE DEVELOPER ASSUMES ALL LIABILITY FOR WORK CONDUCTED UNDER THE DISTRICT OBTAINED PERMIT THROUGH WARRANTY EXPIRATION.

NOTE:

ALL HIGH PRESSURE GAS LINE MUST BE MARKED WITH "CAUTION: HIGH PRESSURE GAS!" AND "CALL SOUTHWEST GAS AT 365-2296 FOR STANDBY WHEN EXCAVATING OVER OR NEAR HIGH PRESSURE GAS LINES."

STORM DRAIN CONSTRUCTION NOTES:

NOTE: ALL ONSITE STORM DRAIN AND THE PERTINENT FACILITIES ARE PRIVATELY OWNED AND PRIVATELY MAINTAINED.
– NOT ALL NOTES USED ON THIS SHEET –

1. INSTALL 48" TYPE I ECCENTRIC STORM DRAIN PER N.D.O.T DRAWING NO. R-4.7.1
2. INSTALL RCB CULVERT TYPE I HEADWALL PER N.D.O.T DRAWING NO. B-20-1.5.
3. INSTALL TYPE 3 DROP INLET PER N.D.O.T DRAWING NO. R-4.3.1. CONSTRUCT STORM DRAIN INLET PER USDCCA DRAWING NO. 421 (STORMWATER QUALITY MANAGEMENT STAMP AND SIGN DETAIL).
4. INSTALL 3'X3' JENSEN PRECAST DROP INLET PER DETAIL 3 ON SHEET C6.02.
5. NSTALL 48" STORM DRAIN MANHOLE PER C.C.A.U.S.D. NO. 403 WITH CONCRETE COLLAR PER C.C.A.U.S.D. NO. 408. REFER TO C.C.A.U.S.D. NO. 409 FOR MANHOLE COVER AND RING.
6. INSTALL FLARED END SECTION OF 18" STORM DRAIN LINE. CURB TO BE ABUTTED TO FLARED END SECTION.
7. ROOF DRAIN LOCATION. SEE PLANS BY OTHERS.

A.P.N.:

PORTION OF 125-21-102-001 CONTAINS 12.14 ACRES

BASIS OF BEARINGS:

NORTH 89°49'07" WEST, BEING THE NORTH LINE OF THE NORTHWEST QUARTER (NW 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF SECTION 21, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., AS SHOWN ON A RECORD OF SURVEY IN FILE 73, PAGE 26 IN THE CLARK COUNTY, NEVADA, RECORDER'S OFFICE.

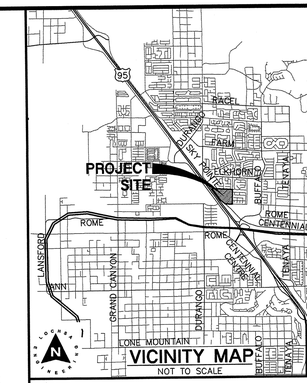
BENCHMARK:

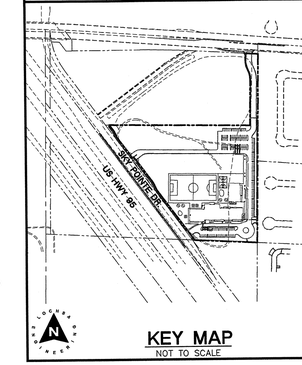
CITY OF LAS VEGAS BENCHMARK (2008 ADJUSTED) 6LV90 21NNW6 A RIVET AND PLATE IN TOP CURB ON THE SOUTH SIDE OF ELKHORN ROAD APPROXIMATELY 1/4 MILE WEST OF CIMARRON ROAD. ELEVATION=2496.19 FEET (761.449 METERS) (NAVD'88)

NOTE:

LOCHSA ENGINEERING ASSUMES NO RESPONSIBILITY FOR EXISTING UTILITY LOCATIONS AND ELEVATIONS. THE UTILITIES SHOWN ON THIS PLAN ARE FROM THE BEST AVAILABLE INFORMATION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE LOCATION AND ELEVATION OF ALL UTILITIES, INCLUDING BUT NOT LIMITED TO, THE WATER, FIRE, SANITARY SEWER, STORM SEWER, TELEPHONE, POWER, GAS, AND IRRIGATION LINES PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. IF CONFLICT EXISTS IN THE FIELD, THE CONTRACTOR IS TO NOTIFY THE PROJECT ARCHITECT, OWNER'S REPRESENTATIVE AND THE PROJECT ENGINEER IMMEDIATELY.

SAFETY ALERT
Call Before You Overhead
AVOID HITTING UNDERGROUND TRAFFIC SIGNAL AND STREET LIGHT SYSTEM CONDUITS IT'S COSTLY!
Call before you UnderGround 1-702-432-5300
Call before you dig Avoid cutting underground utility lines. It's costly.
Call 811 or 1-702-227-2929 OR 1-800-227-2600
EMERGENCY AND MATERIAL SYSTEM OF OPERATIONS





Lochsa engineering
6345 South Jones Blvd.
Las Vegas, NV 89118
Phone (702) 365-5317
Fax (702) 365-5317
www.lochsa.com

REV.:	DATE:	BY:	DESCRIPTION:

SHEET: SKY POINTE DR. PLAN AND PROFILES SHEET 1 OF 3

TITLE: SOMERSET ACADEMY SKY POINTE & ELKHORN LAS VEGAS, NV

PROJECT No.: 121075
DATE: 05/30/13
SCALE: 1"=30'
DRAWN BY: MW
DESIGNED BY: MW
CHECKED BY: GM

SEAL: NATIONAL PROFESSIONAL ENGINEER - STATE OF NEVADA - GUY M. MORRIS - EXP. 12-31-13 - CIVIL - No. 14526 - 05-30-13

SHEET No. C3.01
SHEET 9 OF 27

LEGEND

CL OR SURVEY LINE	EASEMENT LINE	DESCRIPTION:	CONTOUR LINES	EDGE OF PAVEMENT	"A" TYPE CURBS	"L" TYPE CURBS	WALLS	FENCES	AC PAVEMENT	CONCRETE	SPOT ELEVATIONS	SIGNS	MANHOLE W/ DESCRIPTION	MANHOLE DESCRIPTIONS	FIRE HYDRANTS	GATE VALVES	REDUCERS	CLEAN OUTS	UTILITY BOX OR VAULT	BACKWATER VALVES	100w HPS STREETLIGHTS	150w HPS STREETLIGHTS	200w HPS STREETLIGHTS	250w HPS STREETLIGHTS
PROPERTY LINE	SAWCUT LINE	EXISTING:	(2210)								(12.34) BC		Ⓢ	Ⓢ = SANITARY SEWER						BWV				
ROW LINE	SCARP LINE	PROPOSED:	2122								12.34 BC		Ⓢ	Ⓓ = STORM DRAIN						BWV				
														Ⓔ = ELECTRICAL										
														Ⓣ = TELEPHONE										

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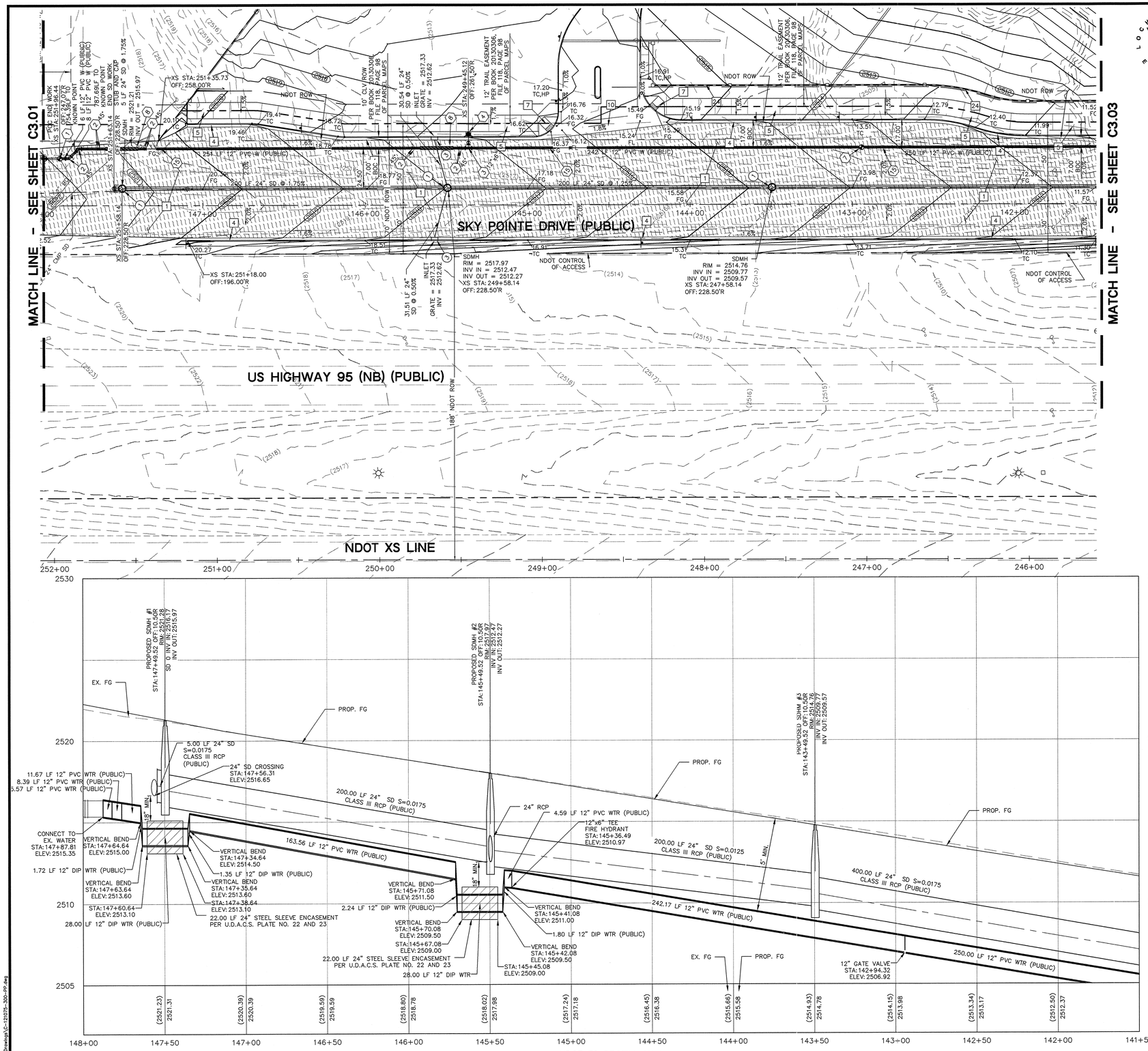

GRAPHIC SCALE

30 0 15 30 60

(IN FEET)
1 inch = 30 ft.

CONSTRUCTION NOTES:

– ALL CONSTRUCTION TO BE DONE IN ACCORDANCE WITH "CLARK COUNTY AREA UNIFORM STANDARD DRAWINGS (C.C.A.U.S.D.)" LATEST EDITION AND/OR REGULATING ENTITY HAVING JURISDICTION.
– NOT ALL NOTES USED ON THIS SHEET –

1. CONSTRUCT AC PAVEMENT PER DETAIL 2 ON C6.01.
2. CONSTRUCT CONC. PAVEMENT PER DETAIL 3 ON C6.01.
3. CONSTRUCT "A" TYPE CURB PER DETAIL 1 ON C6.01.
4. CONSTRUCT "L" TYPE CURB PER CCAUSD No. 216.
5. CONSTRUCT CONC. SIDEWALK PER CCAUSD No. 234. SEE DETAIL 4/C6.02 FOR FINISHING SPECIFICATIONS.
7. CONSTRUCT SIDEWALK RAMP CCAUSD No. 235 CASE II.
8. CONSTRUCT 72" WIDE "U" CHANNEL PER DETAIL 5 ON C6.01.
9. CONSTRUCT 24" WIDE "U" CHANNEL PER DETAIL 4 ON C6.01.
10. CONSTRUCT COMMERCIAL DRIVEWAY PER CCAUSD No. 225 AND CCAUSD No. 228.
11. LANDSCAPING. REFER TO LANDSCAPE ARCH. PLANS FOR SPECIFICATIONS.
14. SEE STRUCTURAL DETAILS BY OTHERS FOR STAIRS AND STRUCTURAL SLAB.
16. CONSTRUCT SIDEWALK DRAIN PER C.C.A.U.S.D. No. 236.
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19. CONSTRUCT 60" WIDE "U" CHANNEL PER DETAIL 12 ON C6.01
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21. INSTALL MIN. 36" HIGH RAIL ON TOP OF RETAINING WALL WHERE GRADE DIFFERENCE IS 18" OR GREATER.
22. CONSTRUCT SCREEN WALL PER ARCHITECTURAL PLAN.
23. CONSTRUCT 2' WIDE CONCRETE STRIP FOR GATE PATH. NOTCH CURB AS NECESSARY FOR THE GATE BYPASS. GATE PER ARCHITECTURAL PLANS.
24. CMU SCREEN WALL PER ARCHITECTURAL PLANS. WALL TO BE SOLID GROUTED 18" ABOVE FLOWLINE OF ROADWAY.
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26. CONSTRUCT RETAINING WALL PER DETAILS 9 ON SHEET C6.03 AND ARCHITECTURAL PLAN.
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WATER MAIN JOINT DEFLECTION: (PVC, 4"–24")

PVC PIPE SHALL BE DEFLECTED AT THE JOINT ONLY. THE MAXIMUM ALLOWABLE DEFLECTION SHALL BE ONE (1) DEGREE PER JOINT WITH A MINIMUM RADIUS OF CURVATURE OF 1,150 FEET, PER U.D.A.C.S. 2.07.01 AND 2.07.02.

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– ALL WATER CONSTRUCTION TO BE DONE IN ACCORDANCE WITH "UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR WATER DISTRIBUTION SYSTEMS (UDACS)" LATEST EDITION.
– NOT ALL NOTES USED ON THIS SHEET –
–ALL WATER LINES 4" OR GREATER TO BE CL. 150, C900 PVC. ALL WATER LINES SMALLER THAN 4" TO BE SCH. 40 PVC. ALL WATER LINES CONNECTED TO REMOTE FIRE DEPT. CONNECTIONS TO BE CL. 200, C900 PVC.
–THRUST BLOCKS TO BE CONSTRUCTED PER UDACS PLATE No. 31. THRUST BLOCKS TO BE LOCATED AT ALL ANGLE FITTINGS (BENDS), CROSSES, TEE'S, PLUGS, CAPS, AND FIRE HYDRANTS. ANCHOR BLOCKS TO BE CONSTRUCTED, PER UDACS PLATE No. 30. ANCHOR BLOCKS TO BE LOCATED AT ALL IN–LINE REDUCERS AND GATE VALVES.

1. REMOVE EX. BLOW–OFF PER UDACS PLATE NO. 36 AND CONNECT TO EXISTING WATERLINE.
2. INSTALL BEND W/THRUST BLOCK (SAME SIZE AS PIPE) PER UDACS PLATE NO. 31.
3. INSTALL TEE (SAME SIZE AS PIPES). PER UDACS PLATE NO 31.
4. INSTALL FIRE HYDRANT W/GATE VALVE PER UDACS PLATE NO. 40.
5. INSTALL 12"x8" TAPPING SLEEVE & 8" TAPPING VALVE (SAME SIZE AS PIPE) PER UDACS 2.24.01 (B) PLATES NO. 34 & 39.
6. INSTALL 8" RPDA PER UDACS PLATE NO. 56.
7. INSTALL GATE VALVE (SAME SIZE AS PIPE). PER UDACS PLATE NO 30 AND 39.
8. INSTALL WATERLINE IN STEEL CASING PER UDACS PLATES NO. 21 OR 22 AND 23. MINIMUM 18–INCH CLEARANCE IS REQUIRED ABOVE THE TOP OF THE CASING AND UPPER BENDS THORUGH THE LOWER SECTION OF THE PIPE. DUCTILE IRON PIPE WITH RESTRAINED JOINTS IS REQUIRED. IN ADDITION, THRUST BLOCKS ARE TO BE INSTALLED AT THE UPPER BENDS. ANNULAR SPACE BETWEEN PIPE AND CASING SHALL BE FILLED WITH CLASS I OLSM, SEE UDACS PLATES 16, 17, 18 AND 19, FOR BEDDING AND BACKFILL REQUIREMENTS.
9. INSTALL 2" WATER SERVICE & METER PER UDACS PLATE No.4.
10. INSTALL 2" RPPA PER UDACS PLATE NO. 8.
11. INSTALL REDUCER (SAME SIZE AS PIPES) W/ THRUST BLOCK PER UDACS PLATE NO. 30.
12. STUB & CAP WATER SERVICE. REFER TO PLUMBING PLANS FOR CONTINUATION.
13. STUB & CAP WATER SERVICE. REFER TO LANDSCAPING/ IRRIGATION PLANS FOR CONTINUATION.
14. INSTALL CAP AND 2" BLOW–OFF ASSEMBLY PER U.D.A.C.S. PLATE NO. 36.
15. TRENCH AND BACKFILL PER DETAIL 9 AND 10 C/6.02.

A.P.N.:

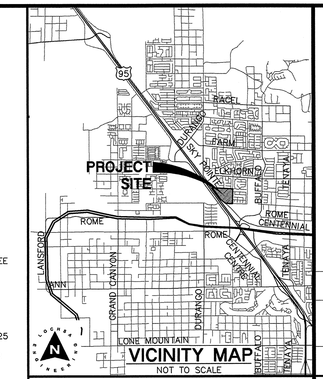
PORTION OF 125–21–102–001 CONTAINS 12.14 ACRES

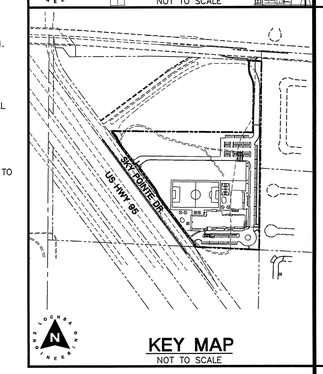
BASS OF BEARINGS:

NORTH 85°49'07" WEST, BEING THE NORTH LINE OF THE NORTHWEST QUARTER (NW 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF SECTION 21, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., AS SHOWN ON A RECORD OF SURVEY IN FILE 73, PAGE 26 IN THE CLARK COUNTY, NEVADA, RECORDER'S OFFICE.

BENCHMARK:

CITY OF LAS VEGAS BENCHMARK (2008 ADJUSTED) 6LV90 21NNW6 A RIVET AND PLATE IN TOP CURB ON THE SOUTH SIDE OF ELKHORN ROAD APPROXIMATELY 1/4 MILE WEST OF CIMARRON ROAD. ELEVATION=2498.19 FEET (761.449 METERS) (NAVD'88)





STORM DRAIN CONSTRUCTION NOTES:

NOTE: ALL ONSITE STORM DRAIN AND THE PERTINENT FACILITIES ARE PRIVATELY OWNED AND PRIVATELY MAINTAINED.
– NOT ALL NOTES USED ON THIS SHEET –

1. INSTALL 48" TYPE I ECCENTRIC STORM DRAIN PER N.D.O.T DRAWING NO. R–4.7.1
2. INSTALL RCB CULVERT TYPE I HEADWALL PER N.D.O.T DRAWING NO. B–20–1.5.
3. INSTALL TYPE 3 DROP INLET PER N.D.O.T DRAWING NO. R–4.3.1. CONSTRUCT STORM DRAIN INLET PER USDCCA DRAWING NO. 421 (STORMWATER QUALITY MANAGEMENT STAMP AND SIGN DETAIL).
4. INSTALL 3'X3' JENSEN PRECAST DROP INLET PER DETAIL 3 ON SHEET C6.02.
5. INSTALL 48" STORM DRAIN MANHOLE PER C.C.A.U.S.D. NO. 403 WITH CONCRETE COLLAR PER C.C.A.U.S.D. NO. 408. REFER TO C.C.A.U.S.D. NO. 409 FOR MANHOLE COVER AND RING.
6. INSTALL FLARED END SECTION OF 18" STORM DRAIN LINE. CURB TO BE ABUTTED TO FLARED END SECTION.
7. ROOF DRAIN LOCATION. SEE PLANS BY OTHERS.

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES MANAGER
DATE: PROJECT No. 121161
LVVWD APPROVED FIRE FLOW = 2875 GPM AT 20 PSI RESIDUAL

A.P.N.:

PORTION OF 125–21–102–001 CONTAINS 12.14 ACRES

BASS OF BEARINGS:

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SAFETY ALERT
AVOID HITTING UNDERGROUND TRAFFIC SIGNAL CONDUIT OR LIGHT WIRING DURING IT'S COSTLY
Call Before You Overhead
Call before you UnderGround
Call 811 Before you dIg
Avoid cutting underground utility lines. It's costly.
1-702-227-2929 1-702-432-5300 OR 1-800-227-2600
EMERGENCY AND ARTERIAL SYSTEM IS OPERATING

	REV.:	DATE:	BY:	DESCRIPTION:

Lochsa engineering
6345 South Jones Blvd.
Suite 100
Las Vegas, NV 89118
Phone (702) 365-9512
Fax (702) 365-9517
www.lochsa.com

SHEET TITLE: SKY POINTE DR. PLAN AND PROFILES SHEET 2 OF 3

SOMERSET ACADEMY
SKY POINTE & ELKHORN
LAS VEGAS, NV

PROJECT No.: 121075
DATE: 05/30/13
SCALE: 1"=30'
DRAWN BY: MW
DESIGNED BY: MW
CHECKED BY: GM

SEAL: PROFESSIONAL ENGINEER — STATE OF NEVADA — GUY M. MORRIS — EXP. 12-31-13 — CIVIL — No. 14526 — 05-30-13

SHEET No. C3.02
SHEET 10 OF 27

LEGEND

CL OR SURVEY LINE	EASEMENT LINE	DESCRIPTION:	CONTOUR LINES	EDGE OF PAVEMENT	"A" TYPE CURBS	"L" TYPE CURBS	WALLS	FENCES	AC PAVEMENT	CONCRETE	SPOT ELEVATIONS	SIGNS	MANHOLE W/ DESCRIPTION	MANHOLE DESCRIPTIONS	FIRE HYDRANTS	GATE VALVES	REDUCERS	CLEAN OUTS	UTILITY BOX OR VAULT	BACKWATER VALVES	100w HPS STREETLIGHTS	150w HPS STREETLIGHTS	200w HPS STREETLIGHTS	250w HPS STREETLIGHTS
PROPERTY LINE	SAWCUT LINE	EXISTING:	(2210)								(12.34) BC		Ⓢ	Ⓢ = SANITARY SEWER						BWV				
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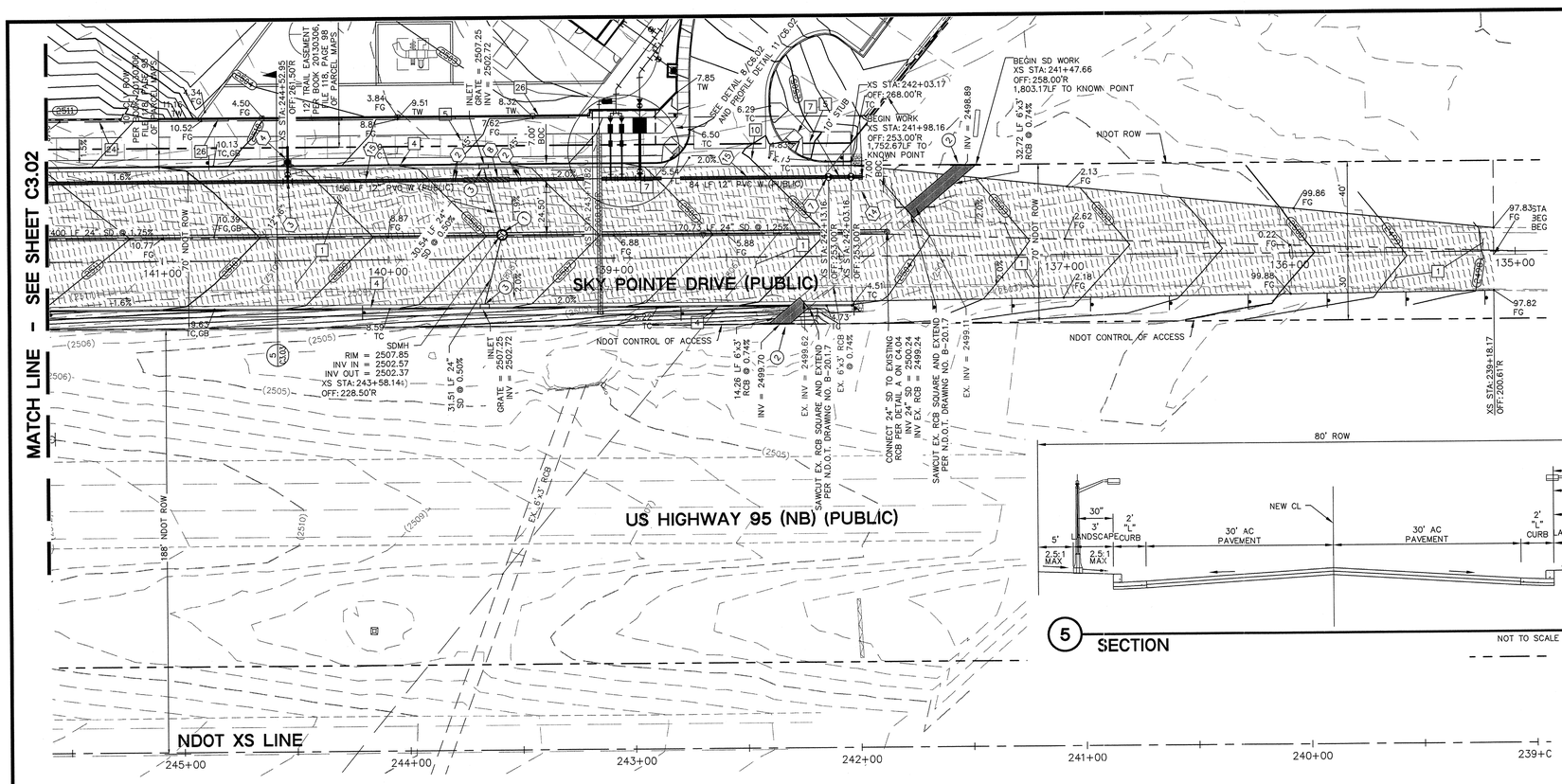

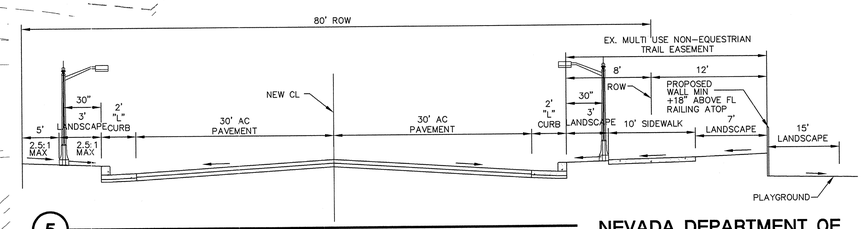

5 SECTION

NOT TO SCALE

STORM DRAIN CONSTRUCTION NOTES:

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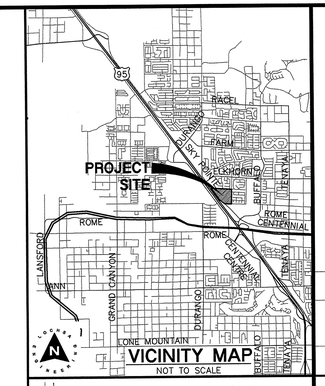
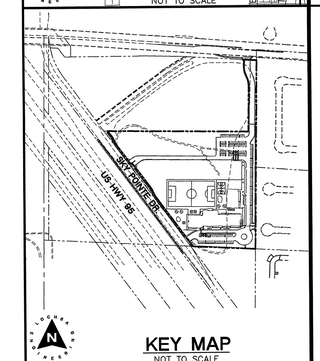
LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES MANAGER

DATE: PROJECT No. 121161

LVVWD APPROVED FIRE FLOW = 2875 GPM AT 20 PSI RESIDUAL





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30 0 15 30 60

(IN FEET)
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15. TRENCH AND BACKFILL PER DETAIL 9 AND 10 C/6.02.

A.P.N.:

PORTION OF 125–21–102–001 CONTAINS 12.14 ACRES

BASIS OF BEARINGS:

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22. CONSTRUCT SCREEN WALL PER ARCHITECTURAL PLAN.
23. CONSTRUCT 2' WIDE CONCRETE STRIP FOR GATE PATH. NOTCH CURB AS NECESSARY FOR THE GATE BYPASS. GATE PER ARCHITECTURAL PLANS.
24. CMU SCREEN WALL PER ARCHITECTURAL PLANS. WALL TO BE SOLID GROUTED 18" ABOVE FLOWLINE OF ROADWAY.
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27. CONSTRUCT PLAYGROUND AREA PER ARCHITECTURAL PLANS.

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SAFETY ALERT

AVOID HITTING UNDERGROUND UTILITIES. TRAFFIC SIGNS, STREET LIGHTS, UTILITY CONDUITS ARE COSTLY

Call before you dig
Avoid cutting underground utility lines. It's costly.

Call Before You Overhead

Call before you UnderGround

Call 811 or

1-702-227-2929 1-702-432-5300 EMERGENCY AND NATURAL GAS/GAS OF OPERATIONS 1-800-227-2600

Lochsa engineering
6345 South Jones Blvd.
Suite 100
Las Vegas, NV 89118
Phone (702) 365-3512
Fax (702) 365-3517
www.lochsa.com

REV.:	DATE:	BY:	DESCRIPTION:

SHEET: SKY POINTE DR. PLAN AND PROFILES SHEET 3 OF 3

TITLE: SOMERSET ACADEMY SKY POINTE & ELKHORN LAS VEGAS, NV

PROJECT No.: 121075

DATE: 05/30/13

SCALE: 1"=30'

DRAWN BY: MW

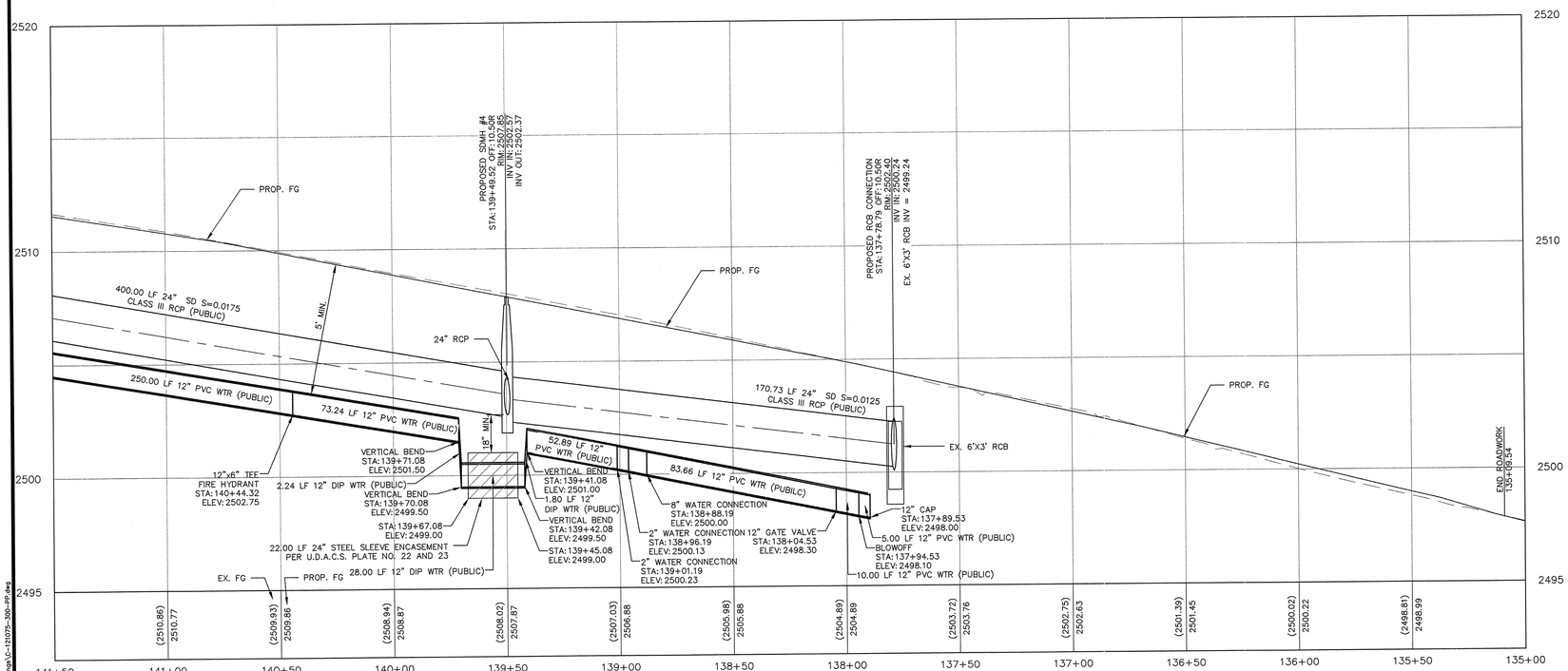
DESIGNED BY: MW

CHECKED BY: GM

SEAL: NEVADA REGISTERED PROFESSIONAL ENGINEER GUY M. MORRIS EXP. 12-31-13 CIVIL No. 14526 05-30-13

SHEET No. C3.03

SHEET 11 OF 27



NDOT F2 PROFILE VIEW
HORIZONTAL SCALE: 1"=30'
VERTICAL SCALE: 1"=3'

LEGEND

CL OR SURVEY LINE	EASEMENT LINE	DESCRIPTION:	CONTOUR LINES, EDGE OF PAVEMENT, "A" TYPE CURBS, "L" TYPE CURBS, WALLS, FENCES, AC PAVEMENT, CONCRETE, SPOT ELEVATIONS, SIGNS, MANHOLE W/ DESCRIPTION
PROPERTY LINE	SAWCUT LINE	EXISTING:	(2210)
ROW LINE	SCARP LINE	PROPOSED:	2122

MANHOLE DESCRIPTIONS
(S) = SANITARY SEWER
(D) = STORM DRAIN
(E) = ELECTRICAL
(T) = TELEPHONE

FIRE HYDRANTS, GATE VALVES, REDUCERS, CLEAN OUTS, UTILITY BOX OR VAULT, BACKWATER VALVES, 100w HPS STREETLIGHTS, 150w HPS STREETLIGHTS, 200w HPS STREETLIGHTS, 250w HPS STREETLIGHTS

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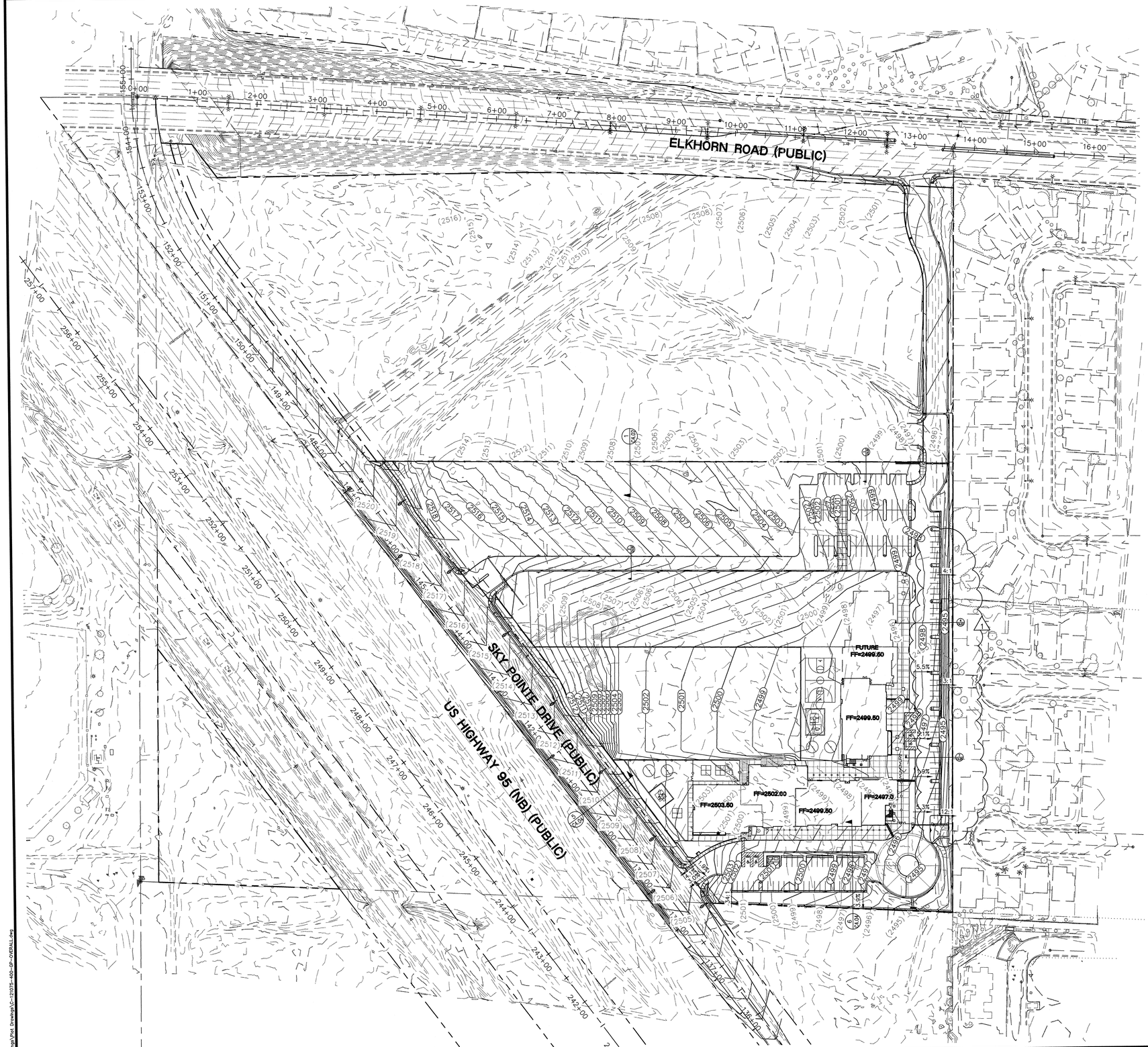

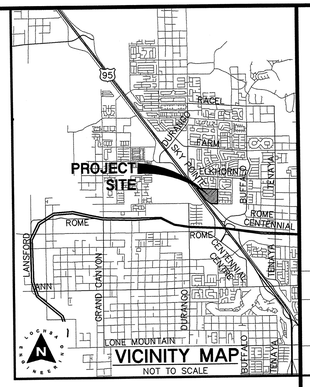

GRAPHIC SCALE

80 0 40 80 160

(IN FEET)
1 inch = 80 ft.

A.P.N.:

PORTION OF 125-21-102-001 CONTAINS 12.14 ACRES

BASIS OF BEARINGS:

NORTH 89°49'07" WEST, BEING THE NORTH LINE OF THE NORTHWEST QUARTER (NW 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF SECTION 21, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., AS SHOWN ON A RECORD OF SURVEY IN FILE 73, PAGE 26 IN THE CLARK COUNTY, NEVADA, RECORDER'S OFFICE.

BENCHMARK:

CITY OF LAS VEGAS BENCHMARK (2008 ADJUSTED) 6LV90 21NNW6 A RIVET AND PLATE IN TOP CURB ON THE SOUTH SIDE OF ELKHORN ROAD APPROXIMATELY 1/4 MILE WEST OF CIMARRON ROAD. ELEVATION=2498.19 FEET (761.449 METERS) (NAVD'88)

NOTE:

LOCHSA ENGINEERING ASSUMES NO RESPONSIBILITY FOR EXISTING UTILITY LOCATIONS AND ELEVATIONS. THE UTILITIES SHOWN ON THIS PLAN ARE FROM THE BEST AVAILABLE INFORMATION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE LOCATION AND ELEVATION OF ALL UTILITIES, INCLUDING BUT NOT LIMITED TO, THE WATER, FIRE, SANITARY SEWER, STORM SEWER, TELEPHONE, POWER, GAS, AND IRRIGATION LINES PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. IF CONFLICT EXISTS IN THE FIELD, THE CONTRACTOR IS TO NOTIFY THE PROJECT ARCHITECT, OWNER'S REPRESENTATIVE AND THE PROJECT ENGINEER IMMEDIATELY.

SAFETY ALERT

Call Before You Overhead

Call before you UnderGround

Call before you dig
Avoid cutting underground utility lines. It's costly.

Call 811

1-702-432-5300

1-702-227-2929 FREEWAY AND ARTERIAL SYSTEM OF OPERATIONS 1-800-227-2600

REV.:	DATE:	BY:	DESCRIPTION:
1	05-24-13	G.M.	REVISED WALL LOCATION & LANDSCAPE SLOPE

Lochsa engineering
6345 South Jones Blvd.
Suite 100
Las Vegas, NV 89118
Phone (702) 365-6912
Fax (702) 384-5517
www.lochsa.com

SHEET

TITLE: GRADING PLANS
OVERALL GRADING PLAN

SOMERSET ACADEMY
SKY POINTE & ELKHORN
LAS VEGAS, NV

PROJECT No.: 121075

DATE: 05/30/13

SCALE: 1"=80'

DRAWN BY: MW

DESIGNED BY: MW

CHECKED BY: GM

SEAL: NEVADA REGISTERED PROFESSIONAL ENGINEER STATE OF NEVADA
GUY M. MORRIS
EXP. 12-31-13
CIVIL
No. 14526
05-30-13

SHEET No.
C4.00
SHEET 12 OF 27

LEGEND

CL OR SURVEY LINE	EASEMENT LINE	DESCRIPTION:	CONTOUR LINES	EDGE OF PAVEMENT	"A" TYPE CURBS	"L" TYPE CURBS	WALLS	FENCES	AC PAVEMENT	CONCRETE	SPOT ELEVATIONS	SIGNS	MANHOLE W/ DESCRIPTION	MANHOLE DESCRIPTIONS	FIRE HYDRANTS	GATE VALVES	REDUCERS	CLEAN OUTS	UTILITY BOX OR VAULT	BACKWATER VALVES	100w HPS STREETLIGHTS	150w HPS STREETLIGHTS	200w HPS STREETLIGHTS	250w HPS STREETLIGHTS
PROPERTY LINE	SAWCUT LINE	EXISTING:	(2210)								(12.34 BC)		(S)	(S) = SANITARY SEWER						BWV				
ROW LINE	SCARP LINE	PROPOSED:	2122								12.34 BC			(D) = STORM DRAIN						BWV				
														(E) = ELECTRICAL										
														(T) = TELEPHONE										

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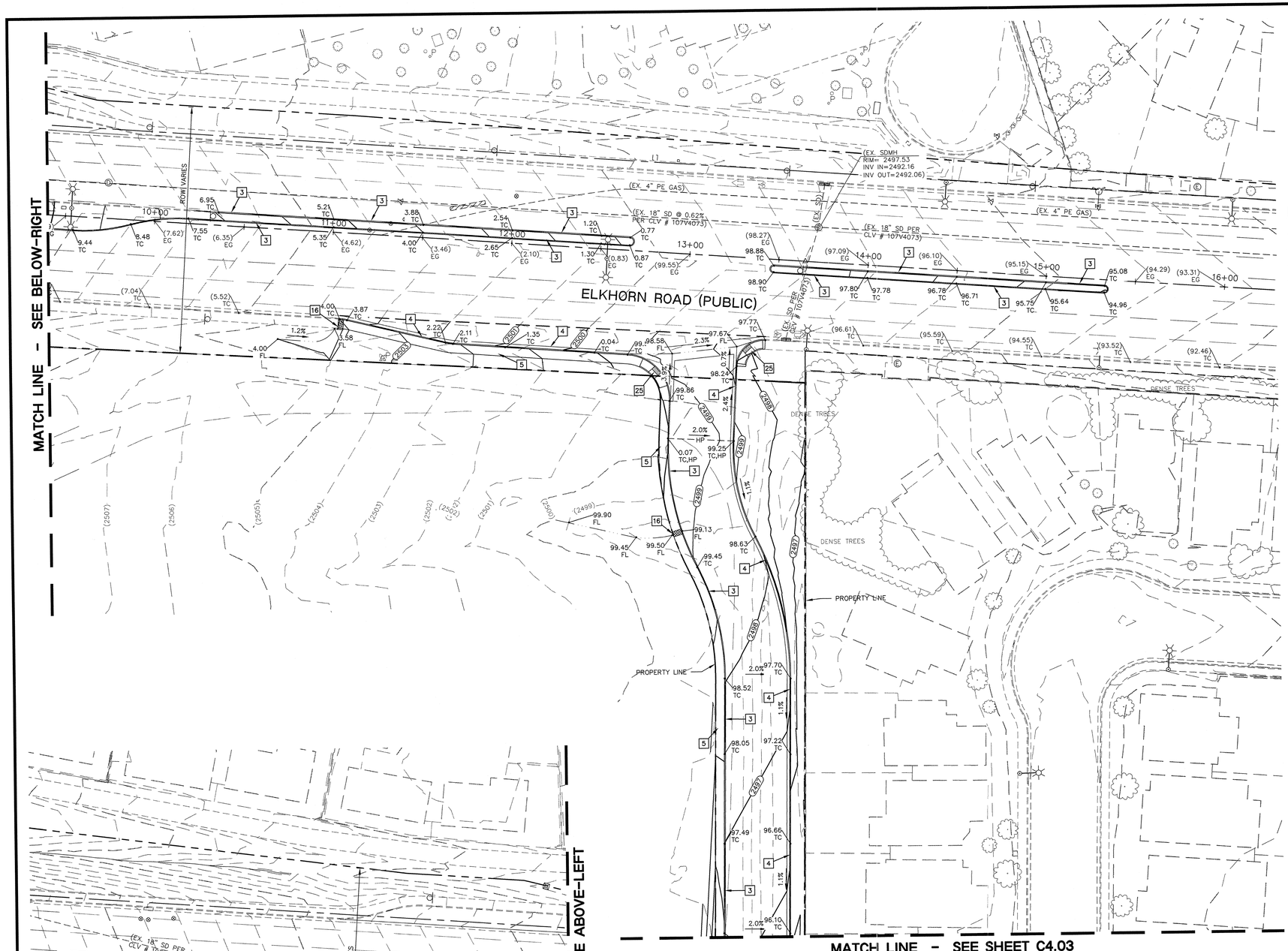

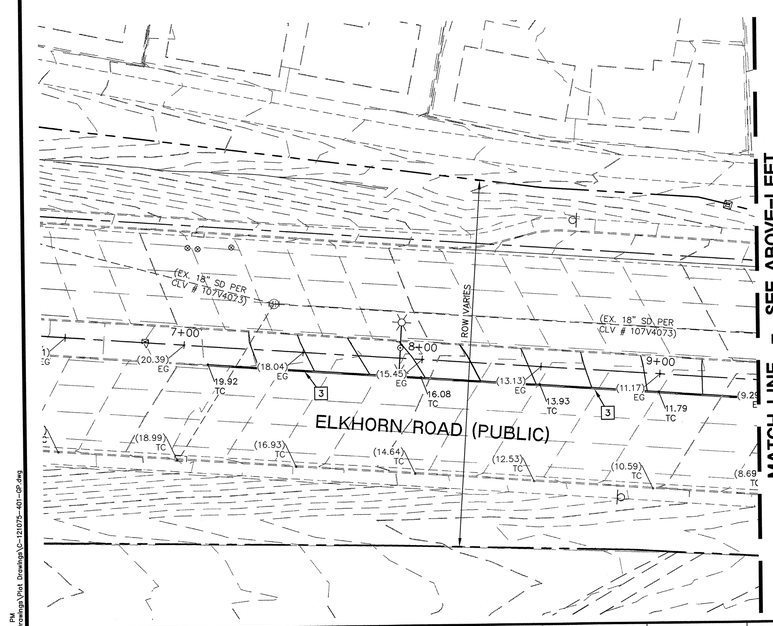

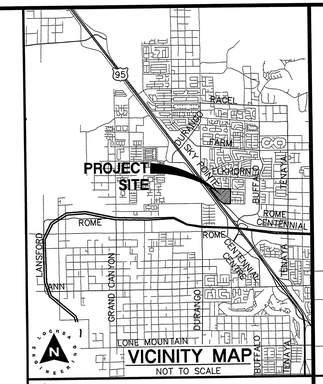

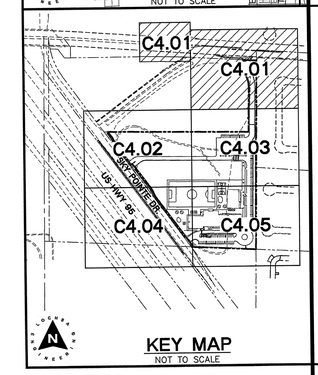

GRAPHIC SCALE

30 0 15 30 60

(IN FEET)
1 inch = 30 ft.

LAS VEGAS VALLEY CONSTRUCTION SITE BEST MANAGEMENT PRACTICES GUIDANCE MANUAL SECTION 3.5.1 STANDARD NOTES 1-5

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 RIGHT-OF-WAY OF THE CITY OF LAS VEGAS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS SITE DEVELOPMENT OR CONSTRUCTION PROJECT. SUCH MATERIAL 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 CITY OF LAS VEGAS 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 NVR10000, SECTION III.A.5.

4. AT A MINIMUM, THE CONTRACTOR OR HIS AGENT SHALL INSPECT ALL DISTURBED AREAS, AREAS USED FOR STORAGE OF MATERIALS AND EQUIPMENT THAT ARE EXPOSED TO PRECIPITATION, VEHICLE ENTRANCE AND EXIT LOCATIONS, AND ALL BMPS WEEKLY, AND WITHIN 24 HOURS AFTER ANY RAIN EVENT OR 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 BMP'S SHALL BE REMOVED WITHIN SEVEN DAYS AFTER A STORMWATER RUNOFF EVENT OR PRIOR TO THE NEXT ANTICIPATED STORM EVENT, WHICHEVER IS EARLIER. SEDIMENT MUST BE REMOVED WHEN BMP DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE.

GRADING NOTES:

1. SLOPES 4:1 OR STEEPER AND FINE-GRAINED MATERIALS THAT HAVE BEEN DISTURBED (SANDY AND SILTY MATERIALS) SHOULD BE PROTECTED WITH BURLAP OR OTHER EROSION CONTROL FABRIC/MATERIAL, UNLESS OTHERWISE SPECIFIED BY LANDSCAPE DRAWINGS AND SPECIFICATIONS OR THE SOILS REPORT.

2. CONTRACTOR SHALL DETERMINE HIS OWN FOOTING OR BASEMENT EXCAVATION QUANTITIES, EVEN THOUGH SHOWN ON ROUGH GRADING PLANS. ADDITIONALLY, STRUCTURE BACKFILL COSTS SHOULD BE INCLUDED IN THE COST OF THE STRUCTURE, UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS.

3. CONTRACTOR SHALL NOTIFY LOCHSA ENGINEERING WITHIN 24 HOURS OF OMISSIONS AND ERRORS DISCOVERED ON PLANS. LOCHSA ENGINEERING WILL NOT BE RESPONSIBLE FOR ANY "CORRECTIVE" WORK DONE BY OTHERS.

4. CONTRACTOR TO ENSURE POSITIVE DRAINAGE. NO PONDING ALLOWED. CONTRACTOR TO FOLLOW RECOMMENDATIONS AS OUTLINED IN THE PROJECT GEOTECHNICAL REPORT, INCLUDING BUT NOT LIMITED TO EXCAVATION, GRADING AND COMPACTION. REFER TO THE REPORT PREPARED BY: TERRACON CONSULTANTS WESTERN, INC., PROJECT No. 04125046, DATED: NOV. 15, 2012.

FLOOD ZONE NOTE:

THE ENTIRE SUBJECT PROPERTY IS LOCATED WITHIN AN AREA DESIGNATED AS FLOOD ZONE "X" (UNSHADED). ZONE "X" (UNSHADED) IS DESCRIBED BY FEMA AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN. THIS INFORMATION IS OBTAINED FROM THE EFFECTIVE FLOOD INSURANCE RATE MAP (FIRM) PANEL No. 32003F1745, EFFECTIVE DATE SEPTEMBER 27, 2002.

NEVADA DEPARTMENT OF TRANSPORTATION (NDOT) PERMIT REQUIRED:

AN APPROVED NDOT OCCUPANCY PERMIT SHALL BE OBTAINED THROUGH THE DISTRICT PRIOR TO ANY CONSTRUCTION WITHIN THE NDOT RIGHT OF WAY. PLANS SHOWING WORK IN NDOT RIGHT OF WAY MUST SHOW NDOT STATIONING. THE DEVELOPER ASSUMES ALL LIABILITY FOR WORK CONDUCTED UNDER THE DISTRICT OBTAINED PERMIT THROUGH WARRANTY EXPIRATION.

EXISTING UTILITY NOTE:

CONTRACTOR TO ADJUST ALL EXISTING UTILITIES TO MATCH PROPOSED FINISH GRADE ELEVATIONS.

STORM DRAIN CONSTRUCTION NOTES:

NOTE: ALL ONSITE STORM DRAIN AND THE PERTINENT FACILITIES ARE PRIVATELY OWNED AND PRIVATELY MAINTAINED.

– NOT ALL NOTES USED ON THIS SHEET –

1. INSTALL 48" TYPE I ECCENTRIC STORM DRAIN PER N.D.O.T DRAWING NO. R-4.7.1
2. INSTALL RCB CULVERT TYPE I HEADWALL PER N.D.O.T DRAWING NO. B-20-1.5.
3. INSTALL TYPE 3 DROP INLET PER N.D.O.T DRAWING NO. R-4.3.1. CONSTRUCT STORM DRAIN INLET PER USDCCA DRAWING NO. 421 (STORMWATER QUALITY MANAGEMENT STAMP AND SIGN DETAIL).
4. INSTALL 3'X3' JENSEN PRECAST DROP INLET PER DETAIL 3 ON SHEET C6.02.
5. INSTALL 48" STORM DRAIN MANHOLE PER C.C.A.U.S.D. NO. 403 WITH CONCRETE COLLAR PER C.C.A.U.S.D. NO. 408. REFER TO C.C.A.U.S.D. NO. 409 FOR MANHOLE COVER AND RING.
6. INSTALL FLARED END SECTION OF 18" STORM DRAIN LINE. CURB TO BE ABUTTED TO FLARED END SECTION.
7. ROOF DRAIN LOCATION. SEE PLANS BY OTHERS.

GRADING PLAN CERTIFICATION

NAME: GUY M. MORRIS PE #14526 DATE

CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH APPROVED DRAINAGE STUDY FOR THIS SITE ON FILE AT CITY OF LAS VEGAS FOR THIS PROJECT. PROJECT# DS4570

A.P.N.:

PORTION OF 125-21-102-001 CONTAINS 12.14 ACRES

BASIS OF BEARINGS:

NORTH 85°49'07" WEST, BEING THE NORTH LINE OF THE NORTHWEST QUARTER (NW 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF SECTION 21, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., AS SHOWN ON A RECORD OF SURVEY IN FILE 73, PAGE 26 IN THE CLARK COUNTY, NEVADA, RECORDER'S OFFICE.

BENCHMARK:

CITY OF LAS VEGAS BENCHMARK (2008 ADJUSTED) 6LV90 21NN96 A RIVET AND PLATE IN TOP CURB ON THE SOUTH SIDE OF ELKHORN ROAD APPROXIMATELY 1/4 MILE WEST OF CIMARRON ROAD. ELEVATION=2498.19 FEET (761.449 METERS) (NAVD'88)

CONSTRUCTION NOTES:

– ALL CONSTRUCTION TO BE DONE IN ACCORDANCE WITH "CLARK COUNTY AREA UNIFORM STANDARD DRAWINGS (C.C.A.U.S.D.)" LATEST EDITION AND/OR REGULATING ENTITY HAVING JURISDICTION.

– NOT ALL NOTES USED ON THIS SHEET –

1. CONSTRUCT AC PAVEMENT PER DETAIL 2 ON C6.01.
2. CONSTRUCT CONC. PAVEMENT PER DETAIL 3 ON C6.01.
3. CONSTRUCT "A" TYPE CURB PER DETAIL 1 ON C6.01.
4. CONSTRUCT "L" TYPE CURB PER CCAUSD No. 216.
5. CONSTRUCT CONC. SIDEWALK PER CCAUSD No. 234. SEE DETAIL 4/C6.02 FOR FINISHING SPECIFICATIONS.
7. CONSTRUCT SIDEWALK RAMP CCAUSD No. 235 CASE II.
8. CONSTRUCT 72" WIDE "U" CHANNEL PER DETAIL 5 ON C6.01.
9. CONSTRUCT 24" WIDE "U" CHANNEL PER DETAIL 4 ON C6.01.
10. CONSTRUCT COMMERCIAL DRIVEWAY PER CCAUSD No. 225 AND CCAUSD No. 228.
11. LANDSCAPING. REFER TO LANDSCAPE ARCH. PLANS FOR SPECIFICATIONS.
14. SEE STRUCTURAL DETAILS BY OTHERS FOR STAIRS AND STRUCTURAL SLAB.
16. CONSTRUCT SIDEWALK DRAIN PER C.C.A.U.S.D. No. 236.
17. CONSTRUCT 2' VALLEY GUTTER PER DETAIL 11 ON C6.01.
18. CONSTRUCT SIDEWALK RAMP PER DETAIL 10 ON C6.01
19. CONSTRUCT 60" WIDE "U" CHANNEL PER DETAIL 12 ON C6.01
20. CONSTRUCT SIDEWALK RAMP PER DETAIL 9 ON C6.01.
21. INSTALL MIN. 36" HIGH RAIL ON TOP OF RETAINING WALL WHERE GRADE DIFFERENCE IS 18" OR GREATER.
22. CONSTRUCT SCREEN WALL PER ARCHITECTURAL PLAN.
23. CONSTRUCT 2' WIDE CONCRETE STRIP FOR GATE PATH. NOTCH CURB AS NECESSARY FOR THE GATE BYPASS. GATE PER ARCHITECTURAL PLANS.
24. CMU SCREEN WALL PER ARCHITECTURAL PLANS. WALL TO BE SOLID GROUTED 18" ABOVE FLOWLINE OF ROADWAY.
25. CONSTRUCT SIDEWALK RAMP CCAUSD No. 235 CASE I.
26. CONSTRUCT RETAINING WALL PER DETAILS 9 ON SHEET C6.03 AND ARCHITECTURAL PLAN.
27. CONSTRUCT PLAYGROUND AREA PER ARCHITECTURAL PLANS.

EARTHWORK QUANTITIES

CUT	8,499 CU. YD.
FILL	31,269 CU.YD.
NET	FILL 22,770 CU. YD.

NOTE:

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LEGEND

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PROPERTY LINE	SAWCUT LINE	EXISTING:	(2210)								(12.34) BC		Ⓢ	Ⓢ = SANITARY SEWER						BWV				
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														Ⓔ = ELECTRICAL										
														Ⓣ = TELEPHONE										

6345 South Jones Blvd.
Suite 100
Las Vegas, NV 89118
Phone (702) 365-5912
Fax (702) 365-5917
lochsaengineering.com
Lochsa engineering

REV.:	DATE:	BY:	DESCRIPTION:

SHEET
TITLE
GRADING PLANS
SHEET 1 OF 5
SOMERSET ACADEMY
SKY POINTE & ELKHORN
LAS VEGAS, NV

PROJECT No.: 121075

DATE: 05/30/13

SCALE: 1"=30'

DRAWN BY: MW

DESIGNED BY: MW

CHECKED BY: GM

SEAL: PROFESSIONAL ENGINEER - STATE OF NEVADA - GUY M. MORRIS - EXP. 12-31-13 - CIVIL - No. 14526 - 05-30-13

SHEET No.
C4.01
SHEET 13 OF 27

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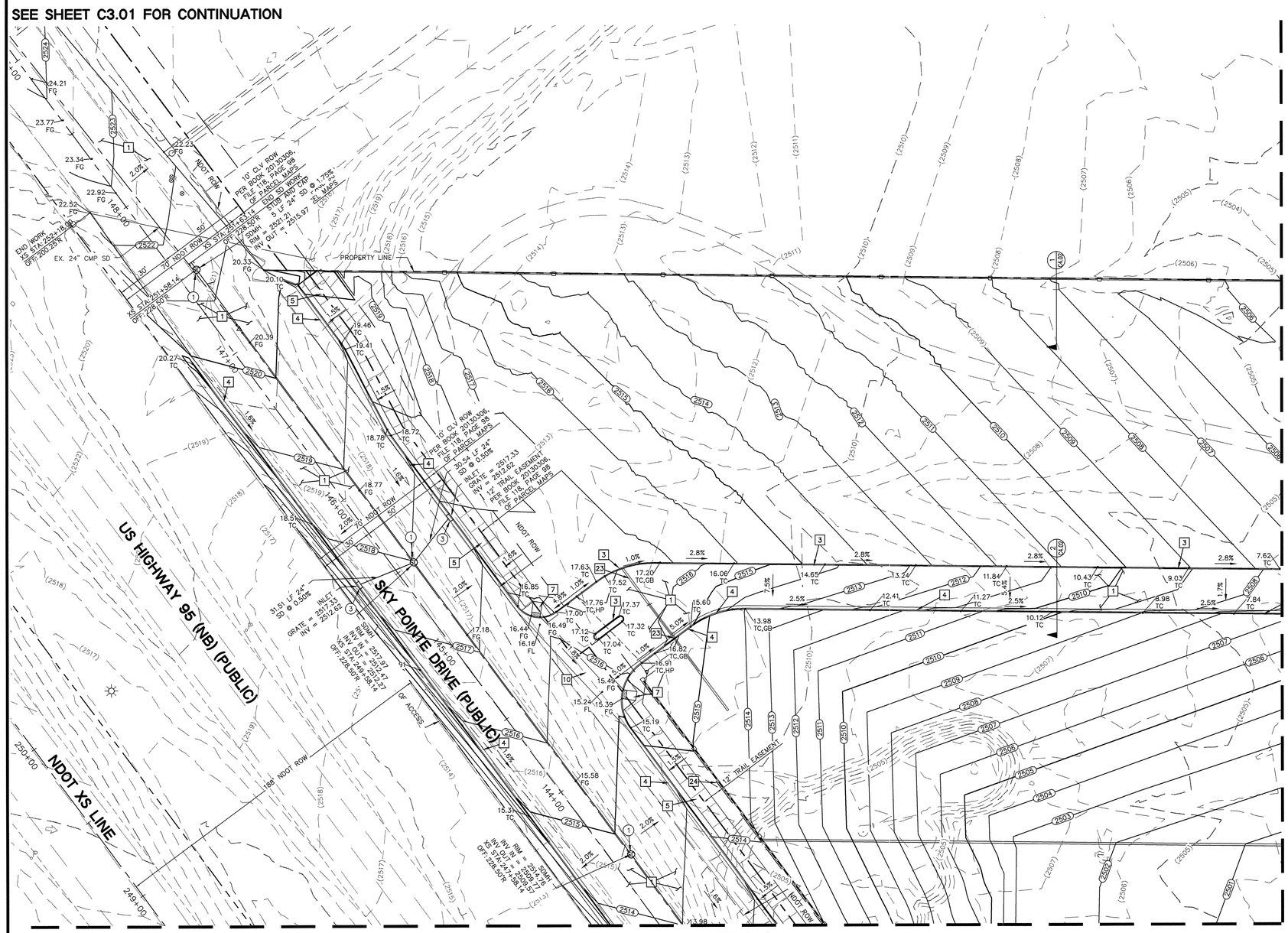

GRAPHIC SCALE

30 0 15 30 60

(IN FEET)
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FLOOD ZONE NOTE:

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NEVADA DEPARTMENT OF TRANSPORTATION (NDOT) PERMIT REQUIRED:

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EXISTING UTILITY NOTE:

CONTRACTOR TO ADJUST ALL EXISTING UTILITIES TO MATCH PROPOSED FINISH GRADE ELEVATIONS.

GRADING PLAN CERTIFICATION

NAME: GUY M. MORRIS PE #14526 DATE

CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH APPROVED DRAINAGE STUDY FOR THIS SITE ON FILE AT CITY OF LAS VEGAS FOR THIS PROJECT. PROJECT# DS4570

A.P.N.:

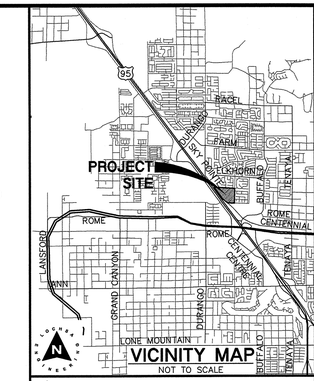
PORTION OF 125-21-102-001 CONTAINS 12.14 ACRES

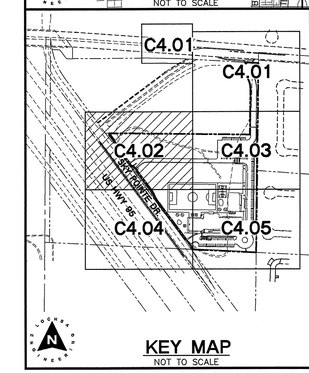
BASIS OF BEARINGS:

NORTH 85°49'07" WEST, BEING THE NORTH LINE OF THE NORTHWEST QUARTER (NW 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF SECTION 21, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., AS SHOWN ON A RECORD OF SURVEY IN FILE 73, PAGE 26 IN THE CLARK COUNTY, NEVADA, RECORDER'S OFFICE.

BENCHMARK:

CITY OF LAS VEGAS BENCHMARK (2008 ADJUSTED) 6LV90 21NNW6 A RIVET AND PLATE IN TOP CURB ON THE SOUTH SIDE OF ELKHORN ROAD APPROXIMATELY 1/4 MILE WEST OF CIMARRON ROAD. ELEVATION=2498.19 FEET (761.449 METERS) (NAVD'88)





CONSTRUCTION NOTES:

– ALL CONSTRUCTION TO BE DONE IN ACCORDANCE WITH "CLARK COUNTY AREA UNIFORM STANDARD DRAWINGS (C.C.A.U.S.D.)" LATEST EDITION AND/OR REGULATING ENTITY HAVING JURISDICTION.

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1. CONSTRUCT AC PAVEMENT PER DETAIL 2 ON C6.01.
2. CONSTRUCT CONC. PAVEMENT PER DETAIL 3 ON C6.01.
3. CONSTRUCT "A" TYPE CURB PER DETAIL 1 ON C6.01.
4. CONSTRUCT "L" TYPE CURB PER CCAUSD No. 216.
5. CONSTRUCT CONC. SIDEWALK PER CCAUSD No. 234. SEE DETAIL 4/C6.02 FOR FINISHING SPECIFICATIONS.
7. CONSTRUCT SIDEWALK RAMP CCAUSD No. 235 CASE II.
8. CONSTRUCT 72" WIDE "U" CHANNEL PER DETAIL 5 ON C6.01.
9. CONSTRUCT 24" WIDE "U" CHANNEL PER DETAIL 4 ON C6.01.
10. CONSTRUCT COMMERCIAL DRIVEWAY PER CCAUSD No. 225 AND CCAUSD No. 228.
11. LANDSCAPING. REFER TO LANDSCAPE ARCH. PLANS FOR SPECIFICATIONS.
14. SEE STRUCTURAL DETAILS BY OTHERS FOR STAIRS AND STRUCTURAL SLAB.
16. CONSTRUCT SIDEWALK DRAIN PER C.C.A.U.S.D. No. 236.
17. CONSTRUCT 2' VALLEY GUTTER PER DETAIL 11 ON C6.01.
18. CONSTRUCT SIDEWALK RAMP PER DETAIL 10 ON C6.01
19. CONSTRUCT 60" WIDE "U" CHANNEL PER DETAIL 12 ON C6.01
20. CONSTRUCT SIDEWALK RAMP PER DETAIL 9 ON C6.01.
21. INSTALL MIN. 36" HIGH RAIL ON TOP OF RETAINING WALL WHERE GRADE DIFFERENCE IS 18" OR GREATER.
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23. CONSTRUCT 2' WIDE CONCRETE STRIP FOR GATE PATH. NOTCH CURB AS NECESSARY FOR THE GATE BYPASS. GATE PER ARCHITECTURAL PLANS.
24. CMU SCREEN WALL PER ARCHITECTURAL PLANS. WALL TO BE SOLID GROUTED 18" ABOVE FLOWLINE OF ROADWAY.
25. CONSTRUCT SIDEWALK RAMP CCAUSD No. 235 CASE I.
26. CONSTRUCT RETAINING WALL PER DETAILS 9 ON SHEET C6.03 AND ARCHITECTURAL PLAN.
27. CONSTRUCT PLAYGROUND AREA PER ARCHITECTURAL PLANS.

STORM DRAIN CONSTRUCTION NOTES:

NOTE: ALL ONSITE STORM DRAIN AND THE PERTINENT FACILITIES ARE PRIVATELY OWNED AND PRIVATELY MAINTAINED.

– NOT ALL NOTES USED ON THIS SHEET –

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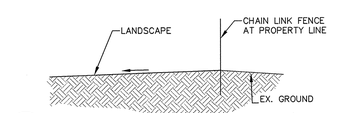
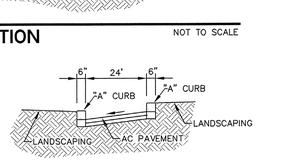
2. INSTALL RCB CULVERT TYPE I HEADWALL PER N.D.O.T DRAWING NO. B-20-1.5.
3. INSTALL TYPE 3 DROP INLET PER N.D.O.T DRAWING NO. R-4.3.1. CONSTRUCT STORM DRAIN INLET PER USDCCA DRAWING NO. 421 (STORMWATER QUALITY MANAGEMENT STAMP AND SIGN DETAIL).
4. INSTALL 3'X3' JENSEN PRECAST DROP INLET PER DETAIL 3 ON SHEET C6.02.
5. INSTALL 48" STORM DRAIN MANHOLE PER C.C.A.U.S.D. NO. 403 WITH CONCRETE COLLAR PER C.C.A.U.S.D. NO. 408. REFER TO C.C.A.U.S.D. NO. 409 FOR MANHOLE COVER AND RING.
6. INSTALL FLARED END SECTION OF 18" STORM DRAIN LINE. CURB TO BE ABUTTED TO FLARED END SECTION.
7. ROOF DRAIN LOCATION. SEE PLANS BY OTHERS.



1 SECTION NOT TO SCALE



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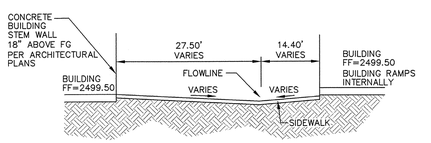

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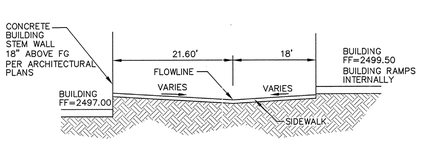

9 SECTION NOT TO SCALE

EARTHWORK QUANTITIES

CUT	8,499 CU. YD.
FILL	31,269 CU.YD.
NET	FILL 22,770 CU. YD.

NOTE:

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SAFETY ALERT

Call Before You Overhead

AVOID HITTING UNDERGROUND WATER SEWER, AND STREET LIGHT SYSTEM CONDUITS. IT'S COSTLY.

Call before you Underground

Call before you dig. Avoid cutting underground utility lines. It's costly.

Call 811

1-702-432-5300

1-702-227-2929 FREEWAY AND ARTERIAL SYSTEM OF HIGHWAYS 1-800-227-2600

LEGEND			
CL OR SURVEY LINE	EASEMENT LINE	DESCRIPTION:	CONTOUR LINES, EDGE OF PAVEMENT, "A" TYPE CURBS, "L" TYPE CURBS, WALLS, FENCES, AC PAVEMENT, CONCRETE, SPOT ELEVATIONS, SIGNS, MANHOLE W/ DESCRIPTION, MANHOLE DESCRIPTIONS, FIRE HYDRANTS, GATE VALVES, REDUCERS, CLEAN OUTS, UTILITY BOX OR VAULT, BACKWATER VALVES, 100w HPS STREETLIGHTS, 150w HPS STREETLIGHTS, 200w HPS STREETLIGHTS, 250w HPS STREETLIGHTS
PROPERTY LINE	SAWCUT LINE	EXISTING:	(2210)
ROW LINE	SCARP LINE	PROPOSED:	2122

MANHOLE DESCRIPTIONS: (S) = SANITARY SEWER; (D) = STORM DRAIN; (E) = ELECTRICAL; (T) = TELEPHONE

REV.:	DATE:	BY:	DESCRIPTION:

Lochsa engineering
6345 South Jones Blvd.
Suite 100
Las Vegas, NV 89118
Phone (702) 365-9312
Fax (702) 365-9317
www.lochsa.com

SHEET: GRADING PLANS SHEET 2 OF 5

TITLE: SOMERSET ACADEMY SKY POINTE & ELKHORN LAS VEGAS, NV

PROJECT No.: 121075

DATE: 05/30/13

SCALE: 1"=30'

DRAWN BY: MW

DESIGNED BY: MW

CHECKED BY: GM

SEAL: PROFESSIONAL ENGINEER STATE OF NEVADA GUY M. MORRIS EXP. 12-31-13 CIVIL No 14526 05-30-13

SHEET No. C4.02

SHEET 14 OF 27

5/30/2013 12:29 PM
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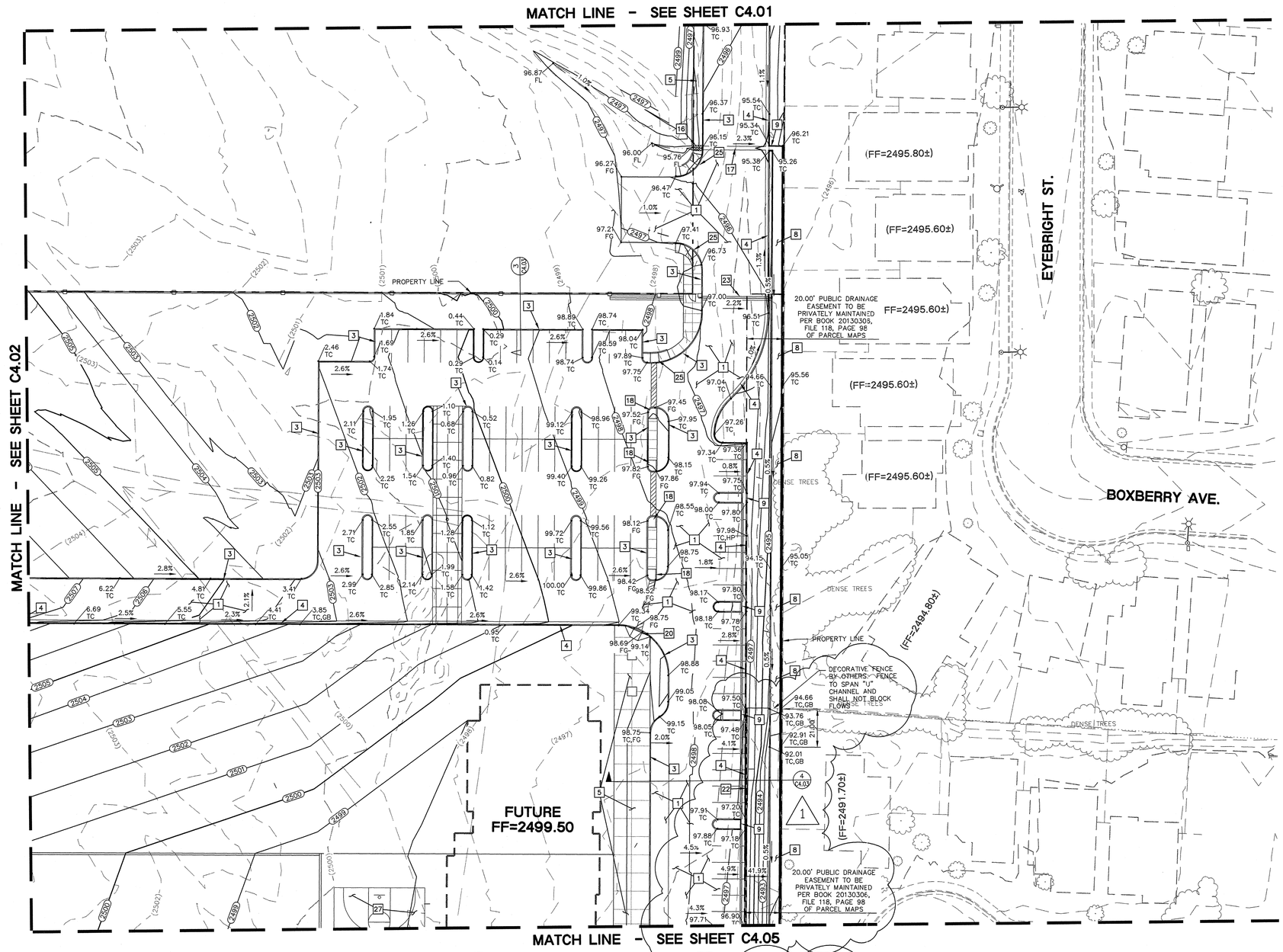

GRAPHIC SCALE

30 0 15 30 60

(IN FEET)
1 inch = 30 ft.

LAS VEGAS VALLEY CONSTRUCTION SITE BEST MANAGEMENT PRACTICES GUIDANCE MANUAL SECTION 3.5.1 STANDARD NOTES 1-5

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 RIGHT-OF-WAY OF THE CITY OF LAS VEGAS AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS SITE DEVELOPMENT OR CONSTRUCTION PROJECT. SUCH MATERIAL 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 CITY OF LAS VEGAS 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 NVR10000, SECTION III.A.5.
4. AT A MINIMUM, THE CONTRACTOR OR HIS AGENT SHALL INSPECT ALL DISTURBED AREAS, AREAS USED FOR STORAGE OF MATERIALS AND EQUIPMENT THAT ARE EXPOSED TO PRECIPITATION, VEHICLE ENTRANCE AND EXIT LOCATIONS, AND ALL BMPS WEEKLY, AND WITHIN 24 HOURS AFTER ANY RAIN EVENT OR 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 BMP'S SHALL BE REMOVED WITHIN SEVEN DAYS AFTER A STORMWATER RUNOFF EVENT OR PRIOR TO THE NEXT ANTICIPATED STORM EVENT, WHICHEVER IS EARLIER. SEDIMENT MUST BE REMOVED WHEN BMP DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE.

GRADING NOTES:

1. SLOPES 4:1 OR STEEPER AND FINE-GRAINED MATERIALS THAT HAVE BEEN DISTURBED (SANDY AND SILTY MATERIALS) SHOULD BE PROTECTED WITH BURLAP OR OTHER EROSION CONTROL FABRIC/MATERIAL, UNLESS OTHERWISE SPECIFIED BY LANDSCAPE DRAWINGS AND SPECIFICATIONS OR THE SOILS REPORT.
2. CONTRACTOR SHALL DETERMINE HIS OWN FOOTING OR BASEMENT EXCAVATION QUANTITIES, EVEN THOUGH SHOWN ON ROUGH GRADING PLANS. ADDITIONALLY, STRUCTURE BACKFILL COSTS SHOULD BE INCLUDED IN THE COST OF THE STRUCTURE, UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS.
3. CONTRACTOR SHALL NOTIFY LOCHSA ENGINEERING WITHIN 24 HOURS OF OMISSIONS AND ERRORS DISCOVERED ON PLANS. LOCHSA ENGINEERING WILL NOT BE RESPONSIBLE FOR ANY "CORRECTIVE" WORK DONE BY OTHERS.
4. CONTRACTOR TO ENSURE POSITIVE DRAINAGE. NO PONDING ALLOWED. CONTRACTOR TO FOLLOW RECOMMENDATIONS AS OUTLINED IN THE PROJECT GEOTECHNICAL REPORT, INCLUDING BUT NOT LIMITED TO EXCAVATION, GRADING AND COMPACTION. REFER TO THE REPORT PREPARED BY: TERRACON CONSULTANTS WESTERN, INC., PROJECT No. 04125046, DATED: NOV. 15, 2012.

FLOOD ZONE NOTE:

THE ENTIRE SUBJECT PROPERTY IS LOCATED WITHIN AN AREA DESIGNATED AS FLOOD ZONE "X" (UNSHADED). ZONE "X" (UNSHADED) IS DESCRIBED BY FEMA AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN. THIS INFORMATION IS OBTAINED FROM THE EFFECTIVE FLOOD INSURANCE RATE MAP (FIRM) PANEL No. 32003F1745, EFFECTIVE DATE SEPTEMBER 27, 2002.

NEVADA DEPARTMENT OF TRANSPORTATION (NDOT) PERMIT REQUIRED:

AN APPROVED NDOT OCCUPANCY PERMIT SHALL BE OBTAINED THROUGH THE DISTRICT PRIOR TO ANY CONSTRUCTION WITHIN THE NDOT RIGHT OF WAY. PLANS SHOWING WORK IN NDOT RIGHT OF WAY MUST SHOW NDOT STATIONING. THE DEVELOPER ASSUMES ALL LIABILITY FOR WORK CONDUCTED UNDER THE DISTRICT OBTAINED PERMIT THROUGH WARRANTY EXPIRATION.

EXISTING UTILITY NOTE:

CONTRACTOR TO ADJUST ALL EXISTING UTILITIES TO MATCH PROPOSED FINISH GRADE ELEVATIONS.

GRADING PLAN CERTIFICATION

NAME: GUY M. MORRIS PE #14526 DATE

CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH APPROVED DRAINAGE STUDY FOR THIS SITE ON FILE AT CITY OF LAS VEGAS FOR THIS PROJECT. PROJECT# DS4570

A.P.N.:

PORTION OF 125-21-102-001 CONTAINS 12.14 ACRES

BASIS OF BEARINGS:

NORTH 85°49'07" WEST, BEING THE NORTH LINE OF THE NORTHWEST QUARTER (NW 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF SECTION 21, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., AS SHOWN ON A RECORD OF SURVEY IN FILE 73, PAGE 26 IN THE CLARK COUNTY, NEVADA, RECORDER'S OFFICE.

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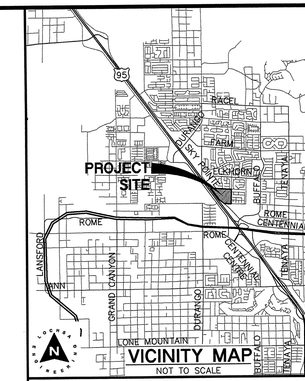

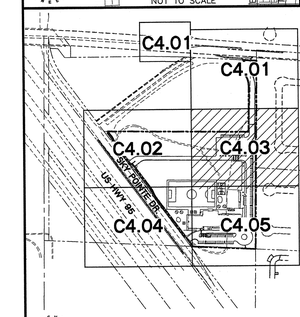

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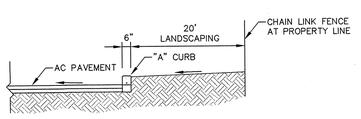

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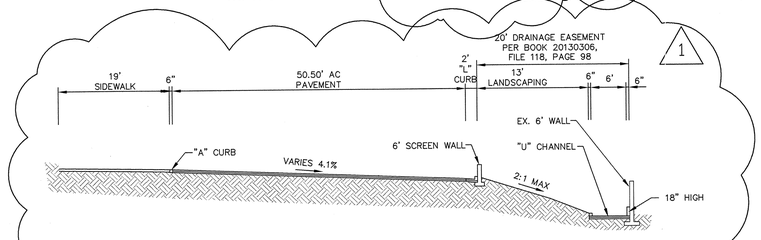

4 SECTION NOT TO SCALE

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NET	FILL 22,770 CU. YD.

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Call 811

1-702-227-2929 1-702-432-5300 or 1-800-227-2600

Lochsa engineering
6345 South Jones Blvd.
Suite 100
Las Vegas, NV 89118
Phone (702) 365-3517
Fax (702) 365-3517
www.lochsa.com

REV.:	DATE:	BY:	DESCRIPTION:
1	05/24/13	GMM	REMOVE RETAINING & ADD SCREEN WALL

GRADING PLANS
SHEET 3 OF 5

SOMERSET ACADEMY
SKY POINTE & ELKHORN
LAS VEGAS, NV

SHEET

TITLE

PROJECT No.: 121075

DATE: 05/30/13

SCALE: 1"=30'

DRAWN BY: MW

DESIGNED BY: MW

CHECKED BY: GM

SEAL: GUY M. MORRIS, EXP. 12-31-13, CIVIL, No. 14526, STATE OF NEVADA, PROFESSIONAL ENGINEER, 05-30-13

SHEET No.
C4.03
SHEET 15 OF 27

LEGEND

CL OR SURVEY LINE	EASEMENT LINE	DESCRIPTION:	CONTOUR LINES	EDGE OF PAVEMENT	"A" TYPE CURBS	"L" TYPE CURBS	WALLS	FENCES	AC PAVEMENT	CONCRETE	SPOT ELEVATIONS	SIGNS	MANHOLE W/ DESCRIPTION	MANHOLE DESCRIPTIONS Ⓢ = SANITARY SEWER Ⓓ = STORM DRAIN Ⓔ = ELECTRICAL Ⓣ = TELEPHONE	FIRE HYDRANTS	GATE VALVES	REDUCERS	CLEAN OUTS	UTILITY BOX OR VAULT	BACKWATER VALVES	100w HPS STREETLIGHTS	150w HPS STREETLIGHTS	200w HPS STREETLIGHTS	250w HPS STREETLIGHTS
PROPERTY LINE	SAWCUT LINE	EXISTING:	(2210)								12.34 BC		Ⓢ							BWV				
ROW LINE	SCARP LINE	PROPOSED:	2122										Ⓢ							BWV				

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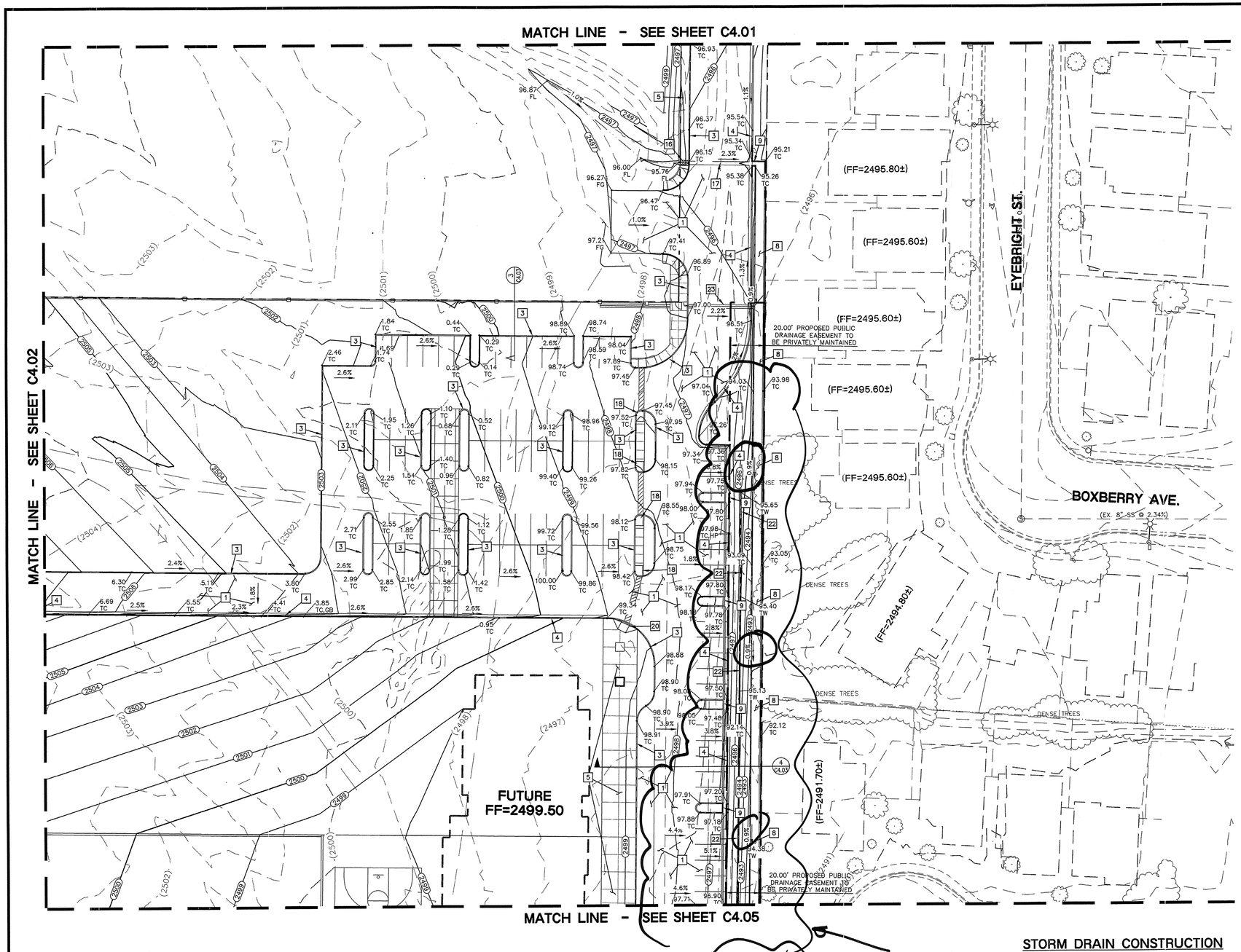
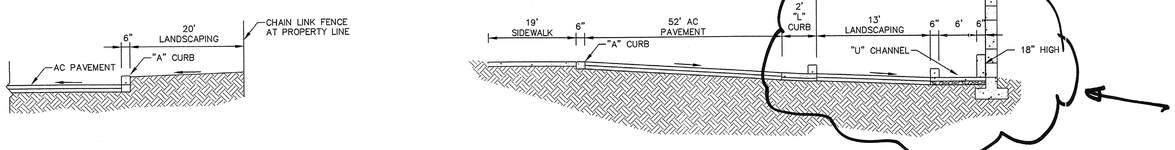




3 SECTION NOT TO SCALE

4 SECTION NOT TO SCALE

GRAPHIC SCALE

30 0 15 30 60

(IN FEET)
1 inch = 30 ft.

LAS VEGAS VALLEY CONSTRUCTION SITE BEST MANAGEMENT PRACTICES GUIDANCE MANUAL SECTION 3.5.1 STANDARD NOTES 1-5

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 RIGHT-OF-WAY OF THE CITY OF LAS VEGAS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS SITE DEVELOPMENT OR CONSTRUCTION PROJECT. SUCH MATERIAL 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 CITY OF LAS VEGAS 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 NVR10000, SECTION III.A.5.
4. AT A MINIMUM, THE CONTRACTOR OR HIS AGENT SHALL INSPECT ALL DISTURBED AREAS, AREAS USED FOR STORAGE OF MATERIALS AND EQUIPMENT THAT ARE EXPOSED TO PRECIPITATION, VEHICLE ENTRANCE AND EXIT LOCATIONS, AND ALL BMPS WEEKLY, AND WITHIN 24 HOURS AFTER ANY RAIN EVENT OR 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 BMP'S SHALL BE REMOVED WITHIN SEVEN DAYS AFTER A STORMWATER RUNOFF EVENT OR PRIOR TO THE NEXT ANTICIPATED STORM EVENT, WHICHEVER IS EARLIER. SEDIMENT MUST BE REMOVED WHEN BMP DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE.

GRADING NOTES:

1. SLOPES 4:1 OR STEEPER AND FINE-GRAINED MATERIALS THAT HAVE BEEN DISTURBED (SANDY AND SILTY MATERIALS) SHOULD BE PROTECTED WITH BURLAP OR OTHER EROSION CONTROL FABRIC/MATERIAL, UNLESS OTHERWISE SPECIFIED BY LANDSCAPE DRAWINGS AND SPECIFICATIONS OR THE SOILS REPORT.
2. CONTRACTOR SHALL DETERMINE HIS OWN FOOTING OR BASEMENT EXCAVATION QUANTITIES, EVEN THOUGH SHOWN ON ROUGH GRADING PLANS. ADDITIONALLY, STRUCTURE BACKFILL COSTS SHOULD BE INCLUDED IN THE COST OF THE STRUCTURE, UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS.
3. CONTRACTOR SHALL NOTIFY LOCHSA ENGINEERING WITHIN 24 HOURS OF OMISSIONS AND ERRORS DISCOVERED ON PLANS. LOCHSA ENGINEERING WILL NOT BE RESPONSIBLE FOR ANY "CORRECTIVE" WORK DONE BY OTHERS.
4. CONTRACTOR TO ENSURE POSITIVE DRAINAGE. NO PONDING ALLOWED. CONTRACTOR TO FOLLOW RECOMMENDATIONS AS OUTLINED IN THE PROJECT GEOTECHNICAL REPORT, INCLUDING BUT NOT LIMITED TO EXCAVATION, GRADING AND COMPACTION. REFER TO THE REPORT PREPARED BY: TERRACON CONSULTANTS WESTERN, INC., PROJECT No. 64955351-1, DATED: DEC. 21, 1995.

FLOOD ZONE NOTE:

THE ENTIRE SUBJECT PROPERTY IS LOCATED WITHIN AN AREA DESIGNATED AS FLOOD ZONE "X" (UNSHADED). ZONE "X" (UNSHADED) IS DESCRIBED BY FEMA AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN. THIS INFORMATION IS OBTAINED FROM THE EFFIECTIVE FLOOD INSURANCE RATE MAP (FIRM) PANEL No. 32003F1745, EFFECTIVE DATE SEPTEMBER 27, 2002.

EXISTING UTILITY NOTE:

CONTRACTOR TO ADJUST ALL EXISTING UTILITIES TO MATCH PROPOSED FINISH GRADE ELEVATIONS.

STORM DRAIN CONSTRUCTION NOTES:

NOTE: ALL ONSITE STORM DRAIN AND THE PERTINENT FACILITIES ARE PRIVATELY OWNED AND PRIVATELY MAINTAINED.

– NOT ALL NOTES USED ON THIS SHEET –

1. INSTALL 48" TYPE I ECCENTRIC STORM DRAIN PER N.D.O.T DRAWING NO. R-4.7.1
2. INSTALL RCB CULVERT TYPE I HEADWALL PER N.D.O.T DRAWING NO. B-20-1.5.
3. INSTALL TYPE 3 DROP INLET PER N.D.O.T DRAWING NO. R-4.3.1. CONSTRUCT STORM DRAIN INLET PER USDCCA DRAWING NO. 421 (STORMWATER QUALTY MANAGEMENT STAMP AND SIGN DETAIL).
4. INSTALL 3'X3' JENSEN PRECAST DROP INLET PER DETAIL 3 ON SHEET C6.02.
5. NSTALL 48" STORM DRAIN MANHOLE PER C.C.A.U.S.D. NO. 403 WITH CONCRETE COLLAR PER C.C.A.U.S.D. NO. 408. REFER TO C.C.A.U.S.D. NO. 409 FOR MANHOLE COVER AND RING.
6. INSTALL FLARED END SECTION OF 18" STORM DRAIN LINE. CURB TO BE ABUTTED TO FLARED END SECTION.
7. ROOF DRAIN LOCATION. SEE PLANS BY OTHERS.

GRADING PLAN CERTIFICATION

NAME: GUY M. MORRIS PE #14526 DATE

CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH APPROVED DRAINAGE STUDY FOR THIS SITE ON FILE AT CITY OF LAS VEGAS FOR THIS PROJECT. PROJECT# DS4570

A.P.N.:

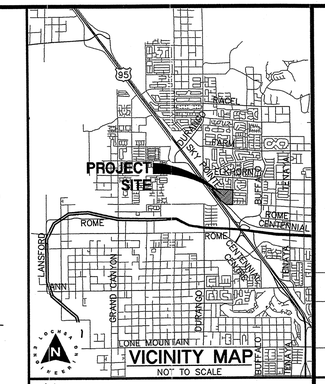
125-21-102-001

BASIS OF BEARINGS:

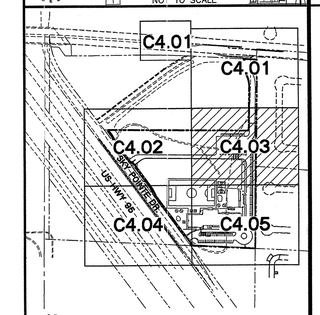
NORTH 85°49'07" WEST, BEING THE NORTH LINE OF THE NORTHWEST QUARTER (NW 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF SECTION 21, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., AS SHOWN ON A RECORD OF SURVEY IN FILE 73, PAGE 26 IN THE CLARK COUNTY, NEVADA, RECORDER'S OFFICE.

BENCHMARK:

CITY OF LAS VEGAS BENCHMARK (2008 ADJUSTED) 6LV30 21NNW6 A RIVET AND PLATE IN TOP CURB ON THE SOUTH SIDE OF ELKHORN ROAD APPROXIMATELY 1/4 MILE WEST OF CIMARRON ROAD. ELEVATION=2498.19 FEET (761.449 METERS) (NAVD'88)



VICINITY MAP
NOT TO SCALE



KEY MAP
NOT TO SCALE

CONSTRUCTION NOTES:

– ALL CONSTRUCTION TO BE DONE IN ACCORDANCE WITH "CLARK COUNTY AREA UNIFORM STANDARD DRAWINGS (C.C.A.U.S.D.)" LATEST EDITION AND/OR REGULATING ENTITY HAVING JURISDICTION.

– NOT ALL NOTES USED ON THIS SHEET –

1. CONSTRUCT AC PAVEMENT PER DETAIL 2 ON C6.01.
2. CONSTRUCT CONC. PAVEMENT PER DETAIL 3 ON C6.01.
3. CONSTRUCT "A" TYPE CURB PER CCAUSD No. 219.
4. CONSTRUCT "L" TYPE CURB PER CCAUSD No. 216.
5. CONSTRUCT CONC. SIDEWALK PER CCAUSD No. 234. REFER TO ARCH. PLANS FOR FINISHING SPECIFICATIONS.
7. CONSTRUCT SIDEWALK RAMP CCAUSD No. 235 CASE II.
8. CONSTRUCT 72" WIDE "U" CHANNEL PER DETAIL 5 ON C6.01.
9. CONSTRUCT 24" WIDE "U" CHANNEL PER DETAIL 4 ON C6.01.
10. CONSTRUCT COMMERCIAL DRIVEWAY PER CCAUSD No. 225.
11. LANDSCAPING. REFER TO LANDSCAPE ARCH. PLANS FOR SPECIFICATIONS.
14. SEE STRUCTURAL DETAILS BY OTHERS FOR STAIRS AND STRUCTURAL SLAB.
16. CONSTRUCT SIDEWALK DRAIN PER C.C.A.U.S.D. No. 236.
17. CONSTRUCT 2' VALLEY GUTTER PER DETAIL 11 ON C6.01.
18. CONSTRUCT SIDEWALK RAMP PER DETAIL 10 ON C6.01
19. CONSTRUCT 60" WIDE "U" CHANNEL PER DETAIL 12 ON C6.01
20. CONSTRUCT SIDEWALK RAMP PER DETAIL 9 ON C6.01.
21. INSTALL MIN. 36" HIGH RAIL ON TOP OF RETAINING WALL WHERE GRADE DIFFERENCE IS 18" OR GREATER.
22. CONSTRUCT RETAINING WALL PER STRUCTURAL DETAILS ON SHEET C6.03 AND ARCHITECTURAL PLAN.
23. CONSTRUCT 2' WIDE CONCRETE STRIP FOR GATE PATH. NOTCH CURB AS NECESSARY FOR THE GATE BYPASS.
24. CMU SCREEN WALL PER ARCHITECTURAL PLANS. WALL TO BE SOLID GROUTED 18" ABOVE FLOWLINE OF ROADWAY.
25. CONSTRUCT BUILDING CONCRETE STEM WALL PER ARCHITECTURAL PLANS.

EARTHWORK QUANTITIES

CUT..... 8,499 CU. YD.
FILL..... 31,269 CU.YD.
NET.....FILL 22,770 CU. YD.

NOTE:

LOCHSA ENGINEERING ASSUMES NO RESPONSIBILITY FOR EXISTING UTILITY LOCATIONS AND ELEVATIONS. THE UTILITIES SHOWN ON THIS PLAN ARE FROM THE BEST AVAILABLE INFORMATION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE LOCATION AND ELEVATION OF ALL UTILITIES, INCLUDING BUT NOT LIMITED TO, THE WATER, FIRE, SANITARY SEWER, STORM SEWER, TELEPHONE, POWER, GAS, AND IRRIGATION LINES PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. IF CONFLICT EXISTS IN THE FIELD, THE CONTRACTOR IS TO NOTIFY THE PROJECT ARCHITECT, OWNER'S REPRESENTATIVE AND THE PROJECT ENGINEER IMMEDIATELY.

SAFETY ALERT
Call Before You Overhead
AVOID BURIED UNDERGROUND UTILITIES, TRAFFIC SIGNS, AND STREET LIGHT POLES WHEN DRILLING
Call before you UnderGround
Call before you dig
Avoid cutting underground utility lines. It's costly.
Call 811 or
1-702-432-5300
1-702-227-2929 FREEWAY AND MATERIAL SYSTEM OF OPERATIONS: 1-800-227-2600

Lochsa engineering
6345 South Jones Blvd. Suite 100
Las Vegas, NV 89118
Phone (702) 385-5312
Fax (702) 385-5317
www.lochsa.com

REV.:	DATE:	BY:	DESCRIPTION:

GRADING PLANS
SHEET 3 OF 5

SOMERSET ACADEMY
SKY POINTE & ELKHORN
LAS VEGAS, NV

SHEET / TITLE

PROJECT No.: 121075
DATE: 12/03/12
SCALE: 1"=30'
DRAWN BY: MW
DESIGNED BY: MW
CHECKED BY: GM

SEAL: PROFESSIONAL ENGINEER - STATE OF NEVADA - GUY M. MORRIS - EXP. 12-31-13 - CIVIL - No. 14526 - 12-3-12

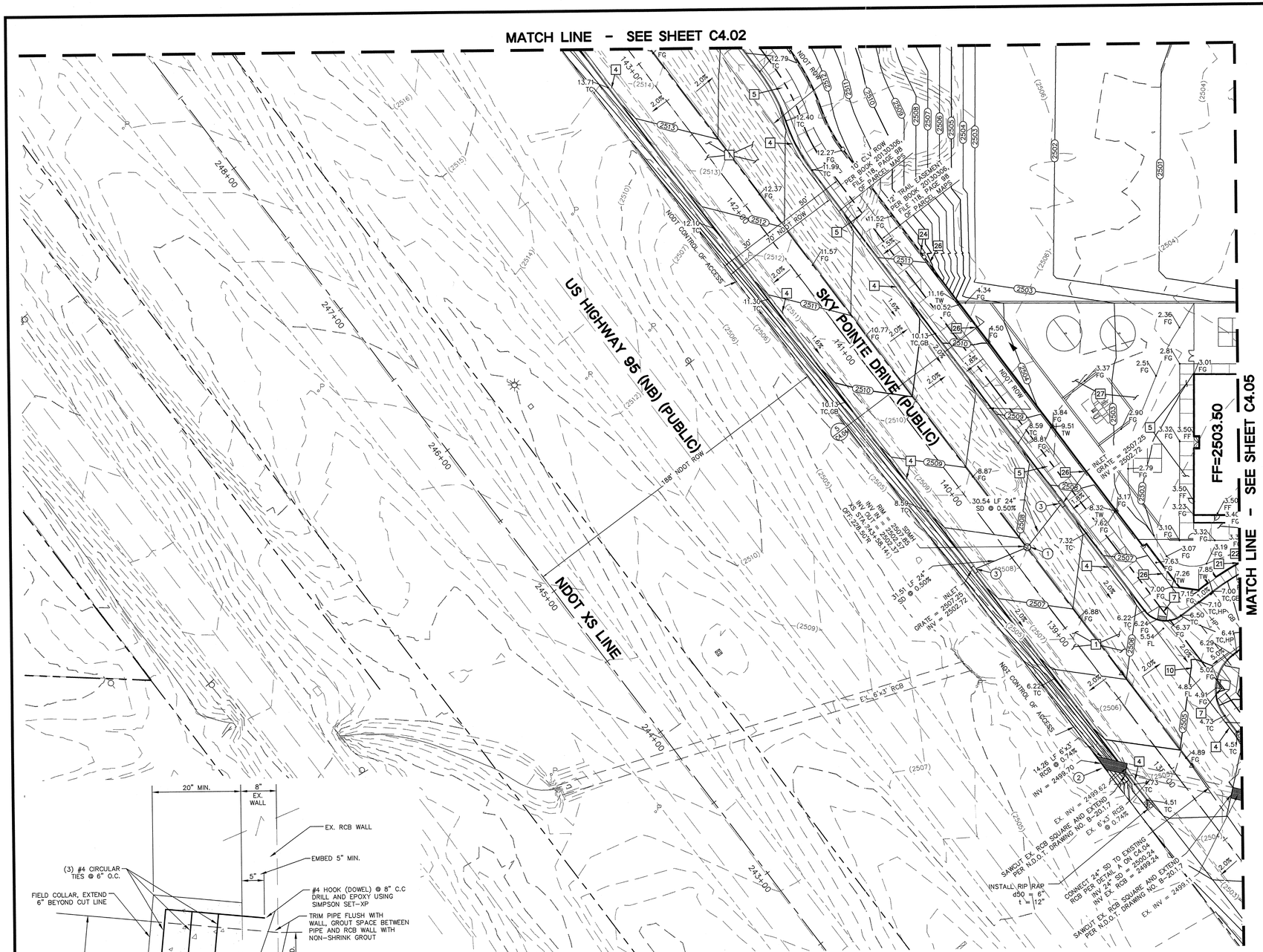
SHEET No. C4.03
SHEET 15 OF 27
HTE No.

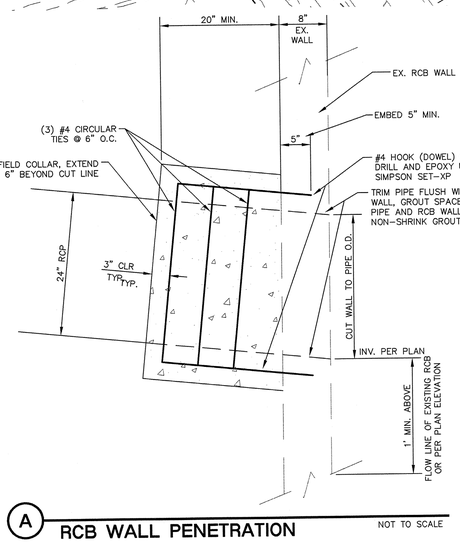
LEGEND

CL OR SURVEY LINE	EASEMENT LINE	DESCRIPTION:	CONTOUR LINES	EDGE OF PAVEMENT	"A" TYPE CURBS	"L" TYPE CURBS	WALLS	FENCES	AC PAVEMENT	CONCRETE	SPOT ELEVATIONS	SIGNS	MANHOLE W/ DESCRIPTION	MANHOLE DESCRIPTIONS	FIRE HYDRANTS	GATE VALVES	REDUCERS	CLEAN OUTS	UTILITY BOX OR VAULT	BACKWATER VALVES	100w HPS STREETLIGHTS	150w HPS STREETLIGHTS	200w HPS STREETLIGHTS	250w HPS STREETLIGHTS
PROPERTY LINE	SAWCUT LINE	EXISTING:	(2210)								(12.34) BC			Ⓢ = SANITARY SEWER						BWV				
ROW LINE	SCARP LINE	PROPOSED:	2122								12.34 BC		Ⓢ	Ⓓ = STORM DRAIN						BWV				
														Ⓔ = ELECTRICAL										
														Ⓣ = TELEPHONE										

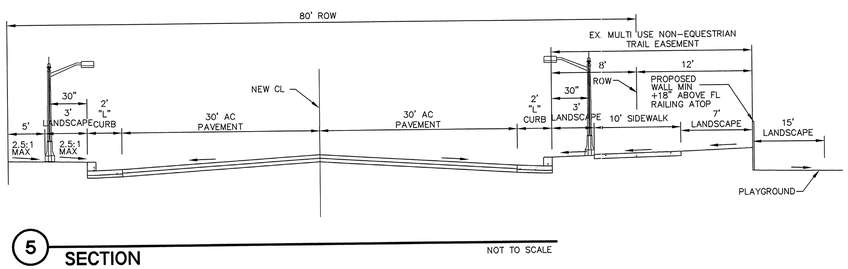
12/3/2012 3:53 PM
T:\CAD\121075\Drawings\Final Drawings\C-121075-401-GP.dwg

Approved Plans





A RCB WALL PENETRATION NOT TO SCALE



5 SECTION NOT TO SCALE

LAS VEGAS VALLEY CONSTRUCTION SITE BEST MANAGEMENT PRACTICES GUIDANCE MANUAL SECTION 3.5.1 STANDARD NOTES 1-5

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 RIGHT-OF-WAY OF THE CITY OF LAS VEGAS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS SITE DEVELOPMENT OR CONSTRUCTION PROJECT. SUCH MATERIAL 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 CITY OF LAS VEGAS 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 NVR10000, SECTION III.A.5.
4. AT A MINIMUM, THE CONTRACTOR OR HIS AGENT SHALL INSPECT ALL DISTURBED AREAS, AREAS USED FOR STORAGE OF MATERIALS AND EQUIPMENT THAT ARE EXPOSED TO PRECIPITATION, VEHICLE ENTRANCE AND EXIT LOCATIONS, AND ALL BMPS WEEKLY, AND WITHIN 24 HOURS AFTER ANY RAIN EVENT OR 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 BMP'S SHALL BE REMOVED WITHIN SEVEN DAYS AFTER A STORMWATER RUNOFF EVENT OR PRIOR TO THE NEXT ANTICIPATED STORM EVENT, WHICHEVER IS EARLIER. SEDIMENT MUST BE REMOVED WHEN BMP DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE.

GRADING NOTES:

1. SLOPES 4:1 OR STEEPER AND FINE-GRAINED MATERIALS THAT HAVE BEEN DISTURBED (SANDY AND SILTY MATERIALS) SHOULD BE PROTECTED WITH BURLAP OR OTHER EROSION CONTROL FABRIC/MATERIAL, UNLESS OTHERWISE SPECIFIED BY LANDSCAPE DRAWINGS AND SPECIFICATIONS OR THE SOILS REPORT.
2. CONTRACTOR SHALL DETERMINE HIS OWN FOOTING OR BASEMENT EXCAVATION QUANTITIES, EVEN THOUGH SHOWN ON ROUGH GRADING PLANS. ADDITIONALLY, STRUCTURE BACKFILL COSTS SHOULD BE INCLUDED IN THE COST OF THE STRUCTURE, UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS.
3. CONTRACTOR SHALL NOTIFY LOCHSA ENGINEERING WITHIN 24 HOURS OF OMISSIONS AND ERRORS DISCOVERED ON PLANS. LOCHSA ENGINEERING WILL NOT BE RESPONSIBLE FOR ANY "CORRECTIVE" WORK DONE BY OTHERS.
4. CONTRACTOR TO ENSURE POSITIVE DRAINAGE. NO PONDING ALLOWED. CONTRACTOR TO FOLLOW RECOMMENDATIONS AS OUTLINED IN THE PROJECT GEOTECHNICAL REPORT, INCLUDING BUT NOT LIMITED TO EXCAVATION, GRADING AND COMPACTION. REFER TO THE REPORT PREPARED BY: TERRACON CONSULTANTS WESTERN, INC., PROJECT No. 04125046, DATED: NOV. 15, 2012.

FLOOD ZONE NOTE:

THE ENTIRE SUBJECT PROPERTY IS LOCATED WITHIN AN AREA DESIGNATED AS FLOOD ZONE "X" (UNSHADED). ZONE "X" (UNSHADED) IS DESCRIBED BY FEMA AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN. THIS INFORMATION IS OBTAINED FROM THE EFFECTIVE FLOOD INSURANCE RATE MAP (FIRM) PANEL No. 32003F1745, EFFECTIVE DATE SEPTEMBER 27, 2002.

NEVADA DEPARTMENT OF TRANSPORTATION (NDOT) PERMIT REQUIRED:

AN APPROVED NDOT OCCUPANCY PERMIT SHALL BE OBTAINED THROUGH THE DISTRICT PRIOR TO ANY CONSTRUCTION WITHIN THE NDOT RIGHT OF WAY. PLANS SHOWING WORK IN NDOT RIGHT OF WAY MUST SHOW NDOT STATIONING. THE DEVELOPER ASSUMES ALL LIABILITY FOR WORK CONDUCTED UNDER THE DISTRICT OBTAINED PERMIT THROUGH WARRANTY EXPIRATION.

EXISTING UTILITY NOTE:

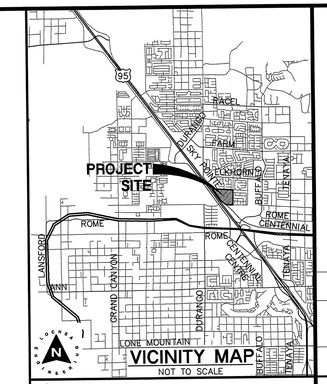
CONTRACTOR TO ADJUST ALL EXISTING UTILITIES TO MATCH PROPOSED FINISH GRADE ELEVATIONS.

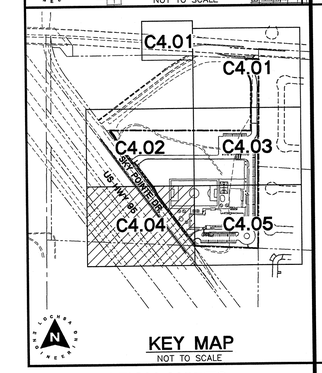
STORM DRAIN CONSTRUCTION NOTES:

NOTE: ALL ONSITE STORM DRAIN AND THE PERTINENT FACILITIES ARE PRIVATELY OWNED AND PRIVATELY MAINTAINED.

– NOT ALL NOTES USED ON THIS SHEET –

1. INSTALL 48" TYPE I ECCENTRIC STORM DRAIN PER N.D.O.T DRAWING NO. R-4.7.1
2. INSTALL RCB CULVERT TYPE I HEADWALL PER N.D.O.T DRAWING NO. B-20-1.5.
3. INSTALL TYPE 3 DROP INLET PER N.D.O.T DRAWING NO. R-4.3.1. CONSTRUCT STORM DRAIN INLET PER USDCCA DRAWING NO. 421 (STORMWATER QUALITY MANAGEMENT STAMP AND SIGN DETAIL).
4. INSTALL 3'X3' JENSEN PRECAST DROP INLET PER DETAIL 3 ON SHEET C6.02.
5. INSTALL 48" STORM DRAIN MANHOLE PER C.C.A.U.S.D. NO. 403 WITH CONCRETE COLLAR PER C.C.A.U.S.D. NO. 408. REFER TO C.C.A.U.S.D. NO. 409 FOR MANHOLE COVER AND RING.
6. INSTALL FLARED END SECTION OF 18" STORM DRAIN LINE. CURB TO BE ABUTTED TO FLARED END SECTION.
7. ROOF DRAIN LOCATION. SEE PLANS BY OTHERS.





CONSTRUCTION NOTES:

– ALL CONSTRUCTION TO BE DONE IN ACCORDANCE WITH "CLARK COUNTY AREA UNIFORM STANDARD DRAWINGS (C.C.A.U.S.D.)" LATEST EDITION AND/OR REGULATING ENTITY HAVING JURISDICTION.

– NOT ALL NOTES USED ON THIS SHEET –

1. CONSTRUCT AC PAVEMENT PER DETAIL 2 ON C6.01.
2. CONSTRUCT CONC. PAVEMENT PER DETAIL 3 ON C6.01.
3. CONSTRUCT "A" TYPE CURB PER DETAIL 1 ON C6.01.
4. CONSTRUCT "L" TYPE CURB PER CCAUSD No. 216.
5. CONSTRUCT CONC. SIDEWALK PER CCAUSD No. 234. SEE DETAIL 4/C6.02 FOR FINISHING SPECIFICATIONS.
7. CONSTRUCT SIDEWALK RAMP CCAUSD No. 235 CASE II.
8. CONSTRUCT 72" WIDE "U" CHANNEL PER DETAIL 5 ON C6.01.
9. CONSTRUCT 24" WIDE "U" CHANNEL PER DETAIL 4 ON C6.01.
10. CONSTRUCT COMMERCIAL DRIVEWAY PER CCAUSD No. 225 AND CCAUSD No. 228.
11. LANDSCAPING. REFER TO LANDSCAPE ARCH. PLANS FOR SPECIFICATIONS.
14. SEE STRUCTURAL DETAILS BY OTHERS FOR STAIRS AND STRUCTURAL SLAB.
16. CONSTRUCT SIDEWALK DRAIN PER C.C.A.U.S.D. No. 236.
17. CONSTRUCT 2' VALLEY GUTTER PER DETAIL 11 ON C6.01.
18. CONSTRUCT SIDEWALK RAMP PER DETAIL 10 ON C6.01
19. CONSTRUCT 60" WIDE "U" CHANNEL PER DETAIL 12 ON C6.01
20. CONSTRUCT SIDEWALK RAMP PER DETAIL 9 ON C6.01.
21. INSTALL MIN. 36" HIGH RAIL ON TOP OF RETAINING WALL WHERE GRADE DIFFERENCE IS 18" OR GREATER.
22. CONSTRUCT SCREEN WALL PER ARCHITECTURAL PLAN.
23. CONSTRUCT 2' WIDE CONCRETE STRIP FOR GATE PATH. NOTCH CURB AS NECESSARY FOR THE GATE BYPASS. GATE PER ARCHITECTURAL PLANS.
24. CMU SCREEN WALL PER ARCHITECTURAL PLANS. WALL TO BE SOLID GROUTED 18" ABOVE FLOWLINE OF ROADWAY.
25. CONSTRUCT SIDEWALK RAMP CCAUSD No. 235 CASE I.
26. CONSTRUCT RETAINING WALL PER DETAILS 9 ON SHEET C6.03 AND ARCHITECTURAL PLAN.
27. CONSTRUCT PLAYGROUND AREA PER ARCHITECTURAL PLANS.

NOTE:
NO NEW TREES ARE ALLOWED WITHIN PUBLIC SANITARY SEWER EASEMENT

EARTHWORK QUANTITIES

CUT	8,499 CU. YD.
FILL	31,269 CU.YD.
NET	FILL 22,770 CU. YD.

GRADING PLAN CERTIFICATION

NAME: GUY M. MORRIS PE #14526 DATE

CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH APPROVED DRAINAGE STUDY FOR THIS SITE ON FILE AT CITY OF LAS VEGAS FOR THIS PROJECT. PROJECT# DS4570

A.P.N.:

PORTION OF 125-21-102-001 CONTAINS 12.14 ACRES

BASIS OF BEARINGS:

NORTH 85°49'07" WEST, BEING THE NORTH LINE OF THE NORTHWEST QUARTER (NW 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF SECTION 21, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., AS SHOWN ON A RECORD OF SURVEY IN FILE 73, PAGE 26 IN THE CLARK COUNTY, NEVADA, RECORDER'S OFFICE.

BENCHMARK:

CITY OF LAS VEGAS BENCHMARK (2008 ADJUSTED) 6LV90 21NN96 A RIVET AND PLATE IN TOP CURB ON THE SOUTH SIDE OF ELKHORN ROAD APPROXIMATELY 1/4 MILE WEST OF CIMARRON ROAD. ELEVATION=2498.19 FEET (761.449 METERS) (NAVD'88)

NOTE:

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SAFETY ALERT

Call Before You Overhead

AVOID HITTING UNDERGROUND TRAFFIC SIGNAL AND STREET LIGHT SYSTEM CONDUITS. IT'S COSTLY!

Call before you UnderGround

Call 811 or

Call before you dig
Avoid cutting underground utility lines. It's costly.

1-702-227-2929 FREEWAY AND ARTERIAL SYSTEM OF OPERATIONS 1-800-227-2600

1-702-432-5300

Lochsa engineering
6345 South Jones Blvd.
Suite 100
Las Vegas, NV 89118
Phone (702) 365-3512
Fax (702) 365-3517
www.lochsa.com

REV.:	DATE:	BY:	DESCRIPTION:

SHEET GRADING PLANS SHEET 4 OF 5

TITLE SOMERSET ACADEMY SKY POINTE & ELKHORN LAS VEGAS, NV

PROJECT No.:	121075
DATE:	05/30/13
SCALE:	1"=30'
DRAWN BY:	MW
DESIGNED BY:	MW
CHECKED BY:	GM

SEAL: GUY M. MORRIS, EXP. 12-31-13, CIVIL, No. 14526, STATE OF NEVADA, PROFESSIONAL ENGINEER — 05-30-13

SHEET No. C4.04
SHEET 16 OF 27

LEGEND

CL OR SURVEY LINE	EASEMENT LINE	DESCRIPTION:	CONTOUR LINES, EDGE OF PAVEMENT, "A" TYPE CURBS, "L" TYPE CURBS, WALLS, FENCES, AC PAVEMENT, CONCRETE, SPOT ELEVATIONS, SIGNS, MANHOLE W/ DESCRIPTION
PROPERTY LINE	SAWCUT LINE	EXISTING:	(2210)
ROW LINE	SCARP LINE	PROPOSED:	2122

MANHOLE DESCRIPTIONS
Ⓢ = SANITARY SEWER
Ⓓ = STORM DRAIN
Ⓔ = ELECTRICAL
Ⓣ = TELEPHONE

FIRE HYDRANTS, GATE VALVES, REDUCERS, CLEAN OUTS, UTILITY BOX OR VAULT, BACKWATER VALVES, 100w HPS STREETLIGHTS, 150w HPS STREETLIGHTS, 200w HPS STREETLIGHTS, 250w HPS STREETLIGHTS

5/30/2013 12:31 PM
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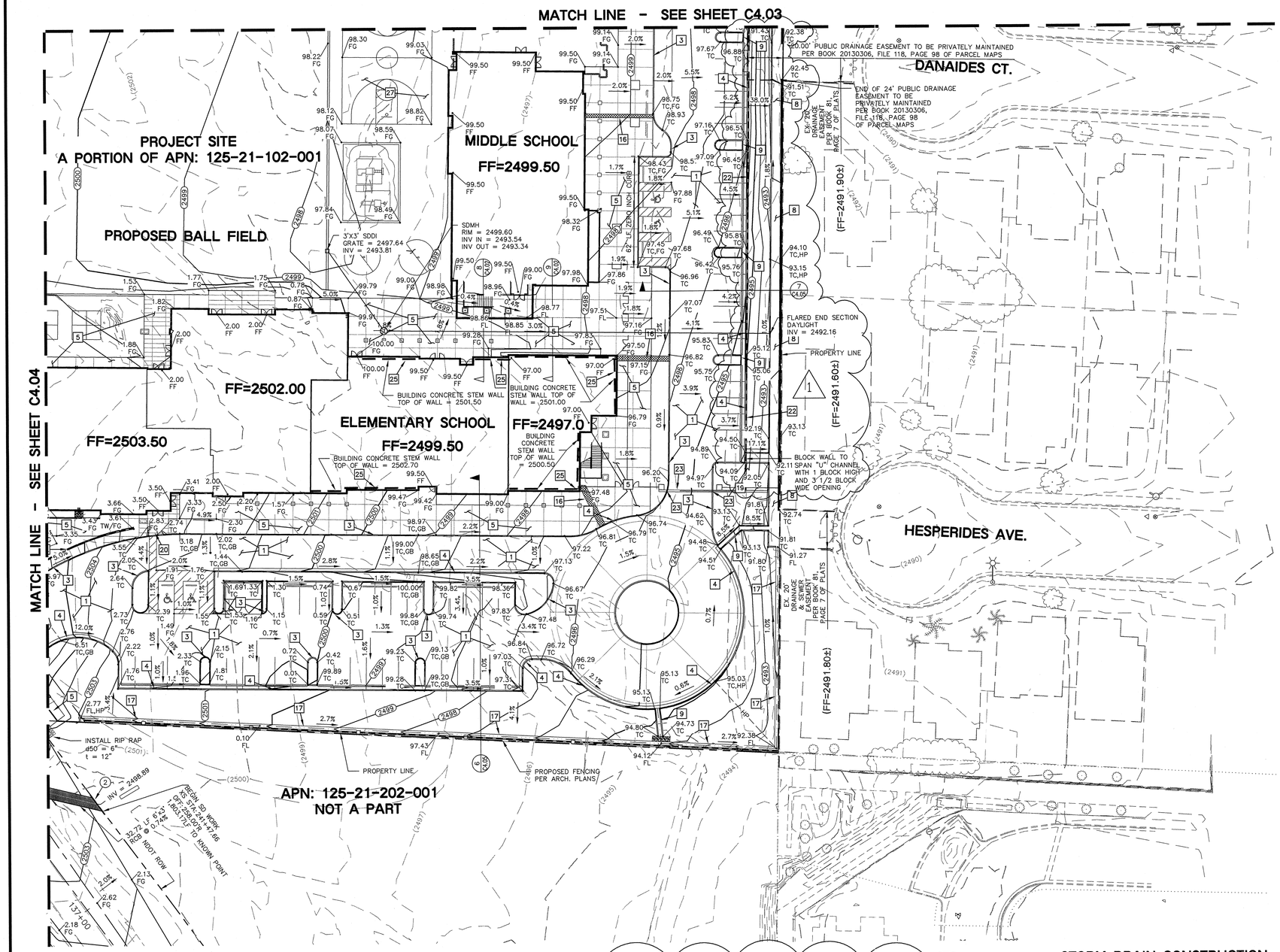
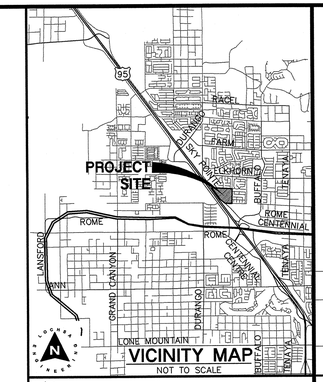
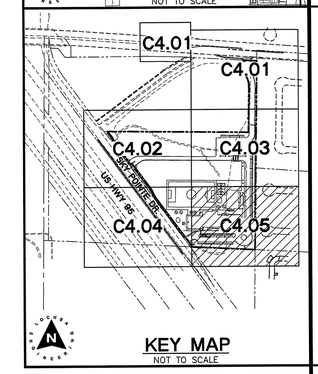






LAS VEGAS VALLEY CONSTRUCTION SITE BEST MANAGEMENT PRACTICES GUIDANCE MANUAL SECTION 3.5.1 STANDARD NOTES 1-5

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 RIGHT-OF-WAY OF THE CITY OF LAS VEGAS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS SITE DEVELOPMENT OR CONSTRUCTION PROJECT. SUCH MATERIAL 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 CITY OF LAS VEGAS 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 NVR10000, SECTION III.A.5.
4. AT A MINIMUM, THE CONTRACTOR OR HIS AGENT SHALL INSPECT ALL DISTURBED AREAS, AREAS USED FOR STORAGE OF MATERIALS AND EQUIPMENT THAT ARE EXPOSED TO PRECIPITATION, VEHICLE ENTRANCE AND EXIT LOCATIONS, AND ALL BMPS WEEKLY, AND WITHIN 24 HOURS AFTER ANY RAIN EVENT OR 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 BMP'S SHALL BE REMOVED WITHIN SEVEN DAYS AFTER A STORMWATER RUNOFF EVENT OR PRIOR TO THE NEXT ANTICIPATED STORM EVENT, WHICHEVER IS EARLIER. SEDIMENT MUST BE REMOVED WHEN BMP DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE.

GRADING NOTES:

1. SLOPES 4:1 OR STEEPER AND FINE-GRAINED MATERIALS THAT HAVE BEEN DISTURBED (SANDY AND SILTY MATERIALS) SHOULD BE PROTECTED WITH BURLAP OR OTHER EROSION CONTROL FABRIC/MATERIAL, UNLESS OTHERWISE SPECIFIED BY LANDSCAPE DRAWINGS AND SPECIFICATIONS OR THE SOILS REPORT.
2. CONTRACTOR SHALL DETERMINE HIS OWN FOOTING OR BASEMENT EXCAVATION QUANTITIES, EVEN THOUGH SHOWN ON ROUGH GRADING PLANS. ADDITIONALLY, STRUCTURE BACKFILL COSTS SHOULD BE INCLUDED IN THE COST OF THE STRUCTURE, UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS.
3. CONTRACTOR SHALL NOTIFY LOCHSA ENGINEERING WITHIN 24 HOURS OF OMISSIONS AND ERRORS DISCOVERED ON PLANS. LOCHSA ENGINEERING WILL NOT BE RESPONSIBLE FOR ANY "CORRECTIVE" WORK DONE BY OTHERS.
4. CONTRACTOR TO ENSURE POSITIVE DRAINAGE. NO PONDING ALLOWED. CONTRACTOR TO FOLLOW RECOMMENDATIONS AS OUTLINED IN THE PROJECT GEOTECHNICAL REPORT, INCLUDING BUT NOT LIMITED TO EXCAVATION, GRADING AND COMPACTION. REFER TO THE REPORT PREPARED BY: TERRACON CONSULTANTS WESTERN, INC., PROJECT No. 04125046, DATED: NOV. 15, 2012.

FLOOD ZONE NOTE:

THE ENTIRE SUBJECT PROPERTY IS LOCATED WITHIN AN AREA DESIGNATED AS FLOOD ZONE "X" (UNSHADED). ZONE "X" (UNSHADED) IS DESCRIBED BY FEMA AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN. THIS INFORMATION IS OBTAINED FROM THE EFFECTIVE FLOOD INSURANCE RATE MAP (FIRM) PANEL No. 32003F1745, EFFECTIVE DATE SEPTEMBER 27, 2002.

NEVADA DEPARTMENT OF TRANSPORTATION (NDOT) PERMIT REQUIRED:

AN APPROVED NDOT OCCUPANCY PERMIT SHALL BE OBTAINED THROUGH THE DISTRICT PRIOR TO ANY CONSTRUCTION WITHIN THE NDOT RIGHT OF WAY. PLANS SHOWING WORK IN NDOT RIGHT OF WAY MUST SHOW NDOT STATIONING. THE DEVELOPER ASSUMES ALL LIABILITY FOR WORK CONDUCTED UNDER THE DISTRICT OBTAINED PERMIT THROUGH WARRANTY EXPIRATION.

EXISTING UTILITY NOTE:

CONTRACTOR TO ADJUST ALL EXISTING UTILITIES TO MATCH PROPOSED FINISH GRADE ELEVATIONS.

GRADING PLAN CERTIFICATION

NAME: GUY M. MORRIS PE #14526 DATE

CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH APPROVED DRAINAGE STUDY FOR THIS SITE ON FILE AT CITY OF LAS VEGAS FOR THIS PROJECT. PROJECT# DS4570

A.P.N.:

PORTION OF 125-21-102-001 CONTAINS 12.14 ACRES

BASIS OF BEARINGS:

NORTH 85°49'07" WEST, BEING THE NORTH LINE OF THE NORTHWEST QUARTER (NW 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF SECTION 21, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., AS SHOWN ON A RECORD OF SURVEY IN FILE 73, PAGE 26 IN THE CLARK COUNTY, NEVADA, RECORDER'S OFFICE.

BENCHMARK:

CITY OF LAS VEGAS BENCHMARK (2008 ADJUSTED) 6LV90 21NNW6 A RIVET AND PLATE IN TOP CURB ON THE SOUTH SIDE OF ELKHORN ROAD APPROXIMATELY 1/4 MILE WEST OF CIMARRON ROAD. ELEVATION=2498.19 FEET (761.449 METERS) (NAVD'88)

CONSTRUCTION NOTES:

– ALL CONSTRUCTION TO BE DONE IN ACCORDANCE WITH "CLARK COUNTY AREA UNIFORM STANDARD DRAWINGS (C.C.A.U.S.D.)" LATEST EDITION AND/OR REGULATING ENTITY HAVING JURISDICTION.

– NOT ALL NOTES USED ON THIS SHEET –

1. CONSTRUCT AC PAVEMENT PER DETAIL 2 ON C6.01.
2. CONSTRUCT CONC. PAVEMENT PER DETAIL 3 ON C6.01.
3. CONSTRUCT "A" TYPE CURB PER DETAIL 1 ON C6.01.
4. CONSTRUCT "L" TYPE CURB PER CCAUSD No. 216.
5. CONSTRUCT CONC. SIDEWALK PER CCAUSD No. 234. SEE DETAIL 4/C6.02 FOR FINISHING SPECIFICATIONS.
7. CONSTRUCT SIDEWALK RAMP CCAUSD No. 235 CASE II.
8. CONSTRUCT 72" WIDE "U" CHANNEL PER DETAIL 5 ON C6.01.
9. CONSTRUCT 24" WIDE "U" CHANNEL PER DETAIL 4 ON C6.01.
10. CONSTRUCT COMMERCIAL DRIVEWAY PER CCAUSD No. 225 AND CCAUSD No. 228.
11. LANDSCAPING. REFER TO LANDSCAPE ARCH. PLANS FOR SPECIFICATIONS.
14. SEE STRUCTURAL DETAILS BY OTHERS FOR STAIRS AND STRUCTURAL SLAB.
16. CONSTRUCT SIDEWALK DRAIN PER C.C.A.U.S.D. No. 236.
17. CONSTRUCT 2' VALLEY GUTTER PER DETAIL 11 ON C6.01.
18. CONSTRUCT SIDEWALK RAMP PER DETAIL 10 ON C6.01
19. CONSTRUCT 60" WIDE "U" CHANNEL PER DETAIL 12 ON C6.01
20. CONSTRUCT SIDEWALK RAMP PER DETAIL 9 ON C6.01.
21. INSTALL MIN. 36" HIGH RAIL ON TOP OF RETAINING WALL WHERE GRADE DIFFERENCE IS 18" OR GREATER.
22. CONSTRUCT SCREEN WALL PER ARCHITECTURAL PLAN.
23. CONSTRUCT 2' WIDE CONCRETE STRIP FOR GATE PATH. NOTCH CURB AS NECESSARY FOR THE GATE BYPASS. GATE PER ARCHITECTURAL PLANS.
24. CMU SCREEN WALL PER ARCHITECTURAL PLANS. WALL TO BE SOLID GROUTED 18" ABOVE FLOWLINE OF ROADWAY.
25. CONSTRUCT SIDEWALK RAMP CCAUSD No. 235 CASE I.
26. CONSTRUCT RETAINING WALL PER DETAILS 9 ON SHEET C6.03 AND ARCHITECTURAL PLAN.
27. CONSTRUCT PLAYGROUND AREA PER ARCHITECTURAL PLANS.

EARTHWORK QUANTITIES

CUT	8,499 CU. YD.
FILL	31,269 CU.YD.
NET	FILL 22,770 CU. YD.

NOTE:

LOCHSA ENGINEERING ASSUMES NO RESPONSIBILITY FOR EXISTING UTILITY LOCATIONS AND ELEVATIONS. THE UTILITIES SHOWN ON THIS PLAN ARE FROM THE BEST AVAILABLE INFORMATION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE LOCATION AND ELEVATION OF ALL UTILITIES, INCLUDING BUT NOT LIMITED TO, THE WATER, FIRE, SANITARY SEWER, STORM SEWER, TELEPHONE, POWER, GAS, AND IRRIGATION LINES PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. IF CONFLICT EXISTS IN THE FIELD, THE CONTRACTOR IS TO NOTIFY THE PROJECT ARCHITECT, OWNER'S REPRESENTATIVE AND THE PROJECT ENGINEER IMMEDIATELY.

SAFETY ALERT

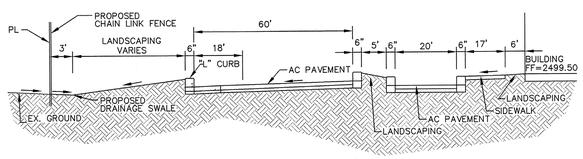
Call Before You Overhead

Call before you UnderGround

Call before you dig. Avoid cutting underground utility lines. It's costly.

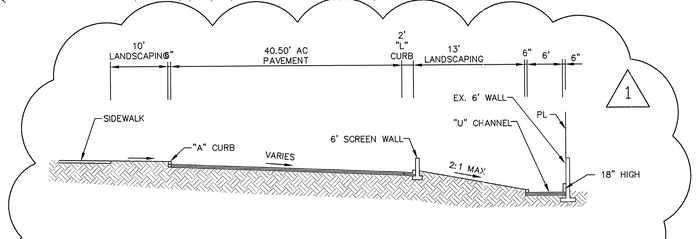
Call 811 or

1-702-227-2929 1-702-432-5300 EMERGENCY AND INTERNAL SYSTEM OF OPERATIONS 1-800-227-2600



6 SECTION

NOT TO SCALE



7 SECTION

NOT TO SCALE

STORM DRAIN CONSTRUCTION NOTES:

NOTE: ALL ONSITE STORM DRAIN AND THE PERTINENT FACILITIES ARE PRIVATELY OWNED AND PRIVATELY MAINTAINED.

– NOT ALL NOTES USED ON THIS SHEET –

1. INSTALL 48" TYPE I ECCENTRIC STORM DRAIN PER N.D.O.T DRAWING NO. R-4.7.1
2. INSTALL RCB CULVERT TYPE I HEADWALL PER N.D.O.T DRAWING NO. B-20-1.5.
3. INSTALL TYPE 3 DROP INLET PER N.D.O.T DRAWING NO. R-4.3.1. CONSTRUCT STORM DRAIN INLET PER USDCCA DRAWING NO. 421 (STORMWATER QUALITY MANAGEMENT STAMP AND SIGN DETAIL).
4. INSTALL 3'X3' JENSEN PRECAST DROP INLET PER DETAIL 3 ON SHEET C6.02.
5. NSTALL 48" STORM DRAIN MANHOLE PER C.C.A.U.S.D. NO. 403 WITH CONCRETE COLLAR PER C.C.A.U.S.D. NO. 408. REFER TO C.C.A.U.S.D. NO. 409 FOR MANHOLE COVER AND RING.
6. INSTALL FLARED END SECTION OF 18" STORM DRAIN LINE. CURB TO BE ABUTTED TO FLARED END SECTION.
7. ROOF DRAIN LOCATION. SEE PLANS BY OTHERS.

LEGEND

CL OR SURVEY LINE; PROPERTY LINE; ROW LINE; EASEMENT LINE; SAWCUT LINE; SCARP LINE

DESCRIPTION:	CONTOUR LINES	EDGE OF PAVEMENT	"A" TYPE CURBS	"L" TYPE CURBS	WALLS	FENCES	AC PAVEMENT	CONCRETE	SPOT ELEVATIONS	SIGNS	MANHOLE W/ DESCRIPTION	MANHOLE DESCRIPTIONS	FIRE HYDRANTS	GATE VALVES	REDUCERS	CLEAN OUTS	UTILITY BOX OR VAULT	BACKWATER VALVES	100w HPS STREETLIGHTS	150w HPS STREETLIGHTS	200w HPS STREETLIGHTS	250w HPS STREETLIGHTS
EXISTING:	(2210)								(12.34) BC		Ⓢ	Ⓢ = SANITARY SEWER						BWV				
PROPOSED:	2122								12.34 BC		Ⓢ	Ⓓ = STORM DRAIN; Ⓔ = ELECTRICAL; Ⓣ = TELEPHONE						BWV				

REV.:	DATE:	BY:	DESCRIPTION:
1	05/24/13	GMM	REMOVE RETAINING & ADD SCREEN WALL

Lochsa engineering
6345 South Jones Blvd.
Suite 100
Las Vegas, NV 89118
Phone (702) 365-9317
Fax (702) 365-9318
www.lochsa.com

SHEET TITLE: GRADING PLANS SHEET 5 OF 5

SOMERSET ACADEMY SKY POINTE & ELKHORN LAS VEGAS, NV

PROJECT No.: 121075

DATE: 05/30/13

SCALE: 1"=30'

DRAWN BY: MW

DESIGNED BY: MW

CHECKED BY: GM

SEAL: PROFESSIONAL ENGINEER STATE OF NEVADA GUY M. MORRIS EXP. 12-31-13 CIVIL No. 14526 05-30-13

SHEET No. C4.05

SHEET 17 OF 27

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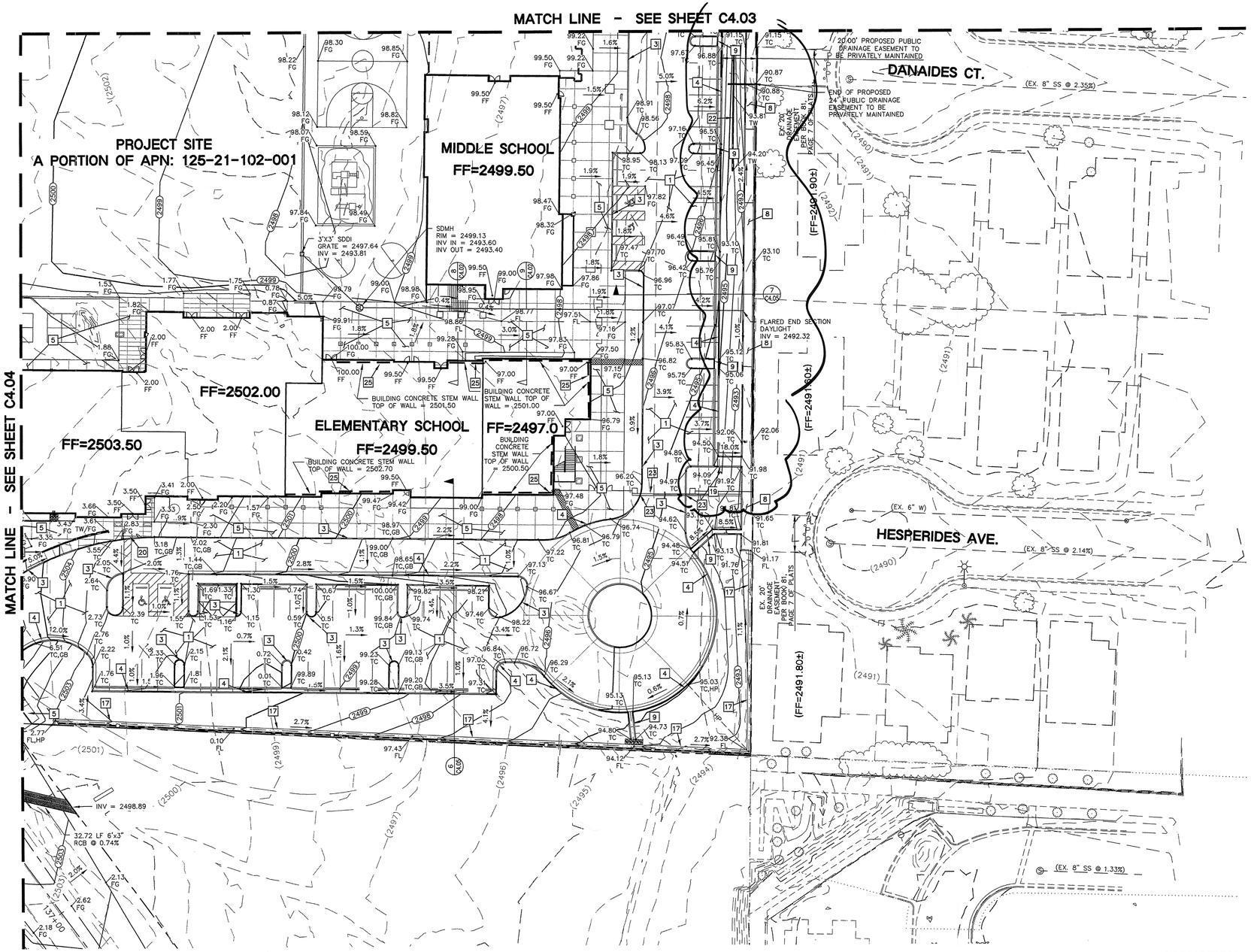

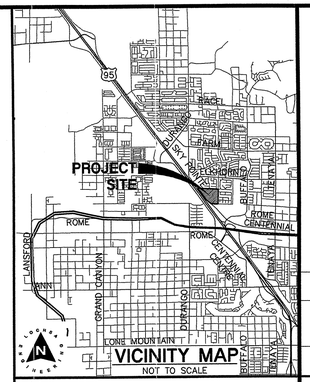

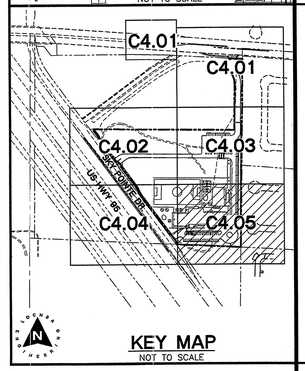

GRAPHIC SCALE

30 0 15 30 60

(IN FEET)
1 inch = 30 ft.

LAS VEGAS VALLEY CONSTRUCTION SITE BEST MANAGEMENT PRACTICES GUIDANCE MANUAL SECTION 3.5.1 STANDARD NOTES 1-5

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 RIGHT-OF-WAY OF THE CITY OF LAS VEGAS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS SITE DEVELOPMENT OR CONSTRUCTION PROJECT. SUCH MATERIAL 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 CITY OF LAS VEGAS AND THE LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDANCE MANUAL.
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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 OR 0.5 INCHES OR MORE. THE CONTRACTOR OR HIS AGENT SHALL UPDATE OR MODIFY THE STORMWATER POLLUTION PREVENTION PLAN AS NECESSARY. SOME EXCEPTIONS TO WEEKLY INSPECTIONS MAY APPLY, SUCH AS SUSPENSION OF LAND DISTURBANCE ACTIVITIES. REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.12.
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GRADING NOTES:

1. SLOPES 4:1 OR STEEPER AND FINE-GRAINED MATERIALS THAT HAVE BEEN DISTURBED (SANDY AND SILTY MATERIALS) SHOULD BE PROTECTED WITH BURLAP OR OTHER EROSION CONTROL FABRIC/MATERIAL, UNLESS OTHERWISE SPECIFIED BY LANDSCAPE DRAWINGS AND SPECIFICATIONS OR THE SOILS REPORT.
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3. CONTRACTOR SHALL NOTIFY LOCHSA ENGINEERING WITHIN 24 HOURS OF OMISSIONS AND ERRORS DISCOVERED ON PLANS. LOCHSA ENGINEERING WILL NOT BE RESPONSIBLE FOR ANY "CORRECTIVE" WORK DONE BY OTHERS.
4. CONTRACTOR TO ENSURE POSITIVE DRAINAGE. NO PONDING ALLOWED. CONTRACTOR TO FOLLOW RECOMMENDATIONS AS OUTLINED IN THE PROJECT GEOTECHNICAL REPORT, INCLUDING BUT NOT LIMITED TO EXCAVATION, GRADING AND COMPACTION. REFER TO THE REPORT PREPARED BY: TERRACON CONSULTANTS WESTERN, INC., PROJECT No. 64955351-1, DATED: DEC. 21, 1995.

FLOOD ZONE NOTE:

THE ENTIRE SUBJECT PROPERTY IS LOCATED WITHIN AN AREA DESIGNATED AS FLOOD ZONE "X" (UNSHADED). ZONE "X" (UNSHADED) IS DESCRIBED BY FEMA AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN. THIS INFORMATION IS OBTAINED FROM THE EFFIECTIVE FLOOD INSURANCE RATE MAP (FIRM) PANEL No. 32003F1745, EFFECTIVE DATE SEPTEMBER 27, 2002.

EXISTING UTILITY NOTE:

CONTRACTOR TO ADJUST ALL EXISTING UTILITIES TO MATCH PROPOSED FINISH GRADE ELEVATIONS.

GRADING PLAN CERTIFICATION

NAME: GUY M. MORRIS PE #14526 DATE

CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH APPROVED DRAINAGE STUDY FOR THIS SITE ON FILE AT CITY OF LAS VEGAS FOR THIS PROJECT. PROJECT# DS4570

A.P.N.:

125-21-102-001

BASIS OF BEARINGS:

NORTH 85°49'07" WEST, BEING THE NORTH LINE OF THE NORTHWEST QUARTER (NW 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF SECTION 21, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., AS SHOWN ON A RECORD OF SURVEY IN FILE 73, PAGE 26 IN THE CLARK COUNTY, NEVADA, RECORDER'S OFFICE.

BENCHMARK:

CITY OF LAS VEGAS BENCHMARK (2008 ADJUSTED) 6LV90 21NNW6 A RIVET AND PLATE IN TOP CURB ON THE SOUTH SIDE OF ELKHORN ROAD APPROXIMATELY 1/4 MILE WEST OF CIMARRON ROAD. ELEVATION=2498.19 FEET (761.449 METERS) (NAVD'88)

CONSTRUCTION NOTES:

– ALL CONSTRUCTION TO BE DONE IN ACCORDANCE WITH "CLARK COUNTY AREA UNIFORM STANDARD DRAWINGS (C.C.A.U.S.D.)" LATEST EDITION AND/OR REGULATING ENTITY HAVING JURISDICTION.
– NOT ALL NOTES USED ON THIS SHEET –

1. CONSTRUCT AC PAVEMENT PER DETAIL 2 ON C6.01.
2. CONSTRUCT CONC. PAVEMENT PER DETAIL 3 ON C6.01.
3. CONSTRUCT "A" TYPE CURB PER CCAUSD No. 219.
4. CONSTRUCT "L" TYPE CURB PER CCAUSD No. 216.
5. CONSTRUCT CONC. SIDEWALK PER CCAUSD No. 234. REFER TO ARCH. PLANS FOR FINISHING SPECIFICATIONS.
7. CONSTRUCT SIDEWALK RAMP CCAUSD No. 235 CASE II.
8. CONSTRUCT 72" WIDE "U" CHANNEL PER DETAIL 5 ON C6.01.
9. CONSTRUCT 24" WIDE "U" CHANNEL PER DETAIL 4 ON C6.01.
10. CONSTRUCT COMMERCIAL DRIVEWAY PER CCAUSD No. 225.
11. LANDSCAPING. REFER TO LANDSCAPE ARCH. PLANS FOR SPECIFICATIONS.
14. SEE STRUCTURAL DETAILS BY OTHERS FOR STAIRS AND STRUCTURAL SLAB.
16. CONSTRUCT SIDEWALK DRAIN PER C.C.A.U.S.D. No. 236.
17. CONSTRUCT 2' VALLEY GUTTER PER DETAIL 11 ON C6.01.
18. CONSTRUCT SIDEWALK RAMP PER DETAIL 10 ON C6.01
19. CONSTRUCT 60" WIDE "U" CHANNEL PER DETAIL 12 ON C6.01
20. CONSTRUCT SIDEWALK RAMP PER DETAIL 9 ON C6.01.
21. INSTALL MIN. 36" HIGH RAIL ON TOP OF RETAINING WALL WHERE GRADE DIFFERENCE IS 18" OR GREATER.
22. CONSTRUCT RETAINING WALL PER STRUCTURAL DETAILS ON SHEET C6.03 AND ARCHITECTURAL PLAN.
23. CONSTRUCT 2' WIDE CONCRETE STRIP FOR GATE PATH. NOTCH CURB AS NECESSARY FOR THE GATE BYPASS.
24. CMU SCREEN WALL PER ARCHITECTURAL PLANS. WALL TO BE SOLID GROUTED 18" ABOVE FLOWLINE OF ROADWAY.
25. CONSTRUCT BUILDING CONCRETE STEM WALL PER ARCHITECTURAL PLANS.

EARTHWORK QUANTITIES

CUT	8,499 CU. YD.
FILL	31,269 CU.YD.
NET	FILL 22,770 CU. YD.

NOTE:

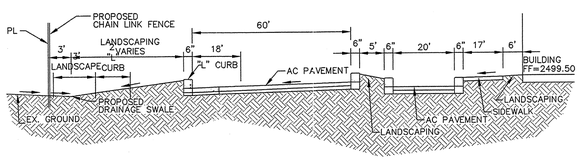
LOCHSA ENGINEERING ASSUMES NO RESPONSIBILITY FOR EXISTING UTILITY LOCATIONS AND ELEVATIONS. THE UTILITIES SHOWN ON THIS PLAN ARE FROM THE BEST AVAILABLE INFORMATION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE LOCATION AND ELEVATION OF ALL UTILITIES, INCLUDING BUT NOT LIMITED TO, THE WATER, FIRE, SANITARY SEWER, STORM SEWER, TELEPHONE, POWER, GAS, AND IRRIGATION LINES PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. IF CONFLICT EXISTS IN THE FIELD, THE CONTRACTOR IS TO NOTIFY THE PROJECT ARCHITECT, OWNER'S REPRESENTATIVE AND THE PROJECT ENGINEER IMMEDIATELY.

SAFETY ALERT
Call Before You Overhead
AVOID OVERHEAD LINES, UNDERGROUND TRAFFIC WORK, AND EXPOSED LIVE PARTS. STAY 10 FEET AWAY FROM LIVE PARTS. 7,200 VOLTS
Call before you UnderGround
Call before you dig
Avoid cutting underground utility lines. It's costly.
Call 811 or
1-702-432-5300
1-702-227-2929 EMERGENCY AND AFTERHOURS SYSTEM OF OPERATIONS 1-800-227-2600

STORM DRAIN CONSTRUCTION NOTES:

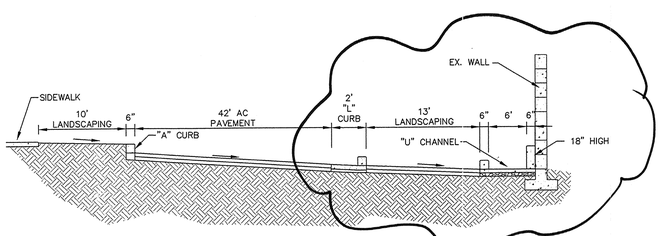
NOTE: ALL ONSITE STORM DRAIN AND THE PERTINENT FACILITIES ARE PRIVATELY OWNED AND PRIVATELY MAINTAINED.
– NOT ALL NOTES USED ON THIS SHEET –

1. INSTALL 48" TYPE I ECCENTRIC STORM DRAIN PER N.D.O.T DRAWING NO. R-4.7.1
2. INSTALL RCB CULVERT TYPE I HEADWALL PER N.D.O.T DRAWING NO. B-20-1.5.
3. INSTALL TYPE 3 DROP INLET PER N.D.O.T DRAWING NO. R-4.3.1. CONSTRUCT STORM DRAIN INLET PER USDCCA DRAWING NO. 421 (STORMWATER QUALITY MANAGEMENT STAMP AND SIGN DETAIL).
4. INSTALL 3'X3' JENSEN PRECAST DROP INLET PER DETAIL 3 ON SHEET C6.02.
5. NSTALL 48" STORM DRAIN MANHOLE PER C.C.A.U.S.D. NO. 403 WITH CONCRETE COLLAR PER C.C.A.U.S.D. NO. 408. REFER TO C.C.A.U.S.D. NO. 409 FOR MANHOLE COVER AND RING.
6. INSTALL FLARED END SECTION OF 18" STORM DRAIN LINE. CURB TO BE ABUTTED TO FLARED END SECTION.
7. ROOF DRAIN LOCATION. SEE PLANS BY OTHERS.



6 SECTION

NOT TO SCALE



7 SECTION

NOT TO SCALE

LEGEND

CL OR SURVEY LINE	EASEMENT LINE	DESCRIPTION:	CONTOUR LINES	EDGE OF PAVEMENT	"A" TYPE CURBS	"L" TYPE CURBS	WALLS	FENCES	AC PAVEMENT	CONCRETE	SPOT ELEVATIONS	SIGNS	MANHOLE W/ DESCRIPTION	MANHOLE DESCRIPTIONS	FIRE HYDRANTS	GATE VALVES	REDUCERS	CLEAN OUTS	UTILITY BOX OR VAULT	BACKWATER VALVES	100w HPS STREETLIGHTS	150w HPS STREETLIGHTS	200w HPS STREETLIGHTS	250w HPS STREETLIGHTS
PROPERTY LINE	SAWCUT LINE	EXISTING:	(2210)								(12.34)			Ⓢ = SANITARY SEWER						BWV				
ROW LINE	SCARP LINE	PROPOSED:	2122								12.34 BC		Ⓢ	Ⓓ = STORM DRAIN						BWV				
														Ⓔ = ELECTRICAL										
														Ⓣ = TELEPHONE										

Approved Plans

12/3/2012 3:51 PM
E:\CAD\121075\Drawings\Plot Drawings\C-121075-401-GP.dwg

DESCRIPTION: | DATE: | BY: | REV.:

Lochsa engineering
8345 South Jones Blvd.
Suite 100
Las Vegas, NV 89118
Phone (702) 365-9312
Fax (702) 365-9317
www.lochsa.com

GRADING PLANS
SHEET 5 OF 5

SOMERSET ACADEMY
SKY POINTE & ELKHORN
LAS VEGAS, NV

SHEET | TITLE

PROJECT No.: 121075

DATE: 12/03/12

SCALE: 1"=30'

DRAWN BY: MW

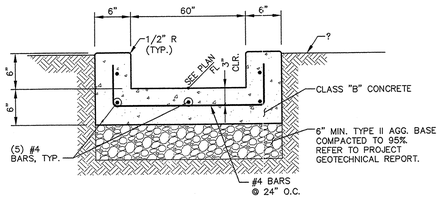
DESIGNED BY: MW

CHECKED BY: GM

SEAL: PROFESSIONAL ENGINEER STATE OF NEVADA — GUY M. MORRIS — EXP. 12-31-13 — CIVIL — No. 14526 — 12-7-12

SHEET No. C4.05
SHEET 17 OF 27

HTE No.



NOTES:

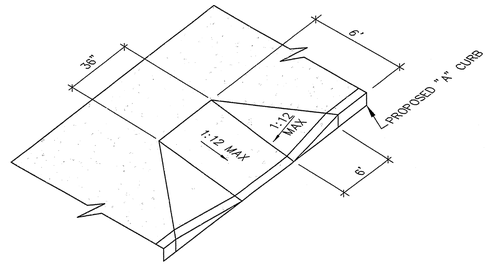
1. EXPANSION JOINTS REQUIRED AT ALL LOCATIONS WHERE CHANNEL MEETS CURB.

2. WEAKENED PLANE JOINTS REQUIRED AT 10' MAX. SPACING.

3. REFER TO PROJECT GEOTECHNICAL REPORT FOR TYPE II AGGREGATE OR SELECTED MATERIAL DEPTH AND COMPACTION, SUB-GRADE PREPARATION, MEMBRANES AND OTHER PLACEMENT RECOMMENDATIONS.

12 60" CONC. U-CHANNEL

NOT TO SCALE

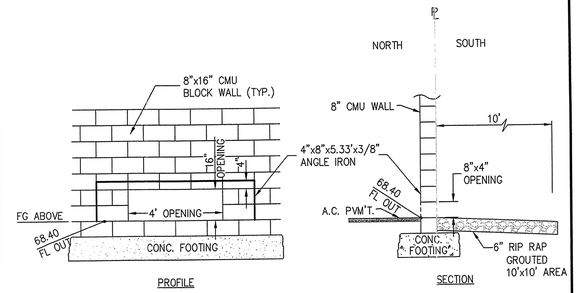


RAMP NOTES: (FOR ALL ACCESSIBLE ROUTE SLOPES GREATER THAN 1:20)

1. RAMP LENGTHS SHALL BE 6'-0" (72") MAXIMUM FOR EACH 6" RISE
2. RAMP LANDINGS SHALL BE 2" MAX. FOR A MINIMUM DISTANCE OF 5'-0"
3. RAMP CROSS SLOPES SHALL NOT TO EXCEED 1:48
4. RAMP SLOPES SHALL NOT TO EXCEED 1:12
5. HEIGHT OF CURBS (OR EDGES) SHALL NOT TO EXCEED 6".
6. RAMP CLEAR WIDTHS TO BE 3'-0" MINIMUM.
7. RAMP HEIGHTS ARE NOT INTENDED TO EXCEED 6" IN RISE PER EA. RUN.

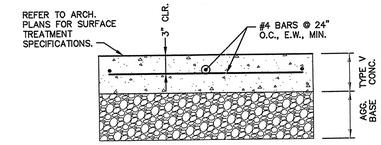
9 ON-SITE CURB RAMP

NOT TO SCALE



6 BLOCK WALL OPENING

NOT TO SCALE



TYPE OF TRAFFIC	CONCRETE (inches)	TYPE II BASE COURSE (inches)
TRUCK TRAFFIC	6	4

1. REFER TO PROJECT GEOTECHNICAL REPORT FOR ALL SUB-GRADE PREPARATION AND COMPACTION.

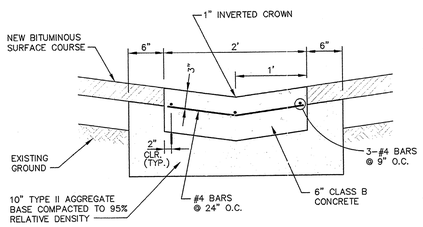
2. REFER TO CCAUSD NO. 232 FOR CONCRETE PAVEMENT CONSTRUCTION DETAILS.

3. REFER CCAUSD NO. 233 FOR WEAKENED PLANE JOINT DETAILS.

PAVEMENT SECTION AS PROPOSED IN GEOTECHNICAL REPORT PREPARED BY: TERRACON CONSULTANTS WESTERN, INC. PROJ. NO.: 64955351-1 DATED: DEC. 21, 1995

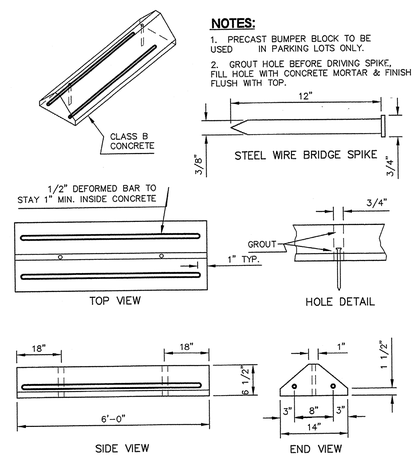
3 CONC. PAVEMENT SECTION (ON-SITE)

NOT TO SCALE



11 2' VALLEY GUTTER

NOT TO SCALE



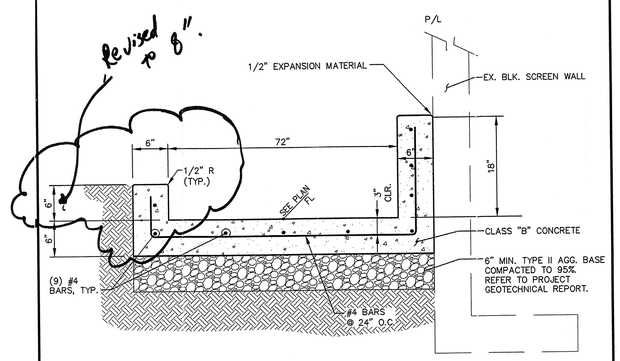
NOTES:

1. PRECAST BUMPER BLOCK TO BE USED IN PARKING LOTS ONLY.

2. GROUT HOLE BEFORE DRIVING SPIKE, FILL HOLE WITH CONCRETE MORTAR & FINISH FLUSH WITH TOP.

8 WHEEL STOP

NOT TO SCALE



NOTES:

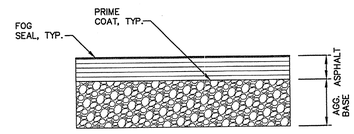
1. EXPANSION JOINTS REQUIRED AT ALL LOCATIONS WHERE CHANNEL MEETS CURB.

2. WEAKENED PLANE JOINTS REQUIRED AT 10' MAX. SPACING.

3. REFER TO PROJECT GEOTECHNICAL REPORT FOR TYPE II AGGREGATE OR SELECTED MATERIAL DEPTH AND COMPACTION, SUB-GRADE PREPARATION, MEMBRANES AND OTHER PLACEMENT RECOMMENDATIONS.

5 72" CONC. U-CHANNEL

NOT TO SCALE



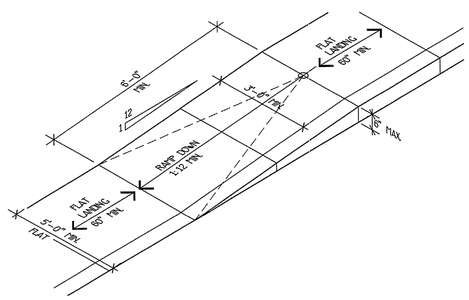
	TYPE OF TRAFFIC	ASPHALT (inches)	TYPE II BASE COURSE (inches)
LIGHT	AUTOMOBILE PARKING	2	4
HEAVY	MAIN CORRIDORS & TRUCK ACCESS	3	4

1. REFER TO PROJECT GEOTECHNICAL REPORT FOR ALL SUB-GRADE PREPARATION AND COMPACTION.

PAVEMENT SECTION AS PROPOSED IN GEOTECHNICAL REPORT PREPARED BY: TERRACON CONSULTANTS WESTERN, INC. PROJ. NO.: 64955351-1 DATED: DEC. 21, 1995

2 AC PAVEMENT SECTION (ON-SITE)

NOT TO SCALE



RAMP NOTES: (FOR ALL ACCESSIBLE ROUTE SLOPES GREATER THAN 1:20)

1. RAMP LENGTHS SHALL BE 6'-0" (72") MAXIMUM FOR EACH 6" RISE
2. RAMP LANDINGS SHALL BE FLAT FOR A MINIMUM DISTANCE OF 5'-0"
3. RAMP CROSS SLOPES SHALL NOT TO EXCEED 1:48
4. RAMP SLOPES SHALL NOT TO EXCEED 1:12
5. HEIGHT OF CURBS (OR EDGES) SHALL NOT TO EXCEED 6".
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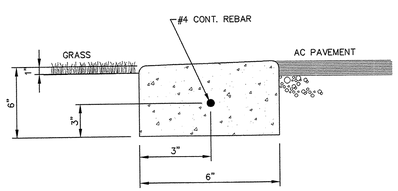
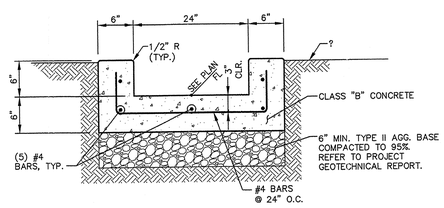
10 ACCESSIBLE CURB RAMP

NOT TO SCALE



7 MOW CURB

NOT TO SCALE



NOTES:

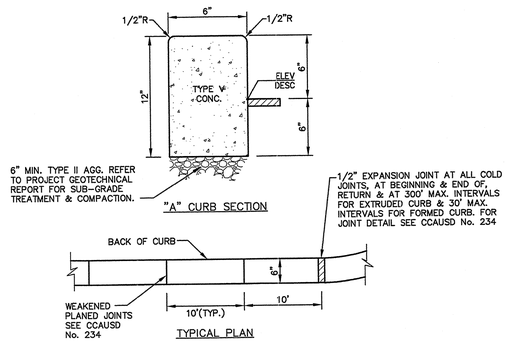
1. EXPANSION JOINTS REQUIRED AT ALL LOCATIONS WHERE CHANNEL MEETS CURB.

2. WEAKENED PLANE JOINTS REQUIRED AT 10' MAX. SPACING.

3. REFER TO PROJECT GEOTECHNICAL REPORT FOR TYPE II AGGREGATE OR SELECTED MATERIAL DEPTH AND COMPACTION, SUB-GRADE PREPARATION, MEMBRANES AND OTHER PLACEMENT RECOMMENDATIONS.

4 24" CONC. U-CHANNEL

NOT TO SCALE



1 ON-SITE "A" TYPE CURB

NOT TO SCALE

REV.:	DATE:	BY:	DESCRIPTION:

Lochsa engineering
6345 South Jones Blvd.
Suite 100
Las Vegas, NV 89118
Phone (702) 365-9312
Fax: (702) 365-9317
www.lochsa.com

SHEET: DETAIL SHEETS SHEET 1

TITLE: SOMERSET ACADEMY SKY POINTE & ELKHORN LAS VEGAS, NV

PROJECT No.: 121075

DATE: 12/03/12

SCALE: 1"=30'

DRAWN BY: MW

DESIGNED BY: MW

CHECKED BY: GM

SEAL: PROFESSIONAL ENGINEER - STATE OF NEVADA GUY M. MORRIS EXP. 12-31-13 CIVIL No. 14526 12-3-12

SHEET No. C6.01

SHEET 23 OF 27

HTE No. ———

Approved Plans.

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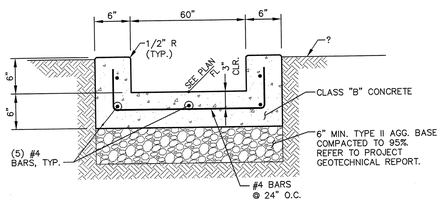

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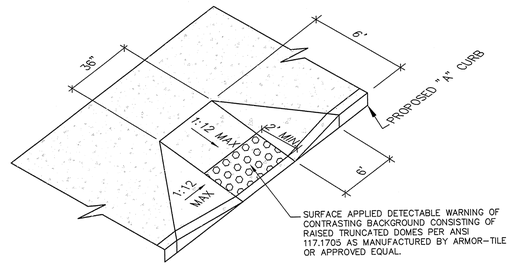
12 60" CONC. U-CHANNEL

NOT TO SCALE



RAMP NOTES: (FOR ALL ACCESSIBLE ROUTE SLOPES GREATER THAN 1:20)

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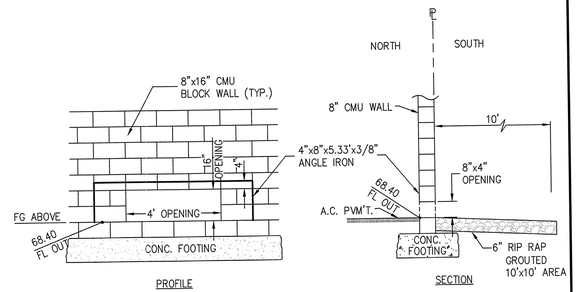
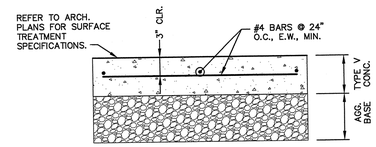
9 ON-SITE CURB RAMP

NOT TO SCALE



6 BLOCK WALL OPENING

NOT TO SCALE



TYPE OF TRAFFIC	CONCRETE (inches)	TYPE II BASE COURSE (inches)
TRUCK TRAFFIC	6	4

1. REFER TO PROJECT GEOTECHNICAL REPORT FOR ALL SUB-GRADE PREPARATION AND COMPACTION.

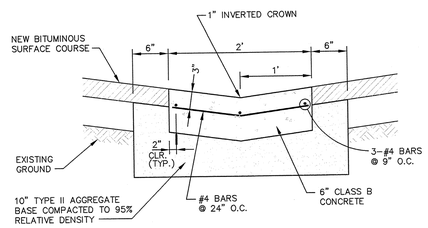
2. REFER TO CCAUSD NO. 232 FOR CONCRETE PAVEMENT CONSTRUCTION DETAILS.

3. REFER CCAUSD NO. 233 FOR WEAKENED PLANE JOINT DETAILS.

PAVEMENT SECTION AS PROPOSED IN GEOTECHNICAL REPORT PREPARED BY: TERRACON CONSULTANTS WESTERN, INC. PROJ. NO.: 64955351-1 DATED: DEC. 21, 1995

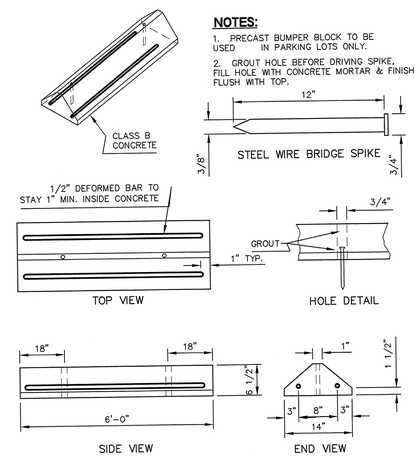
3 CONC. PAVEMENT SECTION (ON-SITE)

NOT TO SCALE



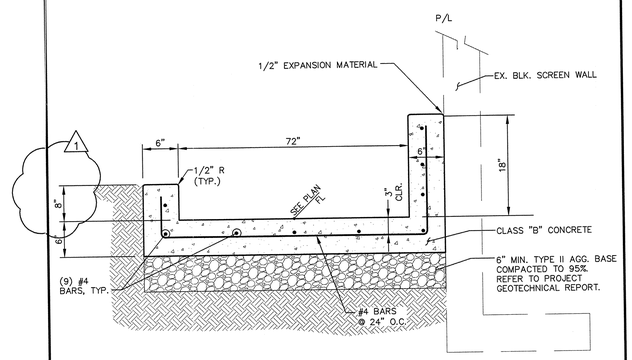
11 2' VALLEY GUTTER

NOT TO SCALE



8 WHEEL STOP

NOT TO SCALE



NOTES:

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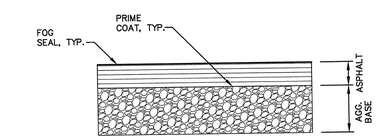
5 72" CONC. U-CHANNEL

NOT TO SCALE



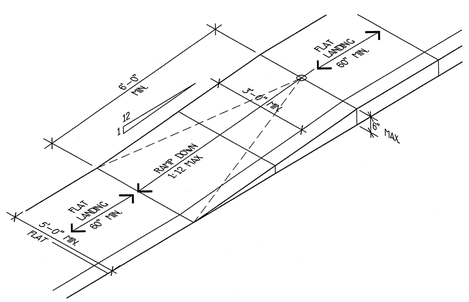
	TYPE OF TRAFFIC	ASPHALT (inches)	TYPE II BASE COURSE (inches)	TYPE I CLASS B BASE COURSE (inches)	OPEN GRADE (inches)
LIGHT	AUTOMOBILE PARKING	2	4		
HEAVY	MAIN CORRIDORS & TRUCK ACCESS	3	4		
HEAVY	NDOT RIGHT-OF-WAY	4	4	9	3/4"
HEAVY	ELKHORN	4	4		3/4"

1. REFER TO PROJECT GEOTECHNICAL REPORT FOR ALL SUB-GRADE PREPARATION AND COMPACTION.

PAVEMENT SECTION AS PROPOSED IN GEOTECHNICAL REPORT PREPARED BY: TERRACON CONSULTANTS WESTERN, INC. PROJ. NO.: 04125046 DATED: NOV. 15, 2012

2 AC PAVEMENT SECTION

NOT TO SCALE



RAMP NOTES: (FOR ALL ACCESSIBLE ROUTE SLOPES GREATER THAN 1:20)

1. RAMP LENGTHS SHALL BE 6'-0" (72") MAXIMUM FOR EACH 6" RISE
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3. RAMP CROSS SLOPES SHALL NOT TO EXCEED 1:48
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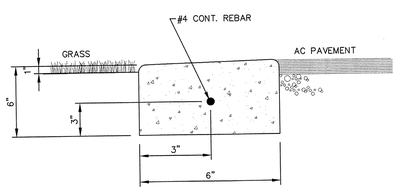
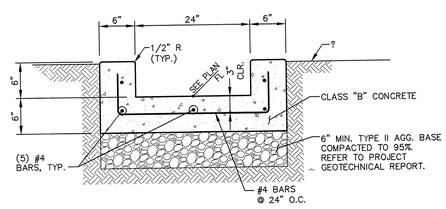
10 ACCESSIBLE CURB RAMP

NOT TO SCALE



7 MOW CURB

NOT TO SCALE



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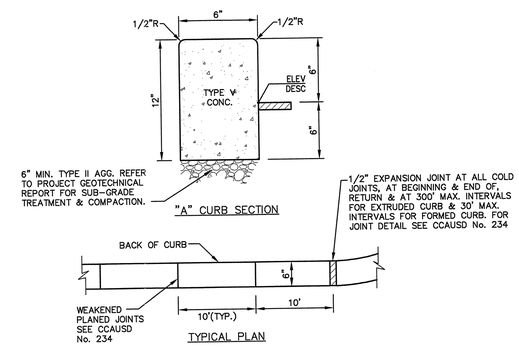
4 24" CONC. U-CHANNEL

NOT TO SCALE



1 ON-SITE "A" TYPE CURB

NOT TO SCALE

REV.:	DATE:	BY:	DESCRIPTION:
1	05-24-13	G.M.	REVISED DRAINAGE CHANNEL WALL HEIGHT FROM 6" TO 8"

Lochsa engineering
6345 South Jones Blvd.
Suite 100
Las Vegas, NV 89118
Phone (702) 365-9312
Fax (702) 365-9317
www.lochsa.com

SHEET: DETAIL SHEETS SHEET 1

TITLE: SOMERSET ACADEMY SKY POINTE & ELKHORN LAS VEGAS, NV

PROJECT No.: 121075

DATE: 05/03/13

SCALE: 1"=30'

DRAWN BY: MW

DESIGNED BY: MW

CHECKED BY: GM

SEAL: PROFESSIONAL ENGINEER - STATE OF NEVADA - GUY M. MORRIS - EXP. 12-31-13 - CIVIL - No. 14526 - 05-30-13

SHEET No. C6.01

SHEET 23 OF 27

5/30/2013 12:32 PM
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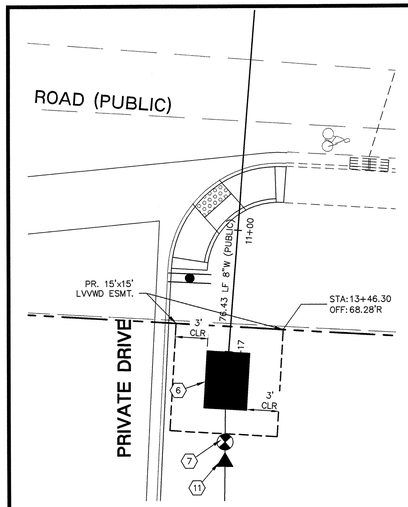
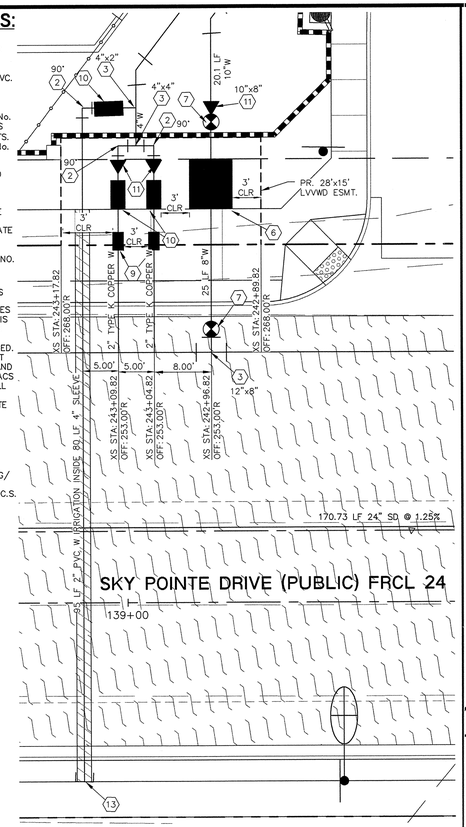


WATER CONSTRUCTION NOTES:

- ALL WATER CONSTRUCTION TO BE DONE IN ACCORDANCE WITH "UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR WATER DISTRIBUTION SYSTEMS (UDACS)" LATEST EDITION.
- NOT ALL NOTES USED ON THIS SHEET –
- ALL WATER LINES 4" OR GREATER TO BE CL. 150, C900 PVC. ALL WATER LINES SMALLER THAN 4" TO BE SCH. 40 PVC. ALL WATER LINES CONNECTED TO REMOTE FIRE DEPT. CONNECTIONS TO BE CL. 200, C900 PVC.
- THRUST BLOCKS TO BE CONSTRUCTED PER UDACS PLATE No. 31. THRUST BLOCKS TO BE LOCATED AT ALL ANGLE FITTINGS (BENDS), CROSSES, TEE'S, PLUGS, CAPS, AND FIRE HYDRANTS. ANCHOR BLOCKS TO BE CONSTRUCTED, PER UDACS PLATE No. 30. ANCHOR BLOCKS TO BE LOCATED AT ALL IN-LINE REDUCERS AND GATE VALVES.

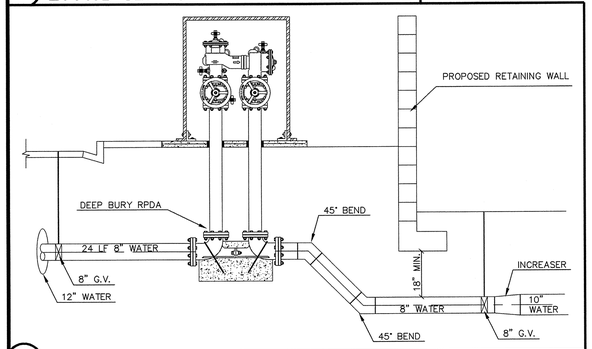
1. REMOVE EX. BLOW-OFF PER UDACS PLATE NO. 36 AND CONNECT TO EXISTING WATERLINE.
2. INSTALL BEND W/THRUST BLOCK (SAME SIZE AS PIPE) PER UDACS PLATE NO. 31.
3. INSTALL TEE (SAME SIZE AS PIPES). PER UDACS PLATE NO 31.
4. INSTALL FIRE HYDRANT W/GATE VALVE PER UDACS PLATE NO. 40.
5. INSTALL 12"x8" TAPPING SLEEVE & 8" TAPPING VALVE (SAME SIZE AS PIPE) PER UDACS 2.24.01 (B) PLATES NO. 34 & 39.
6. INSTALL 8" RPDA PER UDACS PLATE NO. 56.
7. INSTALL GATE VALVE (SAME SIZE AS PIPE). PER UDACS PLATE NO 30 AND 39.
8. INSTALL WATERLINE IN STEEL CASING PER UDACS PLATES NO. 21 OR 22 AND 23. MINIMUM 18-INCH CLEARANCE IS REQUIRED ABOVE THE TOP OF THE CASING AND UPPER BENDS THOROUGH THE LOWER SECTION OF THE PIPE. DUCTILE IRON PIPE WITH RESTRAINED JOINTS IS REQUIRED. IN ADDITION, THRUST BLOCKS ARE TO BE INSTALLED AT THE UPPER BENDS. ANNULAR SPACE BETWEEN PIPE AND CASING SHALL BE FILLED WITH CLASS I CLSM, SEE UDACS PLATES 16, 17, 18 AND 19, FOR BEDDING AND BACKFILL REQUIREMENTS.
9. INSTALL 2" WATER SERVICE & METER PER UDACS PLATE No.4.
10. INSTALL 2" RPPA PER UDACS PLATE NO. 8.
11. INSTALL REDUCER (SAME SIZE AS PIPES) W/ THRUST BLOCK PER UDACS PLATE NO. 30.
12. STUB & CAP WATER SERVICE. REFER TO PLUMBING PLANS FOR CONTINUATION.
13. STUB & CAP WATER SERVICE. REFER TO LANDSCAPING/ IRRIGATION PLANS FOR CONTINUATION.
14. INSTALL CAP AND 2" BLOW-OFF ASSEMBLY PER U.D.A.C.S. PLATE NO. 36.
15. TRENCH AND BACKFILL PER DETAIL 9 AND 10 C/6.02.



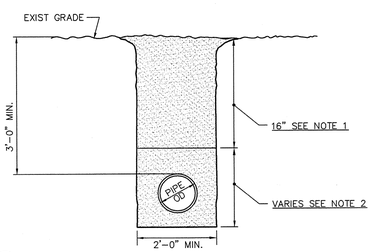
APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES MANAGER
PROJECT No. 121161 DATE: _____

12 LVVWD SERVICE INSTALLATION DETAIL

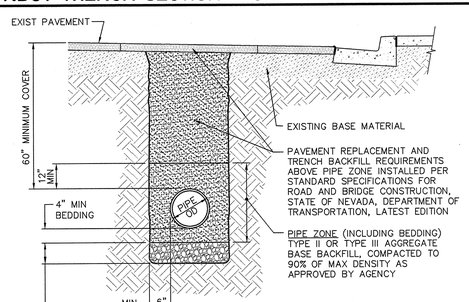


11 SKY POINTE DRIVE 8" RPDA AND CONNECTION PROFILE NOT TO SCALE



NOTES:
1. BASE AGGREGATE (AS PER NDOT SPECIFICATIONS: SECTION 704). A MINIMUM OF 16 INCHES TO BE LAID IN MAXIMUM 8 INCH LOOSE LIFTS. 95% COMPACTION REQUIRED.
2. BACKFILL WITH SELECT MATERIAL TO BOTTOM OF BASE AGGREGATE (AS PER NDOT SPECIFICATIONS; SECTION 207). 90% COMPACTION REQUIRED.

10 NDOT TRENCH SECTION – UNPAVED AREA NOT TO SCALE



EXISTING BASE MATERIAL

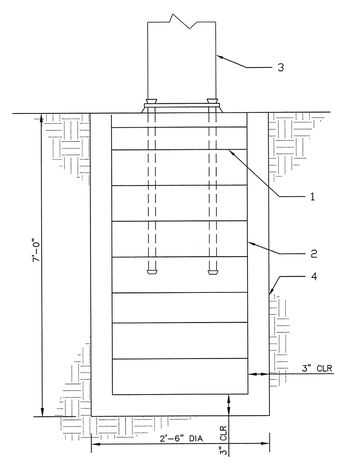
PAVEMENT REPLACEMENT AND TRENCH BACKFILL REQUIREMENTS ABOVE PIPE ZONE INSTALLED PER STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, STATE OF NEVADA, DEPARTMENT OF TRANSPORTATION, LATEST EDITION

PIPE ZONE (INCLUDING BEDDING) TYPE II OR TYPE III AGGREGATE BASE BACKFILL, COMPACTED TO 90% OF MAX DENSITY AS APPROVED BY AGENCY

IN AREAS OF EXCESSIVE GROUND WATER OR POOR SUBGRADE MATERIAL, USE DRAIN BACKFILL SECTION TO A MAXIMUM DEPTH OF 18" FOR STABILIZATION. INSTALL AND COMPACT AS DIRECTED BY THE ENGINEER.

NOTE:
FOR TRENCH SECTION NOTES SEE UDACS PLATE 19.

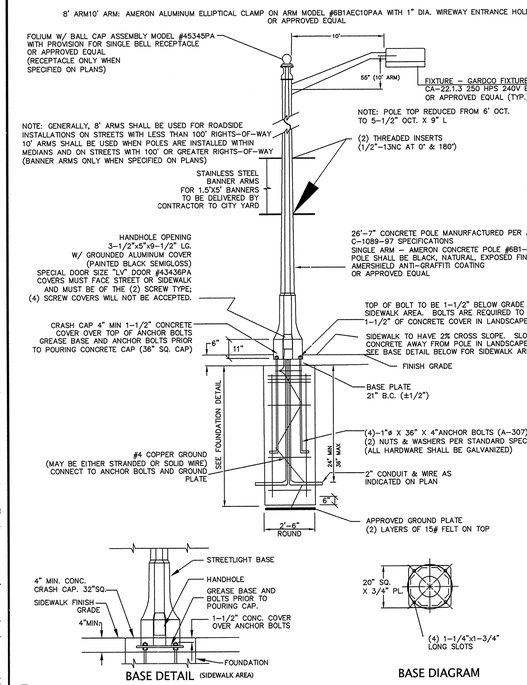
9 NDOT ROW TRENCHING SECTION PAVED AREA NOT TO SCALE



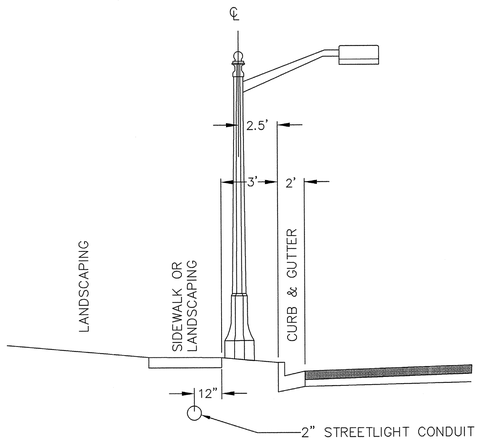
KEYNOTES:
1. (3) #4 TILES IN TOP 6" AND AT 9" O.C. (Fy= 60 KSI)
2. (8) #9 VERTS DISTRIBUTED EVENLY AROUND PERIMETER. (Fy= 60 KSI)
3. LIGHT POLE AND ANCHORAGE BY OTHERS.
4. 4500 PSI MIN CONCRETE CAISSON.

NOTES:
A. LUMINARIES EFFECTIVE PROJECTED ARES (E.P.A.) = 1.9FT²
B. ALL LOADS DETERMINED USING AASHTO STD SPECS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINARIES, AND TRAFFIC SIGNALS (2009 ED. W/2011 INTERIM REVISIONS)
C. ALL POLE BANNER AREAS HAVE BEEN OMITTED FROM THE ANALYSIS. "BREAKAWAY HINGES" SHALL BE USED FOR THE ATTACHMENT OF THE BANNER TO THE POLE.

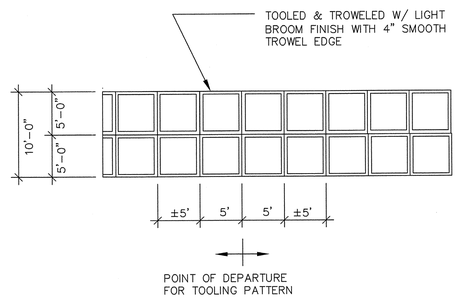
7 LIGHT POLE FOUNDATION NOT TO SCALE



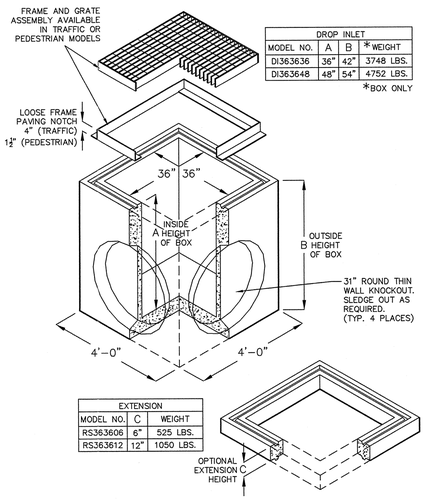
6 STREET LIGHT POLE DETAIL NOT TO SCALE



5 TYPICAL STREET LIGHT INSTALLATION DETAIL NOT TO SCALE



4 SIDEWALK FINISH NOT TO SCALE

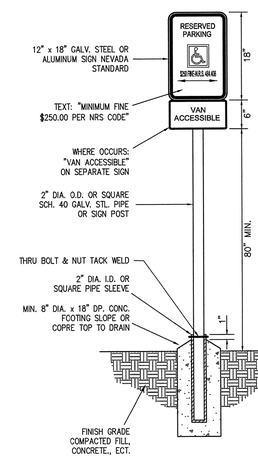


DROP INLET			
MODEL NO.	A	B	*WEIGHT
DI363636	36"	42"	3748 LBS.
DI363648	48"	54"	4752 LBS.

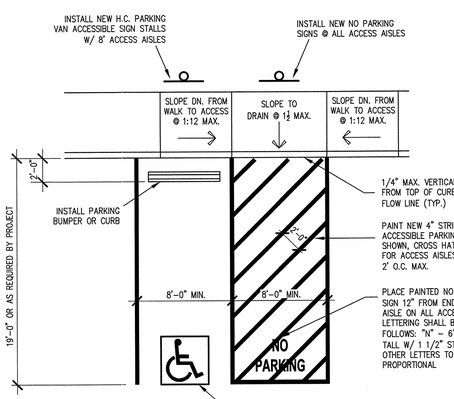
*BOX ONLY

EXTENSION		
MODEL NO.	C	WEIGHT
RS363606	6"	525 LBS.
RS363612	12"	1050 LBS.

3 3'X3' JENSEN PRECAST DROP INLET NOT TO SCALE



2 ACCESSIBLE PARKING SIGN NOT TO SCALE



1 ACCESSIBLE PARKING DETAIL NOT TO SCALE

REV.:	DATE:	BY:	DESCRIPTION:

Lochsa engineering
6345 South Jones Blvd.
Suite 100
Las Vegas, NV 89118
Phone (702) 365-9312
Fax (702) 365-9317
www.lochsa.com

SHEET: DETAIL SHEETS SHEET 2

TITLE: SOMERSET ACADEMY SKY POINTE & ELKHORN LAS VEGAS, NV

PROJECT No.: 121075
DATE: 05/30/13
SCALE: ----
DRAWN BY: MW
DESIGNED BY: MW
CHECKED BY: GM

SEAL: PROFESSIONAL ENGINEER – STATE OF NEVADA – GUY M. MORRIS – EXP. 12-31-13 – CIVIL – No. 14526 – 05-30-13

SHEET No. C6.02
SHEET 24 OF 27

5/30/2013 12:33 PM
I:\LOCA\121075\Drawings\Plot Drawings\C-121075-606-DT.dwg

General

1. The Contractor shall verify all dimensions prior to starting construction. The Architect shall be notified of any discrepancies or inconsistencies.
2. Notes and details on the drawings shall take precedence over these general notes, typical details, and the project specifications.
3. All work shall conform to the minimum standards of following codes:

   The 2009 edition of the International Building Code (IBC), and other regulating agencies which have authority over any portion of the work, and those codes and standard listed in these notes.
4. The contract Structural drawings and specifications represent the finished structure. They do not indicate the method of construction.
5. All specifications and codes noted shall be the latest approved editions and revisions by the governmental agency having jurisdiction over this project.
6. Contractor shall investigate the site during clearing and earth work operations for filled excavations or buried structures such as cesspools, cisterns, foundations, utilities, etc. If any such structures are found, the Structural Engineer shall be notified immediately.
7. IBC Lateral Loads:

Wind:	
Basic Wind Speed	90 mph
Exposure	c
Importance Factor	Iw=1.0
Building Category	II

Seismic:			
Use Group	II		
Importance Factor	Ie=1.0		
Soil Site Class	C		
Seismic Design Category	C		
Spectral Response Coefficients			
Sds	0.42g	Sd1	0.18g
Mapped Spectral Response Acceleration			
Ss	0.53g	S1	0.17g
Soil Factor Coefficients			
Fa	1.19	Fv	1.63

8. ACI 318–08 table 4.3.1 Sulfate Exposure (See General Notes – Concrete Item #3 for concrete water cement ratio limits): S0 (Not Applicable)

Foundation

1. The design of the foundation system is based on the geotechnical report (and any addenda) prepared by the following company:

Company:	TERRACON
Report no:	04125046
Dated:	11/15/12

Copies are available for review at the Architect's office and contractor shall have a copy at the jobsite.

2. The foundation system is designed based on the following:

Allowable Soil Bearing Pressure	
Continuous Footings	2000 psf *
Spread Footings	2300 psf *
Equivalent Fluid Pressure Unconstrained	40 pcf
Equivalent Fluid Pressure Constrained	65 pcf
Passive Pressure	250 pcf
Friction Coefficient	0.40

a ⅓ increase is allowed for Seismic or Wind Loading where asterisk (*) is indicated.

3. The contractor shall provide for proper dewatering of excavations from surface water, ground water, seepage, etc.
4. The Contractor shall provide for the installation and design of all cribbing, sheathing and shoring required to safely and adequately retain the earth banks and support any existing structures in accordance with all national, state and local safety ordinances.
5. All abandoned utilities, footings, etc., that interfere with the new construction shall be removed. Notify the Structural Engineer should any foundations for existing structures be encountered that are not shown on the structural drawings.
6. Footings shall be placed and estimated according to depths shown on the drawings. Excavations for footings shall be approved by the Geotechnical Engineer prior to placing the concrete and reinforcing. The Contractor shall notify the Geotechnical Engineer when the excavations are ready for inspection. The Geotechnical Engineer shall submit a letter of compliance to the Owner. Should soil encountered at these depths not be approved by the Geotechnical Engineer, footing elevations or footing designs will be altered by change order.
7. All excavations shall be properly backfilled. Footing backfill and utility trench backfill within the building perimeter shall be mechanically compacted in layers, to the approval of the Geotechnical Engineer. See geotechnical report for requirements. Flooding will not be permitted.
8. The Contractor shall not backfill behind retaining walls before the concrete or masonry walls have reached full design strength. The Contractor shall brace or protect all building and pit walls below grade from lateral loads until attaching floors are completely in place and have reached full design strength. The Contractor shall provide for the design, any required permits and the installation of such bracing and protection. with the requirements of IBC section 1704.

NOTES:

1. SEE DETAILS 2/– FOR WALL CONTROL JOINT.
2. STRUCTURAL FILL: SEE GEOTECHNICAL REPORT FOR REQUIREMENTS
3. APPLY ECOBASE II OR APPROVED EQUIVALENT FOR BASE PROTECTION AND PROTECT WITH DELTA MS DRAIN FABRIC OR APPROVED EQUIVALENT. EXTEND WEEP HOLES THROUGH DELTA MS DRAIN FABRIC INTO FREE DRAINING BACKFILL. SEAL ALL CRACK CONTROL/EXPANSION JOINTS WITH A BACKER ROD AND FLEXIBLE JOINT SEALANT ON FRONT AND BACK OF WALL.
4. PROVIDE DOWELS TO MATCH SIZE AND SPACING OF VERTICAL WALL REINFORCEMENT FOR LAP LENGTH IN CMU, SEE 4/–

Concrete

1. All aspects of work pertaining to the concrete construction shall be in accordance with ACI 318–08, 'Building Code Requirements for Structural Concrete' and the latest edition of 'Specifications for Structural Concrete for Buildings', ACI 301, with modifications as noted on the project drawings and\or specifications.
2. Concrete mix designs shall be submitted to the Structural Engineer for review. All mix designs shall be designed by a qualified testing laboratory and shall be wet stamped by a Civil Engineer licensed in the State of Nevada. Base design mix on field experience or trial mixtures as stipulated in IBC Section 1905.3
3. Portland cement shall conform to ASTM C150 Type V where the concrete is in contact with soil. Concrete that will be exposed to sulfate-containing solutions shall comply with IBC Section 1904.3 For IBC Table 1904.3. Severe and Very Severe sulfate exposures as identified in the project geotechnical report, the water cement ratio shall not exceed 0.45 and shall not exceed 0.50 for Moderate sulfate exposure. Type II cement shall be used at all other locations in the structure.
4. Fly ash may be used in concrete mixes. The fly ash shall conform to ASTM C618 Class F. The loss of ignition shall be limited to 2%. The addition rate for fly ash shall be limited to 15% of the cement weight. The contractor shall submit all certificates showing the fly ash is in accordance with the above criteria.
5. All concrete exposed to freeze – thaw cycles shall contain 6% +/– 1% of entrained air.
6. Hard rock concrete – aggregate shall conform to all requirements and tests of ASTM C33 and project specifications. Exceptions may be used only with approval of the Structural Engineer. Provide concrete mix design with proven shrinkage characteristics of less than 0.0005 inches/inch.
7. Structural concrete 28–day strengths & types are as follows:

Location of Concrete	Strength, psi	Type
Lean Mix	4500	Hard Rock
Footings	4500	Hard Rock
Slab on Grade	4500	Hard Rock

8. Concrete mixing operations, etc., shall be in accordance with ASTM C94.
9. Concrete placement shall be in accordance with ACI standard 304 and project specifications. Provide keys in construction joints unless detailed otherwise. Thoroughly clean, remove laitance and thoroughly wet and remove standing water in construction joints before placing new concrete. At vertical joints, slush with a coat of neat cement before placing new concrete.
10. Roughen concrete surface to a full amplitude of 1/4 inch where masonry walls intersect concrete or where new concrete interfaces with existing concrete.
11. Clear coverage of concrete over reinforcing bars shall be as follows:

Location of Concrete	Minimum Concrete Cover
Concrete cast against and permanently exposed to earth	3"
Concrete exposed to earth or weather: #6 through #18 bar #5 bar and smaller	2" 1 1/2"
Concrete not exposed to weather or in contact with ground, UNO: Slabs, walls, joists: #14 and #18 bar. #11 bar and smaller. Beams, columns: Primary reinforcing, ties stirrups, spirals.	 1 1/2" 3/4" 1 1/2"
Slab on grade:	2" clear from top

12. Prior to concrete placement, all reinforcing bars, anchor bolts and other concrete inserts shall be well secured in position.

Quality Assurance and Special Inspection

Testing Laboratory: Retained by owner and satisfactory to Architect/Structural Engineer and governing code authority to perform required tests and inspections of this contract and applicable code.

Material Certification: Submit laboratory test reports certifying materials are of identifiable tested stock to owner, testing laboratory, Architect/Structural Engineer and, upon request, to governing code authority. If laboratory test reports cannot be made available, testing laboratory will perform tests as directed by Architect/Structural Engineer. Contractor shall pay testing laboratory for costs related to tests and inspections of unidentifiable materials or materials furnished without laboratory test reports, materials found deficient after initial tests and inspections, or materials replacing deficient materials.

Concrete.

1. Testing laboratory will review concrete mix design data and will perform the following concrete tests at frequency indicated in IBC section 1905.6:
   (a) Slump tests in compliance with ASTM C143.
   (b) Prepare four test cylinders for compressive strength testing in compliance with ASTM C39, ACI 318 and IBC section 1905.6. Test one cylinder at 7 days, two cylinders at 28 days and retain remaining cylinder for tests until completion of project. Determine concrete compressive strength at 28 days based on average of two cylinders tested.
   (c) Entrained air content in compliance with ASTM C231 for air entrained concrete.
2. Reinforcing:
   (a) During placement
3. Structural masonry.
4. Ten percent of drilled–in, epoxy, or grout set anchors shall be proof tested to 2 times allowable tension. Notify Architect/Structural Engineer of any failures so additional testing of adjacent anchors can be directed.
5. Excavation and back–filling.

   All special inspection shall be performed in accordance with the requirements of IBC section 1704.

Masonry

1. The masonry units shall conform to ASTM C90 grade N–1 and IBC Standard C90–99.
2. Mortar and grout shall comply with the provisions of Section 2103 of the IBC
3. Mortar mix shall conform to requirements for IBC Table 2103.7 (1), Type S, and project specifications.
4. Grout shall be coarse grout. Use sufficient water for grout to flow into all joints of the masonry without segregation.
5. Cement – see notes under 'CONCRETE' for requirements and type of cement.
6. The design strength f'm shall be 1500 psi unless noted otherwise in the drawings. The f'm shall be verified by the prism method (IBC Section 2105.3).

   The minimum required 28–day compressive strengths for grout, mortar, and block shall be as follows:

Masonry Design Strength						
f'm =	1500 psi	2000 psi	2500 psi	3000 psi	3500 psi	4000 psi
Grout	2000 psi	2500 psi	3125 psi	3750 psi	4375 psi	5000 psi
Mortar	1800 psi	1800 psi	2500 psi	2500 psi	2500 psi	2500 psi
	Type S	Type S	Type M	Type M	Type M	Type M
Block(*)	2000 psi	2500 psi	3125 psi	3750 psi	4375 psi	5000 psi

   * Minimum compressive strength at 28–days on the net area. Note: These strengths are minimum requirements only. If greater strengths are required to reach the required f'm for the combined system, these greater strengths shall be used.
7. Mortar and grout mix designs shall be submitted to the Structural Engineer for review. All mix designs shall be designed by a qualified testing laboratory and be wet stamped by a Civil Engineer licensed in the State of Nevada.
8. Testing data by a qualified testing laboratory for the masonry block shall be submitted to the Structural Engineer for review.
9. All masonry shall be solid grouted unless noted otherwise on the drawings.
10. Refer to architectural drawings for surface and height of units, laying pattern and joint type.
11. Grout lift provisions shall be in accordance with ACI 530–08 Masonry Standards 5–23 Section 3.5.
12. Reinforcing bars shall be ASTM A615, grade 60, unless noted otherwise. See notes under 'reinforcing steel' for additional requirements.
13. Placement of reinforcing bars shall conform to ACI 530–08 Masonry standards 5–22 Section 3.4. A minimum of 1/2 inch grout between the main reinforcing and masonry units shall be provided.
14. Minimum dimensions of grout spaces and cells shall be in accordance with ACI 530.1, 5–24, Table 7. All cells shall be in vertical alignment and footing dowels shall align with cells containing vertical reinforcing steel.
15. Unless noted otherwise all vertical reinforcing shall have a minimum tension lap splice of 72–bar diameters. When two bars occur in one cell, the splice shall be increased to 94–bar diameters.
16. All horizontal reinforcing shall have a minimum lap splice of 48–bar diameters, stagger all horizontal rebar splices.
17. Coring openings in grouted masonry is not permitted.
18. No pipes or electrical conduit shall pass through masonry lintels unless specifically detailed.
19. Mechanical pipes and electrical conduits which pass through masonry walls do not require sleeves, unless otherwise indicated in the project specifications, mechanical and/or electrical drawings. If sleeves are required, install sleeves before grouting. Do not cut any reinforcing which may interfere with sleeve placement. Notify the Structural Engineer in advance of conditions not shown on the structural drawings.

Reinforcing Steel (For Concrete and Masonry)

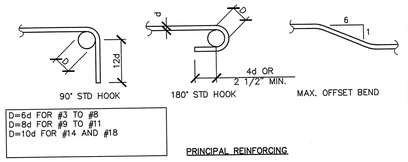
1. All reinforcing steel shall be detailed and placed in accordance with the 'Building Code Requirements for Reinforced Concrete' and the 'Manual of Standard Practice for Reinforced Concrete Construction' by CRSI and WCRSI as modified by the project drawings and specifications.
2. Deformed reinforcing bars shall conform to the requirements of ASTM A615 grade 60 and ASTM A706 grade 60 for deformed weldable bars.
3. All reinforcing bar bends shall be made cold.
4. Lap splices shall be made only where shown on the structural drawings.
5. Reinforcing dowels between footings and walls or columns shall be the same number, size, spacing and grade as the specified vertical reinforcing, u.n.o.
6. All reinforcing bars shall be marked so their identification can be made when the final in–place inspection occurs.

BAR SIZE	LAP CLASS	f'c = 4500 psi TOP BARS CASE 1	TOP BARS CASE 2	OTHER BARS CASE 1	OTHER BARS CASE 2
#3	A	18	27	14	21
	B	23	34	18	27
#4	A	24	35	18	27
	B	31	46	24	35
#5	A	29	44	23	34
	B	38	57	29	44
#6	A	35	53	27	41
	B	46	68	35	53
#7	A	51	77	40	59
	B	67	100	51	77
#8	A	59	88	45	68
	B	76	114	59	88
#9	A	66	99	51	76
	B	85	128	66	99
#10	A	73	109	56	84
	B	95	142	73	109
#11	A	80	120	62	93
	B	104	156	80	120

NOTES:
1. Table for use with normal weight hardrock concrete and grade 60 uncoated reinforcing bars. For lightweight aggregate use 1.3ℓ
2. Class A – Half or less of the bars are spliced within a required lap length. Class B – More than half of the bars are spliced within a required lap length.
3. Top bars are horizontal bars with 12" or more of concrete cast in the member below the bar.
4. For bars enclosed in standard column spirals, use 0.75ℓ or 12" min.
5. Lap splices of individual bars with a bundle shall be 1.2ℓ for that bar in a 3–bar bundle and 1.33ℓ for a 4–bar bundle. Entire bundles shall not be lap spliced at the same location. Splices for individual bars within a bundle shall be staggered such that they do not overlap.
6. ℓ – Basic lap length, shown at left.
7. Case Selection
   –For foundation reinforcement use Case1 uno.
   –For column reinforcement and dowels use case 1 uno.
   –For beam reinforcement use Case1 uno.
   –For structural slab reinforcement use Case2 uno.
   –For slab on grade reinforcement use Case1 uno.
   –For wall reinforcement and dowels use Case1 (Except as noted below) uno.
   –For walls with a single mat of steel centered in the wall, use Case1 for wall reinforcement and dowels uno.
   –For chord steel reinforcement use Case2 uno.

NOTES:
1. CONCRETE ONLY (IN INCHES) FOR GRADE 60 UNCOATED BARS

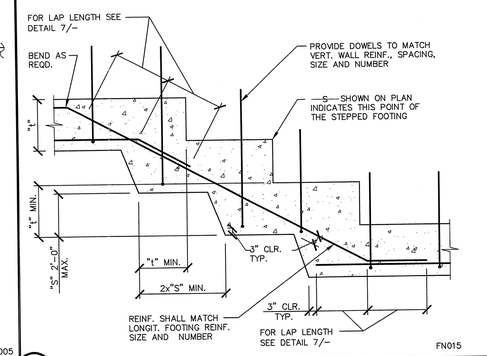
7 TENSION LAP SPLICE — NOT TO SCALE



Notes:
1. All bends shall be made cold.
2. #14 and #18 bars shall be bend tested and lab approved prior to bending.

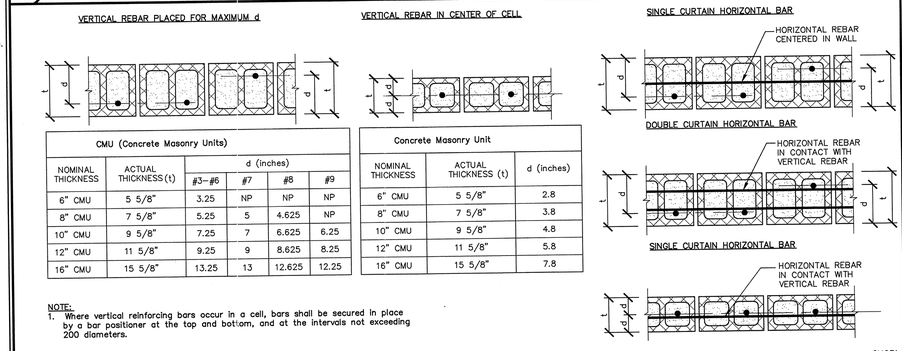
C0005

6 BAR BENDS — NOT TO SCALE



FN015

3 STEPPED FOOTING — NOT TO SCALE



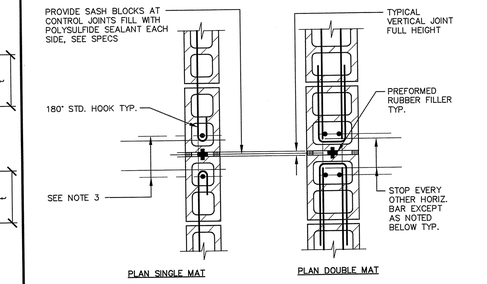
CMU (Concrete Masonry Units)					
NOMINAL THICKNESS	ACTUAL THICKNESS (t)	d (inches) #3–#6	#7	#8	#9
6" CMU	5 5/8"	3.25	NP	NP	NP
8" CMU	7 5/8"	5.25	5	4.625	NP
10" CMU	9 5/8"	7.25	7	6.625	6.25
12" CMU	11 5/8"	9.25	9	8.625	8.25
16" CMU	15 5/8"	13.25	13	12.625	12.25

Concrete Masonry Unit		
NOMINAL THICKNESS	ACTUAL THICKNESS (t)	d (inches)
6" CMU	5 5/8"	2.8
8" CMU	7 5/8"	3.8
10" CMU	9 5/8"	4.8
12" CMU	11 5/8"	5.8
16" CMU	15 5/8"	7.8

NOTE:
1. Where vertical reinforcing bars occur in a cell, bars shall be secured in place by a bar positioner at the top and bottom, and at the intervals not exceeding 200 diameters.

CM031

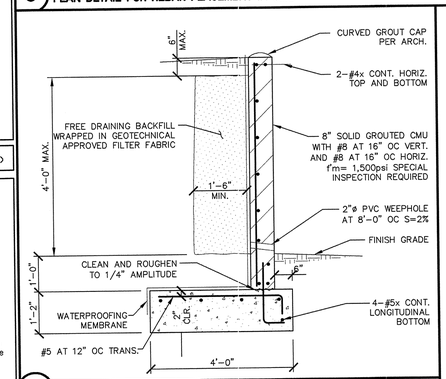
5 PLAN DETAIL FOR REBAR PLACEMENT IN CMU — NOT TO SCALE



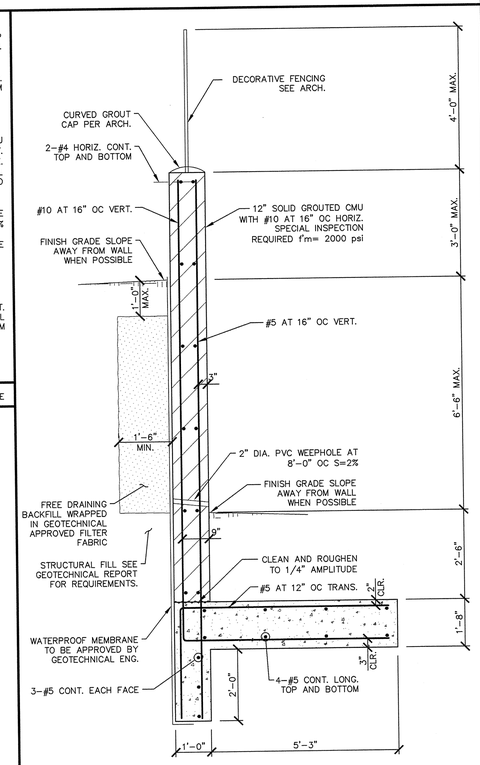
NOTES:
1. Contractor shall obtain architect's approval of joint locations, which shall not exceed 24'–0" oc.
2. Horizontal reinf. at floor lines, roof lines, lintel reinf. and every other horiz. bar (or bar set) shall be continuous through joint.
3. Provide vertical wall reinf. each side of joint, #5 bars min.

CM007

2 PLAN DETAIL CMU WALL CONTROL JOINT — NOT TO SCALE

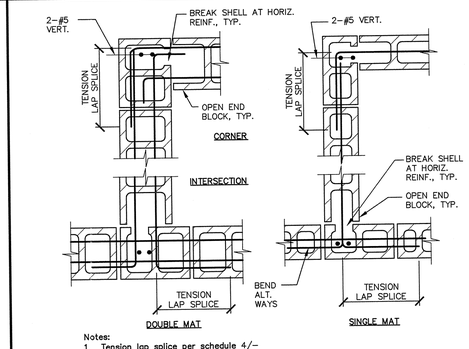


8 ONSITE CMU RETAINING WALL SECTION — NOT TO SCALE



NOTES:
1. SEE DETAIL 6/C6.04 FOR CRACK CONTROL JOINT SPACING.

9 PERIMERTER RETAINING WALL SECTION — NOT TO SCALE



Notes:
1. Tension lap splice per schedule 4/–

CM006–ibc

1 CMU WALL INTERSECTIONS — NOT TO SCALE

Tension Development and Lap Splice Length (for Masonry only)

CMU Thickness	Masonry Design Strength f'm = 1500 psi Center	Edge	f'm = 2000 psi Center	Edge	f'm = 2500 psi Center	Edge	f'm = 3000 psi Center	Edge	f'm = 3500 psi Center	Edge	f'm = 4000 psi Center	Edge
8"	#3	19	19	17	17	15	15	15	15	15	15	15
	#4	26	30	22	26	20	23	18	21	17	20	16	19
	#5	32	48	28	42	25	37	23	34	21	32	20	30
	#6	58	100	50	86	45	77	41	71	38	65	36	61
	#7	80	124	70	107	62	96	57	88	53	81	49	76
	#8	114	152	99	131	89	117	81	107	75	99	70	93
	#9	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP
12"	#3	19	19	17	17	15	15	15	15	15	15	15	15
	#4	26	30	22	26	20	23	18	21	17	20	16	19
	#5	32	48	28	42	25	37	23	34	21	32	20	30
	#6	53	100	46	86	41	77	38	71	35	65	33	61
	#7	62	124	54	107	48	96	44	88	41	81	38	76
	#8	76	152	66	131	59	117	54	107	50	99	47	93
	#9	92	171	80	148	71	133	65	121	60	112	57	105

NOTES:
1. All lengths are in inches.
2. For bar placement, edge distance (c Dim.) see detail 5/–
3. Where 2 bars per cell occur they shall be placed per edge condition see note 2.
4. 6" CMU 2 bars per cell is not permitted. 8" CMU 2 bars per cell up to #5 are permitted. 10" CMU 2 bars per cell up to #7 are permitted.
5. NP indicates Not Permitted.
6. #10 and #11 bars where shown on plans or details require a mechanical splice.

CM033–ibc

4 TENSION DEVELOPMENT AND LAP SPLICE LENGTH (FOR MASONRY ONLY) — NOT TO SCALE

REV.:	DATE:	BY:	DESCRIPTION:

Lochsa engineering
6345 South Jones Blvd.
Suite 100
Las Vegas, NV 89118
Phone (702) 365-9317
Fax (702) 365-9317
www.lochsa.com

DETAIL SHEETS SHEET 3

SOMERSET ACADEMY SKY POINTE & ELKHORN LAS VEGAS, NV

SHEET / TITLE

PROJECT No.: 121075
DATE: 05/30/13
SCALE: ----
DRAWN BY: NG
DESIGNED BY: GM
CHECKED BY: GM

SEAL: REGISTERED PROFESSIONAL ENGINEER STATE OF NEVADA GUY M. MORRIS EXP. 12–31–13 CIVIL No. 14526
05–30–13

SHEET No. C6.03
SHEET 25 OF 27

5/30/2013 12:33 PM
J:\2012\121075\Somerset\Plot Drawings\C-121075-600-07.dwg