DS #: 05273-1

APN: 139-20-411-015

PROJECT: Rancho and Vegas Townhomes - Update #1

SUBMITTAL: 4th

SCANNED BY/DATE:

CHECKED BY/DATE:

CITY OF LAS VEGAS NEVADA

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM				DATE: August 20, 2020
TO: **Land Development Services** Department of Building & Safety				FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	Drainage Study for:			**COPIES TO:**
Rancho and Vegas Townhomes – Update #1				Horrocks Engineers
Cross Streets:	SEC of Rancho Drive & Holly Avenue			Harmony Homes, LLC
File Number:	F:\Depot\DSMemos\DS5273D.doc			Bart Anderson, P.E., DevCo
Parcel Number:	139-20-411-015			CCPW
Zoning Action:	TMP-73061			NDOT
FEMA Flood Zone	YES	NO X		
Proposed Storm Drain	YES X	NO		

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1st Submittal	4/24/2020	5/7/2020	Not Approved	$400.00	3824245: $400
2nd Submittal	6/8/2020	6/17/2020	Not Approved	$400.00	3876442: $400
3rd Submittal	6/25/2020	7/6/2020	Conditional Approval	$400.00	3895221: $400
CCPW	8/3/2020	8/3/2020	Concurrence Recv'd	N/C	N/C8/5/2020
NDOT	8/5/2020	8/5/2020	Concurrence Recv'd	N/C	N/C
4th Submittal	8/6/2020	8/20/2020	See Comments Below	$100.00	3946937: $100
			TOTAL FEES (LDDRS):	**$1,300.00**	**----**

REMARKS:

4th Submittal: Update #1 to revise the scope of Phase delineation

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. The subject project is adjacent to an ongoing capital improvement project in *Rancho Road*, "*Rancho Road Improvements – Mesquite Avenue to Decatur Boulevard*". The engineer must coordinate with the project manager, Mr. Michael Sturdivant of *City Public Works Department* at (702) 229-6734 for acceptable street improvement design in *Rancho Road* prior to the final approval of the improvement plans.
2. ***Drainage Easement Exhibit*: ES-P5 shall be expanded to include all the common area at the back of Lot 199 all the way to Lot 234.**
3. Coordinate with the adjacent parcel owner to the east (APN: 139-20-411-012) for acceptance of the proposed drainage pattern and some offsite work may need to be done to the consent of the adjacent owner. A notarized letter of acknowledgment from the adjacent owner must be obtained prior to the final approval of the improvement plans.

NOTE: Any future changes to the proposed design (or design assumptions) as outlined in the approved drainage study and attached preliminary grading plan which affect drainage must be addressed in a Drainage Study 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
HDR/AYS

T/R/S: T20S/R61E/20
AREA M-20

DocuSign Envelope ID: 7595A608-80A2-4385-AD72-B85B52AB6F7A

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION
1263 S. Stewart Street
Carson City, Nevada 89712

STEVE SISOLAK
Governor

Kristina L. Swallow, P.E., *Director*

In Reply Refer to:

August 5, 2020

Mr. David B. Clark, PE
Horrocks Engineers
1401 N Green Valley Drive, Suite 160
Henderson, NV 89074

TECHNICAL DRAINAGE STUDY
RANCHO AND VEGAS TOWNHOMES
DRAINAGE STUDY
Clark County

Dear Mr. Clark:

The Nevada Department of Transportation (NDOT) Hydraulics Section has received and reviewed the following document(s) for the above-referenced project.

Document:	**Dated:**
Sign NDOT Drainage Info Form	7/13/2020
TDS Vol. 1	4/2020
Addendum #1	6/2020
Plans	6/25/2020
TDS Vol. #2	4/2020
Addendum #2	6/25/2020

The drainage design information presented in the reviewed document(s):

	is acceptable in concept. Final Hydraulic Section approval will be based on review of final design documents submitted with the NDOT Right-Of-Way Occupancy Permit application that must be submitted for this project.
X	is acceptable in concept. Final Hydraulic Section approval will be based on review of final design documents submitted with the NDOT Right-Of-Way Occupancy Permit application that must be submitted for this project. The following comments should be addressed with the permit application:
	must be supplemented or modified to satisfy the following comment(s) before preliminary Hydraulic Section approval can be granted:

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1. Table 7 shows flow on Rancho increase from 296 cfs to 309 cfs between existing and ultimate conditions. It appears that is if from ultimate upstream development. Please add clarification in the drainage report.
2. This has been reviewed for impacts to NDOT right of way only. Please gain concurrence from downstream and adjacent property owners.

All submittals regarding this project must be forwarded through (or copied to) the local NDOT District permitting office. All pertinent drainage design documents (including those previously submitted for preliminary review) must be submitted to the local NDOT District permitting office with the Right-Of-Way Occupancy Permit Application. All plans and reports must be signed and stamped by a Nevada registered civil engineer.

No liability is assumed by the Department in performing this review. Verification and acceptance of all background information, design data and conclusions is the responsibility of the consulting engineer.

Please email me at ehonjas@dot.nv.gov should you have any questions.

Sincerely,

DocuSigned by:
Erin Honjas
7883C94AABDB4ED...

Erin Honjas
Senior Hydraulic Engineer

cc: Mario Gomez, P.E., District I Engineer
Charles Molisee, District I Permits
Mike Alameda, Headquarters Right-of-Way
David Facemyer, District I Permits
Linda Olguin, District I Permits
Michael Yates, P.E., District I Assistant District Engineer
David B. Clark, P.E., Horrocks Engineers (EMAIL:dclark@horrocks.com)

Department of Public Works

500 S Grand Central Pky • Box 554000 • Las Vegas NV 89155-4000
(702) 455-6000 • Fax (702) 455-6040

Denis Cederburg, P.E., Director • E-Mail: dlc@ClarkCountyNV.gov

Drainage Study Approval Letter

Date: August 3, 2020
Firm: Horrocks Engineering
Engineer: David B. Clark, P.E.
Address: 1401 N. Green Valley Parkway, Suite 160, Henderson, NV 89014
Phone: (702) 966-4063
Fax: (702)
E-mail: dclark@horrocks.com

Subject: Technical Drainage Study for Rancho and Vegas Townhomes
Location: SEC of North Rancho Drive and Holly Lane
APN: 139-20-411-015
Sec, Township, Range: S20, T20S, R61E
Flood Zone & Panel: Zone X and Shaded Zone X, 2155F and 2160F, Dated November 16, 2011
Application Number: 20-16350

Submittals	Date Received	Date Returned	Reviewer	Miscellaneous
Concurrence	07/15/2020	08/03/2020	PR	
Addendum #1	07/15/2020	08/03/2020	PR	
Addendum #2	07/15/2020	08/03/2020	PR	

Concurrence Required: (Must be obtained prior to permit issuance)		Reason Concurrence is Required
	Boulder City	Adjacent to or Impacts Jurisdiction
	City of Mesquite	Adjacent to or Impacts Jurisdiction
	City of Henderson	Adjacent to or Impacts Jurisdiction
	City of Las Vegas	Adjacent to or Impacts Jurisdiction
	City of North Las Vegas	Adjacent to or Impacts Jurisdiction
	Nevada Department of Transportation	Adjacent to or Impacts NDOT Facility
	Union Pacific Rail Road	Adjacent to or Impacts a UPRR Facility
	US Army Corps of Engineers	Impacts a USACE Facility
	Clark County Regional Flood Control District	Regional Significance, Adjacent to or Impacts CCRFCD MPU Facility or in a SFHA

The referenced **Technical Drainage Study** has been reviewed and is accepted as complying with minimum improvement standards. As set forth in the subject drainage study, the following measures will be taken to mitigate flood hazards.

The site shall be graded with respect to drainage as shown on "**Rancho & Vegas**", grading plan sheets C.0.0, C.0.1, C.0.2, C.0.3, C.2.0, C.2.1, C.2.2, C.2.5, C.5.0, C.5.2, C.5.8, C.6.0, C.6.1, C.6.2, signed and sealed by Anthony C. DeLeon, Jr., P.E., on June 25, 2020.

Check appropriate conditions

	Retaining/screen wall combination may be in excess of current **Clark County Unified Development Code, Chapter 30.64.050.**
	A FEMA Elevation Certificate, completed by a licensed surveyor, must be submitted to and approved by CCPW Development Review Plan Check prior to the issuance of Certificates of Occupancy for those structures.
X	Mylars of the grading plan must be submitted to the CCPW Development Review Plan Check for approval signatures prior to map recordation (residential) or permit issuance (commercial).
	An administrative variance to allow the finished floor elevation(s) to be set below the current Clark County criteria must be approved. The finished floor variance must be submitted to CCPW Development Review front counter after drainage study approval and prior to offsite final review.
	The grading plan will be reviewed by the Building Office Operations Division to ensure compliance with the ADA access requirements. Revisions to the grading plan may be required if the site accessibility design does not comply with the requirements set forth in the Accessibility Chapter of the Clark County Building Code.
X	The plans show work is proposed outside of the project boundary. Notarized written permission must be obtained **prior to grading plan approval.**
X	Right-of-way dedication must be verified.
	Any previously approved drainage easements that are not being used must be vacated.
	Per *Regional Flood Control District policies and Procedures manual, Section VIII. D. 13. Uniform Regulations for the Control of Drainage*, the Engineer of Record shall provide As-Built plans or record drawings to the District after completion and final inspection of such privately installed flood control facilities that have regional flood control significance.
	Structural calculations are required. The structural calculations, plans, and details must be approved prior to "Offsite" submittal and prior to CCRFCD submittal, if applicable.
X	Plan revisions can be found on the red-lined plans and must be addressed.
	Prepare drainage easement documents as shown on the grading plans.

Additional Conditions:

1. The above-referenced project is located within the **City of Las Vegas** adjacent to Clark County unincorporated areas. The drainage study was submitted to the County for concurrence on July 15, 2020. In addition, the County has received the City of Las Vegas acceptance letter dated July 6, 2020 for the Technical Drainage Study (File# DS5273C).

2. The County concurs with the acceptance of this Drainage Study by the City of Las Vegas. Please note that the County's review of this development is limited to drainage issues significant to Clark County unincorporated areas.

3. There is a centerline curb on Rancho Drive that is being constructed within Clark County ROW. Therefore, the engineer must submit to CCPW for offsite plan review and permits. Grading on APN 139-20-401-001 is subject to grading review through CC Building Department.

4. The proposed swale on APN 139-20-401-001 is on private property and will require permission to grade from the adjacent owner. If permission to grade cannot be obtained, an Update to this Technical Drainage Study will be required.

5. Provide Clark County signature blocks and notes on plans.

6. Any improvements not depicted on the above-mentioned grading plans may require an Update to this Technical Drainage Study.

The County's review is solely based on the information submitted by the Engineer of Record. The County's review is strictly limited to compliance with minimum County Codes and Standards. The Engineer of Record is responsible for researching and addressing situations that may require designs above and beyond the minimum codes for issues of public safety and impacts to upstream, downstream and adjacent properties. The County assumes no liability for information data, designs or conclusions of the Engineer of Record.

Patrick Robinson, P.E., CFM
Senior Civil Engineer
Development Review
Patrick.Robinson@ClarkCountyNV.gov

W. Layne Weber, P.E., CFM
Principal Engineer
Development Review
wlweber@ClarkCountyNV.gov

Albert Sung

From: Larry Bitton <larryb@horrocks.com>
Sent: Wednesday, August 5, 2020 11:30 AM
To: Steve Swanton; Peter Lowenstein
Cc: Anthony Deleon; Jeff Thomson; Albert Sung
Subject: RE: Rancho & Vegas Townhomes - TMP-73061

CAUTION: This email originated from an **External Source**. Please **use caution** before opening attachments, clicking links, or responding to this email. **Do not sign-in with your City of Las Vegas account credentials.**

Steve –
Thanks for the response. It is unfortunate that we have to go thru that process again but we understand if you're saying there are no options.

Since we initiated the request to Planning July 16th and the pre-app period just ended on Monday, considering the situation and to avoid further delay can we get a TM application into Planning promptly and still get on the October 13th agenda? Whose approval or request do we need so that can happen?

Thanks in advance for your understanding and help.
Larry Bitton, PE
(702) 883-1300

From: Steve Swanton <sswanton@LasVegasNevada.GOV>
Sent: Wednesday, August 5, 2020 10:13 AM
To: Larry Bitton <larryb@horrocks.com>; Peter Lowenstein <plowenstein@LasVegasNevada.GOV>
Cc: Anthony Deleon <anthony.deleon@horrocks.com>; Jeff Thomson <jthomson@epicnv.com>; Albert Sung <YSung@LasVegasNevada.GOV>
Subject: RE: Rancho & Vegas Townhomes - TMP-73061

Larry,

I've discussed the revised layout with Development Coordination. Although the design was altered as a result of the need to accommodate the required drainage, the City did not dictate the layout of streets and lots. You do now have fewer lots than on the approved tentative map; however, the layout has deviated significantly. Title 19 does not give staff the leeway to approve these changes to the map. Therefore, the revised map would need to be approved by the Planning Commission before a Final Map can be submitted for staff review. You will need to go through your city dashboard to request a pre-app. (https://www.lasvegasnevada.gov/Dashboard)

Please let me know if you have any questions.

Regards,

Steve Swanton, AICP
Senior Planner
Department of Planning | Case Planning Division
702-229-4714
333 N. Rancho Drive, Third Floor | Las Vegas, NV 89106

lasvegasnevada.gov

From: Larry Bitton <larryb@horrocks.com>
Sent: Wednesday, August 5, 2020 9:39 AM
To: Steve Swanton <sswanton@LasVegasNevada.GOV>; Peter Lowenstein <plowenstein@LasVegasNevada.GOV>
Cc: Anthony Deleon <anthony.deleon@horrocks.com>; Jeff Thomson <jthomson@epicnv.com>; Albert Sung <YSung@LasVegasNevada.GOV>
Subject: RE: Rancho & Vegas Townhomes - TMP-73061

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Steve –
Any update on this?

FYI… Since there is a County outparcel next to us, we submitted and just received County concurrence for the technical drainage study.

Thanks,
Larry Bitton, PE
(702) 883-1300

From: Larry Bitton
Sent: Thursday, July 30, 2020 2:01 PM
To: Steve Swanton <sswanton@LasVegasNevada.GOV>; Peter Lowenstein <plowenstein@LasVegasNevada.GOV>
Cc: Anthony Deleon <anthony.deleon@horrocks.com>; Jeff Thomson <jthomson@epicnv.com>; Albert Sung (YSung@LasVegasNevada.GOV) <YSung@LasVegasNevada.GOV>
Subject: RE: Rancho & Vegas Townhomes - TMP-73061

Thanks Steve. Understood. The changes were primarily driven by the need to accept all the flows impacting the site and then splitting/routing them through the site without overwhelming pre-established discharge locations.

Thanks,
Larry Bitton, PE
(702) 883-1300

From: Steve Swanton <sswanton@LasVegasNevada.GOV>
Sent: Thursday, July 30, 2020 1:55 PM
To: Larry Bitton <larryb@horrocks.com>; Peter Lowenstein <plowenstein@LasVegasNevada.GOV>
Cc: Anthony Deleon <anthony.deleon@horrocks.com>; Jeff Thomson <jthomson@epicnv.com>
Subject: RE: Rancho & Vegas Townhomes - TMP-73061

Larry,

There were some substantial changes from the approved TMP. We should hold off on discussing next steps until we can confirm that the changes in the new site plan you sent over were nothing more or less than what Flood Control required. I've attempted to get in touch with Albert Sung, as

corrections are still showing as needed on the drainage study. We should have resolution on this soon and can go from there.

Your patience is appreciated.

Regards,

Steve Swanton, AICP
Senior Planner
Department of Planning | Case Planning Division
702-229-4714
333 N. Rancho Drive, Third Floor | Las Vegas, NV 89106

lasvegasnevada.gov

From: Larry Bitton <larryb@horrocks.com>
Sent: Wednesday, July 22, 2020 11:42 AM
To: Peter Lowenstein <plowenstein@LasVegasNevada.GOV>; Steve Swanton <sswanton@LasVegasNevada.GOV>
Cc: Anthony Deleon <anthony.deleon@horrocks.com>; Jeff Thomson <jthomson@epicnv.com>
Subject: RE: Rancho & Vegas Townhomes - TMP-73061

CAUTION: This email originated from an **External Source**. Please **use caution** before opening attachments, clicking links, or responding to this email. **Do not sign-in with your City of Las Vegas account credentials.**

Peter / Steve –
Just checking in to see when we can meet to discuss Rancho & Vegas Townhomes (see below).

Thanks,
Larry Bitton, PE
(702) 883-1300

From: Larry Bitton
Sent: Thursday, July 16, 2020 4:16 PM
To: Peter Lowenstein (plowenstein@lasvegasnevada.gov) <plowenstein@lasvegasnevada.gov>; steve Swanton (sswanton@lasvegasnevada.gov) <sswanton@lasvegasnevada.gov>
Cc: Anthony Deleon (anthony.deleon@horrocks.com) <anthony.deleon@horrocks.com>; Jeff Thomson <jthomson@epicnv.com>
Subject: RE: Rancho & Vegas Townhomes - TMP-73061

Peter / Steve –
You recall that we met in February discussing the Rancho-Vegas Townhome project and some pending site plan modifications. In our last conversation we were directed to resolve Flood Control and Public Works requirements and come back to you with the updated plan. We have adjusted the site plan as necessary to accept and convey flows in accordance with Flood Control's requirements. We have Flood Control's conditional approval on the technical drainage study.

I've attached the site plan that the drainage study was based on. I've also attached the original approved tentative map. The density has been reduced and open space has increased. We are conforming to the conditions of

approval. We would like to proceed forward with final map and improvement plans based on this layout with the understanding that it is in general conformance with the approved tentative map.

Can we meet with you (virtually) to discuss the site plan and next steps?

Thanks in advance for your time and consideration.

Larry Bitton, PE
Land Development Manager

HORROCKS
ENGINEERS

1401 N. Green Valley Parkway, Suite 160
Henderson, NV 89074

Direct 702-966-4063 ext. 494
Mobile 702-883-1300
Email larryb@horrocks.com
Web www.horrocks.com

From: Larry Bitton
Sent: Monday, February 24, 2020 5:50 PM
To: Peter Lowenstein (plowenstein@lasvegasnevada.gov) <plowenstein@lasvegasnevada.gov>
Cc: Anthony Deleon (anthony.deleon@horrocks.com) <anthony.deleon@horrocks.com>
Subject: Rancho & Vegas Townhomes - TMP-73061

Mr. Lowenstein –
Horrocks Engineers has taken over the engineering responsibilities for the Rancho & Vegas project by Harmony Homes. The previous engineer processed the GPA, ZON, WVR and TMP which were all approved under PRJ-72752.

After a significant amount of study and coordination with CLV Public Works (Drainage), it has been concluded that the offsite drainage conditions may warrant some modifications to the site layout to better accept and convey the offsite drainage flows. We feel the site plan updates shouldn't be considered a 'significant' change to the approved TM. However, with the delays this project has experienced to date, Harmony Homes is extra sensitive to any changes that would trigger a full Revised Tentative Map submittal and the associated time for processing and public hearings.

We understand that your position on the matter is key to our approach. Can we (and a representative of Harmony Homes) please schedule a short meeting with you and the appropriate staff planner to discuss the changes being considered? That way we all better understand the potential implications. We'll do our best to accommodate your schedule.

Thanks in advance. We look forward to meeting with you.

Larry Bitton, PE
Land Development Manager

HORROCKS
ENGINEERS

1401 N. Green Valley Parkway, Suite 160
Henderson, NV 89074

Direct 702-966-4063 ext. 494
Mobile 702-883-1300
Email larryb@horrocks.com
Web www.horrocks.com

HORROCKS
ENGINEERS

1401 N. Green Valley Parkway, Ste. 160
Henderson, NV 89074
702-966-4063
www.horrocks.com

To: **City of Las Vegas**
Development Review
333N Rancho Dr.
Las Vegas, NV, 89106

From: **David Clark**

Date: August 5, 2020 **Transmittal**

Subject: **Update #1 Technical Drainage Study for Rancho and Vegas Townhomes, (APN 139-20-411-015)**

The following items are: ☐ Requested

☒ Enclosed

☐ Sent Separately via Courier

No. of Copies	Description
1	Subject Update #1 to TDS
1	CD
1	Grading Plans (Folded)

These data are submitted:

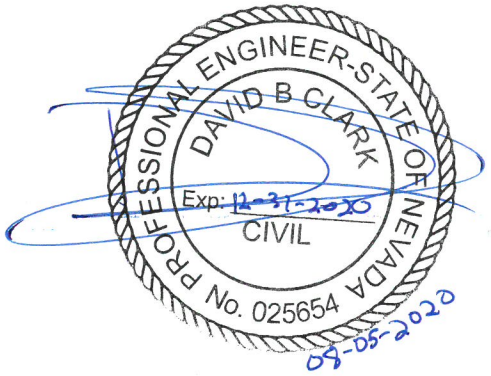
☒ For your review

_____
Signature

UPDATE #1
TO THE
TECHNICAL DRAINAGE STUDY
FOR
RANCHO & VEGAS TOWNHOMES
(APN 139-20-411-015)
IN
THE CITY OF LAS VEGAS, NEVADA

PREPARED FOR

Harmony Homes LLC
8912 Spanish Ridge Ave, Suite 200
Las Vegas, NV 89148
Ph. (702) 570 7223



SUBMITTED TO

CITY OF LAS VEGAS

AUGUST 2020

HORROCKS ENGINEERS PROJECT NV-2105-1911

Horrocks Engineers
1401 N Green Valley Pkwy, Suite 160
Henderson, NV 89074
702.966.4063

HORROCKS
ENGINEERS

HYDROLOGIC CRITERIA AND DRAINAGE MANUAL

DRAINAGE STUDY INFORMATION FORM

Name of Development: UPDATE #1 TO RANCHO AND VEGAS TOWNHOMES Date: 08-05-2020

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

East/West: Holly Avenue

b) Section: 20 Township: 20S Range: 61E

c) APN : 139-20-411-015

Name of Owner: HARMONY HOMES, LLC

Telephone No.: 702-570-7223 Fax No.: E-Mail Address: mrosenberg@Harmonyhomes.com

Address: 8912 Spanish Ridge Ave Suite 200 Las Vegas, NV 89148

Contact Person-Name: David B. Clark **Telephone No.:** 702.966.4063

* **E-Mail Address:** dclark@horrocks.com **Fax No.:**

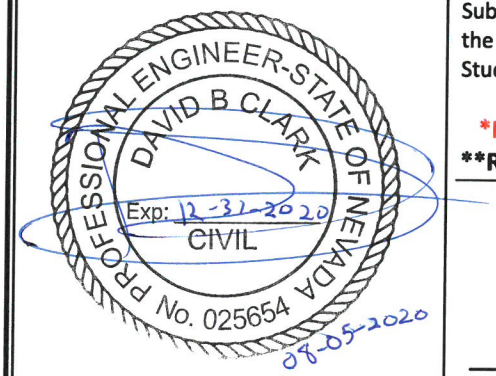
Firm: Horrocks Engineers

Address: 1401 N Green Valley Pkwy, Suite 160 Henderson, NV 89014

Type of Land Development/Land Disturbance Process:

	Rezoning	X	Subdivision Map		Clearing and Grading Only
	Parcel Map		Planned Unit Development	X	Other (Please specify below)
	Large Parcel Map		Building Permit		

1. Total Owned Land Area: At Site: 17+/- acres Being Developed/Disturbed: 17+/- acres
2. Is a portion or all of the subject property located in a designated FEMA Flood Hazard Area? ☐ **Yes**** ☒ **No**
3. Is the property bordered or crossed by an existing or proposed Clark County Regional Flood Control District Master Planned Facility? ☐ **Yes**** ☒ **No**
4. Proposed type of development (Residential, Commercial, Etc.): Residential - Townhomes
5. Approximate upstream land area which drains to the subject site: 350 acres
6. Has the site drainage been evaluated in the past? ☒ **YES** ☐ **NO** If yes, please identify documentation: RANCHO & VEGAS TOWNHOMES - DS 5273 HOLLY/FERRELL - DS 3893 RANCHO & VEGAS (TANEY -DS 5029)
7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: 30' drainage easement at Diamond Regent, Holly Avenue, 10' drainage easement in Ferrell development, Parcel APN 139-20-411-012, Parcel APN 139-20-411-014, Parcel APN 139-20-411-004
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

Updated 05/01/2008

HORROCKS
ENGINEERS

August 5, 2020

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

Subject: Update #1 to the Technical Drainage Study for Rancho and Vegas Townhomes, DS 5273

Dear Mr. Sung:

Horrocks Engineers is pleased to submit this Update to the Technical Drainage Study for Rancho and Vegas Townhomes (DS 5273). This update addresses a revised phased line between Phase 1 and Phase 2 of the project Site. The project is located southeast of the intersection of Rancho Drive and Holly Avenue and fronts both streets. The original study was initially submitted by Horrocks Engineers on April 23, 2020 and was conditionally approved by CLV on July 6, 2020.

REVISIONS

The hydrologic and hydraulic calculations presented in this update are the comprehensive revisions that are a result of moving the phase line to include more area of the project site in the Phase 1 condition. The new phase line, moving west to east, starts between lots 215 and 216 on Arcadian Sea Street, crosses the street, and then moves north between Golden Chariot Avenue and Alpheus River Avenue (including lots fronting Alpheus River Avenue in Phase 1), and then moves across Grecian Skye Street. The phase line then includes the easement ES-P3 improvements while excluding the lots south of ES-P3 that front onto Golden Chariot Avenue. Near the eastern boundary of the project site, the Phase Line turns south to include the remaining portion of the easement ES-P3 improvements. A portion of Golden Chariot Avenue will be temporarily paved for emergency and utility access. The grading plans have been revised to show the revised rough grade, and developed areas. There are no changes to the Existing, Interim Phase 2 or Ultimate conditions. The hydrologic and hydraulic calculations have been revised and can be found in Appendix B and C, respectively. The Phase 1 basin Maps have been revised accordingly and can be found in Appendix A.

Rough Grading Area

The rough graded area for Phase 1 has been revised as necessary to accommodate the new phase line. A portion of Golden Chariot Avenue will act as a temporary access road including asphalt. The riprap pads have been relocated as necessary to mitigate sediment transport and erosion where phase 1 development ends and the rough graded area begins. Street cross sections have been revised or included to show these changes and their effects.

CALCULATIONS

The onsite hydrologic basins have been revised as necessary to model the Phase 1 condition with the revised phase line. See Figures 6 and 7, Interim Phase 1 Conditions Basin Maps in the Appendix for revised basin delineation, HEC-1 summary tables, and cross section summary tables. Basins OND5C and OND5D has been created from portions of ONI6 and basins ONI5B to separate the developed and rough graded areas. Rough graded basin ONI5B has been removed from the model. The Phase 1 HEC-1 model includes routing from CI8A1 and CI71 to concentration point CI8B1. The HEC-1 model results are shown on Figure 6 and 7, Phase 1 Interim condition basin maps. The revised hydrologic calculations including Curve Number Calculations, Standard Form

The Interim Phase 1 street normal depth calculations have been revised as necessary to account for the plan revisions. The units that have been revised to be included with the Phase 1 area meet finished floor criteria in the Phase 1 condition. The finished floor elevation have not been revised, and the flow depths in the Interim Phase 1 condition are equal to or less than the Interim Phase 2 flow depths. Thus, the proposed finished floors meet finished floor criteria, and the proposed finished floor elevations have been set at a minimum vertical distance above the gutter flowline of at least twice the depth of flow in the gutter flowline. See the Appendix for updated tables with the revised street normal depth calculations.

The worst case scenario remains during the Interim Phase 2 Conditions. Thus, the surrounding drainage easements and perimeter streets are not affected by the revisions to the Phase 1 interim condition. The Easements; ES-E1, ES-E2, ES-P1, ES-P2, ES-P3, ES-P4, and ES-P5 still meet criteria as in the original study and have not been re-analyzed for this Update. The perimeter streets, Rancho Drive and Holly Avenue have not been revised or updated with this update.

FLOODPLAIN AND MPU

The FEMA floodplain designation has not been revised since the original submittal. For convenience a Firmette of FIRM Panel 32003C2160F, effective November 16, 2011 is included in Appendix A. The site is designated as a Zone 'X' and is described as an area of minimum flood hazard.

The Las Vegas Valley Master Plan was updated in 2018 and has not been updated since conditional approval of the original submittal.

It is anticipated that the revisions and updated calculations described above and the grading plans attached fully address the requirements and criteria of CLV and in the HCDDM. We respectfully request City approval of this Update. Please don't hesitate to contact us with any questions.

Sincerely,

David B. Clark, PE
Engineer
HORROCKS ENGINEERS

APPENDIX

Approval Letter

NDOT Concurrence Letter, August 5, 2020

Response Memo to NDOT Conditions

Figure 6 Interim Phase 1 Condition Offsite Basin Map

Figure 7 Interim Phase 1 Condition Onsite Basin Map

FIRMette – 32003C2160F

Curve Number Calculations

Standard Form 4

HEC-1 Model – Phase 1

Normal Depth Calculations

Previously Approved Material

Previous Grading Sheets

CITY OF LAS VEGAS **INTER-OFFICE MEMORANDUM**				**DATE:** **July 6, 2020**
TO: **Land Development Services** Department of Building & Safety				**FROM:** Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	Drainage Study for:			**COPIES TO:**
Rancho and Vegas Townhomes (Technical)				Horrocks Engineers
Cross Streets:	SEC of Rancho Drive & Holly Avenue			Harmony Homes, LLC
File Number:	F:\Depot\DSMemos\DS5273C.doc			Bart Anderson, P.E., DevCo
Parcel Number:	139-20-411-015			CCPW
Zoning Action:	TMP-73061			NDOT
FEMA Flood Zone	YES	NO **X**		
Proposed Storm Drain	YES **X**	NO		

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1st Submittal	4/24/2020	5/7/2020	Not Approved	$400.00	3824245: $400
2nd Submittal	6/8/2020	6/17/2020	Not Approved	$400.00	3876442: $400
3rd Submittal	6/25/2020	7/6/2020	See Comments Below	$400.00	3895221: $400
			TOTAL FEES (LDDRS):	**$1,200.00**	**----**

REMARKS:

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

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

1. The site is adjacent to the jurisdiction of *Clark County*. The engineer must coordinate with *Clark County Public Works Department* (CCPW) and incorporate any concerns for boundary conditions along the north and west borders. CCPW concurrence is required prior to final acceptance of the study.

2. The project proposes to construct a driveway entrance off of *Rancho Road*, a *Nevada Department of Transportation* (NDOT) right-of-way. The engineer must contact NDOT for occupancy / encroachment permit for the proposed project.

3. The subject project is adjacent to an ongoing capital improvement project in *Rancho Road*, "*Rancho Road Improvements – Mesquite Avenue to Decatur Boulevard*". The engineer must coordinate with the project manager, Mr. Michael Sturdivant of *City Public Works Department* at (702) 229-6734 for acceptable street improvement design in *Rancho Road* prior to the final approval of the improvement plans.

4. ***Drainage Easement Exhibit*: ES-P5 shall be expanded to include all the common area at the back of Lot 199 all the way to Lot 234.**

5. Coordinate with the adjacent parcel owner to the east (APN: 139-20-411-012) for acceptance of the proposed drainage pattern and some offsite work may need to be done to the consent of the adjacent owner. A notarized letter of acknowledgment from the adjacent owner must be obtained prior to the final approval of the subject drainage study.

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
HDR/AYS

T/R/S: T20S/R61E/20
AREA M-20

DocuSign Envelope ID: 7595A608-80A2-4385-AD72-B85B52AB6F7A

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION
1263 S. Stewart Street
Carson City, Nevada 89712

STEVE SISOLAK
Governor

Kristina L. Swallow, P.E., *Director*
In Reply Refer to:

August 5, 2020

Mr. David B. Clark, PE
Horrocks Engineers
1401 N Green Valley Drive, Suite 160
Henderson, NV 89074

TECHNICAL DRAINAGE STUDY
RANCHO AND VEGAS TOWNHOMES
DRAINAGE STUDY
Clark County

Dear Mr. Clark:

The Nevada Department of Transportation (NDOT) Hydraulics Section has received and reviewed the following document(s) for the above-referenced project.

Document:	**Dated:**
Sign NDOT Drainage Info Form	7/13/2020
TDS Vol. 1	4/2020
Addendum #1	6/2020
Plans	6/25/2020
TDS Vol. #2	4/2020
Addendum #2	6/25/2020

The drainage design information presented in the reviewed document(s):

	is acceptable in concept. Final Hydraulic Section approval will be based on review of final design documents submitted with the NDOT Right-Of-Way Occupancy Permit application that must be submitted for this project.
X	is acceptable in concept. Final Hydraulic Section approval will be based on review of final design documents submitted with the NDOT Right-Of-Way Occupancy Permit application that must be submitted for this project. The following comments should be addressed with the permit application:
	must be supplemented or modified to satisfy the following comment(s) before preliminary Hydraulic Section approval can be granted:

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1. Table 7 shows flow on Rancho increase from 296 cfs to 309 cfs between existing and ultimate conditions. It appears that is if from ultimate upstream development. Please add clarification in the drainage report.
2. This has been reviewed for impacts to NDOT right of way only. Please gain concurrence from downstream and adjacent property owners.

All submittals regarding this project must be forwarded through (or copied to) the local NDOT District permitting office. All pertinent drainage design documents (including those previously submitted for preliminary review) must be submitted to the local NDOT District permitting office with the Right-Of-Way Occupancy Permit Application. All plans and reports must be signed and stamped by a Nevada registered civil engineer.

No liability is assumed by the Department in performing this review. Verification and acceptance of all background information, design data and conclusions is the responsibility of the consulting engineer.

Please email me at ehonjas@dot.nv.gov should you have any questions.

Sincerely,

DocuSigned by:
Erin Honjas
7883C94AABDB4ED...

Erin Honjas
Senior Hydraulic Engineer

cc: Mario Gomez, P.E., District I Engineer
Charles Molisee, District I Permits
Mike Alameda, Headquarters Right-of-Way
David Facemyer, District I Permits
Linda Olguin, District I Permits
Michael Yates, P.E., District I Assistant District Engineer
David B. Clark, P.E., Horrocks Engineers (EMAIL:dclark@horrocks.com)

August 5, 2020

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

Subject: Response to NDOT Comments for the Technical Drainage Study for Rancho and Vegas Townhomes, DS 5273

Dear Mr. Sung:

This memo responds to the comments made by NDOT received on August 5, 2020 after a review of the initial Technical Drainage Study and its Addenda. As stated in the NDOT letter, the comments shall be addressed with the permit application and the responses, attached with this Update, permit City of Las Vegas review and approval. Reponses to the comments follow:

1. Table 7 shows flow on Rancho increase from 296 cfs to 309 cfs between existing and ultimate conditions. It appears that it is from ultimate upstream development. Please add clarification in the drainage report.

   RESPONSE: The pertinent portion of Table 7 is included below for convenience. The increase of runoff in Rancho between the Existing condition (296 cfs at CE11) and the Ultimate Condition (309 cfs at CU10) is due to the changes upstream of the project site. The runoff at Rancho Drive and Holly Avenue is referenced from the Neighborhood Study. There is a flow split at the intersection of Rancho Drive and Holly Avenue. In the existing condition, 223 cfs (NH_RAN) is conveyed south in Rancho Drive, and in the Ultimate condition, 235 cfs (NH_RAN) is conveyed south in Rancho Drive. The increase of flows noted at the discharge location, 296 cfs and 309 cfs, respectively, is due to the changes from upstream development as and is reference from the Neighborhood Study. The increase in the Neighborhood study is 12 cfs, and the difference in the project study shows 13 cfs. An analysis of the components of the basins that combine at the downstream concentration point shows that the flows do not increase for each basin, hence, 1 cfs that is unaccounted is likely due to rounding within HEC-1 computations.

Table 7: Discharge Summary Table*

DISCHARGE SUMMARY TABLE				
Location	Flows (cfs)			
	Existing	Phase 1	Phase 2	Ultimate
Rancho Drive	296 (CE11)	297 (CI101)	297 (CI10)	309 (CU10)

*A portion of Table 7 from the Original TDS Report

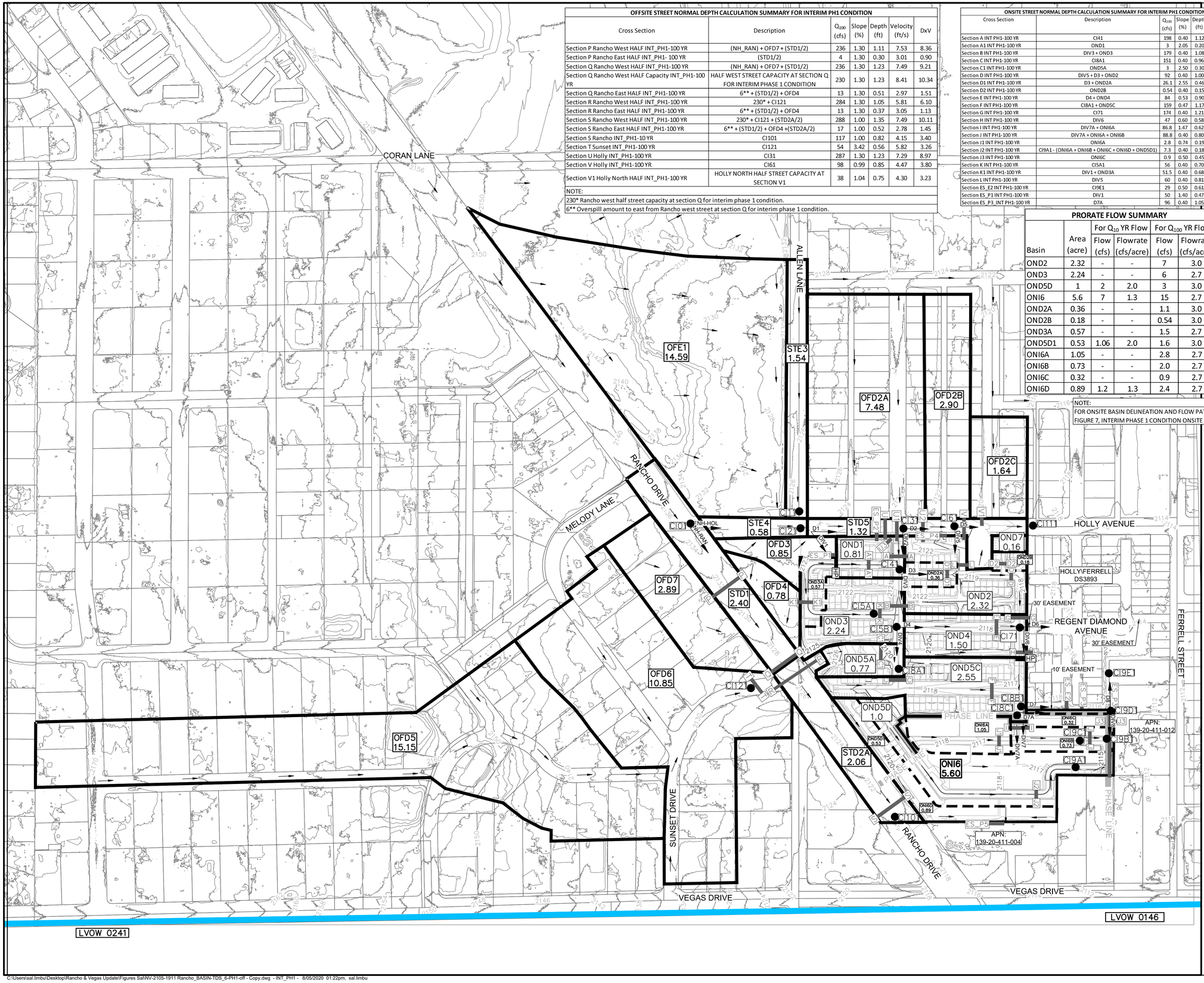
2. This has been reviewed for impacts to NDOT right of way only. Please gain concurrence from downstream and adjacent property owners.

   RESPONSE: Noted.

It is anticipated that these responses satisfy the NDOT comments, and request City approval of the responses.

Sincerely,

David B. Clark, PE
Engineer
HORROCKS ENGINEERS



OFFSITE STREET NORMAL DEPTH CALCULATION SUMMARY FOR INTERIM PH1 CONDITION

Cross Section	Description	Q_{100} (cfs)	Slope (%)	Depth (ft)	Velocity (ft/s)	DxV
Section P Rancho West HALF INT_PH1-100 YR	(NH_RAN) + OFD7 + (STD1/2)	236	1.30	1.11	7.53	8.36
Section P Rancho East HALF INT_PH1- 100 YR	(STD1/2)	4	1.30	0.30	3.01	0.90
Section Q Rancho West HALF INT_PH1-100 YR	(NH_RAN) + OFD7 + (STD1/2)	236	1.30	1.23	7.49	9.21
Section Q Rancho West HALF Capacity INT_PH1-100 YR	HALF WEST STREET CAPACITY AT SECTION Q FOR INTERIM PHASE 1 CONDITION	230	1.30	1.23	8.41	10.34
Section Q Rancho East HALF INT_PH1-100 YR	6** + (STD1/2) + OFD4	13	1.30	0.51	2.97	1.51
Section R Rancho West HALF INT_PH1-100 YR	230* + CI121	284	1.30	1.05	5.81	6.10
Section R Rancho East HALF INT_PH1-100 YR	6** + (STD1/2) + OFD4	13	1.30	0.37	3.05	1.13
Section S Rancho West HALF INT_PH1-100 YR	230* + CI121 + (STD2A/2)	288	1.00	1.35	7.49	10.11
Section S Rancho East HALF INT_PH1-100 YR	6** + (STD1/2) + OFD4 +(STD2A/2)	17	1.00	0.52	2.78	1.45
Section S Rancho INT_PH1-10 YR	CI101	117	1.00	0.82	4.15	3.40
Section T Sunset INT_PH1-100 YR	CI121	54	3.42	0.56	5.82	3.26
Section U Holly INT_PH1-100 YR	CI31	287	1.30	1.23	7.29	8.97
Section V Holly INT_PH1-100 YR	CI61	98	0.99	0.85	4.47	3.80
Section V1 Holly North HALF INT_PH1-100 YR	HOLLY NORTH HALF STREET CAPACITY AT SECTION V1	38	1.04	0.75	4.30	3.23

NOTE:
230* Rancho west half street capacity at section Q for interim phase 1 condition.
6** Overspill amount to east from Rancho west street at section Q for interim phase 1 condition.

ONSITE STREET NORMAL DEPTH CALCULATION SUMMARY FOR INTERIM PH1 CONDITION

Cross Section	Description	Q_{100} (cfs)	Slope (%)	Depth (ft)	Velocity (ft/s)	DxV
Section A INT PH1-100 YR	CI41	198	0.40	1.12	5.26	5.89
Section A1 INT PH1-100 YR	OND1	3	2.05	0.20	2.55	0.51
Section B INT PH1-100 YR	DIV3 + OND3	179	0.40	1.08	5.05	5.45
Section C INT PH1-100 YR	CI8A1	151	0.40	0.96	3.56	3.42
Section C1 INT PH1-100 YR	OND5A	3	2.50	0.30	2.85	0.86
Section D INT PH1-100 YR	DIV5 + D3 + OND2	92	0.40	1.00	4.45	4.45
Section D1 INT PH1-100 YR	D3 + OND2A	26.1	2.55	0.46	5.46	2.51
Section D2 INT PH1-100 YR	OND2B	0.54	0.40	0.15	0.93	0.14
Section E INT PH1-100 YR	D4 + OND4	84	0.53	0.90	4.37	3.93
Section F INT PH1-100 YR	CI8A1 + OND5C	159	0.47	1.17	4.93	5.77
Section G INT PH1-100 YR	CI71	174	0.40	1.21	3.80	4.60
Section H INT PH1-100 YR	DIV6	47	0.60	0.58	3.76	2.18
Section I INT PH1-100 YR	DIV7A + ONI6A	86.8	1.47	0.62	6.28	3.89
Section J INT PH1-100 YR	DIV7A + ONI6A + ONI6B	88.8	0.40	0.80	4.17	3.34
Section J1 INT PH1-100 YR	ONI6A	2.8	0.74	0.19	1.61	0.31
Section J2 INT PH1-100 YR	CI9A1 - (ONI6A + ONI6B + ONI6C + ONI6D + OND5D1)	7.3	0.40	0.18	1.19	0.21
Section J3 INT PH1-100 YR	ONI6C	0.9	0.50	0.45	1.50	0.68
Section K INT PH1-100 YR	CI5A1	56	0.40	0.70	3.72	2.60
Section K1 INT PH1-100 YR	DIV1 + OND3A	51.5	0.40	0.68	3.05	2.07
Section L INT PH1-100 YR	DIV5	60	0.40	0.81	4.23	3.43
Section ES_E2 INT PH1-100 YR	CI9E1	29	0.50	0.61	5.16	3.15
Section ES_P1 INT PH1-100 YR	DIV1	50	1.40	0.47	6.81	3.20
Section ES_P3_INT PH1-100 YR	D7A	96	0.40	1.05	6.58	6.91

PRORATE FLOW SUMMARY

Basin	Area (acre)	For Q_{10} YR Flow: Flow (cfs)	For Q_{10} YR Flow: Flowrate (cfs/acre)	For Q_{100} YR Flow: Flow (cfs)	For Q_{100} YR Flow: Flowrate (cfs/acre)
OND2	2.32	-	-	7	3.0
OND3	2.24	-	-	6	2.7
OND5D	1	2	2.0	3	3.0
ONI6	5.6	7	1.3	15	2.7
OND2A	0.36	-	-	1.1	3.0
OND2B	0.18	-	-	0.54	3.0
OND3A	0.57	-	-	1.5	2.7
OND5D1	0.53	1.06	2.0	1.6	3.0
ONI6A	1.05	-	-	2.8	2.7
ONI6B	0.73	-	-	2.0	2.7
ONI6C	0.32	-	-	0.9	2.7
ONI6D	0.89	1.2	1.3	2.4	2.7

NOTE:
FOR ONSITE BASIN DELINEATION AND FLOW PATTERNS SEE FIGURE 7, INTERIM PHASE 1 CONDITION ONSITE BASIN MAP

Interim Phase 1 Condition Update

Basin	Area (acres)	Q_{10} (cfs)	Q_{100} (cfs)
CI11	-	12	30
CI21	-	14	319
CI31	-	16	287
CI41	-	1	198
CI5A1	-	10	56
CI5B1	-	11	229
CI61	-	19	98
CI71	-	6	174
CI8A1	-	12	151
CI8B1	-	15	205
CI8C1	-	0	180
CI9A1*	-	7	13
CI9B1*	-	7	190
CI9C1		9	102
CI9D1		0	96
CI9E1		15	29
CI101	-	117	297
CI111	-	23	47
CI121	-	25	54
D1	-	7	269
DIV1	-	7	50
D2	-	16	91
DIV2	-	0	196
D3	-	0	25
DIV3	-	1	173
D4	-	0	79
DIV4	-	11	150
D5	-	19	38
DIV5	-	0	60
D6	-	6	127
DIV6	-	0	47
D7	-	15	25
DIV7	-	0	180
D7A		0	96
DIV7A		0	84
D8		0	4
DIV8		0	92
NH_HOL	-	0	285
NH_RAN	-	81	223
OFD2A	7.48	9	19
OFD2B	2.90	3	7
OFD2C	1.64	2	4
OFD3	0.85	1	3
OFD4	0.78	1	3
OFD5	15.15	11	26
OFD6	10.85	15	30
OFD7	2.89	5	9
OFE1	14.59	11	27
OND1	0.81	1	3
OND2	2.32	3	7
OND3	2.24	3	6
OND4	1.50	2	5
OND5A	0.77	1	3
OND5C	2.55	4	8
OND5D	1.00	2	3
ONI6	5.60	7	15
OND7	0.16	<1	1
STD1	2.40	5	8
STD2A	2.06	4	7
STE3	1.54	2	4
STE4	0.58	1	2
STD5	1.32	2	4

CI11 = OFE1 + STE3
CI21 = CI11 + (NH_HOL) + STE4 + OFD3
CI31 = D1 + OFD2A
CI41 = DIV2 + OND1
CI5A1 = DIV1 + OND3
CI5B1 = DIV3 + CI5A1
CI61 = D2 + OFD2B
CI71 = DIV5 + OND2 + D3 + OND4 + D4
CI8A1 = DIV4 + OND5A
CI8B1 = DIV6 + CI8A1 + OND5C
CI8C1 = DIV7
CI9A1 = ONI6 + OND5D
CI9A1* = CI9A1 - ONI6D - OND5D1
CI9B1 =DIV8 + CI9C1
CI9B1* = CI9B1 - ONI6D - OND5D1
CI9C1= DIV7A + CI9A1
CI9D1 = D7A
CI9E1 = D7 + D8
CI101 = (NH_RAN) + OFD7 + OFD4 + STD1 + CI121 + STD2A
CI111 = D5 + OFD2C + STD5 + OND7
CI121 = OFD5 + OFD6
Note: NH-HOL and NH-RAN are referenced from Neighborhood Study.

KEY:

- OND1 6.76 — BASIN NAME/AREA
- CI13 — CONCENTRATION POINT
- FLOW DIRECTION
- 1 — 1 — CROSS SECTION
- BASIN BOUNDARY
- PRORATE BASIN BOUNDARY
- OND2A 0.36 — PRORATE BASIN NAME/AREA
- EXISTING FACILITY

SCALE: 1" = 150'

HORROCKS ENGINEERS
1401 N. Green Valley Pkwy., Suite 160
Henderson, NV 89074
(702) 966-4063
www.horrocks.com

WARNING
IF THIS BAR DOES NOT MEASURE 2" THEN DRAWING IS NOT TO SCALE

REVISIONS
REV # | DATE

*SEE GENERAL NOTES SHEET

DRAWING INFO
DATE 03/06/2020
DESIGNED MDP
DRAWN SS
CHECKED LMB
PROJECT NV-2105-1911

RANCHO AND VEGAS TOWNHOMES

CITY OF LAS VEGAS, NEVADA

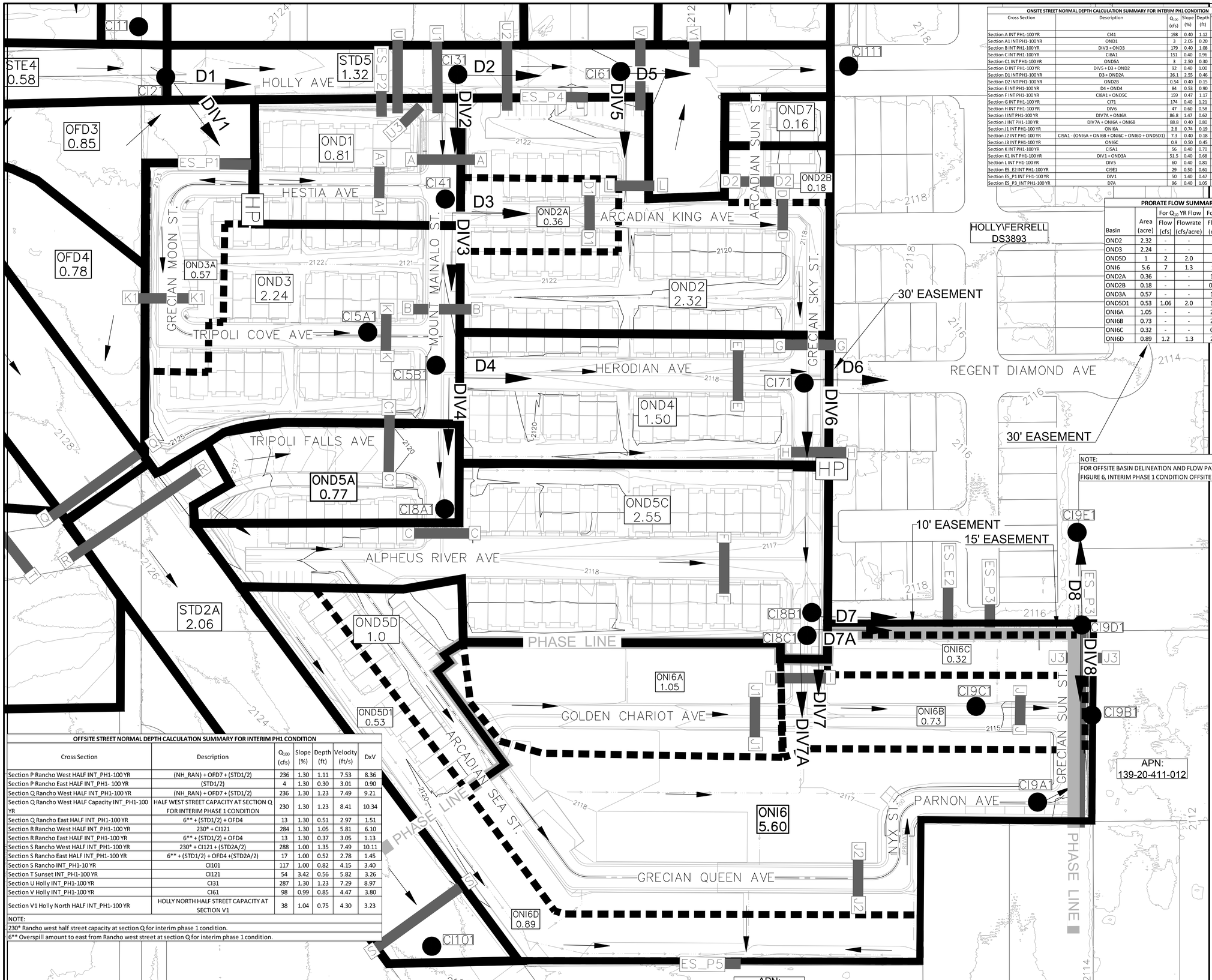
INTERIM PHASE 1 CONDITION OFFSITE BASIN MAP

APN 139-20-411-015

6

PAGE

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ONSITE STREET NORMAL DEPTH CALCUATION SUMMARY FOR INTERIM PH1 CONDITION

Cross Section	Description	Q_{100} (cfs)	Slope (%)	Depth (ft)	Velocity (ft/s)	DxV
Section A INT PH1-100 YR	CI41	198	0.40	1.12	5.26	5.89
Section A1 INT PH1-100 YR	OND1	3	2.05	0.20	2.55	0.51
Section B INT PH1-100 YR	DIV3 + OND3	179	0.40	1.08	5.05	5.45
Section C INT PH1-100 YR	CI8A1	151	0.40	0.96	3.56	3.42
Section C1 INT PH1-100 YR	OND5A	3	2.50	0.30	2.85	0.86
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Section D1 INT PH1-100 YR	D3 + OND2A	26.1	2.55	0.46	5.46	2.51
Section D2 INT PH1-100 YR	OND2B	0.54	0.40	0.15	0.93	0.14
Section E INT PH1-100 YR	D4 + ONI4	84	0.53	0.90	4.37	3.93
Section F INT PH1-100 YR	CI8A1 + OND5C	159	0.47	1.17	4.93	5.77
Section G INT PH1-100 YR	CI71	174	0.40	1.21	3.80	4.60
Section H INT PH1-100 YR	DIV6	47	0.60	0.58	3.76	2.18
Section I INT PH1-100 YR	DIV7A + ONI6A	86.8	1.47	0.62	6.28	3.89
Section J INT PH1-100 YR	DIV7A + ONI6A + ONI6B	88.8	0.40	0.80	4.17	3.34
Section J1 INT PH1-100 YR	ONI6A	2.8	0.74	0.19	1.61	0.31
Section J2 INT PH1-100 YR	CI9A1 - (ONI6A + ONI6B + ONI6C + ONI6D + OND5D1)	7.3	0.40	0.18	1.19	0.21
Section J3 INT PH1-100 YR	ONI6C	0.9	0.50	0.45	1.50	0.68
Section K INT PH1-100 YR	CI5A1	56	0.40	0.70	3.72	2.60
Section K1 INT PH1-100 YR	DIV1 + OND3A	51.5	0.40	0.68	3.05	2.07
Section L INT PH1-100 YR	DIV5	60	0.40	0.81	4.23	3.43
Section ES_E2 INT PH1-100 YR	CI9E1	29	0.50	0.61	5.16	3.15
Section ES_P1 INT PH1-100 YR	DIV1	50	1.40	0.47	6.81	3.20
Section ES_P3 INT PH1-100 YR	D7A	96	0.40	1.05	6.58	6.91

PRORATE FLOW SUMMARY

Basin	Area (acre)	For Q_{10} YR Flow Flow (cfs)	For Q_{10} YR Flow Flowrate (cfs/acre)	For Q_{100} YR Flow Flow (cfs)	For Q_{100} YR Flow Flowrate (cfs/acre)
OND2	2.32	-	-	7	3.0
OND3	2.24	-	-	6	2.7
OND5D	1	2	2.0	3	3.0
ONI6	5.6	7	1.3	15	2.7
OND2A	0.36	-	-	1.1	3.0
OND2B	0.18	-	-	0.54	3.0
OND3A	0.57	-	-	1.5	2.7
OND5D1	0.53	1.06	2.0	1.6	3.0
ONI6A	1.05	-	-	2.8	2.7
ONI6B	0.73	-	-	2.0	2.7
ONI6C	0.32	-	-	0.9	2.7
ONI6D	0.89	1.2	1.3	2.4	2.7

NOTE:
FOR OFFSITE BASIN DELINEATION AND FLOW PATTERNS SEE FIGURE 6, INTERIM PHASE 1 CONDITION OFFSITE BASIN MAP

Interim Phase 1 Condition Update

Basin	Area (acres)	Q_{10} (cfs)	Q_{100} (cfs)
CI11	-	12	30
CI21	-	14	319
CI31	-	16	287
CI41	-	1	198
CI5A1	-	10	56
CI5B1	-	11	229
CI61	-	19	98
CI71	-	6	174
CI8A1	-	12	151
CI8B1	-	15	205
CI8C1	-	0	180
CI9A1*	-	7	13
CI9B1*	-	7	190
CI9C1	-	9	102
CI9D1	-	0	96
CI9E1	-	15	29
CI101	-	117	297
CI111	-	23	47
CI121	-	25	54
D1	-	7	269
DIV1	-	7	50
D2	-	16	91
DIV2	-	0	196
D3	-	0	25
DIV3	-	1	173
D4	-	0	79
DIV4	-	11	150
D5	-	19	38
DIV5	-	0	60
D6	-	6	127
DIV6	-	0	47
D7	-	15	25
DIV7	-	0	180
D7A		0	96
DIV7A		0	84
D8		0	4
DIV8		0	92
NH_HOL	-	0	285
NH_RAN	-	81	223
OFD2A	7.48	9	19
OFD2B	2.90	3	7
OFD2C	1.64	2	4
OFD3	0.85	1	3
OFD4	0.78	1	3
OFD5	15.15	11	26
OFD6	10.85	15	30
OFD7	2.89	5	9
OFE1	14.59	11	27
OND1	0.81	1	3
OND2	2.32	3	7
OND3	2.24	3	6
OND4	1.50	2	5
OND5A	0.77	1	3
OND5C	2.55	4	8
OND5D	1.00	2	3
ONI6	5.60	7	15
OND7	0.16	<1	1
STD1	2.40	5	8
STD2A	2.06	4	7
STE3	1.54	2	4
STE4	0.58	1	2
STD5	1.32	2	4

CI11 = OFE1 + STE3
CI21 = CI11 + (NH_HOL) + STE4 + OFD3
CI31 = D1 + OFD2A
CI41 = DIV2 + OND1
CI5A1 = DIV1 + OND3
CI5B1 = DIV3 + CI5A1
CI61 = D2 + OFD2B
CI71 = DIV5 + OND2 + D3 + OND4 + D4
CI8A1 = DIV4 + OND5A
CI8B1 = DIV6 + CI8A1 + OND5C
CI8C1 = DIV7
CI9A1= ONI6 + OND5D
CI9A1* = CI9A1 - ONI6D - OND5D1
CI9B1=DIV8 + CI9C1
CI9B1* = CI9B1 - ONI6D - OND5D1
CI9C1= DIV7A + CI9A1
CI9D1 = D7A
CI9E1 = D7 + D8
CI101 = (NH_RAN) + OFD7 + OFD4 + STD1 + CI121 + STD2A
CI111 = D5 + OFD2C + STD5 + OND7
CI121 = OFD5 + OFD6
Note: NH-HOL and NH-RAN are referenced from Neighborhood Study.

OFFSITE STREET NORMAL DEPTH CALCULATION SUMMARY FOR INTERIM PH1 CONDITION

Cross Section	Description	Q_{100} (cfs)	Slope (%)	Depth (ft)	Velocity (ft/s)	DxV
Section P Rancho West HALF INT_PH1-100 YR	(NH_RAN) + OFD7 + (STD1/2)	236	1.30	1.11	7.53	8.36
Section P Rancho East HALF INT_PH1- 100 YR	(STD1/2)	4	1.30	0.30	3.01	0.90
Section Q Rancho West HALF INT_PH1-100 YR	(NH_RAN) + OFD7 + (STD1/2)	236	1.30	1.23	7.49	9.21
Section Q Rancho West HALF Capacity INT_PH1-100 YR	HALF WEST STREET CAPACITY AT SECTION Q FOR INTERIM PHASE 1 CONDITION	230	1.30	1.23	8.41	10.34
Section Q Rancho East HALF INT_PH1-100 YR	6** + (STD1/2) + OFD4	13	1.30	0.51	2.97	1.51
Section R Rancho West HALF INT_PH1-100 YR	230* + CI121	284	1.30	1.05	5.81	6.10
Section R Rancho East HALF INT_PH1-100 YR	6** + (STD1/2) + OFD4	13	1.30	0.37	3.05	1.13
Section S Rancho West HALF INT_PH1-100 YR	230* + CI121 + (STD2A/2)	288	1.00	1.35	7.49	10.11
Section S Rancho East HALF INT_PH1-100 YR	6** + (STD1/2) + OFD4 +(STD2A/2)	17	1.00	0.52	2.78	1.45
Section S Rancho INT_PH1-10 YR	CI101	117	1.00	0.82	4.15	3.40
Section T Sunset INT_PH1-100 YR	CI121	54	3.42	0.56	5.82	3.26
Section U Holly INT_PH1-100 YR	CI31	287	1.30	1.23	7.29	8.97
Section V Holly INT_PH1-100 YR	CI61	98	0.99	0.85	4.47	3.80
Section V1 Holly North HALF INT_PH1-100 YR	HOLLY NORTH HALF STREET CAPACITY AT SECTION V1	38	1.04	0.75	4.30	3.23

NOTE:
230* Rancho west half street capacity at section Q for interim phase 1 condition.
6** Overspill amount to east from Rancho west street at section Q for interim phase 1 condition.

KEY:

- OND1 0.81 — BASIN NAME/AREA
- CI31 — CONCENTRATION POINT
- FLOW DIRECTION
- A — A — CROSS SECTION
- BASIN BOUNDARY
- PRORATE BASIN BOUNDARY
- OND2A 0.36 — PRORATE BASIN NAME/AREA

SCALE: 1" = 50'

HORROCKS ENGINEERS
1401 N. Green Valley Pkwy., Suite 160
Henderson, NV 89074
(702) 966-4063
www.horrocks.com

WARNING
IF THIS BAR DOES NOT MEASURE 2" THEN DRAWING IS NOT TO SCALE

REVISIONS
REV # | DATE

*SEE GENERAL NOTES SHEET

DRAWING INFO
DATE 03/06/2020
DESIGNED MDP
DRAWN SS
CHECKED LMB
PROJECT NV-2105-1911

RANCHO AND VEGAS TOWNHOMES

CITY OF LAS VEGAS, NEVADA

INTERIM PHASE 1 CONDITION ONSITE BASIN MAP

APN 139-20-411-015

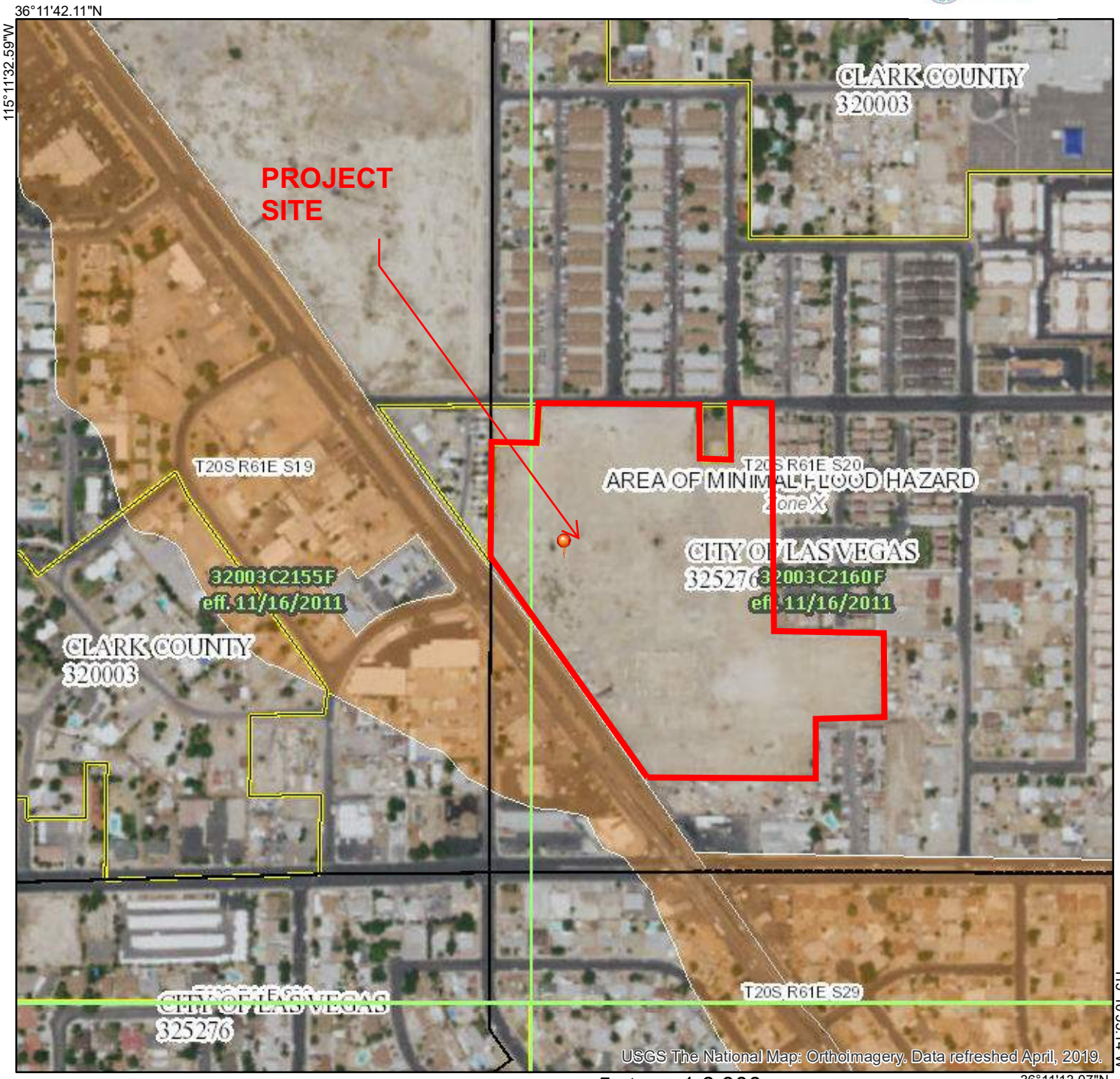
7

PAGE

C:\Users\sal.limbu\Desktop\Rancho & Vegas Update\Figures Sal\NV-2105-1911 Rancho_BASIN-TDS_7-PH1-on - Copy.dwg - INT_PH1_ONSITE - 8/05/2020 01:23pm, sal.limbu

National Flood Hazard Layer FIRMette

FEMA



Legend

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

- **SPECIAL FLOOD HAZARD AREAS**
  - Without Base Flood Elevation (BFE) *Zone A, V, A99*
  - With BFE or Depth *Zone AE, AO, AH, VE, AR*
  - Regulatory Floodway
- **OTHER AREAS OF FLOOD HAZARD**
  - 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
  - Future Conditions 1% Annual Chance Flood Hazard *Zone X*
  - Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
  - Area with Flood Risk due to Levee *Zone D*
- **OTHER AREAS**
  - NO SCREEN Area of Minimal Flood Hazard *Zone X*
  - Effective LOMRs
  - Area of Undetermined Flood Hazard *Zone D*
- **GENERAL STRUCTURES**
  - Channel, Culvert, or Storm Sewer
  - Levee, Dike, or Floodwall
- **OTHER FEATURES**
  - 20.2 / 17.5 Cross Sections with 1% Annual Chance / Water Surface Elevation
  - Coastal Transect
  - Base Flood Elevation Line (BFE)
  - Limit of Study
  - Jurisdiction Boundary
  - Coastal Transect Baseline
  - Profile Baseline
  - Hydrographic Feature
- **MAP PANELS**
  - Digital Data Available
  - No Digital Data Available
  - Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 12/17/2019 at 6:49:58 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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

FIGURE 2

HORROCKS ENGINEERS

Composite Curve Number Calculations

Proj. No: NV-2105-1911 **Project Name:** RANCHO & VEGAS TOWNHOMES
Date: 7/31/2020 **Designed By:** DBC/SBL

Basin	Basin Area (ac)	Sub-region Cover Type	Sub-region Soil Type	Sub-region CN	Sub-region Area (ac)	Percent of Basin	Cumulative Percent	Areal Weighted CN	Cumulative CN	Composite CN
EXISTING CONDITION										
ONI6	5.60	Newly Graded Areas	D	94	4.31	77.0%	77.0%	72.3	72.3	
ONI6	5.60	Impervious	D	98	1.29	23.0%	100.0%	22.6	94.9	94.9
DEVELOPED CONDITION										
OND5C	2.55	Commercial	D	95	2.55	100.0%	100.0%	95.0	95.0	95
OND5D	1.00	Commercial	D	95	1.00	100.0%	100.0%	95.0	95.0	95

HORROCKS ENGINEERS

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL - STANDARD FORM 4

Horrocks Engineers
1401 N. Green Valley Pkwy, Suite 160
Henderson, NV, 89074

PROJECT NO.: NV-2105-1911 **PROJECT: RANCHO & VEGAS TOWNHOMES** **DATE : 8/5/2020 13:26**
CALCULATED BY: DBC/SBL

Sub-Basin Data					Initial/Overland Time (T_i)			Travel Time (T_t)					T_c	T_c Check (Urbanized Basins)		Final T_c	T_{lag}	Remarks
DESIG	CN	K	AREA (acres)	AREA (mi^2)	LENGTH (ft)	SLOPE (%)	T_i (min)	LENGTH (ft)	SLOPE (%)	V_1 (fps)	V_2 (fps)	T_t (min)	$T_c=T_i+T_t$ (min)	TOTAL (ft)	T_c (min)	T_c (min)	T_{lag} (hrs)	Remarks Precip 100/10
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
EXISTING CONDITION																		
ONI6	94.9	0.8627	5.60	0.0088	65	1.5	3.0	900	0.6	1.10	2.19	10.6	13.6	N/A	N/A	13.58	0.136	2.77/1.58
DEVELOPED CONDITION																		
OND5C	95	0.8640	2.55	0.0040	60	2.5	2.4	375	0.5	1.48	N/A	4.2	6.7	435	12.4	6.66	0.067	2.77/1.58
OND5D	95	0.8640	1.00	0.0016	65	1.5	3.0	270	0.6	1.51	N/A	3.0	6.0	335	11.9	5.96	0.060	2.77/1.58

$T_i=(1.8(1.1-K)L^{(1/2)})/(S^{1/3})$
$T_c=T_i+T_t$
$K=0.0132(CN)-.39$
$T_{lag} = 0.6T_c$

For the travel time (T_t) calculations,
V_1 applies to the first 500 feet of travel distance;
V_2 applies to the remaining travel distance.

Travel Time Velocity Formulas

Existing	Developed
$V_1 = 14.8*(S/100)^{1/2}$	$V_1 = 20.2*(S/100)^{1/2}$
$V_2 = 29.4*(S/100)^{1/2}$	$V_2 = 30.6*(S/100)^{1/2}$

All basins over one square mile are calculated by the equation $T_{lag}=20Kn(L*L_c/S^{0.5})^{0.33}$ and denoted by shaded gray (See Worksheet).

REFERENCE: CCRFCD HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL
STANDARD FORM 4

HEC-1 INTERIM PHASE 1 - 10 YR

```
1****************************************                    ****************************************
 *                                      *                    *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                    *    U.S. ARMY CORPS OF ENGINEERS      *
 *               JUN   1998             *                    *    HYDROLOGIC ENGINEERING CENTER     *
 *            VERSION 4.1               *                    *          609 SECOND STREET           *
 *                                      *                    *       DAVIS, CALIFORNIA 95616        *
 *  RUN DATE   31JUL20  TIME  10:28:16  *                    *           (916) 756-1104             *
 *                                      *                    *                                      *
 ****************************************                    ****************************************

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


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

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

1                                                HEC-1 INPUT                                                PAGE  1

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

                        *DIAGRAM
            1           ID
            2           ID      <><><><><><><><><><><><><><><><><><><><>
            3           ID        RANCHO & VEGAS TOWNHOMES
            4           ID        HYDROLOGIC MODEL
            5           ID        --------------------------
            6           ID
            7           ID        10-YR STORM EVENT
            8           ID        --------------------------
            9           ID        HORROCKS ENGINEERING
           10           ID        INTERIM PHASE 1 CONDITION UPDATE
           11           ID        FILE: INT PH1.DAT
           12           ID        PROJECT No: NV-2105-1911
           13           ID        DATE:  JULY 31 2020
           14           ID      <><><><><><><><><><><><><><><><><><><><>
           15           ID
           16           ID       ---> 6-HOUR / SDN 3 <---
           17           ID
           18           IT       5       0       0     300
           19           IO       5
           20           IN       5
           21           JR    PREC    1.00
                        *

           22           KK    OFE1
           23           KM    OFFSITE FLOW AT NORTHWEST CORNER OF PROJECT SITE
           24           BA   .0228
           25           PB    1.58
           26           PC    .000    .020    .057    .070    .087    .108    .124    .130    .130    .130
           27           PC    .130    .130    .130    .133    .140    .142    .148    .158    .172    .181
           28           PC    .190    .197    .199    .200    .201    .204    .214    .229    .241    .249
           29           PC    .251    .256    .270    .278    .281    .283    .295    .322    .352    .409
           30           PC    .499    .590    .710    .744    .781    .812    .819    .835    .851    .856
           31           PC    .860    .868    .876    .888    .910    .926    .937    .950    .970    .976
           32           PC    .982    .985    .987    .989    .990    .993    .993    .994    .995    .998
           33           PC    .998    .999   1.00
           34           LS       0      88
           35           UD    .210
                        *

           36           KK    STE3
           37           BA   .0024
           38           LS       0      92
           39           UD    .134
                        *

           40           KK    CI11
           41           KM   COMBINES OFFISTE BASIN OFE1 AND STREET STE3.
           42           HC       2
                        *
1                                                HEC-1 INPUT                                                PAGE  2

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

```
 43          KK  NH_HOL
 44          KM   CENTRAL NEIGHBORHOOD REFERENCE STUDY 100-YR BASEFLOW
 45          KM   WHICH OVERSPILL INTO HOLLY AVENUE. SEE THE STUDY
 46          KM   MAP FOR DETAIL.
 47          BA   .0001
 48          BF       0
 49          LS       0      01
 50          UD   .0001
             *

 51          KK   DUMMY
 52          KM   DUMMY CARD TO RESET BASEFLOW AND HAS NO FLOW
 53          BA   .0001
 54          BF     .00
 55          LS       0      01
 56          UD   .0001
             *

 57          KK    STE4
 58          BA   .0009
 59          LS       0      97
 60          UD   0.100
             *

 61          KK    OFD3
 62          BA   .0013
 63          LS       0      95
 64          UD   0.050
             *

 65          KK    CI21
 66          KM   COMBINES CI11, NH-HOL BASEFLOW, STREET STE4, AND OFFSITE BASIN OFD3.
 67          HC       5

 68          KK    DIV1
 69          KM   DIVERSION (PROVIDE DISCRIPTION HERE, THIS IS A TYP. DIVERSION CARD)
 70          KM   ('DT' IS NAME OF WHAT YOU ARE DIVERTING;'DI' IS THE TOTAL FLOW; THE 'DQ' CARD
 71          KM   IS THE AMOUNT DIVERTED)
 72          KM   DIV1 AMOUNT THAT ENTERS INTO PROJECT SITE AND COMBINE WITH OND3
 73          DT      D1
 74          DI      14
 75          DQ       7
             *

 76          KK    OND3
 77          BA   .0035
 78          LS       0      95
 79          UD   0.102
             *
1                                        HEC-1 INPUT                                          PAGE  3

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

 80          KK   CI5A1
 81          KM   COMBINES DIV1 AND OND3.
 82          HC       2
             *

 83          KK   OFD2A
 84          BA   .0117
 85          LS       0      92
 86          UD   0.122
             *

 87          KK   RETD1
 88          KM   RETRIEVE D1 - (THIS CARD RETRIEVES THE DIVERTED FLOW)
 89          KM   FLOW THAT RETAINS ON HOLLY AVENUE
 90          DR      D1
             *

 91          KK    CI31
 92          KM   COMBINES OFD2A AND D1.
 93          HC       2
             *

 94          KK    DIV2
 95          KM   DIVERSION (PROVIDE DISCRIPTION HERE, THIS IS A TYP. DIVERSION CARD)
 96          KM   ('DT' IS NAME OF WHAT YOU ARE DIVERTING;'DI' IS THE TOTAL FLOW; THE 'DQ' CARD
 97          KM   IS THE AMOUNT DIVERTED)
 98          KM   DIV2 RUNOFF AMOUNT ENTERS INTO PROJECT SITE
 99          KM   AND COMBINES WITH OND1
100          DT      D2
101          DI      16
102          DQ      16
             *

103          KK    OND1
104          BA   .0013
```

```
 105          LS       0      95
 106          UD   0.050
              *

 107          KK    CI41
 108          KM   COMBINES DIV2 AND OND1.
 109          HC       2
              *

 110          KK    DIV3
 111          KM   DIVERSION (PROVIDE DISCRIPTION HERE, THIS IS A TYP. DIVERSION CARD)
 112          KM   ('DT' IS NAME OF WHAT YOU ARE DIVERTING;'DI' IS THE TOTAL FLOW; THE 'DQ' CARD
 113          KM   IS THE AMOUNT DIVERTED)
 114          KM   DIV3 RUNOFF AMOUNT FLOWS SOUTH AND COMBINES WITH CI5A1 FLOW AMOUNT
 115          DT      D3
 116          DI       1
 117          DQ       0
              *
1                                      HEC-1 INPUT                                          PAGE  4

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


 118          KK   CI5B1
 119          KM   COMBINES DIV3 AND CI5A1.
 120          HC       2
              *

 121          KK    DIV4
 122          KM   DIVERSION (PROVIDE DISCRIPTION HERE, THIS IS A TYP. DIVERSION CARD)
 123          KM   ('DT' IS NAME OF WHAT YOU ARE DIVERTING;'DI' IS THE TOTAL FLOW; THE 'DQ' CARD
 124          KM   IS THE AMOUNT DIVERTED)
 125          KM   DIV4 RUNOFF AMOUNT FLOWS SOUTH AND COMBINES WITH ONI5A
 126          DT      D4
 127          DI      11
 128          DQ       0
              *

 129          KK   OND5A
 130          BA   .0012
 131          LS       0      95
 132          UD   0.051
              *

 133          KK   CI8A1
 134          KM   COMBINES DIV4 AND ONI5A.
 135          HC       2
              *

 136          KK   DUMMY
 137          KM   THIS IS NOT ACTUALLY FLOW SPLIT OR DIVERSION. TOTAL DISCHARGE OF CI8A1
 138          KM   FLOWS EAST TOWARD CI8B1. THAT IS, DUMMY = 0 CFS.
 139          KM   THIS DUMMY CARD AS FLOW SPLIT IS REQUIRE TO
 140          KM   ENABLE HEC-1 TO CREATE FLOW TREE.
 141          DT   CI8A1
 142          DI       0    12    20
 143          DQ       0    12    12
              *

 144          KK    ONI6
 145          BA   .0088
 146          LS       0      94.9
 147          UD   0.136
              *

 148          KK   OND5D
 149          BA   .0016
 150          LS       0      95
 151          UD   0.060
              *

 152          KK   CI9A1
 153          KM   COMBINES DUMMY, ONI6, AND OND5D.
 154          HC       3
              *
1                                      HEC-1 INPUT                                          PAGE  5

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


 155          KK   OFD2B
 156          BA   .0045
 157          LS       0      92
 158          UD   0.112
              *

 159          KK   RETD2
 160          KM   RETRIEVE D2 - (THIS CARD RETRIEVES THE DIVERTED FLOW)
 161          KM   FLOW THAT RETAINS ON HOLLY AVENUE
 162          DR      D2
              *
```

```
 163          KK    CI61
 164          KM   COMBINES OFD2B, AND D2.
 165          HC       2
              *

 166          KK    DIV5
 167          KM   DIVERSION (PROVIDE DISCRIPTION HERE, THIS IS A TYP. DIVERSION CARD)
 168          KM   ('DT' IS NAME OF WHAT YOU ARE DIVERTING;'DI' IS THE TOTAL FLOW; THE 'DQ' CARD
 169          KM    IS THE AMOUNT DIVERTED)
 170          KM   DIV5 RUNOFF AMOUNT FLOWS SOUTH AND ENTERS INTO THE PROJECT SITE.
 171          DT      D5
 172          DI      19
 173          DQ      19
              *

 174          KK    OND2
 175          BA   .0036
 176          LS       0      95
 177          UD   0.097
              *

 178          KK   RETD3
 179          KM   RETRIEVE D3 - (THIS CARD RETRIEVES THE DIVERTED FLOW)
 180          KM   THE FLOW D3 ENTERS INTO OND2 BASIN
 181          DR      D3
              *

 182          KK    OND4
 183          BA   .0023
 184          LS       0      95
 185          UD   0.067
              *

 186          KK   RETD4
 187          KM   RETRIEVE D4 - (THIS CARD RETRIEVES THE DIVERTED FLOW)
 188          KM   THE FLOW D4 ENTERS INTO OND4 BASIN
 189          DR      D4
              *
1                                      HEC-1 INPUT                                          PAGE  6

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

 190          KK    CI71
 191          KM   COMBINES DIV5, OND2, D3, OND4, AND D4.
 192          HC       5
              *

 193          KK    DIV6
 194          KM   DIVERSION (PROVIDE DISCRIPTION HERE, THIS IS A TYP. DIVERSION CARD)
 195          KM   ('DT' IS NAME OF WHAT YOU ARE DIVERTING;'DI' IS THE TOTAL FLOW; THE 'DQ' CARD
 196          KM    IS THE AMOUNT DIVERTED)
 197          KM   DIV6 RUNOFF AMOUNT FLOWS SOUTH.
 198          DT      D6
 199          DI       0     6    20
 200          DQ       0     6     6
              *

 201          KK  RTDIV6
 202          KM   ROUTE DIV6 to CI8B1 THROUGH GRECIAN SKY ST
 203          RD     300    .004    .016            TRAP
              *

 204          KK   OND5C
 205          BA   .0040
 206          LS       0      95
 207          UD   0.067
              *

 208          KK  RCI8A1
 209          KM   RETRIEVE CI8A1 - (THIS CARD RETRIEVES THE DIVERTED FLOW)
 210          KM   THE FLOW CI8A1 COMBINES WITH OND5C BASIN, AND DIV6
 211          DR   CI8A1
              *

 212          KK  RTC8A1
 213          KM   ROUTE CI8A1 THROUGH ALPHEUS RIVER AVENUE TO CI8B1
 214          RD     525    .004    .016            TRAP
              *

 215          KK   CI8B1
 216          KM   COMBINES DIV6, CI8A1, AND OND5C.
 217          HC       3
              *

 218          KK    DIV7
 219          KM   DIVERSION (PROVIDE DISCRIPTION HERE, THIS IS A TYP. DIVERSION CARD)
 220          KM   ('DT' IS NAME OF WHAT YOU ARE DIVERTING;'DI' IS THE TOTAL FLOW; THE 'DQ' CARD
 221          KM   IS THE AMOUNT DIVERTED)
 222          KM   DIV7 RUNOFF AMOUNT FLOWS SOUTH.
```

```
 223          DT      D7
 224          DI      15
 225          DQ      15
              *
1                                      HEC-1 INPUT                                          PAGE  7

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


 226          KK   DUMMY
 227          KM   DUMMY CARD TO MAKE HEC-1 RUN
 228          BA   .0001
 229          BF     .00
 230          LS       0      01
 231          UD   .0001
              *

 232          KK   CI8C1
 233          KM   IS EQUAL DIV7
 234          HC       2
              *

 235          KK   DIV7A
 236          KM   DIVERSION (PROVIDE DISCRIPTION HERE, THIS IS A TYP. DIVERSION CARD)
 237          KM   ('DT' IS NAME OF WHAT YOU ARE DIVERTING;'DI' IS THE TOTAL FLOW; THE 'DQ' CARD
 238          KM   IS THE AMOUNT DIVERTED)
 239          KM   DIV7A RUNOFF AMOUNT FLOWS SOUTH.
 240          DT     D7A
 241          DI       0
 242          DQ       0
              *

 243          KK   CI9C1
 244          KM   COMBINES DIV7A AND CI9A1.
 245          HC       2
              *

 246          KK  RETD7A
 247          KM   RETRIEVE D7A - (THIS CARD RETRIEVES THE DIVERTED FLOW)
 248          KM   THE FLOW D7A ENTERS INTO 15'PORPOSED EASEMENT
 249          DR     D7A
              *

 250          KK   DUMMY
 251          KM   DUMMY CARD TO MAKE HEC-1 RUN
 252          BA   .0001
 253          BF     .00
 254          LS       0      01
 255          UD
              *

 256          KK   CI9D1
 257          KM    EQUAL TO D7A
 258          HC       2
              *

 259          KK    DIV8
 260          KM   DIVERSION (PROVIDE DISCRIPTION HERE, THIS IS A TYP. DIVERSION CARD)
 261          KM   ('DT' IS NAME OF WHAT YOU ARE DIVERTING;'DI' IS THE TOTAL FLOW; THE 'DQ' CARD
 262          KM   IS THE AMOUNT DIVERTED)
 263          DT      D8
 264          DI       0
 265          DQ       0
              *
1                                      HEC-1 INPUT                                          PAGE  8

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


 266          KK   CI9B1
 267          KM   COMBINES CI9C1 AND DIV8.
 268          HC       2
              *

 269          KK   RETD8
 270          KM   RETRIEVE D8 - (THIS CARD RETRIEVES THE DIVERTED FLOW)
 271          KM   THE FLOW D8 ENTERS INTO 10' EXISTING EASEMENT
 272          DR      D8
              *

 273          KK   RETD7
 274          KM   RETRIEVE D7 - (THIS CARD RETRIEVES THE DIVERTED FLOW)
 275          KM   THE FLOW D7 ENTERS INTO 10'EXISTING EASEMENT
 276          DR      D7
              *

 277          KK   CI9E1
 278          KM   COMBINES D7 AND D8.
 279          HC       2
              *
```

```
 280          KK    OFD5
 281          BA   .0237
 282          LS       0      88
 283          UD   0.252
              *

 284          KK    OFD6
 285          BA   .0170
 286          LS       0      95
 287          UD   0.128
              *

 288          KK   CI121
 289          KM   COMBINES OFD5 AND OFD6.
 290          HC       2
              *

 291          KK  NH-RAN
 292          KM   CENTRAL NEIGHBORHOOD REFERENCE STUDY 100-YR BASEFLOW
 293          KM   WHICH CONTINUE ON RANCHO AVENUE. SEE THE STUDY
 294          KM   MAP FOR DETAIL.
 295          BA   .0001
 296          BF      81
 297          LS       0      01
 298          UD   .0001
              *
1                                        HEC-1 INPUT                                          PAGE  9

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


 299          KK   DUMMY
 300          KM   DUMMY CARD TO RESET BASEFLOW AND HAS NO FLOW
 301          BA   .0001
 302          BF     .00
 303          LS       0      01
 304          UD   .0001
              *

 305          KK    STD1
 306          BA   .0038
 307          LS       0      98
 308          UD   0.077
              *

 309          KK    OFD7
 310          BA   .0045
 311          LS       0      95
 312          UD   0.081
              *

 313          KK    OFD4
 314          BA   .0012
 315          LS       0      95
 316          UD   0.050
              *

 317          KK   STD2A
 318          BA   .0032
 319          LS       0      98
 320          UD   0.071
              *

 321          KK   CI101
 322          KM   COMBINES CI121, NH-RAN, STD1, OFD7, OFD4, AND STD2A.
 323          HC       7
              *

 324          KK   OFD2C
 325          BA   .0026
 326          LS       0      92
 327          UD   0.120
              *

 328          KK   RETD5
 329          KM   RETRIEVE D5 - (THIS CARD RETRIEVES THE DIVERTED FLOW)
 330          KM   THE FLOW D5 DO NOT ENTER INTO THE PROJECT SITE AND
 331          KM   REMAINS ON HOLLY AVENUE.
 332          DR      D5
              *
1                                        HEC-1 INPUT                                          PAGE 10

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

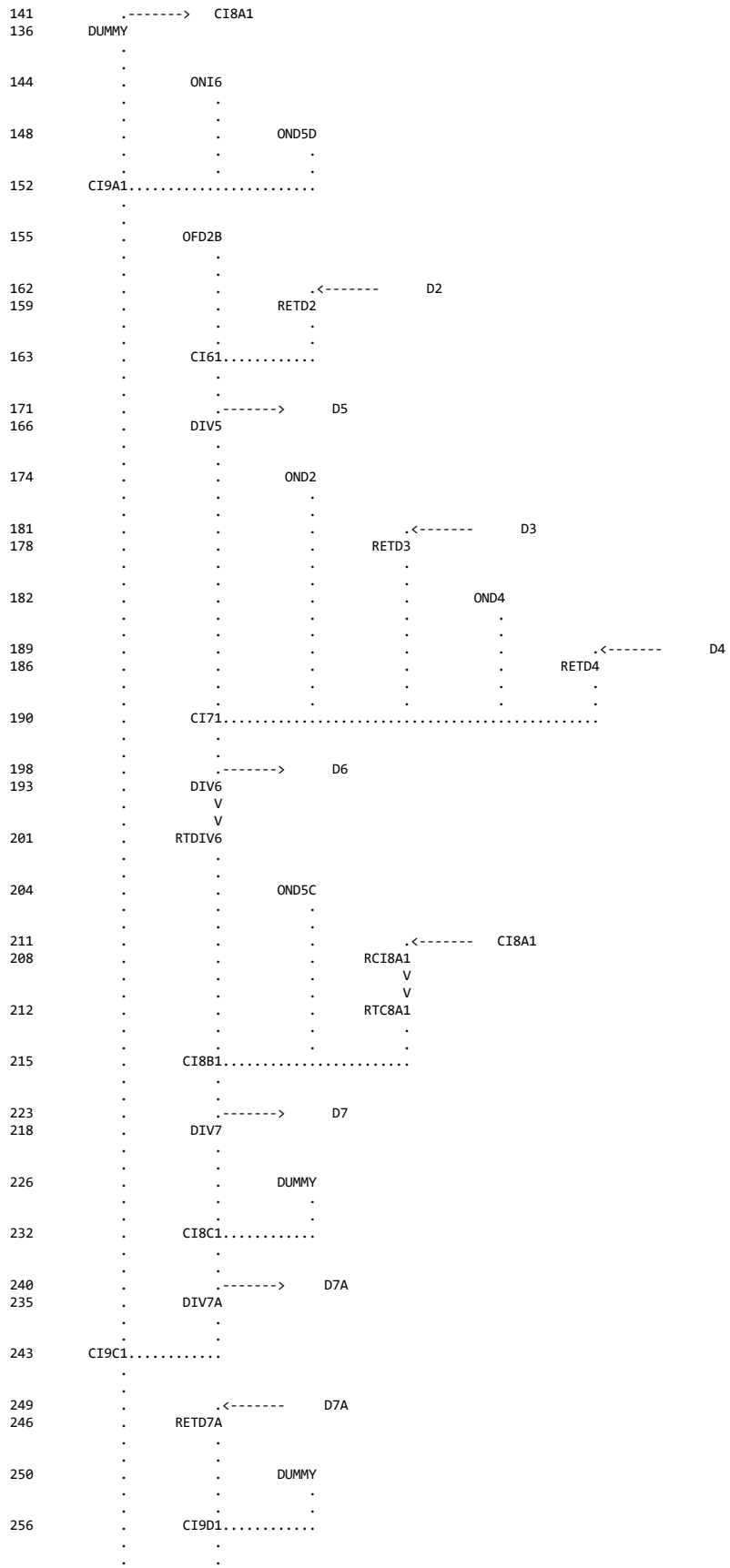

 333          KK    OND7
 334          BA   .0003
 335          LS       0      95
 336          UD   0.050
              *
```

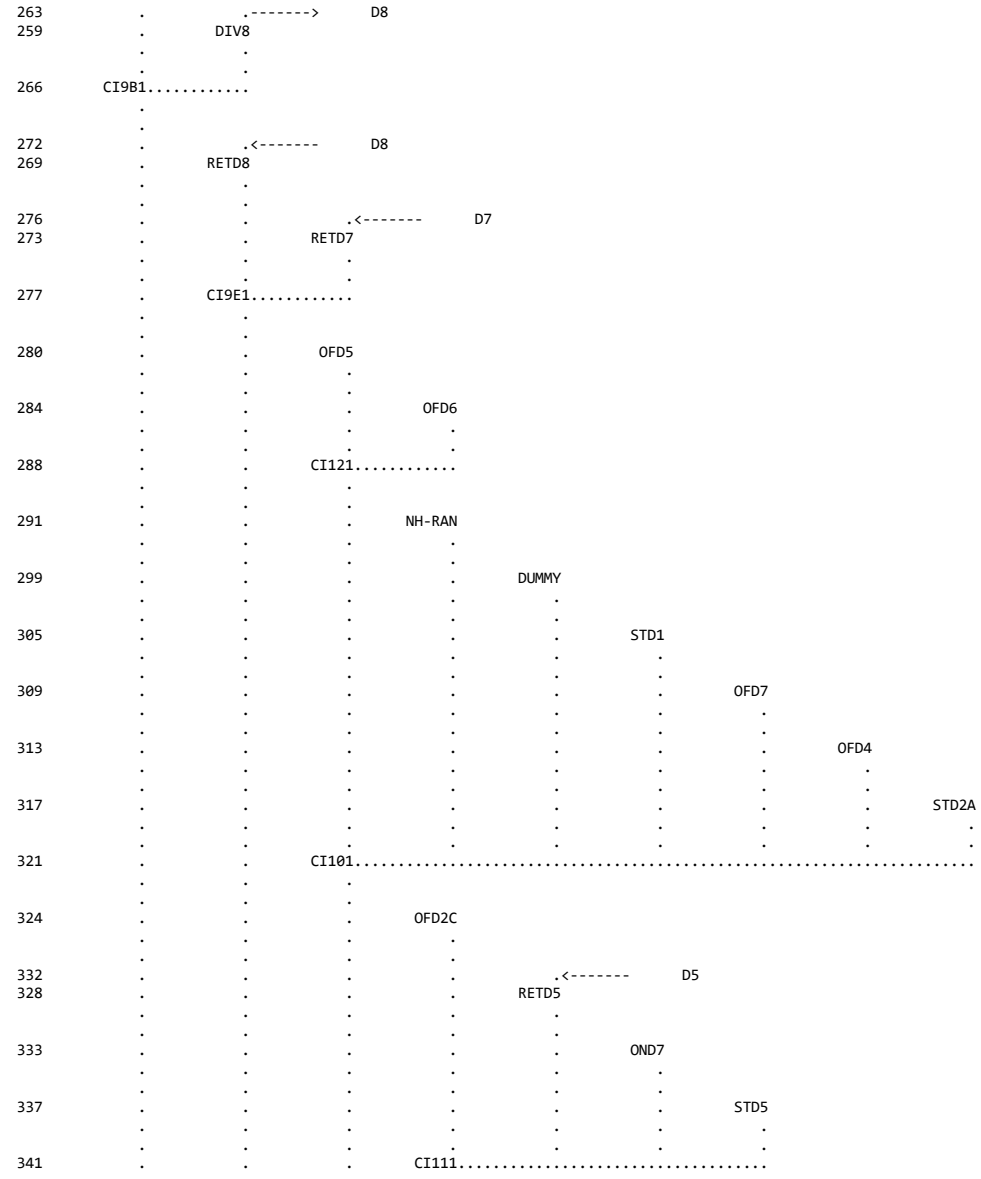
```
           337          KK    STD5
           338          BA   .0021
           339          LS       0      97
           340          UD   0.072
                        *

           341          KK   CI111
           342          KM   COMBINES OFD2C, D5, OND7, AND STD5
           343          HC       4
                        *
                        *
                        *
           344          ZZ
1
                SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

    22       OFE1
                .
                .
    36          .        STE3
                .           .
                .           .
    40       CI11............
                .
                .
    43          .      NH_HOL
                .           .
                .           .
    51          .           .      DUMMY
                .           .           .
                .           .           .
    57          .           .           .       STE4
                .           .           .          .
                .           .           .          .
    61          .           .           .          .       OFD3
                .           .           .          .          .
                .           .           .          .          .
    65       CI21.............................................
                .
                .
    73          .------->     D1
    68       DIV1
                .
                .
    76          .        OND3
                .           .
                .           .
    80       CI5A1...........
                .
                .
    83          .       OFD2A
                .           .
                .           .
    90          .           .          .<-------      D1
    87          .           .      RETD1
                .           .          .
                .           .          .
    91          .        CI31...........
                .           .
                .           .
   100          .           .------->     D2
    94          .        DIV2
                .           .
                .           .
   103          .           .       OND1
                .           .          .
                .           .          .
   107          .        CI41...........
                .           .
                .           .
   115          .           .------->     D3
   110          .        DIV3
                .           .
                .           .
   118       CI5B1...........
                .
                .
   126          .------->     D4
   121       DIV4
                .
                .
   129          .       OND5A
                .           .
                .           .
   133       CI8A1...........
                .
                .
```


141 .------> CI8A1
136 DUMMY
144 ONI6
148 OND5D
152 CI9A1
155 OFD2B
162 .<------- D2
159 RETD2
163 CI61
171 .------> D5
166 DIV5
174 OND2
181 .<------- D3
178 RETD3
182 OND4
189 .<------- D4
186 RETD4
190 CI71
198 .------> D6
193 DIV6
201 RTDIV6
204 OND5C
211 .<------- CI8A1
208 RCI8A1
212 RTC8A1
215 CI8B1
223 .------> D7
218 DIV7
226 DUMMY
232 CI8C1
240 .------> D7A
235 DIV7A
243 CI9C1
249 .<------- D7A
246 RETD7A
250 DUMMY
256 CI9D1



(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1*****************************************                    *****************************************
 *                                       *                    *                                       *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *                    *    U.S. ARMY CORPS OF ENGINEERS       *
 *              JUN   1998               *                    *    HYDROLOGIC ENGINEERING CENTER      *
 *            VERSION 4.1                *                    *          609 SECOND STREET            *
 *                                       *                    *       DAVIS, CALIFORNIA 95616         *
 *  RUN DATE   31JUL20  TIME  10:28:16   *                    *           (916) 756-1104              *
 *                                       *                    *                                       *
 *****************************************                    *****************************************
```

<><><><><><><><><><><><><><><><><><><><>

RANCHO & VEGAS TOWNHOMES
HYDROLOGIC MODEL

10-YR STORM EVENT

HORROCKS ENGINEERING
INTERIM PHASE 1 CONDITION UPDATE
FILE: INT PH1.DAT
PROJECT No: NV-2105-1911
DATE: JULY 31 2020

<><><><><><><><><><><><><><><><><><><><><><><><><><><><>

 ---> 6-HOUR / SDN 3 <---

```
   19 IO          OUTPUT CONTROL VARIABLES
                        IPRNT           5  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE

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

                    COMPUTATION INTERVAL     .08 HOURS
                         TOTAL TIME BASE   24.92 HOURS

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

      JP          MULTI-PLAN OPTION
                        NPLAN           1  NUMBER OF PLANS

      JR          MULTI-RATIO OPTION
                     RATIOS OF PRECIPITATION
                    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


                                                                  RATIOS APPLIED TO PRECIPITATION
 OPERATION       STATION     AREA    PLAN                 RATIO 1
                                                             1.00

 HYDROGRAPH AT
+                  OFE1       .02     1   FLOW              11.
                                           TIME             3.67

 HYDROGRAPH AT
+                  STE3       .00     1   FLOW               2.
                                           TIME             3.58

   2 COMBINED AT
+                  CI11       .03     1   FLOW              12.
                                           TIME             3.67

 HYDROGRAPH AT
+                 NH_HOL      .00     1   FLOW               0.
                                           TIME              .00

 HYDROGRAPH AT
+                 DUMMY       .00     1   FLOW               0.
                                           TIME              .00

 HYDROGRAPH AT
+                  STE4       .00     1   FLOW               1.
                                           TIME             3.50

 HYDROGRAPH AT
+                  OFD3       .00     1   FLOW               1.
                                           TIME             3.50

   5 COMBINED AT
+                  CI21       .03     1   FLOW              14.
                                           TIME             3.58

 DIVERSION TO
+                    D1       .03     1   FLOW               7.
                                           TIME             3.58

 HYDROGRAPH AT
+                  DIV1       .03     1   FLOW               7.
                                           TIME             3.58

 HYDROGRAPH AT
+                  OND3       .00     1   FLOW               3.
                                           TIME             3.50
```

```
  2 COMBINED AT
+                  CI5A1       .03     1   FLOW          10.
                                             TIME         3.58

 HYDROGRAPH AT
+                  OFD2A       .01     1   FLOW           9.
                                             TIME         3.58

 HYDROGRAPH AT
+                  RETD1       .00     1   FLOW           7.
                                             TIME         3.58

  2 COMBINED AT
+                   CI31       .01     1   FLOW          16.
                                             TIME         3.58

 DIVERSION TO
+                     D2       .01     1   FLOW          16.
                                             TIME         3.58

 HYDROGRAPH AT
+                   DIV2       .01     1   FLOW           0.
                                             TIME          .00

 HYDROGRAPH AT
+                   OND1       .00     1   FLOW           1.
                                             TIME         3.50

  2 COMBINED AT
+                   CI41       .01     1   FLOW           1.
                                             TIME         3.50

 DIVERSION TO
+                     D3       .01     1   FLOW           0.
                                             TIME          .00

 HYDROGRAPH AT
+                   DIV3       .01     1   FLOW           1.
                                             TIME         3.50

  2 COMBINED AT
+                  CI5B1       .04     1   FLOW          11.
                                             TIME         3.58

 DIVERSION TO
+                     D4       .04     1   FLOW           0.
                                             TIME          .00

 HYDROGRAPH AT
+                   DIV4       .04     1   FLOW          11.
                                             TIME         3.58

 HYDROGRAPH AT
+                  OND5A       .00     1   FLOW           1.
                                             TIME         3.50

  2 COMBINED AT
+                  CI8A1       .05     1   FLOW          12.
                                             TIME         3.50

 DIVERSION TO
+                  CI8A1       .05     1   FLOW          12.
                                             TIME         3.50

 HYDROGRAPH AT
+                  DUMMY       .05     1   FLOW           0.
                                             TIME          .00

 HYDROGRAPH AT
+                   ONI6       .01     1   FLOW           7.
                                             TIME         3.58

 HYDROGRAPH AT
+                  OND5D       .00     1   FLOW           2.
                                             TIME         3.50

  3 COMBINED AT
+                  CI9A1       .06     1   FLOW           9.
                                             TIME         3.50

 HYDROGRAPH AT
+                  OFD2B       .00     1   FLOW           3.
                                             TIME         3.58

 HYDROGRAPH AT
+                  RETD2       .00     1   FLOW          16.
                                             TIME         3.58

  2 COMBINED AT
+                   CI61       .00     1   FLOW          19.
```

```
                                        TIME         3.58

 DIVERSION TO
+                    D5       .00     1   FLOW         19.
                                         TIME         3.58

 HYDROGRAPH AT
+                   DIV5       .00     1   FLOW          0.
                                         TIME         .00

 HYDROGRAPH AT
+                   OND2       .00     1   FLOW          3.
                                         TIME         3.50

 HYDROGRAPH AT
+                  RETD3       .00     1   FLOW          0.
                                         TIME         .00

 HYDROGRAPH AT
+                   OND4       .00     1   FLOW          2.
                                         TIME         3.50

 HYDROGRAPH AT
+                  RETD4       .00     1   FLOW          0.
                                         TIME         .00

  5 COMBINED AT
+                   CI71       .01     1   FLOW          6.
                                         TIME         3.50

 DIVERSION TO
+                    D6       .01     1   FLOW          6.
                                         TIME         3.50

 HYDROGRAPH AT
+                   DIV6       .01     1   FLOW          0.
                                         TIME         .00

 ROUTED TO
+                 RTDIV6       .01     1   FLOW          0.
                                         TIME         .00

 HYDROGRAPH AT
+                  OND5C       .00     1   FLOW          4.
                                         TIME         3.50

 HYDROGRAPH AT
+                 RCI8A1       .00     1   FLOW         12.
                                         TIME         3.50

 ROUTED TO
+                 RTC8A1       .00     1   FLOW         12.
                                         TIME         3.58

  3 COMBINED AT
+                  CI8B1       .01     1   FLOW         15.
                                         TIME         3.50

 DIVERSION TO
+                    D7       .01     1   FLOW         15.
                                         TIME         3.50

 HYDROGRAPH AT
+                   DIV7       .01     1   FLOW          0.
                                         TIME         .00

 HYDROGRAPH AT
+                  DUMMY       .00     1   FLOW          0.
                                         TIME         .00

  2 COMBINED AT
+                  CI8C1       .01     1   FLOW          0.
                                         TIME         .00

 DIVERSION TO
+                   D7A       .01     1   FLOW          0.
                                         TIME         .00

 HYDROGRAPH AT
+                  DIV7A       .01     1   FLOW          0.
                                         TIME         .00

  2 COMBINED AT
+                  CI9C1       .07     1   FLOW          9.
                                         TIME         3.50

 HYDROGRAPH AT
+                 RETD7A       .00     1   FLOW          0.
                                         TIME         .00

 HYDROGRAPH AT
```

```
+                  DUMMY       .00     1   FLOW          0.
                                           TIME         .00

  2 COMBINED AT
+                  CI9D1       .00     1   FLOW          0.
                                           TIME         .00

 DIVERSION TO
+                     D8       .00     1   FLOW          0.
                                           TIME         .00

 HYDROGRAPH AT
+                   DIV8       .00     1   FLOW          0.
                                           TIME         .00

  2 COMBINED AT
+                  CI9B1       .07     1   FLOW          9.
                                           TIME        3.50

 HYDROGRAPH AT
+                  RETD8       .00     1   FLOW          0.
                                           TIME         .00

 HYDROGRAPH AT
+                  RETD7       .00     1   FLOW         15.
                                           TIME        3.50

  2 COMBINED AT
+                  CI9E1       .00     1   FLOW         15.
                                           TIME        3.50

 HYDROGRAPH AT
+                   OFD5       .02     1   FLOW         11.
                                           TIME        3.67

 HYDROGRAPH AT
+                   OFD6       .02     1   FLOW         15.
                                           TIME        3.58

  2 COMBINED AT
+                  CI121       .04     1   FLOW         25.
                                           TIME        3.58

 HYDROGRAPH AT
+                NH-RAN       .00     1   FLOW         81.
                                           TIME         .00

 HYDROGRAPH AT
+                  DUMMY       .00     1   FLOW          0.
                                           TIME         .00

 HYDROGRAPH AT
+                   STD1       .00     1   FLOW          5.
                                           TIME        3.50

 HYDROGRAPH AT
+                   OFD7       .00     1   FLOW          5.
                                           TIME        3.50

 HYDROGRAPH AT
+                   OFD4       .00     1   FLOW          1.
                                           TIME        3.50

 HYDROGRAPH AT
+                  STD2A       .00     1   FLOW          4.
                                           TIME        3.50

  7 COMBINED AT
+                  CI101       .05     1   FLOW        117.
                                           TIME        3.50

 HYDROGRAPH AT
+                  OFD2C       .00     1   FLOW          2.
                                           TIME        3.58

 HYDROGRAPH AT
+                  RETD5       .00     1   FLOW         19.
                                           TIME        3.58

 HYDROGRAPH AT
+                   OND7       .00     1   FLOW          0.
                                           TIME        3.50

 HYDROGRAPH AT
+                   STD5       .00     1   FLOW          2.
                                           TIME        3.50

  4 COMBINED AT
+                  CI111       .00     1   FLOW         23.
                                           TIME        3.58
1
```

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	DT	INTERPOLATED TO COMPUTATION INTERVAL PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
FOR PLAN = 1 RATIO= .00									
RTDIV6	MANE	.50	.00	359.50	.00	5.00	.00	360.00	.00

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3856E-09 EXCESS= .0000E+00 OUTFLOW= .3856E-09 BASIN STORAGE= .4127E-08 PERCENT ERROR=******

FOR PLAN = 1 RATIO= .00									
RTC8A1	MANE	1.86	12.06	213.56	-1.00	5.00	11.85	215.00	-1.00

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

HEC-1 INTERIM PHASE 1 - 100 YR

```
1****************************************                 ****************************************
 *                                      *                 *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                 *    U.S. ARMY CORPS OF ENGINEERS      *
 *               JUN   1998             *                 *    HYDROLOGIC ENGINEERING CENTER     *
 *            VERSION 4.1               *                 *          609 SECOND STREET           *
 *                                      *                 *       DAVIS, CALIFORNIA 95616        *
 *  RUN DATE   31JUL20  TIME  10:29:17  *                 *           (916) 756-1104             *
 *                                      *                 *                                      *
 ****************************************                 ****************************************

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


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

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

1                                              HEC-1 INPUT                                                PAGE  1

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

                        *DIAGRAM
            1           ID
            2           ID      <><><><><><><><><><><><><><><><><><><><>
            3           ID        RANCHO & VEGAS TOWNHOMES
            4           ID        HYDROLOGIC MODEL
            5           ID        --------------------------
            6           ID
            7           ID        100-YR STORM EVENT
            8           ID        --------------------------
            9           ID        HORROCKS ENGINEERING
           10           ID        INTERIM PHASE 1 CONDITION UPDATE
           11           ID        FILE: INT PH1.DAT
           12           ID        PROJECT No: NV-2105-1911
           13           ID        DATE:  JULY 31 2020
           14           ID      <><><><><><><><><><><><><><><><><><><><>
           15           ID
           16           ID       ---> 6-HOUR / SDN 3 <---
           17           ID
           18           IT       5       0       0     300
           19           IO       5
           20           IN       5
           21           JR    PREC    1.00
                        *

           22           KK    OFE1
           23           KM    OFFSITE FLOW AT NORTHWEST CORNER OF PROJECT SITE
           24           BA   .0228
           25           PB    2.77
           26           PC    .000    .020    .057    .070    .087    .108    .124    .130    .130    .130
           27           PC    .130    .130    .130    .133    .140    .142    .148    .158    .172    .181
           28           PC    .190    .197    .199    .200    .201    .204    .214    .229    .241    .249
           29           PC    .251    .256    .270    .278    .281    .283    .295    .322    .352    .409
           30           PC    .499    .590    .710    .744    .781    .812    .819    .835    .851    .856
           31           PC    .860    .868    .876    .888    .910    .926    .937    .950    .970    .976
           32           PC    .982    .985    .987    .989    .990    .993    .993    .994    .995    .998
           33           PC    .998    .999   1.00
           34           LS       0      88
           35           UD    .210
                        *

           36           KK    STE3
           37           BA   .0024
           38           LS       0      92
           39           UD    .134
                        *

           40           KK    CI11
           41           KM   COMBINES OFFISTE BASIN OFE1 AND STREET STE3.
           42           HC       2
                        *
1                                              HEC-1 INPUT                                                PAGE  2

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

```
 43          KK  NH_HOL
 44          KM   CENTRAL NEIGHBORHOOD REFERENCE STUDY 100-YR BASEFLOW
 45          KM   WHICH OVERSPILL INTO HOLLY AVENUE. SEE THE STUDY
 46          KM   MAP FOR DETAIL.
 47          BA   .0001
 48          BF     285
 49          LS       0      01
 50          UD   .0001
             *

 51          KK   DUMMY
 52          KM   DUMMY CARD TO RESET BASEFLOW AND HAS NO FLOW
 53          BA   .0001
 54          BF     .00
 55          LS       0      01
 56          UD   .0001
             *

 57          KK    STE4
 58          BA   .0009
 59          LS       0      97
 60          UD   0.100
             *

 61          KK    OFD3
 62          BA   .0013
 63          LS       0      95
 64          UD   0.050
             *

 65          KK    CI21
 66          KM   COMBINES CI11, NH-HOL BASEFLOW, STREET STE4, AND OFFSITE BASIN OFD3.
 67          HC       5

 68          KK    DIV1
 69          KM   DIVERSION (PROVIDE DISCRIPTION HERE, THIS IS A TYP. DIVERSION CARD)
 70          KM   ('DT' IS NAME OF WHAT YOU ARE DIVERTING;'DI' IS THE TOTAL FLOW; THE 'DQ' CARD
 71          KM   IS THE AMOUNT DIVERTED)
 72          KM   DIV1 AMOUNT THAT ENTERS INTO PROJECT SITE AND COMBINE WITH OND3
 73          DT     D1
 74          DI     319
 75          DQ     269
             *

 76          KK    OND3
 77          BA   .0035
 78          LS       0      95
 79          UD   0.102
             *
1                                        HEC-1 INPUT                                          PAGE  3

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

 80          KK   CI5A1
 81          KM   COMBINES DIV1 AND OND3.
 82          HC       2
             *

 83          KK   OFD2A
 84          BA   .0117
 85          LS       0      92
 86          UD   0.122
             *

 87          KK   RETD1
 88          KM   RETRIEVE D1 - (THIS CARD RETRIEVES THE DIVERTED FLOW)
 89          KM   FLOW THAT RETAINS ON HOLLY AVENUE
 90          DR      D1
             *

 91          KK    CI31
 92          KM   COMBINES OFD2A AND D1.
 93          HC       2
             *

 94          KK    DIV2
 95          KM   DIVERSION (PROVIDE DISCRIPTION HERE, THIS IS A TYP. DIVERSION CARD)
 96          KM   ('DT' IS NAME OF WHAT YOU ARE DIVERTING;'DI' IS THE TOTAL FLOW; THE 'DQ' CARD
 97          KM   IS THE AMOUNT DIVERTED)
 98          KM   DIV2 RUNOFF AMOUNT ENTERS INTO PROJECT SITE, FLOWS SOUTH
 99          KM   AND COMBINES WITH OND1
100          DT     D2
101          DI     287
102          DQ      91
             *

103          KK    OND1
104          BA   .0013
```

```
 105          LS       0      95
 106          UD   0.050
              *

 107          KK    CI41
 108          KM   COMBINES DIV2 AND OND1.
 109          HC       2
              *

 110          KK    DIV3
 111          KM   DIVERSION (PROVIDE DISCRIPTION HERE, THIS IS A TYP. DIVERSION CARD)
 112          KM   ('DT' IS NAME OF WHAT YOU ARE DIVERTING;'DI' IS THE TOTAL FLOW; THE 'DQ' CARD
 113          KM   IS THE AMOUNT DIVERTED)
 114          KM   DIV3 RUNOFF AMOUNT FLOWS SOUTH AND COMBINES WITH CI5A1 FLOW AMOUNT
 115          DT      D3
 116          DI     198
 117          DQ      25
              *
1                                      HEC-1 INPUT                                          PAGE  4

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


 118          KK   CI5B1
 119          KM   COMBINES DIV3 AND CI5A1.
 120          HC       2
              *

 121          KK    DIV4
 122          KM   DIVERSION (PROVIDE DISCRIPTION HERE, THIS IS A TYP. DIVERSION CARD)
 123          KM   ('DT' IS NAME OF WHAT YOU ARE DIVERTING;'DI' IS THE TOTAL FLOW; THE 'DQ' CARD
 124          KM   IS THE AMOUNT DIVERTED)
 125          KM   DIV4 RUNOFF AMOUNT FLOWS SOUTH AND COMBINES WITH ONI5A
 126          DT      D4
 127          DI     229
 128          DQ      79
              *

 129          KK   OND5A
 130          BA   .0012
 131          LS       0      95
 132          UD   0.051
              *

 133          KK   CI8A1
 134          KM   COMBINES DIV4 AND OND5A.
 135          HC       2
              *

 136          KK   DUMMY
 137          KM   THIS IS NOT ACTUALLY FLOW SPLIT OR DIVERSION. TOTAL DISCHARGE OF CI8A1
 138          KM   FLOWS EAST TOWARD CI8B1. THAT IS, DUMMY = 0 CFS.
 139          KM   THIS DUMMY CARD AS FLOW SPLIT IS REQUIRE TO
 140          KM   ENABLE HEC-1 TO CREATE FLOW TREE.
 141          DT   CI8A1
 142          DI       0   151   500
 143          DQ       0   151   151
              *

 144          KK    ONI6
 145          BA   .0088
 146          LS       0      94.9
 147          UD   0.136
              *

 148          KK   OND5D
 149          BA   .0016
 150          LS       0      95
 151          UD   0.060
              *

 152          KK   CI9A1
 153          KM   COMBINES DUMMY, ONI6, AND OND5D.
 154          HC       3
              *
1                                      HEC-1 INPUT                                          PAGE  5

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


 155          KK   OFD2B
 156          BA   .0045
 157          LS       0      92
 158          UD   0.112
              *

 159          KK   RETD2
 160          KM   RETRIEVE D2 - (THIS CARD RETRIEVES THE DIVERTED FLOW)
 161          KM   FLOW THAT RETAINS ON HOLLY AVENUE
 162          DR      D2
              *
```

```
 163          KK    CI61
 164          KM   COMBINES OFD2B, AND D2.
 165          HC       2
              *

 166          KK    DIV5
 167          KM   DIVERSION (PROVIDE DISCRIPTION HERE, THIS IS A TYP. DIVERSION CARD)
 168          KM   ('DT' IS NAME OF WHAT YOU ARE DIVERTING;'DI' IS THE TOTAL FLOW; THE 'DQ' CARD
 169          KM    IS THE AMOUNT DIVERTED)
 170          KM   DIV5 RUNOFF AMOUNT FLOWS SOUTH AND ENTERS INTO THE PROJECT SITE.
 171          DT      D5
 172          DI      98
 173          DQ      38
              *

 174          KK    OND2
 175          BA   .0036
 176          LS       0      95
 177          UD   0.097
              *

 178          KK   RETD3
 179          KM   RETRIEVE D3 - (THIS CARD RETRIEVES THE DIVERTED FLOW)
 180          KM   THE FLOW D3 ENTERS INTO OND2 BASIN
 181          DR      D3
              *

 182          KK    OND4
 183          BA   .0023
 184          LS       0      95
 185          UD   0.067
              *

 186          KK   RETD4
 187          KM   RETRIEVE D4 - (THIS CARD RETRIEVES THE DIVERTED FLOW)
 188          KM   THE FLOW D4 ENTERS INTO OND4 BASIN
 189          DR      D4
              *
1                                      HEC-1 INPUT                                          PAGE  6

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

 190          KK    CI71
 191          KM   COMBINES DIV5, OND2, D3, OND4, AND D4.
 192          HC       5
              *

 193          KK    DIV6
 194          KM   DIVERSION (PROVIDE DISCRIPTION HERE, THIS IS A TYP. DIVERSION CARD)
 195          KM   ('DT' IS NAME OF WHAT YOU ARE DIVERTING;'DI' IS THE TOTAL FLOW; THE 'DQ' CARD
 196          KM    IS THE AMOUNT DIVERTED)
 197          KM   DIV6 RUNOFF AMOUNT FLOWS SOUTH.
 198          DT      D6
 199          DI       0   174   500
 200          DQ       0   127   128
              *

 201          KK  RTDIV6
 202          KM   ROUTE DIV6 to CI8B1 THROUGH GRECIAN SKY ST
 203          RD     300    .004    .016            TRAP
              *

 204          KK   OND5C
 205          BA   .0040
 206          LS       0      95
 207          UD   0.067
              *

 208          KK  RCI8A1
 209          KM   RETRIEVE CI8A1 - (THIS CARD RETRIEVES THE DIVERTED FLOW)
 210          KM   THE FLOW CI8A1 COMBINES WITH OND5C BASIN, AND DIV6
 211          DR   CI8A1
              *

 212          KK  RTC8A1
 213          KM   ROUTE CI8A1 THROUGH ALPHEUS RIVER AVENUE TO CI8B1
 214          RD     525    .004    .016            TRAP
              *

 215          KK   CI8B1
 216          KM   COMBINES DIV6, CI8A1, AND OND5C.
 217          HC       3
              *

 218          KK    DIV7
 219          KM   DIVERSION (PROVIDE DISCRIPTION HERE, THIS IS A TYP. DIVERSION CARD)
 220          KM   ('DT' IS NAME OF WHAT YOU ARE DIVERTING;'DI' IS THE TOTAL FLOW; THE 'DQ' CARD
 221          KM   IS THE AMOUNT DIVERTED)
 222          KM   DIV7 RUNOFF AMOUNT FLOWS SOUTH.
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```
 223          DT      D7
 224          DI     205
 225          DQ      25
              *
1                                      HEC-1 INPUT                                          PAGE  7

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


 226          KK   DUMMY
 227          KM   DUMMY CARD TO MAKE HEC-1 RUN
 228          BA   .0001
 229          BF     .00
 230          LS       0      01
 231          UD   .0001
              *

 232          KK   CI8C1
 233          KM   IS EQUAL TO DIV7
 234          HC       2
              *

 235          KK   DIV7A
 236          KM   DIVERSION (PROVIDE DISCRIPTION HERE, THIS IS A TYP. DIVERSION CARD)
 237          KM   ('DT' IS NAME OF WHAT YOU ARE DIVERTING;'DI' IS THE TOTAL FLOW; THE 'DQ' CARD
 238          KM   IS THE AMOUNT DIVERTED)
 239          KM   DIV7A RUNOFF AMOUNT FLOWS SOUTH.
 240          DT     D7A
 241          DI     180
 242          DQ      96
              *

 243          KK   CI9C1
 244          KM   COMBINES DIV7A AND CI9A1.
 245          HC       2
              *

 246          KK  RETD7A
 247          KM   RETRIEVE D7A - (THIS CARD RETRIEVES THE DIVERTED FLOW)
 248          KM   THE FLOW D7A ENTERS INTO 15' PORPOSED EASEMENT
 249          DR     D7A
              *

 250          KK   DUMMY
 251          KM   DUMMY CARD TO MAKE HEC-1 RUN
 252          BA   .0001
 253          BF     .00
 254          LS       0      01
 255          UD
              *

 256          KK   CI9D1
 257          KM    EQUAL TO D7A
 258          HC       2
              *

 259          KK    DIV8
 260          KM   DIVERSION (PROVIDE DISCRIPTION HERE, THIS IS A TYP. DIVERSION CARD)
 261          KM   ('DT' IS NAME OF WHAT YOU ARE DIVERTING;'DI' IS THE TOTAL FLOW; THE 'DQ' CARD
 262          KM   IS THE AMOUNT DIVERTED)
 263          DT      D8
 264          DI      96
 265          DQ       4
              *
1                                      HEC-1 INPUT                                          PAGE  8

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


 266          KK   CI9B1
 267          KM   COMBINES CI9C1 AND DIV8.
 268          HC       2
              *

 269          KK   RETD8
 270          KM   RETRIEVE D8 - (THIS CARD RETRIEVES THE DIVERTED FLOW)
 271          KM   THE FLOW D8 ENTERS INTO 10' EXISTING EASEMENT
 272          DR      D8
              *

 273          KK   RETD7
 274          KM   RETRIEVE D7 - (THIS CARD RETRIEVES THE DIVERTED FLOW)
 275          KM   THE FLOW D7 ENTERS INTO 10' EXISTING EASEMENT
 276          DR      D7
              *

 277          KK   CI9E1
 278          KM   COMBINES D7 AND D8.
 279          HC       2
              *
```

```
 280          KK    OFD5
 281          BA   .0237
 282          LS      0      88
 283          UD   0.252
              *

 284          KK    OFD6
 285          BA   .0170
 286          LS      0      95
 287          UD   0.128
              *

 288          KK   CI121
 289          KM   COMBINES OFD5 AND OFD6.
 290          HC      2
              *

 291          KK  NH-RAN
 292          KM   CENTRAL NEIGHBORHOOD REFERENCE STUDY 100-YR BASEFLOW
 293          KM   WHICH CONTINUE ON RANCHO AVENUE. SEE THE STUDY
 294          KM   MAP FOR DETAIL.
 295          BA   .0001
 296          BF     223
 297          LS      0      01
 298          UD   .0001
              *
1                                        HEC-1 INPUT                                          PAGE  9

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

 299          KK   DUMMY
 300          KM   DUMMY CARD TO RESET BASEFLOW AND HAS NO FLOW
 301          BA   .0001
 302          BF     .00
 303          LS      0      01
 304          UD   .0001
              *

 305          KK    STD1
 306          BA   .0038
 307          LS      0      98
 308          UD   0.077
              *

 309          KK    OFD7
 310          BA   .0045
 311          LS      0      95
 312          UD   0.081
              *

 313          KK    OFD4
 314          BA   .0012
 315          LS      0      95
 316          UD   0.050
              *

 317          KK   STD2A
 318          BA   .0032
 319          LS      0      98
 320          UD   0.071
              *

 321          KK   CI101
 322          KM   COMBINES CI121, NH-RAN, STD1, OFD7, OFD4, AND STD2A.
 323          HC      7
              *

 324          KK   OFD2C
 325          BA   .0026
 326          LS      0      92
 327          UD   0.120
              *

 328          KK   RETD5
 329          KM   RETRIEVE D5 - (THIS CARD RETRIEVES THE DIVERTED FLOW)
 330          KM   THE FLOW D5 DO NOT ENTER INTO THE PROJECT SITE AND
 331          KM   REMAINS ON HOLLY AVENUE.
 332          DR     D5
              *
1                                        HEC-1 INPUT                                          PAGE 10

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

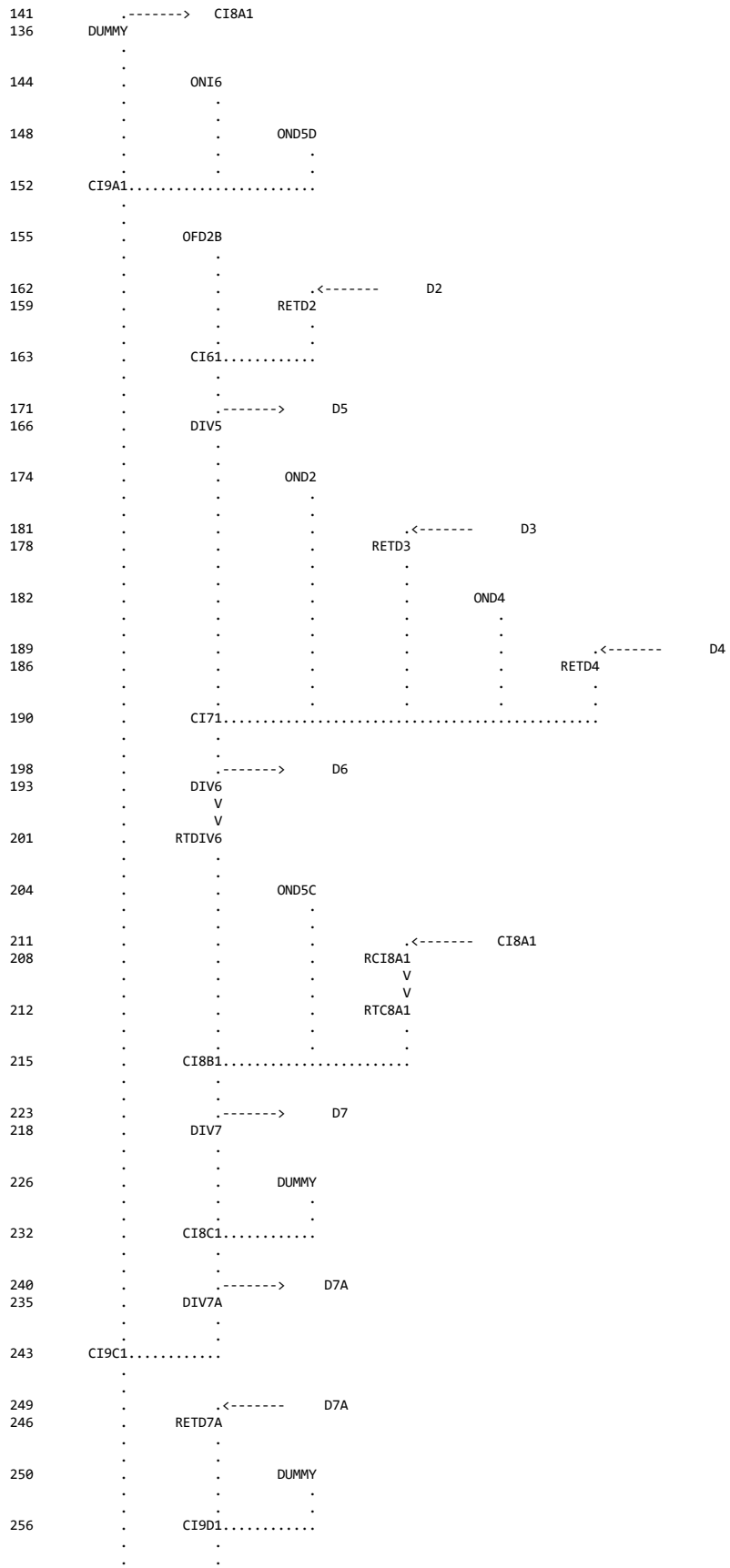
 333          KK    OND7
 334          BA   .0003
 335          LS      0      95
 336          UD   0.050
              *
```

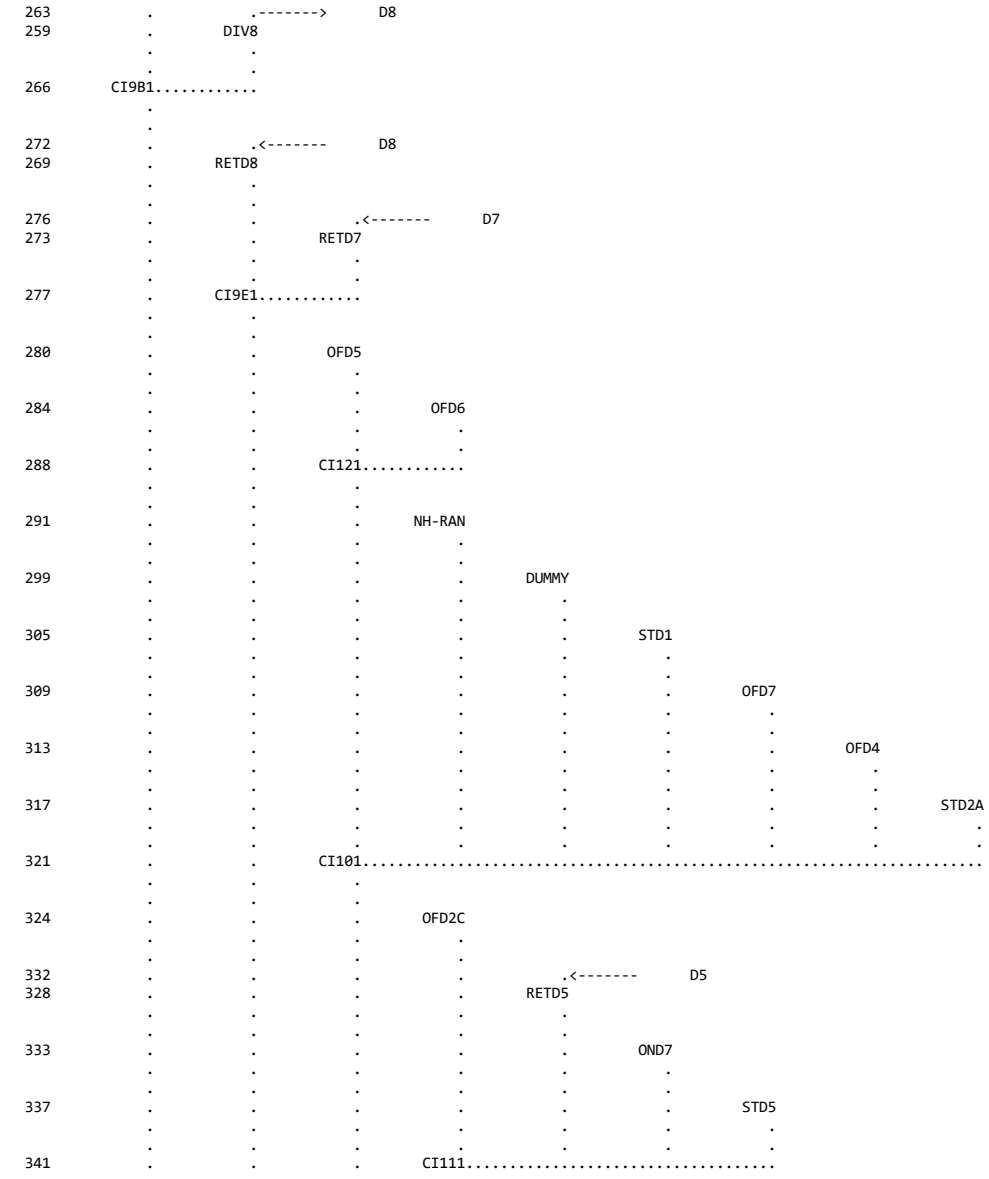
```
           337          KK    STD5
           338          BA   .0021
           339          LS       0      97
           340          UD   0.072
                        *

           341          KK   CI111
           342          KM   COMBINES OFD2C, D5, OND7, AND STD5
           343          HC       4
                        *
                        *
                        *
           344          ZZ
1
                SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

    22       OFE1
                .
                .
    36          .        STE3
                .           .
                .           .
    40       CI11............
                .
                .
    43          .      NH_HOL
                .           .
                .           .
    51          .           .      DUMMY
                .           .           .
                .           .           .
    57          .           .           .       STE4
                .           .           .          .
                .           .           .          .
    61          .           .           .          .       OFD3
                .           .           .          .          .
                .           .           .          .          .
    65       CI21.............................................
                .
                .
    73          .------->     D1
    68       DIV1
                .
                .
    76          .        OND3
                .           .
                .           .
    80       CI5A1...........
                .
                .
    83          .       OFD2A
                .           .
                .           .
    90          .           .          .<-------      D1
    87          .           .      RETD1
                .           .          .
                .           .          .
    91          .        CI31...........
                .           .
                .           .
   100          .           .------->     D2
    94          .        DIV2
                .           .
                .           .
   103          .           .       OND1
                .           .          .
                .           .          .
   107          .        CI41...........
                .           .
                .           .
   115          .           .------->     D3
   110          .        DIV3
                .           .
                .           .
   118       CI5B1...........
                .
                .
   126          .------->     D4
   121       DIV4
                .
                .
   129          .       OND5A
                .           .
                .           .
   133       CI8A1...........
                .
                .
```


141 .------> CI8A1
136 DUMMY
144 ONI6
148 OND5D
152 CI9A1
155 OFD2B
162 .<------- D2
159 RETD2
163 CI61
171 .------> D5
166 DIV5
174 OND2
181 .<------- D3
178 RETD3
182 OND4
189 .<------- D4
186 RETD4
190 CI71
198 .------> D6
193 DIV6
201 RTDIV6
204 OND5C
211 .<------- CI8A1
208 RCI8A1
212 RTC8A1
215 CI8B1
223 .------> D7
218 DIV7
226 DUMMY
232 CI8C1
240 .------> D7A
235 DIV7A
243 CI9C1
249 .<------- D7A
246 RETD7A
250 DUMMY
256 CI9D1



(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1*****************************************                    *****************************************
 *                                       *                    *                                       *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *                    *    U.S. ARMY CORPS OF ENGINEERS       *
 *              JUN   1998               *                    *    HYDROLOGIC ENGINEERING CENTER      *
 *            VERSION 4.1                *                    *          609 SECOND STREET            *
 *                                       *                    *       DAVIS, CALIFORNIA 95616         *
 *  RUN DATE   31JUL20  TIME  10:29:17   *                    *           (916) 756-1104              *
 *                                       *                    *                                       *
 *****************************************                    *****************************************
```

<><><><><><><><><><><><><><><><><><><><>

RANCHO & VEGAS TOWNHOMES
HYDROLOGIC MODEL

100-YR STORM EVENT

HORROCKS ENGINEERING
INTERIM PHASE 1 CONDITION UPDATE
FILE: INT PH1.DAT
PROJECT No: NV-2105-1911
DATE: JULY 31 2020

<><><><><><><><><><><><><><><><><><><><><><><><><><><><>

 ---> 6-HOUR / SDN 3 <---

```
   19 IO          OUTPUT CONTROL VARIABLES
                        IPRNT           5  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE

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

                    COMPUTATION INTERVAL     .08 HOURS
                         TOTAL TIME BASE   24.92 HOURS

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

      JP          MULTI-PLAN OPTION
                        NPLAN           1  NUMBER OF PLANS

      JR          MULTI-RATIO OPTION
                      RATIOS OF PRECIPITATION
                     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


                                                                  RATIOS APPLIED TO PRECIPITATION
 OPERATION       STATION     AREA    PLAN                 RATIO 1
                                                             1.00

 HYDROGRAPH AT
+                  OFE1       .02     1   FLOW              27.
                                           TIME             3.67

 HYDROGRAPH AT
+                  STE3       .00     1   FLOW               4.
                                           TIME             3.58

   2 COMBINED AT
+                  CI11       .03     1   FLOW              30.
                                           TIME             3.58

 HYDROGRAPH AT
+                 NH_HOL      .00     1   FLOW             285.
                                           TIME              .00

 HYDROGRAPH AT
+                 DUMMY       .00     1   FLOW               0.
                                           TIME              .00

 HYDROGRAPH AT
+                  STE4       .00     1   FLOW               2.
                                           TIME             3.50

 HYDROGRAPH AT
+                  OFD3       .00     1   FLOW               3.
                                           TIME             3.50

   5 COMBINED AT
+                  CI21       .03     1   FLOW             319.
                                           TIME             3.58

 DIVERSION TO
+                    D1       .03     1   FLOW             269.
                                           TIME             3.58

 HYDROGRAPH AT
+                  DIV1       .03     1   FLOW              50.
                                           TIME             3.58

 HYDROGRAPH AT
+                  OND3       .00     1   FLOW               6.
                                           TIME             3.50
```

```
  2 COMBINED AT
+                  CI5A1       .03     1   FLOW          56.
                                             TIME         3.58

 HYDROGRAPH AT
+                  OFD2A       .01     1   FLOW          19.
                                             TIME         3.58

 HYDROGRAPH AT
+                  RETD1       .00     1   FLOW         269.
                                             TIME         3.58

  2 COMBINED AT
+                   CI31       .01     1   FLOW         287.
                                             TIME         3.58

 DIVERSION TO
+                     D2       .01     1   FLOW          91.
                                             TIME         3.58

 HYDROGRAPH AT
+                   DIV2       .01     1   FLOW         196.
                                             TIME         3.58

 HYDROGRAPH AT
+                   OND1       .00     1   FLOW           3.
                                             TIME         3.50

  2 COMBINED AT
+                   CI41       .01     1   FLOW         198.
                                             TIME         3.58

 DIVERSION TO
+                     D3       .01     1   FLOW          25.
                                             TIME         3.58

 HYDROGRAPH AT
+                   DIV3       .01     1   FLOW         173.
                                             TIME         3.58

  2 COMBINED AT
+                  CI5B1       .04     1   FLOW         229.
                                             TIME         3.58

 DIVERSION TO
+                     D4       .04     1   FLOW          79.
                                             TIME         3.58

 HYDROGRAPH AT
+                   DIV4       .04     1   FLOW         150.
                                             TIME         3.58

 HYDROGRAPH AT
+                  OND5A       .00     1   FLOW           3.
                                             TIME         3.50

  2 COMBINED AT
+                  CI8A1       .05     1   FLOW         151.
                                             TIME         3.50

 DIVERSION TO
+                  CI8A1       .05     1   FLOW         151.
                                             TIME         3.50

 HYDROGRAPH AT
+                  DUMMY       .05     1   FLOW           0.
                                             TIME          .00

 HYDROGRAPH AT
+                   ONI6       .01     1   FLOW          15.
                                             TIME         3.58

 HYDROGRAPH AT
+                  OND5D       .00     1   FLOW           3.
                                             TIME         3.50

  3 COMBINED AT
+                  CI9A1       .06     1   FLOW          17.
                                             TIME         3.50

 HYDROGRAPH AT
+                  OFD2B       .00     1   FLOW           7.
                                             TIME         3.50

 HYDROGRAPH AT
+                  RETD2       .00     1   FLOW          91.
                                             TIME         3.58

  2 COMBINED AT
+                   CI61       .00     1   FLOW          98.
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                                        TIME         3.58

 DIVERSION TO
+                    D5       .00     1   FLOW          38.
                                         TIME         3.58

 HYDROGRAPH AT
+                   DIV5       .00     1   FLOW          60.
                                         TIME         3.58

 HYDROGRAPH AT
+                   OND2       .00     1   FLOW           7.
                                         TIME         3.50

 HYDROGRAPH AT
+                  RETD3       .00     1   FLOW          25.
                                         TIME         3.58

 HYDROGRAPH AT
+                   OND4       .00     1   FLOW           5.
                                         TIME         3.50

 HYDROGRAPH AT
+                  RETD4       .00     1   FLOW          79.
                                         TIME         3.58

  5 COMBINED AT
+                   CI71       .01     1   FLOW         174.
                                         TIME         3.50

 DIVERSION TO
+                    D6       .01     1   FLOW         127.
                                         TIME         3.50

 HYDROGRAPH AT
+                   DIV6       .01     1   FLOW          47.
                                         TIME         3.50

 ROUTED TO
+                 RTDIV6       .01     1   FLOW          47.
                                         TIME         3.58

 HYDROGRAPH AT
+                  OND5C       .00     1   FLOW           8.
                                         TIME         3.50

 HYDROGRAPH AT
+                 RCI8A1       .00     1   FLOW         151.
                                         TIME         3.50

 ROUTED TO
+                 RTC8A1       .00     1   FLOW         151.
                                         TIME         3.58

  3 COMBINED AT
+                  CI8B1       .01     1   FLOW         205.
                                         TIME         3.50

 DIVERSION TO
+                    D7       .01     1   FLOW          25.
                                         TIME         3.50

 HYDROGRAPH AT
+                   DIV7       .01     1   FLOW         180.
                                         TIME         3.50

 HYDROGRAPH AT
+                  DUMMY       .00     1   FLOW           0.
                                         TIME          .00

  2 COMBINED AT
+                  CI8C1       .01     1   FLOW         180.
                                         TIME         3.50

 DIVERSION TO
+                   D7A       .01     1   FLOW          96.
                                         TIME         3.50

 HYDROGRAPH AT
+                  DIV7A       .01     1   FLOW          84.
                                         TIME         3.50

  2 COMBINED AT
+                  CI9C1       .07     1   FLOW         102.
                                         TIME         3.50

 HYDROGRAPH AT
+                 RETD7A       .00     1   FLOW          96.
                                         TIME         3.50

 HYDROGRAPH AT
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```
+                 DUMMY       .00     1   FLOW          0.
                                          TIME          .00

  2 COMBINED AT
+                 CI9D1       .00     1   FLOW         96.
                                          TIME         3.50

 DIVERSION TO
+                    D8       .00     1   FLOW          4.
                                          TIME         3.50

 HYDROGRAPH AT
+                  DIV8       .00     1   FLOW         92.
                                          TIME         3.50

  2 COMBINED AT
+                 CI9B1       .07     1   FLOW        194.
                                          TIME         3.50

 HYDROGRAPH AT
+                 RETD8       .00     1   FLOW          4.
                                          TIME         3.50

 HYDROGRAPH AT
+                 RETD7       .00     1   FLOW         25.
                                          TIME         3.50

  2 COMBINED AT
+                 CI9E1       .00     1   FLOW         29.
                                          TIME         3.50

 HYDROGRAPH AT
+                  OFD5       .02     1   FLOW         26.
                                          TIME         3.67

 HYDROGRAPH AT
+                  OFD6       .02     1   FLOW         30.
                                          TIME         3.58

  2 COMBINED AT
+                 CI121       .04     1   FLOW         54.
                                          TIME         3.58

 HYDROGRAPH AT
+                NH-RAN       .00     1   FLOW        223.
                                          TIME          .00

 HYDROGRAPH AT
+                 DUMMY       .00     1   FLOW          0.
                                          TIME          .00

 HYDROGRAPH AT
+                  STD1       .00     1   FLOW          8.
                                          TIME         3.50

 HYDROGRAPH AT
+                  OFD7       .00     1   FLOW          9.
                                          TIME         3.50

 HYDROGRAPH AT
+                  OFD4       .00     1   FLOW          3.
                                          TIME         3.50

 HYDROGRAPH AT
+                 STD2A       .00     1   FLOW          7.
                                          TIME         3.50

  7 COMBINED AT
+                 CI101       .05     1   FLOW        297.
                                          TIME         3.58

 HYDROGRAPH AT
+                 OFD2C       .00     1   FLOW          4.
                                          TIME         3.58

 HYDROGRAPH AT
+                 RETD5       .00     1   FLOW         38.
                                          TIME         3.58

 HYDROGRAPH AT
+                  OND7       .00     1   FLOW          1.
                                          TIME         3.50

 HYDROGRAPH AT
+                  STD5       .00     1   FLOW          4.
                                          TIME         3.50

  4 COMBINED AT
+                 CI111       .00     1   FLOW         47.
                                          TIME         3.50
1
```

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	DT	INTERPOLATED TO COMPUTATION INTERVAL PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
FOR PLAN = 1 RATIO= .00									
RTDIV6	MANE	.66	47.00	211.54	134.03	5.00	46.90	215.00	134.06

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7437E+02 EXCESS= .0000E+00 OUTFLOW= .7437E+02 BASIN STORAGE= .0000E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
RTC8A1	MANE	.85	151.42	212.96	-1.00	5.00	151.34	215.00	-1.00

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

Section F INT PH1-100 YR

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Channel Slope	0.470 %
Discharge	159.00 cfs

Section Definitions

Station (ft)	Elevation (ft)
-0+05.00	1.62
0+00.00	1.22
0+00.40	1.22
0+01.50	0.84
0+02.50	0.92
0+23.50	0.08
0+25.00	0.00
0+26.50	0.08
0+47.50	0.92
0+48.50	0.84
0+49.60	1.22
0+50.00	1.22
0+55.00	1.62

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(-0+05.00, 1.62)	(0+02.50, 0.92)	0.013
(0+02.50, 0.92)	(0+23.50, 0.08)	0.016
(0+23.50, 0.08)	(0+26.50, 0.08)	0.013
(0+26.50, 0.08)	(0+47.50, 0.92)	0.016
(0+47.50, 0.92)	(0+55.00, 1.62)	0.013

Options	
Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results	
Normal Depth	1.17 ft
Elevation Range	0.00 to 1.62 ft
Flow Area	32.23 ft²
Wetted Perimeter	49.04 ft

Results	
Hydraulic Radius	0.66 ft
Top Width	48.89 ft
Normal Depth	1.17 ft
Critical Depth	1.20 ft
Critical Slope	0.404 %
Velocity	4.93 ft/s
Velocity Head	0.38 ft
Specific Energy	1.54 ft
Froude Number	1.071
Flow Type	Supercritical

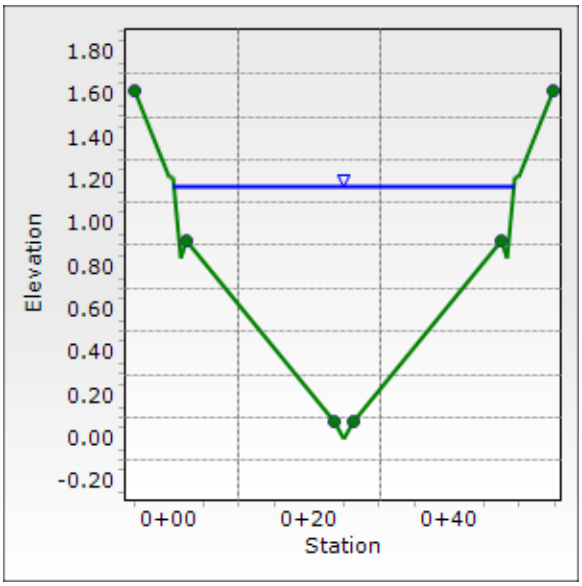
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Downstream Depth	0.00 ft
Length	0.00 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.00 ft
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	1.17 ft
Critical Depth	1.20 ft
Channel Slope	0.470 %
Critical Slope	0.404 %

Cross Section for Section F INT PH1-100 YR

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Channel Slope	0.470 %
Normal Depth	1.17 ft
Discharge	159.00 cfs



Section I INT PH2-100 YR

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Channel Slope	1.470 %
Discharge	86.80 cfs

Section Definitions

Station (ft)	Elevation (ft)
-0+13.00	0.92
0+00.00	0.66
0+00.40	0.66
0+01.50	0.28
0+02.50	0.36
0+16.50	0.08
0+18.00	0.00
0+19.50	0.08
0+33.50	0.36
0+34.50	0.28
0+35.60	0.66
0+36.00	0.66
0+49.00	0.92

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(-0+13.00, 0.92)	(0+00.00, 0.66)	0.025
(0+00.00, 0.66)	(0+02.50, 0.36)	0.013
(0+02.50, 0.36)	(0+16.50, 0.08)	0.016
(0+16.50, 0.08)	(0+19.50, 0.08)	0.013
(0+19.50, 0.08)	(0+33.50, 0.36)	0.016
(0+33.50, 0.36)	(0+36.00, 0.66)	0.013
(0+36.00, 0.66)	(0+49.00, 0.92)	0.025

Options	
Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results	
Normal Depth	0.62 ft
Elevation Range	0.00 to 0.92 ft

Results	
Flow Area	13.83 ft²
Wetted Perimeter	35.09 ft
Hydraulic Radius	0.39 ft
Top Width	34.96 ft
Normal Depth	0.62 ft
Critical Depth	0.84 ft
Critical Slope	0.461 %
Velocity	6.28 ft/s
Velocity Head	0.61 ft
Specific Energy	1.23 ft
Froude Number	1.760
Flow Type	Supercritical

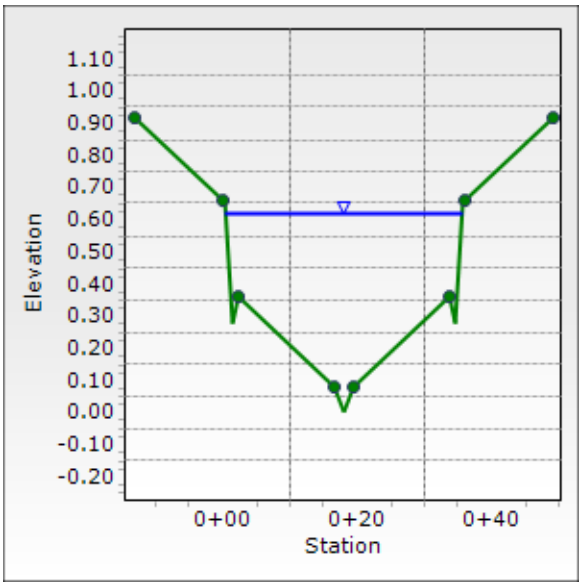
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Length	0.00 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.00 ft
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	0.62 ft
Critical Depth	0.84 ft
Channel Slope	1.470 %
Critical Slope	0.461 %

Cross Section for Section I INT PH2-100 YR

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Channel Slope	1.470 %
Normal Depth	0.62 ft
Discharge	86.80 cfs



Section J INT PH1-100 YR

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data		
Channel Slope	0.400	%
Discharge	88.80	cfs

Section Definitions

Station (ft)	Elevation (ft)
-0+05.00	1.50
0+00.00	1.50
0+00.00	0.00
0+17.00	0.34
0+34.00	0.00
0+34.00	1.50
0+39.00	1.50

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(-0+05.00, 1.50)	(0+39.00, 1.50)	0.016

Options	
Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results		
Normal Depth	0.80	ft
Elevation Range	0.00 to 1.50	ft
Flow Area	21.30	ft²
Wetted Perimeter	35.60	ft
Hydraulic Radius	0.60	ft
Top Width	34.00	ft
Normal Depth	0.80	ft
Critical Depth	0.77	ft
Critical Slope	0.470	%
Velocity	4.17	ft/s
Velocity Head	0.27	ft
Specific Energy	1.07	ft
Froude Number	0.929	
Flow Type	Subcritical	

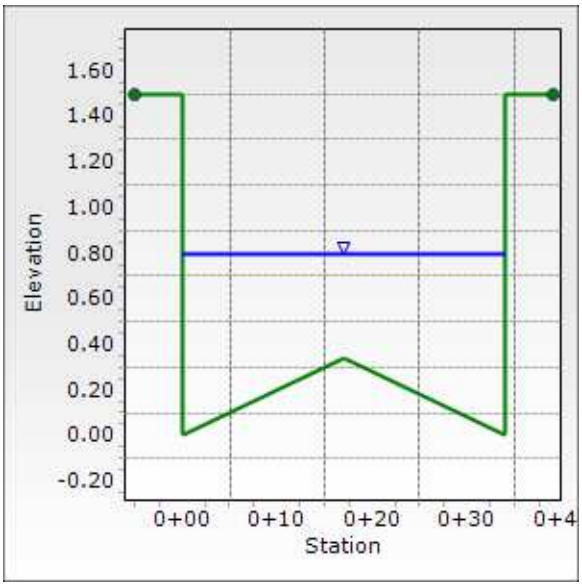
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Downstream Depth	0.00 ft
Length	0.00 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.00 ft
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	0.80 ft
Critical Depth	0.77 ft
Channel Slope	0.400 %
Critical Slope	0.470 %

Cross Section for Section J INT PH1-100 YR

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Channel Slope	0.400 %
Normal Depth	0.80 ft
Discharge	88.80 cfs



Section J1 INT PH1-100 YR

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data		
Channel Slope	0.740	%
Discharge	2.80	cfs

Section Definitions

Station (ft)	Elevation (ft)
-0+05.00	1.50
0+00.00	1.50
0+00.00	0.00
0+17.00	0.34
0+34.00	0.00
0+34.00	1.50
0+39.00	1.50

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(-0+05.00, 1.50)	(0+39.00, 1.50)	0.016

Options	
Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results		
Normal Depth	0.19	ft
Elevation Range	0.00 to 1.50	ft
Flow Area	1.73	ft²
Wetted Perimeter	19.00	ft
Hydraulic Radius	0.09	ft
Top Width	18.63	ft
Normal Depth	0.19	ft
Critical Depth	0.18	ft
Critical Slope	0.853	%
Velocity	1.61	ft/s
Velocity Head	0.04	ft
Specific Energy	0.23	ft
Froude Number	0.933	
Flow Type	Subcritical	

GVF Input Data	
Downstream Depth	0.00 ft
Length	0.00 ft
Number Of Steps	0

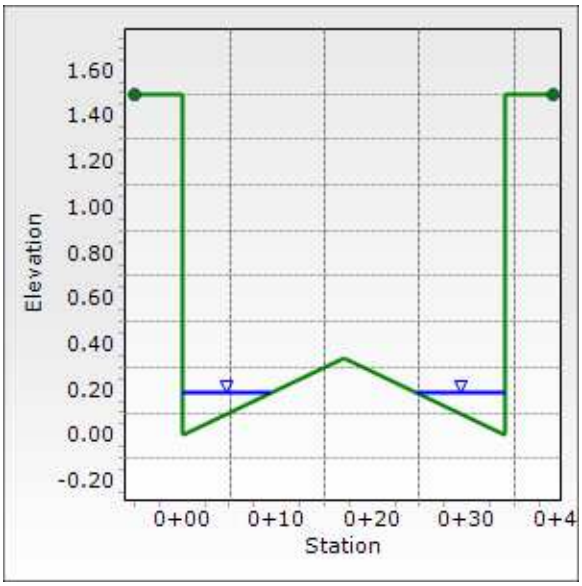
GVF Output Data	
Upstream Depth	0.00 ft
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	0.19 ft
Critical Depth	0.18 ft
Channel Slope	0.740 %
Critical Slope	0.853 %

Messages	
Messages	Flow is divided.

Cross Section for Section J1 INT PH1-100 YR

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Channel Slope	0.740 %
Normal Depth	0.19 ft
Discharge	2.80 cfs



Section J2 INT PH1-100 YR

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data		
Channel Slope	0.400	%
Discharge	7.30	cfs

Section Definitions

Station (ft)	Elevation (ft)
-0+05.00	1.50
0+00.00	1.50
0+00.00	0.00
0+34.00	0.00
0+34.00	1.50
0+39.00	1.50

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(-0+05.00, 1.50)	(0+39.00, 1.50)	0.025

Options	
Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results		
Normal Depth	0.18	ft
Elevation Range	0.00 to 1.50	ft
Flow Area	6.13	ft²
Wetted Perimeter	34.36	ft
Hydraulic Radius	0.18	ft
Top Width	34.00	ft
Normal Depth	0.18	ft
Critical Depth	0.11	ft
Critical Slope	1.901	%
Velocity	1.19	ft/s
Velocity Head	0.02	ft
Specific Energy	0.20	ft
Froude Number	0.494	
Flow Type	Subcritical	

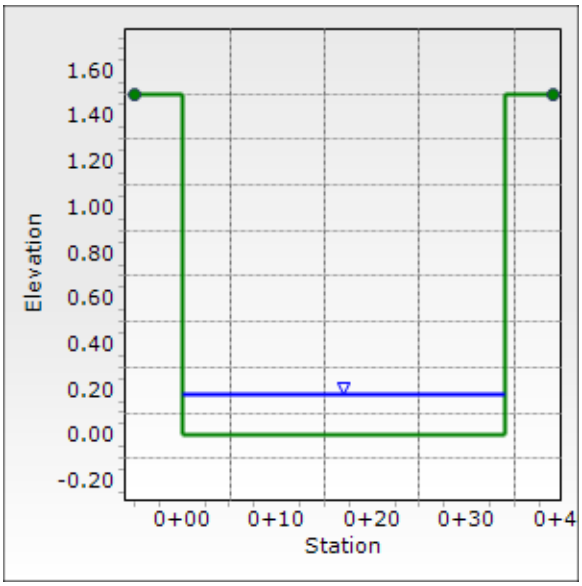
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Downstream Depth	0.00 ft
Length	0.00 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.00 ft
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	0.18 ft
Critical Depth	0.11 ft
Channel Slope	0.400 %
Critical Slope	1.901 %

Cross Section for Section J2 INT PH1-100 YR

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Channel Slope	0.400 %
Normal Depth	0.18 ft
Discharge	7.30 cfs



Section J3 INT PH1- 100 YR

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Channel Slope	0.500 %
Discharge	0.90 cfs

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	1.67
0+05.00	0.00
0+07.00	0.67

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 1.67)	(0+07.00, 0.67)	0.025

Options	
Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results	
Normal Depth	0.45 ft
Elevation Range	0.00 to 1.67 ft
Flow Area	0.60 ft²
Wetted Perimeter	2.83 ft
Hydraulic Radius	0.21 ft
Top Width	2.68 ft
Normal Depth	0.45 ft
Critical Depth	0.35 ft
Critical Slope	1.739 %
Velocity	1.50 ft/s
Velocity Head	0.03 ft
Specific Energy	0.48 ft
Froude Number	0.557
Flow Type	Subcritical

GVF Input Data	
Downstream Depth	0.00 ft
Length	0.00 ft

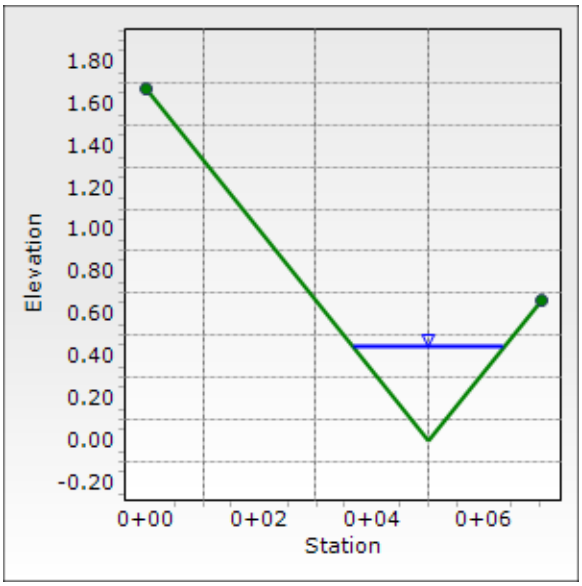
GVF Input Data	
Number Of Steps	0

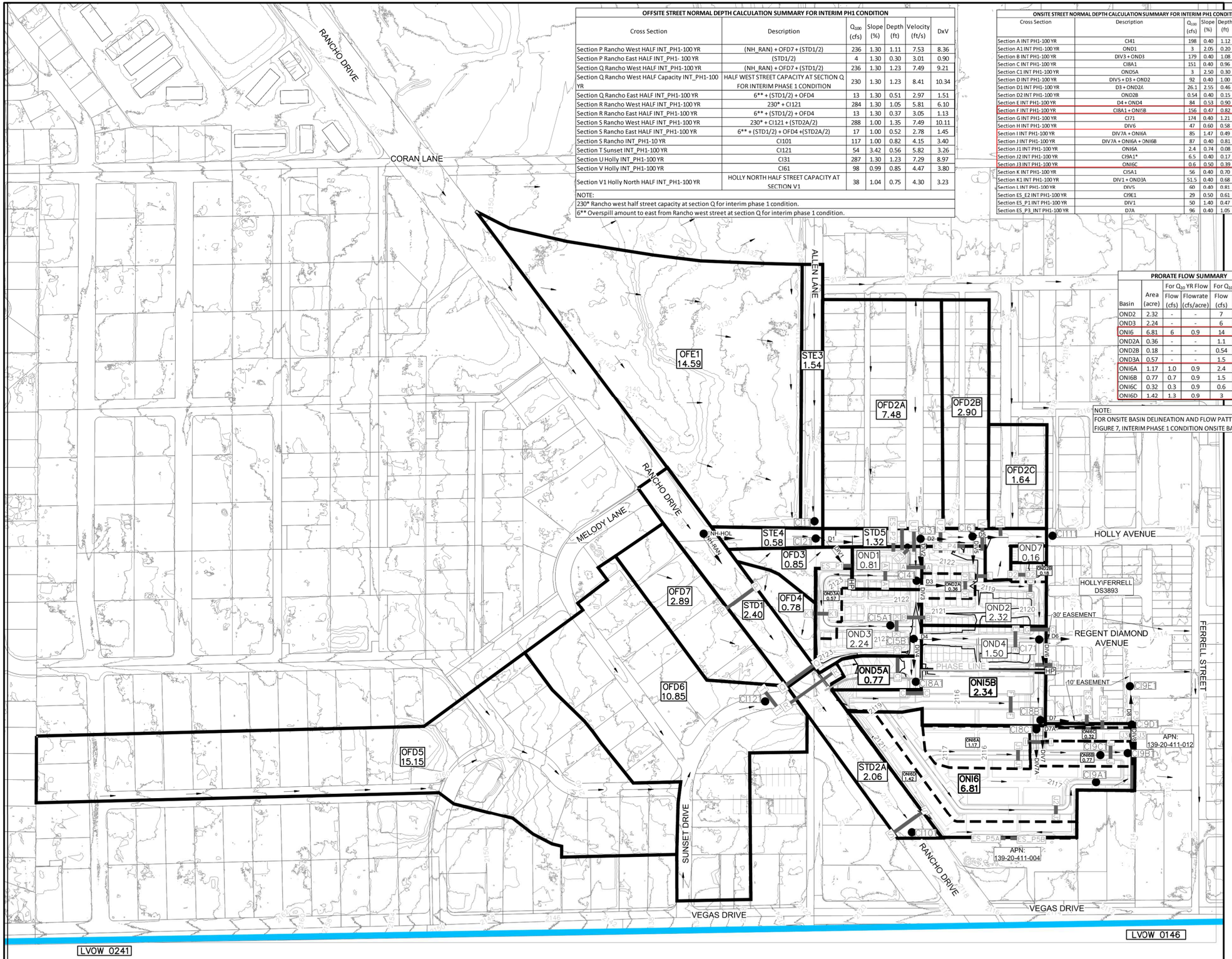
GVF Output Data	
Upstream Depth	0.00 ft
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	0.00 ft/s
Upstream Velocity	0.00 ft/s
Normal Depth	0.45 ft
Critical Depth	0.35 ft
Channel Slope	0.500 %
Critical Slope	1.739 %

Cross Section for Section J3 INT PH1- 100 YR

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Channel Slope	0.500 %
Normal Depth	0.45 ft
Discharge	0.90 cfs





PREVIOUS SUBMITTAL

OFFSITE STREET NORMAL DEPTH CALCULATION SUMMARY FOR INTERIM PH1 CONDITION

Cross Section	Description	Q_{100} (cfs)	Slope (%)	Depth (ft)	Velocity (ft/s)	DxV
Section P Rancho West HALF INT_PH1-100 YR	(NH_RAN) + OFD7 + (STD1/2)	236	1.30	1.11	7.53	8.36
Section P Rancho East HALF INT_PH1- 100 YR	(STD1/2)	4	1.30	0.30	3.01	0.90
Section Q Rancho West HALF INT_PH1-100 YR	(NH_RAN) + OFD7 + (STD1/2)	236	1.30	1.23	7.49	9.21
Section Q Rancho West HALF Capacity INT_PH1-100 YR	HALF WEST STREET CAPACITY AT SECTION Q FOR INTERIM PHASE 1 CONDITION	230	1.30	1.23	8.41	10.34
Section Q Rancho East HALF INT_PH1-100 YR	6** + (STD1/2) + OFD4	13	1.30	0.51	2.97	1.51
Section R Rancho West HALF INT_PH1-100 YR	230* + CI121	284	1.30	1.05	5.81	6.10
Section R Rancho East HALF INT_PH1-100 YR	6** + (STD1/2) + OFD4	13	1.30	0.37	3.05	1.13
Section S Rancho West HALF INT_PH1-100 YR	230* + CI121 + (STD2A/2)	288	1.00	1.35	7.49	10.11
Section S Rancho East HALF INT_PH1-100 YR	6** + (STD1/2) + OFD4 +(STD2A/2)	17	1.00	0.52	2.78	1.45
Section S Rancho INT_PH1-10 YR	CI101	117	1.00	0.82	4.15	3.40
Section T Sunset INT_PH1-100 YR	CI121	54	3.42	0.56	5.82	3.26
Section U Holly INT_PH1-100 YR	CI31	287	1.30	1.23	7.29	8.97
Section V Holly INT_PH1-100 YR	CI61	98	0.99	0.85	4.47	3.80
Section V1 Holly North HALF INT_PH1-100 YR	HOLLY NORTH HALF STREET CAPACITY AT SECTION V1	38	1.04	0.75	4.30	3.23

NOTE:
230* Rancho west half street capacity at section Q for interim phase 1 condition.
6** Overspill amount to east from Rancho west street at section Q for interim phase 1 condition.

ONSITE STREET NORMAL DEPTH CALCULATION SUMMARY FOR INTERIM PH1 CONDITION

Cross Section	Description	Q_{100} (cfs)	Slope (%)	Depth (ft)	Velocity (ft/s)	DxV
Section A INT PH1-100 YR	CI41	198	0.40	1.12	5.26	5.89
Section A1 INT PH1-100 YR	OND1	3	2.05	0.20	2.55	0.51
Section B INT PH1-100 YR	DIV3 + OND3	179	0.40	1.08	5.05	5.45
Section C INT PH1-100 YR	CI8A1	151	0.40	0.96	3.56	3.42
Section C1 INT PH1-100 YR	OND5A	3	2.50	0.30	2.85	0.86
Section D INT PH1-100 YR	DIV5 + D3 + OND2	92	0.40	1.00	4.45	4.45
Section D1 INT PH1-100 YR	D3 + OND2A	26.1	2.55	0.46	5.46	2.51
Section D2 INT PH1-100 YR	OND2B	0.54	0.40	0.15	0.93	0.14
Section E INT PH1-100 YR	D4 + OND4	84	0.53	0.90	4.37	3.93
Section F INT PH1-100 YR	CI8A1 + ONI5B	156	0.47	0.82	3.51	2.88
Section G INT PH1-100 YR	CI71	174	0.40	1.21	3.80	4.60
Section H INT PH1-100 YR	DIV6	47	0.60	0.58	3.76	2.18
Section I INT PH1-100 YR	DIV7A + ONI6A	85	1.47	0.49	4.38	2.15
Section J INT PH1-100 YR	DIV7A + ONI6A + ONI6B	87	0.40	0.81	3.16	2.56
Section J1 INT PH1-100 YR	ONI6A	2.4	0.74	0.08	0.92	0.07
Section J2 INT PH1-100 YR	CI9A1*	6.5	0.40	0.17	1.14	0.19
Section J3 INT PH1-100 YR	ONI6C	0.6	0.50	0.39	1.35	0.53
Section K INT PH1-100 YR	CI5A1	56	0.40	0.70	3.72	2.60
Section K1 INT PH1-100 YR	DIV1 + OND3A	51.5	0.40	0.68	3.05	2.07
Section L INT PH1-100 YR	DIV5	60	0.40	0.81	4.23	3.43
Section ES_E2 INT PH1-100 YR	CI9E1	29	0.50	0.61	5.16	3.15
Section ES_P1 INT PH1-100 YR	DIV1	50	1.40	0.47	6.81	3.20
Section ES_P3_INT PH1-100 YR	D7A	96	0.40	1.05	6.58	6.91

PRORATE FLOW SUMMARY

Basin	Area (acre)	For Q_{10} YR Flow: Flow (cfs)	For Q_{10} YR Flow: Flowrate (cfs/acre)	For Q_{100} YR Flow: Flow (cfs)	For Q_{100} YR Flow: Flowrate (cfs/acre)
OND2	2.32	-	-	7	3.0
OND3	2.24	-	-	6	2.7
ONI6	6.81	6	0.9	14	2.0
OND2A	0.36	-	-	1.1	3.0
OND2B	0.18	-	-	0.54	3.0
OND3A	0.57	-	-	1.5	2.7
ONI6A	1.17	1.0	0.9	2.4	2.0
ONI6B	0.77	0.7	0.9	1.5	2.0
ONI6C	0.32	0.3	0.9	0.6	2.0
ONI6D	1.42	1.3	0.9	3	2.0

NOTE:
FOR ONSITE BASIN DELINEATION AND FLOW PATTERNS SEE FIGURE 7, INTERIM PHASE 1 CONDITION ONSITE BASIN MAP

Interim Phase 1 Condition

Basin	Area (acres)	Q_{10} (cfs)	Q_{100} (cfs)
CI11	-	12	30
CI21	-	14	319
CI31	-	16	287
CI41	-	1	198
CI5A1	-	10	56
CI5B1	-	11	229
CI61	-	19	98
CI71	-	6	174
CI8A1	-	12	151
CI8B1	-	14	204
CI8C1	-	0	179
CI9A1*	-	2.8	6.5
CI9B1*	-	5	186
CI9C1	-	6	97
CI9D1		0	96
CI9E1		14	29
CI101	-	117	297
CI111	-	23	47
CI121	-	25	54
D1	-	7	269
DIV1	-	7	50
D2	-	16	91
DIV2	-	0	196
D3	-	0	25
DIV3	-	1	173
D4	-	0	79
DIV4	-	11	150
D5	-	19	38
DIV5	-	0	60
D6	-	6	127
DIV6	-	0	47
D7	-	14	25
DIV7	-	0	179
D7A		0	96
DIV7A		0	83
D8		0	4
DIV8		0	92
NH_HOL	-	0	285
NH_RAN	-	81	223
OFD2A	7.48	9	19
OFD2B	2.90	3	7
OFD2C	1.64	2	4
OFD3	0.85	1	3
OFD4	0.78	1	3
OFD5	15.15	11	26
OFD6	10.85	15	30
OFD7	2.89	5	9
OFE1	14.59	11	27
OND1	0.81	1	3
OND2	2.32	3	7
OND3	2.24	3	6
OND4	1.50	2	5
OND5A	0.77	1	3
ONI5B	2.34	2	5
ONI6	6.81	6	14
OND7	0.16	<1	1
STD1	2.40	5	8
STD2A	2.06	4	7
STE3	1.54	2	4
STE4	0.58	1	2
STD5	1.32	2	4
CI11 = OFE1 + STE3			
CI21 = CI11 + (NH_HOL) + STE4 + OFD3			
CI31 = D1 + OFD2A			
CI41 = DIV2 + OND1			
CI5A1 = DIV1 + OND3			
CI5B1 = DIV3 + CI5A1			
CI61 = D2 + OFD2B			
CI71 = DIV5 + OND2 + D3 + OND4 + D4			
CI8A1 = DIV4 + OND5A			
CI8B1 = DIV6 + CI8A1 + ONI5B			
CI8C1 = DIV7			
CI9A1 = ONI6			
CI9A1* = CI9A1 - OND6A - OND6B - OND6C - ONI6D			
CI9B1 =DIV8 + CI9C1			
CI9B1* = CI9B1 - ONI6D			
CI9C1= DIV7A + CI9A1			
CI9D1 = D7A			
CI9E1 = D7 + D8			
CI101 = (NH_RAN) + OFD7 + OFD4 + STD1 + CI121 + STD2A			
CI111 = D5 + OFD2C + STD5 + OND7			
CI121 = OFD5 + OFD6			

Note: NH-HOL and NH-RAN are referenced from Neighborhood Study.
* Revised from HEC-1 Model results

Note: ONI5B is replaced by OND5C

KEY:

- OND1 6.76 — BASIN NAME/AREA
- CI3 — CONCENTRATION POINT
- FLOW DIRECTION
- CROSS SECTION
- BASIN BOUNDARY
- PRORATE BASIN BOUNDARY
- OND2A 0.36 — PRORATE BASIN NAME/AREA
- EXISTING FACILITY

0 150' 300'
SCALE: 1" = 150'

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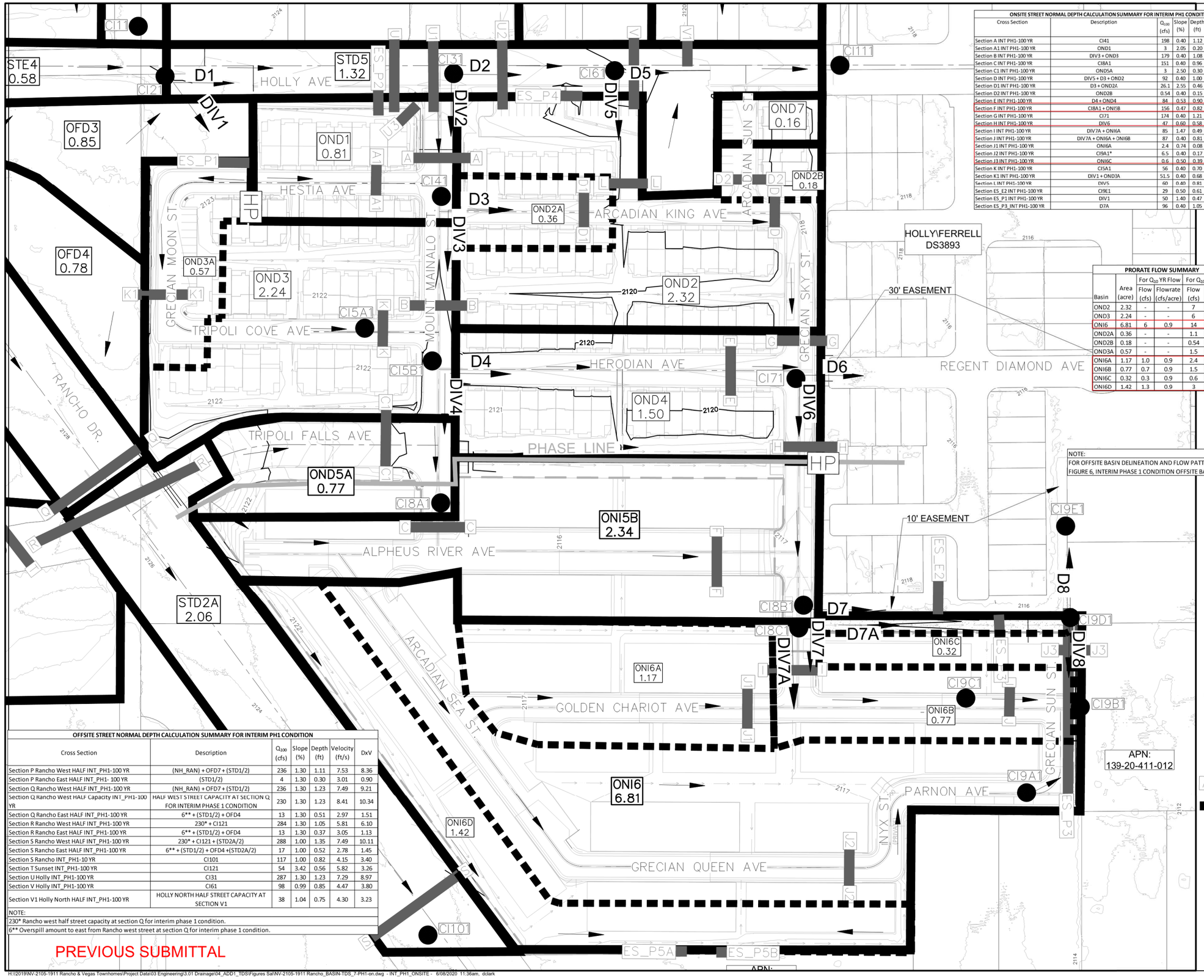
*SEE GENERAL NOTES SHEET

RANCHO AND VEGAS
CITY OF LAS VEGAS, NEVADA

INTERIM PHASE 1 CONDITION OFFSITE BASIN MAP

APN 139-20-411-015

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PAGE



ONSITE STREET NORMAL DEPTH CALCULATION SUMMARY FOR INTERIM PH1 CONDITION

Cross Section	Description	Q_{100} (cfs)	Slope (%)	Depth (ft)	Velocity (ft/s)	DxV
Section A INT PH1-100 YR	CI41	198	0.40	1.12	5.26	5.89
Section A1 INT PH1-100 YR	OND1	3	2.05	0.20	2.55	0.51
Section B INT PH1-100 YR	DIV3 + OND3	179	0.40	1.08	5.05	5.45
Section C INT PH1-100 YR	CI8A1	151	0.40	0.96	3.56	3.42
Section C1 INT PH1-100 YR	OND5A	3	2.50	0.30	2.85	0.86
Section D INT PH1-100 YR	DIV5 + D3 + OND2	92	0.40	1.00	4.45	4.45
Section D1 INT PH1-100 YR	D3 + OND2A	26.1	2.55	0.46	5.46	2.51
Section D2 INT PH1-100 YR	OND2B	0.54	0.40	0.15	0.93	0.14
Section E INT PH1-100 YR	D4 + OND4	84	0.53	0.90	4.37	3.93
Section F INT PH1-100 YR	CI8A1 + ONI5B	156	0.47	0.82	3.51	2.88
Section G INT PH1-100 YR	CI71	174	0.40	1.21	3.80	4.60
Section H INT PH1-100 YR	DIV6	47	0.60	0.58	3.76	2.18
Section I INT PH1-100 YR	DIV7A + ONI6A	85	1.47	0.49	4.38	2.15
Section J INT PH1-100 YR	DIV7A + ONI6A + ONI6B	87	0.40	0.81	3.16	2.56
Section J1 INT PH1-100 YR	ONI6A	2.4	0.74	0.08	0.92	0.07
Section J2 INT PH1-100 YR	CI9A1*	6.5	0.40	0.17	1.14	0.19
Section J3 INT PH1-100 YR	ONI6C	0.6	0.50	0.39	1.35	0.53
Section K INT PH1-100 YR	CI5A1	56	0.40	0.70	3.72	2.60
Section K1 INT PH1-100 YR	DIV1 + OND3A	51.5	0.40	0.68	3.05	2.07
Section L INT PH1-100 YR	DIV5	60	0.40	0.81	4.23	3.43
Section ES_E2 INT PH1-100 YR	CI9E1	29	0.50	0.61	5.16	3.15
Section ES_P1 INT PH1-100 YR	DIV1	50	1.40	0.47	6.81	3.20
Section ES_P3_INT PH1-100 YR	D7A	96	0.40	1.05	6.58	6.91

PRORATE FLOW SUMMARY

Basin	Area (acre)	For Q_{10} YR Flow: Flow (cfs)	For Q_{10} YR Flow: Flowrate (cfs/acre)	For Q_{100} YR Flow: Flow (cfs)	For Q_{100} YR Flow: Flowrate (cfs/acre)
OND2	2.32	-	-	7	3.0
OND3	2.24	-	-	6	2.7
ONI6	6.81	6	0.9	14	2.0
OND2A	0.36	-	-	1.1	3.0
OND2B	0.18	-	-	0.54	3.0
OND3A	0.57	-	-	1.5	2.7
ONI6A	1.17	1.0	0.9	2.4	2.0
ONI6B	0.77	0.7	0.9	1.5	2.0
ONI6C	0.32	0.3	0.9	0.6	2.0
ONI6D	1.42	1.3	0.9	3	2.0

NOTE:
FOR OFFSITE BASIN DELINEATION AND FLOW PATTERNS SEE FIGURE 6, INTERIM PHASE 1 CONDITION OFFSITE BASIN MAP

Interim Phase 1 Condition

Basin	Area (acres)	Q_{10} (cfs)	Q_{100} (cfs)
CI11	-	12	30
CI21	-	14	319
CI31	-	16	287
CI41	-	1	198
CI5A1	-	10	56
CI5B1	-	11	229
CI61	-	19	98
CI71	-	6	174
CI8A1	-	12	151
CI8B1	-	14	204
CI8C1	-	0	179
CI9A1*	-	2.8	6.5
CI9B1*	-	5	186
CI9C1		6	97
CI9D1		0	96
CI9E1		14	29
CI101	-	117	297
CI111	-	23	47
CI121	-	25	54
D1	-	7	269
DIV1	-	7	50
D2	-	16	91
DIV2	-	0	196
D3	-	0	25
DIV3	-	1	173
D4	-	0	79
DIV4	-	11	150
D5	-	19	38
DIV5	-	0	60
D6	-	6	127
DIV6	-	0	47
D7	-	14	25
DIV7	-	0	179
D7A		0	96
DIV7A		0	83
D8		0	4
DIV8		0	92
NH_HOL	-	0	285
NH_RAN	-	81	223
OFD2A	7.48	9	19
OFD2B	2.90	3	7
OFD2C	1.64	2	4
OFD3	0.85	1	3
OFD4	0.78	1	3
OFD5	15.15	11	26
OFD6	10.85	15	30
OFD7	2.89	5	9
OFE1	14.59	11	27
OND1	0.81	1	3
OND2	2.32	3	7
OND3	2.24	3	6
OND4	1.50	2	5
OND5A	0.77	1	3
ONI5B	2.34	2	5
ONI6	6.81	6	14
OND7	0.16	<1	1
STD1	2.40	5	8
STD2A	2.06	4	7
STE3	1.54	2	4
STE4	0.58	1	2
STD5	1.32	2	4
CI11 = OFE1 + STE3			
CI21 = CI11 + (NH_HOL) + STE4 + OFD3			
CI31 = D1 + OFD2A			
CI41 = DIV2 + OND1			
CI5A1 = DIV1 + OND3			
CI5B1 = DIV3 + CI5A1			
CI61 = D2 + OFD2B			
CI71 = DIV5 + OND2 + D3 + OND4 + D4			
CI8A1 = DIV4 + OND5A			
CI8B1 = DIV6 + CI8A1 + ONI5B			
CI8C1 = DIV7			
CI9A1 = ONI6			
CI9A1* = CI9A1 - OND6A - OND6B - OND6C - OND6D			
CI9B1 =DIV8 + CI9C1			
CI9B1* = CI9B1 - OND6D			
CI9C1= DIV7A + CI9A1			
CI9D1 = D7A			
CI9E1 = D7 + D8			
CI101 = (NH_RAN) + OFD7 + OFD4 + STD1 + CI121 + STD2A			
CI111 = D5 + OFD2C + STD5 + OND7			
CI121 = OFD5 + OFD6			

Note: NH-HOL and NH-RAN are referenced from Neighborhood Study.
* Revised from HEC-1 Model results

Note: ONI5B is replaced by OND5C

OFFSITE STREET NORMAL DEPTH CALCULATION SUMMARY FOR INTERIM PH1 CONDITION

Cross Section	Description	Q_{100} (cfs)	Slope (%)	Depth (ft)	Velocity (ft/s)	DxV
Section P Rancho West HALF INT_PH1-100 YR	(NH_RAN) + OFD7 + (STD1/2)	236	1.30	1.11	7.53	8.36
Section P Rancho East HALF INT_PH1- 100 YR	(STD1/2)	4	1.30	0.30	3.01	0.90
Section Q Rancho West HALF INT_PH1-100 YR	(NH_RAN) + OFD7 + (STD1/2)	236	1.30	1.23	7.49	9.21
Section Q Rancho West HALF Capacity INT_PH1-100 YR	HALF WEST STREET CAPACITY AT SECTION Q FOR INTERIM PHASE 1 CONDITION	230	1.30	1.23	8.41	10.34
Section Q Rancho East HALF INT_PH1-100 YR	6** + (STD1/2) + OFD4	13	1.30	0.51	2.97	1.51
Section R Rancho West HALF INT_PH1-100 YR	230* + CI121	284	1.30	1.05	5.81	6.10
Section R Rancho East HALF INT_PH1-100 YR	6** + (STD1/2) + OFD4	13	1.30	0.37	3.05	1.13
Section S Rancho West HALF INT_PH1-100 YR	230* + CI121 + (STD2A/2)	288	1.00	1.35	7.49	10.11
Section S Rancho East HALF INT_PH1-100 YR	6** + (STD1/2) + OFD4 +(STD2A/2)	17	1.00	0.52	2.78	1.45
Section S Rancho INT_PH1-10 YR	CI101	117	1.00	0.82	4.15	3.40
Section T Sunset INT_PH1-100 YR	CI121	54	3.42	0.56	5.82	3.26
Section U Holly INT_PH1-100 YR	CI31	287	1.30	1.23	7.29	8.97
Section V Holly INT_PH1-100 YR	CI61	98	0.99	0.85	4.47	3.80
Section V1 Holly North HALF INT_PH1-100 YR	HOLLY NORTH HALF STREET CAPACITY AT SECTION V1	38	1.04	0.75	4.30	3.23

NOTE:
230* Rancho west half street capacity at section Q for interim phase 1 condition.
6** Overspill amount to east from Rancho west street at section Q for interim phase 1 condition.

PREVIOUS SUBMITTAL

KEY:

- OND1 0.81 — BASIN NAME/AREA
- CI31 — CONCENTRATION POINT
- FLOW DIRECTION
- A — A — CROSS SECTION
- BASIN BOUNDARY
- PRORATE BASIN BOUNDARY
- OND2A 0.36 — PRORATE BASIN NAME/AREA

SCALE: 1" = 50'

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RANCHO AND VEGAS
CITY OF LAS VEGAS, NEVADA

INTERIM PHASE 1 CONDITION ONSITE BASIN MAP

APN 139-20-411-015

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Composite Curve Number Calculations

Proj. No: NV-2105-1911 **Project Name:** RANCHO & VEGAS TOWNHOMES
Date: 8/4/2020 **Designed By:** DBC/SBL

Basin	Basin Area (ac)	Sub-region Cover Type	Sub-region Soil Type	Sub-region CN	Sub-region Area (ac)	Percent of Basin	Cumulative Percent	Areal Weighted CN	Cumulative CN	Composite CN
EXISTING CONDITION										
OFE1	14.59	Natural Desert Landscaping	D	88	14.59	100.0%	100.0%	88.0	88.0	88
ONE1	1.25	Desert Shrub, Poor	D	88	1.25	100.0%	100.0%	88.0	88.0	88
ONE2	2.27	Desert Shrub, Poor	D	88	2.27	100.0%	100.0%	88.0	88.0	88
ONE3	11.78	Desert Shrub, Poor	D	88	11.78	100.0%	100.0%	88.0	88.0	88
ONE4	1.67	Desert Shrub, Poor	D	88	1.67	100.0%	100.0%	88.0	88.0	88
STE3	1.54	Impervious	D	98	0.68	44.2%	44.2%	43.3	43.3	
STE3	1.54	Natural Desert Landscaping	D	88	0.86	55.8%	100.0%	49.1	92.4	92
STE4	0.58	Impervious	D	98	0.29	50.0%	50.0%	49.0	49.0	
STE4	0.58	Commercial	D	95	0.29	50.0%	100.0%	47.5	96.5	97
STE5	1.32	Impervious	D	98	0.55	41.7%	41.7%	40.8	40.8	
STE5	1.32	Desert Shrub, Poor	D	88	0.54	40.9%	82.6%	36.0	76.8	
STE5	1.32	Residential, 6000sf, 69% Imp	D	92	0.23	17.4%	100.0%	16.0	92.9	93
ONI5B	2.34	Desert Shrub, Poor	D	88	2.34	100.0%	100.0%	88.0	88.0	88
ONI6	6.81	Desert Shrub, Poor	D	88	6.81	100.0%	100.0%	88.0	88.0	88
DEVELOPED CONDITION										
OFD1	14.59	Commercial	D	95	14.59	100.0%	100.0%	95.0	95.0	95
OFD2A	7.48	Residential, 6000sf, 69% Imp	D	92	7.48	100.0%	100.0%	92.0	92.0	92
OFD2B	2.90	Residential, 6000sf, 69% Imp	D	92	2.90	100.0%	100.0%	92.0	92.0	92
OFD2C	1.64	Residential, 6000sf, 69% Imp	D	92	1.64	100.0%	100.0%	92.0	92.0	92
OFD3	0.85	Commercial	D	95	0.85	100.0%	100.0%	95.0	95.0	95
OFD4	0.78	Commercial	D	95	0.78	100.0%	100.0%	95.0	95.0	95
OFD5	15.15	Residential, 20000sf, 25% Imp	D	85	10.24	67.6%	67.6%	57.5	57.5	
OFD5	15.15	Commercial	D	95	4.91	32.4%	100.0%	30.8	88.2	88
OFD6	10.85	Commercial	D	95	10.85	100.0%	100.0%	95.0	95.0	95
OFD7	2.89	Commercial	D	95	2.89	100.0%	100.0%	95.0	95.0	95

PREVIOUS SUBMITTAL

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STD1	2.40	Impervious	D	98	2.40	100.0%	100.0%	98.0	98.0	98
STD2	1.98	Impervious	D	98	1.98	100.0%	100.0%	98.0	98.0	98
STD2A	2.06	Impervious	D	98	2.06	100.0%	100.0%	98.0	98.0	98
STD3	1.54	Impervious	D	98	1.54	100.0%	100.0%	98.0	98.0	98
STD4	0.58	Impervious	D	98	0.58	100.0%	100.0%	98.0	98.0	98
STD5	1.32	Impervious	D	98	1.09	82.6%	82.6%	80.9	80.9	
STD5	1.32	Residential, 6000sf, 69% Imp	D	92	0.23	17.4%	100.0%	16.0	97.0	97
OND1	0.81	Commercial	D	95	0.81	100.0%	100.0%	95.0	95.0	95
OND2	2.32	Commercial	D	95	2.32	100.0%	100.0%	95.0	95.0	95
OND3	2.24	Commercial	D	95	2.24	100.0%	100.0%	95.0	95.0	95
OND4	1.50	Commercial	D	95	1.50	100.0%	100.0%	95.0	95.0	95
OND5A	0.77	Commercial	D	95	0.77	100.0%	100.0%	95.0	95.0	95
OND5B	2.34	Commercial	D	95	2.34	100.0%	100.0%	95.0	95.0	95
OND6	6.81	Commercial	D	95	6.81	100.0%	100.0%	95.0	95.0	95
OND7	0.16	Commercial	D	95	0.16	100.0%	100.0%	95.0	95.0	95

PREVIOUS SUBMITTAL

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HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL - STANDARD FORM 4

Horrocks Engineers
1401 N. Green Valley Pkwy, Suite 160
Henderson, NV, 89074

PROJECT NO.: NV-2105-1911 **PROJECT: RANCHO & VEGAS TOWNHOMES** **DATE : 8/4/2020 9:25**
CALCULATED BY: DBC/SBL

Sub-Basin Data					Initial/Overland Time (T_i)			Travel Time (T_t)					T_c	T_c Check (Urbanized Basins)		Final T_c	T_{lag}	Remarks
DESIG	CN	K	AREA (acres)	AREA (mi^2)	LENGTH (ft)	SLOPE (%)	T_i (min)	LENGTH (ft)	SLOPE (%)	V_1 (fps)	V_2 (fps)	T_t (min)	$T_c=T_i+T_t$ (min)	TOTAL (ft)	T_c (min)	T_c (min)	T_{lag} (hrs)	Remarks Precip 100/10
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
EXISTING CONDITION																		
OFE1	88	0.7716	14.59	0.0228	1290	1.4	19.0	250	2.0	2.09	N/A	2.0	21.0	N/A	N/A	20.99	0.210	2.77/1.58
ONE1	88	0.7716	1.25	0.0020	345	0.9	11.5	75	0.7	1.21	N/A	1.0	12.5	N/A	N/A	12.54	0.125	2.77/1.58
ONE2	88	0.7716	2.27	0.0035	550	0.9	14.3	215	0.5	1.01	N/A	3.6	17.9	N/A	N/A	17.86	0.179	2.77/1.58
ONE3	88	0.7716	11.78	0.0184	1125	1.8	16.4	270	0.7	1.27	N/A	3.5	19.9	N/A	N/A	19.90	0.199	2.77/1.58
ONE4	88	0.7716	1.67	0.0026	270	0.7	10.7	170	0.6	1.14	N/A	2.5	13.2	N/A	N/A	13.23	0.132	2.77/1.58
STE3	92	0.8244	1.54	0.0024	30	2.0	2.2	905	0.5	1.04	2.07	11.2	13.4	N/A	N/A	13.40	0.134	2.77/1.58
STE4	97	0.8904	0.58	0.0009	50	4.0	1.7	300	2.0	2.09	N/A	2.4	4.1	N/A	N/A	4.07	0.100	2.77/1.58
STE5	93	0.8376	1.32	0.0021	55	1.8	2.9	690	0.9	1.38	2.74	7.2	10.1	N/A	N/A	10.06	0.101	2.77/1.58
ONI5B	88	0.7716	2.34	0.0037	60	2.5	3.4	375	0.5	1.08	N/A	5.8	9.2	N/A	N/A	9.16	0.100	2.77/1.58
ONI6	88	0.7716	6.81	0.0106	65	1.5	4.1	1140	0.6	1.16	2.30	11.8	15.9	N/A	N/A	15.94	0.159	2.77/1.58
DEVELOPED CONDITION																		
OFD1	95	0.8640	14.59	0.0228	145	1.4	4.6	1800	2.0	2.86	4.33	7.9	12.5	N/A	N/A	12.50	0.125	2.77/1.58
OFD2A	92	0.8244	7.48	0.0117	80	2.5	3.3	935	0.5	1.48	2.24	8.9	12.2	1015	15.6	12.15	0.122	2.77/1.58
OFD2B	92	0.8244	2.90	0.0045	60	1.7	3.2	785	0.5	1.44	2.18	8.0	11.2	845	14.7	11.19	0.112	2.77/1.58
OFD2C	92	0.8244	1.64	0.0026	105	0.5	6.5	480	0.5	1.46	N/A	5.5	12.0	585	13.3	12.00	0.120	2.77/1.58
OFD3	95	0.8640	0.85	0.0013	60	1.7	2.8	90	3.3	3.69	N/A	0.4	3.2	150	10.8	3.18	0.050	2.77/1.58
OFD4	95	0.8640	0.78	0.0012	45	2.2	2.2	220	1.8	2.72	N/A	1.3	3.5	265	11.5	3.53	0.050	2.77/1.58
OFD5	88	0.7716	15.15	0.0237	400	0.5	14.9	2340	1.6	2.57	3.90	11.1	26.0	2740	25.2	25.22	0.252	2.77/1.58
OFD6	95	0.864	10.85	0.0170	215	0.9	6.4	1020	1.2	2.19	3.32	6.4	12.8	1235	16.9	12.80	0.128	2.77/1.58
OFD7	95	0.8640	2.89	0.0045	185	2.2	4.5	650	1.8	2.74	4.16	3.6	8.1	835	14.6	8.11	0.081	2.77/1.58
STD1	98	0.9036	2.40	0.0038	50	2.0	2.0	830	1.1	2.10	3.19	5.7	7.7	880	14.9	7.67	0.077	2.77/1.58
STD2	98	0.9036	1.98	0.0031	50	2.0	2.0	685	1.0	2.04	3.09	5.1	7.1	735	14.1	7.06	0.071	2.77/1.58
STD2A	98	0.9036	2.06	0.0032	50	2.0	2.0	685	1.0	2.04	3.09	5.1	7.1	735	14.1	7.06	0.071	2.77/1.58
STD3	98	0.9036	1.54	0.0024	30	2.0	1.5	905	0.5	1.42	2.16	9.0	10.5	935	15.2	10.52	0.105	2.77/1.58
STD4	98	0.9036	0.58	0.0009	30	2.0	1.5	300	2.0	2.86	N/A	1.8	3.3	330	11.8	3.29	0.050	2.77/1.58
STD5	97	0.8904	1.32	0.0021	30	2.0	1.6	690	0.9	1.88	2.85	5.5	7.2	720	14.0	7.17	0.072	2.77/1.58
OND1	95	0.8640	0.81	0.0013	35	1.0	2.5	220	1.2	2.20	N/A	1.7	4.2	255	11.4	4.18	0.050	2.77/1.58
OND2	95	0.8640	2.32	0.0036	80	1.0	3.8	480	0.5	1.38	N/A	5.8	9.7	560	13.1	9.66	0.097	2.77/1.58
OND3	95	0.8640	2.24	0.0035	50	0.7	3.4	600	0.5	1.39	2.11	6.8	10.2	650	13.6	10.16	0.102	2.77/1.58
OND4	95	0.8640	1.50	0.0023	60	2.1	2.6	380	0.6	1.55	N/A	4.1	6.7	440	12.4	6.66	0.067	2.77/1.58
OND5A	95	0.8640	0.77	0.0012	60	1.7	2.8	200	3.5	3.78	N/A	0.9	3.7	260	11.4	3.66	0.050	2.77/1.58
OND5B	95	0.8640	2.34	0.0037	60	2.5	2.4	375	0.5	1.48	N/A	4.2	6.7	435	12.4	6.66	0.067	2.77/1.58
OND6	95	0.8640	6.81	0.0106	65	1.5	3.0	1140	0.6	1.58	2.40	9.7	12.7	1205	16.7	12.68	0.127	2.77/1.58
OND7	95	0.8640	0.16	0.0003	65	1.5	3.0	55	0.5	1.49	N/A	0.6	3.6	120	10.7	3.58	0.050	2.77/1.58

$T_i=(1.8(1.1-K)L^{(1/2)})/(S^{1/3})$
$T_c=T_i+T_t$
$K=0.0132(CN)-.39$
$T_{lag} = 0.6T_c$

For the travel time (T_t) calculations,
V_1 applies to the first 500 feet of travel distance;
V_2 applies to the remaining travel distance.

Travel Time Velocity Formulas

Existing	Developed
$V_1 = 14.8*(S/100)^{1/2}$	$V_1 = 20.2*(S/100)^{1/2}$
$V_2 = 29.4*(S/100)^{1/2}$	$V_2 = 30.6*(S/100)^{1/2}$

All basins over one square mile are calculated by the equation $T_{lag}=20Kn(L*L_c/S^{0.5})^{0.33}$ and denoted by shaded gray (See Worksheet).

REFERENCE: **CCRFCD HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL**

STANDARD FORM 4

PREVIOUS SUBMITTAL

HEC-1 INTERIM PHASE 1 - 10 YR

```
1****************************************                    ****************************************
 *                                      *                    *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                    *    U.S. ARMY CORPS OF ENGINEERS      *
 *              JUN   1998              *                    *    HYDROLOGIC ENGINEERING CENTER     *
 *           VERSION 4.1                *                    *         609 SECOND STREET            *
 *                                      *                    *       DAVIS, CALIFORNIA 95616        *
 *  RUN DATE   05JUN20  TIME  13:00:07  *                    *          (916) 756-1104              *
 *                                      *                    *                                      *
 ****************************************                    ****************************************

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


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

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

1                                                HEC-1 INPUT                                                PAGE  1

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

                        *DIAGRAM
            1           ID
            2           ID      <><><><><><><><><><><><><><><><><><><><>
            3           ID        RANCHO & VEGAS TOWNHOMES
            4           ID        HYDROLOGIC MODEL
            5           ID        --------------------------
            6           ID
            7           ID        10-YR STORM EVENT
            8           ID        --------------------------
            9           ID        HORROCKS ENGINEERING
           10           ID        INTERIM PHASE 1 CONDITION
           11           ID        FILE: INT PH1.DAT
           12           ID        PROJECT No: NV-2105-1911
           13           ID        DATE:  MAY 15 2020
           14           ID      <><><><><><><><><><><><><><><><><><><><>
           15           ID
           16           ID       ---> 6-HOUR / SDN 3 <---
           17           ID
           18           IT       5       0       0     300
           19           IO       5
           20           IN       5
           21           JR    PREC    1.00
                        *

           22           KK    OFE1
           23           KM    OFFSITE FLOW AT NORTHWEST CORNER OF PROJECT SITE
           24           BA   .0228
           25           PB    1.58
           26           PC    .000    .020    .057    .070    .087    .108    .124    .130    .130    .130
           27           PC    .130    .130    .130    .133    .140    .142    .148    .158    .172    .181
           28           PC    .190    .197    .199    .200    .201    .204    .214    .229    .241    .249
           29           PC    .251    .256    .270    .278    .281    .283    .295    .322    .352    .409
           30           PC    .499    .590    .710    .744    .781    .812    .819    .835    .851    .856
           31           PC    .860    .868    .876    .888    .910    .926    .937    .950    .970    .976
           32           PC    .982    .985    .987    .989    .990    .993    .993    .994    .995    .998
           33           PC    .998    .999   1.00
           34           LS       0      88
           35           UD    .210
                        *

           36           KK    STE3
           37           BA   .0024
           38           LS       0      92
           39           UD    .134
                        *

           40           KK    CI11
           41           KM   COMBINES OFFISTE BASIN OFE1 AND STREET STE3.
           42           HC       2
                        *
1                                                HEC-1 INPUT                                                PAGE  2

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

```
 43          KK  NH_HOL
 44          KM   CENTRAL NEIGHBORHOOD REFERENCE STUDY 100-YR BASEFLOW
 45          KM   WHICH OVERSPILL INTO HOLLY AVENUE. SEE THE STUDY
 46          KM   MAP FOR DETAIL.
 47          BA   .0001
 48          BF       0
 49          LS       0      01
 50          UD   .0001
             *

 51          KK   DUMMY
 52          KM   DUMMY CARD TO RESET BASEFLOW AND HAS NO FLOW
 53          BA   .0001
 54          BF     .00
 55          LS       0      01
 56          UD   .0001
             *

 57          KK    STE4
 58          BA   .0009
 59          LS       0      97
 60          UD   0.100
             *

 61          KK    OFD3
 62          BA   .0013
 63          LS       0      95
 64          UD   0.050
             *

 65          KK    CI21
 66          KM   COMBINES CI11, NH-HOL BASEFLOW, STREET STE4, AND OFFSITE BASIN OFD3.
 67          HC       5

 68          KK    DIV1
 69          KM   DIVERSION (PROVIDE DISCRIPTION HERE, THIS IS A TYP. DIVERSION CARD)
 70          KM   ('DT' IS NAME OF WHAT YOU ARE DIVERTING;'DI' IS THE TOTAL FLOW; THE 'DQ' CARD
 71          KM   IS THE AMOUNT DIVERTED)
 72          KM   DIV1 AMOUNT THAT ENTERS INTO PROJECT SITE AND COMBINE WITH OND3
 73          DT      D1
 74          DI      14
 75          DQ       7
             *

 76          KK    OND3
 77          BA   .0035
 78          LS       0      95
 79          UD   0.102
             *
1                                        HEC-1 INPUT                                        PAGE  3

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

 80          KK   CI5A1
 81          KM   COMBINES DIV1 AND OND3.
 82          HC       2
             *

 83          KK   OFD2A
 84          BA   .0117
 85          LS       0      92
 86          UD   0.122
             *

 87          KK   RETD1
 88          KM   RETRIEVE D1 - (THIS CARD RETRIEVES THE DIVERTED FLOW)
 89          KM   FLOW THAT RETAINS ON HOLLY AVENUE
 90          DR      D1
             *

 91          KK    CI31
 92          KM   COMBINES OFD2A AND D1.
 93          HC       2
             *

 94          KK    DIV2
 95          KM   DIVERSION (PROVIDE DISCRIPTION HERE, THIS IS A TYP. DIVERSION CARD)
 96          KM   ('DT' IS NAME OF WHAT YOU ARE DIVERTING;'DI' IS THE TOTAL FLOW; THE 'DQ' CARD
 97          KM   IS THE AMOUNT DIVERTED)
 98          KM   DIV2 RUNOFF AMOUNT ENTERS INTO PROJECT SITE
 99          KM   AND COMBINES WITH OND1
100          DT      D2
101          DI      16
102          DQ      16
             *

103          KK    OND1
104          BA   .0013
```

PREVIOUS SUBMITTAL

```
105          LS       0      95
106          UD   0.050
             *

107          KK    CI41
108          KM   COMBINES DIV2 AND OND1.
109          HC       2
             *

110          KK    DIV3
111          KM   DIVERSION (PROVIDE DISCRIPTION HERE, THIS IS A TYP. DIVERSION CARD)
112          KM   ('DT' IS NAME OF WHAT YOU ARE DIVERTING;'DI' IS THE TOTAL FLOW; THE 'DQ' CARD
113          KM   IS THE AMOUNT DIVERTED)
114          KM   DIV3 RUNOFF AMOUNT FLOWS SOUTH AND COMBINES WITH CI5A1 FLOW AMOUNT
115          DT      D3
116          DI       1
117          DQ       0
             *
1                                        HEC-1 INPUT                                        PAGE  4

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


118          KK   CI5B1
119          KM   COMBINES DIV3 AND CI5A1.
120          HC       2
             *

121          KK    DIV4
122          KM   DIVERSION (PROVIDE DISCRIPTION HERE, THIS IS A TYP. DIVERSION CARD)
123          KM   ('DT' IS NAME OF WHAT YOU ARE DIVERTING;'DI' IS THE TOTAL FLOW; THE 'DQ' CARD
124          KM   IS THE AMOUNT DIVERTED)
125          KM   DIV4 RUNOFF AMOUNT FLOWS SOUTH AND COMBINES WITH ONI5A
126          DT      D4
127          DI      11
128          DQ       0
             *

129          KK   OND5A
130          BA   .0012
131          LS       0      95
132          UD   0.051
             *

133          KK   CI8A1
134          KM   COMBINES DIV4 AND ONI5A.
135          HC       2
             *

136          KK   DUMMY
137          KM   THIS IS NOT ACTUALLY FLOW SPLIT OR DIVERSION. TOTAL DISCHARGE OF CI8A1
138          KM   FLOWS EAST TOWARD CI8B1. THAT IS, DUMMY = 0 CFS.
139          KM   THIS DUMMY CARD AS FLOW SPLIT IS REQUIRE TO
140          KM   ENABLE HEC-1 TO CREATE FLOW TREE.
141          DT   CI8A1
142          DI      12
143          DQ      12
             *

144          KK    ONI6
145          BA   .0106
146          LS       0      88
147          UD   0.159
             *

148          KK   CI9A1
149          KM   COMBINES DUMMY AND ONI6.
150          HC       2
             *

151          KK   OFD2B
152          BA   .0045
153          LS       0      92
154          UD   0.112
             *
1                                        HEC-1 INPUT                                        PAGE  5

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


155          KK   RETD2
156          KM   RETRIEVE D2 - (THIS CARD RETRIEVES THE DIVERTED FLOW)
157          KM   FLOW THAT RETAINS ON HOLLY AVENUE
158          DR      D2
             *

159          KK    CI61
160          KM   COMBINES OFD2B, AND D2.
161          HC       2
             *
```

PREVIOUS SUBMITTAL

```
                KK    DIV5
                KM   DIVERSION (PROVIDE DISCRIPTION HERE, THIS IS A TYP. DIVERSION CARD)
                KM   ('DT' IS NAME OF WHAT YOU ARE DIVERTING;'DI' IS THE TOTAL FLOW; THE 'DQ' CARD
                KM    IS THE AMOUNT DIVERTED)
                KM   DIV5 RUNOFF AMOUNT FLOWS SOUTH AND ENTERS INTO THE PROJECT SITE.
                DT      D5
                DI      19
                DQ      19
                *

                KK    OND2
                BA   .0036
                LS       0      95
                UD   0.097
                *

                KK   RETD3
                KM   RETRIEVE D3 - (THIS CARD RETRIEVES THE DIVERTED FLOW)
                KM   THE FLOW D3 ENTERS INTO OND2 BASIN
                DR      D3
                *

                KK    OND4
                BA   .0023
                LS       0      95
                UD   0.067
                *

                KK   RETD4
                KM   RETRIEVE D4 - (THIS CARD RETRIEVES THE DIVERTED FLOW)
                KM   THE FLOW D4 ENTERS INTO OND4 BASIN
                DR      D4
                *

                KK    CI71
                KM   COMBINES DIV5, OND2, D3, OND4, AND D4.
                HC       5
                *
1                                       HEC-1 INPUT                                        PAGE  6

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

                KK    DIV6
                KM   DIVERSION (PROVIDE DISCRIPTION HERE, THIS IS A TYP. DIVERSION CARD)
                KM   ('DT' IS NAME OF WHAT YOU ARE DIVERTING;'DI' IS THE TOTAL FLOW; THE 'DQ' CARD
                KM    IS THE AMOUNT DIVERTED)
                KM   DIV6 RUNOFF AMOUNT FLOWS SOUTH.
                DT      D6
                DI       6
                DQ       6
                *

                KK  RETCI8A1
                KM   RETRIEVE CI8A1 - (THIS CARD RETRIEVES THE DIVERTED FLOW)
                KM   THE FLOW CI8A1 COMBINES WITH ONI5B BASIN, AND DIV6
                DR   CI8A1
                *

                KK   ONI5B
                BA   .0037
                LS       0      88
                UD   0.100
                *

                KK   CI8B1
                KM   COMBINES DIV6, CI8A1, AND ONI5B.
                HC       3
                *

                KK    DIV7
                KM   DIVERSION (PROVIDE DISCRIPTION HERE, THIS IS A TYP. DIVERSION CARD)
                KM   ('DT' IS NAME OF WHAT YOU ARE DIVERTING;'DI' IS THE TOTAL FLOW; THE 'DQ' CARD
                KM   IS THE AMOUNT DIVERTED)
                KM   DIV7 RUNOFF AMOUNT FLOWS SOUTH.
                DT      D7
                DI      14
                DQ      14
                *

                KK   DUMMY
                KM   DUMMY CARD TO MAKE HEC-1 RUN
                BA   .0001
                BF     .00
                LS       0      01
                UD   .0001
                *

                KK   CI8C1
                KM   IS EQUAL DIV7
                HC       2
```

PREVIOUS SUBMITTAL

```
                *
1                                       HEC-1 INPUT                                                 PAGE  7

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

           225      KK   DIV7A
           226      KM   DIVERSION (PROVIDE DISCRIPTION HERE, THIS IS A TYP. DIVERSION CARD)
           227      KM   ('DT' IS NAME OF WHAT YOU ARE DIVERTING;'DI' IS THE TOTAL FLOW; THE 'DQ' CARD
           228      KM   IS THE AMOUNT DIVERTED)
           229      KM   DIV7A RUNOFF AMOUNT FLOWS SOUTH.
           230      DT     D7A
           231      DI       0
           232      DQ       0
                    *

           233      KK   CI9C1
           234      KM   COMBINES DIV7A AND CI9A1.
           235      HC       2
                    *

           236      KK  RETD7A
           237      KM   RETRIEVE D7A - (THIS CARD RETRIEVES THE DIVERTED FLOW)
           238      KM   THE FLOW D7A ENTERS INTO 15'PORPOSED EASEMENT
           239      DR     D7A
                    *

           240      KK   DUMMY
           241      KM   DUMMY CARD TO MAKE HEC-1 RUN
           242      BA   .0001
           243      BF     .00
           244      LS       0      01
           245      UD
                    *

           246      KK   CI9D1
           247      KM    EQUAL TO D7A
           248      HC       2
                    *

           249      KK    DIV8
           250      KM   DIVERSION (PROVIDE DISCRIPTION HERE, THIS IS A TYP. DIVERSION CARD)
           251      KM   ('DT' IS NAME OF WHAT YOU ARE DIVERTING;'DI' IS THE TOTAL FLOW; THE 'DQ' CARD
           252      KM   IS THE AMOUNT DIVERTED)
           253      DT      D8
           254      DI       0
           255      DQ       0
                    *

           256      KK   CI9B1
           257      KM   COMBINES CI9C1 AND DIV8.
           258      HC       2
                    *

           259      KK   RETD8
           260      KM   RETRIEVE D8 - (THIS CARD RETRIEVES THE DIVERTED FLOW)
           261      KM   THE FLOW D8 ENTERS INTO 10' EXISTING EASEMENT
           262      DR      D8
                    *
1                                       HEC-1 INPUT                                                 PAGE  8

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

           263      KK   RETD7
           264      KM   RETRIEVE D7 - (THIS CARD RETRIEVES THE DIVERTED FLOW)
           265      KM   THE FLOW D7 ENTERS INTO 10'EXISTING EASEMENT
           266      DR      D7
                    *

           267      KK   CI9E1
           268      KM   COMBINES D7 AND D8.
           269      HC       2
                    *

           270      KK    OFD5
           271      BA   .0237
           272      LS       0      88
           273      UD   0.252
                    *

           274      KK    OFD6
           275      BA   .0170
           276      LS       0      95
           277      UD   0.128
                    *

           278      KK   CI121
           279      KM   COMBINES OFD5 AND OFD6.
           280      HC       2
                    *
```

PREVIOUS SUBMITTAL

```
 281          KK  NH-RAN
 282          KM   CENTRAL NEIGHBORHOOD REFERENCE STUDY 100-YR BASEFLOW
 283          KM   WHICH CONTINUE ON RANCHO AVENUE. SEE THE STUDY
 284          KM   MAP FOR DETAIL.
 285          BA   .0001
 286          BF      81
 287          LS       0      01
 288          UD   .0001
                   *

 289          KK   DUMMY
 290          KM   DUMMY CARD TO RESET BASEFLOW AND HAS NO FLOW
 291          BA   .0001
 292          BF     .00
 293          LS       0      01
 294          UD   .0001
                   *

 295          KK    STD1
 296          BA   .0038
 297          LS       0      98
 298          UD   0.077
                   *
1                                        HEC-1 INPUT                                        PAGE  9

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


 299          KK    OFD7
 300          BA   .0045
 301          LS       0      95
 302          UD   0.081
                   *

 303          KK    OFD4
 304          BA   .0012
 305          LS       0      95
 306          UD   0.050
                   *

 307          KK   STD2A
 308          BA   .0032
 309          LS       0      98
 310          UD   0.071
                   *

 311          KK   CI101
 312          KM   COMBINES CI121, NH-RAN, STD1, OFD7, OFD4, AND STD2A.
 313          HC       7
                   *

 314          KK   OFD2C
 315          BA   .0026
 316          LS       0      92
 317          UD   0.120
                   *

 318          KK   RETD5
 319          KM   RETRIEVE D5 - (THIS CARD RETRIEVES THE DIVERTED FLOW)
 320          KM   THE FLOW D5 DO NOT ENTER INTO THE PROJECT SITE AND
 321          KM   REMAINS ON HOLLY AVENUE.
 322          DR      D5
                   *

 323          KK    OND7
 324          BA   .0003
 325          LS       0      95
 326          UD   0.050
                   *

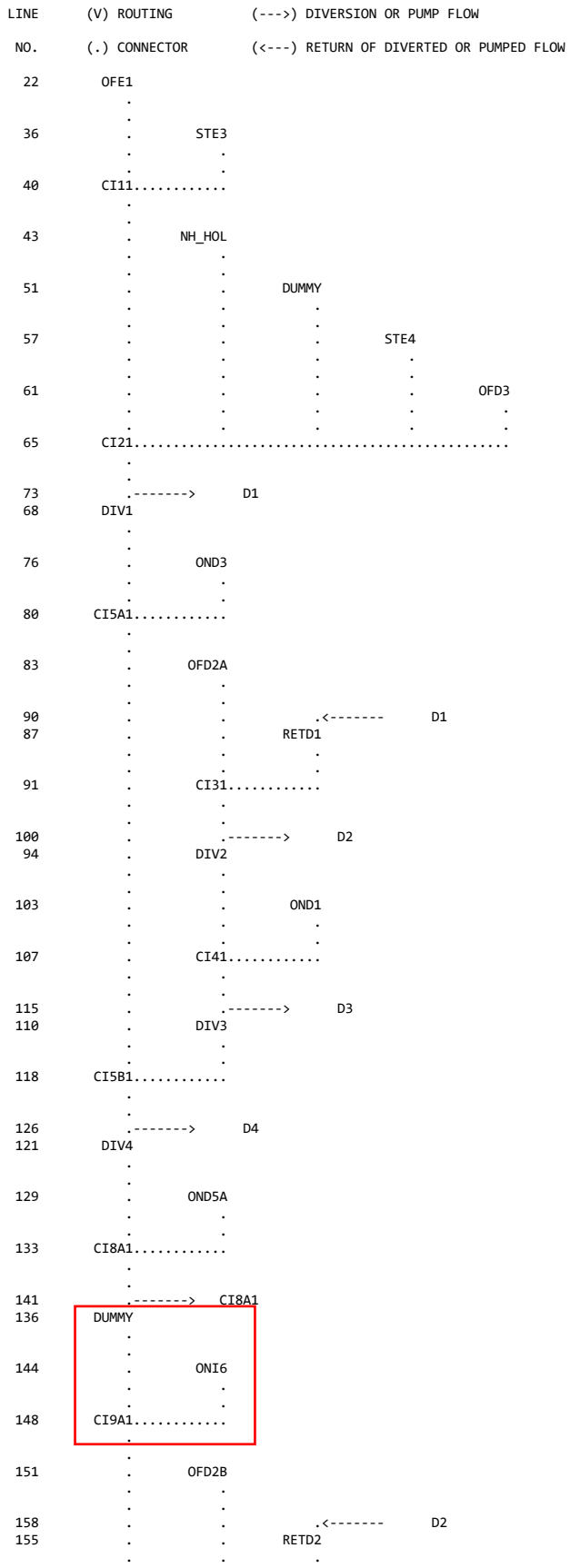
 327          KK    STD5
 328          BA   .0021
 329          LS       0      97
 330          UD   0.072
                   *

 331          KK   CI111
 332          KM   COMBINES OFD2C, D5, OND7, AND STD5
 333          HC       4
                   *
                   *
                   *
1                                        HEC-1 INPUT                                        PAGE 10

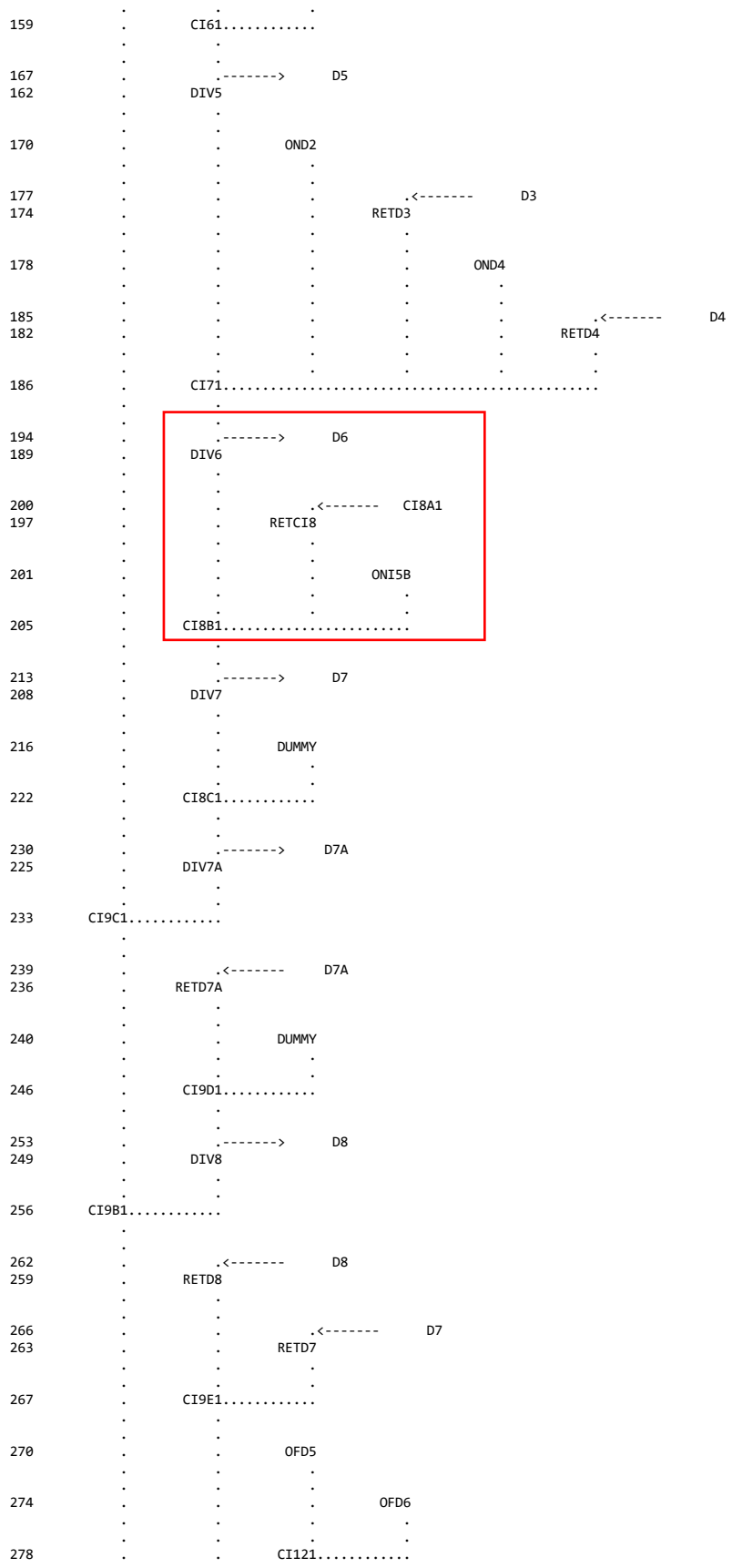
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 334          ZZ
1
               SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
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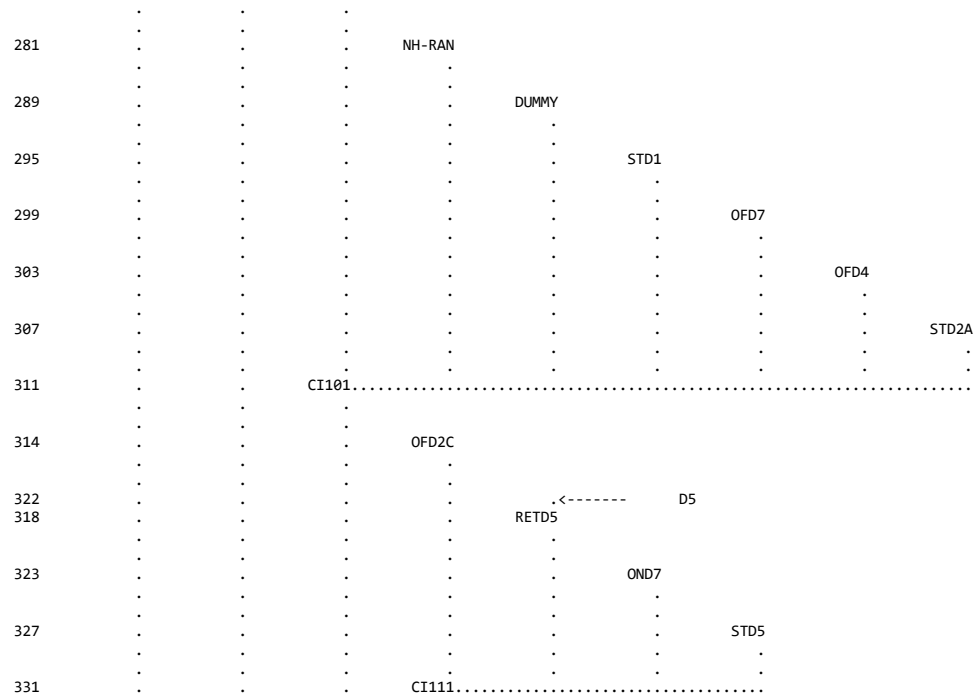
PREVIOUS SUBMITTAL



PREVIOUS SUBMITTAL



PREVIOUS SUBMITTAL



(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1*****************************************
 *                                       *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
 *              JUN   1998               *
 *           VERSION 4.1                 *
 *                                       *
 *  RUN DATE   05JUN20  TIME  13:00:07   *
 *                                       *
 *****************************************
```

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

```
                          <><><><><><><><><><><><><><><><><><><><>
                            RANCHO & VEGAS TOWNHOMES
                            HYDROLOGIC MODEL
                            ---------------------------

                            10-YR STORM EVENT
                            ---------------------------
                            HORROCKS ENGINEERING
                            INTERIM PHASE 1 CONDITION
                            FILE: INT PH1.DAT
                            PROJECT No: NV-2105-1911
                            DATE:  MAY 15 2020
                          <><><><><><><><><><><><><><><><><><><><>

                           ---> 6-HOUR / SDN 3 <---


  19 IO          OUTPUT CONTROL VARIABLES
                      IPRNT          5  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE

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

                   COMPUTATION INTERVAL     .08 HOURS
                        TOTAL TIME BASE   24.92 HOURS

           ENGLISH UNITS
                DRAINAGE AREA         SQUARE MILES
                PRECIPITATION DEPTH   INCHES
```

PREVIOUS SUBMITTAL

```
               LENGTH, ELEVATION     FEET
               FLOW                  CUBIC FEET PER SECOND
               STORAGE VOLUME        ACRE-FEET
               SURFACE AREA          ACRES
               TEMPERATURE           DEGREES FAHRENHEIT

     JP          MULTI-PLAN OPTION
                       NPLAN          1  NUMBER OF PLANS

     JR          MULTI-RATIO OPTION
                     RATIOS OF PRECIPITATION
                    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


                                                                  RATIOS APPLIED TO PRECIPITATION
 OPERATION       STATION     AREA    PLAN                 RATIO 1
                                                             1.00

 HYDROGRAPH AT
+                   OFE1       .02     1   FLOW             11.
                                           TIME            3.67

 HYDROGRAPH AT
+                   STE3       .00     1   FLOW              2.
                                           TIME            3.58

   2 COMBINED AT
+                   CI11       .03     1   FLOW             12.
                                           TIME            3.67

 HYDROGRAPH AT
+                  NH_HOL      .00     1   FLOW              0.
                                           TIME             .00

 HYDROGRAPH AT
+                  DUMMY       .00     1   FLOW              0.
                                           TIME             .00

 HYDROGRAPH AT
+                   STE4       .00     1   FLOW              1.
                                           TIME            3.50

 HYDROGRAPH AT
+                   OFD3       .00     1   FLOW              1.
                                           TIME            3.50

   5 COMBINED AT
+                   CI21       .03     1   FLOW             14.
                                           TIME            3.58

 DIVERSION TO
+                     D1       .03     1   FLOW              7.
                                           TIME            3.58

 HYDROGRAPH AT
+                   DIV1       .03     1   FLOW              7.
                                           TIME            3.58

 HYDROGRAPH AT
+                   OND3       .00     1   FLOW              3.
                                           TIME            3.50

   2 COMBINED AT
+                  CI5A1       .03     1   FLOW             10.
                                           TIME            3.58

 HYDROGRAPH AT
+                  OFD2A       .01     1   FLOW              9.
                                           TIME            3.58

 HYDROGRAPH AT
+                  RETD1       .00     1   FLOW              7.
                                           TIME            3.58

   2 COMBINED AT
+                   CI31       .01     1   FLOW             16.
                                           TIME            3.58

 DIVERSION TO
+                     D2       .01     1   FLOW             16.
                                           TIME            3.58

 HYDROGRAPH AT
+                   DIV2       .01     1   FLOW              0.
                                           TIME             .00
```

PREVIOUS SUBMITTAL

```
 HYDROGRAPH AT
+                 OND1       .00     1   FLOW          1.
                                          TIME        3.50

  2 COMBINED AT
+                 CI41       .01     1   FLOW          1.
                                          TIME        3.50

 DIVERSION TO
+                   D3       .01     1   FLOW          0.
                                          TIME         .00

 HYDROGRAPH AT
+                 DIV3       .01     1   FLOW          1.
                                          TIME        3.50

  2 COMBINED AT
+                CI5B1       .04     1   FLOW         11.
                                          TIME        3.58

 DIVERSION TO
+                   D4       .04     1   FLOW          0.
                                          TIME         .00

 HYDROGRAPH AT
+                 DIV4       .04     1   FLOW         11.
                                          TIME        3.58

 HYDROGRAPH AT
+                OND5A       .00     1   FLOW          1.
                                          TIME        3.50

  2 COMBINED AT
+                CI8A1       .05     1   FLOW         12.
                                          TIME        3.50

 DIVERSION TO
+                CI8A1       .05     1   FLOW         12.
                                          TIME        3.50

 HYDROGRAPH AT
+                DUMMY       .05     1   FLOW          0.
                                          TIME         .00

 HYDROGRAPH AT
+                 ONI6       .01     1   FLOW          6.
                                          TIME        3.58

  2 COMBINED AT
+                CI9A1       .06     1   FLOW          6.
                                          TIME        3.58

 HYDROGRAPH AT
+                OFD2B       .00     1   FLOW          3.
                                          TIME        3.58

 HYDROGRAPH AT
+                RETD2       .00     1   FLOW         16.
                                          TIME        3.58

  2 COMBINED AT
+                 CI61       .00     1   FLOW         19.
                                          TIME        3.58

 DIVERSION TO
+                   D5       .00     1   FLOW         19.
                                          TIME        3.58

 HYDROGRAPH AT
+                 DIV5       .00     1   FLOW          0.
                                          TIME         .00

 HYDROGRAPH AT
+                 OND2       .00     1   FLOW          3.
                                          TIME        3.50

 HYDROGRAPH AT
+                RETD3       .00     1   FLOW          0.
                                          TIME         .00

 HYDROGRAPH AT
+                 OND4       .00     1   FLOW          2.
                                          TIME        3.50

 HYDROGRAPH AT
+                RETD4       .00     1   FLOW          0.
                                          TIME         .00

  5 COMBINED AT
+                 CI71       .01     1   FLOW          6.
                                          TIME        3.50
```

PREVIOUS SUBMITTAL

```
 DIVERSION TO
+                    D6       .01     1   FLOW          6.
                                          TIME         3.50

 HYDROGRAPH AT
+                   DIV6       .01     1   FLOW          0.
                                          TIME          .00

 HYDROGRAPH AT
+                 RETCI8       .00     1   FLOW         12.
                                          TIME         3.50

 HYDROGRAPH AT
+                  ONI5B       .00     1   FLOW          2.
                                          TIME         3.50

  3 COMBINED AT
+                  CI8B1       .01     1   FLOW         14.
                                          TIME         3.50

 DIVERSION TO
+                     D7       .01     1   FLOW         14.
                                          TIME         3.50

 HYDROGRAPH AT
+                    DIV7       .01     1   FLOW          0.
                                          TIME          .00

 HYDROGRAPH AT
+                  DUMMY       .00     1   FLOW          0.
                                          TIME          .00

  2 COMBINED AT
+                  CI8C1       .01     1   FLOW          0.
                                          TIME          .00

 DIVERSION TO
+                    D7A       .01     1   FLOW          0.
                                          TIME          .00

 HYDROGRAPH AT
+                  DIV7A       .01     1   FLOW          0.
                                          TIME          .00

  2 COMBINED AT
+                  CI9C1       .07     1   FLOW          6.
                                          TIME         3.58

 HYDROGRAPH AT
+                 RETD7A       .00     1   FLOW          0.
                                          TIME          .00

 HYDROGRAPH AT
+                  DUMMY       .00     1   FLOW          0.
                                          TIME          .00

  2 COMBINED AT
+                  CI9D1       .00     1   FLOW          0.
                                          TIME          .00

 DIVERSION TO
+                     D8       .00     1   FLOW          0.
                                          TIME          .00

 HYDROGRAPH AT
+                    DIV8       .00     1   FLOW          0.
                                          TIME          .00

  2 COMBINED AT
+                  CI9B1       .07     1   FLOW          6.
                                          TIME         3.58

 HYDROGRAPH AT
+                  RETD8       .00     1   FLOW          0.
                                          TIME          .00

 HYDROGRAPH AT
+                  RETD7       .00     1   FLOW         14.
                                          TIME         3.50

  2 COMBINED AT
+                  CI9E1       .00     1   FLOW         14.
                                          TIME         3.50

 HYDROGRAPH AT
+                   OFD5       .02     1   FLOW         11.
                                          TIME         3.67

 HYDROGRAPH AT
+                   OFD6       .02     1   FLOW         15.
```

PREVIOUS SUBMITTAL

```
                                        TIME         3.58

  2 COMBINED AT
+                  CI121       .04     1   FLOW         25.
                                         TIME         3.58

 HYDROGRAPH AT
+                 NH-RAN       .00     1   FLOW         81.
                                         TIME          .00

 HYDROGRAPH AT
+                  DUMMY       .00     1   FLOW          0.
                                         TIME          .00

 HYDROGRAPH AT
+                   STD1       .00     1   FLOW          5.
                                         TIME         3.50

 HYDROGRAPH AT
+                   OFD7       .00     1   FLOW          5.
                                         TIME         3.50

 HYDROGRAPH AT
+                   OFD4       .00     1   FLOW          1.
                                         TIME         3.50

 HYDROGRAPH AT
+                  STD2A       .00     1   FLOW          4.
                                         TIME         3.50

  7 COMBINED AT
+                  CI101       .05     1   FLOW        117.
                                         TIME         3.50

 HYDROGRAPH AT
+                  OFD2C       .00     1   FLOW          2.
                                         TIME         3.58

 HYDROGRAPH AT
+                  RETD5       .00     1   FLOW         19.
                                         TIME         3.58

 HYDROGRAPH AT
+                   OND7       .00     1   FLOW          0.
                                         TIME         3.50

 HYDROGRAPH AT
+                   STD5       .00     1   FLOW          2.
                                         TIME         3.50

  4 COMBINED AT
+                  CI111       .00     1   FLOW         23.
                                         TIME         3.58


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

PREVIOUS SUBMITTAL

HEC-1 INTERIM PHASE 1- 100 YR

```
1****************************************                    ****************************************
 *                                      *                    *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                    *    U.S. ARMY CORPS OF ENGINEERS      *
 *               JUN   1998             *                    *    HYDROLOGIC ENGINEERING CENTER     *
 *            VERSION 4.1               *                    *          609 SECOND STREET           *
 *                                      *                    *       DAVIS, CALIFORNIA 95616        *
 *  RUN DATE   05JUN20  TIME  12:51:17  *                    *           (916) 756-1104             *
 *                                      *                    *                                      *
 ****************************************                    ****************************************

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


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

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

1                                                HEC-1 INPUT                                                PAGE  1

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

                        *DIAGRAM
            1           ID
            2           ID      <><><><><><><><><><><><><><><><><><><><>
            3           ID        RANCHO & VEGAS TOWNHOMES
            4           ID        HYDROLOGIC MODEL
            5           ID        --------------------------
            6           ID
            7           ID        100-YR STORM EVENT
            8           ID        --------------------------
            9           ID        HORROCKS ENGINEERING
           10           ID        INTERIM PHASE 1 CONDITION
           11           ID        FILE: INT PH1.DAT
           12           ID        PROJECT No: NV-2105-1911
           13           ID        DATE:  MAY 15 2020
           14           ID      <><><><><><><><><><><><><><><><><><><><>
           15           ID
           16           ID       ---> 6-HOUR / SDN 3 <---
           17           ID
           18           IT       5       0       0     300
           19           IO       5
           20           IN       5
           21           JR    PREC    1.00
                        *

           22           KK    OFE1
           23           KM    OFFSITE FLOW AT NORTHWEST CORNER OF PROJECT SITE
           24           BA   .0228
           25           PB    2.77
           26           PC    .000    .020    .057    .070    .087    .108    .124    .130    .130    .130
           27           PC    .130    .130    .130    .133    .140    .142    .148    .158    .172    .181
           28           PC    .190    .197    .199    .200    .201    .204    .214    .229    .241    .249
           29           PC    .251    .256    .270    .278    .281    .283    .295    .322    .352    .409
           30           PC    .499    .590    .710    .744    .781    .812    .819    .835    .851    .856
           31           PC    .860    .868    .876    .888    .910    .926    .937    .950    .970    .976
           32           PC    .982    .985    .987    .989    .990    .993    .993    .994    .995    .998
           33           PC    .998    .999   1.00
           34           LS       0      88
           35           UD    .210
                        *

           36           KK    STE3
           37           BA   .0024
           38           LS       0      92
           39           UD    .134
                        *

           40           KK    CI11
           41           KM   COMBINES OFFISTE BASIN OFE1 AND STREET STE3.
           42           HC       2
                        *
1                                                HEC-1 INPUT                                                PAGE  2

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

PREVIOUS SUBMITTAL

```
  43          KK  NH_HOL
  44          KM   CENTRAL NEIGHBORHOOD REFERENCE STUDY 100-YR BASEFLOW
  45          KM   WHICH OVERSPILL INTO HOLLY AVENUE. SEE THE STUDY
  46          KM   MAP FOR DETAIL.
  47          BA   .0001
  48          BF     285
  49          LS       0      01
  50          UD   .0001
              *

  51          KK   DUMMY
  52          KM   DUMMY CARD TO RESET BASEFLOW AND HAS NO FLOW
  53          BA   .0001
  54          BF     .00
  55          LS       0      01
  56          UD   .0001
              *

  57          KK    STE4
  58          BA   .0009
  59          LS       0      97
  60          UD   0.100
              *

  61          KK    OFD3
  62          BA   .0013
  63          LS       0      95
  64          UD   0.050
              *

  65          KK    CI21
  66          KM   COMBINES CI11, NH-HOL BASEFLOW, STREET STE4, AND OFFSITE BASIN OFD3.
  67          HC       5

  68          KK    DIV1
  69          KM   DIVERSION (PROVIDE DISCRIPTION HERE, THIS IS A TYP. DIVERSION CARD)
  70          KM   ('DT' IS NAME OF WHAT YOU ARE DIVERTING;'DI' IS THE TOTAL FLOW; THE 'DQ' CARD
  71          KM   IS THE AMOUNT DIVERTED)
  72          KM   DIV1 AMOUNT THAT ENTERS INTO PROJECT SITE AND COMBINE WITH OND3
  73          DT     D1
  74          DI     319
  75          DQ     269
              *

  76          KK    OND3
  77          BA   .0035
  78          LS       0      95
  79          UD   0.102
              *
1                                        HEC-1 INPUT                                          PAGE  3

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

  80          KK   CI5A1
  81          KM   COMBINES DIV1 AND OND3.
  82          HC       2
              *

  83          KK   OFD2A
  84          BA   .0117
  85          LS       0      92
  86          UD   0.122
              *

  87          KK   RETD1
  88          KM   RETRIEVE D1 - (THIS CARD RETRIEVES THE DIVERTED FLOW)
  89          KM   FLOW THAT RETAINS ON HOLLY AVENUE
  90          DR     D1
              *

  91          KK    CI31
  92          KM   COMBINES OFD2A AND D1.
  93          HC       2
              *

  94          KK    DIV2
  95          KM   DIVERSION (PROVIDE DISCRIPTION HERE, THIS IS A TYP. DIVERSION CARD)
  96          KM   ('DT' IS NAME OF WHAT YOU ARE DIVERTING;'DI' IS THE TOTAL FLOW; THE 'DQ' CARD
  97          KM   IS THE AMOUNT DIVERTED)
  98          KM   DIV2 RUNOFF AMOUNT ENTERS INTO PROJECT SITE, FLOWS SOUTH
  99          KM   AND COMBINES WITH OND1
 100          DT     D2
 101          DI     287
 102          DQ      91
              *

 103          KK    OND1
 104          BA   .0013
```

PREVIOUS SUBMITTAL

```
          105          LS       0      95
          106          UD   0.050
                       *

          107          KK    CI41
          108          KM   COMBINES DIV2 AND OND1.
          109          HC       2
                       *

          110          KK    DIV3
          111          KM   DIVERSION (PROVIDE DISCRIPTION HERE, THIS IS A TYP. DIVERSION CARD)
          112          KM   ('DT' IS NAME OF WHAT YOU ARE DIVERTING;'DI' IS THE TOTAL FLOW; THE 'DQ' CARD
          113          KM   IS THE AMOUNT DIVERTED)
          114          KM   DIV3 RUNOFF AMOUNT FLOWS SOUTH AND COMBINES WITH CI5A1 FLOW AMOUNT
          115          DT      D3
          116          DI     198
          117          DQ      25
                       *
1                                        HEC-1 INPUT                                          PAGE  4

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


          118          KK   CI5B1
          119          KM   COMBINES DIV3 AND CI5A1.
          120          HC       2
                       *

          121          KK    DIV4
          122          KM   DIVERSION (PROVIDE DISCRIPTION HERE, THIS IS A TYP. DIVERSION CARD)
          123          KM   ('DT' IS NAME OF WHAT YOU ARE DIVERTING;'DI' IS THE TOTAL FLOW; THE 'DQ' CARD
          124          KM   IS THE AMOUNT DIVERTED)
          125          KM   DIV4 RUNOFF AMOUNT FLOWS SOUTH AND COMBINES WITH ONI5A
          126          DT      D4
          127          DI     229
          128          DQ      79
                       *

          129          KK   OND5A
          130          BA   .0012
          131          LS       0      95
          132          UD   0.051
                       *

          133          KK   CI8A1
          134          KM   COMBINES DIV4 AND OND5A.
          135          HC       2
                       *

          136          KK   DUMMY
          137          KM   THIS IS NOT ACTUALLY FLOW SPLIT OR DIVERSION. TOTAL DISCHARGE OF CI8A1
          138          KM   FLOWS EAST TOWARD CI8B1. THAT IS, DUMMY = 0 CFS.
          139          KM   THIS DUMMY CARD AS FLOW SPLIT IS REQUIRE TO
          140          KM   ENABLE HEC-1 TO CREATE FLOW TREE.
          141          DT   CI8A1
          142          DI     151
          143          DQ     151
                       *

          144          KK    ONI6
          145          BA   .0106
          146          LS       0      88
          147          UD   0.159
                       *

          148          KK   CI9A1
          149          KM   COMBINES DUMMY AND ONI6.
          150          HC       2
                       *

          151          KK   OFD2B
          152          BA   .0045
          153          LS       0      92
          154          UD   0.112
                       *
1                                        HEC-1 INPUT                                          PAGE  5

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


          155          KK   RETD2
          156          KM   RETRIEVE D2 - (THIS CARD RETRIEVES THE DIVERTED FLOW)
          157          KM   FLOW THAT RETAINS ON HOLLY AVENUE
          158          DR      D2
                       *

          159          KK    CI61
          160          KM   COMBINES OFD2B, AND D2.
          161          HC       2
                       *
```

PREVIOUS SUBMITTAL

```
 162          KK    DIV5
 163          KM   DIVERSION (PROVIDE DISCRIPTION HERE, THIS IS A TYP. DIVERSION CARD)
 164          KM   ('DT' IS NAME OF WHAT YOU ARE DIVERTING;'DI' IS THE TOTAL FLOW; THE 'DQ' CARD
 165          KM    IS THE AMOUNT DIVERTED)
 166          KM   DIV5 RUNOFF AMOUNT FLOWS SOUTH AND ENTERS INTO THE PROJECT SITE.
 167          DT      D5
 168          DI      98
 169          DQ      38
              *

 170          KK    OND2
 171          BA   .0036
 172          LS       0      95
 173          UD   0.097
              *

 174          KK   RETD3
 175          KM   RETRIEVE D3 - (THIS CARD RETRIEVES THE DIVERTED FLOW)
 176          KM   THE FLOW D3 ENTERS INTO OND2 BASIN
 177          DR      D3
              *

 178          KK    OND4
 179          BA   .0023
 180          LS       0      95
 181          UD   0.067
              *

 182          KK   RETD4
 183          KM   RETRIEVE D4 - (THIS CARD RETRIEVES THE DIVERTED FLOW)
 184          KM   THE FLOW D4 ENTERS INTO OND4 BASIN
 185          DR      D4
              *

 186          KK    CI71
 187          KM   COMBINES DIV5, OND2, D3, OND4, AND D4.
 188          HC       5
              *
1                                        HEC-1 INPUT                                          PAGE  6

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

 189          KK    DIV6
 190          KM   DIVERSION (PROVIDE DISCRIPTION HERE, THIS IS A TYP. DIVERSION CARD)
 191          KM   ('DT' IS NAME OF WHAT YOU ARE DIVERTING;'DI' IS THE TOTAL FLOW; THE 'DQ' CARD
 192          KM    IS THE AMOUNT DIVERTED)
 193          KM   DIV6 RUNOFF AMOUNT FLOWS SOUTH.
 194          DT      D6
 195          DI     174
 196          DQ     127
              *

 197          KK   ONI5B
 198          BA   .0037
 199          LS       0      88
 200          UD   0.100
              *

 201          KK  RETCI8A1
 202          KM   RETRIEVE CI8A1 - (THIS CARD RETRIEVES THE DIVERTED FLOW)
 203          KM   THE FLOW CI8A1 COMBINES WITH ONI5B BASIN, AND DIV6
 204          DR   CI8A1
              *

 205          KK   CI8B1
 206          KM   COMBINES DIV6, CI8A1, AND ONI5B.
 207          HC       3
              *

 208          KK    DIV7
 209          KM   DIVERSION (PROVIDE DISCRIPTION HERE, THIS IS A TYP. DIVERSION CARD)
 210          KM   ('DT' IS NAME OF WHAT YOU ARE DIVERTING;'DI' IS THE TOTAL FLOW; THE 'DQ' CARD
 211          KM   IS THE AMOUNT DIVERTED)
 212          KM   DIV7 RUNOFF AMOUNT FLOWS SOUTH.
 213          DT      D7
 214          DI     204
 215          DQ      25
              *

 216          KK   DUMMY
 217          KM   DUMMY CARD TO MAKE HEC-1 RUN
 218          BA   .0001
 219          BF     .00
 220          LS       0      01
 221          UD   .0001
              *

 222          KK   CI8C1
 223          KM   IS EQUAL TO DIV7
 224          HC       2
```

PREVIOUS SUBMITTAL

```
                *
1                                       HEC-1 INPUT                                             PAGE  7

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

           225      KK   DIV7A
           226      KM   DIVERSION (PROVIDE DISCRIPTION HERE, THIS IS A TYP. DIVERSION CARD)
           227      KM   ('DT' IS NAME OF WHAT YOU ARE DIVERTING;'DI' IS THE TOTAL FLOW; THE 'DQ' CARD
           228      KM   IS THE AMOUNT DIVERTED)
           229      KM   DIV7A RUNOFF AMOUNT FLOWS SOUTH.
           230      DT     D7A
           231      DI     179
           232      DQ      96
                    *

           233      KK   CI9C1
           234      KM   COMBINES DIV7A AND CI9A1.
           235      HC       2
                    *

           236      KK  RETD7A
           237      KM   RETRIEVE D7A - (THIS CARD RETRIEVES THE DIVERTED FLOW)
           238      KM   THE FLOW D7A ENTERS INTO 15' PORPOSED EASEMENT
           239      DR     D7A
                    *

           240      KK   DUMMY
           241      KM   DUMMY CARD TO MAKE HEC-1 RUN
           242      BA   .0001
           243      BF     .00
           244      LS       0      01
           245      UD
                    *

           246      KK   CI9D1
           247      KM    EQUAL TO D7A
           248      HC       2
                    *

           249      KK    DIV8
           250      KM   DIVERSION (PROVIDE DISCRIPTION HERE, THIS IS A TYP. DIVERSION CARD)
           251      KM   ('DT' IS NAME OF WHAT YOU ARE DIVERTING;'DI' IS THE TOTAL FLOW; THE 'DQ' CARD
           252      KM   IS THE AMOUNT DIVERTED)
           253      DT      D8
           254      DI      96
           255      DQ       4
                    *

           256      KK   CI9B1
           257      KM   COMBINES CI9C1 AND DIV8.
           258      HC       2
                    *

           259      KK   RETD8
           260      KM   RETRIEVE D8 - (THIS CARD RETRIEVES THE DIVERTED FLOW)
           261      KM   THE FLOW D8 ENTERS INTO 10' EXISTING EASEMENT
           262      DR      D8
                    *
1                                       HEC-1 INPUT                                             PAGE  8

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

           263      KK   RETD7
           264      KM   RETRIEVE D7 - (THIS CARD RETRIEVES THE DIVERTED FLOW)
           265      KM   THE FLOW D7 ENTERS INTO 10' EXISTING EASEMENT
           266      DR      D7
                    *

           267      KK   CI9E1
           268      KM   COMBINES D7 AND D8.
           269      HC       2
                    *

           270      KK    OFD5
           271      BA   .0237
           272      LS       0      88
           273      UD   0.252
                    *

           274      KK    OFD6
           275      BA   .0170
           276      LS       0      95
           277      UD   0.128
                    *

           278      KK   CI121
           279      KM   COMBINES OFD5 AND OFD6.
           280      HC       2
                    *
```

PREVIOUS SUBMITTAL

```
 281          KK  NH-RAN
 282          KM   CENTRAL NEIGHBORHOOD REFERENCE STUDY 100-YR BASEFLOW
 283          KM   WHICH CONTINUE ON RANCHO AVENUE. SEE THE STUDY
 284          KM   MAP FOR DETAIL.
 285          BA   .0001
 286          BF     223
 287          LS       0      01
 288          UD   .0001
                   *

 289          KK   DUMMY
 290          KM   DUMMY CARD TO RESET BASEFLOW AND HAS NO FLOW
 291          BA   .0001
 292          BF     .00
 293          LS       0      01
 294          UD   .0001
                   *

 295          KK    STD1
 296          BA   .0038
 297          LS       0      98
 298          UD   0.077
                   *
1                                        HEC-1 INPUT                                        PAGE  9

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


 299          KK    OFD7
 300          BA   .0045
 301          LS       0      95
 302          UD   0.081
                   *

 303          KK    OFD4
 304          BA   .0012
 305          LS       0      95
 306          UD   0.050
                   *

 307          KK   STD2A
 308          BA   .0032
 309          LS       0      98
 310          UD   0.071
                   *

 311          KK   CI101
 312          KM   COMBINES CI121, NH-RAN, STD1, OFD7, OFD4, AND STD2A.
 313          HC       7
                   *

 314          KK   OFD2C
 315          BA   .0026
 316          LS       0      92
 317          UD   0.120
                   *

 318          KK   RETD5
 319          KM   RETRIEVE D5 - (THIS CARD RETRIEVES THE DIVERTED FLOW)
 320          KM   THE FLOW D5 DO NOT ENTER INTO THE PROJECT SITE AND
 321          KM   REMAINS ON HOLLY AVENUE.
 322          DR      D5
                   *

 323          KK    OND7
 324          BA   .0003
 325          LS       0      95
 326          UD   0.050
                   *

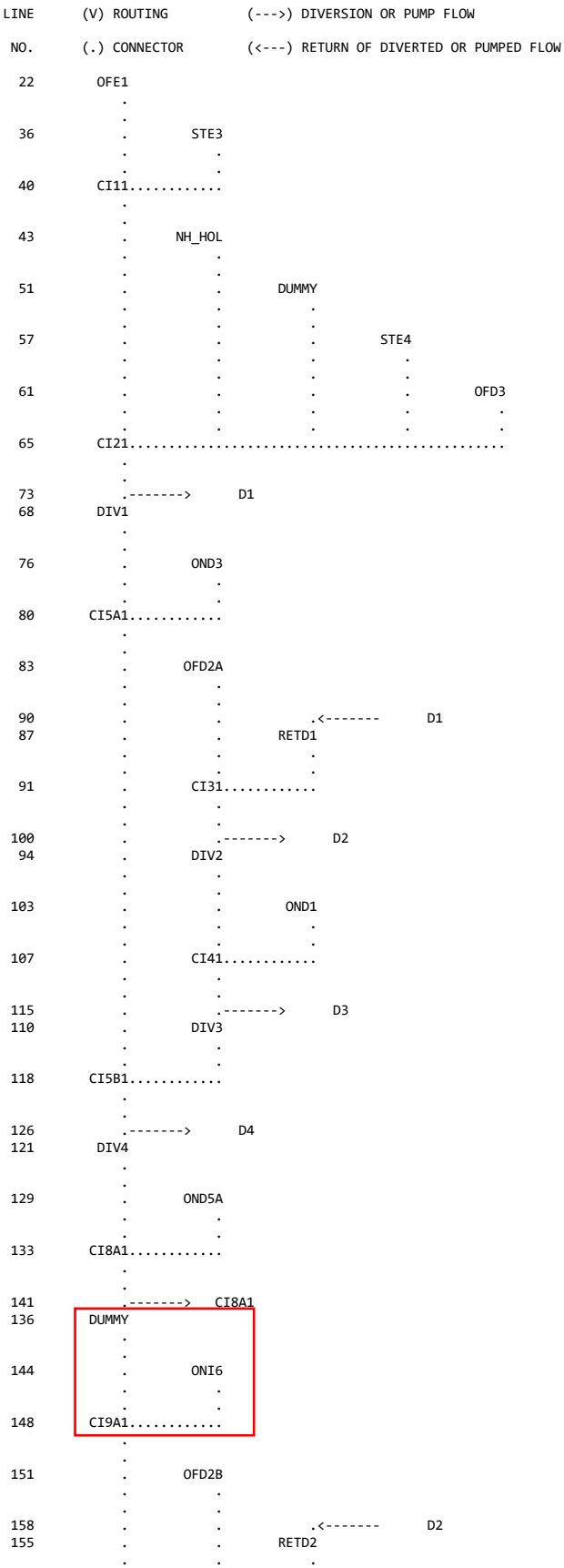
 327          KK    STD5
 328          BA   .0021
 329          LS       0      97
 330          UD   0.072
                   *

 331          KK   CI111
 332          KM   COMBINES OFD2C, D5, OND7, AND STD5
 333          HC       4
                   *
                   *
                   *
1                                        HEC-1 INPUT                                        PAGE 10

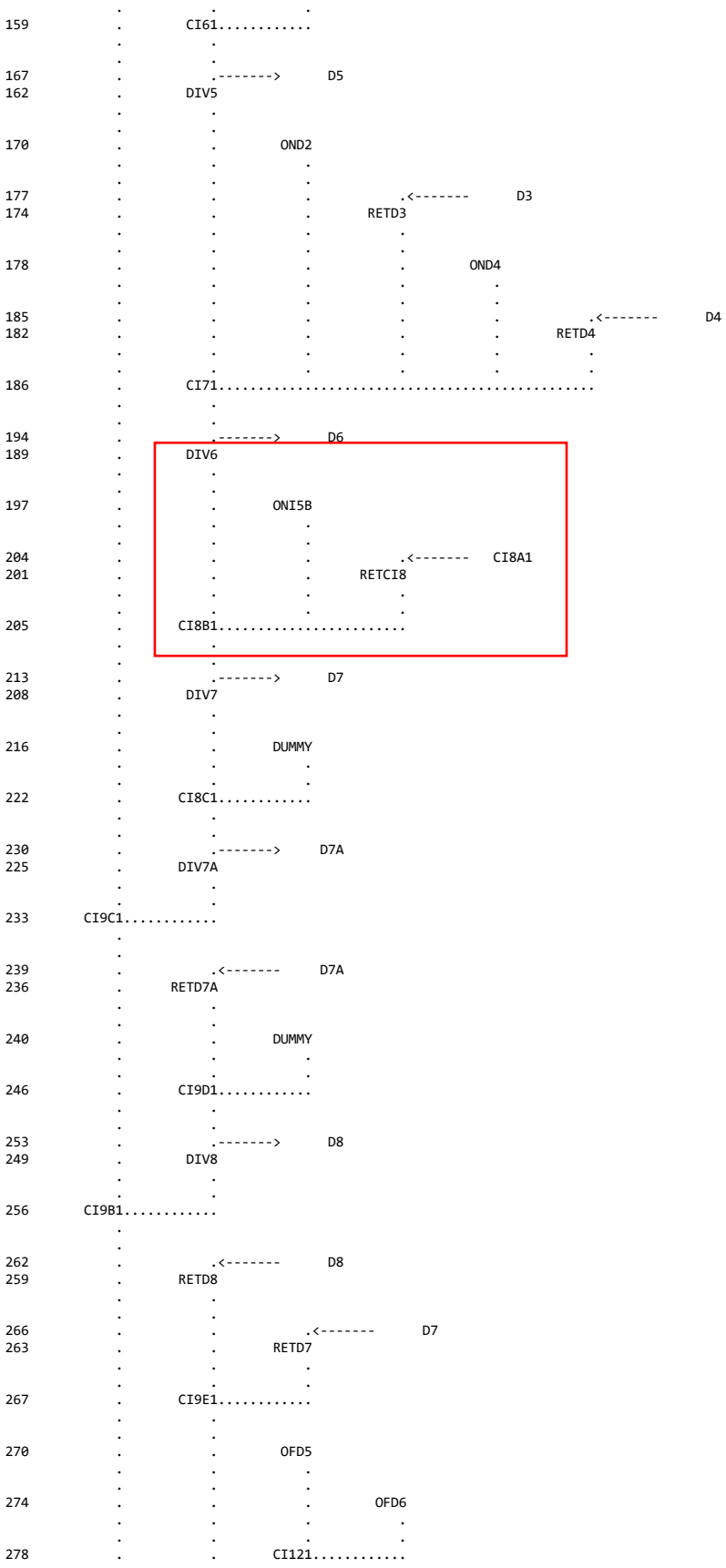
          LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 334          ZZ
1
               SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
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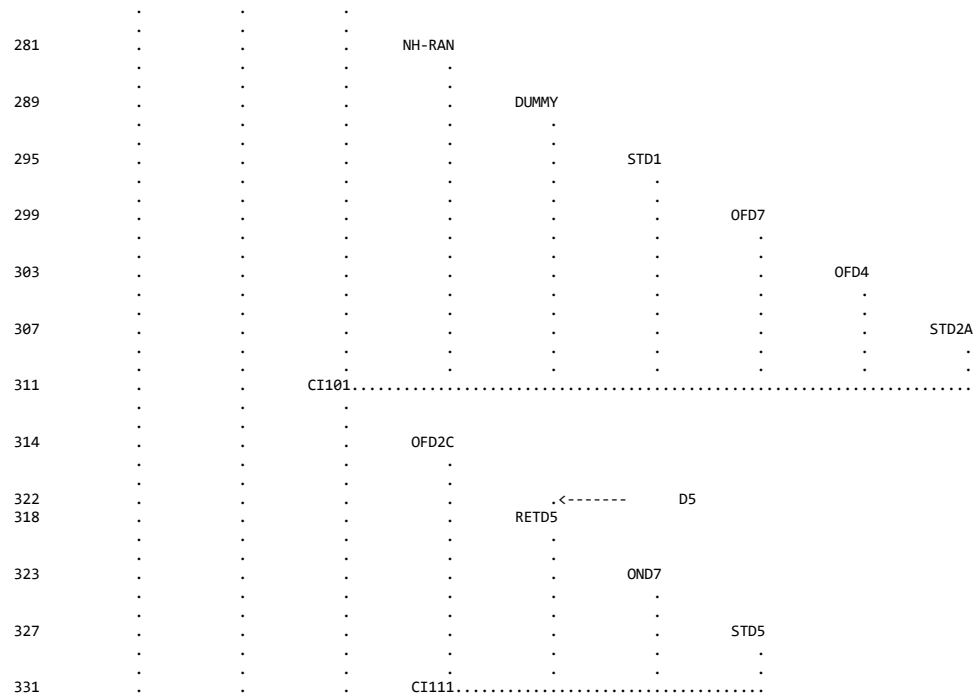
PREVIOUS SUBMITTAL



PREVIOUS SUBMITTAL



PREVIOUS SUBMITTAL



(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1*****************************************
 *                                       *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
 *              JUN   1998               *
 *           VERSION 4.1                 *
 *                                       *
 *  RUN DATE   05JUN20  TIME  12:51:17   *
 *                                       *
 *****************************************
```

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

```
                          <><><><><><><><><><><><><><><><><><><><>
                            RANCHO & VEGAS TOWNHOMES
                            HYDROLOGIC MODEL
                            ----------------------------

                            100-YR STORM EVENT
                            ----------------------------
                            HORROCKS ENGINEERING
                            INTERIM PHASE 1 CONDITION
                            FILE: INT PH1.DAT
                            PROJECT No: NV-2105-1911
                            DATE:  MAY 15 2020
                          <><><><><><><><><><><><><><><><><><><><>

                           ---> 6-HOUR / SDN 3 <---


  19 IO          OUTPUT CONTROL VARIABLES
                       IPRNT           5  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE

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

                    COMPUTATION INTERVAL     .08 HOURS
                         TOTAL TIME BASE   24.92 HOURS

           ENGLISH UNITS
                DRAINAGE AREA         SQUARE MILES
                PRECIPITATION DEPTH   INCHES
```

PREVIOUS SUBMITTAL

```
              LENGTH, ELEVATION     FEET
              FLOW                  CUBIC FEET PER SECOND
              STORAGE VOLUME        ACRE-FEET
              SURFACE AREA          ACRES
              TEMPERATURE           DEGREES FAHRENHEIT

     JP         MULTI-PLAN OPTION
                   NPLAN          1  NUMBER OF PLANS

     JR         MULTI-RATIO OPTION
                    RATIOS OF PRECIPITATION
                   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


                                                                    RATIOS APPLIED TO PRECIPITATION
 OPERATION       STATION     AREA    PLAN                    RATIO 1
                                                                1.00

 HYDROGRAPH AT
+                  OFE1       .02     1   FLOW                  27.
                                            TIME                3.67

 HYDROGRAPH AT
+                  STE3       .00     1   FLOW                   4.
                                            TIME                3.58

   2 COMBINED AT
+                  CI11       .03     1   FLOW                  30.
                                            TIME                3.58

 HYDROGRAPH AT
+                 NH_HOL      .00     1   FLOW                 285.
                                            TIME                 .00

 HYDROGRAPH AT
+                 DUMMY       .00     1   FLOW                   0.
                                            TIME                 .00

 HYDROGRAPH AT
+                  STE4       .00     1   FLOW                   2.
                                            TIME                3.50

 HYDROGRAPH AT
+                  OFD3       .00     1   FLOW                   3.
                                            TIME                3.50

   5 COMBINED AT
+                  CI21       .03     1   FLOW                 319.
                                            TIME                3.58

 DIVERSION TO
+                    D1       .03     1   FLOW                 269.
                                            TIME                3.58

 HYDROGRAPH AT
+                  DIV1       .03     1   FLOW                  50.
                                            TIME                3.58

 HYDROGRAPH AT
+                  OND3       .00     1   FLOW                   6.
                                            TIME                3.50

   2 COMBINED AT
+                 CI5A1       .03     1   FLOW                  56.
                                            TIME                3.58

 HYDROGRAPH AT
+                 OFD2A       .01     1   FLOW                  19.
                                            TIME                3.58

 HYDROGRAPH AT
+                 RETD1       .00     1   FLOW                 269.
                                            TIME                3.58

   2 COMBINED AT
+                  CI31       .01     1   FLOW                 287.
                                            TIME                3.58

 DIVERSION TO
+                    D2       .01     1   FLOW                  91.
                                            TIME                3.58

 HYDROGRAPH AT
+                  DIV2       .01     1   FLOW                 196.
                                            TIME                3.58
```

PREVIOUS SUBMITTAL

```
 HYDROGRAPH AT
+                 OND1       .00     1   FLOW          3.
                                          TIME        3.50

  2 COMBINED AT
+                 CI41       .01     1   FLOW        198.
                                          TIME        3.58

 DIVERSION TO
+                   D3       .01     1   FLOW         25.
                                          TIME        3.58

 HYDROGRAPH AT
+                 DIV3       .01     1   FLOW        173.
                                          TIME        3.58

  2 COMBINED AT
+                CI5B1       .04     1   FLOW        229.
                                          TIME        3.58

 DIVERSION TO
+                   D4       .04     1   FLOW         79.
                                          TIME        3.58

 HYDROGRAPH AT
+                 DIV4       .04     1   FLOW        150.
                                          TIME        3.58

 HYDROGRAPH AT
+                OND5A       .00     1   FLOW          3.
                                          TIME        3.50

  2 COMBINED AT
+                CI8A1       .05     1   FLOW        151.
                                          TIME        3.50

 DIVERSION TO
+                CI8A1       .05     1   FLOW        151.
                                          TIME        3.50

 HYDROGRAPH AT
+                DUMMY       .05     1   FLOW          0.
                                          TIME         .00

 HYDROGRAPH AT
+                 ONI6       .01     1   FLOW         14.
                                          TIME        3.58

  2 COMBINED AT
+                CI9A1       .06     1   FLOW         14.
                                          TIME        3.58

 HYDROGRAPH AT
+                OFD2B       .00     1   FLOW          7.
                                          TIME        3.50

 HYDROGRAPH AT
+                RETD2       .00     1   FLOW         91.
                                          TIME        3.58

  2 COMBINED AT
+                 CI61       .00     1   FLOW         98.
                                          TIME        3.58

 DIVERSION TO
+                   D5       .00     1   FLOW         38.
                                          TIME        3.58

 HYDROGRAPH AT
+                 DIV5       .00     1   FLOW         60.
                                          TIME        3.58

 HYDROGRAPH AT
+                 OND2       .00     1   FLOW          7.
                                          TIME        3.50

 HYDROGRAPH AT
+                RETD3       .00     1   FLOW         25.
                                          TIME        3.58

 HYDROGRAPH AT
+                 OND4       .00     1   FLOW          5.
                                          TIME        3.50

 HYDROGRAPH AT
+                RETD4       .00     1   FLOW         79.
                                          TIME        3.58

  5 COMBINED AT
+                 CI71       .01     1   FLOW        174.
                                          TIME        3.50
```

PREVIOUS SUBMITTAL

```
 DIVERSION TO
+                    D6       .01     1   FLOW         127.
                                          TIME        3.50

 HYDROGRAPH AT
+                   DIV6       .01     1   FLOW          47.
                                          TIME        3.50

 HYDROGRAPH AT
+                  ONI5B       .00     1   FLOW           5.
                                          TIME        3.50

 HYDROGRAPH AT
+                 RETCI8       .00     1   FLOW         151.
                                          TIME        3.50

  3 COMBINED AT
+                  CI8B1       .01     1   FLOW         204.
                                          TIME        3.50

 DIVERSION TO
+                    D7       .01     1   FLOW          25.
                                          TIME        3.50

 HYDROGRAPH AT
+                   DIV7       .01     1   FLOW         179.
                                          TIME        3.50

 HYDROGRAPH AT
+                  DUMMY       .00     1   FLOW           0.
                                          TIME         .00

  2 COMBINED AT
+                  CI8C1       .01     1   FLOW         179.
                                          TIME        3.50

 DIVERSION TO
+                   D7A       .01     1   FLOW          96.
                                          TIME        3.50

 HYDROGRAPH AT
+                  DIV7A       .01     1   FLOW          83.
                                          TIME        3.50

  2 COMBINED AT
+                  CI9C1       .07     1   FLOW          97.
                                          TIME        3.58

 HYDROGRAPH AT
+                RETD7A       .00     1   FLOW          96.
                                          TIME        3.50

 HYDROGRAPH AT
+                  DUMMY       .00     1   FLOW           0.
                                          TIME         .00

  2 COMBINED AT
+                  CI9D1       .00     1   FLOW          96.
                                          TIME        3.50

 DIVERSION TO
+                    D8       .00     1   FLOW           4.
                                          TIME        3.50

 HYDROGRAPH AT
+                   DIV8       .00     1   FLOW          92.
                                          TIME        3.50

  2 COMBINED AT
+                  CI9B1       .07     1   FLOW         189.
                                          TIME        3.58

 HYDROGRAPH AT
+                  RETD8       .00     1   FLOW           4.
                                          TIME        3.50

 HYDROGRAPH AT
+                  RETD7       .00     1   FLOW          25.
                                          TIME        3.50

  2 COMBINED AT
+                  CI9E1       .00     1   FLOW          29.
                                          TIME        3.50

 HYDROGRAPH AT
+                   OFD5       .02     1   FLOW          26.
                                          TIME        3.67

 HYDROGRAPH AT
+                   OFD6       .02     1   FLOW          30.
```

PREVIOUS SUBMITTAL

```
                                        TIME         3.58

  2 COMBINED AT
+                  CI121       .04     1   FLOW         54.
                                         TIME         3.58

 HYDROGRAPH AT
+                 NH-RAN       .00     1   FLOW        223.
                                         TIME          .00

 HYDROGRAPH AT
+                  DUMMY       .00     1   FLOW          0.
                                         TIME          .00

 HYDROGRAPH AT
+                   STD1       .00     1   FLOW          8.
                                         TIME         3.50

 HYDROGRAPH AT
+                   OFD7       .00     1   FLOW          9.
                                         TIME         3.50

 HYDROGRAPH AT
+                   OFD4       .00     1   FLOW          3.
                                         TIME         3.50

 HYDROGRAPH AT
+                  STD2A       .00     1   FLOW          7.
                                         TIME         3.50

  7 COMBINED AT
+                  CI101       .05     1   FLOW        297.
                                         TIME         3.58

 HYDROGRAPH AT
+                  OFD2C       .00     1   FLOW          4.
                                         TIME         3.58

 HYDROGRAPH AT
+                  RETD5       .00     1   FLOW         38.
                                         TIME         3.58

 HYDROGRAPH AT
+                   OND7       .00     1   FLOW          1.
                                         TIME         3.50

 HYDROGRAPH AT
+                   STD5       .00     1   FLOW          4.
                                         TIME         3.50

  4 COMBINED AT
+                  CI111       .00     1   FLOW         47.
                                         TIME         3.50


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

PREVIOUS SUBMITTAL

IMPROVEMENT PLANS

FOR

RANCHO & VEGAS

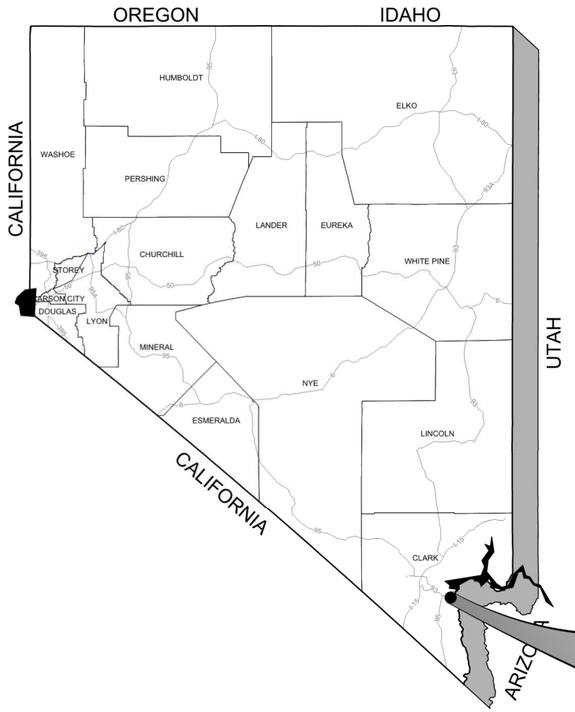
A RESIDENTIAL SUBDIVISION

located in

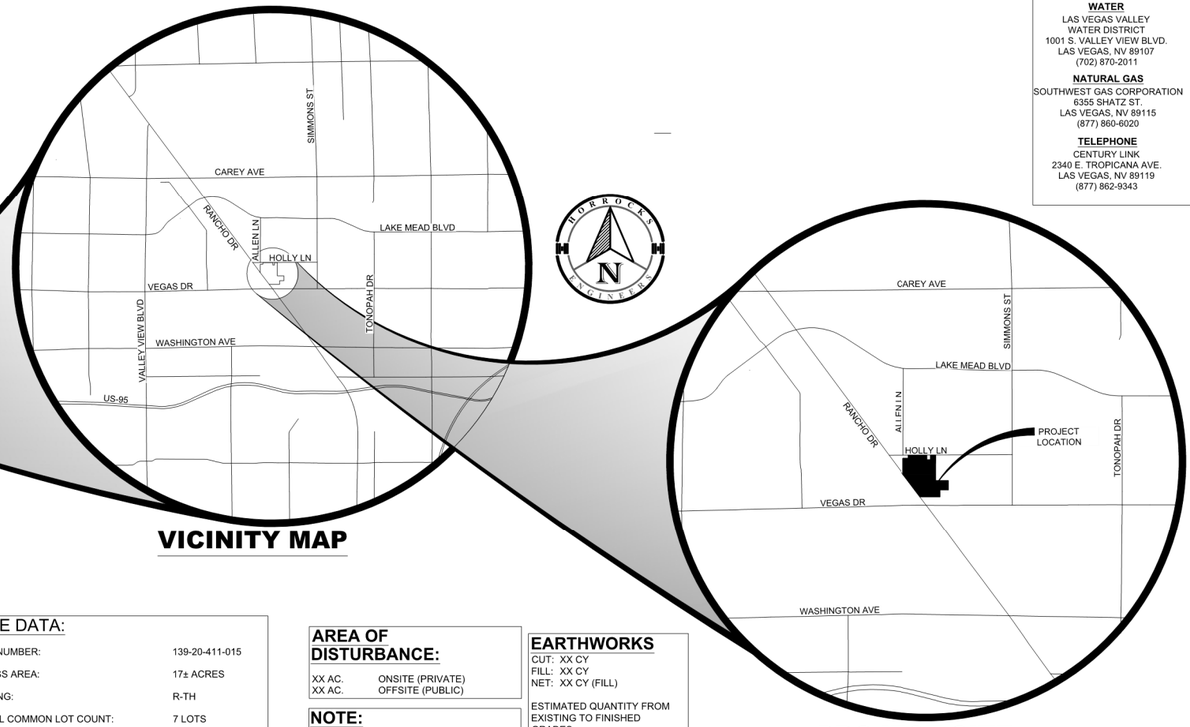
CITY OF LAS VEGAS

APN # 139-20-411-015

17 ACRES ±



NEVADA STATE MAP



VICINITY MAP

PROJECT SITE

OWNER:
HARMONY HOMES
8912 SPANISH RIDGE AVE, STE 200
LAS VEGAS, NV 89148
PHONE: (702)570-7213
CONTACT: MATT ROSENBERG
EMAIL: MROSENBERG@HARMONYHOMES.COM

DEVELOPER:
HARMONY HOMES
8912 SPANISH RIDGE AVE, STE 200
LAS VEGAS, NV 89148
PHONE: (702)570-7213
CONTACT: MATT ROSENBERG
EMAIL: MROSENBERG@HARMONYHOMES.COM

ENGINEER:
HORROCKS ENGINEERS
1401 N. GREEN VALLEY PKWY., STE 160
HENDERSON, NV 89074
PHONE: (702)966-4063
CONTACT: LARRY BITTON, P.E.
EMAIL: LARRYB@HORROCKS.COM

UTILITY CONTACTS

WATER LAS VEGAS VALLEY WATER DISTRICT 1001 S. VALLEY VIEW BLVD. LAS VEGAS, NV 89107 (702) 870-2011	**POWER** NEVADA ENERGY 7155 LINDELL RD. LAS VEGAS, NV 89118 (702) 402-8400
NATURAL GAS SOUTHWEST GAS CORPORATION 6355 SHATZ ST. LAS VEGAS, NV 89115 (877) 860-6020	**SEWER** CITY OF LAS VEGAS 333 N. RANCHO DR. LAS VEGAS, NV 89106 (702) 229-6301
TELEPHONE CENTURY LINK 2340 E. TROPICANA AVE. LAS VEGAS, NV 89119 (877) 862-9343	**CATV SERVICE** COX COMMUNICATIONS LAS VEGAS INC. 819 E. OGDEN AVE. LAS VEGAS, NV 89010 (702) 883-4000

Call before you dig
AVOID CUTTING UNDERGROUND UTILITIES. IT'S COSTLY.
Call 811 or 1-800-227-2600

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY.
CALL BEFORE YOU DO OVERHEAD
1-702-227-2929

EAST
Call before you UnderGround
1-702-432-5300
FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

Sheet List Table

Sheet Number	Sheet Description	Sheet Title
01	C.0.0	COVER SHEET
02	C.0.1	NOTES SHEET
03	C.0.2	LEGEND & ABBREVIATIONS
04	C.0.3	SITE KEY MAP
05	C.2.0	OVERALL GRADING SHEET
06	C.2.1	GRADING SHEET 1
07	C.2.2	GRADING SHEET 2
08	C.2.3	GRADING SHEET 3
09	C.2.4	GRADING SHEET 4
10	C.2.5	GRADING SHEET 5
11	C.2.6	GRADING SHEET 6
12	C.2.7	GRADING SHEET 7
13	C.2.8	GRADING SHEET 8
14	C.2.9	GRADING SHEET 9
15	C.2.10	GRADING SHEET 10
16	C.2.5A	GRADING SHEET 1 PHASE 2
17	C.2.6A	GRADING SHEET 2 PHASE 2
18	C.2.7A	GRADING SHEET 3 PHASE 2
19	C.2.8A	GRADING SHEET 4 PHASE 2
20	C.2.9A	GRADING SHEET 5 PHASE 2
21	C.2.10A	GRADING SHEET 6 PHASE 2
22	C.5.0	HOLLY AVE PLAN & PROFILE (STA 14+50 TO STA 19+25)
23	C.5.1	HOLLY AVE PLAN & PROFILE (STA 18+75 TO STA 22+25)
24	C.5.2	RANCHO DR PLAN & PROFILE (STA 51+00 TO STA 56+00)
25	C.5.3	RANCHO DR PLAN & PROFILE (STA 47+00 TO STA 51+25)
26	C.5.4	HESTIA AVE PLAN & PROFILE (STA 9+75 TO STA 13+25)
27	C.5.5	ARCADIAN KING AVE PLAN & PROFILE (STA 9+75 TO STA 14+50)
28	C.5.6	TRIPOLI COVE AVE PLAN & PROFILE (STA 14+75 TO STA 18+25)
29	C.5.7	HERODIAN AVE PLAN & PROFILE (STA 9+75 TO STA 14+50)
30	C.5.8	TRIPOLI FALLS AVE PLAN & PROFILE (STA 10+00 TO STA 14+00)
31	C.5.9	ALPHEUS RIVER AVE PLAN & PROFILE (STA 9+75 TO STA 12+50)
32	C.5.10	ALPHEUS RIVER AVE PLAN & PROFILE (STA 12+00 TO STA 16+50)
33	C.5.11	GRECIAN MOON ST PLAN & PROFILE (STA 13+00 TO STA 15+00)
34	C.5.12	MOUNT MAINALO ST PLAN & PROFILE (STA 9+75 TO STA13+50)
35	C.5.13	MOUNT MAINALO ST PLAN & PROFILE (STA 13+00 TO STA 16+00)
36	C.5.14	GRECIAN SKY ST PLAN & PROFILE (STA 9+75 TO STA 13+00)
37	C.5.15	GRECIAN SKY ST PLAN & PROFILE (STA 12+75 TO 16+00)
38	C.5.16	ARCADIAN SEA ST PLAN & PROFILE (STA 9+75 TO STA 14+75)
39	C.5.17	GOLDEN CHARIOT AVE PLAN & PROFILE (STA 9+75 TO STA 14+25)
40	C.5.18	GOLDEN CHARIOT AVE PLAN & PROFILE (STA 13+50 TO STA 17+50)
41	C.5.19	GRECIAN QUEEN AVE PLAN & PROFILE (STA 14+56 TO STA 18+26)
42	C.5.20	PARNON AVE PLAN & PROFILE (STA 19+08 TO STA 20+96)
43	C.5.21	NYX ST PLAN & PROFILE (STA 18+26 TO STA 19+08)
44	C.6.0	STREET SECTIONS
45	C.6.1	DETAILS 1
46	C.6.2	DETAILS 2

SITE DATA:

APN NUMBER:	139-20-411-015
GROSS AREA:	17± ACRES
ZONING:	R-TH
TOTAL COMMON LOT COUNT:	7 LOTS
TOTAL RESIDENTIAL LOT COUNT:	242 LOTS
TOTAL DENSITY:	14.24 DU/AC

AREA OF DISTURBANCE:

XX AC. ONSITE (PRIVATE)
XX AC. OFFSITE (PUBLIC)

NOTE:

FOR ALL REFERENCES TO FINAL MAP # SHOWN THROUGHOUT THIS SET OF PLANS, SEE PLAT BOOK ___ PAGE ___

EARTHWORKS

CUT: XX CY
FILL: XX CY
NET: XX CY (FILL)

ESTIMATED QUANTITY FROM EXISTING TO FINISHED GRADES.
PER SOILS REPORT BY GEOTEK, INC., PROJECT #14379-LV, DATED OCT 2, 2018

LEGAL DESCRIPTION:

BEING PORTIONS OF THE NORTH HALF (N 1/2) OF THE SOUTHWEST QUARTER (SW 1/4) OF THE SOUTHWEST QUARTER (SW 1/4) OF SECTION 20, TOWNSHIP 20 SOUTH, RANGE 61 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA, TOGETHER WITH LOTS 1, 2, 3, 4 AND THE WEST 200 FEET OF LOTS 11 AND 12 OF "SEBEC ACRES" AS SHOWN BY MAP THEREOF IN BOOK 2, PAGE 28 OF PLATS, CLARK COUNTY, NEVADA, OFFICIAL RECORDS.

BASIS OF BEARING:

NORTH 89°55'00" WEST, BEING THE SOUTH LINE OF THE SOUTHWEST QUARTER (SW 1/4) OF THE SOUTHWEST QUARTER (SW 1/4) OF SECTION 20, TOWNSHIP 20 SOUTH, RANGE 61 EAST, M.D.M., AS SHOWN IN BOOK 130, PAGE 27 OF PLATS IN THE OFFICE OF THE CLARK COUNTY, NEVADA RECORDER.

BENCHMARK:

BENCHMARK NO. 2LV0130NES
RIVET & PLATE IN TOP OF CURB AT SW CORNER OF VEGAS DRIVE AND SILVER LAKES
ELEVATION IN METERS: 646.832
ELEVATION IN FEET: 2122.15
NAVD 88

FLOOD ZONE:

THIS SITE IS LOCATED IN A ZONE "X", AREAS OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN AND PARTIALLY IN A SHADED ZONE "X", AREAS OF 0.2% ANNUAL CHANCE FLOOD; AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 1% ANNUAL CHANCE OF FLOOD PER THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL 32003C2160F, CLARK COUNTY, NEVADA DATED NOVEMBER 16, 2011.

APPROVALS

CITY OF LAS VEGAS FIRE DEPARTMENT — DATE

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

SOUTHWEST GAS CORPORATION — DATE

COX COMMUNICATIONS LAS VEGAS, INC — DATE

CENTRAL TELEPHONE COMPANY DBA CENTURY LINK — DATE
THE CENTURY LINK APPROVAL DOES NOT ASSUME OR GUARANTEE LIABILITY FOR KNOWN OR UNKNOWN CONFLICTS WITH EXISTING OR PROPOSED IMPROVEMENTS. RESOLUTION OF ANY CONFLICT WILL BE ACCOMPLISHED PURSUANT TO LOCAL ORDINANCES, NEVADA REVISED STATUTES AND/OR PUBLIC UTILITY COMMISSION RULES AND REGULATIONS.

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

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES MANAGER — DATE
(PROJECT#_____), SHEETS:_____

HORROCKS ENGINEERS
1401 North Green Valley Pkwy., Suite 160
Henderson, NV 89074
(702) 966-4063
www.horrocks.com

WARNING
IF THIS BAR DOES NOT MEASURE 2" THEN DRAWING IS NOT TO SCALE
0 1 2

REVISIONS
REV # | DATE
*SEE GENERAL NOTES SHEET

DRAWING INFO
DATE 6/25/2020
DESIGNED ACD
DRAWN PMP
CHECKED ACD
PROJECT NV-2105-1911

PROFESSIONAL ENGINEER STATE OF NEVADA
ANTHONY DELEON JR
EXP 12-31-20
CIVIL
No. 023113
6/25/2020

RANCHO & VEGAS
CITY OF LAS VEGAS, NEVADA
COVER SHEET

C.0.0
PAGE 01

CITY OF LAS VEGAS GENERAL NOTES

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

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

3. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING UTILITY LINES, STRUCTURES AND STREET IMPROVEMENTS WHICH ARE TO REMAIN IN PLACE, FROM DAMAGE, AND ALL SUCH IMPROVEMENTS OR STRUCTURES DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED OR REPLACED SATISFACTORY TO THE CITY ENGINEER AND OWNING UTILITY COMPANY AT THE EXPENSE OF THE CONTRACTOR.

4. ALL CONSTRUCTION SHALL BE AS SHOWN ON THESE PLANS, ANY REVISIONS SHALL HAVE THE PRIOR WRITTEN APPROVAL OF THE CITY ENGINEER.

5. TYPE V CEMENT SHALL BE USED IN ALL OFF-SITE CONCRETE WORK. CONCRETE TO BE 3000 P.S.I. MINIMUM @ 28 DAYS. MIX DESIGNS TO BE APPROVED BY THE CITY, PRIOR TO THE USE ON THE PROJECT.

6. PERMITS ARE REQUIRED FOR ANY WORK IN THE PUBLIC RIGHT-OF-WAY. THE CONTRACTOR SHALL SECURE ALL PERMITS AND INSPECTIONS REQUIRED FOR THIS CONSTRUCTION.

7. EXPANSION JOINTS REQUIRED, MAXIMUM EVERY 300' IN EXTRUDED-TYPE CURB.

8. AC PAVEMENT TO BE ONE-HALF INCH (½") ABOVE LIP OF ALL GUTTERS AFTER COMPACTION, EXCEPT AT SIDEWALK RAMPS AND CROSS GUTTERS.

9. CURB AND GUTTER FOUND TO BE UNACCEPTABLE TO THE CITY OF LAS VEGAS SHALL BE REMOVED AND REPLACED PER STANDARD DRAWING 216.

10. SIDEWALK RAMPS SHALL BE CONSTRUCTED IN EACH QUADRANT OF AN INTERSECTION PER STANDARD DRAWING 235. EXACT LOCATION OF RAMPS MAY BE ADJUSTED IN THE FIELD BY A CITY INSPECTOR.

11. CONTRACTOR SHALL PROVIDE ALL NECESSARY HORIZONTAL AND VERTICAL TRANSITIONS BETWEEN NEW CONSTRUCTION AND EXISTING SURFACES TO PROVIDE FOR PROPER DRAINAGE AND FOR INGRESS AND EGRESS TO NEW CONSTRUCTION. THE EXTENT OF THE TRANSITIONS TO BE AS SHOWN ON PLANS.

12. ALL GRADING WORK SHALL CONFORM TO THE SOILS REPORT AS PREPARED BY THE (COMPANY , REPORT #, DATE) APPROVED BY THE CITY ENGINEER, AND AS SHOWN ON THESE PLANS.

13. EXACT LOCATION OF ALL SAWCUT LINES MAY BE ADJUSTED OR DETERMINED IN THE FIELD BY A CITY OF LAS VEGAS ENGINEER IF LOCATION ON PLANS IS NOT CLEARLY SHOWN, OR EXISTING PAVEMENT CONDITION REQUIRES RELOCATIONS.

14. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PROTECT EXISTING PERMANENT SURVEY MONUMENTS. ANY MONUMENTS DISTURBED SHALL BE REPLACED AND ADJUSTED PER AVAILABLE RECORDS IN ACCORDANCE WITH N.R.S. STATUTE NO. 625.380 & CITY OF LAS VEGAS TITLE 18, APPENDIX D.

15. UTILITY COMPANY METER BOXES, MANHOLE LIDS, VALVE COVERS, ETC., SHALL BE LOCATED OUT OF DRIVEWAYS, DRIVEWAY APRONS, FLOWLINES, AND CROSS GUTTERS UNLESS WRITTEN APPROVAL IS GRANTED BY THE UTILITY COMPANY AND THE CITY ENGINEER.

WALL NOTES:

16. ALL WALLS, NEW OR EXISTING, ARE ONLY SHOWN ON CIVIL PLANS FOR THE PURPOSE OF REVIEWING GRADING RELATIONSHIPS; FLOOD CONTROL AND SIGHT DISTANCE AT INTERSECTIONS. NEW WALLS REQUIRE A SEPARATE PERMIT AND INSPECTION BY THE BUILDING DEPARTMENT.

17. ASPHALT MIX DESIGN MUST BE SUBMITTED AND APPROVED BY THE CITY ENGINEER PRIOR TO THE PLACEMENT OF ASPHALT WITHIN CITY RIGHT OF WAY.

18. CONTRACTOR SHALL ADJUST ALL NEW AND EXISTING INLETS, VALVE BOXES, MANHOLE RIMS, AND SEWER CLEAN OUTS, ETC. TO FINISH GRADE AS APPLICABLE WHETHER OR NOT THEY ARE SHOWN ON THE PLANS.

19. MATERIALS, HANDLING AND PLACEMENT OF PORTLAND CEMENT CONCRETE SHALL BE IN ACCORDANCE WITH APPLICABLE SECTIONS OF NDOT OR THE CLARK COUNTY AREA SPECIFICATIONS (AS APPLICABLE) AND THE PLANS AND DETAILS SHOWN HEREON.

20. WHEN INSTALLING UNDERGROUND FACILITIES THAT REQUIRE UNDERGROUND LOCATING DEVICES SUCH AS MARKER BALLS, LOCATING RIBBON, ETC, THE CONTRACTOR SHALL PROVIDE WRITTEN DOCUMENTATION TO OFFSITE INSPECTION AND TESTING CERTIFYING THAT ALL DEVICES HAVE BEEN PLACED AND VERIFIED TO BE IN GOOD WORKING CONDITION PRIOR TO THE CONSTRUCTION OF ANY ROAD BASE.

21. SANITARY SEWER AND STORM DRAIN FINAL LOCATION MAP(S) SHALL BE PROVIDED TO THE CITY AND APPROVED PRIOR TO ACCEPTANCE OF FACILITY VIDEO INSPECTION. THE MAP(S) SHALL INCLUDE THE HORIZONTAL AND VERTICAL (INVERT) LOCATION OF PUBLIC SEWER MANHOLES, STORM DRAIN MANHOLES AND TRANSITION STRUCTURES, STORM DRAIN LATERALS AT THE CONNECTION TO THE STORM DRAIN MAIN AND AT THE CONNECTION TO A DROP INLET, THE CONNECTION OF SEWER SERVICE LATERALS TO THE SEWER MAIN AND WHERE THE SEWER SERVICE LATERALS EXIT THE PUBLIC RIGHT-OF-WAY, AND STORM DRAIN MAIN ALIGNMENT, INCLUDING DEFLECTION POINTS. THE LOCATION SHALL BE DESCRIBED BY COORDINATES WHICH SHALL BE BASED ON THE OFFICIAL HORIZONTAL AND VERTICAL CONTROL NETWORKS OF THE CITY OF LAS VEGAS. FINAL LOCATION MAPS MUST BE SEALED AND CERTIFIED BY A NEVADA PROFESSIONAL LAND SURVEYOR TO HAVE POSITIONAL CERTAINTIES OF ± 0.09 METERS (± 0.3 FEET) HORIZONTALLY AND VERTICALLY. A SEPARATE ELECTRONIC COMMA DELIMITED FILE FOR THE SANITARY SEWER AND STORM DRAIN COORDINATES SHALL ALSO ACCOMPANY THE SANITARY SEWER AND STORM DRAIN FINAL LOCATION MAP(S).

OR

SANITARY SEWER AND STORM DRAIN FACILITIES SHOWN ON THESE PLANS SHALL BE USED TO MEET THE REQUIREMENTS OF NRS 455 AND SHALL SHOW AT A MINIMUM THE HORIZONTAL AND VERTICAL (INVERT) LOCATION OF PUBLIC SEWER MANHOLES, STORM DRAIN MANHOLES, STORM DRAIN LATERALS AT THE CONNECTION TO THE STORM DRAIN MAIN AND AT THE CONNECTION TO A DROP INLET, AND THE CONNECTION OF SEWER SERVICE LATERALS TO THE SEWER MAIN AND WHERE THE SEWER SERVICE LATERALS EXIT THE PUBLIC RIGHT-OF-WAY. ANY DEVIATIONS FROM THE INFORMATION SHOWN SHALL BE NOTED AND SUBMITTED AS A REVISION TO THE PLANS AND APPROVED PRIOR TO ACCEPTANCE OF FACILITY VIDEO INSPECTION.

22. CCTV VIDEO INSPECTION IS REQUIRED FOR ALL SEWER AND STORM DRAINS. THE CCTV VIDEO INSPECTIONS NEED TO BE PERFORMED PER THE DESIGN AND CONSTRUCTION STANDARDS FOR WASTEWATER COLLECTION SYSTEMS LATEST EDITION.

23. A SEPARATE BORING PERMIT IS REQUIRED FOR ALL BORING ACTIVITIES.

CITY OF LAS VEGAS GRADING NOTES

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

2. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM ALL NECESSARY CUTS AND FILLS WITHIN THE LIMITS OF THIS PROJECT AND THE RELATED OFF-SITE WORK, SO AS TO GENERATE THE DESIRED SUBGRADE, FINISH GRADES AND SLOPES SHOWN.

3. CONTRACTOR SHALL TAKE FULL RESPONSIBILITY FOR ALL EXCAVATION. ADEQUATE SHORING SHALL BE DESIGNED AND PROVIDED BY THE CONTRACTOR TO PREVENT UNDERMINING OF ANY ADJACENT FEATURES OR FACILITIES AND/OR CAVING OF THE EXCAVATION.

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

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

6. CONTRACTOR SHALL GRADE TO THE LINES AND ELEVATIONS SHOWN ON THE PLANS WITHIN THE FOLLOWING HORIZONTAL AND VERTICAL TOLERANCES AND DEGREES OF COMPACTION, IN THE AREAS INDICATED:

	HORIZONTAL	VERTICAL	COMPACTION
A. PAVEMENT AREA SUBGRADE	0.1'+	+0.0' TO -0.1'	SEE SOILS REPORT
B. ENGINEERED FILL	0.5'+	+0.1' TO -0.1'	SEE SOILS REPORT

COMPACTION TESTING WILL BE PERFORMED BY THE OWNER OR HIS REPRESENTATIVE.

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

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

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

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

CITY OF LAS VEAGS TRAFFIC NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

CITY OF LAS VEGAS STREETLIGHT NOTES

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

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

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

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

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

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

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

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

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

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

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

STORMWATER MANAGEMENT NOTES

1. THE OWNER, SITE DEVELOPER, CONTRACTOR, AND/OR THEIR AUTHORIZED AGENTS SHALL EACH DAY REMOVE ALL SEDIMENT, MUD, CONSTRUCTION DEBRIS, OR OTHER POTENTIAL POLLUTANTS THAT MAY HAVE BEEN DISCHARGED TO, OR ACCUMULATED IN, THE PUBLIC RIGHTS OF WAY OF CLARK COUNTY AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS SITE DEVELOPMENT OR CONSTRUCTION PROJECT. SUCH MATERIALS SHALL BE PREVENTED FROM ENTERING THE STORM SEWER SYSTEM.

2. ADDITIONAL CONSTRUCTION SITE DISCHARGE BEST MANAGEMENT PRACTICES MAY BE REQUIRED OF THE OWNER AND HIS OR HER AGENTS DUE TO UNFORESEEN EROSION PROBLEMS OR IF THE SUBMITTED PLAN DOES NOT MEET THE PERFORMANCE STANDARDS SPECIFIED IN CLARK COUNTY TITLE 24.40 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 NVR 100000, SECTION III.A.5.

4. AT A MINIMUM, THE CONSTRACTOR 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 A RAIN EVENT OF 0.5 INCHES OR MORE. THE CONTRACTOR OR HIS AGENT SHALL UPDATE OR MODIFY THE STORMWATER POLLUTION PREVENTION PLAN AS NECESSARY. SOME EXCEPTIONS TO WEEKLY INSPECTIONS MAY APPLY, SUCH AS SUSPENSION OF LAND DISTURBANCE ACTIVITIES. REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR 100000, 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 CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE.

SOUTHERN NEVADA - SOUTHWEST GAS CORPORATION GENERAL NOTES

1. IN THE EVENT OF A NATURAL GAS EMERGENCIES CALL 911 AND 1-877-860-6020.

2. THERE SHALL BE A MINIMUM HORIZONTAL AND VERTICAL CLEARANCE OF 12-INCHES BETWEEN NATURAL GAS FACILITIES AND ANY UNDERGROUND FACILITIES AND/OR STRUCTURES, INCLUDING BUT NOT LIMITED TO WATER, SEWER, STORM DRAIN, COMMUNICATIONS, AND ELECTRIC.

3. FOR VALVE ADJUSTMENT CONTACT 702-528-7881 14 DAYS PRIOR TO CONSTRUCTION.

4. IN THE EVENT OF A NATURAL GAS CONFLICT WITH PROPOSED UTILITIES AND/OR STRUCTURES CONTACT 702-365-2099.

5. FOR STAND BY CONTACT 702-278-8451

CITY OF LAS VEGAS FIRE PREVENTION NOTES

1. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE LAS VEGAS FIRE AND RESCUE ADOPTED FIRE CODE ORDINANCE # 6325 FOR HYDRANT SPECIFICATIONS AND HYDRANT INSTALLATION SPECIFICATIONS.

2. ONLY FIRE HYDRANTS THAT ARE ON THE LAS VEGAS VALLEY WATER DISTRICT'S - **APPROVED PRODUCTS LIST** ARE ALLOWED TO BE INSTALLED.

3. A PERMIT IS REQUIRED FROM LAS VEGAS FIRE AND RESCUE FOR THE INSTALLATION OF ON-SITE WATER LINES AND FIRE HYDRANTS. THE PERMIT AND CONTRACTORS MATERIAL TEST CERTIFICATE FOR UNDERGROUND PIPING FORM SHALL BE OBTAINED FROM THE FIRE PROTECTION ENGINEER *BEFORE* COMMENCEMENT OF WORK. [IFC § 105.7.12]

4. ON ANY RESIDENTIAL OR COMMERCIAL INSTALLATIONS, FIRE HYDRANTS SHALL BE INSTALLED AND FIRE APPARATUS ACCESS ROADS SHALL BE MAINTAINED *BEFORE* COMMENCEMENT OF ANY COMBUSTIBLE CONSTRUCTION. ALL FIRE HYDRANTS SHALL BE IN GOOD WORKING ORDE AND SHALL BE CAPABLE OF DELIVERING THE REQUIRED FIRE FLOW. [IFC § 3310, § 3312]

5. TO IDENTIFY THE FIRE HYDRANT LOCATIONS, THE CONTRACTOR SHALL PLACE A BLUE REFLECTIVE MARKER AT THE CENTER LINE OF THE STREET ADJACENT TO THE FIRE HYDRANTS. [IFC § 507.5.7.3]

6. ALL UNDERGROUND INSPECTIONS, PRESSURE AND FLUSH VERIFICATIONS OF ALL FIRE HYDRANTS AND FIRE LINES, SHALL BE CONDUCTED *BEFORE* COVERING THE LINES. CENTER LOADING IS ACCEPTABLE FOR THE HYDRO TESTS WITH PRIOR FIRE PREVENTION APPROVAL. [IFC § 106.3]

7. ALL ON-SITE UNDERGROUND WATER MAINS AND MATERIALS SHALL BE U.L. LISTED, A.W.W.A APPROVED AND SHALL BE RATED FOR THE APPROPRIATE WORKING PRESSURE. [IFC § 507.2.1, NFPA 24]

8. PAINTING OF CURBS, FIRE HYDRANTS, PADS, PROTECTION OF FIRE HYDRANTS FROM PHYSICAL DAMAGE, AND ALL OTHER WORK NECESSARY PER PLANS SHALL BE COMPLETED BEFORE APPROVAL BY LAS VEGAS FIRE AND RESCUE, FIRE PREVENTION DIVISION. [IFC § 507]

9. PRIVATE HYDRANTS SHALL BE PAINTED RED. [IFC § 507.5.7.1]

10. PRIOR TO THE FINAL OCCUPANCY, A FIRE FLOW TEST SHALL BE WITNESSED BY LAS VEGAS FIRE AND RESCUE, FIRE PREVENTION DIVISION TO VERIFY AVAILABILITY OF THE REQUIRED FIRE FLOW. [IFC § 507]

11. FIRE HYDRANT SPACING SHALL BE AS FOLLOWS. [IFC § C102]
    - RESIDENTIAL - 500 FT UNSPRINKLERED; 600 FT SPRINKLERED.
    - COMMERCIAL - 300 FT UNSPRINKLERED; 400 FT SPRINKLERED.

12. WHERE THE WATER MAINS ARE EXTENDED ALONG STREETS OR NEW STREETS ARE INSTALLED WHERE FIRE HYDRANTS ARE NOT NEEDED FOR PROTECTION OF THE STRUCTURES, FIRE HYDRANTS SHALL BE INSTALLED AT A MAXIMUM OF 1000 FT SPACING, TO PROVIDE FOR TRANSPORTATION HAZARDS. WHERE STREETS ARE PROVIDED WITH MEDIAN DIVIDERS OR HAVE FOUR (4) OR MORE TRAFFIC LANES AND HAVE A TRAFFIC COUNT OF MORE THAN 30,000 PER DAY, HYDRANTS ARE REQUIRED ON EACH SIDE OF THE STREET SPACED AT 500 FT ON AN ALTERNATING BASIS. [IFC § C102.8]

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

14. NO FIRE HYDRANTS SHALL BE LOCATED WITHIN 6 FT OF ANY CURB RETURN, DRIVEWAY, POWER POLE, STREETLIGHT OR ANY OTHER OBSTRUCTION. [IFC § C102.12]

15. A MAXIMUM DISTANCE FROM A FIRE HYDRANT TO A ONE-TWO FAMILY DWELLING SHALL NOT EXCEED 300 FT, AS MEASURED BY AN APPROVED ROUTE. [IFC § C102.4]

16. THE MAXIMUM DISTANCE FROM A FIRE HYDRANT TO A FIRE DEPARTMENT CONNECTION (FDC) SHALL NOT EXCEED 100 FT, AS MEASURED BY AN APPROVED ROUTE. [IFC § C102.7]

17. THE MAXIMUM DISTANCE FROM A HYDRANT TO THE END OF A DEAD-END STREET SHALL NOT EXCEED 200 FT. [IFC § C102.6]

18. TWO (2) SOURCES OF SUPPLY ARE REQUIRED WHENEVER THERE IS 4 OR MORE FIRE HYDRANTS/SPRINKLER LEAD-INS ARE INSTALLED ON A SINGLE SYSTEM. SECTIONAL CONTROL VALVES SHALL BE INSTALLED SO THAT NO MORE THAN 2 FIRE HYDRANTS CAN BE OUT OF SERVICE DUE TO A BREAK IN A WATER MAIN. [IFC § C104]

19. ALL FIRE APPARATUS ACCESS ROADS SHALL BE PAVED TO PROVIDE ALL-WEATHER DRIVING CAPABILITIES, AND SHALL BE DESIGNED AND MAINTAINED TO SUPPORT THE IMPOSED LOADS OF THE FIRE APPARATUS. [IFC § 503.2.3]

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

SEWER

EXISTING	PROPOSED
UNKNOWN	
4 INCH	
6 INCH	
8 INCH	
10 INCH	
12 INCH	
14 INCH	
15 INCH	
16 INCH	
18 INCH	
24 INCH	
30 INCH	
36 INCH	
SERVICE LATERAL	

POWER

EXISTING	PROPOSED
OVERHEAD	
UNDERGROUND	
N/A	2 INCH
N/A	3 INCH
N/A	4 INCH
N/A	6 INCH
N/A	8 INCH
N/A	10 INCH
	1 PH A 1/0
	1 PH A 4/0
	1 PH B 1/0
	1 PH B 4/0
	1 PH C 1/0
	1 PH C 4/0
	3 PH ABC 4/0
	3 PH ABC 750A
	SECONDARY
	STREET LIGHT

HATCH PATTERNS

- BUILDING / PAD
- CONCRETE SIDEWALK / FLATWORK
- DECORATIVE BRICK / SIDEWALK / FLATWORK / LANDSCAPE AREAS
- POOL DECK
- XERISCAPE
- LANDSCAPE AREAS / GRASS
- HEAVY DUTY PAVEMENT SECTION
- LIGHT DUTY PAVEMENT SECTION
- ADA ACCESS RAMP TRUNCATED DOMES
- RIPRAP
- GRAVEL

STANDARD SYMBOLS

EXISTING	PROPOSED
ELECTRICAL MANHOLE	E
FIBER OPTIC MANHOLE	FO
TELEPHONE MANHOLE	T
CABLE TV MANHOLE	TV
ELECTRICAL POWER POLE	PP
SIGNAL POLE	
ELECTRICAL BOX	E
FIBER OPTIC BOX	FO
JUNCTION BOX	JB
TELEPHONE BOX	TB
TELEPHONE PEDESTAL	T
CABLE TV BOX	TV
LIGHT POLE	
LIGHT POLE OPT 2	
LIGHT POLE OPT 3	
GAS MANHOLE	G
GAS METER	G
CLEANOUT	CO
SEWER MANHOLE	S
IRRIGATION MANHOLE	IR
IRRIGATION BOX	IR
WATER MANHOLE	W
WATER METER	W
WATER METER OPT 2	WM
BLOW-OFF	BO
FIRE HYDRANT	
FIRE HYDRANT OPT 2	
GATE VALVE	
GATE VALVE OPT 2	
CROSS	
TEE	
90° BEND	
45° BEND	
22.5° BEND	
11.25° BEND	
WYE	
REDUCER	
CAP & PLUG	
STORM DRAIN MANHOLE	SD
AREA DRAIN ROUND	
AREA DRAIN SQUARE	
DROP INLET	
CURB INLET	
CURB INLET OPT 2	
CURB INLET OPT 3	
CURB DOUBLE INLET	
CURB DOUBLE INLET OPT 2	
COMBO BOX	SD
OIL/WATER SAND/GREASE	
OIL/WATER SAND/GREASE OPT 2	
FLARED END LARGE	
FLARED END SMALL	
SIGN	
BOLLARD	
BORE HOLE	BH
TEST PIT	TP

ABBREVIATIONS

A	ALGEBRAIC GRADE CHANGE
ABC	AGGREGATE BASE COURSE
AC	ASPHALTIC CEMENT OR CONCRETE
BC	BUILDING CORNER
BCR	BACK OF CURB RETURN
BFE	BASE FLOOD ELEVATION
BFF	BASEMENT FINISH FLOOR ELEVATION
BLDG	BUILDING
BM	BENCHMARK
BP	BEGIN POINT
BV	BUTTERFLY VALVE
BVC	BEGIN VERTICAL CURVE
BVCE	BEGIN VERTICAL CURVE ELEVATION
BVCS	BEGIN VERTICAL CURVE STATION
BVP	BEGIN VERTICAL PROFILE
BVW	BOTTOM OF VISIBLE WALL
C&G	CURB & GUTTER
CL	CENTERLINE
CB	CATCH BASIN
CLR	CLEAR
CO	CLEANOUT
CONC	CONCRETE
Cu	COPPER
C.Y.	CYCUBIC YARD
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DWG	DRAWING
F	FAST OR FASTING
EA	EACH
EG	EXISTING GRADE
EOC	EDGE OF CONCRETE
EOP	EDGE OF PAVEMENT
EP	END POINT
ESMT	EASEMENT
EVC	END VERTICAL CURVE
EVCE	END VERTICAL CURVE ELEVATION
EVCS	END VERTICAL CURVE STATION
EVP	END VERTICAL PROFILE
EX	EXISTING
FF	FINISHED FLOOR ELEVATION
FE	FLANGE END
FG	FINISHED GRADE ELEVATION
FL	FLOW LINE
FJ	FLANGE JOINT
FM	FORCE MAIN
FPS	FEET PER SECOND
FT	FOOT OR FEET
FUT	FUTURE
G	GAS LINE
GB	GRADE BREAK
GFF	GARAGE FINISHED FLOOR ELEVATION
GV	GATE VALVE
HGL	HYDRAULIC GRADE LINE
HRZ	HORIZONTAL
HP	HIGH POINT
HWM	HIGH WATER MARK
ID	INSIDE DIAMETER
IN	INCH(ES)
IRR	IRRIGATION (PRESSURIZED)/ NON-POTABLE
K	VERTICAL CURVE COEFFICIENT
L	LENGTH
LF	LINEAR FEET
L/S	LANDSCAPE
LP	LOW POINT
LT	LEFT
MAX	MAXIMUM
MFR	MANUFACTURER
MGD	MILLION GALLONS PER DAY
MID	MIDDLE
MH	MANHOLE
MIN	MINIMUM
MJ	MECHANICAL JOINT
N	NORTH OR NORTHING, FRICTION FACTOR
N/A	NOT APPLICABLE
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OVHP	OVERALL HIGH POINT
OVLP	OVERALL LOW POINT
PC	POINT OF CURVE
PCC	POINT OF COMPOUND CURVE
PDE	PUBLIC DRAINAGE EASEMENT
PH	PHASE
PI	POINT OF INTERSECTION
PL	PROPERTY LINE
PRC	POINT OF REVERSE CURVE
PT	POINT OF TANGENCY
PUE	PUBLIC UTILITY EASEMENT
PVC	POLYVINYL CHLORIDE
PVI	POINT OF VERTICAL INTERSECTION
Q	RATE OF FLOW
R	RADIUS
R/W	RIGHT OF WAY
REV	REVISION
RT	RIGHT
S	SLOPE
S/W	SIDEWALK
SD	STORM DRAIN
SDMH	STORM DRAIN MANHOLE
SEC	SECTION
SPEC	SPECIFICATIONS
SSMH	SANITARY SEWER MANHOLE
SS	SANITARY SEWER
S/L	STREETLIGHT
STA	STATION
STD	STANDARD
SVE	SIGHT VISIBILITY EASEMENT
TBM	TEMPORARY BENCH MARK
TOC	TOP OF CONCRETE
TBC	TOP BACK OF CURB
TEMP	TEMPORARY
TA	TOP OF ASPHALT
TF	TOP OF FOOTING
TG	TOP OF GRATE
TRW	TOP OF RETAINING WALL
TW	TOP OF WALL
TYP	TYPICAL
UTC	UNTREATED BASE COURSE
V	VELOCITY
VC	VERTICAL CURVE
VRT	VERTICAL
WTR	WATER
W/	WITH

STORM

EXISTING	PROPOSED
UNKNOWN	
4 INCH	
6 INCH	
8 INCH	
10 INCH	
12 INCH	
15 INCH	
16 INCH	
18 INCH	
24 INCH	
30 INCH	
36 INCH	
42 INCH	
48 INCH	
54 INCH	
60 INCH	
66 INCH	
72 INCH	
LAND DRAIN	

GAS

EXISTING	PROPOSED
UNKNOWN	
N/A	1 INCH
	2 INCH
	3 INCH
	4 INCH
	6 INCH
	8 INCH
	12 INCH
	HIGH PRESSURE

SURFACE FEATURES

EXISTING/PROPOSED

- CUT LINE
- FILL LINE
- LIMITS OF DISTURBANCE
- DITCH
- GRADE BREAK
- HIGH WATER MARK
- HIGH WATER MARK - 1 YEAR EVENT
- HIGH WATER MARK - 5 YEAR EVENT
- HIGH WATER MARK - 10 YEAR EVENT
- HIGH WATER MARK - 25 YEAR EVENT
- HIGH WATER MARK - 50 YEAR EVENT
- HIGH WATER MARK - 100 YEAR EVENT
- FENCE - BARBED
- FENCE - CHAIN LINK
- FENCE - DECORATIVE
- FENCE - WOOD
- WALL - BLOCK
- WALL - CONCRETE
- WALL - PANEL
- WALL - ROCK
- RIGHT OF WAY
- CENTERLINE (ROAD/ENTITY)
- CURB & GUTTER
- PARCEL LINE
- PROPERTY BOUNDARY
- 10' PUBLIC UTILITY & DRAINAGE EASEMENT (P.U.E.)
- PAINT STRIPE - SOLID
- PAINT STRIPE - DOUBLE SOLID
- PAINT STRIPE - BROKEN
- PAINT STRIPE - BIKE LANE INTERSECTION
- PAINT STRIPE - LANE DROP
- PAINT STRIPE - LANE LINE EXTENSION
- TRAFFIC SIGNAL - DETECTION CONDUIT
- TRAFFIC SIGNAL - FUTURE CONDUIT
- TRAFFIC SIGNAL - LIGHTING CONDUIT
- TRAFFIC SIGNAL - PEDESTRIAN CONDUIT
- TRAFFIC SIGNAL - POWER SOURCE CONDUIT
- TRAFFIC SIGNAL - SIGNAL CONDUIT

WATER

EXISTING	PROPOSED
UNKNOWN	
3/4" INCH	
1 INCH	
1-1/2 INCH	
2 INCH	
3 INCH	
4 INCH	
6 INCH	
8 INCH	
10 INCH	
12 INCH	
14 INCH	
16 INCH	
18 INCH	
24 INCH	
30 INCH	
36 INCH	
48 INCH	
60 INCH	
72 INCH	
SERVICE LATERAL	

COMMUNICATIONS

EXISTING	PROPOSED
OVERHEAD CABLE TV	
UNDERGROUND CABLE TV	
OVERHEAD FIBER OPTIC	
UNDERGROUNG FIBER OPTIC	
OVERHEAD TELEPHONE	
UNDERGROUND TELEPHONE	

IRRIGATION

EXISTING	PROPOSED
UNKNOWN	
1 INCH	
2 INCH	
4 INCH	
6 INCH	
8 INCH	
10 INCH	
12 INCH	
18 INCH	N/A
24 INCH	N/A
30 INCH	N/A
36 INCH	N/A
SERVICE LATERAL	

MISCELLANEOUS

EXISTING	PROPOSED
DEMO	
UNKNOWN PIPE	
JOINT UTILITY TRENCH	
TOE OF SLOPE	
TOP OF SLOPE	
DIRECTIONAL FLOWLINE	
EDGE OF PAVEMENT	
GUARDRAIL	
RAILROAD TRACKS	
CONTOUR - MAJOR	4000
CONTOUR - MINOR	4002

CONSTRUCTION KEYNOTE TAGS

D00	OR	D99	DEMO PLAN
G1	OR	G9	GRADING PLAN
01	OR	35	SITE PLAN
36	OR	50	WATER
51	OR	65	SEWER
66	OR	80	STORM DRAIN
81	OR	90	IRRIGATION
91	OR	93	CABLE TV
94	OR	96	TELEPHONE
97	OR	99	GAS
00	OR	00	POWER
A	OR	Z	MISCELLANEOUS

CALLOUTS

- FFE: XXXX.XX — PROPOSED BUILDING FINISHED FLOOR ELEVATION
- 75.19 — PROPOSED TBC SPOT ELEVATION (@ PC'S, PT'S & PL)
- 75.19 — PROPOSED EOP SPOT ELEVATION (@ EDGE OF)
- # — PARKING STALL COUNT

DETAIL REFERENCE

X / - **DETAIL NAME**
SCALE: NTS

MATCHLINE STA. XX+XX.XX
SEE SHEET PP-XX

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT NO._____ FIRST APPROVAL DATE:_____
LVVWD APPROVED FIRE FLOW_____GPM AT 20 PSI RESIDENTIAL
MAXIMUM AVAILABLE FIRE SPRINKLER FLOW_____N/A_____GPM

HORROCKS ENGINEERS
1401 North Green Valley Pkwy., Suite 160
Henderson, NV 89074
(702) 966-4063
www.horrocks.com

WARNING
IF THIS BAR DOES NOT MEASURE 2" THEN DRAWING IS NOT TO SCALE
0 1 2

REVISIONS
REV # | DATE

*SEE GENERAL NOTES SHEET

DRAWING INFO
DATE 3/30/2020
DESIGNED SS
DRAWN SS
CHECKED ACD
PROJECT NV-2105-1911

PROFESSIONAL ENGINEER STATE OF NEVADA
ANTHONY DELEON JR
EXP. 12-31-20
CIVIL
No. 023113
6/25/2020

RANCHO & VEGAS
CITY OF LAS VEGAS, NEVADA

LEGEND & ABBREVIATIONS

C.0.2

PAGE 03

HORROCKS ENGINEERS
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WARNING
0 1 2
IF THIS BAR DOES NOT MEASURE 2" THEN DRAWING IS NOT TO SCALE

REVISIONS
REV # | DATE

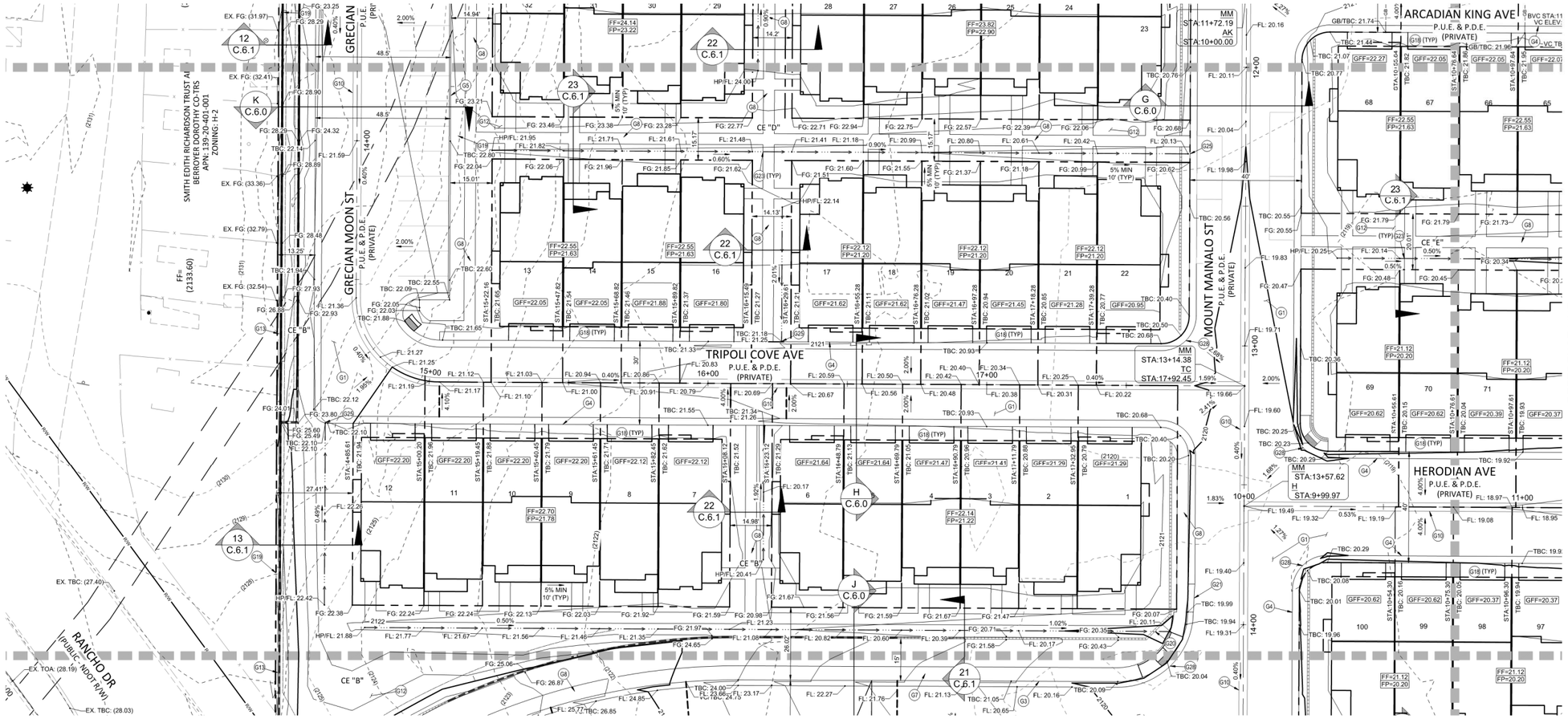
*SEE GENERAL NOTES SHEET

DRAWING INFO
DATE 3/30/2020
DESIGNED SS
DRAWN SS
CHECKED ACD
PROJECT NV-2105-1911

PROFESSIONAL ENGINEER STATE OF NEVADA
ANTHONY C. DELEON JR
EXP. 12-31-20
CIVIL
No. 023113
6/25/2020

RANCHO & VEGAS
CITY OF LAS VEGAS, NEVADA
SITE KEY MAP

C.0.3
PAGE 04



BASIS OF BEARING

SEE SHEET C.2.0

BENCHMARK

SEE SHEET C.2.0

LEGAL DESCRIPTION

SEE SHEET C.2.0

FLOOD ZONE

SEE SHEET C.2.0

SIGHT VISIBILITY ZONE PER CCAUSD# 201.2 (TYP)

SIGHT VISIBILITY ZONE NOTE:

NO WALLS, FENCES, SHRUBS, UTILITY APPURTENANCES OR ANY OTHER OBJECT, OTHER THAN TRAFFIC CONTROL DEVICES, FIRE HYDRANTS, TREES, AND STREET LIGHT POLES, MAY BE CONSTRUCTED OR INSTALLED WITHIN THE SIGHT VISIBILITY ZONE UNLESS SAID OBJECT IS MAINTAINED AT LESS THAN 24 INCHES IN HEIGHT, MEASURED FROM TOP OF CURB, OR WHERE NO CURB EXISTS, A HEIGHT OF 27 INCHES MEASURED FROM THE TOP OF ADJACENT ASPHALT, GRAVEL OR PAVEMENT STREET SURFACE. THIS RESTRICTION EXTENDS ALONG THE SIGHT VISIBILITY LINE THROUGH LANDSCAPED MEDIANS.

Call before you Dig
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.
Call 811
1-800-227-2600

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY.
CALL BEFORE YOU DO OVERHEAD
1-702-227-2929

FAST
Call before you UnderGround
1-702-432-5300
FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

ENGINEER'S NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR EROSION AND DUST CONTROL, AND STORMWATER MANAGEMENT DURING CONSTRUCTION.
2. SEE HORIZONTAL CONTROL PLAN FOR EXACT PROPERTY LINE DIMENSIONS
3. ENGINEER TO BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES BETWEEN THESE PLANS AND FIELD CONDITIONS.
4. THESE PLANS SHALL NOT IN PART, OR IN WHOLE, BE USED FOR CONSTRUCTION UNTIL APPROVED AND SIGNED BY GOVERNING AGENCIES.
5. ALL GRADING SHALL CONFORM TO SOILS REPORT RECOMMENDATIONS.
6. DURING CONSTRUCTION, SURVEYORS AND CONTRACTORS MUST VERIFY THAT ALL STREETS AND LOTS HAVE POSITIVE DRAINAGE. SAME MUST UTILIZE AT LEAST THREE GRADES ON VERTICAL TANGENTS TO VERIFY SLOPES.
7. SOILS REPORT NOTE:
   GRADING SHALL BE IN ACCORDANCE WITH SOILS REPORT
   PREPARED BY: GEOTEK, INC.
   PROJECT NO.: 14379-LV
   DATE: OCTOBER 2, 2018
8. CUT/FILL ESTIMATES (PUBLIC AND PRIVATE):
   FROM EXISTING TO FINISH GRADE ELEVATIONS
   NET CUT: _____ CY
   NET FILL: _____ CY
   TOTAL: _____ CY (FILL)
9. FLOOR SECTION ASSUMES 5" SLAB OVER MIN. 8.5" TYPE II. CONTRACTOR TO VERIFY WITH STRUCTURAL PLANS AND GEOTECHNICAL ENGINEER.
10. ADD 2100' TO GRADING ELEVATIONS SHOWN HEREON TO ADJUST THEM TO THE ASSOCIATED DATUM. FINISHED GRADE CONTOURS ARE APPROXIMATE. REFER TO SPOT ELEVATION GRADE TAGS FOR CONSTRUCTION STAKING PURPOSES.

GRADING KEY NOTES:

(G1) CONSTRUCT 3" AC PAVEMENT OVER 4" TYPE II AGG BASE.
(G2) CONSTRUCT 4.5" AC PAVEMENT OVER 4" TYPE II AGG BASE.
(G3) CONSTRUCT 24" "L" TYPE CURB PER CCAUSD #216.
(G4) CONSTRUCT 30" ROLL CURB PER CCAUSD #217.2.S1.
(G5) CONSTRUCT 6" "A" TYPE CURB PER CCAUSD #219.
(G6) CONSTRUCT SIDEWALK DRAIN PER CCAUSD #236.
(G7) CONSTRUCT 5' SIDEWALK 4" THICK PER CCAUSD #234.
(G8) CONSTRUCT 4' SIDEWALK 4" THICK PER CCAUSD #234.
(G9) INSTALL WROUGHT IRON GATE.
(G10) CONSTRUCT 3' CONCRETE VALLEY GUTTER PER CCAUSD #228.
(G11) SAWCUT & REMOVE EXISTING PAVEMENT.
(G12) INSTALL LANDSCAPING BY OTHERS.
(G13) EXISTING FENCE TO REMAIN.
(G14) INSTALL RETAINING WALL BY SEPARATE PERMIT. HEIGHT DEPICTED BY PLAN.
(G15) EXISTING FENCE TO BE REMOVED.
(G16) EXISTING OBJECTS TO BE RELOCATED.
(G17) ADJUST EXISTING UTILITIES TO NEW FINISHED GRADE.
(G18) CONSTRUCT 5" THICK CONCRETE DRIVEWAY.
(G19) INSTALL SCREEN WALL.
(G20) INSTALL BLOCK WALL OPENING PER DETAIL #20 ON SHEET C.6.1.
(G21) CONSTRUCT 10' TRANSITION FROM "L" CURB TO ROLL CURB PER DETAIL #18 SHEET C.6.1.
(G22) INSTALL 4" SIDEWALK DRAIN PIPE PER CCAUSD #236.
(G23) CONSTRUCT SIDEWALK UNDERDRAIN PER CCAUSD #236.
(G24) INSTALL WROUGHT IRON GATE/FENCE PER CCAUSD #425.S1
(G25) CONSTRUCT DEPRESSED CURB PER DETAIL 31 ON SHEET C.6.2
(G26) INSTALL 6" CONCRETE PAVEMENT OVER 6" TYPE II AGG BASE
(G27) INSTALL RIP RAP PER PLAN
(G28) CONSTRUCT 30" ROLL CURB WITH REVERSE LIP PER DETAIL 32 ON SHEET C.6.2
(G29) INSTALL RIP-RAP D50=3",T=6" SUBGRADE @ 90% COMPACTION LENGTH & WIDTH SPECIFIED PER DETAIL 37
(G30) CONSTRUCT EASEMENT OPENING PER CCAUSD #425.S1. WITH 2 REMOVABLE BOLLARDS. REF. DETAIL 35 ON SHEET C.6.1
(G31) CONSTRUCT 8" CONCRETE VALLEY GUTTER PER CCAUSD #228.
(G32) INSTALL ORIFICE PLATE PER DETAL 36 ON SHEET C.6.1

EASEMENT KEY NOTES:

(1) 20' PUBLIC DRAINAGE EASEMENT TO BE PRIVATELY MAINTAINED BY THE HOA
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DRAINAGE CERTIFICATION:

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DS# 5273 .

ANTHONY C. DELEON JR., P.E. NO. 023113 DATE

SCALE: 1" = 20'

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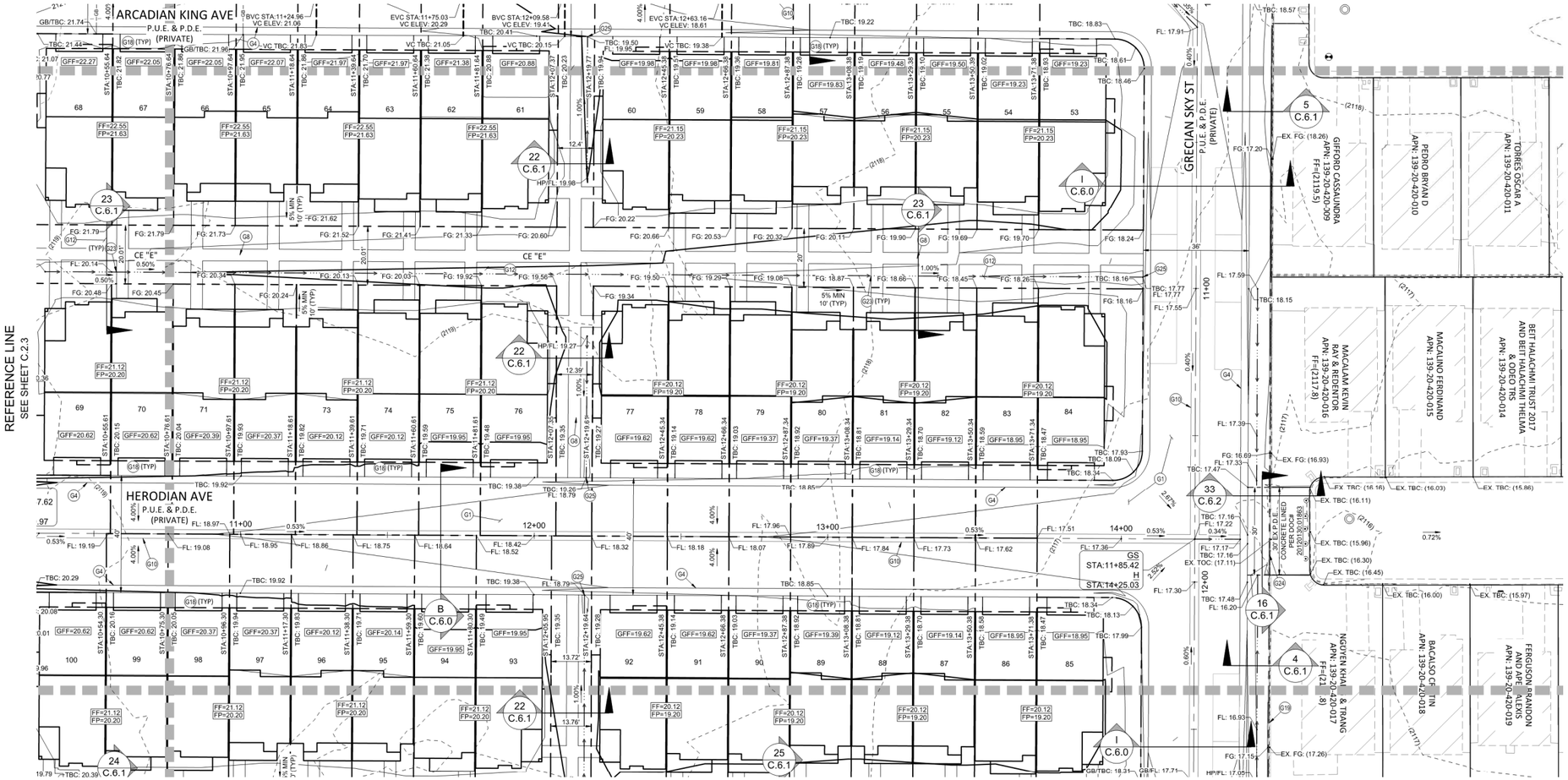
*SEE GENERAL NOTES SHEET

DRAWING INFO
DATE 3/30/2020
DESIGNED ACD
DRAWN PMP
CHECKED ACD
PROJECT NV-2105-1911

NEVADA PROFESSIONAL ENGINEER STATE OF NEVADA
ANTHONY DELEON JR
EXP 12-31-20
CIVIL
No. 023113
6/25/2020

RANCHO & VEGAS
CITY OF LAS VEGAS, NEVADA
GRADING SHEET 3

C.2.3



BASIS OF BEARING
SEE SHEET C.2.0

BENCHMARK
SEE SHEET C.2.0

LEGAL DESCRIPTION
SEE SHEET C.2.0

FLOOD ZONE
SEE SHEET C.2.0

SIGHT VISIBILITY ZONE PER CCAUSD# 201.2 (TYP)

SIGHT VISIBILITY ZONE NOTE:

NO WALLS, FENCES, SHRUBS, UTILITY APPURTENANCES OR ANY OTHER OBJECT, OTHER THAN TRAFFIC CONTROL DEVICES, FIRE HYDRANTS, TREES, AND STREET LIGHT POLES, MAY BE CONSTRUCTED OR INSTALLED WITHIN THE SIGHT VISIBILITY ZONE UNLESS SAID OBJECT IS MAINTAINED AT LESS THAN 24 INCHES IN HEIGHT, MEASURED FROM TOP OF CURB, OR WHERE NO CURB EXISTS, A HEIGHT OF 27 INCHES MEASURED FROM THE TOP OF ADJACENT ASPHALT, GRAVEL OR PAVEMENT STREET SURFACE. THIS RESTRICTION EXTENDS ALONG THE SIGHT VISIBILITY LINE THROUGH LANDSCAPED MEDIANS.

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FAST
Call before you UnderGround
1-702-432-5300
FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

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7. SOILS REPORT NOTE:
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   PREPARED BY: GEOTEK, INC.
   PROJECT NO.: 14379-LV
   DATE: OCTOBER 2, 2018
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   FROM EXISTING TO FINISH GRADE ELEVATIONS
   NET CUT: _____ CY
   NET FILL: _____ CY
   TOTAL: _____ CY (FILL)
9. FLOOR SECTION ASSUMES 5" SLAB OVER MIN. 8.5" TYPE II. CONTRACTOR TO VERIFY WITH STRUCTURAL PLANS AND GEOTECHNICAL ENGINEER.
10. ADD 2100' TO GRADING ELEVATIONS SHOWN HEREON TO ADJUST THEM TO THE ASSOCIATED DATUM. FINISHED GRADE CONTOURS ARE APPROXIMATE. REFER TO SPOT ELEVATION GRADE TAGS FOR CONSTRUCTION STAKING PURPOSES.

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ANTHONY C. DELEON JR., P.E. NO. 023113 DATE

0 20' 40'
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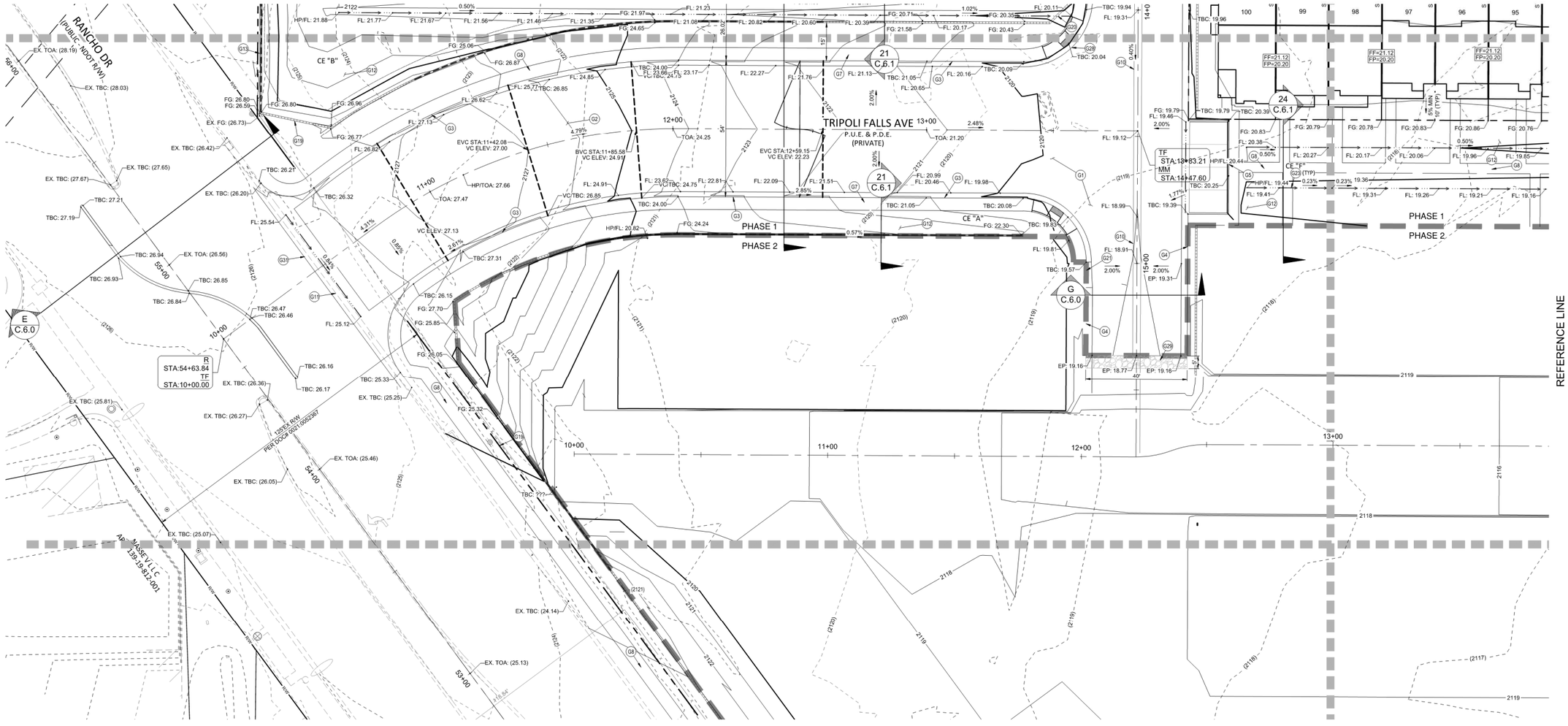
DRAWING INFO
DATE 3/30/2020
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DRAWN PMP
CHECKED ACD
PROJECT NV-2105-1911

PROFESSIONAL ENGINEER STATE OF NEVADA
ANTHONY DELEON JR
EXP. 12-31-20
CIVIL
No. 023113
6/25/2020

RANCHO & VEGAS
CITY OF LAS VEGAS, NEVADA
GRADING SHEET 4

C.2.4

PAGE 09



BASIS OF BEARING
SEE SHEET C.2.0

BENCHMARK
SEE SHEET C.2.0

LEGAL DESCRIPTION
SEE SHEET C.2.0

FLOOD ZONE
SEE SHEET C.2.0

SIGHT VISIBILITY ZONE PER CCAUSD# 201.2 (TYP)

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   DATE: OCTOBER 2, 2018
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DS# 5273 .

ANTHONY C. DELEON JR., P.E. NO. 023113 DATE

HORROCKS ENGINEERS
SCALE: 1" = 20'

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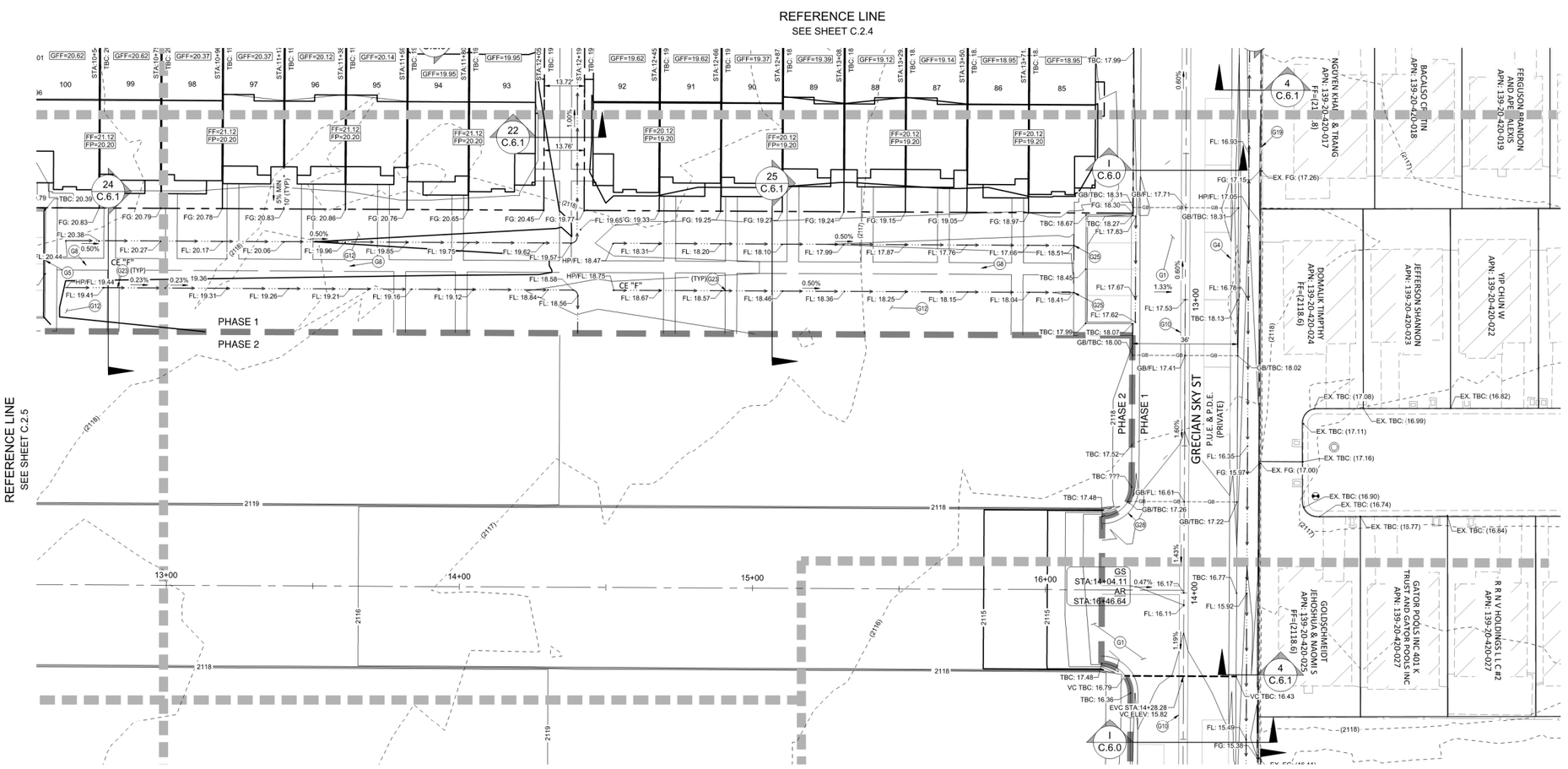
REVISIONS
REV # | DATE
*SEE GENERAL NOTES SHEET

DRAWING INFO
DATE 3/30/2020
DESIGNED ACD
DRAWN PMP
CHECKED ACD
PROJECT NV-2105-1911

PROFESSIONAL ENGINEER - STATE OF NEVADA
ANTHONY C. DELEON JR
EXP. 12-31-20
CIVIL
No. 023113
6/25/2020

RANCHO & VEGAS
CITY OF LAS VEGAS, NEVADA
GRADING SHEET 5

C.2.5
PAGE 10



BASIS OF BEARING	SEE SHEET C.2.0
BENCHMARK	SEE SHEET C.2.0
LEGAL DESCRIPTION	SEE SHEET C.2.0
FLOOD ZONE	SEE SHEET C.2.0

SIGHT VISIBILITY ZONE PER CCAUSD# 201.2 (TYP)

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   PROJECT NO.: 14379-LV
   DATE: OCTOBER 2, 2018
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ANTHONY C. DELEON JR., P.E. NO. 023113 DATE

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REVISIONS	
REV #	DATE

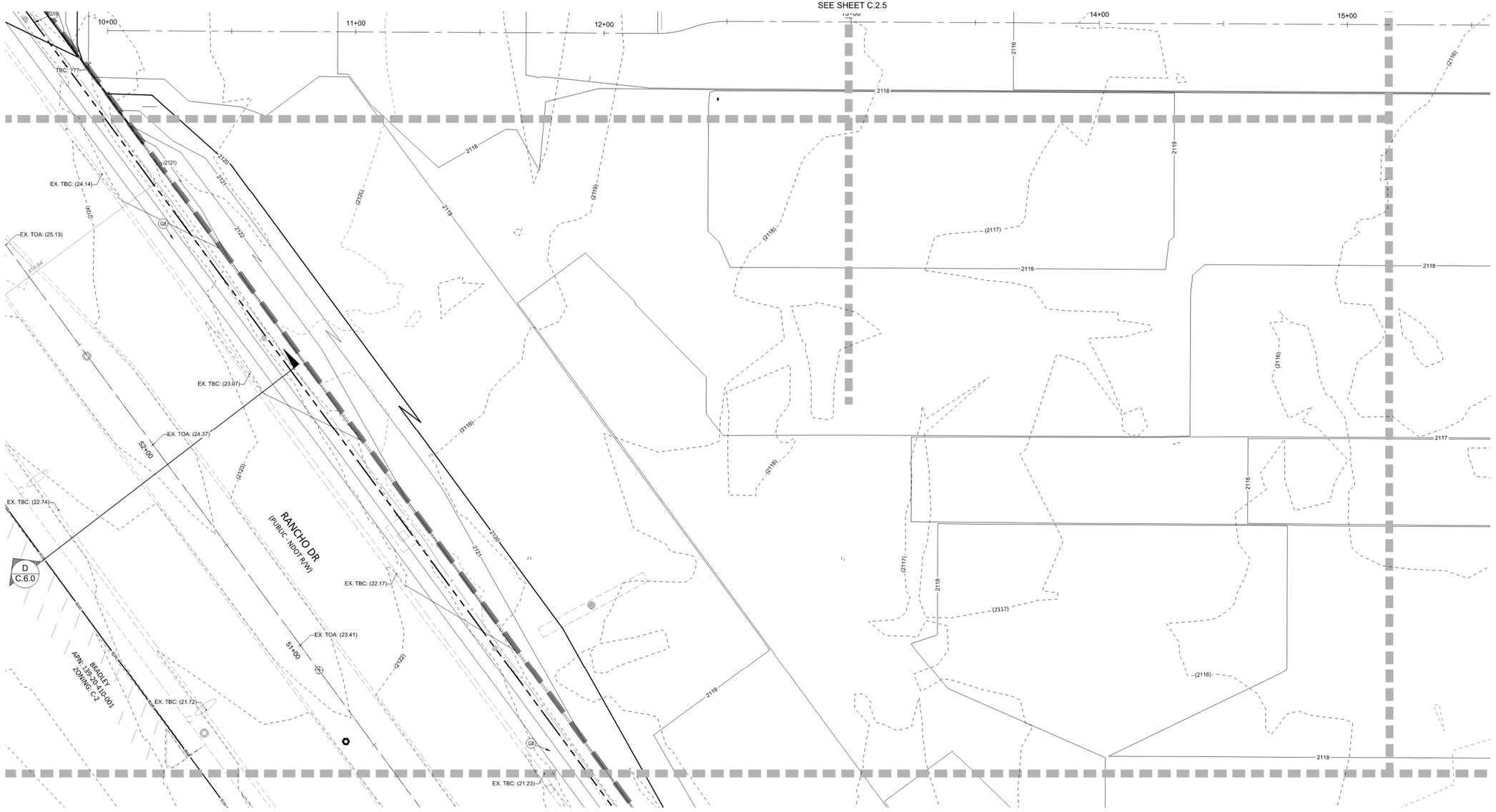
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DRAWING INFO	
DATE	6/1/2020
DESIGNED	ACD
DRAWN	PMP
CHECKED	ACD
PROJECT	NV-2105-1911

PROFESSIONAL ENGINEER STATE OF NEVADA
ANTHONY C. DELEON JR
EXP. 12-31-20
CIVIL
No.023113
6/25/2020

RANCHO & VEGAS
CITY OF LAS VEGAS, NEVADA
GRADING SHEET 6

C.2.6



BASIS OF BEARING
SEE SHEET C.2.0

BENCHMARK
SEE SHEET C.2.0

LEGAL DESCRIPTION
SEE SHEET C.2.0

FLOOD ZONE
SEE SHEET C.2.0

SIGHT VISIBILITY ZONE PER CCAUSD# 201.2 (TYP)

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FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

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   PREPARED BY: GEOTEK, INC.
   PROJECT NO.: 14379-LV
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   NET CUT: _____ CY
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ANTHONY C. DELEON JR., P.E. NO. 023113 DATE

HORROCKS ENGINEERS
SCALE: 1" = 20'

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1401 North Green Valley Pkwy., Suite 160
Henderson, NV 89074
(702) 966-4063
www.horrocks.com

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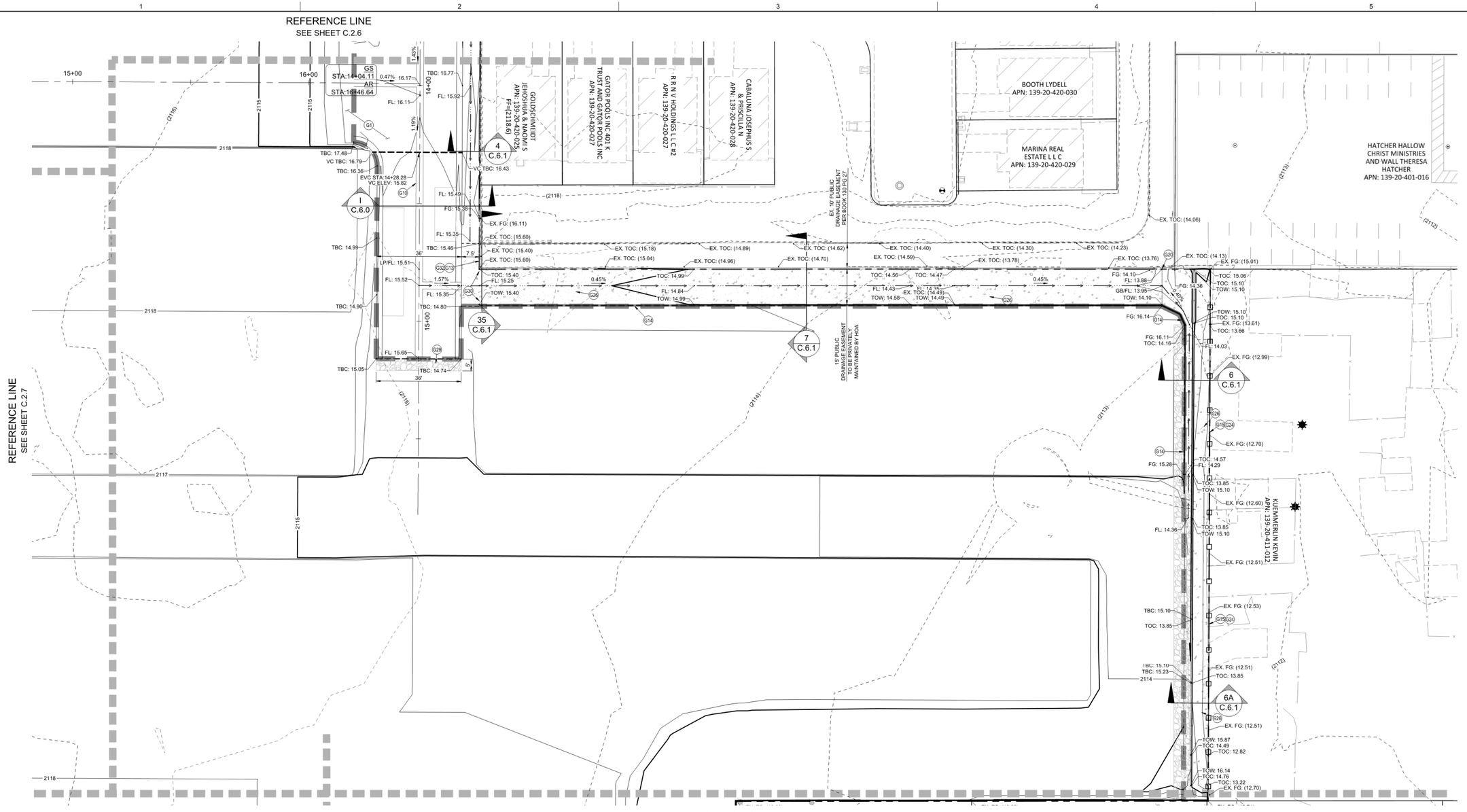
REVISIONS
REV # | DATE
*SEE GENERAL NOTES SHEET

DRAWING INFO
DATE 6/1/2020
DESIGNED ACD
DRAWN PMP
CHECKED ACD
PROJECT NV-2105-1911

PROFESSIONAL ENGINEER STATE OF NEVADA
ANTHONY C. DELEON JR
EXP. 12-31-20
CIVIL
No. 023113
6/25/2020

RANCHO & VEGAS
CITY OF LAS VEGAS, NEVADA
GRADING SHEET 7

C.2.7



BASIS OF BEARING
SEE SHEET C.2.0

BENCHMARK
SEE SHEET C.2.0

LEGAL DESCRIPTION
SEE SHEET C.2.0

FLOOD ZONE
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SIGHT VISIBILITY ZONE PER CCAUSD# 201.2 (TYP)

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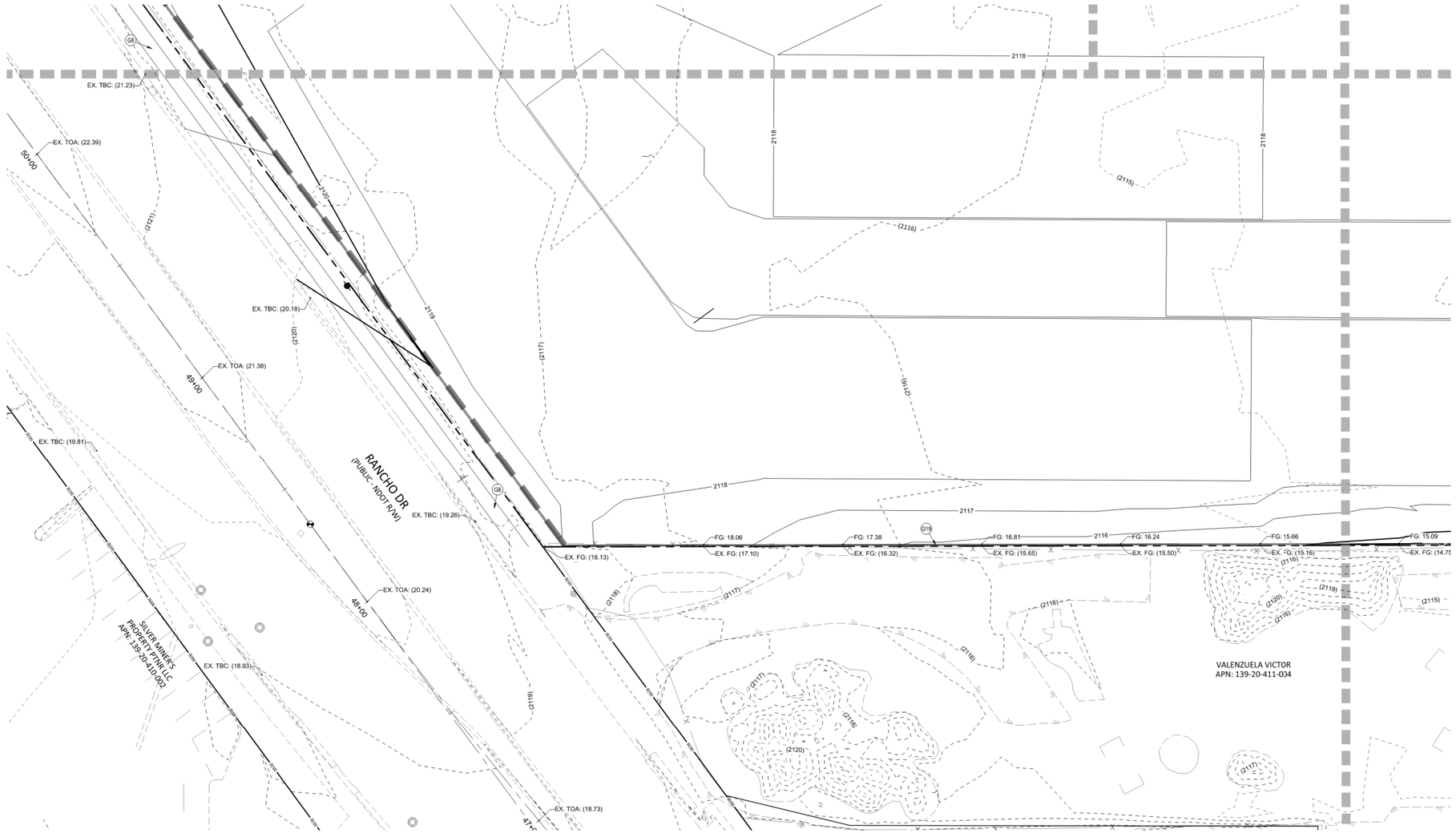
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NEVADA PROFESSIONAL ENGINEER STATE OF NEVADA
ANTHONY C DELEON JR
EXP 12-31-20
CIVIL
No. 023113
6/25/2020

RANCHO & VEGAS
CITY OF LAS VEGAS, NEVADA
GRADING SHEET 8

C.2.8
PAGE 13



BASIS OF BEARING
SEE SHEET C.2.0

BENCHMARK
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LEGAL DESCRIPTION
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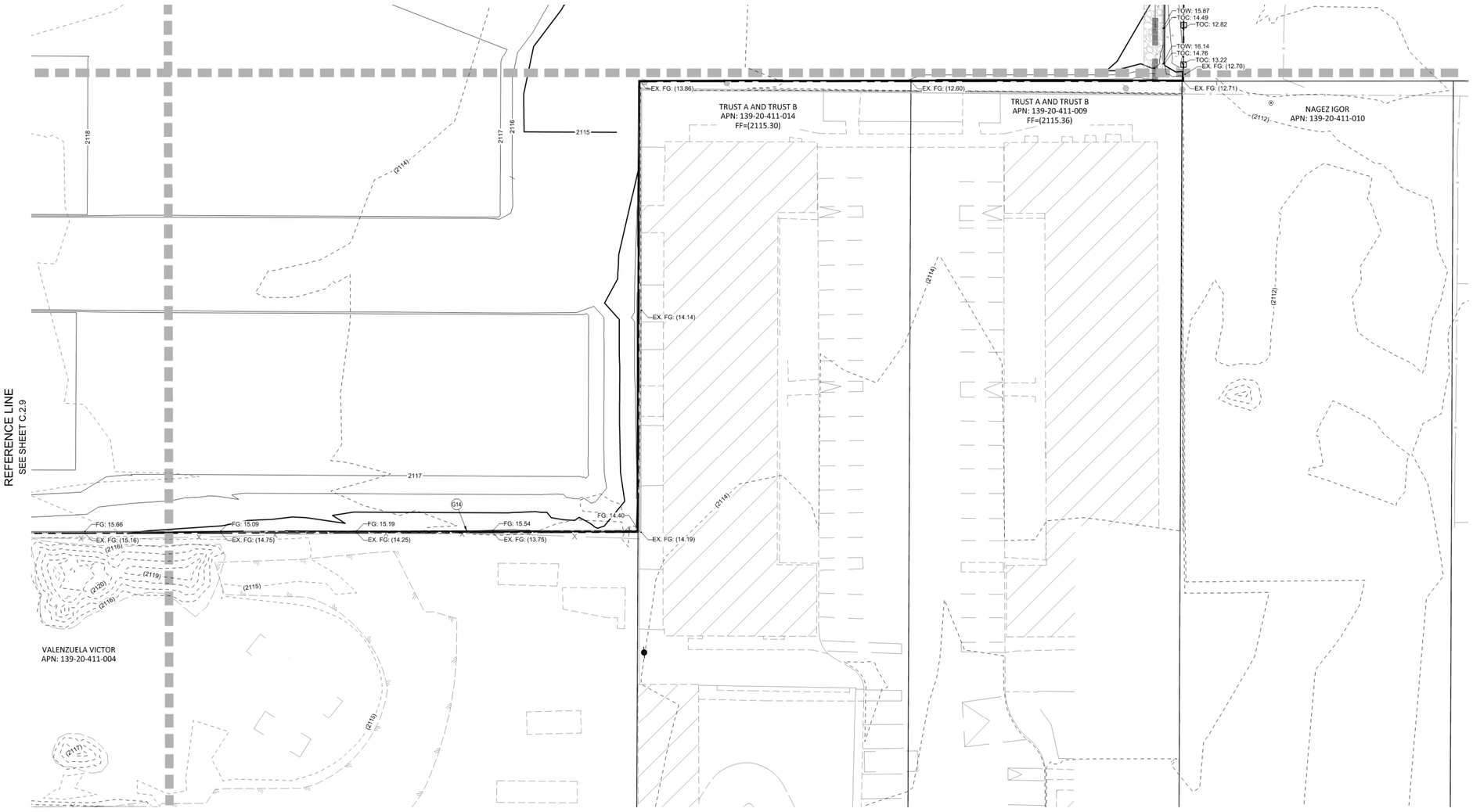
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PROFESSIONAL ENGINEER - STATE OF NEVADA
ANTHONY C. DELEON JR
EXP. 12-31-20
CIVIL
No.023113
6/25/2020

RANCHO & VEGAS
CITY OF LAS VEGAS, NEVADA
GRADING SHEET 9

C.2.9

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BASIS OF BEARING
SEE SHEET C.2.0

BENCHMARK
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- (2) 30' PUBLIC DRAINAGE EASEMENT TO BE PRIVATELY MAINTAINED BY THE HOA.

DRAINAGE CERTIFICATION:

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DS# 5273 .

ANTHONY C. DELEON JR., P.E. NO. 023113 DATE

HORROCKS ENGINEERS
1401 North Green Valley Pkwy., Suite 160
Henderson, NV 89074
(702) 966-4063
www.horrocks.com

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REV # | DATE
*SEE GENERAL NOTES SHEET

DRAWING INFO
DATE 6/1/2020
DESIGNED ACD
DRAWN PMP
CHECKED ACD
PROJECT NV-2105-1911

PROFESSIONAL ENGINEER STATE OF NEVADA
ANTHONY C. DELEON JR
EXP. 12-31-20
CIVIL
No. 023113
6/25/2020

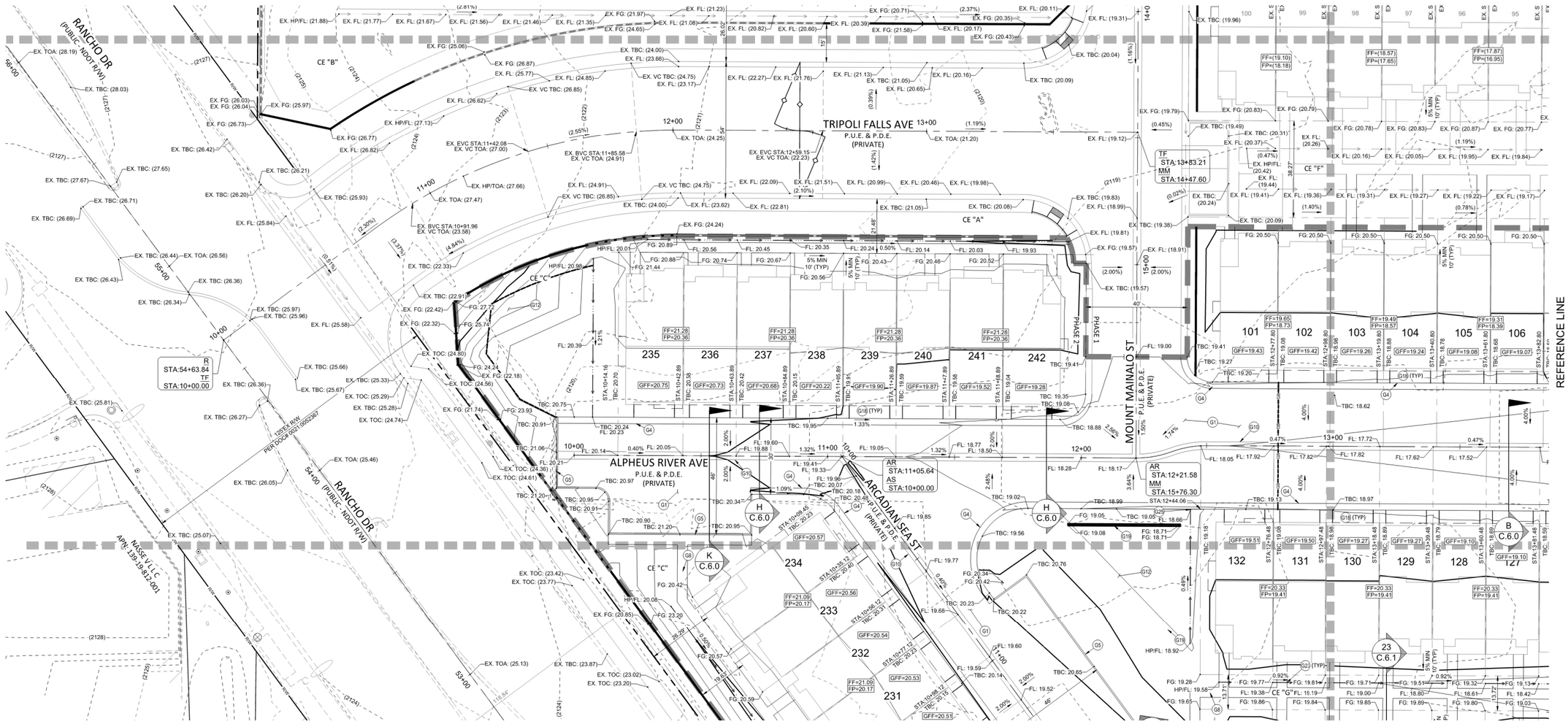
RANCHO & VEGAS
CITY OF LAS VEGAS, NEVADA
GRADING SHEET 10

HORROCKS ENGINEERS
0 20' 40'
SCALE: 1" = 20'

C.2.10

PAGE 15

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BASIS OF BEARING
SEE SHEET C.2.0

BENCHMARK
SEE SHEET C.2.0

LEGAL DESCRIPTION
SEE SHEET C.2.0

FLOOD ZONE
SEE SHEET C.2.0

SIGHT VISIBILITY ZONE PER CCAUSD# 201.2 (TYP)

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- G24 INSTALL WROUGHT IRON GATE/FENCE PER CCAUSD #425.S1
- G25 CONSTRUCT DEPRESSED CURB PER DETAIL 31 ON SHEET C.6.2
- G26 INSTALL 6" CONCRETE PAVEMENT OVER 6" TYPE II AGG BASE
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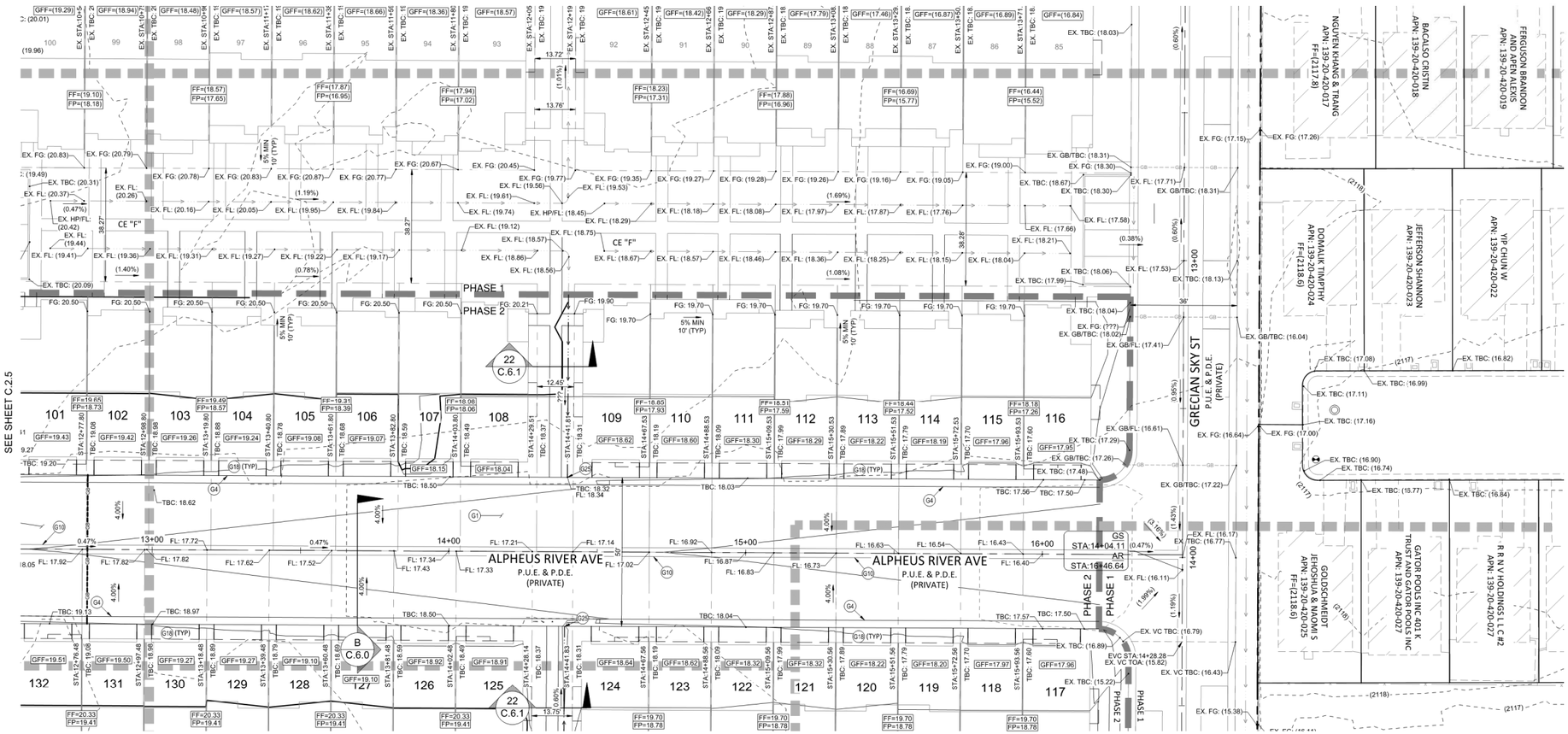
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RANCHO & VEGAS
CITY OF LAS VEGAS, NEVADA
GRADING SHEET 1 PHASE 2

C.2.5A

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BASIS OF BEARING
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BENCHMARK
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LEGAL DESCRIPTION
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FLOOD ZONE
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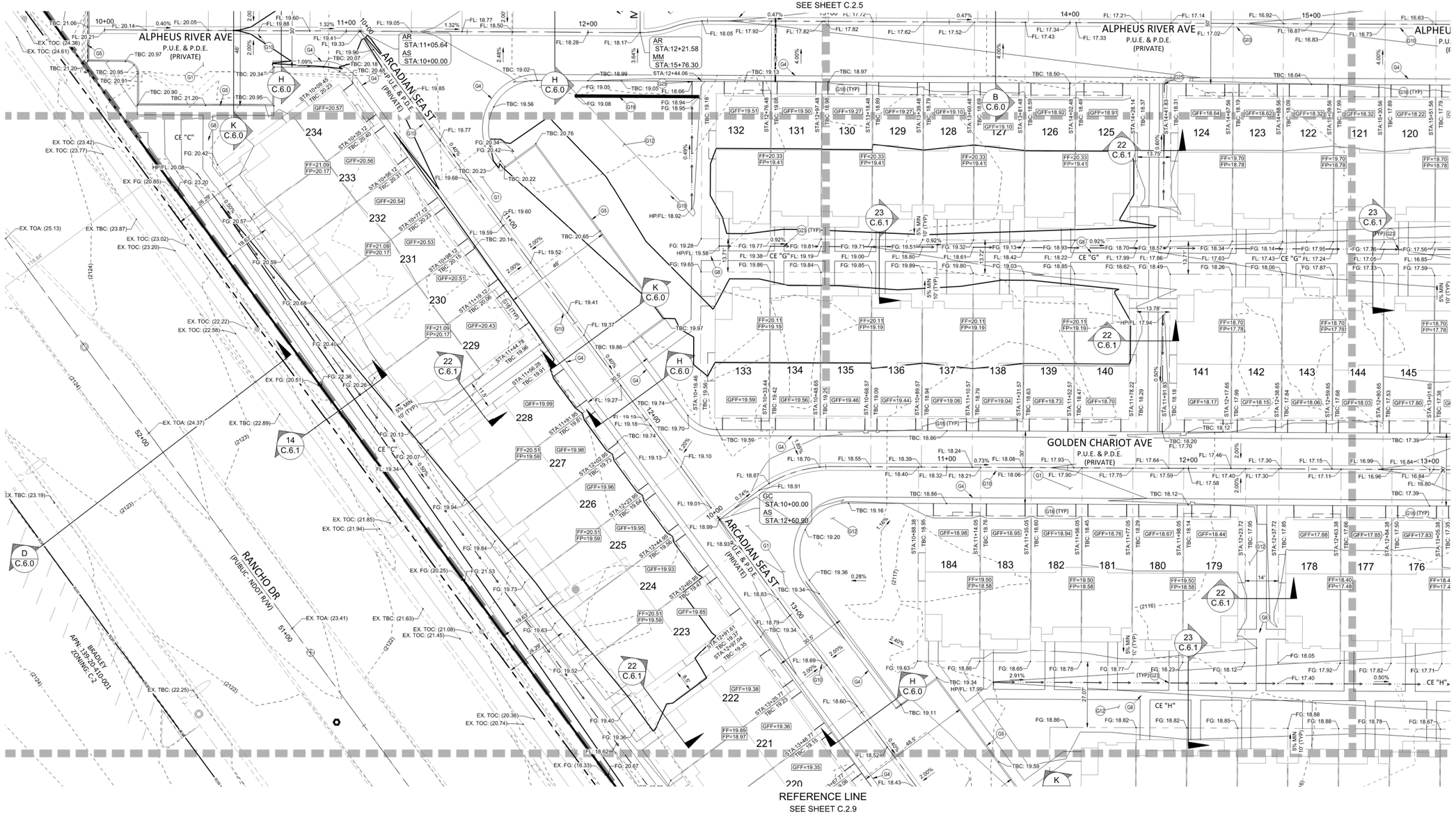
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PROJECT NV-2105-1911

PROFESSIONAL ENGINEER STATE OF NEVADA
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CIVIL
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6/25/2020

RANCHO & VEGAS
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GRADING SHEET 2 PHASE 2

C.2.6A

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BASIS OF BEARING
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BENCHMARK
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LEGAL DESCRIPTION
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FLOOD ZONE
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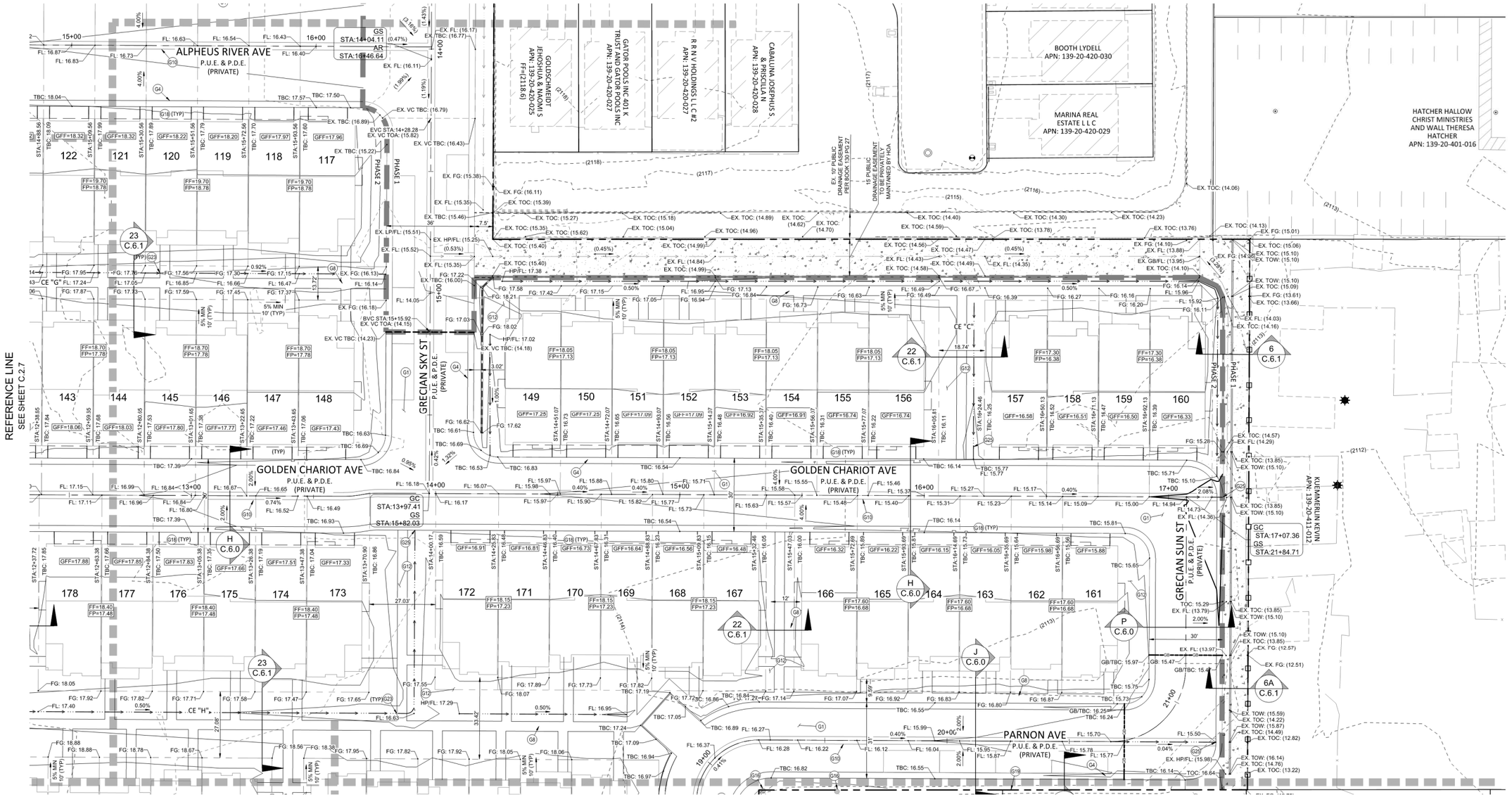
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CITY OF LAS VEGAS, NEVADA

GRADING SHEET 3 PHASE 2

C.2.7A

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   PREPARED BY: GEOTEK, INC.
   PROJECT NO.: 14379-LV
   DATE: OCTOBER 2, 2018
8. CUT/FILL ESTIMATES (PUBLIC AND PRIVATE):
   FROM EXISTING TO FINISH GRADE ELEVATIONS
   NET CUT: _____ CY
   NET FILL: _____ CY
   TOTAL: _____ CY (FILL)
9. FLOOR SECTION ASSUMES 5" SLAB OVER MIN. 8.5" TYPE II. CONTRACTOR TO VERIFY WITH STRUCTURAL PLANS AND GEOTECHNICAL ENGINEER.
10. ADD 2100' TO GRADING ELEVATIONS SHOWN HEREON TO ADJUST THEM TO THE ASSOCIATED DATUM. FINISHED GRADE CONTOURS ARE APPROXIMATE. REFER TO SPOT ELEVATION GRADE TAGS FOR CONSTRUCTION STAKING PURPOSES.

GRADING KEY NOTES:

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- G13 EXISTING FENCE TO REMAIN.
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- G15 EXISTING FENCE TO BE REMOVED.
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EASEMENT KEY NOTES:

1. 20' PUBLIC DRAINAGE EASEMENT TO BE PRIVATELY MAINTAINED BY THE HOA
2. 30' PUBLIC DRAINAGE EASEMENT TO BE PRIVATELY MAINTAINED BY THE HOA.

DRAINAGE CERTIFICATION:

THIS SET OF IMPROVEMENT PLANS IS CERTIFIED TO CONFORM TO THE REQUIREMENTS OF THE APPROVED DRAINAGE STUDY. DS# 5273 .

ANTHONY C. DELEON JR., P.E. NO. 023113 DATE

SCALE: 1" = 20'

HORROCKS ENGINEERS
1401 North Green Valley Pkwy., Suite 160
Henderson, NV 89074
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REVISIONS
REV# | DATE

*SEE GENERAL NOTES SHEET

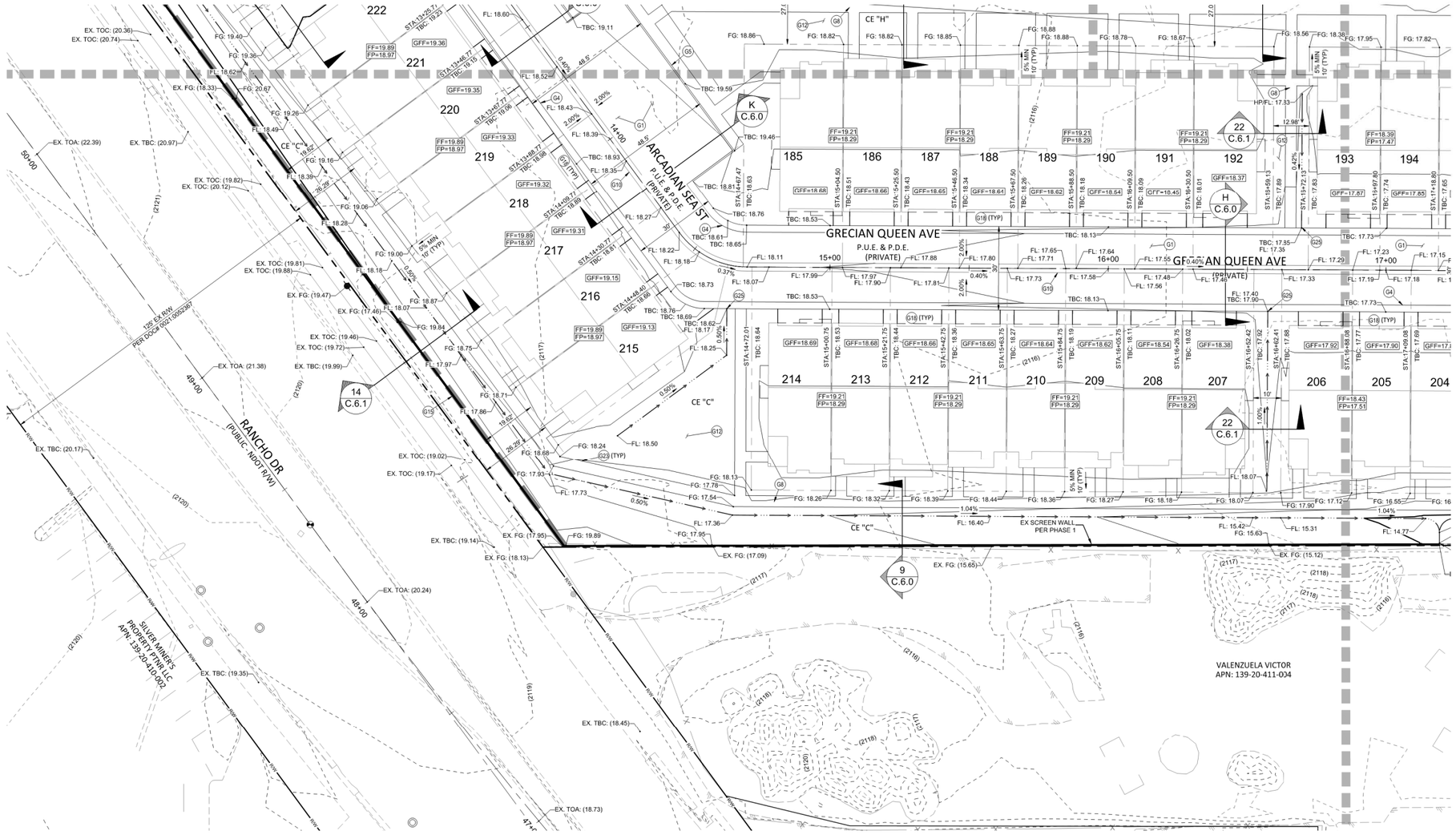
DRAWING INFO
DATE 6/1/2020
DESIGNED ACD
DRAWN PMP
CHECKED ACD
PROJECT NV-2105-1911

PROFESSIONAL ENGINEER STATE OF NEVADA
ANTHONY DELEON JR
EXP. 12-31-20
CIVIL
No. 023113
6/25/2020

RANCHO & VEGAS
CITY OF LAS VEGAS, NEVADA

GRADING SHEET 4 PHASE 2

C.2.8A



BASIS OF BEARING
SEE SHEET C.2.0

BENCHMARK
SEE SHEET C.2.0

LEGAL DESCRIPTION
SEE SHEET C.2.0

FLOOD ZONE
SEE SHEET C.2.0

SIGHT VISIBILITY ZONE PER CCAUSD# 201.2 (TYP)

SIGHT VISIBILITY ZONE NOTE:

NO WALLS, FENCES, SHRUBS, UTILITY APPURTENANCES OR ANY OTHER OBJECT, OTHER THAN TRAFFIC CONTROL DEVICES, FIRE HYDRANTS, TREES, AND STREET LIGHT POLES, MAY BE CONSTRUCTED OR INSTALLED WITHIN THE SIGHT VISIBILITY ZONE UNLESS SAID OBJECT IS MAINTAINED AT LESS THAN 24 INCHES IN HEIGHT, MEASURED FROM TOP OF CURB, OR WHERE NO CURB EXISTS, A HEIGHT OF 27 INCHES MEASURED FROM THE TOP OF ADJACENT ASPHALT, GRAVEL OR PAVEMENT STREET SURFACE. THIS RESTRICTION EXTENDS ALONG THE SIGHT VISIBILITY LINE THROUGH LANDSCAPED MEDIANS.

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CALL BEFORE YOU DIG OVERHEAD
1-702-227-2929

FAST
Call before you UnderGround
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FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

ENGINEER'S NOTES:

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2. SEE HORIZONTAL CONTROL PLAN FOR EXACT PROPERTY LINE DIMENSIONS
3. ENGINEER TO BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES BETWEEN THESE PLANS AND FIELD CONDITIONS.
4. THESE PLANS SHALL NOT IN PART, OR IN WHOLE, BE USED FOR CONSTRUCTION UNTIL APPROVED AND SIGNED BY GOVERNING AGENCIES.
5. ALL GRADING SHALL CONFORM TO SOILS REPORT RECOMMENDATIONS.
6. DURING CONSTRUCTION, SURVEYORS AND CONTRACTORS MUST VERIFY THAT ALL STREETS AND LOTS HAVE POSITIVE DRAINAGE. SAME MUST UTILIZE AT LEAST THREE GRADES ON VERTICAL TANGENTS TO VERIFY SLOPES.
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DS# 5273 .

ANTHONY C. DELEON JR., P.E. NO. 023113 DATE

SCALE: 1" = 20'

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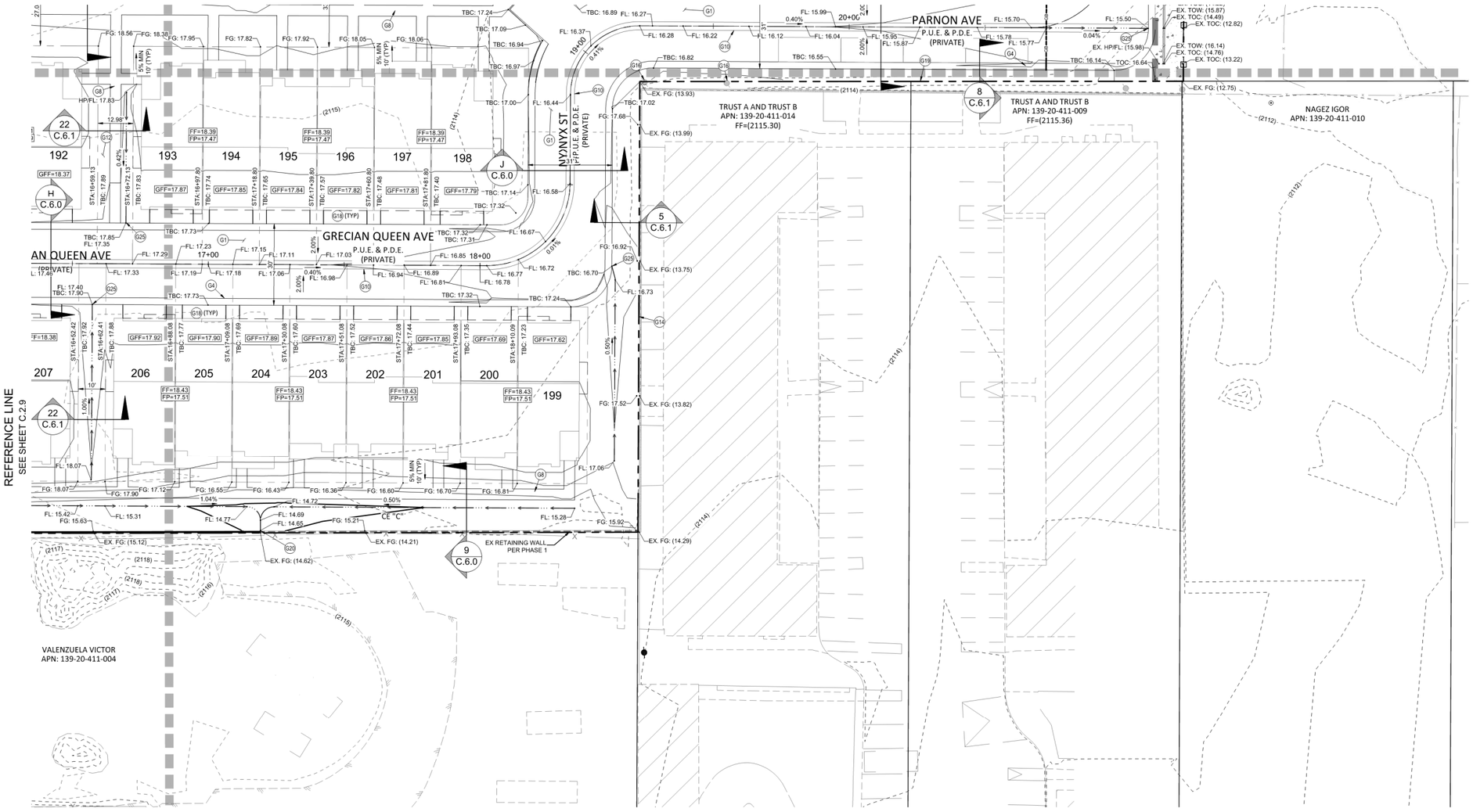
DRAWING INFO
DATE 6/1/2020
DESIGNED ACD
DRAWN PMP
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PROJECT NV-2105-1911

PROFESSIONAL ENGINEER STATE OF NEVADA
ANTHONY C. DELEON JR
EXP. 12-31-20
CIVIL
No. 023113
6/25/2020

RANCHO & VEGAS
CITY OF LAS VEGAS, NEVADA
GRADING SHEET 5 PHASE 2

C.2.9A

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BASIS OF BEARING
SEE SHEET C.2.0

BENCHMARK
SEE SHEET C.2.0

LEGAL DESCRIPTION
SEE SHEET C.2.0

FLOOD ZONE
SEE SHEET C.2.0

SIGHT VISIBILITY ZONE PER CCAUSD# 201.2 (TYP)

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REVISIONS
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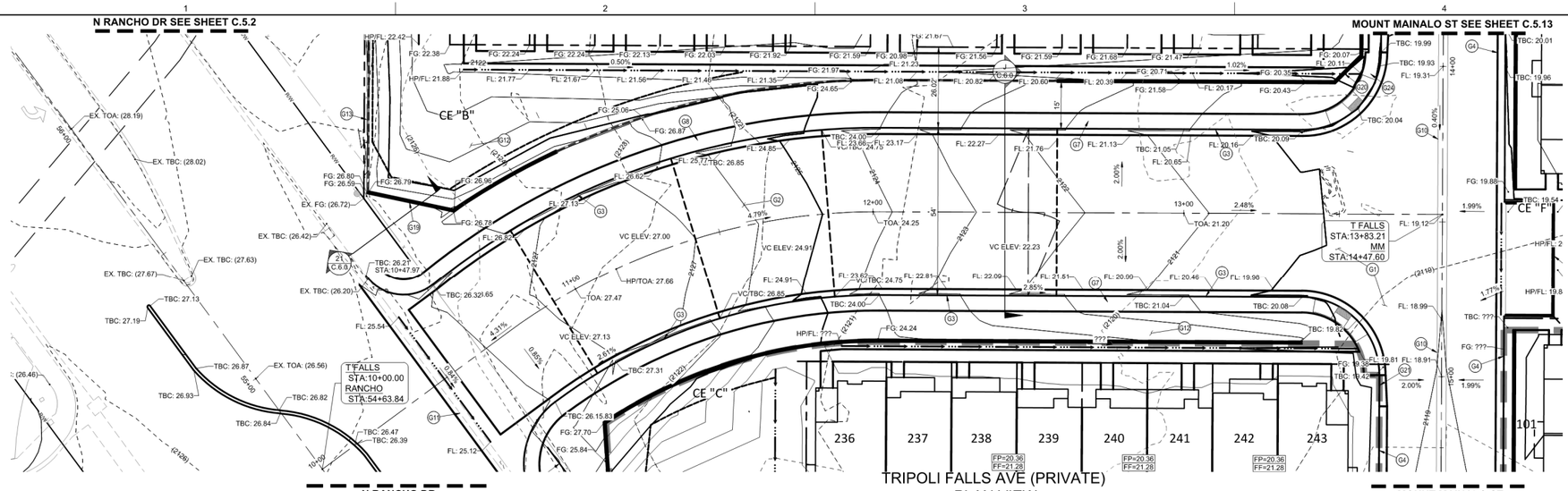
DRAWING INFO
DATE 6/1/2020
DESIGNED ACD
DRAWN PMP
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PROJECT NV-2105-1911

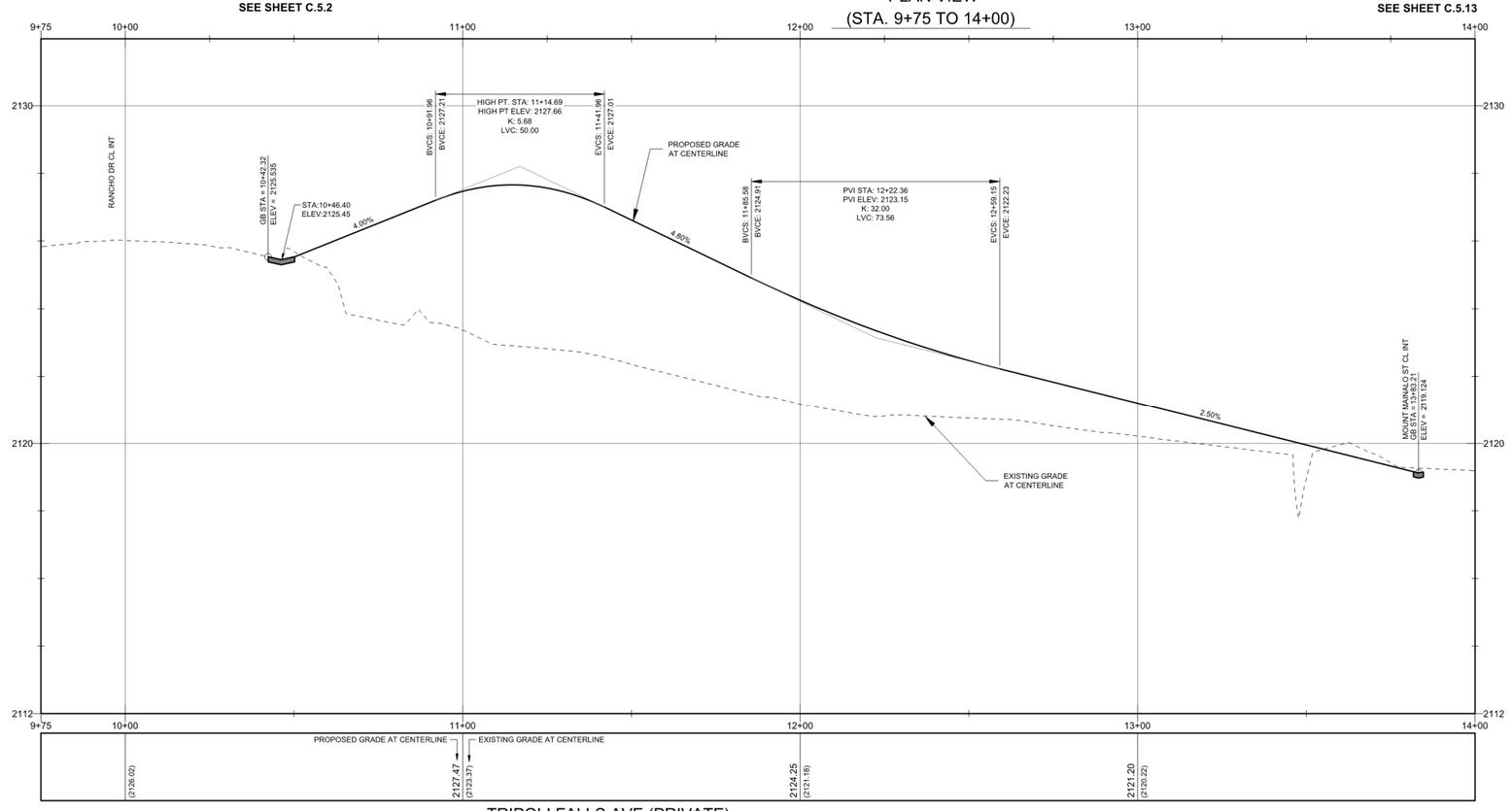
PROFESSIONAL ENGINEER STATE OF NEVADA
ANTHONY C. DELEON JR
EXP. 12-31-20
CIVIL
No. 023113
6/25/2020

RANCHO & VEGAS
CITY OF LAS VEGAS, NEVADA
GRADING SHEET 6 PHASE 2

C.2.10A

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TRIPOLI FALLS AVE (PRIVATE)
PROFILE VIEW
(STA. 9+75 TO 14+00)

SCALE: 1" = 20' H
SCALE: 1" = 2' V

SCALE: 1" = 20'

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LEGAL DESCRIPTION
SEE SHEET C.2.0

BASIS OF BEARING
SEE SHEET C.2.0

FLOOD ZONE
SEE SHEET C.2.0

BENCHMARK
SEE SHEET C.2.0

UTILITY DISCLAIMER NOTE:
EXISTING UTILITY LOCATIONS SHOWN HEREIN ARE APPROXIMATE ONLY. IT SHALL BE AT THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTIING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPPER LOCATIONS.

DEPTH OF COVER DURING CONSTRUCTION:
MAINTAIN MINIMUM TWENTY-FOUR (24) INCH COVER PER UDACS SECTION 2.08.04. GRADING MUST BE COMPLETED PRIOR TO WATERLINE INSTALLATION.

SIGHT VISIBILITY ZONE NOTE:
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APPROVED FOR CONSTRUCTION
SOUTHWEST GAS CORPORATION DATE

APPROVED FOR CONSTRUCTION
LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO._____ FIRST APPROVAL DATE:_____
LVVWD APPROVED FIRE FLOW_____GPM AT 20 PSI RESIDENTIAL
MAXIMUM AVAILABLE FIRE SPRINKLER FLOW_____N/A_____GPM

Call before you AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S EASY. Call 811 or 1-800-227-2600

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REV # | DATE

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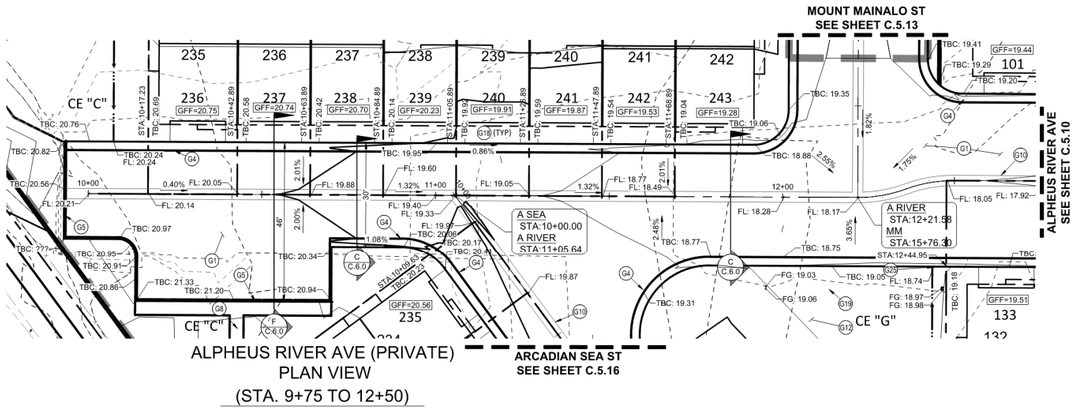
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DATE 6/25/2020
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DRAWN PMP
CHECKED ACD
PROJECT NV-2105-1911

PROFESSIONAL ENGINEER STATE OF NEVADA
ANTHONY DELEON JR
EXP. 12-31-20
CIVIL
No. 023113
6/25/2020

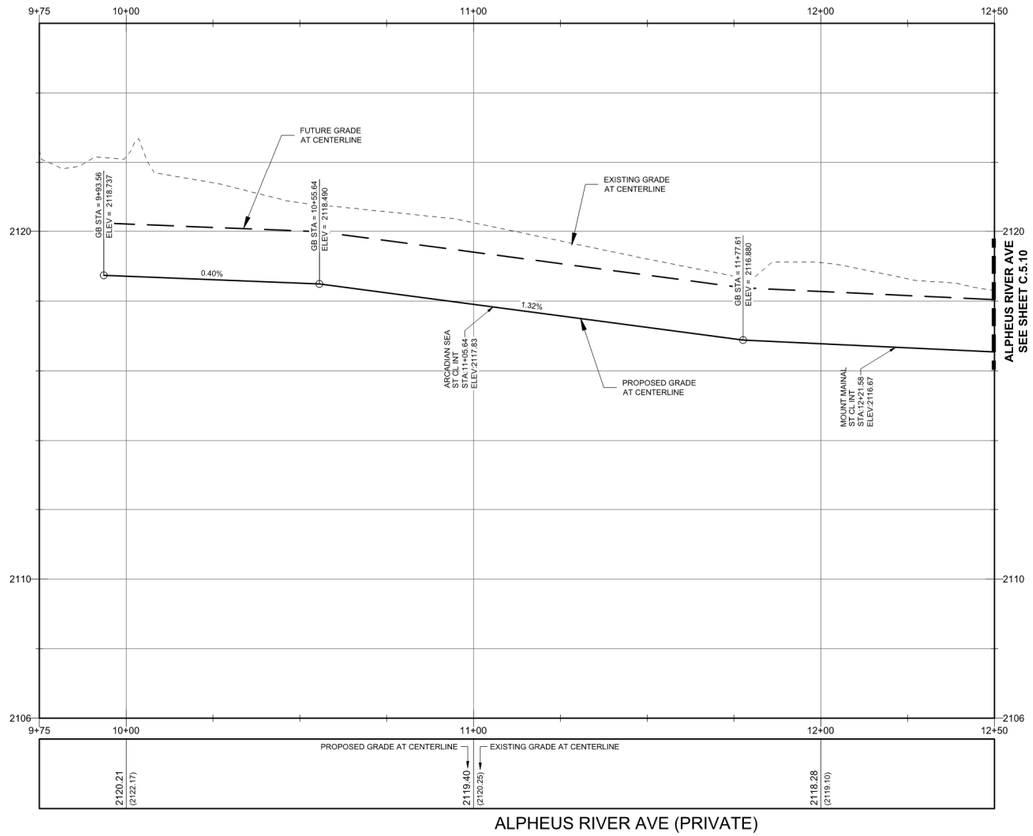
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CITY OF LAS VEGAS, NEVADA
TRIPOLI FALLS AVE PLAN & PROFILE (STA 10+00 TO STA 14+00)

C.5.8

PAGE 30



ALPHEUS RIVER AVE (PRIVATE)
PLAN VIEW
(STA. 9+75 TO 12+50)



ALPHEUS RIVER AVE (PRIVATE)
PROFILE VIEW
(STA. 9+75 TO 12+50)
SCALE: 1" = 20' H
SCALE: 1" = 2' V

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FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

LEGAL DESCRIPTION
SEE SHEET C.2.0

BASIS OF BEARING
SEE SHEET C.2.0

FLOOD ZONE
SEE SHEET C.2.0

BENCHMARK
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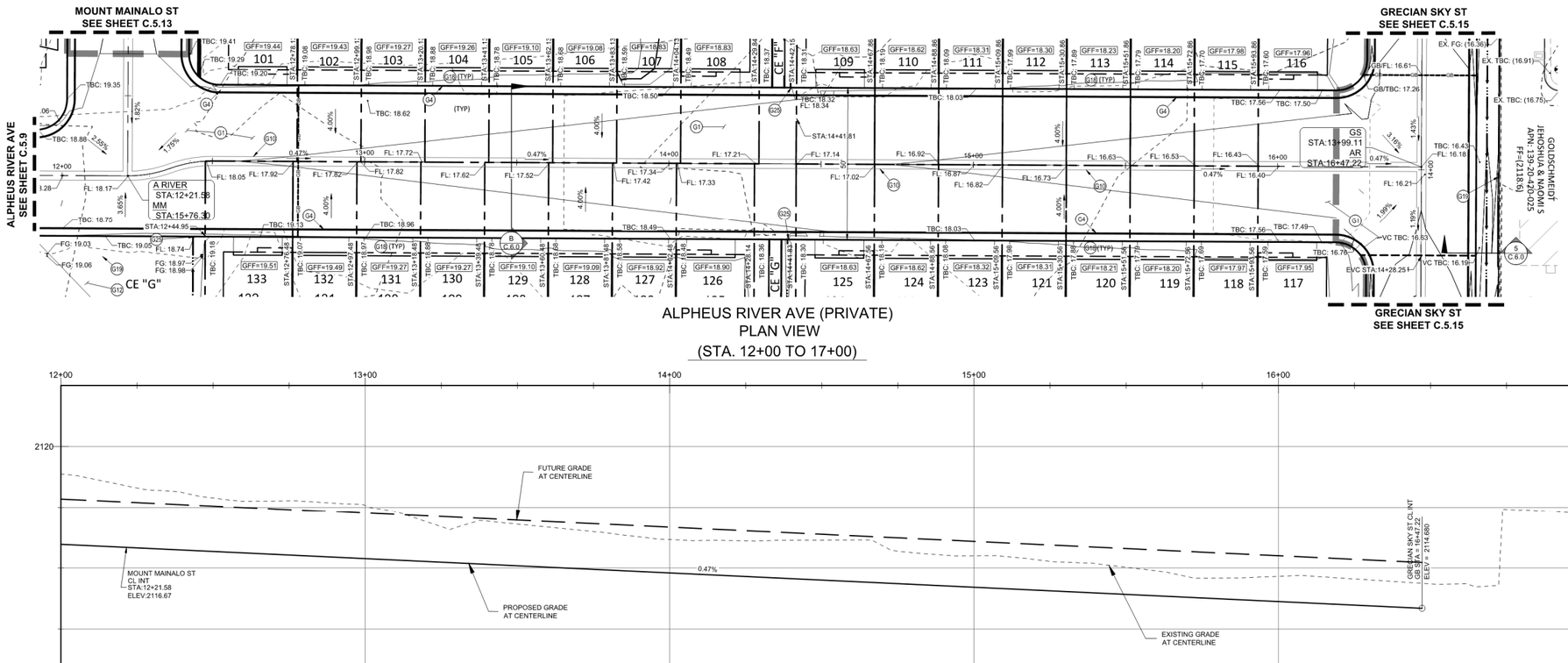
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APPROVED FOR CONSTRUCTION
SOUTHWEST GAS CORPORATION DATE

APPROVED FOR CONSTRUCTION
LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. FIRST APPROVAL DATE:
LVVWD APPROVED FIRE FLOW GPM AT 20 PSI RESIDENTIAL
MAXIMUM AVAILABLE FIRE SPRINKLER FLOW N/A GPM

RANCHO & VEGAS
CITY OF LAS VEGAS, NEVADA
ALPHEUS RIVER AVE PLAN & PROFILE (STA 9+75 TO STA 12+50)

C.5.9
PAGE 31



ALPHEUS RIVER AVE (PRIVATE)
PLAN VIEW
(STA. 12+00 TO 17+00)

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PROFILE VIEW
(STA. 12+00 TO 17+00)
SCALE: 1" = 20' H
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LEGAL DESCRIPTION
SEE SHEET C.2.0

BASIS OF BEARING
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FLOOD ZONE
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SIGHT VISIBILITY ZONE PER CCAUSD# 201.2 (TYP)

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SOUTHWEST GAS CORPORATION DATE

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PROJECT NO._____ FIRST APPROVAL DATE:_____
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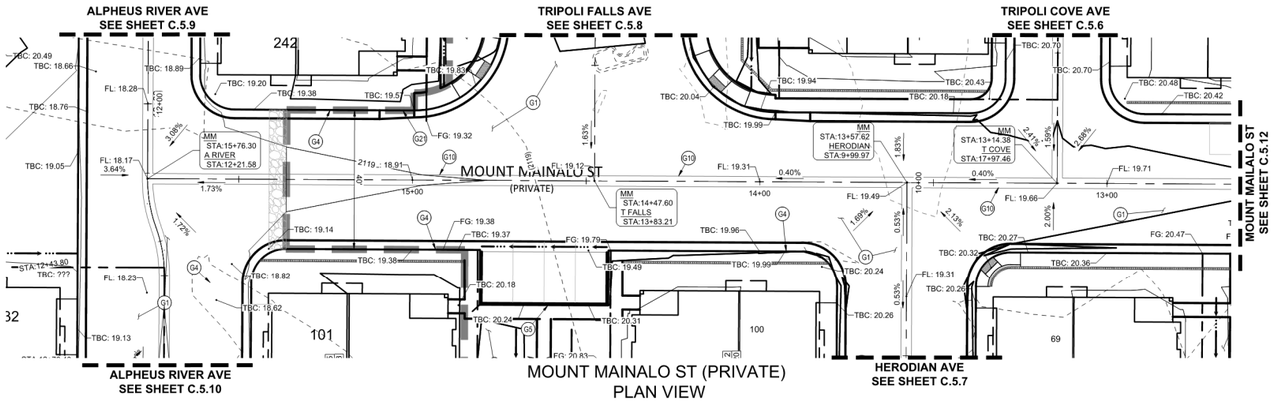
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NEVADA PROFESSIONAL ENGINEER STATE OF NEVADA ANTHONY C. DELEON JR EXP. 12-31-20 CIVIL No.023113
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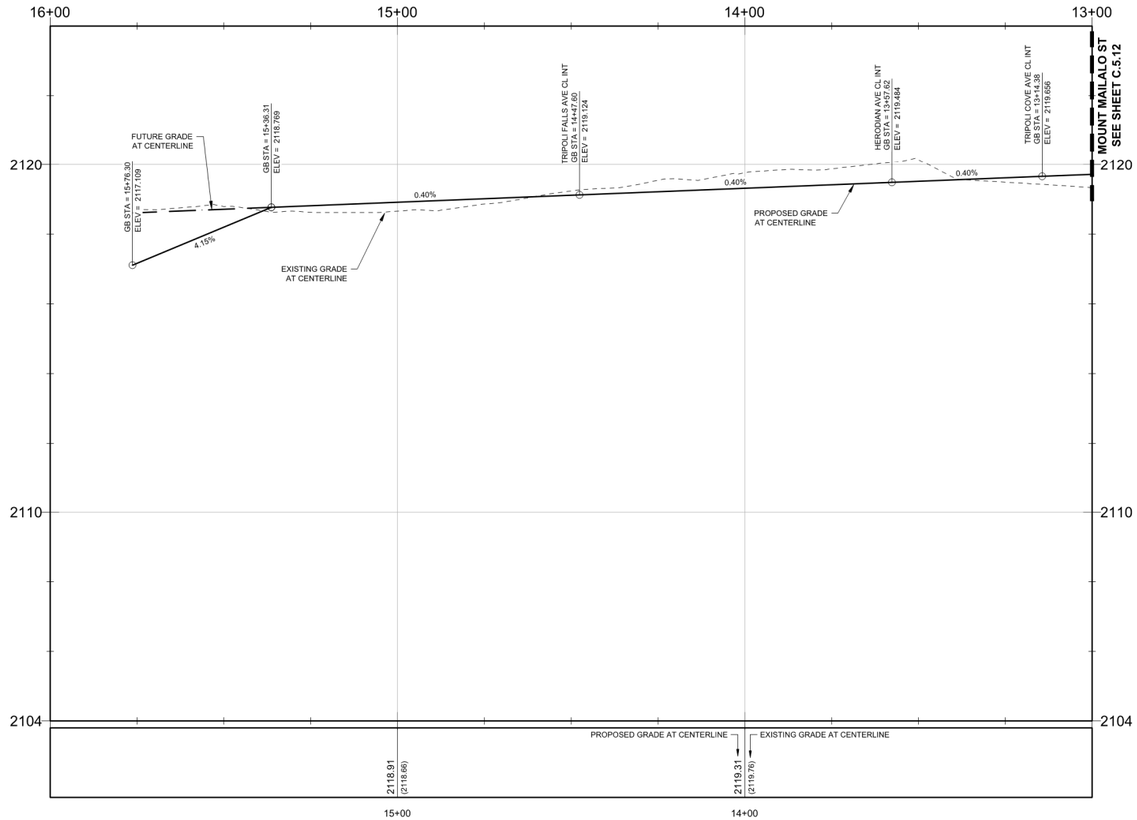
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ALPHEUS RIVER AVE PLAN & PROFILE (STA 12+00 TO STA 16+50)

C.5.10

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MOUNT MAINALO ST (PRIVATE)
PLAN VIEW
(STA. 13+00 TO 16+00)



MOUNT MAINALO ST (PRIVATE)
PROFILE VIEW
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PAGE 35

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HORROCKS ENGINEERS

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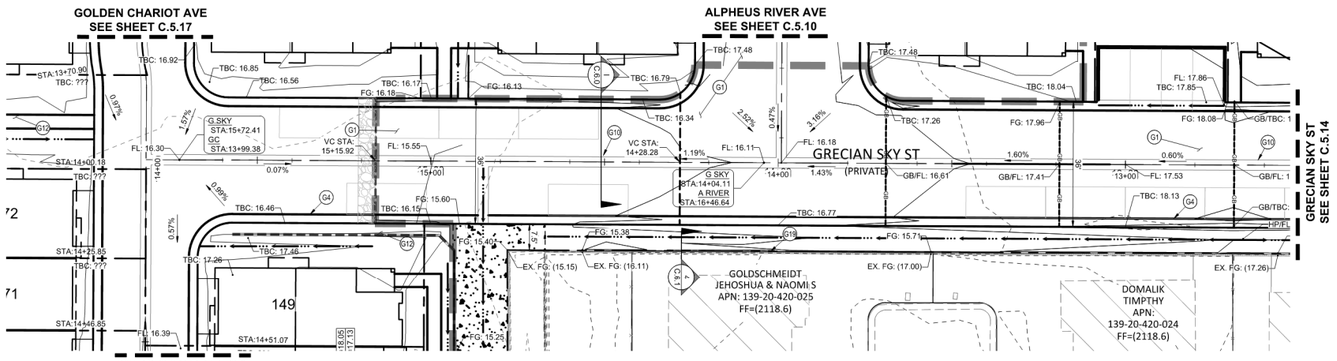
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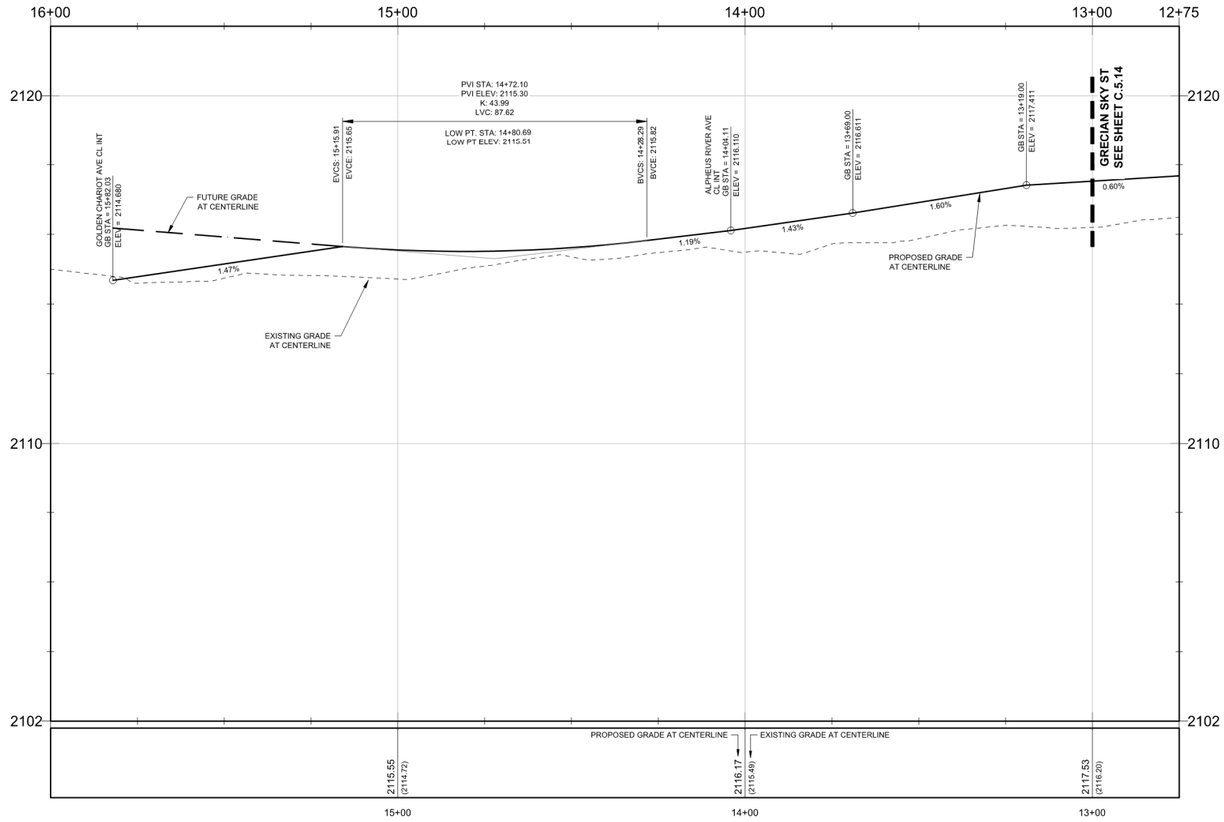
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LEGAL DESCRIPTION
SEE SHEET C.2.0

BASIS OF BEARING
SEE SHEET C.2.0

FLOOD ZONE
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BENCHMARK
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APPROVED FOR CONSTRUCTION
SOUTHWEST GAS CORPORATION DATE

APPROVED FOR CONSTRUCTION
LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO._____ FIRST APPROVAL DATE:_____
LVVWD APPROVED FIRE FLOW_____GPM AT 20 PSI RESIDENTIAL
MAXIMUM AVAILABLE FIRE SPRINKLER FLOW_____N/A_____GPM

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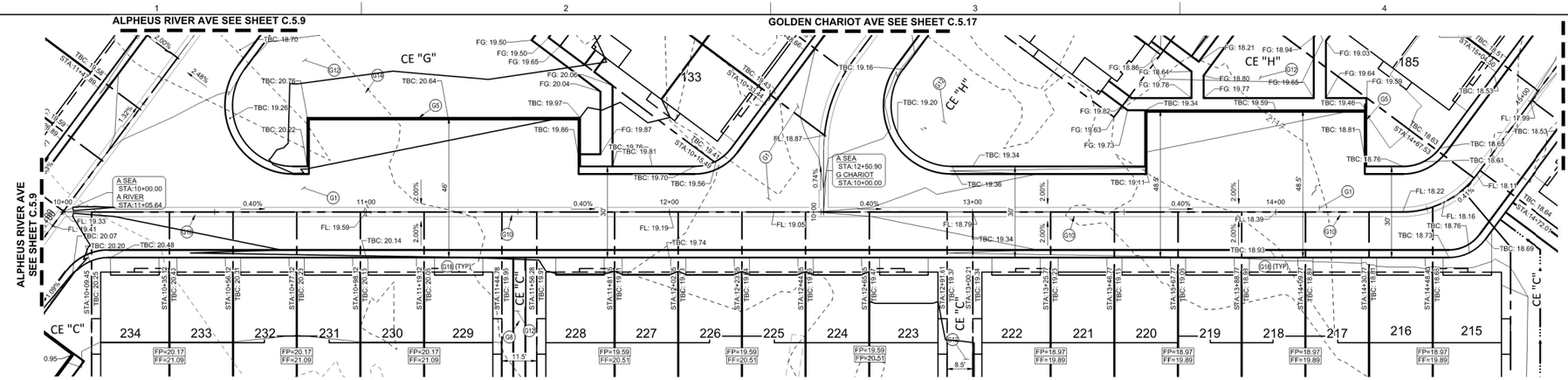
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PROJECT NV-2105-1911

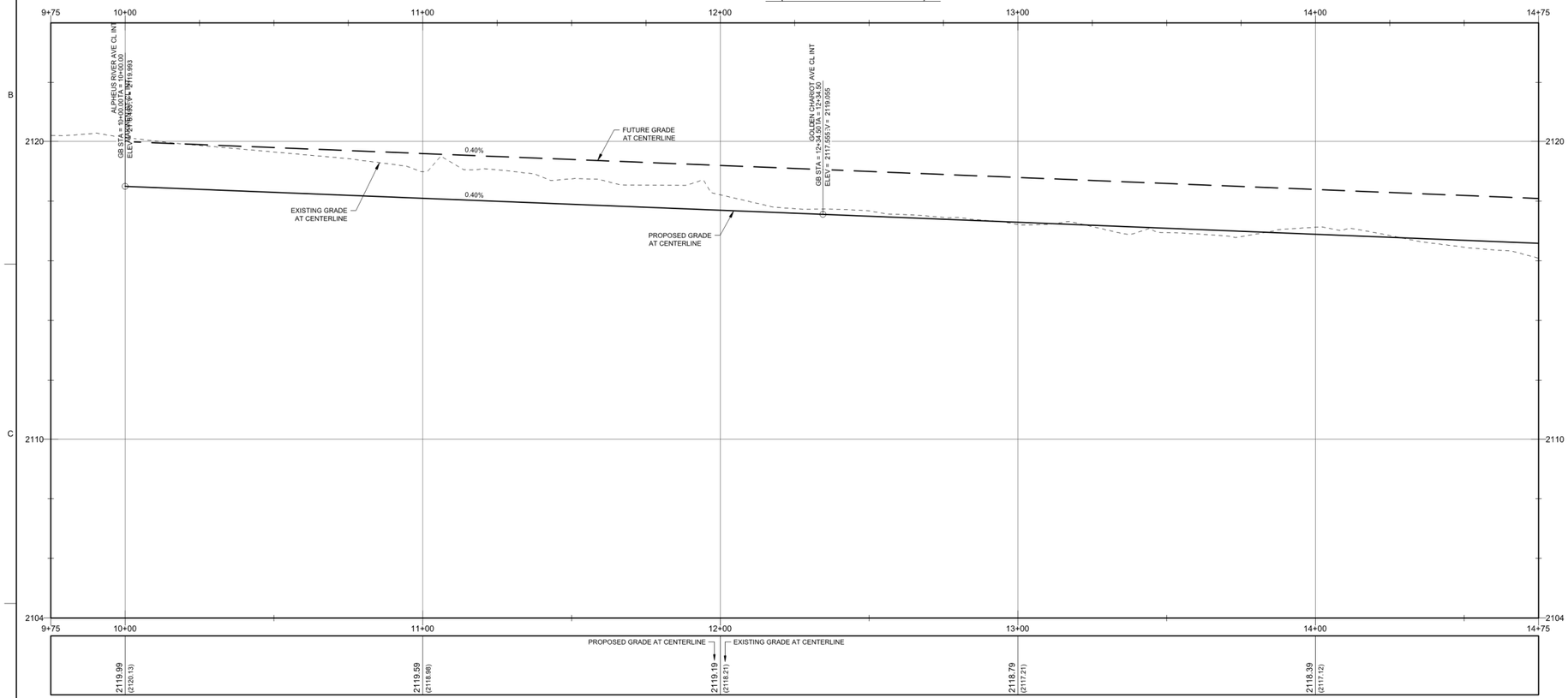
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ANTHONY DELEON JR
EXP. 12-31-20
CIVIL
No.023113
6/25/2020

RANCHO & VEGAS
CITY OF LAS VEGAS, NEVADA
GRECIAN SKY ST PLAN & PROFILE (STA 12+75 TO 16+00)

C.5.15

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ARCADIAN SEA ST (PRIVATE)
PROFILE VIEW
(STA. 9+75 TO 14+75)
SCALE: 1" = 20' H
SCALE: 1" = 2' V

SCALE: 1" = 20'

LEGAL DESCRIPTION	BASIS OF BEARING
SEE SHEET C.2.0	SEE SHEET C.2.0
FLOOD ZONE	**BENCHMARK**
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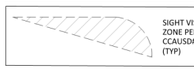
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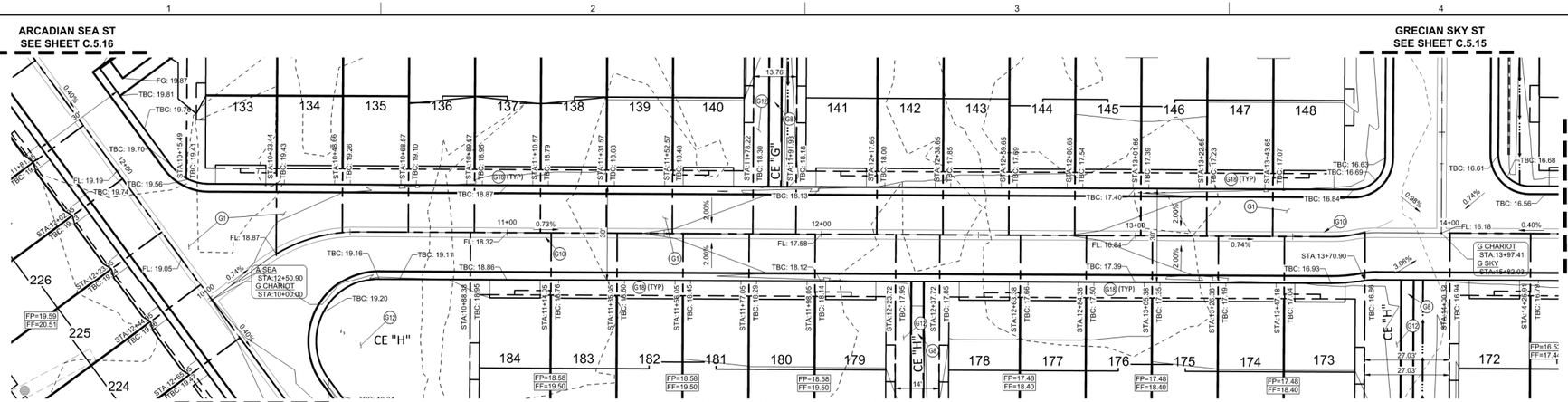
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EXP 12-31-20
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STATE OF NEVADA
PROFESSIONAL ENGINEER
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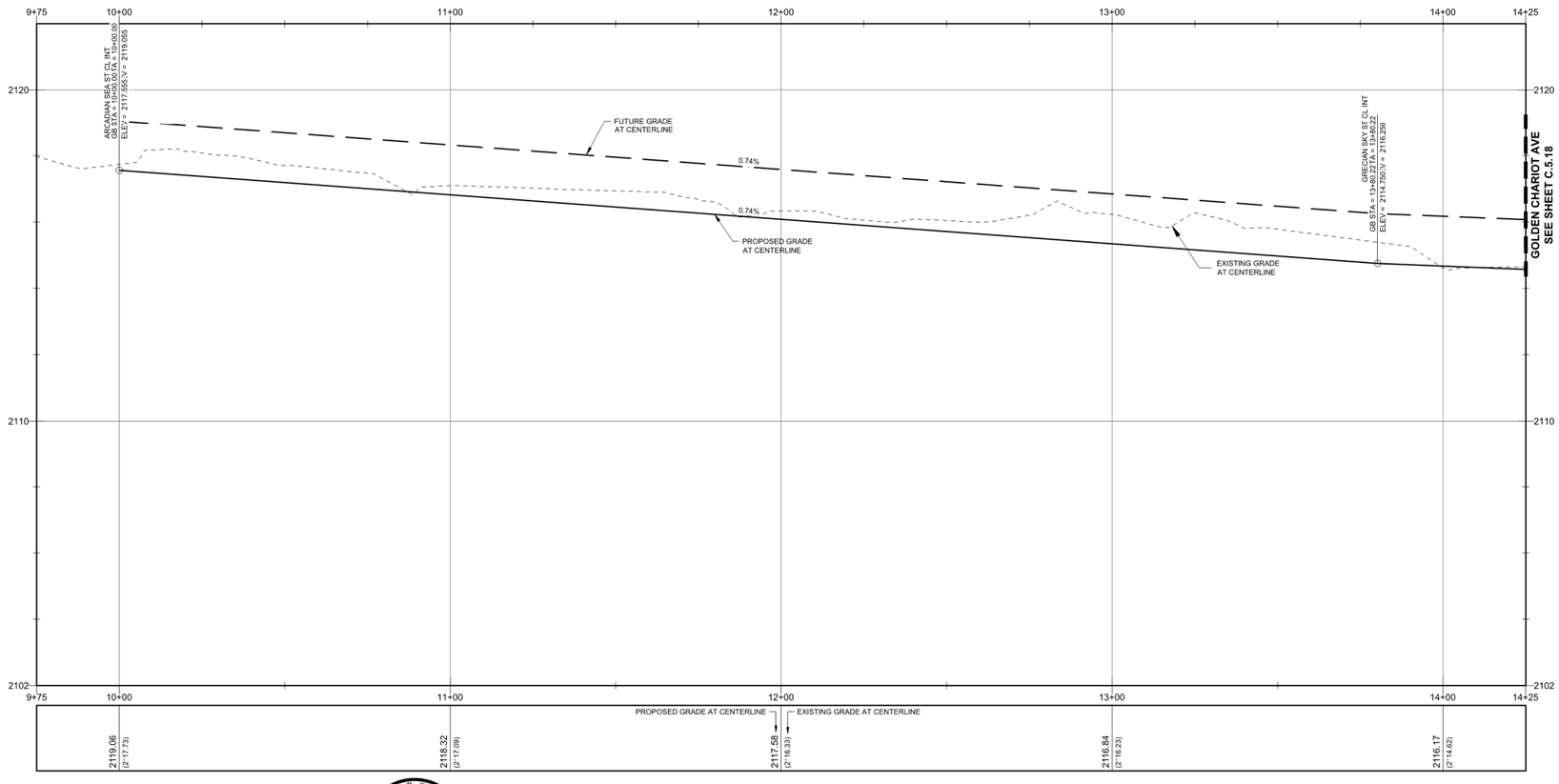
RANCHO & VEGAS
CITY OF LAS VEGAS, NEVADA
ARCADIAN SEA ST PLAN & PROFILE (STA 9+75 TO STA 14+75)

C.5.16

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GOLDEN CHARIOT AVE (PRIVATE)
PLAN VIEW
(STA. 9+75 TO 14+25)



GOLDEN CHARIOT AVE (PRIVATE)
PROFILE VIEW
(STA. 9+75 TO 14+25)
SCALE: 1" = 20' H
SCALE: 1" = 2' V

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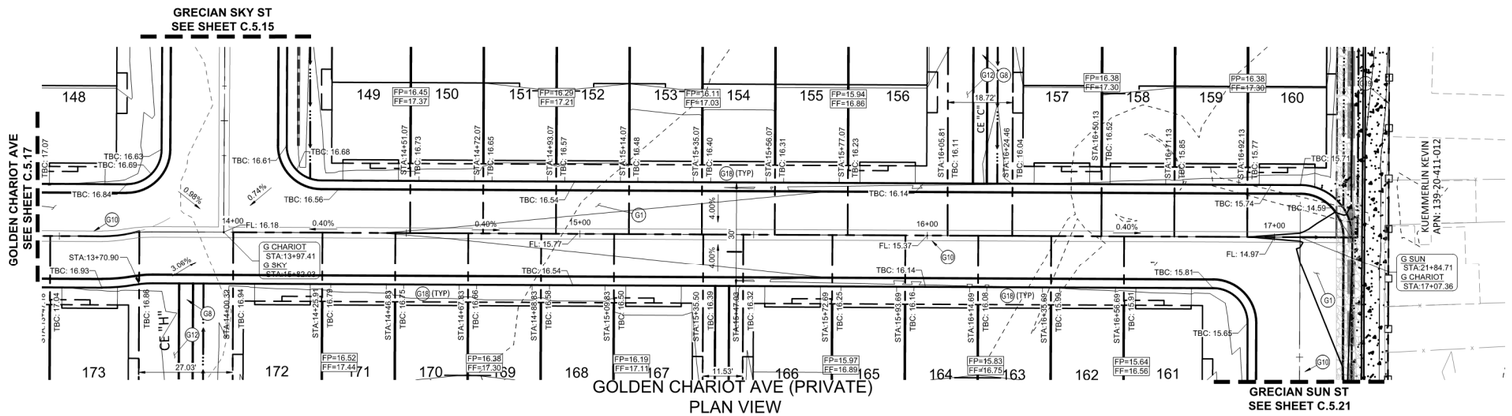
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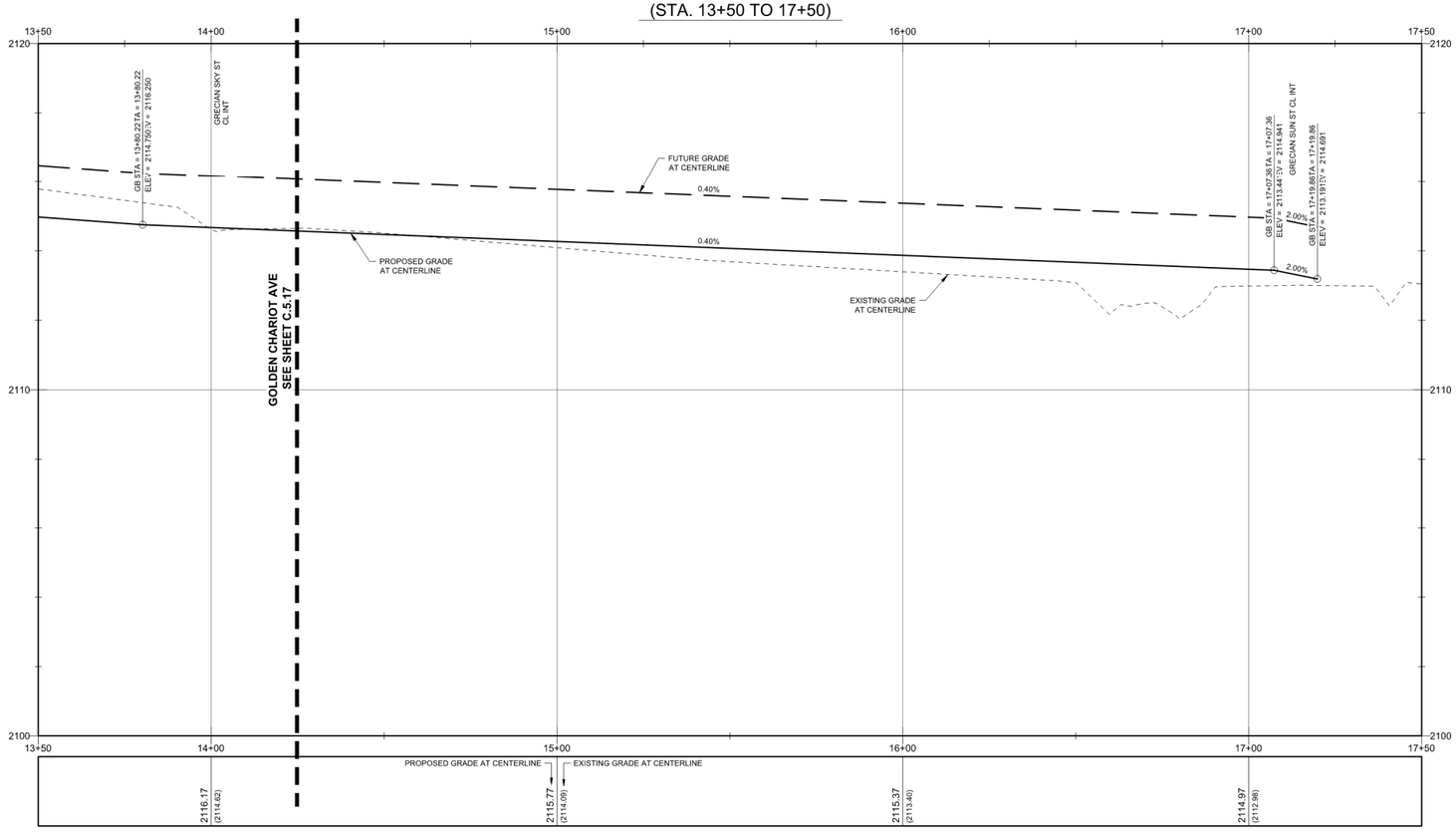
GOLDEN CHARIOT AVE PLAN & PROFILE (STA 9+75 TO STA 14+25)

C.5.17

PAGE 39



GOLDEN CHARIOT AVE (PRIVATE)
PLAN VIEW
(STA. 13+50 TO 17+50)



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(G18) CONSTRUCT 5" THICK CONCRETE DRIVEWAY.
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(G20) INSTALL BLOCK WALL OPENING PER DETAIL #20 ON SHEET C.6.1.
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(G22) INSTALL 4" SIDEWALK DRAIN PIPE PER CCAUSD #236.
(G23) CONSTRUCT SIDEWALK UNDERDRAIN PER CCAUSD #236.
(G24) INSTALL WROUGHT IRON GATE/FENCE PER CCAUSD #425.S1
(G25) CONSTRUCT DEPRESSED CURB PER DETAIL 31 ON SHEET C.6.2
(G26) INSTALL 6" CONCRETE PAVEMENT OVER 6" TYPE II AGG BASE
(G27) INSTALL RIP RAP PER PLAN
(G28) CONSTRUCT 30" ROLL CURB WITH REVERSE LIP PER DETAIL 32 ON SHEET C.6.2
(G29) INSTALL RIP-RAP D50=3",T=6" SUBGRADE @ 90% COMPACTION LENGTH & WIDTH SPECIFIED PER DETAIL 37
(G30) CONSTRUCT EASEMENT OPENING PER CCAUSD #425.S1, WITH 2 REMOVABLE BOLLARDS. REF. DETAIL 35 ON SHEET C.6.1
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(G32) INSTALL ORIFICE PLATE PER DETAL 36 ON SHEET C.6.1

HORROCKS ENGINEERS
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0 1 2

REVISIONS
REV # | DATE
*SEE GENERAL NOTES SHEET

DRAWING INFO
DATE 6/25/2020
DESIGNED ACD
DRAWN PMP
CHECKED ACD
PROJECT NV-2105-1911

PROFESSIONAL ENGINEER STATE OF NEVADA
ANTHONY DELEON JR
EXP. 12-31-20
CIVIL
No. 023115
6/25/2020

RANCHO & VEGAS
CITY OF LAS VEGAS, NEVADA
GOLDEN CHARIOT AVE PLAN & PROFILE (STA 13+50 TO STA 17+50)

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FAST
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FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

SCALE: 1" = 20'

LEGAL DESCRIPTION
SEE SHEET C.2.0

BASIS OF BEARING
SEE SHEET C.2.0

FLOOD ZONE
SEE SHEET C.2.0

BENCHMARK
SEE SHEET C.2.0

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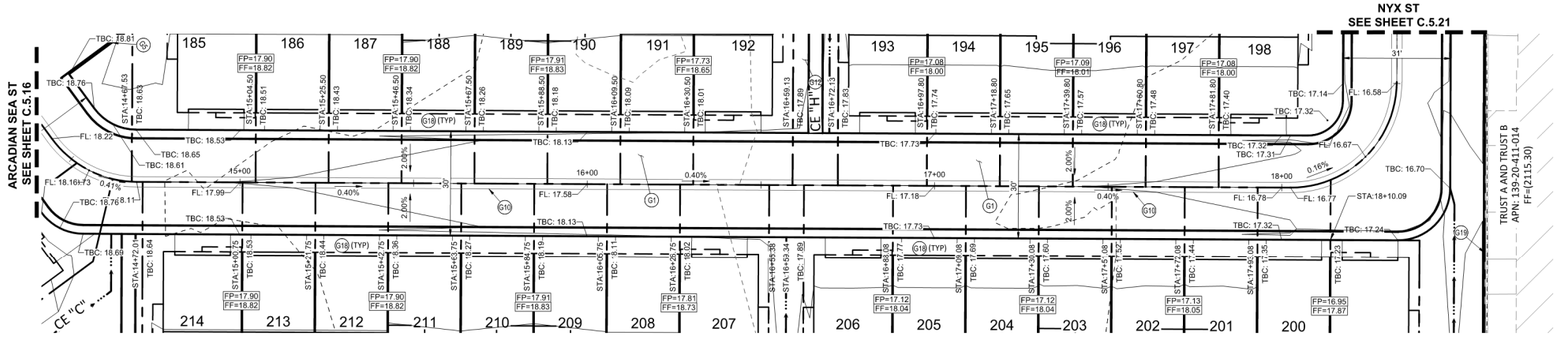
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APPROVED FOR CONSTRUCTION
SOUTHWEST GAS CORPORATION DATE

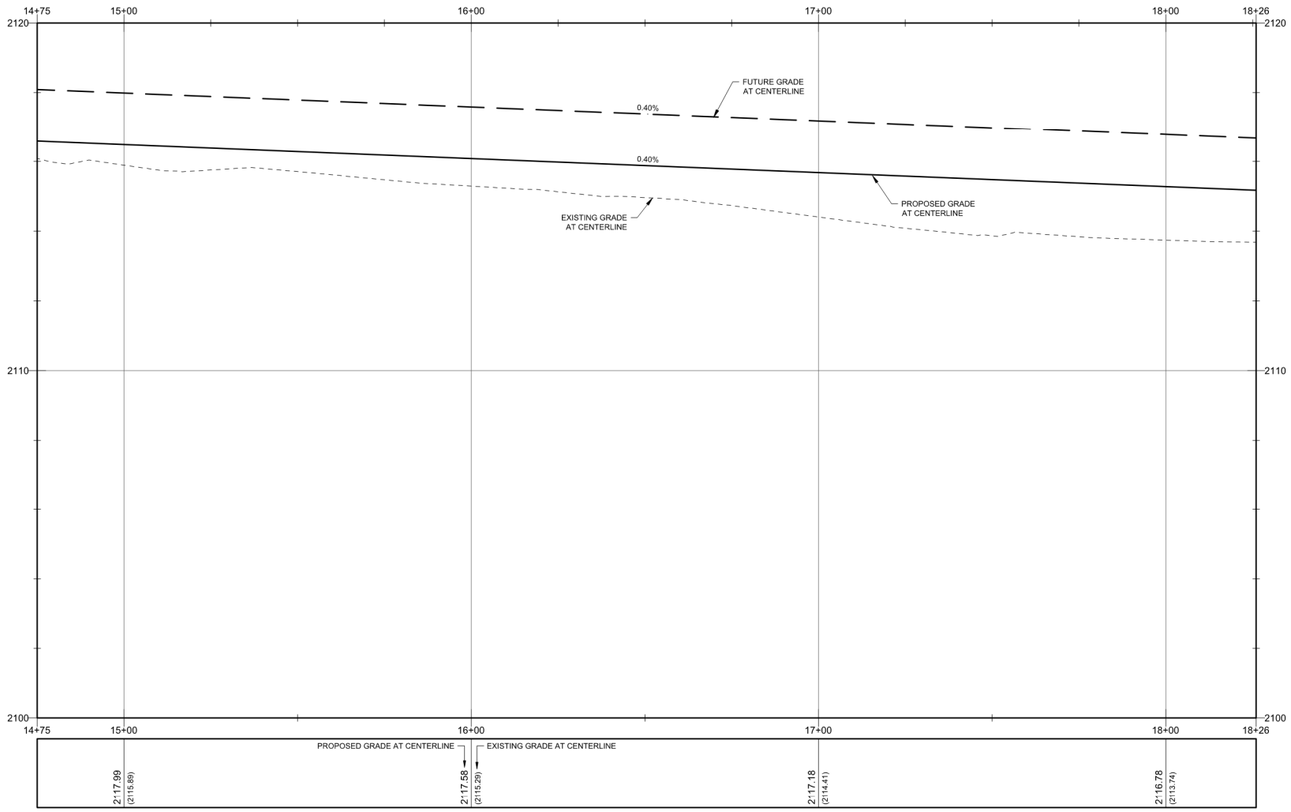
APPROVED FOR CONSTRUCTION
LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO._____ FIRST APPROVAL DATE:_____
LVVWD APPROVED FIRE FLOW_____GPM AT 20 PSI RESIDENTIAL
MAXIMUM AVAILABLE FIRE SPRINKLER FLOW_____N/A_____GPM

C.5.18

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GRECIAN QUEEN AVE (PRIVATE)
PLAN VIEW
(STA. 14+56 TO 18+26)



GRECIAN QUEEN AVE (PRIVATE)
PROFILE VIEW
(STA. 14+00 TO 18+50)
SCALE: 1" = 20' H
SCALE: 1" = 2' V

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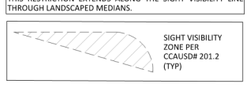
FLOOD ZONE
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BENCHMARK
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APPROVED FOR CONSTRUCTION
SOUTHWEST GAS CORPORATION DATE

APPROVED FOR CONSTRUCTION
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PROJECT NO._____ FIRST APPROVAL DATE:_____
LVVWD APPROVED FIRE FLOW_____GPM AT 20 PSI RESIDENTIAL
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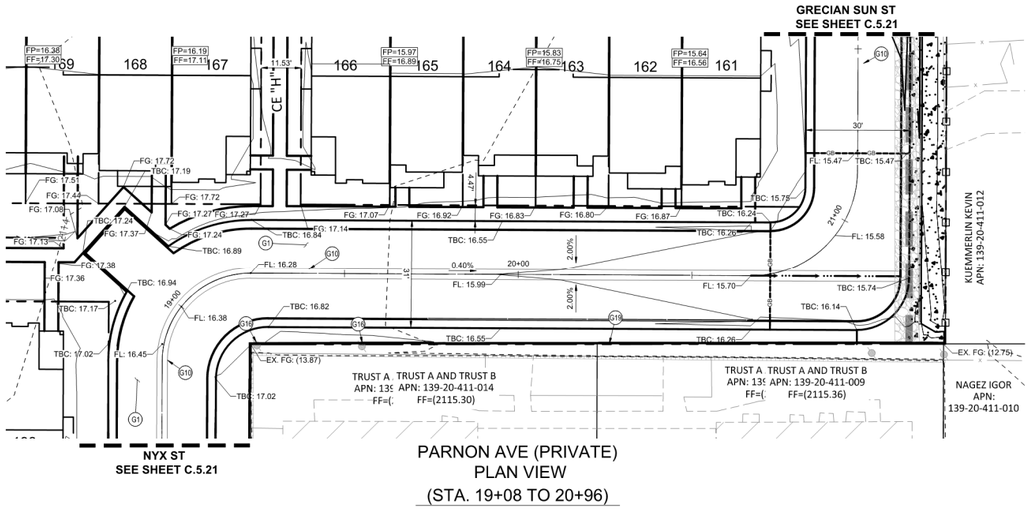
PROFESSIONAL ENGINEER STATE OF NEVADA
ANTHONY C. DELEON JR
EXP. 12-31-20
CIVIL
No. 023113
6/25/2020

RANCHO & VEGAS
CITY OF LAS VEGAS, NEVADA

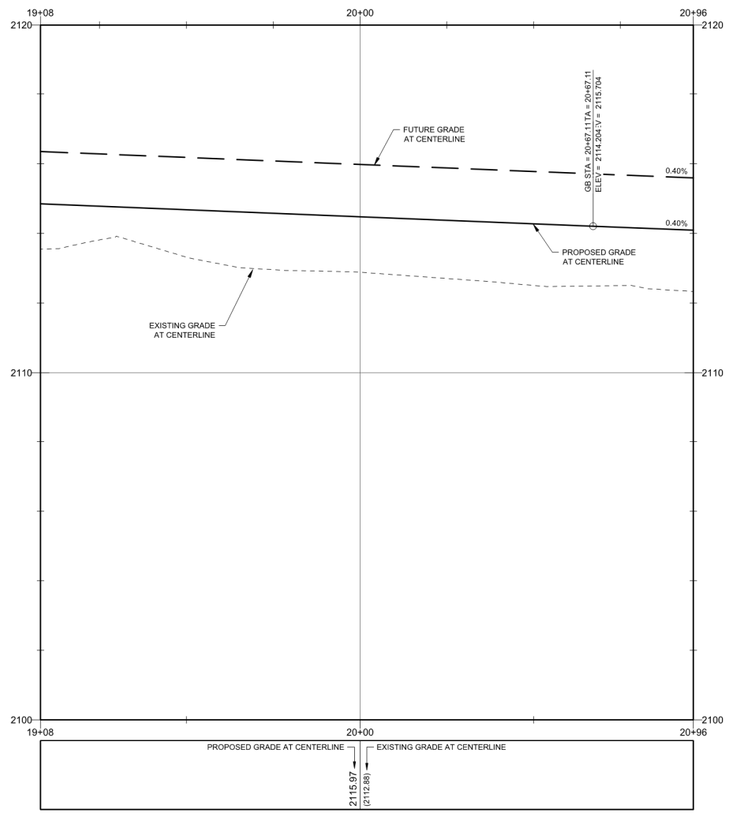
GRECIAN QUEEN AVE PLAN & PROFILE (STA 14+56 TO STA 18+26)

C.5.19

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PARNON AVE (PRIVATE)
PLAN VIEW
(STA. 19+08 TO 20+96)



PARNON AVE (PRIVATE)
PROFILE VIEW
(STA. 18+75 TO 21+25)

SCALE: 1" = 20' H
SCALE: 1" = 2' V

SCALE: 1" = 20'

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APPROVED FOR CONSTRUCTION

SOUTHWEST GAS CORPORATION DATE

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LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT NO._____ FIRST APPROVAL DATE:_____
LVVWD APPROVED FIRE FLOW_____GPM AT 20 PSI RESIDENTIAL
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DRAWING INFO
DATE 6/25/2020
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PROJECT NV-2105-1911

PROFESSIONAL ENGINEER STATE OF NEVADA
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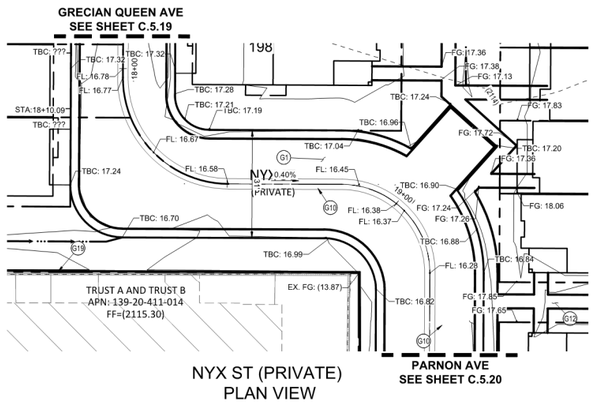
RANCHO & VEGAS
CITY OF LAS VEGAS, NEVADA

PARNON AVE PLAN & PROFILE (STA 19+08 TO STA 20+96)

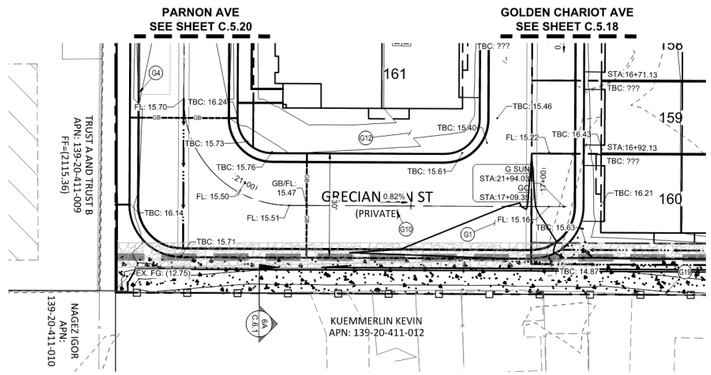
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PAGE 42

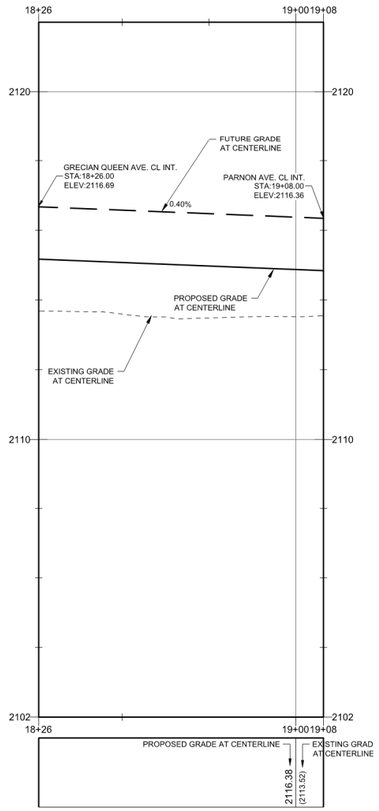
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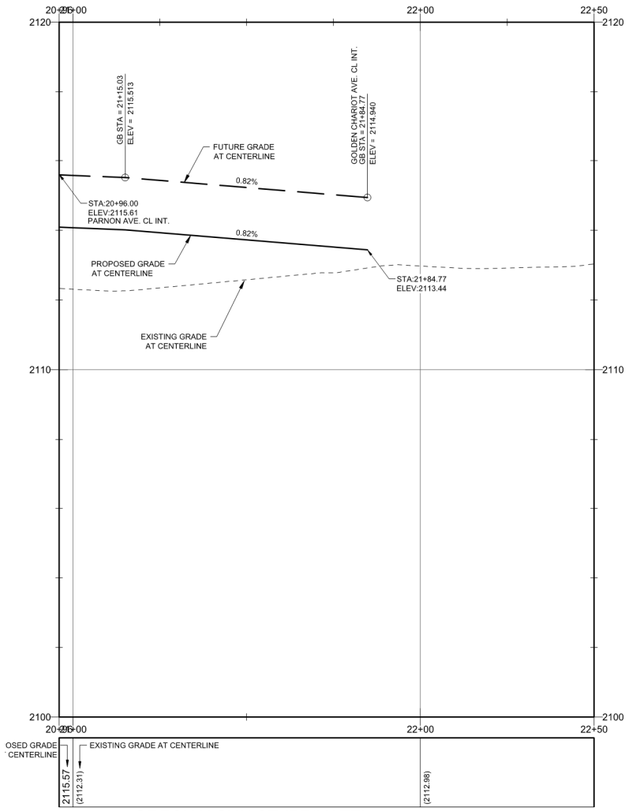
NYX ST (PRIVATE)
PLAN VIEW
(STA. 18+26 TO 19+08)



GRECIAN SUN ST (PRIVATE)
PLAN VIEW
(STA. 20+96 TO 22+25)



NYX ST (PRIVATE)
PROFILE VIEW
(STA. 18+26 TO 19+08)
SCALE: 1" = 20' H
SCALE: 1" = 2' V



GRECIAN SUN ST (PRIVATE)
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(G12) INSTALL LANDSCAPING BY OTHERS.
(G13) EXISTING FENCE TO REMAIN.
(G14) INSTALL RETAINING WALL BY SEPARATE PERMIT. HEIGHT DEPICTED BY PLAN.
(G15) EXISTING FENCE TO BE REMOVED.
(G16) EXISTING OBJECTS TO BE RELOCATED.
(G17) ADJUST EXISTING UTILITIES TO NEW FINISHED GRADE.
(G18) CONSTRUCT 5" THICK CONCRETE DRIVEWAY.
(G19) INSTALL SCREEN WALL.
(G20) INSTALL BLOCK WALL OPENING PER DETAIL #20 ON SHEET C.6.1.
(G21) CONSTRUCT 10' TRANSITION FROM "L" CURB TO ROLL CURB PER DETAIL #18 SHEET C.6.1.
(G22) INSTALL 4" SIDEWALK DRAIN PIPE PER CCAUSD #236.
(G23) CONSTRUCT SIDEWALK UNDERDRAIN PER CCAUSD #236.
(G24) INSTALL WROUGHT IRON GATE/FENCE PER CCAUSD #425.S1
(G25) CONSTRUCT DEPRESSED CURB PER DETAIL 31 ON SHEET C.6.2
(G26) INSTALL 6" CONCRETE PAVEMENT OVER 6" TYPE II AGG BASE
(G27) INSTALL RIP RAP PER PLAN
(G28) CONSTRUCT 30" ROLL CURB WITH REVERSE LIP PER DETAIL 32 ON SHEET C.6.2
(G29) INSTALL RIP-RAP D50=3",T=6" SUBGRADE @ 90% COMPACTION LENGTH & WIDTH SPECIFIED PER DETAIL 37
(G30) CONSTRUCT EASEMENT OPENING PER CCAUSD #425.S1, WITH 2 REMOVABLE BOLLARDS. REF. DETAIL 35 ON SHEET C.6.1
(G31) CONSTRUCT 8' CONCRETE VALLEY GUTTER PER CCAUSD #228.
(G32) INSTALL ORIFICE PLATE PER DETAL 36 ON SHEET C.6.1

Call before you Dig
AVOID CUTTING UNDERGROUND UTILITIES. IT'S COSTLY
Call 811
1-800-227-2600

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY
CALL BEFORE YOU DO OVERHEAD
1-702-227-2929

FAST
Call before you
UnderGround
1-702-432-5300
FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

0 20' 40'
SCALE: 1" = 20'

LEGAL DESCRIPTION	BASIS OF BEARING
SEE SHEET C.2.0	SEE SHEET C.2.0
FLOOD ZONE	**BENCHMARK**
SEE SHEET C.2.0	SEE SHEET C.2.0

UTILITY DISCLAIMER NOTE:

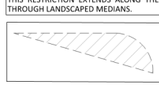
EXISTING UTILITY LOCATIONS SHOWN HEREIN ARE APPROXIMATE ONLY. IT SHALL BE AT THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPPER LOCATIONS.

DEPTH OF COVER DURING CONSTRUCTION:

MAINTAIN MINIMUM TWENTY-FOUR (24) INCH COVER PER UDACS SECTION 2.08.04. GRADING MUST BE COMPLETED PRIOR TO WATERLINE INSTALLATION.

SIGHT VISIBILITY ZONE NOTE:

NO WALLS, FENCES, SHRUBS, UTILITY APPURTENANCES OR ANY OTHER OBJECT, OTHER THAN TRAFFIC CONTROL DEVICES, FIRE HYDRANTS, TREES, AND STREET LIGHT POLES, MAY BE CONSTRUCTED OR INSTALLED WITHIN THE SIGHT VISIBILITY ZONE UNLESS SAID OBJECT IS MAINTAINED AT LESS THAN 24 INCHES IN HEIGHT, MEASURED FROM TOP OF CURB, OR WHERE NO CURB EXISTS, A HEIGHT OF 27 INCHES MEASURED FROM THE TOP OF ADJACENT ASPHALT, GRAVEL OR PAVEMENT STREET SURFACE. THIS RESTRICTION EXTENDS ALONG THE SIGHT VISIBILITY LINE THROUGH LANDSCAPED MEDIANS.



ENGINEER'S NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR EROSION AND DUST CONTROL, AND STORMWATER MANAGEMENT DURING CONSTRUCTION.
2. SEE HORIZONTAL CONTROL PLAN FOR EXACT PROPERTY LINE DIMENSIONS
3. ENGINEER TO BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES BETWEEN THESE PLANS AND FIELD CONDITIONS.
4. THESE PLANS SHALL NOT IN PART, OR IN WHOLE, BE USED FOR CONSTRUCTION UNTIL APPROVED AND SIGNED BY GOVERNING AGENCIES.
5. ALL GRADING SHALL CONFORM TO SOILS REPORT RECOMMENDATIONS.
6. DURING CONSTRUCTION, SURVEYORS AND CONTRACTORS MUST VERIFY THAT ALL STREETS AND LOTS HAVE POSITIVE DRAINAGE. SAME MUST UTILIZE AT LEAST THREE GRADES ON VERTICAL TANGENTS TO VERIFY SLOPES.
7. FLOOR SECTION ASSUMES 5" SLAB OVER MIN. 8.5" TYPE II. CONTRACTOR TO VERIFY WITH STRUCTURAL PLANS AND GEOTECHNICAL ENGINEER.
8. ADD 2100' TO GRADING ELEVATIONS SHOWN HEREON TO ADJUST THEM TO THE ASSOCIATED DATUM. FINISHED GRADE CONTOURS ARE APPROXIMATE. REFER TO SPOT ELEVATION GRADE TAGS FOR CONSTRUCTION STAKING PURPOSES.

APPROVED FOR CONSTRUCTION

SOUTHWEST GAS CORPORATION DATE

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT NO. FIRST APPROVAL DATE:
LVVWD APPROVED FIRE FLOW _____GPM AT 20 PSI RESIDENTIAL
MAXIMUM AVAILABLE FIRE SPRINKLER FLOW_____N/A_____GPM

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REVISIONS
REV # | DATE
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DRAWING INFO
DATE 6/25/2020
DESIGNED ACD
DRAWN PMP
CHECKED ACD
PROJECT NV-2105-1911

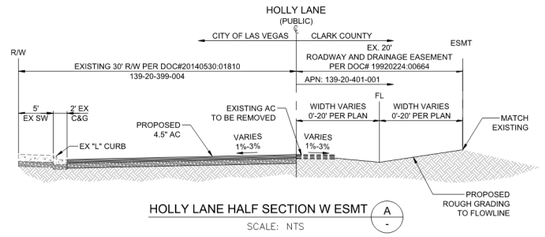
PROFESSIONAL ENGINEER STATE OF NEVADA
ANTHONY C. DELEON JR
EXP. 12-31-20
CIVIL
No. 023113
6/25/2020

RANCHO & VEGAS
CITY OF LAS VEGAS, NEVADA

NYX ST PLAN & PROFILE (STA 18+26 TO STA 19+08)
GRECIAN SUN ST PLAN & PROFILE (STA 20+96 TO STA 22+94)

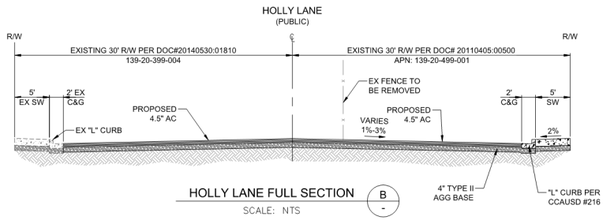
C.5.21

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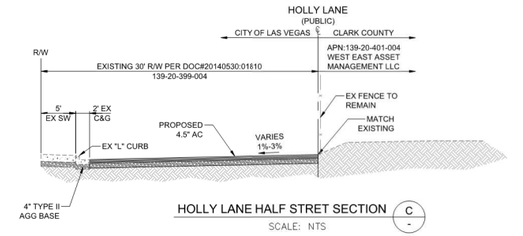
HOLLY LANE HALF SECTION W ESMT (A)

SCALE: NTS



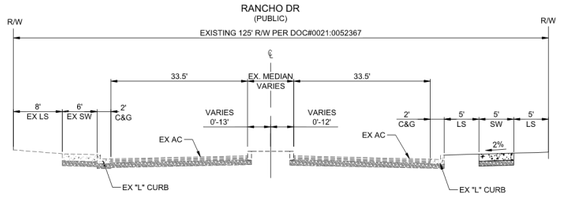
HOLLY LANE FULL SECTION (B)

SCALE: NTS



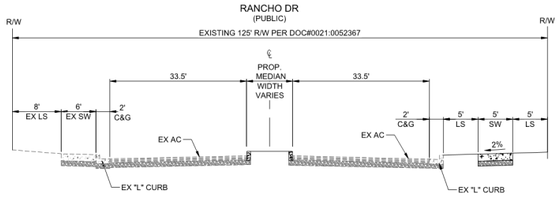
HOLLY LANE HALF STRET SECTION (C)

SCALE: NTS



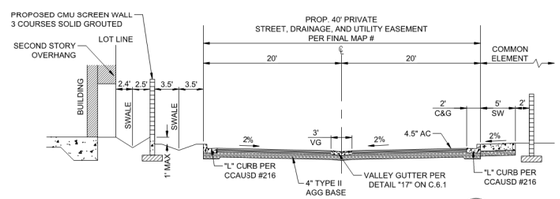
EX. RANCHO DR SECTION (D)

SCALE: NTS



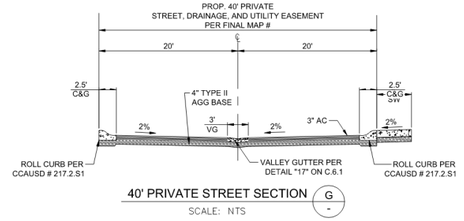
PR. RANCHO DR MEDIAN SECTION (E)

SCALE: NTS



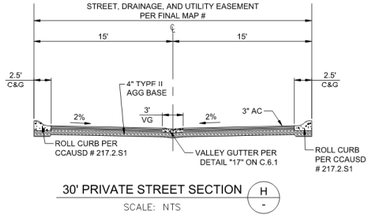
40' PRIVATE STREET SECTION W/ L-CURB (F)

SCALE: NTS



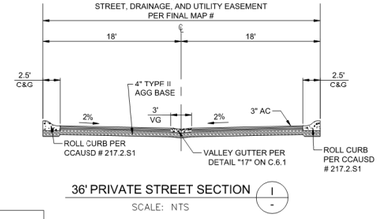
40' PRIVATE STREET SECTION (G)

SCALE: NTS



30' PRIVATE STREET SECTION (H)

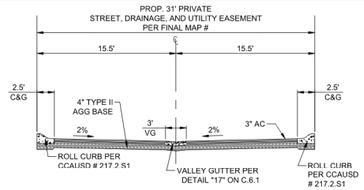
SCALE: NTS



36' PRIVATE STREET SECTION (I)

SCALE: NTS

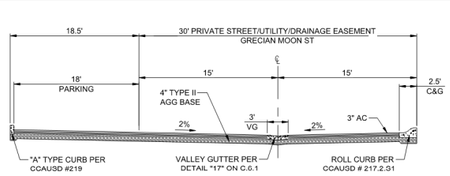
***NOTE:**
PARKING ONLY ALLOWED WHERE INDICATED ON PLANS.
NO PARKING IN FRONT OF DRIVEWAYS.



31' PRIVATE STREET SECTION (J)

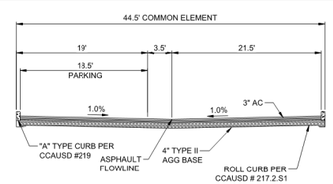
SCALE: NTS

***NOTE:**
PARKING ONLY ALLOWED WHERE INDICATED ON PLANS.
NO PARKING IN FRONT OF DRIVEWAYS.



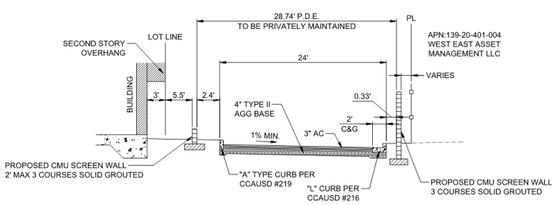
30' PRIVATE STREET SECTION
WITH ADDITIONAL PARKING (K)

SCALE: NTS



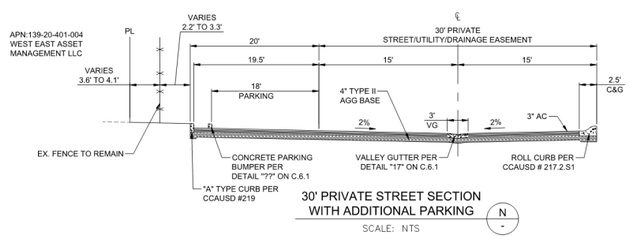
30' PRIVATE STREET SECTION
WITH ADDITIONAL PARKING (L)

SCALE: NTS



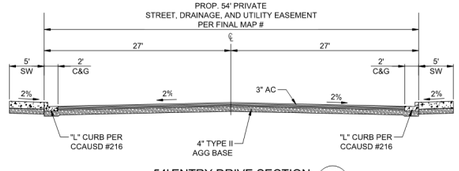
NORTH PARKING LOT ENTRY DRIVE (M)

SCALE: NTS



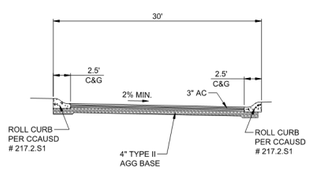
30' PRIVATE STREET SECTION
WITH ADDITIONAL PARKING (N)

SCALE: NTS



54' ENTRY DRIVE SECTION (O)

SCALE: NTS



NORTH PARKING LOT ENTRY DRIVE (P)

SCALE: NTS

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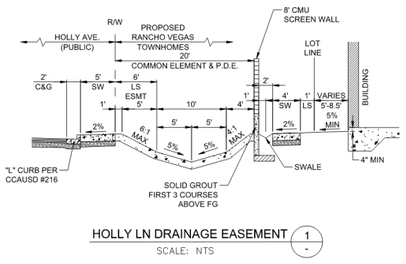
REVISIONS
REV # | DATE
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DRAWING INFO
DATE 4/10/2020
DESIGNED ACD
DRAWN PMP
CHECKED ACD
PROJECT NV-2105-1911

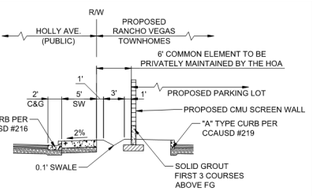
PROFESSIONAL ENGINEER STATE OF NEVADA
ANTHONY DELEON JR
EXP 12-31-20
CIVIL
No.023113
6/25/2020

RANCHO & VEGAS
CITY OF LAS VEGAS, NEVADA
STREET SECTIONS

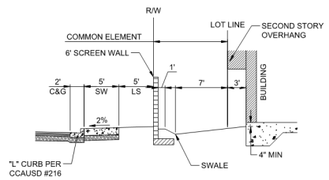
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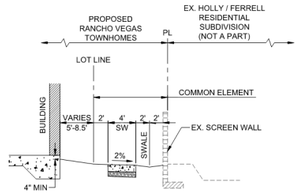
HOLLY LN DRAINAGE EASEMENT 1
SCALE: NTS



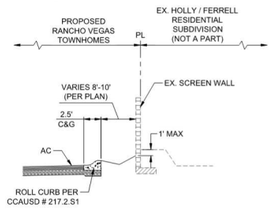
NORTH BOUNDARY SECTION 2
SCALE: NTS



NORTH BOUNDARY SECTION 3
SCALE: NTS

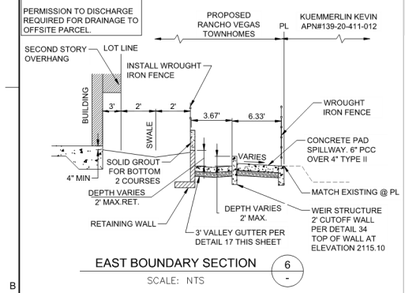


EAST BOUNDARY SECTION 4
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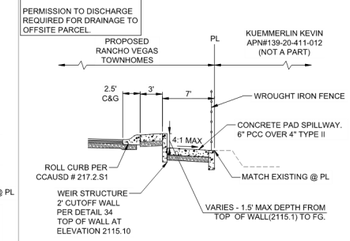
EAST BOUNDARY SECTION 5
SCALE: NTS

NOTE:
PERMISSION TO DISCHARGE REQUIRED FOR DRAINAGE TO OFFSITE PARCEL.

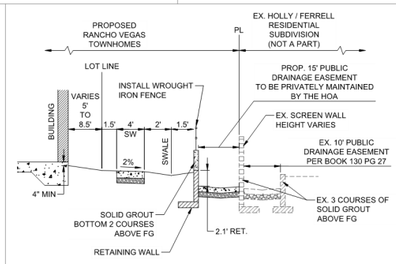


EAST BOUNDARY SECTION 6
SCALE: NTS

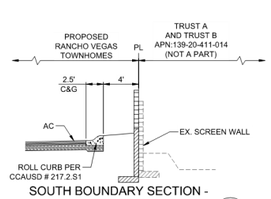
NOTE:
PERMISSION TO DISCHARGE REQUIRED FOR DRAINAGE TO OFFSITE PARCEL.



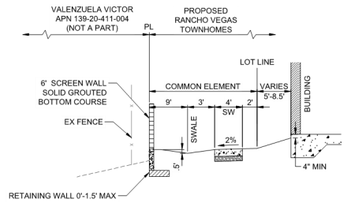
EAST BOUNDARY SECTION 6A
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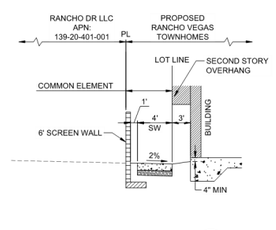
NORTH BOUNDARY SECTION - SOUTHEAST CORNER 7
SCALE: NTS



SOUTH BOUNDARY SECTION - PARNON 8
SCALE: NTS



SOUTH BOUNDARY SECTION 9
SCALE: NTS



NORTH BOUNDARY SECTION 10
SCALE: NTS

NORTH BOUNDARY - HESTIA AVENUE 11
SCALE: NTS

WEST BOUNDARY SECTION
GRECIAN MOON ST. 12
SCALE: NTS

WEST BOUNDARY SECTION 13
SCALE: NTS

WEST BOUNDARY SECTION 14
SCALE: NTS

PRIVATE DRAINAGE EASEMENT 15
SCALE: NTS

PRIVATE DRAINAGE EASEMENT 16
SCALE: NTS

VALLEY GUTTER 17
SCALE: NTS

10' CURB TRANSITION 18
SCALE: NTS

ROLL CURB SIDEWALK DRAIN 19
SCALE: NTS

48" X 16" SCREEN WALL OPENING 20
SCALE: NTS

BUILDING SECTION 21
SCALE: NTS

BUILDING SECTION 22
SCALE: NTS

BUILDING SECTION 23
SCALE: NTS

NORTH BOUNDARY SECTION 24
SCALE: NTS

BUILDING SECTION 25
SCALE: NTS

HOLLY WEST BOUNDARY SECTION 26
SCALE: NTS

NOTE:
ALL COMMON ELEMENTS ARE PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA.

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REV # | DATE
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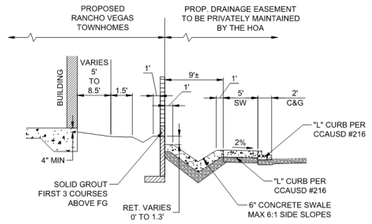
DRAWING INFO
DATE 4/13/2020
DESIGNED ACD
DRAWN PMP
CHECKED ACD
PROJECT NV-2105-1911

PROFESSIONAL ENGINEER - STATE OF NEVADA
ANTHONY C. DELEON JR
EXP. 12-31-20
CIVIL
No. 023115
6/25/2020

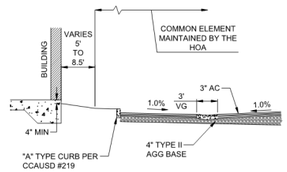
RANCHO & VEGAS
CITY OF LAS VEGAS, NEVADA
DETAILS 1

C.6.1
PAGE 45

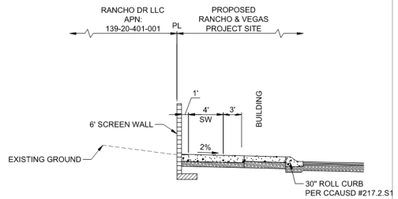
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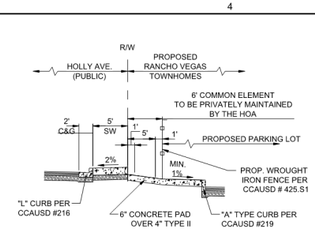
HOLLY DRAINAGE EASEMENT 27
SCALE: NTS



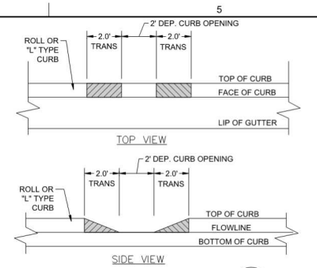
PARKING LOT SWALE 28
SCALE: NTS



NORTH BOUNDARY SECTION 29
SCALE: NTS



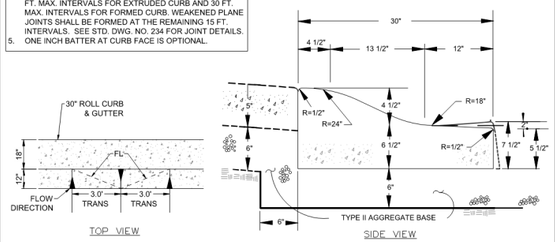
NORTH DRAINAGE EASEMENT
- HOLLY PARKING LOT. 30
SCALE: NTS



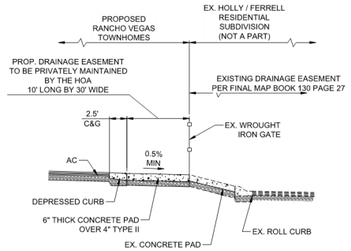
DEPRESSED CURB DETAIL 31
SCALE: NTS

NOTES:

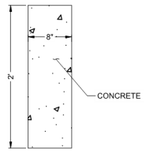
1. ASPHALT TO BE FLUSH AT LIP OF REVERSE ROLL CURB FLOWLINE.
2. SIDEWALK CONSTRUCTED CONTIGUOUS TO ROLL CURB SHALL BE 5 INCHES THICK (MIN).
3. WHERE LONGITUDINAL SLOPE IS LESS THAN 0.4% THE FLOW LINE SHALL BE WATER TESTED.
4. CONSTRUCT 1/2" EXPANSION JOINT AT ALL COLD JOINTS, AT BEGINNING AND END OF CURB RETURNS, AND AT 300 FT. MAX. INTERVALS FOR EXTRUDED CURB AND 30 FT. MAX. INTERVALS FOR FORMED CURB. WEAKENED PLANE JOINTS SHALL BE FORMED AT THE REMAINING 15 FT. INTERVALS. SEE STD. DWG. NO. 234 FOR JOINT DETAILS.
5. ONE INCH BATTER AT CURB FACE IS OPTIONAL.



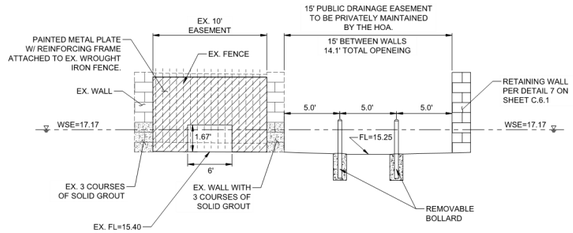
REVERSE ROLL CURB -
SPILL DETAIL 32
SCALE: NTS



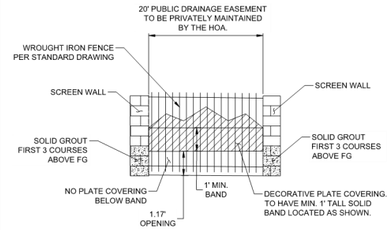
HERODIAN DRAINAGE SECTION 33
SCALE: NTS



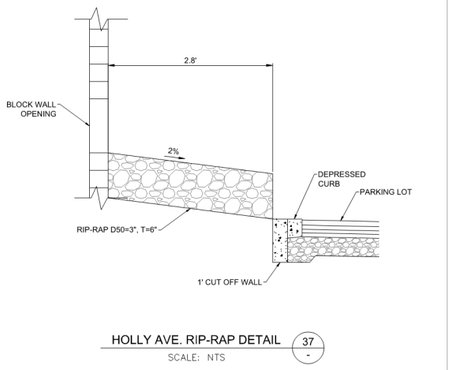
2'x8" CUTOFF WALL 34
SCALE: NTS



ORIFICE DETAILS 35
SCALE: NTS



ORIFICE DETAILS 36
SCALE: NTS



HOLLY AVE. RIP-RAP DETAIL 37
SCALE: NTS

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DRAWING INFO
DATE 4/13/2020
DESIGNED ACD
DRAWN PMP
CHECKED ACD
PROJECT NV-2105-1911

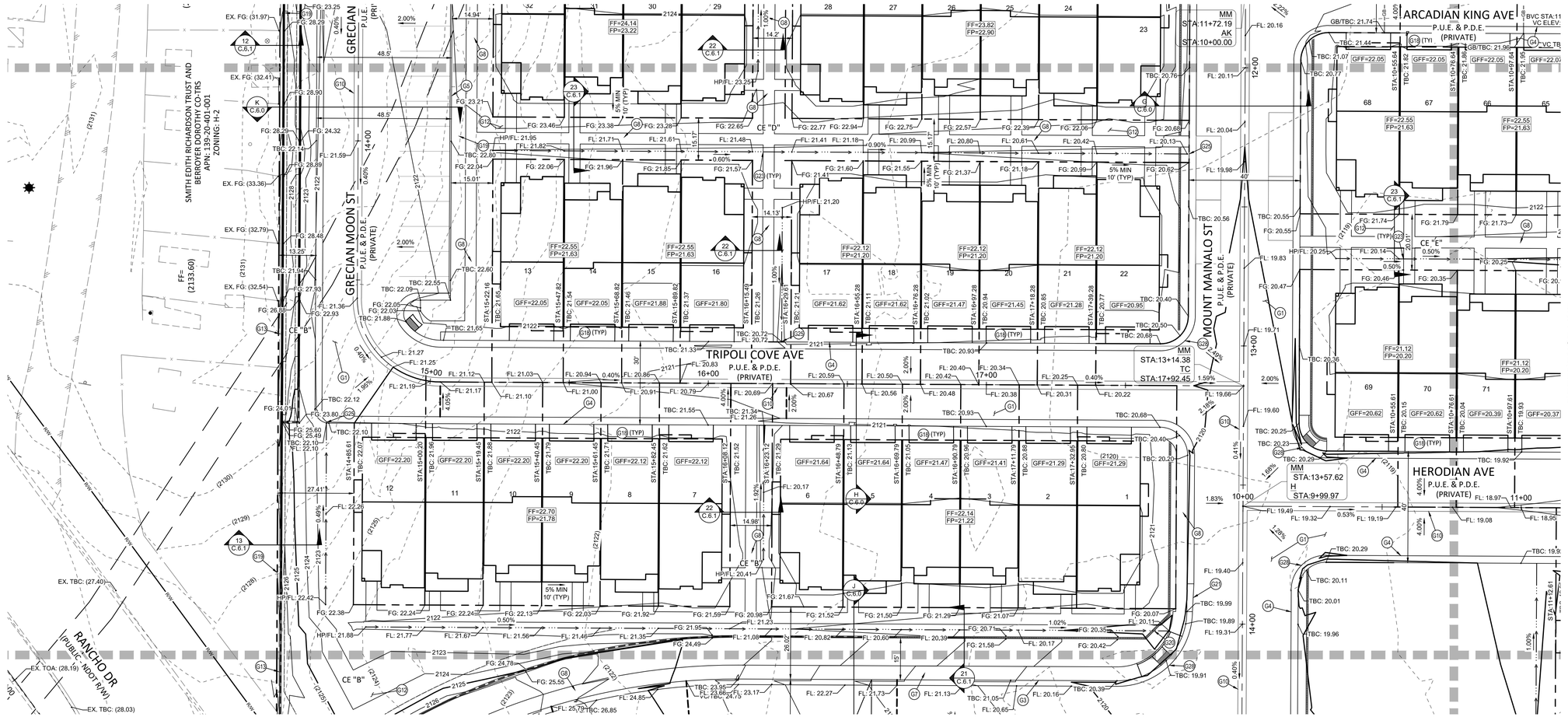
PROFESSIONAL ENGINEER - STATE OF NEVADA
ANTHONY C. DELEON JR
EXP. 12-31-20
CIVIL
No. 023115
6/25/2020

RANCHO & VEGAS
CITY OF LAS VEGAS, NEVADA
DETAILS 2

C.6.2

C:\Users\philipp\appdata\local\temp\AcPublish_11192\C.6.1 DETAILS.dwg - C.6.2 - 6/25/2020 01:54pm, philipp

Grading Plans



BASIS OF BEARING
SEE SHEET C.2.0

BENCHMARK
SEE SHEET C.2.0

LEGAL DESCRIPTION
SEE SHEET C.2.0

FLOOD ZONE
SEE SHEET C.2.0

SIGHT VISIBILITY ZONE PER CCAUSD# 201.2 (TYP)

SIGHT VISIBILITY ZONE NOTE:

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   PREPARED BY: GEOTEK, INC.
   PROJECT NO.: 14379-LV
   DATE: OCTOBER 2, 2018
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DS# 5273 .

ANTHONY C. DELEON JR., P.E. NO. 023113 DATE

0 20' 40'
SCALE: 1" = 20'

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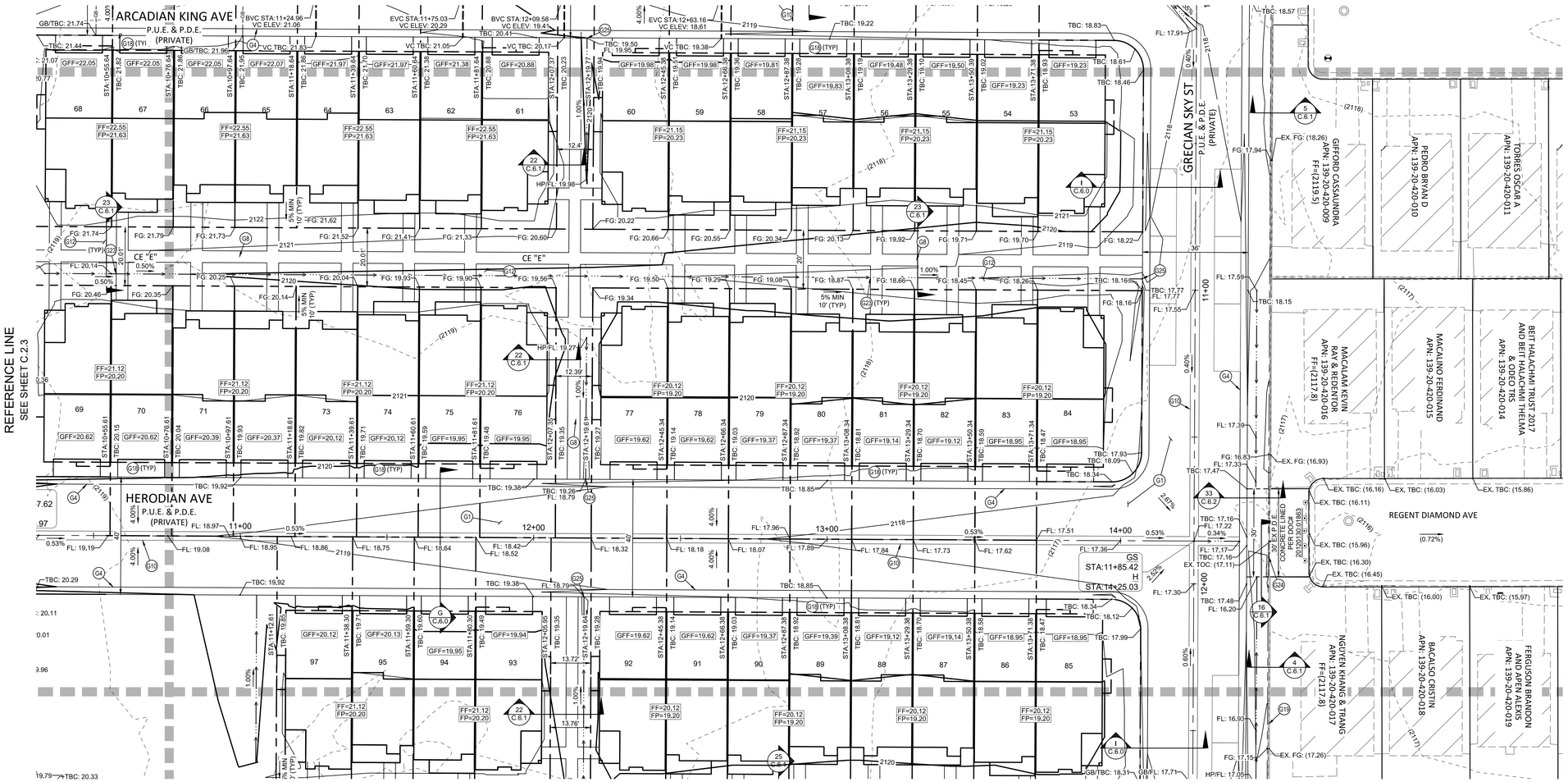
DRAWING INFO
DATE 3/30/2020
DESIGNED ACD
DRAWN PMP
CHECKED ACD
PROJECT NV-2105-1911

PROFESSIONAL ENGINEER-STATE OF NEVADA
ANTHONY C. DELEON JR
EXP. 12-31-20
CIVIL
No. 023113
8/5/2020

RANCHO & VEGAS
CITY OF LAS VEGAS, NEVADA
GRADING PLAN 3

C.2.3

PAGE 08



REFERENCE LINE
SEE SHEET C.2.6

BASIS OF BEARING
SEE SHEET C.2.0

BENCHMARK
SEE SHEET C.2.0

LEGAL DESCRIPTION
SEE SHEET C.2.0

FLOOD ZONE
SEE SHEET C.2.0

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DS# 5273 .

ANTHONY C. DELEON JR., P.E. NO. 023113 DATE

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PROJECT NV-2105-1911

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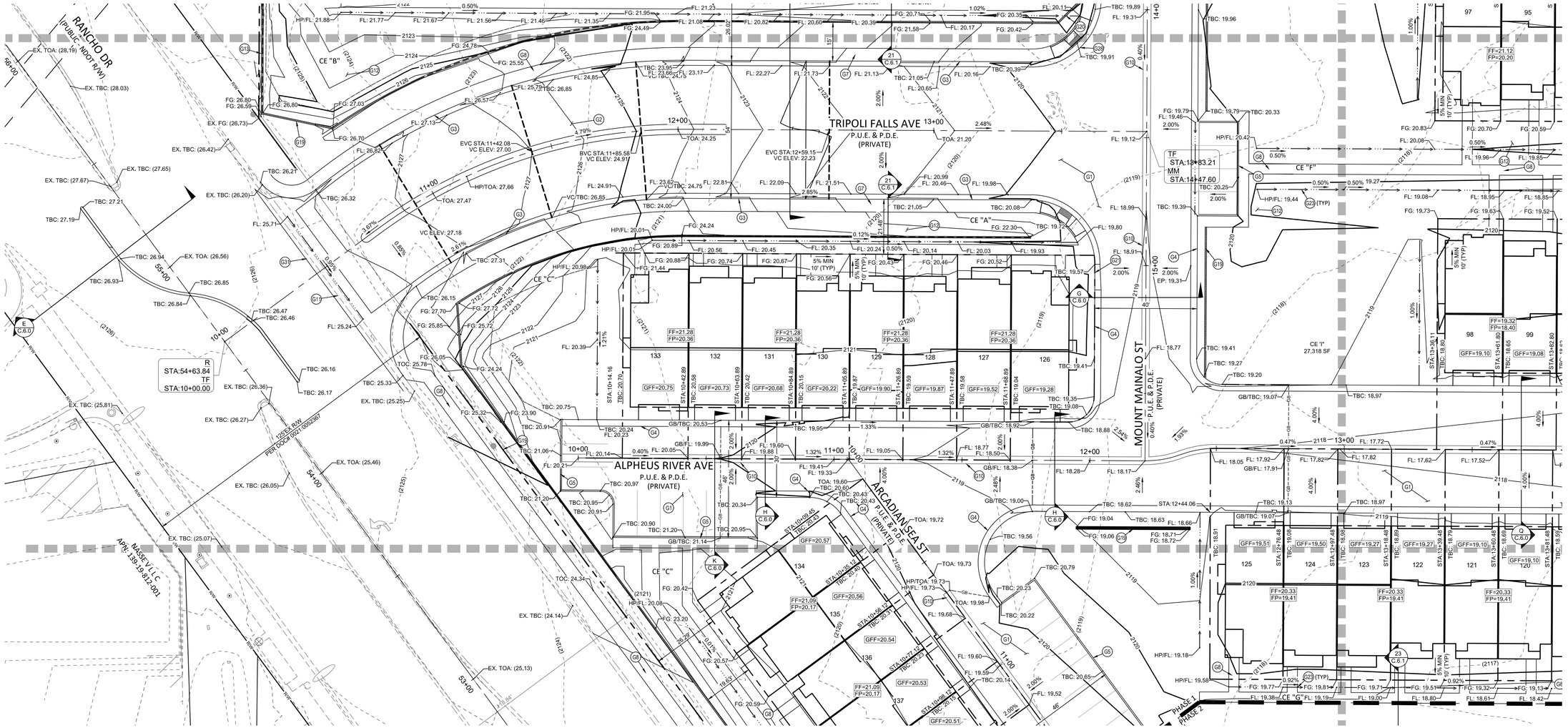
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0 20' 40'
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RANCHO & VEGAS
CITY OF LAS VEGAS, NEVADA
GRADING PLAN 4

C.2.4

PAGE 09



BASIS OF BEARING
SEE SHEET C.2.0

BENCHMARK
SEE SHEET C.2.0

LEGAL DESCRIPTION
SEE SHEET C.2.0

FLOOD ZONE
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REV # | DATE
*SEE GENERAL NOTES SHEET

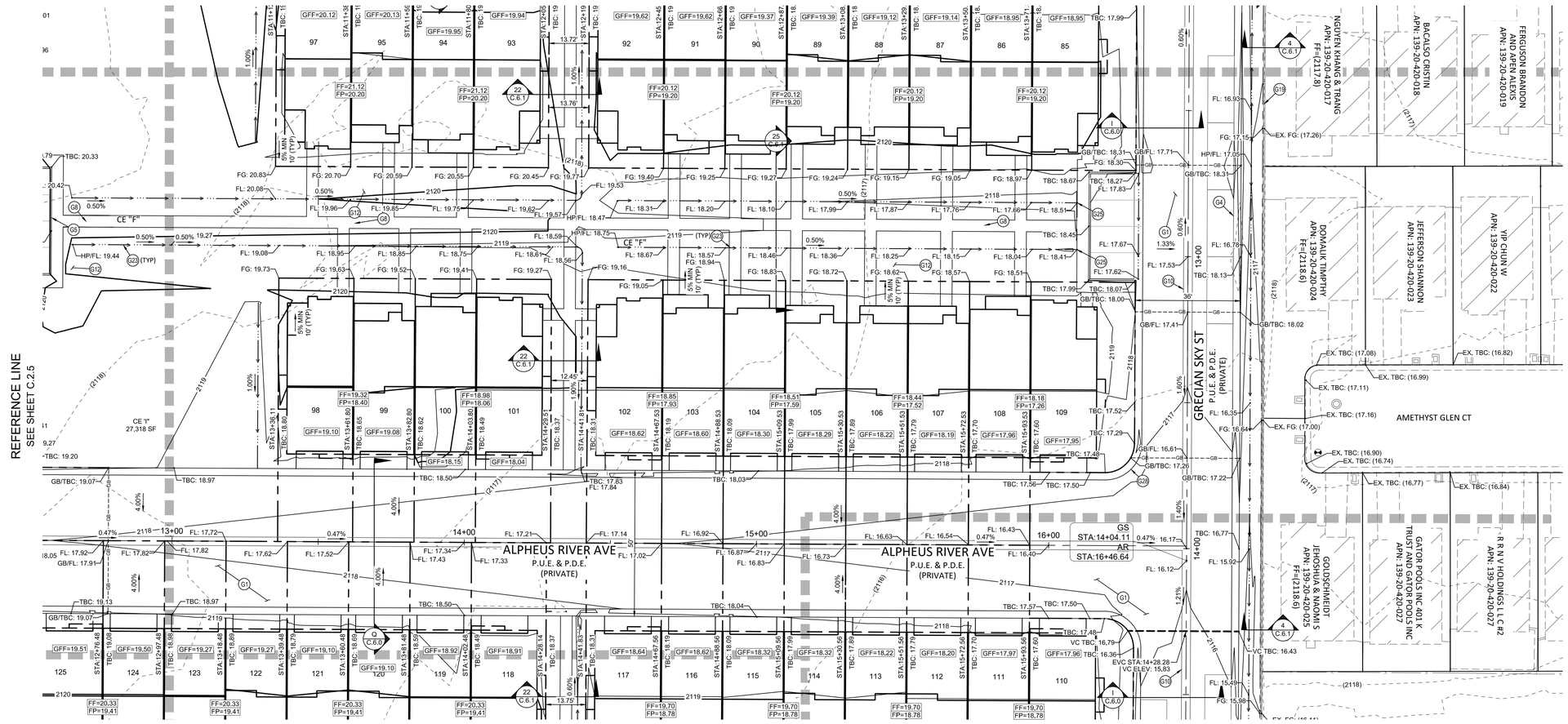
DRAWING INFO
DATE 3/30/2020
DESIGNED ACD
DRAWN PMP
CHECKED ACD
PROJECT NV-2105-1911

PROFESSIONAL ENGINEER-STATE OF NEVADA
ANTHONY C. DELEON JR
EXP. 12-31-20
CIVIL
No. 023113
8/5/2020

0 20' 40'
SCALE: 1" = 20'

RANCHO & VEGAS
CITY OF LAS VEGAS, NEVADA
GRADING PLAN 5

C.2.5



BASIS OF BEARING
SEE SHEET C.2.0

BENCHMARK
SEE SHEET C.2.0

LEGAL DESCRIPTION
SEE SHEET C.2.0

FLOOD ZONE
SEE SHEET C.2.0

SIGHT VISIBILITY ZONE PER CCAUSD# 201.2 (TYP)

SIGHT VISIBILITY ZONE NOTE:

NO WALLS, FENCES, SHRUBS, UTILITY APPURTENANCES OR ANY OTHER OBJECT, OTHER THAN TRAFFIC CONTROL DEVICES, FIRE HYDRANTS, TREES, AND STREET LIGHT POLES, MAY BE CONSTRUCTED OR INSTALLED WITHIN THE SIGHT VISIBILITY ZONE UNLESS SAID OBJECT IS MAINTAINED AT LESS THAN 24 INCHES IN HEIGHT, MEASURED FROM TOP OF CURB, OR WHERE NO CURB EXISTS, A HEIGHT OF 27 INCHES MEASURED FROM THE TOP OF ADJACENT ASPHALT, GRAVEL OR PAVEMENT STREET SURFACE. THIS RESTRICTION EXTENDS ALONG THE SIGHT VISIBILITY LINE THROUGH LANDSCAPED MEDIANS.

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AVOID HITTING OVERHEAD POWER LINES, IT'S COSTLY.
CALL BEFORE YOU DO OVERHEAD
1-702-227-2929

FAST
Call before you UnderGround
1-702-432-5300
FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

ENGINEER'S NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR EROSION AND DUST CONTROL, AND STORMWATER MANAGEMENT DURING CONSTRUCTION.
2. SEE HORIZONTAL CONTROL PLAN FOR EXACT PROPERTY LINE DIMENSIONS
3. ENGINEER TO BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES BETWEEN THESE PLANS AND FIELD CONDITIONS.
4. THESE PLANS SHALL NOT IN PART, OR IN WHOLE, BE USED FOR CONSTRUCTION UNTIL APPROVED AND SIGNED BY GOVERNING AGENCIES.
5. ALL GRADING SHALL CONFORM TO SOILS REPORT RECOMMENDATIONS.
6. DURING CONSTRUCTION, SURVEYORS AND CONTRACTORS MUST VERIFY THAT ALL STREETS AND LOTS HAVE POSITIVE DRAINAGE. SAME MUST UTILIZE AT LEAST THREE GRADES ON VERTICAL TANGENTS TO VERIFY SLOPES.
7. SOILS REPORT NOTE:
   GRADING SHALL BE IN ACCORDANCE WITH SOILS REPORT
   PREPARED BY: GEOTEK, INC.
   PROJECT NO.: 14379-LV
   DATE: OCTOBER 2, 2018
8. CUT/FILL ESTIMATES (PUBLIC AND PRIVATE):
   FROM EXISTING TO FINISH GRADE ELEVATIONS
   NET CUT: _____ CY
   NET FILL: _____ CY
   TOTAL: _____ CY (FILL)
9. FLOOR SECTION ASSUMES 5" SLAB OVER MIN. 8.5" TYPE II. CONTRACTOR TO VERIFY WITH STRUCTURAL PLANS AND GEOTECHNICAL ENGINEER.
10. ADD 2'100' TO GRADING ELEVATIONS SHOWN HEREON TO ADJUST THEM TO THE ASSOCIATED DATUM. FINISHED GRADE CONTOURS ARE APPROXIMATE. REFER TO SPOT ELEVATION GRADE TAGS FOR CONSTRUCTION STAKING PURPOSES.

GRADING KEY NOTES:

- G1 CONSTRUCT 3" AC PAVEMENT OVER 4" TYPE II AGG BASE.
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EASEMENT KEY NOTES:

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DS# 5273 .

ANTHONY C. DELEON JR., P.E. NO. 023113 DATE

SCALE: 1" = 20'

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Henderson, NV 89074
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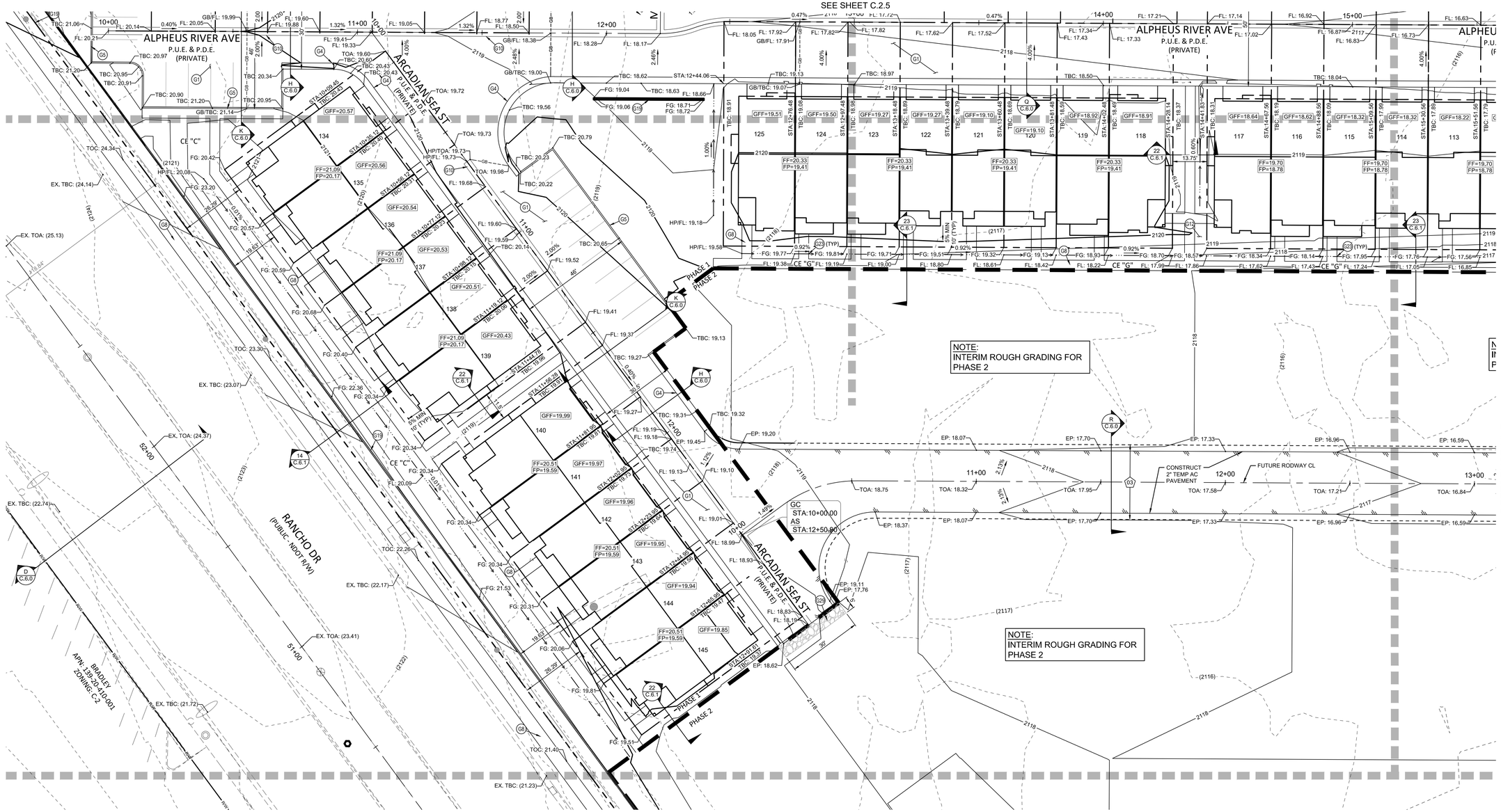
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PROFESSIONAL ENGINEER-STATE OF NEVADA
ANTHONY C. DELEON JR
EXP. 12-31-20
CIVIL
No. 023113
8/5/2020

RANCHO & VEGAS
CITY OF LAS VEGAS, NEVADA
GRADING PLAN 6

C.2.6



BASIS OF BEARING

SEE SHEET C.2.0

BENCHMARK

SEE SHEET C.2.0

LEGAL DESCRIPTION

SEE SHEET C.2.0

FLOOD ZONE

SEE SHEET C.2.0

SIGHT VISIBILITY ZONE PER CCAUSD# 201.2 (TYP)

SIGHT VISIBILITY ZONE NOTE:

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   PROJECT NO.: 14379-LV
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DS# 5273 .

ANTHONY C. DELEON JR., P.E. NO. 023113 DATE

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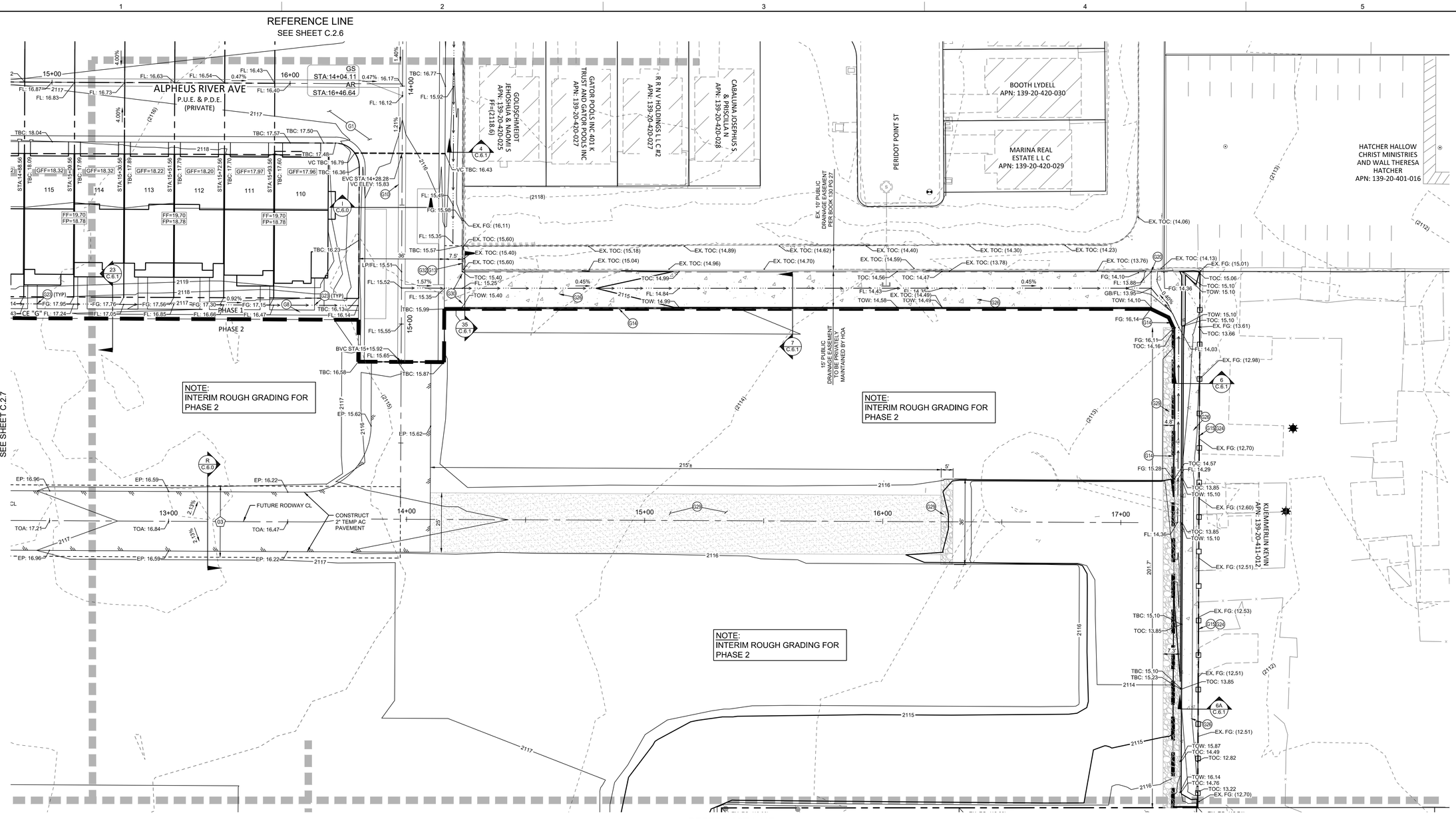
PROFESSIONAL ENGINEER-STATE OF NEVADA
ANTHONY C. DELEON JR
EXP. 12-31-20
CIVIL
No. 023113
8/5/2020

HORROCKS ENGINEERS

0 20' 40'
SCALE: 1" = 20'

RANCHO & VEGAS
CITY OF LAS VEGAS, NEVADA
GRADING PLAN 7

C.2.7



BASIS OF BEARING
SEE SHEET C.2.0

BENCHMARK
SEE SHEET C.2.0

LEGAL DESCRIPTION
SEE SHEET C.2.0

FLOOD ZONE
SEE SHEET C.2.0

SIGHT VISIBILITY ZONE PER CCAUSD# 201.2 (TYP)

SIGHT VISIBILITY ZONE NOTE:
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   PREPARED BY: GEOTEK, INC.
   PROJECT NO.: 14379-LV
   DATE: OCTOBER 2, 2018
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   FROM EXISTING TO FINISH GRADE ELEVATIONS
   NET CUT: _____ CY
   NET FILL: _____ CY
   TOTAL: _____ CY (FILL)
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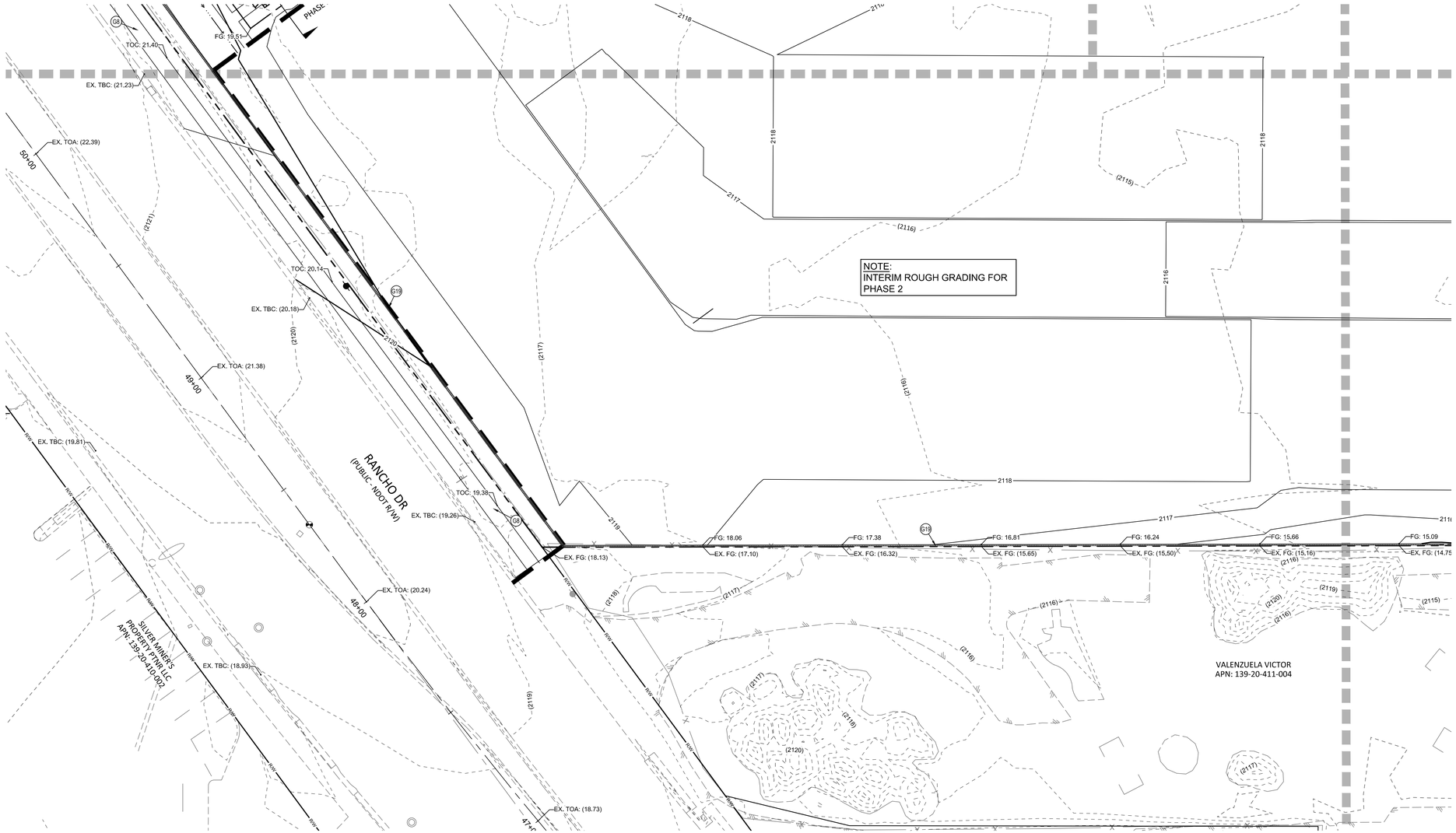
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CHECKED	ACD
PROJECT	NV-2105-1911

PROFESSIONAL ENGINEER-STATE OF NEVADA
ANTHONY C. DELEON JR
EXP. 12-31-20
CIVIL
NO. 023113
8/5/2020

RANCHO & VEGAS
CITY OF LAS VEGAS, NEVADA
GRADING PLAN 8

C.2.8
PAGE 13



BASIS OF BEARING
SEE SHEET C.2.0

BENCHMARK
SEE SHEET C.2.0

LEGAL DESCRIPTION
SEE SHEET C.2.0

FLOOD ZONE
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SIGHT VISIBILITY ZONE PER CCAUSD# 201.2 (TYP)

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- (G10) CONSTRUCT 3' CONCRETE VALLEY GUTTER PER CCAUSD #228.
- (G11) SAWCUT & REMOVE EXISTING PAVEMENT.
- (G12) INSTALL LANDSCAPING BY OTHERS.
- (G13) EXISTING FENCE TO REMAIN.
- (G14) INSTALL RETAINING WALL BY SEPARATE PERMIT. HEIGHT DEPICTED BY PLAN.
- (G15) EXISTING FENCE TO BE REMOVED.
- (G16) EXISTING OBJECTS TO BE RELOCATED.
- (G17) ADJUST EXISTING UTILITIES TO NEW FINISHED GRADE.
- (G18) CONSTRUCT 5" THICK CONCRETE DRIVEWAY.
- (G19) INSTALL SCREEN WALL.
- (G20) INSTALL BLOCK WALL OPENING PER DETAIL #20 ON SHEET C.6.1.
- (G21) CONSTRUCT 10' TRANSITION FROM "L" CURB TO ROLL CURB PER DETAIL #18 SHEET C.6.1.
- (G22) INSTALL 4" SIDEWALK DRAIN PIPE PER CCAUSD #236.
- (G23) CONSTRUCT SIDEWALK UNDERDRAIN PER CCAUSD #236.
- (G24) INSTALL WROUGHT IRON GATE/FENCE PER CCAUSD #425.S1
- (G25) CONSTRUCT DEPRESSED CURB PER DETAIL 31 ON SHEET C.6.2
- (G26) INSTALL 6" CONCRETE PAVEMENT OVER 6" TYPE II AGG BASE
- (G27) INSTALL RIP RAP PER PLAN
- (G28) CONSTRUCT 30" ROLL CURB WITH REVERSE LIP PER DETAIL 32 ON SHEET C.6.2
- (G29) INSTALL RIP-RAP D50=3",T=6" SUBGRADE @ 90% COMPACTION LENGTH & WIDTH SPECIFIED PER DETAIL 37
- (G30) CONSTRUCT EASEMENT OPENING PER CCAUSD #425.S1. WITH 2 REMOVABLE BOLLARDS. REF. DETAIL 35 ON SHEET C.6.1
- (G31) CONSTRUCT 8' CONCRETE VALLEY GUTTER PER CCAUSD #228.
- (G32) INSTALL ORIFICE PLATE PER DETAL 36 ON SHEET C.6.1

EASEMENT KEY NOTES:

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DRAINAGE CERTIFICATION:

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DS# 5273 .

ANTHONY C. DELEON JR., P.E. NO. 023113 DATE

SCALE: 1" = 20'

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Henderson, NV 89074
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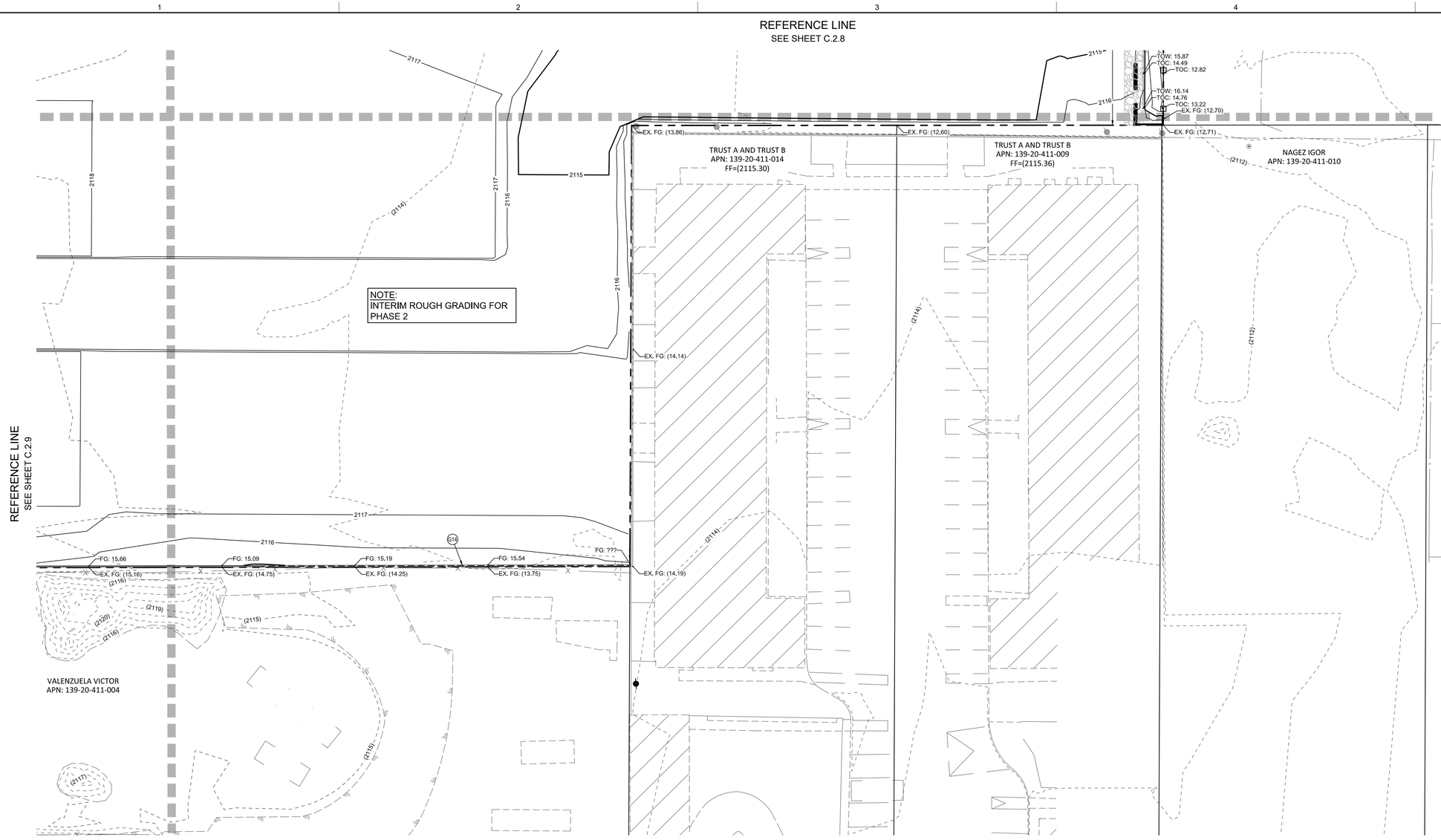
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REV # | DATE
*SEE GENERAL NOTES SHEET

DRAWING INFO
DATE 6/11/2020
DESIGNED ACD
DRAWN PMP
CHECKED ACD
PROJECT NV-2105-1911

PROFESSIONAL ENGINEER - STATE OF NEVADA
ANTHONY C. DELEON JR
EXP. 12-31-20
CIVIL
No. 023113
8/5/2020

RANCHO & VEGAS
CITY OF LAS VEGAS, NEVADA
GRADING PLAN 9

C.2.9



BASIS OF BEARING
SEE SHEET C.2.0

BENCHMARK
SEE SHEET C.2.0

LEGAL DESCRIPTION
SEE SHEET C.2.0

FLOOD ZONE
SEE SHEET C.2.0

SIGHT VISIBILITY ZONE PER CCAUS# 201.2 (TYP)

SIGHT VISIBILITY ZONE NOTE:

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7. SOILS REPORT NOTE:
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   PREPARED BY: GEOTEK, INC.
   PROJECT NO.: 14379-LV
   DATE: OCTOBER 2, 2018
8. CUT/FILL ESTIMATES (PUBLIC AND PRIVATE):
   FROM EXISTING TO FINISH GRADE ELEVATIONS
   NET CUT: _____ CY
   NET FILL: _____ CY
   TOTAL: _____ CY (FILL)
9. FLOOR SECTION ASSUMES 5" SLAB OVER MIN. 8.5" TYPE II. CONTRACTOR TO VERIFY WITH STRUCTURAL PLANS AND GEOTECHNICAL ENGINEER.
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EASEMENT KEY NOTES:

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DESIGNED ACD
DRAWN PMP
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PROJECT NV-2105-1911

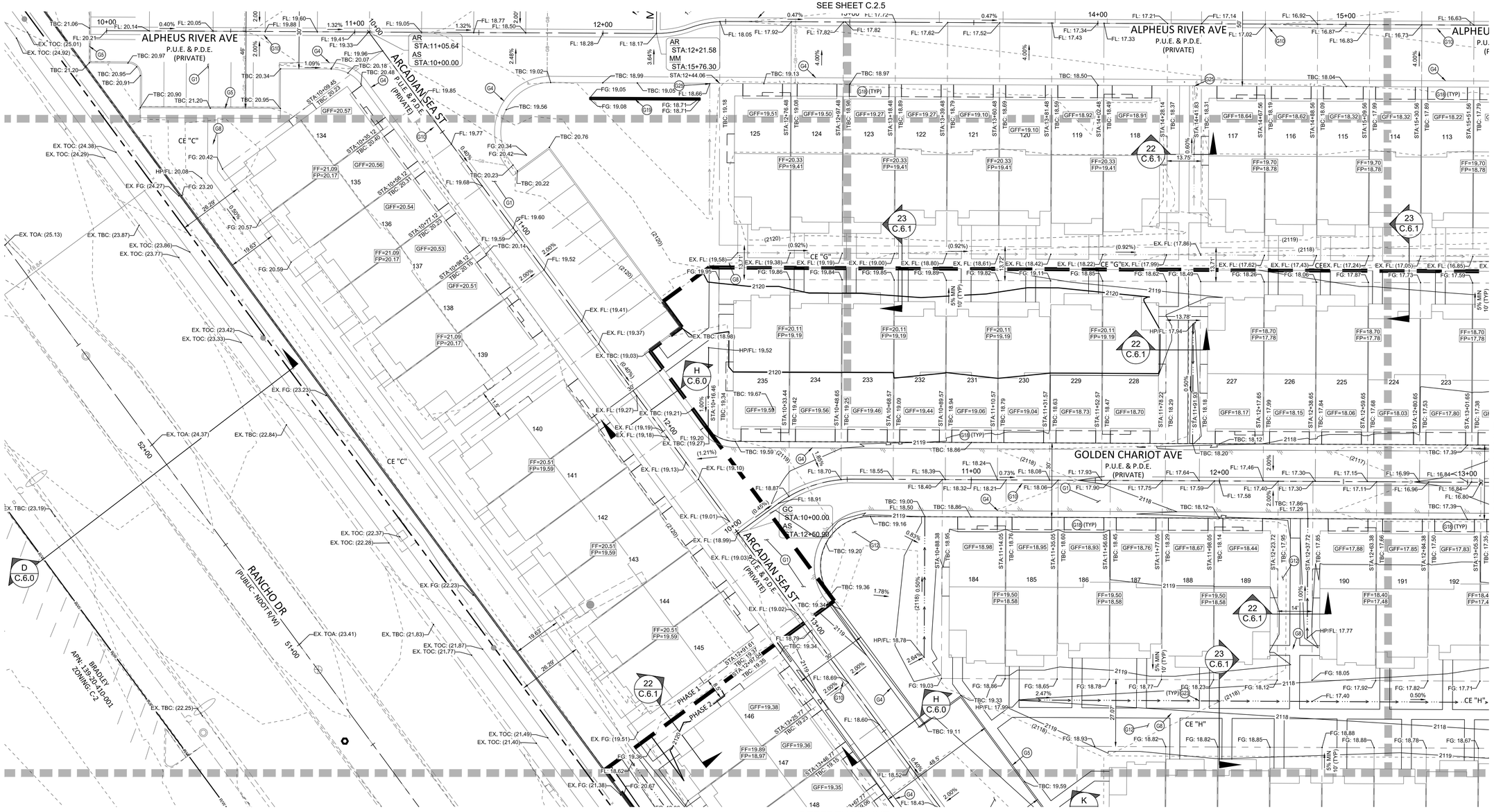
PROFESSIONAL ENGINEER-STATE OF NEVADA
ANTHONY C. DELEON JR
EXP. 12-31-20
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8/5/2020

HORROCKS ENGINEERS

0 20' 40'
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RANCHO & VEGAS
CITY OF LAS VEGAS, NEVADA
GRADING PLAN 10

C.2.10



BASIS OF BEARING
SEE SHEET C.2.0

BENCHMARK
SEE SHEET C.2.0

LEGAL DESCRIPTION
SEE SHEET C.2.0

FLOOD ZONE
SEE SHEET C.2.0

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   PROJECT NO.: 14379-LV
   DATE: OCTOBER 2, 2018
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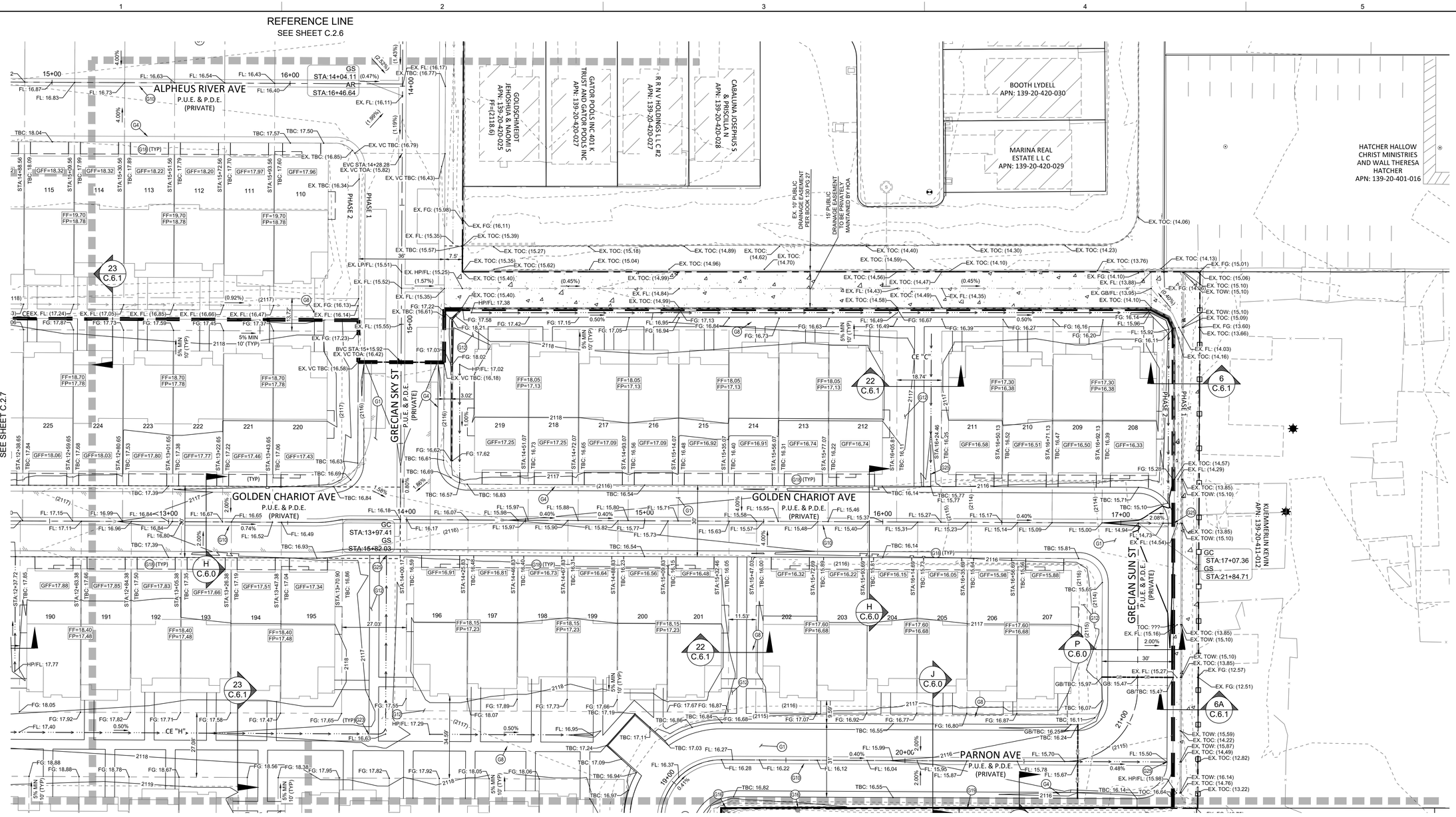
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DRAWING INFO
DATE 6/11/2020
DESIGNED ACD
DRAWN PMP
CHECKED ACD
PROJECT NV-2105-1911

PROFESSIONAL ENGINEER-STATE OF NEVADA
ANTHONY C. DELEON JR
EXP. 12-31-20
CIVIL
No. 023113
8/5/2020

RANCHO & VEGAS
CITY OF LAS VEGAS, NEVADA
GRADING SHEET 1 PHASE 2

C.2.1



BASIS OF BEARING
SEE SHEET C.2.0

BENCHMARK
SEE SHEET C.2.0

LEGAL DESCRIPTION
SEE SHEET C.2.0

FLOOD ZONE
SEE SHEET C.2.0

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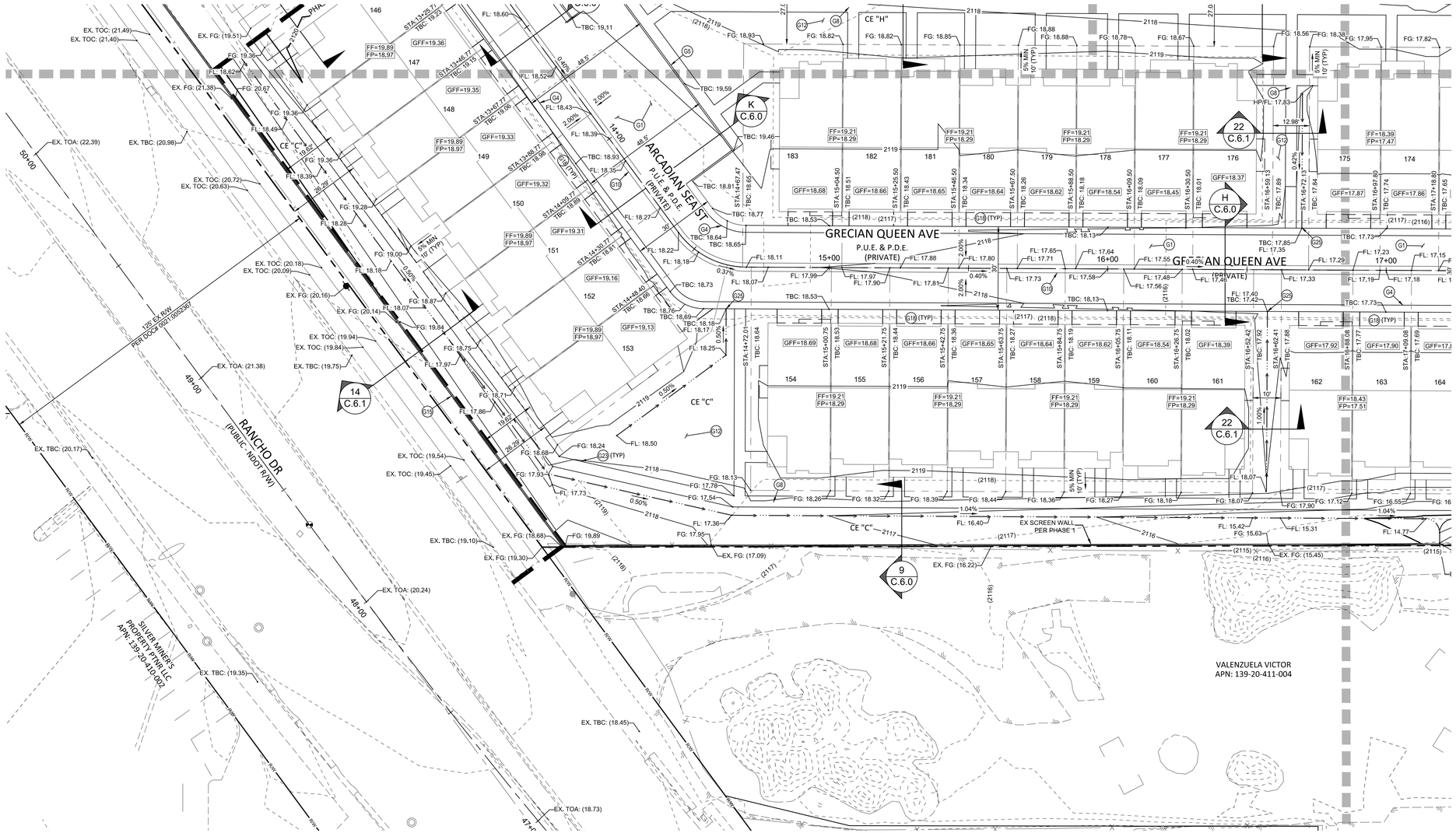
DRAWING INFO
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PROFESSIONAL ENGINEER - STATE OF NEVADA
ANTHONY C. DELEON JR
EXP. 12-31-20
CIVIL
NO. 023113
8/5/2020

RANCHO & VEGAS
CITY OF LAS VEGAS, NEVADA
GRADING SHEET 2 PHASE 2

C.2.2

H:\!2019\NV-2105-1911 Rancho & Vegas Townhomes\Project Data\02 CAD\2.03 Sheet Files\Construction Drawings\C.2.1 GRADING_PH2.dwg - C.2.2 - 8/05/2020 02:48pm, shayans



BASIS OF BEARING
SEE SHEET C.2.0

BENCHMARK
SEE SHEET C.2.0

LEGAL DESCRIPTION
SEE SHEET C.2.0

FLOOD ZONE
SEE SHEET C.2.0

SIGHT VISIBILITY ZONE PER CCAUSD# 201.2 (TYP)

SIGHT VISIBILITY ZONE NOTE:
NO WALLS, FENCES, SHRUBS, UTILITY APPURTENANCES OR ANY OTHER OBJECT, OTHER THAN TRAFFIC CONTROL DEVICES, FIRE HYDRANTS, TREES, AND STREET LIGHT POLES, MAY BE CONSTRUCTED OR INSTALLED WITHIN THE SIGHT VISIBILITY ZONE UNLESS SAID OBJECT IS MAINTAINED AT LESS THAN 24 INCHES IN HEIGHT, MEASURED FROM TOP OF CURB, OR WHERE NO CURB EXISTS, A HEIGHT OF 27 INCHES MEASURED FROM THE TOP OF ADJACENT ASPHALT, GRAVEL OR PAVEMENT STREET SURFACE. THIS RESTRICTION EXTENDS ALONG THE SIGHT VISIBILITY LINE THROUGH LANDSCAPED MEDIANS.

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Call 811 or 1-800-227-2600

AVOID HITTING OVERHEAD POWER LINES, IT'S COSTLY.
CALL BEFORE YOU DIG OVERHEAD
1-702-227-2929

FAST
Call before you UnderGround
1-702-432-5300
FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

ENGINEER'S NOTES:
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2. SEE HORIZONTAL CONTROL PLAN FOR EXACT PROPERTY LINE DIMENSIONS
3. ENGINEER TO BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES BETWEEN THESE PLANS AND FIELD CONDITIONS.
4. THESE PLANS SHALL NOT IN PART, OR IN WHOLE, BE USED FOR CONSTRUCTION UNTIL APPROVED AND SIGNED BY GOVERNING AGENCIES.
5. ALL GRADING SHALL CONFORM TO SOILS REPORT RECOMMENDATIONS.
6. DURING CONSTRUCTION, SURVEYORS AND CONTRACTORS MUST VERIFY THAT ALL STREETS AND LOTS HAVE POSITIVE DRAINAGE. SAME MUST UTILIZE AT LEAST THREE GRADES ON VERTICAL TANGENTS TO VERIFY SLOPES.
7. SOILS REPORT NOTE:
   GRADING SHALL BE IN ACCORDANCE WITH SOILS REPORT
   PREPARED BY: GEOTEK, INC.
   PROJECT NO.: 14379-LV
   DATE: OCTOBER 2, 2018
8. CUT/FILL ESTIMATES (PUBLIC AND PRIVATE):
   FROM EXISTING TO FINISH GRADE ELEVATIONS
   NET CUT: _____ CY
   NET FILL: _____ CY
   TOTAL: _____ CY (FILL)
9. FLOOR SECTION ASSUMES 5" SLAB OVER MIN. 8.5" TYPE II. CONTRACTOR TO VERIFY WITH STRUCTURAL PLANS AND GEOTECHNICAL ENGINEER.
10. ADD 2100' TO GRADING ELEVATIONS SHOWN HEREON TO ADJUST THEM TO THE ASSOCIATED DATUM. FINISHED GRADE CONTOURS ARE APPROXIMATE. REFER TO SPOT ELEVATION GRADE TAGS FOR CONSTRUCTION STAKING PURPOSES.

GRADING KEY NOTES:
- G1 CONSTRUCT 3" AC PAVEMENT OVER 4" TYPE II AGG BASE.
- G2 CONSTRUCT 4.5" AC PAVEMENT OVER 4" TYPE II AGG BASE.
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- G11 SAWCUT & REMOVE EXISTING PAVEMENT.
- G12 INSTALL LANDSCAPING BY OTHERS.
- G13 EXISTING FENCE TO REMAIN.
- G14 INSTALL RETAINING WALL BY SEPARATE PERMIT. HEIGHT DEPICTED BY PLAN.
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DRAINAGE CERTIFICATION:
THIS SET OF IMPROVEMENT PLANS IS CERTIFIED TO CONFORM TO THE REQUIREMENTS OF THE APPROVED DRAINAGE STUDY.
DS# 5273 .

ANTHONY C. DELEON JR., P.E. NO. 023113 DATE

HORROCKS ENGINEERS
1401 North Green Valley Pkwy., Suite 160
Henderson, NV 89074
(702) 966-4063
www.horrocks.com

WARNING
0 1 2
IF THIS BAR DOES NOT MEASURE 2" THEN DRAWING IS NOT TO SCALE

REVISIONS
REV # | DATE
*SEE GENERAL NOTES SHEET

DRAWING INFO
DATE 6/11/2020
DESIGNED ACD
DRAWN PMP
CHECKED ACD
PROJECT NV-2105-1911

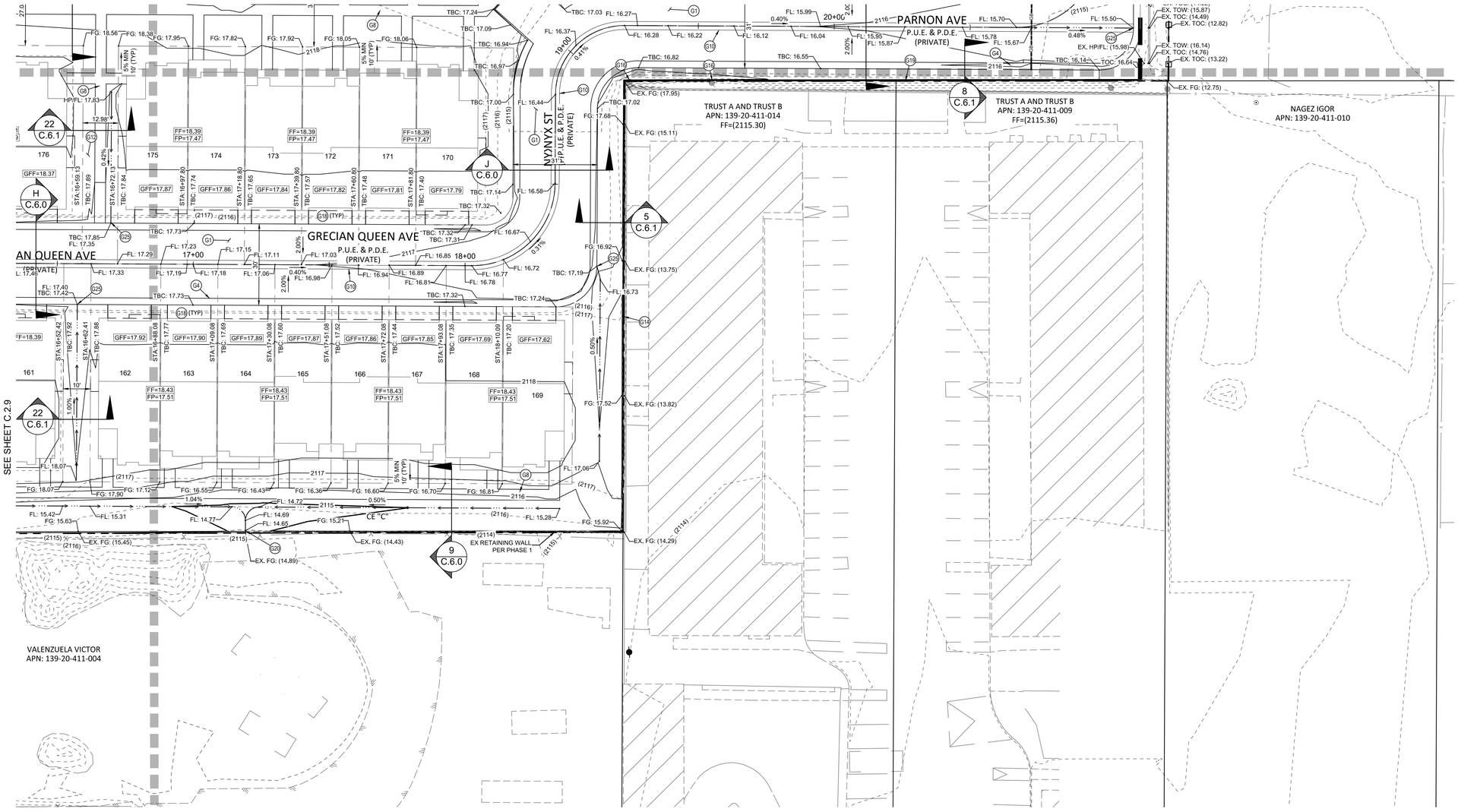
PROFESSIONAL ENGINEER - STATE OF NEVADA
ANTHONY C. DELEON JR
EXP. 12-31-20
CIVIL
No. 023113
8/5/2020

HORROCKS ENGINEERS

0 20' 40'
SCALE: 1" = 20'

RANCHO & VEGAS
CITY OF LAS VEGAS, NEVADA
GRADING SHEET 3 PHASE 2

C.2.3



BASIS OF BEARING
SEE SHEET C.2.0

BENCHMARK
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LEGAL DESCRIPTION
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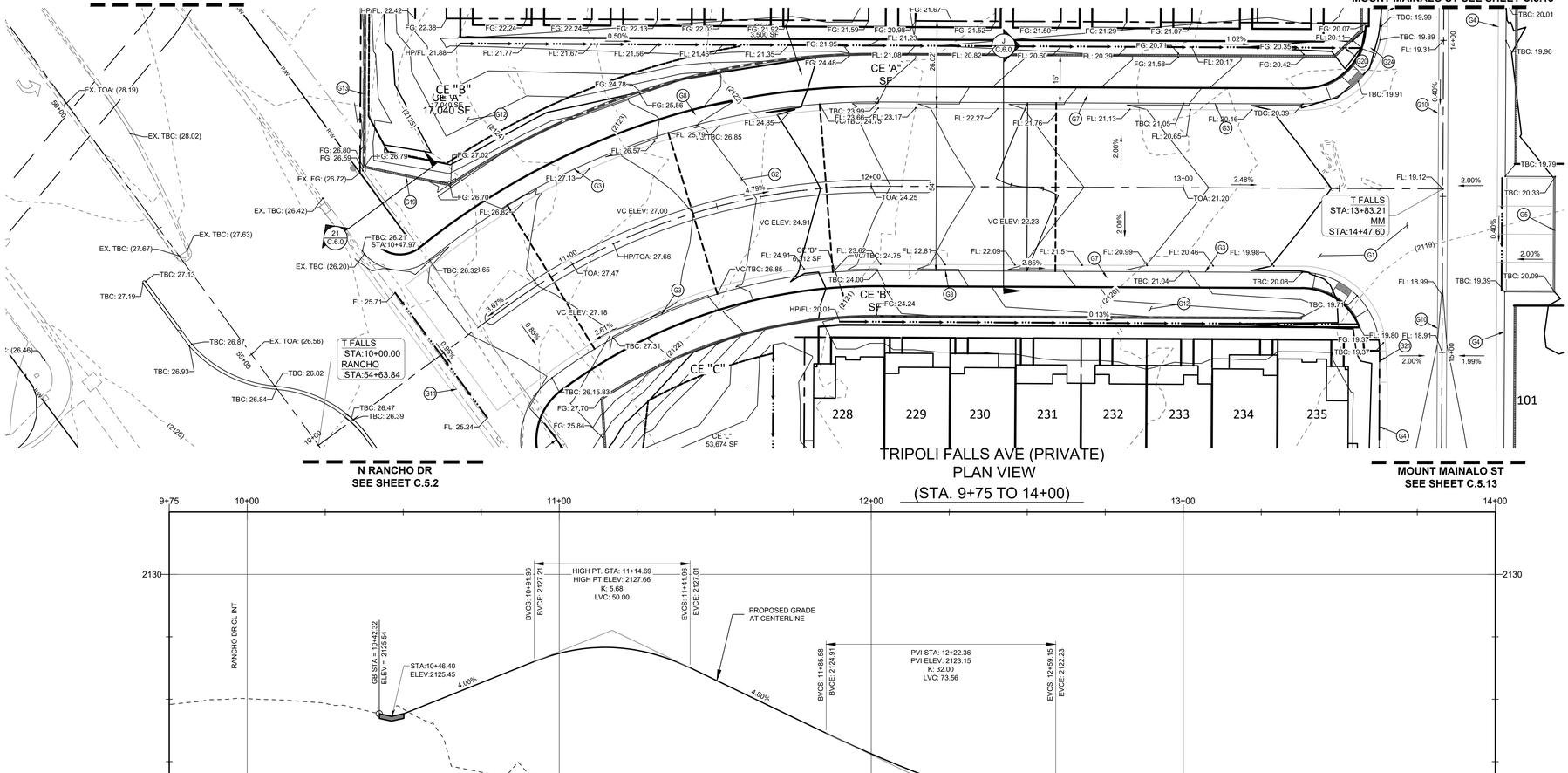
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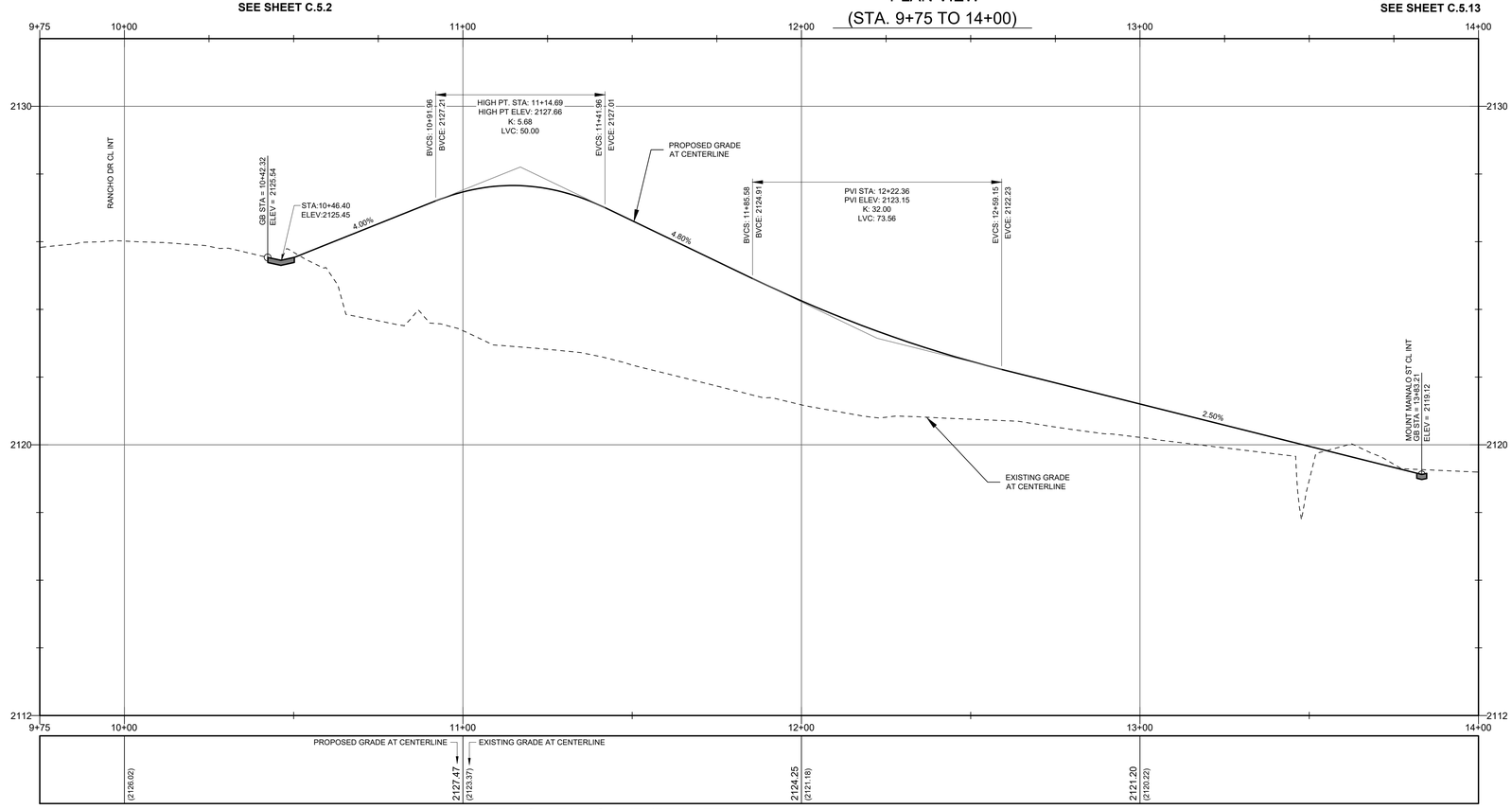
PROFESSIONAL ENGINEER-STATE OF NEVADA
ANTHONY C. DELEON JR
EXP. 12-31-20
CIVIL
No.023113
8/5/2020

RANCHO & VEGAS
CITY OF LAS VEGAS, NEVADA
GRADING SHEET 4 PHASE 2

C.2.4



TRIPOLI FALLS AVE (PRIVATE)
PLAN VIEW
(STA. 9+75 TO 14+00)



TRIPOLI FALLS AVE (PRIVATE)
PROFILE VIEW
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SCALE: 1" = 20' H
SCALE: 1" = 2' V

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LEGAL DESCRIPTION
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BASIS OF BEARING
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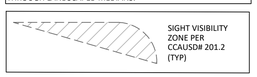
FLOOD ZONE
SEE SHEET C.2.0

BENCHMARK
SEE SHEET C.2.0

UTILITY DISCLAIMER NOTE:
EXISTING UTILITY LOCATIONS SHOWN HEREIN ARE APPROXIMATE ONLY. IT SHALL BE AT THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTIING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPPER LOCATIONS.

DEPTH OF COVER DURING CONSTRUCTION:
MAINTAIN MINIMUM TWENTY-FOUR (24) INCH COVER PER UDACS SECTION 2.08.04. GRADING MUST BE COMPLETED PRIOR TO WATERLINE INSTALLATION.

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APPROVED FOR CONSTRUCTION
SOUTHWEST GAS CORPORATION DATE

APPROVED FOR CONSTRUCTION
LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO._____ FIRST APPROVAL DATE:_____
LVVWD APPROVED FIRE FLOW_____GPM AT 20 PSI RESIDENTIAL
MAXIMUM AVAILABLE FIRE SPRINKLER FLOW_____N/A_____GPM

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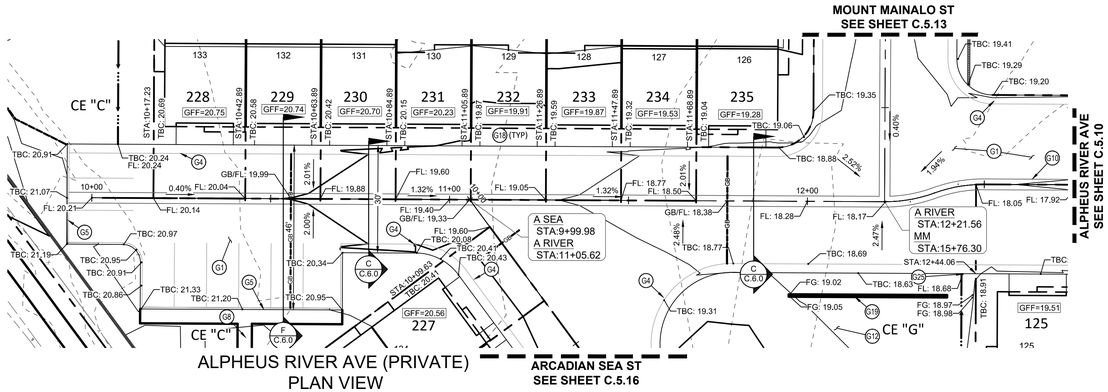
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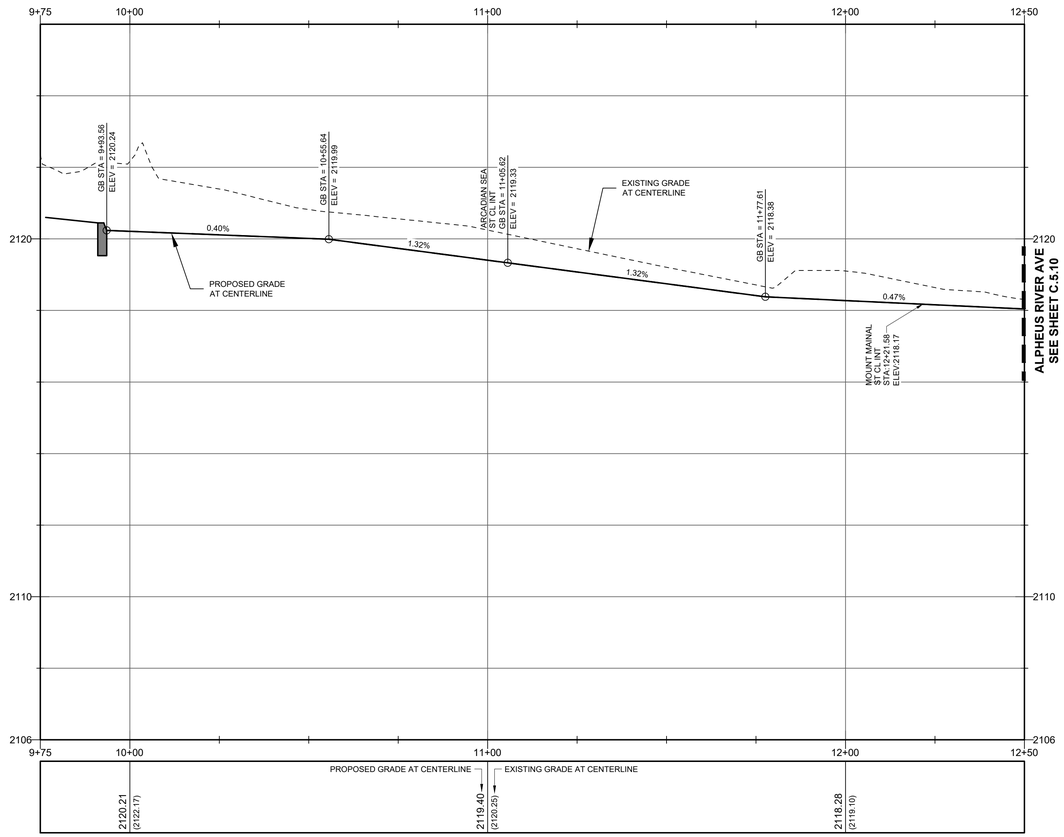
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RANCHO & VEGAS
CITY OF LAS VEGAS, NEVADA
TRIPOLI FALLS AVE PLAN & PROFILE (STA 10+00 TO STA 14+00)

C.5.8



ALPHEUS RIVER AVE (PRIVATE)
PLAN VIEW
(STA. 9+75 TO 12+50)



ALPHEUS RIVER AVE (PRIVATE)
PROFILE VIEW
(STA. 9+75 TO 12+50)

SCALE: 1" = 20' H
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REVISIONS
REV # | DATE
*SEE GENERAL NOTES SHEET

DRAWING INFO
DATE 8/5/2020
DESIGNED ACD
DRAWN PMP
CHECKED ACD
PROJECT NV-2105-1911

PROFESSIONAL ENGINEER-STATE OF NEVADA
ANTHONY C. DELEON JR
EXP. 12-31-20
CIVIL
No. 023113
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LEGAL DESCRIPTION
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BASIS OF BEARING
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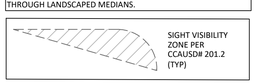
FLOOD ZONE
SEE SHEET C.2.0

BENCHMARK
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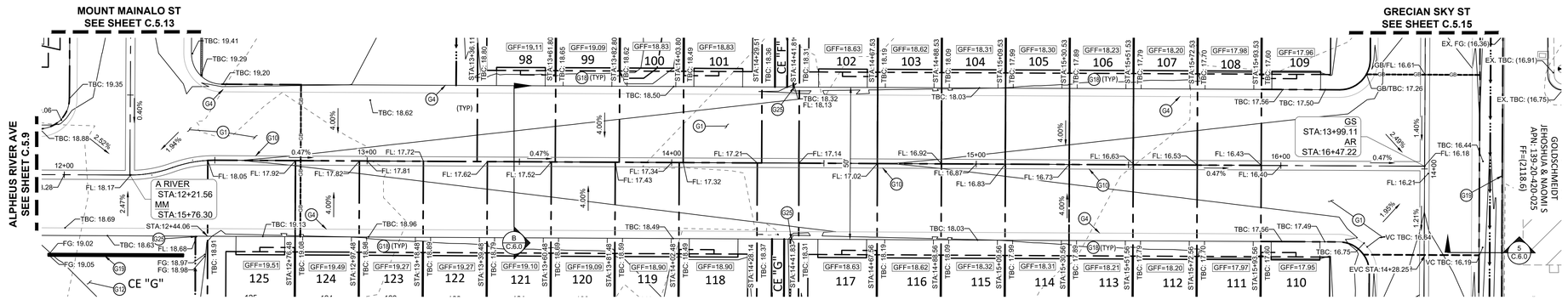
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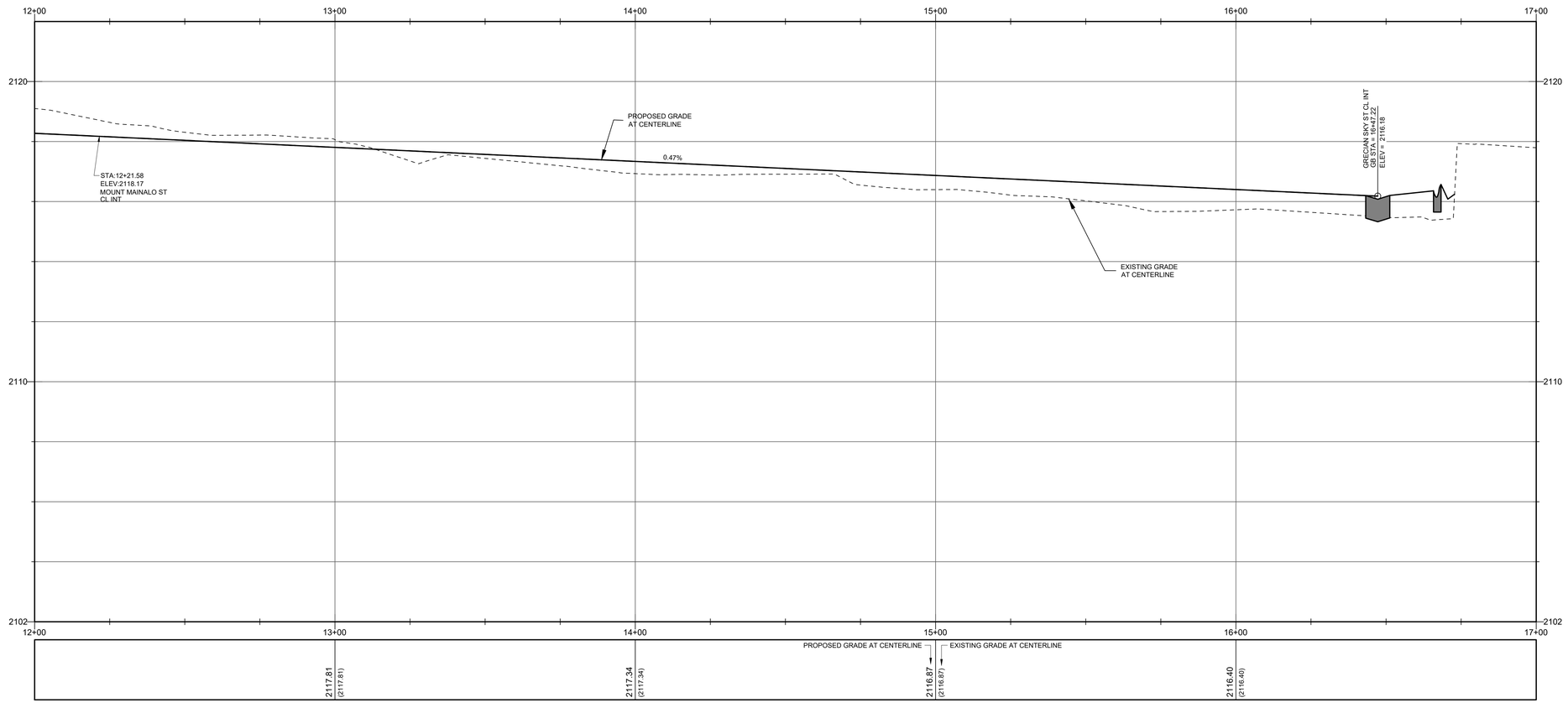
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LVVWD APPROVED FIRE FLOW_____GPM AT 20 PSI RESIDENTIAL
MAXIMUM AVAILABLE FIRE SPRINKLER FLOW_____N/A_____GPM

C.5.9



ALPHEUS RIVER AVE (PRIVATE)
PLAN VIEW
(STA. 12+00 TO 17+00)



ALPHEUS RIVER AVE (PRIVATE)
PROFILE VIEW
(STA. 12+00 TO 17+00)
SCALE: 1" = 20' H
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LEGAL DESCRIPTION	BASIS OF BEARING
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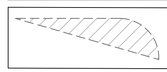
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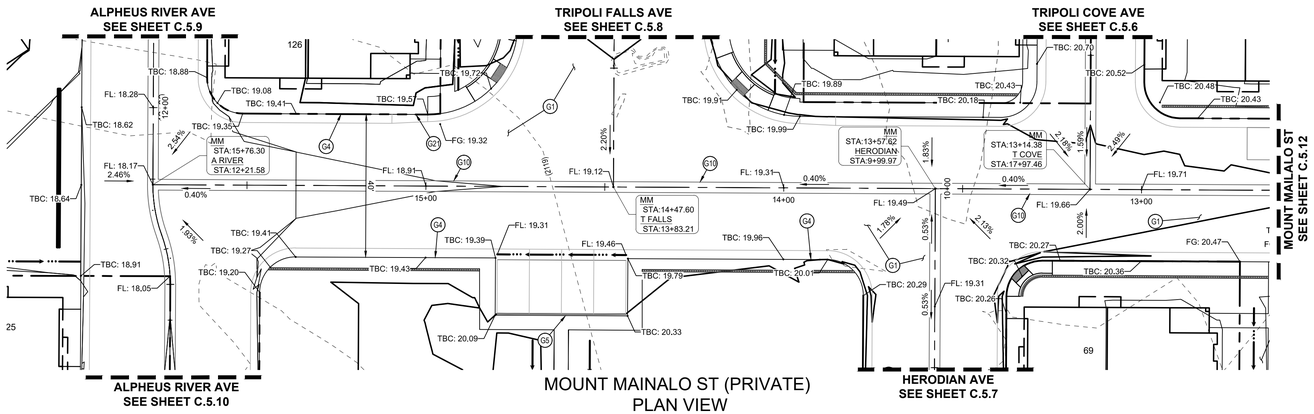
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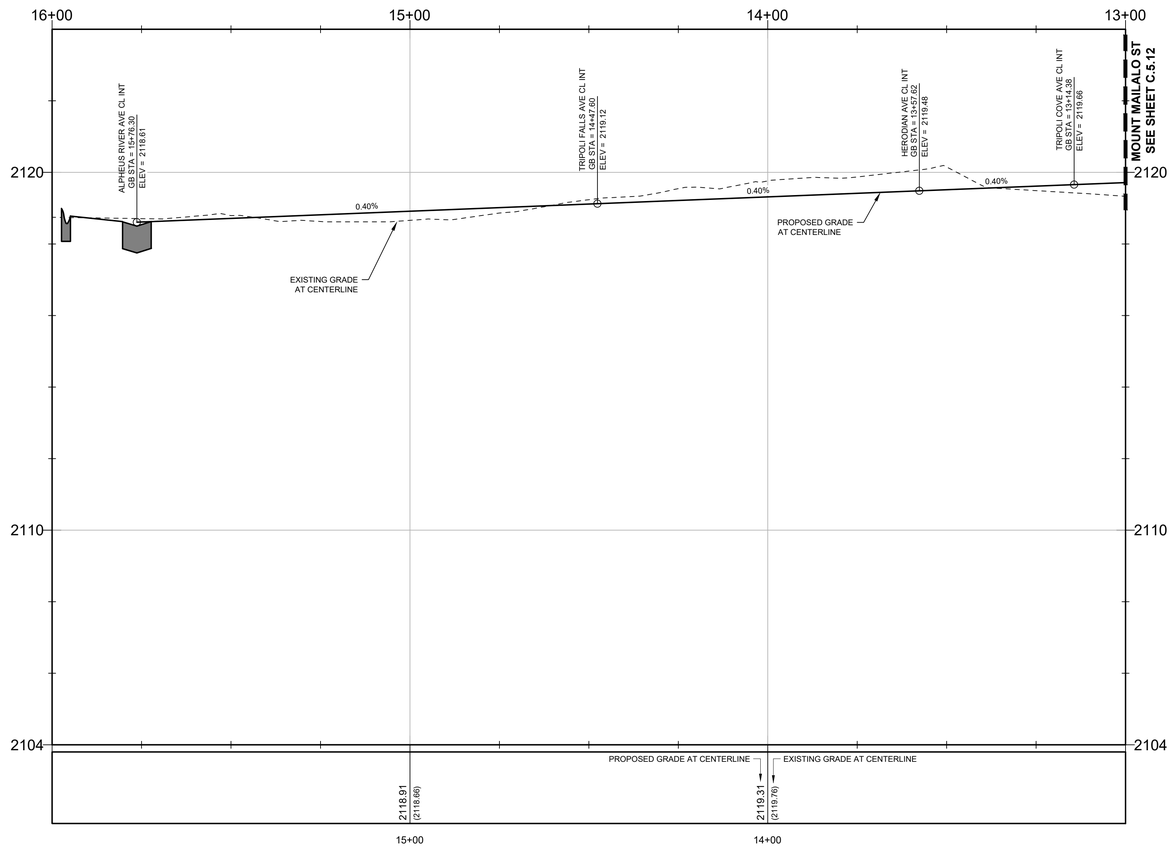
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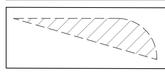
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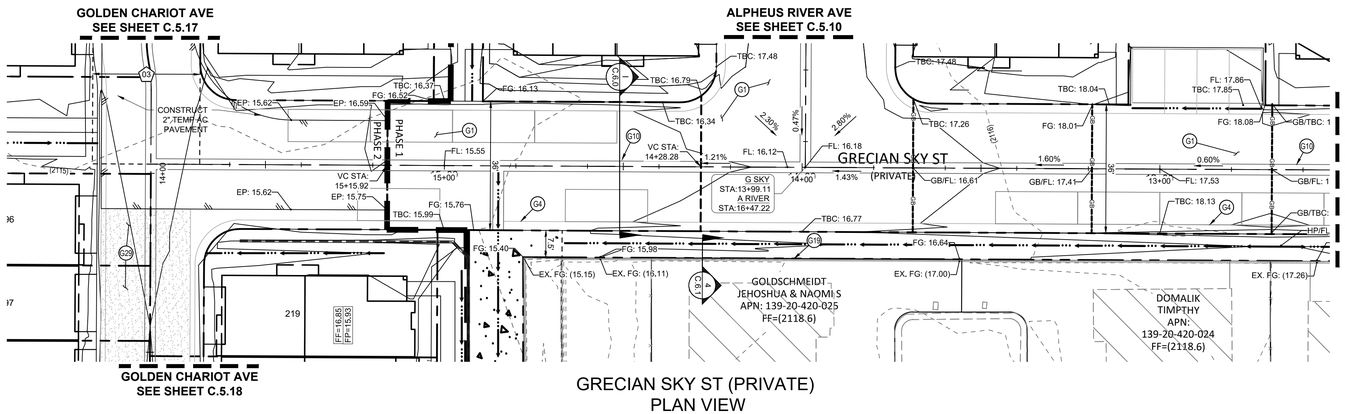
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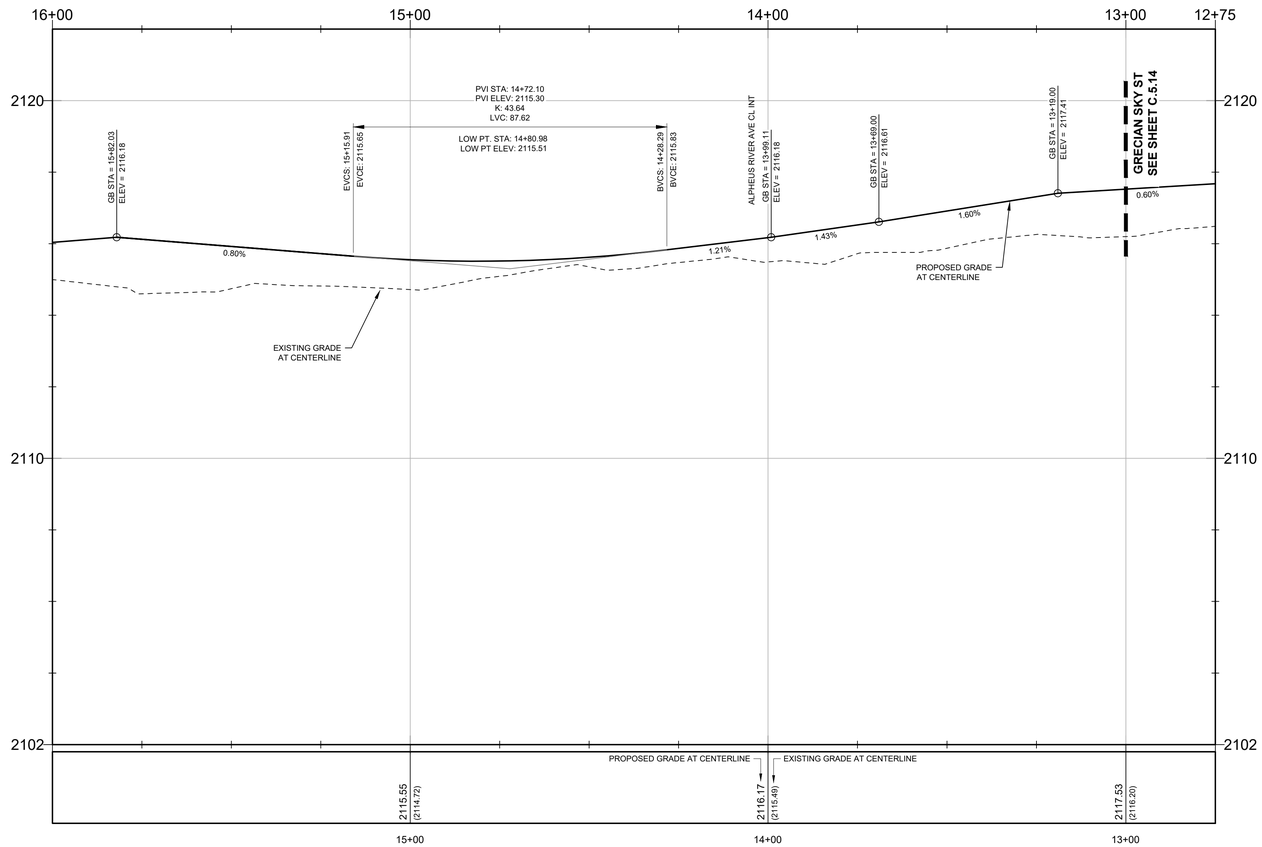
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MOUNT MAINALO ST PLAN & PROFILE (STA 13+00 TO STA 16+00)

C.5.13

PAGE 35



GRECIAN SKY ST (PRIVATE)
PLAN VIEW
(STA. 12+75 TO 16+00)



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CHECKED ACD
PROJECT NV-2105-1911

PROFESSIONAL ENGINEER-STATE OF NEVADA
ANTHONY C. DELEON JR
EXP. 12-31-20
CIVIL
No. 023113
8/5/2020

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FAST
Call before you UnderGround
1-702-432-5300
FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

LEGAL DESCRIPTION	BASIS OF BEARING
SEE SHEET C.2.0	SEE SHEET C.2.0
FLOOD ZONE	**BENCHMARK**
SEE SHEET C.2.0	SEE SHEET C.2.0

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SIGHT VISIBILITY ZONE PER CCAUSD# 201.2 (TYP)

ENGINEER'S NOTES:

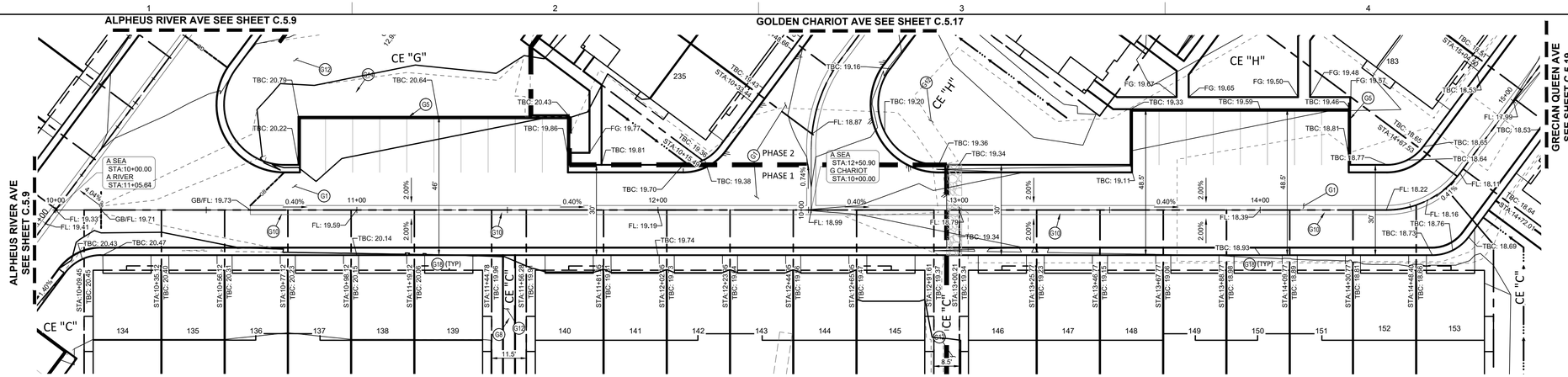
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APPROVED FOR CONSTRUCTION
SOUTHWEST GAS CORPORATION DATE

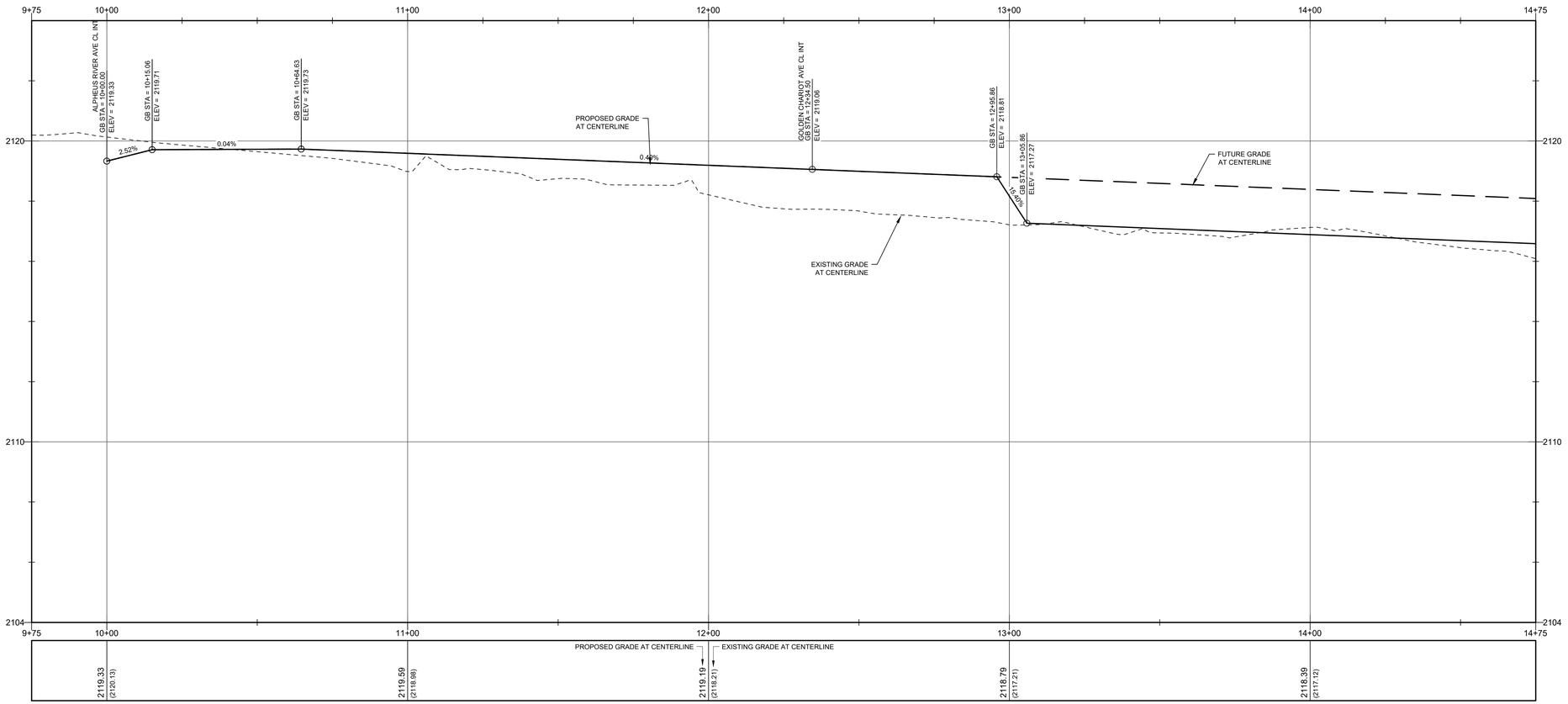
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PROJECT NO._____ FIRST APPROVAL DATE:_____
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RANCHO & VEGAS
CITY OF LAS VEGAS, NEVADA
GRECIAN SKY ST PLAN & PROFILE (STA 12+75 TO 16+00)

C.5.15
PAGE



ARCADIAN SEA ST (PRIVATE)
PLAN VIEW
(STA. 9+75 TO 14+75)



ARCADIAN SEA ST (PRIVATE)
PROFILE VIEW
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SCALE: 1" = 20' H
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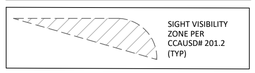
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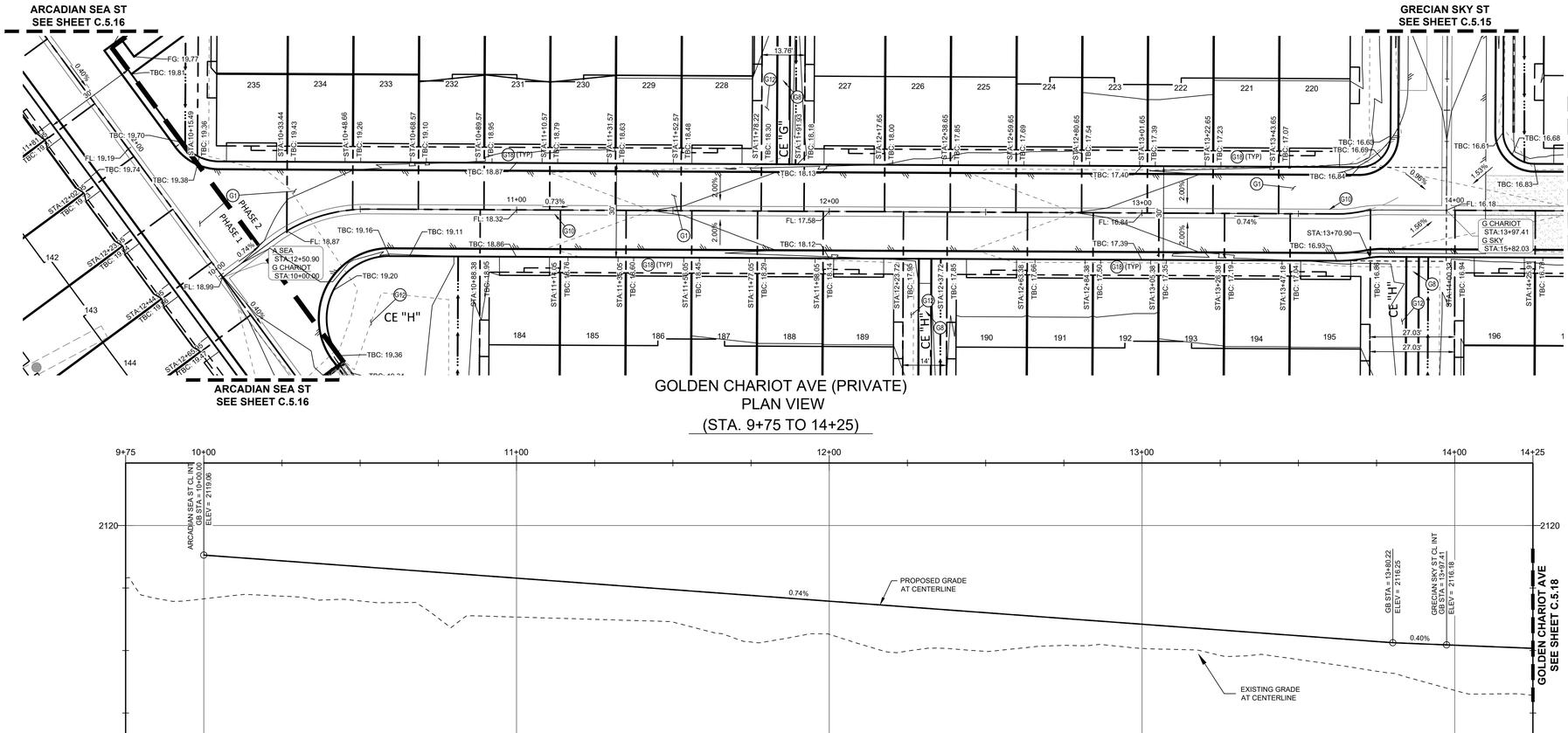


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GOLDEN CHARIOT AVE (PRIVATE)
PLAN VIEW
(STA. 9+75 TO 14+25)

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SOUTHWEST GAS CORPORATION DATE

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LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

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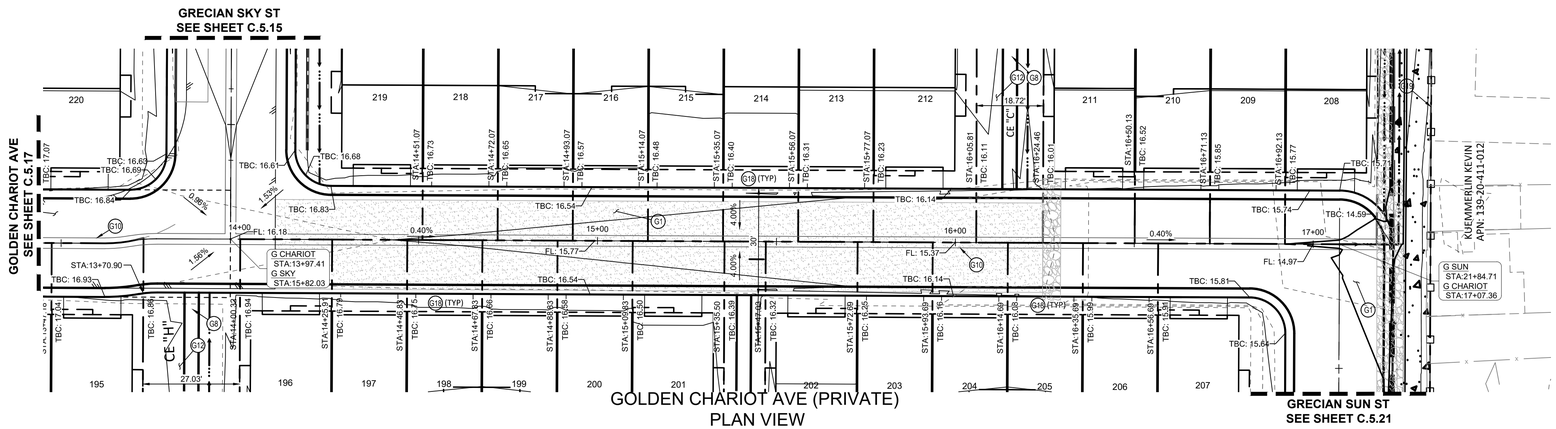
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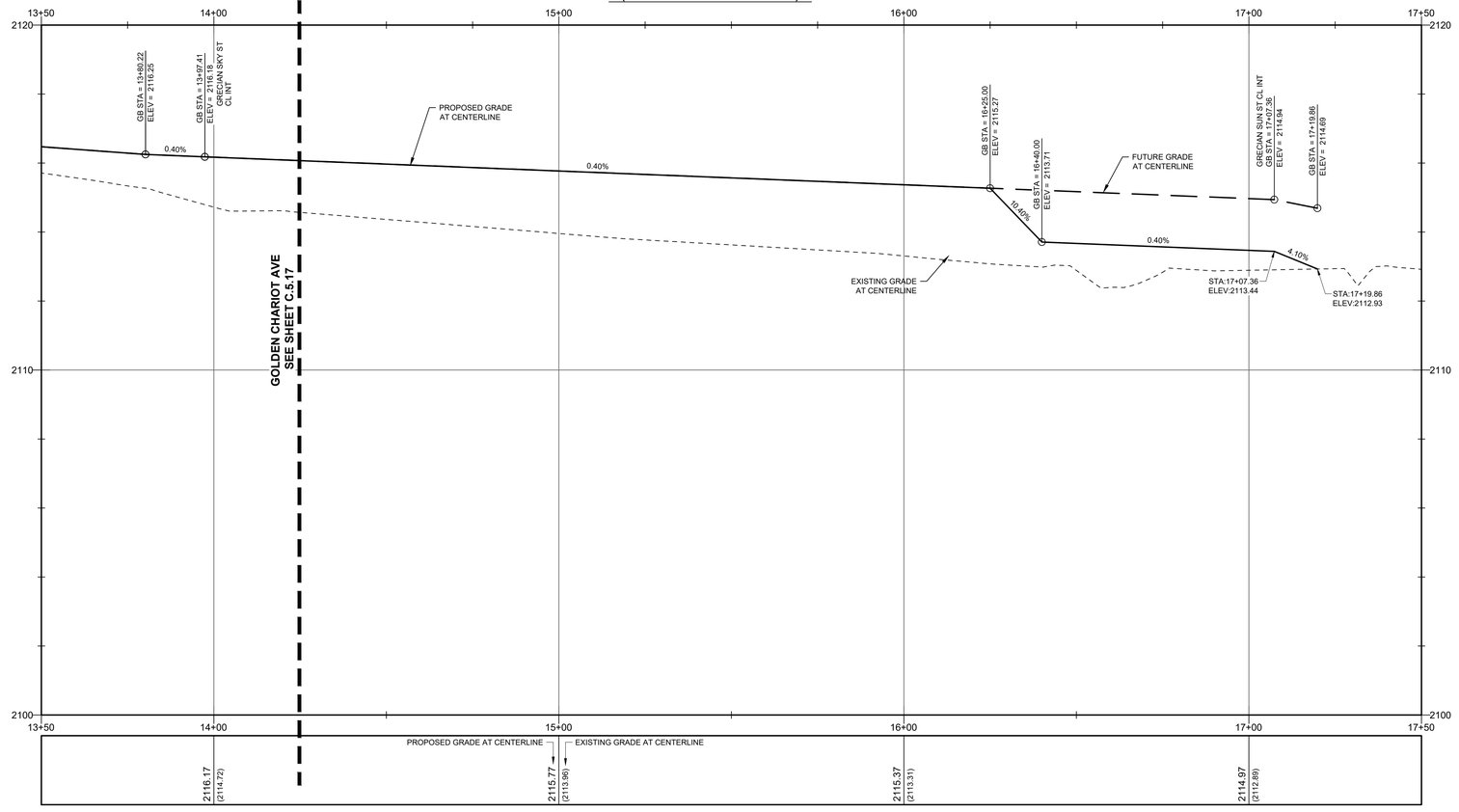
RANCHO & VEGAS
CITY OF LAS VEGAS, NEVADA

GOLDEN CHARIOT AVE PLAN & PROFILE (STA 9+75 TO STA 14+25)

C.5.17

H:\!2019\NV-2105-1911 Rancho & Vegas Townhomes\Project Data\02 CAD\2.03 Sheet Files\Construction Drawings\C.5.0 PLAN & PROFILE (EW2).dwg - C.5.17 - 8/05/2020 02:56pm, shayans





GOLDEN CHARIOT AVE (PRIVATE)
PROFILE VIEW
(STA. 13+50 TO 17+50)

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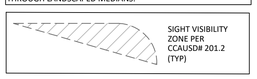
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SIGHT VISIBILITY ZONE NOTE:
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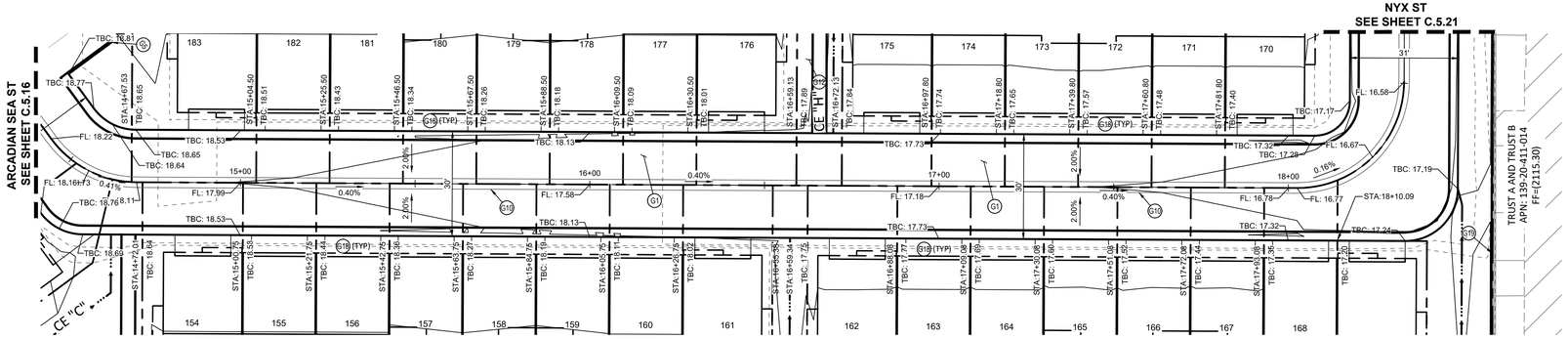


ENGINEER'S NOTES:

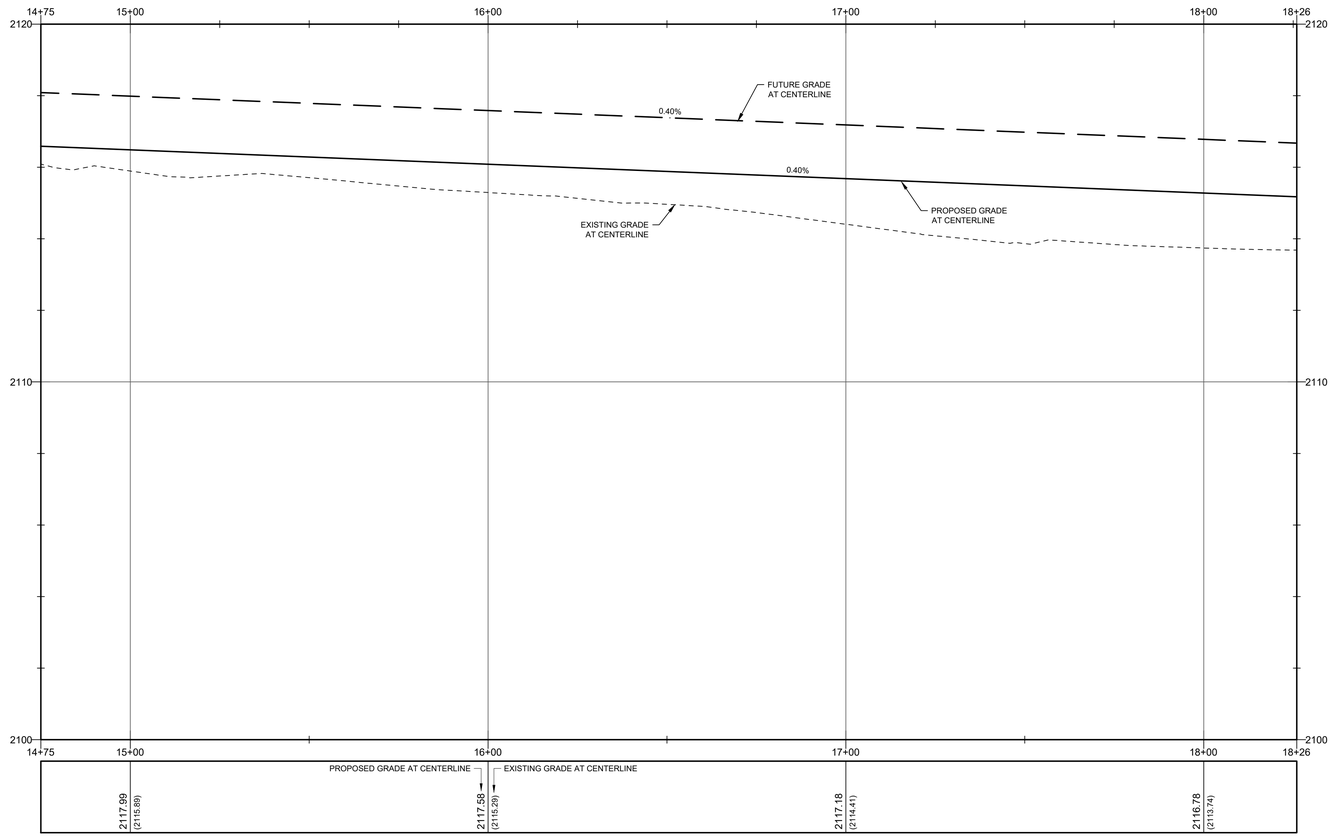
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7. FLOOR SECTION ASSUMES 5" SLAB OVER MIN. 8.5" TYPE II. CONTRACTOR TO VERIFY WITH STRUCTURAL PLANS AND GEOTECHNICAL ENGINEER.
8. ADD 2100' TO GRADING ELEVATIONS SHOWN HEREON TO ADJUST THEM TO THE ASSOCIATED DATUM. FINISHED GRADE CONTOURS ARE APPROXIMATE. REFER TO SPOT ELEVATION GRADE TAGS FOR CONSTRUCTION STAKING PURPOSES.

APPROVED FOR CONSTRUCTION
SOUTHWEST GAS CORPORATION DATE

APPROVED FOR CONSTRUCTION
LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO._____ FIRST APPROVAL DATE:_____
LVVWD APPROVED FIRE FLOW_____GPM AT 20 PSI RESIDENTIAL
MAXIMUM AVAILABLE FIRE SPRINKLER FLOW_____N/A_____GPM



GRECIAN QUEEN AVE (PRIVATE)
PLAN VIEW
(STA. 14+56 TO 18+26)



GRECIAN QUEEN AVE (PRIVATE)
PROFILE VIEW
(STA. 14+00 TO 18+50)
SCALE: 1" = 20' H
SCALE: 1" = 2' V

SCALE: 1" = 20'

Call before you dig
AVOID CUTTING UNDERGROUND UTILITY LINES IT'S COSTLY
Call 811 or 1-800-227-2600

AVOID HITTING OVERHEAD POWER LINES, IT'S COSTLY
CALL BEFORE YOU DO OVERHEAD
1-702-227-2929

FAST
Call before you UnderGround
1-702-432-5300
FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

LEGAL DESCRIPTION	BASIS OF BEARING
SEE SHEET C.2.0	SEE SHEET C.2.0
FLOOD ZONE	**BENCHMARK**
SEE SHEET C.2.0	SEE SHEET C.2.0

UTILITY DISCLAIMER NOTE:

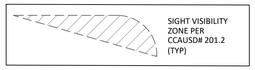
EXISTING UTILITY LOCATIONS SHOWN HEREIN ARE APPROXIMATE ONLY. IT SHALL BE AT THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTIING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPPER LOCATIONS.

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GRADING KEY NOTES:

(G1) CONSTRUCT 3" AC PAVEMENT OVER 4" TYPE II AGG BASE.
(G2) CONSTRUCT 4.5" AC PAVEMENT OVER 4" TYPE II AGG BASE.
(G3) CONSTRUCT 24" "L" TYPE CURB PER CCAUSD #216.
(G4) CONSTRUCT 30" ROLL CURB PER CCAUSD #217.2.S1.
(G5) CONSTRUCT 6" "A" TYPE CURB PER CCAUSD #219.
(G6) CONSTRUCT SIDEWALK DRAIN PER CCAUSD #236.
(G7) CONSTRUCT 5' SIDEWALK 4" THICK PER CCAUSD #234.
(G8) CONSTRUCT 4' SIDEWALK 4" THICK PER CCAUSD #234.
(G9) INSTALL WROUGHT IRON GATE.
(S10) CONSTRUCT 3' CONCRETE VALLEY GUTTER PER CCAUSD #228.
(S11) SAWCUT & REMOVE EXISTING PAVEMENT.
(S12) INSTALL LANDSCAPING BY OTHERS.
(S13) EXISTING FENCE TO REMAIN.
(S14) INSTALL RETAINING WALL BY SEPARATE PERMIT. HEIGHT DEPICTED BY PLAN.
(S15) EXISTING FENCE TO BE REMOVED.
(S16) EXISTING OBJECTS TO BE RELOCATED.
(S17) ADJUST EXISTING UTILITIES TO NEW FINISHED GRADE.
(S18) CONSTRUCT 5" THICK CONCRETE DRIVEWAY.
(S19) INSTALL SCREEN WALL.
(S20) INSTALL BLOCK WALL OPENING PER DETAIL #20 ON SHEET C.6.1.
(S21) CONSTRUCT 10' TRANSITION FROM "L" CURB TO ROLL CURB PER DETAIL #18 SHEET C.6.1.
(S22) INSTALL 4" SIDEWALK DRAIN PIPE PER CCAUSD #236.
(S23) CONSTRUCT SIDEWALK UNDERDRAIN PER CCAUSD #236.
(S24) INSTALL WROUGHT IRON GATE/FENCE PER CCAUSD #425.S1
(S25) CONSTRUCT DEPRESSED CURB PER DETAIL 31 ON SHEET C.6.2
(S26) INSTALL 6" CONCRETE PAVEMENT OVER 6" TYPE II AGG BASE
(S27) INSTALL RIP RAP PER PLAN
(S28) CONSTRUCT 30" ROLL CURB WITH REVERSE LIP PER DETAIL 32 ON SHEET C.6.2
(S29) INSTALL RIP-RAP D50=3",T=6" SUBGRADE @ 90% COMPACTION LENGTH & WIDTH SPECIFIED PER DETAIL 37
(S30) CONSTRUCT EASEMENT OPENING PER CCAUSD #425.S1. WITH 2 REMOVABLE BOLLARDS. REF. DETAIL 35 ON SHEET C.6.1
(S31) CONSTRUCT 8' CONCRETE VALLEY GUTTER PER CCAUSD #228.
(S32) INSTALL ORIFICE PLATE PER DETAL 36 ON SHEET C.6.1

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SOUTHWEST GAS CORPORATION DATE

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT NO._____ FIRST APPROVAL DATE:_____
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HORROCKS ENGINEERS
1401 North Green Valley Pkwy., Suite 160
Henderson, NV 89074
(702) 966-4063
www.horrocks.com

WARNING
0 1 2
IF THIS BAR DOES NOT MEASURE 2" THEN DRAWING IS NOT TO SCALE

REVISIONS
REV # | DATE
*SEE GENERAL NOTES SHEET

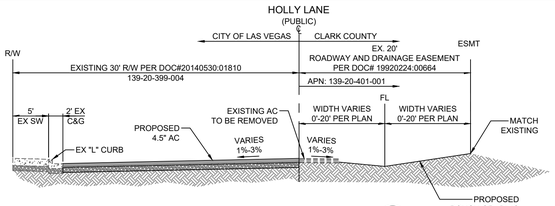
DRAWING INFO
DATE 8/5/2020
DESIGNED ACD
DRAWN PMP
CHECKED ACD
PROJECT NV-2105-1911

PROFESSIONAL ENGINEER-STATE OF NEVADA
ANTHONY C. DELEON JR
EXP. 12-31-20
CIVIL
No. 023113
8/5/2020

RANCHO & VEGAS
CITY OF LAS VEGAS, NEVADA
GRECIAN QUEEN AVE PLAN & PROFILE (STA 14+56 TO STA 18+26)

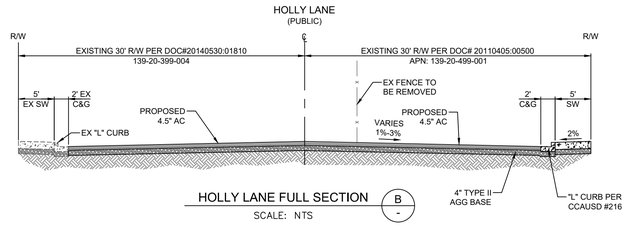
C.5.19

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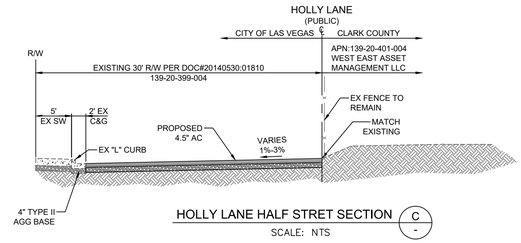
HOLLY LANE HALF SECTION W ESMT (A)

SCALE: NTS



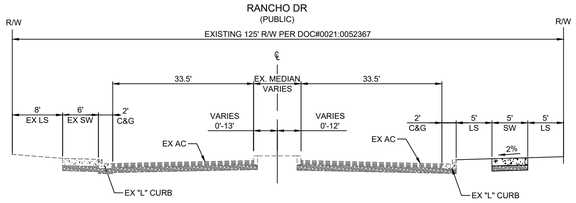
HOLLY LANE FULL SECTION (B)

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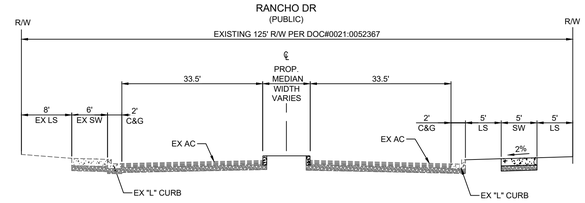
HOLLY LANE HALF STRET SECTION (C)

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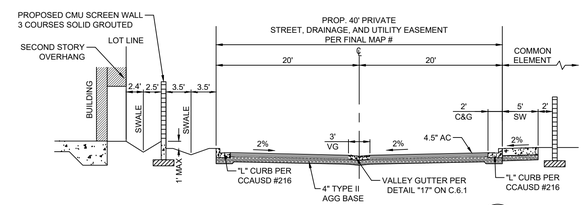
EX. RANCHO DR SECTION (D)

SCALE: NTS



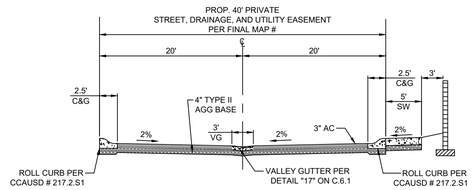
PR. RANCHO DR MEDIAN SECTION (E)

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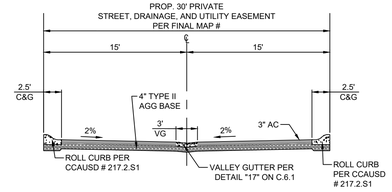
40' PRIVATE STREET SECTION W/ L-CURB (F)

SCALE: NTS



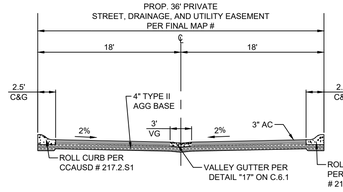
40' PRIVATE STREET SECTION (G)

SCALE: NTS



30' PRIVATE STREET SECTION (H)

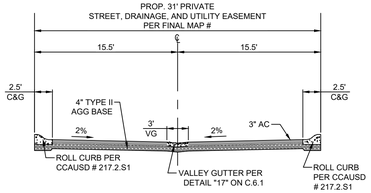
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36' PRIVATE STREET SECTION (I)

SCALE: NTS

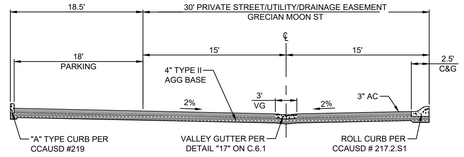
***NOTE:**
PARKING ONLY ALLOWED WHERE INDICATED ON PLANS.
NO PARKING IN FRONT OF DRIVEWAYS.



31' PRIVATE STREET SECTION (J)

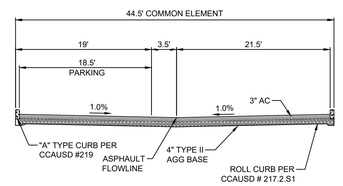
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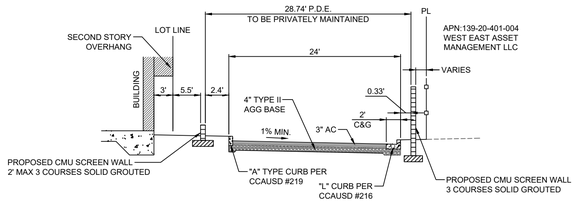
30' PRIVATE STREET SECTION WITH ADDITIONAL PARKING (K)

SCALE: NTS



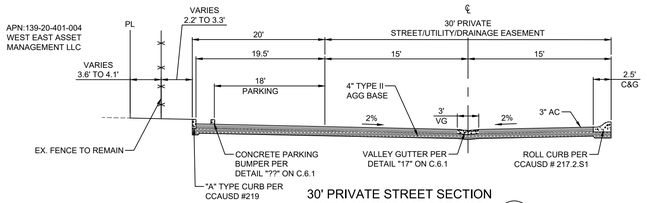
30' PRIVATE STREET SECTION WITH ADDITIONAL PARKING (L)

SCALE: NTS



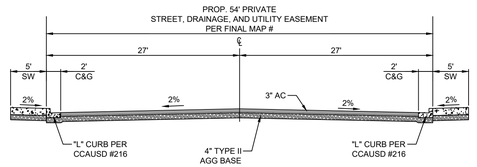
NORTH PARKING LOT ENTRY DRIVE (M)

SCALE: NTS



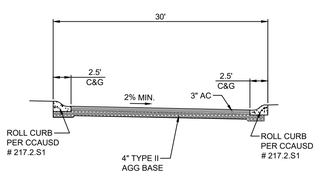
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SCALE: NTS



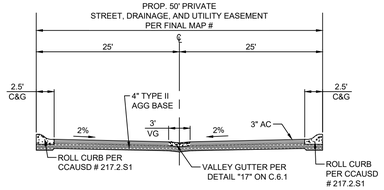
54' ENTRY DRIVE SECTION (O)

SCALE: NTS



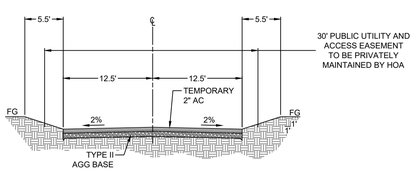
NORTH PARKING LOT ENTRY DRIVE (P)

SCALE: NTS



50' PRIVATE STREET SECTION (Q)

SCALE: NTS



PRIVATE STREET ACCESS ROAD SECTION (R)

SCALE: NTS

HORROCKS ENGINEERS
1401 North Green Valley Pkwy., Suite 160
Henderson, NV 89074
(702) 966-4063
www.horrocks.com

WARNING
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0 1 2

REVISIONS
REV # | DATE
*SEE GENERAL NOTES SHEET

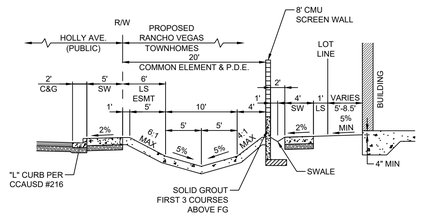
DRAWING INFO
DATE 4/10/2020
DESIGNED ACD
DRAWN PMP
CHECKED ACD
PROJECT NV-2105-1911

PROFESSIONAL ENGINEER-STATE OF NEVADA
ANTHONY C. DELEON JR
EXP. 12-31-20
CIVIL
No. 023113
8/5/2020

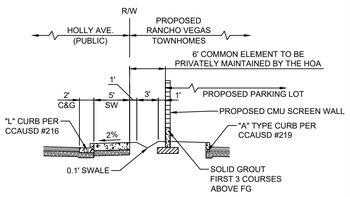
RANCHO & VEGAS
CITY OF LAS VEGAS, NEVADA
STREET SECTIONS

C.6.0

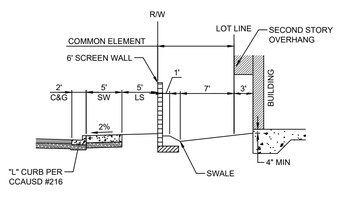
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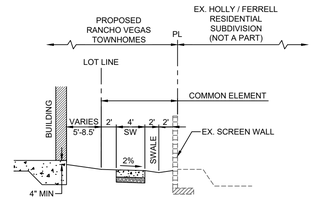
HOLLY LN DRAINAGE EASEMENT 1
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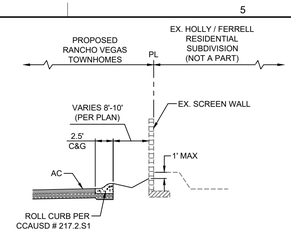
NORTH BOUNDARY SECTION 2
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NORTH BOUNDARY SECTION 3
SCALE: NTS

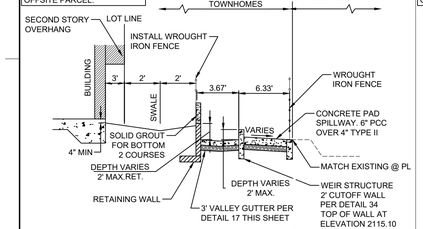


EAST BOUNDARY SECTION 4
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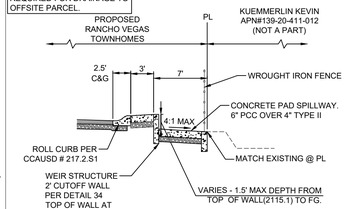
EAST BOUNDARY SECTION 5
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NOTE:
PERMISSION TO DISCHARGE REQUIRED FOR DRAINAGE TO OFFSITE PARCEL.

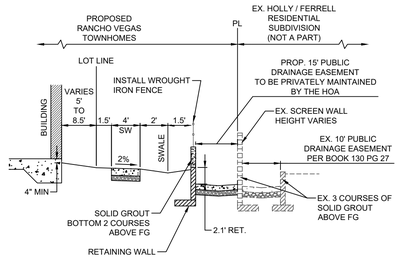


EAST BOUNDARY SECTION 6
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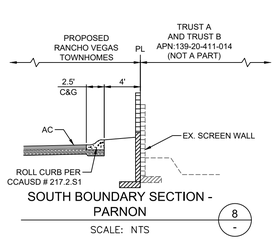
NOTE:
PERMISSION TO DISCHARGE REQUIRED FOR DRAINAGE TO OFFSITE PARCEL.



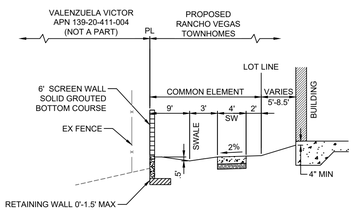
EAST BOUNDARY SECTION 6A
SCALE: NTS



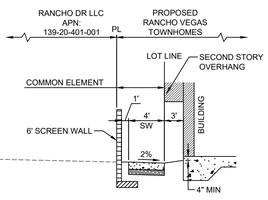
NORTH BOUNDARY SECTION - SOUTHEAST CORNER 7
SCALE: NTS



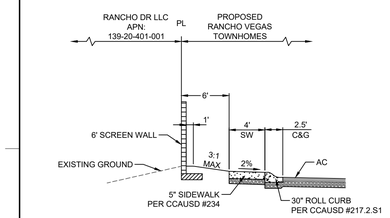
SOUTH BOUNDARY SECTION - PARNON 8
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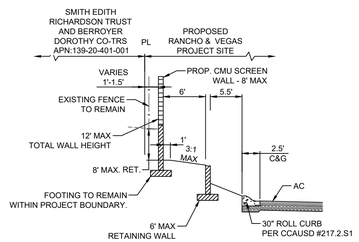
SOUTH BOUNDARY SECTION 9
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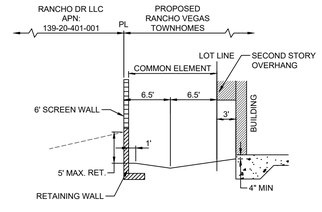
NORTH BOUNDARY SECTION 10
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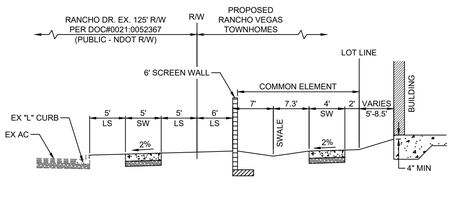
NORTH BOUNDARY - HESTIA AVENUE 11
SCALE: NTS



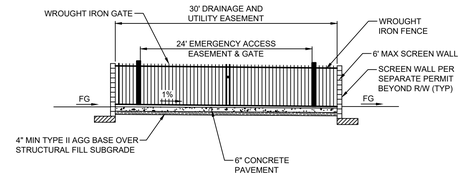
WEST BOUNDARY SECTION
GRECIAN MOON ST. 12
SCALE: NTS



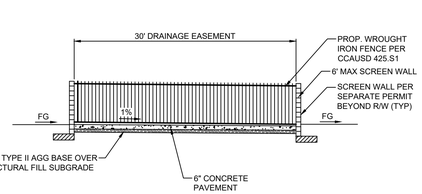
WEST BOUNDARY SECTION 13
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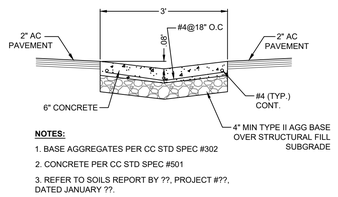
WEST BOUNDARY SECTION 14
SCALE: NTS



PRIVATE DRAINAGE EASEMENT 15
SCALE: NTS

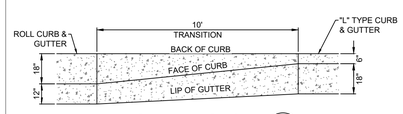


PRIVATE DRAINAGE EASEMENT 16
SCALE: NTS

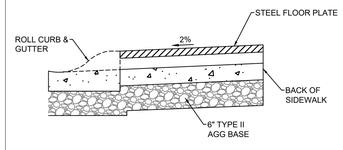


NOTES:
1. BASE AGGREGATES PER CC STD SPEC #302
2. CONCRETE PER CC STD SPEC #501
3. REFER TO SOILS REPORT BY ??, PROJECT #??, DATED JANUARY ??.

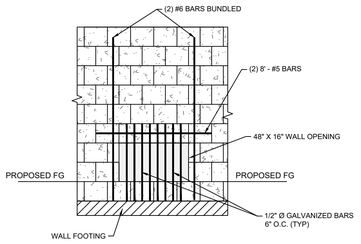
VALLEY GUTTER 17
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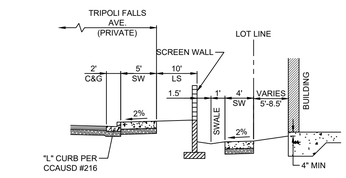
10' CURB TRANSITION 18
SCALE: NTS



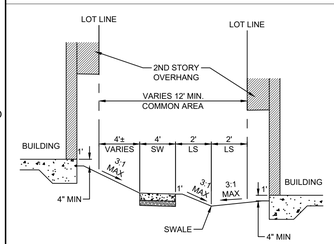
ROLL CURB SIDEWALK DRAIN 19
SCALE: NTS



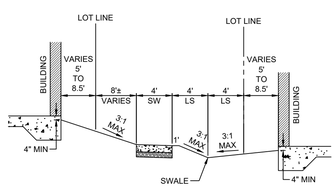
48" X 16" SCREEN WALL OPENING 20
SCALE: NTS



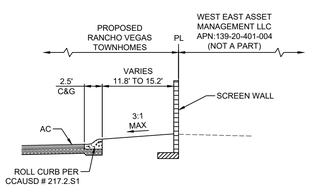
BUILDING SECTION 21
SCALE: NTS



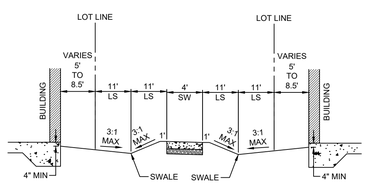
BUILDING SECTION 22
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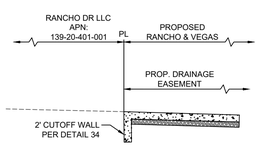
BUILDING SECTION 23
SCALE: NTS



NORTH BOUNDARY SECTION 24
SCALE: NTS



BUILDING SECTION 25
SCALE: NTS



HOLLY WEST BOUNDARY SECTION 26
SCALE: NTS

NOTE:
ALL COMMON ELEMENTS ARE PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA.

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(702) 966-4063
www.horrocks.com

WARNING
0 1 2
IF THIS BAR DOES NOT MEASURE 2" THEN DRAWING IS NOT TO SCALE

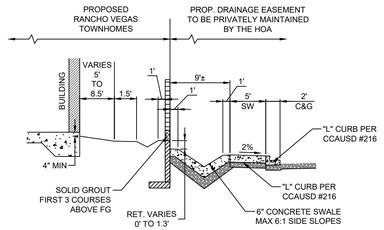
REVISIONS
REV # | DATE
*SEE GENERAL NOTES SHEET

DRAWING INFO
DATE 4/13/2020
DESIGNED ACD
DRAWN PMP
CHECKED ACD
PROJECT NV-2105-1911

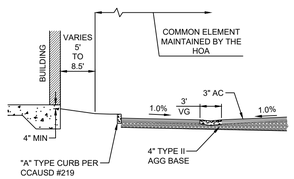
PROFESSIONAL ENGINEER - STATE OF NEVADA
ANTHONY C. DELEON JR
EXP. 12-31-20
CIVIL
No. 023115
8/5/2020

RANCHO & VEGAS
CITY OF LAS VEGAS, NEVADA
DETAILS 1

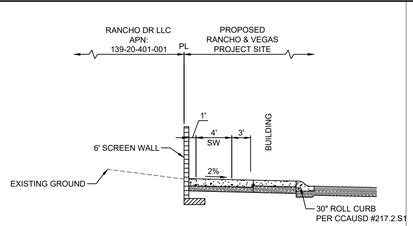
C.6.1



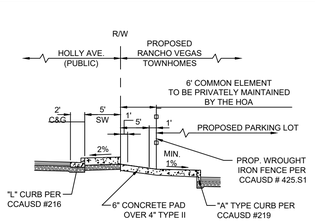
HOLLY DRAINAGE EASEMENT 27
SCALE: NTS



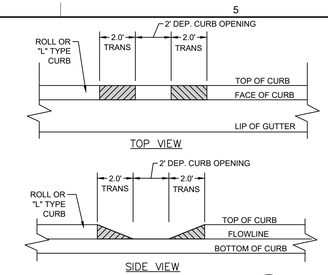
PARKING LOT SWALE 28
SCALE: NTS



NORTH BOUNDARY SECTION 29
SCALE: NTS



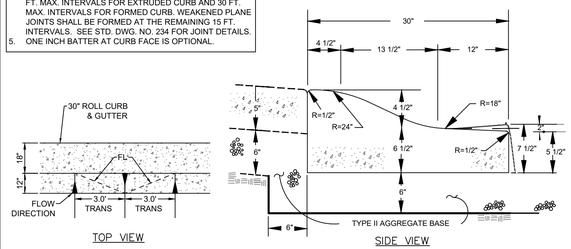
NORTH DRAINAGE EASEMENT
- HOLLY PARKING LOT. 30
SCALE: NTS



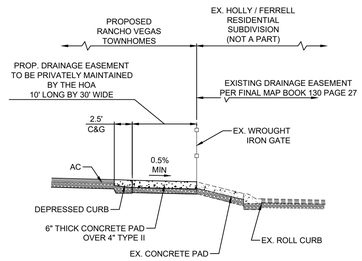
DEPRESSED CURB DETAIL 31
SCALE: NTS

NOTES:

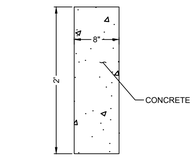
1. ASPHALT TO BE FLUSH AT LIP OF REVERSE ROLL CURB FLOWLINE.
2. SIDEWALK CONSTRUCTED CONTIGUOUS TO ROLL CURB SHALL BE 5 INCHES THICK (MIN).
3. WHERE LONGITUDINAL SLOPE IS LESS THAN 0.4% THE FLOW LINE SHALL BE WATER TESTED.
4. CONSTRUCT 1/2" EXPANSION JOINT AT ALL COLD JOINTS, AT BEGINNING AND END OF CURB RETURNS, AND AT 300 FT. MAX. INTERVALS FOR EXTRUDED CURB AND 30 FT. MAX. INTERVALS FOR FORMED CURB. WEAKENED PLANE JOINTS SHALL BE FORMED AT THE REMAINING 15 FT. INTERVALS. SEE STD. DWG. NO. 234 FOR JOINT DETAILS.
5. ONE INCH BATTER AT CURB FACE IS OPTIONAL.



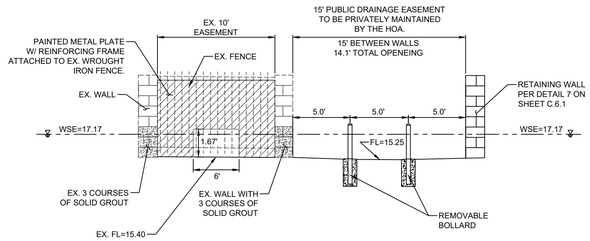
REVERSE ROLL CURB -
SPILL DETAIL 32
SCALE: NTS



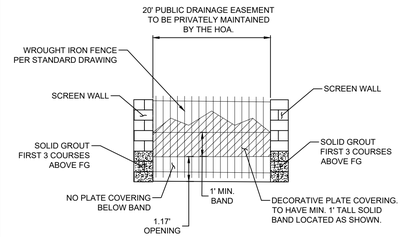
HERODIAN DRAINAGE SECTION 33
SCALE: NTS



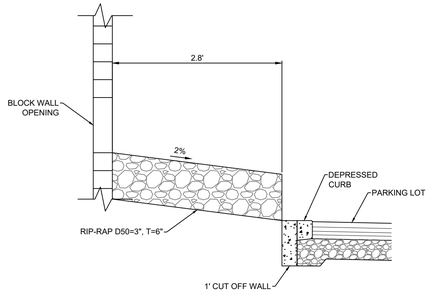
2'x8" CUTOFF WALL 34
SCALE: NTS



ORIFICE DETAILS 35
SCALE: NTS



ORIFICE DETAILS 36
SCALE: NTS



HOLLY AVE. RIP-RAP DETAIL 37
SCALE: NTS

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WARNING
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0 1 2

REVISIONS		
REV #	DATE	

*SEE GENERAL NOTES SHEET

DRAWING INFO.	
DATE	4/13/2020
DESIGNED	ACD
DRAWN	PMP
CHECKED	ACD
PROJECT	NV-2105-1911

PROFESSIONAL ENGINEER-STATE OF NEVADA
ANTHONY C. DELEON JR
EXP. 12-31-20
CIVIL
No. 023113
8/5/2020

RANCHO & VEGAS
CITY OF LAS VEGAS, NEVADA
DETAILS 2

C.6.2

H:\\2019\NV-2105-1911 Rancho & Vegas Townhomes\Project Data\02 CAD\2.03 Sheet Files\Construction Drawings\C.6.1 DETAILS.dwg - C.6.2 - 8/05/2020 02:58pm, shayans