GCW

ENGINEERS \ SURVEYORS

1st Response to Comments for the Technical Drainage Study For

Summerlin Village 26 - Parcel L

764-204-023

March 7, 2022

Prepared for:
Pulte Homes
7555 S. Tenaya Way #200
Las Vegas, NV 89113
(702) 914-3846

Prepared by GCW, Inc.

1555 South Rainbow Blvd
Las Vegas, NV 89146

P: 702.804.2000
F: 702.804.2298

info@gcwengineering.com
www.gcwengineering.com

HYDROLOGIC CRITERIA AND DRAINAGE MANUAL

DRAINAGE STUDY INFORMATION FORM

Name of Development: Summerlin Village 26 Parcel L Date: March 7, 2022

Location of Development: a) Descriptive (Cross Streets) North/South: Revernce Pkwy.

East/West: Lake Mead Blvd.

b) Section: 14 Township: 20S Range: 59E

c) APN : 137-14-715-038

Name of Owner: Owner: P N II INC ; Developer: Pulte Homes

Telephone No.: (702) 914-4836 Fax No.: (702) 914-3100 E-Mail Address: brenin.anderson@pultegroup.com

Address: 7555 S. Tenaya Way #200, Las Vegas, NV 89113

Contact Person-Name: Dr. Kevin Ramage, PE, DBA **Telephone No.:** (702) 804-2000

* **E-Mail Address:** Kramage@gcwengineering.com **Fax No.:** (702) 804-2299

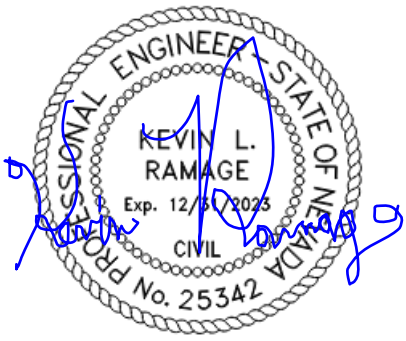
Firm: GCW, Inc.

Address: 1555 S. Rainbow Blvd. Las Vegas, NV 89146

Type of Land Development/Land Disturbance Process:

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

1. Total Owned Land Area: At Site: +/- 15.69 acres Being Developed/Disturbed: +/- 15.69 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.
5. Approximate upstream land area which drains to the subject site: +/- 0 acres
6. Has the site drainage been evaluated in the past? ☒ **YES** ☐ **NO** If yes, please identify documentation: MDS for Summerlin Village 26 Reverence, GCW,Inc 2015.
7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: The project site will discharge notheast towards a 48" RCP and into a 20'X7.5' Concrete Channel.
8. Briefly describe your proposed schedule for the subject project: The client intends to start construction as soon as practical. Any expediting of this process is appreciated.



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

764-204-023

March 07, 2022

Albert Y. Sung, P.E.
Flood Control Project Engineer
City of Las Vegas Land Development Services
Flood Control Division
495 S. Main Street
Las Vegas, Nevada 89101

Re: **1st Response to Comments for the Technical Drainage Study for Summerlin Village 26 - Parcel L**

Dear Mr. Sung,

This letter is to certify that all documents provided in the 1st Response to Comments for the Technical Drainage Study for Summerlin Village 26 – Parcel L electronic submittal (CD) matches

100% the hardcopy version of the study.

Respectfully submitted,

Dr. Kevin Ramage, PE, DBA
Flood Control Project Engineer

1555 South Rainbow Boulevard
Las Vegas, Nevada 89146
O 702.804.2000
F 702.804.2299
info@gcwengineering.com
gcwengineering.com

GCW

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764-204-023

March 7, 2022

Re: Response to City of Las Vegas Comments on the Technical Drainage Study for Summerlin Village 26 Parcel L (DS5533A)

This report addresses the City of Las Vegas review comments dated January 6, 2021 regarding the project in its entirety. Below are individual responses to each comment included in the review letter.

Comment 1:

Provide a copy of the zoning/planning conditions associated with this site (21-0615-TMP1; 21-0615MOD1 & 21-0615-SCD1 to 21-0615-SCD3) with the next submittal to verify compliance with conditions. Flood Control will not issue conditional approval of the drainage study without the associated zoning/planning conditions (issued by the City Council). Any associated conditions of approval that revise the site drainage parameters will require that the drainage study be revised and resubmitted.

Response:

A copy of the zoning/planning conditions associated with this site will be provided when it is available. It is noted that conditional approval of the study will not be issued without the associated zoning/planning conditions and that any associated conditions of approval revising the site drainage parameters will require drainage study revision and resubmittal.

Comment 2:

The site is adjacent to or crosses an existing or proposed Clark County Regional Flood Control District (CCRFCD) master planned facility. Therefore, CCRFCD concurrence is required prior to final approval of the drainage study.

Please note that effective March 15, 2019, the CCRFCD adopted new requirements for drainage study concurrence submittal. Follow the link below for specific guidance.

http://gustfront.ccrfcd.org/LandDev/LandDev.aspx.

Response:

Noted. A copy of the drainage study and all addenda will be submitted to CCRFCD following conditional approval of this study.

Comment 3:

Figure 5: The calculations for Section F1 are 3.66 fps but is shown as 2.23 in the 100-Year Street Flow Table.

Response:

The velocity shown in the 100-Year Street Flow Table has been revised to show 3.66 fps.

Comment 4:

Discuss the flow shown to be collected at the south east corner of the site through the lateral structure shown. Address the grading shown to collect flow at this location.

Response:

The south east corner of the project site does drain away from the site. However, the existing lateral shown on the plans is currently buried. The project does not propose to excavate the existing lateral and the runoff generated by the small area at the south east corner will drain in to the existing CCRFCD channel to the east of the project site as it currently does. Note that this area will drain north to the existing 48" RCP lateral in the future when the residential development is constructed.

Comment 5:

Sheet GD2 and Sheet GD4: An AC pavement access road adjacent to the Regional flood channel currently ends at the northeast corner of the subject site. Identify the existing access road limit in the next submittal. Extend the pavement access south to Lake Mead Boulevard.

Response:

The existing access road limit has been identified. Pavement access has been extended to south Lake Mead Boulevard.

Comment 6:

In an overall view of the grading plans, it left an impression to the reviewer that the engineer/developer rushed out the plans without finishing a lot of detail grading designs:

• Common areas between buildings have no grading at all, ie, how the common areas drain without impacting the buildings?

• Along the eastern and northern side of the site, provide grading to show how the areas between the buildings and the rockery wall drains. Sheet flow through the proposed fence over the rockery wall and into the existing channel is not allowed. Provide swale in the common areas and drain into the onsite roadways.

• Show the common areas/parks features and grading design.

• It is not clear whether the products are individual lot with typical Type A drainage or it is a block building with four to six residences grouped into one?

• Provide typical lot drainage in the next submittal.

• Show driveways and the building layouts of each lot.

Response:

- Common areas have been annotated to show intended grading.
- Grading has been provided for the areas between the buildings and rockery walls.
- Common areas/park features have been annotated to show intended grading
- The product to be used is block buildings.
- Typical lot drainage has been provided on the plans.
- Driveways and building layouts have been shown for each lot.

Comment 7:

Label roadway names on the grading plans.

Response:

Roadway names on the grading plans have been labeled.

Comment 8:

Label “Public” or “Private” street on the grading plans.

Response:

Streets on grading plans have been labeled “Public” or “Private”.

Comment 9:

Identify all Clark County Regional Flood Control Facilities on Exhibits and Grading Plans and label with City of Las Vegas recorded drawing numbers accordingly.

Response:

Clark County Regional Flood Control Facilities have been labeled on Exhibits and Grading Plans with the appropriate City of Las Vegas drawing numbers.

Comment 10:

The grading plans call out existing RCBs along the Eastern edge of the site, but they are shown as channels in the referenced Master Drainage Study for Summerlin Village 26 - Reverence.

Response:

The grading plans have been revised to show the existing RCBs along the Eastern edge of the site as channels.

Comment 11:

Section C/DT2 shows an existing 14’ x 14’ culvert, but the plans show a 10’ x 14’ RCB. Address and resolve in the next submittal.

Response:

The plans have been revised to show the facility size as a 14'x14.33' RCAC.

Comment 12:

Section E/DT1 cannot be found on the grading plans. Do a QA/QC of the plans in the future submittals.

Response:

The grading plans have been revised to show Section E/DT1.

Comment 13:

Provide cross sections and street flow depth for adjacent major roadways.

Response:

Cross sections and street flow depths have been provided for all adjacent major roadways.

Comment 14:

The entrance driveway at the west entrance along Reverence Parkway does not appear to have a hump for onsite flood protection and label high points on grading plans. Provide a hump of 6"minimum freeboard in the next submittal.

Response:

A hump with a minimum 6" of freeboard has been provided at the west entrance driveway along Reverence Parkway.

Comment 15:

Describe the difference between the circled lot numbers and those that are not.

Response:

The plans have been revised such that the lot numbers are consistent.

Comment 16:

Grading plans need to show the existing development on the North side of the property and their finished floors. Identify an existing trail in the pertinent grading plans.

Response:

The grading plans have been revised to show the existing development on the North side of the property and their finished floors. The existing trail has been identified in the pertinent grading plans.

Comment 17:

Sheet GD1: Near Lot 165, cross section is labeled XX/XX. Show correct numbering and grading detail.

Response:

Cross section tag has been revised to show the correct numbering and grading detail.

Comment 18:

Sheet GD2: Label the drainage easement shown in Section M/DT1 as a Public Drainage Easement to be Privately Maintained by the HOA.

Response:

The drainage easement has been labeled on the plans.

Comment 19:

Sheet GD2: Provide connection detail or manhole where the 48" SD is connecting to the existing SD.

Response:

A connection detail has been provided on the plans.

Comment 20:

Sheet GD4: Identify a future pedestrian bridge at the southeast corner of the site. Provide grading design in the vicinity of that corner.

Response:

The future pedestrian bridges at the southeast corner has been identified on the plans. Grading design has been provided in the vicinity of the southeast corner.

Comment 21:

In all plan & profile sheets, revise the call out of "Public" storm drains to "PRIVATE".

Response:

The callout of "Public" storm drains has been revised to "Private" in all plan and profile sheets.

Comment 22:

Sheet DT2: The proposed wall adjacent to the swale shown in Section B should be 3 course solid grouted.

Response:

The proposed wall adjacent to the swale has been revised to call out 3 courses solid grouted.

Comment 23:

Private streets must be public drainage easements. Provide a note on the grading plans: Note: All private streets are P.U.E., Public Sewer Easements and Public Drainage Easements to be privately maintained by HOA.

Response:

The requested note has been added to the plans.

Comment 24:

The engineer must provide a table on the grading plans that shows a quantity estimate of all drainage improvements within Public Drainage Easements. All drainage improvements within Public Drainage Easements must be bonded and inspected.

Response:

A table showing a quantity estimate of all drainage improvements has been added to the plans.

Comment 25:

All drainage easements must be public drainage easements to be privately maintained and common lots to be labeled on the grading plans and to be dedicated as such in the final map.

Response:

Noted.

If you have any questions or require additional information, please do not hesitate to contact GCW at (702) 804-2000.

Respectfully,

GCW, INC.

Dr. Kevin Ramage, PE, DBA
Flood Control Division

APPENDIX A

Drainage Study Comment Letter

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM			DATE: January 6, 2022
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:**
Summerlin Village 26 - Parcel L			GCW
Cross Streets:	Reverence Pkwy and Lake Mead Blvd.		PN II INC and Pulte Homes
File Number:	F:\Depot\DSMemos\DS5533A.doc		Bart Anderson, P.E., DevCo
Parcel Number:	137-14-715-038		CCRFCD
Zoning Action:	21-0615-TMP1; 21-0615-MOD1 & 21-0615-SCD1 to 21-0615-SCD3		
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	12/16/2021	1/5/2022	See Comments Below	$400.00	4575513: $400
			TOTAL FEES (LDDRS):	**$400.00**	**----**

REMARKS:

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

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

1. Provide a copy of the zoning/planning conditions associated with this site (**21-0615-TMP1; 21-0615-MOD1 & 21-0615-SCD1 to 21-0615-SCD3**) with the next submittal to verify compliance with conditions. *Flood Control* will not issue conditional approval of the drainage study without the associated zoning/planning conditions (issued by the *City Council*). Any associated conditions of approval that revise the site drainage parameters will require that the drainage study be revised and resubmitted.

2. The site is adjacent to or crosses an existing or proposed *Clark County Regional Flood Control District* (CCRFCD) master planned facility. Therefore, CCRFCD concurrence is required prior to final approval of the drainage study.

   Please note that effective March 15, 2019, the CCRFCD adopted new requirements for drainage study concurrence submittal. Follow the link below for specific guidance.

   http://gustfront.ccrfcd.org/LandDev/LandDev.aspx

3. **Figure 5:** The calculations for *Section F1* are 3.66 fps but is shown as 2.23 in the 100-Year Street Flow Table.

4. Discuss the flow shown to be collected at the south east corner of the site through the lateral structure shown. Address the grading shown to collect flow at this location.
5. **Sheet GD2** and **Sheet GD4**: An AC pavement access road adjacent to the Regional flood channel currently ends at the northeast corner of the subject site. Identify the existing access road limit in the next submittal. Extend the pavement access south to *Lake Mead Boulevard*.
6. In an overall view of the grading plans, it left an impression to the reviewer that the engineer/developer rushed out the plans without finishing a lot of detail grading designs:
    - Common areas between buildings have no grading at all, ie, how the common areas drain without impacting the buildings?
    - Along the eastern and northern side of the site, provide grading to show how the areas between the buildings and the rockery wall drains. Sheet flow through the proposed fence over the rockery wall and into the existing channel is not allowed. Provide swale in the common areas and drain into the onsite roadways.
    - Show the common areas/parks features and grading design.
    - It is not clear whether the products are individual lot with typical Type A drainage or it is a block building with four to six residences grouped into one?
    - Provide typical lot drainage in the next submittal.
    - Show driveways and the building layouts of each lot.
7. Label roadway names on the grading plans.
8. Label “Public” or “Private” street on the grading plans.
9. Identify all *Clark County Regional Flood Control Facilities* on Exhibits and Grading Plans and label with *City of Las Vegas* recorded drawing numbers accordingly.
10. The grading plans call out existing RCBs along the Eastern edge of the site, but they are shown as channels in the referenced Master Drainage Study for Summerlin Village 26 - Reverence.
11. Section C/DT2 shows an existing 14’ x 14’ culvert, but the plans show a 10’ x 14’ RCB. Address and resolve in the next submittal.
12. Section E/DT1 cannot be found on the grading plans. Do a QA/QC of the plans in the future submittals.
13. Provide cross sections and street flow depth for adjacent major roadways.
14. The entrance driveway at the west entrance along *Reverence Parkway* does not appear to have a hump for onsite flood protection and label high points on grading plans. Provide a hump of 6”- minimum freeboard in the next submittal.
15. Describe the difference between the circled lot numbers and those that are not.
16. Grading plans need to show the existing development on the North side of the property and their finished floors. Identify an existing trail in the pertinent grading plans.
17. **Sheet GD1:** Near Lot 165, cross section is labeled XX/XX. Show correct numbering and grading detail.
18. **Sheet GD2:** Label the drainage easement shown in Section M/DT1 as a Public Drainage Easement to be Privately Maintained by the HOA.
19. **Sheet GD2:** Provide connection detail or manhole where the 48” SD is connecting to the existing SD.

20. **Sheet GD4:** Identify a future pedestrian bridge at the southeast corner of the site. Provide grading design in the vicinity of that corner.
21. In all plan & profile sheets, revise the call out of “Public” storm drains to “PRIVATE”.
22. **Sheet DT2:** The proposed wall adjacent to the swale shown in Section B should be 3 course solid grouted.
23. Private streets must be public drainage easements. Provide a note on the grading plans: Note: All private streets are P.U.E., Public Sewer Easements and Public Drainage Easements to be privately maintained by HOA.
24. The engineer must provide a table on the grading plans that shows a quantity estimate of all drainage improvements within Public Drainage Easements. All drainage improvements within Public Drainage Easements must be bonded and inspected.
25. All drainage easements must be public drainage easements to be privately maintained and common lots to be labeled on the grading plans and to be dedicated as such in the final map.

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/R59E/14
AREA K-14

APPENDIX B

`

Hydrologic Calculations and Information

GCW ENGINEERS \ SURVEYORS

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL
STANDARD FORM 4

Project Name & Number: Summerlin Village 26 Parcel L (764-204-023)
Description: Interim Conditions
By: JI
Date: 02/22/2022

SUB-BASIN DATA						INITIAL / OVERLAND TIME (Ti)			TRAVEL TIME (Tt)					Tc	Tc Check Urbanized Basins		Tlag
DESIG:	DEV./EX. (D or E)	CN	K [1]	AREA Ac	AREA Mi^2 [2]	INITIAL LENGTH Feet	SLOPE %	Ti Min [3]	TRAVEL LENGTH Feet	SLOPE %	V1 VELOCITY FPS [4]	V2 VELOCITY FPS [5]	Tt Min [6]	Tc Calc. [7]	Total Length Feet [8]	Tc Check [9]	Tlag Hours [10]
LKMD	D	98.0	0.904	5.3	0.0083	48.5	2.00	1.95	1308.3	5.50	4.74	7.18	3.64	5.59	1356.8	17.538	0.056

[1] K = 0.0132 (CN) - 0.39
[2] A = Area/640
[3] Ti = (1.8 (1.1-K) L^0.5)/S^0.33
[4] For Existing Conditions: V1 = 14.8 * (S/100)^0.5
For Developed Conditions: V1 = 20.2 * (S/100)^0.5
[5] For Existing Conditions: V2 = 29.4 * (S/100)^0.5
For Developed Conditions: V2 = 30.6 * (S/100)^0.5
[6] Tt = L/(60*V)
[7] Tc = Ti + Tt
[8] Total L = Initial L + Travel L
[9] Tc = (L/180) + 10
[10] Tlag = (0.6*Tc)/60
[11] Min Tlag =0.05

Note: For Travel Time Calcs: V1 applies to first 500 feet and V2 applies to remaining distance.

```
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   07MAR22  TIME  12:57:34  *                                    *          (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
 *** FREE ***
             1          ID   ************************************************************
             2          ID   * ........................................................... *
             3          ID   * :                                                         : *
             4          ID   * :             SUMMERLIN VILLAGE 26 PARCEL L               : *
             5          ID   * :                                                         : *
             6          ID   * :              INTERIM CONDITIONS                         : *
             7          ID   * :.........................................................: *
             8          ID   * :              RETURN PERIOD_ _ _ _100 & 10 -YEAR         : *
             9          ID   * :              DISTRIBUTION_ _ _ _ 6-HOUR SDN3            : *
            10          ID   * :              PROJECT NO_ _ _ _ _ 764.204.023            : *
            11          ID   * :              FILENAME_ _ _ _ _ _ INTER.H1               : *
            12          ID   * :              DATE MODELED_ _ _ _ 01/27/22               : *
            13          ID   * :              MODELED BY_ _ _ _ _ JI                     : *
            14          ID   * :.........................................................: *
            15          ID   * :                                                         : *
            16          ID   * :.........................................................: *
            17          ID   ************************************************************
            18          ID
            19          ID    JR CARDS CONTAIN DARFS BASED ON THE FOLLOWING VALUES:
            20          ID
            21          ID                          AREA      DARF
            22          ID                        SQ.MI.
            23          ID
            24          ID                       0.0 - 0.5    1.00
            25          ID                       0.5 - 1.0    0.98
            26          ID                       1.0 - 2.0    0.97
            27          ID                       2.0 - 4.0    0.93
            28          ID                       4.0 - 6.0    0.91
            29          ID                       6.0 - 8.0    0.90
            30          ID
            31          IT       5       0       0     300
            32          IO       5       0       0
            33          IN       5       0       0
            34          JR    PREC       1    0.54
                        *

            35          KK    LKMD
            36          KM  FOR FIRST BASIN IN MODEL WITH SDN3
            37          PB    3.36
            38          BA  0.0083
            39          PC   0.000   0.020   0.057   0.070   0.087   0.108   0.124   0.130   0.130   0.130
            40          PC   0.130   0.130   0.130   0.133   0.140   0.142   0.148   0.158   0.172   0.181
            41          PC   0.190   0.197   0.199   0.200   0.201   0.204   0.214   0.229   0.241   0.249
            42          PC   0.251   0.256   0.270   0.278   0.281   0.283   0.295   0.322   0.352   0.409
            43          PC   0.499   0.590   0.710   0.744   0.781   0.812   0.819   0.835   0.851   0.856
            44          PC   0.860   0.868   0.876   0.888   0.910   0.926   0.937   0.950   0.970   0.976
            45          PC   0.982   0.985   0.987   0.989   0.990   0.993   0.993   0.994   0.995   0.998
            46          PC   0.998   0.999   1.000
            47          LS       0      98
            48          UD    .056
                        *
```

```
            49           ZZ
1
                SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

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

    35        LKMD

 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
```

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1****************************************
 *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
 *               JUN   1998             *
 *            VERSION 4.1               *
 *                                      *
 *  RUN DATE   07MAR22  TIME  12:57:34  *
 *                                      *
 ****************************************
```

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****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 756-1104             *
*                                      *
****************************************
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************************************************************
* ........................................................ *
* :                                                      : *
* :            SUMMERLIN VILLAGE 26 PARCEL L             : *
* :                                                      : *
* :             INTERIM CONDITIONS                       : *
* :......................................................: *
* :             RETURN PERIOD_ _ _ _100 & 10 -YEAR       : *
* :             DISTRIBUTION_ _ _ _ 6-HOUR SDN3          : *
* :             PROJECT NO_ _ _ _ _ 764.204.023          : *
* :             FILENAME_ _ _ _ _ _ INTER.H1             : *
* :             DATE MODELED_ _ _ _ 01/27/22             : *
* :             MODELED BY_ _ _ _ _ JI                   : *
* :......................................................: *
* :                                                      : *
* :......................................................: *
************************************************************
```

```
 JR CARDS CONTAIN DARFS BASED ON THE FOLLOWING VALUES:

                          AREA      DARF
                        SQ.MI.

                       0.0 - 0.5    1.00
                       0.5 - 1.0    0.98
                       1.0 - 2.0    0.97
                       2.0 - 4.0    0.93
                       4.0 - 6.0    0.91
                       6.0 - 8.0    0.90


  32 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       .54
1

                PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
```

FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES
TIME TO PEAK IN HOURS

OPERATION	STATION	AREA	PLAN		RATIOS APPLIED TO PRECIPITATION RATIO 1	RATIO 2
					1.00	.54
HYDROGRAPH AT						
+	LKMD	.01	1	FLOW	23.	12.
				TIME	3.50	3.50

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

APPENDIX C

Hydraulic Calculations and Information

Hydraulic Sections

Worksheet for Section 1 - Reverence Parkway (*12-E) 100-Year

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Channel Slope	0.047 ft/ft
Discharge	15.00 cfs

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.50
0+00.50	0.50
0+00.58	0.00
0+02.00	0.13
0+02.00	0.17
0+40.50	0.94
0+79.00	0.17
0+79.00	0.13
0+80.42	0.00
0+80.50	0.50
0+81.00	0.50

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.50)	(0+81.00, 0.50)	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	0.37 ft
Roughness Coefficient	0.016
Elevation	0.37 ft
Elevation Range	0.00 to 0.94 ft
Flow Area	3.0 ft²
Wetted Perimeter	24.15 ft
Hydraulic Radius	0.12 ft
Top Width	23.41 ft
Normal Depth	0.37 ft
Critical Depth	0.49 ft

Worksheet for Section 1 - Reverence Parkway (*12-E) 100-Year

Results	
Critical Slope	0.007 ft/ft
Velocity	5.01 ft/s
Velocity Head	0.39 ft
Specific Energy	0.76 ft
Froude Number	2.471
Flow Type	Supercritical

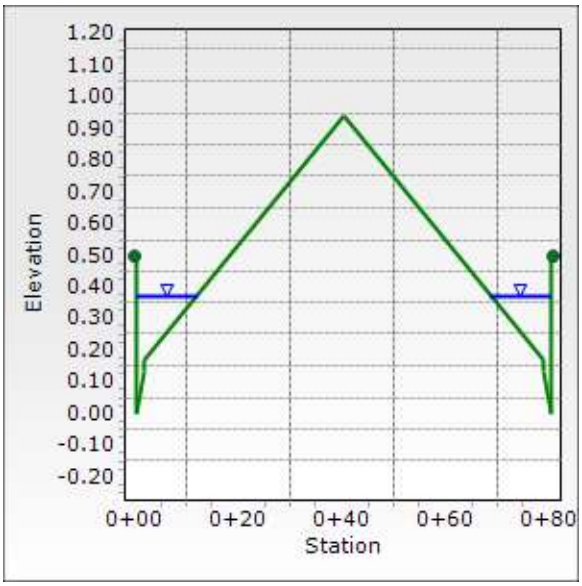
GVF Input Data	
Downstream Depth	0.00 ft
Length	0.00 ft
Number Of Steps	0

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	0.37 ft
Critical Depth	0.49 ft
Channel Slope	0.047 ft/ft
Critical Slope	0.007 ft/ft

Cross Section for Section 1 - Reverence Parkway (*12-E) 100-Year

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Channel Slope	0.047 ft/ft
Normal Depth	0.37 ft
Discharge	15.00 cfs



Worksheet for Section 2 - Lake Mead BLVD (LKMD) 100-Year

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Channel Slope	0.068 ft/ft
Discharge	23.00 cfs

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.50
0+00.50	0.50
0+00.58	0.00
0+02.00	0.13
0+02.00	0.17
0+40.00	0.93
0+40.00	0.98
0+57.00	0.98
0+57.00	0.93
0+95.00	0.17
0+95.00	0.13
0+96.42	0.00
0+96.50	0.50
0+97.00	0.50

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.50)	(0+97.00, 0.50)	0.016

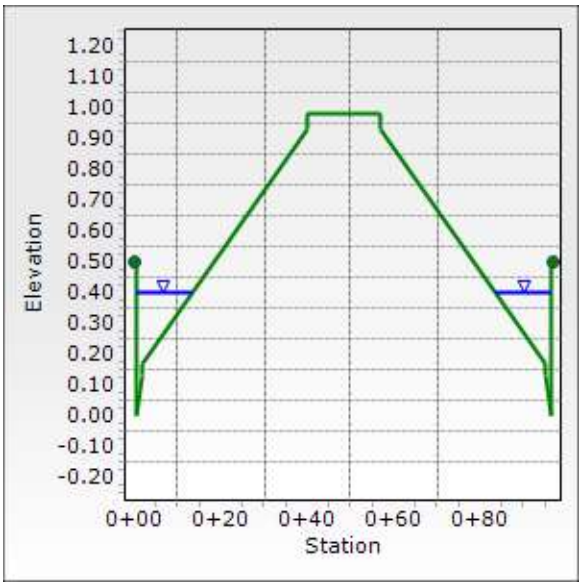
Options	
Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results	
Normal Depth	0.40 ft
Roughness Coefficient	0.016
Elevation	0.40 ft
Elevation Range	0.00 to 0.98 ft
Flow Area	3.6 ft²
Wetted Perimeter	26.70 ft
Hydraulic Radius	0.14 ft

Cross Section for Section 2 - Lake Mead BLVD (LKMD) 100-Year

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Channel Slope	0.068 ft/ft
Normal Depth	0.40 ft
Discharge	23.00 cfs



Worksheet for Section 2 - Lake Mead BLVD (LKMD) 100-Year

Results	
Top Width	25.92 ft
Normal Depth	0.40 ft
Critical Depth	0.55 ft
Critical Slope	0.006 ft/ft
Velocity	6.37 ft/s
Velocity Head	0.63 ft
Specific Energy	1.03 ft
Froude Number	3.011
Flow Type	Supercritical

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	0.40 ft
Critical Depth	0.55 ft
Channel Slope	0.068 ft/ft
Critical Slope	0.006 ft/ft

Worksheet for Section I 39' Private Street

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Channel Slope	2.200 %
Discharge	8.00 cfs

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.38
0+01.50	0.00
0+02.50	0.08
0+02.50	0.13
0+19.50	0.47
0+36.50	0.13
0+36.50	0.09
0+37.50	0.00
0+39.00	0.38
0+43.00	0.46

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.38)	(0+43.00, 0.46)	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	0.31 ft
Roughness Coefficient	0.016
Elevation	0.31 ft
Elevation Range	0.00 to 0.47 ft
Flow Area	2.5 ft²
Wetted Perimeter	22.49 ft
Hydraulic Radius	0.11 ft
Top Width	22.31 ft
Normal Depth	0.31 ft
Critical Depth	0.36 ft
Critical Slope	0.731 %

Worksheet for Section I 39' Private Street

Results	
Velocity	3.19 ft/s
Velocity Head	0.16 ft
Specific Energy	0.47 ft
Froude Number	1.680
Flow Type	Supercritical

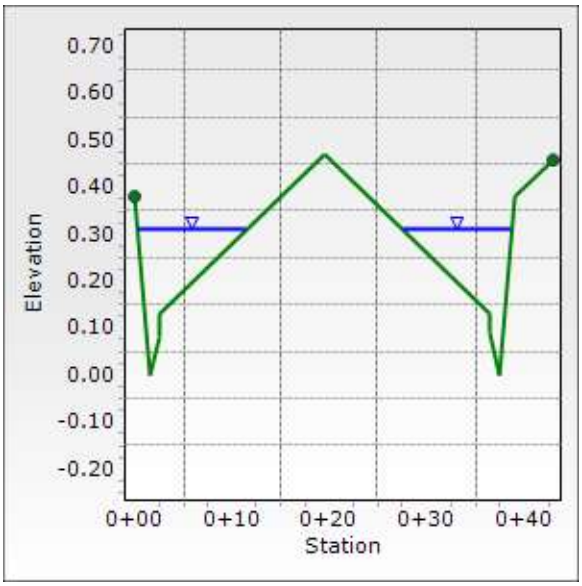
GVF Input Data	
Downstream Depth	0.00 ft
Length	0.00 ft
Number Of Steps	0

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	0.31 ft
Critical Depth	0.36 ft
Channel Slope	2.200 %
Critical Slope	0.731 %

Cross Section for Section I 39' Private Street

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Channel Slope	2.200 %
Normal Depth	0.31 ft
Discharge	8.00 cfs



Drop Inlet Calculations

ENGINEERS \ SURVEYORS

Drop Inlet Sizing Calculation

Project Name: Summerlin Village 26 - Parcel L
By: CJB
Date: 02/22/2022

Drop Inlet Sizing on a Continuous Grade

12.5' Type DM2
DI#13

Known:

Q_s=	Street Flow	4.0	cfs
S_o=	Longitudinal Slope	0.022	ft/ft
n=	Manning's Roughness Coefficient	0.016	
V_s=	Flow Velocity	3.19	fps
D=	Flow Depth	0.31	ft
S_x=	Street Transverse Slope	0.02	ft/ft
W=	Grate Width	1.5	ft
a=	Gutter Depression	5.0	in
L_g=	Length of Grate	10.0	ft
L_c=	Length of Curb Opening	12.5	ft
C_{fg}=	Clogging Factor for Grate	50	%
C_{fc}=	Clogging Factor for Curb Opening	50	%

Grate Capacity Calculations:

R_f=	Frontal flow factor = 1-0.09*(V_s-V_o) if V_s>V_o; else R_f=1	1.00	
	V_o= Splash over velocity=p+q*(L_g*(1-(C_{fg}/100)))-r*(L_g*(1-(C_{fg}/100)))^2+s*(L_g*(1-(C_{fg}/100)))^3†	9.86	fps
E_o=	Grate flow ratio = Q_w/Q_s	0.32	
	Q_w= Frontal flow=A_w*V_s	1.28	cfs
	Q_x= Side flow = Q_s-Q_w	2.72	cfs
R_s=	Side flow factor = 1/(1+(0.15*$V_s^{1.8}$)/(S_x*(L_g*(1-C_{fg}/100))$^{2.3}$))	0.40	
Q_{ig}=	Flow intercepted = [R_f*E_o+R_s*(1-E_o)]*Q_s	2.4	cfs
	†p=1.76;q=3.12;r=0.45;s=0.03 (based on Bar P 1-1/8 grate)		

Curb Opening Capacity Calculations

S_e=	Equivalent cross slope = Sx+Sw*Eo	0.112	ft/ft
S_w=	Gutter cross slope = (0.137+afeet)/W	0.285	ft/ft
L_t=	Total interception L = 0.60*$Q_s^{0.42}$*$So^{0.30}$*(1/n*S_e)$^{0.6}$	15.23	ft
Q_{ic}=	Flow intercepted = (1-(1-(L_c*(1-C_{fc}/100))/L_t)$^{1.8}$)*Q_s	2.5	cfs

Total Inlet Calculations

Q_{ti}=	**Total flow intercepted = Q_{ig}+Q_{ic}**	**4.0**	**cfs**
Q_{tq}=	**Flow bypass = Q_s-Q_{ti}**	**0.0**	**cfs**
q=	Interception per unit ratio = Q_{ti}/L_g	0.32	cfs/ft
E_q=	Efficiency = (Qti/Qs)*100	100	%

ENGINEERS \ SURVEYORS

Drop Inlet Sizing Calculation

Project Name: Summerlin Village 26 - Parcel L
By: CJB
Date: 02/22/2022

Drop Inlet Sizing on a Continuous Grade

12.5' Type DM2
DI#14

Known:

Q_s=	Street Flow	4.0	cfs
S_o=	Longitudinal Slope	0.022	ft/ft
n=	Manning's Roughness Coefficient	0.016	
V_s=	Flow Velocity	3.19	fps
D=	Flow Depth	0.31	ft
S_x=	Street Transverse Slope	0.02	ft/ft
W=	Grate Width	1.5	ft
a=	Gutter Depression	5.0	in
L_g=	Length of Grate	10.0	ft
L_c=	Length of Curb Opening	12.5	ft
C_{fg}=	Clogging Factor for Grate	50	%
C_{fc}=	Clogging Factor for Curb Opening	50	%

Grate Capacity Calculations:

R_f=	Frontal flow factor = 1-0.09*(V_s-V_o) if V_s>V_o; else R_f=1	1.00	
	V_o= Splash over velocity=p+q*(L_g*(1-(C_{fg}/100)))-r*(L_g*(1-(C_{fg}/100)))^2+s*(L_g*(1-(C_{fg}/100)))^3†	9.86	fps
E_o=	Grate flow ratio = Q_w/Q_s	0.32	
	Q_w= Frontal flow=A_w*V_s	1.28	cfs
	Q_x= Side flow = Q_s-Q_w	2.72	cfs
R_s=	Side flow factor = 1/(1+(0.15*$V_s^{1.8}$)/(S_x*(L_g*(1-C_{fg}/100))$^{2.3}$))	0.40	
Q_{ig}=	Flow intercepted = [R_f*E_o+R_s*(1-E_o)]*Q_s	2.4	cfs
	†p=1.76;q=3.12;r=0.45;s=0.03 (based on Bar P 1-1/8 grate)		

Curb Opening Capacity Calculations

S_e=	Equivalent cross slope = Sx+Sw*Eo	0.112	ft/ft
S_w=	Gutter cross slope = (0.137+afeet)/W	0.285	ft/ft
L_t=	Total interception L = 0.60*$Q_s^{0.42}$*$So^{0.30}$*(1/n*S_e)$^{0.6}$	15.23	ft
Q_{ic}=	Flow intercepted = (1-(1-(L_c*(1-C_{fc}/100))/L_t)$^{1.8}$)*Q_s	2.5	cfs

Total Inlet Calculations

Q_{ti}=	**Total flow intercepted = Q_{ig}+Q_{ic}**	**4.0**	**cfs**
Q_{tq}=	**Flow bypass = Q_s-Q_{ti}**	**0.0**	**cfs**
q=	Interception per unit ratio = Q_{ti}/L_g	0.32	cfs/ft
E_q=	Efficiency = (Qti/Qs)*100	100	%

ENGINEERS \ SURVEYORS

Drop Inlet Sizing Calculation

Project Name: Summerlin Village 26 Parcel L
By: CJB
Date: 02/22/2022

Grate Inlet Headwater Depth

2'x2' Grate Inlet
DI#15

Known:		
Q=	Flow (cfs)	2
W=	Width of Grate (ft)	2.0
L=	Length of Grate (ft)	2.0
D=	Diameter of Circle (in)	
Cf=	Clogging Factor (%)	50
Weir Conditions:		
	$Hw=(Q/(Cw*P))^{2/3}$	
Cw=	Weir Coefficient	3.0
P=	Perimeter of grate (ft)	8.0
Pc=	Perimeter (w/clogging) (ft)	4.0
Hw=	Headwater depth (ft)	0.30
Orifice Conditions:		
	$Hw=(Q/(Co*Ac))^2/2*g$	
Co=	Orifice Coefficient	0.65
Ag=	Grate Area (ft^2)	4.0
Gf=	Grate Opening Factor	0.80
Ac=	Grate Open Area (w/ clogging) (ft^2)	1.6
Hw=	Headwater depth (ft)	0.06
	Worst Case Scenario Occurs Under Weir Conditions	
	Headwater Depth (ft) =	**0.3**

WSPGW Calculations

```
T1  Summelin Village 26 - Parcel L
T2  Pulte Homes - Mainline 1
T3  Starting HGL = Top of Pipe
SO   1000.00 3219.10   4                          3223.10
R    1033.03 3219.43   4      .013                                                  1
R    1094.04 3220.04   4      .013                                                  1
JX   1094.05 3220.04   3  3   .013    8.0           3220.04          90.0      -28.2
R    1174.97 3224.36   3      .013                        1.96                     1
JX   1174.98 3224.36   3  1  1.013    3.5      3.5  3224.36 3224.36  70.1-53.1  25.1
R    1221.41 3226.50   3      .013                        1.83                     1
JX   1221.42 3226.50   3  5   .013   23.0           3226.50         -90.0       32.1
R    1329.91 3227.04   3      .013                        2.42                     1
JX   1329.92 3227.04   3  1  1.013    9.0      6.0  3227.04 3227.04  54.1-82.9   2.1
R    1522.32 3228.00   3      .013                                                  1
JX   1522.33 3228.00   3  1   .013    6.0           3228.00         -53.8       76.2
R    1555.98 3234.73   3      .013                                                  1
SH   1555.98 3234.73   3
CD   1  4   0    .000   1.500     .000  .000  .000   .00
CD   2  4   0    .000   2.000     .000  .000  .000   .00
CD   3  4   0    .000   3.000     .000  .000  .000   .00
CD   4  4   0    .000   4.000     .000  .000  .000   .00
CD   5  4   0    .000   2.500     .000  .000  .000   .00
Q           4.000
```

WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING PAGE 1

CARD CODE	SECT NO	CHN TYPE	NO OF PIER/PIP	AVE PIER WIDTH	HEIGHT 1 DIAMETER	BASE WIDTH	ZL	ZR	INV DROP	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)
CD	1	4	0		1.500														
CD	2	4	0		2.000														
CD	3	4	0		3.000														
CD	4	4	0		4.000														
CD	5	4	0		2.500														

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -
Summelin Village 26 - Parcel L

HEADING LINE NO 2 IS -
Pulte Homes - Mainline 1

HEADING LINE NO 3 IS -
Starting HGL = Top of Pipe

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 1 IS A SYSTEM OUTLET * * *

U/S DATA	STATION	INVERT	SECT	W S ELEV
	1000.000	3219.100	4	3223.100

ELEMENT NO 2 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1033.030	3219.430	4	.013	.000	.000	.000	0

ELEMENT NO 3 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1094.040	3220.040	4	.013	.000	.000	.000	1

ELEMENT NO 4 IS A JUNCTION * * * * * * *

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
	1094.050	3220.040	3	3	0	.013	8.000	.000	3220.040	.000	90.000	.000

RADIUS	ANGLE
.020	-28.200

THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING
THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING

ELEMENT NO 5 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1174.970	3224.360	3	.013	.000	.000	.000	1

ELEMENT NO 6 IS A JUNCTION * * * * * * *

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
	1174.980	3224.360	3	1	1	.013	3.500	3.500	3224.360	3224.360	70.100	-53.100

RADIUS	ANGLE
.023	25.100

THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING
THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING

ELEMENT NO 7 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1221.410	3226.500	3	.013	.000	.000	.000	1

ELEMENT NO 8 IS A JUNCTION * * * * * * *

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
	1221.420	3226.500	3	5	0	.013	23.000	.000	3226.500	.000	-90.000	.000

RADIUS	ANGLE
.018	32.100

THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING
THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 9 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1329.910	3227.040	3	.013	.000	.000	.000	1

ELEMENT NO 10 IS A JUNCTION * * * * * * *

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
	1329.920	3227.040	3	1	1	.013	9.000	6.000	3227.040	3227.040	54.100	-82.900

RADIUS	ANGLE
.273	2.100

THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING
THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING

ELEMENT NO 11 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1522.320	3228.000	3	.013	.000	.000	.000	1

ELEMENT NO 12 IS A JUNCTION * * * * * * *

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
	1522.330	3228.000	3	1	0	.013	6.000	.000	3228.000	.000	-53.800	.000

RADIUS	ANGLE
.008	76.200

THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING
THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING

ELEMENT NO 13 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1555.980	3234.730	3	.013	.000	.000	.000	1

ELEMENT NO 14 IS A SYSTEM HEADWORKS * *

U/S DATA	STATION	INVERT	SECT	W S ELEV
	1555.980	3234.730	3	.000

Program Package Serial Number: 3074

WATER SURFACE PROFILE LISTING Date: 2-22-2022 Time:12:59: 4

Summelin Village 26 - Parcel L

Pulte Homes - Mainline 1

Starting HGL = Top of Pipe

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1000.000	3219.100	4.000	3223.100	63.00	5.01	.39	3223.49	.00	2.39	.00	4.000	.000	.00	0 .0
.000	.0100					.0019	.00	4.00	.00	1.85	.013	.00	.00	PIPE
1000.000	3219.100	4.000	3223.100	63.00	5.01	.39	3223.49	.00	2.39	.00	4.000	.000	.00	0 .0
33.030	.0100					.0018	.06	4.00	.00	1.85	.013	.00	.00	PIPE
1033.030	3219.430	3.700	3223.130	63.00	5.19	.42	3223.55	.00	2.39	2.11	4.000	.000	.00	0 .0
23.073	.0100					.0017	.04	3.70	.38	1.85	.013	.00	.00	PIPE
1056.103	3219.661	3.467	3223.128	63.00	5.44	.46	3223.59	.00	2.39	2.72	4.000	.000	.00	0 .0
15.194	.0100					.0018	.03	3.47	.46	1.85	.013	.00	.00	PIPE
1071.297	3219.813	3.303	3223.115	63.00	5.68	.50	3223.62	.00	2.39	3.04	4.000	.000	.00	0 .0
HYDRAULIC JUMP														
1071.297	3219.813	1.692	3221.505	63.00	12.46	2.41	3223.91	.00	2.39	3.95	4.000	.000	.00	0 .0
22.743	.0100					.0142	.32	1.69	1.94	1.85	.013	.00	.00	PIPE
1094.040	3220.040	1.667	3221.708	63.00	12.70	2.51	3224.21	4.00	2.39	3.94	4.000	.000	.00	0 .0
JUNCT STR	.0000					.0253	.00	4.00	2.00		.013	.00	.00	PIPE
1094.050	3220.040	1.383	3221.423	55.00	17.28	4.64	3226.06	.00	2.41	2.99	3.000	.000	.00	0 .0
11.283	.0534					.0348	.39	1.38	2.95	1.24	.013	.00	.00	PIPE
1105.333	3220.642	1.411	3222.053	55.00	16.82	4.40	3226.45	.00	2.41	2.99	3.000	.000	.00	0 .0
15.831	.0534					.0315	.50	1.41	2.84	1.24	.013	.00	.00	PIPE

Program Package Serial Number: 3074

WATER SURFACE PROFILE LISTING Date: 2-22-2022 Time:12:59: 4

Summelin Village 26 - Parcel L

Pulte Homes - Mainline 1

Starting HGL = Top of Pipe

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1121.164	3221.487	1.464	3222.951	55.00	16.04	4.00	3226.95	.00	2.41	3.00	3.000	.000	.00	0 .0
11.972	.0534					.0277	.33	1.46	2.64	1.24	.013	.00	.00	PIPE
1133.136	3222.126	1.520	3223.646	55.00	15.29	3.63	3227.28	.00	2.41	3.00	3.000	.000	.00	0 .0
9.365	.0534					.0244	.23	1.52	2.46	1.24	.013	.00	.00	PIPE
1142.501	3222.626	1.579	3224.206	55.00	14.58	3.30	3227.51	.00	2.41	3.00	3.000	.000	.00	0 .0
7.510	.0534					.0215	.16	1.58	2.29	1.24	.013	.00	.00	PIPE
1150.011	3223.027	1.640	3224.667	55.00	13.90	3.00	3227.67	.00	2.41	2.99	3.000	.000	.00	0 .0
6.047	.0534					.0190	.11	1.64	2.13	1.24	.013	.00	.00	PIPE
1156.057	3223.350	1.705	3225.055	55.00	13.26	2.73	3227.78	.00	2.41	2.97	3.000	.000	.00	0 .0
4.921	.0534					.0168	.08	1.71	1.98	1.24	.013	.00	.00	PIPE
1160.978	3223.613	1.773	3225.386	55.00	12.64	2.48	3227.87	.00	2.41	2.95	3.000	.000	.00	0 .0
3.958	.0534					.0149	.06	1.77	1.83	1.24	.013	.00	.00	PIPE
1164.936	3223.824	1.846	3225.670	55.00	12.05	2.26	3227.93	.00	2.41	2.92	3.000	.000	.00	0 .0
3.183	.0534					.0132	.04	1.85	1.70	1.24	.013	.00	.00	PIPE
1168.119	3223.994	1.923	3225.917	55.00	11.49	2.05	3227.97	.00	2.41	2.88	3.000	.000	.00	0 .0

2.527	.0534					.0117	.03	1.92	1.57	1.24	.013	.00	.00	PIPE			
1170.646	3224.129	2.004	3226.133	55.00	10.96	1.86	3228.00	.00	2.41	2.83	3.000	.000	.00	0	.0		
1.894	.0534					.0104	.02	2.00	1.45	1.24	.013	.00	.00	PIPE			

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1172.540	3224.230	2.092	3226.322	55.00	10.45	1.69	3228.02	.00	2.41	2.76	3.000	.000	.00	0	.0		
1.338	.0534					.0093	.01	2.09	1.33	1.24	.013	.00	.00	PIPE			
1173.878	3224.302	2.187	3226.489	55.00	9.96	1.54	3228.03	.00	2.41	2.67	3.000	.000	.00	0	.0		
.822	.0534					.0083	.01	2.19	1.22	1.24	.013	.00	.00	PIPE			
1174.700	3224.346	2.290	3226.636	55.00	9.50	1.40	3228.04	.00	2.41	2.55	3.000	.000	.00	0	.0		
.270	.0534					.0075	.00	2.29	1.11	1.24	.013	.00	.00	PIPE			
1174.970	3224.360	2.406	3226.766	55.00	9.05	1.27	3228.04	3.00	2.41	2.39	3.000	.000	.00	0	.0		
JUNCT STR	.0000							3.00	1.00		.013	.00	.00	PIPE			
1174.980	3224.360	1.424	3225.784	48.00	14.52	3.27	3229.06	.00	2.26	3.00	3.000	.000	.00	0	.0		
4.787	.0461					.0241	.12	1.42	2.43	1.20	.013	.00	.00	PIPE			
1179.767	3224.581	1.446	3226.027	48.00	14.23	3.14	3229.17	.00	2.26	3.00	3.000	.000	.00	0	.0		
9.607	.0461					.0221	.21	1.45	2.36	1.20	.013	.00	.00	PIPE			
1189.374	3225.023	1.501	3226.525	48.00	13.57	2.86	3229.38	.00	2.26	3.00	3.000	.000	.00	0	.0		
7.608	.0461					.0194	.15	1.50	2.20	1.20	.013	.00	.00	PIPE			
1196.982	3225.374	1.558	3226.932	48.00	12.94	2.60	3229.53	.00	2.26	3.00	3.000	.000	.00	0	.0		
6.049	.0461					.0171	.10	1.56	2.05	1.20	.013	.00	.00	PIPE			
1203.031	3225.653	1.619	3227.272	48.00	12.33	2.36	3229.63	.00	2.26	2.99	3.000	.000	.00	0	.0		
4.898	.0461					.0151	.07	1.62	1.91	1.20	.013	.00	.00	PIPE			

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1207.929	3225.879	1.682	3227.561	48.00	11.76	2.15	3229.71	.00	2.26	2.98	3.000	.000	.00	0	.0		
3.885	.0461					.0133	.05	1.68	1.77	1.20	.013	.00	.00	PIPE			
1211.814	3226.058	1.750	3227.808	48.00	11.21	1.95	3229.76	.00	2.26	2.96	3.000	.000	.00	0	.0		
3.134	.0461					.0118	.04	1.75	1.64	1.20	.013	.00	.00	PIPE			
1214.948	3226.202	1.820	3228.022	48.00	10.69	1.77	3229.80	.00	2.26	2.93	3.000	.000	.00	0	.0		
2.394	.0461					.0104	.03	1.82	1.52	1.20	.013	.00	.00	PIPE			
1217.342	3226.313	1.896	3228.208	48.00	10.19	1.61	3229.82	.00	2.26	2.89	3.000	.000	.00	0	.0		
1.811	.0461					.0093	.02	1.90	1.41	1.20	.013	.00	.00	PIPE			
1219.152	3226.396	1.976	3228.372	48.00	9.72	1.47	3229.84	.00	2.26	2.84	3.000	.000	.00	0	.0		
1.277	.0461					.0082	.01	1.98	1.30	1.20	.013	.00	.00	PIPE			
1220.429	3226.455	2.061	3228.516	48.00	9.27	1.33	3229.85	.00	2.26	2.78	3.000	.000	.00	0	.0		
.728	.0461					.0073	.01	2.06	1.20	1.20	.013	.00	.00	PIPE			
1221.157	3226.488	2.154	3228.642	48.00	8.84	1.21	3229.85	.00	2.26	2.70	3.000	.000	.00	0	.0		

.253	.0461					.0066	.00	2.15	1.10	1.20	.013	.00	.00	PIPE				
1221.410	3226.500	2.255	3228.755	48.00	8.42	1.10	3229.86	3.00	2.26	2.59	3.000	.000	.00	0	.0			
JUNCT STR	.0000					.0038	.00	3.00	1.00		.013	.00	.00	PIPE				
1221.420	3226.500	3.791	3230.291	25.00	3.54	.19	3230.49	.00	1.61	.00	3.000	.000	.00	0	.0			
108.490	.0050					.0014	.15	3.79	.00	1.55	.013	.00	.00	PIPE				

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1329.910	3227.040	3.413	3230.453	25.00	3.54	.19	3230.65	.00	1.61	.00	3.000	.000	.00	0 .0
JUNCT STR	.0000					.0008	.00	.00	.00		.013	.00	.00	PIPE
1329.920	3227.040	3.611	3230.651	10.00	1.41	.03	3230.68	.00	1.00	.00	3.000	.000	.00	0 .0
128.355	.0050					.0002	.03	3.61	.00	.94	.013	.00	.00	PIPE
1458.275	3227.680	3.000	3230.680	10.00	1.41	.03	3230.71	.00	1.00	.00	3.000	.000	.00	0 .0
57.483	.0050					.0002	.01	3.00	.00	.94	.013	.00	.00	PIPE
1515.758	3227.967	2.721	3230.688	10.00	1.48	.03	3230.72	.00	1.00	1.74	3.000	.000	.00	0 .0
6.562	.0050					.0002	.00	2.72	.13	.94	.013	.00	.00	PIPE
1522.320	3228.000	2.689	3230.689	10.00	1.50	.03	3230.72	3.00	1.00	1.83	3.000	.000	.00	0 .0
JUNCT STR	.0000					.0001	.00	3.00	.14		.013	.00	.00	PIPE
1522.330	3228.000	2.700	3230.700	4.00	.60	.01	3230.71	.00	.62	1.80	3.000	.000	.00	0 .0
.782	.2000					.0000	.00	2.70	.05	.24	.013	.00	.00	PIPE
1523.112	3228.156	2.543	3230.699	4.00	.63	.01	3230.71	.00	.62	2.16	3.000	.000	.00	0 .0
.652	.2000					.0000	.00	2.54	.06	.24	.013	.00	.00	PIPE
1523.764	3228.287	2.412	3230.699	4.00	.66	.01	3230.71	.00	.62	2.38	3.000	.000	.00	0 .0
.572	.2000					.0000	.00	2.41	.07	.24	.013	.00	.00	PIPE
1524.336	3228.401	2.297	3230.698	4.00	.69	.01	3230.71	.00	.62	2.54	3.000	.000	.00	0 .0
.516	.2000					.0000	.00	2.30	.08	.24	.013	.00	.00	PIPE

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1524.852	3228.504	2.193	3230.697	4.00	.72	.01	3230.71	.00	.62	2.66	3.000	.000	.00	0 .0
.471	.2000					.0000	.00	2.19	.09	.24	.013	.00	.00	PIPE
1525.323	3228.598	2.098	3230.697	4.00	.76	.01	3230.71	.00	.62	2.75	3.000	.000	.00	0 .0
.436	.2000					.0001	.00	2.10	.10	.24	.013	.00	.00	PIPE
1525.759	3228.686	2.010	3230.696	4.00	.79	.01	3230.71	.00	.62	2.82	3.000	.000	.00	0 .0
.410	.2000					.0001	.00	2.01	.10	.24	.013	.00	.00	PIPE
1526.169	3228.768	1.927	3230.695	4.00	.83	.01	3230.71	.00	.62	2.88	3.000	.000	.00	0 .0
.380	.2000					.0001	.00	1.93	.11	.24	.013	.00	.00	PIPE
1526.549	3228.844	1.850	3230.694	4.00	.87	.01	3230.71	.00	.62	2.92	3.000	.000	.00	0 .0
.354	.2000					.0001	.00	1.85	.12	.24	.013	.00	.00	PIPE

1526.903	3228.914	1.778	3230.692	4.00	.92	.01	3230.71	.00	.62	2.95	3.000	.000	.00	0	.0				
.339	.2000					.0001	.00	1.78	.13	.24	.013	.00	.00	PIPE					
1527.242	3228.982	1.709	3230.691	4.00	.96	.01	3230.71	.00	.62	2.97	3.000	.000	.00	0	.0				
.318	.2000					.0001	.00	1.71	.14	.24	.013	.00	.00	PIPE					
1527.560	3229.045	1.644	3230.689	4.00	1.01	.02	3230.71	.00	.62	2.99	3.000	.000	.00	0	.0				
.302	.2000					.0001	.00	1.64	.15	.24	.013	.00	.00	PIPE					
1527.862	3229.106	1.582	3230.688	4.00	1.06	.02	3230.71	.00	.62	3.00	3.000	.000	.00	0	.0				
.281	.2000					.0001	.00	1.58	.17	.24	.013	.00	.00	PIPE					

Program Package Serial Number: 3074

WATER SURFACE PROFILE LISTING Date: 2-22-2022 Time:12:59: 4

Summelin Village 26 - Parcel L

Pulte Homes - Mainline 1

Starting HGL = Top of Pipe

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1528.143	3229.162	1.524	3230.687	4.00	1.11	.02	3230.71	.00	.62	3.00	3.000	.000	.00	0 .0
.271	.2000					.0001	.00	1.52	.18	.24	.013	.00	.00	PIPE
1528.414	3229.217	1.468	3230.685	4.00	1.16	.02	3230.71	.00	.62	3.00	3.000	.000	.00	0 .0
.260	.2000					.0002	.00	1.47	.19	.24	.013	.00	.00	PIPE
1528.674	3229.269	1.414	3230.683	4.00	1.22	.02	3230.71	.00	.62	3.00	3.000	.000	.00	0 .0
.244	.2000					.0002	.00	1.41	.21	.24	.013	.00	.00	PIPE
1528.917	3229.317	1.363	3230.680	4.00	1.28	.03	3230.71	.00	.62	2.99	3.000	.000	.00	0 .0
.233	.2000					.0002	.00	1.36	.22	.24	.013	.00	.00	PIPE
1529.150	3229.364	1.314	3230.678	4.00	1.34	.03	3230.71	.00	.62	2.98	3.000	.000	.00	0 .0
.072	.2000					.0002	.00	1.31	.24	.24	.013	.00	.00	PIPE
1529.222	3229.378	1.314	3230.692	4.00	1.34	.03	3230.72	.00	.62	2.98	3.000	.000	.00	0 .0
HYDRAULIC JUMP														
1529.222	3229.378	.249	3229.627	4.00	14.29	3.17	3232.80	.00	.62	1.66	3.000	.000	.00	0 .0
5.110	.2000					.1689	.86	.25	6.13	.24	.013	.00	.00	PIPE
1534.332	3230.400	.257	3230.657	4.00	13.62	2.88	3233.54	.00	.62	1.68	3.000	.000	.00	0 .0
4.798	.2000					.1471	.71	.26	5.74	.24	.013	.00	.00	PIPE
1539.130	3231.360	.265	3231.625	4.00	12.99	2.62	3234.24	.00	.62	1.70	3.000	.000	.00	0 .0
3.193	.2000					.1283	.41	.27	5.38	.24	.013	.00	.00	PIPE

Program Package Serial Number: 3074

WATER SURFACE PROFILE LISTING Date: 2-22-2022 Time:12:59: 4

Summelin Village 26 - Parcel L

Pulte Homes - Mainline 1

Starting HGL = Top of Pipe

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1542.323	3231.999	.274	3232.273	4.00	12.38	2.38	3234.65	.00	.62	1.73	3.000	.000	.00	0 .0
2.355	.2000					.1119	.26	.27	5.05	.24	.013	.00	.00	PIPE
1544.678	3232.469	.283	3232.753	4.00	11.81	2.16	3234.92	.00	.62	1.75	3.000	.000	.00	0 .0
1.826	.2000					.0977	.18	.28	4.73	.24	.013	.00	.00	PIPE
1546.504	3232.835	.293	3233.128	4.00	11.26	1.97	3235.10	.00	.62	1.78	3.000	.000	.00	0 .0
1.480	.2000					.0853	.13	.29	4.44	.24	.013	.00	.00	PIPE
1547.985	3233.131	.302	3233.433	4.00	10.73	1.79	3235.22	.00	.62	1.81	3.000	.000	.00	0 .0
1.214	.2000					.0743	.09	.30	4.16	.24	.013	.00	.00	PIPE

1549.199	3233.374	.312	3233.686	4.00	10.23	1.63	3235.31	.00	.62	1.83	3.000	.000	.00	0 .0
1.020	.2000					.0648	.07	.31	3.90	.24	.013	.00	.00	PIPE
1550.219	3233.578	.322	3233.900	4.00	9.76	1.48	3235.38	.00	.62	1.86	3.000	.000	.00	0 .0
.860	.2000					.0566	.05	.32	3.66	.24	.013	.00	.00	PIPE
1551.079	3233.750	.333	3234.083	4.00	9.30	1.34	3235.43	.00	.62	1.89	3.000	.000	.00	0 .0
.738	.2000					.0494	.04	.33	3.43	.24	.013	.00	.00	PIPE
1551.817	3233.897	.344	3234.241	4.00	8.87	1.22	3235.46	.00	.62	1.91	3.000	.000	.00	0 .0
.631	.2000					.0431	.03	.34	3.22	.24	.013	.00	.00	PIPE
1552.449	3234.024	.356	3234.380	4.00	8.46	1.11	3235.49	.00	.62	1.94	3.000	.000	.00	0 .0
.554	.2000					.0376	.02	.36	3.02	.24	.013	.00	.00	PIPE

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1553.003	3234.135	.367	3234.502	4.00	8.06	1.01	3235.51	.00	.62	1.97	3.000	.000	.00	0 .0
.471	.2000					.0328	.02	.37	2.83	.24	.013	.00	.00	PIPE
1553.474	3234.229	.380	3234.609	4.00	7.69	.92	3235.53	.00	.62	2.00	3.000	.000	.00	0 .0
.417	.2000					.0287	.01	.38	2.65	.24	.013	.00	.00	PIPE
1553.891	3234.312	.392	3234.704	4.00	7.33	.83	3235.54	.00	.62	2.02	3.000	.000	.00	0 .0
.359	.2000					.0250	.01	.39	2.49	.24	.013	.00	.00	PIPE
1554.250	3234.384	.405	3234.789	4.00	6.99	.76	3235.55	.00	.62	2.05	3.000	.000	.00	0 .0
.308	.2000					.0218	.01	.41	2.33	.24	.013	.00	.00	PIPE
1554.559	3234.446	.419	3234.865	4.00	6.66	.69	3235.55	.00	.62	2.08	3.000	.000	.00	0 .0
.269	.2000					.0191	.01	.42	2.19	.24	.013	.00	.00	PIPE
1554.828	3234.500	.433	3234.933	4.00	6.35	.63	3235.56	.00	.62	2.11	3.000	.000	.00	0 .0
.234	.2000					.0166	.00	.43	2.05	.24	.013	.00	.00	PIPE
1555.062	3234.546	.447	3234.993	4.00	6.06	.57	3235.56	.00	.62	2.14	3.000	.000	.00	0 .0
.198	.2000					.0145	.00	.45	1.92	.24	.013	.00	.00	PIPE
1555.261	3234.586	.462	3235.048	4.00	5.78	.52	3235.57	.00	.62	2.17	3.000	.000	.00	0 .0
.166	.2000					.0127	.00	.46	1.80	.24	.013	.00	.00	PIPE
1555.427	3234.619	.478	3235.097	4.00	5.51	.47	3235.57	.00	.62	2.20	3.000	.000	.00	0 .0
.142	.2000					.0111	.00	.48	1.69	.24	.013	.00	.00	PIPE

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1555.569	3234.648	.494	3235.142	4.00	5.25	.43	3235.57	.00	.62	2.23	3.000	.000	.00	0 .0
.120	.2000					.0097	.00	.49	1.58	.24	.013	.00	.00	PIPE
1555.689	3234.672	.510	3235.182	4.00	5.01	.39	3235.57	.00	.62	2.25	3.000	.000	.00	0 .0
.091	.2000					.0085	.00	.51	1.48	.24	.013	.00	.00	PIPE
1555.780	3234.690	.528	3235.218	4.00	4.77	.35	3235.57	.00	.62	2.29	3.000	.000	.00	0 .0

.079	.2000						.0074	.00	.53	1.39	.24	.013	.00	.00	PIPE				
1555.859	3234.706	.545	3235.251	4.00	4.55	.32	3235.57	.00	.62	2.31	3.000	.000	.00	0	.0				
.053	.2000						.0064	.00	.55	1.30	.24	.013	.00	.00	PIPE				
1555.912	3234.716	.564	3235.281	4.00	4.34	.29	3235.57	.00	.62	2.34	3.000	.000	.00	0	.0				
.039	.2000						.0056	.00	.56	1.22	.24	.013	.00	.00	PIPE				
1555.951	3234.724	.583	3235.307	4.00	4.14	.27	3235.57	.00	.62	2.37	3.000	.000	.00	0	.0				
.021	.2000						.0049	.00	.58	1.14	.24	.013	.00	.00	PIPE				
1555.972	3234.729	.603	3235.332	4.00	3.95	.24	3235.57	.00	.62	2.40	3.000	.000	.00	0	.0				
.008	.2000						.0043	.00	.60	1.07	.24	.013	.00	.00	PIPE				
1555.980	3234.730	.625	3235.354	4.00	3.75	.22	3235.57	.00	.62	2.44	3.000	.000	.00	0	.0				

Summelin Village 26 - Parcel L

Pulte Homes - Mainline 1

Starting HGL = Top of Pipe

```
1000.00    .I          C       H E                                                                  .    R
1003.14    .I          C       H E                                                                  .    R
1006.28    .                                                                                        .
1009.42    .                                                                                        .
1012.56    .                                                                                        .
1015.71    .                                                                                        .
1018.85    .                                                                                        .
1021.99    .                                                                                        .
1025.13    .                                                                                        .
1028.27    .                                                                                        .
1031.41    .                                                                                        .
1034.55    . I           C     W H                                                                  .    R
1037.69    .                                                                                        .
1040.83    .                                                                                        .
1043.98    .                                                                                        .
1047.12    .                                                                                        .
1050.26    .                                                                                        .
1053.40    .                                                                                        .
1056.54    .   I         C     W  H                                                                 .    R
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1059.68   .                                                                .
1062.82   .                                                                .
1065.96   .                                                                .
1069.10   .                                                                .
1072.25   .  I          C   W  EH                                          .   R
1075.39   .  I       W  C       H                                          .   R
1078.53   .                                                                .
1081.67   .                                                                .
1084.81   .                                                                .
1087.95   .                                                                .
1091.09   .                                                                .
1094.23   .    I      W  C       HE                                        .   JX
1097.38   .    I     W   C  H            E                                 .   R
1100.52   .                                                                .
1103.66   .                                                                .
1106.80   .       I     W    C H            E                              .   R
1109.94   .                                                                .
1113.08   .                                                                .
1116.22   .                                                                .
1119.36   .                                                                .
1122.50   .          I      W   C H           E                            .   R
1125.65   .                                                                .
1128.79   .                                                                .
1131.93   .                                                                .
1135.07   .              I      W   C H         E                           .   R
1138.21   .                                                                .
1141.35   .                                                                .
1144.49   .                I       W  C  H        E                        .   R
1147.63   .                                                                .
1150.77   .                  I      W  C  H      E                          .   R
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1153.92   .                                                                .
1157.06   .                  I       W   C  H      E                       .   R
1160.20   .                                                                .
1163.34   .                    I       W   C  H     E                      .   R
1166.48   .                     I        W  C  H    E                      .   R
1169.62   .                      I        W  C  H   E                      .   R
1172.76   .                      I         W C   H  E                      .   R
1175.90   .                       I         W C  H  E                      .   R
1179.04   .                       I          WC   H  E                     .   R
1182.19   .                        I          WC  H  E                     .   R
1185.33   .                        I           W  H  E                     .   JX
1188.47   .                        I     W    C   H       E                .   R
1191.61   .                         I      W   C   H       E               .   R
1194.75   .                           I      W   C   H      E              .   R
1197.89   .                             I       W  C   H    E              .   R
1201.03   .                                                                .
1204.17   .                               I      W   C   H   E             .   R
1207.31   .                                                                .
1210.46   .                                I       W  C   H   E            .   R
1213.60   .                                 I       W  C   H  E            .   R
1216.74   .                                  I       W  C   H  E           .   R
1219.88   .                                  I        W C   H  E           .   R
1223.02   .                                   I        W C   H E           .   R
1226.16   .                                   I         WC   H E           .   R
1229.30   .                                   I          W   H E           .   R
1232.44   .                                   I          W   H E           .   JX
1235.58   .                                   I       C     H   WE         .   R
1238.73   .                                                                .
1241.87   .                                                                .
1245.01   .                                                                .
1248.15   .                                                                .
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1251.29 . .

1254.43 . .

1257.57 . .

1260.71 . .

1263.85 . .

1267.00 . .

1270.14 . .

1273.28 . .

1276.42 . .

1279.56 . .

1282.70 . .

1285.84 . .

1288.98 . .

1292.13 . .

1295.27 . .

1298.41 . .

1301.55 . .

1304.69 . .

1307.83 . .

1310.97 . .

1314.11 . .

1317.25 . .

1320.40 . .

1323.54 . .

1326.68 . .

1329.82 . .

1332.96 . I C H WE . JX

1336.10 . I C H W . R

1339.24 . .

1342.38 . .

1345.52 . .

1348.67 . .

1351.81 . .

1354.95 . .

1358.09 . .

1361.23 . .

1364.37 . .

1367.51 . .

1370.65 . .

1373.79 . .

1376.94 . .

1380.08 . .

1383.22 . .

1386.36 . .

1389.50 . .

1392.64 . .

1395.78 . .

1398.92 . .

1402.06 . .

1405.21 . .

1408.35 . .

1411.49 . .

1414.63 . .

1417.77 . .

1420.91 . .

1424.05 . .

1427.19 . .

1430.33 . .

1433.48 . .

1436.62 . .

1439.76 . .

1442.90 . .

1446.04 . .

1449.18 . .

1452.32 . .

1455.46 . .

1458.60 . I C H . R

1461.75 . .

1464.89 . .

1468.03 . .

1471.17 . .

1474.31 . .

1477.45 . .

1480.59 . .

1483.73 . .

1486.88 . .

1490.02 . .

1493.16 . .

1496.30 . .

1499.44 . .

1502.58 . .

1505.72 . .

1508.86 . .

1512.00 . .

1515.15 . .

1518.29 . I C WH . R

1521.43 . .

1524.57 . I C WH . JX

1527.71 . I C WH . R

1530.85 . I C W H . R

1533.99 . I C W H . R

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   1537.13    .                                          I   C       W   H                              .    R

   1540.27    .                                           I  C       W   H                              .    R

   1543.42    .                                          I   C       W    H                             .    R

   1546.56    .                                           I  C       W    H                             .    R

   1549.70    .                                          I   C       W    H                             .    R

   1552.84    .                                           I  C       W     H                            .    R

   1555.98    .                                          I   C       W     H                            .    R

            3219.100  3220.963  3222.826  3224.689  3226.552  3228.415  3230.278  3232.141  3234.004  3235.867  3237.730
```

N O T E S
1. GLOSSARY
   I = INVERT ELEVATION
   C = CRITICAL DEPTH
   W = WATER SURFACE ELEVATION
   S = SUPER-ELEVATION
   H = HEIGHT OF CHANNEL
   E = ENERGY GRADE LINE
   X = CURVES CROSSING OVER
   B = BRIDGE ENTRANCE OR EXIT
   Y = WALL ENTRANCE OR EXIT
2. STATIONS FOR POINTS AT A JUMP MAY NOT BE PLOTTED EXACTLY

```
T1  Summelin Village 26 - Parcel L
T2  Pulte Homes - Mainline 2
T3  Starting HGL = HGL @ STA 1221.42 = 3230.291
SO   1221.42 3226.50   5                          2330.291
R    1548.03 3235.50   5      .013                                          1
JX   1548.04 3235.50   5  5   .013   12.0          3235.50          90.0
R    1711.80 3239.10   5      .013                                          1
TS   1711.81 3239.10   5      .013                                      32.96
R    1792.27 3240.71   5      .013                                          1
TS   1792.28 3240.71   5      .013                                      32.96
R    1850.75 3241.88   5      .013                                          1
JX   1850.76 3241.88   5  1   .013    5.5           3241.88          45.0       65.0
R    1883.70 3244.19   5      .013                                          1
SH   1883.70 3244.19   5
CD   1  4   0    .000   1.500     .000  .000  .000   .00
CD   2  4   0    .000   2.000     .000  .000  .000   .00
CD   3  4   0    .000   3.000     .000  .000  .000   .00
CD   4  4   0    .000   4.000     .000  .000  .000   .00
CD   5  4   0    .000   2.500     .000  .000  .000   .00
Q           5.500
```

WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING PAGE 1

CARD CODE	SECT NO	CHN TYPE	NO OF PIER/PIP	AVE PIER WIDTH	HEIGHT 1 DIAMETER	BASE WIDTH	ZL	ZR	INV DROP	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)
CD	1	4	0		1.500														
CD	2	4	0		2.000														
CD	3	4	0		3.000														
CD	4	4	0		4.000														
CD	5	4	0		2.500														

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

Summelin Village 26 - Parcel L

HEADING LINE NO 2 IS -

Pulte Homes - Mainline 2

HEADING LINE NO 3 IS -

Starting HGL = HGL @ STA 1221.42 = 3230.291

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 1 IS A SYSTEM OUTLET * * *

U/S DATA	STATION	INVERT	SECT	W S ELEV
	1221.420	3226.500	5	2330.290

ELEMENT NO 2 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1548.030	3235.500	5	.013	.000	.000	.000	1

ELEMENT NO 3 IS A JUNCTION * * * * * *

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
	1548.040	3235.500	5	5	0	.013	12.000	.000	3235.500	.000	90.000	.000

RADIUS	ANGLE
.000	.000

THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING
THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING

ELEMENT NO 4 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1711.800	3239.100	5	.013	.000	.000	.000	1

ELEMENT NO 5 IS A TRANSITION * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE
	1711.810	3239.100	5	.013	.000	.000

THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING

ELEMENT NO 6 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1792.270	3240.710	5	.013	.000	.000	.000	1

ELEMENT NO 7 IS A TRANSITION * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE
	1792.280	3240.710	5	.013	.000	.000

THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING

ELEMENT NO 8 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1850.750	3241.880	5	.013	.000	.000	.000	1

ELEMENT NO 9 IS A JUNCTION * * * * * *

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
	1850.760	3241.880	5	1	0	.013	5.500	.000	3241.880	.000	45.000	.000

RADIUS	ANGLE
.009	65.000

THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING
THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 10 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1883.700	3244.190	5	.013	.000	.000	.000	1

ELEMENT NO 11 IS A SYSTEM HEADWORKS * *

U/S DATA	STATION	INVERT	SECT	W S ELEV
	1883.700	3244.190	5	.000

Program Package Serial Number: 3074

WATER SURFACE PROFILE LISTING Date: 2-17-2022 Time: 9:17:47

Summelin Village 26 - Parcel L

Pulte Homes - Mainline 2

Starting HGL = HGL @ STA 1221.42 = 3230.291

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1221.420	3226.500	1.001	3227.501	23.00	12.52	2.43	3229.94	.00	1.63	2.45	2.500	.000	.00	0 .0
114.046	.0276					.0276	3.14	1.00	2.55	1.00	.013	.00	.00	PIPE
1335.466	3229.643	1.001	3230.644	23.00	12.52	2.43	3233.08	.00	1.63	2.45	2.500	.000	.00	0 .0
109.726	.0276					.0261	2.86	1.00	2.55	1.00	.013	.00	.00	PIPE
1445.192	3232.667	1.033	3233.700	23.00	12.01	2.24	3235.94	.00	1.63	2.46	2.500	.000	.00	0 .0
37.368	.0276					.0231	.86	1.03	2.40	1.00	.013	.00	.00	PIPE
1482.560	3233.696	1.070	3234.766	23.00	11.45	2.04	3236.80	.00	1.63	2.47	2.500	.000	.00	0 .0
19.962	.0276					.0203	.40	1.07	2.24	1.00	.013	.00	.00	PIPE
1502.522	3234.246	1.110	3235.356	23.00	10.92	1.85	3237.21	.00	1.63	2.48	2.500	.000	.00	0 .0
13.090	.0276					.0178	.23	1.11	2.09	1.00	.013	.00	.00	PIPE
1515.613	3234.607	1.151	3235.758	23.00	10.41	1.68	3237.44	.00	1.63	2.49	2.500	.000	.00	0 .0
9.261	.0276					.0157	.15	1.15	1.95	1.00	.013	.00	.00	PIPE
1524.874	3234.862	1.194	3236.056	23.00	9.93	1.53	3237.59	.00	1.63	2.50	2.500	.000	.00	0 .0
6.767	.0276					.0138	.09	1.19	1.82	1.00	.013	.00	.00	PIPE
1531.641	3235.049	1.240	3236.289	23.00	9.47	1.39	3237.68	.00	1.63	2.50	2.500	.000	.00	0 .0
5.158	.0276					.0121	.06	1.24	1.69	1.00	.013	.00	.00	PIPE
1536.799	3235.191	1.287	3236.478	23.00	9.03	1.26	3237.74	.00	1.63	2.50	2.500	.000	.00	0 .0
3.856	.0276					.0107	.04	1.29	1.57	1.00	.013	.00	.00	PIPE

Program Package Serial Number: 3074

WATER SURFACE PROFILE LISTING Date: 2-17-2022 Time: 9:17:47

Summelin Village 26 - Parcel L

Pulte Homes - Mainline 2

Starting HGL = HGL @ STA 1221.42 = 3230.291

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1540.656	3235.297	1.337	3236.634	23.00	8.61	1.15	3237.78	.00	1.63	2.49	2.500	.000	.00	0 .0
2.900	.0276					.0094	.03	1.34	1.46	1.00	.013	.00	.00	PIPE
1543.555	3235.377	1.389	3236.766	23.00	8.20	1.05	3237.81	.00	1.63	2.48	2.500	.000	.00	0 .0
2.031	.0276					.0083	.02	1.39	1.36	1.00	.013	.00	.00	PIPE
1545.586	3235.433	1.445	3236.878	23.00	7.82	.95	3237.83	.00	1.63	2.47	2.500	.000	.00	0 .0
1.406	.0276					.0074	.01	1.45	1.26	1.00	.013	.00	.00	PIPE
1546.992	3235.471	1.503	3236.975	23.00	7.46	.86	3237.84	.00	1.63	2.45	2.500	.000	.00	0 .0
.786	.0276					.0065	.01	1.50	1.17	1.00	.013	.00	.00	PIPE
1547.778	3235.493	1.565	3237.058	23.00	7.11	.79	3237.84	.00	1.63	2.42	2.500	.000	.00	0 .0
.252	.0276					.0058	.00	1.57	1.08	1.00	.013	.00	.00	PIPE
1548.030	3235.500	1.632	3237.132	23.00	6.78	.71	3237.84	.00	1.63	2.38	2.500	.000	.00	0 .0
JUNCT STR	.0000					.0031	.00	1.63	1.00		.013	.00	.00	PIPE
1548.040	3235.500	2.613	3238.114	11.00	2.24	.08	3238.19	.00	1.11	.00	2.500	.000	.00	0 .0
5.343	.0220					.0007	.00	2.61	.00	.72	.013	.00	.00	PIPE
1553.383	3235.617	2.500	3238.117	11.00	2.24	.08	3238.20	.00	1.11	.00	2.500	.000	.00	0 .0

10.467	.0220					.0007	.01	2.50	.00	.72	.013	.00	.00	PIPE					
1563.849	3235.847	2.268	3238.115	11.00	2.35	.09	3238.20	.00	1.11	1.45	2.500	.000	.00	0	.0				
5.926	.0220					.0007	.00	2.27	.23	.72	.013	.00	.00	PIPE					

Program Package Serial Number: 3074

WATER SURFACE PROFILE LISTING Date: 2-17-2022 Time: 9:17:47

Summelin Village 26 - Parcel L

Pulte Homes - Mainline 2

Starting HGL = HGL @ STA 1221.42 = 3230.291

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1569.776	3235.978	2.133	3238.111	11.00	2.47	.09	3238.21	.00	1.11	1.77	2.500	.000	.00	0	.0
4.773	.0220					.0007	.00	2.13	.27	.72	.013	.00	.00	PIPE	
1574.549	3236.083	2.022	3238.105	11.00	2.59	.10	3238.21	.00	1.11	1.97	2.500	.000	.00	0	.0
4.084	.0220					.0008	.00	2.02	.31	.72	.013	.00	.00	PIPE	
1578.633	3236.173	1.925	3238.098	11.00	2.71	.11	3238.21	.00	1.11	2.10	2.500	.000	.00	0	.0
3.625	.0220					.0009	.00	1.93	.34	.72	.013	.00	.00	PIPE	
1582.258	3236.252	1.837	3238.089	11.00	2.84	.13	3238.21	.00	1.11	2.21	2.500	.000	.00	0	.0
3.208	.0220					.0010	.00	1.84	.38	.72	.013	.00	.00	PIPE	
1585.466	3236.323	1.757	3238.080	11.00	2.98	.14	3238.22	.00	1.11	2.29	2.500	.000	.00	0	.0
2.879	.0220					.0011	.00	1.76	.41	.72	.013	.00	.00	PIPE	
1588.345	3236.386	1.683	3238.069	11.00	3.13	.15	3238.22	.00	1.11	2.35	2.500	.000	.00	0	.0
1.509	.0220					.0012	.00	1.68	.45	.72	.013	.00	.00	PIPE	
1589.854	3236.419	1.642	3238.062	11.00	3.22	.16	3238.22	.00	1.11	2.37	2.500	.000	.00	0	.0
HYDRAULIC JUMP															
1589.854	3236.419	.720	3237.139	11.00	9.40	1.37	3238.51	.00	1.11	2.26	2.500	.000	.00	0	.0
49.248	.0220					.0220	1.08	.72	2.30	.72	.013	.00	.00	PIPE	
1639.102	3237.502	.720	3238.222	11.00	9.40	1.37	3239.59	.00	1.11	2.26	2.500	.000	.00	0	.0
72.698	.0220					.0209	1.52	.72	2.30	.72	.013	.00	.00	PIPE	

Program Package Serial Number: 3074

WATER SURFACE PROFILE LISTING Date: 2-17-2022 Time: 9:17:47

Summelin Village 26 - Parcel L

Pulte Homes - Mainline 2

Starting HGL = HGL @ STA 1221.42 = 3230.291

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1711.800	3239.100	.739	3239.839	11.00	9.06	1.28	3241.11	.00	1.11	2.28	2.500	.000	.00	0	.0
TRANS STR	.0000					.0199	.00	.74	2.19		.013	.00	.00	PIPE	
1711.810	3239.100	.739	3239.839	11.00	9.07	1.28	3241.12	.00	1.11	2.28	2.500	.000	.00	0	.0
16.807	.0200					.0199	.33	.74	2.19	.74	.013	.00	.00	PIPE	
1728.617	3239.436	.739	3240.175	11.00	9.06	1.27	3241.45	.00	1.11	2.28	2.500	.000	.00	0	.0
63.653	.0200					.0186	1.18	.74	2.19	.74	.013	.00	.00	PIPE	
1792.270	3240.710	.765	3241.475	11.00	8.64	1.16	3242.63	.00	1.11	2.30	2.500	.000	.00	0	.0
TRANS STR	.0000					.0174	.00	.77	2.05		.013	.00	.00	PIPE	
1792.280	3240.710	.765	3241.474	11.00	8.65	1.16	3242.64	.00	1.11	2.30	2.500	.000	.00	0	.0
13.944	.0200					.0168	.23	.76	2.05	.74	.013	.00	.00	PIPE	
1806.224	3240.989	.779	3241.768	11.00	8.42	1.10	3242.87	.00	1.11	2.32	2.500	.000	.00	0	.0
15.142	.0200					.0152	.23	.78	1.98	.74	.013	.00	.00	PIPE	
1821.366	3241.292	.806	3242.098	11.00	8.03	1.00	3243.10	.00	1.11	2.34	2.500	.000	.00	0	.0

9.243	.0200						.0133	.12	.81	1.85	.74	.013	.00	.00	PIPE				
1830.609	3241.477	.835	3242.312	11.00	7.66	.91	3243.22	.00	1.11	2.36	2.500	.000	.00	0	.0				
6.433	.0200						.0116	.07	.84	1.73	.74	.013	.00	.00	PIPE				
1837.042	3241.605	.864	3242.469	11.00	7.30	.83	3243.30	.00	1.11	2.38	2.500	.000	.00	0	.0				
4.515	.0200						.0102	.05	.86	1.62	.74	.013	.00	.00	PIPE				

Program Package Serial Number: 3074

WATER SURFACE PROFILE LISTING Date: 2-17-2022 Time: 9:17:47

Summelin Village 26 - Parcel L

Pulte Homes - Mainline 2

Starting HGL = HGL @ STA 1221.42 = 3230.291

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1841.558	3241.696	.895	3242.591	11.00	6.96	.75	3243.34	.00	1.11	2.40	2.500	.000	.00	0 .0
3.293	.0200					.0089	.03	.90	1.51	.74	.013	.00	.00	PIPE
1844.851	3241.762	.927	3242.689	11.00	6.64	.68	3243.37	.00	1.11	2.42	2.500	.000	.00	0 .0
2.401	.0200					.0078	.02	.93	1.41	.74	.013	.00	.00	PIPE
1847.251	3241.810	.960	3242.770	11.00	6.33	.62	3243.39	.00	1.11	2.43	2.500	.000	.00	0 .0
1.642	.0200					.0069	.01	.96	1.32	.74	.013	.00	.00	PIPE
1848.893	3241.843	.995	3242.838	11.00	6.03	.57	3243.40	.00	1.11	2.45	2.500	.000	.00	0 .0
1.103	.0200					.0060	.01	1.00	1.23	.74	.013	.00	.00	PIPE
1849.996	3241.865	1.031	3242.896	11.00	5.75	.51	3243.41	.00	1.11	2.46	2.500	.000	.00	0 .0
.594	.0200					.0053	.00	1.03	1.15	.74	.013	.00	.00	PIPE
1850.590	3241.877	1.069	3242.946	11.00	5.49	.47	3243.41	.00	1.11	2.47	2.500	.000	.00	0 .0
.160	.0200					.0047	.00	1.07	1.07	.74	.013	.00	.00	PIPE
1850.750	3241.880	1.110	3242.990	11.00	5.22	.42	3243.41	2.50	1.11	2.48	2.500	.000	.00	0 .0
JUNCT STR	.0000					.0023	.00	2.50	1.00		.013	.00	.00	PIPE
1850.760	3241.880	1.581	3243.461	5.50	1.68	.04	3243.50	.00	.77	2.41	2.500	.000	.00	0 .0
.837	.0701					.0004	.00	1.58	.25	.38	.013	.00	.00	PIPE
1851.597	3241.938	1.518	3243.457	5.50	1.76	.05	3243.50	.00	.77	2.44	2.500	.000	.00	0 .0
.791	.0701					.0004	.00	1.52	.27	.38	.013	.00	.00	PIPE

Program Package Serial Number: 3074

WATER SURFACE PROFILE LISTING Date: 2-17-2022 Time: 9:17:47

Summelin Village 26 - Parcel L

Pulte Homes - Mainline 2

Starting HGL = HGL @ STA 1221.42 = 3230.291

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1852.388	3241.994	1.458	3243.452	5.50	1.85	.05	3243.51	.00	.77	2.47	2.500	.000	.00	0 .0
.713	.0701					.0005	.00	1.46	.30	.38	.013	.00	.00	PIPE
1853.102	3242.044	1.403	3243.447	5.50	1.94	.06	3243.51	.00	.77	2.48	2.500	.000	.00	0 .0
.692	.0701					.0005	.00	1.40	.32	.38	.013	.00	.00	PIPE
1853.794	3242.093	1.349	3243.442	5.50	2.03	.06	3243.51	.00	.77	2.49	2.500	.000	.00	0 .0
.104	.0701					.0006	.00	1.35	.34	.38	.013	.00	.00	PIPE
1853.898	3242.100	1.349	3243.449	5.50	2.04	.06	3243.51	.00	.77	2.49	2.500	.000	.00	0 .0
HYDRAULIC JUMP														
1853.898	3242.100	.408	3242.508	5.50	10.54	1.72	3244.23	.00	.77	1.85	2.500	.000	.00	0 .0
7.025	.0701					.0502	.35	.41	3.49	.38	.013	.00	.00	PIPE

1860.923	3242.593	.422	3243.015	5.50	10.03	1.56	3244.58	.00	.77	1.87	2.500	.000	.00	0	.0				
4.842	.0701					.0437	.21	.42	3.27	.38	.013	.00	.00	PIPE					
1865.765	3242.932	.436	3243.368	5.50	9.56	1.42	3244.79	.00	.77	1.90	2.500	.000	.00	0	.0				
3.570	.0701					.0382	.14	.44	3.06	.38	.013	.00	.00	PIPE					
1869.334	3243.182	.451	3243.634	5.50	9.12	1.29	3244.92	.00	.77	1.92	2.500	.000	.00	0	.0				
2.783	.0701					.0333	.09	.45	2.87	.38	.013	.00	.00	PIPE					
1872.117	3243.377	.466	3243.844	5.50	8.69	1.17	3245.02	.00	.77	1.95	2.500	.000	.00	0	.0				
2.212	.0701					.0291	.06	.47	2.69	.38	.013	.00	.00	PIPE					

Program Package Serial Number: 3074

WATER SURFACE PROFILE LISTING Date: 2-17-2022 Time: 9:17:47

Summelin Village 26 - Parcel L

Pulte Homes - Mainline 2

Starting HGL = HGL @ STA 1221.42 = 3230.291

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1874.329	3243.532	.482	3244.015	5.50	8.29	1.07	3245.08	.00	.77	1.97	2.500	.000	.00	0	.0
1.813	.0701					.0254	.05	.48	2.52	.38	.013	.00	.00	PIPE	
1876.142	3243.660	.498	3244.158	5.50	7.90	.97	3245.13	.00	.77	2.00	2.500	.000	.00	0	.0
1.486	.0701					.0222	.03	.50	2.36	.38	.013	.00	.00	PIPE	
1877.628	3243.764	.515	3244.279	5.50	7.54	.88	3245.16	.00	.77	2.02	2.500	.000	.00	0	.0
1.246	.0701					.0194	.02	.52	2.21	.38	.013	.00	.00	PIPE	
1878.874	3243.851	.532	3244.383	5.50	7.19	.80	3245.19	.00	.77	2.05	2.500	.000	.00	0	.0
1.014	.0701					.0170	.02	.53	2.07	.38	.013	.00	.00	PIPE	
1879.888	3243.922	.551	3244.473	5.50	6.85	.73	3245.20	.00	.77	2.07	2.500	.000	.00	0	.0
.873	.0701					.0148	.01	.55	1.94	.38	.013	.00	.00	PIPE	
1880.761	3243.984	.569	3244.553	5.50	6.53	.66	3245.22	.00	.77	2.10	2.500	.000	.00	0	.0
.704	.0701					.0130	.01	.57	1.82	.38	.013	.00	.00	PIPE	
1881.465	3244.033	.589	3244.622	5.50	6.23	.60	3245.22	.00	.77	2.12	2.500	.000	.00	0	.0
.591	.0701					.0113	.01	.59	1.70	.38	.013	.00	.00	PIPE	
1882.056	3244.074	.609	3244.684	5.50	5.94	.55	3245.23	.00	.77	2.15	2.500	.000	.00	0	.0
.478	.0701					.0099	.00	.61	1.59	.38	.013	.00	.00	PIPE	
1882.534	3244.108	.630	3244.738	5.50	5.66	.50	3245.24	.00	.77	2.17	2.500	.000	.00	0	.0
.378	.0701					.0087	.00	.63	1.49	.38	.013	.00	.00	PIPE	

Program Package Serial Number: 3074

WATER SURFACE PROFILE LISTING Date: 2-17-2022 Time: 9:17:47

Summelin Village 26 - Parcel L

Pulte Homes - Mainline 2

Starting HGL = HGL @ STA 1221.42 = 3230.291

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1882.912	3244.135	.652	3244.787	5.50	5.40	.45	3245.24	.00	.77	2.20	2.500	.000	.00	0	.0
.306	.0701					.0076	.00	.65	1.40	.38	.013	.00	.00	PIPE	
1883.219	3244.156	.674	3244.830	5.50	5.15	.41	3245.24	.00	.77	2.22	2.500	.000	.00	0	.0
.211	.0701					.0066	.00	.67	1.31	.38	.013	.00	.00	PIPE	
1883.430	3244.171	.698	3244.869	5.50	4.91	.37	3245.24	.00	.77	2.24	2.500	.000	.00	0	.0
.156	.0701					.0058	.00	.70	1.22	.38	.013	.00	.00	PIPE	
1883.585	3244.182	.722	3244.904	5.50	4.68	.34	3245.24	.00	.77	2.27	2.500	.000	.00	0	.0
.091	.0701					.0051	.00	.72	1.15	.38	.013	.00	.00	PIPE	

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        |         |        |         |         |               |         |       |        |        |       |       |      |
1883.676  3244.188     .747  3244.935      5.50    4.46     .31  3245.24     .00    .77     2.29    2.500     .000   .00   0   .0
       -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
    .024    .0701                                          .0044      .00      .75    1.07     .38    .013       .00   .00  PIPE
        |         |        |         |         |               |         |       |        |        |       |       |      |
1883.700  3244.190     .775  3244.965      5.50    4.25     .28  3245.24     .00    .77     2.31    2.500     .000   .00   0   .0
       -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
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Summelin Village 26 - Parcel L

Pulte Homes - Mainline 2

Starting HGL = HGL @ STA 1221.42 = 3230.291

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1221.42    .I   W   C   H    E                                                                  .    R

1226.25    .                                                                                   .

1231.09    .                                                                                   .

1235.92    .                                                                                   .

1240.76    .                                                                                   .

1245.59    .                                                                                   .

1250.43    .                                                                                   .

1255.26    .                                                                                   .

1260.09    .                                                                                   .

1264.93    .                                                                                   .

1269.76    .                                                                                   .

1274.60    .                                                                                   .

1279.43    .                                                                                   .

1284.26    .                                                                                   .

1289.10    .                                                                                   .

1293.93    .                                                                                   .

1298.77    .                                                                                   .

1303.60    .                                                                                   .

1308.43    .                                                                                   .

1313.27    .                                                                                   .

1318.10    .                                                                                   .

1322.94    .                                                                                   .

1327.77    .                                                                                   .
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1332.61 . .

1337.44 . I W C H E . R

1342.27 . .

1347.11 . .

1351.94 . .

1356.78 . .

1361.61 . .

1366.44 . .

1371.28 . .

1376.11 . .

1380.95 . .

1385.78 . .

1390.62 . .

1395.45 . .

1400.28 . .

1405.12 . .

1409.95 . .

1414.79 . .

1419.62 . .

1424.45 . .

1429.29 . .

1434.12 . .

1438.96 . .

1443.79 . .

1448.63 . I W C H E . R

1453.46 . .

1458.29 . .

1463.13 . .

1467.96 . .

1472.80 . .

1477.63 . .

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1482.46   .                                                                .
1487.30   .                              I   W  C   H  E                    .   R
1492.13   .                                                                .
1496.97   .                                                                .
1501.80   .                                                                .
1506.64   .                             I   W  C   H  E                    .   R
1511.47   .                                                                .
1516.30   .                              I   W  C   H E                     .   R
1521.14   .                                                                .
1525.97   .                               I    W C   HE                    .   R
1530.81   .                                                                .
1535.64   .                                I    W C   HE                   .   R
1540.47   .                                 I    W C   H                   .   R
1545.31   .                                 I     WC   H                   .   R
1550.14   .                                 I     W C   H                  .   R
1554.98   .                                  I     WC   H                  .   R
1559.81   .                                  I     WC   H                  .   R
1564.65   .                                  I      W   H                  .   R
1569.48   .                                  I      W   H                  .   JX
1574.31   .                                  I    C    HW                  .   R
1579.15   .                                   I   C     H                  .   R
1583.98   .                                    I   C    WH                  .   R
1588.82   .                                    I    C   W H                .   R
1593.65   .                                     I   C   W H                .   R
1598.48   .                                     I    C  WE H               .   R
1603.32   .                                      I   C  WE H               .   R
1608.15   .                                      I    C WE  H              .   R
1612.99   .                                      I    C WE  H              .   R
1617.82   .                                       I   C WE  H              .   R
1622.66   .                                       I W C   E H              .   R
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1627.49    .                                                                .
1632.32    .                                                                .
1637.16    .                                                                .
1641.99    .                                    I   WC    E H               .    R
1646.83    .                                                                .
1651.66    .                                                                .
1656.49    .                                                                .
1661.33    .                                                                .
1666.16    .                                                                .
1671.00    .                                                                .
1675.83    .                                                                .
1680.67    .                                                                .
1685.50    .                                                                .
1690.33    .                                                                .
1695.17    .                                                                .
1700.00    .                                                                .
1704.84    .                                                                .
1709.67    .                                                                .
1714.50    .                                        I   WC    E H            .    TX
1719.34    .                                        I   WC    E H            .    R
1724.17    .                                                                .
1729.01    .                                          I  W C    E H          .    R
1733.84    .                                                                .
1738.68    .                                                                .
1743.51    .                                                                .
1748.34    .                                                                .
1753.18    .                                                                .
1758.01    .                                                                .
1762.85    .                                                                .
1767.68    .                                                                .
```

```
   1772.51    .                                                                  .
   1777.35    .                                                                  .
   1782.18    .                                                                  .
   1787.02    .                                                                  .
   1791.85    .                                                                  .
   1796.69    .                                                I   WC   E  H     .    TX
   1801.52    .                                                I   WC   E  H     .    R
   1806.35    .                                                 I   W C   E  H   .    R
   1811.19    .                                                                  .
   1816.02    .                                                                  .
   1820.86    .                                                                  .
   1825.69    .                                                   I   WC   E  H   .    R
   1830.52    .                                                                  .
   1835.36    .                                                    I   WC  E   H  .    R
   1840.19    .                                                    I    WC  E   H  .    R
   1845.03    .                                                     I   WC  E   H  .    R
   1849.86    .                                                     I    WC E   H  .    R
   1854.69    .                                                     I    WC E    H  .    R
   1859.53    .                                                     I    WC E    H  .    R
   1864.36    .                                                      I    W E    H  .    R
   1869.20    .                                                      I    W E    H  .    R
   1874.03    .                                                      I    W E    H  .    JX
   1878.87    .                                                      I   C   W   H  .    R
   1883.70    .                                                      I   C  WE   H  .    R

            3226.500  3228.519  3230.538  3232.557  3234.576  3236.595  3238.614  3240.633  3242.652  3244.671  3246.690
```

N O T E S
1. GLOSSARY
   I = INVERT ELEVATION
   C = CRITICAL DEPTH
   W = WATER SURFACE ELEVATION
   S = SUPER-ELEVATION
   H = HEIGHT OF CHANNEL
   E = ENERGY GRADE LINE
   X = CURVES CROSSING OVER
   B = BRIDGE ENTRANCE OR EXIT
   Y = WALL ENTRANCE OR EXIT
2. STATIONS FOR POINTS AT A JUMP MAY NOT BE PLOTTED EXACTLY

```
T1  Summelin Village 26 - Parcel L
T2  Pulte Homes - Mainline 2
T3  Starting HGL = HGL @ STA 1548.04 = 3238.11
SO   1548.04 3235.50   5                          3238.11
R    1572.68 3235.75   5      .013                                          1
JX   1572.69 3235.75   5  1  1.013    4.0      4.0  3235.75 3235.75  55.0-65.0
R    1624.28 3236.27   5      .013                                          1
TS   1624.29 3236.27   5      .013                                      45.0
R    1680.14 3236.61   5      .013                                          1
TS   1680.15 3236.61   5      .013                                      45.0
R    1831.31 3237.52   5      .013                                          1
TS   1831.32 3237.52   5      .013                                      43.0
R    1879.90 3237.81   5      .013                                          1
JX   1879.91 3237.81   5  1   .013    2.0           3237.52          90.0
R    1895.79 3241.46   5      .013                                          1
SH   1895.79 3241.46   5
CD   1  4   0    .000   1.500     .000  .000  .000   .00
CD   2  4   0    .000   2.000     .000  .000  .000   .00
CD   3  4   0    .000   3.000     .000  .000  .000   .00
CD   4  4   0    .000   4.000     .000  .000  .000   .00
CD   5  4   0    .000   2.500     .000  .000  .000   .00
Q           2.000
```

WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING PAGE 1

CARD CODE	SECT NO	CHN TYPE	NO OF PIER/PIP	AVE PIER WIDTH	HEIGHT 1 DIAMETER	BASE WIDTH	ZL	ZR	INV DROP	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)
CD	1	4	0		1.500														
CD	2	4	0		2.000														
CD	3	4	0		3.000														
CD	4	4	0		4.000														
CD	5	4	0		2.500														

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

Summelin Village 26 - Parcel L

HEADING LINE NO 2 IS -

Pulte Homes - Mainline 2

HEADING LINE NO 3 IS -

Starting HGL = HGL @ STA 1548.04 = 3238.11

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 1 IS A SYSTEM OUTLET * * *

U/S DATA	STATION	INVERT	SECT	W S ELEV
	1548.040	3235.500	5	3238.110

ELEMENT NO 2 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1572.680	3235.750	5	.013	.000	.000	.000	1

ELEMENT NO 3 IS A JUNCTION * * * * * *

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
	1572.690	3235.750	5	1	1	.013	4.000	4.000	3235.750	3235.750	55.000	-65.000

RADIUS	ANGLE
.000	.000

THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING
THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING

ELEMENT NO 4 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1624.280	3236.270	5	.013	.000	.000	.000	1

ELEMENT NO 5 IS A TRANSITION * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE
	1624.290	3236.270	5	.013	.000	.000

THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING

ELEMENT NO 6 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1680.140	3236.610	5	.013	.000	.000	.000	1

ELEMENT NO 7 IS A TRANSITION * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE
	1680.150	3236.610	5	.013	.000	.000

THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING

ELEMENT NO 8 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1831.310	3237.520	5	.013	.000	.000	.000	1

ELEMENT NO 9 IS A TRANSITION * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE
	1831.320	3237.520	5	.013	.000	.000

THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING

ELEMENT NO 10 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1879.900	3237.810	5	.013	.000	.000	.000	1

ELEMENT NO 11 IS A JUNCTION * * * * * *

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
	1879.910	3237.810	5	1	0	.013	2.000	.000	3237.520	.000	90.000	.000

RADIUS	ANGLE
.000	.000

THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING
THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 12 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1895.790	3241.460	5	.013	.000	.000	.000	1

ELEMENT NO 13 IS A SYSTEM HEADWORKS * *

U/S DATA	STATION	INVERT	SECT	W S ELEV
	1895.790	3241.460	5	.000

Program Package Serial Number: 3074

WATER SURFACE PROFILE LISTING Date: 2-17-2022 Time: 9:34:11

Summelin Village 26 - Parcel L

Pulte Homes - Mainline 2

Starting HGL = HGL @ STA 1548.04 = 3238.11

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1548.040	3235.500	2.610	3238.110	12.00	2.44	.09	3238.20	.00	1.16	.00	2.500	.000	.00	0 .0
12.097	.0101					.0008	.01	2.61	.00	.92	.013	.00	.00	PIPE
1560.137	3235.623	2.500	3238.123	12.00	2.44	.09	3238.22	.00	1.16	.00	2.500	.000	.00	0 .0
12.543	.0101					.0008	.01	2.50	.00	.92	.013	.00	.00	PIPE
1572.680	3235.750	2.378	3238.128	12.00	2.49	.10	3238.22	.00	1.16	1.08	2.500	.000	.00	0 .0
JUNCT STR	.0000					.0004	.00	2.38	.21		.013	.00	.00	PIPE
1572.690	3235.750	2.490	3238.240	4.00	.82	.01	3238.25	.00	.66	.31	2.500	.000	.00	0 .0
22.244	.0101					.0001	.00	2.49	.04	.53	.013	.00	.00	PIPE
1594.934	3235.974	2.267	3238.241	4.00	.85	.01	3238.25	.00	.66	1.45	2.500	.000	.00	0 .0
13.395	.0101					.0001	.00	2.27	.08	.53	.013	.00	.00	PIPE
1608.329	3236.109	2.132	3238.241	4.00	.90	.01	3238.25	.00	.66	1.77	2.500	.000	.00	0 .0
10.990	.0101					.0001	.00	2.13	.10	.53	.013	.00	.00	PIPE
1619.319	3236.220	2.021	3238.241	4.00	.94	.01	3238.25	.00	.66	1.97	2.500	.000	.00	0 .0
4.961	.0101					.0001	.00	2.02	.11	.53	.013	.00	.00	PIPE
1624.280	3236.270	1.971	3238.241	4.00	.96	.01	3238.26	.00	.66	2.04	2.500	.000	.00	0 .0
TRANS STR	.0000					.0001	.00	1.97	.12		.013	.00	.00	PIPE
1624.290	3236.270	1.971	3238.241	4.00	.96	.01	3238.26	.00	.66	2.04	2.500	.000	.00	0 .0
15.159	.0061					.0001	.00	1.97	.12	.60	.013	.00	.00	PIPE

Program Package Serial Number: 3074

WATER SURFACE PROFILE LISTING Date: 2-17-2022 Time: 9:34:11

Summelin Village 26 - Parcel L

Pulte Homes - Mainline 2

Starting HGL = HGL @ STA 1548.04 = 3238.11

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1639.449	3236.362	1.879	3238.241	4.00	1.01	.02	3238.26	.00	.66	2.16	2.500	.000	.00	0 .0
13.807	.0061					.0001	.00	1.88	.13	.60	.013	.00	.00	PIPE
1653.256	3236.446	1.795	3238.241	4.00	1.06	.02	3238.26	.00	.66	2.25	2.500	.000	.00	0 .0
12.638	.0061					.0001	.00	1.80	.14	.60	.013	.00	.00	PIPE
1665.894	3236.523	1.718	3238.241	4.00	1.11	.02	3238.26	.00	.66	2.32	2.500	.000	.00	0 .0
11.633	.0061					.0002	.00	1.72	.16	.60	.013	.00	.00	PIPE
1677.527	3236.594	1.647	3238.241	4.00	1.17	.02	3238.26	.00	.66	2.37	2.500	.000	.00	0 .0
2.613	.0061					.0002	.00	1.65	.17	.60	.013	.00	.00	PIPE
1680.140	3236.610	1.631	3238.241	4.00	1.18	.02	3238.26	.00	.66	2.38	2.500	.000	.00	0 .0
TRANS STR	.0000					.0002	.00	1.63	.17		.013	.00	.00	PIPE
1680.150	3236.610	1.632	3238.242	4.00	1.18	.02	3238.26	.00	.66	2.38	2.500	.000	.00	0 .0
10.942	.0060					.0002	.00	1.63	.17	.60	.013	.00	.00	PIPE
1691.092	3236.676	1.566	3238.242	4.00	1.24	.02	3238.27	.00	.66	2.42	2.500	.000	.00	0 .0
10.241	.0060					.0002	.00	1.57	.19	.60	.013	.00	.00	PIPE
1701.333	3236.738	1.504	3238.242	4.00	1.30	.03	3238.27	.00	.66	2.45	2.500	.000	.00	0 .0

9.555	.0060					.0002	.00	1.50	.20	.60	.013	.00	.00	PIPE					
1710.887	3236.795	1.446	3238.241	4.00	1.36	.03	3238.27	.00	.66	2.47	2.500	.000	.00	0	.0				
9.211	.0060					.0003	.00	1.45	.22	.60	.013	.00	.00	PIPE					

Program Package Serial Number: 3074

WATER SURFACE PROFILE LISTING Date: 2-17-2022 Time: 9:34:11

Summelin Village 26 - Parcel L

Pulte Homes - Mainline 2

Starting HGL = HGL @ STA 1548.04 = 3238.11

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1720.099	3236.851	1.390	3238.241	4.00	1.43	.03	3238.27	.00	.66	2.48	2.500	.000	.00	0 .0
8.517	.0060					.0003	.00	1.39	.24	.60	.013	.00	.00	PIPE
1728.616	3236.902	1.338	3238.240	4.00	1.50	.03	3238.27	.00	.66	2.49	2.500	.000	.00	0 .0
8.168	.0060					.0003	.00	1.34	.25	.60	.013	.00	.00	PIPE
1736.784	3236.951	1.288	3238.239	4.00	1.57	.04	3238.28	.00	.66	2.50	2.500	.000	.00	0 .0
7.815	.0060					.0004	.00	1.29	.27	.60	.013	.00	.00	PIPE
1744.599	3236.998	1.240	3238.238	4.00	1.64	.04	3238.28	.00	.66	2.50	2.500	.000	.00	0 .0
7.281	.0060					.0004	.00	1.24	.29	.60	.013	.00	.00	PIPE
1751.880	3237.042	1.195	3238.237	4.00	1.73	.05	3238.28	.00	.66	2.50	2.500	.000	.00	0 .0
6.920	.0060					.0005	.00	1.20	.32	.60	.013	.00	.00	PIPE
1758.800	3237.084	1.152	3238.236	4.00	1.81	.05	3238.29	.00	.66	2.49	2.500	.000	.00	0 .0
6.552	.0060					.0005	.00	1.15	.34	.60	.013	.00	.00	PIPE
1765.352	3237.123	1.111	3238.234	4.00	1.90	.06	3238.29	.00	.66	2.48	2.500	.000	.00	0 .0
6.363	.0060					.0006	.00	1.11	.36	.60	.013	.00	.00	PIPE
1771.716	3237.162	1.071	3238.233	4.00	1.99	.06	3238.29	.00	.66	2.47	2.500	.000	.00	0 .0
5.984	.0060					.0007	.00	1.07	.39	.60	.013	.00	.00	PIPE
1777.699	3237.198	1.033	3238.231	4.00	2.09	.07	3238.30	.00	.66	2.46	2.500	.000	.00	0 .0
5.594	.0060					.0008	.00	1.03	.42	.60	.013	.00	.00	PIPE

Program Package Serial Number: 3074

WATER SURFACE PROFILE LISTING Date: 2-17-2022 Time: 9:34:11

Summelin Village 26 - Parcel L

Pulte Homes - Mainline 2

Starting HGL = HGL @ STA 1548.04 = 3238.11

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1783.294	3237.231	.997	3238.229	4.00	2.19	.07	3238.30	.00	.66	2.45	2.500	.000	.00	0 .0
5.387	.0060					.0009	.00	1.00	.45	.60	.013	.00	.00	PIPE
1788.681	3237.264	.962	3238.226	4.00	2.30	.08	3238.31	.00	.66	2.43	2.500	.000	.00	0 .0
4.974	.0060					.0010	.01	.96	.48	.60	.013	.00	.00	PIPE
1793.655	3237.294	.929	3238.223	4.00	2.41	.09	3238.31	.00	.66	2.42	2.500	.000	.00	0 .0
4.953	.0060					.0012	.01	.93	.51	.60	.013	.00	.00	PIPE
1798.609	3237.324	.896	3238.220	4.00	2.53	.10	3238.32	.00	.66	2.40	2.500	.000	.00	0 .0
4.295	.0060					.0013	.01	.90	.55	.60	.013	.00	.00	PIPE
1802.903	3237.350	.866	3238.216	4.00	2.65	.11	3238.32	.00	.66	2.38	2.500	.000	.00	0 .0
4.255	.0060					.0015	.01	.87	.59	.60	.013	.00	.00	PIPE
1807.158	3237.375	.836	3238.211	4.00	2.78	.12	3238.33	.00	.66	2.36	2.500	.000	.00	0 .0
3.981	.0060					.0017	.01	.84	.63	.60	.013	.00	.00	PIPE
1811.139	3237.399	.807	3238.206	4.00	2.91	.13	3238.34	.00	.66	2.34	2.500	.000	.00	0 .0

3.431	.0060						.0020	.01	.81	.67	.60	.013		.00	.00	PIPE			
1814.570	3237.420	.780	3238.200	4.00	3.06	.15	3238.34	.00	.66	2.32	2.500	.000	.00	0	.0				
3.072	.0060						.0023	.01	.78	.72	.60	.013		.00	.00	PIPE			
1817.642	3237.438	.754	3238.193	4.00	3.21	.16	3238.35	.00	.66	2.29	2.500	.000	.00	0	.0				
2.938	.0060						.0026	.01	.75	.77	.60	.013		.00	.00	PIPE			

Program Package Serial Number: 3074

WATER SURFACE PROFILE LISTING Date: 2-17-2022 Time: 9:34:11

Summelin Village 26 - Parcel L

Pulte Homes - Mainline 2

Starting HGL = HGL @ STA 1548.04 = 3238.11

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1820.580	3237.456	.728	3238.184	4.00	3.36	.18	3238.36	.00	.66	2.27	2.500	.000	.00	0 .0
2.017	.0060					.0030	.01	.73	.82	.60	.013	.00	.00	PIPE
1822.598	3237.468	.704	3238.172	4.00	3.53	.19	3238.37	.00	.66	2.25	2.500	.000	.00	0 .0
HYDRAULIC JUMP														
1822.598	3237.468	.600	3238.068	4.00	4.41	.30	3238.37	.00	.66	2.14	2.500	.000	.00	0 .0
6.196	.0060					.0056	.03	.60	1.19	.60	.013	.00	.00	PIPE
1828.793	3237.505	.620	3238.125	4.00	4.21	.27	3238.40	.00	.66	2.16	2.500	.000	.00	0 .0
2.517	.0060					.0049	.01	.62	1.12	.60	.013	.00	.00	PIPE
1831.310	3237.520	.642	3238.162	4.00	4.01	.25	3238.41	.00	.66	2.18	2.500	.000	.00	0 .0
TRANS STR	.0000					.0053	.00	.64	1.05		.013	.00	.00	PIPE
1831.320	3237.520	.600	3238.120	4.00	4.42	.30	3238.42	.00	.66	2.14	2.500	.000	.00	0 .0
21.476	.0060					.0060	.13	.60	1.20	.60	.013	.00	.00	PIPE
1852.796	3237.648	.600	3238.248	4.00	4.42	.30	3238.55	.00	.66	2.14	2.500	.000	.00	0 .0
20.429	.0060					.0057	.12	.60	1.20	.60	.013	.00	.00	PIPE
1873.225	3237.770	.613	3238.383	4.00	4.28	.28	3238.67	.00	.66	2.15	2.500	.000	.00	0 .0
5.730	.0060					.0051	.03	.61	1.14	.60	.013	.00	.00	PIPE
1878.955	3237.804	.634	3238.438	4.00	4.08	.26	3238.70	.00	.66	2.18	2.500	.000	.00	0 .0
.945	.0060					.0045	.00	.63	1.07	.60	.013	.00	.00	PIPE

Program Package Serial Number: 3074

WATER SURFACE PROFILE LISTING Date: 2-17-2022 Time: 9:34:11

Summelin Village 26 - Parcel L

Pulte Homes - Mainline 2

Starting HGL = HGL @ STA 1548.04 = 3238.11

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1879.900	3237.810	.657	3238.467	4.00	3.88	.23	3238.70	.00	.66	2.20	2.500	.000	.00	0 .0
JUNCT STR	.0000							.66	1.00		.013	.00	.00	PIPE
1879.910	3237.810	.186	3237.996	2.00	12.10	2.27	3240.27	.00	.46	1.31	2.500	.000	.00	0 .0
2.867	.2298					.1805	.52	.19	6.00	.18	.013	.00	.00	PIPE
1882.778	3238.469	.190	3238.659	2.00	11.68	2.12	3240.78	.00	.46	1.33	2.500	.000	.00	0 .0
2.679	.2298					.1603	.43	.19	5.72	.18	.013	.00	.00	PIPE
1885.457	3239.085	.196	3239.281	2.00	11.13	1.92	3241.21	.00	.46	1.34	2.500	.000	.00	0 .0
1.866	.2298					.1398	.26	.20	5.37	.18	.013	.00	.00	PIPE
1887.323	3239.514	.203	3239.717	2.00	10.61	1.75	3241.47	.00	.46	1.37	2.500	.000	.00	0 .0
1.419	.2298					.1220	.17	.20	5.04	.18	.013	.00	.00	PIPE

1888.742	3239.840	.209	3240.049	2.00	10.12	1.59	3241.64	.00	.46	1.38	2.500	.000	.00	0	.0				
1.114	.2298					.1063	.12	.21	4.72	.18	.013	.00	.00	PIPE					
1889.855	3240.096	.216	3240.312	2.00	9.65	1.45	3241.76	.00	.46	1.41	2.500	.000	.00	0	.0				
.907	.2298					.0927	.08	.22	4.43	.18	.013	.00	.00	PIPE					
1890.763	3240.304	.223	3240.527	2.00	9.20	1.31	3241.84	.00	.46	1.43	2.500	.000	.00	0	.0				
.749	.2298					.0809	.06	.22	4.15	.18	.013	.00	.00	PIPE					
1891.511	3240.476	.231	3240.708	2.00	8.77	1.19	3241.90	.00	.46	1.45	2.500	.000	.00	0	.0				
.638	.2298					.0706	.05	.23	3.90	.18	.013	.00	.00	PIPE					

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1892.150	3240.623	.238	3240.861	2.00	8.36	1.09	3241.95	.00	.46	1.47	2.500	.000	.00	0 .0
.539	.2298					.0616	.03	.24	3.65	.18	.013	.00	.00	PIPE
1892.689	3240.747	.246	3240.993	2.00	7.97	.99	3241.98	.00	.46	1.49	2.500	.000	.00	0 .0
.459	.2298					.0538	.02	.25	3.43	.18	.013	.00	.00	PIPE
1893.148	3240.853	.255	3241.108	2.00	7.60	.90	3242.01	.00	.46	1.51	2.500	.000	.00	0 .0
.403	.2298					.0470	.02	.26	3.21	.18	.013	.00	.00	PIPE
1893.551	3240.945	.263	3241.208	2.00	7.25	.82	3242.02	.00	.46	1.53	2.500	.000	.00	0 .0
.345	.2298					.0410	.01	.26	3.01	.18	.013	.00	.00	PIPE
1893.896	3241.024	.272	3241.297	2.00	6.91	.74	3242.04	.00	.46	1.56	2.500	.000	.00	0 .0
.301	.2298					.0358	.01	.27	2.83	.18	.013	.00	.00	PIPE
1894.197	3241.094	.281	3241.375	2.00	6.59	.67	3242.05	.00	.46	1.58	2.500	.000	.00	0 .0
.263	.2298					.0312	.01	.28	2.65	.18	.013	.00	.00	PIPE
1894.460	3241.154	.290	3241.444	2.00	6.28	.61	3242.06	.00	.46	1.60	2.500	.000	.00	0 .0
.226	.2298					.0272	.01	.29	2.48	.18	.013	.00	.00	PIPE
1894.686	3241.206	.300	3241.506	2.00	5.99	.56	3242.06	.00	.46	1.63	2.500	.000	.00	0 .0
.197	.2298					.0238	.00	.30	2.33	.18	.013	.00	.00	PIPE
1894.883	3241.252	.310	3241.562	2.00	5.71	.51	3242.07	.00	.46	1.65	2.500	.000	.00	0 .0
.172	.2298					.0207	.00	.31	2.18	.18	.013	.00	.00	PIPE

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1895.056	3241.291	.320	3241.611	2.00	5.45	.46	3242.07	.00	.46	1.67	2.500	.000	.00	0 .0
.151	.2298					.0181	.00	.32	2.05	.18	.013	.00	.00	PIPE
1895.206	3241.326	.330	3241.656	2.00	5.19	.42	3242.07	.00	.46	1.69	2.500	.000	.00	0 .0
.122	.2298					.0158	.00	.33	1.92	.18	.013	.00	.00	PIPE
1895.328	3241.354	.342	3241.696	2.00	4.95	.38	3242.08	.00	.46	1.72	2.500	.000	.00	0 .0
.109	.2298					.0138	.00	.34	1.80	.18	.013	.00	.00	PIPE
1895.438	3241.379	.353	3241.732	2.00	4.72	.35	3242.08	.00	.46	1.74	2.500	.000	.00	0 .0
.089	.2298					.0120	.00	.35	1.69	.18	.013	.00	.00	PIPE

1895.527	3241.400	.365	3241.765	2.00	4.50	.31	3242.08	.00	.46	1.77	2.500	.000	.00	0 .0
.076	.2298					.0105	.00	.37	1.58	.18	.013	.00	.00	PIPE
1895.603	3241.417	.377	3241.794	2.00	4.29	.29	3242.08	.00	.46	1.79	2.500	.000	.00	0 .0
.059	.2298					.0092	.00	.38	1.48	.18	.013	.00	.00	PIPE
1895.661	3241.430	.390	3241.821	2.00	4.09	.26	3242.08	.00	.46	1.81	2.500	.000	.00	0 .0
.048	.2298					.0080	.00	.39	1.39	.18	.013	.00	.00	PIPE
1895.709	3241.441	.403	3241.844	2.00	3.90	.24	3242.08	.00	.46	1.84	2.500	.000	.00	0 .0
.038	.2298					.0070	.00	.40	1.30	.18	.013	.00	.00	PIPE
1895.748	3241.450	.416	3241.866	2.00	3.72	.21	3242.08	.00	.46	1.86	2.500	.000	.00	0 .0
.025	.2298					.0061	.00	.42	1.22	.18	.013	.00	.00	PIPE

Program Package Serial Number: 3074

WATER SURFACE PROFILE LISTING Date: 2-17-2022 Time: 9:34:11

Summelin Village 26 - Parcel L

Pulte Homes - Mainline 2

Starting HGL = HGL @ STA 1548.04 = 3238.11

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1895.772	3241.456	.430	3241.886	2.00	3.55	.20	3242.08	.00	.46	1.89	2.500	.000	.00	0 .0
.012	.2298					.0053	.00	.43	1.14	.18	.013	.00	.00	PIPE
1895.785	3241.459	.445	3241.904	2.00	3.38	.18	3242.08	.00	.46	1.91	2.500	.000	.00	0 .0
.005	.2298					.0046	.00	.45	1.07	.18	.013	.00	.00	PIPE
1895.790	3241.460	.461	3241.921	2.00	3.21	.16	3242.08	.00	.46	1.94	2.500	.000	.00	0 .0

Summelin Village 26 - Parcel L

Pulte Homes - Mainline 2

Starting HGL = HGL @ STA 1548.04 = 3238.11

1548.04 .I C HWE . R

1550.37 . .

1552.71 . .

1555.04 . .

1557.38 . .

1559.71 . .

1562.04 . I C HE . R

1564.38 . .

1566.71 . .

1569.05 . .

1571.38 . .

1573.71 . I C WH . JX

1576.05 . I C H . R

1578.38 . .

1580.71 . .

1583.05 . .

1585.38 . .

1587.72 . .

1590.05 . .

1592.38 . .

1594.72 . .

1597.05 . I C W H . R

1599.39 . .

1601.72 . .

1604.05 . .

1606.39 . .

1608.72 . I C W H . R

1611.06 . .

1613.39 . .

1615.72 . .

1618.06 . .

1620.39 . I C W H . R

1622.72 . .

1625.06 . I C W H . TX

1627.39 . I C W H . R

1629.73 . .

1632.06 . .

1634.39 . .

1636.73 . .

1639.06 . .

1641.40 . I C W H . R

1643.73 . .

1646.06 . .

1648.40 . .

1650.73 . .

1653.07 . .

1655.40 . I C W H . R

1657.73 . .

1660.07 . .

1662.40 . .

1664.73 . .

1667.07 . I C W H . R

1669.40 . .

1671.74 . .

1674.07 . .

1676.40 . .

1678.74 . I C W H . R

1681.07 . I C W H . TX

1683.41 . I C W H . R

1685.74 . .

1688.07 . .

1690.41 . .

1692.74 . I C W H . R

1695.08 . .

1697.41 . .

1699.74 . .

1702.08 . I C W H . R

1704.41 . .

1706.74 . .

1709.08 . .

1711.41 . I C W H . R

1713.75 . .

1716.08 . .

1718.41 . .

1720.75 . I C W H . R

1723.08 . .

1725.42 . .

1727.75 . .

1730.08 . I C W H . R

1732.42 . .

1734.75 . .

1737.09 . I C W H . R

1739.42 . .

1741.75 . .

1744.09 . .

1746.42 . I C W H . R

1748.75 . .

1751.09 . .

1753.42 . I C W H . R

1755.76 . .

1758.09 . .

1760.42 . I C W H . R

1762.76 . .

1765.09 . .

1767.43 . I C W H . R

1769.76 . .

1772.09 . I C WE H . R

1774.43 . .

1776.76 . .

1779.10 . I C WE H . R

1781.43 . .

1783.76 . I C WE H . R

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1786.10   .                                                                .
1788.43   .                                                                .
1790.76   .                  I      C   WE             H                   .   R
1793.10   .                                                                .
1795.43   .                   I     C   WE             H                   .   R
1797.77   .                                                                .
1800.10   .                   I      C  WE              H                  .   R
1802.43   .                                                                .
1804.77   .                   I      C  WE              H                  .   R
1807.10   .                                                                .
1809.44   .                    I     C  WE              H                  .   R
1811.77   .                    I      CW E              H                  .   R
1814.10   .                                                                .
1816.44   .                    I      CW E               H                 .   R
1818.77   .                    I      CW E               H                 .   R
1821.11   .                     I     CW E               H                 .   R
1823.44   .                     I      W E               H                 .   R
1825.77   .                     I     WC E               H                 .   R
1828.11   .                                                                .
1830.44   .                     I      W  E               H                .   R
1832.77   .                     I      W  E               H                .   TX
1835.11   .                     I     WC  E               H                .   R
1837.44   .                                                                .
1839.78   .                                                                .
1842.11   .                                                                .
1844.44   .                                                                .
1846.78   .                                                                .
1849.11   .                                                                .
1851.45   .                                                                .
1853.78   .                       I     WC  E               H              .   R
1856.11   .                                                                .
```

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   1858.45    .                                                                                .
   1860.78    .                                                                                .
   1863.12    .                                                                                .
   1865.45    .                                                                                .
   1867.78    .                                                                                .
   1870.12    .                                                                                .
   1872.45    .                                                                                .
   1874.79    .                          I      W  E               H                           .    R
   1877.12    .                                                                                .
   1879.45    .                           I     WC E               H                           .    R
   1881.79    .                           I      W E               H                           .    JX
   1884.12    .                           I W  C                   H                           .    R
   1886.45    .                                  I W  C                  E H                   .    R
   1888.79    .                                       I W  C                E   H               .    R
   1891.12    .                                            I W  C              E    H           .    R
   1893.46    .                                                I W  C             E      H       .    R
   1895.79    .                                                   I W  C           E        H    .    R

            3235.500  3236.346  3237.192  3238.038  3238.884  3239.730  3240.576  3241.422  3242.268  3243.114  3243.960
```

N O T E S
1. GLOSSARY
   I = INVERT ELEVATION
   C = CRITICAL DEPTH
   W = WATER SURFACE ELEVATION
   S = SUPER-ELEVATION
   H = HEIGHT OF CHANNEL
   E = ENERGY GRADE LINE
   X = CURVES CROSSING OVER
   B = BRIDGE ENTRANCE OR EXIT
   Y = WALL ENTRANCE OR EXIT
2. STATIONS FOR POINTS AT A JUMP MAY NOT BE PLOTTED EXACTLY

APPENDIX D

Reference Material and Information

Master Drainage Study for Summerlin Village 26 - Reverence

MASTER DRAINAGE STUDY
FOR
SUMMERLIN VILLAGE 26 – REVERENCE

764-204-011

September 2015

Prepared for:

Pulte Homes
8345 West Sunset Road
Las Vegas, Nevada 89113
Phone: (702) 437-7999
Fax: (702) 256-7900

GCW
ENGINEERS \ SURVEYORS

HYDROLOGIC CRITERIA AND DRAINAGE MANUAL

DRAINAGE STUDY INFORMATION FORM

Name of Development: Reverence Date: September 2015

Location of Development: a) Descriptive (Cross Streets) North/South: CC 215

East/West: Cheyenne Road

b) Section: 14 Township: 20 Range: 59E

c) APN : 137-14-601-002; 137-14-501-004;

Name of Owner: Pulte Homes

Telephone No.: (702) 914-4800 Fax No.: (702) 914-3100 E-Mail Address:

Address: 8345 West Sunset Road Las Vegas, NV 89113

Contact Person-Name: James A. Monroe, Jr. **Telephone No.:** (702)804-2133

* **E-Mail Address:** JMonroe@gcwallace.com **Fax No.:** (702)804-2299

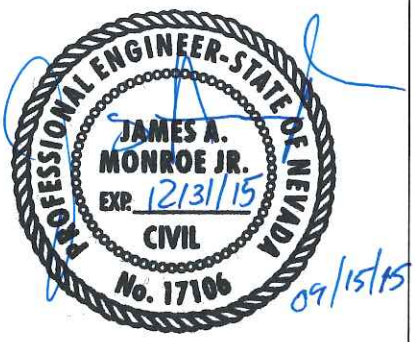
Firm: G.C. Wallace, Inc.

Address: 1555 S Rainbow Blvd. Las Vegas, NV 89146

Type of Land Development/Land Disturbance Process:

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

1. Total Owned Land Area: At Site: +/- 300 acres Being Developed/Disturbed: +/- 300 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
5. Approximate upstream land area which drains to the subject site: +/- 4 sq mi.
6. Has the site drainage been evaluated in the past? ☒ **YES** ☐ **NO** If yes, please identify documentation: Master Conceptual Drainage Study for Village 26 at Summerlin West (Technical Drainage Study for Model Homes, Access Road, and Rough Grading, GCW Inc.; Technical Drainage Study for Village 26 at Summerlin West Offsite Improvements, GCW Inc.; 2006 Summerlin West Planning Area Flood Control Master Plan Update
7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: CCRFCD MPU Facilites GOL3 0128 (Village 26 Detention Basin) and GOL4 0000 (14'X8' RCB)
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

VI. EXISTING CONDITIONS

The eastern half of Reverence and the portion of the Summerlin West Planning Area tributary to Reverence discharges into the existing Village 26 Detention Basin located within the northeast portion of the site. The total area tributary to the existing approximately 300-acre foot Village 26 Detention Basin consists of approximately four square miles. The existing Village 26 Detention Basin outfall storm drain consists of a 96-inch RCP that connects to the existing Beltway Channel located along the eastern boundary of Reverence. Currently, the site is mass graded. Per the Interim Berm Study, an interim berm/channel system located at the southeast border of the project site provides protection for the adjacent Western Beltway and directs flows into the existing Village 26 Detention Basin. Pertinent reference materials have been included in Appendix C.

The existing conditions hydrology for the majority of Summerlin West was originally analyzed in the *Summerlin Stormwater Management Plan*, (Reference 6). Therefore, an additional existing conditions hydrologic model has not been prepared as a part of this study.

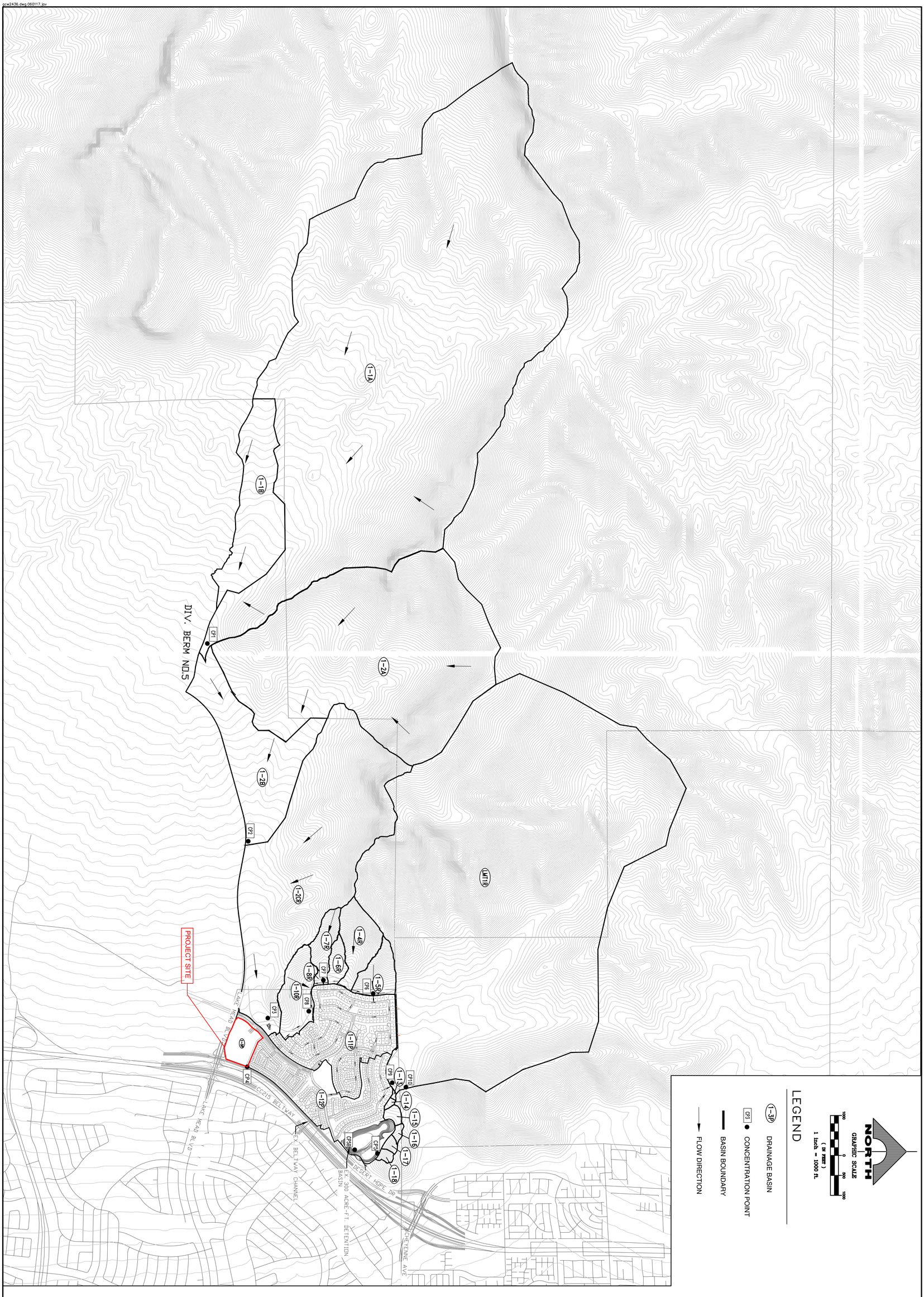
VII. ULTIMATE CONDITIONS

Figures 5 and 5A depict the subbasins and drainage patterns used in the ultimate condition hydrologic analysis for this project. The results of the HEC-1 model are summarized in Table 1. A copy of the ultimate conditions HEC-1 model is included in Appendix A.

TABLE 1
SUMMARY OF ULTIMATE CONDITIONS HEC-1 MODEL

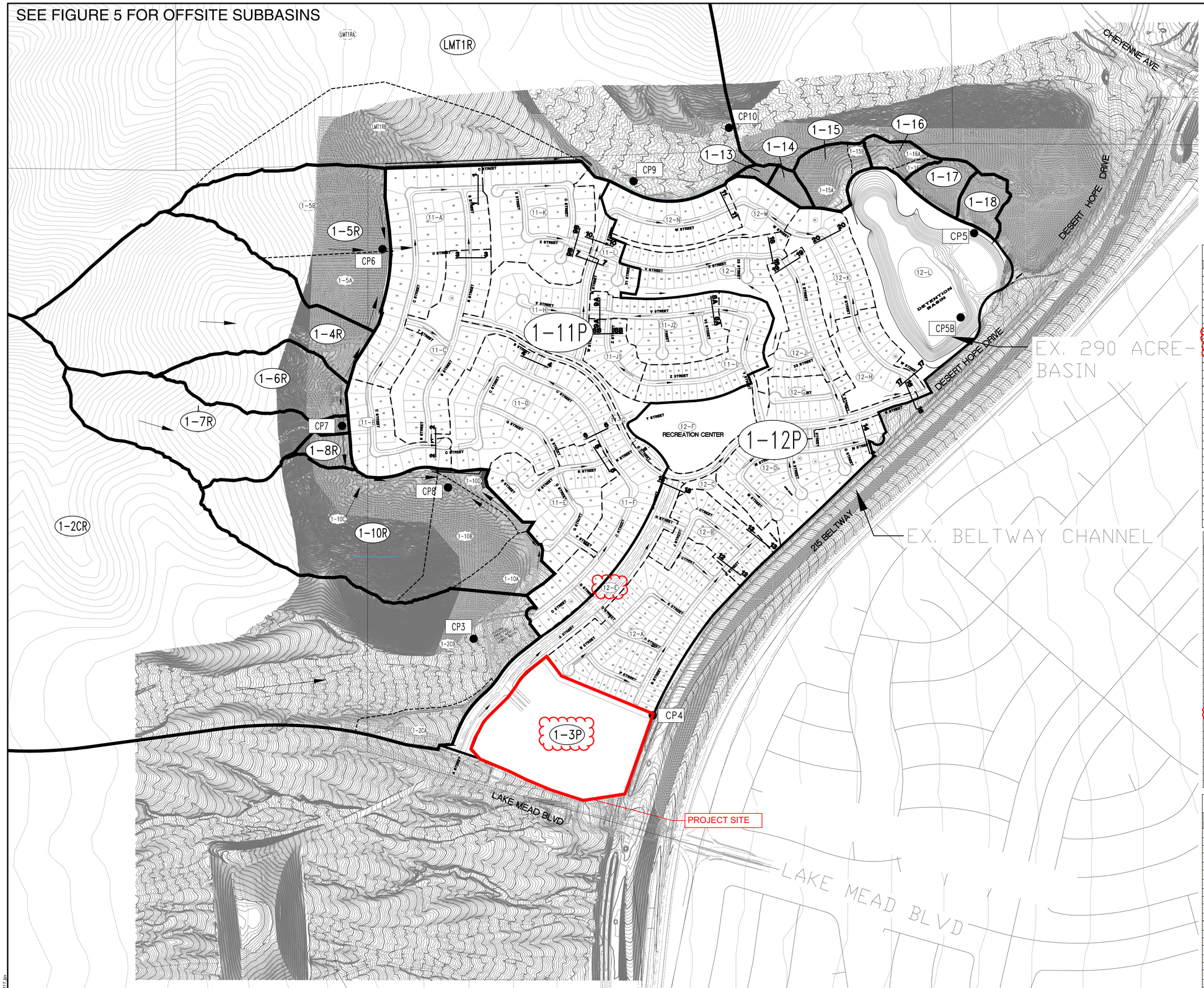
SB OR CP	AREA (AC)	100 YR (CFS)	25 YR (CFS)	10 YR (CFS)
1-1A	1497.2	2289	1477	942
1-1B	111.8	226	115	63
CP1	-	2404	1549	986
1-2A	552.7	1541	938	608
1-2B	137.7	315	173	103
CP2	-	2941	1914	1209
1-2CR	367.6	859	503	313
CP3	-	3309	2171	1365
1-3P	16.5	63	42	31
CP4	-	3311	2179	1368
1-12P	116.6	231	128	78
CP5	-	3455	2267	1417
1-14	1.0	3	2	1

gcw2436.dwg,060117.jpv



DRAWING FIG 5 OF SHTS	PULTE HOMES REVERENCE MASTER DRAINAGE STUDY ULTIMATE CONDITIONS OVERALL DRAINAGE MAP	GCW ENGINEERS \ SURVEYORS F:\Projects\700\764-204-011\Division\Fctl\Figures\Fig5.dwg dclark	1555 S. RAINBOW BLVD. LAS VEGAS, NV 89146 T: 702.804.2000 F: 702.804.2299 gcwengineering.com	DESIGN: DRAWN: CHECK: ISSUE DATE: ISSUE EDITOR: PLOT DATE: 09-15-15 PLOT TIME: 09:42:11	REV.	DATE	DESCRIPTION	DATE	AGEN. APP.	DATE	GCW. APP.	DATE:

SEE FIGURE 5 FOR OFFSITE SUBBASINS



NORTH

SCALE 1" = 300'

GRAPHIC SCALE

300 0 150 300

(IN FEET)

1 inch = 300 ft.

LEGEND

- 1-3P — DRAINAGE BASIN
- 3-E — PRORATED DRAINAGE BASIN
- CP3 — CONCENTRATION POINT
- BASIN BOUNDARY
- PRORATE BASIN BOUNDARY
- FLOW DIRECTION
- 1 — 1 STREET CROSS SECTION

SUMMARY OF ULTIMATE CONDITIONS HEC-1 MODEL

SB OR CP	AREA (AC)	100 YR (CFS)	25 YR (CFS)	10 YR (CFS)
1-1A	1497.2	2289	1477	942
1-1B	111.8	226	115	63
CP1	-	2404	1549	986
1-2A	552.7	1541	938	608
1-2B	137.7	315	173	103
CP2	-	2941	1914	1209
1-2CR	367.6	859	503	313
CP3	-	3309	2171	1365
1-3P	16.5	63	42	31
CP4	-	3344	2178	1369
1-12P	116.6	231	128	78
CP5	-	3459	2207	1417
1-14	1.0	3	2	1
1-15	3.6	10	6	4
1-16	1.9	5	3	2
1-17	2.5	7	4	2
1-18	2.4	7	4	2
CP5B	-	3464	2273	1421
EXDB	-	653	550	446
1-4R	34.3	100	58	37
1-5R	22	63	37	24
CP6	-	163	95	61
1-6R	9.7	28	16	11
1-7R	17.3	50	30	19
CP7	-	79	46	29
1-8R	1.6	5	3	2
1-10R	35.6	101	59	38
CP8	-	106	62	39
1-11P	113.3	218	118	69
CP9	-	535	308	192
1-13	0.5	1	1	1
LMT1R	1256.6	1966	1267	821
CP10	-	2190	1422	913

ONSITE PRORATED FLOW SUMMARY

Subbasin	Q_{100} (cfs)	Area (acres)	cfs/acre
1-11P	218	113.3	1.92
1-12P	231	116.6	1.98
Onsite Prorated Basins			
Subbasin	Q_{100} (cfs)	Area (acres)	cfs/acre
11-A	31	15.9	1.92
11-B	12	6.0	1.92
11-C	21	10.7	1.92
11-D	31	16.4	1.92
11-E	19	9.9	1.92
11-F	18	9.4	1.92
11-G	4	1.9	1.92
11-H	19	9.8	1.92
11-I	14	7.4	1.92
11-J1	6	3.3	1.92
11-J2	14	7.5	1.92
11-K	23	11.9	1.92
11-L	6	3.2	1.92
Total	**218**	**113.3**	**N/A**
12-A	33	16.5	1.98
12-B	11	5.8	1.98
12-C	3	1.6	1.98
12-D	24	12.0	1.98
12-E	15	7.5	1.98
12-F	14	7.5	1.98
12-G	14	6.9	1.98
12-H	11	5.7	1.98
12-I	18	9.0	1.98
12-J	13	6.6	1.98
12-K	13	6.4	1.98
12-L	43	21.5	1.98
12-M	7	3.8	1.98
12-N	12	6.3	1.98
TOTAL	**231**	**116.6**	**N/A**

OFFSITE PRORATED FLOW SUMMARY

Subbasin	Q_{100} (cfs)	Area (acres)	cfs/acre
1-2CR	859	367.6	2.34
1-5R	63	22.0	2.86
1-10R	101	35.6	2.84
1-15	10	3.6	2.78
1-16	5	1.9	2.63
LM1TR	1966	1256.6	1.56
Offsite Prorated Basins			
Subbasin	Q_{100} (cfs)	Area (acres)	cfs/acre
1-2CA	9	3.7	2.34
1-2CB	850	363.9	2.34
TOTAL	**859**	**367.6**	**N/A**
1-5A	18	6.2	2.86
1-5B	45	15.8	2.86
TOTAL	**63**	**22.0**	**N/A**
1-10A	10	3.5	2.84
1-10B	21	7.4	2.84
1-10C	66	23.2	2.84
1-10D	4	1.5	2.84
TOTAL	**101**	**35.6**	**N/A**
1-15A	9	3.1	2.78
1-15B	1	0.5	2.78
TOTAL	**10**	**3.6**	**N/A**
1-16A	4	1.4	2.63
1-16B	1	0.5	2.63
TOTAL	**5**	**1.9**	**N/A**
LM1TRA	1935	1236.8	1.56
LM1TRB	31	19.8	1.56
TOTAL	**1966**	**1256.6**	**N/A**

100-YEAR STREET FLOW CHARACTERISTICS ULTIMATE CONDITIONS

Location	Slope (%)	Q_{100} (cfs)	Depth (ft)	Velocity (ft/s)	D*V	Tributary Subbasins
Section 1	6.0	33	0.45	6.63	3.0	11-A + $Q_{Byp\text{-}Sec13}$
Section 2	3.0	12	0.37	4.00	1.5	11-B
Section 3	2.6	21	0.44	4.32	1.9	11-C
Section 4	2.8	33	0.50	4.91	2.5	11-D + $Q_{Byp\text{-}Sec16}$
Section 5	2.1	19	0.44	3.90	1.7	11-E
Section 6	2.3	20	0.44	4.09	1.8	11-F + $Q_{Byp\text{-}Sec15}$
Section 7	5.7	21	0.40	5.82	2.3	11-H + $Q_{Byp\text{-}Sec19A}$
Section 8A	0.5	14	0.50	2.08	1.0	11-I
Section 8B	1.6	6	0.34	2.67	0.9	11-J1
Section 9A	1.0	19	0.49	2.89	1.4	11-J2 + $Q_{Byp\text{-}Sec18A}$ + $Q_{Byp\text{-}Sec18B}$
Section 9B	3.0	23	0.44	4.67	2.1	11-K
Section 10	0.5	10	0.45	1.93	0.9	11-L + $Q_{Byp\text{-}Sec17}$ + $Q_{Byp\text{-}Sec9}$
Section 11	0.5	12	0.48	2.02	1.0	12-N
Section 12	5.6	33	0.45	6.44	2.9	12-A
Section 13	5.2	13	0.36	5.02	1.8	12-B + $Q_{Byp\text{-}Sec112}$
Section 14	5.0	24	0.42	5.72	2.4	12-D
Section 15	3.8	15	0.38	4.61	1.8	12-E
Section 16	6.0	27	0.42	6.32	2.7	12-G + 12-F + $Q_{Byp\text{-}Sec115}$
Section 17	2.6	11	0.37	3.71	1.4	12-H
Section 18	1.8	18	0.45	3.61	1.6	12-I
Section 19	3.2	13	0.38	4.17	1.6	12-J
Section 20	0.5	13	0.49	2.05	1.0	12-K

* $Q_{Byp\text{-}Sec\#}$: Assumes 2 cfs bypasses the upstream street cross section

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PLOT DATE: 09-15-15
PLOT TIME: 09:46:22

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DATE GOV. APP
DATE

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ENGINEERS & SURVEYORS
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gcwengineering.com
F:\Projects\V00\764-204-01\Division\Civil\Figures\Fig 5A.dwg dclark

PULTE HOMES

REVERENCE

MASTER DRAINAGE STUDY
ULTIMATE CONDITIONS DRAINAGE MAP

DRAWING
FIG 5A
OF SHTS

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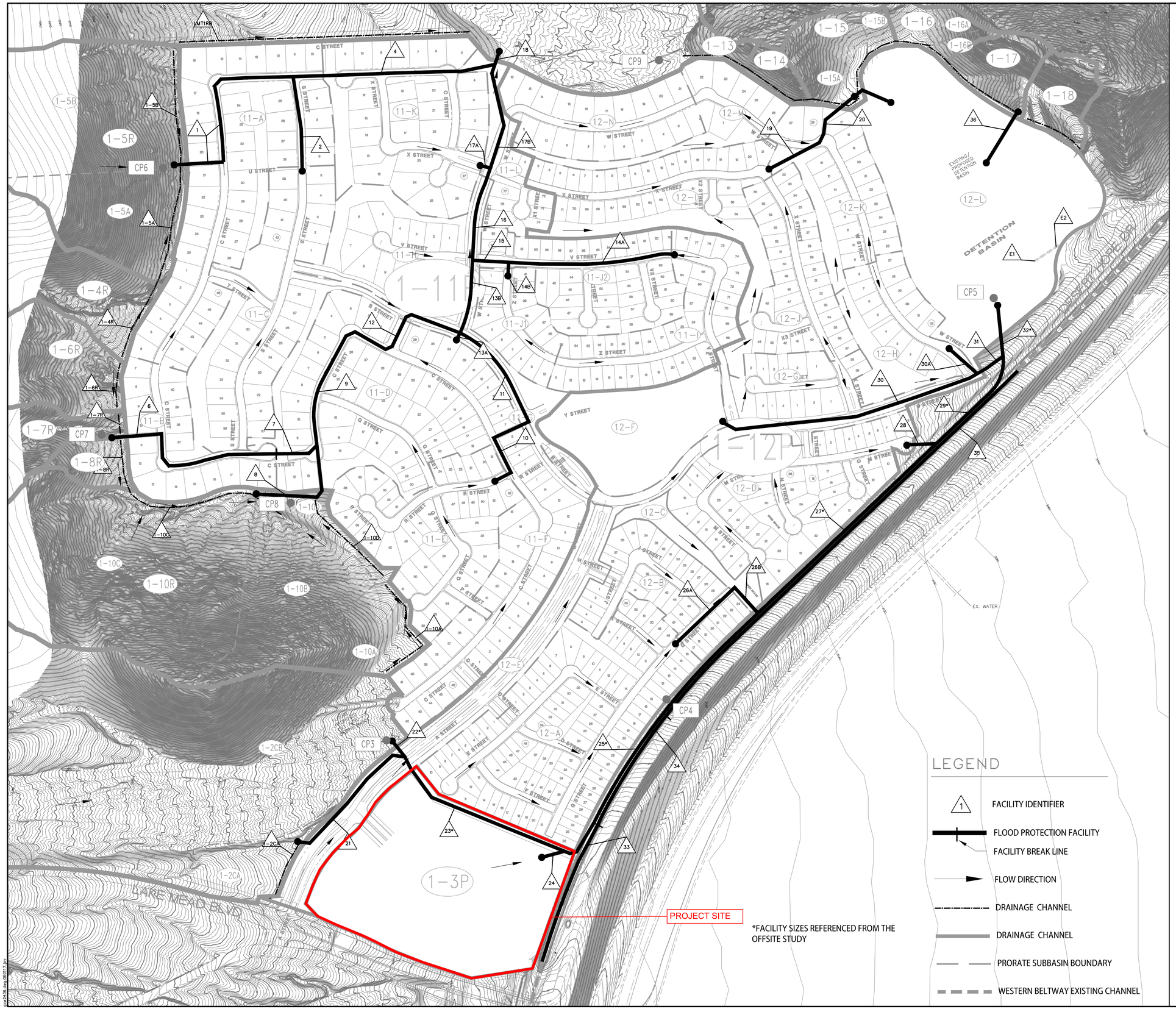

ONSITE FLOOD PROTECTION FACILITIES

LOCATION	Q_{100} ULT (cfs)	TRIBUTARIES	DESIGN SLOPE (%)	FACILITY
1	163	CP6	0.5%	66" RCP
2	21	11-C	0.5%	36" RCP
4	215	FACILITY 1 (163 cfs) + FACILITY 2 (21 cfs) + 11-A (31 cfs)	1.0%	66" RCP
6	79	CP7	4.5%	36" RCP
7	91	FACILITY 6 (79 cfs) + 11-B (12 cfs)	2.0%	42" RCP
8	96	1-8R (5 cfs) + 1-10C (66 cfs) + 1-10B (21 cfs) + 1-10D (4 cfs)	0.5%	54" RCP
9	187	FACILITY 7 (91 cfs) + FACILITY 8 (97 cfs)	0.5%	72" RCP
10	29	11-E (19 cfs) + 1-10A (10 cfs)	1.5%	36" RCP
11	47	FACILITY 10 (29 cfs) + 11-F (18 cfs)	0.5%	42" RCP
12	218	FACILITY 9 (187 cfs) + 11-D (31 cfs)	0.5%	72" RCP
13A	4	11-G	1.0%	24" RCP
13B	269	FACILITY 11 (42 cfs) + FACILITY 12 (218 cfs) + FACILITY 13A (4 cfs)	1.0%	72" RCP
14A	14	11-I	0.5%	30" RCP
14B	6	11-J1	0.5%	24" RCP
15	34	FACILITY 14A (14 cfs) + FACILITY 14B (6 cfs) + 11-J2 (14 cfs)	0.5%	42" RCP
16	303	FACILITY 13B (269 cfs) + FACILITY 15 (34 cfs)	1.0%	72" RCP
17A	23	11-K	2.0%	30" RCP
17B	326	FACILITY 16 (303 cfs) + FACILITY 17A (23 cfs)	1.0%	72" RCP
18	535	CP9	0.5%	8'X7' RCB
19	31	12-I (18 cfs)+ 12-J (13 cfs)	1.0%	36" RCP
20	63	FACILITY 19 (31 cfs) + 12-K (13 cfs) + 12-M (7 cfs) + 12-N (12 cfs)	1.0%	42" RCP
21	9	1-2CA	6.0%	24" RCP
22*	3309	CP3	0.5%	20'X14' RCB
23*	3311	CP4	0.5%	14'X14' RCB
24	63	1-3P	0.5%	48" RCP
25*	3311	CP4	3.5%	20' X 7.5' CONCRETE CHANNEL
26	33	12-A	4.5%	30" RCP
26A	47	FACILITY 26A (33 cfs) + 12-B (11 cfs) + 12-C (3 cfs)	0.5%	42" RCP
26B	3358	FACILITY 25 (3311 cfs) + FACILITY 26B (47 cfs)	6.5%	20' X 7.5' CONCRETE CHANNEL
27*	24	12-D	0.5%	36" RCP
28*	3382	FACILITY 27 (3358 cfs) + FACILITY 28 (24 cfs)	6.5%	20' X 7.5' CONCRETE CHANNEL
30	14	12-F	4.0%	24" RCP
30A	11	12-H	0.5%	30" RCP
31	54	12-E (15 cfs) + FACILITY 30 (14 cfs) + 12-G (14 cfs) + FACILITY 30A (11c cfs)	5.5%	36" RCP
32*	3455	CP5	4.0%	20'X7' RCB
33	958	CSV22-3**	0.5%	17' WIDE CONCRETE CHANNEL
34	958	CSV22-3**	2.5%	15' WIDE CONCRETE CHANNEL
35	958	CSV22-3**	2.5%	11' WIDE CONCRETE CHANNEL
36	32	1-14 (3 cfs) + 1-15 (10 cfs) + 1-16 (5 cfs) + 1-17 (7 cfs) + 1-18 (7 cfs)	0.5%	42" RCP
E1	689	EXDB	N/A	EXISTING 65" ORIFACE PLATE
E2	689	EXDB	N/A	EXISTING 96" OUTFALL PIPE

*FACILITY SIZES REFERENCED FROM THE OFFSITE STUDY
**FLOW REFERENCED FROM THE 2013 MPU

OFFSITE FLOOD PROTECTION FACILITIES

LOCATION	Q_{100} ULT (cfs)	TRIBUTARIES	DESIGN SLOPE (%)	FACILITY
1-2CA	5	1-2CA	5.7%	Conc. Rect. Channel- 5' BW, 1.5' Deep
1-4R	100	1-4R	7.0%	Conc. Rect. Channel- 5' BW, 2.5' Deep
1-5A	118	1-4R (100 cfs) + 1-5A (18 cfs)	3.5%	Conc. Rect. Channel- 5' BW, 3' Deep
1-5B	45	1-5B	12.5%	Conc. Rect. Channel- 5' BW, 2' Deep
1-6R	28	1-6R	0.5%	Conc. Rect. Channel- 5' BW, 2' Deep
1-7R	78	1-7R (50 cfs) + 1-6R (28 cfs)	0.5%	Conc. Rect. Channel- 5' BW, 3.5' Deep
1-8R	5	1-8R	12.0%	Conc. Rect. Channel- 3' BW, 1.5' Deep
1-10A	10	1-10A	11.5%	Conc. Rect. Channel- 3' BW, 1.5' Deep
1-10C	71	1-8R (5 cfs) + 1-10C (66 cfs)	9.0%	Conc. Rect. Channel- 5' BW, 2.5' Deep
1-10D	4	1-10D	0.5%	Unlined V-Ditch- 3:1/3:1 Side Slopes,1.5' Deep
1-13	1	1-13 (1 cfs)	0.5%	Conc. Rect. Channel- 3' BW, 1.5' Deep
1-14	4	1-13 (1 cfs) + 1-14A (3 cfs)	0.5%	Conc. Rect. Channel- 3' BW, 1.5' Deep
1-15A	9	1-15A	0.5%	Unlined V-Ditch- 3:1/3:1 Side Slopes, 2' Deep
1-15B	1	1-15B	0.5%	Unlined V-Ditch- 3:1/3:1 Side Slopes, 1.5' Deep
1-16A	4	1-16A	0.5%	Unlined V-Ditch- 3:1/3:1 Side Slopes,1.5' Deep
1-16B	1	1-16B	0.5%	Unlined V-Ditch- 3:1/3:1 Side Slopes,1.5' Deep
1-17	7	1-17	0.5%	Unlined V-Ditch- 3:1/3:1 Side Slopes, 2' Deep
1-18	7	1-18	0.5%	Unlined V-Ditch- 3:1/3:1 Side Slopes,1.5' Deep
LMT1RB	31	LMT1RB	7.0%	Conc. Rect. Channel- 5' BW, 2' Deep

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ISSUE EDITOR:
PLOT DATE: 09--15--15
PLOT TIME: 09:38:27

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F:\Projects\700\764--204--01\Division\Exhibits\Figs.dwg dclark

PULTE HOMES INC

VILLAGE 26 - REVERENCE
MASTER DRAINAGE STUDY
FLOOD CONTROL FACILITIES MAP

DRAWING
FIG 6
OF SHTS

Master Conceptual Drainage Study for Summerlin West Village 22

Update #2 to the Master Conceptual Drainage Study for

Summerlin West Village 22

Las Vegas, Nevada

W.O. # 7861-3A

Prepared for:
Howard Hughes Company, LLC

Submitted to:
City of Las Vegas
Public Works

HYDROLOGIC CRITERIA AND DRAINAGE MANUAL

DRAINAGE STUDY INFORMATION FORM

Name of Development: Summerlin West Village 22 Date: November 13, 2019

Location of Development: a) Descriptive (Cross Streets) North/South: I-215 Western Beltway

East/West: Summerlin Parkway

b) Section: 23 and 14 Township: 20S Range: 59E

c) APN : 137-14-401-006, 137-23-101-002

Name of Owner: The Howard Hughes Company, LLC

Telephone No.: (702) 791-4336 Fax No.: (702) 791-4453 E-Mail Address: chris.anderson@howardhughes.com

Address: 10801 W. Charleston Blvd. LV, NV, 89135

Contact Person-Name: Joanna Ayson **Telephone No.:** (702)-873-7550

* **E-Mail Address:** jayson@vtnnv.com **Fax No.:** (702)-362-2597

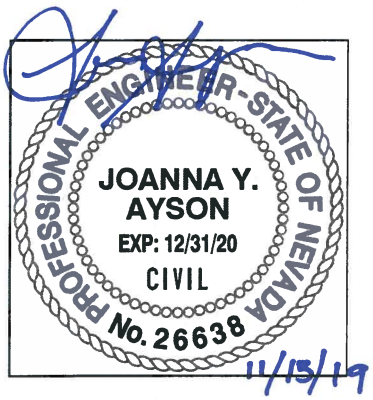
Firm: VTN Nevada

Address: 2727 S. Rainbow Blvd, LV, NV, 89146

Type of Land Development/Land Disturbance Process:

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

1. Total Owned Land Area: At Site: +/-446 Acres Being Developed/Disturbed: +/-446 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.): Mixed-use master plan
5. Approximate upstream land area which drains to the subject site: +/- 61 acres
6. Has the site drainage been evaluated in the past? ☒ **YES** ☐ **NO** If yes, please identify documentation: SWPA MPU (DS4926), Western Segment Las Vegas Beltway from Summerlin to Cheyenne (DS2610), Summerlin Lake Mead Blvd Improvements (DS4146)
7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: Existing 66" RCP in Lake Mead Pkwy, Existing I-215 Western Beltway Channel, future SWPA CCRFCD storm drain facilities
8. Briefly describe your proposed schedule for the subject project: As soon as possible



Engineer's Seal

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

*New Required Field

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

Revision	Date

Local Entity File No.

REFERENCE:

STANDARD FORM 1

Updated 05/01/2008

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 Concurrence Letter

Date: January 13, 2020
Firm: VTN Nevada
Engineer: Joanna Ayson, P.E.
Address: 2727 South Rainbow Boulevard, Las Vegas, NV 89146
Phone: (702) 873-7550
Fax: (702) 362-2597
E-mail: jayson@vtnnv.com

Subject: Update #2 for Master Conceptual Drainage Study for Summerlin West Village 22
Location: West of I-215 between Lake Mead Boulevard and Summerlin Parkway
APN: 137-14-401-007 & 137-23-201-001
Sec, Township, Range: S14 & 23, T20S, R59E
Flood Zone & Panel: Zone X, 2150E, Dated September 27, 2002
Application Number: PW19-20502UP

Submittals	Date Received	Date Returned	Reviewer	Miscellaneous
Update	12/20/2019	01/10/2020	CR	
Supplement	01/13/2020	01/13/2020	CR	Emailed

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 December 20, 2019. In addition, the County has received the City of Las Vegas acceptance letter dated December 12, 2019 for the Technical Drainage Study (DS5005G-Rev).

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.

BOARD OF COUNTY COMMISSIONERS
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LARRY BROWN • JAMES B. GIBSON • JUSTIN C. JONES • MICHAEL NAFT • TICK SEGERBLOM
YOLANDA T. KING, County Manager

Additional Conditions:

1. This update combines parcels; changes parcel boundaries; shifts street alignments; and removes streets; therefore revising hydrology and storm drain systems accordingly. The previously approved Technical Drainage Studies are: PW18-19645 and PW19-12867.

2. The individual Technical Drainage Studies for the areas adjacent to the County to the west of the project site will need to be submitted for County review to verify acceptance of drainage flows.

3. Beltway channel modifications may be necessary prior to site development.

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.

Crissy Riland, P.E.
Senior Civil Engineer
Development Review
crissy@ClarkCountyNV.gov

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

REGIONAL FLOOD CONTROL DISTRICT

Steven C. Parrish, P.E.
General Manager/Chief Engineer

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City of Las Vegas

Stavros Anthony
City of Las Vegas

Isaac Barron
City of North Las Vegas

Mayor Kiernan McManus
City of Boulder City

January 16, 2020

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

DISTRICT CONCURRENCE: **UPDATE #2 FOR SUMMERL WEST VILLAGE 22-MDS (DS5005G-REV) (RFCD No. 19-11423)**

Dear Mr. Kwon:

Clark County Regional Flood Control District (District) reviewed Technical Drainage Study dated November 15, 2019 for above-mentioned project as submitted by VTN NEVADA. In addition, District is in receipt of the Conditional Letter of Acceptance from City of Las Vegas Department of Public Works dated December 12, 2019.

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

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

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

STEVEN C. PARRISH, P.E.
General Manager/Chief Engineer

BY: _____
Ching C. Wang, P.E.
Senior Civil Engineer

CCW:dd

c: Joanna Y. Ayson, P.E., VTN Nevada

P:\Letters and Memos\Local Drainage\Land Development & Drainage\2020\L-19-11423.doc

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

CITY OF LAS VEGAS
INTER-OFFICE MEMORANDUM

DATE: January 23, 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:
Master Conceptual Drainage Study for – Update #2
Summerlin West Village 22

COPIES TO:
VTN Nevada
Howard Hughes Company, LLC
Bart Anderson, P.E., DevCo
CCRFCD
CCPW

Cross Streets:	I-215 Western Beltway & Summerlin Parkway	
File Number:	F:\Depot\DSMemos\DS5005H.doc	
Parcel Number:	137-14-401-006, 137-23-101-002	
Zoning Action:	MDR-73901	
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	6/12/2018	6/28/2018 & 7/13/2018	Not Approved	$400.00	49696: $400
2nd Submittal	7/31/2018	8/22/2018	Not Approved	$400.00	497790: $400
3rd Submittal	11/5/2018	11/27/2018	Conditional Approval	$400.00	500639: $400
Memo Revision	12/3/2018	12/3/2018	Conditional Approval	N/C	N/C
CCRFCD	1/10/2019	1/10/2019	Concurrence Recv'd	N/C	N/C
4th Submittal	2/12/2019	3/6/2019	Not Approved	$100.00	503164: $100
5th Submittal	3/21/2019	4/4/2019	Conditional Approval	$400.00	3057847: $400
CCPW & CCRFCD	4/25/2019 & 5/23/2019	5/29/2019	Concurrence Received	N/C	N/C
6th Submittal	11/13/2019	12/10/2019	Conditional Approval	$100.00	3644006: $100
Memo Revision	12/12/2019	12/12/2019	Conditional Approval	N/C	N/C
CCPW & CCRFCD	1/13/2020 & 1/16/2020	1/23/2020	Concurrence Recv'd	N/C	N/C
			TOTAL FEES (LDDRS):	**$1,800.00**	----

REMARKS:

6th Submittal: Update #2 to address Village 22 Overall Development Plan changes

4th & 5th Submittals: Update #1 & Addendum #1 to revise Village 22 in accordance to the Update of the latest overall Summerlin West Master Plan Drainage Study

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 *Grand Park Detention Basin* is proposed to regulate and meter outflow to match the previously approved downstream flow conditions at the junction of *Far Hills* storm drain and the *Beltway Channel*. Without the *Grand Park Detention Basin*, there will be a net increase in flows at the *Beltway Channel* downstream of *Far Hills* intersection exceeding the previously approved flow.

   A technical drainage study for the analysis, design and construction plans for the *Grand Park Detention Basin* must be submitted and approved by the City prior to the individual onsite parcel developments.

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
WSP/AYS

T/R/S: T20S/R59E/14
AREA K-14

PROJECT SITE

VILLAGE 26

NORTH

GRAPHIC SCALE

350 0 175 350 700

1" = 350'

LEGEND

- BASIN BOUNDARY
- A — BASIN DESIGNATION
- CONCENTRATION POINT
- FLOW ARROW

ULTIMATE CONDITION HEC-1 SUMMARY TABLE

BASIN ID	AREA (ac)	Q100 (CFS)	BASIN ID	AREA (ac)	Q100 (CFS)
LM	10.04	36	STN1	3.61	13
D	11.96	50	CSTN1	-	244
DES1	4.46	20	STG1	1.85	8
CDES1	-	70	CSTG1	-	229
COS-2	7.51	22	CP6	-	532
CCOS-2	-	89	L-M	21.14	81
A	17.39	68	STJ2	3.10	13
CP1	-	160	CSTJ2	-	512
CP1	-	191	STF	1.84	8
STF	2.42	8	CSTF	-	640
C	12.05	51	U	3.49	11
CSTI	-	62	DES4	1.77	8
G	7.05	30	CDES4	-	19
CG	-	92	S	3.01	10
H	7.64	33	CS	-	29
CH	-	124	CP7	-	639
STH	2.29	10	STF2	1.21	5
J	5.93	24	CSTF2	-	637
CJ	-	34	V	5.01	17
K	5.28	22	W	5.28	19
DES2	3.09	13	CVW	-	36
CDES2	-	68	CARR3	2.14	8
CP2	-	189	CCARR3	-	667
CARR1	6.95	29	STE3	1.36	6
I	13.44	38	CP8	-	673
N-O-P	14.52	49	EE	6.80	25
NP-1	1.73	6	CEE	-	689
STG2	2.86	13	NP3	0.70	2
CSTG2	-	68	STEE3	1.23	5
DES3	2.00	9	CSTEE3	-	7
CP3	-	77	CP9	-	205
STG3	0.72	3	HH	4.85	20
CSTG3	-	79	CARR4		10
Q	4.58	17	25-HS1B		48
R	4.97	20	STN2		19
CQR	-	37	CSTN2	-	67
CARR2	3.58	15	Y-Z	11.28	42
CCARR2	-	52	STE1	1.75	8
CP4	-	131	CSTE1	-	115
CP5	-	379	COS-3	1.70	4
II	16.03	61	STJ3	3.22	14
X	17.45	60	CSTJ3	-	126
B	80.77	304	AA	10.13	33
DC-1	12.59	36	STE2		8
COS-4	0.57	2	BB	6.29	23
COS-1	2.87	6	CBB	-	31
V27-F	19.13	83	T	4.02	13
V27-COS2	5.25	20	CT	-	44
LM2	7.23	28	CC	5.34	19
CLM2	-	132	CCC	-	63
27-COS3	17.46	53	DD	4.76	17
COFF	-	185	CDD	-	77
E	13.91	58	DES5	1.57	7
STJ1	3.52	15	CDES5	-	81
CSTJ1	-	255	STEE2	1.79	8
NP-2	1.34	5	CSTEE2	-	88
CNP-2	-	255	GG	4.98	21
F	14.22	59	CGG	-	109
CF	-	309	FF	3.49	15
25-HS1	49.49	211			

3665 RESERVOIR/
4125 PUMP STATION

FUTURE GRAND CANYON DETENTION BASIN

REVISION | BY | DATE | REV

THE HOWARD HUGHES COMPANY, LLC
10801 WEST CHARLESTON BLVD, 3RD FLOOR
LAS VEGAS, NEVADA 89135

2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148
PH. (702) 873-7550 FAX (702) 362-2597 WEB WWW.VTNNV.COM
CONSULTING ENGINEERS ● PLANNERS ● LAND SURVEYORS

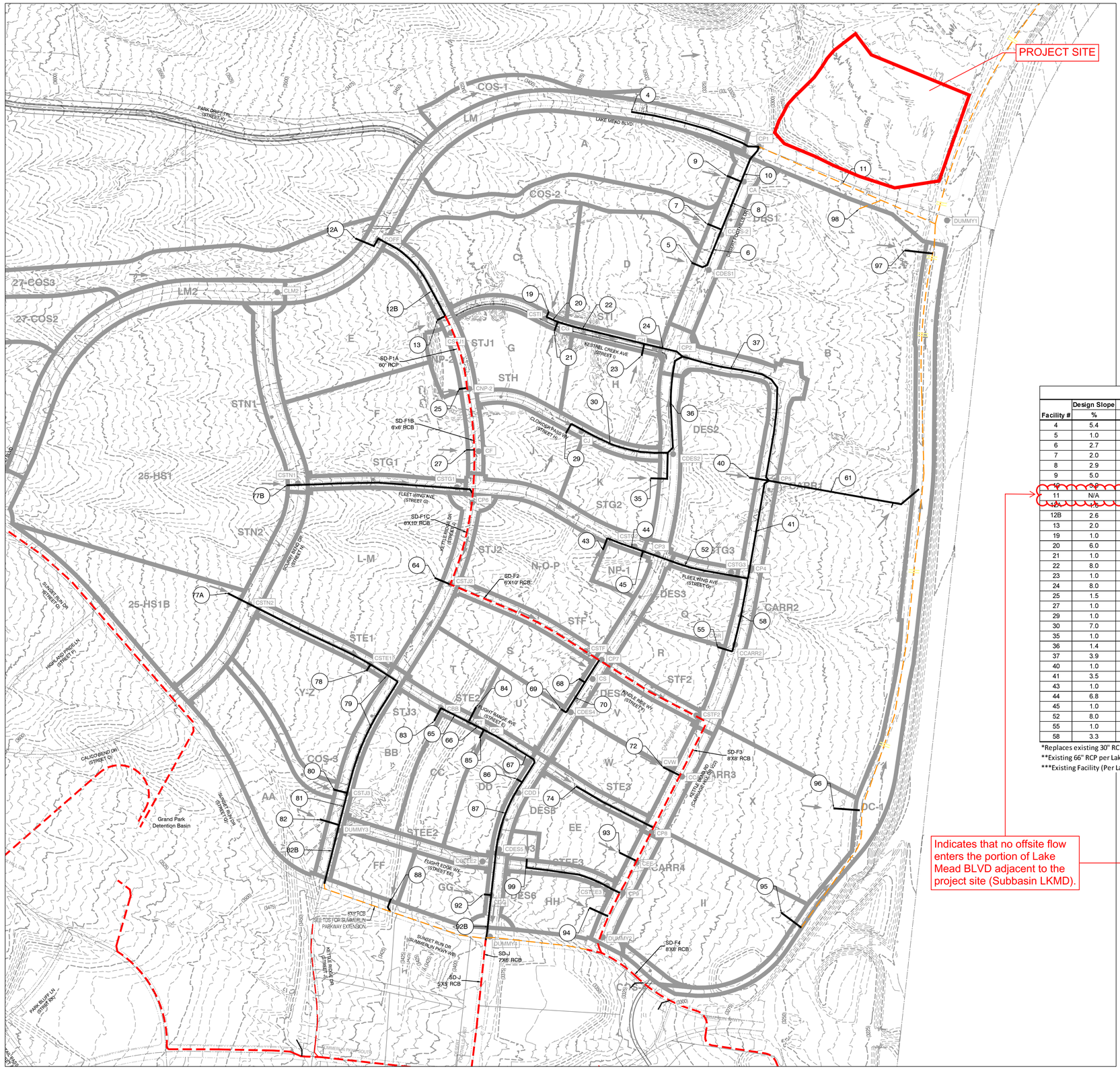
FIGURE 6
ULTIMATE CONDITION BASIN MAP

SUMMERLIN WEST VILLAGE 22

DRAWN BY: JTA
DESIGNED BY:
CHECKED BY:
OCT 2019
SCALE: 1" = 350' HORIZ. N/A VERT.
PROJECT NO: 7861

SHEET
OF SHEETS
DRAWING NO.

H:\7861\Village 22 Master\Drainage\5_LIP2\A_Figures\Figure 6 - Village 22 Drainage Basin Map.dwg



GRAPHIC SCALE

300 0 150 300 600

1" = 300'

NORTH

LEGEND

- CCRFCD STORM DRAIN ALIGNMENT
- EXISTING FACILITY
- VILLAGE 22 LOCAL STORM DRAIN
- W51 BASIN DESIGNATION
- CONCENTRATION POINT
- 1 LOCAL FACILITY DESIGNATION
- DEVELOPED CONDITION FLOW ARROW

VILLAGE 22 LOCAL FLOOD PROTECTION FACILITIES

Facility #	Design Slope %	Q100 cfs	Tributary Basin/CP	Velocity ft/s	Facility	Facility #	Design Slope %	Q100 cfs	Tributary Basin/CP	Velocity ft/s	Facility
4	5.4	36	LM	18.02	24" RCP	61	6.6	379	CP5	29.52	6'x6' RCB
5	1.0	50	D	13.29	30" RCP	64	1.0	81	L-M	11.63	42" RCP
6	2.7	70	CDES1	15.60	30" RCP	65	6.9	31	CBB	18.97	30" RCP
7	2.0	22	COS-2	11.00	30" RCP	66	4.3	44	CT	17.48	30" RCP
8	2.9	89	CCOS-2	17.78	36" RCP	67	8.0	63	CCC	24.12	30" RCP
9	5.0	68	A	20.46	30" RCP	68	1.0	10	S	6.90	30" RCP
10	3.0	150	CA	20.46	42" RCP	69	1.0	11	U	7.08	30" RCP
11	N/A	191	CP1	N/A	EX 66" RCP**	70	2.1	19	CDES4	10.77	30" RCP
12A	7.5	65	V-W-CDES3	22.81	48" RCP	72	6.1	36	CVW	18.89	30" RCP
12B	2.6	185	COFF	20.31	54" RCP	74	7.7	6	STE3	12.27	30" RCP
13	2.0	58	E	13.47	30" RCP	77A	1.0	67	CSTN2	10.75	36" RCP
19	1.0	51	C	10.49	42" RCP	77B	5.0	244	CSTN1	28.12	48" RCP
20	6.0	62	CSTI	21.33	42" RCP	78	1.0	42	Y-Z	9.51	30" RCP
21	1.0	30	G	9.19	36" RCP	79	4.5	115	CSTE1	22.30	36" RCP
22	8.0	92	CG	26.39	42" RCP	79B	0.5	115	CSTE1	8.38	5'X5' RCB
23	1.0	33	H	9.29	30" RCP	80	8.0	4	COS-3	11.01	30" RCP
24	8.0	124	CH	28.56	42" RCP	81	0.5	126	CSTJ3	8.56	5'X5' RCB
25	1.5	5	NP-2	6.39	36" RCP	82	1.0	33	AA	9.29	30" RCP
27	1.0	59	F	10.65	36" RCP	83	1.0	23	BB	8.60	30" RCP
29	1.0	24	J	8.68	30" RCP	84	1.0	13	T	7.41	30" RCP
30	7.0	34	CJ	19.55	30" RCP	85	1.0	19	CC	8.19	30" RCP
35	1.0	22	K	8.50	30" RCP	86	1.0	17	DD	7.96	30" RCP
36	1.4	68	CDES2	12.78	42" RCP	87	1.0	77	CDD	11.52	42" RCP
37	3.9	189	CP2	24.25	54" RCP	88	1.0	15	FF	7.70	30" RCP
40	1.0	38	I	9.49	30" RCP	92	2.7	21	GG	12.13	30" RCP
41	3.5	131	CP4	21.14	42" RCP	93	1.0	25	EE	8.77	30" RCP
43	1.0	49	N-O-P	10.31	36" RCP	94	1.0	20	HH	8.30	30" RCP
44	6.8	68	CSTG2	23.10	36" RCP	95	1.0	61	II	10.96	42" RCP
45	1.0	6	NP-1	5.97	30" RCP	96	1.0	60	X	10.68	36" RCP
52	8.0	79	CSTG3	25.51	36" RCP	97	1.6	204	B	18.49	66" RCP
55	1.0	37	CQR	9.46	30" RCP	98	N/A	138	N/A	N/A	EX 48" RCP***
58	3.3	52	CCARR2	16.49	30" RCP	99	1.0	3	HH-3	8.55	30" RCP

*Replaces existing 30" RCP stub provided in Lake Mead Study

**Existing 66" RCP per Lake Mead Blvd Study

***Existing Facility (Per Lake Mead Blvd Study) can accept 138 cfs and may be used for flexibility

Indicates that no offsite flow enters the portion of Lake Mead BLVD adjacent to the project site (Subbasin LKMD).

REVISION	BY	DATE	REV

THE HOWARD HUGES CORPORATION
1980 WEST CHARLESTON BLVD, 3RD FLOOR
LAS VEGAS, NEVADA 89135

2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148
PH: (702) 873-7500 FAX (702) 362-2597 WEB WWW.VTNNV.COM
CONSULTING ENGINEERS ● PLANNERS ● LAND SURVEYORS

FIGURE 7
LOCAL STORM DRAIN FACILITIES MAP

SUMMERLIN WEST VILLAGE 22

DRAWN BY: ACY — JUNE 2019
DESIGNED BY: SYB/JYA — JUNE 2019
CHECKED BY: JYA — JUNE 2019
SCALE: 1"=300' HORIZ. NA VERT.
PROJECT NO: 7861

SHEET
OF SHEETS
DRAWING NO.

H:\7861\Village 22 MasterDrainage\6_LP2\A_Figures\Figure 7 - Local Flood Control Facilities Map.dwg

APPENDIX E

Drainage Figures

LEGEND:

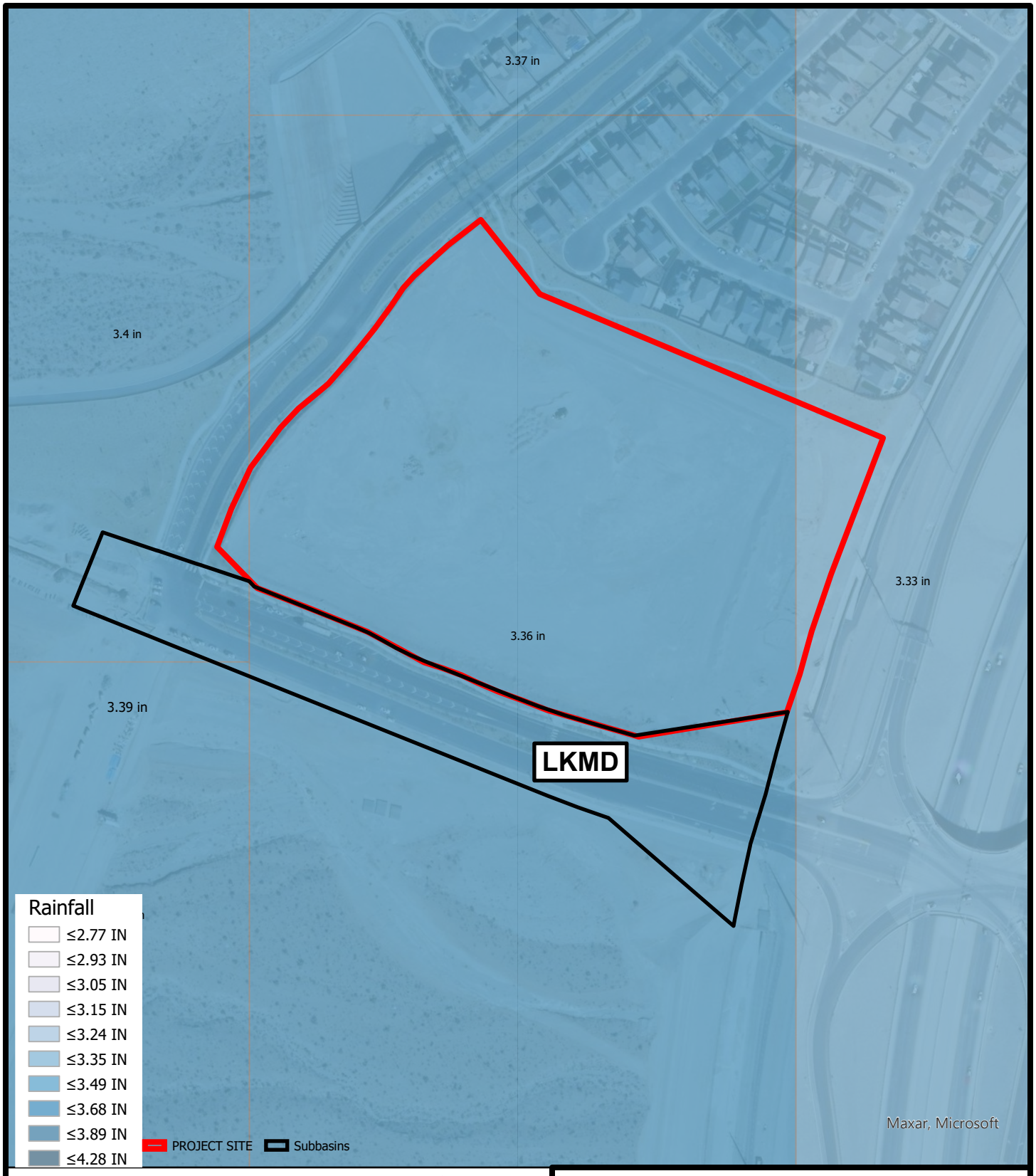
- MER — PRORATED SUBBASIN ID
- *PT9 — REFERENCE SUBBASIN ID
- REFERENCE SUBBASIN BOUNDARY
- PRORATED SUBBASIN BOUNDARY
- FLOW DIRECTION
- A — HYDRAULIC SECTION
- XX/XX CFS — 10-YR/100-YR SURFACE FLOW
- (XX/XX CFS) — 10-YR/100-YR STORM DRAIN FLOW
- PARCELLMAIN1 WSPG MODEL ALIGNMENT
- PARCELLMAIN2 WSPG MODEL ALIGNMENT
- PARCELLMAIN3 WSPG MODEL ALIGNMENT

NORTH

100 0 100 200
SCALE FEET

NOTE:
** REFERS TO REFERENCE MATERIAL FROM THE MASTER DRAINAGE STUDY FOR SUMMERLIN VILLAGE 26 - REVERENCE

*1-12P
*12-E
*1-3P
REVERENCE PARKWAY (PUBLIC)
LKMD
LAKE MEAD BLVD (PUBLIC)
215 BELTWAY (PUBLIC)
AVENUE A (PRIVATE)
AVENUE C (PRIVATE)
AVENUE B (PRIVATE)
AVENUE E (PRIVATE)
AVENUE G (PRIVATE)
STREET A (PRIVATE)
STREET B (PRIVATE)
A
B
C
D
E
F
G
H
I
J
B1
B2
Q=12.7 Type D40 Collects 5.4 cfs
Q=12.7 Type D40 Collects 5.5 cfs
Q=10.7 Type D40 Collects 4.6 cfs
Q=13.2 Type D40 Collects 5.6 cfs
Q=10.7 Type D40 Collects 4.6 cfs
Q=10.7 Type D40 Collects 4.6 cfs
Q=10 Type D40 Collects 4.3 cfs
Q=10 Type D40 Collects 4.3 cfs
Q=10 Type D40 Collects 4.3



125 0 125 250 Feet

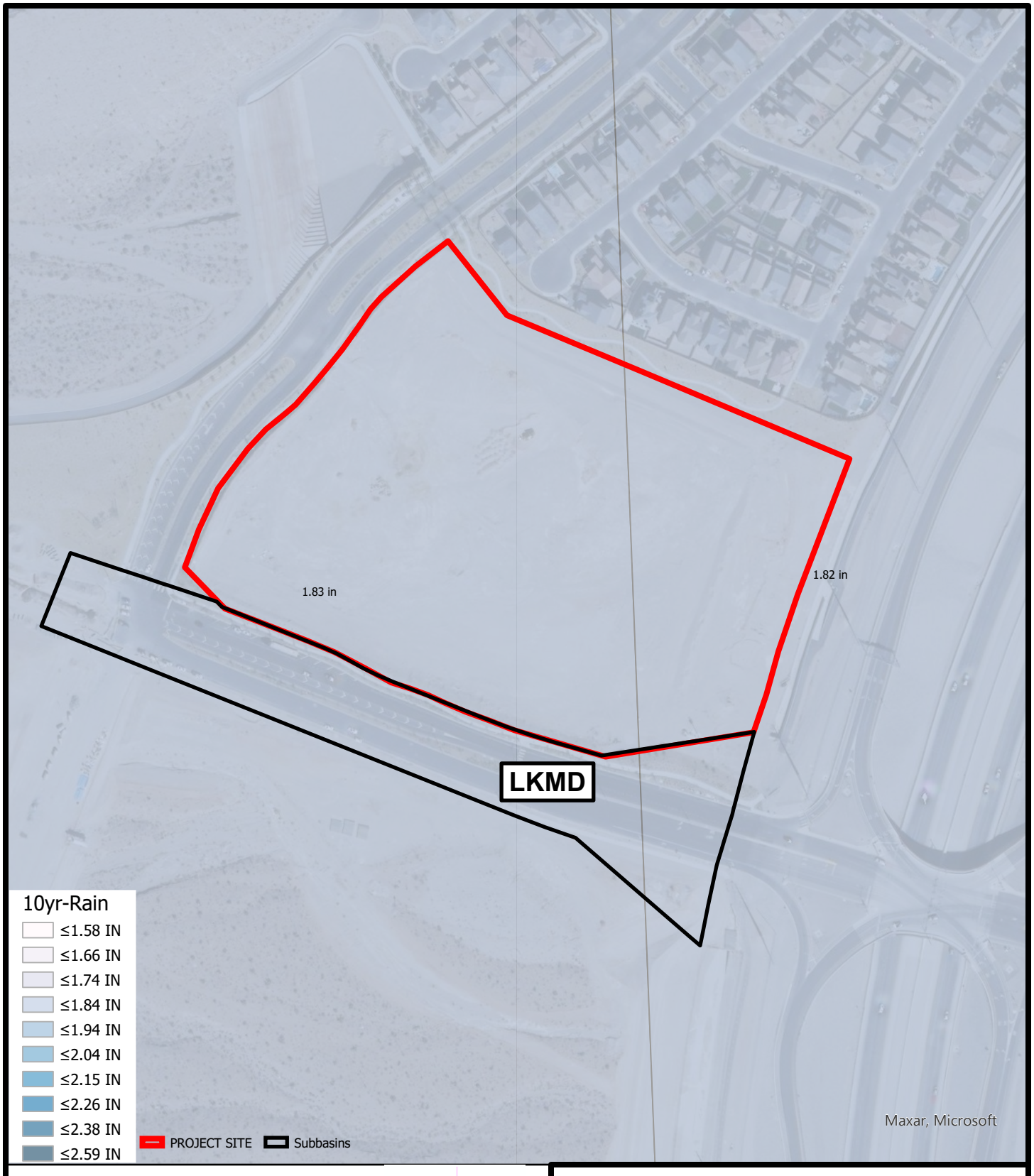
NORTH

SUMMERLIN VILLAGE 26 PARCEL L

FIGURE 6

100-YEAR RAINFALL MAP

GCW ENGINEERS \ SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com



125 0 125 250 Feet

NORTH

SUMMERLIN VILLAGE 26 PARCEL L

FIGURE 7

10-YEAR RAINFALL MAP

GCW ENGINEERS \ SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
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F: 702.804.2299
gcwengineering.com

Sheet List Table		
NO	DEG	DESCRIPTION
1	CV	COVER SHEET
2	NT	GENERAL NOTES
3	PD	PROJECT DATA
4	GD1	GRADING PLAN 1
5	GD2	GRADING PLAN 2
6	GD3	GRADING PLAN 3
7	GD4	GRADING PLAN 4
8	DT1	DETAILS & SECTIONS 1
9	DT2	DETAILS & SECTIONS 2
10	DT3	DETAILS & SECTIONS 3
11	MU	MASTER UTILITY PLAN
12	UT1	UTILITY PLAN 1
13	UT2	UTILITY PLAN 2
14	UT3	UTILITY PLAN 3
15	UT4	UTILITY PLAN 4
16	PP1	PLAN & PROFILE 1
17	PP2	PLAN & PROFILE 2
18	PP3	PLAN & PROFILE 3
19	PP4	PLAN & PROFILE 4
20	PP5	PLAN & PROFILE 5
21	PP6	PLAN & PROFILE 6
22	PP7	PLAN & PROFILE 7
23	PP8	PLAN & PROFILE 8
24	PP9	PLAN & PROFILE 9
25	PP10	PLAN & PROFILE 10
26	LAT1	STORM DRAIN LATERALS 1
27	LAT2	STORM DRAIN LATERALS 2
28	TR1	
29	TR2	
30	TR3	
31	TR4	

SUMMERLIN

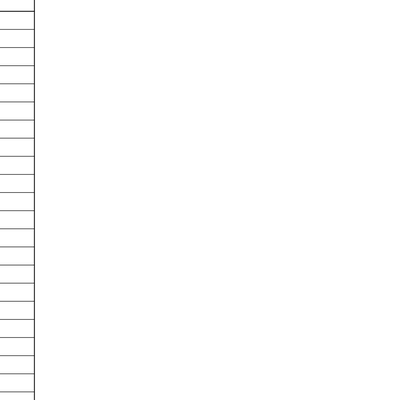
SM

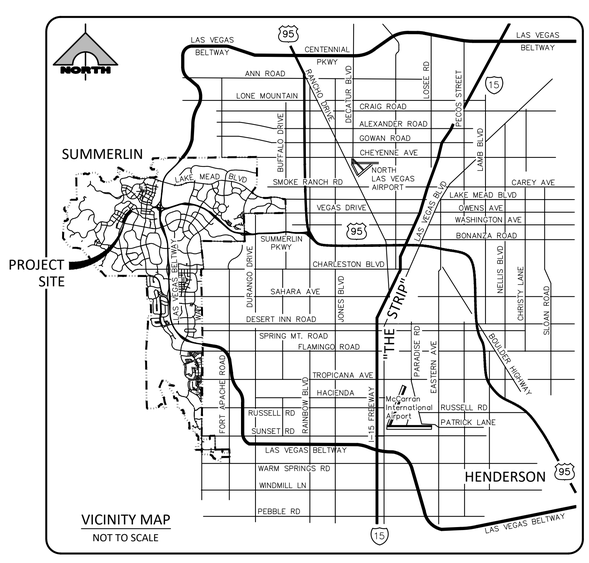
VILLAGE 26 PARCEL L

REVERENCE MULTI-FAMILY IMPROVEMENTS

(LAKE MEAD BOULDEVARD @ REVERENCE PARKWAY)
FUTURE SID

A.P.N. 137-14-715-038
2021





ENGINEER

GCW ENGINEERS \ SURVEYORS
1555 S. RAINBOW BLVD.
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F: 702.804.2299
gcwengineering.com

OWNER

PN II, INC.
7255 S. TENAYA WAY SUITE #200
LAS VEGAS, NEVADA 89113
OFFICE PHONE NO. (702) 914-4800

DEVELOPER

PULTE HOMES
7255 S. TENAYA WAY SUITE #200
LAS VEGAS, NEVADA 89113
OFFICE PHONE NO. (702) 914-4800

Call before you Dig
Avoid cutting underground utility lines. It's costly.
Call 811
OR
1-800-642-2444

FAST
Call before you UnderGround
1-702-432-5300
FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY.
CALL BEFORE YOU DO OVERHEAD
1-702-227-2929

EARTHWORKS

RAW CUT	=	47,975 C.Y.
RAW FILL	=	68,030 C.Y.
NET FILL	=	20,056 C.Y.

DENSITY / ACREAGE

GROSS ACREAGE: 15.69
No. OF LOTS: 168
DENSITY (UNIT): 10.71

CAUTION TO CONTRACTOR

THE CONTRACTOR SHALL BE RESPONSIBLE TO INVESTIGATE AND VERIFY THE ACTUAL LOCATION AND DEPTH OF ALL EXISTING UNDERGROUND FACILITIES AT LEAST 48 HOURS IN ADVANCE OF THE PERFORMANCE OF ANY WORK.

DRAINAGE CERTIFICATION

I CERTIFY THAT THE GRADING PLANS ARE IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY ON FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT.

03/07/2022

XXXXXX X. XXXXXXXX, P.E. XXXXX — DATE

BASIS OF BEARING

SOUTH 89°39'55" EAST, BEING THE BEARING OF THE NORTH LINE OF THE NORTHWEST QUARTER (NW 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF SECTION 13, TOWNSHIP 20 SOUTH, RANGE 59 EAST, M.D.M., AS SHOWN IN FILE 112, PAGE 94 OF PARCEL MAPS ON FILE AT THE CLARK COUNTY, NEVADA RECORDER'S OFFICE.

BENCHMARK

CLARK COUNTY VERTICAL CONTROL POINT: 5LV09 14S6

SUMMERLIN VILLAGE 26 – REVERENCE PROJECT MODIFIED DATUM: 3227.64 FEET
NAVD88 DATUM: 983.659 METERS (3227.22 FEET)

RIVET & PLATE IN HEAD WALL WEST OF CC215 +/–250' NORTH OF LAKE MEAD.

TO OBTAIN SUMMERLIN VILLAGE 26 – REVERENCE PROJECT MODIFIED DATUM ADD 0.42 FEET TO NAVD88 DATUM.

DRY UTILITY APPROVALS

COX COMMUNICATIONS LAS VEGAS, INC. — DATE

CENTRAL TELEPHONE CO., DBA CENTURYLINK — DATE

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

NV ENERGY — DATE

NEVADA POWER COMPANY 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 RESOLUTION OF ANY CONFLICTS WILL BE ACCOMPLISHED PURSUANT TO THE NEVADA PUBLIC UTILITY COMMISSION'S RULES AND REGULATIONS.

NV ENERGY – TRANSMISSION ENGINEERING — DATE

SOUTHWEST GAS CORPORATION — SWG UID — DATE

THE HOWARD HUGHES COMPANY, LLC

KEVIN ORROCK — DATE
VICE PRESIDENT

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT PLANNING AND ENGINEERING SERVICES

PROJECT NO. _____ FIRST APPROVAL DATE: _____
LVVWD APPROVED FIRE FLOW 1,500 GPM AT 20 PSI RESIDUAL
MAXIMUM AVAILABLE FIRE SPRINKLER FLOW 30 GPM
SHEETS: MU, UT1–UT4, PP1–PP10, LAT1–LAT2

LAS VEGAS FIRE & RESCUE APPROVAL

LAS VEGAS FIRE & RESCUE — DATE

L#: CLV#:

60% REVIEW - NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DATE	AGEN APP	DATE	GCW APP	DATE

PROJECT NO. 764-204-023
DESIGN: PB
DRAWN: PB
CHECK: WP
PLOT DATE: 03-07-22
PLOT TIME: 11:06:03

GCW ENGINEERS \ SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com
F:\PROJECTS\700\764-204-023\DWG\PRODUCTION\764-204-023D1-CV.DWG
PAUL BRENNARD

PULTE HOMES

SUMMERLIN - VILLAGE 26 PARCEL L
REVERENCE MULTI-FAMILY

COVER SHEET

DRAWING
CV
1 OF 34 SHTS

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 XXXXXXXXXXXXXX, REPORT # XXXXX-X, DATE XXXXXXXXXX XXTH, 20XX 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 INSPECTOR 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. PRIOR HAUNCHING AND PRIOR TO BACKFILL OPERATIONS WHICH WOULD COVER SANITARY SEWER AND STORM DRAIN FACILITIES, CONTRACTOR IS REQUIRED TO SCHEDULE CLV FINAL TRENCH UTILITY SURVEY INSPECTION AND DETERMINATION OF FINAL LOCATION COORDINATES. FACILITIES TO BE LOCATED BY CLV SHALL INCLUDE AT A MINIMUM 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, SEWER AND STORM DRAIN MAIN ALIGNMENT, INCLUDING DEFLECTION POINTS.

OR

(MAY BE USED ONLY ON PROJECTS ASSOCIATED WITH A TENTATIVE MAP CONTAINING 5 LOTS OR MORE)

- 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 HORIZONTAL AND VERTICAL DETERMINATION OF 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, SEWER 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).

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.

REVISED 06/04/18

CITY OF LAS VEGAS FIRE AND RESCUE GENERAL NOTES FOR HYDRANTS AND ACCESS

1. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE LAS VEGAS FIRE AND RESCUE ADOPTED FIRE CODE ORDINANCE #6631 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 SECTION 105.6.15]
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 ORDER AND SHALL BE CAPABLE OF DELIVERING THE REQUIRED FIRE FLOW. [IFC SECTION 3310, SECTION 3312]
5. TO IDENTIFY FIRE HYDRANT LOCATIONS, THE CONTRACTOR SHALL PLACE A BLUE REFLECTIVE MARKER AT THE CENTER LINE OF THE STREET ADJACENT TO THE FIRE HYDRANTS. [IFC SECTION 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 SECTION 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 SECTION 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 SECTION 507]
9. PRIVATE FIRE HYDRANTS SHALL BE PAINTED RED. [IFC SECTION 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 SECTION 507]
11. FIRE HYDRANTS SPACING SHALL BE AS FOLLOWS: [IFC SECTION 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 1,000 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 SECTION 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 SECTION C102.10]
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 SECTION 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 SECTION C102.7]
17. THE MAXIMUM DISTANCE FROM A FIRE HYDRANT TO THE END OF A DEAD-END STREET SHALL NOT EXCEED 200 FT. [IFC SECTION 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. FOR SYSTEMS REQUIRED TO HAVE TWO (2) SOURCES OF WATER SUPPLY, SECTIONAL CONTROL VALVES SHALL BE INSTALLED SO THAT NO MORE THAN 2 FIRE HYDRANTS AND/OR SPRINKLER LEAD-INS CAN BE OUT OF SERVICE DUE TO A SERVICE INTERRUPTION. FOR SYSTEMS PERMITTED TO HAVE ONE SOURCE OF WATER SUPPLY, SECTIONAL CONTROL VALVES SHALL BE INSTALLED SO THAT NO MORE THAN 3 FIRE HYDRANTS AND/OR FIRE SPRINKLER LEAD-INS CAN BE OUT OF SERVICE DUE TO A SERVICE INTERRUPTION. [IFC SECTION 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 SECTION 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 EXCEED 6% [IFC SECTION 503.2.7, 503.2.8]
21. THE TURNING RADIUS OF THE FIRE APPARATUS ACCESS ROADS SHALL BE NO LESS THAN 52 FT OUTSIDE AND 28 FT INSIDE TURNING RADIUS. [IFC 503.2.4]
22. VERTICAL CLEARANCE OF ALL FIRE APPARATUS ACCESS ROADS SHALL NOT BE LESS THAN 13 FT 6 IN. [IFC SECTION 503.2.1]
23. FIRE DEPARTMENT ACCESS ROADS SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF NOT LESS THAN 33 FT WITH PARKING ON BOTH SIDES MEASURED TO FACE OF CURB. NOT LESS THAN 28 FT WIDE WITH PARKING RESTRICTED TO ONE SIDE MEASURED TO FACE OF CURB. NOT LESS THAN 24 FT WIDE WITH NO PARKING ON EITHER SIDE MEASURED TO FACE OF CURB. FIRE LANES THROUGH PARKING LOTS SHALL NOT BE LESS THAN 24 FT. [IFC SECTION 503.2.1.1]
24. A FIRE APPARATUS ACCESS ROAD SHALL BE REQUIRED WHEN ANY PORTION OF AN EXTERIOR WALL OF THE FIRST STORY IS LOCATED MORE THAN 150 FT FROM A FIRE DEPARTMENT VEHICLE ACCESS. [IFC SECTION 503.1.1]
25. APPROVED SECONDARY FIRE APPARATUS ACCESS SHALL BE PROVIDED FOR 200 OR MORE DWELLING UNITS, ROAD(S) WITH DEAD-ENDS OR SINGLE POINT OF ACCESS IN EXCESS OF 600 FT. CLV REGULATION AND MOU.
26. ALL DEAD-END FIRE APPARATUS ROADS AND/OR FIRE LANES, PUBLIC OR PRIVATE, IN EXCESS OF 150 FT IN LENGTH SHALL BE PROVIDED WITH AN APPROVED TURN AROUND HAVING A MINIMUM DIAMETER OF 81 FT. CLV REGULATION
27. ALL FIRE APPARATUS ACCESS ROADS SHALL BE MARKED BY PLACING APPROVED SIGNS AT THE START OF THE DESIGNATED FIRE LANE, ONE SIGN AT THE END OF THE FIRE LANE AND WITH SIGNS AT INTERVALS OF 100 FT ALONG THE DESIGNATED FIRE LANES. SIGNS TO BE PLACED ON BOTH SIDES OF AN ACCESS ROADWAY IF NEEDED TO PREVENT PARKING ON EITHER SIDE. SIGNS TO BE INSTALLED NO HIGHER THAN 10 FT OR LESS THAN 6 FT FROM THE ROADWAY LEVEL. THE CURB ALONG OR ON THE PAVEMENT OR CEMENT (IF NO CURB IS PROVIDED) SHALL BE PAINTED WITH A RED WEATHER RESISTANT PAINT IN ADDITION TO THE SIGNS. [IFC SECTION 503.3]
28. ELECTRICALLY CONTROLLED ACCESS GATES SHALL BE PROVIDED WITH AN APPROVED EMERGENCY VEHICLE DETECTOR/RECEIVER SYSTEM. [IFC SECTION 503.6]
29. WHERE STREETS ARE PROVIDED WITH MEDIAN DIVIDERS, OR HAVING FOUR OR MORE TRAVEL LANES AND A TRAFFIC COUNT OF MORE THAN 30,000 VEHICLES PER DAY, ALL HYDRANTS BEING UTILIZED TO DELIVER FIRE FLOW TO PROPOSED LOCATION SHALL BE LOCATED ON THE SAME SIDE OF THE STREET AS THE PROPOSED DEVELOPMENT. CLV REGULATION.

REVISED FEBRUARY 4, 2019

FLOOD ZONE NOTE

NO PORTION OF THE SITE FALLS WITHIN A FEMA DESIGNATED SPECIAL FLOOD HAZARD AREA. SITE LOCATED ON PANEL XXXXXXXXXXX, DATED XXXXXXXXX XX, 20XX, AND PANEL XXXXXXXXXX, DATED XXXXXXXXX XX, 20XX. THIS PANEL SHOWS THAT THE PROJECT IS LOCATED WITHIN A ZONE X AND NOT LOCATED WITHIN A FEMA DESIGNATED 100-YEAR ZONE A OR SPECIAL FLOOD HAZARD AREA.

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

- 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 HIW OWN EXPENSE AND AT THE DIRECTION OF THE CITY ENGINEER. TEMPORARY CONSTRUCTION INCLUDES DITCHES, BERMS, ROAD SIGNS AND BARRICADES, ETC.

REVISED 4/15/10

CITY OF LAS VEGAS SEWER NOTES

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE DESIGN AND CONSTRUCTION STANDARDS FOR WASTEWATER COLLECTION SYSTEMS AND THE UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS' CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA, AS AMENDED. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO BE AWARE OF THE CONTENTS OF THE ABOVE SPECIFICATIONS.
2. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PERFORM CONSTRUCTION AS PER PLANS. ANY ADDITIONS, DELETIONS, OR CHANGES SHALL FIRST MEET WITH THE APPROVAL OF THE CITY ENGINEER.
3. CHISEL "S" OR "G" IN CURBS WHERE SEWER OR GAS LATERALS PASS UNDER THE CURB.
4. POLYVINYL (PVC) SEWER PIPE SHALL MEET ASTM D-3034 SDR 35 SPECIFICATIONS, INSTALLED WITH SAND BEDDING AND BACKFILL OF TYPE II AGGREGATE BASE.
5. ALL MANHOLES PAVED IN STREETS EIGHTY (80') FOOT R/W AND LARGER SHALL HAVE CONCRETE COLLARS. STREETS LESS THAN EIGHTY (80') FOOT R/W WILL REQUIRE RETROFIT IF PAVING DOES NOT CONFORM TO CITY STANDARDS AT THE MANHOLE.
6. TEE SADDLES SHALL BE USED TO CONNECT SEWER LATERALS TO EXISTING MAIN LINES UP TO TWELVE INCH (12") DIAMETER. CONNECTIONS TO FIFTEEN INCH (15") OR LARGER MAINS SHALL REQUIRE SPECIAL PROCEDURES. IN LINE "Y" 'S SHALL BE USED ON LINES TWELVE INCHES (12") OR ABOVE.
7. WATER MAINS SHALL BE PROTECTED IN ACCORDANCE WITH LVVWD STANDARDS WHENEVER A SEWER MAIN CROSSES OVER A WATER MAIN OR THE SEWER IS LESS THAN EIGHTEEN INCH (18") UNDER A WATER MAIN.
8. ALL CONTRACTORS INSTALLING SEWER MAINS THAT WILL BE UNDER THE JURISDICTION OF THE CITY OF LAS VEGAS MUST BE STATE OF NEVADA CLASS "A" CONTRACTORS.
9. THE CITY OF LAS VEGAS WILL NOT ACCEPT ANY SEWER MAINS WHICH HAVE A VERTICAL DEFLECTION OF MORE THAN ONE TENTH (0.1) OF A FOOT FROM THE APPROVED CONSTRUCTION PLANS AT ANY LOCATION. SEWER MAINS FOUND TO EXCEED THIS TOLERANCE WILL HAVE TO BE REPAIRED OR REMOVED OR REPLACED TO THE SATISFACTION OF THE CITY ENGINEER PRIOR TO ACCEPTANCE BY THE CITY OF LAS VEGAS.
10. INSTALLATION OF CURVED SEWER REQUIRES THE USE OF C-900 PIPE WHICH ALLOWS FOR PIPE DEFLECTION AT THE JOINTS.
11. SEWER SERVICES AS APPROVED ON THIS PLAN, ARE INTENDED SPECIFICALLY FOR THE LOT AND USE SHOWN, AND ARE NOT INTENDED TO SERVE ADDITIONAL PARCELS OR STRUCTURES WHICH MAY BE CREATED IN THE FUTURE. IN THE EVENT THAT THE PARCEL AND/OR LOTS SHOWN ON THIS PLAN ARE FURTHER DIVIDED TO CREATE ADDITIONAL PARCELS OR LOTS, THE OWNER IS REQUIRED TO PROVIDE SEPARATE SEWER SERVICES TO EACH.

REVISED 09/16/20

LAS VEGAS VALLEY CONSTRUCTION STORMWATER RUNOFF MANAGEMENT - STANDARD 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 ACCUMULATE IN, THE PUBLIC RIGHTS OF WAYS OF THE CITY OF LAS VEGAS 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 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 NVR100000, SITE STABILIZATION REQUIREMENTS, SCHEDULES AND DEADLINES.
4. AT A MINIMUM, THE CONTRACTOR OR HIS AGENT SHALL INSPECT ALL DISTURBED AREAS, AREAS USED FOR STORAGE OF MATERIALS AND EQUIPMENT THAT ARE EXPOSED TO PRECIPITATION, VEHICLE ENTRANCE AND EXIT LOCATIONS, AND ALL BMPS WEEKLY, AND WITHIN 24 HOURS AFTER ANY RAIN EVENT OF 0.5 INCHES OR MORE. THE CONTRACTOR OR HIS AGENT SHALL UPDATE OR MODIFY THE STORMWATER POLLUTION PREVENTION PLAN AS NECESSARY. SOME EXCEPTIONS TO WEEKLY INSPECTIONS MAY APPLY, SUCH AS SUSPENSION OF LAND DISTURBANCE ACTIVITIES. REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, INSPECTIONS SECTION.
5. ACCUMULATED SEDIMENT IN BMPS SHALL BE REMOVED WITHIN SEVEN DAYS AFTER A STORMWATER RUNOFF EVENT OR PRIOR TO THE NEXT ANTICIPATED STORM EVENT, WHICHEVER IS EARLIER. SEDIMENT MUST BE REMOVED WHEN BMP DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE.
6. AT A MINIMUM, THE CONTRACTOR OR HIS AGENT SHALL RESPOND TO STORMWATER INSPECTION CORRECTIVE ACTIONS IN THE MANNER PRESCRIBED BY CLARK COUNTY, INCLUDING BUT NOT LIMITED TO PROVIDING PHOTOS AND DESCRIPTIONS OF THE CORRECTION COMPLETED BY THE CONTRACTOR OR HIS AGENT.

LAS VEGAS VALLEY WATER DISTRICT

LVVWD PROJECT # XXXXXX

(REVISED 09/08/2021)

1. NO WORK SHALL BEGIN UNTIL THE WATER PLANS HAVE BEEN APPROVED FOR CONSTRUCTION BY THE LVVWD. FOLLOWING WATER PLAN APPROVAL, NOTICE SHALL BE GIVEN TO THE LVVWD COMMUNICATION SUPPORT CENTER (258-7171) TWO (2) WORKING DAYS PRIOR TO THE START OF CONSTRUCTION. FOR FUTURE INSPECTIONS, NOTICE MUST BE GIVEN BY 2:00 P.M. THE BUSINESS DAY PRIOR TO THE REQUESTED LVVWD INSPECTION. WHEN REQUESTING INSPECTIONS, PLEASE REFER TO THE PROJECT # IDENTIFIED ABOVE.
2. ALL WORK SHALL CONFORM TO LVVWD STANDARD PLATES, DRAWINGS, AND SPECIFICATIONS, AND TO THE 2010 EDITION OF THE UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR POTABLE WATER SYSTEMS (UDACS). THE LATEST EDITION OF UDACS SHALL SUPERSEDE ANY CONFLICTS CONTAINED IN THE APPROVED DRAWINGS AND/OR SPECIFICATIONS.
3. ALL WORK, EXCEPT AS MODIFIED BY THESE PLANS OR BY NOTE 2 ABOVE, SHALL BE DONE IN ACCORDANCE WITH THE MOST RECENT DRAFT OR EDITION OF THE UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFFSITE IMPROVEMENT, CLARK COUNTY AREA.
4. A SINGLE PIPE MATERIAL SHALL BE USED THROUGHOUT THE PROJECT UNLESS OTHERWISE APPROVED BY THE LVVWD.
5. ALL SERVICE LATERALS TWO (2) INCHES IN DIAMETER AND SMALLER SHALL BE TYPE K COPPER TUBING WITH LVVWD APPROVED SERVICE SADDLES.
6. ALL WATER METER BOXES SHALL BE LOCATED OUTSIDE OF DRIVEWAY AREAS.
7. ALL VALVES SHALL BE LOCATED OUTSIDE OF DRIVEWAYS, VALLEY AND CURB GUTTERS.
8. ALL WATER AND STORM DRAIN OR SANITARY SEWER CROSSINGS SHALL CONFORM TO SECTION 2.22 OF THE 2010 EDITION OF THE UDACS
9. ALL WATER FACILITIES AND APPURTENANCES SHALL BE DISINFECTED, PRESSURE TESTED, AND HAVE AN ACCEPTABLE PASSING HEALTH WATER SAMPLE OBTAINED, PRIOR TO OPERATION AND USE.
10. THE CONTRACTOR MUST OBTAIN ALL METERS TW

CITY OF LAS VEGAS TRAFFIC SIGNAL NOTES (LD)

1. ALL WORK PERFORMED ON ANY TRAFFIC SIGNAL COMPONENT MUST BE UNDER THE DIRECT ON–SITE SUPERVISION OF AN IMSA CERTIFIED TECHNICIAN. THE LEVEL OF CERTIFICATION REQUIRED SHALL BE LEVEL II.

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO ALL EXISTING UTILITIES. THE LOCATIONS OF UNDERGROUND UTILITIES AS SHOWN ON THE PLANS ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES TO VERIFY IN THE FIELD THE LOCATIONS OF THEIR INSTALLATIONS 72 HOURS PRIOR TO CONSTRUCTION.

CALL–BEFORE–YOU–OVERHEAD	1–702–227–2929
CALL–BEFORE–YOU–DIG	1–800–227–2600
STREETLIGHTS	1–702–229–6331
F.A.S.T	1–702–432–5300

3. ALL TRAFFIC SIGNAL INSTALLATIONS SHALL CONFORM TO THE UNIFORM STANDARD DRAWINGS SPECIFICATIONS AND SPECIAL PROVISIONS FOR PUBLIC WORKS' CONSTRUCTION OFF–SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA, VOLUMES I AND II, ADOPTED BY THE REGIONAL TRANSPORTATION COMMISSION APRIL 8, 1992 WITH ALL SUBSEQUENT REVISIONS. BRACKET MOUNTED (SIDE–MOUNTED) VEHICLE SIGNAL ASSEMBLIES WITH 2 OR MORE SIGNAL HEADS SHALL HAVE AN ADDITIONAL ELBOW AS SHOWN IN UNIFORM STANDARD DRAWING NUMBER 863 AND SHOWN AS OPTION B IN UNIFORM STANDARD DRAWING NUMBER 844, AND SHALL HAVE A MENERALLAC SUPPORT AS SHOWN IN UNIFORM STANDARD DRAWING NUMBER 863 IF ONE OF THE SIGNAL HEADS CONTAINS 4 OR MORE SIGNAL MODULES.

4. SERVICE SHALL HAVE 1–60 AMP SINGLE POLE BREAKER FOR SIGNAL, AND ONE 40 AMP SINGLE POLE BREAKERS FOR STREET LIGHTS. SERVICE SHALL BE 200 AMP PADMOUNT AND SHALL HAVE A CAPACITY OF 20 OR 24 CIRCUITS.

5. LINE SIDE OF METER TO BE WIRED WITH THREE #3/0 AWG THW. LOAD SIDE SHALL BE WIRED WITH FOUR #4 AWG THW (2 BLACK, 2 WHITE) AND ONE #8 AWG THW (GREEN).

6. LUMINAIRES ON ALL SIGNAL POLES SHALL BE L.E.D. AS APPROVED BY THE CITY OF LAS VEGAS (CLV). DESIGN PROFESSIONAL AND CONTRACTOR SHALL VERIFY CITY'S LATEST LED FIXTURE SPECIFICATIONS AND APPROVED FIXTURES PER CLV WEBSITE, UNDER BUILDING AND SAFETY FORMS, PRIOR TO ORDERING MATERIALS. INTERSECTION LIGHTING SHALL MEET THE REQUIREMENTS OF UNIFORM STANDARD DRAWING NUMBER 300.S3. EACH LUMINAIRE SHALL HAVE AN INDIVIDUAL 1000 WATT P.E. CONTROL. FOR LUMINAIRES THERE SHALL BE 2(TWO) – #4 AWG THW CONDUCTORS FROM THE SERVICE TO THE CABINET. IN THE CABINET, THE #4 AWG THW CONDUCTORS SHALL BRANCH OFF INTO #10 AWG THW CONDUCTORS INDIVIDUALLY FUSED WITH 10 AMP FUSES. THERE SHALL BE NO SPLICES BETWEEN THE CABINET AND LUMINAIRE FIXTURES.

7. LUMINAIRES SHALL BE MARKED TO INDICATE INSTALLATION ORIENTATION, AND SHALL HAVE EXTERNAL LABELS PER ANSI C136.15 THAT INDICATE WATTAGE AND ARE CLEARLY VISIBLE FROM STREET LEVEL. TRAFFIC SIGNAL LUMINAIRES INSTALLED ADJACENT TO RESIDENTIAL HOUSING SHALL BE INSTALLED WITH MANUFACTURER PROVIDED HOUSE–SIDE SHIELDS.

8. THE INTERNALLY ILLUMINATED STREET NAME SIGNS SHALL BE WIRED TO THE LUMINAIRES PHOTO CELL FOR CONTROL WITH #10 AWG THW COPPER STRANDED WIRE (TYPICAL). THE SIGN SHALL BE WIRED TO THE LUMINAIRE DIRECTLY ABOVE IT. IN THE EVENT THERE IS NO LUMINAIRE ON THE TRAFFIC SIGNAL POLE, THE 1000 WATT P.E. CONTROL SHALL BE MOUNTED ON THE POLE CAP. ALL NEW ILLUMINATED STREET NAME SIGNS SHALL HAVE LIGHT EMITTING DIODE (LED) LAMPS PER SECTION 623 T.02.16 OF THE SPECIAL PROVISIONS.

9. CHECK CONDUIT AND CABLE SCHEDULE FOR CONDUIT, CABLE, AND WIRE SIZE. VERIFY ALL EXISTING CONDUIT RUNS.

10. ALL PULLBOXES SHALL BE IN ACCORDANCE WITH UNIFORM STANDARD DRAWINGS NO. 705, NO. 706, AND NO. 707.

11. TRAFFIC SIGNAL CABLE SHALL BE 15 OR 25 CONDUCTOR #14 AWG SOLID (TYPICAL) CABLE AND SHALL CONFORM TO IMSA SPEC. NO. 20–1.

12. PEDESTRIAN PUSH BUTTONS SHALL BE AUDIBLE TACTILE "POLARA NAVIGATOR" TYPE (2–WIRE PEDESTRIAN PUSHBUTTON SYSTEM WITH IN2 PUSH BUTTON STATIONS AND SHELF–MOUNT BIU CONTROL UNIT WITH SDLC CABLE) IN ACCORDANCE WITH CITY OF LAS VEGAS SPECIAL PROVISIONS AND SECTION 623 OF THE CCA USS. PUSH BUTTON SIGNS SHALL BE R10–3e PER MUTCD, 2009 EDITION, WITH FULL MOUNTING BRACKETS AS MODIFIED BY THE MANUFACTURER TO FIT ON A 9"X12" SIGN, AND SHALL BE PORCELAIN–ENAMELED METAL. ALL PUSH BUTTONS TO BE MOUNTED 42" ABOVE SIDEWALK. THE MAXIMUM HORIZONTAL REACH DISTANCE IS TO BE 10". SIDEWALK RAMPS WILL BE ACCORDING TO U.S.D. No. 235 (1–4) LATEST EDITION. WHEN AN EXISTING SIGNAL WITH EXISTING AUDIBLE–TACILE PUSH BUTTONS IS MODIFIED, THE CONTRACTOR SHALL VERIFY NEW PEDESTRIAN PUSH BUTTONS OR CABINET EQUIPMENT MATCHES THE MANUFACTURE AND MODEL OF ANY EXISTING EQUIPMENT SCHEDULED TO REMAIN, TO PROVIDE A FULLY FUNCTIONING SYSTEM. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL CABINET EQUIPMENT, INCLUDING THE PEDESTRIAN PUSH BUTTON CONTROL UNIT, INTERFACE PANEL AND ANY REQUIRED HARNESSES, TO PROVIDE A FULLY FUNCTIONING SYSTEM.

13. THE ROUTING AND TERMINATION OF CONDUITS AND THE PLACING OF POLES AND CABINETS SHALL BE AS INDICATED ON THE PLANS. ALL CHANGES SHALL BE APPROVED BY THE ENGINEER.

14. MAST ARM R10–12 SIGNS TO BE ADJACENT (NO GAP) TO THE M–5 SIGNAL HEAD. WHERE FLASHING YELLOW ARROW LEFT TURN SIGNALS ARE USED, A MAST ARM R10–12F "LEFT TURN YIELD ON FLASHING YELLOW ARROW" SIGN SHALL BE MOUNTED ADJACENT TO THE M–4 SIGNAL HEAD.

15. TRAFFIC SIGNAL CABINET SHALL BE A TYPE VIII CABINET UNLESS OTHERWISE SPECIFIED IN THE PLANS. THIS IS COMMONLY REFERRED TO AS AN "R" CABINET. THE CABINET SHALL CONFORM TO THE CLARK COUNTY AREA UNIFORM STANDARD DRAWINGS AND SPECIFICATIONS AND THE CITY OF LAS VEGAS SPECIAL PROVISIONS AND SHALL BE A NEMA TS2–TYPE2 CABINET. INSTALL CABINET NEAR THE R.O.W. LINE OR AS SHOWN ON THE DRAWINGS. THE TRAFFIC SIGNAL CONTROLLER CABINET SHALL BE EQUIPPED WITH 16 LOAD BAY POSITIONS AND SHALL BE A 64 DETECTOR CHANNEL R CABINET WITH RACK–MOUNTED DETECTION. THE CABINET SHALL CONTAIN A 764 OPTICOM PHASE SELECTOR, WITH A 768 AUXILIARY INTERFACE PANEL MOUNTED IN THE CABINET AND FULLY WIRED FOR GREEN SENSE CAPABILITIES. THE CABINET SHALL BE EITHER: MODEL R–44 CAB, TS2–2, LAS VEGAS–64 DET, PART # M7650 FROM MCCAIN, INC.; MODEL MOBOTREX LAS VEGAS TS2–TYPE2 16 POS., 64 CH. DET, DRAWING # 1F42167LV01 REV 3 FROM SIERRA TRANSPORTATION AND TECHNOLOGIES; OR MODEL TS2–2 HW 16 POSITION HORIZONTAL CITY OF LAS VEGAS CABINET, PART # 3441JG12–02–06 FROM ECONOLITE CONTROL PRODUCTS, INC. ALL CABINETS SHALL BE PROVIDED WITH A COMPLETE SET OF FOUR BUS INTERFACE UNITS, POWER SUPPLY AND SDLC CABLES TO PROVIDE A FULLY FUNCTIONING SYSTEM. CABINET POWER SUPPLIES SHALL BE RENO A&E MODEL CPS–TS2–LED, PEEK MODEL PS101, OR ECONOLITE PS–200. BIU'S SHALL BE RENO A&E MODEL 1240, PEEK MODEL BUS INTERFACE UNIT 82–1886–01, OR ECONOLITE PART # 160–1018–501.

16. THE CONTRACTOR SHALL SUPPLY A MALFUNCTION MANAGEMENT UNIT (MMU) AND TRAFFIC SIGNAL CONTROLLER TO THE CITY OF LAS VEGAS TRAFFIC SIGNAL REPAIR SHOP A MINIMUM OF FOURTEEN (14) DAYS PRIOR TO SIGNAL TURN–ON OR PRIOR TO CONVERTING TO A NEW PHASING SCHEME, FOR TESTING AND PROGRAMMING PURPOSES. THE CONTROLLER SHALL BE A NAZTEC 980 ATC TS2 TYPE 2 NTCIP COMPLIANT SIGNAL CONTROLLER WITH INTSTALLED AND LICENSED APOGEE CONTROLLER SOFTWARE, LATEST VERSION, AND THE MMU SHALL BE A MODEL MMU–1600GE AS MANUFACTURED BY RENO A&E., OR APPROVED EQUAL. THE CONTRACTOR SHALL DELIVER THE CONTROLLER AND MMU TO AND PICKUP THE CONTROLLER AT 2985 RONEMUS DRIVE. CONTRACTOR SHALL NOTIFY TRAFFIC ENGINEERING FIELD OPERATIONS (702–229–6331) SEVEN DAYS PRIOR TO PICK UP. THE CITY, AT ITS DISCRETION, MAY PROVIDE A DIFFERENT MODEL MMU FOR INITIAL TURN–ON, IN WHICH CASE CITY PERSONNEL WILL SWAP THE MMU AFTER THE PROJECT IS ACCEPTED.

17. CONTRACTOR SHALL POTHOLE SIGNAL POLE LOCATIONS PRIOR TO ORDERING OF POLES.

18. ALL MAST ARMS TO BE HOT–DIP GALVANIZED BY THE MANUFACTURER THE MAST ARM IS TO BE FABRICATED WITH END TENON ONLY. THE END TENON SHALL BE FACTORY INSTALLED AND THE REMAINING TENONS SHALL BE FABRICATED IN THE FIELD AT THE LOCATION SHOWN ON THE PLANS OR AS DIRECTED BY THE TRAFFIC ENGINEER AND/OR HIS AUTHORIZED REPRESENTATIVE. FOR TENON FABRICATION DETAILS SEE CLARK COUNTY AREA U.S.D. NO. 808 SHEET 2. ALL WELDING SHALL CONFORM WELDED IN AWS D 2.0, "SPECIFICATION FOR WELDED HIGHWAYS AND RAILWAY BRIDGES," AND TO ANY ADDITIONAL REQUIREMENTS OF SECTION 623 OF THE SPECIFICATIONS. ALL EXPOSED WELDS, SHALL BE PAINTED AS PROVIDED FOR REPAIRING DAMAGED GALVANIZED SURFACES.

19. ALL VEHICLE AND PEDESTRIAN SIGNAL INDICATIONS SHALL HAVE LIGHT EMITTING DIODE (LED) TYPE INDICATIONS, IN CONFORMANCE TO CITY OF LAS VEGAS SPECIAL PROVISIONS AND TO SECTION 623 OF THE CCA USS. ALL PEDESTRIAN SIGNAL FACES SHALL PROVIDE "WALKING PERSON", "HAND", AND "COUNTDOWN" MESSAGES AS PROVIDED BY DURALIGHT MODEL #JXM–400–VIEIL OR DIALIGHT MODEL #430–6479–001X, OR APPROVED EQUAL. THE "COUNTDOWN" MESSAGE SHALL NOT FLASH. WHERE EXISTING SIGNALS ARE MODIFIED, THE CONTRACTOR SHALL VERIFY THAT LED PEDESTRIAN INDICATIONS FOR A SPECIFIC PHASE ARE OF THE SAME MANUFACTURE SO THAT THEY FUNCTION CORRECTLY, OR SHALL REPLACE ALL COUNTDOWN PEDESTRIAN INDICATIONS FOR THAT PHASE.

20. VIDEO DETECTION SYSTEMS SHALL BE TS2 COMPATIBLE AND SHALL INPUT DETECTOR CALLS TO THE CONTROLLER THROUGH AN SDLC CABLE. SYSTEMS WILL BE EITHER ITERIS EDGE 2–1IN PROCESSORS WITH VRACK5–PS, EDGE2–TS2–IM–PAK AND EDGECONNECT PAK IQ (IP ADDRESSABLE); PEEK VIDEOPAK IQ (WITH ETHERNET PORT AND SDLC); ECONOLITE AUTOSCOPE VISION SYSTEM WITH COMM MANAGER AND MINI DETECTION PROGRAMMING KIT MOUNTED IN THE CABINET; OR TRAFICON VIP WITH VIEWCOM (IP ADDRESSABLE) AND PIM (SDLC). WHEN VIDEO DETECTION IS SPECIFIED ON THE TRAFFIC SIGNAL PLANS, ALL VIDEO DETECTION SYSTEMS WILL BE STAND ALONE SYSTEMS TO INCLUDE ALL NECESSARY EQUIPMENT TO PROGRAM THE VIDEO DETECTION SYSTEM. A PROGRAMMING "MOUSE", KEYPAD OR LAPTOP COMPUTER (IF REQUIRED FOR PROGRAMMING THE VIDEO DETECTION SYSTEM) AND APPROPRIATE SOFTWARE WILL BE SUPPLIED WITH EACH VIDEO SYSTEM. PERSONAL COMPUTERS (PCs) MAY NOT BE SUBSTITUTED FOR LAPTOPS. A VIDEO MONITOR (COLOR FLAT SCREEN) 9" TO 13" WILL BE SUPPLIED WITH EACH VIDEO DETECTION SYSTEM. EACH VIDEO CAMERA WILL HAVE POWER AND VIDEO CABLE DIRECTLY FROM THE CABINET. COAXIAL CABLE WILL BE TYPE 8281 (SOLID CENTER CONDUCTOR). CAMERAS THAT USE A PREFABRICATED CABLE INTEGRATING POWER AND VIDEO INTO A SINGLE WEATHERPROOF CONNECTOR ARE ACCEPTABLE. "BNC" ARE THE ONLY ACCEPTABLE TERMINATION OF COAXIAL CABLES. CAMERAS WILL BE MOUNTED PER MANUFACTURER'S RECOMMENDATIONS AND PER CLV TRAFFIC ENGINEER APPROVAL. VIDEO CAMERAS SHALL BE COLOR AND SHALL BE MOUNTED ON A MINIMUM 6 FOOT RISER ON THE SIGNAL MAST ARM WITH EXTENSION BRACKETS (TYPE AG–0175–74–62 OR EQUIVALENT). THE LOCATION OF THE CAMERA ON THE MAST ARM SHALL BE APPROVED BY THE TEFO TRAFFIC SIGNAL SUPERVISOR. A VIDEO FILTER (CX06–BNYC OR EQUIVALENT) WILL BE INSTALLED IN THE SIGNAL CABINET FOR EACH CAMERA VIDEO INPUT WHEN COAX IS USED. VIDEO DETECTION PROCESSORS AND COMMUNICATIONS CARDS SHALL BE PROVIDED WITH THE LATEST VERSIONS OF THE MANUFACTURER'S SOFTWARE. THE CONTRACTOR SHALL AIM CAMERAS AND PROGRAM AND CONFIGURE THE VIDEO DETECTION PROCESSORS TO PROVIDE A FULLY FUNCTIONING SYSTEM.

21. WHERE NEW LOOPS WILL BE OVERLAID WITH NEW PAVEMENT, LOOP DETECTORS SHALL BE PREFORMED LOOPS AS MANUFACTURED BY RENO A & E LOOP SYSTEMS AND ALL LOOPS SHALL BE INSTALLED IN THE ROADWAY PRIOR TO PLACEMENT OF THE FINAL PAVEMENT LIFT. WHERE NEW LOOPS ARE INSTALLED THAT ARE NOT OVERLAID WITH NEW PAVEMENT, LOOPS SHALL BE CABLE–IN–DUCT PER SECTION 623 T.02.04.C OF THE CITY OF LAS VEGAS SPECIAL PROVISIONS. LOOP LEAD–IN CABLE SHALL BE 6–PAIR 18 AWG MULTIPLE CONDUCTOR CABLE AS SPECIFIED IN SECTION 623T.02.04 OF THE CLV SPECIAL PROVISIONS. ALL WIRING, RACK POSITIONS, AND LOOP LEAD–IN CABLE SHALL BE CLEARLY MARKED AS TO THE APPROPRIATE PHASE AND LETTER DESIGNATION TO WHICH IT BELONGS AS SHOWN ON THE TRAFFIC SIGNAL PLANS. LOOPS SHALL BE LOCATED AS SHOWN ON THE TRAFFIC SIGNAL PLANS AND APPROVED BY THE CLV TRAFFIC ENGINEERING DIVISION PRIOR TO INSTALLATION. REFER TO SECTION 623T.02.04 OF THE CLV SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS.

22. OPTICAL PREEMPTION UNITS WILL BE GLOBAL TRAFFIC TECHNOLOGIES (ENCODING CAPABLE), MODEL 764 OPTICOM PHASE SELECTOR INSTALLED IN A MODEL 760 RACK WITH A MODEL 768 AUXILIARY INTERFACE PANEL (AIP) MOUNTED IN THE CABINET AND FULLY WIRED FOR GREEN SENSE CAPABILITIES. OPTICAL SENSORS WILL BE MODEL 721 WITH ONE DETECTOR PER DIRECTION, UNLESS SHOWN OTHERWISE IN THE PLANS, AND WILL BE INTERFACED TO THE TRAFFIC SIGNAL CONTROLLER CABINET WITH M–138 CABLE. THE SOUTHBOUND OPTICOM DETECTOR SHALL BE WIRED TO INPUT PREEMPTS ON CHANNEL 1 IN THE PHASE SELECTOR, EASTBOUND ON CHANNEL 2, NORTHBOUND ON CHANNEL 3, AND WESTBOUND ON CHANNEL 4, UNLESS VARIATIONS ARE APPROVED BY THE TRAFFIC SIGNAL SUPERVISOR. WHEN 764 PHASE SELECTORS ARE ADDED TO A CABINET WITHOUT A 768 AIP, THE CONTRACTOR SHALL INSTALL AND WIRE A NEW 768 AIP.

23. IF THE IMPROVEMENTS NECESSITATE THE OBLITERATION, TEMPORARY CONSTRUCTION, TEMPORARY REMOVAL, OR RELOCATION OF ANY EXISTING TRAFFIC PAVEMENT MARKING, SUCH PAVEMENT MARKING SHALL BE RESTORED OR REPLACED AT THE CONTRACTORS EXPENSE TO THE SATISFACTION OF THE CITY.

24. INTERCONNECT CABLE SHALL BE AS SHOWN IN THE WIRE SCHEDULE.

25. THE CONTRACTOR SHALL INSTALL CROSSWALKS, STOP BARS, STRIPING AND SIGNS AS IDENTIFIED ON THE PLANS.

26. WHERE THE PLANS CALL FOR REMOVAL AND SALVAGE OF EXISTING TRAFFIC SIGNAL EQUIPMENT, THE CONTRACTOR SHALL CALL 702–229–6331 TO SPEAK TO A TRAFFIC FIELD SUPERVISOR TO ARRANGE FOR DELIVERY TIMES AND LOCATIONS.

27. THE CONTRACTOR SHALL MAINTAIN EXISTING SIGNALS THROUGH THE LIFE OF THE PROJECT PER SECTION 623 G.03.01N OF THE CLV SPECIAL PROVISIONS.

REVISED JANUARY 11, 2021

ABBREVIATIONS

A	AIR	DG	DESIGN GRADE	No.	NUMBER	SF	SQUARE FOOT/FEET
AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS	DI/D.I.	DROP INLET	NOSHA	STATE OF NEVADA OCCUPATIONAL SAFETY AND HEALTH ADMIN.	SHLDR	SHOULDER
		DIA, ø	DIAMETER			SHT	SHEET
		DIP	DUCTILE IRON PIPE	NPC	NEVADA POWER COMPANY	SIS	SUMMERLIN IMPROVEMENT STDS.
AC	ASPHALT CONCRETE, ACRE	DIST	DISTANCE	NTS	NOT TO SCALE	SL	STREET LIGHT
ACP	ASBESTOS CEMENT PIPE	DR	DRIVE	NVE	NV ENERGY	SP	SERVICE POINT
ADD'L	ADDITIONAL	DS	DOWNSPOUT	OB	OVERBUILD	SQ	SQUARE
AG	AGGREGATE BASE	DTL	DETAIL	OC	ON CENTER	SR	SEWER RECLAIM MAIN
AP	ANGLE POINT	DRV, DW	DRIVEWAY	OHC	OVERHEAD COX COMMUNICATION	SS, SSWR	SANITARY SEWER
APN	ASSESSOR'S PARCEL NUMBER	DWG	DRAWING	OHP	OVERHEAD POWER LINE	SSMH	SANITARY SEWER MANHOLE
APPROX	APPROXIMATELY	E	EAST	P, PWR	POWER LINE	STA	STATION
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	ECR	END CURB RETURN	PAC	PUBLIC ACCESS EASEMENT	ST	STREET
		EG	EXISTING GROUND	PB	PULL BOX	STD	STANDARD
AVE	AVENUE	ELEC, ELE	ELECTRICAL	PBS	PLANTMIX BITUMINOUS SURFACE	STL	STEEL
AVAR	AIR VALVE, AIR RELEASE ASSEMBLY	ELEV	ELEVATION	PC	POINT OF CURVE, PRESSURE CLASS	STRUCT	STRUCTURE
		EP, EOP	EDGE OF PAVEMENT	PCC	POINT OF COMPOUND CURVE or PORTLAND CEMENT CONCRETE	SVZ	SIGHT VISIBILITY ZONE
AWWA	AMERICAN WATER WORKS ASSOCIATION	ESMT	EASEMENT			SWG	SOUTHWEST GAS
		EVC	END VERTICAL CURVE	PDE	PUBLIC DRAINAGE EASEMENT	T	TELEPHONE or TOP
BC	BACK OF CURB	EVP	END VERTICAL POINT	PE	PROJECT ENGINEER or POLYETHYLENE	TAN	TANGENT
BCR	BEGIN CURB RETURN	EX, EXIST	EXISTING			TB	TOP OF BERM
BLM	BUREAU OF LAND MANAGEMENT	EXP	EXPANSION JOINT	PED	PEDESTRIAN	TC	TOP OF CURB
BLVD	BOULEVARD	FC	FACE OF CURB	PGL	PROFILE GRADE LINE	TCE	TEMPORARY CONSTRUCTION ESMT
BM	BENCHMARK	FF, FFE	FINISH FLOOR ELEVATION	PH	POTHOLE	TEL, TELE	TELEPHONE
BO	BLOW–OFF	FG	FINISH GRADE	PI	POINT OF INTERSECTION	TEMP	TEMPORARY
BVCE	BEGIN VERTICAL CURVE ELEVATION	FH	FIRE HYDRANT	PIV	POST INDICATOR VALVE	TF	TOP OF FOOTING
		FL	FLOW LINE	PL, P/L	PROPERTY LINE	TG	TOP OF GRATE
BVCS	BEGIN VERTICAL CURVE STATION	FO	FIBER OPTIC	PLCP	POLYURETHANE LINED AND COATED STEEL PIPE	TMH	TOP OF MANHOLE
BVP	BEGIN VERTICAL POINT	FRP	FIBERGLASS REINFORCED PLASTIC			TOP	TOP OF PIPE
BW	BACK OF SIDEWALK	FS	FINISH SURFACE	PLT	PLATE	TP	TELEPHONE POLE
C, CL	CENTERLINE	FT	FOOT/FEET	PMF	PAVEMENT MARKING FILM	TRANS	TRANSITION
C&G	CURB & GUTTER	FTG	FOOTING	POB	POINT OF BEGINNING	TW, TRW	TOP OF RETAINING WALL
CATV	UNDERGROUND CABLE TV	FUT	FUTURE	POC	POINT ON CURVE, POINT OF CONN.	TS	TEST STATION
CCBM	CLARK COUNTY BENCH MARK	G	GAS	POT	POINT ON TANGENT	TSW	TOP OF SCREEN WALL
CCPW	CLARK COUNTY PUBLIC WORKS	GA	GAGE, GUY ANCHOR	PP	POWER POLE	TS&V	TAPPING SLEEVE & VALVE
CCTV	CLOSED–CIRCUIT TELEVISION	GB	GRADE BREAK	PRC	POINT OF REVERSE CURVE	TYP.	TYPICAL
CCWRD	CLARK COUNTY WATER RECLAMATION DISTRICT	GND	GROUND	PRVC	POINT OF REVERSE VERTICAL CURVE	UDACS	UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR WATER DISTRIBUTION SYSTEMS (LATEST ED.)
		GRD	GRADE, GROUND	PROP	PROPOSED		
CE	COMMON ELEMENT	H, HGT	HEIGHT	PSI	POUNDS PER SQUARE INCH		
CFS	CUBIC FEET PER SECOND	HDWL	HEADWALL	PT	POINT OF TANGENCY	UG	UNDERGROUND
CIP	CAPITAL IMPROVEMENTS PROJECT, CORRUGATED IRON PIPE	HGL	HYDRAULIC GRADE LINE	PUB	PUBLIC	ULT	ULTIMATE
		HORIZ	HORIZONTAL	PUE	PUBLIC UTILITY EASEMENT	USDCCA, USD	UNIFORM STD. DRAWINGS FOR PUBLIC WORKS' CONSTRUCTION OFF–SITE IMPROVEMENTS CLARK COUNTY AREA, NEVADA (LATEST EDITION)
CIPM	CURED–IN–PLACE MANHOLE	HP	HIGH POINT, HIGH PRESSURE	PVC	POLYVINYL CHLORIDE		
CIPP	CURED–IN–PLACE PIPE	HPS	HIGH PRESSURE SODIUM	PVI	POINT OF VERTICAL INTERSECTION	VERT	VERTICAL
CIR	CIRCLE	IBC	INTERNATIONAL BUILDING CODE	PVMT	PAVEMENT	VG	VALLEY GUTTER
CLR	CLEAR or CLEARANCE	INV	INVERT	PVTDE	PRIVATE DRAINAGE EASEMENT	VOL	VOLUME
CLSM	CONTROLLED LOW STRENGTH MATERIAL	INT	INTERIM	PZ	PRESSURE ZONE	W	WATER or WEST
		JT	JOINT	R, RAD	RADIAL, RADIUS	W/	WITH
CLV	CITY OF LAS VEGAS	L	LENGTH	RCB	REINFORCED CONCRETE BOX	WMH	WATER MANHOLE
CMP	CORRUGATED METAL PIPE	LT	LEFT	RCP	REINFORCED CONCRETE PIPE	WS	WATER SUPPLY
CMU	CONCRETE MASONRY UNIT	LF	LINEAR FEET	RD	ROAD	WT	WEIGHT
CNLV	CITY OF NORTH LAS VEGAS	LIP	LIP OF GUTTER	RDWY	ROADWAY	WTR	WATER
CO	CLEANOUT	LN	LANE	REC	RECTANGULAR	XING	CROSSING
CONC	CONCRETE	LP	LOW POINT, LIGHT POLE	REF	REFERENCE	YD	YARD, YARD DRAIN
COND	CONDUIT	LS, LSCP	LANDSCAPE	REINF	REINFORCED	Z	PRESSURE ZONE
CONST	CONSTRUCTOR OR CONSTRUCTION	LVVWD	LAS VEGAS VALLEY WATER DISTRICT	REQD	REQUIRED		
COORD	COORDINATE	MAX	MAXIMUM	RIM	TOP OF RIM ELEVATION		
COR	CORNER	MH	MANHOLE	RND	ROUND		
CPEP	CORRUGATED POLYETHELYNE PIPE	MIN	MINIMUM	R/W, ROW	RIGHT OF WAY		
CPR	COPPER	MLTMCP	MORTAR LINED TAPE & MORTAR COATED PIPE	RP	RADIUS POINT		
CT	COURT			RPM	RAISED PAVEMENT MARKERS		
CY	CUBIC YARD(S)	MOD	MODIFY/MODIFIED	RSGV	RESILIENT SEAT GATE VALVE		
Δ	DELTA	MON	MONUMENT	RT	RIGHT		
DBL	DOUBLE	MPH	MILES PER HOUR	S	SEWER, SOUTH		
DCSWCS	DESIGN AND CONSTRUCTION STANDARDS FOR WASTEWATER COLLECTION SYSTEM (LATEST ED.)	N	NORTH	SCH	SCHEDULE		
		N.A.P.	NOT–A–PART	SDWK, SW	SIDEWALK		
		NDOT	NEVADA DEPARTMENT OF TRANSPORTATION	SD	STORM DRAIN		
DE	DRAINAGE EASEMENT			SDMH	STORM DRAIN MANHOLE		
DEFL	DEFLECTION	N.I.C.	NOT IN CONTRACT	SECT	SECTION		

LEGEND

TYPICAL PROPOSED LINEWORK	DETAIL BUBBLE W/ REF. (1 / C)
TYPICAL EXISTING LINEWORK	BENCHMARK
TYPICAL FUTURE LINEWORK	GATE VALVE
SECTION LINE	PRESSURE REDUCING VALVE (PRV)
EASEMENT LINE	BACK WATER VALVE (BWV)
DAYLIGHT GRADING	DROP INLET
FLOWLINE	WATER METER
GRADE BREAK	WATER RPPA
EDGE OF PAVEMENT	FIRE HYDRANT
LOTLINE	WATER RPDA
RIGHT–OF–WAY LINE	TRAFFIC SIGNAL PULL BOX
PROPERTY LINE/BOUNDRY	STREET LIGHT CLARK COUNTY
CENTERLINE	STREET LIGHT SUMMERLIN STD
TYPICAL UTILITY LINE 2" – 12" (SINGLE LINE)	TRAFFIC SIGNAL/FLASHER
TYPICAL UTILITY LINE > THAN 12" (DOUBLE LINE)	EXISTING TELE POLE
TYPICAL SEWER LINE W/MH	EXISTING POWER POLE
TYPICAL WATER LINE W/GV	EXISTING POLE
TYPICAL STORM LINE W/MH	EX. ELEC MARKER
100 YR HYDRAULIC GRADE LINE	TRANSFORMER PAD
CONCRETE OR STEEL ENCASEMENT	SERVICE PEDESTAL
TYPICAL STUB & BLOW–OFF	PULLBOX
PE GAS EX. GAS LINE	PROPOSED CONTOUR (3005)
ELEC EX. ELECTRICAL	EXISTING CONTOUR (3005)
CBL EX. CABLE TV	PROPOSED SPOT ELEVATION (60.50 TC)
TEL EX. TELEPHONE	EXISTING SPOT ELEVATION (60.5) TC
OPL EX. OVERHEAD POWER LINES	PROPOSED SLOPE (1.00%)
EX. ELEC & PWR POLES	SLOPE DIRECTION (TOP SLOPE / TOE SLOPE)
TYPICAL CURB & GUTTER, SIDEWALK AND RAMP	FINISH FLOOR ELEVATION (FF = 2333.25)
RETAINING WALL	
SAWCUT	
SCARPLINE	
SWALE FLOWLINE	
CHAIN LINK FENCE	
WROUGHT IRON FENCE	
POST AND CABLE FENCE	
SIGHT VISIBILITY ZONE	
PEDESTRIAN ACCESS	
PROPOSED ABANDONMENT	
EXISTING ABANDONMENT	

ROADWAY IMPROVEMENTS

DESCRIPTION	UNIT	PUBLIC	PRIVATE
TYPE II GRAVEL	CY		2,072
2–INCH ASPHALTIC CONCRETE PAVING	SY		14,356
"A" CURB | "L" CURB & GUTTER | ROLL CURB	LF		9,032
SIDEWALK RAMP	EA		
COMMERICAL DRIVEWAY	SF		
CONCRETE CROSS GUTTER	SF		6,779
4–INCH CONCRETE SIDEWALK	SF		4,752
SIDEWALK UNDERDRAIN	EA		
SURVEY MONUMENTS: TYPE II	EA		

TRAFFIC IMPROVEMENTS

DESCRIPTION	UNIT	PUBLIC	PRIVATE
STREETLIGHT (STANDARD BASE)	EA		
STREETLIGHT, DOUBLE ARM (STANDARD BASE)	EA		
TRAFFIC SIGNAL POLE AND LUMINAIRE	EA		
PULLBOX, #3	EA		
STREETLIGHT CONDUIT, 1.25–INCH	LF		
SL 200 AMP SERVICE	EA		
STREET SIGNS	EA		
8–INCH WIDE WHITE PAINTED LINE	LF		

STORM IMPROVEMENTS

DESCRIPTION	UNIT	PUBLIC	PRIVATE
18–INCH STORM SEWER PIPE (RCP)	LF	249	
30–INCH STORM SEWER PIPE (RCP)	LF	960	
36–INCH STORM SEWER PIPE (RCP)	LF	423	
48–INCH STORM SEWER PIPE (RCP)	LF	69	
7.5–FOOT MOD. TYPE "C" DOPE INLET	EA	3	
10.0–FOOT MOD. TYPE "C" DOPE INLET	EA	4	
12.5–FOOT MOD. TYPE "C" DOPE INLET	EA	6	
24"X24" GRATE DROP INLET	EA	1	
60–INCH SD MANHOLE (<6')	EA	14	

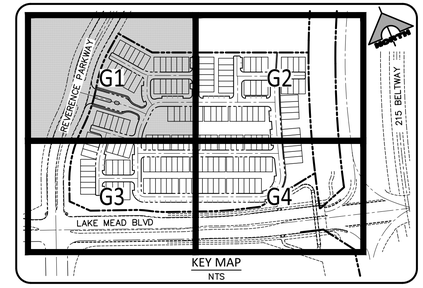
WATER IMPROVEMENTS

DESCRIPTION	UNIT	PUBLIC	PRIVATE
6–INCH WATER MAIN	LF	92	
8–INCH WATER MAIN	LF	4,691	
IRRIGATION SLEEVES	LF	110	
FIRE HYDRANT	EA	8	
WATER SERVICE WITH 3/4" METER	EA	168	
IRRIG. SERVICE WITH 3/4" METER & 1" RPPA	EA	5	

SEWER IMPROVEMENTS

DESCRIPTION	UNIT	PUBLIC	PRIVATE
8–INCH SEWER	LF		
8–INCH SEWER, C900	LF		
SEWER MANHOLE (<6')	EA		
BACKWATER VALVES	EA		
SEWER SERVICE	EA		

CONTRACTOR TO FIELD VERIFY SIZE, LOCATION AND INVERT OF EXISTING PIPE, AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO NEW SEWER CONSTRUCTION



KEY MAP
NTS

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SCALE: 1" = 30'

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BENCHMARK

CLARK COUNTY VERTICAL CONTROL POINT: 5LV09 14S6

SUMMERLIN VILLAGE 26 – REVERENCE PROJECT MODIFIED DATUM: 3227.64 FEET
NAVD88 DATUM: 983.659 METERS (3227.22 FEET)

RIVET & PLATE IN HEAD WALL WEST OF CC215 +/–250' NORTH OF LAKE MEAD.

TO OBTAIN SUMMERLIN VILLAGE 26 – REVERENCE PROJECT MODIFIED DATUM ADD 0.42 FEET TO NAVD88 DATUM.

DRAINAGE CERTIFICATION

I CERTIFY THAT THE GRADING PLANS ARE IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY ON FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT.

03/07/2022
WESLEY T. PETTY, P.E. 16369 — DATE

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

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STATE OF NEVADA — WESLEY T. PETTY — No. 16369 — PROFESSIONAL ENGINEER — 11/01/2023

DATE: 03/07/2022

REV	DATE	DESCRIPTION	DATE	AGEN APP	DATE	GCW APP

PROJECT NO. 764-204-023

DESIGN: PB
DRAWN: PB
CHECK: WP
PLOT DATE: 03-07-22
PLOT TIME: 11:06:47

GCW ENGINEERS \ SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com

F:\PROJECTS\Y2021\764-204-023\DWG\PRODUCTION\764-204-023D03-GD.DWG

PAUL BRENNAN

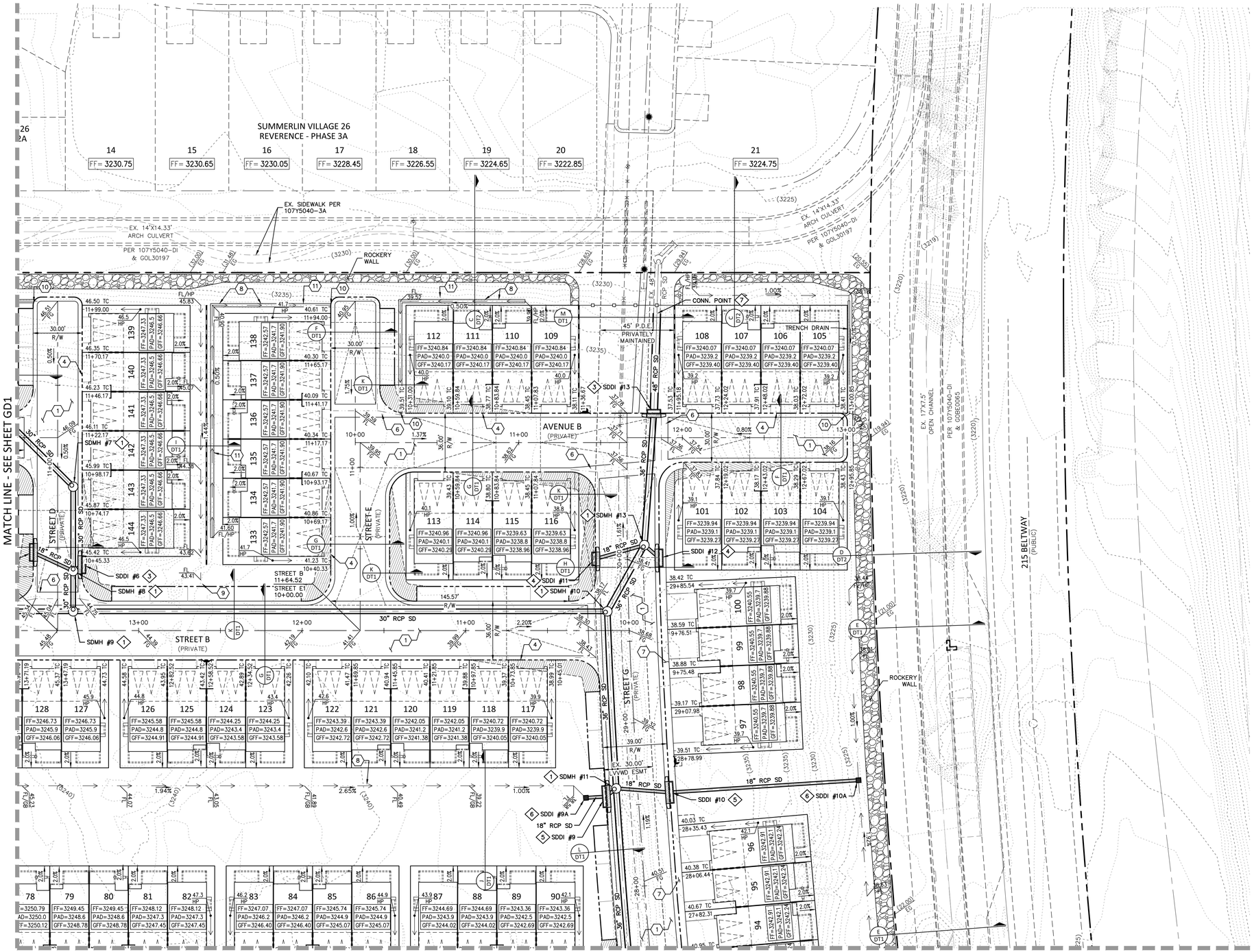
PULTE HOMES

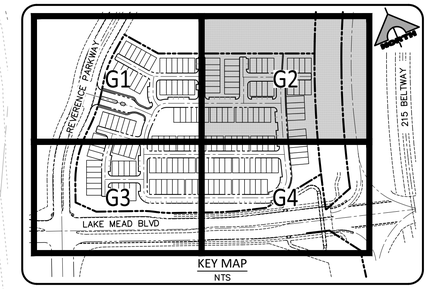
SUMMERLIN - VILLAGE 26 PARCEL L
REVERENCE MULTI-FAMILY

GRADING PLAN 1

DRAWING
GD1
4 OF 34 SHTS

L#: CLV#:





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STATE OF NEVADA — WESLEY T. PETTY — 12/1/2023 — CIVIL — No. 16369 — PROFESSIONAL ENGINEER

REV	DATE	DESCRIPTION	DATE	AGEN APP	DATE	GOV APP	DATE: 03/07/2022

PROJECT NO. 764-204-023

DESIGN: PB
DRAWN: PB
CHECK: WP
PLOT DATE: 03-07-22
PLOT TIME: 11:06:53

PAUL BRENNAN

GCW ENGINEERS \ SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com

F:\PROJECTS\700\764-204-023\DWG\PRODUCTION\764-204-023D03-GD.DWG

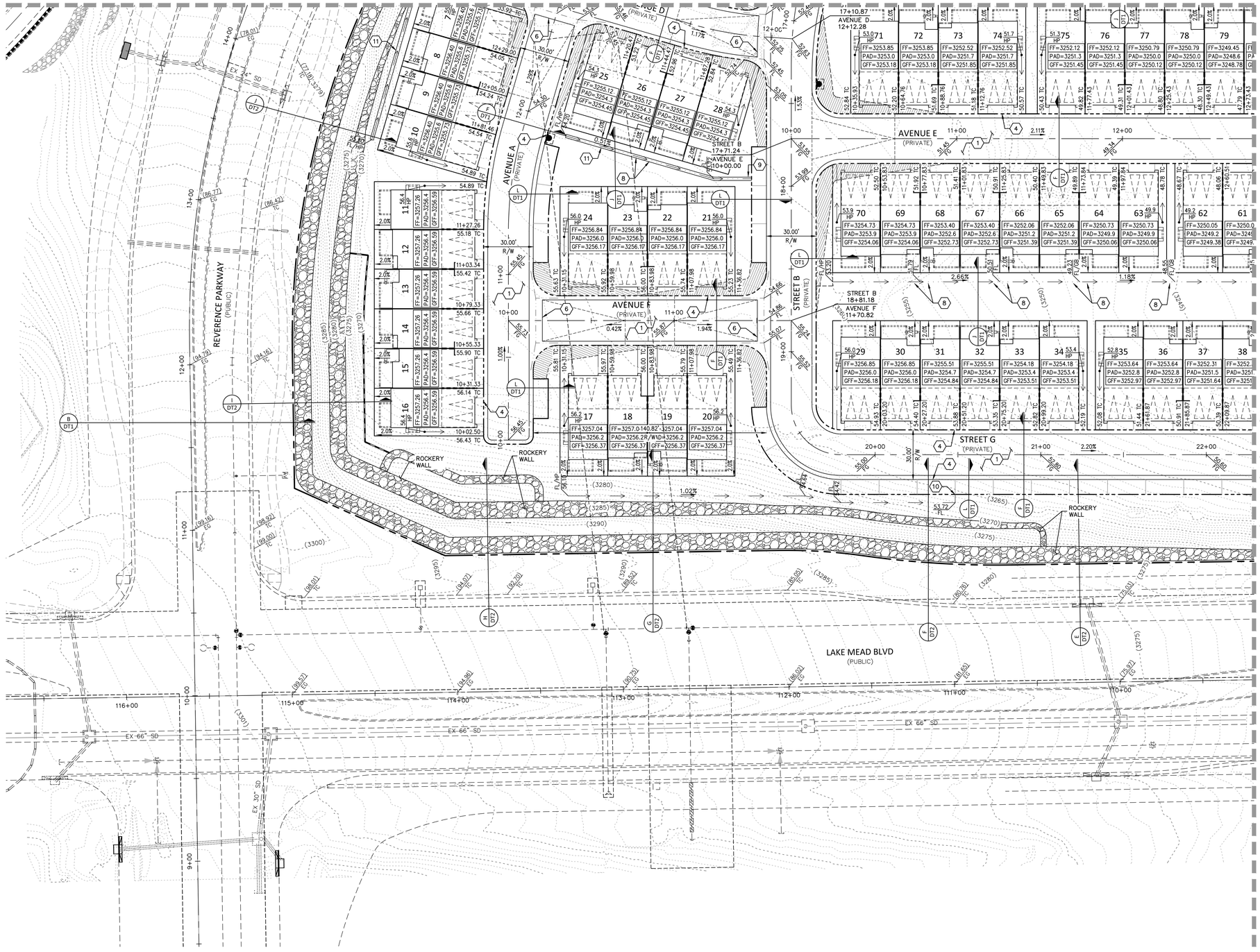
PULTE HOMES

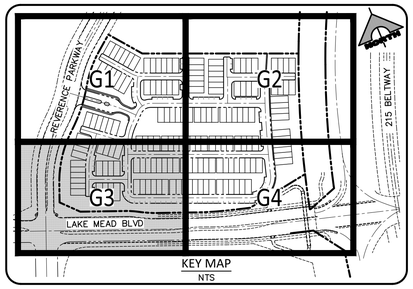
SUMMERLIN - VILLAGE 26 PARCEL L
REVERENCE MULTI-FAMILY

GRADING PLAN 2

DRAWING
GD2
5 OF 34 SHTS

L#: CLV#:





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L#: CLV#:

STATE OF NEVADA — WESLEY T. PETTY — No. 16369 — PROFESSIONAL ENGINEER — 03/07/2022

REV	DATE	DESCRIPTION	DATE	AGEN APP	DATE	GCW APP	DATE

PROJECT NO. 764-204-023
DESIGN: PB
DRAWN: PB
CHECK: WP
PLOT DATE: 03-07-22
PLOT TIME: 11:06:58

GCW ENGINEERS \ SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com

F:\PROJECTS\700\764-204-023\DWG\PRODUCTION\764-204-023D3-GD.DWG
PAUL BRENNAN

PULTE HOMES

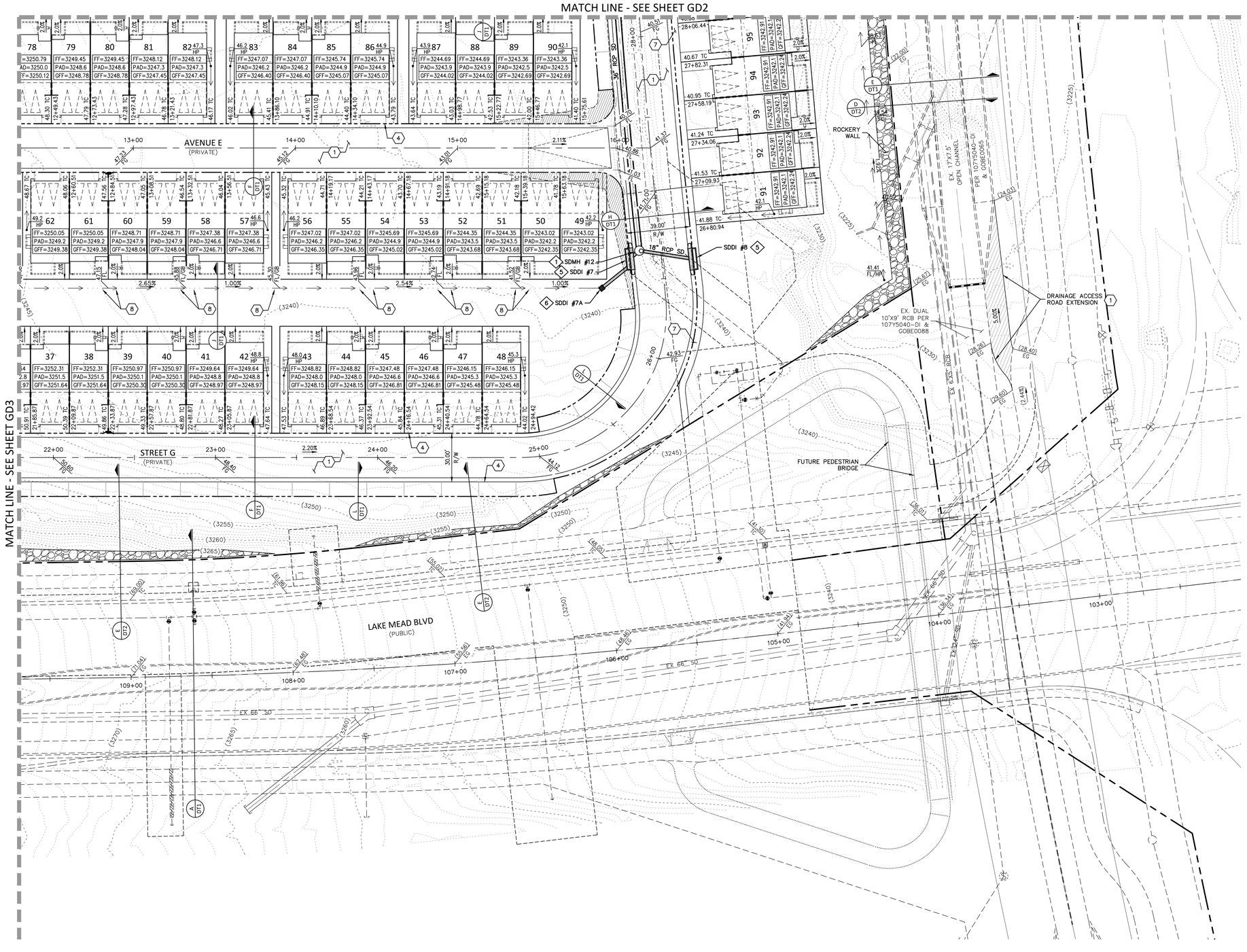
SUMMERLIN - VILLAGE 26 PARCEL L
REVERENCE MULTI-FAMILY

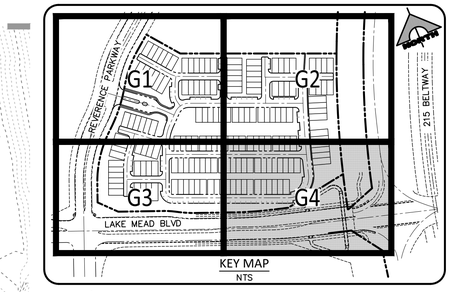
GRADING PLAN 3

DRAWING
GD3
6 OF 34 SHTS

MATCH LINE - SEE SHEET GD2

MATCH LINE - SEE SHEET GD3





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ENGINEER - STATE OF NEVADA
WESLEY T. PETTY
12/1/2023
No. 16369
PROFESSIONAL ENGINEER
DATE: 03/07/2022

REV	DATE	DESCRIPTION	AGEN APP	DATE	GCW APP

PROJECT NO. 764-204-023
DESIGN: PB
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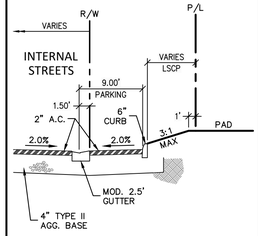
F:\PROJECTS\700\764-204-023\DWG\PRODUCTION\764-204-023D03-GD.DWG
PLOTTED BY: PAUL BRENNAN

PULTE HOMES

SUMMERLIN - VILLAGE 26 PARCEL L
REVERENCE MULTI-FAMILY

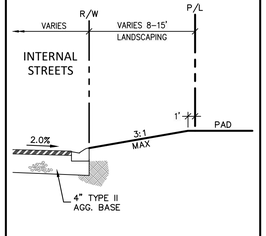
GRADING PLAN 4

DRAWING
GD4
7 OF 34 SHTS



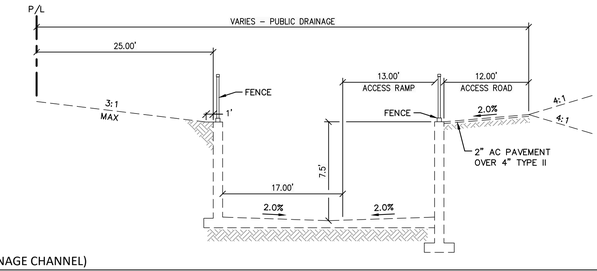
TYPICAL SIDE YARD W/ PARKING (L)

NTS



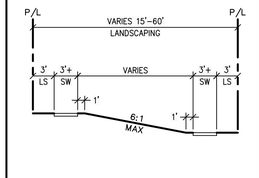
TYPICAL SIDE YARD SECTION (K)

NTS



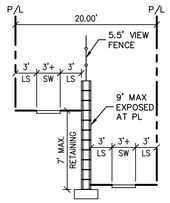
TYPICAL SECTION - EAST PL (EX. DRAINAGE CHANNEL) (E)

NTS



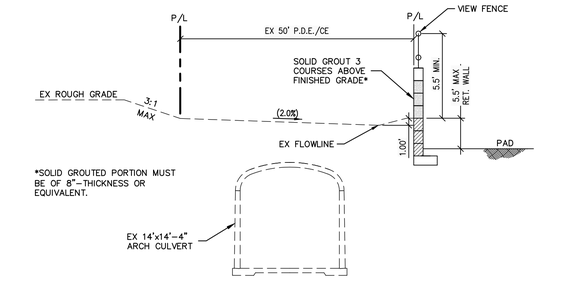
TYPICAL RETAINING SECTION (J)

NTS



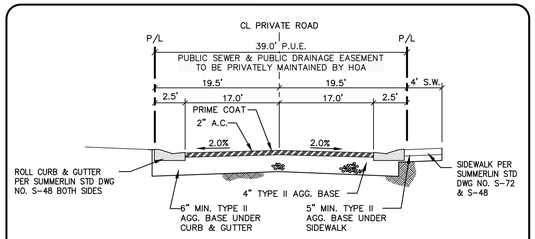
TYPICAL RETAINING SECTION (I)

NTS



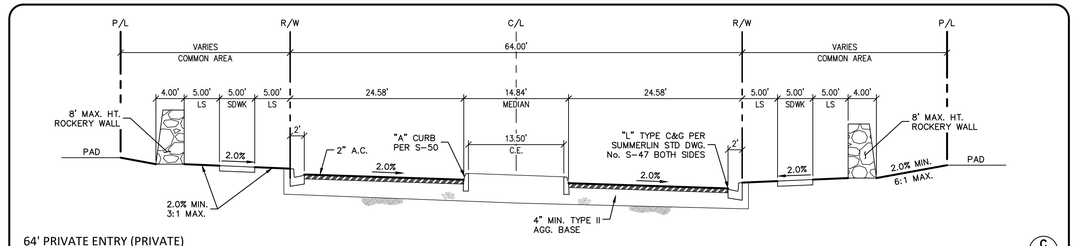
TYPICAL SECTION - NORTH PL (EX. DRAINAGE CHANNEL) (D)

NTS



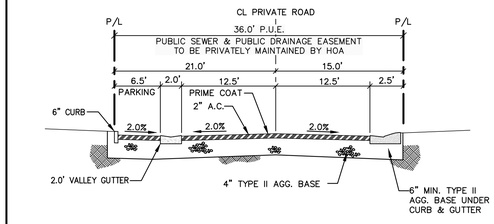
39' STREET SECTION (PRIVATE) (H)

NTS



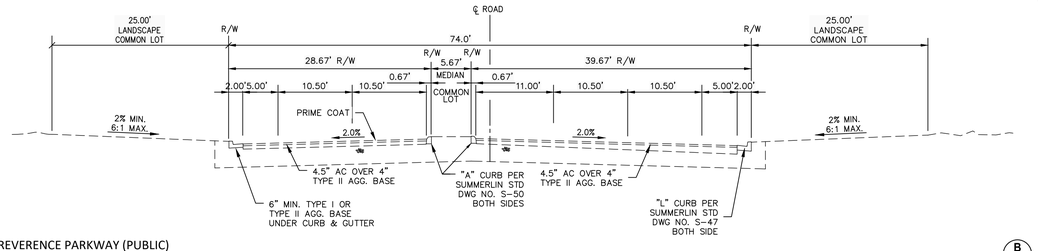
64' PRIVATE ENTRY (PRIVATE)

NTS



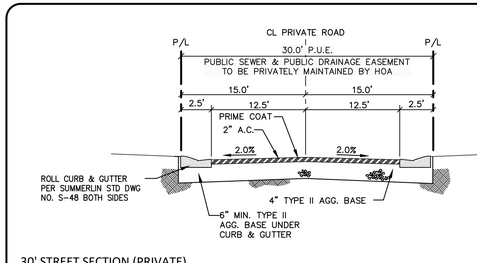
36' STREET SECTION (PRIVATE) (G)

NTS



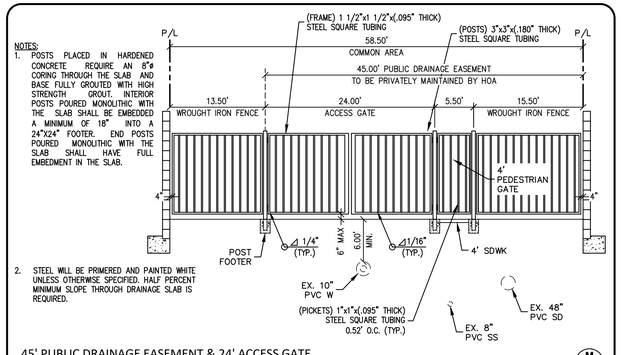
REVERENCE PARKWAY (PUBLIC) (B)

NTS



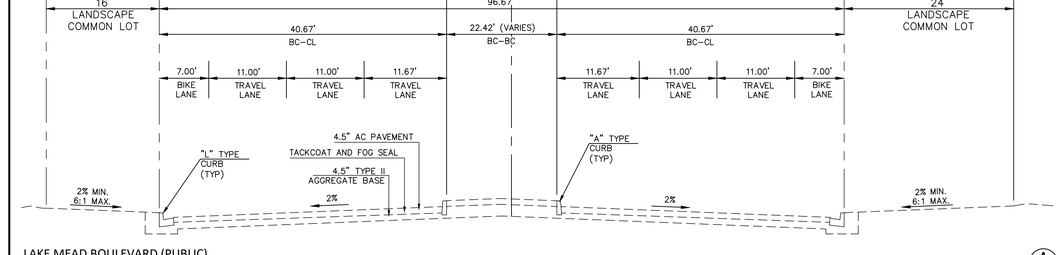
30' STREET SECTION (PRIVATE) (F)

NTS



45' PUBLIC DRAINAGE EASEMENT & 24' ACCESS GATE (M)

NTS



LAKE MEAD BOULEVARD (PUBLIC) (A)

NTS

L#: CLV#:

GCW ENGINEERS \ SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com

F:\PROJECTS\700\764-204-023\DWG\PRODUCTION\764-204-023DS-DT.DWG

PAUL BRENNAN

PULTE HOMES

SUMMERLIN - VILLAGE 26 PARCEL L
REVERENCE MULTI-FAMILY

DETAILS & SECTIONS 1

PROJECT NO. 764-204-023

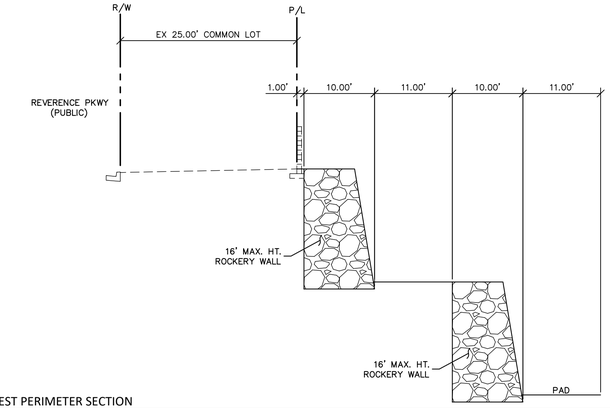
DESIGN: PB
DRAWN: PB
CHECK: WP
PLOT DATE: 03-07-22
PLOT TIME: 11:07:14

REV	DATE	DESCRIPTION	DATE	AGEN APP	DATE	GCW APP

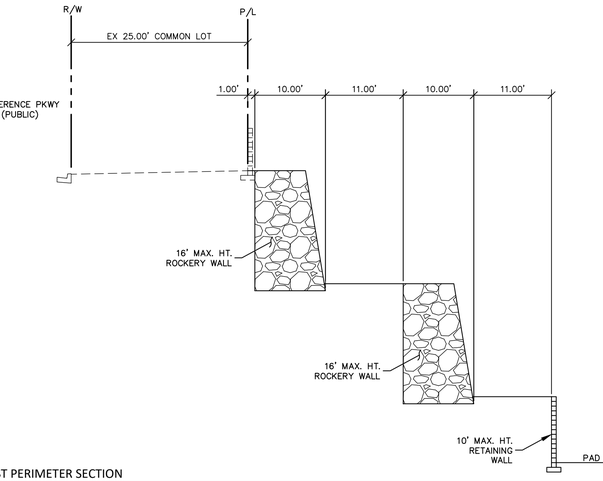
DATE: 03/07/2022

60% REVIEW - NOT FOR CONSTRUCTION

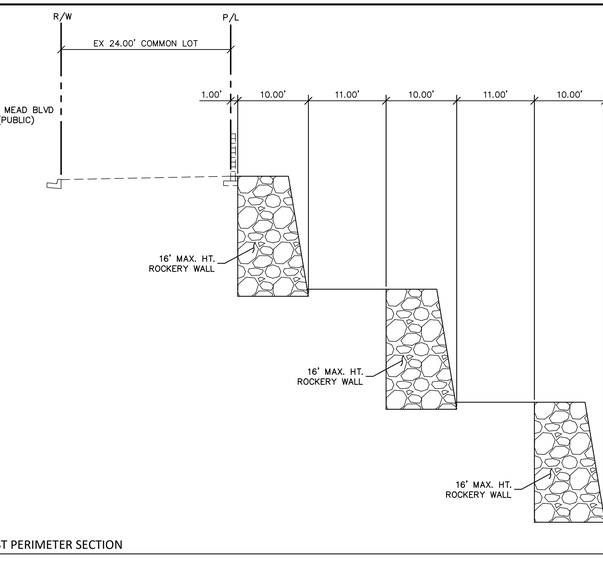
DRAWING
DT1
8 OF 34 SHTS



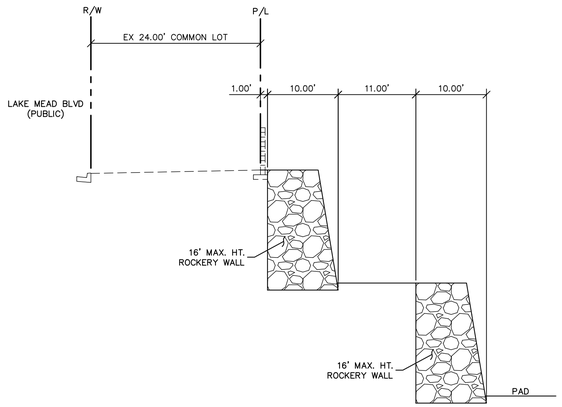
WEST PERIMETER SECTION
NTS
J



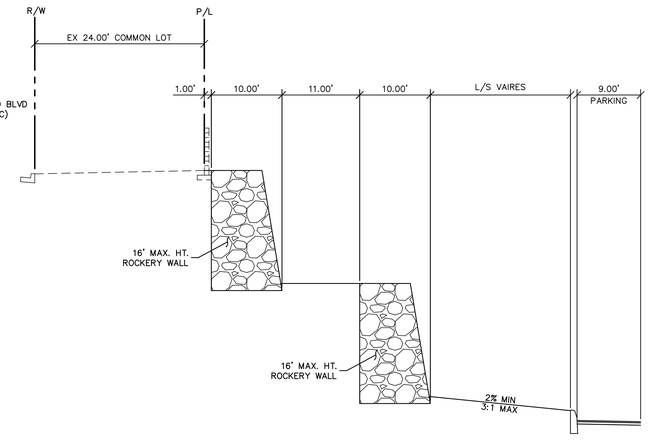
WEST PERIMETER SECTION
NTS
I



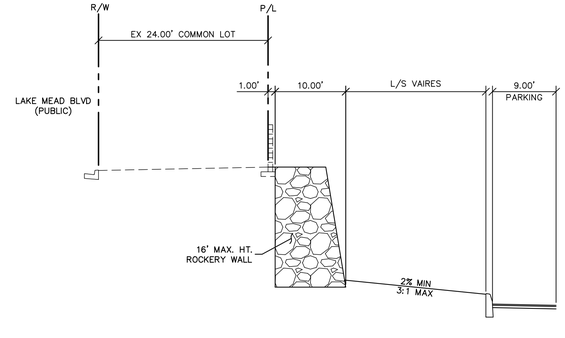
WEST PERIMETER SECTION
NTS
H



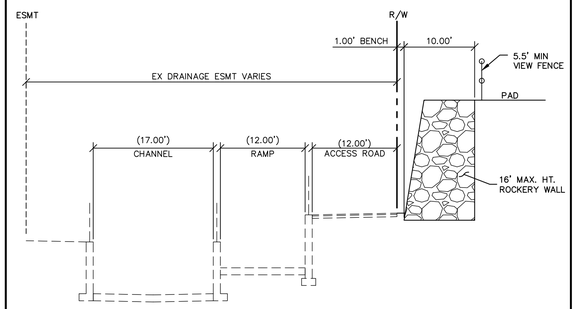
WEST PERIMETER SECTION
NTS
G



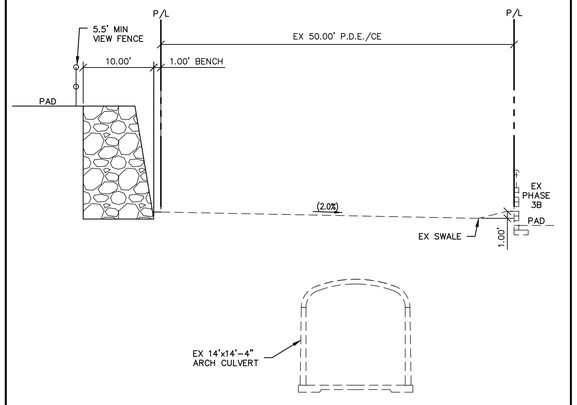
WEST PERIMETER SECTION
NTS
F



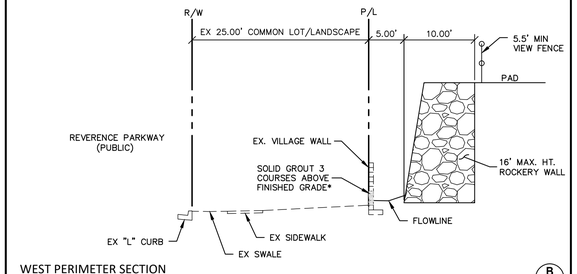
WEST PERIMETER SECTION
NTS
E



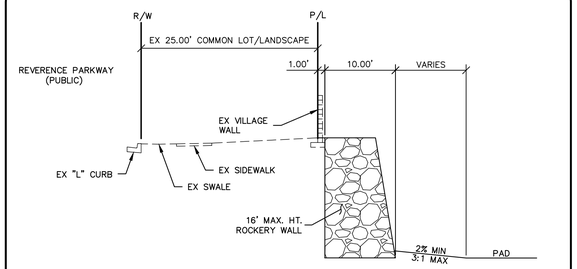
EAST PERIMETER SECTION
NTS
D



NORTH PERIMETER SECTION
NTS
C



WEST PERIMETER SECTION
NTS
B



WEST PERIMETER SECTION
NTS
A

ENGINEER: STATE OF NEVADA
WESLEY T. BETTY
12/31/2023
CIVIL
No. 16369
PROFESSIONAL
DATE: 03/07/2022

60% REVIEW - NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	AGEN APP	DATE	GCW APP	DATE

PROJECT NO.
764-204-023

DESIGN: PB
DRAWN: PB
CHECK: WP
PLOT DATE: 03-07-22
PLOT TIME: 11:07:15

GCW
ENGINEERS \ SURVEYORS
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PAUL BRENNAN3

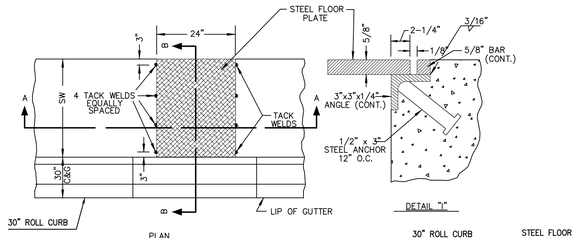
PULTE HOMES

SUMMERLIN - VILLAGE 26 PARCEL L
REVERENCE MULTI-FAMILY

DETAILS & SECTIONS 2

DRAWING
DT2
9 OF 34 SHTS

L#: CLV#:



NOTES:

1. IF WIDTH OF PLATE IS GREATER THAN 24", A SPECIAL DESIGN IS REQUIRED.
2. ALL EXPOSED METAL PARTS SHALL BE GALVANIZED AND ALL GALVANIZING DAMAGED BY FABRICATION OR INSTALLATION SHALL RECEIVE TWO COATS OF ALUMINUM PAINT (GALVONOX OR EQUAL).

7 **SIDEWALK DRAIN (ROLL CURB) DETAIL**
NTS

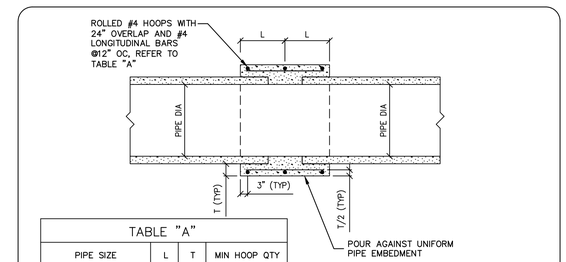
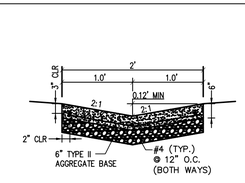


TABLE "A"			
PIPE SIZE	L	T	MIN HOOP QTY
≤ 24"	18"	8"	2
24" < PIPE SIZE ≤ 48"	24"	10"	3
48" < PIPE SIZE ≤ 72"	72"	12"	4
> 72"	BY DESIGN		

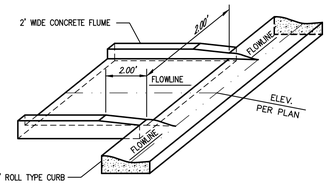
CONSTRUCTION NOTES

A) MINIMUM CONCRETE 28 DAY COMPRESSIVE STRENGTH SHALL BE 4,500 PSI.
B) FORMS USED TO POUR CONCRETE COLLAR SHALL BE REMOVED PRIOR TO BACKFILL.
C) DIAMETER OF ROLLED HOOPS SHALL BE PIPE DIA + (2 X WALL THICKNESS) + T.
D) CONCRETE SHALL BE VIBRATE AROUND PIPE JOINT DURING PLACEMENT.

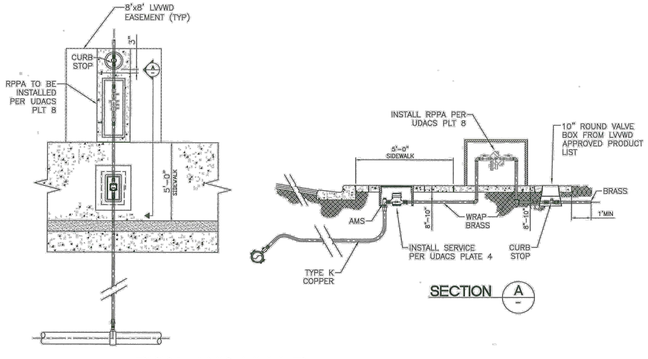
6 **STORM DRAIN PIPE CONNECTION DETAIL**
NTS



9 **2' WIDE CONCRETE CROSS GUTTER**
NTS

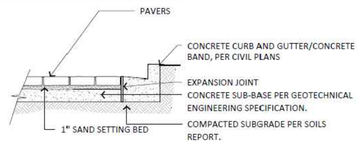


8 **2' ROLL CURB CUT**
NTS



RPPA AND METER
SCALE: NTS 5

VEHICULAR PAVERS
COLOR: BELLA BLEND
FINISH: SMOOTH
MANUFACT.: BELGARD MODULINE
SIZE: 12"X12"X80MM
PATTERN:STACK BOND

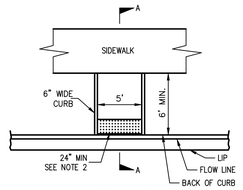


SECTION

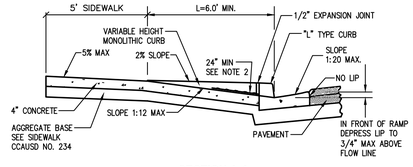
GENERAL NOTES:

- INSTALL PER MANUFACTURERS SPECIFICATIONS.
- CONTRACTOR TO SUBMIT SAMPLE TO LANDSCAPE ARCHITECT FOR APPROVAL PRIOR TO INSTALL.
- REFER TO LAYOUT PLAN FOR PAVER LAYOUT

CONCRETE PAVER DETAIL
SCALE: NTS 4



SIDEWALK RAMP

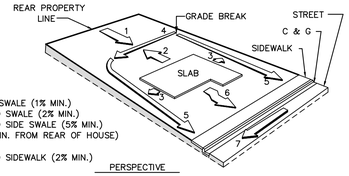


SECTION A-A

NOTES:

1. FLOWLINE IS TO BE MAINTAINED ACROSS RAMP AREA.
2. DETECTABLE WARNING CONSISTING OF RAISED TRUNCATED DOMES WHICH COMPLY WITH DETAILS ON SHEET 4 OF CCAUSD DRAWING NO. 235 AND CONTRASTING VISUALLY WITH ADJOINING SURFACES SHALL BE PLACED ON BOTTOM PORTION OF RAMP EXTENDING THE FULL WIDTH OF THE RAMP AND EXTENDING A MINIMUM DISTANCE OF 24 INCHES UP THE RAMP.

SIDEWALK RAMP DETAIL
SCALE: NTS 3

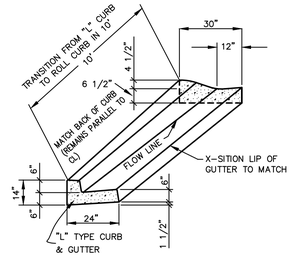


NOTES:

1. SLOPE FROM REAR TO SWALE (1% MIN.)
2. SLOPE FROM HOUSE TO SWALE (2% MIN.)
3. SLOPE FROM HOUSE TO SIDE SWALE (5% MIN.)
4. REAR SWALE 1% (10' MIN. FROM REAR OF HOUSE)
5. SIDE SWALE 1%
6. SLOPE FROM HOUSE TO SIDEWALK (2% MIN.)
7. SLOPE OF STREET

PERSPECTIVE
F.H.A. TYPE "A" DRAINAGE

TYPICAL TYPE "A" DRAINAGE DETAIL
SCALE: NTS 2



TRANSITION FROM "L" CURB TO ROLL CURB
SCALE: NTS 1

60% REVIEW - NOT FOR CONSTRUCTION

REV	DESCRIPTION	DATE	AGEN APP	DATE	GCW APP	DATE

PROJECT NO. 764-204-023
DESIGN: PB
DRAWN: PB
CHECK: WP
PLOT DATE: 03-07-22
PLOT TIME: 11:07:18

GCW
ENGINEERS & SURVEYORS
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PAUL BRENNAN

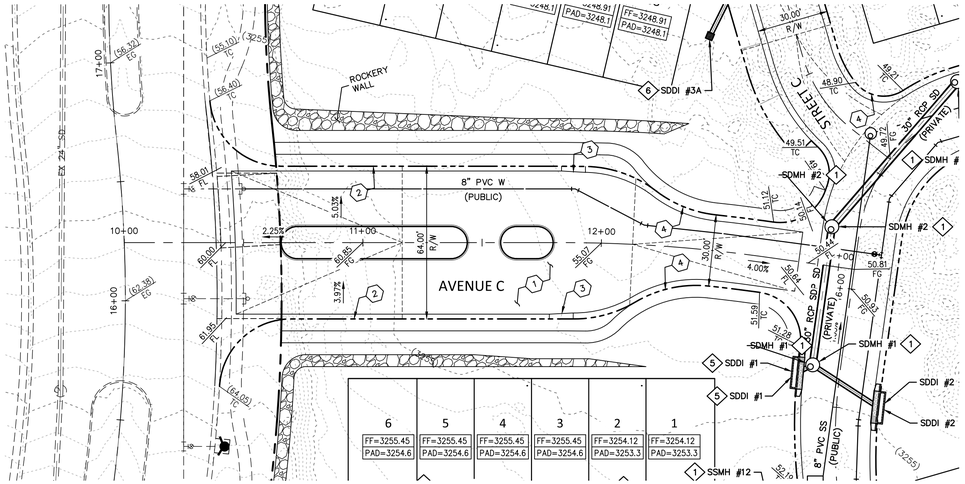
PULTE HOMES

SUMMERLIN - VILLAGE 26 PARCEL L
REVERENCE MULTI-FAMILY

DETAILS & SECTIONS 3

DRAWING
DT3
10 OF 34 SHTS

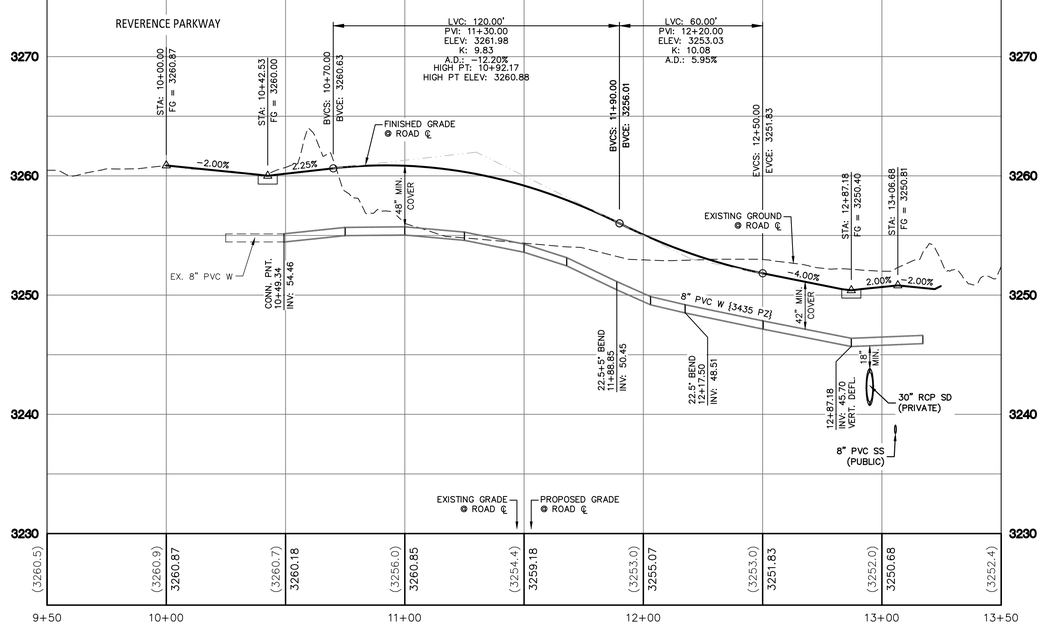
L#: CLV#:

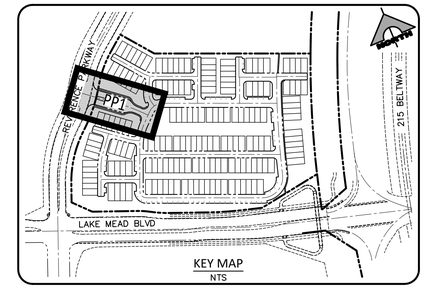


AVENUE "C"

(PRIVATE)

SCALE: HORIZ 1" = 30'
VERT. 1" = 6'





KEY MAP
NTS

NORTH

30' 0' 15' 30' 60'
SCALE: 1" = 30'

ROADWAY CONSTRUCTION NOTES

1. INSTALL 2" AC OVER 4" TYPE II BASE
2. CONSTRUCT 'L' TYPE CURB AND GUTTER PER USDCCA No. 216
3. CONSTRUCT 10' TRANSITION PER DETAIL 4 ON SHEET D3
4. CONSTRUCT 30" MODIFIED ROLL CURB AND GUTTER PER USDCCA No. 217.1
5. CONSTRUCT MODIFIED "A" TYPE CURB PER USDCCA No. 219
6. CONSTRUCT 8' WIDE CROSS GUTTER PER USDCCA No. 228
7. CONSTRUCT 5" THICK CONCRETE SIDEWALK PER USDCCA No. 234

STORM DRAIN CONSTRUCTION NOTES

1. CONSTRUCT 60" TYPE III MANHOLE PER USDCCA DWG No. 401 & 406
2. CONSTRUCT PRECAST MANHOLE PER USDCCA DWG No. 401 & 406
3. CONSTRUCT 7.5' TYPE "DM2" DROP INLET PER USDCCA DWG No. 412.1
4. CONSTRUCT 10.0' TYPE "DM2" DROP INLET PER USDCCA DWG No. 412.1
5. CONSTRUCT 12.5' TYPE "DM2" DROP INLET PER USDCCA DWG No. 412.1
6. CONSTRUCT 24"x24" GRATE DROP INLET PER USDCCA DWG No. 412.1
7. CONNECTION POINT. SEE DETAIL 6 ON SHEET DT3

PUBLIC DRAINAGE NOTE

ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY HOA.

EXISTING UTILITY NOTE

EXISTING UTILITIES SHOWN HEREIN ARE APPROXIMATE ONLY AND MAY NOT SHOW ALL EXISTING FACILITIES WITHIN THE PROJECT AREA. CONTRACTOR MUST FIELD VERIFY AND POTHOLE EXISTING UTILITIES WITHIN THE PROJECT AREA PRIOR TO BEGINNING CONSTRUCTION. ALL EXISTING UTILITIES MUST BE PROTECTED IN PLACE DURING CONSTRUCTION UNLESS OTHERWISE NOTED ON DRAWINGS. CONTACT UTILITY COMPANIES AT LEAST 24 HOURS PRIOR TO INTERRUPTION OF SERVICE.

CAUTION TO CONTRACTOR

THE CONTRACTOR SHALL BE RESPONSIBLE TO INVESTIGATE AND VERIFY THE ACTUAL LOCATION AND DEPTH OF ALL EXISTING UNDERGROUND FACILITIES AT LEAST 48 HOURS IN ADVANCE OF THE PERFORMANCE OF ANY WORK.

BASIS OF BEARING

SOUTH 89°39'55" EAST, BEING THE BEARING OF THE NORTH LINE OF THE NORTHWEST QUARTER (NW 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF SECTION 13, TOWNSHIP 20 SOUTH, RANGE 59 EAST, M.D.M., AS SHOWN IN FILE 112, PAGE 94 OF PARCEL MAPS ON FILE AT THE CLARK COUNTY, NEVADA RECORDER'S OFFICE.

BENCHMARK

CLARK COUNTY VERTICAL CONTROL POINT: 5LV09 14S6

SUMMERLIN VILLAGE 26 – REVERENCE PROJECT MODIFIED DATUM: 3227.64 FEET
NAVD88 DATUM: 983.659 METERS (3227.22 FEET)

RIVET & PLATE IN HEAD WALL WEST OF CC215 +/–250' NORTH OF LAKE MEAD.

TO OBTAIN SUMMERLIN VILLAGE 26 – REVERENCE PROJECT MODIFIED DATUM ADD 0.42 FEET TO NAVD88 DATUM.

DRAINAGE CERTIFICATION

I CERTIFY THAT THE GRADING PLANS ARE IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY ON FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT.

WESLEY T. PETTY, P.E. 16369 — 03/07/2022 DATE

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT PLANNING AND ENGINEERING SERVICES

PROJECT NO. XXXXXX FIRST APPROVAL DATE: 01/01/2020
LVVWD APPROVED FIRE FLOW 1,500 GPM AT 20 PSI RESIDUAL
MAXIMUM AVAILABLE FIRE SPRINKLER FLOW 30 GPM

L#: CLV#:

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Call 811 OR 1-800-642-2444

FAST
Call before you UnderGround
1-702-432-5300
FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

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CALL BEFORE YOU DO OVERHEAD
1-702-227-2929

STATE OF NEVADA — PROFESSIONAL ENGINEER — WESLEY T. PETTY — 01/01/2023 — No. 16369 — CIVIL

DATE: 03/07/2022

REV	DATE	DESCRIPTION	AGEN APP	DATE	GW APP	DATE

PROJECT NO. 764-204-023
DESIGN: PB
DRAWN: PB
CHECK: WP
PLOT DATE: 03-07-22
PLOT TIME: 11:08:40

GCW ENGINEERS \ SURVEYORS
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gcwengineering.com
PAUL BRENNAN

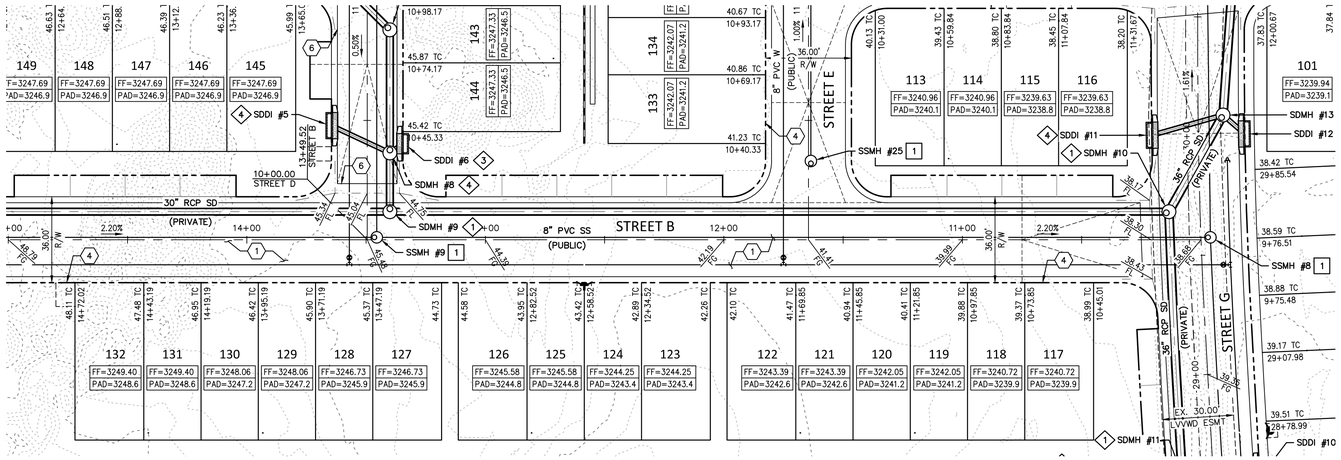
F:\PROJECTS\700\764-204-023\DWG\PRODUCTION\764-204-023DB-PP.DWG

PULTE HOMES

SUMMERLIN - VILLAGE 26 PARCEL L
REVERENCE MULTI-FAMILY

PLAN & PROFILE 1

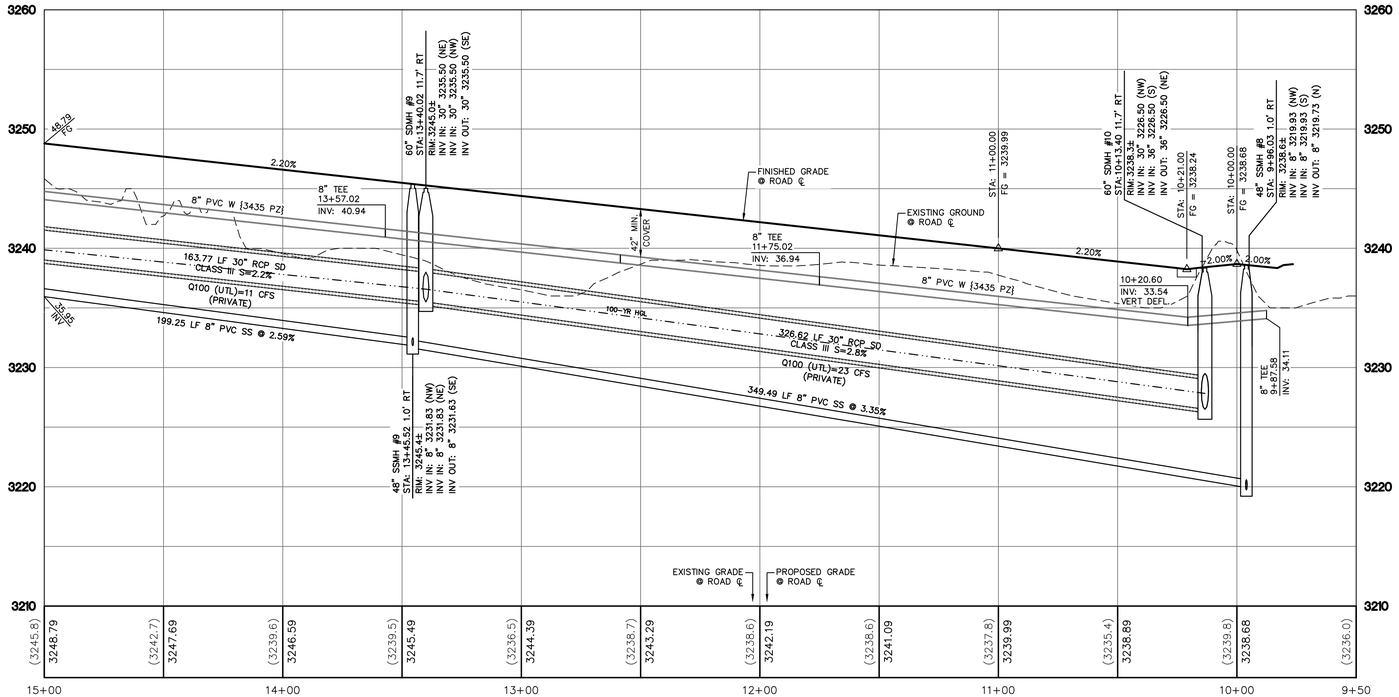
DRAWING
PP1
16 OF 34 SHTS



STREET "B"

(PRIVATE)

SCALE: HORIZ 1" = 30'
VERT. 1" = 6'



Call before you Dig
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Call 811 OR 1-800-642-2444

FAST
Call before you UnderGround
1-702-432-5300
FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

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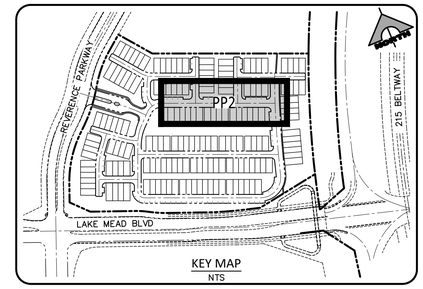
CALL BEFORE YOU DO OVERHEAD
1-702-227-2929



KEY MAP
NTS

NORTH

30' 0' 15' 30' 60'
SCALE: 1" = 30'

ROADWAY CONSTRUCTION NOTES

1. INSTALL 2" AC OVER 4" TYPE II BASE
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3. CONSTRUCT 10' TRANSITION PER DETAIL 4 ON SHEET D3
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STORM DRAIN CONSTRUCTION NOTES

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BENCHMARK

CLARK COUNTY VERTICAL CONTROL POINT: 5LV09 14S6

SUMMERLIN VILLAGE 26 – REVERENCE PROJECT MODIFIED DATUM: 3227.64 FEET
NAVD88 DATUM: 983.659 METERS (3227.22 FEET)

RIVET & PLATE IN HEAD WALL WEST OF CC215 +/-250' NORTH OF LAKE MEAD.

TO OBTAIN SUMMERLIN VILLAGE 26 – REVERENCE PROJECT MODIFIED DATUM ADD 0.42 FEET TO NAVD88 DATUM.

DRAINAGE CERTIFICATION

I CERTIFY THAT THE GRADING PLANS ARE IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY ON FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT.

03/07/2022

WESLEY T. PETTY, P.E. 16369 — DATE

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT PLANNING AND ENGINEERING SERVICES

PROJECT NO. XXXXXX FIRST APPROVAL DATE: 01/01/2020
LVVWD APPROVED FIRE FLOW 1,500 GPM AT 20 PSI RESIDUAL
MAXIMUM AVAILABLE FIRE SPRINKLER FLOW 30 GPM

L#: CLV#:

ENGINEER
STATE OF NEVADA
WESLEY T. PETTY
11/1/2023
No. 16369
PROFESSIONAL
DATE: 03/07/2022

REV	DATE	DESCRIPTION	AGEN APP	DATE	GCW APP	DATE

PROJECT NO. 764-204-023
DESIGN: PB
DRAWN: PB
CHECK: WP
PLOT DATE: 03-07-22
PLOT TIME: 11:08:51

GCW
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
ENGINEERS \ SURVEYORS gcwengineering.com

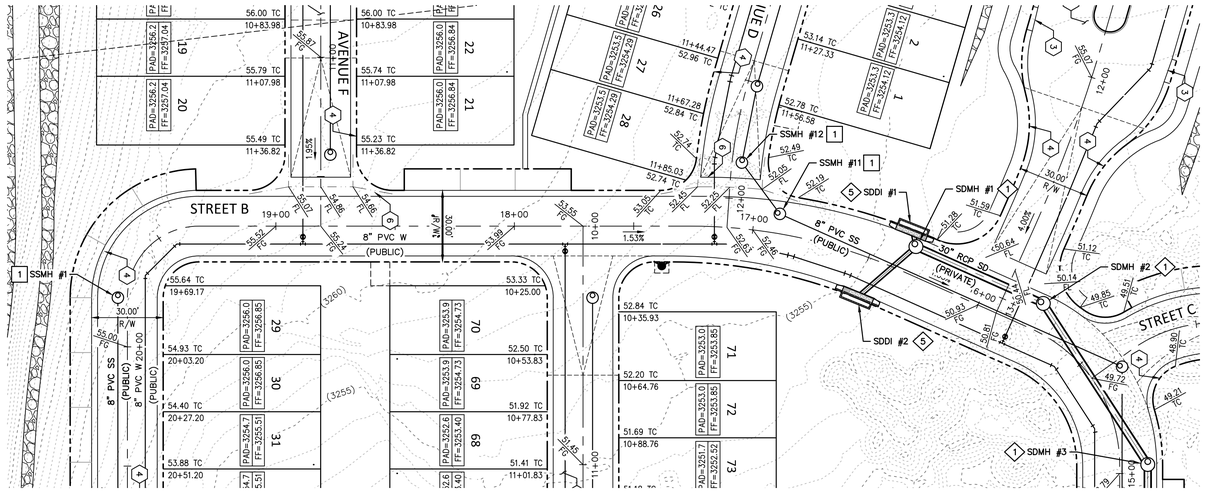
F:\PROJECTS\700\764-204-023\DWG\PRODUCTION\764-204-023DSE-PP.DWG
PAUL BRENNARD

PULTE HOMES

SUMMERLIN - VILLAGE 26 PARCEL L
REVERENCE MULTI-FAMILY

PLAN & PROFILE 2

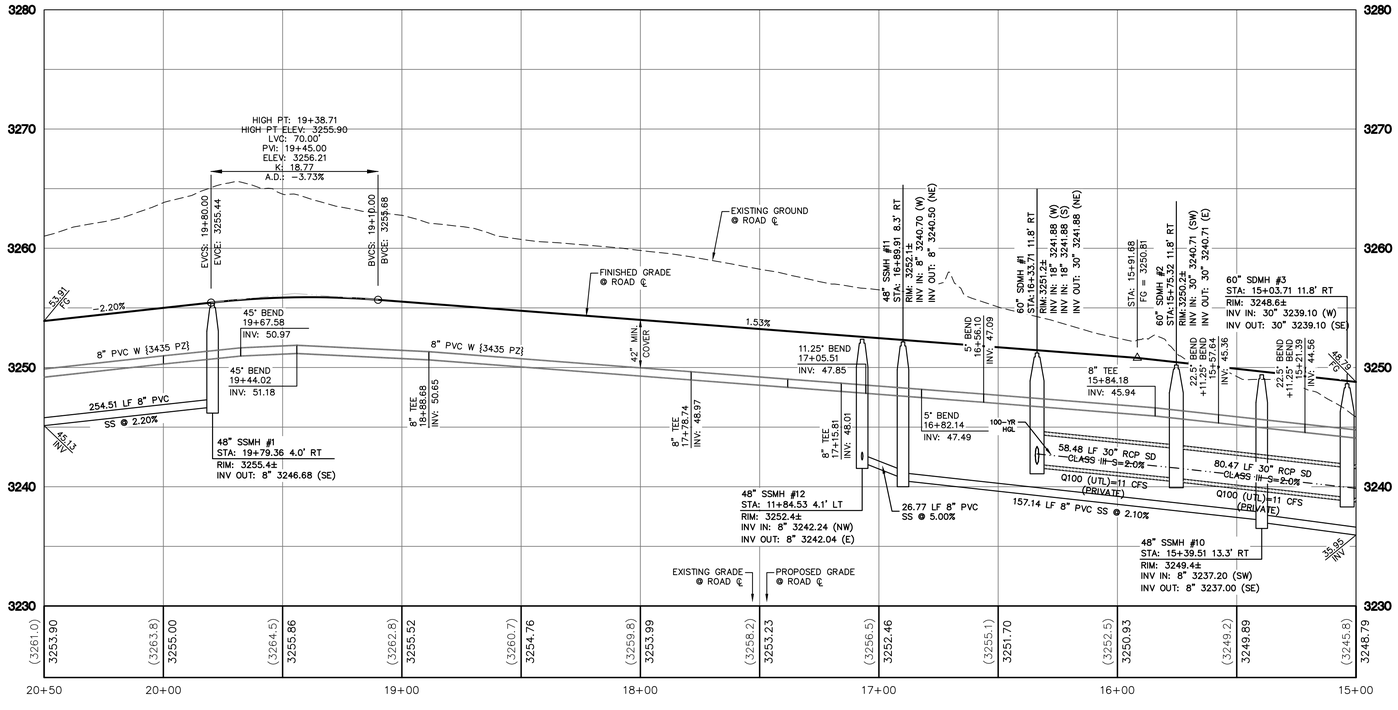
DRAWING
PP2
17 OF 34 SHTS

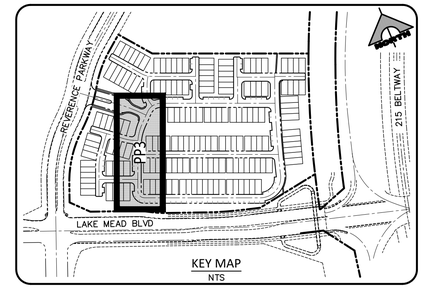


STREET "B"

(PRIVATE)

SCALE: HORIZ 1" = 30'
VERT. 1" = 6'





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03/07/2022
WESLEY T. PETTY, P.E. 16369 — DATE

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT PLANNING AND ENGINEERING SERVICES

PROJECT NO. XXXXXX — FIRST APPROVAL DATE: 01/01/2020
LVVWD APPROVED FIRE FLOW 1,500 GPM AT 20 PSI RESIDUAL
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L#: CLV#:

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FAST
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EIGHTH EDITION — STATE OF NEVADA — WESLEY T. PETTY — 16369 — 01/01/2023 — CIVIL — PROFESSIONAL ENGINEER

REV	DATE	DESCRIPTION	AGEN APP	DATE	GCW APP	DATE

DATE: 03/07/2022

PROJECT NO. 764-204-023
DESIGN: PB
DRAWN: PB
CHECK: WP
PLOT DATE: 03-07-22
PLOT TIME: 11:08:59

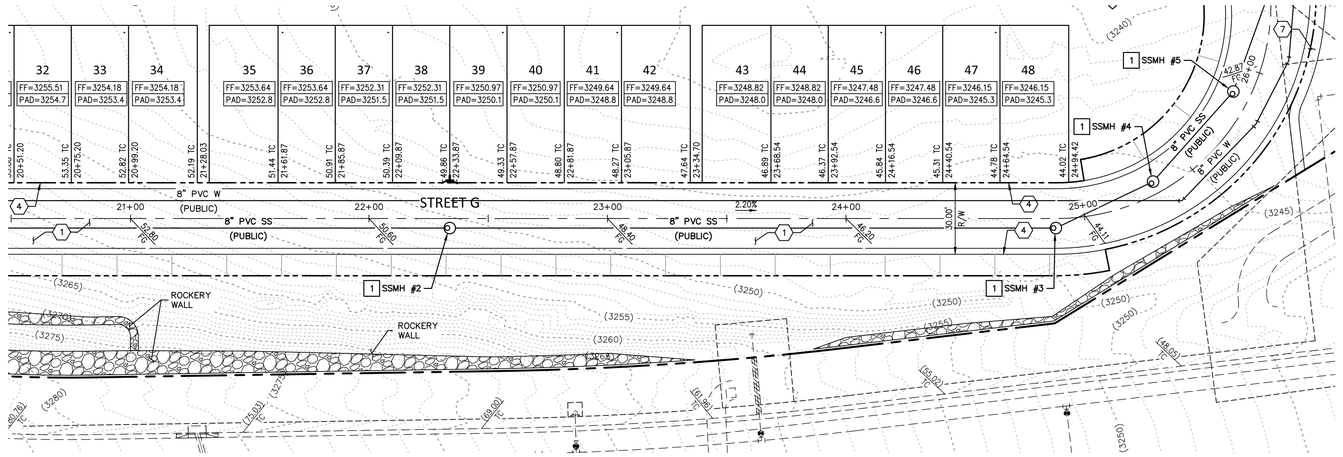
GCW ENGINEERS \ SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com
F:\PROJECTS\700\764-204-023\GWG\PRODUCTION\764-204-023DR-PP.DWG
PAUL BRENNAN3

PULTE HOMES

SUMMERLIN - VILLAGE 26 PARCEL L
REVERENCE MULTI-FAMILY

PLAN & PROFILE 3

DRAWING
PP3
18 OF 34 SHTS



STREET "G"

(PRIVATE)

SCALE: HORIZ 1" = 30'
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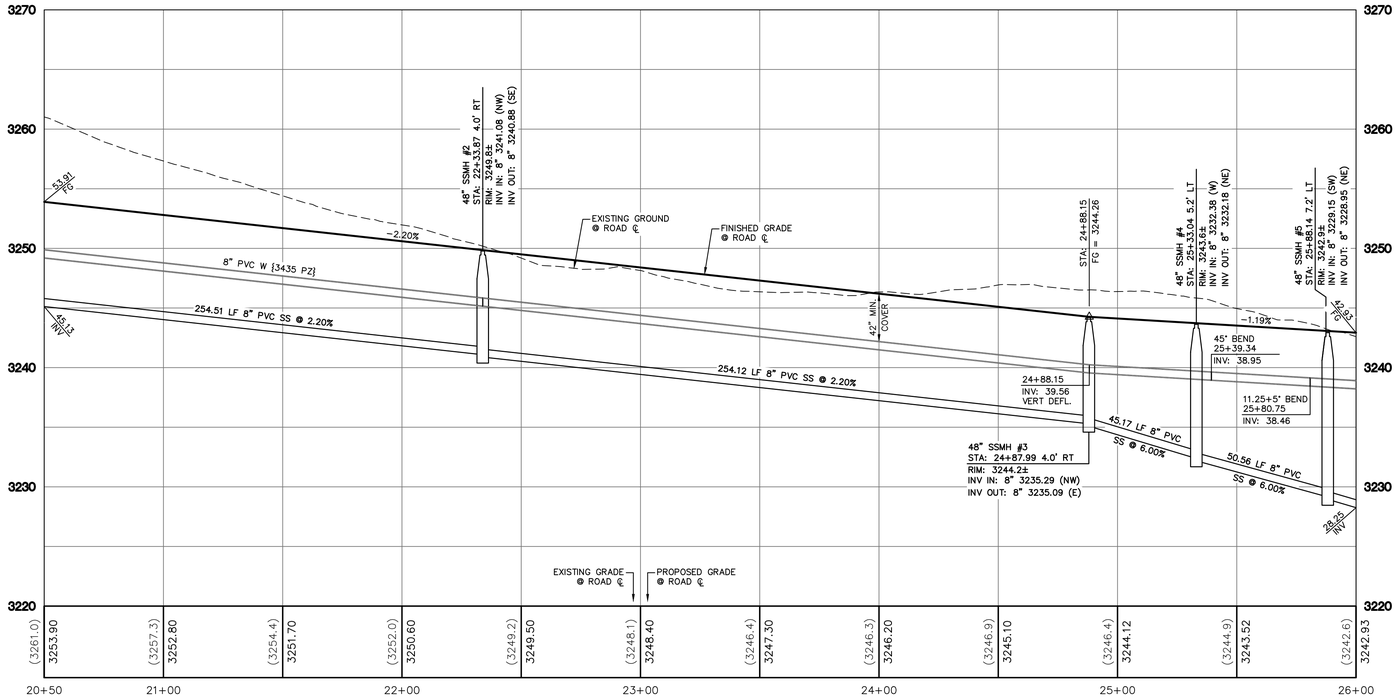

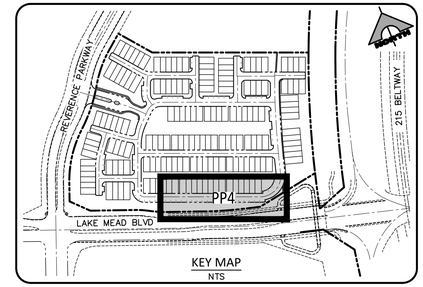

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03/07/2022
WESLEY T. PETTY, P.E. 16369 — DATE

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT PLANNING AND ENGINEERING SERVICES

PROJECT NO. XXXXXX — FIRST APPROVAL DATE: 01/01/2020
LVVWD APPROVED FIRE FLOW 1,500 GPM AT 20 PSI RESIDUAL
MAXIMUM AVAILABLE FIRE SPRINKLER FLOW 30 GPM

L#: CLV#:

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STATE OF NEVADA — PROFESSIONAL ENGINEER — WESLEY T. PETTY — 11/01/2023 — No. 16369 — CIVIL

DATE: 03/07/2022

REV	DESCRIPTION	DATE	AGEN APP	DATE	GCW APP	DATE

PROJECT NO. 764-204-023
DESIGN: PB
DRAWN: PB
CHECK: WP
PLOT DATE: 03-07-22
PLOT TIME: 11:09:09

GCW ENGINEERS & SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com

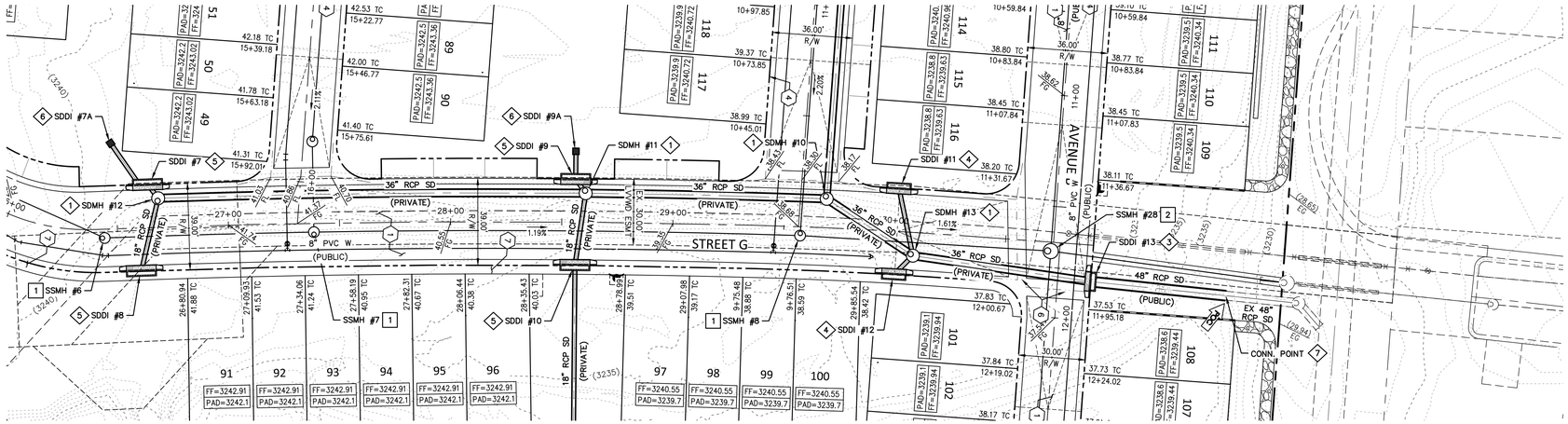
F:\PROJECTS\7XX\764-204-023\DWG\PRODUCTION\764-204-023DB-PP4.DWG
PLOT BY: PAUL BRENNAN

PULTE HOMES

SUMMERLIN - VILLAGE 26 PARCEL L
REVERENCE MULTI-FAMILY

PLAN & PROFILE 4

DRAWING
PP4
19 OF 34 SHTS


STREET G
(PRIVATE)
(PUBLIC)
AVENUE "A"
SDDI #7A
SDDI #7
SDDI #8
SDDI #9A
SDDI #9
SDDI #10
SDDI #11
SDDI #12
SDDI #13
SDMH #10
SDMH #11
SDMH #12
SDMH #13
SSMH #6
SSMH #7
SSMH #8
SSMH #28
CONN. POINT
36" RCP SD
18" RCP SD
48" RCP SD
8" PVC W
EX 48" RCP SD
EX. 8" PVC W
EX. 12" PVC W
EX. 16" PVC W
PROPOSED 8" PVC W
PROPOSED 12" PVC W
PROPOSED 16" PVC W
PROPOSED 24" PVC W
PROPOSED 36" PVC W
PROPOSED 48" PVC W
PROPOSED 8" PVC S
PROPOSED 12" PVC S
PROPOSED 16" PVC S
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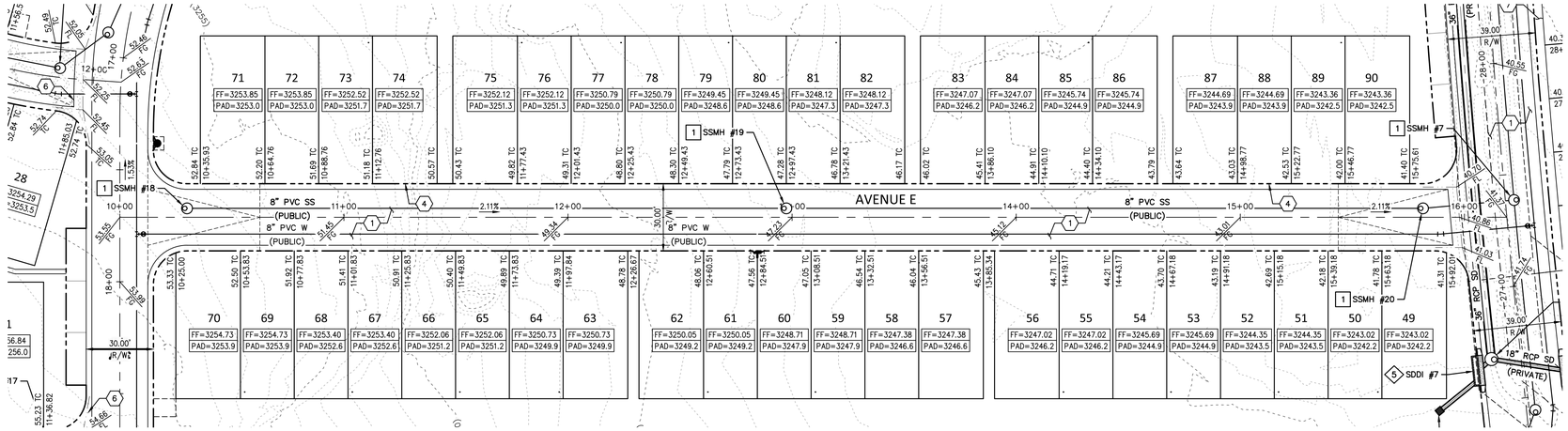

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(PRIVATE)
SCALE: HORIZ 1" = 30'
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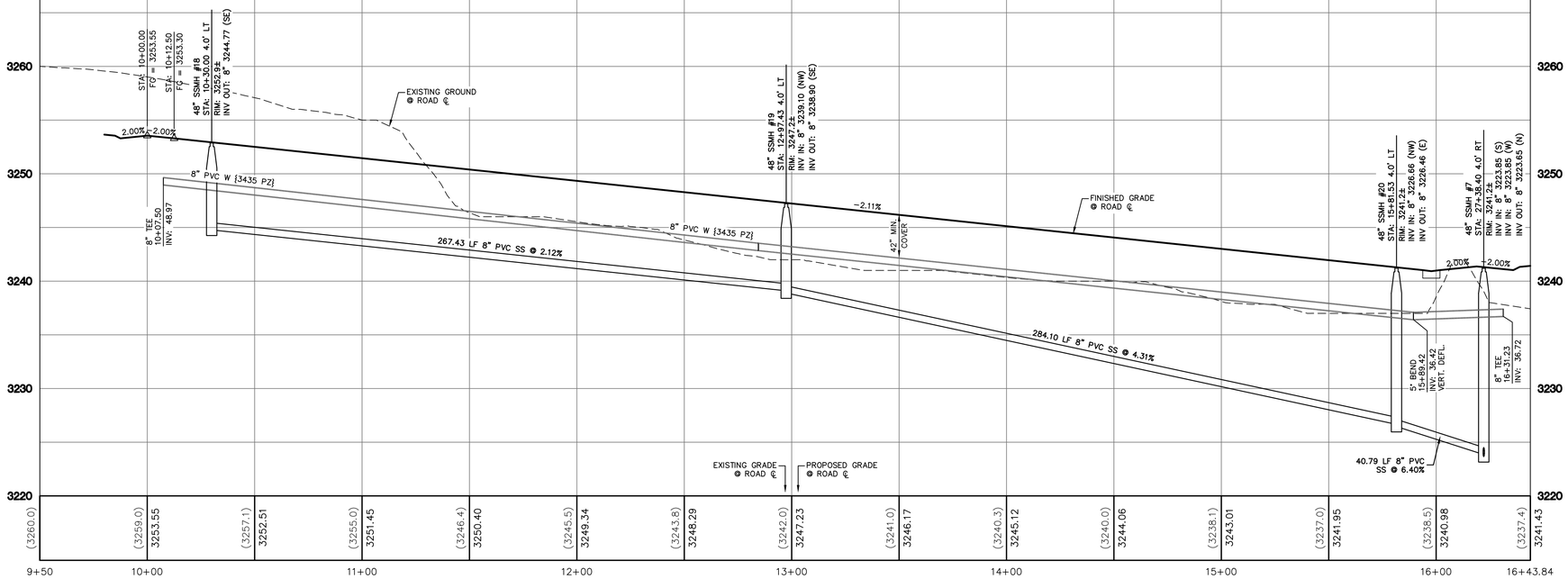

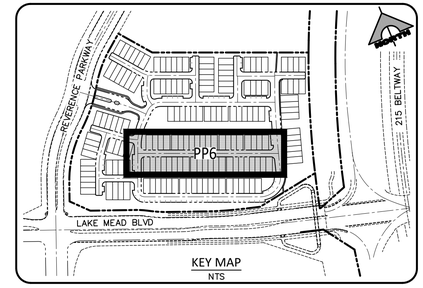

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03/07/2022

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LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com

F:\PROJECTS\VSV\764-204-023\DWG\PRODUCTION\764-204-023DSB-PP.DWG
PAUL BRENNARD

PULTE HOMES

SUMMERLIN - VILLAGE 26 PARCEL L
REVERENCE MULTI-FAMILY

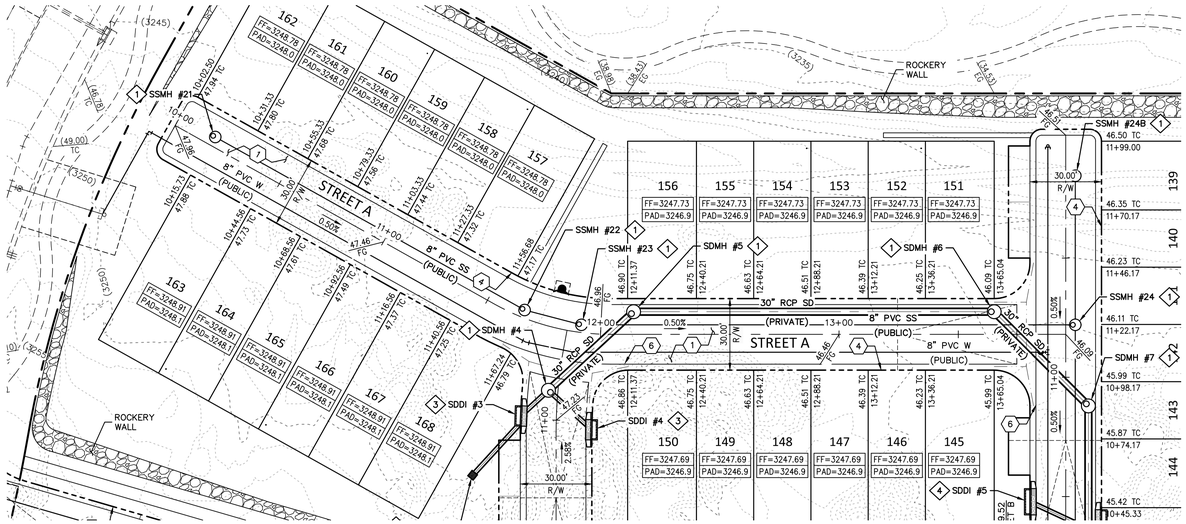
PLAN & PROFILE 6

DRAWING
PP6
21 OF 34 SHTS

PROJECT NO. 764-204-023
DESIGN: PB
DRAWN: PB
CHECK: WP
PLOT DATE: 03-07-22
PLOT TIME: 11:09:29

REV	DATE	DESCRIPTION	AGEN APP	DATE	GCW APP	DATE

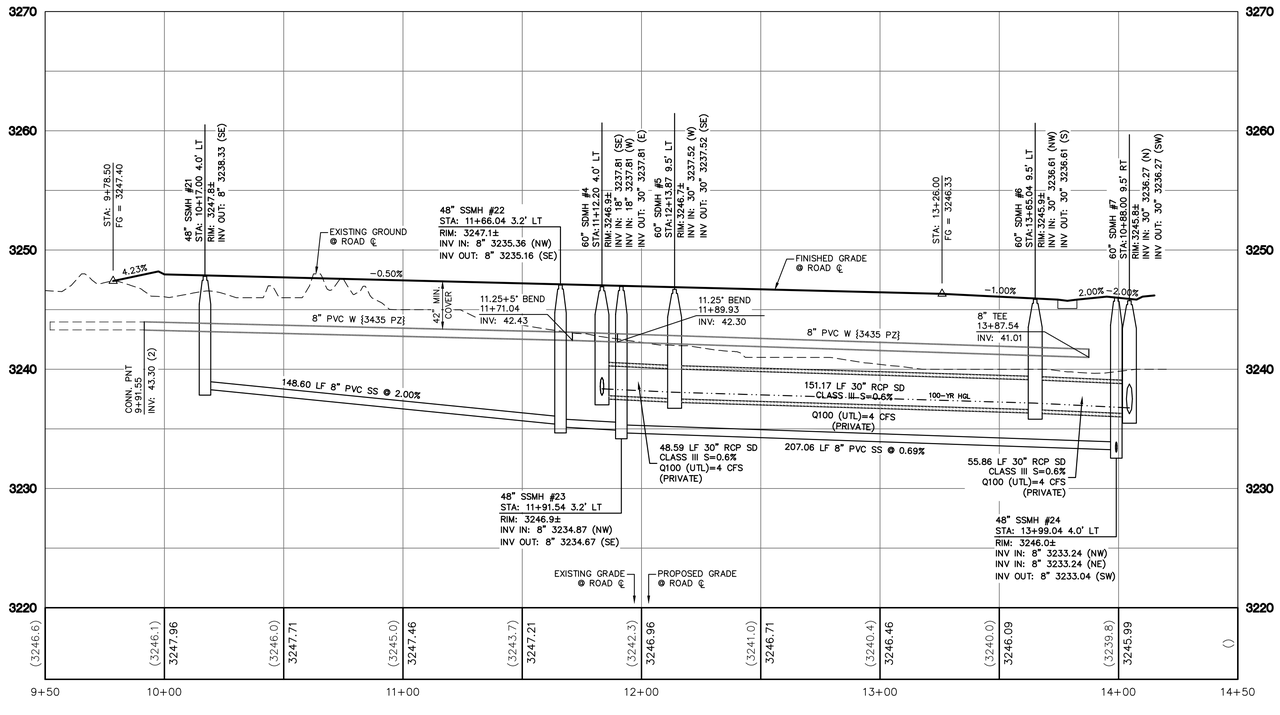
DATE: 03/07/2022

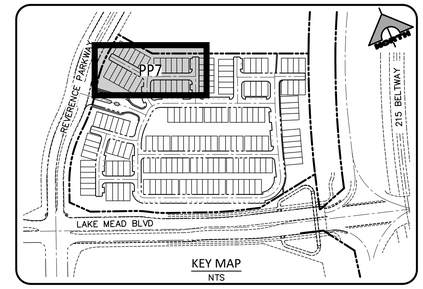


STREET "A"

(PRIVATE)

SCALE: HORIZ 1" = 30'
VERT. 1" = 6'





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7. CONNECTION POINT. SEE DETAIL 6 ON SHEET DT3

PUBLIC DRAINAGE NOTE

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BENCHMARK

CLARK COUNTY VERTICAL CONTROL POINT: 5LV09 14S6

SUMMERLIN VILLAGE 26 – REVERENCE PROJECT MODIFIED DATUM: 3227.64 FEET
NAVD88 DATUM: 983.659 METERS (3227.22 FEET)

RIVET & PLATE IN HEAD WALL WEST OF CC215 +/-250' NORTH OF LAKE MEAD.

TO OBTAIN SUMMERLIN VILLAGE 26 – REVERENCE PROJECT MODIFIED DATUM ADD 0.42 FEET TO NAVD88 DATUM.

DRAINAGE CERTIFICATION

I CERTIFY THAT THE GRADING PLANS ARE IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY ON FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT.

03/07/2022
WESLEY T. PETTY, P.E. 16369 — DATE

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT PLANNING AND ENGINEERING SERVICES

PROJECT NO. XXXXXX — FIRST APPROVAL DATE: 01/01/2020
LVVWD APPROVED FIRE FLOW 1,500 GPM AT 20 PSI RESIDUAL
MAXIMUM AVAILABLE FIRE SPRINKLER FLOW 30 GPM

L#: CLV#:

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STATE OF NEVADA — PROFESSIONAL ENGINEER — WESLEY T. PETTY — 16369 — CIVIL — 03/07/2022

REV	DATE	DESCRIPTION	DATE	AGEN APP	DATE	GCW APP	DATE

PROJECT NO. 764-204-023
DESIGN: PB
DRAWN: PB
CHECK: WP
PLOT DATE: 03-07-22
PLOT TIME: 11:09:38

GCW ENGINEERS\SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
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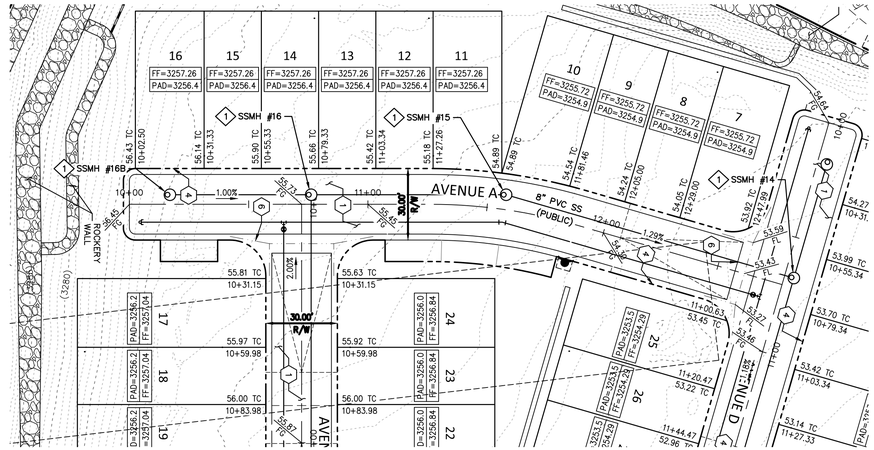
gcwengineering.com
F:\PROJECTS\700\764-204-023\DWG\PRODUCTION\764-204-023DT6-PP.DWG
PAUL BRENNARD

PULTE HOMES

SUMMERLIN - VILLAGE 26 PARCEL L
REVERENCE MULTI-FAMILY

PLAN & PROFILE 7

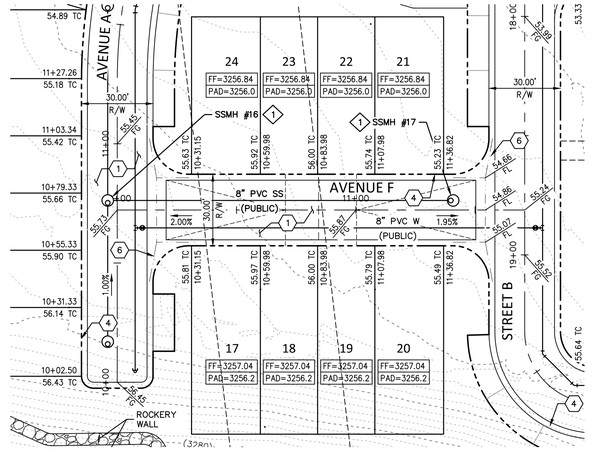
DRAWING
PP7
22 OF 34 SHTS



AVENUE "A"

(PRIVATE)

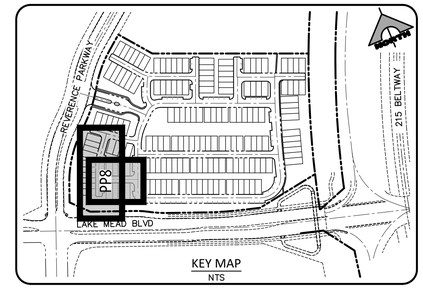
SCALE: HORIZ 1" = 30'
VERT. 1" = 6'



AVENUE "F"

(PRIVATE)

SCALE: HORIZ 1" = 30'
VERT. 1" = 6'



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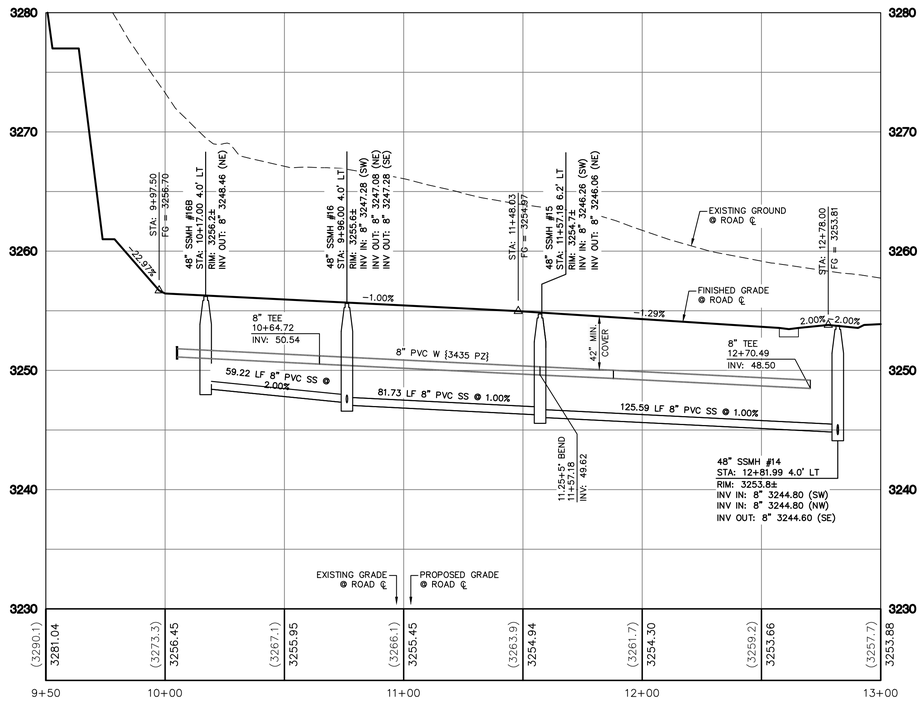

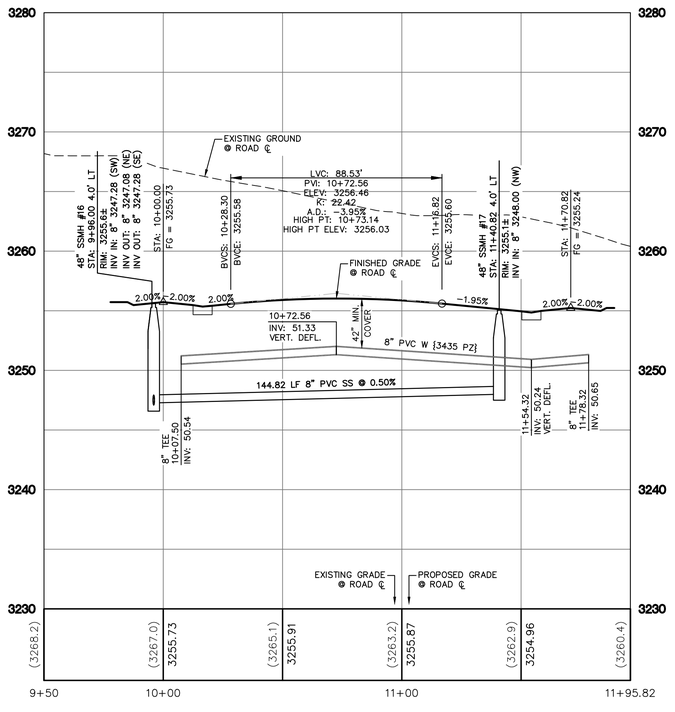

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03/07/2022

WESLEY T. PETTY, P.E. 16369 — DATE

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT PLANNING AND ENGINEERING SERVICES

PROJECT NO. XXXXXX — FIRST APPROVAL DATE: 01/01/2020

LVVWD APPROVED FIRE FLOW 1,500 GPM AT 20 PSI RESIDUAL

MAXIMUM AVAILABLE FIRE SPRINKLER FLOW 30 GPM

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L#: CLV#:

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ENGINEERS \ SURVEYORS
PAUL BRENNAN
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PULTE HOMES

SUMMERLIN - VILLAGE 26 PARCEL L
REVERENCE MULTI-FAMILY

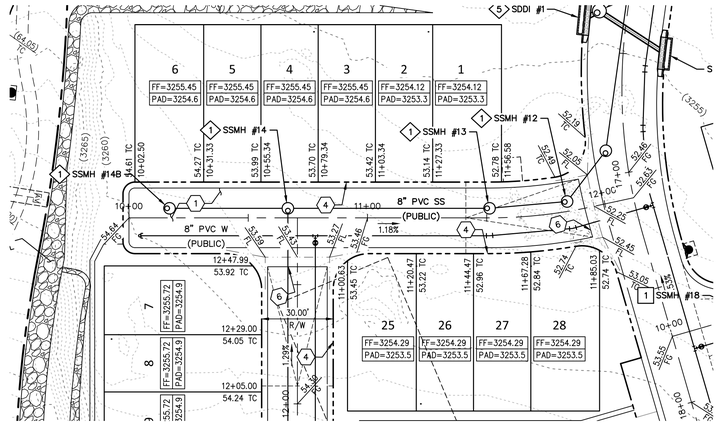
PLAN & PROFILE 8

DRAWING
PP8
23 OF 34 SHTS

PROJECT NO. 764-204-023
DESIGN: PB
DRAWN: PB
CHECK: WP
PLOT DATE: 03-07-22
PLOT TIME: 11:09:51

REV	DATE	DESCRIPTION	DATE	AGEN APP	DATE	GCW APP	DATE

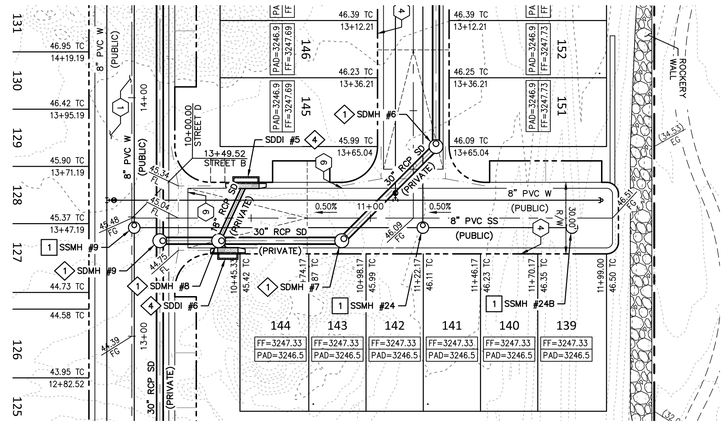
WESLEY T. PETTY
No. 16369
PROFESSIONAL ENGINEER
STATE OF NEVADA
11/01/2023
DATE: 03/07/2022



AVENUE "D"

(PRIVATE)

SCALE: HORIZ 1" = 30'
VERT. 1" = 6'



STREET "D"

(PRIVATE)

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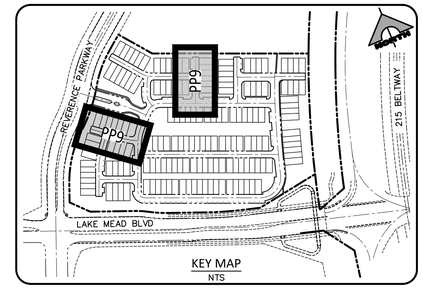

KEY MAP
NTS

NORTH

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SCALE: 1" = 30'

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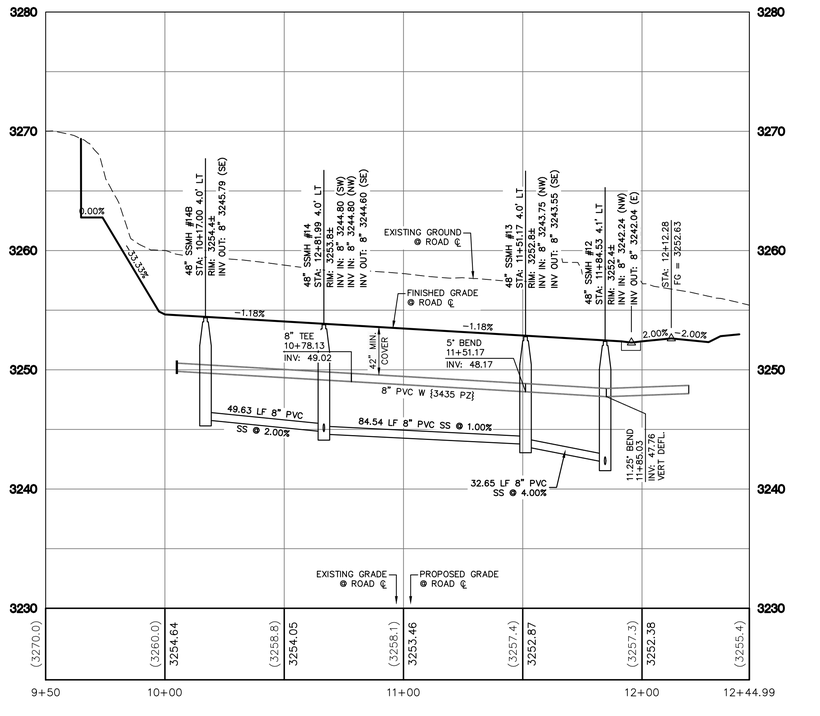

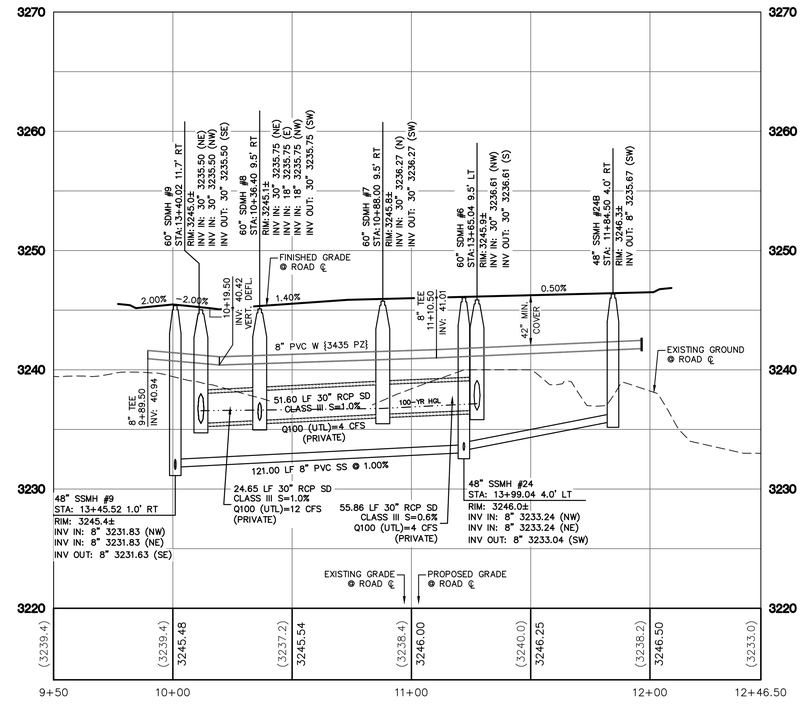

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EXPIRES 12/31/2023
WESLEY T. PETTY
No. 16369
REGISTERED PROFESSIONAL ENGINEER
STATE OF NEVADA

DATE: 03/07/2022
GCW APP
DATE
AGEN APP
DATE
DESCRIPTION
DATE
REV

PROJECT NO. 764-204-023
DESIGN: PB
DRAWN: PB
CHECK: WP
PLOT DATE: 03-07-22
PLOT TIME: 11:10:06

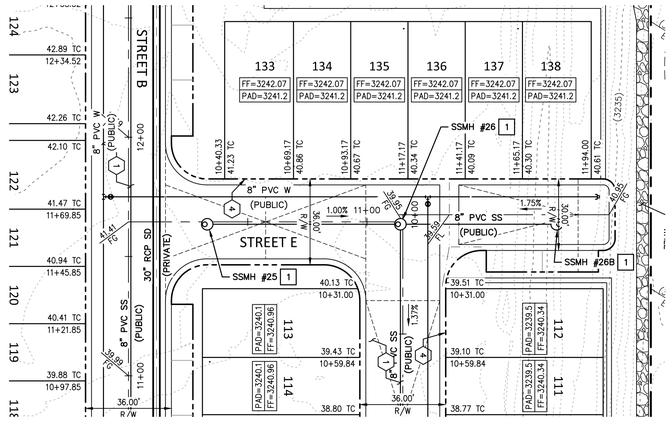
GCW ENGINEERS \ SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com
F:\PROJECTS\7XX\764-204-023\DWG\PRODUCTION\764-204-023DT6-PP.DWG
PAUL BRENNARD

PULTE HOMES

SUMMERLIN - VILLAGE 26 PARCEL L
REVERENCE MULTI-FAMILY

PLAN & PROFILE 9

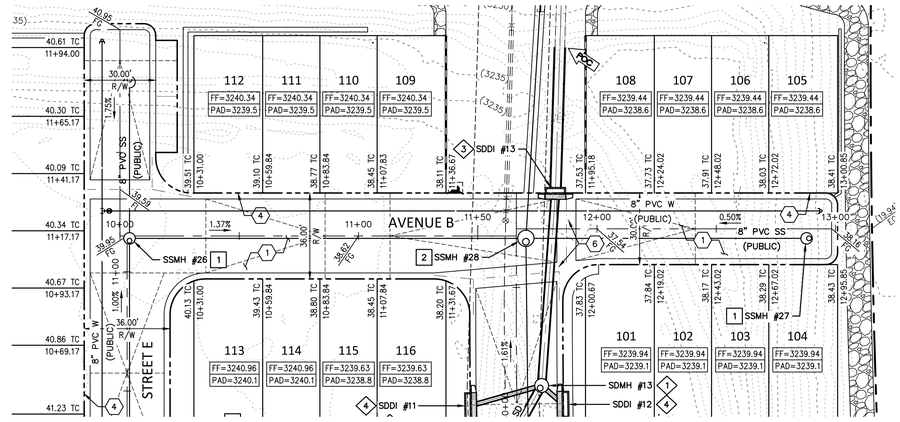
DRAWING
PP9
24 OF 34 SHTS



STREET "E"

(PRIVATE)

SCALE: HORIZ 1" = 30'
VERT. 1" = 6'



AVENUE "B"

(PRIVATE)

SCALE: HORIZ 1" = 30'
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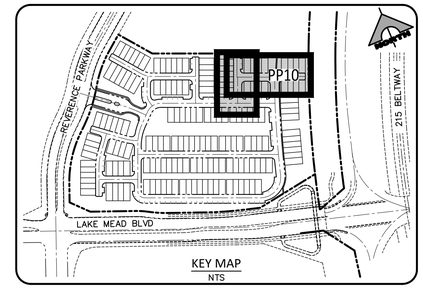

KEY MAP
NTS

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SCALE: 1" = 30'

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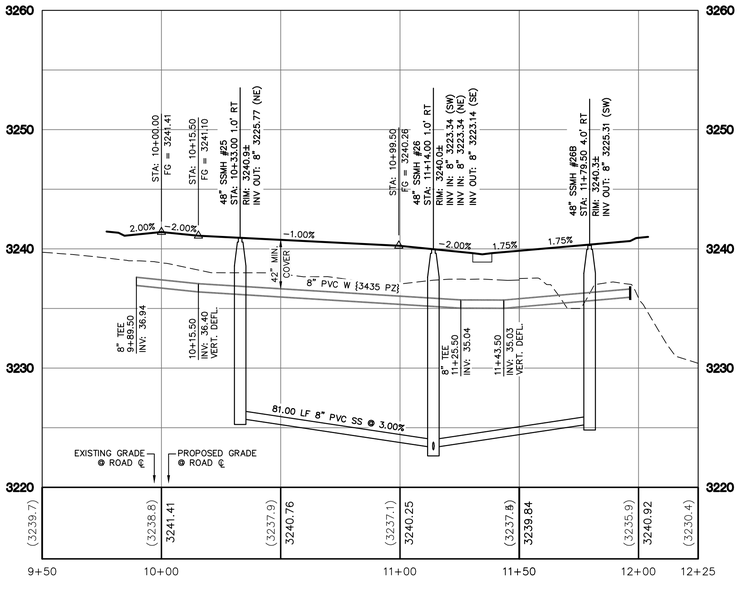

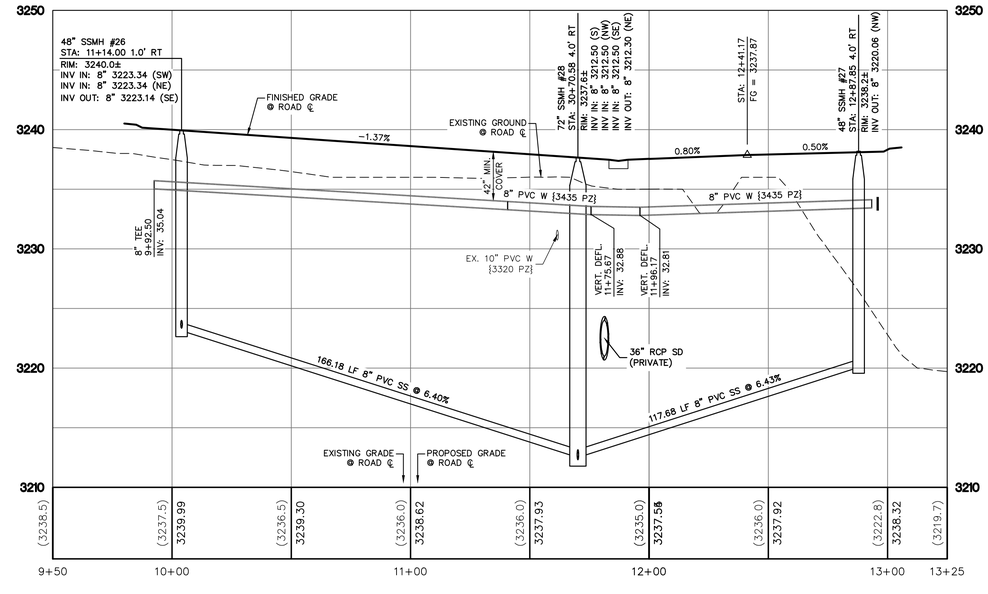

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BENCHMARK

CLARK COUNTY VERTICAL CONTROL POINT: 5LV09 14S6

SUMMERLIN VILLAGE 26 – REVERENCE PROJECT MODIFIED DATUM: 3227.64 FEET
NAVD88 DATUM: 983.659 METERS (3227.22 FEET)

RIVET & PLATE IN HEAD WALL WEST OF CC215 +/–250' NORTH OF LAKE MEAD.

TO OBTAIN SUMMERLIN VILLAGE 26 – REVERENCE PROJECT MODIFIED DATUM ADD 0.42 FEET TO NAVD88 DATUM.

DRAINAGE CERTIFICATION

I CERTIFY THAT THE GRADING PLANS ARE IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY ON FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT.

03/07/2022
WESLEY T. PETTY, P.E. 16369 — DATE

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT PLANNING AND ENGINEERING SERVICES

PROJECT NO. XXXXXX — FIRST APPROVAL DATE: 01/01/2020
LVVWD APPROVED FIRE FLOW 1,500 GPM AT 20 PSI RESIDUAL
MAXIMUM AVAILABLE FIRE SPRINKLER FLOW 30 GPM

Call before you Dig
Avoid cutting underground utility lines. It's costly.
Call 811 or 1-800-642-2444

FAST
Call before you UnderGround
1-702-432-5300
FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY
CALL BEFORE YOU DO OVERHEAD
1-702-227-2929

L#: CLV#:

ENGINEER: WESLEY T. PETTY 12/1/2023 EXP. 12/31/2023 No. 16369 STATE OF NEVADA PROFESSIONAL ENGINEER

REV	DATE	DESCRIPTION	DATE	AGEN APP	DATE	GCW APP	DATE
							03/07/2022

PROJECT NO. 764-204-023
DESIGN: PB
DRAWN: PB
CHECK: WP
PLOT DATE: 03-07-22
PLOT TIME: 11:10:21

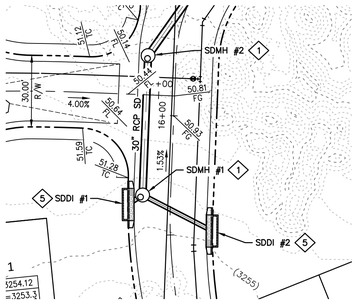
GCW ENGINEERS\SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com
F:\PROJECTS\700\764-204-023\DWG\PRODUCTION\764-204-023DT6-PP.DWG
PAUL BRENNARD

PULTE HOMES

SUMMERLIN - VILLAGE 26 PARCEL L
REVERENCE MULTI-FAMILY

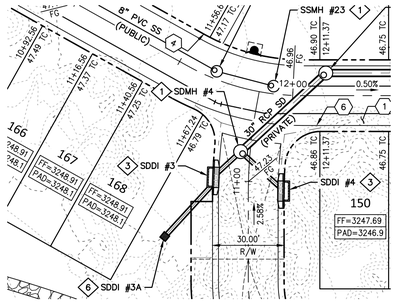
PLAN & PROFILE 10

DRAWING
PP10
25 OF 34 SHTS



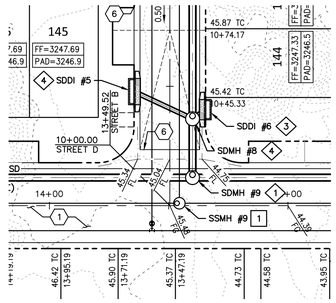
SD LAT1

(PRIVATE)
SCALE: HORIZ 1" = 30'
VERT. 1" = 6'



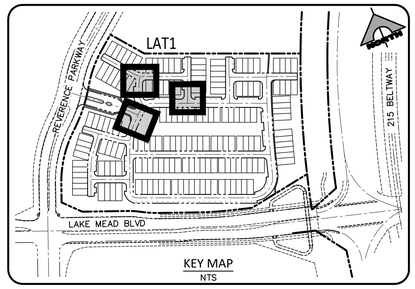
SD LAT2

(PRIVATE)
SCALE: HORIZ 1" = 30'
VERT. 1" = 6'



SD LAT3

(PRIVATE)
SCALE: HORIZ 1" = 30'
VERT. 1" = 6'



NORTH

30' 0' 15' 30' 60'
SCALE: 1" = 30'

ROADWAY CONSTRUCTION NOTES

1. INSTALL 2" AC OVER 4" TYPE II BASE
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6. CONSTRUCT 8' WIDE CROSS GUTTER PER USDCCA No. 228
7. CONSTRUCT 5" THICK CONCRETE SIDEWALK PER USDCCA No. 234

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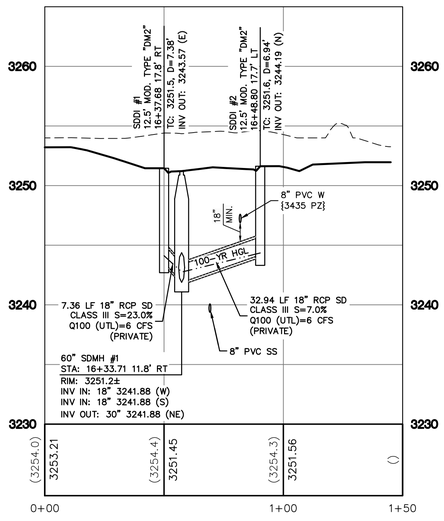
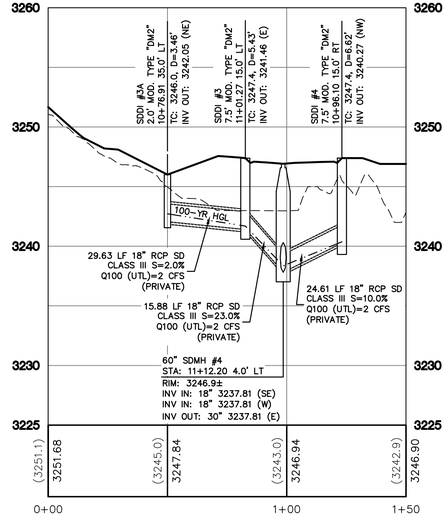
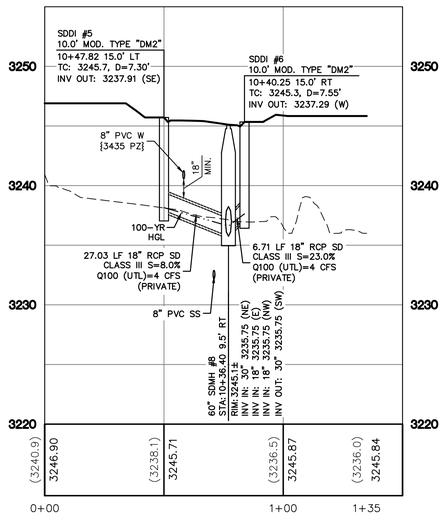
7. CONNECTION POINT. SEE DETAIL 6 ON SHEET DT3







PUBLIC DRAINAGE NOTE

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LAS VEGAS VALLEY WATER DISTRICT PLANNING AND ENGINEERING SERVICES

PROJECT NO. XXXXXX — FIRST APPROVAL DATE: 01/01/2020
LVVWD APPROVED FIRE FLOW 1,500 GPM AT 20 PSI RESIDUAL
MAXIMUM AVAILABLE FIRE SPRINKLER FLOW 30 GPM

L#: CLV#:

Call before you Dig
Avoid cutting underground utility lines. It's costly.
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FAST
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F:\PROJECTS\7000\764-204-023\DWG\PRODUCTION\764-204-023DR-PP.DWG
PAUL BRENNARD

PULTE HOMES

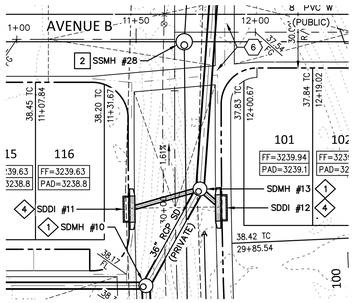
SUMMERLIN - VILLAGE 26 PARCEL L
REVERENCE MULTI-FAMILY

STORM DRAIN LATERALS 1

PROJECT NO. 764-204-023
DESIGN: PB
DRAWN: PB
CHECK: WP
PLOT DATE: 03-07-22
PLOT TIME: 11:10:41

REV	DATE	DESCRIPTION	DATE	AGEN APP	DATE	GCW APP	DATE: 03/07/2022

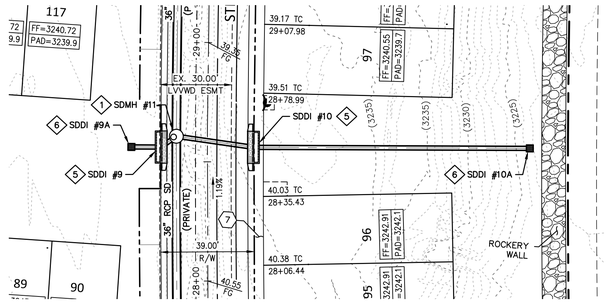
DRAWING
LAT1
26 OF 34 SHTS



SD LAT4

(PRIVATE)

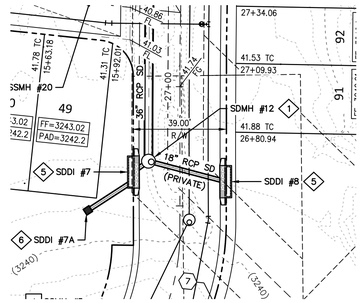
SCALE: HORIZ 1" = 30'
VERT. 1" = 6'



SD LAT5

(PRIVATE)

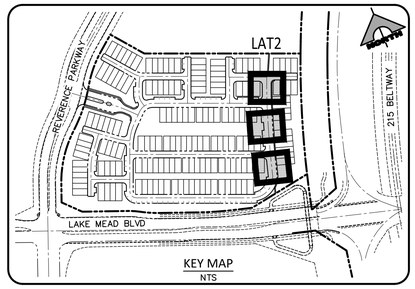
SCALE: HORIZ 1" = 30'
VERT. 1" = 6'



SD LAT6

(PRIVATE)

SCALE: HORIZ 1" = 30'
VERT. 1" = 6'



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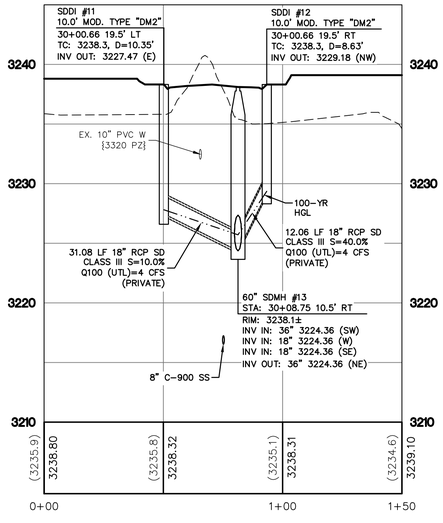

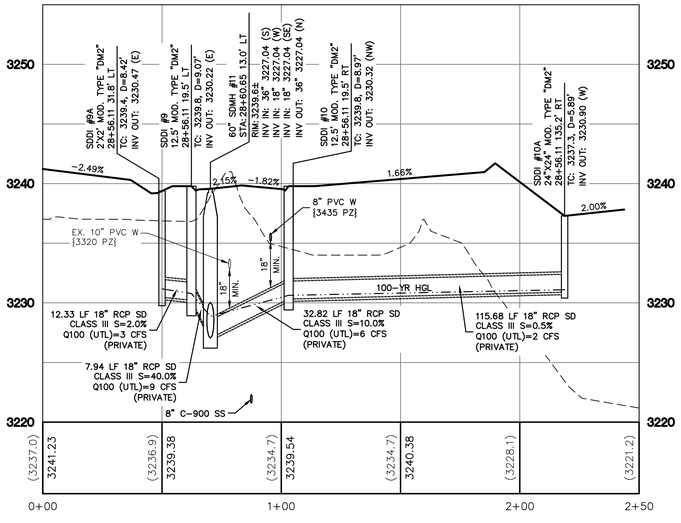

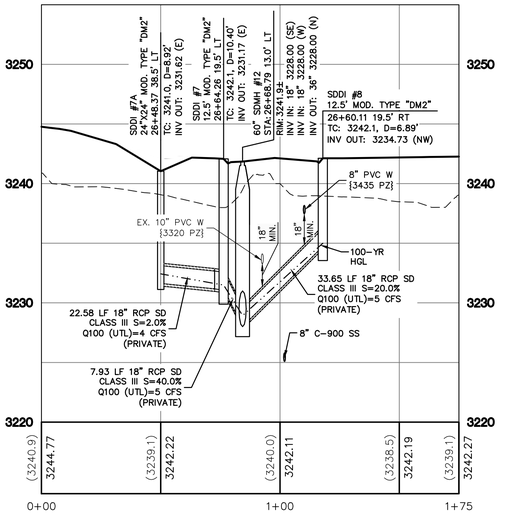

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BENCHMARK

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03/07/2022
WESLEY T. PETTY, P.E. 16369 — DATE

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT PLANNING AND ENGINEERING SERVICES

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T: 702.804.2000
F: 702.804.2299
gcwengineering.com

F:\PROJECTS\7XX\764-204-023\DWG\PRODUCTION\764-204-023DT6-PP.DWG PAUL BRENNARD

PROJECT NO. 764-204-023
DESIGN: PB
DRAWN: PB
CHECK: WP
PLOT DATE: 03-07-22
PLOT TIME: 11:11:04

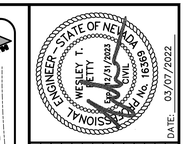
REV	DATE	DESCRIPTION	DATE	AGEN APP	DATE	GCW APP	DATE

PULTE HOMES

SUMMERLIN - VILLAGE 26 PARCEL L
REVERENCE MULTI-FAMILY

STORM DRAIN LATERALS 2

DRAWING
LAT2
27 OF 34 SHTS



DATE: 03/07/2022