

DS #:

5124-1

APN:

162.03-861-005

PROJECT:

Fremont K-8 School

SUBMITTAL:

3rd

SCANNED BY/DATE:

CHECKED BY/DATE:



CITY OF LAS VEGAS		DATE:
INTER-OFFICE MEMORANDUM		September 18, 2019
TO: Land Development Services Department of Building & Safety		FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	COPIES TO:	
Drainage Study for:	Lochsa Engineering	
Fremont K-8 School - Update	Clark County School District	
Cross Streets:	SWQ of Maryland Pkwy. & St. Louis Avenue	Bart Anderson, P.E., DevCo
File Number:	F:\Depot\DSMemos\DS5124C.doc	
Parcel Number:	162-03-801-005	
Zoning Action:	SDR-76201 & VAR-76200	
FEMA Flood Zone	YES	NO X
Proposed Storm Drain	YES	NO X

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1 st Submittal	4/15/2019	5/2/2019	Not Approved	\$400.00	3091475: \$400
2 nd Submittal & Supplement	5/20/2019 & 6/19/2019	6/20/2019	Approved	\$400.00	3138677: \$400
3 rd Submittal	9/5/2019	9/18/2019	See Comments Below	\$100.00	3557150: \$100
TOTAL FEES (LDDRS):				\$900.00	----

REMARKS:

3rd Submittal: Update to raise the finished floor elevations of buildings by about 1'

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

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

1. Provide a note on the grading plan: *All Onsite Storm Drain Systems and the associated facilities are Privately Owned and to be Privately Maintained by the School.*
2. 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*).

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 Update and accepted by the *City of Las Vegas Flood Control Section*. Additionally, conditional acceptance of a drainage study is valid for a period of one (1) year. If the proposed construction has not been completed in that time period, the *City of Las Vegas* reserves the right to require additional conditions and/or submission and acceptance of a complete drainage study update prior to further construction of a project.

END OF REMARKS

ays

T/R/S: T21S/R61E/03
AREA R-03

BOARD OF SCHOOL TRUSTEES

Lola Brooks, President
Linda P. Cavazos, Vice President
Chris Garvey, Clerk
Irene A. Cepeda, Member
Danielle Ford, Member
Deanna L. Wright, Member
Dr. Linda E. Young, Member

Jesus F. Jara Ed.D., Superintendent

July 17, 2019

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

Subject: Fremont Middle School – DS-05124
Lochsa Engineering Project No. 181203

Dear Mr. Sung,

Clark County School District (CCSD) acknowledges the necessity for an on-site drainage grate on our property up at the northeast corner of our site. Due to the lack of existing storm drain facilities for our on-site drainage system to tie into, this drainage grate will serve as a “bubbler”.

The water that will discharge to the surface through this grate will then drain out to a new BMP swale then through a new under sidewalk drain to the right-of-way. As such, CCSD acknowledges and accepts the responsibility for maintenance and repairs for this drainage grate.

If you should have any questions regarding this matter, please do not hesitate to contact me at 702-799-8710 ext. 5215.

Sincerely,



Jeff Wagner, AIA, LEED AP, CCCA, MCP
Director IV
Clark County School District
Construction Management
1180 Military Tribute Place
Henderson, NV 89074
(702) 799-8710 x5215
wagneja@nv.ccsd.net

State of Nevada)
County of Clark)
This instrument was acknowledged
before me on July 17, 2019 by Jeff Wagner.

Notary Public



S.L. LASPINA
Notary Public, State of Nevada
No. 99-38565-1
My Appt. Exp. Nov. 1, 2019

**Update to
Technical Drainage Study
For
Fremont K-8 School
(MPID#1623)**

Lochsa Job No. 181203

September 2019

Prepared for:

Clark County School District
1180 Military Tribute Place
Henderson, NV 89074

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: Fremont K-8 School Date: September 5, 2019
Location of Development: a) Descriptive (Cross Streets) North/South: Maryland Parkway
East/West: St. Louis Avenue
b) Section: 3 Township: 21 South Range: 61 East
c) APN: 162-03-801-005

Name of Owner: Clark County School District Board of Trustees
Telephone No.: 702-799-6450 Fax No.: _____ E-Mail Address: _____
Address: 1180 Military Tribute Place Henderson, NV 89074

Contact Person-Name: Abdul Bakhshi Telephone No.: (702) 365-9312
* E-Mail Address: Abdul.bakhshi@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: 8.0 +/- Acres Being Developed/Disturbed: 8.0 +/- 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.): School buildings, play area and parking addition
5. Approximate upstream land area which drains to the subject site: 70.0 +/- Acres
6. Has the site drainage been evaluated in the past? ☒ YES ☐ NO If yes, please identify documentation: approved TDS for Fremont K-8 School (DS 5124)
7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: Northeasterly towards St. Louis Avenue
8. Briefly describe your proposed schedule for the subject project: ASAP



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

September 5, 2019

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 Technical Drainage Study for Fremont K-8 School
CLV DS5124A
Parcel Number 162-03-801-005
Lochsa Job #181203

Dear Mr. Sung,

This letter is intended as an update to the approved "*Technical Drainage Study for Fremont K-8 School*", hereinafter will be referred to as the 'Original Study'. The Original Study was prepared by Lochsa Engineering and was approved by City of Las Vegas on June 20, 2019 (CLV **5124A**). The Original Study provided the most current hydrologic and hydraulic analysis for the development of the subject project site. The approved improvements with the Original Study proposed the entire school site development with athletic courts and the parking. The new improvements are now being proposed with this subject update and redlined in the original civil plans.

The project area represents approximately 8.0-acre as described in the Original Study. Currently the project area is an existing school campus to be demolished and cleared. The site generally slopes to the northeast at approximately 1.0%.

The project site occupies the parcel APN 162-03-801-005 and is located at the southwest corner of St. Louis Avenue and Maryland Parkway intersection. The site occupies a portion of the Southern Half (S1/2) of the Southeast Quarter (SE 1/4) of Section 3, Township 21 South, Range 61 East, of the M.D.M., in the City of Las Vegas, Nevada. Please refer to the copy of the Assessor's Parcel Map provided in the appendix. Figure 1, in Appendix C also provides the location of the subject site in relation to the surrounding major streets.

The approved Original Study has already analyzed the Existing and Interim/Developed hydrologic and hydraulic patterns and conditions for the subject site. As discussed in the Original Study, the subject site is the existing school site with the original buildings, court yard and surface parking to be demolished entirely.

The onsite basins of the subject project area all fall within the Central watershed. The hydrologic and hydraulic analyses presented in this report are carried out in accordance with the CCRFCD's HCDDM (Reference 1). The rainfall values used for the hydrologic analysis of the site represent the 10-year and 100-year storm recurrence events, each with six-hour duration. The site is within the boundary for using the McCarran Airport Rainfall Data. Therefore, point precipitation values were determined using Table 505 of the HCDDM. The adjusted point rainfall values for the 6-hour, 10-year and 100-year storm events are determined from Table 505 as 1.58 and 2.77 inches, respectively.

Review of the 2018 Master Plan Update's Figure W-5 (Reference 2) indicates that the site generally falls within the hydrologic soil group 1390 soil type 'C', defined as soils with "Moderately high runoff potential. Therefore, the soil group C assumption is utilized in the hydrologic analysis carried out in this Master Study, per NRCS determination.

Revised Interim/Developed Condition

Offsite flows were established from referenced 'Original Study'. The Original Study was prepared by Lochsa Engineering and was approved by City of Las Vegas on June 20, 2019 (CLV 5124A). The Original Study provided hydrologic and hydraulic analysis for E. St Louis Avenue and the offsite impact from the westerly direction for both the existing and developed conditions. The offsite basins delineated from Baker Park impact the subject site from the westerly direction only. The offsite basins were delineated using Clark County 2-ft contour topography. Please refer to referenced Figure DR2, *Interim/Developed Conditions* with the offsite basin delineation.

Lochsa Engineering concurs with all the pertinent referenced analyses and results utilized in this TDS Update.

The previously approved developed condition analysis from the Original Study is being revised in this Update to reflect the new building FF elevations, playground area, trash enclosures, grading revisions and the replacement of the onsite trench drain. However, the point of discharge of the subject site onto E. St Louis Avenue did not change.

With the new proposed Fremont K-8 School improvements, the previously approved grading plan is being utilized to delineate the onsite basin revisions. We have redlined the areas of revisions and referenced the approved civil plans within this Update submittal. Please refer to the referenced redlined approved civil plans and drainage exhibit DR2, *Interim/Developed Condition*.

As previously mentioned, the subject site was delineated into three basins, 'OND1', 'OND2' and 'OND3'. Per this Update onsite basins were slightly adjusted to reflect the grading revisions. Per the revised DR2, Interim/Developed exhibit, the revised onsite basins are 'OND1' (5/9cfs - 2.70 acres), 'OND2' (4/8cfs - 2.44 acres) and 'OND3' (4/7cfs - 2.40 acres). Please refer to the revised HEC-1 output and DR2, enclosed within this Update submittal.

Onsite basin 'OND2' travels in an easterly direction through the AC play area and onto the cul-de-sac. The flow from the cul-de-sac shall travel northerly and ultimately discharge onto E. St. Louis Avenue. Offsite basin 'OFD2' (delineated from Baker Park) is combined with onsite basin 'OND1' and travel easterly and onto the BMP swale as it exits onto E. St Louis Avenue at northeast corner of the site. Offsite basin 'OFD1' (delineated from Baker Park) is combined with onsite basin 'OND3' as it is being conveyed within the proposed 24-inch RCP storm drain. Additional area drains were proposed to alleviate the ponding within the court yard between the buildings that will contribute to the onsite storm drain. The flow from the onsite storm drain will eventually discharge onto E. St Louis Avenue through inlet bubbler. The storm drain replaced the previously approved trench drain. The calculations are provided for the area drains in both weir and orifice scenario to intercept the combined flow at 'CPD1' (12cfs for the 100-year).

We have also revised hydraulic section 'OV1' to include the combined flow from onsite basin 'OND3' with offsite basin 'OFD1' incase if the area drains are completely clogged. The hydraulic section indicates that the combined flow will over top and drain easterly onto the access road before it impacts the adjacent buildings. Please refer to the 24-inch RCP nomograph and FlowMaster as well as the Standard Form-6 for storm drain hydraulic and energy grade lines within this submittal.

The normal depth calculations referenced illustrate that the flows within the perimeter street are well below the maximum allowable velocity x depth ($v \times d$) value of 6.0 and 8.0 during 10-year and 100-year storm events. However, section 'A' (for both existing and interim/developed conditions) which represent the 80-ft right of way for St Louis Avenue, does not meet the 12-ft dry lane criteria. However, per this TDS Update our total flow exiting from the overall subject site is 18/33cfs compared to the previously approved 19/34cfs, for the 10 and 100-year storm runoff.

Please refer to the revised grading and Figure DR2, for the new raised finished floor (FF) elevations for the proposed buildings A, (2004.82-ft), B (2004.82-ft), C (2004.51-ft) and D (2004.51-ft). However, the proposed FF does not satisfy the requirement of being double the 100-year flow depth (0.66ft) above E. St. Louis Avenue flow line. However, the proposed FF elevation for the building is set more than 6-inches above the adjacent flow line highpoint elevation and it is protected by the proposed landscaping berm along northern boundary of the subject site that runs along E. St. Louis Avenue.

Master Planning Information

The "2018 Las Vegas Valley Flood Control Master Plan Update" (2018 MPU, Reference 2), dated September 2018, as prepared by Post Buckley Schuh and Jernigan, Inc. (PBS&J), in association with Louis Berger Group and Parsons Brinckerhoff, illustrates the existing and proposed regional master planned facilities. The CCRFCD facility exhibits and inventory tables were updated in 2018. Review of Figure F-30 of the 2018 MPU indicates that proposed improvements are not adjacent to a regional facility.

Floodplain Information

The project site is covered by Flood Insurance Rate Map (FIRM) for the Clark County, Nevada, and incorporated areas, Community Panel Number: 32003C2170F, Effective Date: November 16, 2011. Review of the FIRM indicates that subject project site falls within Zone “X” (unshaded), described by FEMA as: “Areas determined to be outside the 0.2% annual chance floodplain.” Please refer to the attached Figure 2 for the location of the site on a portion of the above referenced FIRM in Appendix C.

Compliance with Regulations and Adopted Plans

The subject drainage study update is specifically provided as a support document to the proposed improvements and revised grading plan for the Fremont K-8 School. This update is in conformance with the approved “*Technical Drainage Study for Fremont K-8 School*” (CLV 5124A). 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 the 2018 MPU. The proposed improvements 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.

Compliance with CCRFCD Best Management Practices (BMP)

To satisfy the water quality BMP requirement in Section 1500 of the CCRFCD Drainage Design Manual, the project site is designed to accommodate as much as possible Low Impact Development (LID) measures. As shown in the previously approved grading plan, a riprap-lined swale is being proposed northeast corner of the project site. The swale is designed to settle out sediment and pollutant of the water quality design flows, prior to exiting the project site. As shown in the attached excerpts from Section 1500 of the HCDDM, since the parking lot area of the project site is more than 1 acre, the parking lot is categorized as ‘Large’ parking. For Large parking lot, water quality BMPs are required for at least 75% of the proposed parking lot.

Onsite basin OND2 represents the majority of the play area, a small portion of the rooftop and no proposed surface parking and therefore it is considered clean before it exits the site in an easterly direction. For onsite basin OND3, the storm runoff generated are from the rooftops and the courtyard that will eventually be collected into the storm drain through area drains and are considered clean as well. Therefore, only runoff generated from onsite basin OND1 is not fully treated.

Therefore, only onsite basin OND1 is impervious and consist of the surface parking that is not being treated. With our site layout and limitations, we are treating approximately 74% (2acres treated /2.70acres) of the onsite basin ‘OND1’ through an 80-ft BMP swale. A Normal depth calculation (capacity) has been provided for the water quality swale (6ft wide, 4:1 SS) to illustrate its sufficient capacity to convey the 10-year flows (developed). The BMP swale is only needed to convey the 2yr flow.

Per the design guidelines of Section 1503.4.5, the proposed water quality riprap-lined swale for the site is set to a minimum 80ft long. The swale is designed with 0.70% slope, 4(horizontal):1(vertical) side slope, riprap lining with $D_{50}=4''$, and a 0.75ft depth.

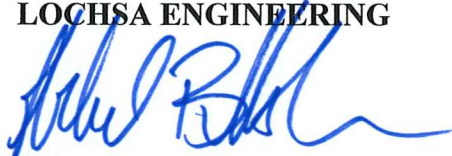
References

1. Clark County Regional Flood Control District, “*Hydrologic Criteria and Drainage Design Manual*”, August 1999.
2. Atkins in association with Louis Berger Group, “*2018 Las Vegas Valley Flood Control Master Plan Update, Volume 1 and II*”, September 2018.
3. Atkins in association with Louis Berger Group, “*2018 Las Vegas Valley Flood Control Master Plan Update, Volume 1 and II*”, W-5 map
4. Federal Emergency Management Agency, “Flood Insurance Rate Maps; Community Panel Numbers 32003C2170F; Clark County, Nevada and Incorporated Areas,” Effective Date November 16, 2011.
5. Lochsa Engineering “*Technical Drainage Study for Fremont K-8 School*” approved by City of Las Vegas on June 20, 2019 (CLV **5124A**).

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

Sincerely,

LOCHSA ENGINEERING



Abdul Bakhshi



APPENDIX A

HYDROLOGIC ANALYSIS

Curve Number Calculations
FREMONT K-8 SCHOOL

Sub-Basin: OND1
Total Area: 2.70 Acres

Land Use/Cover type	Area [A] (acres)	Soil Type	Percentage, P [P]	Crue Number [CN]	Product {CN x P}
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)	2.70	C	100%	98	98.0
Total:	2.70	-	100%	-	98.0

Curve Number Calculations
FREMONT K-8 SCHOOL

Sub-Basin: OND2
Total Area: 2.44 Acres

Land Use/Cover type	Area [A] (acres)	Soil Type	Percentage, P [P]	Crue Number [CN]	Product {CN x P}
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)	2.44	C	100%	98	98.0
Total:	2.44	-	100%	-	98.0

Curve Number Calculations
FREMONT K-8 SCHOOL

Sub-Basin: OND3
Total Area: 2.40 Acres

Land Use/Cover type	Area [A] (acres)	Soil Type	Percentage, P [P]	Crue Number [CN]	Product {CN x P}
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)	2.40	C	100%	98	98.0
Total:	2.40	-	100%	-	98.0

Curve Number Calculations
FREMONT K-8 SCHOOL

Sub-Basin: OFD1
Total Area: 1.83 Acres

Land Use/Cover type	Area [A] (acres)	Soil Type	Percentage, P [P]	Crue Number [CN]	Product {CN x P}
Artificial desert landscaping	1.83	C	100%	96	96.0
Total:	1.83	-	100%	-	96.0

Curve Number Calculations
FREMONT K-8 SCHOOL

Sub-Basin: EX1
Total Area: 4.00 Acres

Land Use/Cover type	Area [A] (acres)	Soil Type	Percentage, P [P]	Crue Number [CN]	Product {CN x P}
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)	4.00	C	100%	98	98.0
Total:	4.00	-	100%	-	98.0

Curve Number Calculations
FREMONT K-8 SCHOOL

Sub-Basin: EX2
Total Area: 4.00 Acres

Land Use/Cover type	Area [A] (acres)	Soil Type	Percentage, P [P]	Crue Number [CN]	Product {CN x P}
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)	4.00	A	100%	98	98.0
Total:	4.00	-	100%	-	98.0

Curve Number Calculations
FREMONT K-8 SCHOOL

Sub-Basin: OFD2
Total Area: 1.32 Acres

Land Use/Cover type	Area [A] (acres)	Soil Type	Percentage, P [P]	Crue Number [CN]	Product {CN x P}
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)	1.32	C	100%	98	98.0
Total:	1.32	-	100%	-	98.0

AVERAGE VELOCITY

Input Variables	Basin OND1	Basin OND2	Basin OND3	Basin OFD1	Basin EX1	Basin EX2	Basin OFD2													
Bottom Width, B, (ft):	2.0	2.0	35.0	10.0	2.0	20.0	10.0													
Right Side Slope, Zr:	0	50	100	200	50	200	200													
Left Side Slope, Zl:	50	0	100	200	0	200	200													
Manning's n:	0.015	0.015	0.015	0.015	0.015	0.015	0.015													
Geometric Slope, So (ft/ft):	0.006	0.008	0.004	0.008	0.008	0.007	0.007													
Flowrate, Q (cfs):	4.5	4	3.5	2.5	6	5.5	2													
Output Variables																				
Normal Depth, Yn (ft):	0.25	0.23	0.08	0.08	0.28	0.10	0.07													
Area of Flow, A, (sf):	2.13	1.81	3.39	2.10	2.44	4.04	1.85													
Velocity, V (fps):	2.11	2.22	1.03	1.19	2.46	1.36	1.08													
Wetted Perimeter, p, (ft):	14.98	13.82	50.78	42.22	16.04	60.25	39.74													
Hydraulic Radius, Rh (ft):	0.14	0.13	0.07	0.05	0.15	0.07	0.05													
Free Surface Top Width, T (ft):	14.73	13.58	50.78	42.22	15.76	60.25	39.74													
Centroid, Y*, (ft):	0.09	0.09	0.04	0.03	0.10	0.04	0.03													

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

HEC-1 MODEL OUTPUT

(INTERIM/DEVELOPED CONDITION)


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*****
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
* JUN 1998 *
* VERSION 4.1 *
* RUN DATE 04SEP19 TIME 13:18:27 *
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*****
* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENTER *
* 609 SECOND STREET *
* DAVIS, CALIFORNIA 95616 *
* (916) 756-1104 *
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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

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LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
1 ID FREMONT K-8 SCHOOL
2 ID ***** TECHNICAL DRAINAGE STUDY *****
3 ID INTERIM / DEVELOPED CONDITION - ONSITE
4 ID USING SCS METHODS AND KINEMATIC WAVE ROUTING
5 ID MASTER PLAN ADJUSTED 6-HOUR RAINFALL AND STORM DISTRIBUTION
6 ID
7 ID LOCHSA JOB # 181203
8 ID
9 ID
10 ID INPUT FILE NAME: D.DAT
11 ID
12 ID AUGUST 2019
13 ID
14 ID *****
15 ID *****
16 ID MCCARRAN AIRPORT RAINFALL AREA
17 ID 10 & 100 YEAR - 6 HOUR STORM EVENT
18 ID PRECIPITATION:
19 ID 10-YEAR : 1.58 INCHES
20 ID 100-YEAR : 2.77 INCHES
21 ID 10-YEAR/100-YEAR : 1.58/2.77= 0.5704
22 ID
23 ID *****
24 ID *****
25 ID *DIAGRAM
26 ID IT 5 200
27 ID IO 5
28 ID IN 5
29 ID JR PREC .5704 1.0
30 ID
31 ID KK OFD1
32 ID KM THE DEVELOPED OFFSITE BASIN FROM BAKER PARK TRAVELING EASTERLY TOWARDS ONSITE
33 ID PB 2.770
34 ID PC 0.0 .02 .057 .07 .087 .108 .124 .13 .13 .13
35 ID PC .13 .13 .13 .133 .14 .142 .148 .158 .172 .181
36 ID PC .19 .197 .199 .2 .201 .204 .214 .229 .241 .249
37 ID PC .251 .256 .27 .278 .281 .283 .295 .322 .352 .409
38 ID PC .499 .59 .71 .744 .781 .812 .819 .835 .851 .856
39 ID PC .86 .868 .876 .888 .91 .926 .937 .95 .97 .976
40 ID PC .982 .985 .987 .989 .99 .993 .993 .994 .995 .998
41 ID PC .998 .999 1.0
42 ID BA .00286
43 ID LS 0 96.0
44 ID UD .114
45 ID *
46 ID
47 ID KK OND3
48 ID KM ONSITE BASIN TRAVELING EASTERLY AND THEN NORTHERLY
49 ID BA .00375
50 ID LS 0 98.0
51 ID UD 0.143
52 ID *

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1

HEC-1 INPUT

PAGE 2

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LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
48 KK CPD1
49 KM COMBINE OND3 AND OFD1, THE TOTAL THAT BUBBLES OUT
50 HC 2
51 ID
52 ID KK OND2
53 ID KM ONSITE BASIN TRAVELING EASTERLY AND THEN NORTHERLY
54 ID BA .00381
55 ID LS 0 98.0
56 ID UD 0.081
57 ID *
58 ID
59 ID KK OFD2

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57      KM  OFFSITE BASIN TRAVELING NORTHEASTERLY THROUGH THE SUBJECT SITE
58      BA  .00206
59      LS      0      98.0
60      UD  0.097
      *

61      KK  OND1
62      KM  ONSITE BASIN TRAVELING NORTH EASTERLY
63      BA  .00422
64      LS      0      98.0
65      UD  0.077
      *

66      KK  CPD2
67      KM  COMBINE OND1, OFD2 AND OND2
68      HC      4
      *
69      ZZ

```

1

SCHEMATIC DIAGRAM OF STREAM NETWORK

```

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

29      OFD1
      .
43      .      OND3
      .
48      CPD1.....
      .
51      .      OND2
      .
56      .      .      OFD2
      .
61      .      .      .      OND1
      .
66      CPD2.....

```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```

1 *****
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
* JUN 1998
* VERSION 4.1
* RUN DATE 04SEP19 TIME 13:18:27
* *****

```

```

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

```

```

FREMONT K-8 SCHOOL
***** TECHNICAL DRAINAGE STUDY *****
INTERIM / DEVELOPED CONDITION - ONSITE
USING SCS METHODS AND KINEMATIC WAVE ROUTING
MASTER PLAN ADJUSTED 6-HOUR RAINFALL AND STORM DISTRIBUTION

LOCHSA JOB # 181203

```

INPUT FILE NAME: D.DAT

AUGUST 2019

```

*****
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 : 1.58/2.77= 0.5704
*****

```

26 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      0200 STARTING TIME
NQ      101 NUMBER OF HYDROGRAPH ORDINATES
NDDATE      1 0 ENDING DATE
NDTIME      1020 ENDING TIME
ICENT      19 CENTURY MARK

```

```

COMPUTATION INTERVAL .08 HOURS
TOTAL TIME BASE      8.33 HOURS

```

ENGLISH UNITS

```

DRAINAGE AREA      SQUARE MILES
PRECIPITATION DEPTH INCHES
LENGTH, ELEVATION  FEET
FLOW               CUBIC FEET PER SECOND
STORAGE VOLUME     ACRES-Feet

```

SURFACE AREA
 TEMPERATURE
 ACRES
 DEGREES FAHRENHEIT
 JP MULTI-PLAN OPTION
 NPLAN 1 NUMBER OF PLANS
 JR MULTI=RATIO OPTION
 RATIOS OF PRECIPITATION
 .57 1.00

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

OPERATION	STATION	AREA	PLAN	RATIOS APPLIED TO PRECIPITATION	
				RATIO 1 .57	RATIO 2 1.00
HYDROGRAPH AT +	OFD1	.00	1 FLOW TIME	3. 3.50	5. 3.50
HYDROGRAPH AT +	OND3	.00	1 FLOW TIME	4. 3.58	7. 3.58
2 COMBINED AT +	CPD1	.01	1 FLOW TIME	7. 3.58	12. 3.58
HYDROGRAPH AT +	OND2	.00	1 FLOW TIME	4. 3.50	8. 3.50
HYDROGRAPH AT +	OFD2	.00	1 FLOW TIME	2. 3.50	4. 3.50
HYDROGRAPH AT +	OND1	.00	1 FLOW TIME	5. 3.50	9. 3.50
4 COMBINED AT +	CPD2	.02	1 FLOW TIME	18. 3.50	33. 3.50

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

APPENDIX B

HYDRAULIC ANALYSIS

Weir and Orifice Calculations for Grate-Bubbler

Project: Fremont K-8 School
 Project Number: 181203

Date: August, 2019

Rating Table for the Proposed 5ft x 5ft Grate Bubbler

Orifice Equation: $Q = KCA(2gh)^{0.5}$

Effective Area of Grate: $A = 0.60 \times \text{Area}$

2ft x 2ft Grate

		Length of Grate (L):	5.0	ft
		Width of Grate (W):	5.00	ft
		Orifice Coefficient (C):	0.65	
		Clogging Factor (K):	50.00%	%
		Effective Area Coef. :	0.60	%
Top of Grate Elev.:	2000.00			
Headwater Elevation (ft)	Head Above Grate (h) (ft)	Effective Area of Grate (A) (sf)	Flow into Grate (Q) (cfs)	
2000.00	0.00	15.0	0.0	
2000.05	0.05	15.0	8.7	
2000.10	0.10	15.0	12.4	<--Estimated Bubbling Head Losses
2000.15	0.15	15.0	15.2	
2000.20	0.20	15.0	17.5	
2000.25	0.25	15.0	19.6	
2000.30	0.30	15.0	21.4	
2000.35	0.35	15.0	23.1	
2000.40	0.40	15.0	24.7	
2000.45	0.45	15.0	26.2	
2000.50	0.50	15.0	27.7	
2000.55	0.55	15.0	29.0	
2000.60	0.60	15.0	30.3	
2000.65	0.65	15.0	31.5	
2000.70	0.70	15.0	32.7	
2000.75	0.75	15.0	33.9	
2000.80	0.80	15.0	35.0	
2000.85	0.85	15.0	36.1	
2000.90	0.90	15.0	37.1	
2000.95	0.95	15.0	38.1	
2001.00	1.00	15.0	39.1	
2001.05	1.05	15.0	40.1	
2001.10	1.10	15.0	41.0	

Weir Equation:

$$Q = C L e (h)^{3/2}$$

Top of Grate Elev.: 2000.00		Grate		
		Length of Opening (L)(ft):		5.0
		Width of Opening (W)(ft):		5.0
		Discharge Coefficient (C):		3.00
		Effective Length Coef.		0.70
Headwater Elevation (ft)	Head Above Crest (h) (ft)	Crest Length (2L + W) (ft)	Effective Crest Length (Le) 0.70 x (L + W) (ft)	Weir Flow from Grate (Q) (cfs)
2000.00	0.00	15.00	10.5	0.0
2000.05	0.05	15.00	10.5	0.4
2000.15	0.15	15.00	10.5	1.8
2000.25	0.25	15.00	10.5	3.9
2000.35	0.35	15.00	10.5	6.5
2000.45	0.45	15.00	10.5	9.5
<u>2000.55</u>	<u>0.55</u>	<u>15.00</u>	<u>10.5</u>	<u>12.8</u>
2000.65	0.65	15.00	10.5	16.5
2000.70	0.70	15.00	10.5	18.4
2000.75	0.75	15.00	10.5	20.5
2000.85	0.85	15.00	10.5	24.7
2000.95	0.95	15.00	10.5	29.2
2001.05	1.05	15.00	10.5	33.9
2001.15	1.15	15.00	10.5	38.8
2001.25	1.25	15.00	10.5	44.0
2001.35	1.35	15.00	10.5	49.4
2001.45	1.45	15.00	10.5	55.0
2001.55	1.55	15.00	10.5	60.8
2001.65	1.65	15.00	10.5	66.8
2001.75	1.75	15.00	10.5	72.9
2001.85	1.85	15.00	10.5	79.3
2001.95	1.95	15.00	10.5	85.8
2002.05	2.05	15.00	10.5	92.5

<--- Estimated Bubbling Headwater

Standard Form-6

Onsite Storm Drain

Storm Sewer Hydraulic Calculations

Proposed 24-inch onsite Storm Drain to Convey Offsite Flow 'OFD1' and onsite 'OND3' onto a bubbler
Developed Condition

Project Name: Fremont K-8 School

Project #: 181203

Manning's "n"-value: 0.013

Definition of Full Flow: 100%

Allowable Dist. from HGL to FG: 1.0 ft

[illegible]
$$Sf = \frac{(I)(Hv)}{R^{1.33}}$$
$$I = \frac{2g(n^2)}{2.21}$$

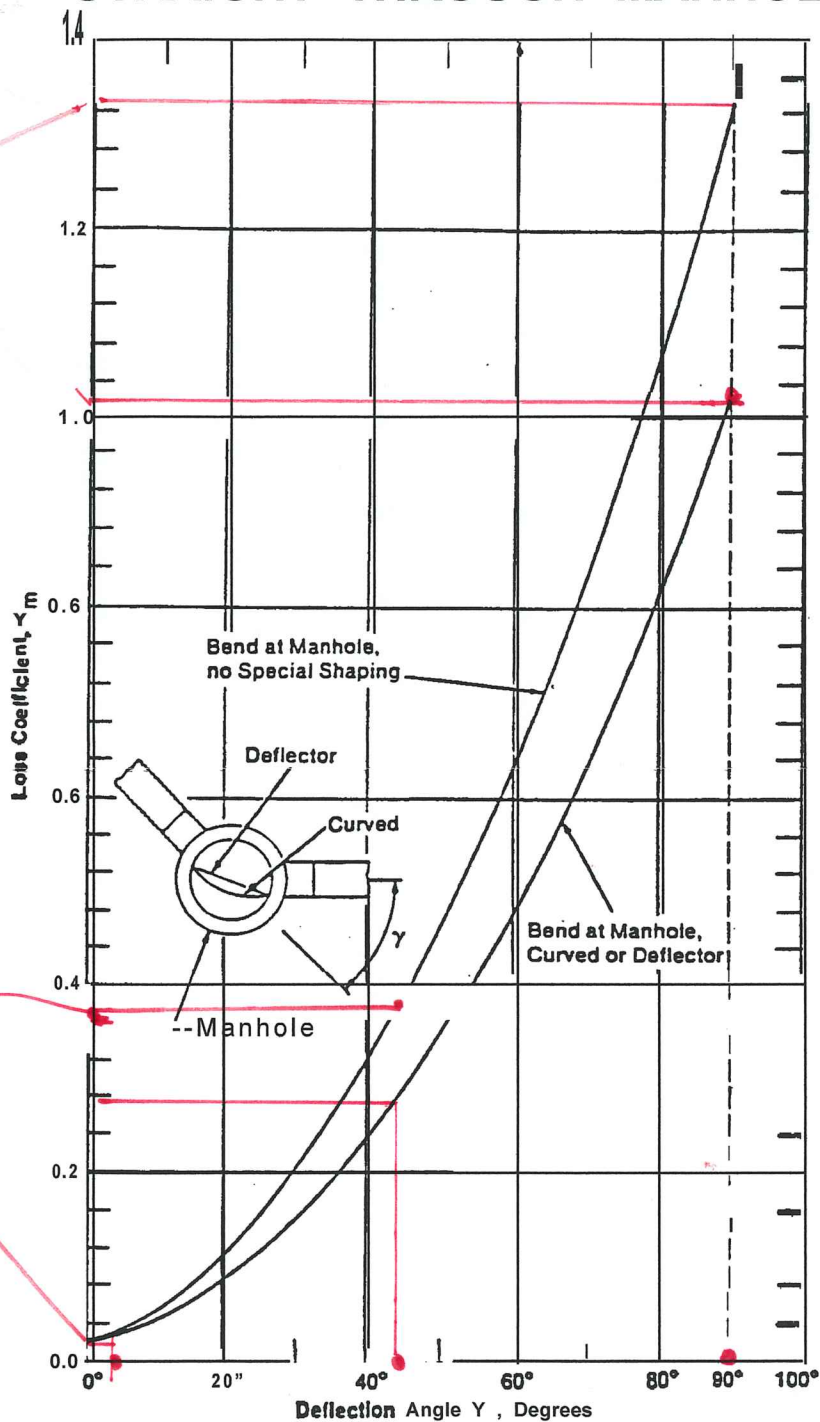
REFERENCE:

Notes * Starting HGL = 2000.55ft = 100-year Headwater elevation, as determined in the attached weir calculation along the perimeter of the bubbler
* Starting EGL = Starting HGL + 1.0 x velocity head (exit losses) + 0.10ft (Bubbling losses, estimated through the attached Orifice Calculation)

- | | |
|--|--|
| (1) 45 Degree Manhole - Loss Coefficient = 0.35 | (CCRFCD Drainage Design Manual, Figure 815) |
| (2) 90 Degree Manhole - Loss Coefficient = 1.32 | (CCRFCD Drainage Design Manual, Figure 815) |
| (3) 5.0 Degree Manhole - Loss Coefficient = 0.06 | (CCRFCD Drainage Design Manual, Figure 815) |
| (4) 0 Degree Junction - Loss Coefficient = 0.02 | (CCRFCD Drainage Design Manual, Table 803 (3 of 3)) |
| (5) Entrance - Loss Coefficient = 0.50 | (CCRFCD Drainage Design Manual, Table 1001 (2 of 2)) |
| (6) 90 Degree Junction - Loss Coefficient = 0.25 | (CCRFCD Drainage Design Manual, Table 803 (3 of 3)) |

ENERGY LOSS COEFFICIENT IN STRAIGHT THROUGH MANHOLE

USA FORM STD FORM-6
1.32

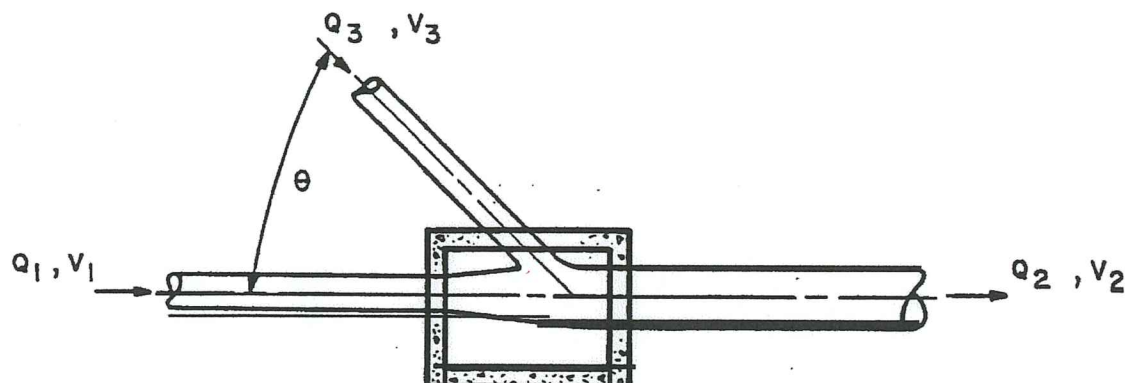


NOTE: Head loss applied at outlet of manhole.

Revision	Date

STORM SEWER ENERGY LOSS COEFFICIENTS

(D) JUNCTIONS



θ	K_j
90"	0.25
60"	0.35
45"	0.50
30"	0.65
15"	0.85

→ FOR STD FORM 6

NOTE: Head loss 'applied at exit of junction

0" 0.02 →

$$H_L = (V_2^2 / 2g) - K_j (V_1^2 / 2g)$$

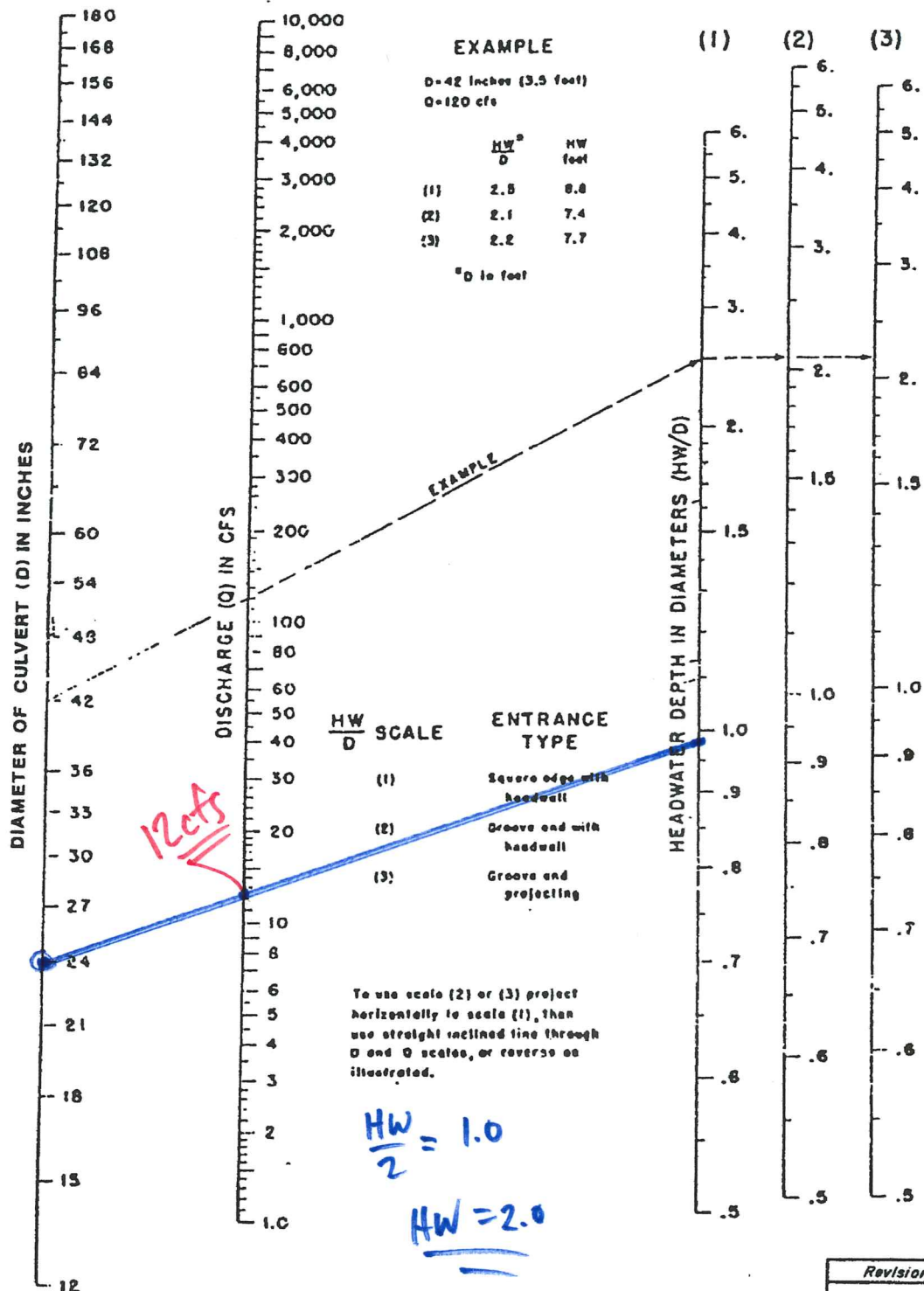
Revision	Date

REFERENCE: "Urban Stormwater Management"
APWA Special Report No. 49, 1981

TABLE 803
3 of 3

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

NOMOGRAPH - INLET CONTROL RCP



Revision	Date

Normal Depth Onsite Hydraulic Sections

Revised Hydraulic Calculation for 'OV1'

Over Flow Hydraulic Section @ 'OV1'

Worksheet for Irregular Channel

Project Description	
Worksheet	hydraulic section 'O
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Slope	.004000 ft/ft
Discharge	12.00 cfs

Options	
Current Roughness Method	Lotter's Method
Open Channel Weighting	Lotter's Method
Closed Channel Weighting	Horton's Method

Results	
Mannings Coefficient	0.013
Water Surface Elev	4.61 ft
Elevation Range	.35 to 5.51
Flow Area	5.3 ft ²
Wetted Perimeter	30.19 ft
Top Width	30.00 ft
Actual Depth	0.26 ft
Critical Elevation	4.60 ft
Critical Slope	0.004475 ft/ft
Velocity	2.27 ft/s
Velocity Head	0.08 ft
Specific Energy	4.69 ft
Froude Number	0.95
Flow Type	Subcritical

$$V \times D = 2.27 \times 0.26 = 0.59 < 6$$

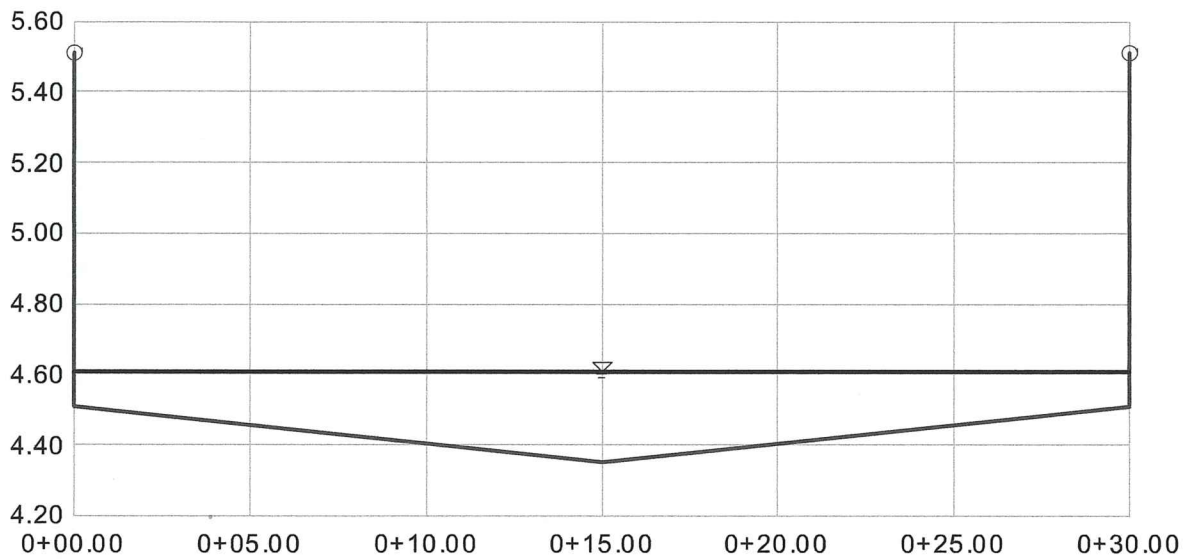
Roughness Segments		
Start Station	End Station	Mannings Coefficient
0+00.00	0+30.00	0.013

Natural Channel Points	
Station (ft)	Elevation (ft)
0+00.00	5.51
0+00.00	4.51
0+15.00	4.35
0+30.00	4.51
0+30.00	5.51

Over Flow Hydraulic Section @ 'OV1' Cross Section for Irregular Channel

Project Description	
Worksheet	hydraulic section 'O
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data	
Mannings Coefficient	0.013
Slope	0.004000 ft/ft
Water Surface Elev	4.61 ft
Elevation Range	.35 to 5.51
Discharge	12.00 cfs



V:10.0
H:1
NTS

24-inch Onsite Storm Drain

@ Full Flow Capacity downstream

24-inch onsite RCP (full flow capacity at downstream) Worksheet for Circular Channel

Project Description	
Worksheet	onsite storm drain -
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Full Flow Capacity

Input Data	
Mannings Coeff	0.013
Slope	.005000 ft/ft
Diameter	24 in

→ PIPE SIZE

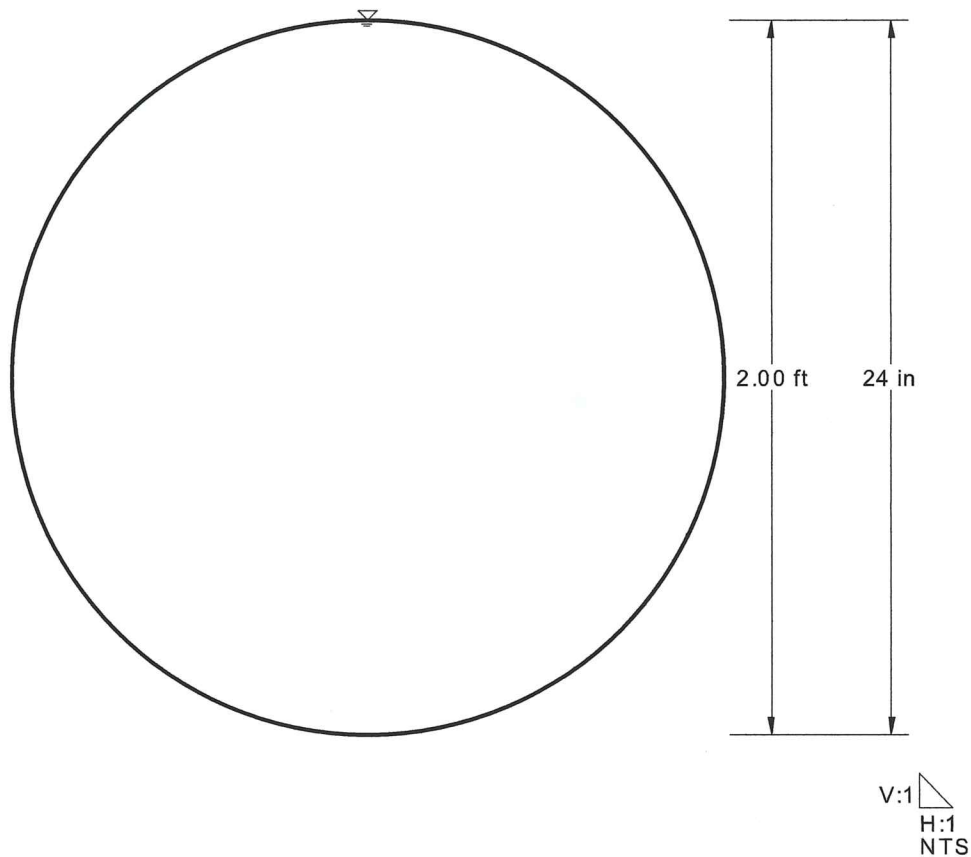
Results	
Depth	2.00 ft
Discharge	16.00 cfs
Flow Area	3.1 ft ²
Wetted Perime	6.28 ft
Top Width	0.00 ft
Critical Depth	1.44 ft
Percent Full	100.0 %
Critical Slope	006613 ft/ft
Velocity	5.09 ft/s
Velocity Head	0.40 ft
Specific Energy	2.40 ft
Froude Numbe	0.00
Maximum Disc	17.21 cfs
Discharge Full	16.00 cfs
Slope Full	005000 ft/ft
Flow Type	N/A

→ FULL FLOW CAPACITY FOR SD
→ CCRFED NOMOGRAPH →
HW = 2.0

24-inch onsite RCP (full flow capacity at downstream)
Cross Section for Circular Channel

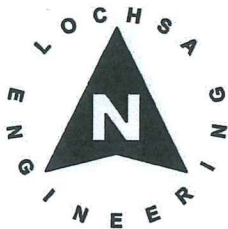
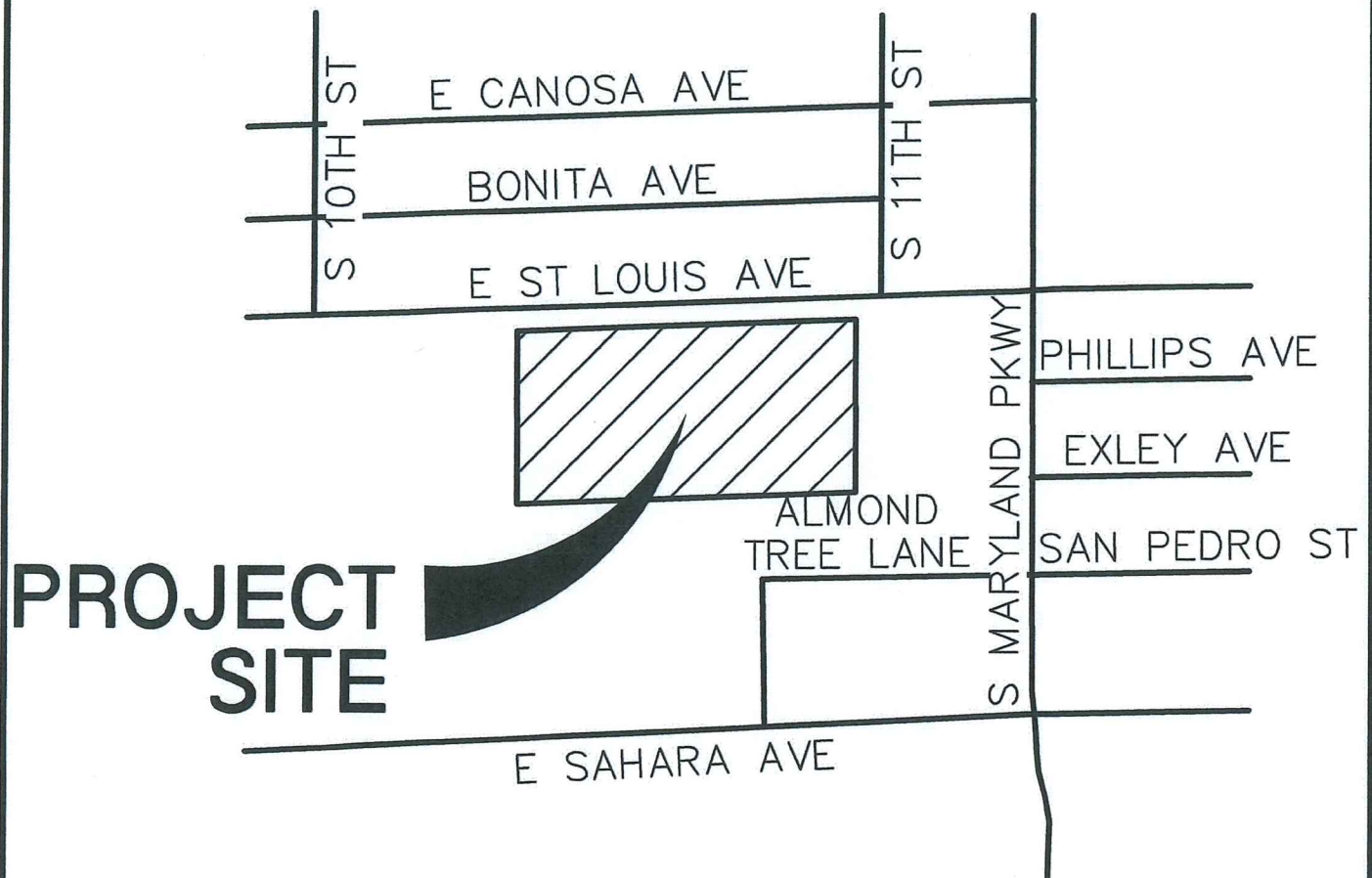
Project Description	
Worksheet	onsite storm drain - 1
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Full Flow Capacity

Section Data	
Mannings Coeffic	0.013
Slope	005000 ft/ft
Depth	2.00 ft
Diameter	24 in
Discharge	16.00 cfs



APPENDIX C

FIGURES



VICINITY MAP

NOT TO SCALE

DRAWN BY: JMD SCALE: N.T.S.

CHECKED BY: HMN DATE: 4/8/19

Lochsa
engineering

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

**VICINITY MAP
(FIGURE 1)**

**FREMONT
K-8 SCHOOL**

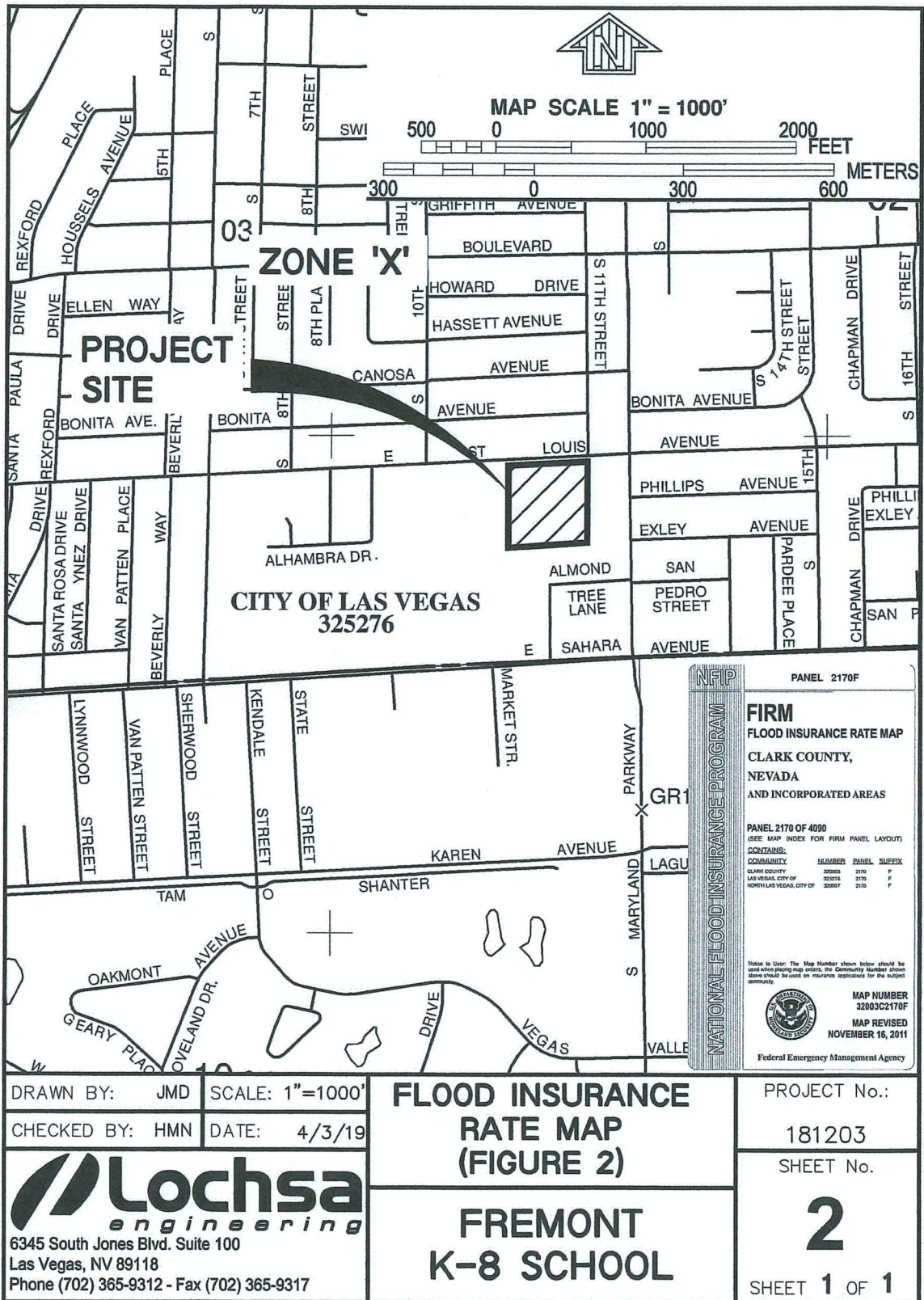
PROJECT No.:

181203

SHEET No.

1

SHEET **1** OF **1**





2018
LAS VEGAS VALLEY
FLOOD CONTROL
MASTER PLAN UPDATE

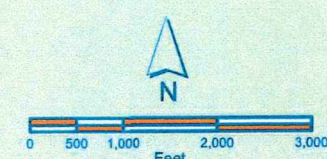
FIGURE F-30
FLOOD CONTROL FACILITIES

LEGEND

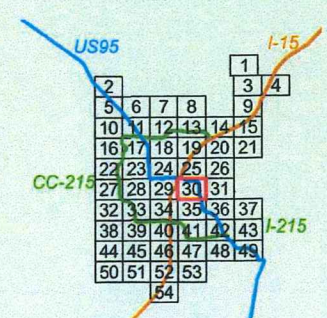
- Ultimate Development Boundary
- Existing Facilities
- Category A Proposed Facilities
- Category B Proposed Facilities
- Local Existing Facilities
- Detention Basin
- Culvert or Bridge Crossing
- Stormdrain
- Lined Channel
- Unlined Channel
- Levee/Dike
- Natural Wash/Floodway
- ID-Mile Separator

Remove & Replace/Parallel Facilities

- | Category A | Category B |
|------------|------------|
| Channel | Channel |
| Stormdrain | Stormdrain |
| Crossing | Crossing |



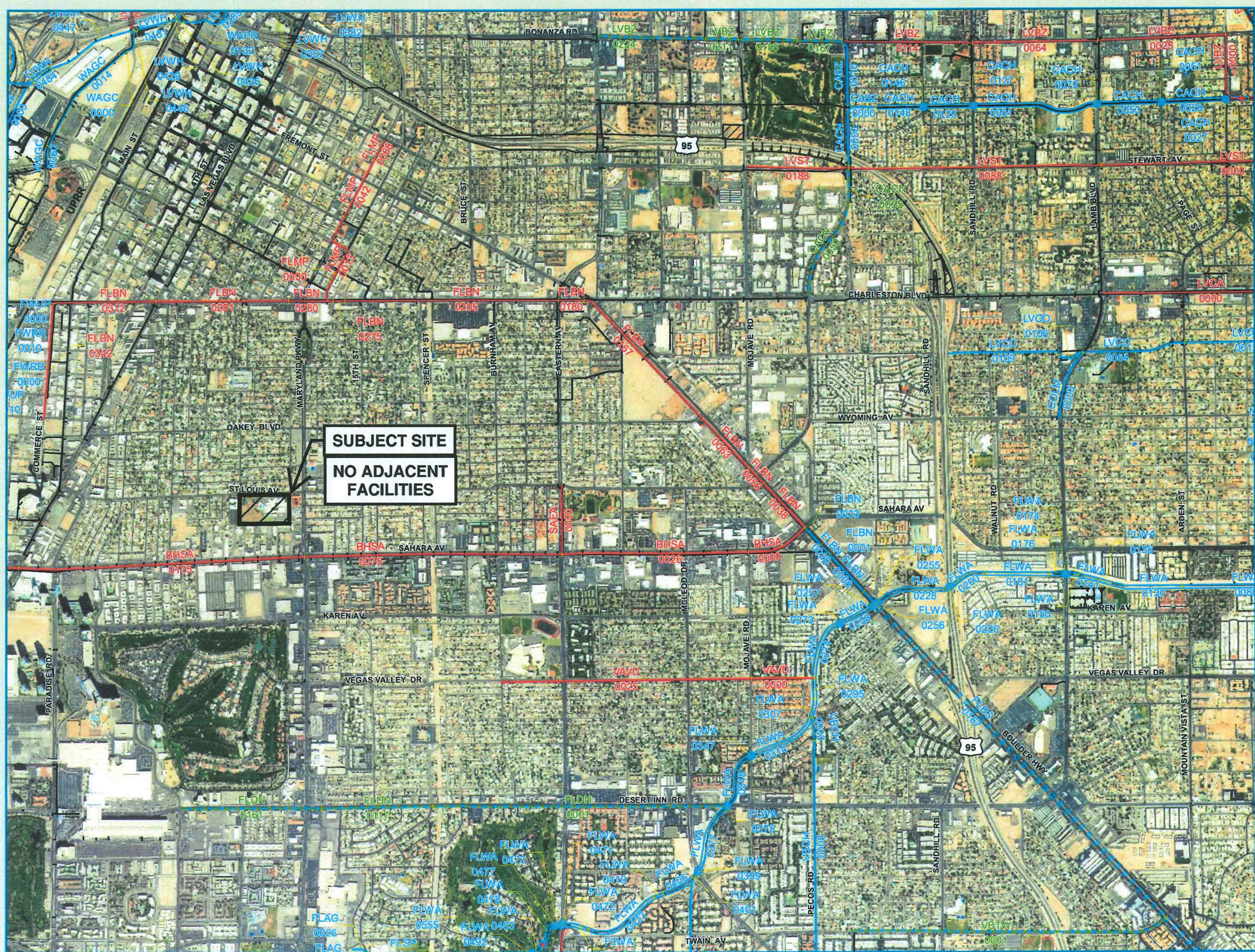
Scale: 1 inch = 2,000 feet
AerialSource: Esri World Imagery 2017



ATKINS

Member of the SNC-Lavalin Group

Louis Berger



ID / Mile	Status	Facility Description	Length (ft.)	Flow (cfs)	HEC-1 Node	HEC-1 Model	Tributary Area (sq.mi.)	Channel Slope (%) **
BHSA		BOULDER HIGHWAY SAHARA AVENUE						
0000	P	16" X 14" RCB	1350	3952	CSA13*	SW3	7.93	0.50
0026	P	14" X 11" RCB	4000	3952	CSA13*	SW3	7.93	1.30
0075	P	12" X 11" RCB	5280	3952	CSA13	SW3	7.93	2.11
0175	P	14" X 14" RCB	6000	3952	CSA13	SW3	7.93	0.67
0289	P	14" X 12" RCB	2300	3669	CSA11	SW3	7.55	0.87
CABZ		CEDAR AVENUE - BONANZA						
0000	E	72" RCP	525					0.30
0010	E	60" RCP	1450					0.30
CACH		CEDAR AVENUE CHANNEL						
0000	E	CONC CHNL 10W 8'D 1.5:1 SS (REPLACES W/ CACH0001)	1681	2427	CCA10-C	SW3	3.05	0.20
0001	P	CONC CHNL 22W 12'D 0:1SS (REPLACES CACH0000)	1055	2427	CCA10-C	SW3	3.05	0.20
0020	P	CONC CHNL 31W 6.50-12'D 0:1SS (REPLACES CACH0000)	460	766	CCA10-C	SW3	0.90	2.19
0027	E	2: 15' X 5' RCBC @ MARION	82	766	CCA10-C	SW3	0.90	0.35
0029	E	CONC CHNL 10W 8'D 1.5:1 SS	1284	766	CCA10-C	SW3	0.90	0.37
0051	E	2: 15' X 5' RCBC @ PAGE	64	766	CCA10-C	SW3	0.90	0.38
0053	E	CONC CHNL 10W 6'D 1.5:1 SS	1275	766	CCA10-C	SW3	0.90	0.38
0079	E	2: 15' X 6' RCBC @ LAMB	100	594	CCA08-C	SW3	0.70	0.38
0081	E	CONC CHNL 12W 6'D 1.5:1 SS	2562	594	CCA08-C	SW3	0.70	0.20
0127	E	1: 12' X 4' RCBC 2:11' X 4' RCBC @ SANDHILL	80	594	CCA08-C	SW3	0.70	0.20
0129	E	CONC CHNL 10W 8'D 1.5:1 SS	971	594	CCA08-C	SW3	0.70	0.26
0146	E	2: 12' X 5.5' RCBC @ HONOLULU	62	594	CCA08-C	SW3	0.70	0.53
0148	E	CONC CHNL 10W 8'D 1.5:1 SS	959	594	CCA08-C	SW3	0.70	0.53
CACN		CEDAR AVENUE - CHARLESTON						
0000	E	72" RCP	1867					0.41
0034	E	2: 48" RCP (REPLACE W/ CACN0035)	685	430	CCH70C	SW3	0.40	0.30
0035	P	8" X 6" RCB (REPLACES CACN0034)	685	430	CCH70C	SW3	0.40	0.30
0049	E	66" RCP (REPLACE W/ CACN0050)	2146	430	CCH70C	SW3	0.40	0.60
0050	P	6" X 7" RCB (REPLACES CACN0049)	2146	430	CCH70C	SW3	0.40	0.60
COLM		COLORADO / LAMB						
0000	E	72" RCP	1500	275	CH94	SW3	0.36	0.87
FLAG		FLAMINGO WASH - ALGONQUIN						
0026	E	60" RCP	427	432	FW21	FLAM3A	0.47	1.30
FLBN		FLAMINGO - BOULDER HIGHWAY NORTH						
0001	E	4: 10' X 6" RCB	350	4898	CCFR03	Boulder4	11.25	0.58
0008	E	2: 12' X 12" RCB	1055	4898	CCFR03	Boulder4	11.25	0.20
0028	E	3: 16" X 6" RCB	275	4898	CCFR03	Boulder4	11.25	0.20
0033	E	1: 15' X 10" RCB AND 1: 16" X 10" RCB	405	4898	CCFR03	Boulder4	11.25	0.20
0038	P	15" X 10" RCB	987	2471	CFR03	SW3	3.40	0.20
0056	P	24" X 6" RCB	391	2471	CFR03	SW3	3.40	7.00
0063	P	20" X 8" RCB	1393	2372	CFR04	SW3	3.21	0.68
0167	P	18" X 8" RCB	3565	2372	CFR04	SW3	3.21	0.38
0160	P	14" X 8" RCB	494	2013	CCH67A	SW3	2.43	1.80
0205	P	10" X 8" RCB	4478	2013	CCH67A	SW3	2.43	2.00
0275	P	12" X 8" RCB	223	1584	CCH456	SW3	1.75	2.50
0280	P	10" X 6" RCB	925	928	CCH56	SW3	1.00	2.22
0281	P	10" X 7" RCB	2800	928	CCH56	SW3	1.00	1.33
0312	P	7" X 4" RCB	2160	621	CCH52	SW3	0.62	4.20
0342	P	7" X 4" RCB	2425	621	CCH52	SW3	0.62	4.20
FLBS		FLAMINGO - BOULDER HIGHWAY SOUTH						
0000	E	UNLINED MEDIAN CHNL 0'W 6.5'D 4.5:1 SS	4060	684	CB4	FLAM3A	1.38	1.30
0167	E	UNLINED MEDIAN CHNL 0'W 3.5'D 9:1 SS	8850	348	CB4N	FLAM3A	0.63	0.90
FLDN		DESERT INN DRAIN EAST						
0000	E	60" RCP (REPLACE W/ FLDN0001)	6160	959	CFW30AW	FLAM3A	2.12	1.22
0001	P	12" X 5" RCB (REPLACES FLDN0000)	6160	959	CFW30AW	FLAM3A	2.12	1.22
0116	E	54" RCP (REPLACE W/ FLDN0117)	2330	954	CFW29	FLAM3A	1.82	1.77
0117	P	10" X 5" RCB (REPLACES FLDN0116)	2330	954	CFW29	FLAM3A	1.82	1.77
0160	E	48" RCP (REPLACE W/ FLDN0161)	2950	742	CFW28	FLAM3A	1.51	1.28
0161	P	10" X 5" RCB (REPLACES FLDN0160)	2950	742	CFW28	FLAM3A	1.51	1.28
FLMP		FLAMINGO WASH-MARYLAND PARKWAY SYSTEM						
0000	P	12" X 6" RCB	664	689	CCH60A	SW3	0.75	0.78
0013	P	12" X 4" RCB	1535	689	CCH60A	SW3	0.75	0.48

ID / Mile	Status	Facility Description	Length (ft.)	Flow (cfs)	HEC-1 Node	HEC-1 Model	Tributary Area (sq.mi.)	Channel Slope (%) **
FLMP		FLAMINGO WASH-MARYLAND PARKWAY SYSTEM						
0042	P	6" X 4" RCB	1345	245	DFLAM	SW3	0.31	0.95
0068	P	42" RCP	475	245	DFLAM	SW3	0.31	0.61
FLWA		FLAMINGO WASH						
0080	E	CONC CHNL 90W 8'D 0:1 SS	2685	9548	CFW36	FLAM5B	35.21	0.40
0130	E	CONC CHNL 70W 10'D 0:1 SS	1470	9548	CFW36	FLAM5B	35.21	0.40
0136	E	TRANSITION CONC CHNL 104W 12'D TO 70W 10'D 0:1 SS	255	9548	CFW36	FLAM5B	35.21	3.79
0141	E	CONC CHNL 104W 12'D 0:1 SS	450	9548	CFW36	FLAM5B	35.21	0.96
0150	E	CONC CHNL 104W 9'D 0:1 SS	225	9548	CFW36	FLAM5B	35.21	6.00
0174	E	9: 10' X 6" RCBC @ LAMB	110	9504	CFW34	FLAM5B	34.77	1.40
0176	E	TRANSITION CONC CHNL 70W 9'D TO 104W 9'D 0:1 SS	290	9504	CFW34	FLAM5B	34.77	0.36
0181	E	CONC CHNL 70W 9'D 0:1 SS	1270	9504	CFW34	FLAM5B	34.77	0.36
0200	E	CONC CHNL 70W 8'D TO 12'D W/ PIER 0:1 SS	755	9504	CFW34	FLAM5B	34.77	0.50
0226	E	FREE SPAN BRIDGE 100W 10'D @ I-515	170	9504	CFW34	FLAM5B	34.77	0.80
0228	E	CONC CHNL 70W 8'D TO 12'D 0:1 SS	1500	9371	CFW33	FLAM5B	34.43	0.80
0255	E	2 SPAN BRIDGE 150W 9'D @ BOULDER HWY	65	9371	CFW33	FLAM5B	34.43	1.00
0256	E	CONC CHNL 60W 7.5'D 0:1 SS	40	6750	CFW33W	FLAM5B	23.17	1.00
0257	E	2 SPAN BRIDGE 150W 9'D @ BOULDER HWY	60	6750	CFW33W	FLAM5B	23.17	1.00
0258	E	CONC CHNL 60W 7.5'D 0:1 SS	750	6750	CFW33W	FLAM5B	23.17	0.44
0273	E	FREE SPAN BRIDGE 60W 9'D @ MMHP	20	6750	CFW33W	FLAM5B	23.17	0.40
0274	E	CONC CHNL 60W 8.1'D 0:1 SS	1370	6750	CFW33W	FLAM5B	23.17	1.00
0295	E	CONC CHNL 60W 8.1'D 0:1 SS	430	6416	CFW31	FLAM5B	21.56	0.80
0307	E	CONC CHNL 60W 8.1'D 2:1 SS	410	6416	CFW31	FLAM5B	21.56	0.70
0314	E	CONC CHNL 60W 8.1'D 2:1 SS	1500	6106	CFW30B	FLAM5B	20.19	0.90
0347	E	5: 10' X 8" RCBC @ MOJAVE	80	6106	CFW30B	FLAM5B	20.19	0.94
0348	E	CONC CHNL 30W 12'D 1:1 SS	1150	6106	CFW30B	FLAM5B	20.19	0.70
0375	E	5: 10' X 8" RCBC @ DESERT INN	140	6074	CFW23	FLAM5B	18.30	2.70
0377	E	CONC CHNL 50W 9.5'D 0:1 SS	1372	6074	CFW23	FLAM5B	18.30	1.04
0399	E	FREE SPAN BRIDGE 60W 16'D @ MCLEOD	130	6074	CFW23	FLAM5B	18.30	0.50
0401	E	CONC CHNL 50W 11.5'D 0:1 SS	107	6074	CFW23	FLAM5B	18.30	0.50
0406	E	CONC CHNL 33W 11.5'D 0:1 SS	716	5277	CFW23W	FLAM5B	17.42	0.79
0419	E	CONC CHNL 33-50W 9.8'D 0:1 SS	206	5277	CFW23W	FLAM5B	17.42	2.00
0423	E	CONC CHNL 50W 9.8'D 0:1 SS	1686	5277	CFW23W	FLAM5B	17.42	0.76
0455	E	CONC CHNL 50-75W 9.8'D 0:1 SS	170	5277	CFW23W	FLAM5B	17.42	1.83
0458	E	CONC CHNL 75-80W 9.8'D 0:1 SS	347	5277	CFW23W	FLAM5B	17.42	1.50
0471	E	5: 10' X 8" RCBC @ EASTERN	110	1841*	CFW22W*	FLAM5B	14.32	1.30
0472	E	22' X 8" RCBC @ EASTERN	110	3406*	CFW22W*	FLAM5B	14.32	0.50
0473	E	GRASS CHNL 60W 15'D 2:1 SS	100	5247	CFW22W	FLAM5B	14.32	0.47
0477	E	3 SPAN BRIDGE 47W 15'D	10	5247	CFW22W	FLAM5B	14.32	0.80
0478	E	GRASS CHNL 60W 15'D 2:1 SS	520	5247	CFW22W	FLAM5B	14.32	0.47
0481	E	3: 90" CMAP @ TIIGA (REPLACE W/ FLWA0482)	60	5247	CFW22W	FLAM5B	14.32	0.87
0482	P	4: 20' X 6" RCBC @ TIIGA (REPLACES FLWA0481)	60	5247	CFW22W	FLAM5B	14.32	0.87
0483	E	GRASS CHNL 60W 15'D 2:1 SS	300	5247	CFW22W	FLAM5B	14.32	0.63
FW15		FREEWAY CHANNEL FROM DESERT INN TO EXPRESSWAY						
0000	E	3: 12' X 10" RCB	2170	3685	CAL93	Boulder4	8.93	0.17
LCCH		LAS VEGAS CREEK CHANNEL						
0000	E	2: 12' X 7" RCB	730	3212	CAL93C	MEADOWS4	9.90	1.28
0013	E	2: 12' X 6" RCB	2035	3050	CLC20-C	MEADOWS4	9.60	0.82
LVBS		LAS VEGAS WASH - BONANZA						
0000	P	2: 12' X 7" RCB	1760	1753	CBN15-C	SW3	2.15	0.40
0025	P	2: 12' X 7" RCB	2700	1753	CBN15-C	SW3	2.15	0.40
0064	P	2: 12' X 7" RCB	2630	1603	CBN12-C	SW3	1.87	0.40
0114	P	2: 12' X 6" RCB	2740	1311	CBN10-C	SW3	1.54	0.40
0166	E	54" RCP (REPLACE W/ LVBS20167)	930	1106	CBN09	SW3	1.29	0.45
0167	P	10" X 9" RCB (REPLACES LVBS20166)	930	1106	CBN09	SW3	1.29	0.45
0187	E	48" RCP (REPLACE W/ LVBS20188)	1235	1106	CBN09	SW3	1.29	0.71
0188	P	9" X 9" RCB (REPLACES LVBS20187)	1235	1106	CBN09	SW3	1.29	0.71
0210	E	42" RCP (REPLACE W/ LVBS20211)	704	1004	CBN08	SW3	1.05	1.37
0211	P	8" X 8" RCB (REPLACES LVBS20210)	704	1004	CBN08	SW3	1.05	1.37
0223	E	36" RCP (REPLACE W/ LVBS20224)	2275	856	CBN03	SW3	0.84	0.72
0224	P	8" X 8" RCB (REPLACES LVBS20223)	2275	856	CBN03	SW3	0.84	0.72

ID / Mile	Status	Facility Description	Length (ft.)	Flow (cfs)	HEC-1 Node	HEC-1 Model	Tributary Area (sq.mi.)	Channel Slope (%) **
LVCA		LAS VEGAS WASH - CHARLESTON						
0000	P	12" X 8" RCB	4600	985	CCH77-C	SW3	1.16	0.30
LVCO		COLORADO AVENUE SYSTEM						
0012	E	14" X 8" RCB	2560	1144	CNEL06	SW3	1.32	0.24
0064	E	10" X 8" RCB	2165	901	CCCH94	SW3	1.00	0.24
0106	E	10" X 8" RCB	590	402	CCH92-C	SW3	0.37	0.24
0109	E	10" X 5" RCB	2350	402	CCH92-C	SW3	0.37	0.67
LVOE		OWENS AVENUE - EAST						
0345	P	13" X 12" RCB	990	2576	DLVOE	SW5	22.61	0.60
LVST		LAS VEGAS WASH - STEWART						
0000	P	10" X 10" RCB	4684	1316	CST03-C	SW3	1.40	0.56
0088	P	10" X 9" RCB	4654	1135	CST01-C	SW3	1.18	0.56
0188	P	8" X 8" RCB	1980	601	CCA04	SW3	0.59	0.40
LVWH		WASHINGTON AVENUE CHANNEL						
0389	E	12" X 8" RCB	2110	1562 ^A	CV1-C ^A	SW5SC	14.95	0.90
0426	E	16" X 8" RCB	150	1562 ^A	CV1-C ^A	SW5SC	14.95	1.08
0429	E	SPLITTER STRUCTURE (2: 12" X 8" RCB)	190	2870	DCLC21	SW5	22.61	1.90
0431	E	3: 14.33" X 10" RCB	665	2870	DCLC21	SW5	22.61	0.15
0446	E	JUNCTION STRUCTURE	69	2870	DCLC21	SW5	22.61	0.15
0447	E	3: 14.33" X 10" RCB	1955	5193	CCAL93	SW5	22.05	0.15
0484	E	CONFLUENCE STRUCTURE	455	5193	CCAL93	SW5	22.05	0.15
SAEA		SAHARA AVENUE - EASTERN LATERAL						
0000	P	10" X 7" RCB	1440	492	CFR02	SW3	0.55	0.20
VAVD		VEGAS VALLEY DRIVE						
0000	P	7" X 5" RCB	1300	649	CFW41	FLAM3A	1.30	2.10
0025	P	84" RCP	5300	649	CFW41	FLAM3A	1.30	1.60
VBCH		VAN BUSKIRK CHANNEL						
0000	E	12" X 3" RCB	500	637	CVB16	FLAM3A	1.16	1.00
0008	E	8" X 5" RCB	5490	637	CVB16	FLAM3A	1.16	1.00
VBEA		VAN BUSKIRK - EASTERN AVE						
0000	P	10" X 6" RCB	3020	896	CVB11	FLAM3A	2.85	1.30
VBMC		VAN BUSKIRK - MCLEOD DRIVE						
0000	E	2: 8" X 8" RCB	3850	931	CVB13	FLAM3A	2.99	0.50
VBTW		VAN BUSKIRK - TWAIN						
0000	E	18" RCP (REPLACE W/ VBTW0001)	6640	379	CB2	FLAM3A	0.74	0.70
0001	P0	84" RCP (REPLACES VBTW0000)	6640	379	CB2	FLAM3A	0.74	0.70
WAGC		WASHINGTON AVENUE CHANNEL - GRAND CENTRAL						
0000	E	2: 12" X 4" RCB	700	505	LC21	SW3	0.56	0.20
0014	E	1: 12" X 4" RCB AND 1: 11" X 4" RCB	2440	505	LC21	SW3	0.56	0.20
0060	E	12" X 4" RCB	455	505	LC21	SW3	0.56	0.20
WAPR		WASHINGTON AVENUE CHANNEL PARALLEL						
0132	E	2: 9" X 8" RCB	387	1562 ^A	CV1-C ^A	SW5SC	14.95	1.67



City of Las Vegas

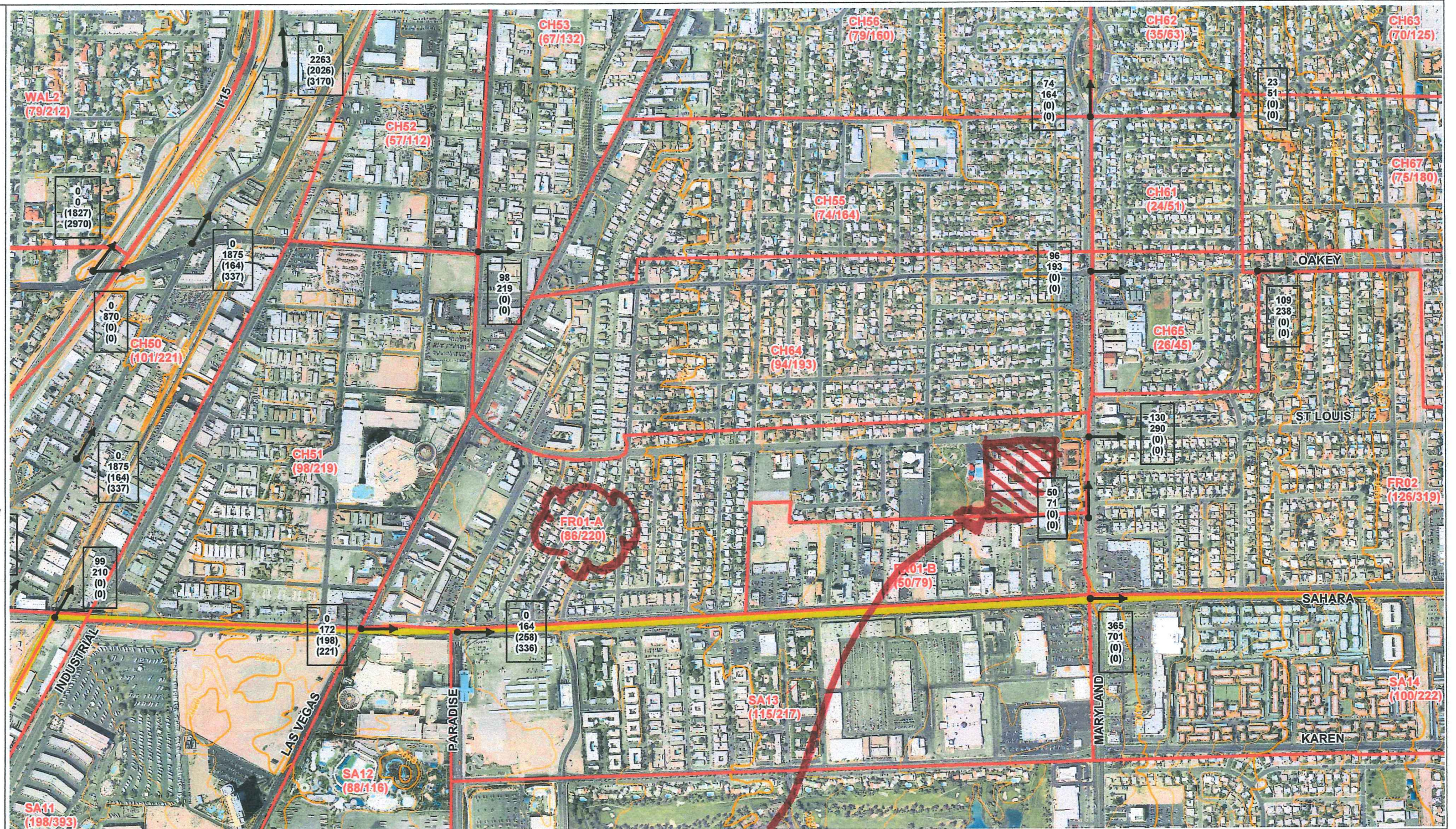
CENTRAL NEIGHBORHOOD FLOOD CONTROL MASTER PLAN

LEGEND

- Sub-basin Boundary
- LV12 Basin ID
- (10yr./100yr.) Contributing flow from the basin (cfs)
- 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)
- Study Area Limit

PHOTO DATE: SPRING 2004

FIGURE E-16



EXISTING DRAINAGE CONDITIONS



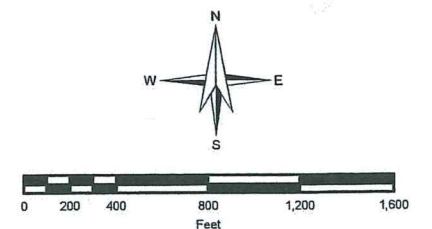
2270 Corporate Circle, Suite 100
Henderson, NV 89074
(702) 263-7275
Fax: (702) 263-7200

	Durango	Rainbow	Decatur	Tonopah	5th	Pecos	Nellis
Lake Mead				1	2		
Washington				3	4	5	6
Charleston	7	8	9	10	11	12	
Sahara	13	14	15	16	17		
Desert Inn		18	19				

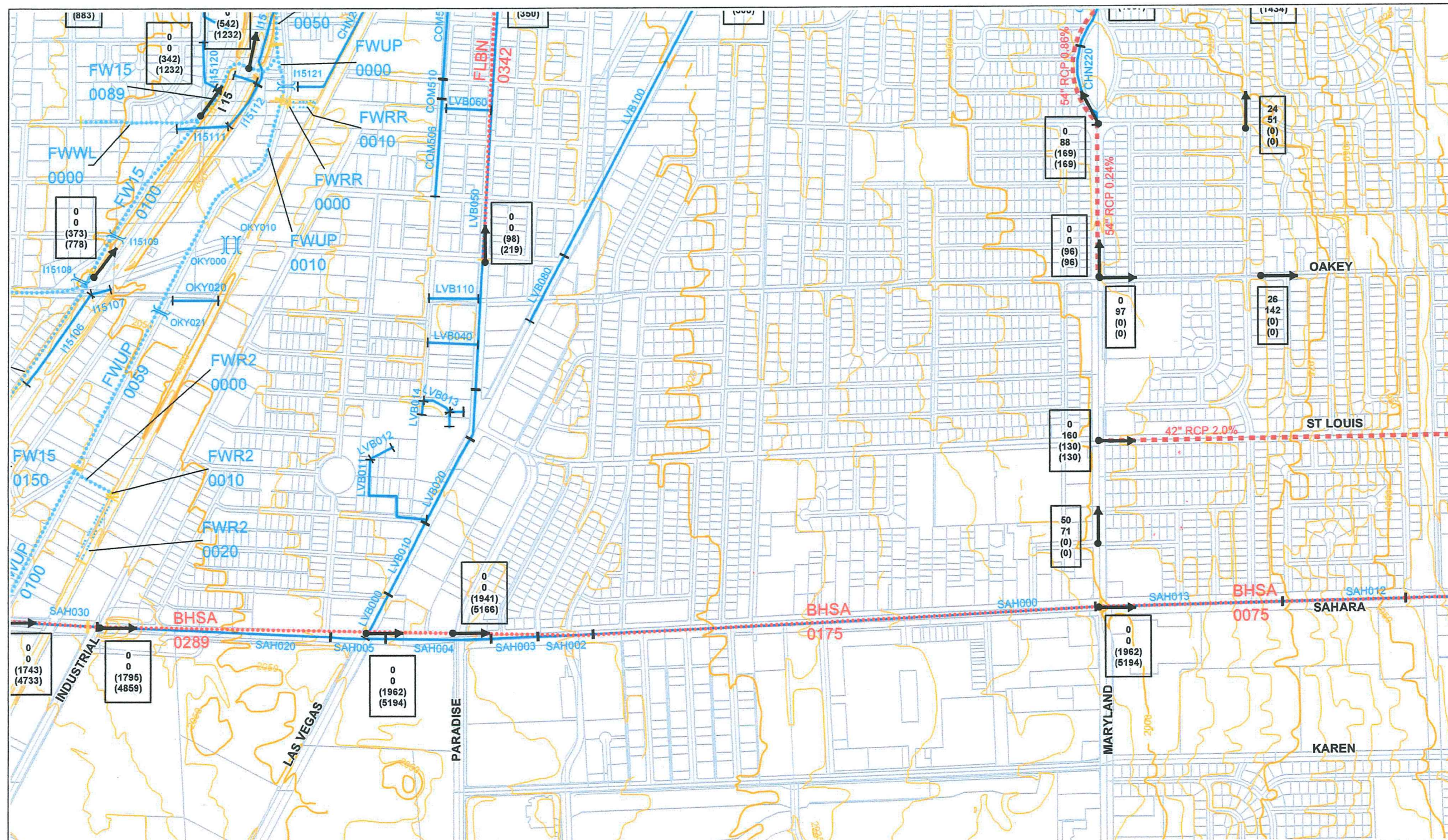
PROJECT SITE

NOTE:
Existing conditions are based on future Curve Number values with only existing local and CCRFC facilities in place.

100-Year flows at locations where a 100-Year subbasin concentration point does not exist in the hydrology model were based on an area-weighted ratio of the 100-Year flows from concentration points upstream and downstream of the location. See Volume I for a more detailed explanation.



SCALE: 1 inch = 800 feet

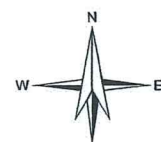


CENTRAL NEIGHBORHOOD FLOOD CONTROL MASTER PLAN

LEGEND

- Existing Regional Facility
- Category A Proposed Regional Facility (2002 MPU)
- Category B Proposed Regional Facility (2002 MPU)
- Category A Proposed Regional Facility (2004 CNFCMP)
- Existing Local Facility
- Proposed Local Facility
- Regional Culvert
- Regional Bridge
- Regional Pipeline
- Regional Channel
- Regional Levee
- Regional Detention Basin
- Local Storm Drain
- Local Culvert
- Proposed Local Storm Drain
- Regional ID-Mile Separator
- Local Facility Separator

FIGURE F-16



SCALE: 1 inch = 800 feet

Flow Arrow

250
500
(300)
(800)

10-Year Street Flow
100-Year Street Flow
10-Year Facility Flow
100-Year Facility Flow

(Flows in CFS)

NOTE:
Ultimate drainage conditions are based on future Curve Number values with all flood control facilities in place.

100-Year flows at locations where a 100-Year subbasin concentration point does not exist in the hydrology model were based on an area-weighted ratio of the 100-Year flows from concentration points upstream and downstream of the location. See Volume I for a more detailed explanation.

Durango	Rainbow	Decatur	Tonopah	5th	Pecos	Nellis
			1	2		
			3	4	5	6
			7	8	9	10
			11	12	13	14
			15	16	17	18
			19			

FUTURE DRAINAGE CONDITIONS



2270 Corporate Circle, Suite 100
Henderson, NV 89074
(702) 263-7275
Fax: (702) 263-7200

APPENDIX D

REFERENCES

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM		DATE: June 20, 2019
TO: Land Development Services Department of Building & Safety		FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	Drainage Study for: Fremont K-8 School	COPIES TO: Lochsa Engineering
Cross Streets:	SWQ of Maryland Pkwy. & St. Louis Avenue	Clark County School District
File Number:	F:\Depot\DSMemos\DS5124B.doc	Bart Anderson, P.E., DevCo
Parcel Number:	162-03-801-005	
Zoning Action:	SDR-76201 & VAR-76200	
FEMA Flood Zone	YES NO X	
Proposed Storm Drain	YES NO X	

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1 st Submittal	4/15/2019	5/2/2019	Not Approved	\$400.00	3091475: \$400
2 nd Submittal & Supplement	5/20/2019 & 6/19/2019	6/20/2019	See Comments Below	\$400.00	3138677: \$400
TOTAL FEES (LDDRS):				\$800.00	----

REMARKS:

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

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

1. Provide a notarized letter from the *School District* acknowledging for the maintenance and repair of the sum pump prior to the final approval of the improvement plans.
2. Provide a note on the grading plan: *All Onsite Storm Drain Systems and the associated facilities are Privately Owned and to be Privately Maintained by the School.*
3. 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*).

In an effort to increase administrative efficiency, for all original and re-submittal packages including updates and the addenda, the City of Las Vegas Public Works Department requires both a hardcopy and a digital copy (PDF) on CD for the drainage study.

A letter sealed and signed by a Nevada registered civil engineer must be included in every submittal certifying documents on the electronic CD matches 100% of the hardcopy submittal. The new submittal requirement is effective on May 1, 2019. If there are any questions regarding these new requirements, please contact Albert Sung in the City Flood Control Section at (702) 229-6541.



Sample Letter to
certify CD.pdf

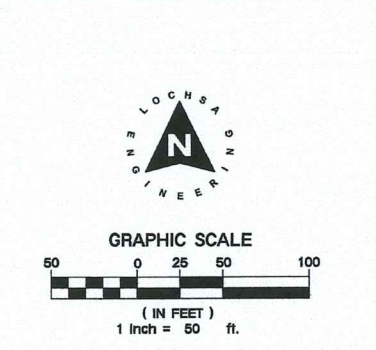
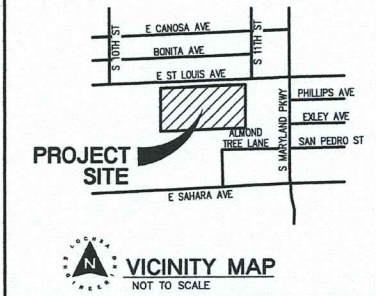
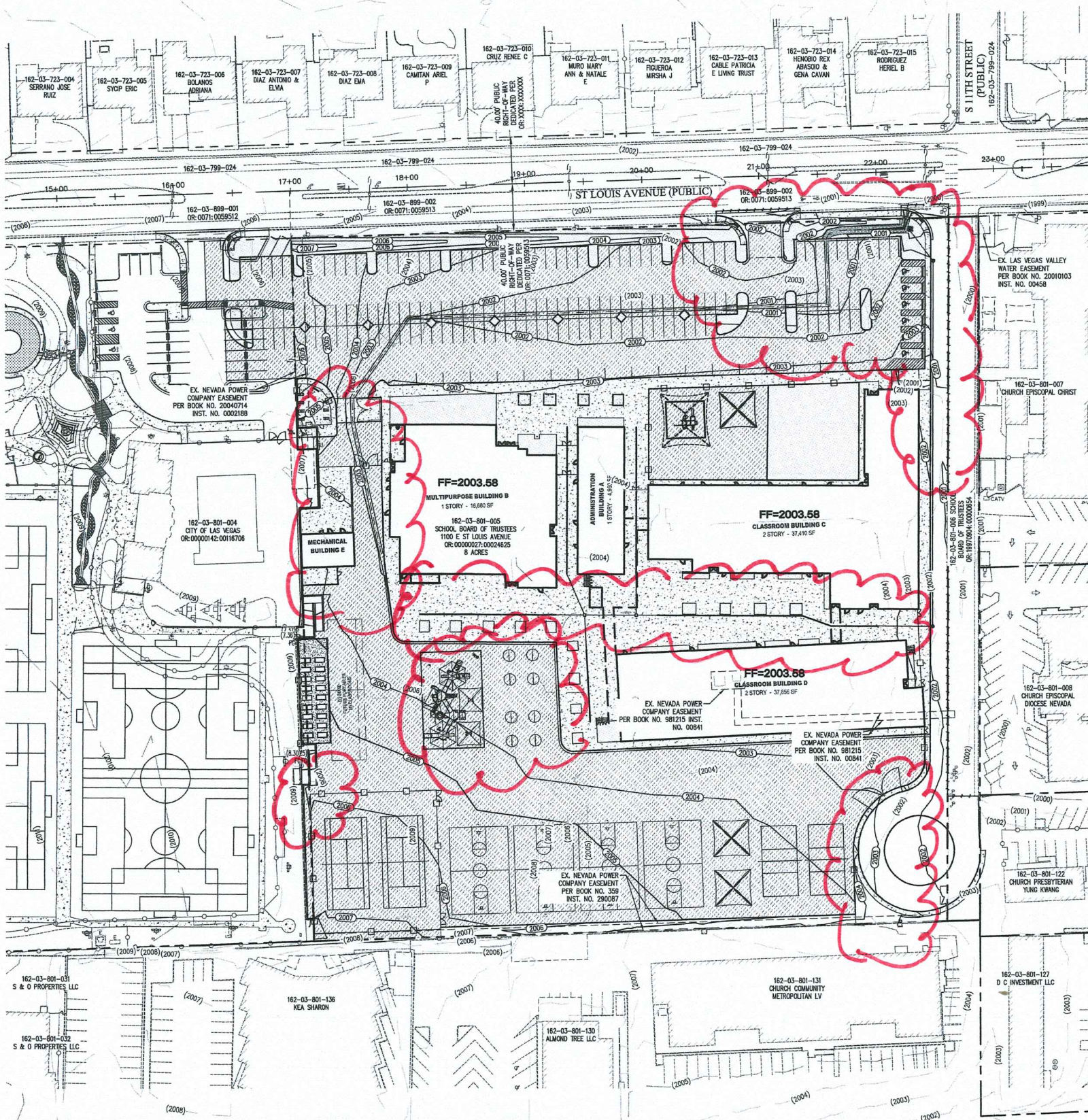
NOTE: Any future changes to the proposed design (or design assumptions) as outlined in the approved drainage study and attached preliminary grading plan which affect drainage must be addressed in a Drainage Study Update and accepted by the *City of Las Vegas Flood Control Section*. Additionally, conditional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

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

END OF REMARKS

ays

T/R/S: T21S/R61E/03
AREA R-03



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 UNPREDICTED 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, SUCH AS SUSPENSION OF LAND DISTURBANCE ACTIVITIES. REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY IN NV10000, SECTION III.A.12.
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 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 IN NV10000, SECTION III.A.12.
5. ACCUMULATED SEDIMENT IN BMPs SHALL BE REMOVED WITHIN SEVEN DAYS AFTER A STORMWATER RUNOFF EVENT OR PRIOR TO THE NEXT ANTICIPATED STORM EVENT, WHICHEVER IS EARLIER. SEDIMENT MUST BE REMOVED WHEN BMP DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE.

A.P.N.:
162-03-801-005

BENCHMARK:
CITY OF LAS VEGAS BENCHMARK NO. BLV13556
RIVET AND PLATE TOP OF CURB SE CORNER OF 10TH ST. & ST LOUIS AVE.
7215 REIE 503
ELEVATION: 2,010.03 FEET / 612.657 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 Dig
Call Before You Overhead
Call Before You UnderGround
1-702-227-2929
1-800-227-2600

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

BASIS OF BEARINGS:

GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS), LAS VEGAS AND LAS VEGAS HIGH ELEVATION ZONES, NORTH AMERICAN DATUM OF 1983; SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.

ZONE: LAS VEGAS ELEVATION ZONE

DATUM (REFERENCE FRAME): NAD 1983(2011) EPOCH 2010.0

SYSTEM: NEVADA COORDINATE REFERENCE SYSTEM (NCRS)

PROJECTION: TRANSVERSE MERCATOR

STANDARD PARALLEL (AND LATITUDE OF GRID ORIGIN): 36°15'00"N

LONGITUDE OF CENTRAL MERIDIAN: 114°58'00"W

NORTHING AT GRID ORIGIN: 200,000.00 M (656,166.667 FEET US)

EASTING AT CENTRAL MERIDIAN: 100,000.00 M (328,083.333 FEET US)

SCALE FACTOR ON CENTRAL MERIDIAN: 1.0001 (EXACT)

- NOTES:**
1. ALL DISTANCES AND BEARINGS SHOWN HEREON ARE PROJECTED (GRID) VALUES BASED ON THE PRECEDING PROJECTION DEFINITION. THE PROJECTION WAS DEFINED SUCH THAT PROJECTED (GRID) DISTANCES ARE EQUIVALENT TO "GROUND" DISTANCES IN THE PROJECT AREA.
 2. GRID BEARING SHOWN HEREON (OR IMPLIED BY GRID COORDINATES) DO NOT EQUAL GEODETIC BEARING DUE TO MERIDIAN CONVERGENCE.

MANHOLE DESCRIPTIONS	FIRE HYDRANTS	GATE VALVES	REDUCERS	CLEAN OUTS	UTILITY BOX OR VAULT	BACKWATER VALVES	100+ HPS STREETLIGHTS	150+ HPS STREETLIGHTS
① = SANITARY SEWER ② = STORM DRAIN ③ = ELECTRICAL ④ = TELEPHONE								

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 ROW LINE	SAWCUT LINE SCARP LINE	EXISTING: PROPOSED:	(22' 0") (21' 2")								(12.34) BC 12.34 BC		① ② ③ ④

REVISIONS:

REV.	DESCRIPTION	DATE

SIMPSON COULTER
PLANNING • ARCHITECTURE • INTERIOR DESIGN
151 East Warm Springs Road
Las Vegas, Nevada 89119
P: 702-435-1150 F: 702-435-7698
www.simpsoncoulter.com

Lochsa Engineering
6345 South Jones Blvd.
Las Vegas, NV 89118
www.lochsa.com

CLARK COUNTY SCHOOL DISTRICT
CONSTRUCTION MANAGEMENT DEPARTMENT 1180 MILITARY TRIBUTE PL. HENDERSON NV 89074 PHONE: 702-799-8710

GRADING PLANS OVERALL
FREMONT K-8 SCHOOL MPID #1623

PROJECT:
FREMONT K-8 SCHOOL

DRAWING TITLE:
GRADING PLANS OVERALL

FACILITY:
FREMONT K-8 SCHOOL

SHEET NO.:
C4.00
SHEET 11 OF 22

LEGEND

CL OR SURVEY LINE
PROPERTY LINE
ROW LINE

EASEMENT LINE
SAWCUT LINE
SCARP LINE

DESCRIPTION:
EXISTING:
PROPOSED:

CONTOUR LINES
EDGE OF PAVEMENT
"A" TYPE CURBS
"L" TYPE CURBS

WALLS
FENCES
AC PAVEMENT
CONCRETE

SPOT ELEVATIONS
SIGNS
MANHOLE W/ DESCRIPTION

MANHOLE DESCRIPTIONS
① = SANITARY SEWER
② = STORM DRAIN
③ = ELECTRICAL
④ = TELEPHONE

FIRE HYDRANTS
GATE VALVES
REDUCERS
CLEAN OUTS

UTILITY BOX OR VAULT
BACKWATER VALVES
100W HPS STREETLIGHTS
150W HPS STREETLIGHTS

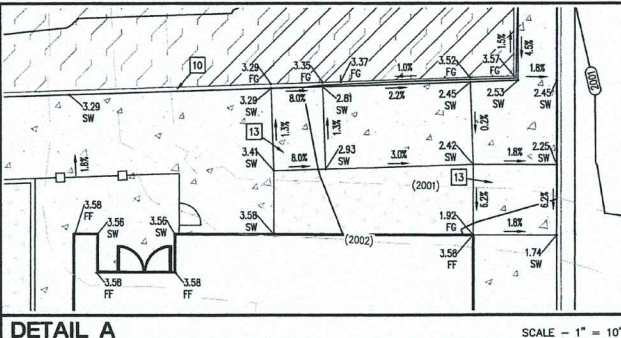
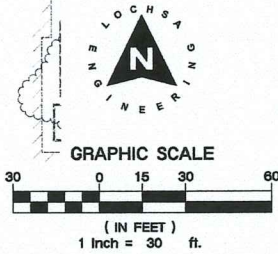
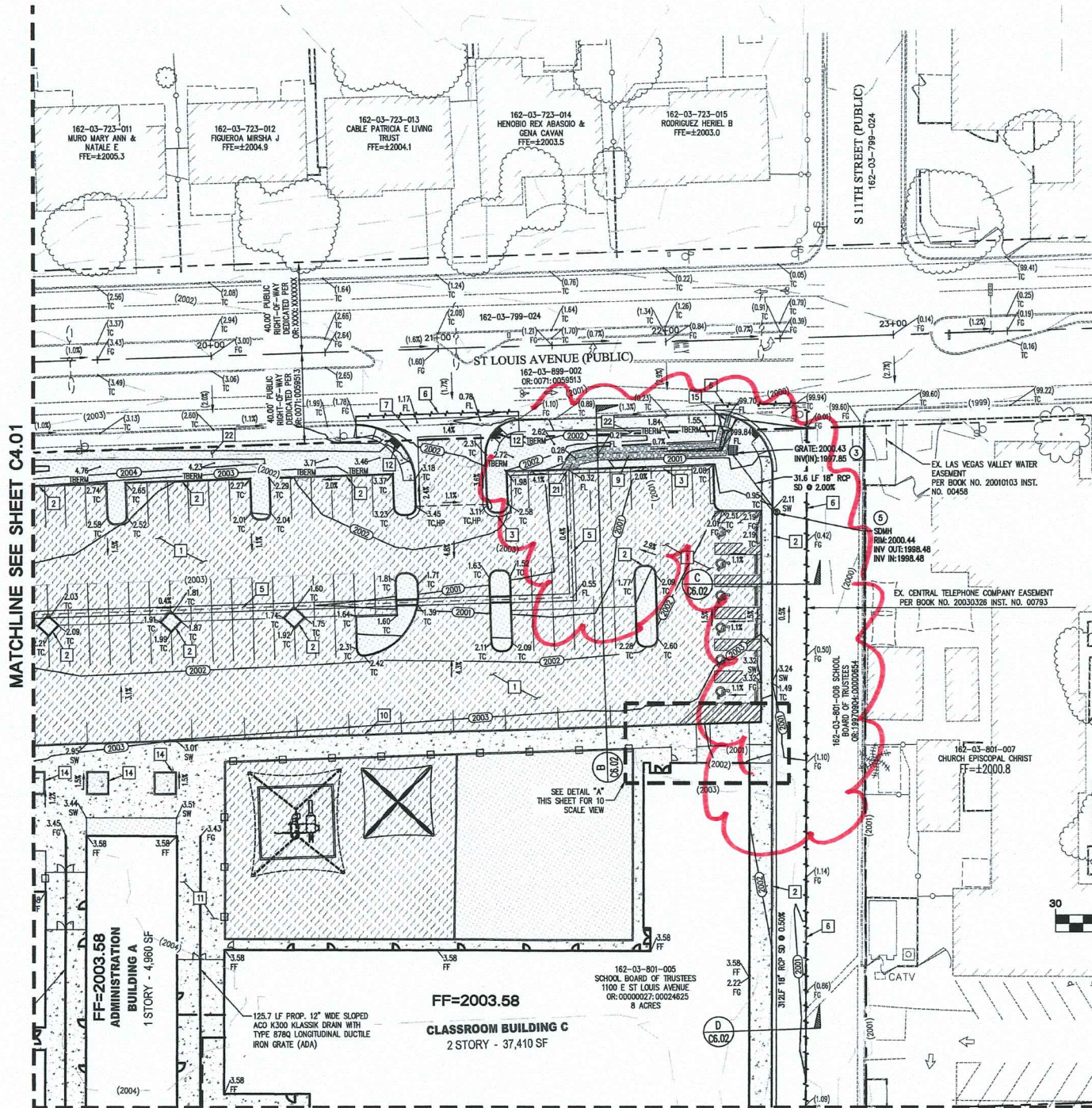
CLARK COUNTY SCHOOL DISTRICT
CONSTRUCTION MANAGEMENT 1180 MILITARY TRIBUTE PL. HENDERSON, NV 89074 PHONE: 702-799-8710

PROJECT: CLARK COUNTY SCHOOL DISTRICT
DRAWING TITLE: GRADING PLANS SHEET 2 OF 4
FACILITY: FREMONT K-8 SCHOOL MPID #1623

SHEET NO: C4.02
SHEET 13 OF 22

MATCHLINE SEE SHEET C4.01

MATCHLINE SEE SHEET C4.04



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 BY 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 NVR10000, SECTION III.A.12.
5. ACCUMULATED SEDIMENT IN BMPs SHALL BE REMOVED WITHIN SEVEN DAYS AFTER A STORMWATER RUNOFF EVENT OR PRIOR TO THE ANTICIPATED STORM EVENT, WHICHEVER IS EARLIER. SEDIMENT MUST BE REMOVED WHEN BMP DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE.

CUT	FILL
XXXXX CY	XXXXX CY

NOTE: CUT/FILL QUANTITIES ARE TO FINISHED GRADE & DO NOT INCLUDE MATERIAL THICKNESS, FOOTINGS, ETC.

MAX 2% H.S. BUILDING FF
MIN. 5% L.S.

TYPICAL GRADING AWAY FROM BUILDING

STORM DRAIN CONSTRUCTION NOTES:

1. NOT ALL NOTES USED ON THIS SHEET
1. INSTALL CAST IN PLACE TRENCH DRAIN PER DETAIL 16 ON C6.01.
2. INSTALL 2'X2' JENSEN PRECAST AREA DRAIN
3. INSTALL 4"X4" DROP INLET (OR APPROVED EQUIVALENT) FOR BUBBLER PER NEWLY ADOPTED USDOCA DRAWING NO. 421.
4. PROVIDE SUMP PUMP BY OTHERS. DISCHARGE INTO LANDSCAPING.
5. CONNECT STORM DRAIN TO TRENCH PER DETAIL 16 ON C6.01.
6. INSTALL 48" TYPE I MANHOLE PER CCAUSD NO. 403 W/ CONC. COLLAR PER CCAUSD NO. 408. REFER TO CCAUSD NO. 409 FOR MANHOLE COVER & RING.

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 NINYO & MOORE, PROJECT NO. 30428001.
5. ALL ON-SITE STORM DRAIN SYSTEMS AND THE ASSOCIATED FACILITIES ARE PRIVATELY OWNED AND TO BE PRIVATELY MAINTAINED BY THE SCHOOL.
6. ADD 2000' TO ALL GRADE TAGS.

BASIS OF BEARINGS:

GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS), LAS VEGAS AND LAS VEGAS HIGH ELEVATION ZONES, NORTH AMERICAN DATUM OF 1983; SAID MERIDIAN BEING COINCIDENT WITH 114°53' WEST OF THE GREENWICH MERIDIAN.

ZONE: LAS VEGAS ELEVATION ZONE

DATUM (REFERENCE FRAME): NAD 1983(2011) EPOCH 2010.0

SYSTEM: NEVADA COORDINATE REFERENCE SYSTEM (NCRS)

PROJECTION: TRANSVERSE MERCATOR

STANDARD PARALLEL (AND LATITUDE OF GRID ORIGIN): 38°15'00"N

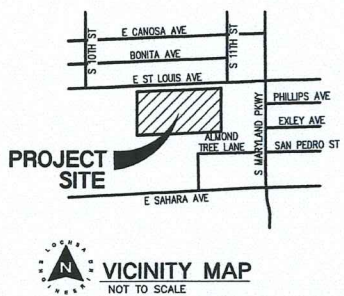
LONGITUDE OF CENTRAL MERIDIAN: 114°58'00"W

NORTHING AT GRID ORIGIN: 200,000.00 M (656,166.6667 FEET US)

EASTING AT CENTRAL MERIDIAN: 100,000.00 M (328,083.3333 FEET US)

SCALE FACTOR ON CENTRAL MERIDIAN: 1.0001 (EXACT)

- NOTES:
1. ALL DISTANCES AND BEARINGS SHOWN HEREON ARE PROJECTED (GRID) VALUES BASED ON THE PRECEDING PROJECTION DEFINITION. THE PROJECTION WAS DEFINED SUCH THAT PROJECTED (GRID) DISTANCES ARE EQUIVALENT TO "GROUND" DISTANCES IN THE PROJECT AREA.
 2. GRID BEARING SHOWN HEREON (OR IMPLIED BY GRID COORDINATES) DO NOT EQUAL GEODETIC BEARING DUE TO MERIDIAN CONVERGENCE.



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 "A" TYPE CURB PER DETAIL 1 ON C6.01.
3. CONSTRUCT "L" TYPE CURB PER CCAUSD NO. 216.
4. CONSTRUCT ON-SITE RAMP PER DETAIL 12 ON C6.01.
5. CONSTRUCT 3" VALLEY GUTTER PER DETAIL 6 ON C6.01.
6. SAWCUT AND MATCH EXISTING.
7. CONSTRUCT COMMERCIAL DRIVEWAY PER CCAUSD 225 WITH CONC. CROSS GUTTER PER CCAUSD NO. 228.
8. CONSTRUCT 2" CURB OPENING PER DETAIL 15 ON C6.01.
9. INSTALL D50 = 3" RIP RAP. THICKNESS (T) = 6" PER DETAIL 13 ON C6.01.
10. CONSTRUCT 0" "A" CURB PER DETAIL 1 ON C6.01.
11. ON-SITE CONCRETE PER DETAIL 7 ON SHEET C6.01.
12. INSTALL CASE 1 HANDICAP RAMP PER CCAUSD NO. 235. A=8', B=8'
13. ON-SITE RAMP PER DETAIL 9 ON SHEET C6.01.
14. INSTALL RAISED PLANTER. SEE ARCHITECTURAL PLANS FOR LOCATIONS.
15. CONSTRUCT SIDEWALK DRAIN PER CCAUSD NO. 236.
16. ON-SITE CONCRETE PER DETAIL 7 ON SHEET C6.01. (COLOR BLACK)
17. RETAINING WALL BY OTHERS.
18. TRENCH, BACKFILL, AND AC RESTORATION CCAUSD Nos. 503, 500.3, 500.4, AND 500.5.
19. INSTALL 4" CURB CUT PER DETAIL 10 ON C6.01.
20. INSTALL D50 = 8" RIP RAP.

EXISTING UTILITY NOTE:

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

FLOOD ZONE NOTE:

THE PROJECT SITE IS COVERED BY THE FLOOD INSURANCE RATE MAP (FIRM) FOR THE CLARK COUNTY AND INCORPORATED AREAS, NEVADA, COMMUNITY PANEL NUMBER: 32003C2170F, EFFECTIVE DATE: NOVEMBER 16, 2011. REVIEW OF PANEL 2170 INDICATES THAT THE SITE IS ENTIRELY LOCATED WITHIN ZONE "X" (UNSHADED), DESCRIBED BY FEMA AS: "AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN."

GRADING PLAN CERTIFICATION

NAME: TED T. EGERTON PE # 11286 DATE: 05/16/2019
CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH APPROVED DRAINAGE STUDY FOR THIS SITE ON FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT.

A.P.N.:

162-03-801-005

BENCHMARK:

CITY OF LAS VEGAS BENCHMARK NO. BLV11308B
RIVET AND PLATE TOP OF CURB SE CORNER OF 10TH ST. & ST LOUIS AVE.
1215 8616 503
ELEVATION: 2,010.03 FEET / 612.657 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 dig
Avoid cutting underground utility lines. It's costly.
Call 811 before you dig
Underground

1-702-432-5300
1-702-227-2929
NEW! AN Aerial Shot of the Project 1-800-227-2800

REVISIONS:		
REV.	DESCRIPTION	DATE



Lochsa Engineering
CONSULTANT:
151 East Warm Springs Road
Las Vegas, Nevada 89119
P: 702-432-1150 F: 702-432-7699
www.lochsaengineering.com

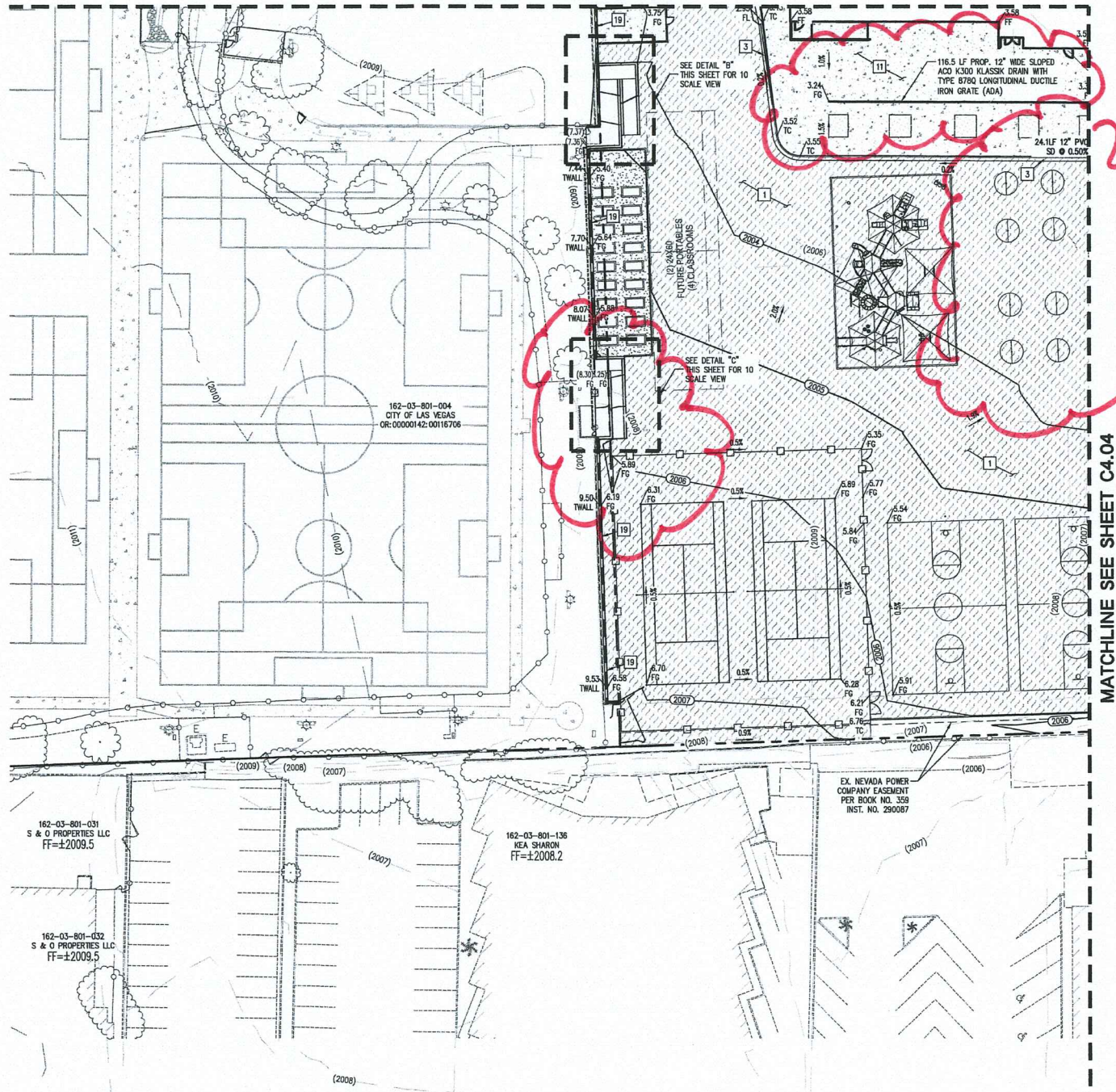
CONSTRUCTION MGMT:		DATE:
PROJECT MANAGER:		
COORDINATOR:		
BUILDING DEPARTMENT:		
CODE COMPLIANCE:		
ASBESTOS WORK IS:	REQUIRED ☐ NOT REQUIRED ☐	
JOB#	XXXXXXX	

CLARK COUNTY SCHOOL DISTRICT
CONSTRUCTION MANAGEMENT 1180 MILITARY TRIBUTE PL. HENDERSON, NV 89074 PHONE: 702-799-8710

PROJECT: CLARK COUNTY SCHOOL DISTRICT
DRAWING TITLE: GRADING PLANS SHEET 2 OF 4
FACILITY: FREMONT K-8 SCHOOL MPID #1623

SHEET NO: C4.02
SHEET 13 OF 22

MATCHLINE SEE SHEET C4.01

**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 RAMP 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 NVR10000, 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.

CUT	FILL
XXXXX CY	XXXXXX CY

NOTE: CUT/FILL QUANTITIES ARE TO FINISH GRADE & DO NOT INCLUDE MATERIAL THICKNESS, FOOTINGS, ETC.

MAX 2% H.S. BUILDING FF
MIN. 5% L.S.**TYPICAL GRADING AWAY FROM BUILDING****STORM DRAIN CONSTRUCTION NOTES:**

1. NOT ALL NOTES USED ON THIS SHEET
2. INSTALL CAST IN PLACE TRENCH DRAIN PER DETAIL 16 ON C6.01.
3. INSTALL 2'X2' JENSEN PRECAST AREA DRAIN
4. FOR BUBBLER PER NEWLY ADOPTED USDOCA DRAWING NO. 421.
5. PROVIDE SUMP PUMP BY OTHERS DISCHARGE INTO LANDSCAPING
6. CONNECT STORM DRAIN TO TRENCH PER DETAIL 16 ON C6.01.
7. INSTALL 48" TYPE 1 MANHOLE PER CCAUSD NO. 403 W/ CONC. COLLAR PER CCAUSD NO. 403. REFER TO CCAUSD NO. 409 FOR MANHOLE COVER & RING.

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 NINYO & MOORE, PROJECT NO. 304289001.
5. ALL ON-SITE STORM DRAIN SYSTEMS AND THE ASSOCIATED FACILITIES ARE PRIVATELY OWNED AND TO BE PRIVATELY MAINTAINED BY THE SCHOOL.
6. ADD 2000' TO ALL GRADE TAGS.

**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 "A" TYPE CURB PER DETAIL 1 ON C6.01.
3. CONSTRUCT "L" TYPE CURB PER CCAUSD NO. 216.
4. CONSTRUCT ON-SITE RAMP PER DETAIL 12 ON C6.01.
5. CONSTRUCT 3" VALLEY CUTTER PER DETAIL 6 ON C6.01.
6. SAWCUT AND MATCH EXISTING.
7. CONSTRUCT COMMERCIAL DRIVEWAY PER CCAUSD 225 WITH CONC. CROSS CUTTER PER CCAUSD NO. 228.
8. CONSTRUCT 2" CURB OPENING PER DETAIL 15 ON C6.01.
9. INSTALL D50 = 3" RIP RAP, THICKNESS (T) = 6" PER DETAIL 13 ON C6.01.
10. CONSTRUCT "O" "A" CURB PER DETAIL 1 ON C6.01.
11. ON-SITE CONCRETE PER DETAIL 7 ON SHEET C6.01.
12. INSTALL CASE 1 HANDICAP RAMP PER CCAUSD NO. 235. A=8', B=8'
13. ON-SITE RAMP PER DETAIL 9 ON SHEET C6.01.
14. INSTALL RAISED PLANTER. SEE ARCHITECTURAL PLANS FOR LOCATIONS.
15. CONSTRUCT SIDEWALK DRAIN PER CCAUSD, NO. 236.
16. ON-SITE CONCRETE PER DETAIL 7 ON SHEET C6.01. (COLOR BLACK)
17. RETAINING WALL BY OTHERS.
18. TRENCH, BACKFILL, AND AC RESTORATION CCAUSD Nos. 503, 500.3, 500.4, AND 500.5.
19. INSTALL 4" CURB CUT PER DETAIL 10 ON C6.01.
20. INSTALL D50 = 8" RIP RAP.

EXISTING UTILITY NOTE:

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

FLOOD ZONE NOTE:

THE PROJECT SITE IS COVERED BY THE FLOOD INSURANCE RATE MAP (FIRM) FOR THE CLARK COUNTY AND INCORPORATED AREAS, NEVADA, COMMUNITY PANEL NUMBER: 32003C2170F, EFFECTIVE DATE: NOVEMBER 16, 2011. REVIEW OF PANEL 2170 INDICATES THAT THE SITE IS ENTIRELY LOCATED WITHIN ZONE "X" (UNSHADED), DESCRIBED BY FEMA AS: "AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN."

GRADING PLAN CERTIFICATION

NAME: TED T. EGERTON PE # 11286 05/16/2019 DATE

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

A.P.N.:
162-03-801-005**BENCHMARK:**
CITY OF LAS VEGAS BENCHMARK NO. BLV13368
RIVET AND PLATE TOP OF CURB SE CORNER OF 10TH ST. & ST. LOUIS AVE.
7215 801E 503
ELEVATION: 2,010.03 FEET / 612.657 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 Dig
Call 811
Call before you dig
Avoid cutting underground utility lines. It's costly.1-702-432-5300
1-702-227-2929
FOR AN 800-227-2600**BASIS OF BEARINGS:**

GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS), LAS VEGAS AND LAS VEGAS HIGH ELEVATION ZONES, NORTH AMERICAN DATUM OF 1983; SAID MERIDIAN BEING CONCURRENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.

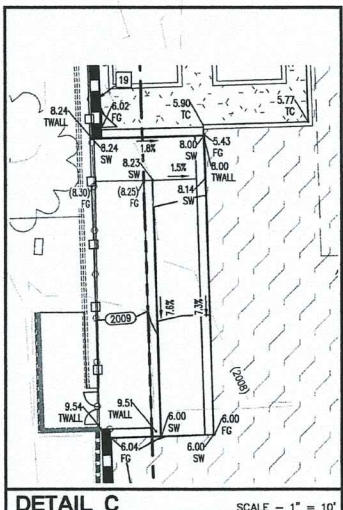
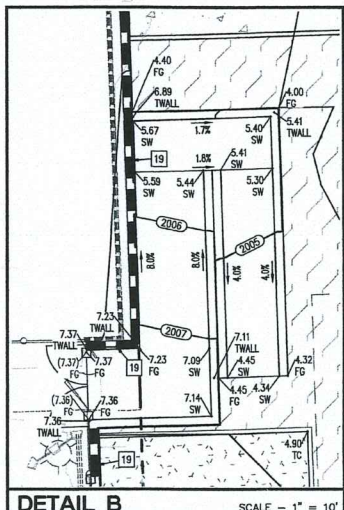
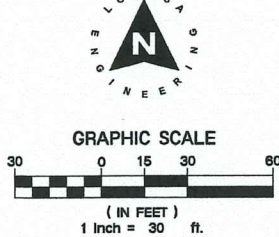
ZONE: LAS VEGAS ELEVATION ZONE

DATUM (REFERENCE FRAME): NAD 1983(2011) EPOCH 2010.0

SYSTEM: NEVADA COORDINATE REFERENCE SYSTEM (NCRS)

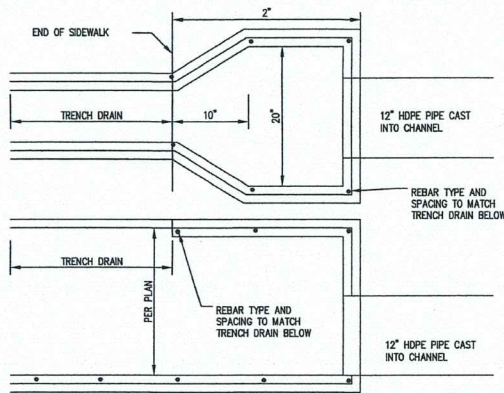
PROJECTION: TRANSVERSE MERCATOR
STANDARD PARALLEL (AND LATITUDE OF GRID ORIGIN): 36°15'00"N
LONGITUDE OF CENTRAL MERIDIAN: 114°58'00"W
NORTHING AT GRID ORIGIN: 200,000.00 M (656,166.667 FEET US)
EASTING AT CENTRAL MERIDIAN: 100,000.00 M (328,083.333 FEET US)
SCALE FACTOR ON CENTRAL MERIDIAN: 1.0001 (EXACT)

- NOTES:
1. ALL DISTANCES AND BEARINGS SHOWN HEREON ARE PROJECTED (GRID) VALUES BASED ON THE PRECEDING PROJECTION DEFINITION. THE PROJECTION WAS DEFINED SUCH THAT PROJECTED (GRID) DISTANCES ARE EQUIVALENT TO "GROUND" DISTANCES IN THE PROJECT AREA.
 2. GRID BEARING SHOWN HEREON (OR IMPLIED BY GRID COORDINATES) DO NOT EQUAL GEODETIC BEARING DUE TO MERIDIAN CONVERGENCE.

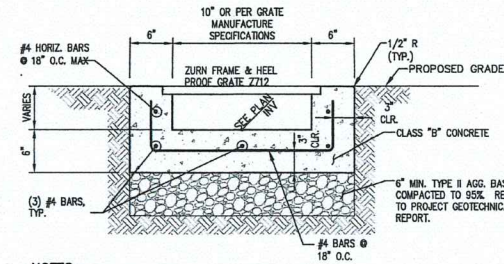


LEGEND	CL OR SURVEY LINE	EASEMENT LINE	DESCRIPTION:	CONTOUR LINES	EDGE OF PAVEMENT	"A" TYPE CURBS	"L" TYPE CURBS	WALLS	FENCES	AC PAVEMENT	CONCRETE	SPOT ELEVATIONS	SIGNS	MANHOLE W/ DESCRIPTION	MANHOLE DESCRIPTIONS	FIRE HYDRANTS	GATE VALVES	REDUCERS	CLEAN OUTS	UTILITY BOX OR VAULT	BACKWATER VALVES	100+ HPS STREETLIGHTS	150+ HPS STREETLIGHTS
	---	---	EXISTING:	(2210)	---	---	---	---	---	---	---	12.34 BC	---	---	---	---	---	---	---	---	---	---	---
	---	---	PROPOSED:	(2122)	---	---	---	---	---	---	---	12.34 BC	---	---	---	---	---	---	---	---	---	---	---

C4.03
SHEET 14 OF 22

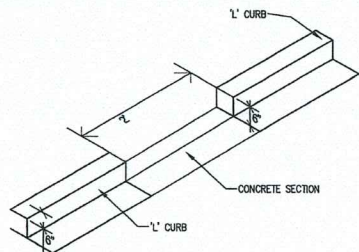


12" SD CONNECTION TO TRENCH DRAIN



- NOTES:
1. WEAKENED PLANE JOINTS REQUIRED AT 10' MAX. SPACING.
 2. REFER TO PROJECT GEOTECHNICAL REPORT FOR TYPE II AGGREGATE OR SELECTED MATERIAL DEPTH AND COMPACTION, SUB-GRADE PREPARATION, MEMBRANES AND OTHER PLACEMENT RECOMMENDATIONS.

16 TRENCH DRAIN

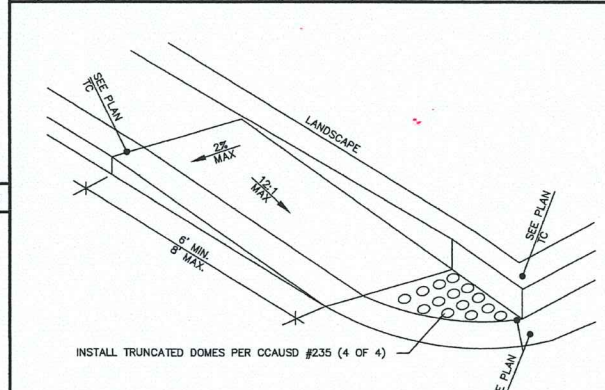


19 NOT USED

NOT TO SCALE

18 NOT USED

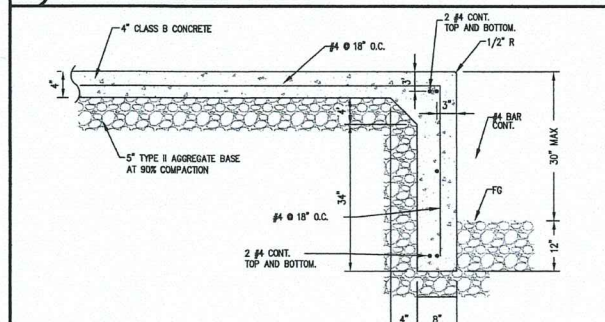
NOT TO SCALE



- 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 EXCEED 1:48
 4. RAMP SLOPES SHALL NOT EXCEED 1:12
 5. HEIGHT OF CURBS (OR EDGES) SHALL NOT EXCEED 6"
 6. RAMP CLEAR WIDTHS TO BE 3'-0" MINIMUM
 7. RAMP HEIGHTS ARE NOT INTENDED TO EXCEED 6" IN HT. PER EA. RUN.
 8. RAMP SHALL HAVE A BROOM FINISH.

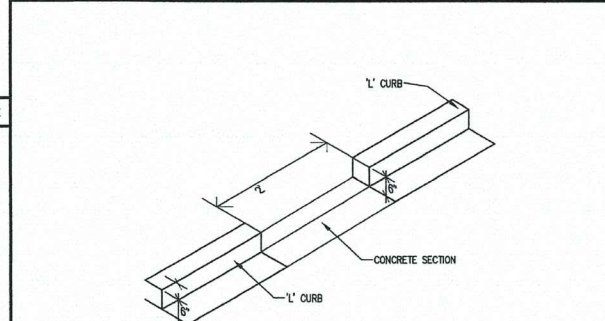
12 ON-SITE RAMP

NOT TO SCALE



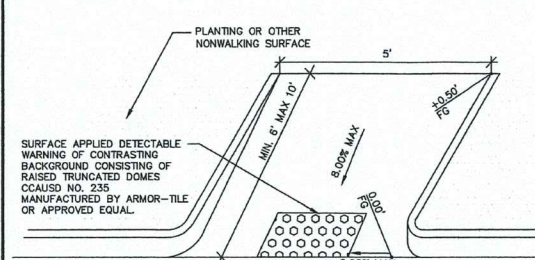
11 TURNED DOWN SIDEWALK

NOT TO SCALE



10 4' CURB OPENING

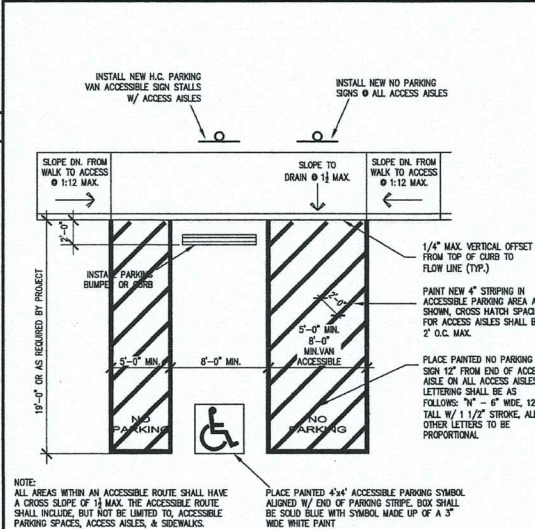
NOT TO SCALE



- 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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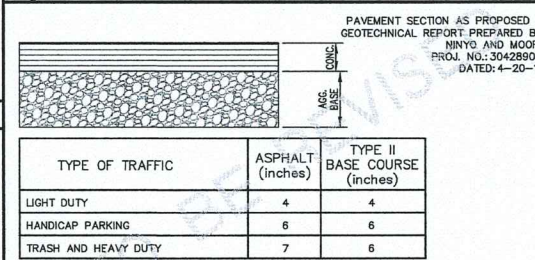
9 ON-SITE RAMP

NOT TO SCALE



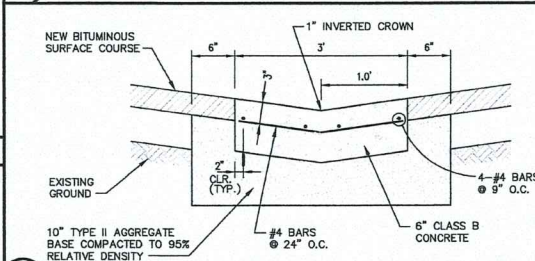
8 ACCESSIBLE PARKING DETAIL

NOT TO SCALE



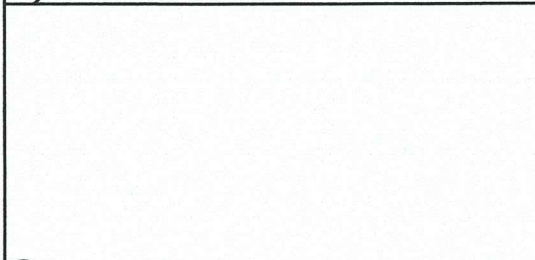
7 CONCRETE PAVEMENT SECTION

NOT TO SCALE



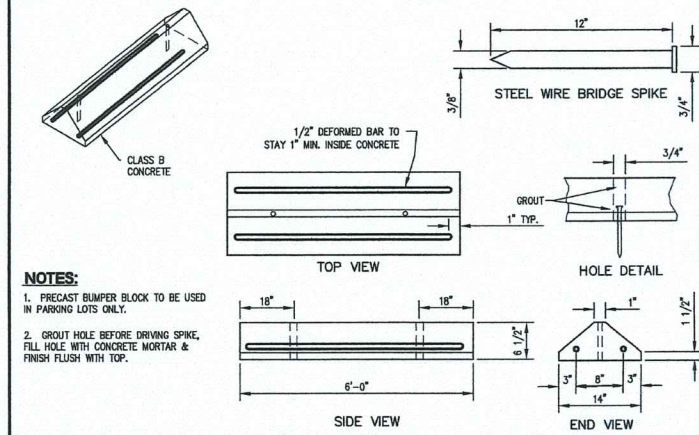
6 3' VALLEY GUTTER

NOT TO SCALE



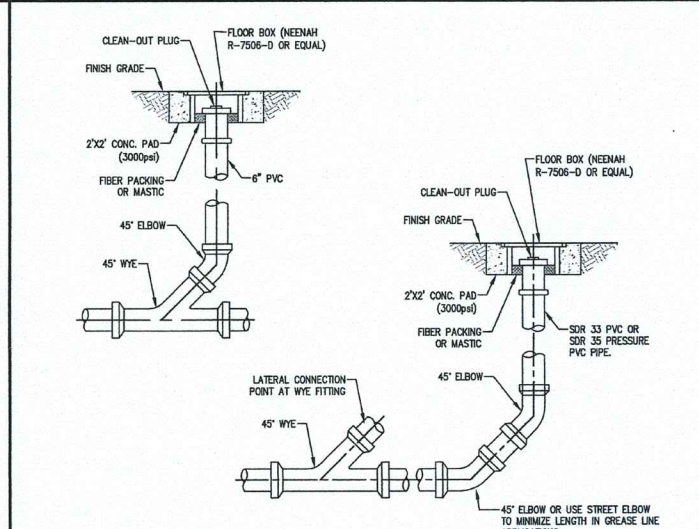
5 NOT USED

NOT TO SCALE



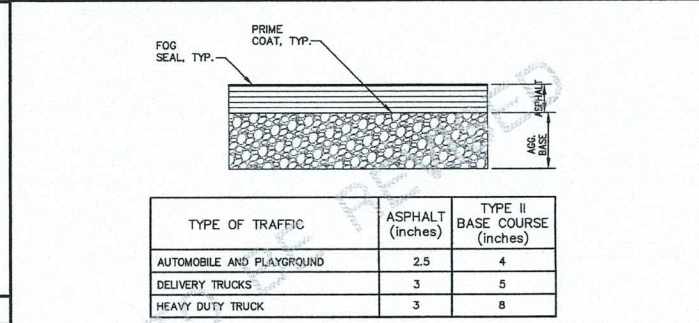
4 BUMPER BLOCK DETAIL

NOT TO SCALE



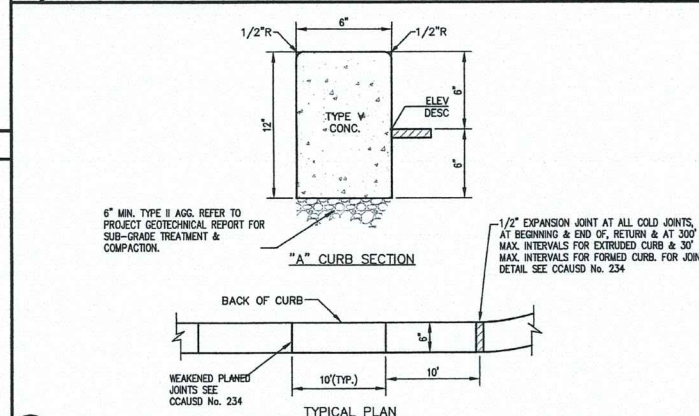
3 SEWER CLEAN-OUT

NOT TO SCALE



2 AC PAVEMENT SECTION

NOT TO SCALE



1 ON-SITE "A" TYPE CURB

NOT TO SCALE

REVISIONS:

REV.	DESCRIPTION	DATE
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CLARK COUNTY SCHOOL DISTRICT
CONSTRUCTION MANAGEMENT DEPARTMENT 1180 MILITARY TRIBUTE PL. HENDERSON NV 89074 PHONE: 702-799-8710

PROJECT: CLARK COUNTY SCHOOL DISTRICT
DRAWING TITLE: DETAIL SHEETS
FACILITY: FREMONT K-8 SCHOOL MPID #1623

DESIGNER: Simpson Coulter Studio
PLANNING • ARCHITECTURE • INTERIOR DESIGN
151 East Warm Springs Road
Las Vegas, Nevada 89119
P: 702-435-1150 F: 702-435-7699
www.simpsoncoulter.com

CONSULTANT: Simpson Coulter Studio
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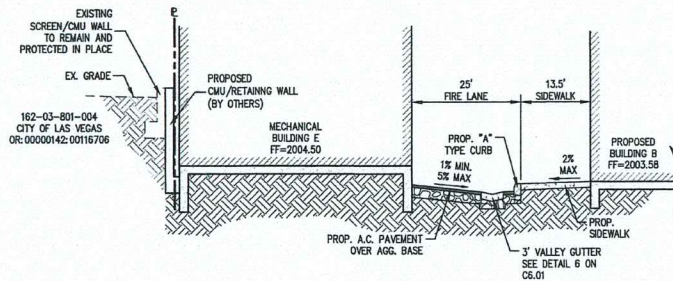
CONSTRUCTION MGMT. DATE: 05/16/19
PROJECT MANAGER: MMT
COORDINATOR: MMT
BUILDING DEPARTMENT: MMT
CODE COMPLIANCE: MMT
ASBESTOS WORK IS: REQUIRED NOT REQUIRED
JOB# XXXXXXXX

SHEET NO: C6.01
SHEET 21 OF 22

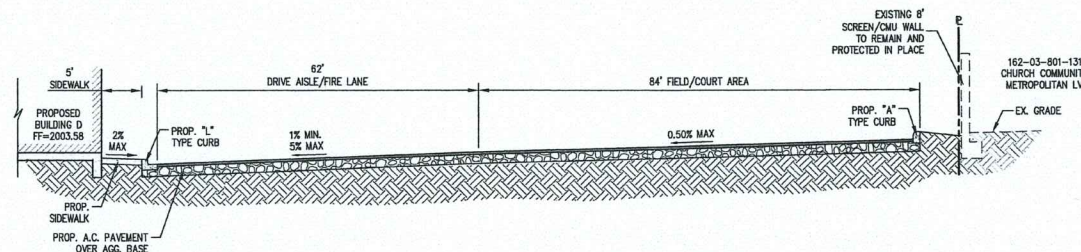
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D WEST SECTION

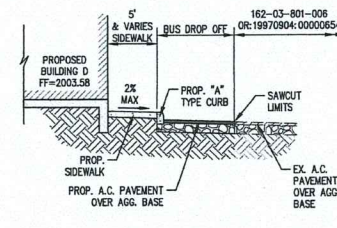
G WEST SECTION



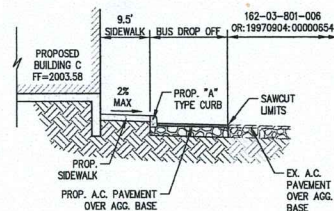
F SOUTHEAST SECTION



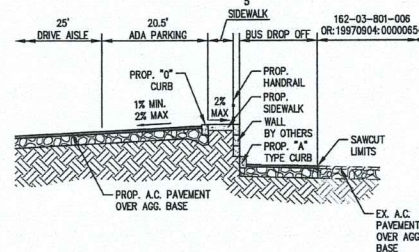
E EAST SECTION @ BUILDING D



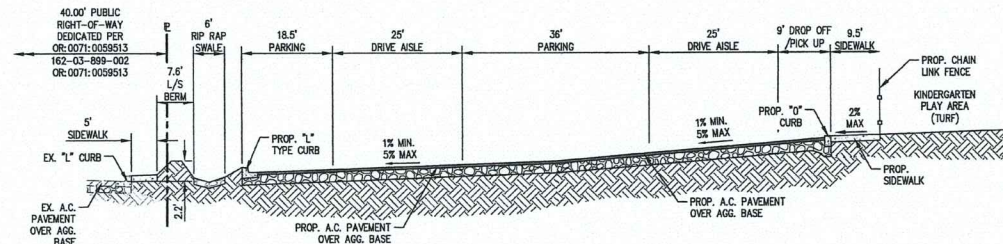
D EAST SECTION @ BUILDING C



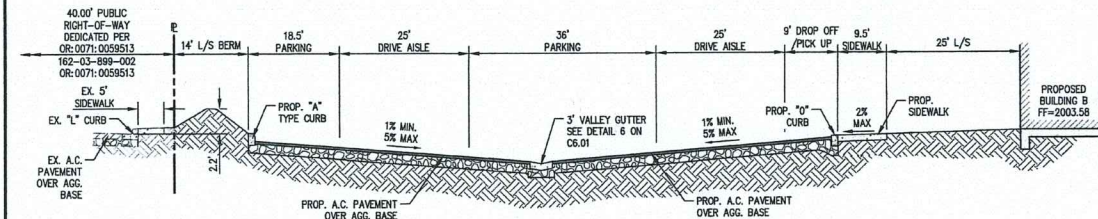
C EAST SECTION @ ADA PARKING AREA



B NORTHEAST SECTION



A NORTHWEST SECTION



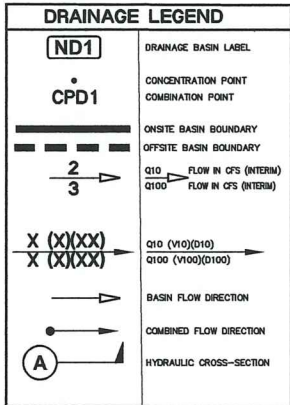
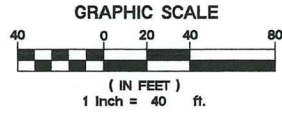
REVISIONS:		
REV.	DESCRIPTION	DATE

DATE: 05/16/19
DRAWN BY: MWT
SUBMITTAL: 181203
DATE: 05-16-2019

Simpson Coulter | STUDIO
PLANNING • ARCHITECTURE • INTERIOR DESIGN
151 East Warm Springs Road
Las Vegas, Nevada 89119
P: 702-435-1150 F: 702-435-7699
www.simpsoncoulter.com

Lochsa Engineering
6345 South Jones Blvd.
Suite 100
Las Vegas, NV 89118
Phone (702) 365-8312
Fax (702) 365-8317
www.lochsa.com

CONSTRUCTION MGMT:		DATE:
PROJECT MANAGER:		
COORDINATOR:		
BUILDING DEPARTMENT:		
CODE COMPLIANCE:		
ASBESTOS REVIEW:		
ASBESTOS WORK IS: REQUIRED ☐ NOT REQUIRED ☐		
JOB# XXXXXXX		
CLARK COUNTY SCHOOL DISTRICT CONSTRUCTION MANAGEMENT DEPARTMENT 1180 MILITARY TRIBUTE PL HENDERSON NV 89074 PHONE: 702-799-8710		
PROJECT: -----		
DRAWING TITLE: DETAIL SHEETS DETAIL SHEET 2 OF 2		
FACILITY: FREMONT K-8 SCHOOL MPID #1623		
SHEET NO: C6.02 SHEET 22 OF 22		



Peak Flow Summary

Interim/Development Condition

HEC-1 ID.	Area (acres)	10-year Flow (cfs)	100-year Flow (cfs)
OFD1	1.83	3	5
OND1	3.81	6	11
OFD2	1.32	2	4
CPD1	-	11	21
OND2	2.12	4	7
OND3	2.07	4	6
CPD2	-	19	34

(OND2+OND3+CPD1)

Street Flow Summary
(Interim/Developed Condition)

10-year, 6-hour Storm

Street	Right of Way Width (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 [v x d]
*St. Louis Ave	80	A	*86	5.15	0.38	1.96

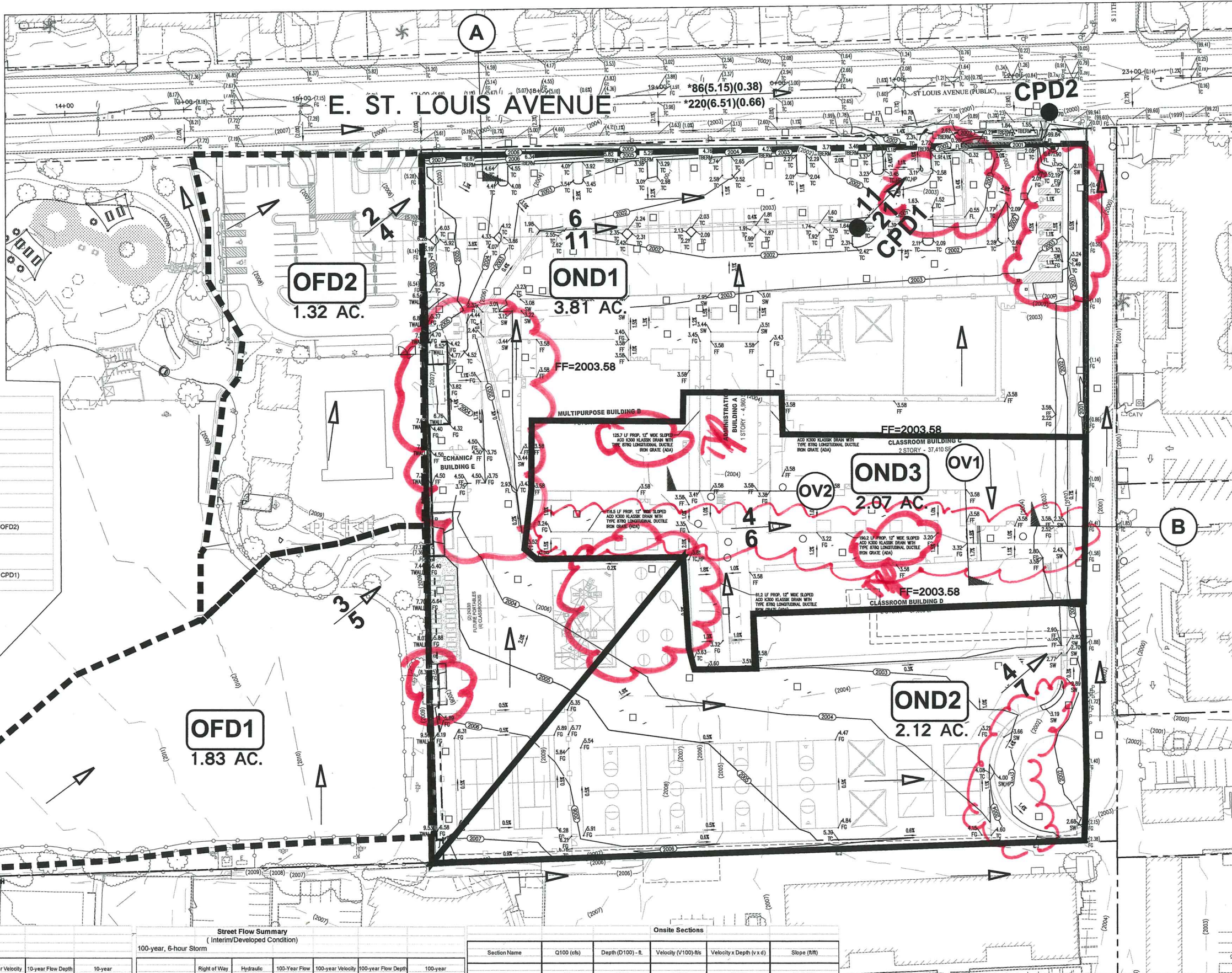
Street Flow Summary
(Interim/Developed Condition)

100-year, 6-hour Storm

Street	Right of Way Width (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 [v x d]
*St. Louis Ave	80	A	*220	6.51	0.66	4.30

Onsite Sections

Section Name	Q100 (cfs)	Depth (D100) - ft	Velocity (V100) - ft/s	Velocity x Depth (v x d)	Slope (ft/ft)
B	7	0.2	1.94	0.39	0.007



REVISIONS:

REV.	DESCRIPTION	DATE
1		
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SEAL: PROFESSIONAL ENGINEER - STATE OF NEVADA

TED T. EGERTON

EXP. 12-31-20

CIVIL

No. 11265

DATE: 05-16-2019

DRAWN BY: MMT

SUBMITTAL: 181203

A/E: Simpson Coulter | STUDIO

PLANNING • ARCHITECTURE • INTERIOR DESIGN

161 East Warm Springs Road

Las Vegas, Nevada 89119

P: 702-435-1150 F: 702-435-7899

www.simpsoncoulter.com

CONSULTANT:

CONSTRUCTION MGMT.: DATE:

BUILDING DEPARTMENT:

ASBESTOS WORK IS:

REQUIRED ☐ NOT REQUIRED ☐

JOB# XXXXXXXX

CLARK COUNTY SCHOOL DISTRICT

CONSTRUCTION MANAGEMENT 1180 MILITARY TRIBUTE PL HENDERSON NV 89074 PHONE: 702-799-8710

PROJECT: FREMONT K-8 SCHOOL

DRAWING TITLE: INTERIM/DEVELOPED BASIN MAP

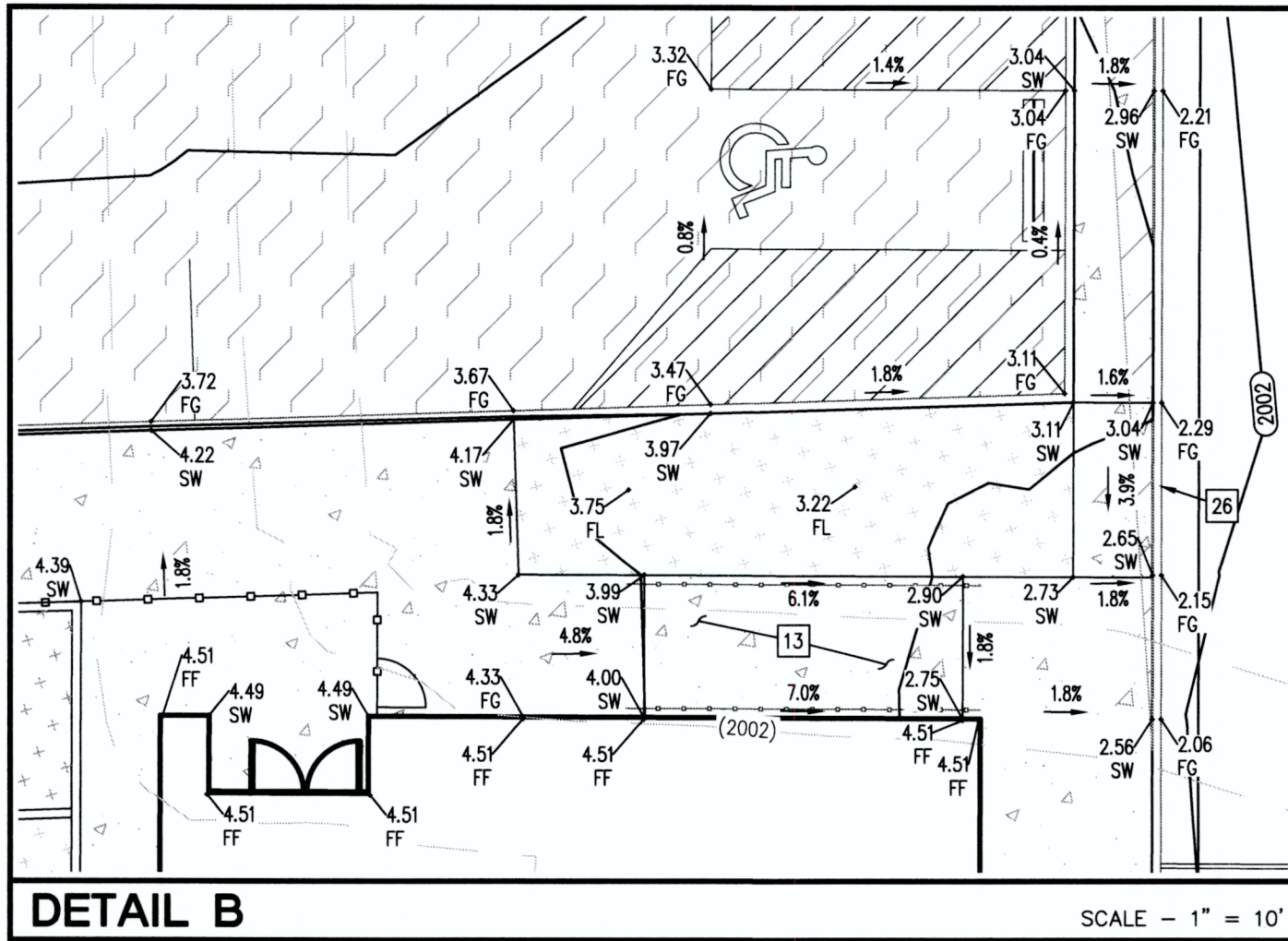
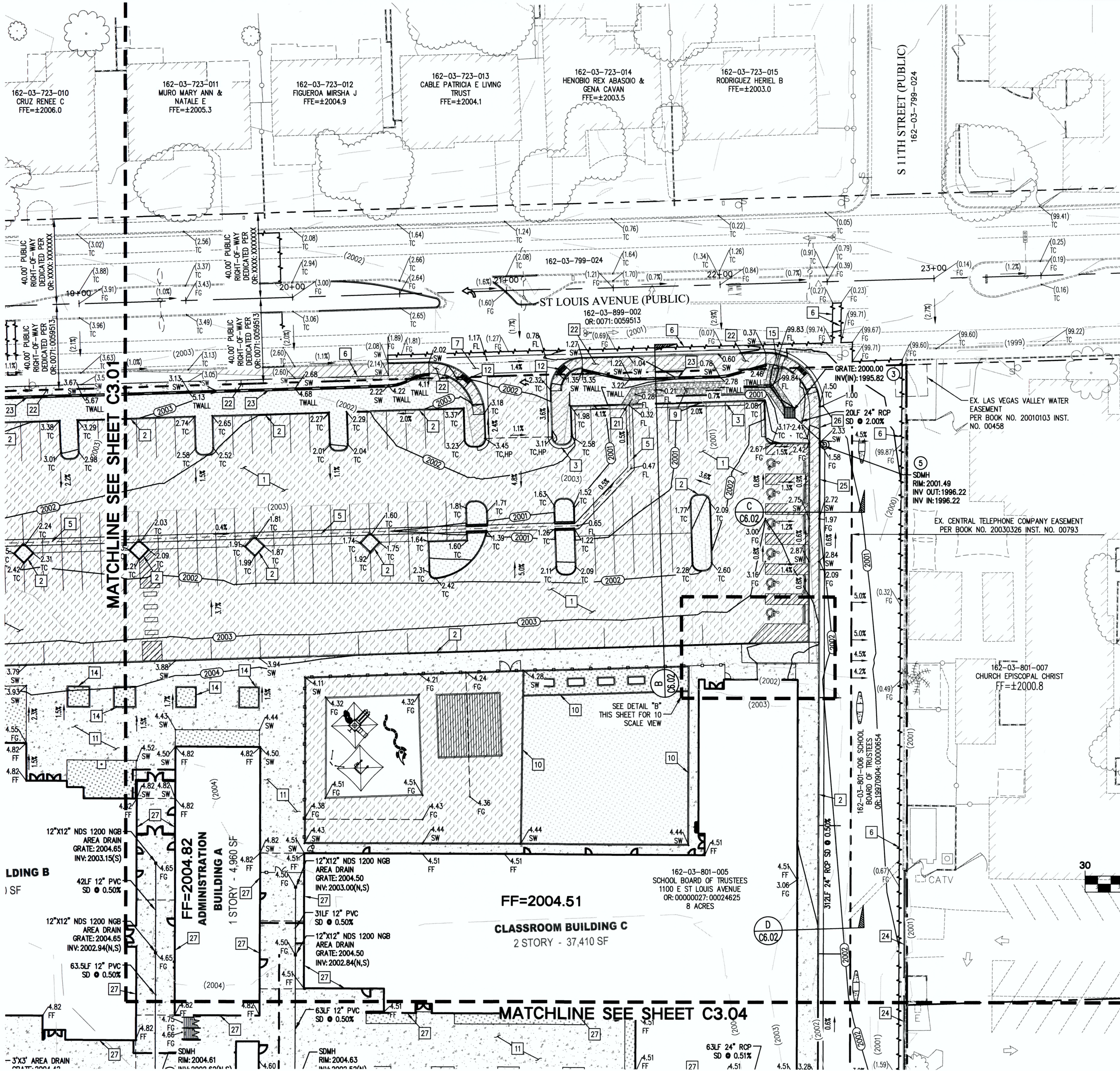
FACILITY:

SHEET NO: DR2

SHEET 1 OF 1

9/5/2019 1:47 PM
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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)								(12.34) BC		
ROW LINE	SCARP LINE	PROPOSED:	(222)								(12.34) BC		



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

- 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.
- ADDITIONAL CONSTRUCTION SITE DISCHARGE BEST MANAGEMENT PRACTICES MAY BE REQUIRED OF THE OWNER AND HIS OR HER AGENTS DUE TO UNFORESEEN EROSION OR POLLUTION THAT MAY OCCUR. 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.
- 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.
- 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.
- 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.

EARTHWORK QUANTITIES	
CUT.....	4614 CU. YD.
FILL.....	4878 CU. YD.
NET.....	264 CU. YD. FILL

NOTE: CUT/FILL QUANTITIES ARE TO FINISHED GRADE & DO NOT INCLUDE MATERIAL THICKNESS, FOOTINGS, ETC.

MAX 2% H.S. BUILDING FF
MIN. 5% L.S.

TYPICAL GRADING AWAY FROM BUILDING

STORM DRAIN CONSTRUCTION NOTES:

- NOT ALL NOTES USED ON THIS SHEET -
 - INSTALL CAST IN PLACE TRENCH DRAIN PER DETAIL 16 ON C6.01.
 - INSTALL 2'X2' JENSEN PRECAST AREA DRAIN
 - INSTALL JENSEN 5'X5' DROP INLET (OR APPROVED EQUIVALENT) FOR BUBBLER PER NEWLY ADOPTED USDOCA DRAWING 421
 - PROVIDE LIBERTY SUMP PUMP MODEL# ELV290 (OR APPROVED EQUIVALENT). DISCHARGE INTO LANDSCAPING. CONNECT STORM DRAIN TO TRENCH PER DETAIL 16 ON C6.01.
 - INSTALL 48" TYPE I MANHOLE PER CAUSAID NO. 403 W/ CONC. COLLAR PER CAUSAID NO. 408. REFER TO CAUSAID NO. 409 FOR MANHOLE COVER & RING.

GRADING NOTES:

- 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.
- 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.
- 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.
- 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 NINYO & MOORE, PROJECT NO. 304289001.
- ALL ON-SITE STORM DRAIN SYSTEMS AND THE ASSOCIATED FACILITIES ARE PRIVATELY OWNED AND TO BE PRIVATELY MAINTAINED BY THE SCHOOL.
- ADD 2000' TO ALL GRADE TAGS.

BASIS OF BEARINGS:

GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS), LAS VEGAS AND LAS VEGAS HIGH ELEVATION ZONES, NORTH AMERICAN DATUM OF 1983; SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.

ZONE: LAS VEGAS ELEVATION ZONE

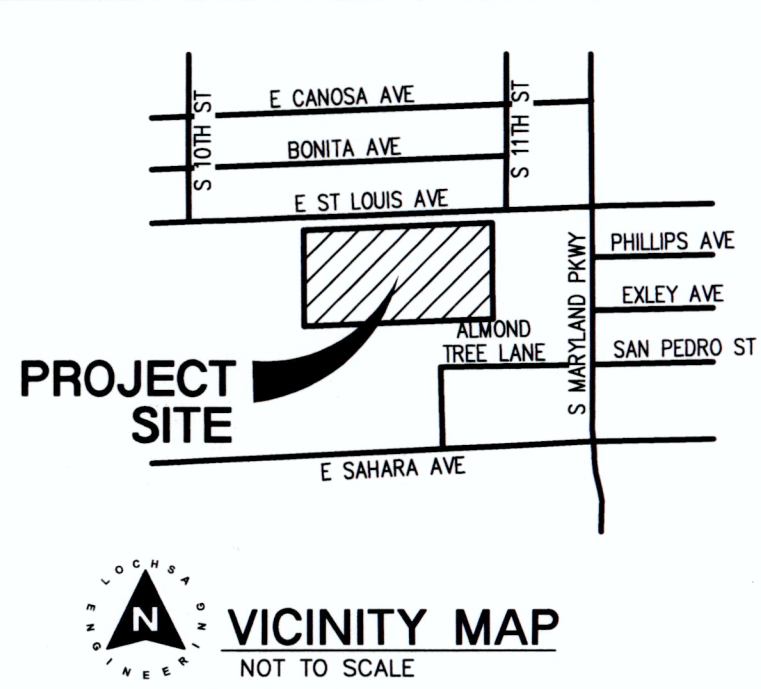
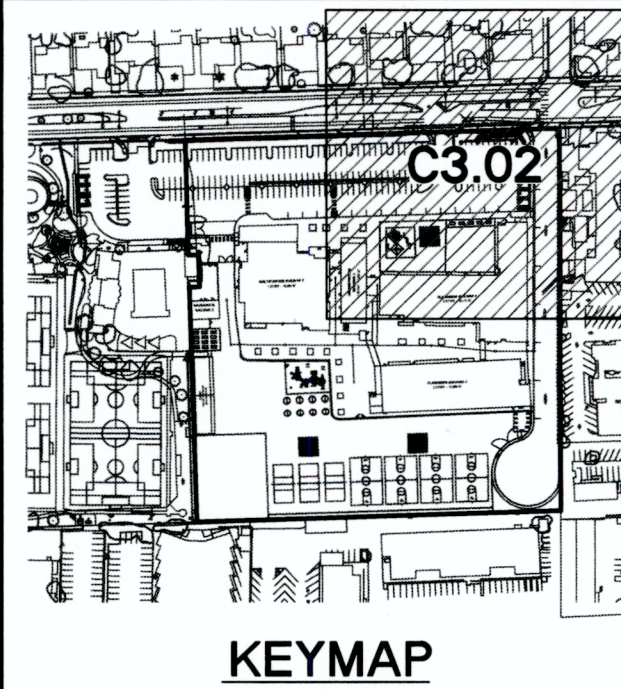
DATUM (REFERENCE FRAME): NAD 1983(2011) EPOCH 2010.0

SYSTEM: NEVADA COORDINATE REFERENCE SYSTEM (NCRS)

PROJECTION: TRANSVERSE MERCATOR
STANDARD PARALLEL (AND LATITUDE OF GRID ORIGIN): 36°15'00"N
LONGITUDE OF CENTRAL MERIDIAN: 114°58'00"W
NORTHING AT GRID ORIGIN: 200,000.00 M (656,166.667 FEET US)
EASTING AT CENTRAL MERIDIAN: 100,000.00 M (328,083.333 FEET US)
SCALE FACTOR ON CENTRAL MERIDIAN: 1.0001 (EXACT)

- NOTES:
- ALL DISTANCES AND BEARINGS SHOWN HEREON ARE PROJECTED (GRID) VALUES BASED ON THE PRECEDING PROJECTION DEFINITION. THE PROJECTION WAS DEFINED SUCH THAT PROJECTED (GRID) DISTANCES ARE EQUIVALENT TO "GROUND" DISTANCES IN THE PROJECT AREA.
 - GRID BEARINGS SHOWN HEREON (OR IMPLIED BY GRID COORDINATES) DO NOT EQUAL GEODETIC BEARING DUE TO MERIDIAN CONVERGENCE.

MANHOLE DESCRIPTIONS	FIRE HYDRANTS	GATE VALVES	REDUCERS	CLEAN OUTS	UTILITY BOX OR VAULT	BACKWATER VALVES	100w HPS STREETLIGHTS	150w HPS STREETLIGHTS
① = SANITARY SEWER ② = STORM DRAIN ③ = ELECTRICAL ④ = TELEPHONE								



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 -

- CONSTRUCT AC PAVEMENT PER DETAIL 2 ON C6.01.
- CONSTRUCT "A" TYPE CURB PER DETAIL 1 ON C6.01.
- CONSTRUCT "L" TYPE CURB PER CAUSAID No. 216.
- CONSTRUCT ON-SITE RAMP PER DETAIL 12 ON C6.01.
- CONSTRUCT 3' VALLEY GUTTER PER DETAIL 6 ON C6.01.
- SAWCUT AND MATCH EXISTING.
- CONSTRUCT COMMERCIAL DRIVEWAY PER CAUSAID 225 WITH CONC. CROSS GUTTER PER CAUSAID No. 228.
- CONSTRUCT 2' CURB OPENING PER DETAIL 15 ON C6.01.
- INSTALL 050 = 3" RIP RAP. THICKNESS (T) = 6" PER DETAIL 13 ON C6.01.
- INSTALL NOW-CURB PER DETAIL 5 ON C6.01.
- ON-SITE CONCRETE PER DETAIL 7 ON SHEET C6.01.
- INSTALL CASE I HANDICAP RAMP PER CAUSAID NO. 235. A=8', B=8'
- ON-SITE RAMP PER DETAIL 9 ON SHEET C6.01.
- INSTALL RAISED PLANTER. SEE ARCHITECTURAL PLANS FOR LOCATIONS.
- CONSTRUCT SIDEWALK DRAIN PER CAUSAID No. 236.
- ON-SITE CONCRETE PER DETAIL 7 ON SHEET C6.01. (COLOR BLACK)
- SNB0 B-100-2 SCREEN WALL PER DETAIL 16 ON SHEET C6.01
- TRENCH, BACKFILL, AND AC RESTORATION CAUSAID Nos. 503, 500.3, 500.4, AND 500.5.
- INSTALL 4" CURB CUT PER DETAIL 10 ON C6.01
- CONSTRUCT CONC. 5' SIDEWALK PER CAUSAID 234.
- 2' HIGH SOLID GROUTED CMU FLOOD WALL PER DETAIL 16 ON SHT C6.01
- CONSTRUCT TACK-ON ISLAND CURB PER CAUSAID No. 220.
- CONSTRUCT 9" "A" TYPE CURB PER DETAIL 1 ON C6.01.
- CONSTRUCT 6"-9" CURB TRANSITION - SEE PLANS FOR SPOT ELEVATIONS.
- FLOOD PROOF MEMBRANE 1' ABOVE FINISHED GRADE.

EXISTING UTILITY NOTE:

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

FLOOD ZONE NOTE:

THE PROJECT SITE IS COVERED BY THE FLOOD INSURANCE RATE MAP (FIRM) FOR THE CLARK COUNTY AND INCORPORATED AREAS, NEVADA, COMMUNITY PANEL NUMBER: 30003C2170F, EFFECTIVE DATE: NOVEMBER 16, 2011. REVIEW OF PANEL 2170 INDICATES THAT THE SITE IS ENTIRELY LOCATED WITHIN ZONE "X" (UNSHADED), DESCRIBED BY FEMA AS: "AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN."

GRADING PLAN CERTIFICATION

NAME: TED T. EGERTON PE # 11286 DATE 09/05/2019
CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH APPROVED DRAINAGE STUDY FOR THIS SITE ON FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT.

A.P.N.:
162-03-801-005

BENCHMARK:

CITY OF LAS VEGAS BENCHMARK NO. 8LV1356E
RIVET AND PLATE TOP OF CURB SE CORNER OF 10TH ST. & ST LOUIS AVE.
7215 8616 503
ELEVATION: 2,010.03 FEET / 612.657 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.



1-702-227-2929 1-702-432-5300
FREMONT AND AERIAL SYSTEMS OF INTERSECTION 1-800-227-2800

REVISIONS:

REV.	DESCRIPTION:	DATE:

SEAL: PROFESSIONAL ENGINEER - STATE OF NEVADA No. 11286 CIVIL 09-05-19

DATE: 9/5/19
DRAWN BY: MW/EL
SUBMITTAL: 95% SUBMITTAL
PROJECT NO: 181203

STUDIO

Simpson Coulter | STUDIO
PLANNING • ARCHITECTURE • INTERIOR DESIGN
151 East Warm Springs Road
Las Vegas, Nevada 89119
P: 702-435-1150 F: 702-435-7699
www.simpsoncoulter.com

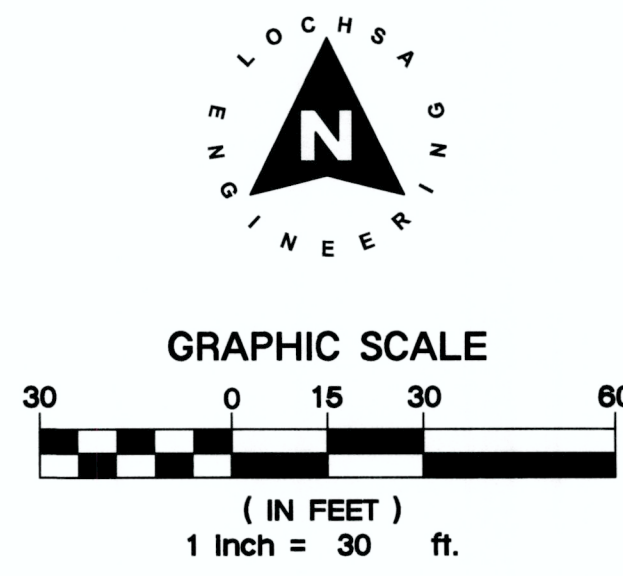
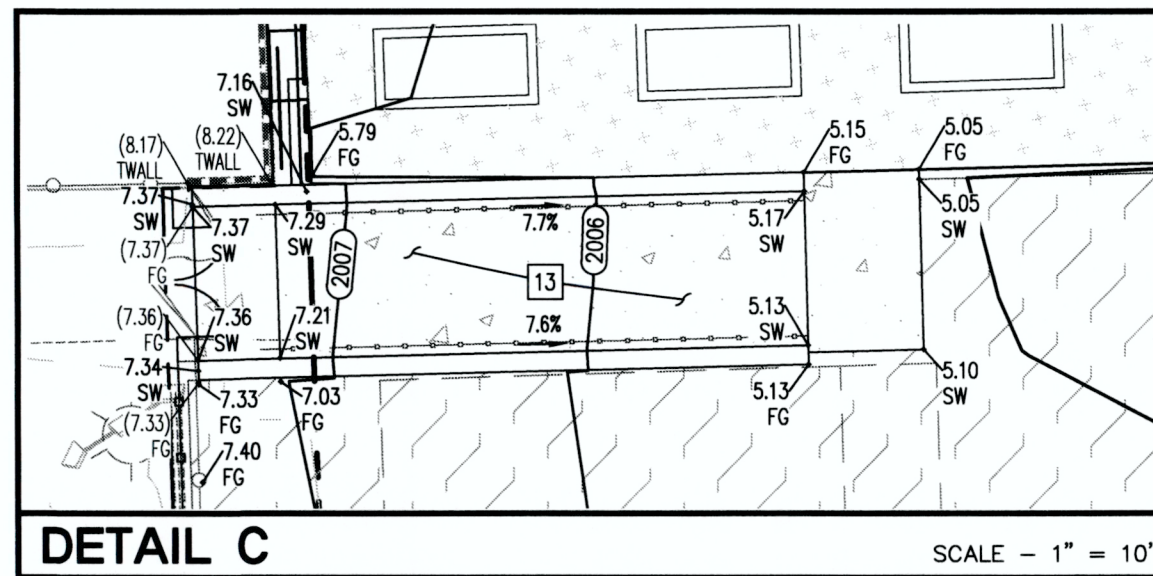
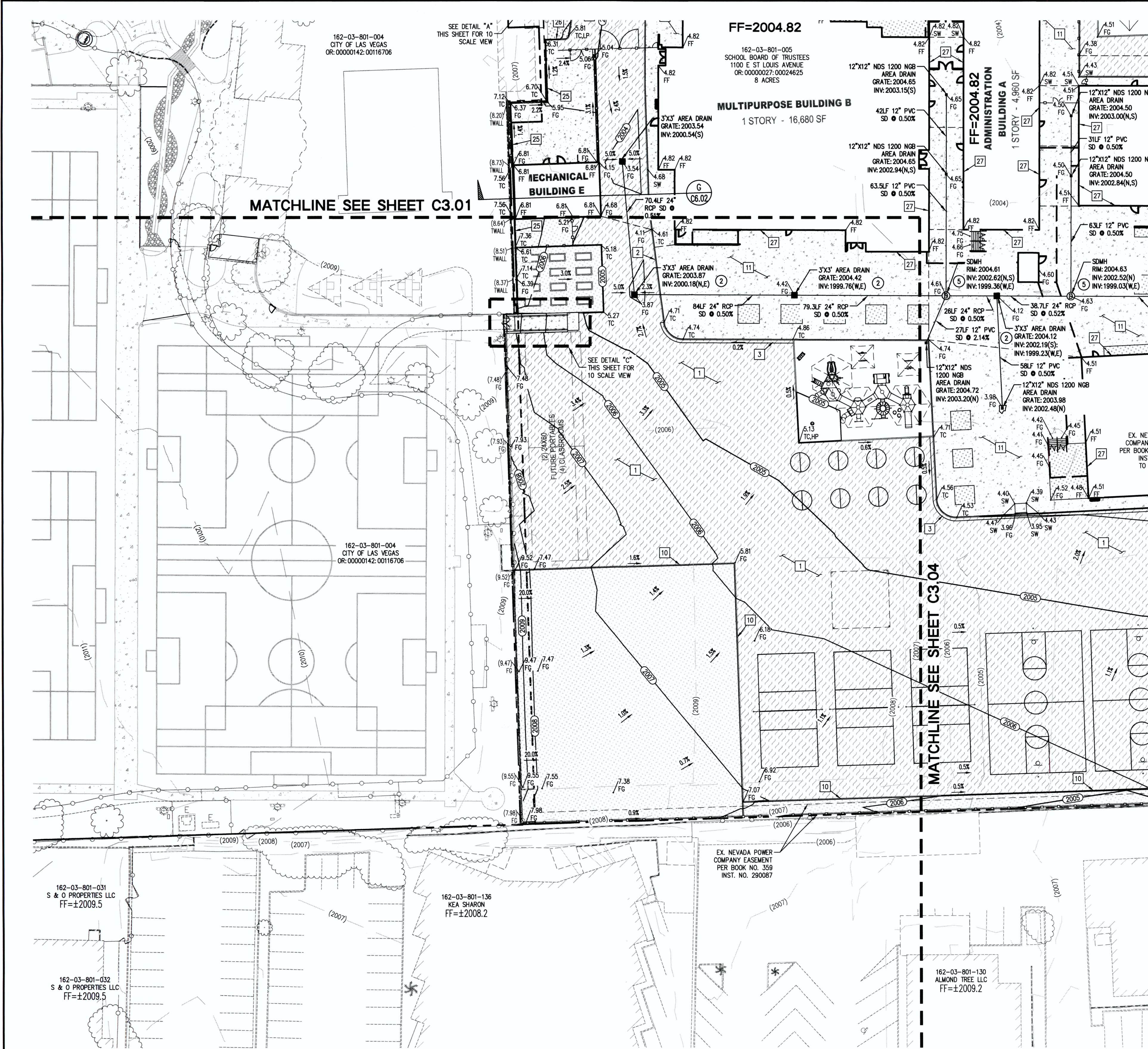
Lochsa Engineering
6345 South Jones Blvd.
Suite 100
Las Vegas, NV 89118
Phone: (702) 365-9312
Fax: (702) 365-9317
www.lochsa.com

CLARK COUNTY SCHOOL DISTRICT
CONSTRUCTION MANAGEMENT DEPARTMENT 1180 MILITARY TRIBUTE PL. HENDERSON NV 89074 PHONE: 702-799-8710

PROJECT: ---
DRAWING TITLE: GRADING PLANS SHEET 2 OF 4
FACILITY: FREMONT K-8 SCHOOL MPID #1623

SHEET NO: C3.02
SHEET 13 OF 22

9/5/2019 1:48 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 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 UNPREDICTED 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 NV10000, 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 NV100000, SECTION III.A.12.
5. ACCUMULATED SEDIMENT IN BMPs SHALL BE REMOVED WITHIN SEVEN DAYS AFTER A STORMWATER RUNOFF EVENT OR PRIOR TO THE NEXT ANTICIPATED STORM EVENT, WHICHEVER IS EARLIER. SEDIMENT MUST BE REMOVED WHEN BMP DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE.

EARTHWORK QUANTITIES	
CUT.....	4614 CU. YD.
FILL.....	4878 CU. YD.
NET.....	264 CU. YD. FILL

NOTE: CUT/FILL QUANTITIES ARE TO FINISHED GRADE & DO NOT INCLUDE MATERIAL THICKNESS, FOOTINGS, ETC.

TYPICAL GRADING AWAY FROM BUILDING STORM DRAIN CONSTRUCTION NOTES:

1. NOT ALL NOTES USED ON THIS SHEET
1. INSTALL CAST IN PLACE TRENCH DRAIN PER DETAIL 16 ON C6.01.
2. INSTALL 2'X2' JENSEN PRECAST AREA DRAIN
3. INSTALL JENSEN 5'X5' DROP INLET (OR APPROVED EQUIVALENT) FOR BUBBLER PER NEWLY ADOPTED USDOCA DRAWING NO. 421. PROVIDE LIBERTY SUMP PUMP MODEL# ELV290 (OR APPROVED EQUIVALENT). DISCHARGE INTO LANDSCAPING.
4. CONNECT STORM DRAIN TO TRENCH PER DETAIL ON 16 ON C6.01.
5. INSTALL 48" TYPE I MANHOLE PER CAUSAUS NO. 403 W/ CONC. COLLAR PER CAUSAUS NO. 408. REFER TO CAUSAUS NO. 409 FOR MANHOLE COVER & RING.

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 TROUGH 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 NINYO & MOORE, PROJECT NO. 304289001.
5. ALL ONSITE STORM DRAIN SYSTEMS AND THE ASSOCIATED FACILITIES ARE PRIVATELY OWNED AND TO BE PRIVATELY MAINTAINED BY THE SCHOOL.
6. ADD 2000' TO ALL GRADE TAGS.

BASIS OF BEARINGS:

GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS), LAS VEGAS AND LAS VEGAS HIGH ELEVATION ZONES, NORTH AMERICAN DATUM OF 1983; SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.

ZONE: LAS VEGAS ELEVATION ZONE

DATUM (REFERENCE FRAME): NAD 1983(2011) EPOCH 2010.0

SYSTEM: NEVADA COORDINATE REFERENCE SYSTEM (NCRS)

PROJECTION: TRANSVERSE MERCATOR
STANDARD PARALLEL (AND LATITUDE OF GRID ORIGIN): 36°15'00"N
LONGITUDE OF CENTRAL MERIDIAN: 114°58'00"W
NORTHING AT GRID ORIGIN: 200,000.00 M (656,166.6667 FEET US)
EASTING AT CENTRAL MERIDIAN: 100,000.00 M (328,083.3333 FEET US)
SCALE FACTOR ON CENTRAL MERIDIAN: 1.0001 (EXACT)

NOTES:
1. ALL DISTANCES AND BEARINGS SHOWN HEREON ARE PROJECTED (GRID) VALUES BASED ON THE PRECEDING PROJECTION DEFINITION. THE PROJECTION WAS DEFINED SUCH THAT PROJECTED (GRID) DISTANCES ARE EQUIVALENT TO "GROUND" DISTANCES IN THE PROJECT AREA.

2. GRID BEARING SHOWN HEREON (OR IMPLIED BY GRID COORDINATES) DO NOT EQUAL GEODETIC BEARING DUE TO MERIDIAN CONVERGENCE.

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 "A" TYPE CURB PER DETAIL 1 ON C6.01.
3. CONSTRUCT "L" TYPE CURB PER CAUSAUS NO. 216.
4. CONSTRUCT ONSITE RAMP PER DETAIL 12 ON C6.01.
5. CONSTRUCT 3' VALLEY GUTTER PER DETAIL 6 ON C6.01.
6. SAWCUT AND MATCH EXISTING.
7. CONSTRUCT COMMERCIAL DRIVEWAY PER CAUSAUS 225 WITH CONC. CROSS GUTTER PER CAUSAUS NO. 228.
8. CONSTRUCT 2' CURB OPENING PER DETAIL 15 ON C6.01.
9. INSTALL D50 = 3" RIP RAP. THICKNESS (T) = 6" PER DETAIL 13 ON C6.01.
10. INSTALL NOW-CURB PER DETAIL 5 ON C6.01.
11. ON-SITE CONCRETE PER DETAIL 7 ON SHEET C6.01.
12. INSTALL CASE 1 HANDICAP RAMP PER CAUSAUS NO. 235. A=8", B=8"
13. ON-SITE RAMP PER DETAIL 9 ON SHEET C6.01.
14. INSTALL RAISED PLANTER. SEE ARCHITECTURAL PLANS FOR LOCATIONS.
15. CONSTRUCT SIDEWALK DRAIN PER CAUSAUS NO. 236.
16. ON-SITE CONCRETE PER DETAIL 7 ON SHEET C6.01. (COLOR BLACK)
17. SMO B-100-2 SCREEN WALL PER DETAIL 16 ON SHEET C6.01
18. TRENCH, BACKFILL, AND AC RESTORATION CAUSAUS Nos. 503, 500.3, 500.4, AND 500.5.
19. INSTALL 4" CURB CUT PER DETAIL 10 ON C6.01
20. CONSTRUCT CONC. 5" SIDEWALK PER CAUSAUS 234.
21. 2' HIGH SOLID GROUTED CMU FLOOD WALL PER DETAIL 16 ON SHT C6.01
22. CONSTRUCT TACK-ON ISLAND CURB PER CAUSAUS NO. 220.
23. CONSTRUCT 9" "A" TYPE CURB PER DETAIL 1 ON C6.01.
24. CONSTRUCT 6"-6" CURB TRANSITION - SEE PLANS FOR SPOT ELEVATIONS.
25. FLOOD PROOF MEMBRANE 1" ABOVE FINISHED GRADE.

EXISTING UTILITY NOTE:

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

FLOOD ZONE NOTE:

THE PROJECT SITE IS COVERED BY THE FLOOD INSURANCE RATE MAP (FIRM) FOR THE CLARK COUNTY AND INCORPORATED AREAS, NEVADA, COMMUNITY PANEL NUMBER: 32003C2170F, EFFECTIVE DATE: NOVEMBER 16, 2011. REVIEW OF PANEL 2170 INDICATES THAT THE SITE IS ENTIRELY LOCATED WITHIN ZONE "X" (UNSHADED), DESCRIBED BY FEMA AS: "AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN."

GRADING PLAN CERTIFICATION

NAME: TED T. EGERTON PE # 11286 DATE: 09/05/2019
CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH APPROVED DRAINAGE STUDY FOR THIS SITE ON FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT.

A.P.N.:

162-03-801-005

BENCHMARK:

CITY OF LAS VEGAS BENCHMARK NO. 8LV13568
RIVET AND PLATE TOP OF CURB SE CORNER OF 10TH ST. & ST LOUIS AVE.
T215 RBTE S03
ELEVATION: 2,010.03 FEET / 612.657 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 dig
Call before you dig
Call before you dig
Call before you dig

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

REVISIONS:		DATE:	DESCRIPTION:
REV.			
1		9/5/19	MW/EL
2			95% SUBMITTAL
3			181203

PROJECT SITE	VICINITY MAP
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KEYMAP	C3.03
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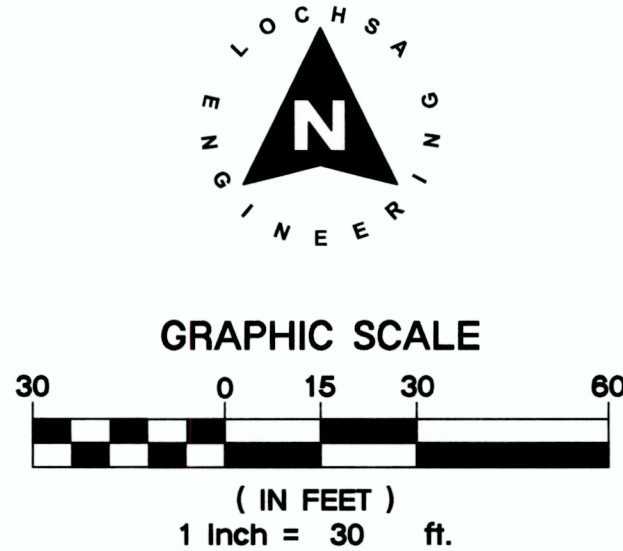
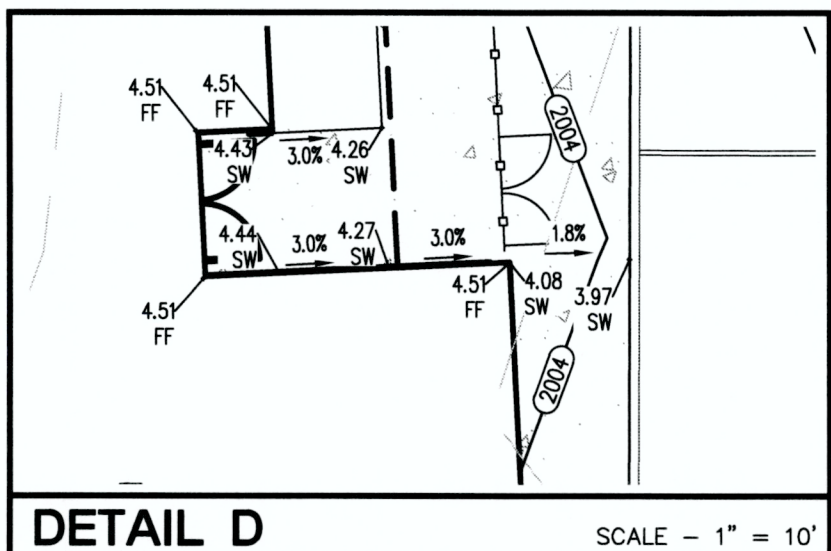
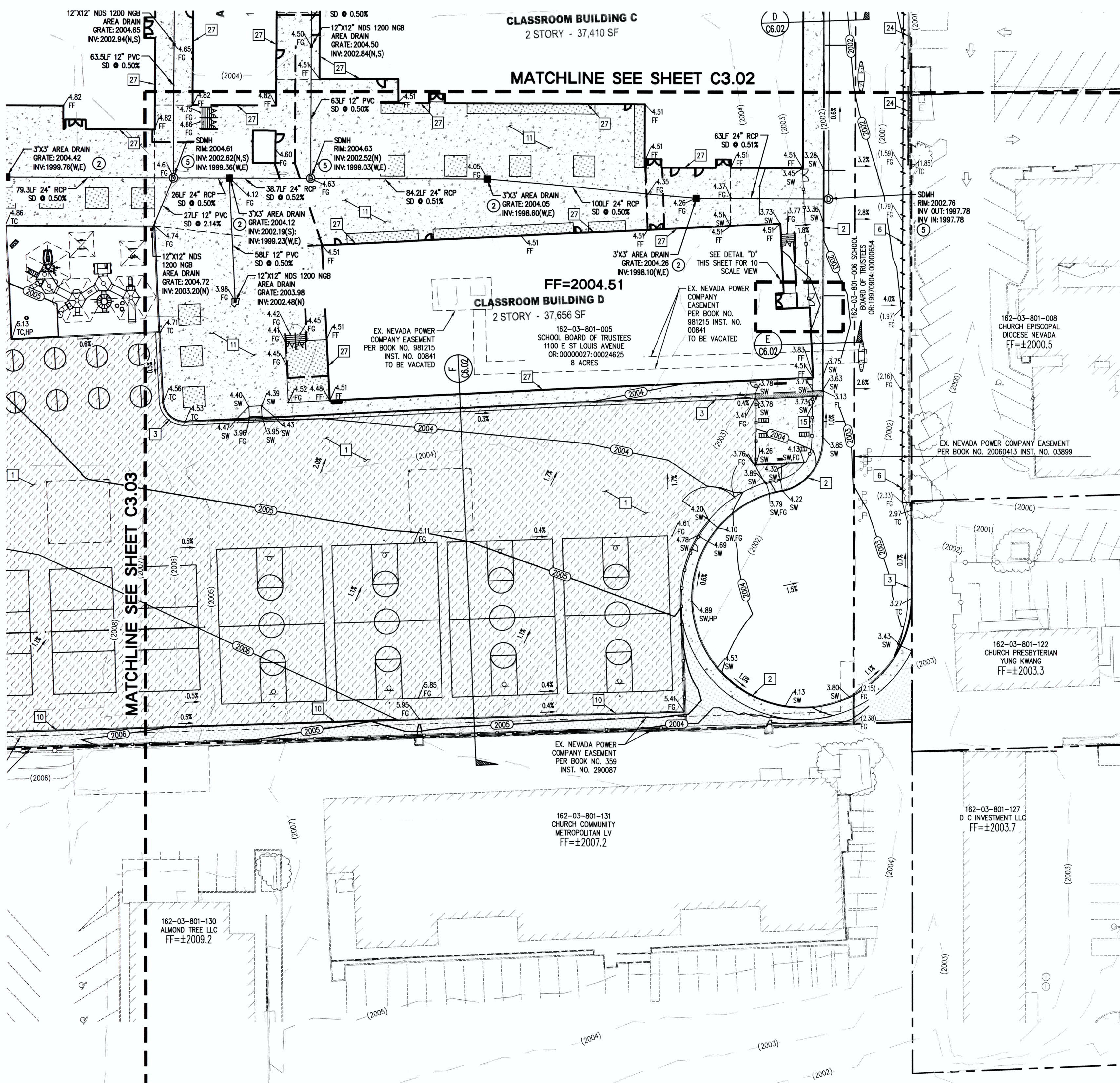
STUDIO	Lochsa engineering
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Simpson Coulter STUDIO	151 East Warm Springs Road Las Vegas, Nevada 89119 P: 702-435-1150 F: 702-435-7699 www.simpsoncoulter.com
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CONSTRUCTION MGMT:	DATE:
PROJECT MANAGER:	
COORDINATOR:	
BUILDING DEPARTMENT:	
CODE COMPLIANCE:	
ASBESTOS WORK IS:	
REQUIRED	NOT REQUIRED
JOB#	XXXXXXX
CLARK COUNTY SCHOOL DISTRICT	CONSTRUCTION MANAGEMENT DEPARTMENT 1180 MILITARY TRIBUTE PL. HENDERSON NV 89074 PHONE: 702-799-8710
GRADING PLANS SHEET 3 OF 4	
FREMONT K-8 SCHOOL MPID #1623	
DRAWING TITLE:	
FACILITY:	
SHEET NO:	C3.03
	SHEET 14 OF 22

9/5/2019 1:46 PM
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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: PROPOSED:	---(2210)--- ---(2122)---	---	---	---	---	---	---	---	(12.34) BC 12.34 BC	---	③ ④ ⑤ = ELECTRICAL ⑥ = TELEPHONE
	ROW LINE	SCARP LINE												



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 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 NVR10000, 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.

EARTHWORK QUANTITIES		
CUT.....	4614 CU. YD.	
FILL.....	4878 CU. YD.	
NET.....	264 CU. YD. FILL	

NOTE: CUT/FILL QUANTITIES ARE TO FINISHED GRADE & DO NOT INCLUDE MATERIAL THICKNESS'S, FOOTINGS, ETC.

MAX 2% H.S. BUILDING FF
MIN. 5% L.S.

TYPICAL GRADING AWAY FROM BUILDING

STORM DRAIN CONSTRUCTION NOTES:

1. NOT ALL NOTES USED ON THIS SHEET -
2. INSTALL CAST IN PLACE TRENCH DRAIN PER DETAIL 16 ON C6.01.
3. INSTALL 2'X2' JENSEN PRECAST AREA DRAIN
4. INSTALL JENSEN 5'X5' DROP INLET (OR APPROVED EQUIVALENT) FOR BUBBLER PER NEWLY ADOPTED USDOCA DRAINING NO. 421.
5. PROVIDE LIBERTY SUMP PUMP MODEL# ELV290 (OR APPROVED EQUIVALENT), DISCHARGE INTO LANDSCAPING. CONNECT STORM DRAIN TO TRENCH PER DETAIL ON 16 ON C6.01.
6. INSTALL 48" TYPE I MANHOLE PER CAUSD NO. 403 W/ CONC. COLLAR PER CAUSD NO. 408. REFER TO CAUSD NO. 409 FOR MANHOLE COVER & RING.

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 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 NINYO & MOORE, PROJECT NO. 304288001.
5. ALL ONSITE STORM DRAIN SYSTEMS AND THE ASSOCIATED FACILITIES ARE PRIVATELY OWNED AND TO BE PRIVATELY MAINTAINED BY THE SCHOOL.
6. ADD 2000' TO ALL GRADE TAGS.

BASIS OF BEARINGS:

GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS), LAS VEGAS AND LAS VEGAS HIGH ELEVATION ZONES, NORTH AMERICAN DATUM OF 1983, SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.

ZONE: LAS VEGAS ELEVATION ZONE

DATUM (REFERENCE FRAME): NAD 1983(2011) EPOCH 2010.0

SYSTEM: NEVADA COORDINATE REFERENCE SYSTEM (NCRS)

PROJECTION: TRANSVERSE MERCATOR

STANDARD PARALLEL (AND LATITUDE OF GRID ORIGIN): 36°15'00"N

LONGITUDE OF CENTRAL MERIDIAN: 114°58'00"W

NORTHING AT GRID ORIGIN: 200,000.00 M (656,166.6667 FEET US)

EASTING AT CENTRAL MERIDIAN: 100,000.00 M (328,083.3333 FEET US)

SCALE FACTOR ON CENTRAL MERIDIAN: 1.0001 (EXACT)

NOTES:
1. ALL DISTANCES AND BEARINGS SHOWN HEREON ARE PROJECTED (GRID) VALUES BASED ON THE PRECEDING PROJECTION DEFINITION. THE PROJECTION WAS DEFINED SUCH THAT PROJECTED (GRID) DISTANCES ARE EQUIVALENT TO "GROUND" DISTANCES IN THE PROJECT AREA.

2. GRID BEARING SHOWN HEREON (OR IMPLIED BY GRID COORDINATES) DO NOT EQUAL GEODETIC BEARING DUE TO MERIDIAN CONVERGENCE.

MANHOLE DESCRIPTIONS	FIRE HYDRANTS	GATE VALVES	REDUCERS	CLEAN OUTS	UTILITY BOX OR VAULT	BACKWATER VALVES	100W HPS STREETLIGHTS	150W HPS STREETLIGHTS
③ = SANITARY SEWER ④ = STORM DRAIN ⑤ = ELECTRICAL ⑥ = TELEPHONE								

CONSTRUCTION NOTES:

- ALL CONSTRUCTION TO BE DONE IN ACCORDANCE WITH CLARK COUNTY AREA UNIFORM STANDARD DRAWINGS (C-200) 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 "A" TYPE CURB PER DETAIL 1 ON C6.01.
3. CONSTRUCT "L" TYPE CURB PER CAUSD NO. 216.
4. CONSTRUCT ONSITE RAMP PER DETAIL 12 ON C6.01.
5. CONSTRUCT 3" VALLEY GUTTER PER DETAIL 6 ON C6.01.
6. SAWCUT AND MATCH EXISTING.
7. CONSTRUCT COMMERCIAL DRIVEWAY PER CAUSD 225 WITH CONC. CROSS GUTTER PER CAUSD NO. 228.
8. CONSTRUCT 2" CURB OPENING PER DETAIL 15 ON C6.01.
9. INSTALL D50 = 3" RIP RAP. THICKNESS (T) = 6" PER DETAIL 13 ON C6.01.
10. INSTALL MOW-CURB PER DETAIL 5 ON C6.01.
11. ON-SITE CONCRETE PER DETAIL 7 ON SHEET C6.01.
12. INSTALL CASE I HANDICAP RAMP PER CAUSD NO. 235. A=8", B=8"
13. ON-SITE RAMP PER DETAIL 9 ON SHEET C6.01.
14. INSTALL RAISED PLANTER. SEE ARCHITECTURAL PLANS FOR LOCATIONS.
15. CONSTRUCT SIDEWALK DRAIN PER CAUSD. No. 236.
16. ON-SITE CONCRETE PER DETAIL 7 ON SHEET C6.01. (COLOR BLACK)
17. SNOB B-100-2 SCREEN WALL PER DETAIL 16 ON SHEET C6.01
18. TRENCH, BACKFILL, AND AC RESTORATION CAUSD Nos. 503, 500.3, 500.4, AND 500.5.
19. INSTALL 4" CURB CUT PER DETAIL 10 ON C6.01
20. CONSTRUCT CONC. 5" SIDEWALK PER CAUSD 234.
21. 2' HIGH SOLID GROUTED CMU FLOOD WALL PER DETAIL 16 ON SHT C6.01
22. CONSTRUCT TACK-ON ISLAND CURB PER CAUSD NO. 220.
23. CONSTRUCT 9" "A" TYPE CURB PER DETAIL 1 ON C6.01.
24. CONSTRUCT 8"-9" CURB TRANSITION - SEE PLANS FOR SPOT ELEVATIONS.
25. FLOOD PROOF MEMBRANE 1" ABOVE FINISHED GRADE.

EXISTING UTILITY NOTE:

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

FLOOD ZONE NOTE:

THE PROJECT SITE IS COVERED BY THE FLOOD INSURANCE RATE MAP (FIRM) FOR THE CLARK COUNTY AND INCORPORATED AREAS, NEVADA, COMMUNITY PANEL NUMBER: 320032170E, EFFECTIVE DATE: NOVEMBER 16, 2011. REVIEW OF PANEL 2170 INDICATES THAT THE SITE IS ENTIRELY LOCATED WITHIN ZONE "X" (UNSHADED), DESCRIBED BY FEMA AS: "AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN."

GRADING PLAN CERTIFICATION

NAME: TED T. EGERTON PE # 11286 DATE: 09/05/2019
CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH APPROVED DRAINAGE STUDY FOR THIS SITE ON FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT.

A.P.N.:

162-03-801-005

BENCHMARK:

CITY OF LAS VEGAS BENCHMARK NO. BLV113358
RIVET AND PLATE TOP OF CURB SE CORNER OF 10TH ST. & ST LOUIS AVE.
T215 R61E S03
ELEVATION: 2,010.03 FEET / 612.657 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 dig
Before you dig, call 811 to locate underground utilities. It's the safe way to dig.

Call before you dig

Call before you dig

Call before you dig

1-702-227-2929

1-702-432-5300

1-800-227-2600

REVISIONS:

REV.	DESCRIPTION	DATE

PROJECT SITE

VICINITY MAP
NOT TO SCALE

SEAL: PROFESSIONAL ENGINEER - STATE OF NEVADA
11286
09-05-19

DATE: 9/5/19
DRAWN BY: MW/EL
SUBMITTAL: 95% SUBMITTAL
A/E PROJECT NO.: 181203

STUDIO

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9346 South Jones Blvd.
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Las Vegas, NV 89118
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www.simpsoncoulter.com

CONSULTANT:

CONSTRUCTION MGMT: DATE:

PROJECT MANAGER:

COORDINATOR:

BUILDING DEPARTMENT:

CODE COMPLIANCE:

AIRER REVIEW:

ASBESTOS WORK IS:
REQUIRED ☐ NOT REQUIRED ☐

JOB# XXXXXXXX

CLARK COUNTY SCHOOL DISTRICT

CONSTRUCTION MANAGEMENT DEPARTMENT 1180 MILITARY TRIBUTE PL. HENDERSON NV 89074 PHONE: 702-799-8710

PROJECT: ---

DRAWING TITLE: GRADING PLANS SHEET 4 OF 4

FACILITY: FREMONT K-8 SCHOOL MPID #1623

SHEET NO: C3.04

SHEET 15 OF 22



INFORMATION ONLY)

Ft.

Transition 12:1

Type FA Rail

Special Concrete Barrier Rail

$2\frac{1}{2}$ " - See Note 10

42"

4 - No. 4 Bars

6 - No. 6 Bars E.F. (Equal Spacing)

54"

6" Minimum Foundation See Note 6

39" Lap

8" x 1" Dowel Bars @ 12"

2 Sets - R6032 to R6043 @ 12" E.F.

R6043 @ 12" N.F.

at R-8.6.2

ation Requirement

FA Barrier Rail

ELEVATION



1. Concrete shall be class A or AA modified with $f'c = 3000$ psi @ 28 days.
2. All contact joints shall be at planned scored joint locations.
3. All joints and other locations needing sealing shall follow requirement set in sheet R-8.6.1.
4. For impact attenuator attachment details, see manufacturers drawing.
5. Length 5 feet from edge of obstruction. See contract plans for exact dimensions.
6. Depth of 6 inch foundation shall be checked and increased as needed for foundation stability. Dowels are required for full length of the special concrete barrier rail including transition, regardless of paving type.
7. For Type FA concrete barrier rail see sheet R-8.6.2.
8. Joint sealer shall be a single component hot applied sealant 1 inch thick.
9. The height of the barrier rail shall be measured from the top of the plantmix bituminous surface or the top of concrete pavement.
10. Extend reinforcing at height transition until the end of the reinforcing is $2\frac{1}{2}'$ clear from the face of concrete.



CONCRETE BARRIER RAIL LATERAL FLARE RATES		
DESIGN	SPEED	FLARE RATE
75 MPH		22:1
70 MPH		20:1
60 MPH		18:1
50 MPH		14:1
40 MPH		10:1
30 MPH		8:1

1) POLE BARRIER DETAIL



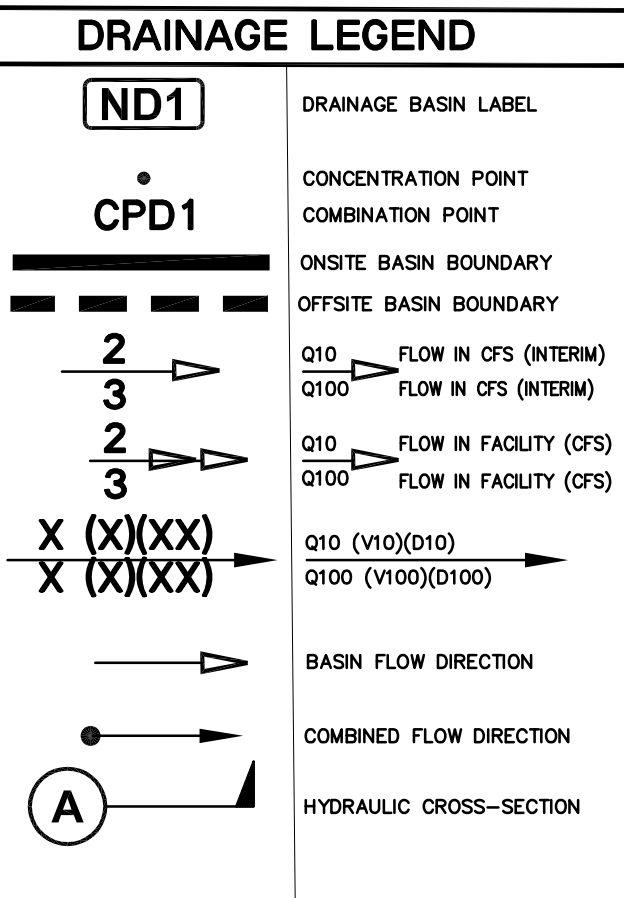
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CONSULTANT:

CONSTRUCTION MGMT:		DATE:
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CODE COMPLIANCE:		
AHERA REVIEW:		
ASBESTOS WORK IS: REQUIRED ☐ NOT REQUIRED ☐		
JOB# XXXXXXXXXX		

 CLARK COUNTY SCHOOL DISTRICT CONSTRUCTION MANAGEMENT DEPARTMENT 1180 MILITARY TRIBUTE PL HENDERSON, NV 89074 PHONE: 702-799-8710	PROJECT: -----
	DRAWING TITLE: DETAIL SHEETS DETAIL SHEET 2 OF 2
	FACILITY: FREMONT K-8 SCHOOL MPID #1623
	SHEET NO: C6.02 SHEET 22 OF 22

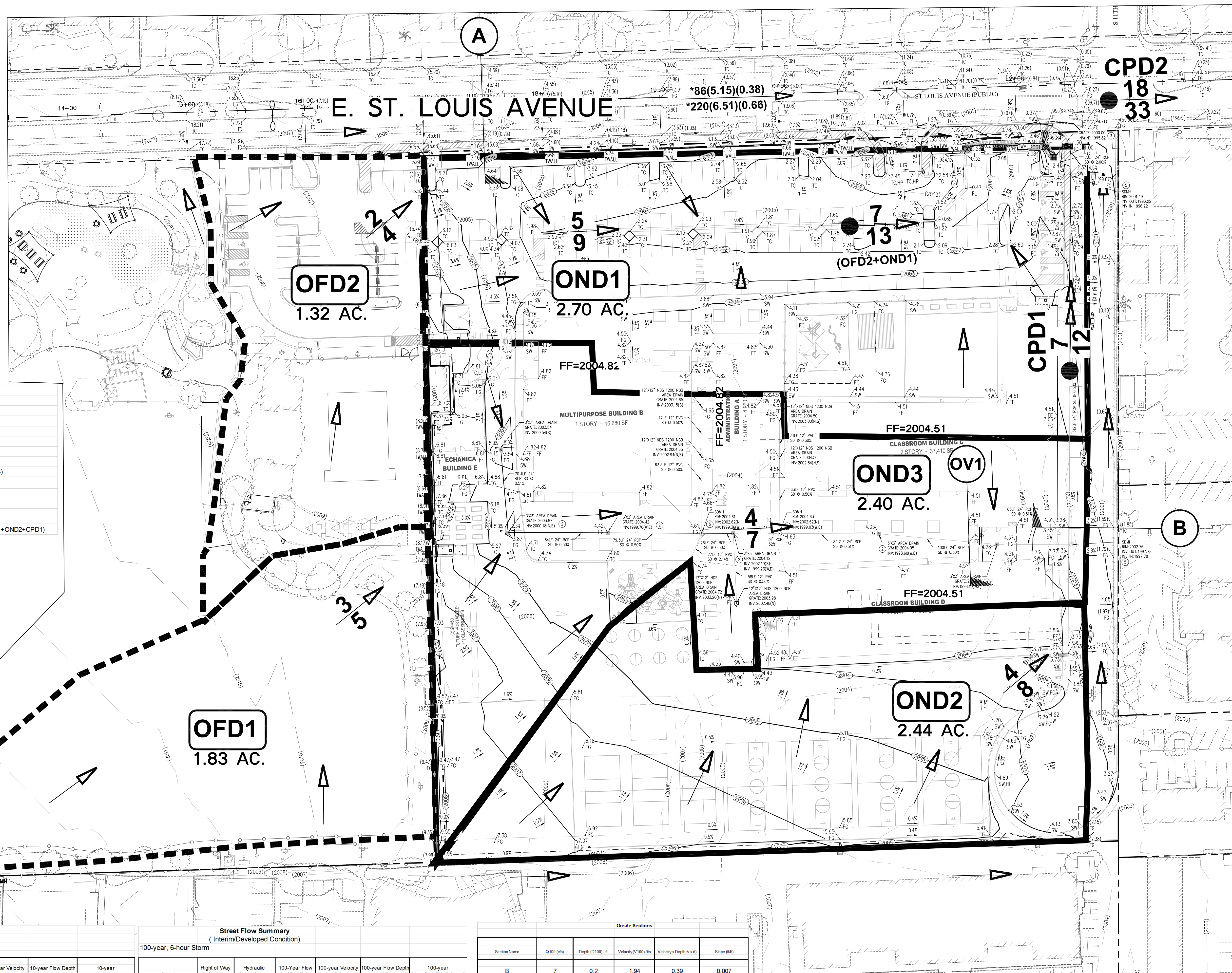


Peak Flow Summary			
Interim/Developed Condition			
HEC-1 ID.	Area (acres)	10-year Flow (cfs)	100-year Flow (cfs)
OFD1	1.83	3	5
OND3	2.40	4	7
CPD1	-	7	12
OND2	2.44	4	8
OFD2	1.32	2	4
OND1	2.70	5	9
CPD2	-	18	33

Street Flow Summary (Interim/Developed Condition)						
10-year, 6-hour Storm						
Street	Right of Way Width (ft)	Hydraulic Cross-Section Identifier	10-Year Flow (Q10) (cfs)	10-year Velocity (V) (ft/s)	10-year Flow Depth (d) (ft)	10-year Velocity x Depth [v x d] (ft ² /s)
*St. Louis Ave	80	A	*86	5.15	0.38	1.96

Street Flow Summary (Interim/Developed Condition)						
100-year, 6-hour Storm						
Street	Right of Way Width (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 [v x d] (ft ² /s)
*St. Louis Ave	80	A	*220	6.51	0.66	4.30

Onsite Sections					
Section Name	Q100 (cfs)	Depth (D100) -ft	Velocity (V100)-ft/s	Velocity x Depth (v x d)	Slope (ft/ft)
B	7	0.2	1.94	0.39	0.007
OV1	12	0.26	2.27	0.59	0.004



9/5/2019 11:44 AM
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