DS #: 5377

APN: 126-23-610-002 & 126-23-710-001

PROJECT: BLM 270 - Parcel C-2 & C-3

SUBMITTAL: 2nd

SCANNED BY/DATE:

CHECKED BY/DATE:

CITY OF LAS VEGAS NEVADA

| CITY OF LAS VEGAS<br>INTER-OFFICE MEMORANDUM | | | DATE:<br>January 19, 2021 |
|---|---|---|---|
| TO:<br>**Land Development Services**<br>Department of Building & Safety | | | FROM:<br>Jennifer Shinn, P.E.<br>Flood Control, Engr. Associate<br>Department of Public Works |
| **SUBJECT:** | Drainage Study for: | | **COPIES TO:** |
| **BLM 270 – Parcel C-2 & C-3** | | | Westwood Professional Services |
| **Cross Streets:** | Puli Drive and Dorrell Lane | | Octane FT Partners, LLC |
| **File Number:** | F:\Depot\DSMemos\DS05377B.doc | | Bart Anderson, P.E., DevCo |
| **Parcel Number:** | 126-23-610-002 & 126-23-710-001 | | |
| **Zoning Action:** | 20-0131-TMP1 | | |
| **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 | 10/20/2020 | 11/16/2020 | See Comments Below | $400.00 | 4039147: $400 |
| 2nd Submittal | 12/23/2020 | 01/19/2021 | | $400.00 | 4112690: $400 |
| | | | **TOTAL FEES (LDDRS):** | **$800.00** | **----** |

**REMARKS:**

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

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

1. Show the proposed vacation of the portion of BLM ROW Grant along the western boundary of the subject site. Prior to the recordation of a Final Map for this site, a Petition of Vacation, such as VAC-78800, shall be recorded to eliminate a portion of the Bureau of Land Management right-of-way grant (Sheep Mountain Parkway) in conflict with the proposed site.
2. Provide public drainage easement around the drop inlet that encroaches onto Lot 27.

**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/JKS

T/R/S: T19S/R59E/S14
AREA F-23

ADDENDUM TO THE TECHNICAL DRAINAGE STUDY

# BLM 270 - Parcel C-2 & C-3

DECEMBER 2020

**PREPARED FOR:**

190 Octane FT Partners, LLC
Las Vegas, Nevada

**PREPARED BY:**

Westwood

Westwood

# BLM 270 - Parcels C-2 & C-3

**Addendum to the Technical Drainage Study**

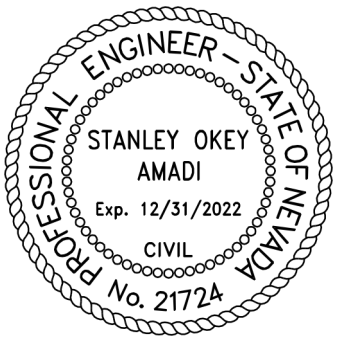
City of Las Vegas, Nevada

**Prepared For:**

190 Octane FT Partners, LLC
c/o Mr. Marc Bolduc
11411 Southern Highlands Pkwy, Suite 300
Las Vegas, NV 89141
Phone: 702-220-6565 ▪ Fax: 702-220-6566

**Prepared By:**

Westwood Professional Services
5740 S. Arville Street, Suite 216
Las Vegas, NV 89118
Phone: (702) 284-5300
Fax: (702) 284-5339




Project Number: BZR2001.000
Date: December 2020

Stanley Okey Amadi, P.E., CFM
NV Professional Engineer No. 21724
Assisted by: Caitlyn Alcantara, E.I.

Westwood

5740 S. Arville St., Suite 216
Las Vegas, NV 89118

Main (702) 284-5300

westwoodps.com
(888) 937-5150

BZR2001.000

December 15, 2020

Jennifer Shinn, P.E.
City of Las Vegas
333 Rancho Drive (7th Floor)
Las Vegas, NV 89101

**Subject: Addendum to the Technical Drainage Study for BLM 270 – Parcel C-2 & C-3**

Ms. Shinn:

This letter certifies that all items provided on electronic submittal CD matches the *Addendum to the Technical Drainage Study for BLM 270 – Parcel C-2 & C-3* bound paper version.

Respectfully Submitted,
WESTWOOD PROFESSIONAL SERVICES

Caitlyn Alcantara, E.I.
Graduate Engineer – Water Resources Department

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

# DRAINAGE STUDY INFORMATION FORM

Name of Development: BLM 270 - Parcel C-2 & C-3 Addendum Date: December 2020

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

East/West: Dorrell Lane

b) Section: 23 and 26 Township: 19 South Range: 59 East

c) APN: 126-14-810-001 & 126-14-710-001

Name of Owner: 190 Octane FT Partners, LLC

Telephone No.: 702-220-6565 Fax No.: 702-220-6566 E-mail Address: mbolduc@olympiacompanies.com

Address: 11411 Southern Highlands Parkway, Suite 300 Las Vegas NV 89141

Contact Person – Name: Stanley Okey Amadi, P.E., CFM Telephone No.: (702) 284-5300

*E-mail Address: stanley.amadi@westwoodps.com Fax No.: (702) 284-5399

Firm: Westwood Professional Services

Address: 5740 S. Arville #216 Las Vegas NV 89118

Type of Land Development/Land Disturbance Process:

| | | | | | |
|---|---|---|---|---|---|
| ☐ | Rezoning | ☐ | Subdivison 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: 265 +/- acres Being Developed/Disturbed: 61 +/- acres

2. Is a portion or all of the subject property located in a 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

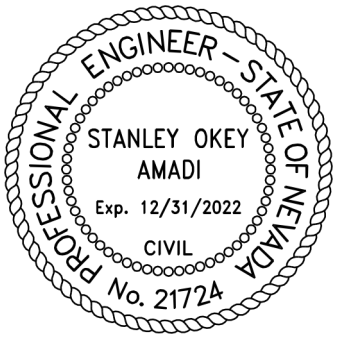
4. Proposed type of development (Residential, Commercial, Etc.): Residential

5. Approximate upstream land area which drains to the subject site: 166 +/- acres

6. Has the site drainage been evaluated in the past? ☒ Yes** ☐ No If yes, please identify documentation: Master Drainage Study - BLM 270 (DS 5236), BLM 270 Infrastructure - Centennial Parkway (DS5284)

7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: Flows will be routed southerly into Puli Road .... storm drains.

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.

*Newly Required Field

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

Local Entity File No.

| Revision | Date |
|---|---|
| | |
| | |
| | |

REFERENCE: STANDARD FORM 1

Updated 05/01/2008

Westwood

5740 S. Arville St., Suite 216
Las Vegas, NV 89118

main (702) 284-5300

BZR2001.000

December 15, 2020

Ms. Jennifer Shinn, P.E.
Flood Control Engineering Associate
City of Las Vegas Department of Public Works
495 South Main Street
Las Vegas, Nevada 89101

**Subject: Addendum to the Technical Drainage Study for BLM 270 – Parcel C-2 & C-3 (DS05377A)**

Dear Ms. Shinn,

This letter is submitted in response to the comments contained in the November 16, 2020 review memorandum, regarding the above referenced project. A copy of the City of Las Vegas comment letter has been provided in Appendix A.

The comments in the review memorandum have been individually addressed as follows:

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

   **Response:** Acknowledged. Please refer to Appendix A for a copy of the NOFA associated with the site development.

2. **Comment**: *All drainage easements are public drainage easements to be privately maintained by the HOA. Please revise the callout for the easement through CE-B on Sheet G-1 and Section Detail 19/D-2 of the Phase 1 plans.*

   **Response:** Acknowledged. The call outs on the grading plan (Sheet G-1) and the Section Detail 19/D-2 of the Phase 1 plans have been revised accordingly.

3. **Comment**: Show all existing easements including the BLM ROW Grant along the western boundary of the subject site. Call out all proposed vacations.

   **Response:** All the BLM ROW Grants along the western boundary of the site as well any proposed vacations have been shown and called out on the plans.

4. **Comment**: Public drainage easements, including access control, shall be per CCAUSD 425.S1.

Westwood

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Las Vegas, NV 89118

main (702) 284-5300

**Response:** Acknowledged. Call outs and specifications have been updated accordingly.

5. **Comment**: There is no existing condition evaluation provided. The existing condition in the report references the Master Drainage Study for the BLM 270 and the Technical Drainage Study for the BLM 270, however these only provided Proposed and Ultimate conditions.

   **Response:** Similar to the other approved technical drainage studies within the BLM master plan area (Parcels A, B & D), no existing condition hydrologic analysis was provided. The existing condition analysis of the site was addressed by the Cliffs Edge Master Drainage Study and the pertinent reference exhibit has been provided in Appendix F. It should be noted that the Master Drainage Study and subsequent Infrastructure Technical Studies for the overall BLM 270 site have planned the drainage patterns, set allowable discharges and designed receiving facilities for the individual parcels within master plan area. Therefore, the existing condition analysis is irrelevant as the subject study has been designed to be in conformance with the Master and Infrastructure Technical Studies.

6. **Comment**: There is no analysis done for the onsite interim condition undeveloped areas. Develop flows for the interim condition and onsite swales.

   **Response:** Acknowledged. A normal depth hydraulic calculation (Section ID) has now been provided in the interim condition to assess the velocities within the mass graded portions of Phase 2 area. The analysis utilizes the prorated flows which are conservatively based on the ultimate built out hydrology. The calculation at Section ID which has the steepest longitudinal slope along the rough graded flow paths indicates a non-erosive velocity of less than 5 fps; however, nominal riprap (D50=6". Thickness=12") have been specified at all the interface between mass grade and pavement.

7. **Comment**: Provide riprap calculations for the pads proposed in the interim condition.

   **Response:** Riprap calculation has been provided for the pads which indicates a riprap size of D50=4", thickness=8". The riprap pad of D50=6", thickness=12" previously provided will remain unchanged.

8. **Comment**: The location of section B2 is not shown on Exhibit F.

   **Response:** Acknowledged. However, Section B2 is now relabeled as Section C1 and has been included on the Exhibit F. Note that the street profile for Sweet Bay Street has been revised; thus, additional street sections have been provided and previous sections have been updated to reflect the revised street slopes. Likewise, the drop inlet sizes and computations as well as the storm drain hydraulic models have been updated accordingly. Likewise, the TC elevations as well as the pad and finished floor elevations for the lots along Sweet Bay Street have been revised due to the revised street profile. The revised street sections, Finished Floor Analyses, drop inlets and storm drain computations have been included in Appendices C, D and E respectively. Exhibit F has been updated to with revised summary tables to reflect the revised computations and included in Appendix B.

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Las Vegas, NV 89118

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9. **Comment**: **Sheet G-1 Phase 1:** With a high flow velocity of 22.59 fps exiting at the 20' drainage easement when connecting to proposed street Sweet Bay Street, a possible hydraulic jump will occur. Verify the energy grade at this location and its impacts to downstream lot FF elevations along Sweet Bay Street.

   **Response:** Westwood PS has been contracted and is currently providing the design for the adjacent northern Parcel C-1 that discharges thru the subject easement. The design along the boundary between both parcels are being coordinated. The easement will be relocated slightly east and the design of Parcel C-1 will now provide a drop inlet and outlet pipe that daylights into the concrete U-gutter. As a result, the slope of the u-gutter has been flattened which in turn reduces the velocity and specific energy of the flows exiting the drainage easement. Note that there are no lots directly opposite the flow path of the drainage easement as the u-gutter is now aligned with Sweet Bay Street.

10. **Comment**: **Sheet G-1 Phase 2:** Section 9 D-1 on lot 217 does not match what is shown on the plans.

    **Response:** Acknowledged. The section on Lot 217 has been revised to 8/D-2.

11. **Comment**: The following finish floors do not meet the Regional Flood Control District minimum criteria of twice the Q100 depth of flow up to 18-inches above the water surface (CCRFCD Manual Section 304.4.E.1) or 6-inch minimum above the highest adjacent top of curb (CCRFCD Manual Section 1602 304.4.E.1). The following finish floors should be revised, or alternate flood protection provided.

| Lot | TC | FF Shown | FF Required |
|---|---|---|---|
| 217 | 3067.02 | 3066.80 | 3067.52 |

    As an alternate each lot must be discussed in the drainage study, shown to be flood protected, and any necessary flood improvements shown on the grading plan.

    **Response:** Acknowledged. However, it should be noted that Lot 217 is addressed from Sageview Avenue, so the finished floor analysis, TC and FL elevations and the 100-year flow depth were measured from Sageview Avenue. It should be noted that the adjacent western wall along Marjoram Street was specified to be solid grouted to flood protect the site as indicated in the perimeter finished floor check. Therefore, no revision to the finished floor elevation is necessary.

12. **Comment**: **Sheet G-7:** Inlets PC1, PC2, PC3 and PC4 are proposed within roll curb. Sheet 10 of Phase 1 plans.

    **Response:** All the inlets were proposed within L-curb, but the construction notes call out for the transitions from roll to L-curb were missing. Please refer to the revised plans for the call outs.

13. **Comment**: **Sheet G-7:** Per the grading design, it appears that drainage on the south side of Chipotle Avenue will make two 90-degree turns to the proposed PC5 on the north side of the street. This will create turbulence and inefficient capture of surface flows at the cul-de-sac. Provide one inlet either at the south side of Chipotle Avenue or at the far end curb to improve the

Westwood

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main (702) 284-5300

flow condition

**Response:** Acknowledged. The design of the site has been revised to provide an additional inlet (Facility PC6) located between Lots 26 & 27 and the stubbed street east of the new drop inlet is now superelevated to the north. Thus, any flows that bypasses the inlet will no longer continue east to make the dual 90-degree turns but will sheet flow across the street towards the low point. The storm drain and inlet capacity calculations have been updated accordingly.

14. **Comment**: Add note to the Grading Plans: "All onsite storm drain facilities are privately owned and privately maintained by the HOA."

**Response:** The subject note has been added to all grading plan sheets as noted. Refer to the revised plans provided with this submittal.

We believe the above responses and revisions provided on the plans have adequately satisfied your concerns in the subject review memorandum. The revised grading plans, detail sections and storm drain profiles adopting the revisions addressed in this letter have been included separately with this submittal. If you have any questions or require additional information, please do not hesitate to contact our office at (702) 284-5300.

Respectfully Submitted,
WESTWOOD PROFESSIONAL SERVICES



Stanley Okey Amadi, P.E., CFM
Project Manager – Flood Control Division

cc: Mark Failla, P.E., CFM
Caitlyn Alcantara, E.I.
Josh Johnson, P.E.

Westwood

5740 S. Arville St., Suite 216
Las Vegas, NV 89118

main (702) 284-5300

# APPENDIX

**Appendix A** – CLV Comment Letter & NOFA

**Appendix B** – Revised Drainage Exhibits

**Appendix C** – Surface Flow Computations

- Street Flow Calculations
- Ditch Computations
- Riprap Sizing Calculation
- Drainage Easement & Emergency Overflow

**Appendix D** – Revised Finished Floor Analyses

**Appendix E** – Drop Inlet & Storm Drain Computations

**Appendix F** – Reference Material: Cliff Edge MDS

**Appendix G** – CD of Electronic Files & Revised Improvement Plans

# APPENDIX A

CLV Comment Letter & NOFA

| CITY OF LAS VEGAS<br>INTER-OFFICE MEMORANDUM | | | | DATE:<br><br>November 16, 2020 |
|---|---|---|---|---|
| TO:<br>**Land Development Services**<br>Department of Building & Safety | | | | FROM:<br>Jennifer Shinn, P.E.<br>Flood Control, Engr. Associate<br>Department of Public Works |
| **SUBJECT:** | Drainage Study for: | | | **COPIES TO:** |
| **BLM 270 – Parcel C-2 & C-3** | | | | Westwood Professional Services |
| **Cross Streets:** | Puli Drive and Dorrell Lane | | | Octane FT Partners, LLC |
| **File Number:** | F:\Depot\DSMemos\DS05377A.doc | | | Bart Anderson, P.E., DevCo |
| **Parcel Number:** | 126-23-610-002 & 126-23-710-001 | | | |
| **Zoning Action:** | | | | |
| **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 | 10/20/2020 | 11/16/2020 | See Comments Below | $400.00 | 4039147: $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. |

The following are comments pertaining to the subject site specific drainage study and grading plans:

1. Provide a copy of the zoning/planning conditions associated with this site with the next submittal to verify compliance with conditions. *Flood Control* will not issue conditional approval of the drainage study without the associated zoning/planning conditions (issued by the *City Council*). Any associated conditions of approval that revise the site drainage parameters will require that the drainage study be revised and resubmitted.
2. All drainage easements are public drainage easements to be privately maintained by the HOA. Please revise the callout for the easement through CE-B on Sheet G-1 and Section Detail 19/D-2 of the Phase 1 plans.
3. Show all existing easements including the BLM ROW Grant along the western boundary of the subject site. Call out all proposed vacations.
4. Public drainage easements, including access control, shall be per CCAUSD 425.S1.
5. There is no existing condition evaluation provided. The existing condition in the report references the Master Drainage Study for the BLM 270 and the Technical Drainage Study for the BLM 270, however these only provided Proposed and Ultimate conditions.
6. There is no analysis done for the onsite interim condition undeveloped areas. Develop flows for the interim condition and onsite swales

7. Provide riprap calculations for the pads proposed in the interim condition.
8. The location of section B2 is not shown on Exhibit F.
9. **Sheet G-1 Phase 1:** With a high flow velocity of 22.59 fps exiting at the 20' drainage easement when connecting to proposed street Sweet Bay Street, a possible hydraulic jump will occur. Verify the energy grade at this location and its impacts to downstream lot FF elevations along Sweet Bay Street.
10. **Sheet G-1 Phase 2:** Section 9 D-1 on lot 217 does not match what is shown on the plans.
11. The following finish floors do not meet the Regional Flood Control District minimum criteria of twice the Q100 depth of flow up to 18-inches above the water surface (CCRFCD Manual Section 304.4.E.1) or 6-inch minimum above the highest adjacent top of curb (CCRFCD Manual Section 1602 304.4.E.1). The following finish floors should be revised or alternate flood protection provided.

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| 217 | 3067.02 | 3066.80 | 3067.52 |

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14. Add note to the Grading Plans: "All onsite storm drain facilities are privately owned and privately maintained by the HOA."

**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/JKS

T/R/S: T19S/R59E/S14
AREA F-23

**LAS VEGAS CITY COUNCIL**

CAROLYN G. GOODMAN
*Mayor*

STAVROS S. ANTHONY
*Mayor Pro Tem*

MICHELE FIORE
CEDRIC CREAR
BRIAN KNUDSEN
VICTORIA SEAMAN
OLIVIA DÍAZ

SCOTT D. ADAMS
*City Manager*

DEPARTMENT OF PLANNING

**ROBERT SUMMERFIELD**
DIRECTOR

**DEVELOPMENT SERVICES CENTER**

333 N. RANCHO DRIVE
3RD FLOOR
LAS VEGAS, NV 89106

702.229.6301 | VOICE
702.474.7463 | FAX
711 | TTY

cityoflasvegas
lasvegasnevada.gov

October 14, 2020

Mr. Chris Armstrong
190 Octane FT Partners, LLC
11411 Southern Highlands Pkwy., Ste. 300
Las Vegas, Nevada 89141

***RE: 20-0131-TMP1***
***PLANNING COMMISSION MEETING OF OCTOBER 13, 2020***

Dear Applicant:

The Planning Commission at a regular meeting held on *October 13, 2020* voted to ***APPROVE*** a request for a Tentative Map FOR A 250-LOT SINGLE-FAMILY RESIDENTIAL SUBDIVISION on 38.61 acres on the west side of the Puli Trail alignment, approximately 610 feet south of Dorrell Lane (APNs 126-23-610-002 and 126-23-710-001), PD (Planned Development) Zone [ML (Residential Medium Low) Special Land Use Designation], Ward 6 (Fiore).

This approval is subject to the following conditions:

Planning

1. Approval of the Tentative Map shall be for no more than four (4) years. If a Final Map is not recorded on all or a portion of the area embraced by the Tentative Map within four (4) years of the approval of the Tentative Map, this action is void.

2. Street names must be provided in accordance with the City's Street Naming Regulations.

3. A fully operational fire protection system, including fire apparatus roads, fire hydrants and water supply, shall be installed and shall be functioning prior to construction of any combustible structures.

4. In conjunction with creation, declaration and recordation of the subject common-interest community, and prior to recordation of the Covenants, Codes and Restrictions ("CC&R"), or conveyance of any unit within the community, the Developer is required to record a Declaration of Private Maintenance Requirements ("DPMR") as a covenant on all associated properties, and on behalf of all current and future property owners. The DPMR is to include a listing of all privately owned and/or maintained infrastructure improvements, along with assignment of maintenance responsibility for each to the

common interest community or the respective individual property owners, and is to provide a brief description of the required level of maintenance for privately maintained components. The DPMR must be reviewed and approved by the City of Las Vegas Department of Field Operations prior to recordation, and must include a statement that all properties within the community are subject to assessment for all associated costs should private maintenance obligations not be met, and the City of Las Vegas be required to provide for said maintenance. Also, the CC&R are to include a statement of obligation of compliance with the DPMR. Following recordation, the Developer is to submit copies of the recorded DPMR and CC&R documents to the City of Las Vegas Department of Field Operations.

5. All development is subject to the conditions of City Departments and State Subdivision Statutes.

Public Works

6. Prior to the recordation of a Final Map for this site, a Petition of Vacation, such as VAC-78800, shall be recorded to eliminate a portion of the Bureau of Land Management right-of-way grant (Sheep Mountain Parkway) in conflict with this proposed site.

7. Private streets must be granted and labeled on the Final Map for this site as Public Utility Easements (P.U.E.), Public Sewer Easements, and Public Drainage Easements to be privately maintained by the Homeowner's Association.

8. Grant a minimum 40-foot wide Public Sewer and Public Drainage Easement to be privately maintained over Common Element "E". The proposed sewer shall be a minimum of 10 feet from property and easement lines.

9. If not already constructed or guaranteed, construct the Puli Road cul-de-sac (for access) and the required trail adjacent to this site concurrent with development.

10. An update to the approved Wastewater Master Plan shall be approved prior to the approval of any construction drawings.

11. No trees or landscape taller than 3 feet tall shall be allowed within Public Sewer Easements.

12. Pedestrian access to the Puli Trail alignment shall be provided at locations acceptable to the City Traffic Engineer. Prior to submittal of construction drawings, a Pedestrian Circulation/Access Plan must be submitted to and approved by the Department of Public Works to identify nearby pedestrian attractors and recommend measures to accommodate pedestrians, such as but not limited to pedestrian access, crosswalk, pedestrian activated flashers and temporary sidewalks.

13. A Drainage Plan and Technical Drainage Study must be submitted to and approved by the Department of Public Works prior to the issuance of any building or grading permits or submittal of any construction drawings, whichever may occur first. Provide and improve all drainageways recommended in the approved drainage plan/study. The developer of this site shall be responsible to construct such neighborhood or local drainage facility improvements as are recommended by the City of Las Vegas Neighborhood Drainage Studies and approved Drainage Plan/Study concurrent with development of this site.

14. The approval of all Public Works related improvements shown on this Tentative Map is in concept only. Specific design and construction details relating to size, type and/or alignment of improvements, including but not limited to street, sewer and drainage improvements, shall be resolved prior to approval of the construction plans by the City. No deviations from adopted City Standards shall be allowed unless specific written approval for such is received from the City Engineer prior to the recordation of a Final Map or the approval of subdivision-related construction plans, whichever may occur first. Approval of this Tentative Map does not constitute approval of any deviations. If such approval cannot be obtained, a revised Tentative Map must be submitted showing elimination of such deviations.

15. Site development to comply with all applicable conditions of approval for Tentative Map TMP-78365, Final Map FMP-78687 and all other applicable site-related actions.

This action by the Planning Commission on **October 13, 2020** is final unless a written appeal is filed with the City Clerk within seven days of the date of the Planning Commission's decision as allowed by code or there is a review action filed by the City Council within the same time period. For additional information on appeals or review requests submitted please access https://www.lasvegasnevada.gov/Business/Permits-Licenses/Building-Permits/Permit-Application-Status, or contact the Department of Planning and Development at 702.229.6301 after ***October 20, 2020***.

No building permits or business licenses related to these items shall be issued prior to the expiration of the required seven day waiting period, or until any filed appeal is resolved pursuant to LVMC Title 19.18.

Sincerely,



Eric McCammond
Senior Management Analyst
Case Planning Division

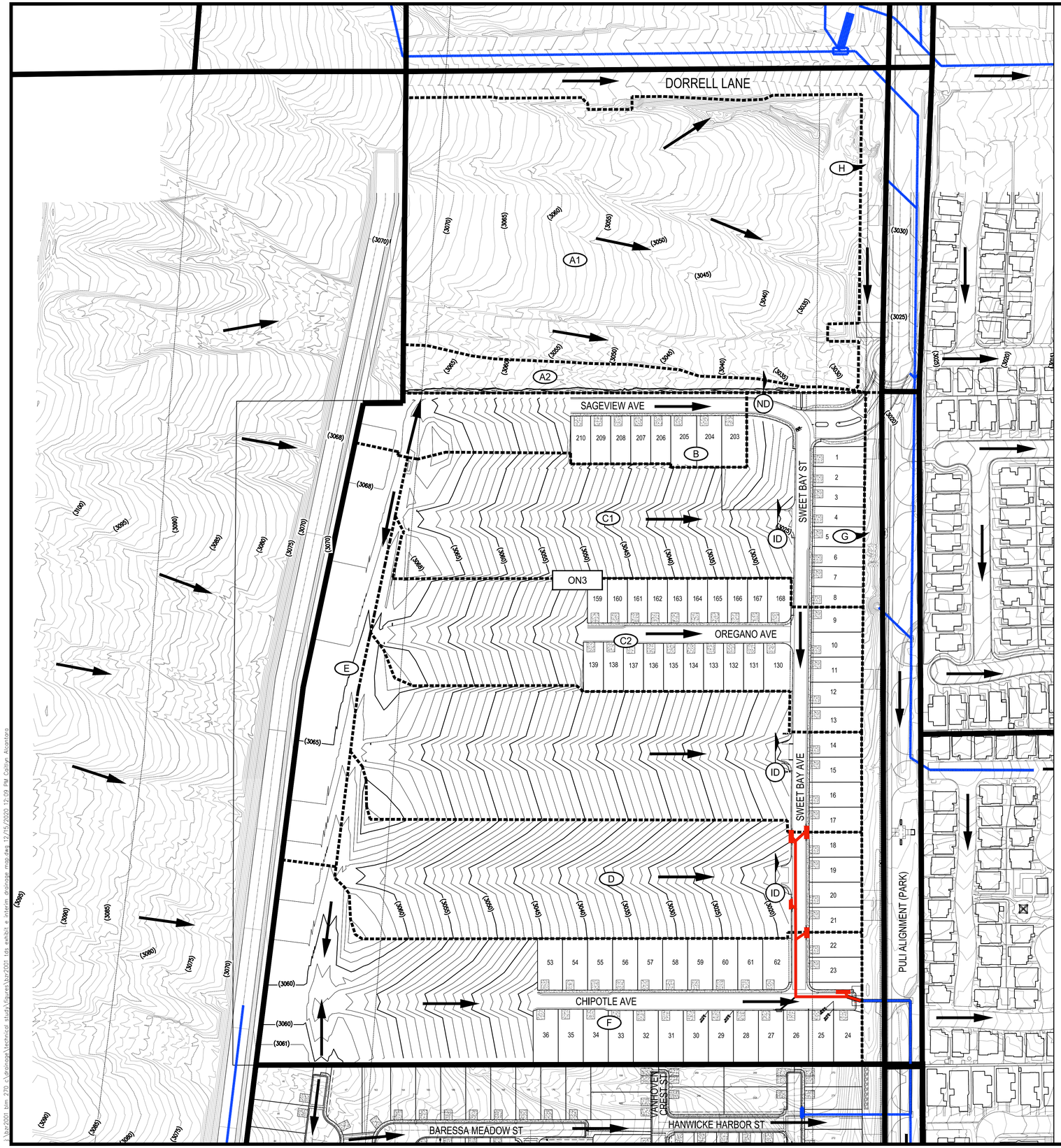
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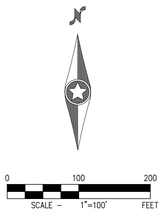
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Ms. Roxanne Leigh
Westwood Professional Services
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Las Vegas, Nevada 89118

# APPENDIX B

Revised Drainage Exhibits




**LEGEND**

- BASIN BOUNDARY
- PRORATED SUBBASIN BOUNDARY
- EXISTING DRAINAGE FACILITY
- PROPOSED DRAINAGE FACILITY
- ID — BASIN ID
- (ID) — PRORATED SUBBASIN ID
- FLOW DIRECTION

**Prorated Interim Condition Flow Summary**

| Basin ID | $Q_{100}$ (cfs) | Area (acres) | 100-yr Unit Flow (cfs/acre) |
|---|---|---|---|
| ON3 | 155 | 52.0 | 3.0 |
| **Subbasin ID** | **$Q_{100}$ (cfs)** | **Area (acres)** | **100-yr Unit Flow (cfs/acre)** |
| ON3(A1) | 35 | 11.7 | 3.0 |
| ON3(A2) | 3 | 1.1 | 3.0 |
| ON3(B) | 7 | 2.5 | 3.0 |
| ON3(C1) | 18 | 6.1 | 3.0 |
| ON3(C2) | 17 | 5.7 | 3.0 |
| ON3(C3) | 17 | 5.6 | 3.0 |
| ON3(D) | 18 | 6.0 | 3.0 |
| ON3(E) | 7 | 2.2 | 3.0 |
| ON3(F) | 23 | 7.8 | 3.0 |
| ON3(G) | 4 | 1.3 | 3.0 |
| ON3(H) | 6 | 2.1 | 3.0 |
| ***TOTAL*** | ***155*** | ***52.0*** | |

**Interim Condition Ditch Section Summary**

| Section ID | $Q_{100}$ (cfs) | Section Description | Slope (%) | Depth (ft) | Velocity (fps) |
|---|---|---|---|---|---|
| ND (Q = Basin ON3(A2)) | 3 | 8' Earthen V-Ditch, 4:1SS | 2.50 | 0.46 | 3.48 |
| | | | 5.00 | 0.41 | 4.51 |
| ID (Q = Basin ON3(C1)) | 18 | 53' Earthen Ditch, 2.00%SS &3:1 SS | 6.61 | 0.29 | 3.99 |


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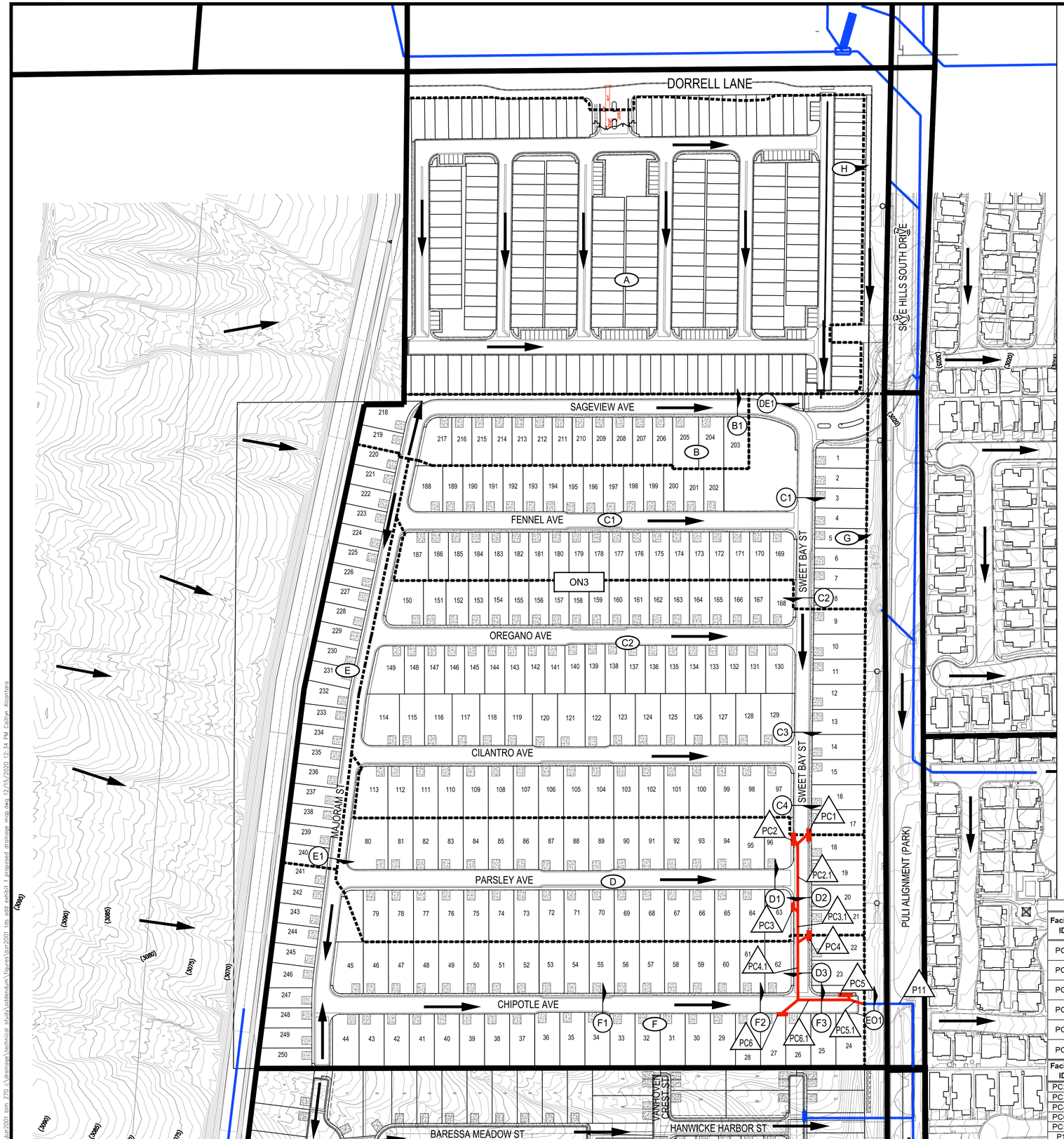

| NO. | DESCRIPTION | DATE | BY | APP. DATE | APP. |
|---|---|---|---|---|---|

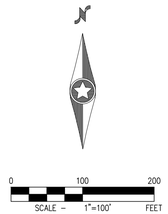
# 190 OCTANE FT PARTNERS, LLC
## BLM 270 PARCEL C-2 & C-3
## INTERIM CONDITION DRAINAGE MAP

DATE: DEC 2020
DRAFTER: CAA
DESIGNER: CAA
CHECKED: SOA
PROJECT NO.
**BZR2001.000**

**EXHIBIT E**
SHEET 1 OF 1


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## LEGEND

- BASIN BOUNDARY
- PRORATED SUBBASIN BOUNDARY
- EXISTING DRAINAGE FACILITY
- PROPOSED DRAINAGE FACILITY
- ID — BASIN ID
- (ID) — PRORATED SUBBASIN ID
- FLOW DIRECTION
- ID — FLOWMASTER SECTION
- ID — FACILITY ID

**Prorated Ultimate Condition Flow Summary**

| Basin ID | $Q_{100}$ (cfs) | Area (acres) | 100-yr Unit Flow (cfs/acre) |
|---|---|---|---|
| ON3 | 155 | 52.0 | 3.0 |
| **Subbasin ID** | **$Q_{100}$ (cfs)** | **Area (acres)** | **100-yr Unit Flow (cfs/acre)** |
| ON3(A) | 38 | 12.8 | 3.0 |
| ON3(B) | 7 | 2.5 | 3.0 |
| ON3(C1) | 18 | 6.1 | 3.0 |
| ON3(C2) | 34 | 11.3 | 3.0 |
| ON3(D) | 18 | 6.0 | 3.0 |
| ON3(E) | 7 | 2.2 | 3.0 |
| ON3(F) | 23 | 7.8 | 3.0 |
| ON3(G) | 4 | 1.3 | 3.0 |
| ON3(H) | 6 | 2.1 | 3.0 |
| ***TOTAL*** | ***155*** | ***52.0*** | |

**Ultimate Condition 100-Year Street Flow Summary**

| Section ID | Slope (%) | $Q_{100}$ (cfs) | Depth (ft) | Velocity (fps) | DxV |
|---|---|---|---|---|---|
| Street B1 (Q = ON3(B)) | 5.59 | 7 | 0.26 | 4.46 | 1.2 |
| Street C1 (Q = ON3(A+B)) | 1.50 | 45 | 0.52 | 4.83 | 2.5 |
| Street C2 (Q = ON3(A+B+C1)) | 1.25 | 63 | 0.62 | 4.89 | 3.0 |
| Street C3 (Q = ON3(A+B+C1+1/2 of C2)) | 0.85 | 80 | 0.71 | 4.95 | 3.5 |
| Street C4 (Q = ON3(A+B+C)) | 0.70 | 97 | 0.80 | 5.03 | 4.0 |
| Street D1 (Q = ON3(D)) | 5.57 | 18 | 0.34 | 5.57 | 1.9 |
| | 6.17 | | 0.33 | 5.79 | 1.9 |
| Street D1 (Curb Popout) (Q = ON3(D)) | 5.57 | | 0.35 | 5.83 | 2.0 |
| | 6.17 | | 0.35 | 6.07 | 2.1 |
| Street D2 (Q = Bypass of Facility PC1 & PC2 + ON3(D)) | 2.19 | 45 | 0.50 | 5.25 | 2.6 |
| Street D3 (Q = Bypass of Facility PC3 & PC4) | 2.76 | 17 | 0.37 | 4.17 | 1.5 |
| Street E1 (Q = ON3(E)) | 1.00 | 7 | 0.40 | 2.69 | 1.1 |
| Street F1 (Q = ON3(E) + Half of ON3(F)) | 5.36 | 18.5 | 0.34 | 5.51 | 1.9 |
| Street F1 (Curb Popout) (Q = ON3(E) + Half of ON3(F)) | 5.36 | | 0.36 | 5.80 | 2.1 |
| Street F2 (Q = ON3(E) + 4/5 of ON3(F)) | 3.92 | 25.4 | 0.40 | 5.20 | 2.1 |
| | 5.36 | | 0.38 | 5.96 | 2.3 |
| Street F3 (Q =ON3(A+B+C+D+E+F) - Facility PC6.1) | 2.50 | 37 | 0.64 | 5.38 | 3.4 |

**Ultimate Condition Drainage Easement Section Summary**

| Section ID | $Q_{100}$ (cfs) | Section Description | Slope (%) | Depth (ft) | Velocity (fps) |
|---|---|---|---|---|---|
| DE1 (Q = Basin ON3(A)) | 38 | 20' Drainage Easement with 4-ft U-Channel, 0.5-ft Depth | 6.13 | 0.35 | 13.40 |

**Ultimate Condition Emergency Overflow Section Summary**

| Section ID | $Q_{100}$ (cfs) | Section Description | Depth (ft) | Velocity (fps) |
|---|---|---|---|---|
| EO1 (Q = Facility PC5) | 37 | Weir | 0.48 | 2.14 |

**Ultimate Condition Drainage Facility Summary**

| Facility ID | Facility Description | Contributing Flows | Total/Approaching Flow (cfs) $Q_{100}$ | Facility Flow (cfs) $Q_{100}$ | Surface/Bypass Flow (cfs) $Q_{100}$ | WSPW Model | Comment |
|---|---|---|---|---|---|---|---|
| PC1 | Proposed 20' Type CM2 Drop Inlet & 30" RCP | Half of ON3(A+B+C1+C2) | 48.5 | 35 | 13.5 | MAINC | |
| PC2 | Proposed 20' Type CM2 Drop Inlet & 30" RCP | Half of ON3(A+B+C1+C2) | 48.5 | 35 | 13.5 | Lateral Loss | |
| PC3 | Proposed 20' Type CM2 Drop Inlet & 18" RCP | Half of (Bypass of Facilities PC1 & PC2 + ON3(D)) | 22.5 | 17 | 5.5 | Lateral Loss | |
| PC4 | Proposed 15' Type CM2 Drop Inlet & 18" RCP | Half of (Bypass of Facilities PC1 & PC2 + ON3(D)) | 22.5 | 14 | 8.5 | Lateral Loss | |
| PC5 | Proposed 20' Type CM2 Drop Inlet & 30" RCP | ON3(A+B+C+D+E+F) - Facility PC6.1 | 37 | 37 | 0 | Lateral Loss | SUMP INLET |
| PC6 | Proposed 10' Type CM2 Drop Inlet & 18" RCP | Half of ON3(E) + 4/5 of ON3(F) | 12.7 | 7 | 5.7 | Lateral Loss | |
| **Facility ID** | **Facility Description** | **Contributing Flows** | **Facility Flow (cfs) $Q_{100}$** | | | **WSPW Model** | **Comment** |
| PC2.1 | Proposed 42" RCP | Facility PC1 + PC2 | 70 | | | MAINC | |
| PC3.1 | Proposed 42" RCP | Facility PC2.1 + PC3 | 87 | | | MAINC | |
| PC4.1 | Proposed 42" PVC | Facility PC3.1 + PC4 | 101 | | | MAINC | |
| PC6.1 | Proposed 42" PVC | Facility PC4.1 + PC6 | 108 | | | MAINC | |
| PC5.1 | Proposed 68" x 43" HERCP | Facility PC4.1 + PC5 | 145 | | | MAINC | |
| P11 | Existing 68" x 43" HERCP | Facility PC5.1 | 145 | | | MAINC | |


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| NO. | DESCRIPTION | DATE | BY | APP. DATE | APP. |
|---|---|---|---|---|---|
| 1 | | | | | |

# 190 OCTANE FT PARTNERS, LLC
# BLM 270 PARCEL C-2 & C-3
# ULTIMATE CONDITION DRAINAGE MAP

DATE: DEC 2020
DRAFTER: CAA
DESIGNER: CAA
CHECKED: SOA
PROJECT NO.
**BZR2001.000**

**EXHIBIT F**
SHEET 1 OF 1


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# APPENDIX C

Surface Flow Computations

# Street Flow Calculations

# Worksheet for B1

| Project Description | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

| Input Data | |
|---|---|
| Channel Slope | 5.59 % |
| Discharge | 7.00 cfs |

## Section Definitions

| Station (ft) | Elevation (ft) |
|---|---|
| 0+00.00 | 0.54 |
| 0+05.00 | 0.38 |
| 0+05.38 | 0.38 |
| 0+06.50 | 0.00 |
| 0+07.50 | 0.08 |
| 0+07.50 | 0.12 |
| 0+23.00 | 0.44 |
| 0+38.50 | 0.12 |
| 0+38.50 | 0.08 |
| 0+39.50 | 0.00 |
| 0+40.62 | 0.38 |
| 0+41.00 | 0.38 |

## Roughness Segment Definitions

| Start Station | Ending Station | Roughness Coefficient |
|---|---|---|
| (0+00.00, 0.54) | (0+07.50, 0.08) | 0.016 |
| (0+07.50, 0.08) | (0+38.50, 0.08) | 0.016 |
| (0+38.50, 0.08) | (0+41.00, 0.38) | 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 | 0.26 ft |
| Roughness Coefficient | 0.016 |
| Elevation | 0.26 ft |
| Elevation Range | 0.00 to 0.54 ft |
| Flow Area | 1.6 ft² |
| Wetted Perimeter | 17.15 ft |
| Hydraulic Radius | 0.09 ft |

# Worksheet for B1

| Results | |
|---|---|
| Top Width | 16.97 ft |
| Normal Depth | 0.26 ft |
| Critical Depth | 0.34 ft |
| Critical Slope | 0.74 % |
| Velocity | 4.46 ft/s |
| Velocity Head | 0.31 ft |
| Specific Energy | 0.57 ft |
| Froude Number | 2.589 |
| Flow Type | Supercritical |

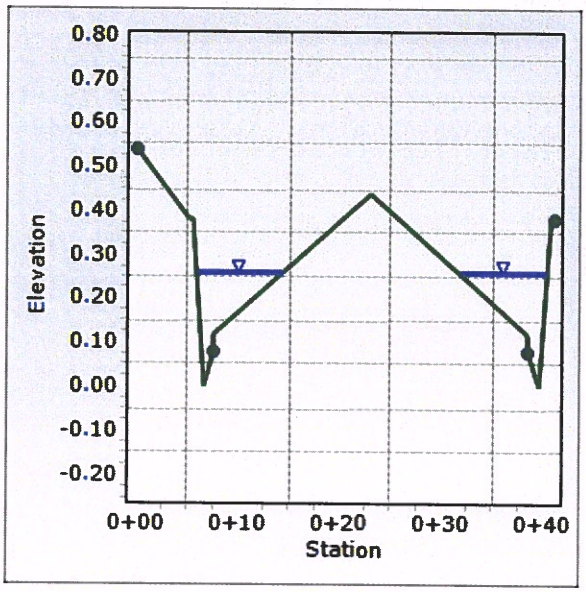
| GVF Input Data | |
|---|---|
| Downstream Depth | 0.00 ft |
| Length | 0.00 ft |
| Number Of Steps | 0 |

| GVF Output Data | |
|---|---|
| Upstream Depth | 0.00 ft |
| Profile Description | |
| Profile Headloss | 0.00 ft |
| Downstream Velocity | Infinity ft/s |
| Upstream Velocity | Infinity ft/s |
| Normal Depth | 0.26 ft |
| Critical Depth | 0.34 ft |
| Channel Slope | 5.59 % |
| Critical Slope | 0.74 % |

# Cross Section for B1

| Project Description | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

| Input Data | |
|---|---|
| Channel Slope | 5.59 % |
| Normal Depth | 0.26 ft |
| Discharge | 7.00 cfs |



# Worksheet for C1

| Project Description | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

| Input Data | |
|---|---|
| Channel Slope | 1.50 % |
| Discharge | 45.00 cfs |

## Section Definitions

| Station (ft) | Elevation (ft) |
|---|---|
| 0+00.00 | 0.48 |
| 0+05.00 | 0.38 |
| 0+05.38 | 0.38 |
| 0+06.50 | 0.00 |
| 0+07.50 | 0.08 |
| 0+07.50 | 0.12 |
| 0+20.50 | 0.38 |
| 0+33.50 | 0.12 |
| 0+33.50 | 0.08 |
| 0+34.50 | 0.00 |
| 0+35.62 | 0.38 |
| 0+36.00 | 0.38 |

## Roughness Segment Definitions

| Start Station | Ending Station | Roughness Coefficient |
|---|---|---|
| (0+00.00, 0.48) | (0+07.50, 0.08) | 0.013 |
| (0+07.50, 0.08) | (0+33.50, 0.08) | 0.016 |
| (0+33.50, 0.08) | (0+36.00, 0.38) | 0.013 |

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

| Results | |
|---|---|
| Normal Depth | 0.52 ft |
| Roughness Coefficient | 0.015 |
| Elevation | 0.52 ft |
| Elevation Range | 0.00 to 0.48 ft |
| Flow Area | 9.3 ft² |
| Wetted Perimeter | 36.40 ft |
| Hydraulic Radius | 0.26 ft |

# Worksheet for C1

| Results | |
|---|---|
| Top Width | 36.00 ft |
| Normal Depth | 0.52 ft |
| Critical Depth | 0.63 ft |
| Critical Slope | 0.48 % |
| Velocity | 4.83 ft/s |
| Velocity Head | 0.36 ft |
| Specific Energy | 0.88 ft |
| Froude Number | 1.673 |
| Flow Type | Supercritical |

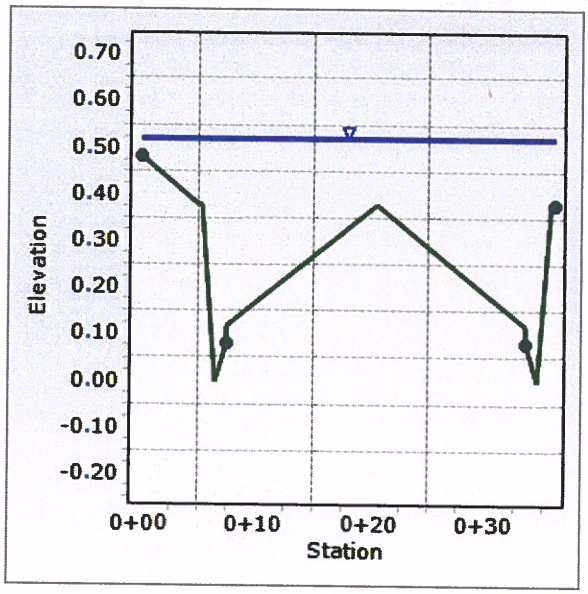
| GVF Input Data | |
|---|---|
| Downstream Depth | 0.00 ft |
| Length | 0.00 ft |
| Number Of Steps | 0 |

| GVF Output Data | |
|---|---|
| Upstream Depth | 0.00 ft |
| Profile Description | |
| Profile Headloss | 0.00 ft |
| Downstream Velocity | Infinity ft/s |
| Upstream Velocity | Infinity ft/s |
| Normal Depth | 0.52 ft |
| Critical Depth | 0.63 ft |
| Channel Slope | 1.50 % |
| Critical Slope | 0.48 % |

# Cross Section for C1

| Project Description | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

| Input Data | |
|---|---|
| Channel Slope | 1.50 % |
| Normal Depth | 0.52 ft |
| Discharge | 45.00 cfs |



# Worksheet for C2

| Project Description | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

| Input Data | |
|---|---|
| Channel Slope | 1.25 % |
| Discharge | 63.00 cfs |

## Section Definitions

| Station (ft) | Elevation (ft) |
|---|---|
| 0+00.00 | 0.54 |
| 0+05.00 | 0.44 |
| 0+08.00 | 0.38 |
| 0+08.38 | 0.38 |
| 0+09.50 | 0.00 |
| 0+10.50 | 0.08 |
| 0+10.50 | 0.12 |
| 0+23.00 | 0.38 |
| 0+35.50 | 0.12 |
| 0+35.50 | 0.08 |
| 0+36.50 | 0.00 |
| 0+37.62 | 0.38 |
| 0+38.00 | 0.38 |

## Roughness Segment Definitions

| Start Station | Ending Station | Roughness Coefficient |
|---|---|---|
| (0+00.00, 0.54) | (0+05.00, 0.44) | 0.016 |
| (0+05.00, 0.44) | (0+08.00, 0.38) | 0.020 |
| (0+08.00, 0.38) | (0+10.50, 0.08) | 0.016 |
| (0+10.50, 0.08) | (0+35.50, 0.08) | 0.016 |
| (0+35.50, 0.08) | (0+38.00, 0.38) | 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 | 0.62 ft |
| Roughness Coefficient | 0.016 |
| Elevation | 0.62 ft |
| Elevation Range | 0.00 to 0.54 ft |

# Worksheet for C2

| Results | |
|---|---|
| Flow Area | 12.9 ft² |
| Wetted Perimeter | 38.54 ft |
| Hydraulic Radius | 0.33 ft |
| Top Width | 38.00 ft |
| Normal Depth | 0.62 ft |
| Critical Depth | 0.72 ft |
| Critical Slope | 0.53 % |
| Velocity | 4.89 ft/s |
| Velocity Head | 0.37 ft |
| Specific Energy | 0.99 ft |
| Froude Number | 1.483 |
| Flow Type | Supercritical |

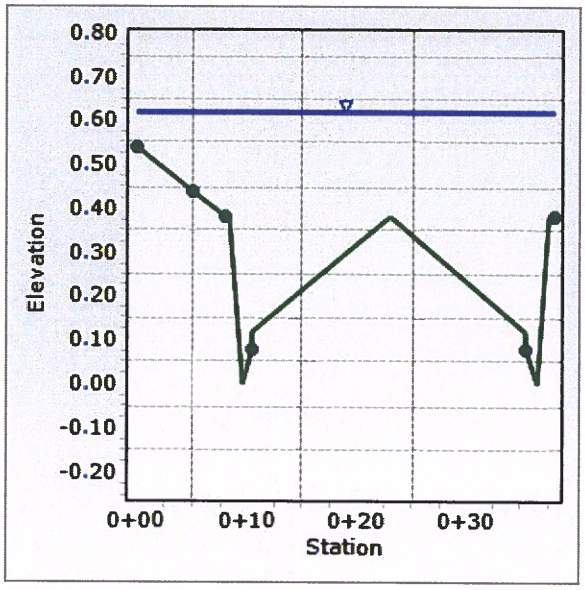
| GVF Input Data | |
|---|---|
| Downstream Depth | 0.00 ft |
| Length | 0.00 ft |
| Number Of Steps | 0 |

| GVF Output Data | |
|---|---|
| Upstream Depth | 0.00 ft |
| Profile Description | |
| Profile Headloss | 0.00 ft |
| Downstream Velocity | Infinity ft/s |
| Upstream Velocity | Infinity ft/s |
| Normal Depth | 0.62 ft |
| Critical Depth | 0.72 ft |
| Channel Slope | 1.25 % |
| Critical Slope | 0.53 % |

# Cross Section for C2

| Project Description | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

| Input Data | |
|---|---|
| Channel Slope | 1.25 % |
| Normal Depth | 0.62 ft |
| Discharge | 63.00 cfs |



# Worksheet for C3

| Project Description | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

| Input Data | |
|---|---|
| Channel Slope | 0.85 % |
| Discharge | 80.00 cfs |

## Section Definitions

| Station (ft) | Elevation (ft) |
|---|---|
| 0+00.00 | 0.48 |
| 0+05.00 | 0.38 |
| 0+05.38 | 0.38 |
| 0+06.50 | 0.00 |
| 0+07.50 | 0.08 |
| 0+07.50 | 0.12 |
| 0+20.50 | 0.38 |
| 0+33.50 | 0.12 |
| 0+33.50 | 0.08 |
| 0+34.50 | 0.00 |
| 0+35.62 | 0.38 |
| 0+36.00 | 0.38 |

## Roughness Segment Definitions

| Start Station | Ending Station | Roughness Coefficient |
|---|---|---|
| (0+00.00, 0.48) | (0+07.50, 0.08) | 0.016 |
| (0+07.50, 0.08) | (0+33.50, 0.08) | 0.016 |
| (0+33.50, 0.08) | (0+36.00, 0.38) | 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 | 0.71 ft |
| Roughness Coefficient | 0.016 |
| Elevation | 0.71 ft |
| Elevation Range | 0.00 to 0.48 ft |
| Flow Area | 16.2 ft² |
| Wetted Perimeter | 36.78 ft |
| Hydraulic Radius | 0.44 ft |

# Worksheet for C3

| Results | |
|---|---|
| Top Width | 36.00 ft |
| Normal Depth | 0.71 ft |
| Critical Depth | 0.80 ft |
| Critical Slope | 0.48 % |
| Velocity | 4.95 ft/s |
| Velocity Head | 0.38 ft |
| Specific Energy | 1.09 ft |
| Froude Number | 1.301 |
| Flow Type | Supercritical |

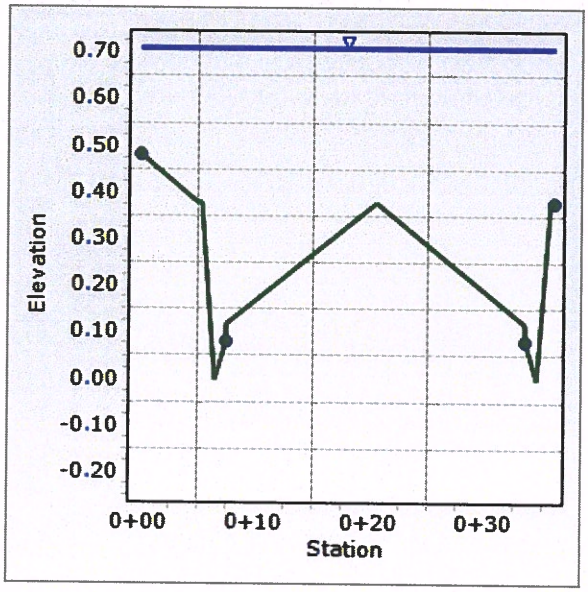
| GVF Input Data | |
|---|---|
| Downstream Depth | 0.00 ft |
| Length | 0.00 ft |
| Number Of Steps | 0 |

| GVF Output Data | |
|---|---|
| Upstream Depth | 0.00 ft |
| Profile Description | |
| Profile Headloss | 0.00 ft |
| Downstream Velocity | Infinity ft/s |
| Upstream Velocity | Infinity ft/s |
| Normal Depth | 0.71 ft |
| Critical Depth | 0.80 ft |
| Channel Slope | 0.85 % |
| Critical Slope | 0.48 % |

# Cross Section for C3

| Project Description | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

| Input Data | |
|---|---|
| Channel Slope | 0.85 % |
| Normal Depth | 0.71 ft |
| Discharge | 80.00 cfs |



# Worksheet for C4

| Project Description | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

| Input Data | |
|---|---|
| Channel Slope | 0.70 % |
| Discharge | 97.00 cfs |

## Section Definitions

| Station (ft) | Elevation (ft) |
|---|---|
| 0+00.00 | 0.48 |
| 0+05.00 | 0.38 |
| 0+05.38 | 0.38 |
| 0+06.50 | 0.00 |
| 0+07.50 | 0.08 |
| 0+07.50 | 0.12 |
| 0+20.50 | 0.38 |
| 0+33.50 | 0.12 |
| 0+33.50 | 0.08 |
| 0+34.50 | 0.00 |
| 0+35.62 | 0.38 |
| 0+36.00 | 0.38 |

## Roughness Segment Definitions

| Start Station | Ending Station | Roughness Coefficient |
|---|---|---|
| (0+00.00, 0.48) | (0+07.50, 0.08) | 0.016 |
| (0+07.50, 0.08) | (0+33.50, 0.08) | 0.016 |
| (0+33.50, 0.08) | (0+36.00, 0.38) | 0.016 |

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

| Results | |
|---|---|
| Normal Depth | 0.80 ft |
| Roughness Coefficient | 0.016 |
| Elevation | 0.80 ft |
| Elevation Range | 0.00 to 0.48 ft |
| Flow Area | 19.3 ft² |
| Wetted Perimeter | 36.95 ft |
| Hydraulic Radius | 0.52 ft |

# Worksheet for C4

| Results | |
|---|---|
| Top Width | 36.00 ft |
| Normal Depth | 0.80 ft |
| Critical Depth | 0.87 ft |
| Critical Slope | 0.46 % |
| Velocity | 5.03 ft/s |
| Velocity Head | 0.39 ft |
| Specific Energy | 1.19 ft |
| Froude Number | 1.213 |
| Flow Type | Supercritical |

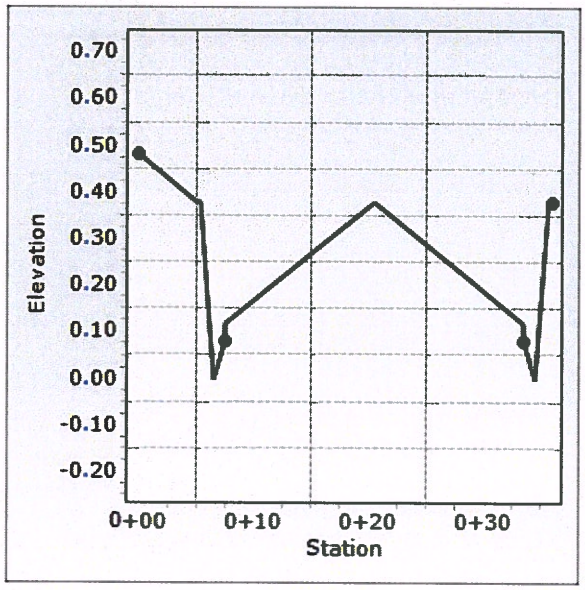
| GVF Input Data | |
|---|---|
| Downstream Depth | 0.00 ft |
| Length | 0.00 ft |
| Number Of Steps | 0 |

| GVF Output Data | |
|---|---|
| Upstream Depth | 0.00 ft |
| Profile Description | |
| Profile Headloss | 0.00 ft |
| Downstream Velocity | Infinity ft/s |
| Upstream Velocity | Infinity ft/s |
| Normal Depth | 0.80 ft |
| Critical Depth | 0.87 ft |
| Channel Slope | 0.70 % |
| Critical Slope | 0.46 % |

# Cross Section for C4

| Project Description | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

| Input Data | |
|---|---|
| Channel Slope | 0.70 % |
| Normal Depth | 0.80 ft |
| Discharge | 97.00 cfs |



# Worksheet for D1 (Curb Popout) (Min Slope)

| Project Description | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

| Input Data | |
|---|---|
| Channel Slope | 5.57 % |
| Discharge | 18.00 cfs |

## Section Definitions

| Station (ft) | Elevation (ft) |
|---|---|
| 0+00.00 | 0.54 |
| 0+05.00 | 0.44 |
| 0+08.00 | 0.38 |
| 0+08.38 | 0.38 |
| 0+09.50 | 0.00 |
| 0+10.50 | 0.08 |
| 0+10.50 | 0.12 |
| 0+23.00 | 0.44 |
| 0+35.50 | 0.12 |
| 0+35.50 | 0.08 |
| 0+36.50 | 0.00 |
| 0+37.62 | 0.38 |
| 0+38.00 | 0.38 |

## Roughness Segment Definitions

| Start Station | Ending Station | Roughness Coefficient |
|---|---|---|
| (0+00.00, 0.54) | (0+05.00, 0.44) | 0.016 |
| (0+05.00, 0.44) | (0+08.00, 0.38) | 0.020 |
| (0+08.00, 0.38) | (0+10.50, 0.08) | 0.016 |
| (0+10.50, 0.08) | (0+35.50, 0.08) | 0.016 |
| (0+35.50, 0.08) | (0+38.00, 0.38) | 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 | 0.35 ft |
| Roughness Coefficient | 0.016 |
| Elevation | 0.35 ft |
| Elevation Range | 0.00 to 0.54 ft |

# Worksheet for D1 (Curb Popout) (Min Slope)

| Results | |
|---|---|
| Flow Area | 3.1 ft² |
| Wetted Perimeter | 22.38 ft |
| Hydraulic Radius | 0.14 ft |
| Top Width | 22.17 ft |
| Normal Depth | 0.35 ft |
| Critical Depth | 0.49 ft |
| Critical Slope | 0.65 % |
| Velocity | 5.83 ft/s |
| Velocity Head | 0.53 ft |
| Specific Energy | 0.88 ft |
| Froude Number | 2.758 |
| Flow Type | Supercritical |

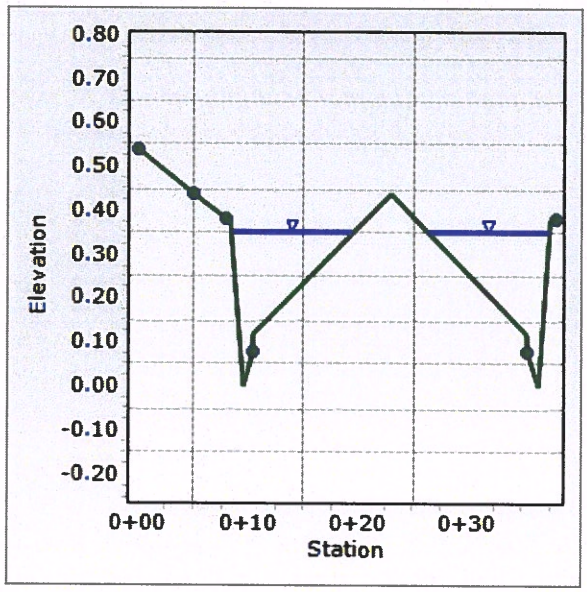
| GVF Input Data | |
|---|---|
| Downstream Depth | 0.00 ft |
| Length | 0.00 ft |
| Number Of Steps | 0 |

| GVF Output Data | |
|---|---|
| Upstream Depth | 0.00 ft |
| Profile Description | |
| Profile Headloss | 0.00 ft |
| Downstream Velocity | Infinity ft/s |
| Upstream Velocity | Infinity ft/s |
| Normal Depth | 0.35 ft |
| Critical Depth | 0.49 ft |
| Channel Slope | 5.57 % |
| Critical Slope | 0.65 % |

# Cross Section for D1 (Curb Popout) (Min Slope)

| Project Description | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

| Input Data | |
|---|---|
| Channel Slope | 5.57 % |
| Normal Depth | 0.35 ft |
| Discharge | 18.00 cfs |



# Worksheet for D1 (Curb Popout) (Max Slope)

| Project Description | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

## Input Data

| | |
|---|---|
| Channel Slope | 6.17 % |
| Discharge | 18.00 cfs |

## Section Definitions

| Station (ft) | Elevation (ft) |
|---|---|
| 0+00.00 | 0.54 |
| 0+05.00 | 0.44 |
| 0+08.00 | 0.38 |
| 0+08.38 | 0.38 |
| 0+09.50 | 0.00 |
| 0+10.50 | 0.08 |
| 0+10.50 | 0.12 |
| 0+23.00 | 0.44 |
| 0+35.50 | 0.12 |
| 0+35.50 | 0.08 |
| 0+36.50 | 0.00 |
| 0+37.62 | 0.38 |
| 0+38.00 | 0.38 |

## Roughness Segment Definitions

| Start Station | Ending Station | Roughness Coefficient |
|---|---|---|
| (0+00.00, 0.54) | (0+05.00, 0.44) | 0.016 |
| (0+05.00, 0.44) | (0+08.00, 0.38) | 0.020 |
| (0+08.00, 0.38) | (0+10.50, 0.08) | 0.016 |
| (0+10.50, 0.08) | (0+35.50, 0.08) | 0.016 |
| (0+35.50, 0.08) | (0+38.00, 0.38) | 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 | 0.35 ft |
| Roughness Coefficient | 0.016 |
| Elevation | 0.35 ft |
| Elevation Range | 0.00 to 0.54 ft |

# Worksheet for D1 (Curb Popout) (Max Slope)

| Results | |
|---|---|
| Flow Area | 3.0 ft² |
| Wetted Perimeter | 21.92 ft |
| Hydraulic Radius | 0.14 ft |
| Top Width | 21.72 ft |
| Normal Depth | 0.35 ft |
| Critical Depth | 0.49 ft |
| Critical Slope | 0.65 % |
| Velocity | 6.07 ft/s |
| Velocity Head | 0.57 ft |
| Specific Energy | 0.92 ft |
| Froude Number | 2.896 |
| Flow Type | Supercritical |

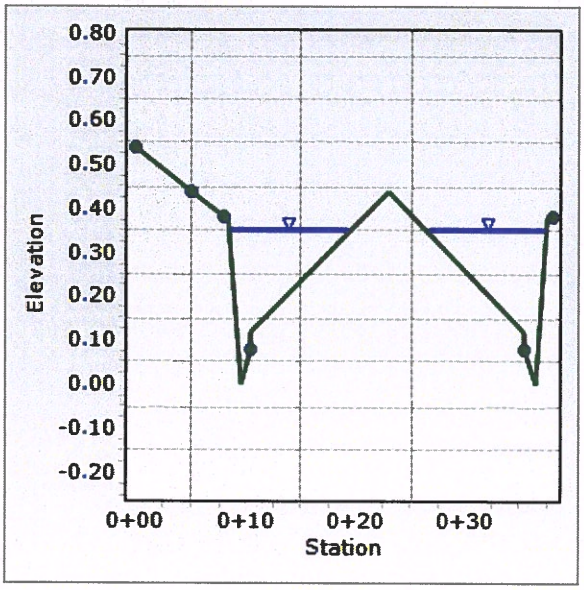
| GVF Input Data | |
|---|---|
| Downstream Depth | 0.00 ft |
| Length | 0.00 ft |
| Number Of Steps | 0 |

| GVF Output Data | |
|---|---|
| Upstream Depth | 0.00 ft |
| Profile Description | |
| Profile Headloss | 0.00 ft |
| Downstream Velocity | Infinity ft/s |
| Upstream Velocity | Infinity ft/s |
| Normal Depth | 0.35 ft |
| Critical Depth | 0.49 ft |
| Channel Slope | 6.17 % |
| Critical Slope | 0.65 % |

# Cross Section for D1 (Curb Popout) (Max Slope)

| Project Description | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

| Input Data | |
|---|---|
| Channel Slope | 6.17 % |
| Normal Depth | 0.35 ft |
| Discharge | 18.00 cfs |



# Worksheet for D1 (Min Slope)

| Project Description | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

| Input Data | |
|---|---|
| Channel Slope | 5.57 % |
| Discharge | 18.00 cfs |

## Section Definitions

| Station (ft) | Elevation (ft) |
|---|---|
| 0+00.00 | 0.54 |
| 0+05.00 | 0.38 |
| 0+05.38 | 0.38 |
| 0+06.50 | 0.00 |
| 0+07.50 | 0.08 |
| 0+07.50 | 0.12 |
| 0+23.00 | 0.44 |
| 0+38.50 | 0.12 |
| 0+38.50 | 0.08 |
| 0+39.50 | 0.00 |
| 0+40.62 | 0.38 |
| 0+41.00 | 0.38 |

## Roughness Segment Definitions

| Start Station | Ending Station | Roughness Coefficient |
|---|---|---|
| (0+00.00, 0.54) | (0+07.50, 0.08) | 0.016 |
| (0+07.50, 0.08) | (0+38.50, 0.08) | 0.016 |
| (0+38.50, 0.08) | (0+41.00, 0.38) | 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 | 0.34 ft |
| Roughness Coefficient | 0.016 |
| Elevation | 0.34 ft |
| Elevation Range | 0.00 to 0.54 ft |
| Flow Area | 3.2 ft² |
| Wetted Perimeter | 25.30 ft |
| Hydraulic Radius | 0.13 ft |

# Worksheet for D1 (Min Slope)

| Results | |
|---|---|
| Top Width | 25.10 ft |
| Normal Depth | 0.34 ft |
| Critical Depth | 0.46 ft |
| Critical Slope | 0.66 % |
| Velocity | 5.57 ft/s |
| Velocity Head | 0.48 ft |
| Specific Energy | 0.82 ft |
| Froude Number | 2.737 |
| Flow Type | Supercritical |

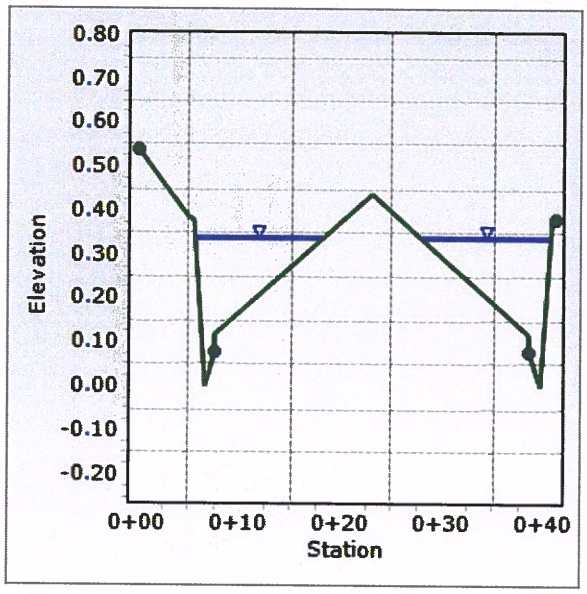
| GVF Input Data | |
|---|---|
| Downstream Depth | 0.00 ft |
| Length | 0.00 ft |
| Number Of Steps | 0 |

| GVF Output Data | |
|---|---|
| Upstream Depth | 0.00 ft |
| Profile Description | |
| Profile Headloss | 0.00 ft |
| Downstream Velocity | Infinity ft/s |
| Upstream Velocity | Infinity ft/s |
| Normal Depth | 0.34 ft |
| Critical Depth | 0.46 ft |
| Channel Slope | 5.57 % |
| Critical Slope | 0.66 % |

# Cross Section for D1 (Min Slope)

| Project Description | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

| Input Data | |
|---|---|
| Channel Slope | 5.57 % |
| Normal Depth | 0.34 ft |
| Discharge | 18.00 cfs |



# Worksheet for D1 (Max Slope)

| Project Description | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

| Input Data | |
|---|---|
| Channel Slope | 6.17 % |
| Discharge | 18.00 cfs |

## Section Definitions

| Station (ft) | Elevation (ft) |
|---|---|
| 0+00.00 | 0.54 |
| 0+05.00 | 0.38 |
| 0+05.38 | 0.38 |
| 0+06.50 | 0.00 |
| 0+07.50 | 0.08 |
| 0+07.50 | 0.12 |
| 0+23.00 | 0.44 |
| 0+38.50 | 0.12 |
| 0+38.50 | 0.08 |
| 0+39.50 | 0.00 |
| 0+40.62 | 0.38 |
| 0+41.00 | 0.38 |

## Roughness Segment Definitions

| Start Station | Ending Station | Roughness Coefficient |
|---|---|---|
| (0+00.00, 0.54) | (0+07.50, 0.08) | 0.016 |
| (0+07.50, 0.08) | (0+38.50, 0.08) | 0.016 |
| (0+38.50, 0.08) | (0+41.00, 0.38) | 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 | 0.33 ft |
| Roughness Coefficient | 0.016 |
| Elevation | 0.33 ft |
| Elevation Range | 0.00 to 0.54 ft |
| Flow Area | 3.1 ft² |
| Wetted Perimeter | 24.80 ft |
| Hydraulic Radius | 0.13 ft |

# Worksheet for D1 (Max Slope)

| Results | |
|---|---|
| Top Width | 24.60 ft |
| Normal Depth | 0.33 ft |
| Critical Depth | 0.46 ft |
| Critical Slope | 0.66 % |
| Velocity | 5.79 ft/s |
| Velocity Head | 0.52 ft |
| Specific Energy | 0.85 ft |
| Froude Number | 2.869 |
| Flow Type | Supercritical |

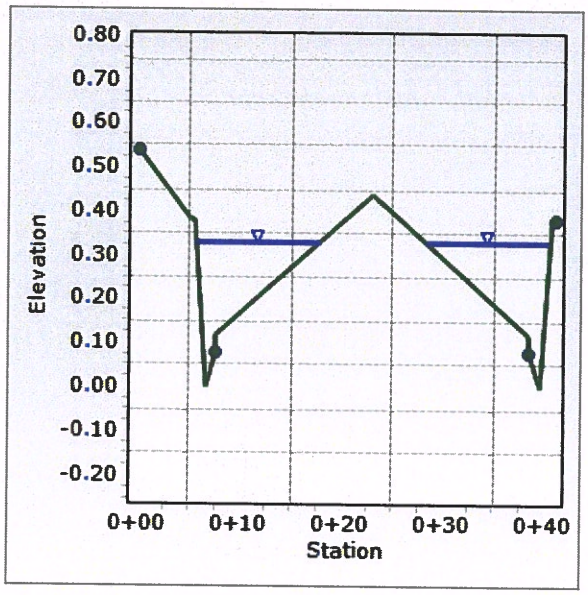
| GVF Input Data | |
|---|---|
| Downstream Depth | 0.00 ft |
| Length | 0.00 ft |
| Number Of Steps | 0 |

| GVF Output Data | |
|---|---|
| Upstream Depth | 0.00 ft |
| Profile Description | |
| Profile Headloss | 0.00 ft |
| Downstream Velocity | Infinity ft/s |
| Upstream Velocity | Infinity ft/s |
| Normal Depth | 0.33 ft |
| Critical Depth | 0.46 ft |
| Channel Slope | 6.17 % |
| Critical Slope | 0.66 % |

# Cross Section for D1 (Max Slope)

| Project Description | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

| Input Data | |
|---|---|
| Channel Slope | 6.17 % |
| Normal Depth | 0.33 ft |
| Discharge | 18.00 cfs |



# Worksheet for D2

| Project Description | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

| Input Data | |
|---|---|
| Channel Slope | 2.19 % |
| Discharge | 45.00 cfs |

## Section Definitions

| Station (ft) | Elevation (ft) |
|---|---|
| 0+00.00 | 0.48 |
| 0+05.00 | 0.38 |
| 0+05.38 | 0.38 |
| 0+06.50 | 0.00 |
| 0+07.50 | 0.08 |
| 0+07.50 | 0.12 |
| 0+20.50 | 0.38 |
| 0+33.50 | 0.12 |
| 0+33.50 | 0.08 |
| 0+34.50 | 0.00 |
| 0+35.62 | 0.38 |
| 0+36.00 | 0.38 |

## Roughness Segment Definitions

| Start Station | Ending Station | Roughness Coefficient |
|---|---|---|
| (0+00.00, 0.48) | (0+07.50, 0.08) | 0.016 |
| (0+07.50, 0.08) | (0+33.50, 0.08) | 0.016 |
| (0+33.50, 0.08) | (0+36.00, 0.38) | 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 | 0.50 ft |
| Roughness Coefficient | 0.016 |
| Elevation | 0.50 ft |
| Elevation Range | 0.00 to 0.48 ft |
| Flow Area | 8.6 ft² |
| Wetted Perimeter | 36.36 ft |
| Hydraulic Radius | 0.24 ft |

# Worksheet for D2

| Results | |
|---|---|
| Top Width | 36.00 ft |
| Normal Depth | 0.50 ft |
| Critical Depth | 0.63 ft |
| Critical Slope | 0.53 % |
| Velocity | 5.25 ft/s |
| Velocity Head | 0.43 ft |
| Specific Energy | 0.93 ft |
| Froude Number | 1.897 |
| Flow Type | Supercritical |

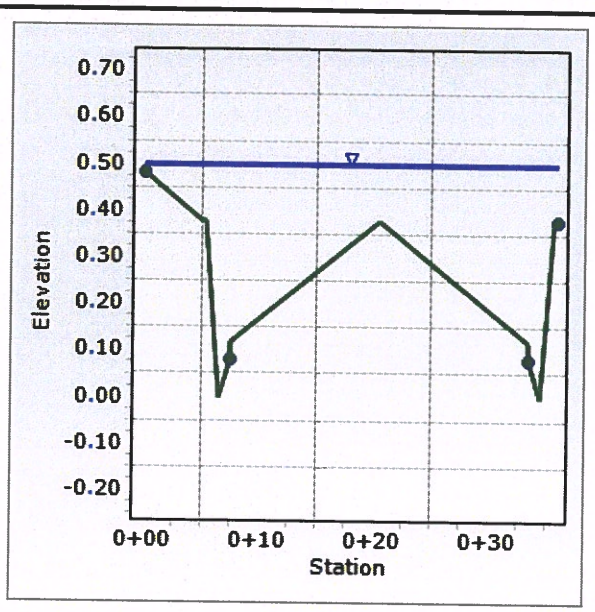
| GVF Input Data | |
|---|---|
| Downstream Depth | 0.00 ft |
| Length | 0.00 ft |
| Number Of Steps | 0 |

| GVF Output Data | |
|---|---|
| Upstream Depth | 0.00 ft |
| Profile Description | |
| Profile Headloss | 0.00 ft |
| Downstream Velocity | Infinity ft/s |
| Upstream Velocity | Infinity ft/s |
| Normal Depth | 0.50 ft |
| Critical Depth | 0.63 ft |
| Channel Slope | 2.19 % |
| Critical Slope | 0.53 % |

# Cross Section for D2

| Project Description | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

| Input Data | |
|---|---|
| Channel Slope | 2.19 % |
| Normal Depth | 0.50 ft |
| Discharge | 45.00 cfs |



# Worksheet for D3

| Project Description | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

| Input Data | |
|---|---|
| Channel Slope | 2.76 % |
| Discharge | 17.00 cfs |

## Section Definitions

| Station (ft) | Elevation (ft) |
|---|---|
| 0+00.00 | 0.48 |
| 0+05.00 | 0.38 |
| 0+05.38 | 0.38 |
| 0+06.50 | 0.00 |
| 0+07.50 | 0.08 |
| 0+07.50 | 0.12 |
| 0+20.50 | 0.38 |
| 0+33.50 | 0.12 |
| 0+33.50 | 0.08 |
| 0+34.50 | 0.00 |
| 0+35.62 | 0.38 |
| 0+36.00 | 0.38 |

## Roughness Segment Definitions

| Start Station | Ending Station | Roughness Coefficient |
|---|---|---|
| (0+00.00, 0.48) | (0+07.50, 0.08) | 0.016 |
| (0+07.50, 0.08) | (0+33.50, 0.08) | 0.016 |
| (0+33.50, 0.08) | (0+36.00, 0.38) | 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 0.48 ft |
| Flow Area | 4.1 ft² |
| Wetted Perimeter | 29.00 ft |
| Hydraulic Radius | 0.14 ft |

# Worksheet for D3

| Results | |
|---|---|
| Top Width | 28.79 ft |
| Normal Depth | 0.37 ft |
| Critical Depth | 0.45 ft |
| Critical Slope | 0.65 % |
| Velocity | 4.17 ft/s |
| Velocity Head | 0.27 ft |
| Specific Energy | 0.64 ft |
| Froude Number | 1.950 |
| Flow Type | Supercritical |

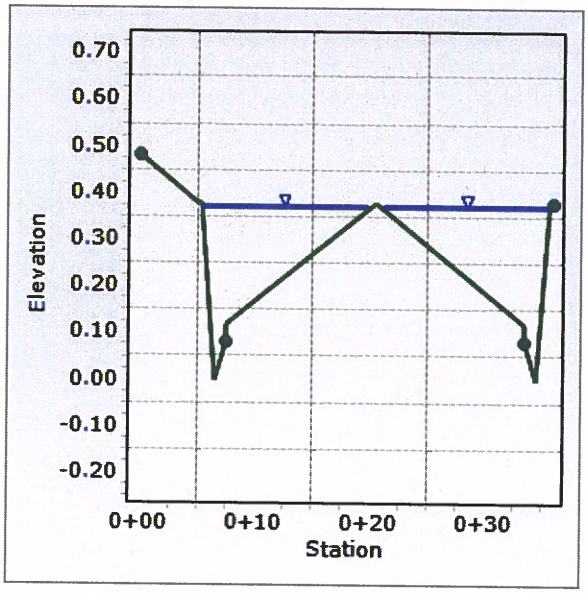
| GVF Input Data | |
|---|---|
| Downstream Depth | 0.00 ft |
| Length | 0.00 ft |
| Number Of Steps | 0 |

| GVF Output Data | |
|---|---|
| Upstream Depth | 0.00 ft |
| Profile Description | |
| Profile Headloss | 0.00 ft |
| Downstream Velocity | Infinity ft/s |
| Upstream Velocity | Infinity ft/s |
| Normal Depth | 0.37 ft |
| Critical Depth | 0.45 ft |
| Channel Slope | 2.76 % |
| Critical Slope | 0.65 % |

# Cross Section for D3

| Project Description | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

| Input Data | |
|---|---|
| Channel Slope | 2.76 % |
| Normal Depth | 0.37 ft |
| Discharge | 17.00 cfs |



# Worksheet for E1

| Project Description | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

| Input Data | |
|---|---|
| Channel Slope | 1.00 % |
| Discharge | 7.00 cfs |

## Section Definitions

| Station (ft) | Elevation (ft) |
|---|---|
| 0+00.00 | 0.48 |
| 0+05.00 | 0.38 |
| 0+05.38 | 0.38 |
| 0+06.50 | 0.00 |
| 0+07.50 | 0.08 |
| 0+07.50 | 0.12 |
| 0+20.50 | 0.38 |

## Roughness Segment Definitions

| Start Station | Ending Station | Roughness Coefficient |
|---|---|---|
| (0+00.00, 0.48) | (0+07.50, 0.08) | 0.016 |
| (0+07.50, 0.08) | (0+20.50, 0.38) | 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 0.48 ft |
| Flow Area | 2.6 ft² |
| Wetted Perimeter | 16.75 ft |
| Hydraulic Radius | 0.16 ft |
| Top Width | 16.62 ft |
| Normal Depth | 0.40 ft |
| Critical Depth | 0.43 ft |
| Critical Slope | 0.68 % |
| Velocity | 2.69 ft/s |
| Velocity Head | 0.11 ft |

# Worksheet for E1

| Results | |
|---|---|
| Specific Energy | 0.51 ft |
| Froude Number | 1.198 |
| Flow Type | Supercritical |

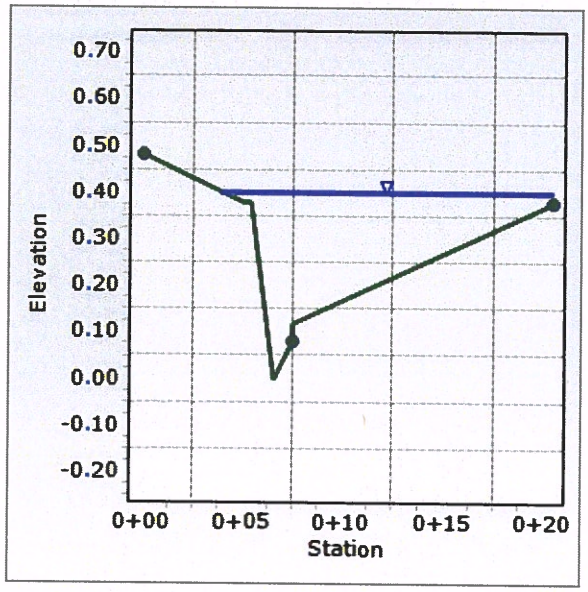
| GVF Input Data | |
|---|---|
| Downstream Depth | 0.00 ft |
| Length | 0.00 ft |
| Number Of Steps | 0 |

| GVF Output Data | |
|---|---|
| Upstream Depth | 0.00 ft |
| Profile Description | |
| Profile Headloss | 0.00 ft |
| Downstream Velocity | Infinity ft/s |
| Upstream Velocity | Infinity ft/s |
| Normal Depth | 0.40 ft |
| Critical Depth | 0.43 ft |
| Channel Slope | 1.00 % |
| Critical Slope | 0.68 % |

# Cross Section for E1

| Project Description | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

| Input Data | |
|---|---|
| Channel Slope | 1.00 % |
| Normal Depth | 0.40 ft |
| Discharge | 7.00 cfs |



# Worksheet for F1 (Curb Popout)

| Project Description | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

| Input Data | |
|---|---|
| Channel Slope | 5.36 % |
| Discharge | 18.50 cfs |

## Section Definitions

| Station (ft) | Elevation (ft) |
|---|---|
| 0+00.00 | 0.54 |
| 0+05.00 | 0.44 |
| 0+08.00 | 0.38 |
| 0+08.38 | 0.38 |
| 0+09.50 | 0.00 |
| 0+10.50 | 0.08 |
| 0+10.50 | 0.12 |
| 0+23.00 | 0.44 |
| 0+35.50 | 0.12 |
| 0+35.50 | 0.08 |
| 0+36.50 | 0.00 |
| 0+37.62 | 0.38 |
| 0+38.00 | 0.38 |

## Roughness Segment Definitions

| Start Station | Ending Station | Roughness Coefficient |
|---|---|---|
| (0+00.00, 0.54) | (0+05.00, 0.44) | 0.016 |
| (0+05.00, 0.44) | (0+08.00, 0.38) | 0.020 |
| (0+08.00, 0.38) | (0+10.50, 0.08) | 0.016 |
| (0+10.50, 0.08) | (0+35.50, 0.08) | 0.016 |
| (0+35.50, 0.08) | (0+38.00, 0.38) | 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 | 0.36 ft |
| Roughness Coefficient | 0.016 |
| Elevation | 0.36 ft |
| Elevation Range | 0.00 to 0.54 ft |

# Worksheet for F1 (Curb Popout)

| Results | |
|---|---|
| Flow Area | 3.2 ft² |
| Wetted Perimeter | 22.78 ft |
| Hydraulic Radius | 0.14 ft |
| Top Width | 22.57 ft |
| Normal Depth | 0.36 ft |
| Critical Depth | 0.49 ft |
| Critical Slope | 0.64 % |
| Velocity | 5.80 ft/s |
| Velocity Head | 0.52 ft |
| Specific Energy | 0.88 ft |
| Froude Number | 2.719 |
| Flow Type | Supercritical |

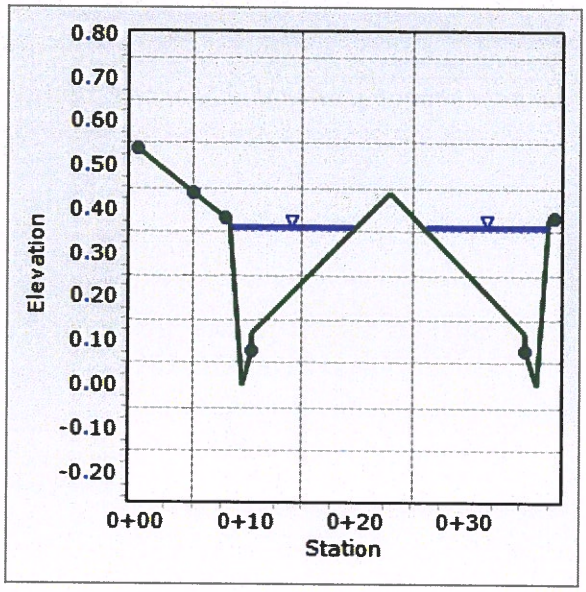
| GVF Input Data | |
|---|---|
| Downstream Depth | 0.00 ft |
| Length | 0.00 ft |
| Number Of Steps | 0 |

| GVF Output Data | |
|---|---|
| Upstream Depth | 0.00 ft |
| Profile Description | |
| Profile Headloss | 0.00 ft |
| Downstream Velocity | Infinity ft/s |
| Upstream Velocity | Infinity ft/s |
| Normal Depth | 0.36 ft |
| Critical Depth | 0.49 ft |
| Channel Slope | 5.36 % |
| Critical Slope | 0.64 % |

# Cross Section for F1 (Curb Popout)

| Project Description | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

| Input Data | |
|---|---|
| Channel Slope | 5.36 % |
| Normal Depth | 0.36 ft |
| Discharge | 18.50 cfs |



# Worksheet for F1

| Project Description | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

| Input Data | |
|---|---|
| Channel Slope | 5.36 % |
| Discharge | 18.50 cfs |

## Section Definitions

| Station (ft) | Elevation (ft) |
|---|---|
| 0+00.00 | 0.54 |
| 0+05.00 | 0.38 |
| 0+05.38 | 0.38 |
| 0+06.50 | 0.00 |
| 0+07.50 | 0.08 |
| 0+07.50 | 0.12 |
| 0+23.00 | 0.44 |
| 0+38.50 | 0.12 |
| 0+38.50 | 0.08 |
| 0+39.50 | 0.00 |
| 0+40.62 | 0.38 |
| 0+41.00 | 0.38 |

## Roughness Segment Definitions

| Start Station | Ending Station | Roughness Coefficient |
|---|---|---|
| (0+00.00, 0.54) | (0+07.50, 0.08) | 0.016 |
| (0+07.50, 0.08) | (0+38.50, 0.08) | 0.016 |
| (0+38.50, 0.08) | (0+41.00, 0.38) | 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 | 0.34 ft |
| Roughness Coefficient | 0.016 |
| Elevation | 0.34 ft |
| Elevation Range | 0.00 to 0.54 ft |
| Flow Area | 3.4 ft² |
| Wetted Perimeter | 25.81 ft |
| Hydraulic Radius | 0.13 ft |

# Worksheet for F1

| Results | |
|---|---|
| Top Width | 25.61 ft |
| Normal Depth | 0.34 ft |
| Critical Depth | 0.47 ft |
| Critical Slope | 0.65 % |
| Velocity | 5.51 ft/s |
| Velocity Head | 0.47 ft |
| Specific Energy | 0.81 ft |
| Froude Number | 2.683 |
| Flow Type | Supercritical |

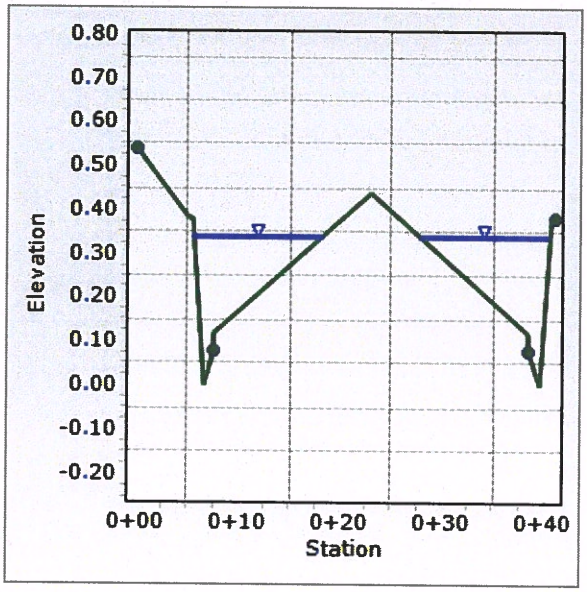
| GVF Input Data | |
|---|---|
| Downstream Depth | 0.00 ft |
| Length | 0.00 ft |
| Number Of Steps | 0 |

| GVF Output Data | |
|---|---|
| Upstream Depth | 0.00 ft |
| Profile Description | |
| Profile Headloss | 0.00 ft |
| Downstream Velocity | Infinity ft/s |
| Upstream Velocity | Infinity ft/s |
| Normal Depth | 0.34 ft |
| Critical Depth | 0.47 ft |
| Channel Slope | 5.36 % |
| Critical Slope | 0.65 % |

# Cross Section for F1

| Project Description | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

| Input Data | |
|---|---|
| Channel Slope | 5.36 % |
| Normal Depth | 0.34 ft |
| Discharge | 18.50 cfs |



# Worksheet for F2 (Min Slope)

| Project Description | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

| Input Data | |
|---|---|
| Channel Slope | 3.92 % |
| Discharge | 25.40 cfs |

## Section Definitions

| Station (ft) | Elevation (ft) |
|---|---|
| 0+00.00 | 0.54 |
| 0+05.00 | 0.38 |
| 0+05.38 | 0.38 |
| 0+06.50 | 0.00 |
| 0+07.50 | 0.08 |
| 0+07.50 | 0.12 |
| 0+23.00 | 0.44 |
| 0+38.50 | 0.12 |
| 0+38.50 | 0.08 |
| 0+39.50 | 0.00 |
| 0+40.62 | 0.38 |
| 0+41.00 | 0.38 |

## Roughness Segment Definitions

| Start Station | Ending Station | Roughness Coefficient |
|---|---|---|
| (0+00.00, 0.54) | (0+07.50, 0.08) | 0.016 |
| (0+07.50, 0.08) | (0+38.50, 0.08) | 0.016 |
| (0+38.50, 0.08) | (0+41.00, 0.38) | 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 0.54 ft |
| Flow Area | 4.9 ft² |
| Wetted Perimeter | 32.50 ft |
| Hydraulic Radius | 0.15 ft |

# Worksheet for F2 (Min Slope)

| Results | |
|---|---|
| Top Width | 32.26 ft |
| Normal Depth | 0.40 ft |
| Critical Depth | 0.51 ft |
| Critical Slope | 0.61 % |
| Velocity | 5.20 ft/s |
| Velocity Head | 0.42 ft |
| Specific Energy | 0.82 ft |
| Froude Number | 2.355 |
| Flow Type | Supercritical |

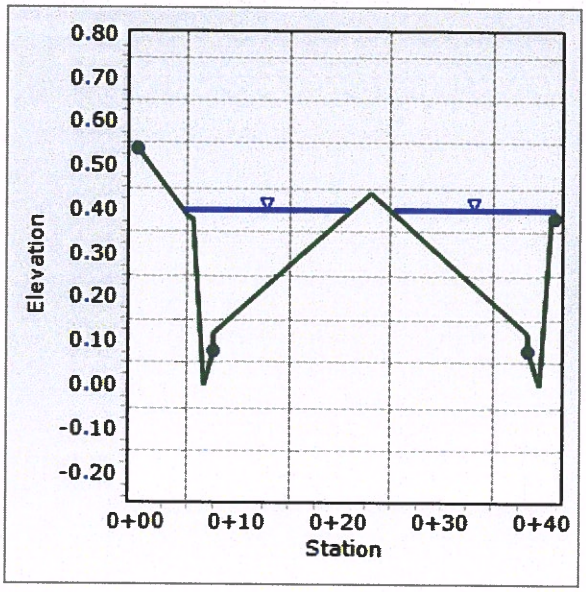
| GVF Input Data | |
|---|---|
| Downstream Depth | 0.00 ft |
| Length | 0.00 ft |
| Number Of Steps | 0 |

| GVF Output Data | |
|---|---|
| Upstream Depth | 0.00 ft |
| Profile Description | |
| Profile Headloss | 0.00 ft |
| Downstream Velocity | Infinity ft/s |
| Upstream Velocity | Infinity ft/s |
| Normal Depth | 0.40 ft |
| Critical Depth | 0.51 ft |
| Channel Slope | 3.92 % |
| Critical Slope | 0.61 % |

# Cross Section for F2 (Min Slope)

| Project Description | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

| Input Data | |
|---|---|
| Channel Slope | 3.92 % |
| Normal Depth | 0.40 ft |
| Discharge | 25.40 cfs |



# Worksheet for F2 (Max Slope)

| Project Description | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

| Input Data | |
|---|---|
| Channel Slope | 5.36 % |
| Discharge | 25.40 cfs |

## Section Definitions

| Station (ft) | Elevation (ft) |
|---|---|
| 0+00.00 | 0.54 |
| 0+05.00 | 0.38 |
| 0+05.38 | 0.38 |
| 0+06.50 | 0.00 |
| 0+07.50 | 0.08 |
| 0+07.50 | 0.12 |
| 0+23.00 | 0.44 |
| 0+38.50 | 0.12 |
| 0+38.50 | 0.08 |
| 0+39.50 | 0.00 |
| 0+40.62 | 0.38 |
| 0+41.00 | 0.38 |

## Roughness Segment Definitions

| Start Station | Ending Station | Roughness Coefficient |
|---|---|---|
| (0+00.00, 0.54) | (0+07.50, 0.08) | 0.016 |
| (0+07.50, 0.08) | (0+38.50, 0.08) | 0.016 |
| (0+38.50, 0.08) | (0+41.00, 0.38) | 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 | 0.38 ft |
| Roughness Coefficient | 0.016 |
| Elevation | 0.38 ft |
| Elevation Range | 0.00 to 0.54 ft |
| Flow Area | 4.3 ft² |
| Wetted Perimeter | 29.22 ft |
| Hydraulic Radius | 0.15 ft |

# Worksheet for F2 (Max Slope)

| Results | |
|---|---|
| Top Width | 29.01 ft |
| Normal Depth | 0.38 ft |
| Critical Depth | 0.51 ft |
| Critical Slope | 0.61 % |
| Velocity | 5.96 ft/s |
| Velocity Head | 0.55 ft |
| Specific Energy | 0.93 ft |
| Froude Number | 2.743 |
| Flow Type | Supercritical |

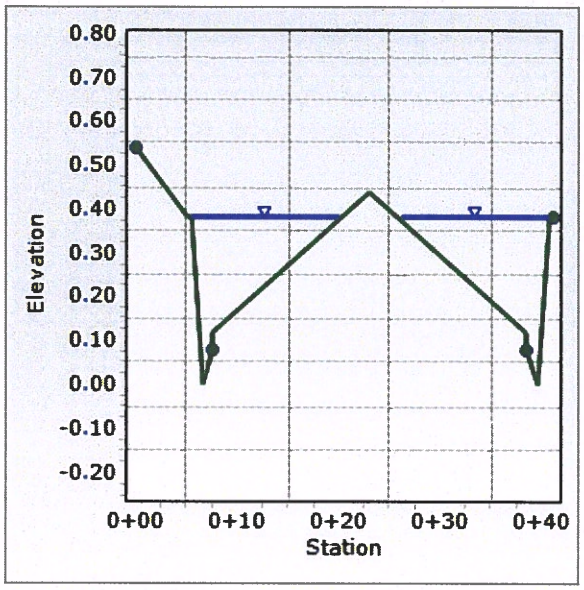
| GVF Input Data | |
|---|---|
| Downstream Depth | 0.00 ft |
| Length | 0.00 ft |
| Number Of Steps | 0 |

| GVF Output Data | |
|---|---|
| Upstream Depth | 0.00 ft |
| Profile Description | |
| Profile Headloss | 0.00 ft |
| Downstream Velocity | Infinity ft/s |
| Upstream Velocity | Infinity ft/s |
| Normal Depth | 0.38 ft |
| Critical Depth | 0.51 ft |
| Channel Slope | 5.36 % |
| Critical Slope | 0.61 % |

# Cross Section for F2 (Max Slope)

| Project Description | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

| Input Data | |
|---|---|
| Channel Slope | 5.36 % |
| Normal Depth | 0.38 ft |
| Discharge | 25.40 cfs |



# Worksheet for F3

| Project Description | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

| Input Data | |
|---|---|
| Channel Slope | 2.50 % |
| Discharge | 37.00 cfs |

## Section Definitions

| Station (ft) | Elevation (ft) |
|---|---|
| 0+00.00 | 0.60 |
| 0+05.00 | 0.50 |
| 0+05.50 | 0.48 |
| 0+05.50 | 0.00 |
| 0+07.00 | 0.13 |
| 0+07.00 | 0.17 |
| 0+38.50 | 0.80 |
| 0+38.50 | 0.76 |
| 0+39.50 | 0.68 |
| 0+40.62 | 1.06 |
| 0+41.00 | 1.06 |

## Roughness Segment Definitions

| Start Station | Ending Station | Roughness Coefficient |
|---|---|---|
| (0+00.00, 0.60) | (0+07.00, 0.13) | 0.016 |
| (0+07.00, 0.13) | (0+38.50, 0.76) | 0.016 |
| (0+38.50, 0.76) | (0+41.00, 1.06) | 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 | 0.64 ft |
| Roughness Coefficient | 0.016 |
| Elevation | 0.64 ft |
| Elevation Range | 0.00 to 1.06 ft |
| Flow Area | 6.9 ft² |
| Wetted Perimeter | 31.02 ft |
| Hydraulic Radius | 0.22 ft |
| Top Width | 30.45 ft |

# Worksheet for F3

| Results | |
|---|---|
| Normal Depth | 0.64 ft |
| Critical Depth | 0.78 ft |
| Critical Slope | 0.57 % |
| Velocity | 5.38 ft/s |
| Velocity Head | 0.45 ft |
| Specific Energy | 1.09 ft |
| Froude Number | 1.996 |
| Flow Type | Supercritical |

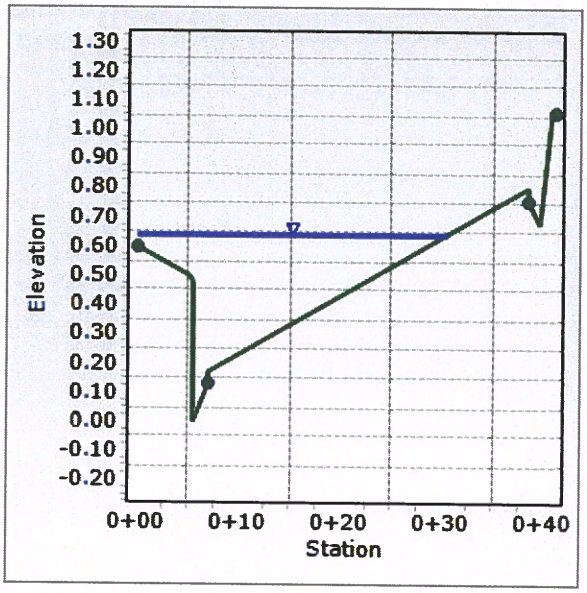
| GVF Input Data | |
|---|---|
| Downstream Depth | 0.00 ft |
| Length | 0.00 ft |
| Number Of Steps | 0 |

| GVF Output Data | |
|---|---|
| Upstream Depth | 0.00 ft |
| Profile Description | |
| Profile Headloss | 0.00 ft |
| Downstream Velocity | Infinity ft/s |
| Upstream Velocity | Infinity ft/s |
| Normal Depth | 0.64 ft |
| Critical Depth | 0.78 ft |
| Channel Slope | 2.50 % |
| Critical Slope | 0.57 % |

# Cross Section for F3

| Project Description | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

| Input Data | |
|---|---|
| Channel Slope | 2.50 % |
| Normal Depth | 0.64 ft |
| Discharge | 37.00 cfs |



# Ditch Sections

# Worksheet for ID Interim Condition Ditch

| Project Description | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

| Input Data | |
|---|---|
| Channel Slope | 6.61 % |
| Discharge | 18.00 cfs |

## Section Definitions

| Station (ft) | Elevation (ft) |
|---|---|
| 0+00.00 | 3.33 |
| 0+10.00 | 0.00 |
| 0+26.50 | 0.33 |
| 0+43.00 | 0.00 |
| 0+53.00 | 3.33 |

## Roughness Segment Definitions

| Start Station | Ending Station | Roughness Coefficient |
|---|---|---|
| (0+00.00, 3.33) | (0+53.00, 3.33) | 0.025 |

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

| Results | |
|---|---|
| Normal Depth | 0.29 ft |
| Roughness Coefficient | 0.025 |
| Elevation | 0.29 ft |
| Elevation Range | 0.00 to 3.33 ft |
| Flow Area | 4.3 ft² |
| Wetted Perimeter | 30.38 ft |
| Hydraulic Radius | 0.14 ft |
| Top Width | 30.28 ft |
| Normal Depth | 0.29 ft |
| Critical Depth | 0.37 ft |
| Critical Slope | 1.56 % |
| Velocity | 4.16 ft/s |
| Velocity Head | 0.27 ft |
| Specific Energy | 0.55 ft |
| Froude Number | 1.942 |
| Flow Type | Supercritical |

# Worksheet for ID Interim Condition Ditch

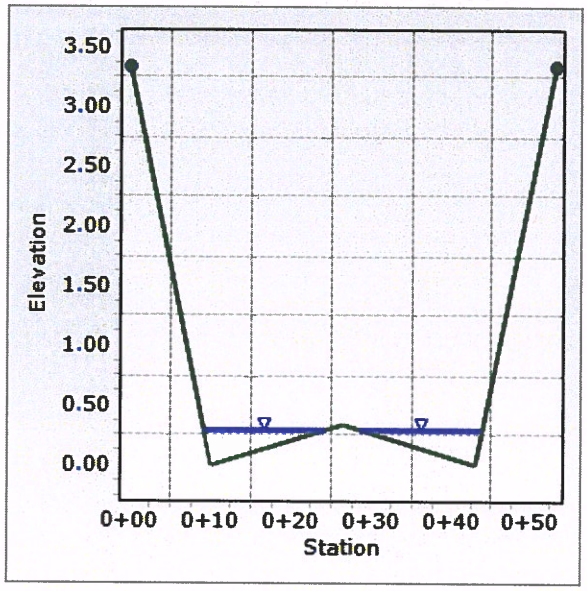
| GVF Input Data | |
|---|---|
| Downstream Depth | 0.00 ft |
| Length | 0.00 ft |
| Number Of Steps | 0 |

| GVF Output Data | |
|---|---|
| Upstream Depth | 0.00 ft |
| Profile Description | |
| Profile Headloss | 0.00 ft |
| Downstream Velocity | Infinity ft/s |
| Upstream Velocity | Infinity ft/s |
| Normal Depth | 0.29 ft |
| Critical Depth | 0.37 ft |
| Channel Slope | 6.61 % |
| Critical Slope | 1.56 % |

# Cross Section for ID Interim Condition Ditch

| Project Description | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

| Input Data | |
|---|---|
| Channel Slope | 6.61 % |
| Normal Depth | 0.29 ft |
| Discharge | 18.00 cfs |



# Worksheet for ND Northern Ditch (Min Slope)

| Project Description | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

| Input Data | |
|---|---|
| Channel Slope | 2.50 % |
| Discharge | 3.00 cfs |

## Section Definitions

| Station (ft) | Elevation (ft) |
|---|---|
| 0+00.00 | 1.00 |
| 0+04.00 | 0.00 |
| 0+08.00 | 1.00 |

## Roughness Segment Definitions

| Start Station | Ending Station | Roughness Coefficient |
|---|---|---|
| (0+00.00, 1.00) | (0+08.00, 1.00) | 0.025 |

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

| Results | |
|---|---|
| Normal Depth | 0.46 ft |
| Roughness Coefficient | 0.025 |
| Elevation | 0.46 ft |
| Elevation Range | 0.00 to 1.00 ft |
| Flow Area | 0.9 ft² |
| Wetted Perimeter | 3.83 ft |
| Hydraulic Radius | 0.23 ft |
| Top Width | 3.72 ft |
| Normal Depth | 0.46 ft |
| Critical Depth | 0.51 ft |
| Critical Slope | 1.49 % |
| Velocity | 3.48 ft/s |
| Velocity Head | 0.19 ft |
| Specific Energy | 0.65 ft |
| Froude Number | 1.271 |
| Flow Type | Supercritical |

GVF Input Data

# Worksheet for ND Northern Ditch (Min Slope)

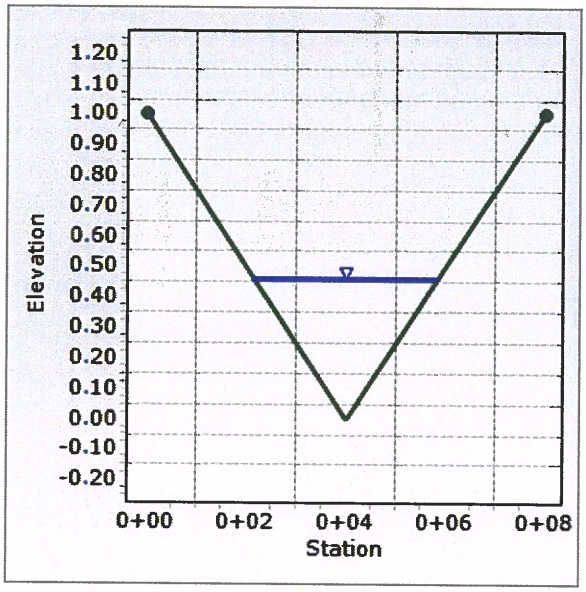
| GVF Input Data | |
|---|---|
| Downstream Depth | 0.00 ft |
| Length | 0.00 ft |
| Number Of Steps | 0 |

| GVF Output Data | |
|---|---|
| Upstream Depth | 0.00 ft |
| Profile Description | |
| Profile Headloss | 0.00 ft |
| Downstream Velocity | Infinity ft/s |
| Upstream Velocity | Infinity ft/s |
| Normal Depth | 0.46 ft |
| Critical Depth | 0.51 ft |
| Channel Slope | 2.50 % |
| Critical Slope | 1.49 % |

# Cross Section for ND Northern Ditch (Min Slope)

| Project Description | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

| Input Data | |
|---|---|
| Channel Slope | 2.50 % |
| Normal Depth | 0.46 ft |
| Discharge | 3.00 cfs |



# Worksheet for ND Northern Ditch (Max Slope)

## Project Description

| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

## Input Data

| | |
|---|---|
| Channel Slope | 5.00 % |
| Discharge | 3.00 cfs |

## Section Definitions

| Station (ft) | Elevation (ft) |
|---|---|
| 0+00.00 | 1.00 |
| 0+04.00 | 0.00 |
| 0+08.00 | 1.00 |

## Roughness Segment Definitions

| Start Station | Ending Station | Roughness Coefficient |
|---|---|---|
| (0+00.00, 1.00) | (0+08.00, 1.00) | 0.025 |

## Options

| | |
|---|---|
| Current Roughness Weighted Method | Pavlovskii's Method |
| Open Channel Weighting Method | Pavlovskii's Method |
| Closed Channel Weighting Method | Pavlovskii's Method |

## Results

| | |
|---|---|
| Normal Depth | 0.41 ft |
| Roughness Coefficient | 0.025 |
| Elevation | 0.41 ft |
| Elevation Range | 0.00 to 1.00 ft |
| Flow Area | 0.7 ft² |
| Wetted Perimeter | 3.36 ft |
| Hydraulic Radius | 0.20 ft |
| Top Width | 3.26 ft |
| Normal Depth | 0.41 ft |
| Critical Depth | 0.51 ft |
| Critical Slope | 1.49 % |
| Velocity | 4.51 ft/s |
| Velocity Head | 0.32 ft |
| Specific Energy | 0.72 ft |
| Froude Number | 1.759 |
| Flow Type | Supercritical |

## GVF Input Data

# Worksheet for ND Northern Ditch (Max Slope)

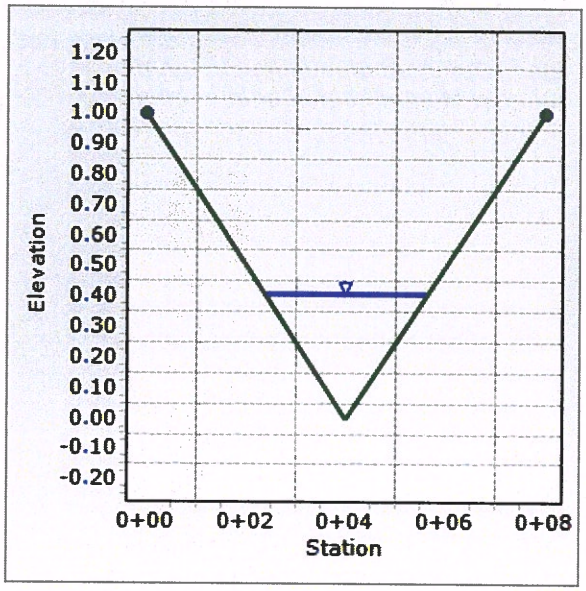
| GVF Input Data | |
|---|---|
| Downstream Depth | 0.00 ft |
| Length | 0.00 ft |
| Number Of Steps | 0 |

| GVF Output Data | |
|---|---|
| Upstream Depth | 0.00 ft |
| Profile Description | |
| Profile Headloss | 0.00 ft |
| Downstream Velocity | Infinity ft/s |
| Upstream Velocity | Infinity ft/s |
| Normal Depth | 0.41 ft |
| Critical Depth | 0.51 ft |
| Channel Slope | 5.00 % |
| Critical Slope | 1.49 % |

# Cross Section for ND Northern Ditch (Max Slope)

| Project Description | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

| Input Data | |
|---|---|
| Channel Slope | 5.00 % |
| Normal Depth | 0.41 ft |
| Discharge | 3.00 cfs |



# Riprap Sizing Calculation

Westwood

# Rip Rap Sizing Computation

Project Name & Number: BZR2001: BLM270 Parcel C-2 & C-3
Date: 12/15/2020
By: CAA

**Location:** Section ID

**Known Information:** **Reference:**

Rip Rap protection at

| | | |
|---|---|---|
| V = Velocity (fps) | 4.16 | WSPG Hydraulic / Flowmaster Calculations |
| $S_g$ = Specific Gravity of Rock (typ=2.5) | 2.5 | Use Typical |
| s = Longitudinal Channel Slope (ft/ft) | 0.0661 | Grading Plan |

**Solve For:**

$d_{50}$ = 0.34 ft - Average Rock Size

| | | | |
|---|---|---|---|
| **$d_{50}$ =** | **4** | **in** | **- Average Rock Size** |
| **Thickness =** | **8** | **in** | **- Thickness of Rip Rap protection** |
| **Manning's 'n' =** | **0.033** | | **- Roughness Coefficient** |

**Equations:**

Based upon a Stable Channel Lining

$d_{50} = ((vel*S^{0.17})/(3*(S_g-1)))^2$ Equation 734*

$n = 0.0395(d_{50})^{1/6}$ Equation 732*

**Recommendations:**

* Provided 6-in Riprap

* Equations taken from the Clark County Regional Flood Control District - Hydrologic Criteria and Drainage Design Manual

5740 S. Arville St., Suite 216 - Las Vegas, NV 89118
Ph. 702-284-5300 - Fx. 702-284-5399

# Drainage Easement Sections & Emergency Overflow Sections

# Worksheet for DE1 Drainage Easement (Normal Depth)

| Project Description | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

| Input Data | |
|---|---|
| Roughness Coefficient | 0.013 |
| Channel Slope | 6.13 % |
| Bottom Width | 8.00 ft |
| Discharge | 38.00 cfs |

| Results | |
|---|---|
| Normal Depth | 0.35 ft |
| Flow Area | 2.8 ft² |
| Wetted Perimeter | 8.71 ft |
| Hydraulic Radius | 0.33 ft |
| Top Width | 8.00 ft |
| Critical Depth | 0.89 ft |
| Critical Slope | 0.33 % |
| Velocity | 13.40 ft/s |
| Velocity Head | 2.79 ft |
| Specific Energy | 3.15 ft |
| Froude Number | 3.969 |
| Flow Type | Supercritical |

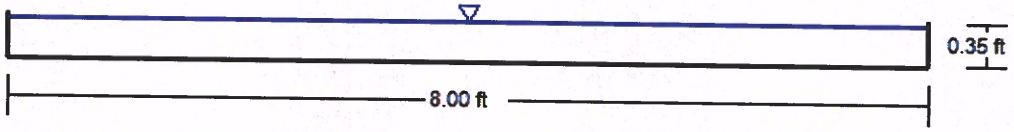
| GVF Input Data | |
|---|---|
| Downstream Depth | 0.00 ft |
| Length | 0.00 ft |
| Number Of Steps | 0 |

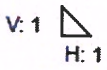
| GVF Output Data | |
|---|---|
| Upstream Depth | 0.00 ft |
| Profile Description | |
| Profile Headloss | 0.00 ft |
| Downstream Velocity | Infinity ft/s |
| Upstream Velocity | Infinity ft/s |
| Normal Depth | 0.35 ft |
| Critical Depth | 0.89 ft |
| Channel Slope | 6.13 % |
| Critical Slope | 0.33 % |

# Cross Section for DE1 Drainage Easement (Normal Depth)

| Project Description | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Normal Depth |

| Input Data | |
|---|---|
| Roughness Coefficient | 0.013 |
| Channel Slope | 6.13 % |
| Normal Depth | 0.35 ft |
| Bottom Width | 8.00 ft |
| Discharge | 38.00 cfs |



# Worksheet for EO1 Emergency Overflow

| Project Description | |
|---|---|
| Solve For | Headwater Elevation |

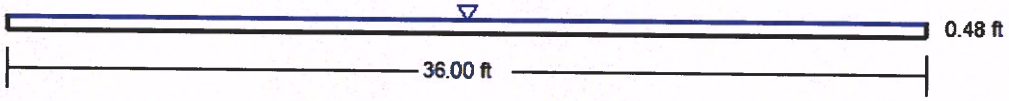
| Input Data | |
|---|---|
| Discharge | 37.00 cfs |
| Crest Elevation | 0.00 ft |
| Tailwater Elevation | 0.00 ft |
| Crest Surface Type | Paved |
| Crest Breadth | 1.00 ft |
| Crest Length | 36.00 ft |

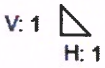
| Results | |
|---|---|
| Headwater Elevation | 0.48 ft |
| Headwater Height Above Crest | 0.48 ft |
| Tailwater Height Above Crest | 0.00 ft |
| Weir Coefficient | 3.09 ft^(1/2)/s |
| Submergence Factor | 1.000 |
| Adjusted Weir Coefficient | 3.09 ft^(1/2)/s |
| Flow Area | 17.3 ft² |
| Velocity | 2.14 ft/s |
| Wetted Perimeter | 36.96 ft |
| Top Width | 36.00 ft |

# Cross Section for EO1 Emergency Overflow

| Project Description | |
|---|---|
| Solve For | Headwater Elevation |

| Input Data | |
|---|---|
| Discharge | 37.00 cfs |
| Headwater Elevation | 0.48 ft |
| Crest Elevation | 0.00 ft |
| Tailwater Elevation | 0.00 ft |
| Crest Surface Type | Paved |
| Crest Breadth | 1.00 ft |
| Crest Length | 36.00 ft |



# APPENDIX D

Revised Finished Floor Analyses

| BLM 270 PARCEL C-2 & C-3 ADDENDUM<br>FINISHED FLOOR - CITY OF LAS VEGAS JURISDICTION | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| INPUT INFORMATION | | | | | FINISHED FLOORS | | | | | NOTES |
| Lot Number | Hydraulic Section Utilized | T/C[1] (ft) | F/L[2] (ft) | $D_{100}$ (ft) | Flowline F.F.$_{\cdot min}$[3] (ft) | T/C + 6" F.F.$_{\cdot min}$[4] (ft) | F.F.$_{\cdot Design}$ (ft) | Flowline Check | T/C + 6" Check | See References on Last Sheet |
| 1 | C1 | 3025.30 | 3024.92 | 0.52 | 3025.96 | 3025.80 | 3027.2 | OK | OK | |
| 2 | C1 | 3024.67 | 3024.29 | 0.52 | 3025.33 | 3025.17 | 3026.6 | OK | OK | |
| 3 | C1 | 3024.05 | 3023.67 | 0.52 | 3024.71 | 3024.55 | 3026.0 | OK | OK | |
| 4 | C2 | 3023.49 | 3023.11 | 0.62 | 3024.35 | 3023.99 | 3025.4 | OK | OK | |
| 5 | C2 | 3022.99 | 3022.61 | 0.62 | 3023.85 | 3023.49 | 3024.9 | OK | OK | |
| 6 | C2 | 3022.49 | 3022.11 | 0.62 | 3023.35 | 3022.99 | 3024.4 | OK | OK | |
| 7 | C2 | 3021.99 | 3021.61 | 0.62 | 3022.85 | 3022.49 | 3023.9 | OK | OK | |
| 8 | C2 | 3021.49 | 3021.11 | 0.62 | 3022.35 | 3021.99 | 3023.4 | OK | OK | |
| 9 | C3 | 3020.97 | 3020.59 | 0.71 | 3022.01 | 3021.47 | 3022.9 | OK | OK | |
| 10 | C3 | 3020.48 | 3020.10 | 0.71 | 3021.52 | 3020.98 | 3022.4 | OK | OK | |
| 11 | C3 | 3020.05 | 3019.67 | 0.71 | 3021.09 | 3020.55 | 3022.0 | OK | OK | |
| 12 | C3 | 3019.63 | 3019.25 | 0.71 | 3020.67 | 3020.13 | 3021.5 | OK | OK | |
| 13 | C3 | 3019.20 | 3018.82 | 0.71 | 3020.24 | 3019.70 | 3021.1 | OK | OK | |
| 14 | C4 | 3018.78 | 3018.40 | 0.8 | 3020.00 | 3019.28 | 3020.7 | OK | OK | |
| 15 | C4 | 3018.42 | 3018.04 | 0.8 | 3019.64 | 3018.92 | 3020.3 | OK | OK | |
| 16 | C4 | 3018.07 | 3017.69 | 0.8 | 3019.29 | 3018.57 | 3020.0 | OK | OK | |
| 17 | C4 | 3017.72 | 3017.34 | 0.8 | 3018.94 | 3018.22 | 3019.6 | OK | OK | |
| 18 | D2 | 3017.37 | 3016.99 | 0.5 | 3017.99 | 3017.87 | 3019.3 | OK | OK | |
| 19 | D2 | 3017.01 | 3016.63 | 0.5 | 3017.63 | 3017.51 | 3018.9 | OK | OK | |
| 20 | D2 | 3016.39 | 3016.01 | 0.5 | 3017.01 | 3016.89 | 3018.3 | OK | OK | |
| 21 | D3 | 3015.52 | 3015.14 | 0.37 | 3015.88 | 3016.02 | 3017.4 | OK | OK | |
| 22 | D3 | 3014.42 | 3014.04 | 0.37 | 3014.78 | 3014.92 | 3016.3 | OK | OK | |
| 23 | D3 | 3013.32 | 3012.94 | 0.37 | 3013.68 | 3013.82 | 3015.2 | OK | OK | |
| 24 | F3 | 3010.36 | 3009.98 | 0.64 | 3011.26 | 3010.86 | 3012.3 | OK | OK | |
| 25 | F3 | 3011.77 | 3011.39 | 0.64 | 3012.67 | 3012.27 | 3013.7 | OK | OK | |
| 26 | F3 | 3012.95 | 3012.57 | 0.64 | 3013.85 | 3013.45 | 3014.9 | OK | OK | |
| 27 | F2 | 3014.84 | 3014.46 | 0.4 | 3015.26 | 3015.34 | 3016.7 | OK | OK | |
| 28 | F2 | 3017.19 | 3016.81 | 0.4 | 3017.61 | 3017.69 | 3019.1 | OK | OK | |
| 29 | F2 | 3019.87 | 3019.49 | 0.4 | 3020.29 | 3020.37 | 3021.8 | OK | OK | |
| 30 | F2 | 3022.55 | 3022.17 | 0.4 | 3022.97 | 3023.05 | 3024.5 | OK | OK | |
| 31 | F1 | 3025.23 | 3024.85 | 0.36 | 3025.57 | 3025.73 | 3027.1 | OK | OK | |
| 32 | F2 | 3027.92 | 3027.54 | 0.4 | 3028.34 | 3028.42 | 3029.8 | OK | OK | |
| 33 | F2 | 3030.60 | 3030.22 | 0.4 | 3031.02 | 3031.10 | 3032.5 | OK | OK | |
| 34 | F1 | 3033.28 | 3032.90 | 0.36 | 3033.62 | 3033.78 | 3035.2 | OK | OK | |
| 35 | F1 | 3035.96 | 3035.58 | 0.36 | 3036.30 | 3036.46 | 3037.9 | OK | OK | |
| 36 | F1 | 3038.65 | 3038.27 | 0.36 | 3038.99 | 3039.15 | 3040.6 | OK | OK | |
| 37 | F1 | 3041.33 | 3040.95 | 0.36 | 3041.67 | 3041.83 | 3043.2 | OK | OK | |
| 38 | F1 | 3044.01 | 3043.63 | 0.36 | 3044.35 | 3044.51 | 3045.9 | OK | OK | |
| 39 | F1 | 3046.69 | 3046.31 | 0.36 | 3047.03 | 3047.19 | 3048.6 | OK | OK | |
| 40 | F1 | 3049.37 | 3048.99 | 0.36 | 3049.71 | 3049.87 | 3051.3 | OK | OK | |
| 41 | F1 | 3052.05 | 3051.67 | 0.36 | 3052.39 | 3052.55 | 3054.0 | OK | OK | |
| 42 | F1 | 3054.70 | 3054.32 | 0.36 | 3055.04 | 3055.20 | 3056.6 | OK | OK | |
| 43 | F1 | 3056.67 | 3056.29 | 0.36 | 3057.01 | 3057.17 | 3058.6 | OK | OK | |
| 44 | F1 | 3057.52 | 3057.14 | 0.36 | 3057.86 | 3058.02 | 3059.4 | OK | OK | |
| 45 | F1 | 3057.50 | 3057.12 | 0.36 | 3057.84 | 3058.00 | 3059.4 | OK | OK | |
| 46 | F1 | 3056.39 | 3056.01 | 0.36 | 3056.73 | 3056.89 | 3058.3 | OK | OK | |
| 47 | F1 | 3054.25 | 3053.87 | 0.36 | 3054.59 | 3054.75 | 3056.2 | OK | OK | |
| 48 | F1 | 3051.58 | 3051.20 | 0.36 | 3051.92 | 3052.08 | 3053.5 | OK | OK | |
| 49 | F1 | 3048.90 | 3048.52 | 0.36 | 3049.24 | 3049.40 | 3050.8 | OK | OK | |
| 50 | F1 | 3046.22 | 3045.84 | 0.36 | 3046.56 | 3046.72 | 3048.1 | OK | OK | |
| 51 | F1 | 3043.54 | 3043.16 | 0.36 | 3043.88 | 3044.04 | 3045.4 | OK | OK | |
| 52 | F1 | 3040.86 | 3040.48 | 0.36 | 3041.20 | 3041.36 | 3042.8 | OK | OK | |
| 53 | F1 | 3038.18 | 3037.80 | 0.36 | 3038.52 | 3038.68 | 3040.1 | OK | OK | |
| 54 | F1 | 3035.49 | 3035.11 | 0.36 | 3035.83 | 3035.99 | 3037.5 | OK | OK | |
| 55 | F1 | 3032.81 | 3032.43 | 0.36 | 3033.15 | 3033.31 | 3034.8 | OK | OK | |
| 56 | F2 | 3030.13 | 3029.75 | 0.4 | 3030.55 | 3030.63 | 3032.0 | OK | OK | |
| 57 | F2 | 3027.45 | 3027.07 | 0.4 | 3027.87 | 3027.95 | 3029.4 | OK | OK | |
| 58 | F2 | 3024.76 | 3024.38 | 0.4 | 3025.18 | 3025.26 | 3026.7 | OK | OK | |
| 59 | F2 | 3022.08 | 3021.70 | 0.4 | 3022.50 | 3022.58 | 3024.0 | OK | OK | |
| 60 | F2 | 3019.40 | 3019.02 | 0.4 | 3019.82 | 3019.90 | 3021.3 | OK | OK | |
| 61 | F2 | 3016.72 | 3016.34 | 0.4 | 3017.14 | 3017.22 | 3018.6 | OK | OK | |
| 62 | F2 | 3014.50 | 3014.12 | 0.4 | 3014.92 | 3015.00 | 3016.4 | OK | OK | |

| BLM 270 PARCEL C-2 & C-3 ADDENDUM<br>FINISHED FLOOR - CITY OF LAS VEGAS JURISDICTION | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| INPUT INFORMATION | | | | | FINISHED FLOORS | | | | | NOTES |
| Lot Number | Hydraulic Section Utilized | T/C[1] (ft) | F/L[2] (ft) | $D_{100}$ (ft) | Flowline F.F.$_{\cdot min}$[3] (ft) | T/C + 6" F.F.$_{\cdot min}$[4] (ft) | F.F.$_{\cdot Design}$ (ft) | Flowline Check | T/C + 6" Check | See References on Last Sheet |
| 63 | D1 | 3018.49 | 3018.11 | 0.35 | 3018.81 | 3018.99 | 3020.3 | OK | OK | |
| 64 | D1 | 3020.68 | 3020.30 | 0.35 | 3021.00 | 3021.18 | 3022.5 | OK | OK | |
| 65 | D1 | 3023.26 | 3022.88 | 0.35 | 3023.58 | 3023.76 | 3025.1 | OK | OK | |
| 66 | D1 | 3026.03 | 3025.65 | 0.35 | 3026.35 | 3026.53 | 3027.8 | OK | OK | |
| 67 | D1 | 3028.81 | 3028.43 | 0.35 | 3029.13 | 3029.31 | 3030.6 | OK | OK | |
| 68 | D1 | 3031.58 | 3031.20 | 0.35 | 3031.90 | 3032.08 | 3033.4 | OK | OK | |
| 69 | D1 | 3034.35 | 3033.97 | 0.35 | 3034.67 | 3034.85 | 3036.2 | OK | OK | |
| 70 | D1 | 3037.19 | 3036.81 | 0.35 | 3037.51 | 3037.69 | 3039.0 | OK | OK | |
| 71 | D1 | 3039.96 | 3039.58 | 0.35 | 3040.28 | 3040.46 | 3041.8 | OK | OK | |
| 72 | D1 | 3042.67 | 3042.29 | 0.35 | 3042.99 | 3043.17 | 3044.5 | OK | OK | |
| 73 | D1 | 3045.44 | 3045.06 | 0.35 | 3045.76 | 3045.94 | 3047.2 | OK | OK | |
| 74 | D1 | 3048.22 | 3047.84 | 0.35 | 3048.54 | 3048.72 | 3050.0 | OK | OK | |
| 75 | D1 | 3050.99 | 3050.61 | 0.35 | 3051.31 | 3051.49 | 3052.8 | OK | OK | |
| 76 | D1 | 3053.76 | 3053.38 | 0.35 | 3054.08 | 3054.26 | 3055.6 | OK | OK | |
| 77 | D1 | 3056.54 | 3056.16 | 0.35 | 3056.86 | 3057.04 | 3058.3 | OK | OK | |
| 78 | D1 | 3058.80 | 3058.42 | 0.35 | 3059.12 | 3059.30 | 3060.6 | OK | OK | |
| 79 | D1 | 3060.06 | 3059.68 | 0.35 | 3060.38 | 3060.56 | 3061.9 | OK | OK | |
| 80 | D1 | 3060.27 | 3059.89 | 0.35 | 3060.59 | 3060.77 | 3062.2 | OK | OK | |
| 81 | D1 | 3058.82 | 3058.44 | 0.35 | 3059.14 | 3059.32 | 3060.7 | OK | OK | |
| 82 | D1 | 3056.57 | 3056.19 | 0.35 | 3056.89 | 3057.07 | 3058.5 | OK | OK | |
| 83 | D1 | 3053.79 | 3053.41 | 0.35 | 3054.11 | 3054.29 | 3055.7 | OK | OK | |
| 84 | D1 | 3051.02 | 3050.64 | 0.35 | 3051.34 | 3051.52 | 3052.9 | OK | OK | |
| 85 | D1 | 3048.25 | 3047.87 | 0.35 | 3048.57 | 3048.75 | 3050.2 | OK | OK | |
| 86 | D1 | 3045.47 | 3045.09 | 0.35 | 3045.79 | 3045.97 | 3047.4 | OK | OK | |
| 87 | D1 | 3042.70 | 3042.32 | 0.35 | 3043.02 | 3043.20 | 3044.6 | OK | OK | |
| 88 | D1 | 3039.99 | 3039.61 | 0.35 | 3040.31 | 3040.49 | 3041.9 | OK | OK | |
| 89 | D1 | 3034.38 | 3034.00 | 0.35 | 3034.70 | 3034.88 | 3039.1 | OK | OK | |
| 90 | D1 | 3034.38 | 3034.00 | 0.35 | 3034.70 | 3034.88 | 3036.3 | OK | OK | |
| 91 | D1 | 3031.61 | 3031.23 | 0.35 | 3031.93 | 3032.11 | 3033.5 | OK | OK | |
| 92 | D1 | 3028.84 | 3028.46 | 0.35 | 3029.16 | 3029.34 | 3030.7 | OK | OK | |
| 93 | D1 | 3026.07 | 3025.69 | 0.35 | 3026.39 | 3026.57 | 3028.0 | OK | OK | |
| 94 | D1 | 3023.29 | 3022.91 | 0.35 | 3023.61 | 3023.79 | 3025.2 | OK | OK | |
| 95 | D1 | 3020.71 | 3020.33 | 0.35 | 3021.03 | 3021.21 | 3022.6 | OK | OK | |
| 96 | D1 | 3018.52 | 3018.14 | 0.35 | 3018.84 | 3019.02 | 3020.4 | OK | OK | |
| 97 | D1 | 3020.41 | 3020.03 | 0.35 | 3020.73 | 3020.91 | 3022.3 | OK | OK | |
| 98 | D1 | 3022.92 | 3022.54 | 0.35 | 3023.24 | 3023.42 | 3024.8 | OK | OK | |
| 99 | D1 | 3025.84 | 3025.46 | 0.35 | 3026.16 | 3026.34 | 3027.7 | OK | OK | |
| 100 | D1 | 3028.82 | 3028.44 | 0.35 | 3029.14 | 3029.32 | 3030.7 | OK | OK | |
| 101 | D1 | 3031.80 | 3031.42 | 0.35 | 3032.12 | 3032.30 | 3033.7 | OK | OK | |
| 102 | D1 | 3034.78 | 3034.40 | 0.35 | 3035.10 | 3035.28 | 3036.7 | OK | OK | |
| 103 | D1 | 3037.76 | 3037.38 | 0.35 | 3038.08 | 3038.26 | 3039.7 | OK | OK | |
| 104 | D1 | 3040.74 | 3040.36 | 0.35 | 3041.06 | 3041.24 | 3042.6 | OK | OK | |
| 105 | D1 | 3043.72 | 3043.34 | 0.35 | 3044.04 | 3044.22 | 3045.6 | OK | OK | |
| 106 | D1 | 3046.69 | 3046.31 | 0.35 | 3047.01 | 3047.19 | 3048.6 | OK | OK | |
| 107 | D1 | 3049.67 | 3049.29 | 0.35 | 3049.99 | 3050.17 | 3051.6 | OK | OK | |
| 108 | D1 | 3052.65 | 3052.27 | 0.35 | 3052.97 | 3053.15 | 3054.6 | OK | OK | |
| 109 | D1 | 3055.63 | 3055.25 | 0.35 | 3055.95 | 3056.13 | 3057.5 | OK | OK | |
| 110 | D1 | 3058.61 | 3058.23 | 0.35 | 3058.93 | 3059.11 | 3060.5 | OK | OK | |
| 111 | D1 | 3061.03 | 3060.65 | 0.35 | 3061.35 | 3061.53 | 3062.9 | OK | OK | |
| 112 | D1 | 3062.34 | 3061.96 | 0.35 | 3062.66 | 3062.84 | 3064.2 | OK | OK | |
| 113 | D1 | 3062.96 | 3062.58 | 0.35 | 3063.28 | 3063.46 | 3064.9 | OK | OK | |
| 114 | D1 | 3062.82 | 3062.44 | 0.35 | 3063.14 | 3063.32 | 3064.6 | OK | OK | |
| 115 | D1 | 3061.87 | 3061.49 | 0.35 | 3062.19 | 3062.37 | 3063.7 | OK | OK | |
| 116 | D1 | 3060.05 | 3059.67 | 0.35 | 3060.37 | 3060.55 | 3061.9 | OK | OK | |
| 117 | D1 | 3056.93 | 3056.55 | 0.35 | 3057.25 | 3057.43 | 3058.7 | OK | OK | |
| 118 | D1 | 3053.66 | 3053.28 | 0.35 | 3053.98 | 3054.16 | 3055.5 | OK | OK | |
| 119 | D1 | 3050.68 | 3050.30 | 0.35 | 3051.00 | 3051.18 | 3052.5 | OK | OK | |
| 120 | D1 | 3047.40 | 3047.02 | 0.35 | 3047.72 | 3047.90 | 3049.2 | OK | OK | |
| 121 | D1 | 3044.42 | 3044.04 | 0.35 | 3044.74 | 3044.92 | 3046.2 | OK | OK | |
| 122 | D1 | 3041.15 | 3040.77 | 0.35 | 3041.47 | 3041.65 | 3043.0 | OK | OK | |
| 123 | D1 | 3038.17 | 3037.79 | 0.35 | 3038.49 | 3038.67 | 3040.0 | OK | OK | |
| 124 | D1 | 3035.19 | 3034.81 | 0.35 | 3035.51 | 3035.69 | 3037.0 | OK | OK | |

| BLM 270 PARCEL C-2 & C-3 ADDENDUM<br>FINISHED FLOOR - CITY OF LAS VEGAS JURISDICTION | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| INPUT INFORMATION | | | | | FINISHED FLOORS | | | | | NOTES |
| Lot Number | Hydraulic Section Utilized | T/C[1] (ft) | F/L[2] (ft) | $D_{100}$ (ft) | Flowline $F.F._{\cdot min}$[3] (ft) | T/C + 6" $F.F._{\cdot min}$[4] (ft) | $F.F._{\cdot Design}$ (ft) | Flowline Check | T/C + 6" Check | See References on Last Sheet |
| 125 | D1 | 3032.21 | 3031.83 | 0.35 | 3032.53 | 3032.71 | 3034.0 | OK | OK | |
| 126 | D1 | 3029.23 | 3028.85 | 0.35 | 3029.55 | 3029.73 | 3031.0 | OK | OK | |
| 127 | D1 | 3026.25 | 3025.87 | 0.35 | 3026.57 | 3026.75 | 3028.1 | OK | OK | |
| 128 | D1 | 3023.30 | 3022.92 | 0.35 | 3023.62 | 3023.80 | 3025.1 | OK | OK | |
| 129 | D1 | 3020.72 | 3020.34 | 0.35 | 3021.04 | 3021.22 | 3022.5 | OK | OK | |
| 130 | D1 | 3022.30 | 3021.92 | 0.35 | 3022.62 | 3022.80 | 3024.0 | OK | OK | |
| 131 | D1 | 3024.19 | 3023.81 | 0.35 | 3024.51 | 3024.69 | 3026.0 | OK | OK | |
| 132 | D1 | 3026.42 | 3026.04 | 0.35 | 3026.74 | 3026.92 | 3028.2 | OK | OK | |
| 133 | D1 | 3028.87 | 3028.49 | 0.35 | 3029.19 | 3029.37 | 3030.7 | OK | OK | |
| 134 | D1 | 3031.33 | 3030.95 | 0.35 | 3031.65 | 3031.83 | 3033.1 | OK | OK | |
| 135 | D1 | 3033.78 | 3033.40 | 0.35 | 3034.10 | 3034.28 | 3035.6 | OK | OK | |
| 136 | D1 | 3036.24 | 3035.86 | 0.35 | 3036.56 | 3036.74 | 3038.0 | OK | OK | |
| 137 | D1 | 3038.69 | 3038.31 | 0.35 | 3039.01 | 3039.19 | 3040.5 | OK | OK | |
| 138 | D1 | 3041.15 | 3040.77 | 0.35 | 3041.47 | 3041.65 | 3043.0 | OK | OK | |
| 139 | D1 | 3043.60 | 3043.22 | 0.35 | 3043.92 | 3044.10 | 3045.4 | OK | OK | |
| 140 | D1 | 3046.06 | 3045.68 | 0.35 | 3046.38 | 3046.56 | 3047.9 | OK | OK | |
| 141 | D1 | 3048.51 | 3048.13 | 0.35 | 3048.83 | 3049.01 | 3050.3 | OK | OK | |
| 142 | D1 | 3050.97 | 3050.59 | 0.35 | 3051.29 | 3051.47 | 3052.8 | OK | OK | |
| 143 | D1 | 3053.43 | 3053.05 | 0.35 | 3053.75 | 3053.93 | 3055.2 | OK | OK | |
| 144 | D1 | 3055.88 | 3055.50 | 0.35 | 3056.20 | 3056.38 | 3057.7 | OK | OK | |
| 145 | D1 | 3058.34 | 3057.96 | 0.35 | 3058.66 | 3058.84 | 3060.1 | OK | OK | |
| 146 | D1 | 3060.71 | 3060.33 | 0.35 | 3061.03 | 3061.21 | 3062.5 | OK | OK | |
| 147 | D1 | 3062.50 | 3062.12 | 0.35 | 3062.82 | 3063.00 | 3064.3 | OK | OK | |
| 148 | D1 | 3063.63 | 3063.25 | 0.35 | 3063.95 | 3064.13 | 3065.4 | OK | OK | |
| 149 | D1 | 3064.38 | 3064.00 | 0.35 | 3064.70 | 3064.88 | 3066.2 | OK | OK | |
| 150 | D1 | 3064.05 | 3063.67 | 0.35 | 3064.37 | 3064.55 | 3065.9 | OK | OK | |
| 151 | D1 | 3062.57 | 3062.19 | 0.35 | 3062.89 | 3063.07 | 3064.4 | OK | OK | |
| 152 | D1 | 3060.54 | 3060.16 | 0.35 | 3060.86 | 3061.04 | 3062.3 | OK | OK | |
| 153 | D1 | 3057.83 | 3057.45 | 0.35 | 3058.15 | 3058.33 | 3059.6 | OK | OK | |
| 154 | D1 | 3055.38 | 3055.00 | 0.35 | 3055.70 | 3055.88 | 3057.2 | OK | OK | |
| 155 | D1 | 3052.92 | 3052.54 | 0.35 | 3053.24 | 3053.42 | 3054.7 | OK | OK | |
| 156 | D1 | 3050.46 | 3050.08 | 0.35 | 3050.78 | 3050.96 | 3052.3 | OK | OK | |
| 157 | D1 | 3048.01 | 3047.63 | 0.35 | 3048.33 | 3048.51 | 3049.8 | OK | OK | |
| 158 | D1 | 3045.55 | 3045.17 | 0.35 | 3045.87 | 3046.05 | 3047.4 | OK | OK | |
| 159 | D1 | 3043.10 | 3042.72 | 0.35 | 3043.42 | 3043.60 | 3044.9 | OK | OK | |
| 160 | D1 | 3040.64 | 3040.26 | 0.35 | 3040.96 | 3041.14 | 3042.4 | OK | OK | |
| 161 | D1 | 3038.19 | 3037.81 | 0.35 | 3038.51 | 3038.69 | 3040.0 | OK | OK | |
| 162 | D1 | 3035.73 | 3035.35 | 0.35 | 3036.05 | 3036.23 | 3037.5 | OK | OK | |
| 163 | D1 | 3033.28 | 3032.90 | 0.35 | 3033.60 | 3033.78 | 3035.1 | OK | OK | |
| 164 | D1 | 3030.82 | 3030.44 | 0.35 | 3031.14 | 3031.32 | 3032.6 | OK | OK | |
| 165 | D1 | 3028.37 | 3027.99 | 0.35 | 3028.69 | 3028.87 | 3030.2 | OK | OK | |
| 166 | D1 | 3025.93 | 3025.55 | 0.35 | 3026.25 | 3026.43 | 3027.7 | OK | OK | |
| 167 | D1 | 3023.77 | 3023.39 | 0.35 | 3024.09 | 3024.27 | 3025.6 | OK | OK | |
| 168 | D1 | 3021.95 | 3021.57 | 0.35 | 3022.27 | 3022.45 | 3023.9 | OK | OK | |
| 169 | D1 | 3027.11 | 3026.73 | 0.35 | 3027.43 | 3027.61 | 3028.9 | OK | OK | |
| 170 | D1 | 3029.53 | 3029.15 | 0.35 | 3029.85 | 3030.03 | 3031.3 | OK | OK | |
| 171 | D1 | 3032.00 | 3031.62 | 0.35 | 3032.32 | 3032.50 | 3033.8 | OK | OK | |
| 172 | D1 | 3034.47 | 3034.09 | 0.35 | 3034.79 | 3034.97 | 3036.3 | OK | OK | |
| 173 | D1 | 3036.94 | 3036.56 | 0.35 | 3037.26 | 3037.44 | 3038.7 | OK | OK | |
| 174 | D1 | 3039.41 | 3039.03 | 0.35 | 3039.73 | 3039.91 | 3041.2 | OK | OK | |
| 175 | D1 | 3041.88 | 3041.50 | 0.35 | 3042.20 | 3042.38 | 3043.7 | OK | OK | |
| 176 | D1 | 3044.35 | 3043.97 | 0.35 | 3044.67 | 3044.85 | 3046.2 | OK | OK | |
| 177 | D1 | 3046.82 | 3046.44 | 0.35 | 3047.14 | 3047.32 | 3048.6 | OK | OK | |
| 178 | D1 | 3049.29 | 3048.91 | 0.35 | 3049.61 | 3049.79 | 3051.1 | OK | OK | |
| 179 | D1 | 3051.76 | 3051.38 | 0.35 | 3052.08 | 3052.26 | 3053.6 | OK | OK | |
| 180 | D1 | 3054.23 | 3053.85 | 0.35 | 3054.55 | 3054.73 | 3056.0 | OK | OK | |
| 181 | D1 | 3056.70 | 3056.32 | 0.35 | 3057.02 | 3057.20 | 3058.5 | OK | OK | |
| 182 | D1 | 3059.17 | 3058.79 | 0.35 | 3059.49 | 3059.67 | 3061.0 | OK | OK | |
| 183 | D1 | 3061.57 | 3061.19 | 0.35 | 3061.89 | 3062.07 | 3063.4 | OK | OK | |
| 184 | D1 | 3063.46 | 3063.08 | 0.35 | 3063.78 | 3063.96 | 3065.3 | OK | OK | |
| 185 | D1 | 3064.77 | 3064.39 | 0.35 | 3065.09 | 3065.27 | 3066.6 | OK | OK | |
| 186 | D1 | 3065.71 | 3065.33 | 0.35 | 3066.03 | 3066.21 | 3067.5 | OK | OK | |

| BLM 270 PARCEL C-2 & C-3 ADDENDUM<br>FINISHED FLOOR - CITY OF LAS VEGAS JURISDICTION | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| INPUT INFORMATION | | | | | FINISHED FLOORS | | | | | NOTES |
| Lot Number | Hydraulic Section Utilized | T/C[1] (ft) | F/L[2] (ft) | $D_{100}$ (ft) | Flowline $F.F._{\cdot min}$[3] (ft) | T/C + 6" $F.F._{\cdot min}$[4] (ft) | $F.F._{\cdot Design}$ (ft) | Flowline Check | T/C + 6" Check | See References on Last Sheet |
| 187 | D1 | 3065.29 | 3064.91 | 0.35 | 3065.61 | 3065.79 | 3067.0 | OK | OK | |
| 188 | D1 | 3063.88 | 3063.50 | 0.35 | 3064.20 | 3064.38 | 3065.6 | OK | OK | |
| 189 | D1 | 3062.15 | 3061.77 | 0.35 | 3062.47 | 3062.65 | 3063.9 | OK | OK | |
| 190 | D1 | 3059.86 | 3059.48 | 0.35 | 3060.18 | 3060.36 | 3061.6 | OK | OK | |
| 191 | D1 | 3057.39 | 3057.01 | 0.35 | 3057.71 | 3057.89 | 3059.1 | OK | OK | |
| 192 | D1 | 3054.92 | 3054.54 | 0.35 | 3055.24 | 3055.42 | 3056.6 | OK | OK | |
| 193 | D1 | 3052.45 | 3052.07 | 0.35 | 3052.77 | 3052.95 | 3054.2 | OK | OK | |
| 194 | D1 | 3049.98 | 3049.60 | 0.35 | 3050.30 | 3050.48 | 3051.7 | OK | OK | |
| 195 | D1 | 3047.51 | 3047.13 | 0.35 | 3047.83 | 3048.01 | 3049.2 | OK | OK | |
| 196 | D1 | 3045.04 | 3044.66 | 0.35 | 3045.36 | 3045.54 | 3046.7 | OK | OK | |
| 197 | D1 | 3042.57 | 3042.19 | 0.35 | 3042.89 | 3043.07 | 3044.3 | OK | OK | |
| 198 | D1 | 3040.10 | 3039.72 | 0.35 | 3040.42 | 3040.60 | 3041.8 | OK | OK | |
| 199 | D1 | 3037.63 | 3037.25 | 0.35 | 3037.95 | 3038.13 | 3039.3 | OK | OK | |
| 200 | D1 | 3035.16 | 3034.78 | 0.35 | 3035.48 | 3035.66 | 3036.9 | OK | OK | |
| 201 | D1 | 3032.69 | 3032.31 | 0.35 | 3033.01 | 3033.19 | 3034.4 | OK | OK | |
| 202 | D1 | 3033.58 | 3033.20 | 0.35 | 3033.90 | 3034.08 | 3035.2 | OK | OK | |
| 203 | B1 | 3033.66 | 3033.28 | 0.26 | 3033.80 | 3034.16 | 3035.6 | OK | OK | |
| 204 | B1 | 3036.53 | 3036.15 | 0.26 | 3036.67 | 3037.03 | 3038.4 | OK | OK | |
| 205 | B1 | 3039.58 | 3039.20 | 0.26 | 3039.72 | 3040.08 | 3041.5 | OK | OK | |
| 206 | B1 | 3041.93 | 3041.55 | 0.26 | 3042.07 | 3042.43 | 3043.7 | OK | OK | |
| 207 | B1 | 3044.29 | 3043.91 | 0.26 | 3044.43 | 3044.79 | 3046.1 | OK | OK | |
| 208 | B1 | 3046.64 | 3046.26 | 0.26 | 3046.78 | 3047.14 | 3048.4 | OK | OK | |
| 209 | B1 | 3049.00 | 3048.62 | 0.26 | 3049.14 | 3049.50 | 3050.8 | OK | OK | |
| 210 | B1 | 3051.35 | 3050.97 | 0.26 | 3051.49 | 3051.85 | 3053.2 | OK | OK | |
| 211 | B1 | 3056.04 | 3055.66 | 0.26 | 3056.18 | 3056.54 | 3057.8 | OK | OK | |
| 212 | B1 | 3058.40 | 3058.02 | 0.26 | 3058.54 | 3058.90 | 3060.2 | OK | OK | |
| 213 | B1 | 3060.66 | 3060.28 | 0.26 | 3060.80 | 3061.16 | 3062.5 | OK | OK | |
| 214 | B1 | 3062.59 | 3062.21 | 0.26 | 3062.73 | 3063.09 | 3064.4 | OK | OK | |
| 215 | B1 | 3064.17 | 3063.79 | 0.26 | 3064.31 | 3064.67 | 3066.0 | OK | OK | |
| 216 | B1 | 3065.04 | 3064.66 | 0.26 | 3065.18 | 3065.54 | 3066.8 | OK | OK | |
| 217 | B1 | 3066.73 | 3066.35 | 0.26 | 3066.87 | 3067.23 | 3068.5 | OK | OK | |
| 218 | B1 | 3067.01 | 3066.63 | 0.26 | 3067.15 | 3067.51 | 3068.8 | OK | OK | |
| 219 | B1 | 3067.01 | 3066.63 | 0.26 | 3067.15 | 3067.51 | 3069.0 | OK | OK | |
| 220 | E1 | 3066.94 | 3066.56 | 0.4 | 3067.36 | 3067.44 | 3068.8 | OK | OK | |
| 221 | E1 | 3066.70 | 3066.32 | 0.4 | 3067.12 | 3067.20 | 3068.6 | OK | OK | |
| 222 | E1 | 3066.46 | 3066.08 | 0.4 | 3066.88 | 3066.96 | 3068.3 | OK | OK | |
| 223 | E1 | 3066.22 | 3065.84 | 0.4 | 3066.64 | 3066.72 | 3068.1 | OK | OK | |
| 224 | E1 | 3065.98 | 3065.60 | 0.4 | 3066.40 | 3066.48 | 3067.8 | OK | OK | |
| 225 | E1 | 3065.74 | 3065.36 | 0.4 | 3066.16 | 3066.24 | 3067.6 | OK | OK | |
| 226 | E1 | 3065.50 | 3065.12 | 0.4 | 3065.92 | 3066.00 | 3067.4 | OK | OK | |
| 227 | E1 | 3065.26 | 3064.88 | 0.4 | 3065.68 | 3065.76 | 3067.1 | OK | OK | |
| 228 | E1 | 3065.02 | 3064.64 | 0.4 | 3065.44 | 3065.52 | 3066.9 | OK | OK | |
| 229 | E1 | 3064.78 | 3064.40 | 0.4 | 3065.20 | 3065.28 | 3066.6 | OK | OK | |
| 230 | E1 | 3064.54 | 3064.16 | 0.4 | 3064.96 | 3065.04 | 3066.4 | OK | OK | |
| 231 | E1 | 3064.30 | 3063.92 | 0.4 | 3064.72 | 3064.80 | 3066.2 | OK | OK | |
| 232 | E1 | 3064.07 | 3063.69 | 0.4 | 3064.49 | 3064.57 | 3065.9 | OK | OK | |
| 233 | E1 | 3063.83 | 3063.45 | 0.4 | 3064.25 | 3064.33 | 3065.7 | OK | OK | |
| 234 | E1 | 3063.59 | 3063.21 | 0.4 | 3064.01 | 3064.09 | 3065.4 | OK | OK | |
| 235 | E1 | 3063.22 | 3062.84 | 0.4 | 3063.64 | 3063.72 | 3065.0 | OK | OK | |
| 236 | E1 | 3062.82 | 3062.44 | 0.4 | 3063.24 | 3063.32 | 3064.6 | OK | OK | |
| 237 | E1 | 3062.42 | 3062.04 | 0.4 | 3062.84 | 3062.92 | 3064.2 | OK | OK | |
| 238 | E1 | 3062.02 | 3061.64 | 0.4 | 3062.44 | 3062.52 | 3063.8 | OK | OK | |
| 239 | E1 | 3061.62 | 3061.24 | 0.4 | 3062.04 | 3062.12 | 3063.4 | OK | OK | |
| 240 | E1 | 3061.22 | 3060.84 | 0.4 | 3061.64 | 3061.72 | 3063.0 | OK | OK | |
| 241 | F1 | 3060.82 | 3060.44 | 0.36 | 3061.16 | 3061.32 | 3062.6 | OK | OK | |
| 242 | F1 | 3060.42 | 3060.04 | 0.36 | 3060.76 | 3060.92 | 3062.2 | OK | OK | |
| 243 | F1 | 3060.02 | 3059.64 | 0.36 | 3060.36 | 3060.52 | 3061.8 | OK | OK | |
| 244 | F1 | 3059.62 | 3059.24 | 0.36 | 3059.96 | 3060.12 | 3061.4 | OK | OK | |
| 245 | F1 | 3059.22 | 3058.84 | 0.36 | 3059.56 | 3059.72 | 3061.0 | OK | OK | |
| 246 | F1 | 3058.84 | 3058.46 | 0.36 | 3059.18 | 3059.34 | 3060.6 | OK | OK | |
| 247 | F1 | 3058.81 | 3058.43 | 0.36 | 3059.15 | 3059.31 | 3060.7 | OK | OK | |
| 248 | F1 | 3059.68 | 3059.30 | 0.36 | 3060.02 | 3060.18 | 3061.6 | OK | OK | |

## BLM 270 PARCEL C-2 & C-3 ADDENDUM
## FINISHED FLOOR - CITY OF LAS VEGAS JURISDICTION

| INPUT INFORMATION | | | | | FINISHED FLOORS | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|
| Lot Number | Hydraulic Section Utilized | T/C[1] (ft) | F/L[2] (ft) | $D_{100}$ (ft) | Flowline $F.F._{\cdot min}$[3] (ft) | T/C + 6" $F.F._{\cdot min}$[4] (ft) | $F.F._{\cdot Design}$ (ft) | Flowline Check | T/C + 6" Check | See References on Last Sheet |
| 249 | F1 | 3060.35 | 3059.97 | 0.36 | 3060.69 | 3060.85 | 3062.3 | OK | OK | |
| 250 | F1 | 3060.35 | 3059.97 | 0.36 | 3060.69 | 3060.85 | 3062.3 | OK | OK | |
| | | | | | | | | | | |

**Where:**

1: Top of Curb at High Side of Lot

2: TC-0.38 ( For Roll Curb), TC-0.5 (For L Curb)

3: Minimum Allowable Finished Floor Elevation above flowline elevation @ high side of lot = ( 2 x $D_{100}$) + F/L

4: City of Las Vegas minimum allowable finished floor elevation = T.C. @ high side of lot + 6-inches

5: These lots have an adjacent solid grouted wall that protects the FF.

**City of Las Vegas Finished Floor Criteria:**

*-The finished floor shall be set a vertical distance above the gutter flowline of at least twice the depth of flow in the gutter flowline up to a maximum of 18 inches above the WSEL in the street. Per HCDDM, Section 304.4.*

*-The finished floor shall be set a vertical distance of at least 6-inches above the highest adjacent top of curb. Per HCDDM, Section 1602.*

## Supplemental Finish Floor Checks

**Adjacent/Perimeter Street Check**

| Lot Number | Street | High TC[1] | High FL[2] | Section | Flow Depth[3] | Min FF[4] | Design FF | Check | Solid Grout |
|---|---|---|---|---|---|---|---|---|---|
| 44 | MARJORAM ST. | 3060.35 | 3059.97 | F1 | 0.36 | 3060.69 | 3059.4 | CHECK | Yes |
| 45 | MARJORAM ST. | 3059.79 | 3059.41 | F1 | 0.36 | 3060.13 | 3059.4 | CHECK | Yes |
| 62 | SWEET BAY ST. | 3014.16 | 3013.78 | D3 | 0.37 | 3014.52 | 3016.4 | OK | No |
| 63 | SWEET BAY ST. | 3015.84 | 3015.46 | D2 | 0.50 | 3016.46 | 3020.3 | OK | No |
| 79 | MARJORAM ST. | 3060.65 | 3060.27 | F1 | 0.36 | 3060.99 | 3061.9 | OK | No |
| 80 | MARJORAM ST. | 3062.28 | 3061.90 | D1 | 0.35 | 3062.60 | 3062.2 | CHECK | Yes |
| 96 | SWEET BAY ST. | 3017.69 | 3017.31 | D2 | 0.50 | 3018.31 | 3020.4 | OK | No |
| 97 | SWEET BAY ST. | 3018.23 | 3017.85 | C4 | 0.80 | 3019.45 | 3022.3 | OK | No |
| 113 | MARJORAM ST. | 3063.19 | 3062.81 | E1 | 0.40 | 3063.61 | 3064.9 | OK | No |
| 114 | MARJORAM ST. | 3064.28 | 3063.90 | E1 | 0.40 | 3064.70 | 3064.6 | CHECK | Yes |
| 129 | SWEET BAY ST. | 3019.47 | 3019.09 | C3 | 0.71 | 3020.51 | 3022.5 | OK | No |
| 130 | SWEET BAY ST. | 3020.11 | 3019.73 | C3 | 0.71 | 3021.15 | 3024.0 | OK | No |
| 149 | MARJORAM ST. | 3064.78 | 3064.40 | E1 | 0.40 | 3065.20 | 3066.2 | OK | No |
| 150 | MARJORAM ST. | 3065.67 | 3065.29 | E1 | 0.40 | 3066.09 | 3065.9 | CHECK | Yes |
| 168 | SWEET BAY ST. | 3021.69 | 3021.31 | C2 | 0.62 | 3022.55 | 3023.9 | OK | No |
| 169 | SWEET BAY ST. | 3022.70 | 3022.32 | C2 | 0.62 | 3023.56 | 3028.9 | OK | No |
| 187 | MARJORAM ST. | 3066.19 | 3065.81 | E1 | 0.40 | 3066.61 | 3067.0 | OK | No |
| 188 | MARJORAM ST. | 3067.02 | 3066.64 | E1 | 0.40 | 3067.44 | 3065.6 | CHECK | Yes |
| 217 | MARJORAM ST. | 3067.02 | 3066.64 | B1 | 0.26 | 3067.16 | 3068.5 | OK | No |

1: High TC is the elevation at the high side of the adjacent perimeter street

2: 0.38-ft is subtracted from the High TC to obain the High FL elevation

3: Flow depth is the normal depth in adjacent perimeter street

4: Min FF is the High FL plus twice the depth of flow.

* Lot is adjacent to high point and does not require solid grouting

**Specific Energy Check**

| Lot Number | High TC[1] | High FL[2] | Section | Specific Energy[3] | Min FF[4] | Design FF | Check |
|---|---|---|---|---|---|---|---|
| 4 | 3023.49 | 3023.11 | D1 | 0.71 | 3023.82 | 3025.40 | OK |
| 9 | 3020.97 | 3020.59 | D1 | 0.71 | 3021.30 | 3022.90 | OK |
| 10 | 3020.48 | 3020.10 | D1 | 0.71 | 3020.81 | 3022.40 | OK |
| 14 | 3018.78 | 3018.40 | D1 | 0.71 | 3019.11 | 3020.70 | OK |
| 15 | 3018.42 | 3018.04 | D1 | 0.71 | 3018.75 | 3020.30 | OK |
| 19 | 3017.01 | 3016.63 | D1 | 0.71 | 3017.34 | 3018.90 | OK |
| 20 | 3016.39 | 3016.01 | D1 | 0.71 | 3016.72 | 3018.30 | OK |
| | | | | | | | |

1: High TC is the elevation at the high side of the adjacent perimeter street

2: 0.38-ft is subtracted from the High TC to obain the High FL elevation

3: Specific energy depth is taken from FlowMaster calculation for street directing flow toward lot.

4: Min FF is the High FL plus the specific energy depth.

## Emergency Overflow Finish Floor Checks

**Adjacent/Perimeter Street Check - Emergency Overflow**

| Lot Number | Street | High TC[1] | High FL[2] | Section | Flow Depth[3] | Min FF[4] | Design FF | Check | Solid Grout |
|---|---|---|---|---|---|---|---|---|---|
| 23 | CHIPOTLE AVE. | 3008.74 | 3008.36 | EO1 | 0.48 | 3008.84 | 3015.2 | OK | No |
| | | | | | | | | | |

1: High TC is the elevation at the high side of the adjacent perimeter street.

2: 0.38-ft is subtracted from the High TC to obain the High FL elevation

3: Flow depth is the normal depth of emergency overflow in adjacent perimeter street.

4: Min FF is the High FL plus the depth of emergency overflow.

**Finished Floor Check - Emergency Overflow**

| Lot Number | High TC[1] | High FL[2] | Section | Flow Depth[3] | Min FF[4] | Design FF | Check |
|---|---|---|---|---|---|---|---|
| 24 | 3009.36 | 3008.98 | EO1 | 0.48 | 3009.46 | 3012.30 | OK |
| | | | | | | | |

1: High TC is the elevation at the high side of the lot

2: 0.38-ft is subtracted from the High TC to obain the High FL elevation

3: Flow depth is the normal depth of the emergency overflow in adjacent street.

4: Min FF is the High FL plus the depth of emergency overflow.

# APPENDIX E

Drop Inlet & Storm Drain Computations

# Drop Inlet Computations

# Curb Inlet Sizing Computation

| | |
|---|---|
| **Project Name & Number:** | **BZR2001: BLM270 PARCEL C-2 & C-3** |
| **Date:** | **12/8/2020** |
| **By:** | **CAA** |

Westwood

| | | | |
|---|---|---|---|
| | **Notes:** | | |
| | Facility ID: | Facilities PC1 & PC2 | |
| | Drainage Condition: | Ultimate | |
| | Source of Flow: | Q100 = ON3(A+B+C1+C2) | |
| | Inlet Type: | Type CM2 (Continuous Grade) | |
| | Inlet Length: | 20.-ft | |
| | Number of Grates | 7 | |
| | | | |
| | **Input:** | **Variable:** | **Input:** |
| | Street Flow (cfs) | Q | 48.5 |
| | Longitudinal Slope (ft/ft) | $S_o$ | 0.0070 |
| | Manning's Coefficient | n | 0.016 |
| | Street Flow Velocity (fps) | V | 5.03 |
| | Street Flow Depth (ft) | D | 0.80 |
| | Street Cross Slope (ft/ft) | $S_x$ | 0.02 |
| | Grate Width (ft) | W | 1.5 |
| | Grate Depression (in) | $D_g$ | 2.0 |
| | Length of Grate (ft) | $L_g$ | 17.25 |
| | Length of Curb Opening (ft) | $L_c$ | 19.50 |
| | Clogging Factor - Grate (%) | $CF_g$ | 50% |
| | Clogging Factor - Curb (%) | $CF_c$ | 50% |
| | Effective Grate Length (ft) | $L_{ge}$ | 8.6 |
| | Effective Curb Opening Length (ft) | $L_{ce}$ | 9.75 |
| | | | |
| | **Output (Grate):** | **Equation:** | **Output (Grate):** |
| [1] | $R_f$ - Frontal Flow Factor | 1-0.09*(V-$V_x$) if V>$V_x$; else Frontal Flow Factor=1 | 1.00 |
| [2] | $V_o$ - Splash Over Velocity (fps) | $V_x$=p+q*Lg-r*$L_{ge}$^2+sy*$L_{ge}$^3 ; where | 40.92 |
| | | p=0.30,q=4.85,r=1.31,sy=0.15 (for Vane Grate) | |
| [1] | E - Grate Flow Ratio | Frontal Flow/Side Flow | 0.12 |
| [2] | $Q_w$ - Frontal Flow (cfs) | $Q_w = Q[1-(1-(W/T))^{2.67}]$ | 5.89 |
| [1] | $Q_s$ - Side Flow (cfs) | $Q_s$ = Q-Qw | 42.6 |
| | T - Side Flow Spread (ft) | $(D-D_g)/S_x$ | 31.67 |
| [1] | $R_s$ - Side Flow Factor | $1/(1+(0.15*V^{1.8})/(S_x*L_{ge}^{2.3}))$ | 0.51 |
| [1] | $Q_{gi}$ - Intercepted Flow (cfs) | $(R_f*E+R_s*(1-E))*Q$ | 27.5 |
| | | | |
| | **Output (Curb):** | **Equation:** | **Output (Curb):** |
| [1] | $S_e$ - Equivalent Cross Slope (ft/ft) | $S_x+S_g*E$ | 0.034 |
| | $Q_{sx}$ - Remaining Flow After Grate Interception (cfs) | $Q-Q_{gi}$ | 20.951 |
| | $S_g$ - Gutter Cross Slope (ft/ft) | $D_g/W$ | 0.111 |
| [1] | $L_t$ - Effective Interception Length (ft) | $0.60*Q_{sx}^{0.42}*S_o^{0.30}*(1/n*S_e)^{0.6}$ | 44.57 |
| [1] | $Q_{ci}$ - Intercepted Flow (cfs) | $(1-(1-L_{ce}/L_t)^{1.8})*Q_{sx}$ | 7.5 |
| | | or $Q_{sx}$ if $L_t$ is less than $L_{ce}$ | |
| | | | |
| | **Output (Combination):** | **Equation:** | **Output (Combination):** |
| | Total Intercepted Flow (cfs) | Intercepted (Grate) + Intercepted (Curb) | **35.0** |
| | | | |
| | Bypass Flow (cfs) | Street Flow - Total Intercepted Flow | **13.5** |

[1] Formula referenced from the CCRFCD Manual

[2] Formula referenced from FHWA Urban Drainage Design Manual (HEC-22)

# Curb Inlet Sizing Computation

| | |
|---|---|
| **Project Name & Number:** | **BZR2001: BLM270 PARCEL C-2 & C-3** |
| **Date:** | **12/8/2020** |
| **By:** | **CAA** |

Westwood

| | | | |
|---|---|---|---|
| | **Notes:** | | |
| | Facility ID: | Facilities PC3 | |
| | Drainage Condition: | Ultimate | |
| | Source of Flow: | Q100 = Half of (Bypass of Facility PC1 & PC2 + ON3(D)) | |
| | Inlet Type: | Type CM2 (Continuous Grade) | |
| | Inlet Length: | 20.-ft | |
| | Number of Grates | 7 | |
| | | | |
| | **Input:** | **Variable:** | **Input:** |
| | Street Flow (cfs) | Q | 22.5 |
| | Longitudinal Slope (ft/ft) | $S_o$ | 0.0219 |
| | Manning's Coefficient | n | 0.016 |
| | Street Flow Velocity (fps) | V | 5.25 |
| | Street Flow Depth (ft) | D | 0.50 |
| | Street Cross Slope (ft/ft) | $S_x$ | 0.02 |
| | Grate Width (ft) | W | 1.5 |
| | Grate Depression (in) | $D_g$ | 2.0 |
| | Length of Grate (ft) | $L_g$ | 17.25 |
| | Length of Curb Opening (ft) | $L_c$ | 19.50 |
| | Clogging Factor - Grate (%) | $CF_g$ | 50% |
| | Clogging Factor - Curb (%) | $CF_c$ | 50% |
| | Effective Grate Length (ft) | $L_{ge}$ | 8.6 |
| | Effective Curb Opening Length (ft) | $L_{ce}$ | 9.75 |
| | | | |
| | **Output (Grate):** | **Equation:** | **Output (Grate):** |
| [1] | $R_f$ - Frontal Flow Factor | 1-0.09*(V-$V_x$) if V>$V_x$; else Frontal Flow Factor=1 | 1.00 |
| [2] | $V_o$ - Splash Over Velocity (fps) | $V_x$=p+q*Lg-r*$L_{ge}$^2+sy*$L_{ge}$^3 ; where | 40.92 |
| | | p=0.30,q=4.85,r=1.31,sy=0.15 (for Vane Grate) | |
| [1] | E - Grate Flow Ratio | Frontal Flow/Side Flow | 0.22 |
| [2] | $Q_w$ - Frontal Flow (cfs) | $Q_w = Q[1-(1-(W/T))^{2.67}]$ | 5.01 |
| [1] | $Q_s$ - Side Flow (cfs) | $Q_s$ = Q-Qw | 17.5 |
| | T - Side Flow Spread (ft) | $(D-D_g)/S_x$ | 16.67 |
| [1] | $R_s$ - Side Flow Factor | $1/(1+(0.15*V^{1.8})/(S_x*L_{ge}^{2.3}))$ | 0.49 |
| [1] | $Q_{gi}$ - Intercepted Flow (cfs) | $(R_f*E+R_s*(1-E))*Q$ | 13.6 |
| | | | |
| | **Output (Curb):** | **Equation:** | **Output (Curb):** |
| [1] | $S_e$ - Equivalent Cross Slope (ft/ft) | $S_x+S_g*E$ | 0.045 |
| | $Q_{sx}$ - Remaining Flow After Grate Interception (cfs) | $Q-Q_{gi}$ | 8.938 |
| | $S_g$ - Gutter Cross Slope (ft/ft) | $D_g/W$ | 0.111 |
| [1] | $L_t$ - Effective Interception Length (ft) | $0.60*Q_{sx}^{0.42}*S_o^{0.30}*(1/n*S_e)^{0.6}$ | 36.89 |
| [1] | $Q_{ci}$ - Intercepted Flow (cfs) | $(1-(1-L_{ce}/L_t)^{1.8})*Q_{sx}$ | 3.8 |
| | | or $Q_{sx}$ if $L_t$ is less than $L_{ce}$ | |
| | | | |
| | **Output (Combination):** | **Equation:** | **Output (Combination):** |
| | Total Intercepted Flow (cfs) | Intercepted (Grate) + Intercepted (Curb) | **17.0** |
| | | | |
| | Bypass Flow (cfs) | Street Flow - Total Intercepted Flow | **5.5** |

[1] Formula referenced from the CCRFCD Manual

[2] Formula referenced from FHWA Urban Drainage Design Manual (HEC-22)

# Curb Inlet Sizing Computation

| | |
|---|---|
| **Project Name & Number:** | **BZR2001: BLM270 PARCEL C-2 & C-3** |
| **Date:** | **12/8/2020** |
| **By:** | **CAA** |

Westwood

| | | | |
|---|---|---|---|
| | **Notes:** | | |
| | Facility ID: | Facilities PC4 | |
| | Drainage Condition: | Ultimate | |
| | Source of Flow: | Q100 = Half of (Bypass of Facility PC1 & PC2 + ON3(D)) | |
| | Inlet Type: | Type CM2 (Continuous Grade) | |
| | Inlet Length: | 15.-ft | |
| | Number of Grates | 5 | |
| | | | |
| | **Input:** | **Variable:** | **Input:** |
| | Street Flow (cfs) | Q | 22.5 |
| | Longitudinal Slope (ft/ft) | $S_o$ | 0.0219 |
| | Manning's Coefficient | n | 0.016 |
| | Street Flow Velocity (fps) | V | 5.25 |
| | Street Flow Depth (ft) | D | 0.50 |
| | Street Cross Slope (ft/ft) | $S_x$ | 0.02 |
| | Grate Width (ft) | W | 1.5 |
| | Grate Depression (in) | $D_g$ | 2.0 |
| | Length of Grate (ft) | $L_g$ | 12.25 |
| | Length of Curb Opening (ft) | $L_c$ | 14.50 |
| | Clogging Factor - Grate (%) | $CF_g$ | 50% |
| | Clogging Factor - Curb (%) | $CF_c$ | 50% |
| | Effective Grate Length (ft) | $L_{ge}$ | 6.1 |
| | Effective Curb Opening Length (ft) | $L_{ce}$ | 7.25 |
| | | | |
| | **Output (Grate):** | **Equation:** | **Output (Grate):** |
| [1] | $R_f$ - Frontal Flow Factor | 1-0.09*(V-$V_x$) if V>$V_x$; else Frontal Flow Factor=1 | 1.00 |
| [2] | $V_o$ - Splash Over Velocity (fps) | $V_x$=p+q*Lg-r*$L_{ge}$^2+sy*$L_{ge}$^3 ; where | 15.33 |
| | | p=0.30,q=4.85,r=1.31,sy=0.15 (for Vane Grate) | |
| [1] | E - Grate Flow Ratio | Frontal Flow/Side Flow | 0.22 |
| [2] | $Q_w$ - Frontal Flow (cfs) | $Q_w = Q[1-(1-(W/T))^{2.67}]$ | 5.01 |
| [1] | $Q_s$ - Side Flow (cfs) | $Q_s$ = Q-Qw | 17.5 |
| | T - Side Flow Spread (ft) | $(D-D_g)/S_x$ | 16.67 |
| [1] | $R_s$ - Side Flow Factor | $1/(1+(0.15*V^{1.8})/(S_x*L_{ge}^{2.3}))$ | 0.30 |
| [1] | $Q_{gi}$ - Intercepted Flow (cfs) | $(R_f*E+R_s*(1-E))*Q$ | 10.3 |
| | | | |
| | **Output (Curb):** | **Equation:** | **Output (Curb):** |
| [1] | $S_e$ - Equivalent Cross Slope (ft/ft) | $S_x+S_g*E$ | 0.045 |
| | $Q_{sx}$ - Remaining Flow After Grate Interception (cfs) | $Q-Q_{gi}$ | 12.185 |
| | $S_g$ - Gutter Cross Slope (ft/ft) | $D_g/W$ | 0.111 |
| [1] | $L_t$ - Effective Interception Length (ft) | $0.60*Q_{sx}^{0.42}*S_o^{0.30}*(1/n*S_e)^{0.6}$ | 42.02 |
| [1] | $Q_{ci}$ - Intercepted Flow (cfs) | $(1-(1-L_{ce}/L_t)^{1.8})*Q_{sx}$ | 3.5 |
| | | or $Q_{sx}$ if $L_t$ is less than $L_{ce}$ | |
| | | | |
| | **Output (Combination):** | **Equation:** | **Output (Combination):** |
| | Total Intercepted Flow (cfs) | Intercepted (Grate) + Intercepted (Curb) | **14.0** |
| | | | |
| | Bypass Flow (cfs) | Street Flow - Total Intercepted Flow | **8.5** |

[1] Formula referenced from the CCRFCD Manual

[2] Formula referenced from FHWA Urban Drainage Design Manual (HEC-22)

# Curb Inlet Sizing Computation

| | | |
|---|---|---|
| **Project Name & Number:** | **BZR2001: BLM270 PARCEL C-2 & C-3** | Westwood |
| **Date:** | **12/8/2020** | |
| **By:** | **CAA** | |

| | | |
|---|---|---|
| **Notes:** | | |
| Facility ID: | Facilities PC5 | |
| Drainage Condition | Ultimate | |
| Source of Flow | Q100 = ON3(A+B+C+D+E+F) - Facility PC6.1 | |
| Design Flow (cfs) | Q=145-108=37 | |
| Inlet Type: | Type CM2 (Sump) | |
| Inlet Length: | 20.-ft | |
| Number of Grates: | 7 | |
| | | |
| **Input:** | **Variable:** | **Input:** |
| Depth at Inlet (ft) | D | 0.65 |
| Grate Width (ft) | W | 1.50 |
| Length of Grate (ft) | $L_g$ | 17.25 |
| Length of Curb Opening (ft) | $L_c$ | 19.50 |
| Height of Curb Opening (ft) | H | 0.50 |
| Weir Coef. - Curb Opening | $W_c$ | 2.3 |
| Weir Coef. - Grate | $W_g$ | 3.0 |
| Orifice Coef. | $O_c$ | 0.67 |
| Grate Coef. | $G_c$ | 0.60 |
| Clogging Factor - Grate (%) | $CF_g$ | 50 |
| Clogging Factor - Curb (%) | $CF_c$ | 50 |
| | | |
| **Output (Grate):** | **Equation:** | **Output (Grate):** |
| Effective Weir Length (ft) | $2*W+L_g$ | 20.25 |
| Adjusted Effective Weir Length (ft) | $2*(1-CF_g/100)*W+(1-CF_g/100)*L_g$ | 10.13 |
| Grate Open Area (sf) | $W*L_g$ | 25.88 |
| Adjusted Grate Open Area (sf) | Grate Open Area * $G_c*(1-CF_g/100)$ | 7.76 |
| Controlling Flow Type (weir/orifice) | If D<1.792*(Adj. Grate Open Area/Adj. Eff. Length) | weir |
| | use weir, else orifice | |
| Intercepted Flow (cfs) | weir: $W_g*(\text{Adj. Eff. Weir Length})*D^{1.5}$ | 15.9 |
| | orifice: $O_c*(\text{Adj. Grate Open Area})*(64.4*D)^{0.5}$ | |
| | | |
| **Output (Curb):** | **Equation:** | **Output (Curb):** |
| Effective Weir Length (ft) | L+1.8*W | 22.20 |
| Adjusted Effective Weir Length (ft) | $L+1.8(1-CF_c/100)*W$ | 20.91 |
| Curb Open Area (sf) | L*H | 9.75 |
| Adjusted Curb Open Area (sf) | Curb Open Area * $(1-CF_c/100)$ | 4.88 |
| Controlling Flow Type (weir/orifice) | If D<H, weir, else orifice | orifice |
| Intercepted Flow (cfs) | weir: $W_c*(\text{Adj. Eff. Weir Length})*D^{1.5}$ | 21.07 |
| | orifice: $O_c*(\text{Adj. Curb Open Area})*(64.4*(D-H/2))^{0.5}$ | |
| | | |
| **Output (Total):** | **Equation:** | **Output (Total):** |
| Capacity Intercepted Flow (cfs) | Intercepted (Grate) + Intercepted (Curb) | **37.0** |

# Curb Inlet Sizing Computation

| | |
|---|---|
| **Project Name & Number:** | **BZR2001: BLM270 PARCEL C-2 & C-3** |
| **Date:** | **12/8/2020** |
| **By:** | **CAA** |

Westwood

| | | | |
|---|---|---|---|
| | **Notes:** | | |
| | Facility ID: | Facility PC6 | |
| | Drainage Condition: | Ultimate | |
| | Source of Flow: | Q100 = Half of (ON3(E) + 4/5 of ON3(F)=25.4/2=12.7 | |
| | Inlet Type: | Type CM2 (Continuous Grade) | |
| | Inlet Length: | 10.-ft | |
| | Number of Grates | 3 | |
| | | | |
| | **Input:** | **Variable:** | **Input:** |
| | Street Flow (cfs) | Q | 12.7 |
| | Longitudinal Slope (ft/ft) | $S_o$ | 0.0392 |
| | Manning's Coefficient | n | 0.016 |
| | Street Flow Velocity (fps) | V | 5.20 |
| | Street Flow Depth (ft) | D | 0.40 |
| | Street Cross Slope (ft/ft) | $S_x$ | 0.02 |
| | Grate Width (ft) | W | 1.5 |
| | Grate Depression (in) | $D_g$ | 2.0 |
| | Length of Grate (ft) | $L_g$ | 7.25 |
| | Length of Curb Opening (ft) | $L_c$ | 9.50 |
| | Clogging Factor - Grate (%) | $CF_g$ | 50% |
| | Clogging Factor - Curb (%) | $CF_c$ | 50% |
| | Effective Grate Length (ft) | $L_{ge}$ | 3.6 |
| | Effective Curb Opening Length (ft) | $L_{ce}$ | 4.75 |
| | | | |
| | **Output (Grate):** | **Equation:** | **Output (Grate):** |
| [1] | $R_f$ - Frontal Flow Factor | 1-0.09*(V-$V_x$) if V>$V_x$; else Frontal Flow Factor=1 | 1.00 |
| [2] | $V_o$ - Splash Over Velocity (fps) | $V_x$=p+q*Lg-r*$L_{ge}$^2+sy*$L_{ge}$^3 ; where | 7.81 |
| | | p=0.30,q=4.85,r=1.31,sy=0.15 (for Vane Grate) | |
| [1] | E - Grate Flow Ratio | Frontal Flow/Side Flow | 0.31 |
| [2] | $Q_w$ - Frontal Flow (cfs) | $Q_w = Q[1-(1-(W/T))^{2.67}]$ | 3.91 |
| [1] | $Q_s$ - Side Flow (cfs) | $Q_s$ = Q-Qw | 8.8 |
| | T - Side Flow Spread (ft) | $(D-D_g)/S_x$ | 11.67 |
| [1] | $R_s$ - Side Flow Factor | $1/(1+(0.15*V^{1.8})/(S_x*L_{ge}^{2.3}))$ | 0.12 |
| [1] | $Q_{gi}$ - Intercepted Flow (cfs) | $(R_f*E+R_s*(1-E))*Q$ | 4.9 |
| | | | |
| | **Output (Curb):** | **Equation:** | **Output (Curb):** |
| [1] | $S_e$ - Equivalent Cross Slope (ft/ft) | $S_x+S_g*E$ | 0.054 |
| | $Q_{sx}$ - Remaining Flow After Grate Interception (cfs) | $Q-Q_{gi}$ | 7.765 |
| | $S_g$ - Gutter Cross Slope (ft/ft) | $D_g/W$ | 0.111 |
| [1] | $L_t$ - Effective Interception Length (ft) | $0.60*Q_{sx}^{0.42}*S_o^{0.30}*(1/n*S_e)^{0.6}$ | 36.92 |
| [1] | $Q_{ci}$ - Intercepted Flow (cfs) | $(1-(1-L_{ce}/L_t)^{1.8})*Q_{sx}$ | 1.7 |
| | | or $Q_{sx}$ if $L_t$ is less than $L_{ce}$ | |
| | | | |
| | **Output (Combination):** | **Equation:** | **Output (Combination):** |
| | Total Intercepted Flow (cfs) | Intercepted (Grate) + Intercepted (Curb) | **7.0** |
| | | | |
| | Bypass Flow (cfs) | Street Flow - Total Intercepted Flow | **5.7** |

[1] Formula referenced from the CCRFCD Manual

[2] Formula referenced from FHWA Urban Drainage Design Manual (HEC-22)

# WSPGW Model (MAINC)

## Ultimate Condition WSPG Summary

**Parcel C-2 & C-3 Main Storm Drain (MAINC.WSW): From Facility PC1 Connecting to Existing Facility P11**

| WSPG Station | Storm Drain Dimension | Invert Elevation (ft) | $Q_{100}$ (cfs) | WSE (ft) | Velocity (ft/s) | FG Elevation | Facility Description | HGL Check[1] |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 1 - 'HGL Check' reflects the minimum 1-ft below finished grade. |
| 1000.00 | 54" RCP | 2998.12 | 145.00 | 3000.23 | 19.80 | 3004.93 | Existing 68"x43" HERCP | OK |
| 1097.04 | 54" RCP | 3002.24 | 145.00 | 3004.90 | 14.86 | 3008.13 | Connection to Existing | OK |
| 1099.54 | 54" RCP | 3002.35 | 145.00 | 3005.04 | 14.62 | 3008.13 | | OK |
| 1124.18 | 54" RCP | 3003.12 | 145.00 | 3006.22 | 12.41 | 3009.01 | | OK |
| 1126.68 | 54" RCP | 3003.20 | 145.00 | 3006.40 | 12.00 | 3009.01 | FACILITY PC5 | OK |
| 1129.18 | 42" RCP | 3003.27 | 108.00 | 3005.48 | 16.96 | 3009.01 | | OK |
| 1227.74 | 42" RCP | 3006.21 | 108.00 | 3008.94 | 13.40 | 3011.94 | | OK |
| 1228.16 | 42" RCP | 3006.22 | 108.00 | 3008.96 | 13.37 | 3011.94 | | OK |
| 1228.57 | 42" RCP | 3006.23 | 108.00 | 3008.98 | 13.34 | 3011.94 | FACILITY PC6 | OK |
| 1228.99 | 42" RCP | 3006.24 | 101.00 | 3008.56 | 14.97 | 3011.94 | | OK |
| 1229.41 | 42" RCP | 3006.26 | 101.00 | 3008.57 | 14.95 | 3011.94 | | OK |
| 1229.82 | 42" RCP | 3006.27 | 101.00 | 3008.59 | 14.94 | 3011.94 | | OK |
| 1230.24 | 42" RCP | 3006.28 | 101.00 | 3008.60 | 14.92 | 3011.94 | FACILITY PC4 | OK |
| 1344.52 | 42" RCP | 3008.60 | 101.00 | 3011.68 | 11.26 | 3014.01 | | OK |
| 1347.02 | 42" RCP | 3008.65 | 87.00 | 3012.67 | 9.04 | 3014.01 | | OK |
| 1405.72 | 42" RCP | 3009.70 | 87.00 | 3013.07 | 9.16 | 3015.23 | FACILITY PC3 | OK |
| 1408.22 | 42" RCP | 3009.75 | 70.00 | 3013.80 | 7.28 | 3015.23 | | OK |
| 1539.82 | 42" RCP | 3012.44 | 70.00 | 3014.89 | 9.70 | 3017.65 | | OK |
| 1540.66 | 42" RCP | 3012.45 | 70.00 | 3014.96 | 9.51 | 3017.65 | | OK |
| 1540.66 | 42" RCP | 3012.45 | 70.00 | 3014.96 | 9.51 | 3017.65 | FACILITY PC2 | OK |
| 1541.49 | 42" RCP | 3012.47 | 70.00 | 3015.09 | 9.06 | 3017.65 | | OK |
| 1543.99 | 30" RCP | 3012.51 | 35.00 | 3016.09 | 7.13 | 3017.65 | | OK |
| 1572.35 | 30" RCP | 3012.93 | 35.00 | 3016.29 | 7.13 | 3017.42 | | OK |

```
T1 BZR2001: BLM 270 PARCEL C-2 & C-3
T2 MAIN STORM DRAIN FOR PARCEL C-2 & C-3 (MAINC.WSW)
T3 FROM FACILITY PC1 CONNECTING TO EXISTING FACILITY P11
SO   1000.0002998.120 54                          2999.405
R    1097.0403002.244 54      .013                                    9.0   1
R    1099.5403002.350 54      .013                                    8.0
R    1124.1803003.122 54      .013                                    9.0
R    1126.6803003.200 54      .013                                    8.0
JX   1129.1803003.274 42 30   .013   37.0           3003.200         46.0
R    1227.7403006.206 42      .013                                   15.0
R    1228.1573006.218 42      .013                                   15.0
R    1228.5733006.230 42      .013                                   15.0
JX   1228.9903006.243 42 18   .013    7.0           3007.780         40.0
R    1229.4073006.255 42      .013                                   15.0
R    1229.8233006.268 42      .013                                   15.0
R    1230.2403006.280 42      .013                                   15.0
R    1344.5203008.600 42      .013                                    0.0
JX   1347.0203008.645 42 18   .013   14.0           3008.600         56.0
R    1405.7203009.700 42      .013                                    0.0
JX   1408.2203009.751 42 24   .013   17.0           3009.900         45.0
R    1538.9903012.419 42      .013                                   12.0
R    1539.8233012.436 42      .013                                   12.0
R    1540.6573012.453 42      .013                                   12.0
R    1541.4903012.470 42      .013                                   11.0
JX   1543.9903012.507 30 30   .013   35.0           3012.470         42.0
R    1572.3503012.930 30      .013                                    0.0
SH   1572.3503012.930 30
CD  18  4   1   0.000   1.500    0.000 0.000 0.000  0.0000.00  0.00
CD  24  4   1   0.000   2.000    0.000 0.000 0.000  0.0000.00  0.00
CD  30  4   1   0.000   2.500    0.000 0.000 0.000  0.0000.00  0.00
CD  36  4   1   0.000   3.000    0.000 0.000 0.000  0.0000.00  0.00
CD  42  4   1   0.000   3.500    0.000 0.000 0.000  0.0000.00  0.00
CD  48  4   1   0.000   4.000    0.000 0.000 0.000  0.0000.00  0.00
CD  54  4   1   0.000   4.500    0.000 0.000 0.000  0.0000.00  0.00
Q           35.000
```

WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING

| 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 | 18 | 4 | 1 | | 1.500 | | | | | | | | | | | | | | |
| CD | 24 | 4 | 1 | | 2.000 | | | | | | | | | | | | | | |
| CD | 30 | 4 | 1 | | 2.500 | | | | | | | | | | | | | | |
| CD | 36 | 4 | 1 | | 3.000 | | | | | | | | | | | | | | |
| CD | 42 | 4 | 1 | | 3.500 | | | | | | | | | | | | | | |
| CD | 48 | 4 | 1 | | 4.000 | | | | | | | | | | | | | | |
| CD | 54 | 4 | 1 | | 4.500 | | | | | | | | | | | | | | |



WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -
BZR2001: BLM 270 PARCEL C-2 & C-3
HEADING LINE NO 2 IS -
MAIN STORM DRAIN FOR PARCEL C-2 & C-3 (MAINC.WSW)
HEADING LINE NO 3 IS -
FROM FACILITY PC1 CONNECTING TO EXISTING FACILITY P11



WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 1 IS A SYSTEM OUTLET * * *

| U/S DATA | STATION | INVERT | SECT | W S ELEV |
|---|---|---|---|---|
| | 1000.000 | 2998.120 | 54 | 2999.405 |

ELEMENT NO 2 IS A REACH * * *

| U/S DATA | STATION | INVERT | SECT | N | RADIUS | ANGLE | ANG PT | MAN H |
|---|---|---|---|---|---|---|---|---|
| | 1097.040 | 3002.244 | 54 | .013 | .000 | .000 | 9.000 | 1 |

ELEMENT NO 3 IS A REACH * * *

| U/S DATA | STATION | INVERT | SECT | N | RADIUS | ANGLE | ANG PT | MAN H |
|---|---|---|---|---|---|---|---|---|
| | 1099.540 | 3002.350 | 54 | .013 | .000 | .000 | 8.000 | 0 |

ELEMENT NO 4 IS A REACH * * *

| U/S DATA | STATION | INVERT | SECT | N | RADIUS | ANGLE | ANG PT | MAN H |
|---|---|---|---|---|---|---|---|---|
| | 1124.180 | 3003.122 | 54 | .013 | .000 | .000 | 9.000 | 0 |

ELEMENT NO 5 IS A REACH * * *

| U/S DATA | STATION | INVERT | SECT | N | RADIUS | ANGLE | ANG PT | MAN H |
|---|---|---|---|---|---|---|---|---|
| | 1126.680 | 3003.200 | 54 | .013 | .000 | .000 | 8.000 | 0 |

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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1129.180 | 3003.274 | 42 | 30 | 0 | .013 | 37.000 | .000 | 3003.200 | .000 | 46.000 | .000 |

| RADIUS | ANGLE |
|---|---|
| .000 | .000 |

ELEMENT NO 7 IS A REACH * * *

| U/S DATA | STATION | INVERT | SECT | N | RADIUS | ANGLE | ANG PT | MAN H |
|---|---|---|---|---|---|---|---|---|
| | 1227.740 | 3006.206 | 42 | .013 | .000 | .000 | 15.000 | 0 |

ELEMENT NO 8 IS A REACH * * *

| U/S DATA | STATION | INVERT | SECT | N | RADIUS | ANGLE | ANG PT | MAN H |
|---|---|---|---|---|---|---|---|---|
| | 1228.157 | 3006.218 | 42 | .013 | .000 | .000 | 15.000 | 0 |

ELEMENT NO 9 IS A REACH * * *

| U/S DATA | STATION | INVERT | SECT | N | RADIUS | ANGLE | ANG PT | MAN H |
|---|---|---|---|---|---|---|---|---|
| | 1228.573 | 3006.230 | 42 | .013 | .000 | .000 | 15.000 | 0 |

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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
                            1228.990 3006.243   42    18     0   .013     7.000      .000  3007.780      .000  40.000     .000
                                                                                      RADIUS    ANGLE
                                                                                        .000    .000
                                                 W S P G W                                                    PAGE NO   3
                          WATER SURFACE PROFILE - ELEMENT CARD LISTING
ELEMENT NO  11 IS A REACH             *         *     *
                 U/S DATA   STATION    INVERT  SECT               N                          RADIUS    ANGLE     ANG PT  MAN H
                            1229.407 3006.255   42               .013                          .000     .000    15.000     0
ELEMENT NO  12 IS A REACH             *         *     *
                 U/S DATA   STATION    INVERT  SECT               N                          RADIUS    ANGLE     ANG PT  MAN H
                            1229.823 3006.268   42               .013                          .000     .000    15.000     0
ELEMENT NO  13 IS A REACH             *         *     *
                 U/S DATA   STATION    INVERT  SECT               N                          RADIUS    ANGLE     ANG PT  MAN H
                            1230.240 3006.280   42               .013                          .000     .000    15.000     0
ELEMENT NO  14 IS A REACH             *         *     *
                 U/S DATA   STATION    INVERT  SECT               N                          RADIUS    ANGLE     ANG PT  MAN H
                            1344.520 3008.600   42               .013                          .000     .000      .000     0
ELEMENT NO  15 IS A JUNCTION          *         *     *     *                *                *              *
                 U/S DATA   STATION    INVERT  SECT LAT-1 LAT-2   N      Q3        Q4     INVERT-3 INVERT-4  PHI 3  PHI 4
                            1347.020 3008.645   42    18     0   .013    14.000      .000  3008.600      .000  56.000     .000
                                                                                      RADIUS    ANGLE
                                                                                        .000    .000
ELEMENT NO  16 IS A REACH             *         *     *
                 U/S DATA   STATION    INVERT  SECT               N                          RADIUS    ANGLE     ANG PT  MAN H
                            1405.720 3009.700   42               .013                          .000     .000      .000     0
ELEMENT NO  17 IS A JUNCTION          *         *     *     *                *                *              *
                 U/S DATA   STATION    INVERT  SECT LAT-1 LAT-2   N      Q3        Q4     INVERT-3 INVERT-4  PHI 3  PHI 4
                            1408.220 3009.751   42    24     0   .013    17.000      .000  3009.900      .000  45.000     .000
                                                                                      RADIUS    ANGLE
                                                                                        .000    .000
ELEMENT NO  18 IS A REACH             *         *     *
                 U/S DATA   STATION    INVERT  SECT               N                          RADIUS    ANGLE     ANG PT  MAN H
                            1538.990 3012.419   42               .013                          .000     .000    12.000     0
ELEMENT NO  19 IS A REACH             *         *     *
                 U/S DATA   STATION    INVERT  SECT               N                          RADIUS    ANGLE     ANG PT  MAN H
                            1539.823 3012.436   42               .013                          .000     .000    12.000     0
ELEMENT NO  20 IS A REACH             *         *     *
                 U/S DATA   STATION    INVERT  SECT               N                          RADIUS    ANGLE     ANG PT  MAN H
                            1540.657 3012.453   42               .013                          .000     .000    12.000     0
                                                 W S P G W                                                    PAGE NO   4
                          WATER SURFACE PROFILE - ELEMENT CARD LISTING
ELEMENT NO  21 IS A REACH             *         *     *
                 U/S DATA   STATION    INVERT  SECT               N                          RADIUS    ANGLE     ANG PT  MAN H
                            1541.490 3012.470   42               .013                          .000     .000    11.000     0
ELEMENT NO  22 IS A JUNCTION          *         *     *     *                *                *              *
                 U/S DATA   STATION    INVERT  SECT LAT-1 LAT-2   N      Q3        Q4     INVERT-3 INVERT-4  PHI 3  PHI 4
                            1543.990 3012.507   30    30     0   .013    35.000      .000  3012.470      .000  42.000     .000
                                                                                      RADIUS    ANGLE
                                                                                        .000    .000
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ELEMENT NO  23 IS A REACH            *         *     *
                   U/S DATA   STATION    INVERT  SECT              N                          RADIUS    ANGLE     ANG PT  MAN H
                              1572.350 3012.930   30              .013                           .000     .000      .000     0
ELEMENT NO  24 IS A SYSTEM HEADWORKS                 *                    *
                   U/S DATA   STATION    INVERT  SECT                                 W S ELEV
                              1572.350 3012.930   30                                     .000
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BZR2001: BLM 270 PARCEL C-2 & C-3
MAIN STORM DRAIN FOR PARCEL C-2 & C-3 (MAINC.WSW)
FROM FACILITY PC1 CONNECTING TO EXISTING FACILITY P11

| 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 | 2998.120 | 2.110 | 3000.230 | 145.00 | 19.80 | 6.09 | 3006.32 | .00 | 3.54 | 4.49 | 4.500 | .000 | .00 | 1 .0 |
| .736 | .0425 | | | | | .0271 | .02 | 2.11 | 2.73 | 1.86 | .013 | .00 | .00 | PIPE |
| 1000.736 | 2998.151 | 2.111 | 3000.263 | 145.00 | 19.78 | 6.08 | 3006.34 | .00 | 3.54 | 4.49 | 4.500 | .000 | .00 | 1 .0 |
| 27.726 | .0425 | | | | | .0254 | .71 | 2.11 | 2.73 | 1.86 | .013 | .00 | .00 | PIPE |
| 1028.462 | 2999.330 | 2.191 | 3001.521 | 145.00 | 18.86 | 5.53 | 3007.05 | .00 | 3.54 | 4.50 | 4.500 | .000 | .00 | 1 .0 |
| 20.841 | .0425 | | | | | .0224 | .47 | 2.19 | 2.54 | 1.86 | .013 | .00 | .00 | PIPE |
| 1049.303 | 3000.215 | 2.274 | 3002.490 | 145.00 | 17.99 | 5.02 | 3007.51 | .00 | 3.54 | 4.50 | 4.500 | .000 | .00 | 1 .0 |
| 16.209 | .0425 | | | | | .0197 | .32 | 2.27 | 2.37 | 1.86 | .013 | .00 | .00 | PIPE |
| 1065.512 | 3000.904 | 2.362 | 3003.266 | 145.00 | 17.15 | 4.57 | 3007.83 | .00 | 3.54 | 4.49 | 4.500 | .000 | .00 | 1 .0 |
| 12.870 | .0425 | | | | | .0174 | .22 | 2.36 | 2.20 | 1.86 | .013 | .00 | .00 | PIPE |
| 1078.382 | 3001.451 | 2.454 | 3003.905 | 145.00 | 16.35 | 4.15 | 3008.06 | .00 | 3.54 | 4.48 | 4.500 | .000 | .00 | 1 .0 |
| 10.334 | .0425 | | | | | .0153 | .16 | 2.45 | 2.05 | 1.86 | .013 | .00 | .00 | PIPE |
| 1088.716 | 3001.890 | 2.551 | 3004.441 | 145.00 | 15.59 | 3.77 | 3008.21 | .00 | 3.54 | 4.46 | 4.500 | .000 | .00 | 1 .0 |
| 8.324 | .0425 | | | | | .0136 | .11 | 2.55 | 1.90 | 1.86 | .013 | .00 | .00 | PIPE |
| 1097.040 | 3002.244 | 2.653 | 3004.897 | 145.00 | 14.86 | 3.43 | 3008.33 | .00 | 3.54 | 4.43 | 4.500 | .000 | .00 | 1 .0 |
| 2.500 | .0425 | | | | | .0125 | .03 | 2.65 | 1.76 | 1.86 | .013 | .00 | .00 | PIPE |
| 1099.540 | 3002.350 | 2.689 | 3005.039 | 145.00 | 14.62 | 3.32 | 3008.36 | .00 | 3.54 | 4.41 | 4.500 | .000 | .00 | 1 .0 |
| 4.628 | .0313 | | | | | .0119 | .05 | 2.69 | 1.72 | 2.03 | .013 | .00 | .00 | PIPE |

BZR2001: BLM 270 PARCEL C-2 & C-3
MAIN STORM DRAIN FOR PARCEL C-2 & C-3 (MAINC.WSW)
FROM FACILITY PC1 CONNECTING TO EXISTING FACILITY P11

| 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 |
| 1104.168 | 3002.495 | 2.738 | 3005.233 | 145.00 | 14.31 | 3.18 | 3008.41 | .00 | 3.54 | 4.39 | 4.500 | .000 | .00 | 1 .0 |
| 8.607 | .0313 | | | | | .0109 | .09 | 2.74 | 1.66 | 2.03 | .013 | .00 | .00 | PIPE |
| 1112.775 | 3002.765 | 2.851 | 3005.616 | 145.00 | 13.65 | 2.89 | 3008.51 | .00 | 3.54 | 4.34 | 4.500 | .000 | .00 | 1 .0 |
| 6.568 | .0313 | | | | | .0097 | .06 | 2.85 | 1.54 | 2.03 | .013 | .00 | .00 | PIPE |
| 1119.343 | 3002.970 | 2.972 | 3005.942 | 145.00 | 13.01 | 2.63 | 3008.57 | .00 | 3.54 | 4.26 | 4.500 | .000 | .00 | 1 .0 |
| 4.837 | .0313 | | | | | .0086 | .04 | 2.97 | 1.42 | 2.03 | .013 | .00 | .00 | PIPE |
| 1124.180 | 3003.122 | 3.101 | 3006.223 | 145.00 | 12.41 | 2.39 | 3008.61 | .00 | 3.54 | 4.17 | 4.500 | .000 | .00 | 1 .0 |
| 2.500 | .0312 | | | | | .0078 | .02 | 3.10 | 1.31 | 2.03 | .013 | .00 | .00 | PIPE |
| 1126.680 | 3003.200 | 3.197 | 3006.397 | 145.00 | 12.00 | 2.24 | 3008.63 | .00 | 3.54 | 4.08 | 4.500 | .000 | .00 | 1 .0 |
| JUNCT STR | .0296 | | | | | .0148 | .04 | 3.20 | 1.23 | | .013 | .00 | .00 | PIPE |
| 1129.180 | 3003.274 | 2.200 | 3005.475 | 108.00 | 16.96 | 4.46 | 3009.94 | .00 | 3.15 | 3.38 | 3.500 | .000 | .00 | 1 .0 |
| 33.810 | .0297 | | | | | .0210 | .71 | 2.20 | 2.18 | 2.00 | .013 | .00 | .00 | PIPE |
| 1162.990 | 3004.280 | 2.287 | 3006.567 | 108.00 | 16.21 | 4.08 | 3010.65 | .00 | 3.15 | 3.33 | 3.500 | .000 | .00 | 1 .0 |
| 24.758 | .0297 | | | | | .0187 | .46 | 2.29 | 2.02 | 2.00 | .013 | .00 | .00 | PIPE |
| 1187.749 | 3005.017 | 2.386 | 3007.402 | 108.00 | 15.46 | 3.71 | 3011.11 | .00 | 3.15 | 3.26 | 3.500 | .000 | .00 | 1 .0 |
| 17.721 | .0297 | | | | | .0167 | .30 | 2.39 | 1.86 | 2.00 | .013 | .00 | .00 | PIPE |
| 1205.470 | 3005.544 | 2.492 | 3008.035 | 108.00 | 14.74 | 3.37 | 3011.41 | .00 | 3.15 | 3.17 | 3.500 | .000 | .00 | 1 .0 |
| 12.937 | .0297 | | | | | .0149 | .19 | 2.49 | 1.71 | 2.00 | .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 |
| 1218.406 | 3005.928 | 2.607 | 3008.535 | 108.00 | 14.05 | 3.07 | 3011.60 | .00 | 3.15 | 3.05 | 3.500 | .000 | .00 | 1 .0 |
| 9.334 | .0297 | | | | | .0134 | .12 | 2.61 | 1.56 | 2.00 | .013 | .00 | .00 | PIPE |
| 1227.740 | 3006.206 | 2.733 | 3008.939 | 108.00 | 13.40 | 2.79 | 3011.73 | .00 | 3.15 | 2.90 | 3.500 | .000 | .00 | 1 .0 |
| .417 | .0287 | | | | | .0126 | .01 | 2.73 | 1.42 | 2.02 | .013 | .00 | .00 | PIPE |
| 1228.157 | 3006.218 | 2.739 | 3008.957 | 108.00 | 13.37 | 2.78 | 3011.73 | .00 | 3.15 | 2.89 | 3.500 | .000 | .00 | 1 .0 |
| .416 | .0288 | | | | | .0126 | .01 | 2.74 | 1.41 | 2.02 | .013 | .00 | .00 | PIPE |
| 1228.573 | 3006.230 | 2.746 | 3008.976 | 108.00 | 13.34 | 2.76 | 3011.74 | .00 | 3.15 | 2.88 | 3.500 | .000 | .00 | 1 .0 |
| JUNCT STR | .0310 | | | | | .0147 | .01 | 2.75 | 1.40 | | .013 | .00 | .00 | PIPE |
| 1228.990 | 3006.243 | 2.313 | 3008.556 | 101.00 | 14.97 | 3.48 | 3012.04 | .00 | 3.08 | 3.31 | 3.500 | .000 | .00 | 1 .0 |
| .417 | .0287 | | | | | .0168 | .01 | 2.31 | 1.85 | 1.94 | .013 | .00 | .00 | PIPE |
| 1229.407 | 3006.255 | 2.315 | 3008.570 | 101.00 | 14.95 | 3.47 | 3012.04 | .00 | 3.08 | 3.31 | 3.500 | .000 | .00 | 1 .0 |
| .416 | .0317 | | | | | .0167 | .01 | 2.32 | 1.85 | 1.88 | .013 | .00 | .00 | PIPE |
| 1229.823 | 3006.268 | 2.317 | 3008.585 | 101.00 | 14.94 | 3.46 | 3012.05 | .00 | 3.08 | 3.31 | 3.500 | .000 | .00 | 1 .0 |
| .417 | .0287 | | | | | .0167 | .01 | 2.32 | 1.84 | 1.94 | .013 | .00 | .00 | PIPE |
| 1230.240 | 3006.280 | 2.319 | 3008.599 | 101.00 | 14.92 | 3.46 | 3012.06 | .00 | 3.08 | 3.31 | 3.500 | .000 | .00 | 1 .0 |
| 43.416 | .0203 | | | | | .0158 | .69 | 2.32 | 1.84 | 2.17 | .013 | .00 | .00 | PIPE |
| 1273.655 | 3007.161 | 2.410 | 3009.571 | 101.00 | 14.30 | 3.17 | 3012.75 | .00 | 3.08 | 3.24 | 3.500 | .000 | .00 | 1 .0 |
| 29.691 | .0203 | | | | | .0142 | .42 | 2.41 | 1.71 | 2.17 | .013 | .00 | .00 | PIPE |



Program Package Serial Number: 7189

WATER SURFACE PROFILE LISTING Date:12- 9-2020 Time: 3:23:33

BZR2001: BLM 270 PARCEL C-2 & C-3
MAIN STORM DRAIN FOR PARCEL C-2 & C-3 (MAINC.WSW)
FROM FACILITY PC1 CONNECTING TO EXISTING FACILITY P11

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1303.347 | 3007.764 | 2.518 | 3010.282 | 101.00 | 13.63 | 2.89 | 3013.17 | .00 | 3.08 | 3.15 | 3.500 | .000 | .00 | 1 .0 |
| 19.116 | .0203 | | | | .0127 | .24 | 2.52 | 1.57 | 2.17 | .013 | .00 | .00 | PIPE | |
| 1322.462 | 3008.152 | 2.635 | 3010.787 | 101.00 | 13.00 | 2.62 | 3013.41 | .00 | 3.08 | 3.02 | 3.500 | .000 | .00 | 1 .0 |
| 12.333 | .0203 | | | | .0114 | .14 | 2.63 | 1.43 | 2.17 | .013 | .00 | .00 | PIPE | |
| 1334.795 | 3008.403 | 2.764 | 3011.167 | 101.00 | 12.39 | 2.39 | 3013.55 | .00 | 3.08 | 2.85 | 3.500 | .000 | .00 | 1 .0 |
| 7.196 | .0203 | | | | .0103 | .07 | 2.76 | 1.29 | 2.17 | .013 | .00 | .00 | PIPE | |
| 1341.991 | 3008.549 | 2.909 | 3011.458 | 101.00 | 11.82 | 2.17 | 3013.63 | .00 | 3.08 | 2.62 | 3.500 | .000 | .00 | 1 .0 |
| 2.529 | .0203 | | | | .0095 | .02 | 2.91 | 1.15 | 2.17 | .013 | .00 | .00 | PIPE | |
| 1344.520 | 3008.600 | 3.080 | 3011.680 | 101.00 | 11.26 | 1.97 | 3013.65 | .00 | 3.08 | 2.28 | 3.500 | .000 | .00 | 1 .0 |
| JUNCT STR | .0180 | | | | .0083 | .02 | 3.08 | 1.00 | | .013 | .00 | .00 | PIPE | |
| 1347.020 | 3008.645 | 4.021 | 3012.666 | 87.00 | 9.04 | 1.27 | 3013.94 | .00 | 2.90 | .00 | 3.500 | .000 | .00 | 1 .0 |
| 49.650 | .0180 | | | | .0074 | .37 | 4.02 | .00 | 2.05 | .013 | .00 | .00 | PIPE | |
| 1396.670 | 3009.537 | 3.500 | 3013.037 | 87.00 | 9.04 | 1.27 | 3014.31 | .00 | 2.90 | .00 | 3.500 | .000 | .00 | 1 .0 |
| 9.050 | .0180 | | | | .0069 | .06 | 3.50 | .00 | 2.05 | .013 | .00 | .00 | PIPE | |
| 1405.720 | 3009.700 | 3.367 | 3013.067 | 87.00 | 9.16 | 1.30 | 3014.37 | .00 | 2.90 | 1.34 | 3.500 | .000 | .00 | 1 .0 |
| JUNCT STR | .0204 | | | | .0057 | .01 | 3.37 | .61 | | .013 | .00 | .00 | PIPE | |
| 1408.220 | 3009.751 | 4.052 | 3013.803 | 70.00 | 7.28 | .82 | 3014.63 | .00 | 2.62 | .00 | 3.500 | .000 | .00 | 1 .0 |
| 31.820 | .0204 | | | | .0048 | .15 | 4.05 | .00 | 1.72 | .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 | |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1440.040 | 3010.400 | 3.583 | 3013.984 | 70.00 | 7.28 | .82 | 3014.81 | .00 | 2.62 | .00 | 3.500 | .000 | .00 | 1 | .0 |
| HYDRAULIC JUMP | | | | | | | | | | | | | | | |
| 1440.040 | 3010.400 | 1.853 | 3012.253 | 70.00 | 13.54 | 2.85 | 3015.10 | .00 | 2.62 | 3.49 | 3.500 | .000 | .00 | 1 | .0 |
| 25.729 | .0204 | | | | | .0153 | .39 | 1.85 | 1.96 | 1.72 | .013 | .00 | .00 | PIPE | |
| 1465.769 | 3010.925 | 1.902 | 3012.827 | 70.00 | 13.10 | 2.67 | 3015.49 | .00 | 2.62 | 3.49 | 3.500 | .000 | .00 | 1 | .0 |
| 25.431 | .0204 | | | | | .0138 | .35 | 1.90 | 1.87 | 1.72 | .013 | .00 | .00 | PIPE | |
| 1491.200 | 3011.444 | 1.977 | 3013.421 | 70.00 | 12.49 | 2.42 | 3015.85 | .00 | 2.62 | 3.47 | 3.500 | .000 | .00 | 1 | .0 |
| 17.231 | .0204 | | | | | .0122 | .21 | 1.98 | 1.73 | 1.72 | .013 | .00 | .00 | PIPE | |
| 1508.431 | 3011.796 | 2.056 | 3013.852 | 70.00 | 11.91 | 2.20 | 3016.06 | .00 | 2.62 | 3.45 | 3.500 | .000 | .00 | 1 | .0 |
| 12.148 | .0204 | | | | | .0108 | .13 | 2.06 | 1.61 | 1.72 | .013 | .00 | .00 | PIPE | |
| 1520.580 | 3012.043 | 2.140 | 3014.183 | 70.00 | 11.36 | 2.00 | 3016.19 | .00 | 2.62 | 3.41 | 3.500 | .000 | .00 | 1 | .0 |
| 8.616 | .0204 | | | | | .0096 | .08 | 2.14 | 1.49 | 1.72 | .013 | .00 | .00 | PIPE | |
| 1529.196 | 3012.219 | 2.228 | 3014.448 | 70.00 | 10.83 | 1.82 | 3016.27 | .00 | 2.62 | 3.37 | 3.500 | .000 | .00 | 1 | .0 |
| 5.962 | .0204 | | | | | .0085 | .05 | 2.23 | 1.38 | 1.72 | .013 | .00 | .00 | PIPE | |
| 1535.158 | 3012.341 | 2.323 | 3014.664 | 70.00 | 10.33 | 1.66 | 3016.32 | .00 | 2.62 | 3.31 | 3.500 | .000 | .00 | 1 | .0 |
| 3.832 | .0204 | | | | | .0075 | .03 | 2.32 | 1.27 | 1.72 | .013 | .00 | .00 | PIPE | |
| 1538.990 | 3012.419 | 2.424 | 3014.843 | 70.00 | 9.85 | 1.51 | 3016.35 | .00 | 2.62 | 3.23 | 3.500 | .000 | .00 | 1 | .0 |
| .833 | .0205 | | | | | .0070 | .01 | 2.42 | 1.17 | 1.72 | .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 |
| 1539.823 | 3012.436 | 2.458 | 3014.894 | 70.00 | 9.70 | 1.46 | 3016.35 | .00 | 2.62 | 3.20 | 3.500 | .000 | .00 | 1 | .0 |

```
     .834    .0202                                          .0067      .01     2.46    1.14    1.73    .013       .00   .00  PIPE
        |       |       |       |       |               |       |       |       |       |       |       |       |
  1540.657  3012.453    2.502  3014.955     70.00    9.51    1.40  3016.36     .00    2.62    3.16    3.500     .000   .00   1   .0
       -|-     -|-     -|-     -|-     -|-     -|-     -|-     -|-     -|-     -|-     -|-     -|-     -|-     -|-     -|-     -|-
     .040    .0205                                          .0065      .00     2.50    1.10    1.72    .013       .00   .00  PIPE
        |       |       |       |       |               |       |       |       |       |       |       |       |
  1540.697  3012.454    2.504  3014.958     70.00    9.50    1.40  3016.36     .00    2.62    3.16    3.500     .000   .00   1   .0
       -|-     -|-     -|-     -|-     -|-     -|-     -|-     -|-     -|-     -|-     -|-     -|-     -|-     -|-     -|-     -|-
     .793    .0205                                          .0062      .00     2.50    1.10    1.72    .013       .00   .00  PIPE
        |       |       |       |       |               |       |       |       |       |       |       |       |
  1541.490  3012.470    2.621  3015.091     70.00    9.06    1.27  3016.36     .00    2.62    3.04    3.500     .000   .00   1   .0
       -|-     -|-     -|-     -|-     -|-     -|-     -|-     -|-     -|-     -|-     -|-     -|-     -|-     -|-     -|-     -|-
 JUNCT STR   .0148                                          .0066      .02    2.62    1.00            .013       .00   .00  PIPE
        |       |       |       |       |               |       |       |       |       |       |       |       |
  1543.990  3012.507    3.578  3016.085     35.00    7.13     .79  3016.88     .00    2.01     .00    2.500     .000   .00   1   .0
       -|-     -|-     -|-     -|-     -|-     -|-     -|-     -|-     -|-     -|-     -|-     -|-     -|-     -|-     -|-     -|-
    28.360    .0149                                          .0073      .21     3.58     .00    1.54    .013       .00   .00  PIPE
        |       |       |       |       |               |       |       |       |       |       |       |       |
  1572.350  3012.930    3.362  3016.292     35.00    7.13     .79  3017.08     .00    2.01     .00    2.500     .000   .00   1   .0
       -|-     -|-     -|-     -|-     -|-     -|-     -|-     -|-     -|-     -|-     -|-     -|-     -|-     -|-     -|-     -|-
```

BZR2001: BLM 270 PARCEL C-2 & C-3

MAIN STORM DRAIN FOR PARCEL C-2 & C-3 (MAINC.WSW)

FROM FACILITY PC1 CONNECTING TO EXISTING FACILITY P11

```
   1000.00    .I          W      C    H                  E                                                          .    R

   1005.67    .I          W      C    H                  E                                                          .    R

   1011.33    .                                                                                                     .

   1017.00    .                                                                                                     .

   1022.67    .                                                                                                     .

   1028.33    .                                                                                                     .
```

```
1034.00   .     I         W      C    H              E                                  .    R

1039.67   .                                                                           .

1045.33   .                                                                           .

1051.00   .          I          W     C    H             E                            .    R

1056.67   .                                                                           .

1062.34   .                                                                           .

1068.00   .             I           W     C    H           E                          .    R

1073.67   .                                                                           .

1079.34   .               I           W     C    H         E                          .    R

1085.00   .                                                                           .

1090.67   .                 I           W    C    H        E                          .    R

1096.34   .                                                                           .

1102.00   .                   I           W    C    H      E                          .    R

1107.67   .                    I           W   C     H      E                         .    R

1113.34   .                    I           W   C    H      E                          .    R

1119.00   .                     I            W   C    H     E                         .    R

1124.67   .                      I             W  C    H     E                        .    R
```

```
1130.34    .                        I             W  C    H    E                                  .    R

1136.00    .                        I              W C    H    E                                  .    JX

1141.67    .                         I          W    C H              E                          .    R

1147.34    .                                                                                     .

1153.00    .                                                                                     .

1158.67    .                                                                                     .

1164.34    .                              I           W    CH             E                      .    R

1170.01    .                                                                                     .

1175.67    .                                                                                     .

1181.34    .                                                                                     .

1187.01    .                                                                                     .

1192.67    .                                  I           W   C H            E                 .    R

1198.34    .                                                                                     .

1204.01    .                                                                                     .

1209.67    .                                     I            W  C H           E               .    R

1215.34    .                                                                                     .

1221.01    .                                       I            W  C H          E               .    R
```

```
1226.67    .                                                                .
1232.34    .                    I             W C H        E                 .    R
1238.01    .                    I             W C H        E                 .    R
1243.67    .                    I             W C H        E                 .    JX
1249.34    .                    I           W   C H          E               .    R
1255.01    .                    I           W   C H          E               .    R
1260.67    .                    I           W   C H          E               .    R
1266.34    .                     I          W   C H          E               .    R
1272.01    .                                                                .
1277.67    .                         I           W  C  H         E           .    R
1283.34    .                                                                .
1289.01    .                                                                .
1294.68    .                                                                .
1300.34    .                                                                .
1306.01    .                              I            W  C H        E       .    R
1311.68    .                                                                .
1317.34    .                                                                .
```

```
1323.01    .                                  I            W  C H       E                  .    R

1328.68    .                                                                                 .

1334.34    .                                                                                 .

1340.01    .                                   I            W C H       E                  .    R

1345.68    .                                    I             WC H       E                  .    R

1351.34    .                                    I              W H       E                  .    JX

1357.01    .                                    I             C  H  W     E                  .    R

1362.68    .                                                                                 .

1368.34    .                                                                                 .

1374.01    .                                                                                 .

1379.68    .                                                                                 .

1385.34    .                                                                                 .

1391.01    .                                                                                 .

1396.68    .                                        I             C  H     E                  .    R

1402.35    .                                                                                 .

1408.01    .                                         I             C WH     E                  .    JX

1413.68    .                                         I            C   H  W    E             .    R
```

```
1419.35    .                                                                .
1425.01    .                                                                .
1430.68    .                                                                .
1436.35    .                                                                .
1442.01    .                          I            C    H   E              .    R
1447.68    .                          I        W   C    H    E              .    R
1453.35    .                                                                .
1459.01    .                                                                .
1464.68    .                                                                .
1470.35    .                            I        W   C   H    E             .    R
1476.01    .                                                                .
1481.68    .                                                                .
1487.35    .                                                                .
1493.01    .                              I        W   C   H    E            .    R
1498.68    .                                                                .
1504.35    .                                                                .
1510.01    .                                I        W  C    H   E          .    R
```

```
   1515.68    .                                                                                                .
   1521.35    .                                                                  I          W  C   H   E     .    R
   1527.02    .                                                                                                .
   1532.68    .                                                                   I           W C   H  E     .    R
   1538.35    .                                                                    I           WC    H E     .    R
   1544.02    .                                                                    I            WC   H  E    .    R
   1549.68    .                                                                    I            WC   H  E    .    R
   1555.35    .                                                                    I            WC    H E    .    R
   1561.02    .                                                                    I            WC    H E    .    R
   1566.68    .                                                                    I             W    H E    .    JX
   1572.35    .                                                                    I          C  H    W   E  .    R

            2998.120  3000.016  3001.912  3003.808  3005.704  3007.600  3009.496  3011.392  3013.288  3015.184  3017.081
```

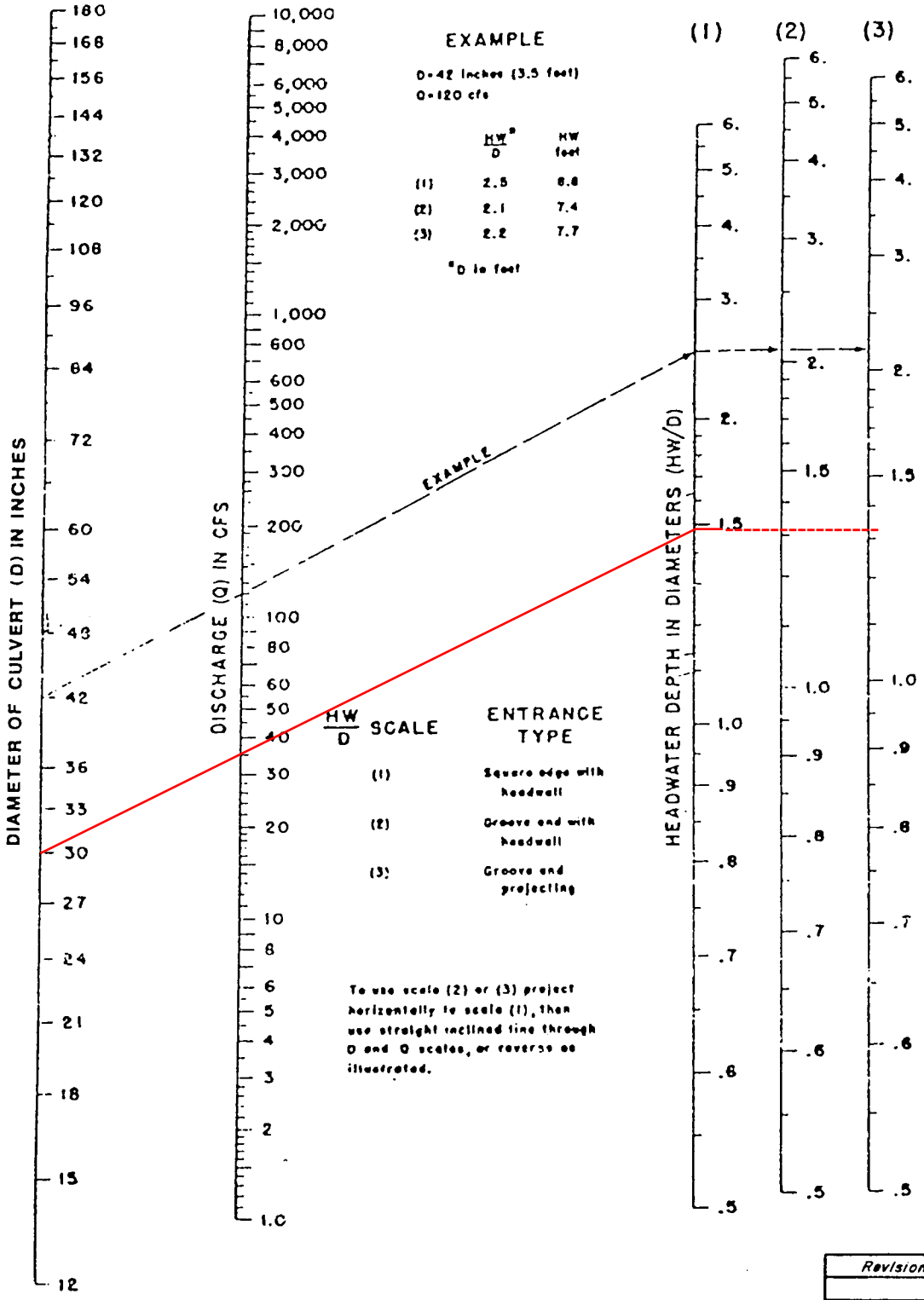
N O T E S
1. GLOSSARY
   I = INVERT ELEVATION
   C = CRITICAL DEPTH
   W = WATER SURFACE ELEVATION
   S = SUPER-ELEVATION
   H = HEIGHT OF CHANNEL
   E = ENERGY GRADE LINE
   X = CURVES CROSSING OVER
   B = BRIDGE ENTRANCE OR EXIT
   Y = WALL ENTRANCE OR EXIT

2. STATIONS FOR POINTS AT A JUMP MAY NOT BE PLOTTED EXACTLY

# Nomographs

# NOMOGRAPH – INLET CONTROL RCP

Facilities PC1 & PC2: Q=35 CFS




| | |
|---|---|
| HW/D | 1.49 |
| D | 30 |
| HW | 3.7 |

| Revision | Date |
|---|---|
| | |
| | |
| | |
| | |

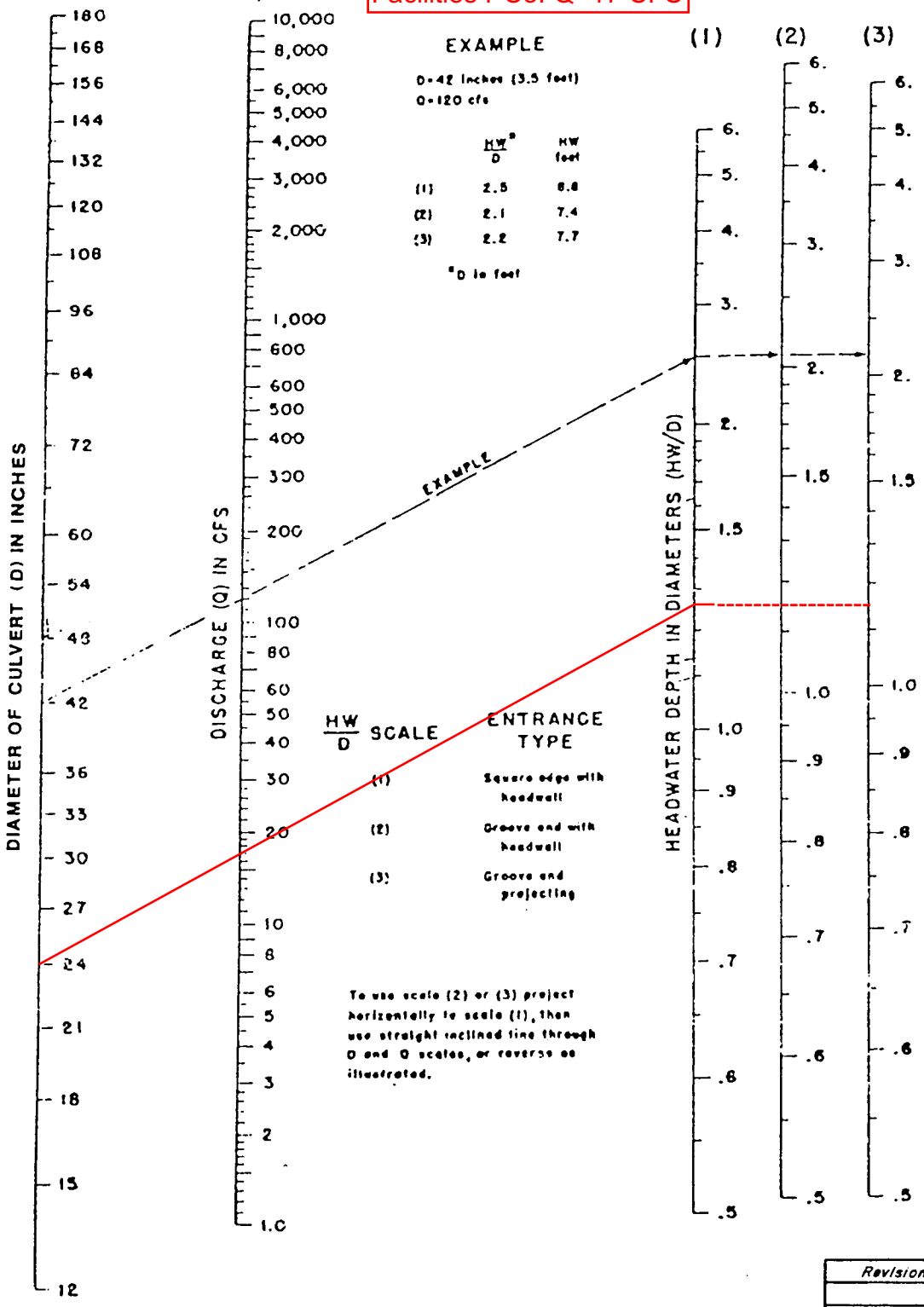
WRC ENGINEERING

REFERENCE: USDOT, FHWA, HDS, No. 5, 1985

FIGURE 1005

# NOMOGRAPH – INLET CONTROL RCP

Facilities PC3: Q=17 CFS




| Revision | Date |
|---|---|
| | |
| | |
| | |
| | |

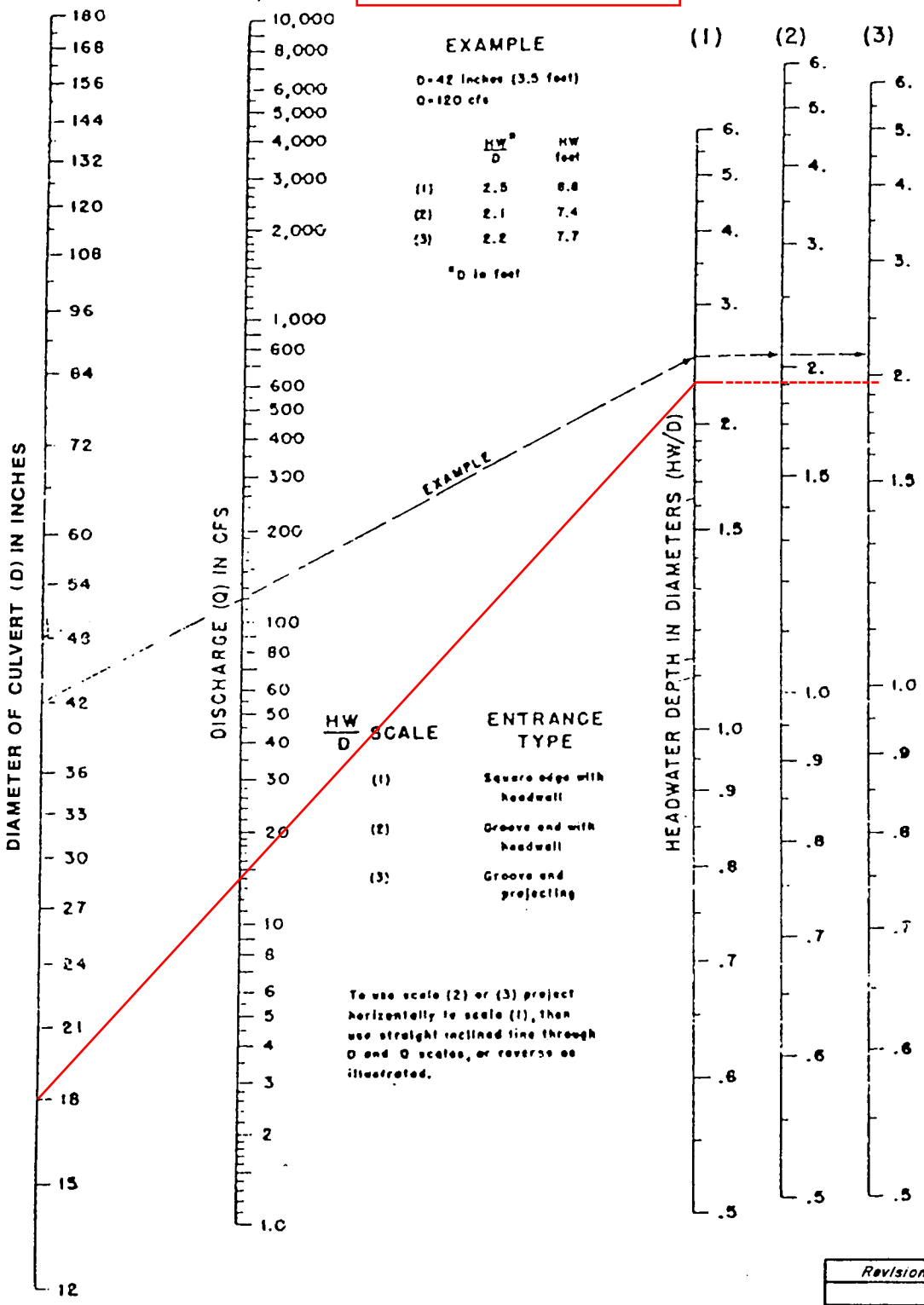
WRC ENGINEERING

REFERENCE: USDOT, FHWA, HDS, No. 5, 1985

FIGURE 1005

# NOMOGRAPH – INLET CONTROL RCP

Facilities PC4: Q=14 CFS




| Revision | Date |
|---|---|
| | |
| | |
| | |
| | |

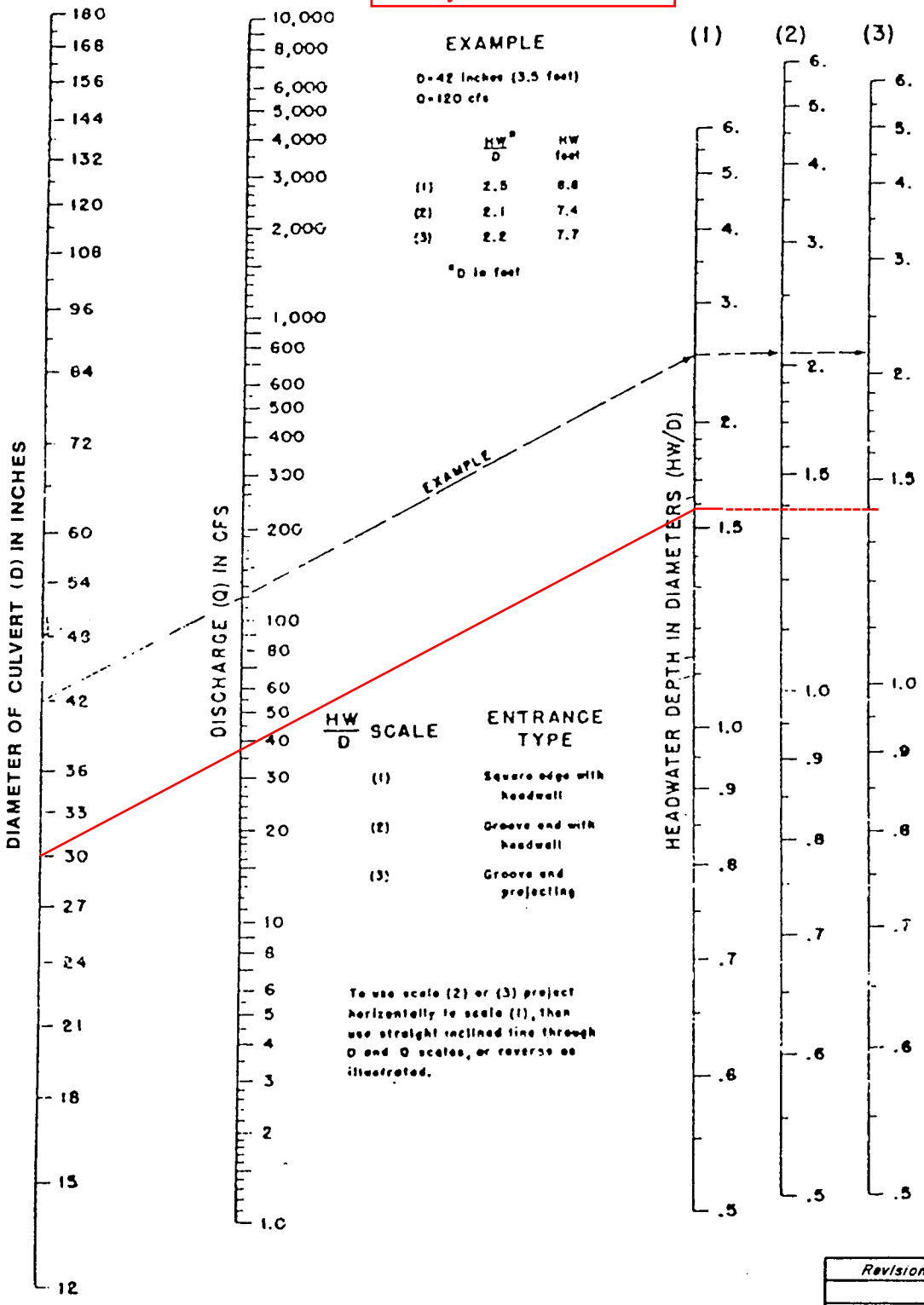
WRC ENGINEERING

REFERENCE: USDOT, FHWA, HDS, No. 5, 1985

FIGURE 1005

# NOMOGRAPH – INLET CONTROL RCP

Facility PC5: Q=37 CFS




| | |
|---|---|
| HW/D | 1.59 |
| D | 30 |
| HW | 3.7 |

| Revision | Date |
|---|---|
| | |
| | |
| | |
| | |

WRC ENGINEERING

REFERENCE: USDOT, FHWA, HDS, No. 5, 1985

FIGURE 1005

Lateral Loss

| | |
|---|---|
| **Project Name:** | BLM 270 Parcel C2 & C3 |
| **Project Number:** | BZR2001 |
| **Date:** | 12/10/2020 |
| **By:** | CAA |

Westwood

# STORM SEWER HYDRAULIC CALCULATIONS

| CONDUIT DATA | | | | | | | FLOW DATA | | | | | | | LOSS | HGL | | COMMENTS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STATION | | SIZE / TYPE | n | INVERTS | | LENGTH | A | R | Φ | Q | V | $H_V$ = | $S_f$ | PIPE | PIPE | | PRESS. FLOW? | OTHER |
| FROM | TO | | Manning's Roughness | D / S ELEV. | U / S ELEV. | | ($FT^2$) | (FT) | | (CFS) | (FPS) | $V^2/2g$ (FT) | (FT/FT) | $H_f$ (FT) | D/S HGL ELEV. | U/S HGL ELEV. | | |
| 1000 | 1012.84 | ROUND 30" RCP | 0.013 | 3012.47 | 3012.98 | 12.84 | 4.908738 | 0.625 | 0.004925 | 35 | 7.130142 | 0.789424 | 0.007263908 | 0.093 | 3015.091 | 3015.184 | No | Facility PC2 |
| 1000 | 1012.04 | ROUND 24" RCP | 0.013 | 3009.70 | 3010.8 | 12.04 | 3.141593 | 0.5 | 0.004925 | 17 | 5.411268 | 0.454687 | 0.005629404 | 0.068 | 3013.803 | 3013.871 | Yes | Facility PC3 |
| 1000 | 1027.25 | ROUND 18" RCP | 0.013 | 3008.60 | 3009.92 | 27.25 | 1.767146 | 0.375 | 0.004925 | 14 | 7.92238 | 0.974598 | 0.017690664 | 0.482 | 3011.68 | 3012.162 | Yes | Facility PC4 |
| 1000 | 1010.01 | ROUND 30" RCP | 0.013 | 3003.20 | 3003.7 | 10.01 | 4.908738 | 0.625 | 0.004925 | 37 | 7.537578 | 0.882222 | 0.008117787 | 0.081 | 3006.397 | 3006.478 | Yes | Facility PC5 |
| 1000 | 1042.30 | ROUND 18" RCP | 0.013 | 3007.78 | 3009.05 | 42.3 | 1.767146 | 0.375 | 0.004925 | 7 | 3.96119 | 0.243649 | 0.004422666 | 0.187 | 3008.976 | 3009.163 | No | Facility PC6 |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | | |

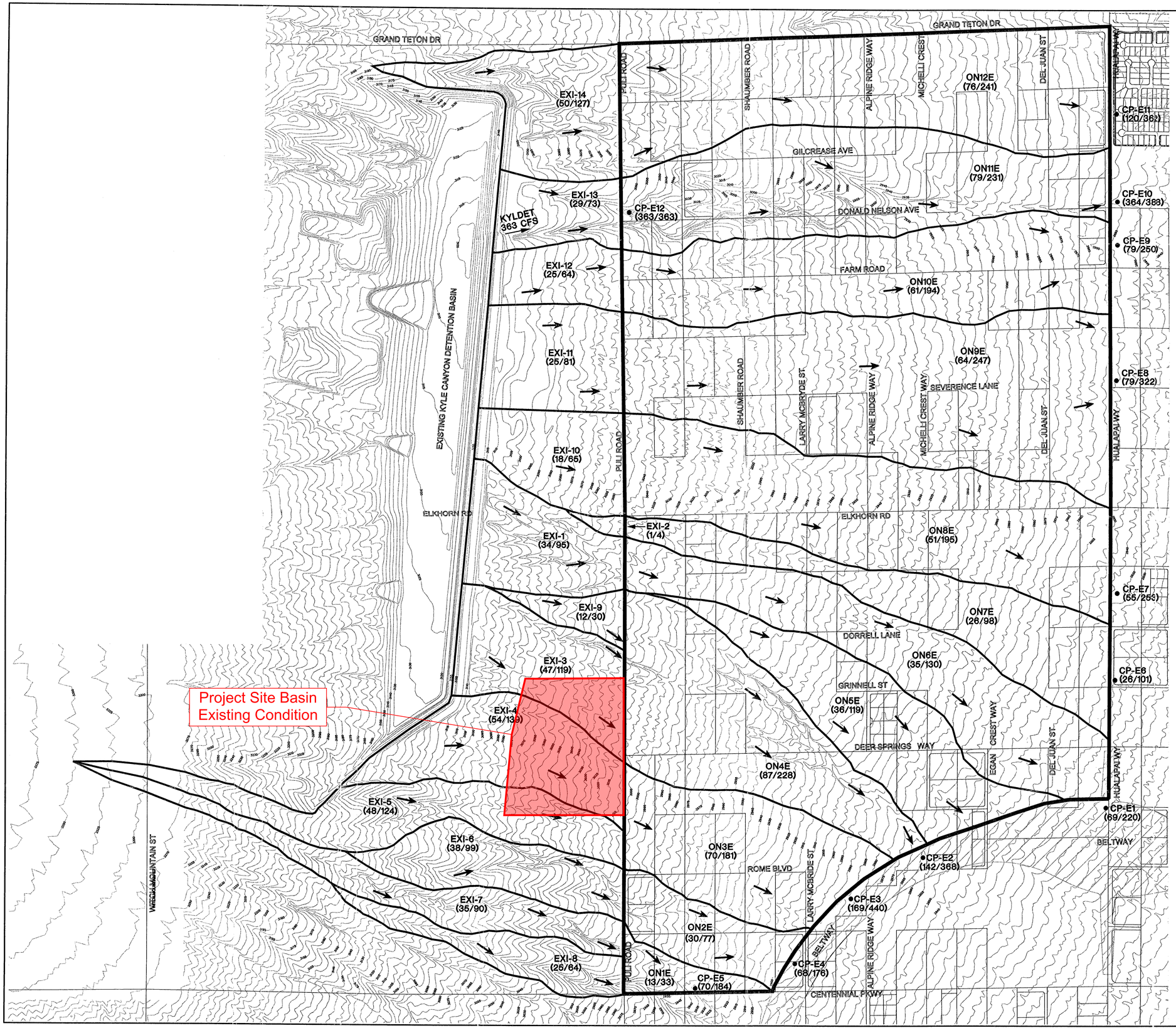
$Sf = \Phi Hv / R^{1.33}$

$\Phi = 2g (n^2) / 2.21$

**1 - Where pipes are not under pressure, assume U/S HGL is at top of pipe**

# APPENDIX F

Reference Material: Cliffs Edge Master Drainage Study




## LEGEND

OFF1..... BASIN NAME
(40/225)..... Q10/Q100
CP1..... COMBINATION POINT
BASIN DELINEATION
DIRECTION OF FLOW

This grading plan is a part of drainage study # 3104 which was received on 1/15/04 and ____ on ____. Page 1 Of 15.

**FIGURE 4**
BASIN MAP
EXISTING CONDITION

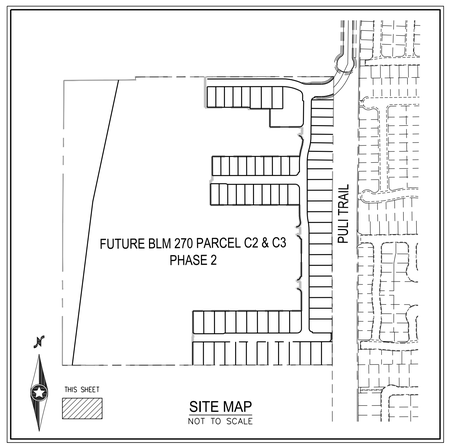
CLIFFS EDGE
ADD #1 TO MDS
W.O. #5969

J:\5969\cliffs edge\MDS\WDS-ADD1\5969-MDS-BASIN_SOIL-ADD1.dwg, 12/23/2003 04:22:27 PM, nathanh, TTS4ch1 ROWN.pc3

# APPENDIX G

CD of Electronic Files & Revised Improvement Plans




# 190 OCTANE FT PARTNERS, LLC

## IMPROVEMENT PLANS
## FOR
## BLM 270 PARCEL C-2 & C-3
## PHASE 1

CITY OF LAS VEGAS, NEVADA
RESIDENTIAL SUBDIVISION
APN: 126-23-610-002 & 126-23-710-001

| SHEET INDEX | | |
|---|---|---|
| NO. | SHEET | TITLE |
| 1 | C-1 | COVER SHEET |
| 2 | C-2 | GENERAL NOTES |
| 3 | C-3 | LEGEND, ABBREVIATIONS, & QUANTITIES |
| 4 | G-1 | GRADING PLAN I |
| 5 | G-2 | GRADING PLAN II |
| 6 | G-3 | GRADING PLAN III |
| 7 | G-4 | GRADING PLAN IV |
| 8 | G-5 | GRADING PLAN V |
| 9 | G-6 | GRADING PLAN VI |
| 10 | G-7 | GRADING PLAN VII |
| 11 | G-8 | GRADING PLAN VIII |
| 12 | G-9 | GRADING PLAN IX |
| 13 | D-1 | STREET SECTIONS AND GRADING DETAILS I |
| 14 | D-2 | GRADING DETAILS II |
| 14 | SD-1 | STORM DRAIN A |
| 15 | SD-2 | STORM DRAIN B |
| 16 | SD-3 | STORM DRAIN LATERALS 1 |
| 17 | SD-4 | STORM DRAIN LATERALS 2 |

## APPROVALS

CITY OF LAS VEGAS ENGINEER APPROVAL

LAS VEGAS FIRE AND RESCUE — DATE

CITY OF LAS VEGAS PLANNING DEPARTMENT

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 STATUES AND / OR PUBLIC UTILITY COMMISSION RULES AND REGULATIONS.

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT PLANNING AND ENGINEERING SERVICES
PROJECT NO. ###### FIRST APPROVED DATE: ____
LVVWD APPROVED FIRE FLOW 1,500 GPM AT 20 PSI RESIDUAL
MAXIMUM AVAILABLE FIRE SPRINKLER FLOW 20 GPM

SHEETS: ADD FIELD

NV ENERGY — DATE

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

SOUTHWEST GAS CORPORATION — DATE

COX COMMUNICATIONS LAS VEGAS, INC. — DATE

## LEGAL DESCRIPTION

A PORTION OF THE SOUTH HALF (S 1/2) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 23, TOGETHER WITH A PORTION OF THE NORTH HALF (N 1/2) OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 23, TOWNSHIP 19 SOUTH, RANGE 59 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA.

## BENCHMARK

BENCHMARK NUMBER: 6LV991.3W4

RIVET AND PLATE FOUND IN TOP OF CURB NORTHEAST CORNER OF FARM ROAD AND PULI ROAD.

ELEVATION = 3054.93 FEET, 931.143 METERS
NAVD88 DATUM

PER THE CITY OF LAS VEGAS VERTICAL CONTROL WEBSITE

## BASIS OF BEARINGS

SOUTH 00°41'32" WEST, BEING THE BEARING OF THE EAST LINE OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 23, TOWNSHIP 19 SOUTH, RANGE 59 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA, AS SHOWN BY MAP THEREOF IN BOOK 162, PAGE 55 OR PLATS IN THE CLARK COUNTY RECORDER'S OFFICE, NEVADA.

## FEMA FLOOD ZONE INFORMATION

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE X (UNSHADED) AS DEPICTED ON FLOOD INSURANCE RATE MAP (FIRM) PANEL 32003C1750E, DATED SEPTEMBER 27, 2002. A ZONE X (UNSHADED) IS DESCRIBED AS AN AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN.

## M.O.U. ITEMS

TMP-

## DEVIATIONS FROM STANDARDS

NONE

## SWPPP NOTE

NOTE: ALL LAND SURFACE AREA DISTURBANCES OVER 1 ACRE REQUIRE A STORMWATER DISCHARGE PERMIT ISSUED BY THE NEVADA DIVISION OF ENVIRONMENTAL PROTECTION (NDEP). A PHASED CONSTRUCTION UNIT IN A CONTIGUOUS SUBDIVISION IS CONSIDERED UNDER CONSTRUCTION UNTIL ALL STRIPPED SURFACE AREAS HAVE BEEN COVERED BY PAVING, BUILDING CONSTRUCTION OR PLANTING. A STORMWATER DISCHARGE PERMIT APPLICATION AND ASSOCIATED INFORMATION MAY BE DOWNLOADED FROM THE WEB SITE: HTTP://WWW.STATE.NV.US/BWPC/STORM01.HTM PROJECTS THAT DISTURB MORE THAN ONE ACRE OF LAND MUST SUBMIT TO NDEP A "NOTICE OF INTENT" FOR INCLUSION UNDER STORMWATER PERMIT NO. NVR100000 ALONG WITH THE APPROPRIATE FILLING FEE.

## PROJECT INFORMATION

| | |
|---|---|
| ACREAGE (GROSS): | = 38.61± AC |
| ACREAGE (NET): | = 34.43± AC |
| DENSITY (LOTS/GROSS ACRE): | = 6.48 DU/GROSS AC |
| ZONING: | = P-D |
| TOTAL NO. OF RESIDENTIAL LOTS | = 74 |
| TOTAL NO. OF COMMON ELEMENTS * | = 4 |
| MINIMUM LOT SIZE | = 3,560 SF± |
| MAXIMUM LOT SIZE | = 6,117 SF± |

EARTHWORK SUMMARY (UNADJUSTED)

| | |
|---|---|
| CUT | 79,506 CY. |
| FILL | 76,965 CY. |
| NET | 2,541 CY. (CUT) |

## GEOTECHNICAL ENGINEER

PREPARED BY: SOUTHWEST GEOTECHNICAL
ADDRESS: 5275 ARVILLE ST, SUITE 108, LAS VEGAS, NV, 89118
PHONE: 702-323-6000
PROJECT No. 197111
DATED: 01/28/20

## OWNER

190 OCTANE FT PARTNERS, LLC
11411 SOUTHERN HIGHLANDS PKWY, SUITE 300
LAS VEGAS, NV 89141
PH: (702) 220-6565
FX: (702) 220-6566
CONTACT: CHRIS ARMSTRONG

## DEVELOPER

OLYMPIA GROUP
11411 SOUTHERN HIGHLANDS PKWY, SUITE 300
LAS VEGAS, NV 89141
PH: (702) 220-6565
FX: (702) 220-6566
CONTACT: CHRIS ARMSTRONG

## ENGINEER

WESTWOOD PROFESSIONAL SERVICES
5740 S. ARVILLE STREET, SUITE 216
LAS VEGAS, NV 89118
PH: (702) 284-5300
FX: (702) 284-5399
CONTACT: KEVIN BROSS

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

FAST
Call before you
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1-702-432-5300
FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (F.A.S.T.)

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

Westwood
Phone (702) 284-5300
Fax (702) 284-5399
5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
westwoodps.com
Westwood Professional Services, Inc.

| NO. | DESCRIPTION | DATE | BY | APP. DATE | APP. |
|---|---|---|---|---|---|
| | | | | | |

CITY OF LAS VEGAS, NEVADA
190 OCTANE FT PARTNERS, LLC
BLM 270 PARCEL C-2 & C-3 PHASE 1
COVER SHEET
S23 T19S R59E

DATE: 12/14/2020
DRAFTER: YZ
DESIGNER: HN
CHECKED: MK
PROJECT NO.
BZR2001




12/14/2020

C-1
SHEET 1 OF 17

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## STORMWATER RUNOFF MANAGEMENT

(REQUIRED FOR ALL SITES GREATER THAN 1 ACRE (43,560 SQ.FT.))

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 CLARK COUNTY AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATION 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 TITLE 24.40 AND THE LAS VEGAS VALLEY CONSTRUCTION SITE BEST MANAGEMENT PRACTICES 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 NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.5.
4. AT A MINIMUM, THE CONTRACTOR OR HIS AGENT SHALL INSPECT ALL DISTURBED AREAS, AREAS USED FOR STORAGE OF MATERIALS OR EQUIPMENT THAT ARE EXPOSED TO PRECIPITATION, VEHICLE ENTRANCE AND EXIT LOCATIONS AND ALL BMPS WEEKLY, AND WITHIN 24 HOURS AFTER ANY ACTUAL RAIN EVENT OF 0.5 INCHES OR MORE. THE CONTRACTOR OR HIS AGENT SHALL MAINTAIN AND MODIFY THE STORMWATER POLLUTION PREVENTION PLAN AS NECESSARY. SOME EXCEPTIONS TO WEEKLY INSPECTIONS MAY APPLY, SUCH AS SUSPENSION OF LAND DISTURBANCE ACTIVITIES. REFER TO NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.12.
5. ACCUMULATED SEDIMENT IN BMPS SHALL BE REMOVED WITHIN SEVEN DAYS AFTER A STORMWATER RUNOFF EVENT OR PRIOR TO THE NEXT ANTICIPATED STORM EVENT, WHICHEVER IS EARLIER. SEDIMENT MUST BE REMOVED WHEN BMP DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE.

## LEGAL DESCRIPTION

A PORTION OF THE SOUTH HALF (S 1/2) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 23, TOGETHER WITH A PORTION OF THE NORTH HALF (N 1/2) OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 23, TOWNSHIP 19 SOUTH, RANGE 59 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA.

## BENCHMARK

BENCHMARK NUMBER: 6LV9913W

RIVET AND PLATE FOUND IN TOP OF CURB NORTHEAST CORNER OF FARM ROAD AND PULI ROAD.

ELEVATION = 3054.93 FEET, 931.143 METERS
NAVD88 DATUM

PER THE CITY OF LAS VEGAS VERTICAL CONTROL WEBSITE

## BASIS OF BEARINGS

SOUTH 00°41'32" WEST, BEING THE BEARING OF THE EAST LINE OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 23, TOWNSHIP 19 SOUTH, RANGE 59 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA, AS SHOWN BY MAP THEREOF IN BOOK 162, PAGE 55 OF PLATS IN THE CLARK COUNTY RECORDER'S OFFICE, NEVADA.

## SOUTHERN NEVADA - SOUTHWEST GAS CORPORATION GENERAL NOTES

1. IN THE EVENT OF NATURAL GAS EMERGENCIES CALL 911 AND 1-877-860-6020
2. MINIMUM HORIZONTAL AND VERTICAL CLEARANCES BETWEEN NATURAL GAS FACILITIES AND ANY UNDERGROUND UTILITIES AND/OR STRUCTURES, INCLUDING BUT NOT LIMITED TO WATER, SEWER, STORM DRAIN, COMMUNICATIONS, AND ELECTRICAL SHALL BE AT LEAST 12-INCHES OR GREATER AS DICTATED BY LOCAL CODES AND STANDARDS.
   A) ANY DEVIATION FROM SPECIFIED MINIMUM CLEARANCES MUST BE APPROVED BY ALL AFFECTED UTILITIES AND/OR MUNICIPALITIES
3. FOR VALVE ADJUSTMENT CONTACT 702-528-7881 14 DAYS PRIOR TO CONSTRUCTION.
4. IN THE EVENT OF NATURAL GAS CONFLICT WITH PROPOSED UTILITIES AND STRUCTURES CONTACT 702-365-2099

### SOUTHWEST GAS APPROVAL

SOUTHWEST GAS CORPORATION DATE

## 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.

REVISED 04/15/10

## LAS VEGAS VALLEY WATER DISTRICT (LVVWD) STANDARD NOTES

LVVWD PROJECT # ###### (REVISED 08/01/2017)

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 TWO (2) INCHES AND SMALLER FROM LVVWD CENTRAL STORES. TELEPHONE 258-3152 OR 258-3802, TWO (2) WORKING DAYS PRIOR TO METER PICKUP.
11. ANY INTERRUPTION OF SERVICE MUST BE PERFORMED IN ACCORDANCE WITH UDACS SECTION 3.14.01, AND APPROVED BY THE LVVWD INSPECTION DIVISION PRIOR TO SHUTDOWN. PROPER WRITTEN NOTIFICATION MUST BE GIVEN TO ALL AFFECTED CUSTOMERS.
12. ALL WATER FACILITY CONSTRUCTION MATERIALS USED MUST BE AS LISTED ON THE LVVWD APPROVED PRODUCT'S LIST FOR NEW FACILITIES, LATEST REVISION, OR SPECIFICALLY APPROVED ON THESE PLANS BY SUBMITTING SHOP DRAWINGS.
13. TELEPHONE "CALL BEFORE YOU DIG" AT "811" OR 1-800-227-2600.
14. THE INSTALLATION OF LVVWD MUNICIPAL WATER FACILITIES WITHIN ALL STREETS IS ASSUMED TO BE IN COMPLIANCE WITH THE UNIFORM STANDARDS, INCLUDING THE PLACEMENT OF ASPHALT PAVING STREET SURFACES. ANY REPAIR WORK DONE BY THE LVVWD TO THE MUNICIPAL WATER FACILITIES WILL INCLUDE THE PLACEMENT OF AN APPROPRIATELY SIZED ASPHALT REPAIR PATCH ON THE STREET SURFACE.

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

**15. NO LEAD COMPLIANCE NOTE**
**TO COMPLY WITH THE FEDERAL SAFE DRINKING WATER ACT, ALL WATER WORKS BRASS PRODUCTS PROPOSED TO BE RELOCATED, OR INSTALLED AS NEW MUST BE INSTALLED WITH THE LEAD FREE APPROVED PRODUCT. THE OLD LEADED PRODUCT MAY NOT BE REUSED.**

## GRADING NOTES

1. INDICATED GRADES OTHER THAN T.C., F.G. & GUTTER F.L. ARE ROUGH GRADES.
2. THE ROUGH GRADING PLANS SHALL BE ON THE JOB SITE AT ALL TIMES. THE ROUGH GRADING SHALL BE FINISHED IN CONFORMANCE WITH THE LINES AND GRADES SHOWN ON THE PLANS. THE GRADING QUANTITIES ARE BASED ON THE ELEVATION AND DETAILS SHOWN ON THE PLANS. ANY DEVIATIONS FROM THE PLANS WILL RESULT IN QUANTITY CHANGES.
3. CARE SHALL BE EXERCISED IN GRADING CORNER LOTS.
4. ROUGH PAD ELEVATIONS SHALL BE GRADED TO WITHIN 0.1' OF THE PAD ELEVATIONS SHOWN ON THE PLANS. WHEN GRADING IS COMPLETE PER THE PLANS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE LOTS CAN BE INSPECTED. AT THAT TIME THE ENGINEER SHALL ALSO DECIDE IF ANY ADDITIONAL DITCHES OR BERMS ARE REQUIRED. THE CONTRACTOR IS REQUESTED NOT TO REMOVE ANY OF HIS ROUGH GRADING EQUIPMENT UNTIL HE RECEIVES GRADING APPROVAL FROM THE ENGINEER.
5. SOILS REPORT PREPARED BY SOUTHWEST GEOTECHNICAL, PROJECT NO. 197111, DATED 01/28/20.
6. EARTHWORK QUANTITIES (RAW):
   -CUT = 79,506 CUBIC YARDS.
   -FILL = 76,985 CUBIC YARDS

   A) THE ABOVE QUANTITIES DO NOT REFLECT LOSSES DUE TO SUBSIDENCE OR SHRINKAGE.
   B) THE ABOVE QUANTITIES DO REFLECT USING NATIVE MATERIAL IN LIEU OF TYPE I GRAVEL BASE MATERIAL FOR STREET SECTIONS.
   C) THE ABOVE QUANTITIES DO NOT REFLECT ANY EARTHWORK WHICH MAY BE REQUIRED BY THE ENGINEER TO CONSTRUCT ADDITIONAL PROTECTIVE DITCHES OR BERMS NOT SHOWN ON THESE DRAWINGS.

## CITY OF LAS VEGAS FIRE AND RESCUE GENERAL NOTES

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 §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 §3310, §3312
5. TO IDENTIFY THE FIRE HYDRANT LOCATIONS, THE CONTRACTOR SHALL PLACE A BLUE REFLECTIVE MARKER AT THE CENTER OF THE STREET ADJACENT TO THE FIRE HYDRANTS. IFC §507.5.7.3
6. ALL UNDERGROUND INSPECTIONS, PRESSURE AND FLUSH VERIFICATIONS OF ALL FIRE HYDRANTS AND FIRE LINES, SHALL BE CONDUCTED BEFORE COVERING THE LINES. CENTER LOADING IS ACCEPTABLE FOR THE HYDRO TESTS WITH PRIOR FIRE PREVENTION APPROVAL. IFC §106.3
7. ALL ON-SITE UNDERGROUND WATER MAINS AND MATERIALS SHALL BE U.L. LISTED, A.W.W.A APPROVED AND SHALL BE RATED FOR THE APPROPRIATE WORKING PRESSURE. IFC §507.2.1, NFPA 24
8. PAINTING OF CURBS, FIRE HYDRANTS, PADS, PROTECTION OF FIRE HYDRANTS FROM PHYSICAL DAMAGE, AND ALL OTHER WORK NECESSARY PER PLANS SHALL BE COMPLETED BEFORE APPROVAL BY LAS VEGAS FIRE AND RESCUE, FIRE PREVENTION DIVISION. IFC §507
9. PRIVATE HYDRANTS SHALL BE PAINTED RED. IFC §507.5.7.1
10. PRIOR TO THE FINAL OCCUPANCY, A FIRE FLOW TEST SHALL BE WITNESSED BY LAS VEGAS FIRE AND RESCUE, FIRE PREVENTION DIVISION TO VERIFY AVAILABILITY OF THE REQUIRED FIRE FLOW. IFC §507
11. FIRE HYDRANT SPACING SHALL BE AS FOLLOWS: IFC §C102
    - RESIDENTIAL – 500 FT UNSPRINKLERED; 600 FT SPRINKLERED.
    - COMMERCIAL – 300 FT UNSPRINKLERED; 400 FT SPRINKLERED.
12. WHERE THE WATER MAINS ARE EXTENDED ALONG STREETS OR NEW STREETS ARE INSTALLED WHERE FIRE HYDRANTS ARE NOT NEEDED FOR PROTECTION OF THE STRUCTURES, FIRE HYDRANTS SHALL BE INSTALLED AT A MAXIMUM OF 1000 FT SPACING, TO PROVIDE FOR TRANSPORTATION HAZARDS. WHERE STREETS ARE PROVIDED WITH MEDIAN DIVIDERS OR HAVE FOUR (4) OR MORE TRAFFIC LANES AND HAVE A TRAFFIC COUNT OF MORE THAN 30,000 PER DAY, HYDRANTS ARE REQUIRED ON EACH SIDE OF THE STREET SPACED AT 500 FT ON AN ALTERNATING BASIS. IFC ♣C102.8
13. NO FIRE HYDRANTS SHALL BE LOCATED WITHIN THE RADIUS OF A CUL-DE-SAC OR WITHIN 20 FT OF THE PERIMETER OF THE RADIUS OF THE CUL-DE-SAC.
14. NO FIRE HYDRANTS SHALL BE LOCATED WITHIN 6 FT OF ANY CURB RETURN, DRIVEWAY, POWER POLE, STREETLIGHT OR ANY OTHER OBSTRUCTION. IFC ♣C102.10
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 ♣C102.4
16. THE MAXIMUM DISTANCE FROM A FIRE HYDRANT TO A FIRE DEPARTMENT CONNECTION (FDC) SHALL NOT EXCEED 100 FT, AS MEASURED BY AN APPROVED ROUTE. IFC ♣C102.7
17. THE MAXIMUM DISTANCE FROM A HYDRANT TO THE END OF A DEAD-END STREET SHALL NOT EXCEED 200 FT. IFC ♣C102.6
18. TWO (2) SOURCES OF SUPPLY ARE REQUIRED WHENEVER THERE IS 4 OR MORE FIRE HYDRANTS/SPRINKLER LEAD-INS ARE INSTALLED ON A SINGLE SYSTEM. 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 FIRE 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 ♣C104
19. ALL FIRE APPARATUS ACCESS ROADS SHALL BE PAVED TO PROVIDE ALL-WEATHER DRIVING CAPABILITIES, AND SHALL BE DESIGNED AND MAINTAINED TO SUPPORT THE IMPOSED LOADS OF THE FIRE APPARATUS. IFC ♣503.2.3
20. THE GRADIENT FOR THE FIRE APPARATUS ACCESS ROADS SHALL NOT EXCEED 12% ANGLES OF APPROACH AND ANGLES OF DEPARTURE SHALL NOT EXCEED 6% FOR 25 FT PRIOR TO OR AFTER THE GRADE CHANGE. ADJACENT TO THE STRUCTURES GRADIENT SHALL NOT EXCEED 6%. IFC ♣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 13FT 6 INS. IFC ♣ 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 BE NOT LESS THAN 24 FT. IFC ♣ 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 ♣503.1.1
25. APPROVED SECONDARY FIRE APPARATUS ACCESS SHALL BE PROVIDED FOR 200 OR MORE DWELLING UNITS, ROAD(S) WITH DEAD- ENDS OR A 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 ♣503.3
28. ELECTRICALLY CONTROLLED ACCESS GATES SHALL BE PROVIDED WITH AN APPROVED EMERGENCY VEHICLE DETECTOR/RECEIVER SYSTEM. IFC ♣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 THE PROPOSED LOCATION SHALL BE LOCATED ON THE SAME SIDE OF THE STREET AS THE PROPOSED DEVELOPMENT. CLV REGULATION

## CITY OF LAS VEGAS GRADING NOTES

1. IN THE EVENT THAT ANY UNFORESEEN CONDITIONS NOT COVERED BY THESE NOTES ARE ENCOUNTERED DURING GRADING OPERATIONS, THE OWNER/ENGINEER SHALL BE IMMEDIATELY NOTIFIED FOR DIRECTION.
2. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM ALL NECESSARY CUTS AND FILLS WITHIN THE LIMITS OF THIS PROJECT AND THE RELATED OFF-SITE WORK, SO AS TO GENERATE THE DESIRED SUBGRADE, FINISH GRADES AND SLOPES SHOWN.
3. CONTRACTOR SHALL TAKE FULL RESPONSIBILITY FOR ALL EXCAVATION. ADEQUATE SHORING SHALL BE DESIGNED AND PROVIDED BY THE CONTRACTOR TO PREVENT UNDERMINING OF ANY ADJACENT FEATURES OR FACILITIES AND/OR CAVING OF THE EXCAVATION.
4. THE CONTRACTOR IS WARNED THAT AN EARTHWORK BALANCE WAS NOT NECESSARILY THE INTENT OF THIS PROJECT. ANY ADDITIONAL MATERIAL REQUIRED OR LEFTOVER MATERIAL FOLLOWING EARTHWORK OPERATIONS BECOMES THE RESPONSIBILITY OF THE CONTRACTOR.
5. THE GRADING CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH THE OWNER TO PROVIDE FOR THE REQUIREMENTS OF THE PROJECT STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND ASSOCIATED PERMIT.
6. CONTRACTOR SHALL GRADE TO THE LINES AND ELEVATIONS SHOWN ON THE PLANS WITHIN THE FOLLOWING HORIZONTAL AND VERTICAL TOLERANCES AND DEGREES OF COMPACTION, IN THE AREAS INDICATED:

| | HORIZONTAL | VERTICAL | COMPACTION |
|---|---|---|---|
| A.PAVEMENT AREA SUBGRADE | 0.1'+ | +0.0' TO -0.1' | SEE SOILS REPORT |
| B.ENGINEERED FILL | 0.5'+ | +0.1' TO -0.1' | SEE SOILS REPORT |

COMPACTION TESTING WILL BE PERFORMED BY THE OWNER OR HIS REPRESENTATIVE.

7. ALL CUT AND FILL SLOPES SHALL BE PROTECTED UNTIL EFFECTIVE EROSION CONTROL HAS BEEN ESTABLISHED.
8. THE USE OF POTABLE WATER WITHOUT A SPECIAL PERMIT FOR BUILDING OR CONSTRUCTION PURPOSES INCLUDING CONSOLIDATION OF BACKFILL OR DUST CONTROL IS PROHIBITED. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FOR CONSTRUCTION WATER.
9. THE CONTRACTOR SHALL MAINTAIN THE STREETS, SIDEWALKS AND ALL OTHER PUBLIC RIGHT-OF-WAY IN A CLEAN, SAFE AND USABLE CONDITION. ALL SPILLS OF SOIL, ROCK OR CONSTRUCTION DEBRIS SHALL BE PROMPTLY REMOVED FROM THE PUBLICLY OWNED PROPERTY DURING CONSTRUCTION AND UPON COMPLETION OF THE PROJECT. ALL ADJACENT PROPERTY, PRIVATE OR PUBLIC SHALL BE MAINTAINED IN A CLEAN, SAFE AND USABLE CONDITION.
10. IN THE EVENT THAT ANY TEMPORARY CONSTRUCTION ITEM IS REQUIRED THAT IS NOT SHOWN ON THESE DRAWINGS, THE OWNER AGREES TO PROVIDE AND INSTALL SUCH ITEM AT HIS OWN EXPENSE AND AT THE DIRECTION OF THE CITY ENGINEER. TEMPORARY CONSTRUCTION INCLUDES DITCHES, BERMS, ROAD SIGNS AND BARRICADES, ETC.

REVISED 04/15/10

## UTILITY LOCATION NOTE TO CONTRACTOR

EXISTING UTILITY LOCATIONS SHOWN HEREIN ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATIONS. CALL BEFORE YOU DIG: 1 (800) 227-2600; SOUTHWEST GAS CORPORATION: 702-278-8451 (STANDBY CONTACT NUMBER)

## 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 H

## ABBREVIATIONS

| | | | | | |
|---|---|---|---|---|---|
| AC | ASPHALTIC CONCRETE OR ACRE | FL | FLOWLINE | PVI | POINT OF VERTICAL INTERSECTION |
| AGG | AGGREGATE BASE | FT | FEET OR FOOT | QTY | QUANTITY |
| APN | ASSESSORS PARCEL NUMBER | FUT | FUTURE | R | RADIUS |
| APPROX OR ~ | APPROXIMATE | GRD | GRADE OR GROUND | RCA | REINFORCED CONCRETE ARCH |
| AVE | AVENUE | GB | GRADE BREAK OR GRADE CHANGE | RCB | REINFORCED CONCRETE BOX |
| @ | AT | GV | GATE VALVE | RCP | REINFORCED CONCRETE PIPE |
| BC | BEGIN CURVE OR BACK OF CURB | HDPE | HIGH DENSITY POLYETHYLENE | RD | ROAD |
| BCR | BEGINNING OF CURB RETURN | HOA | HOME OWNERS ASSOCIATION | RDWY ESMT | ROADWAY EASEMENT |
| BHW | BOTTOM OF HEADWALL | HORZ | HORIZONTAL | REQD | REQUIRED |
| BLDG | BUILDING | HP | HIGH POINT | REV | REVISION |
| BLVD | BOULEVARD | HWL | HIGH WATER LEVEL | RG | ROUGH GRADE |
| BM | BENCHMARK | HDWL OR HW | HEADWALL | RT OR R | RIGHT |
| BVC | BEGIN VERTICAL CURVE | HYD | HYDRAULIC OR HYDRANT | RW, ROW | RIGHT OF WAY |
| BWV | BACK WATER VALVE | ID | INSIDE DIAMETER | S | SLOPE |
| CC | CLARK COUNTY | IN | INCH | SCH | SCHEDULE |
| CCAUSD | CLARK COUNTY AREA UNIFORM STANDARD DRAWINGS | INT | INTERSECTION | SD | STORM DRAIN |
| CCPW | CLARK COUNTY PUBLIC WORKS | INV | INVERT ELEVATION | SDDI | STORM DRAIN DROP INLET |
| CCRFCD | CLARK COUNTY REGIONAL FLOOD DISTRICT | IP | IRON PIPE | SDMH | STORM DRAIN MANHOLE |
| CCWRD | CLARK COUNTY WATER RECLAMATION DISTRICT | IRRG | IRRIGATION | SEC | SECTION |
| CE | COMMON ELEMENT | LF | LINEAR FEET | SF | SQUARE FEET |
| CL,C/L,C | CENTERLINE | LMC | LANDSCAPE MAINTENANCE CORPORATION | SHT | SHEET |
| CLR | CLEAR OR CLEARANCE | LP | LOW POINT | SLTC | STREET LIGHT & TRAFFIC CONTROL ESMT |
| CLSM | CONTROLLED LOW STRENGTH MATERIAL | LT OR L | LEFT | SNWA | SOUTHERN NEVADA WATER AUTHORITY |
| CLV | CITY OF LAS VEGAS | LVVWD | LAS VEGAS VALLEY WATER DISTRICT | SPECS | SPECIFICATIONS |
| CML&C | CEMENT MORTAR LINED AND COATED | LWL | LOW WATER LEVEL | ST | STREET |
| CMU | CONCRETE MASONRY UNIT | MAX | MAXIMUM | SSMH | SANITARY SEWER MANHOLE |
| CNLV | CITY OF NORTH LAS VEGAS | MECH | MECHANICAL | STA | STATION |
| COH | CITY OF HENDERSON | MH | MANHOLE | STD | STANDARD |
| CONC | CONCRETE | MIN | MINIMUM | STL | STEEL |
| CT | COURT | MISC | MISCELLANEOUS | STLT | STREET LIGHT |
| CY OR CU YD | CUBIC YARD | MUE | MUNICIPAL UTILITY EASEMENT | SW | SIDEWALK |
| DCWCS | DESIGN AND CONSTRUCTION FOR WASTEWATER COLLECTION SYSTEMS | NDOT | NEVADA DEPARTMENT OF TRANSPORTATION | SWG | SOUTHWEST GAS |
| | | NTS | NOT TO SCALE | SWR OR SS | SANITARY SEWER |
| DE | DRAINAGE EASEMENT | NUE | NONEXCLUSIVE UTILITY EASEMENT | SY | SQUARE YARD |
| DET | DETAIL | NVE | NV ENERGY | TAN | TANGENT |
| DI | DUCTILE IRON OR DRAIN INLET | OC | ON CENTER | TC | TOP OF CURB |
| DIA, ø | DIAMETER | OD | OUTSIDE DIAMETER OR OVERALL DIMENSION | TF | TOP OF FLOOR OR TOP OF FOOTING |
| DIP | DUCTILE IRON PIPE | OFF | OFFSET | TG | TOP OF GRATE |
| DR | DRIVE | ORIG | ORIGINAL | THRU | THROUGH |
| DWG(S) | DRAWING | PAE | PUBLIC OR PEDESTRIAN ACCESS EASEMENT | THW | TOP OF HEADWALL |
| DWY | DRIVEWAY | PB | PULL BOX | TP | TOP OF PIPE |
| EA | EACH | PC | POINT OF CURVE | TW | TOP OF WALL |
| ECR | END CURB RETURN | PCC | POINT OF COMPOUND CURVE | TRW | TOP OF RETAINING WALL |
| EG | EXISTING GROUND | PDE | PUBLIC DRAINAGE EASEMENT | TSW | TOP OF SCREEN WALL |
| ELEV | ELEVATION | ℄ OR PL | PROPERTY LINE | TYP | TYPICAL |
| ESMT | EASEMENT | POB | POINT OF BEGINNING | UDACS | UNIFORM DESIGN AND CONSTRUCTION STANDARDS |
| EP | EDGE OF PAVEMENT | POC | POINT OF CURVATURE | | |
| ERU | EQUIVALENT RESIDENTIAL UNIT | POE | POINT OF ENDING | UE | UTILITY EASEMENT |
| EVC | END VERTICAL CURVE | PRC | POINT OF REVERSE CURVATURE | VC | VERTICAL CURVE |
| EX OR EXIST | EXISTING | PRELIM | PRELIMINARY | VERT | VERTICAL |
| FC | FACE OF CURB | PROP | PROPOSED | VG | VALLEY GUTTER |
| FF | FINISHED FLOOR | PRV | PRESSURE REDUCING VALVE | W | WROUGHT IRON |
| FG | FINISHED GRADE | PUE | PUBLIC UTILITY EASEMENT | WL | WATER LINE |
| FGH | FINISHED GRADE, HIGH SIDE | PT | POINT OF TANGENT OR POINT | WPZ | WATER PRESSURE ZONE |
| FGL | FINISHED GRADE, LOW SIDE | PVC | POLYVINYL CHLORIDE | WT | WEIGHT |
| FH | FIRE HYDRANT | | | WTR | WATER LINE |

## SPECIAL NOTE

IN THE EVENT THAT ANY TEMPORARY CONSTRUCTION ITEM IS REQUIRED WHICH IS NOT SHOWN ON THESE DRAWINGS, THE OWNER AGREES TO PROVIDE AND INSTALL SUCH ITEM AT HIS OWN EXPENSE AND AT THE DIRECTION OF THE CITY OF LAS VEGAS DEPT. OF PUBLIC WORKS. TEMPORARY CONSTRUCTION ITEMS INCLUDE: PAVEMENT TRANSITIONS, PROTECTIVE DITCHES AND BERMS, ROAD SIGNS AND BARRICADES, ETC.

## NOTICE TO CONTRACTOR

-QUANTITIES SHOWN ARE ESTIMATES ONLY AND ARE INTENDED TO ILLUSTRATE SCOPE OF WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE EXACT QUANTITIES INVOLVED.

-EXISTING UTILITY LOCATIONS SHOWN HEREIN ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATIONS. CALL BEFORE YOU DIG: (800) 227-2600

## LEGEND

| EXISTING | PROPOSED | DESCRIPTION |
|---|---|---|
| (1900) | 1900 | 5' CONTOUR |
| | | 1' CONTOUR |
| | | STRIPING |
| | | SEWER MANHOLE |
| | | CURB AND GUTTER |
| EX 8" PVC SS | 8" PVC SS | SANITARY SEWER PIPE AND FLOW ARROW |
| EX 8" PVC WTR | 8" PVC WTR | WATER PIPE |
| | | WATER GATE VALVE |
| | | FIRE HYDRANT |
| | | WATER BLOW-OFF |
| | | WATER LATERAL W/ METER |
| | | SANITARY SEWER LATERAL |
| | | STREETLIGHT |
| | | EDGE OF PAVEMENT |
| | | TRAFFIC SIGN |
| PAD=XXX.X<br>FF=XXX.X | PAD=XXX.X<br>FF=XXX.X | PAD ELEVATION<br>FINISHED FLOOR ELEVATION |
| TOC TOP<br>TOC BOT | TOC TOP<br>TOC BOT | ELEVATION |
| | | RETAINING WALL |
| | | STORM DRAIN W/ MANHOLE |

| | |
|---|---|
| | EXISTING GAS GATE VALVE |
| @MH | EXISTING UNKNOWN MANHOLE |
| GAS | EXISTING GAS, SIZE PER PLAN |
| | EXISTING POWER POLE |
| EXSIG | EXISTING TRAFFIC SIGNAL |
| | EXISTING WALL |
| | WATER PIPE FITTING |
| POC | WATER POINT OF CONNECTION |
| POC | SEWER POINT OF CONNECTION |
| | DAYLIGHT LINE |
| | STREET CENTERLINE |
| | RIGHT-OF-WAY |
| | MATCHLINE |
| | BOUNDARY LINE |
| | PHASE LINE |
| | PROPERTY LINE |
| | FLOWLINE |
| | SAWCUT |
| FILL / CUT | CUT/FILL TRANSITION LINE |
| | SIDEWALK |
| | EX STRIPING TO BE OBLITERATED |
| | GRADE BREAK LINE |
| | REFLECTIVE RAISED PAVEMENT MARKERS |
| BWV | BACK WATER VALVE |
| | WROUGHT IRON FENCE |
| | PONY WALL |
| | DECORATIVE PERIMETER WALL |
| | DECORATIVE PERIMETER RETAINING WALL |
| | PROPOSED CURB AND GUTTER WITH RIGHT-OF-WAY AT BACK OF CURB |
| | EXISTING CURB AND GUTTER WITH RIGHT-OF-WAY AT BACK OF CURB |
| | FUTURE CURB AND GUTTER WITH RIGHT-OF-WAY AT BACK OF CURB |

| | |
|---|---|
| | PROPOSED SCARP AREA |
| | DRIVEWAY |
| | PROPOSED RIP RAP |
| | SIGHT VISIBILITY ZONE PER STD DWG NO. 201.2 |
| | HANDICAP RAMP |

## QUANTITIES

| | | | PRIVATE | PUBLIC |
|---|---|---|---|---|
| **DRAINAGE** | | | | |
| 1. | 48" TYPE III STORM DRAIN MANHOLE | EA | 6 | – |
| 2. | 15' TYPE "CM2" DROP INLET | EA | 1 | – |
| 3. | 20.0' TYPE "CM2" DROP INLET | EA | 4 | – |
| 4. | 18" RCP CLASS III STORM DRAIN | LF | 70 | – |
| 5. | 24" RCP CLASS III STORM DRAIN | LF | 13 | – |
| 6. | 42" RCP CLASS III STORM DRAIN | LF | 416 | – |
| 7. | 68" X 43" CLASS III HERCP STORM DRAIN | LF | 29 | – |
| 8. | RIPRAP D50=6", THK=12" | SF | 2,975 | – |
| 9. | 8' WIDE CONCRETE VALLEY GUTTER | SF | 3,847 | – |
| 10. | SIDEWALK DRAIN | EA | 4 | – |
| 11. | 38" X 24" CLASS III HERCP STORM DRAIN | LF | 54 | |
| 12. | 10' TYPE "CM2" DROP INLET | EA | 1 | |
| 13. | 9' WIDE CONCRETE FLUME | LF | 31 | |
| **SEWER SYSTEM** | | | | |
| 1. | 4" PVC SEWER LATERAL (PRIVATE) | LF | – | – |
| 2. | 8" PVC SEWER PIPE (PUBLIC) | LF | – | – |
| 3. | STANDARD 48" SEWER MANHOLE (PUBLIC) | EA | – | – |
| 4. | 8" SEWER PIPE CAP | EA | – | – |
| 5. | BACK WATER VALVE | EA | – | – |
| 6. | 8" C-900 WATER QUALITY SEWER PIPE (PUBLIC) | EA | – | – |
| 7. | | | | |
| **WATER SYSTEM** | | | | |
| 1. | FIRE HYDRANT ASSEMBLY W/6" GATE VALVE PER UDACS PLATE NO. 40 | EA | – | – |
| 2. | 6" PVC WATER PIPE (CLASS 150) | LF | – | – |
| 3. | 8" PVC WATER PIPE (CLASS 150) | LF | – | – |
| 4. | 8" DIP WATER PIPE (CLASS 53) | LF | – | – |
| 5. | 8" GATE VALVE WITH VALVE BOX PER UDACS PLATE NO. 30 & 39 | EA | – | – |
| 6. | 8" X 6" TEE PER UDACS PLATE NO. 31 | EA | – | – |
| 7. | 8" X 8" TEE PER UDACS PLATE NO. 31 | EA | – | – |
| 8. | 8" 5 DEGREE BEND WITH RESTRAINED JOINTS | EA | – | – |
| 9. | 8" 11.25 DEGREE BEND PER UDACS PLATE NO. 31 | EA | – | – |
| 10. | 8" 22.5 DEGREE BEND PER UDACS PLATE NO. 31 | EA | – | – |
| 11. | 8" 45 DEGREE BEND PER UDACS PLATE NO. 31 | EA | – | – |
| 12. | 8" 90 DEGREE BEND PER UDACS PLATE NO. 31 | EA | – | – |
| 13. | CAP AND 2" BLOW-OFF ASSEMBLY W/CAP PER UDACS PLATE NO. 36 | EA | – | – |
| 14. | 1" COPPER SERVICE W/ 3/4" METER PER UDACS PLATE NO. 2 | EA | – | – |
| 15. | 1" COPPER SERVICE W/ 1" METER PER UDACS PLATE NO. 4 | EA | – | – |
| 16. | 1" COPPER SERVICE W/ 3/4" METER & 1" RPPA PER UDACS PLATE NO. 4 & 8 | EA | – | – |
| | | EA | – | |
| **STREET IMPROVEMENTS** | | | | |
| 1. | 2" A.C. PAVEMENT W/ 4" TYPE II OVER 6" TYPE I AGGREGATE BASE | SY | 17,490 | – |
| 2. | STANDARD 18" TYPE "L" ISLAND CURB & GUTTER W/6" TYPE I AGGREGATE BASE | LF | 387 | – |
| 3. | STANDARD 8" TYPE "A" ISLAND CURB W/6" TYPE I AGGREGATE BASE | LF | 179 | – |
| 4. | STANDARD 30" TYPE "ROLL" CURB & GUTTER W/6" TYPE I AGGREGATE BASE | LF | 4,839 | – |
| 5. | 4' WIDE CONCRETE SIDEWALK W/4" TYPE II AGGREGATE BASE | SF | 14,299 | – |
| 6. | | | | – |
| 7. | | | | |
| **TRAFFIC SIGNALS** | | | | |
| 1. | 30" STOP SIGN WITH POST (R1-1) | EA | – | – |
| 2. | 9" STREET NAME SIGN (D-3, BROWN W/ WHITE LETTERS)(6 POLES x 2 PER POLE=12) | EA | – | – |
| 3. | BLUE COLORED REFLECTIVE RAISED PAVEMENT MARKER | EA | – | – |
| 4. | CROSSWALK MARKINGS | LF | – | – |
| 5. | | | | |
| 6. | | | | |
| 7. | | | | |
| 8. | | | | |
| **DRY UTILITIES** | | | | |
| 1. | 100W H.P.S. LUMINAIRE STREET LIGHT W/DECORATIVE POLE | EA | – | – |
| 2. | 1-1/4" PVC STREET LIGHT CONDUIT WITH (2) #4 AND (1) #8 CONDUCTORS | LF | – | – |
| 3. | NO. 3-1/2 PULL BOX W/METAL COVER | EA | – | – |
| 4. | 150 AMP SERVICE PEDESTAL (IRR) | EA | – | – |
| 5. | 200 AMP SERVICE PEDESTAL (STLT) | EA | – | – |
| 6. | | | | |

## APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ###### FIRST APPROVED DATE:
LVVWD APPROVED FIRE FLOW 1,500 GPM AT 20 PSI RESIDUAL
MAXIMUM AVAILABLE FIRE SPRINKLER FLOW ## GPM











**Westwood**
Phone (702) 284-5300
Fax (702) 284-5399
5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
westwoodps.com
Westwood Professional Services, Inc.


| NO. | DESCRIPTION | DATE | BY | APP. DATE | APP. |
|---|---|---|---|---|---|
| | | | | | |

CITY OF LAS VEGAS, NEVADA

**190 OCTANE FT PARTNERS, LLC**

**BLM 270 PARCEL C-2 & C-3 PHASE 1**

**LEGEND, ABBREVIATIONS, & QUANTITIES**

S23
T19S
R59E

DATE: 12/14/2020
DRAFTER: YZ
DESIGNER: HN
CHECKED: MK

PROJECT NO.
**BZR2001**

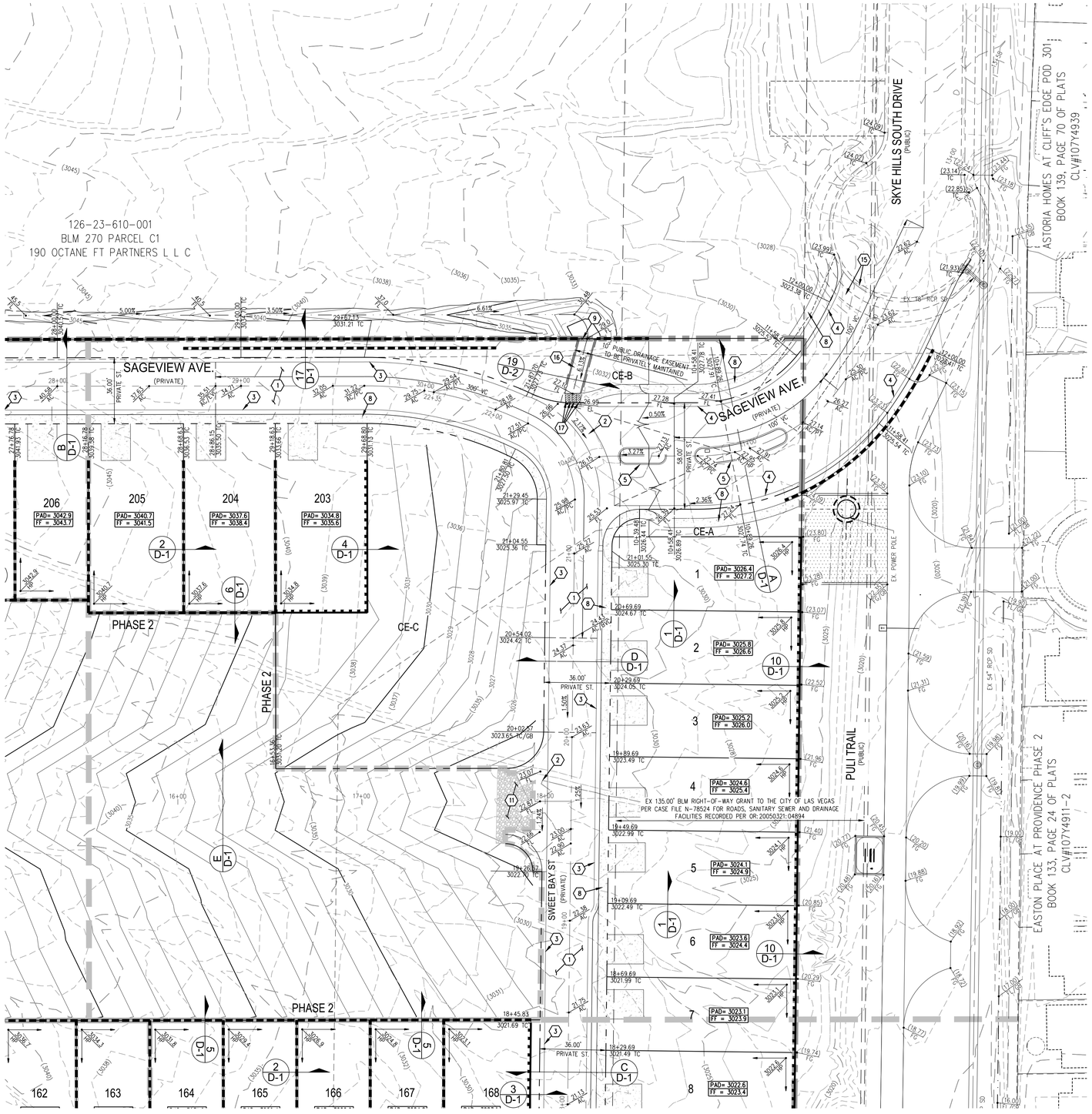



12/14/2020

**C-3**
SHEET 3 OF 17

__-____


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0 30 60
SCALE - 1"=30' FEET

CALL SOUTHWEST GAS AT 702-651-2111 FOR STANDBY WHEN EXCAVATING OVER OR NEAR HIGH PRESSURE GAS LINES

## SURVEY NOTE

OWNER RESPONSIBLE TO PROVIDE SURVEY MONUMENTATION AS SHOWN AND TO REPLACE ALL SURVEY MONUMENTATION DAMAGED, DISTURBED, DESTROYED, OR OBSCURED DURING CONSTRUCTION.

## ELEVATION NOTE

ADD 3000 TO ALL SPOT GRADES WHERE THE HUNDREDS AND THOUSANDS PLACES ARE OMITTED FOR ACTUAL ELEVATION (I.E. 01.00 REPRESENTS 3001.00)

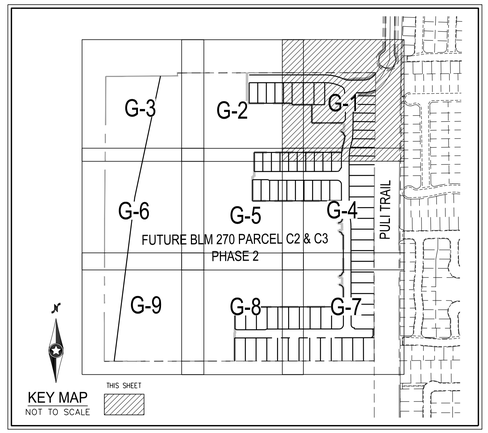
## SOILS REPORT

SOILS REPORT BY SOUTHWEST GEOTECHNICAL
PROJECT NO. 197111 DATED 01/28/20

## EARTHWORKS

EARTHWORK QUANTITIES (RAW):
CUT= 79,506 CU YDS
FILL= 76,965 CU YDS

EXPORTED MATERIAL TO BE DISPOSED OF AT AN APPROVED LICENSED DISPOSAL FACILITY OR AT A SITE WITH AN APPROVED AND ACTIVE GRADING PERMIT.




## DISCLAIMER NOTE

1) EXISTING UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION.

2) FOR ROADWAY WIDENING AND HALF STREET IMPROVEMENTS THE CONTRACTOR SHALL VERIFY CROSS SLOPES FROM EXISTING PAVEMENT SAWCUT LINE TO PROPOSED EDGE OF PAVEMENT OR PROJECTED LIP OF CURB PRIOR TO SUBGRADE PREPARATION AND CONSTRUCTION OF PROPOSED CURB LINE. IF MINIMUM OR MAXIMUM CROSS SLOPES DO NOT MEET AGENCY STANDARDS THE CONTRACTOR SHALL NOTIFY THE ENGINEER.

## GRADING NOTES

1. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AND REPORT ALL DISCREPANCIES TO THE ENGINEER.
2. ALL IMPROVEMENTS TO BE PROTECTED FROM EROSION BY SWPPP.
3. MAXIMUM/MINIMUM SLOPES AND MINIMUM STREET SECTIONS NOT TO EXCEED THAT SHOWN ON GEOTECH REPORT.
4. SEE DETAIL SHEET FOR STREET SECTIONS AND DETAILS.
5. ALL PUBLIC AND PRIVATE DRAINAGE IMPROVEMENTS TO BE BONDED FOR AND INSPECTED.
6. CONSTRUCTION OF BLOCK WALLS REQUIRES A SEPARATE BUILDING PERMIT AND APPROVAL BY THE CITY OF LAS VEGAS BUILDING DEPARTMENT.
7. CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF EXISTING UTILITY STRUCTURES AND FACILITIES AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION. CONTRACTOR TO PROTECT IN PLACE DURING CONSTRUCTION. ENGINEER/OWNER SHALL BE NOTIFIED OF PRIOR DAMAGE TO EXISTING FACILITIES PRIOR TO CONSTRUCTION. CONTRACTOR WILL BE RESPONSIBLE FOR REPAIR/REPLEPING FACILITIES IF ENGINEER/OWNER IS NOT NOTIFIED OF EXISTING DAMAGE PRIOR TO CONSTRUCTION COMMENCING.
8. NO STRUCTURE, VEGETATION, OR OBJECTS OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF THE ADJACENT CURB IF CURB EXIST) WITHIN THE SIGHT VISIBILITY ZONES.

## LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDELINES

(REQUIRED FOR ALL SITES GREATER THAN 1 ACRE (43,560 SQ.FT.))

1. THE OWNER, SITE DEVELOPER, CONTRACTOR, AND/OR THEIR AUTHORIZED AGENTS SHALL EACH DAY REMOVE ALL SEDIMENT, MUD, CONSTRUCTION DEBRIS, OR OTHER POTENTIAL POLLUTANTS THAT MAY HAVE BEEN DISCHARGED TO, OR ACCUMULATED IN, THE PUBLIC RIGHTS OF WAY OF CLARK COUNTY AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS SITE DEVELOPMENT OR CONSTRUCTION PROJECT. SUCH MATERIALS SHALL BE PREVENTED FROM ENTERING THE STORM SEWER SYSTEM.
2. ADDITIONAL CONSTRUCTION SITE DISCHARGE BEST MANAGEMENT PRACTICES MAY BE REQUIRED OF THE OWNER AND HIS OR HER AGENTS DUE TO UNFORESEEN EROSION PROBLEMS OR IF THE SUBMITTED PLAN DOES NOT MEET THE PERFORMANCE STANDARDS SPECIFIED IN CLARK COUNTY TITLE 24.40 AND IN THE LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDANCE MANUAL.
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4. AT A MINIMUM, THE CONTRACTOR OR HIS AGENT SHALL INSPECT ALL DISTURBED AREAS, AREAS USED FOR STORAGE OF MATERIALS AND EQUIPMENT THAT ARE EXPOSED TO PRECIPITATION, VEHICLE ENTRANCE AND EXIT LOCATIONS, AND ALL BMPS WEEKLY, AND WITHIN 24 HOURS AFTER A RAIN EVENT OF 0.5 INCHES OR MORE. THE CONTRACTOR OR HIS AGENT SHALL UPDATE OR MODIFY THE STORMWATER POLLUTION PREVENTION PLAN AS NECESSARY. SOME EXCEPTIONS TO WEEKLY INSPECTIONS MAY APPLY, SUCH AS SUSPENSION OF LAND DISTURBANCE ACTIVITIES. REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.12.
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## FLOOD ZONE

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE X (UNSHADED) AS DEPICTED ON FLOOD INSURANCE RATE MAP (FIRM) PANEL 32003C1750E, DATED SEPTEMBER 27, 2002. A ZONE X (UNSHADED) IS DESCRIBED AS AN AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN.

## CONSTRUCTION NOTES

1. CONSTRUCT 2" AC PAVEMENT WITH 4" TYPE II AGGREGATE BASE
2. CONSTRUCT 8' CROSS GUTTER PER CCAUSD NO. 228
3. CONSTRUCT 30" ROLL CURB PER CCAUSD NO. 217.1
4. CONSTRUCT "L" TYPE CURB AND GUTTER PER CCAUSD NO. 216
5. CONSTRUCT "A" TYPE CURB PER CCAUSD NO. 219
6. CONSTRUCT 3' TRANSITION PER CCAUSD NO. 223
7. FIELD VERIFY AND CONNECT TO EXISTING CURB AND GUTTER
8. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD NO. 234 (5" THICK W/ 5" TYPE II AGGREGATE BASE)
9. INSTALL STEEL TUBING FENCE & MAINTENANCE ACCESS GATE PER CCAUSD NO. 425.51 (GATE WIDTH PER PLAN)
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11. INSTALL RIP RAP W/ 6" TYPE II GRANULAR BEDDING WITH FILTER FABRIC (D50=6", T=12")
12. INSTALL 20.0' TYPE "CM2" DROP INLET PER CCAUSD NO. 412.1 AND 421
13. INSTALL 15.0' TYPE "CM2" DROP INLET PER CCAUSD NO. 412.1 AND 421
14. INSTALL 48" TYPE II SDMH PER CCAUSD NO. 401 AND 405.2
15. REMOVE EXISTING IMPROVEMENTS
16. CONSTRUCT CONCRETE FLUME PER DETAIL ON SHEET D-2
17. CONSTRUCT SIDEWALK DRAIN PER CCAUSD NO. 236
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## STORM DRAIN NOTE

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| 2. | 15' TYPE "CM2" DROP INLET | EA | 1 |
| 3. | 20.0' TYPE "CM2" DROP INLET | EA | 4 |
| 4. | 18" RCP CLASS III STORM DRAIN | LF | 70 |
| 5. | 24" RCP CLASS III STORM DRAIN | LF | 13 |
| 6. | 42" RCP CLASS III STORM DRAIN | LF | 416 |
| 7. | 68" X 43" CLASS III HERCP STORM DRAIN | LF | 29 |
| 8. | RIPRAP D50=6", THK=12" | SF | 2,975 |
| 9. | 8' WIDE CONCRETE VALLEY GUTTER | SF | 3,847 |
| 10. | SIDEWALK DRAIN | EA | 4 |
| 11. | 38" X 24" CLASS III HERCP STORM DRAIN | LF | 54 |
| 12. | 10' TYPE "CM2" DROP INLET | EA | 1 |
| 13. | 9' WIDE CONCRETE FLUME | LF | 31 |

## FLOOD CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED TECHNICAL DRAINAGE STUDY DS-5377 ON FILE AT CITY OF LAS VEGAS FOR THE SUBJECT PROJECT.

KEVIN M. BROSS, P.E. 24572 DATE

FAST
Call before you UnderGround
1-702-432-5300
FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (F.A.S.T.)

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

Call before you Dig
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.
Call 811
OR
1-800-227-2600

Westwood
Phone (702) 284-5300
Fax (702) 284-5399
5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
westwoodps.com
Westwood Professional Services, Inc.

| NO. | DESCRIPTION | DATE | BY | APP. DATE | APP. |
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CITY OF LAS VEGAS, NEVADA

# 190 OCTANE FT PARTNERS, LLC

## BLM 270 PARCEL C-2 & C-3 PHASE 1

## GRADING PLAN I

S23 T19S R59E

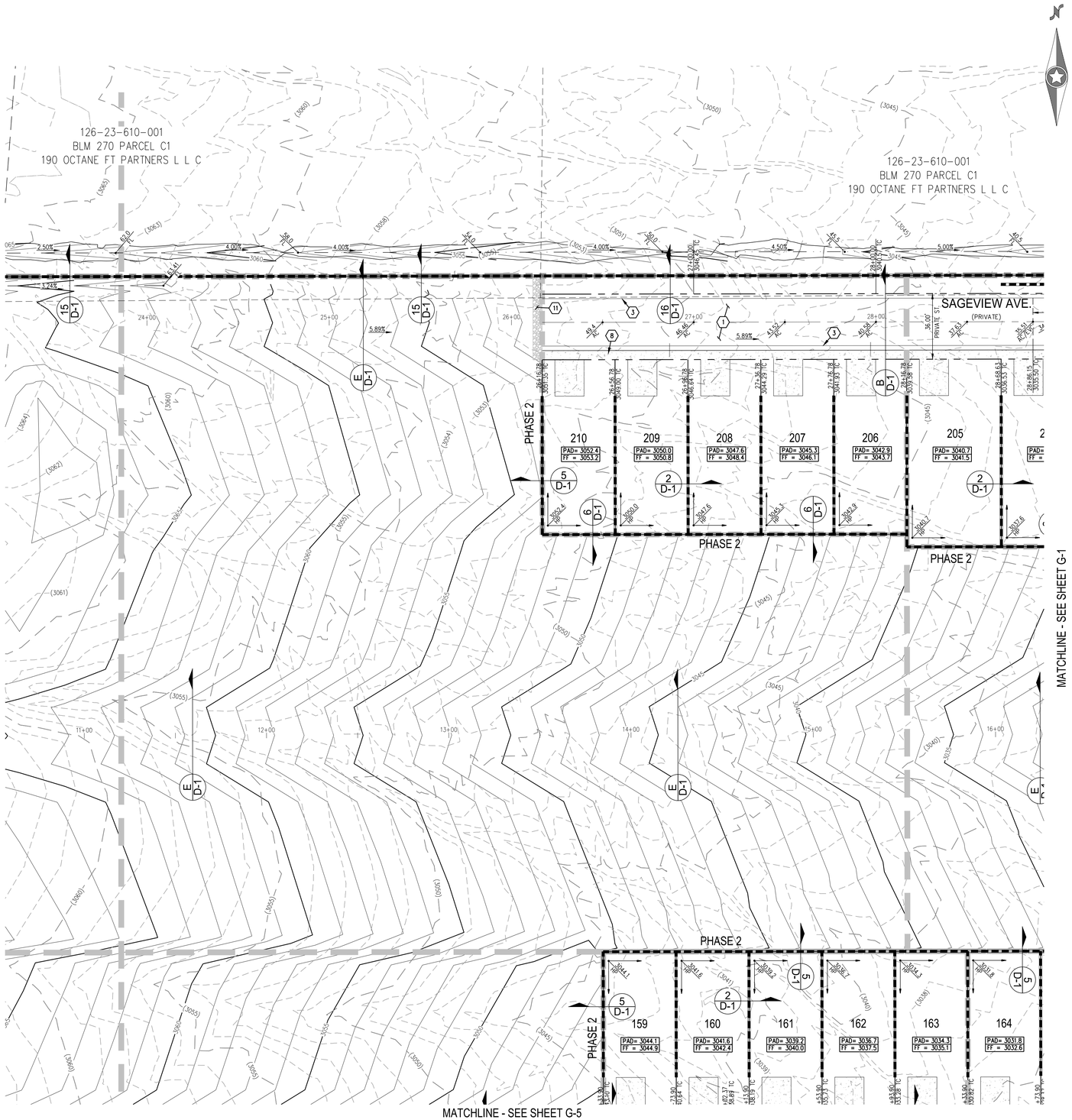
DATE: 12/14/2020
DRAFTER: YZ
DESIGNER: HN
CHECKED: MK
PROJECT NO.
BZR2001




12/14/2020

G-1
SHEET 4 OF 17

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0 30 60
SCALE - 1"=30' FEET

CALL SOUTHWEST GAS AT 702-651-2111 FOR STANDBY WHEN EXCAVATING OVER OR NEAR HIGH PRESSURE GAS LINES

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## ELEVATION NOTE

ADD 3000 TO ALL SPOT GRADES WHERE THE HUNDREDS AND THOUSANDS PLACES ARE OMITTED FOR ACTUAL ELEVATION (I.E. 01.00 REPRESENTS 3001.00)

## SOILS REPORT

SOILS REPORT BY SOUTHWEST GEOTECHNICAL
PROJECT NO. 197111 DATED 01/28/20

## EARTHWORKS

EARTHWORK QUANTITIES (RAW):
CUT= 79,506 CU YDS
FILL= 76,965 CU YDS

EXPORTED MATERIAL TO BE DISPOSED OF AT AN APPROVED LICENSED DISPOSAL FACILITY OR AT A SITE WITH AN APPROVED AND ACTIVE GRADING PERMIT.

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2) FOR ROADWAY WIDENING AND HALF STREET IMPROVEMENTS THE CONTRACTOR SHALL VERIFY CROSS SLOPES FROM EXISTING PAVEMENT SAWCUT LINE TO PROPOSED EDGE OF PAVEMENT OR PROJECTED LIP OF CURB PRIOR TO SUBGRADE PREPARATION AND CONSTRUCTION OF PROPOSED CURB LINE. IF MINIMUM OR MAXIMUM CROSS SLOPES DO NOT MEET AGENCY STANDARDS THE CONTRACTOR SHALL NOTIFY THE ENGINEER.

## GRADING NOTES

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2. ALL IMPROVEMENTS TO BE PROTECTED FROM EROSION BY SWPPP.
3. MAXIMUM/MINIMUM SLOPES AND MINIMUM STREET SECTIONS NOT TO EXCEED THAT SHOWN ON GEOTECH REPORT.
4. SEE DETAIL SHEET FOR STREET SECTIONS AND DETAILS.
5. ALL PUBLIC AND PRIVATE DRAINAGE IMPROVEMENTS TO BE BONDED FOR AND INSPECTED.
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8. NO STRUCTURE, VEGETATION, OR OBJECTS OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF THE ADJACENT CURB IF CURB EXIST) WITHIN THE SIGHT VISIBILITY ZONES.

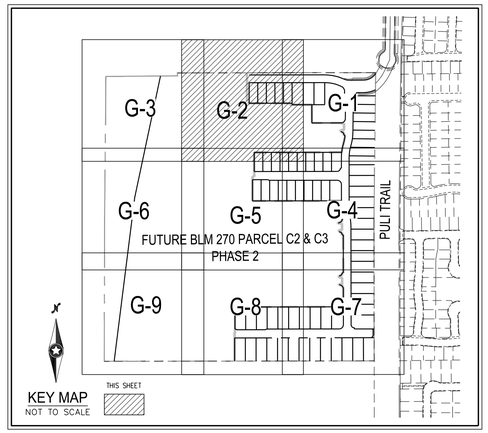
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(REQUIRED FOR ALL SITES GREATER THAN 1 ACRE (43,560 SQ.FT.))

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KEVIN M. BROSS, P.E. 24572 DATE

FAST
Call before you UnderGround
1-702-432-5300
FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (F.A.S.T.)

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

Call before you Dig
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.
Call 811
OR
1-800-227-2600

Westwood
Phone (702) 284-5300
Fax (702) 284-5399
5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
westwoodps.com
Westwood Professional Services, Inc.

| NO. | DESCRIPTION | DATE | BY | APP. DATE | APP. |
|---|---|---|---|---|---|
| | | | | | |

CITY OF LAS VEGAS, NEVADA

190 OCTANE FT PARTNERS, LLC

BLM 270 PARCEL C-2 & C-3 PHASE 1

GRADING PLAN II

S23 T19S R59E

DATE: 12/14/2020
DRAFTER: YZ
DESIGNER: HN
CHECKED: MK

PROJECT NO.
BZR2001

PROFESSIONAL ENGINEER STATE OF NEVADA
KEVIN M. BROSS
Exp. 12/31/2020
CIVIL
No. 24572
12/14/2020

G-2
SHEET 5 OF 17

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0 30 60
SCALE – 1"=30' FEET

CALL SOUTHWEST GAS AT 702-651-2111 FOR STANDBY WHEN EXCAVATING OVER OR NEAR HIGH PRESSURE GAS LINES

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## SOILS REPORT

SOILS REPORT BY SOUTHWEST GEOTECHNICAL
PROJECT NO. 197111 DATED 01/28/20

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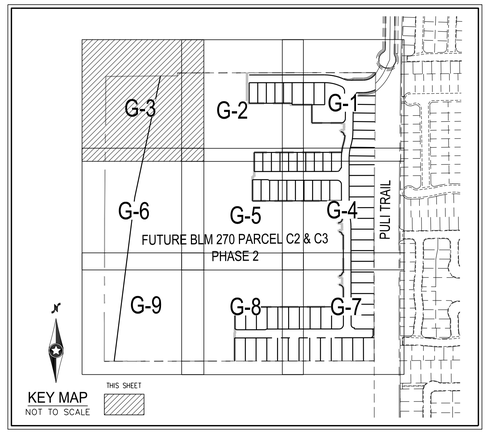
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## STORM DRAIN NOTE

ALL ONSITE STORM DRAIN FACILITIES ARE PRIVATELY OWNED AND PRIVATELY MAINTAINED BY THE HOA.

## DRAINAGE EASEMENT NOTE

ALL PRIVATE STREETS, DRAINAGE EASEMENTS AND COMMON LOTS ARE PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA

## DRAINAGE IMPROVEMENT QUANTITIES

| | | | |
|---|---|---|---|
| 1. | 48" TYPE III STORM DRAIN MANHOLE | EA | 6 |
| 2. | 15' TYPE "CM2" DROP INLET | EA | 1 |
| 3. | 20.0' TYPE "CM2" DROP INLET | EA | 4 |
| 4. | 18" RCP CLASS III STORM DRAIN | LF | 70 |
| 5. | 24" RCP CLASS III STORM DRAIN | LF | 13 |
| 6. | 42" RCP CLASS III STORM DRAIN | LF | 416 |
| 7. | 68" X 43" CLASS III HERCP STORM DRAIN | LF | 29 |
| 8. | RIPRAP D50=6", THK=12" | SF | 2,975 |
| 9. | 8' WIDE CONCRETE VALLEY GUTTER | SF | 3,847 |
| 10. | SIDEWALK DRAIN | EA | 4 |
| 11. | 38" X 24" CLASS III HERCP STORM DRAIN | LF | 54 |
| 12. | 10' TYPE "CM2" DROP INLET | EA | 1 |
| 13. | 9' WIDE CONCRETE FLUME | LF | 31 |

## FLOOD CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED TECHNICAL DRAINAGE STUDY DS-5377 ON FILE AT CITY OF LAS VEGAS FOR THE SUBJECT PROJECT.

KEVIN M. BROSS, P.E. 24572 DATE

FAST
Call before you
UnderGround
1-702-432-5300
FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (F.A.S.T.)

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

Call before you Dig
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.
Call 811
OR
1-800-227-2600

Westwood
Phone (702) 284-5300
Fax (702) 284-5399
5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
westwoodps.com
Westwood Professional Services, Inc.

| NO. | DESCRIPTION | DATE | BY | APP. DATE | APP. |
|---|---|---|---|---|---|
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CITY OF LAS VEGAS, NEVADA

# 190 OCTANE FT PARTNERS, LLC

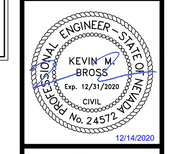
# BLM 270 PARCEL C-2 & C-3 PHASE 1

# GRADING PLAN III

S23 T19S R59E

DATE: 12/14/2020
DRAFTER: YZ
DESIGNER: HN
CHECKED: MK

PROJECT NO.
BZR2001

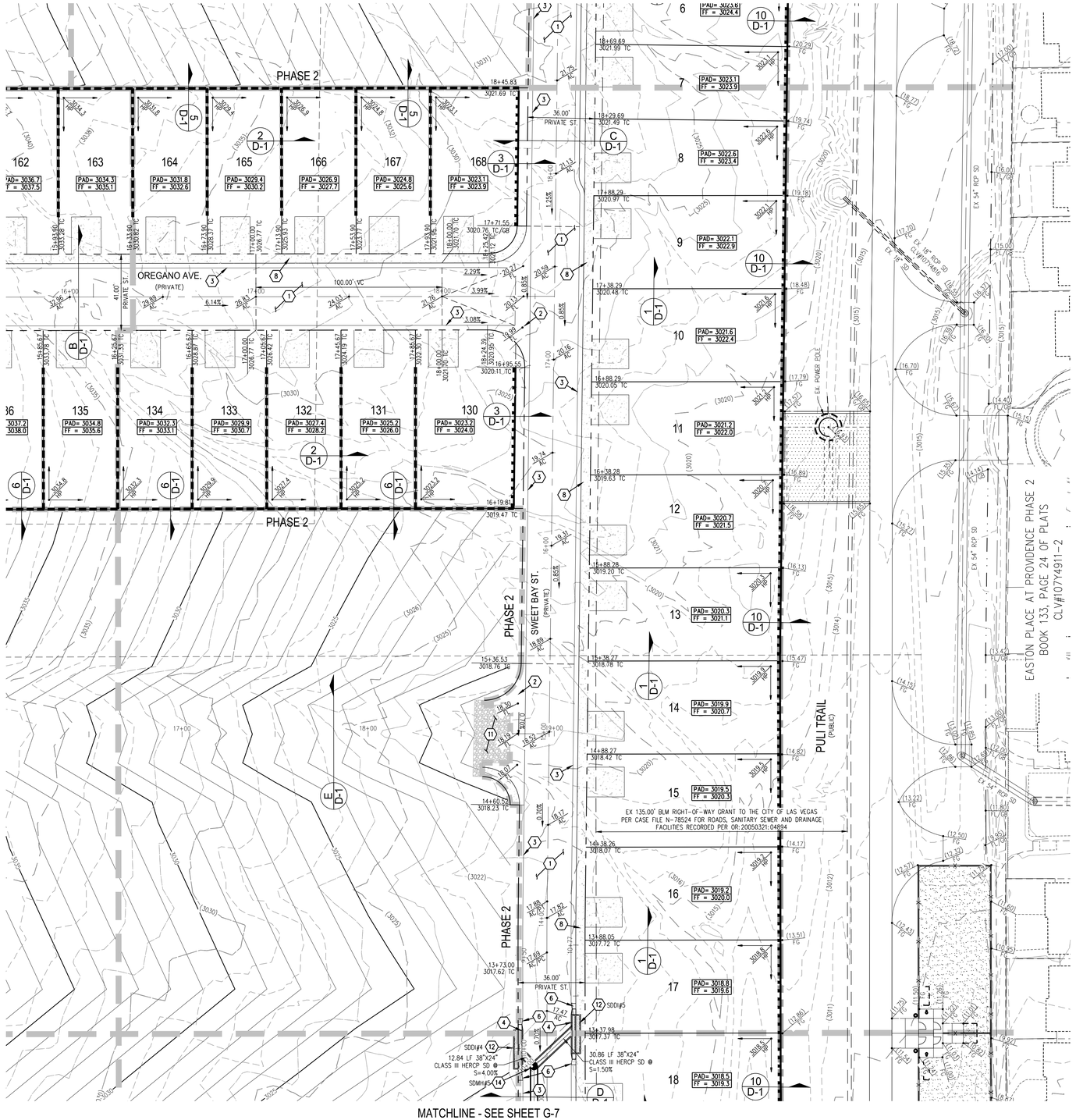



12/14/2020

G-3
SHEET 6 OF 17

I:\bzr2001 blm 270 c\dwg\smirav\xhsse l\bzr2001 grd-1.dwg 12/14/2020 12:14 PM Hung Nguyen

MATCHLINE - SEE SHEET G-1




MATCHLINE - SEE SHEET G-5

MATCHLINE - SEE SHEET G-7

0 30 60
SCALE – 1"=30' FEET

CALL SOUTHWEST GAS AT 702-651-2111 FOR STANDBY WHEN EXCAVATING OVER OR NEAR HIGH PRESSURE GAS LINES

## SURVEY NOTE

OWNER RESPONSIBLE TO PROVIDE SURVEY MONUMENTATION AS SHOWN AND TO REPLACE ALL SURVEY MONUMENTATION DAMAGED, DISTURBED, DESTROYED, OR OBSCURED DURING CONSTRUCTION.

## ELEVATION NOTE

ADD 3000 TO ALL SPOT GRADES WHERE THE HUNDREDS AND THOUSANDS PLACES ARE OMITTED FOR ACTUAL ELEVATION (I.E. 01.00 REPRESENTS 3001.00)

## SOILS REPORT

SOILS REPORT BY SOUTHWEST GEOTECHNICAL
PROJECT NO. 197111 DATED 01/28/20

## EARTHWORKS

EARTHWORK QUANTITIES (RAW):
CUT= 79,506 CU YDS
FILL= 76,965 CU YDS

EXPORTED MATERIAL TO BE DISPOSED OF AT AN APPROVED LICENSED DISPOSAL FACILITY OR AT A SITE WITH AN APPROVED AND ACTIVE GRADING PERMIT.

## DISCLAIMER NOTE

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2) FOR ROADWAY WIDENING AND HALF STREET IMPROVEMENTS THE CONTRACTOR SHALL VERIFY CROSS SLOPES FROM EXISTING PAVEMENT SAWCUT LINE TO PROPOSED EDGE OF PAVEMENT OR PROJECTED LIP OF CURB PRIOR TO SUBGRADE PREPARATION AND CONSTRUCTION OF PROPOSED CURB LINE. IF MINIMUM OR MAXIMUM CROSS SLOPES DO NOT MEET AGENCY STANDARDS THE CONTRACTOR SHALL NOTIFY THE ENGINEER.

## GRADING NOTES

1. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AND REPORT ALL DISCREPANCIES TO THE ENGINEER.
2. ALL IMPROVEMENTS TO BE PROTECTED FROM EROSION BY SWPPP.
3. MAXIMUM/MINIMUM SLOPES AND MINIMUM STREET SECTIONS NOT TO EXCEED THAT SHOWN ON GEOTECH REPORT.
4. SEE DETAIL SHEET FOR STREET SECTIONS AND DETAILS.
5. ALL PUBLIC AND PRIVATE DRAINAGE IMPROVEMENTS TO BE BONDED FOR AND INSPECTED.
6. CONSTRUCTION OF BLOCK WALLS REQUIRES A SEPARATE BUILDING PERMIT AND APPROVAL BY THE CITY OF LAS VEGAS BUILDING DEPARTMENT.
7. CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF EXISTING UTILITY STRUCTURES AND FACILITIES AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION. CONTRACTOR TO PROTECT IN PLACE DURING CONSTRUCTION. ENGINEER/OWNER SHALL BE NOTIFIED OF PRIOR DAMAGE TO EXISTING FACILITIES PRIOR TO CONSTRUCTION. CONTRACTOR WILL BE RESPONSIBLE FOR REPAIR/REPLACING FACILITIES IF ENGINEER/OWNER IS NOT NOTIFIED OF EXISTING DAMAGE PRIOR TO CONSTRUCTION COMMENCING.
8. NO STRUCTURE, VEGETATION, OR OBJECTS OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF THE ADJACENT CURB IF CURB EXIST) WITHIN THE SIGHT VISIBILITY ZONES.

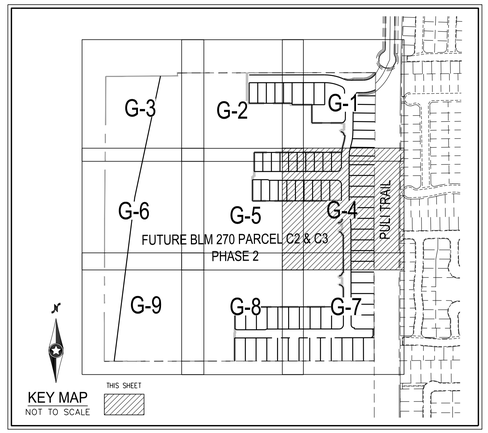
## LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDELINES

(REQUIRED FOR ALL SITES GREATER THAN 1 ACRE (43,560 SQ.FT.))

1. THE OWNER, SITE DEVELOPER, CONTRACTOR, AND/OR THEIR AUTHORIZED AGENTS SHALL EACH DAY REMOVE ALL SEDIMENT, MUD, CONSTRUCTION DEBRIS, OR OTHER POTENTIAL POLLUTANTS THAT MAY HAVE BEEN DISCHARGED TO, OR ACCUMULATED IN, THE PUBLIC RIGHTS OF WAY OF CLARK COUNTY AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS SITE DEVELOPMENT OR CONSTRUCTION PROJECT. SUCH MATERIALS SHALL BE PREVENTED FROM ENTERING THE STORM SEWER SYSTEM.
2. ADDITIONAL CONSTRUCTION SITE DISCHARGE BEST MANAGEMENT PRACTICES MAY BE REQUIRED OF THE OWNER AND HIS OR HER AGENTS DUE TO UNFORESEEN EROSION PROBLEMS OR IF THE SUBMITTED PLAN DOES NOT MEET THE PERFORMANCE STANDARDS SPECIFIED IN CLARK COUNTY TITLE 24.40 AND IN 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, SECTION III.A.5.
4. AT A MINIMUM, THE CONTRACTOR OR HIS AGENT SHALL INSPECT ALL DISTURBED AREAS, AREAS USED FOR STORAGE OF MATERIALS AND EQUIPMENT THAT ARE EXPOSED TO PRECIPITATION, VEHICLE ENTRANCE AND EXIT LOCATIONS, AND ALL BMPS WEEKLY, AND WITHIN 24 HOURS AFTER A RAIN EVENT OF 0.5 INCHES OR MORE. THE CONTRACTOR OR HIS AGENT SHALL UPDATE OR MODIFY THE STORMWATER POLLUTION PREVENTION PLAN AS NECESSARY. SOME EXCEPTIONS TO WEEKLY INSPECTIONS MAY APPLY, SUCH AS SUSPENSION OF LAND DISTURBANCE ACTIVITIES. REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.12.
5. ACCUMULATED SEDIMENT IN BMPS SHALL BE REMOVED WITHIN SEVEN DAYS AFTER A STORMWATER RUNOFF EVENT OR PRIOR TO THE NEXT ANTICIPATED STORM EVENT, WHICHEVER IS EARLIER. SEDIMENT MUST BE REMOVED WHEN BMP DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE.

## FLOOD ZONE

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE X (UNSHADED) AS DEPICTED ON FLOOD INSURANCE RATE MAP (FIRM) PANEL 32003C1750E, DATED SEPTEMBER 27, 2002. A ZONE X (UNSHADED) IS DESCRIBED AS AN AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN.




## CONSTRUCTION NOTES

1. CONSTRUCT 2" AC PAVEMENT WITH 4" TYPE II AGGREGATE BASE
2. CONSTRUCT 8' CROSS GUTTER PER CCAUSD NO. 228
3. CONSTRUCT 30" ROLL CURB PER CCAUSD NO. 217.1
4. CONSTRUCT "L" TYPE CURB AND GUTTER PER CCAUSD NO. 216
5. CONSTRUCT "A" TYPE CURB PER CCAUSD NO. 219
6. CONSTRUCT 3' TRANSITION PER CCAUSD NO. 223
7. FIELD VERIFY AND CONNECT TO EXISTING CURB AND GUTTER
8. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD NO. 234 (5" THICK W/ 5" TYPE II AGGREGATE BASE)
9. INSTALL STEEL TUBING FENCE & MAINTENANCE ACCESS GATE PER CCAUSD NO. 425.51 (GATE WIDTH PER PLAN)
10. CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD NO. 235, CASE I
11. INSTALL RIP RAP W/ 6" TYPE II GRANULAR BEDDING WITH FILTER FABRIC (D50=6", T=12")
12. INSTALL 20.0' TYPE "CM2" DROP INLET PER CCAUSD NO. 412.1 AND 421
13. INSTALL 15.0' TYPE "CM2" DROP INLET PER CCAUSD NO. 412.1 AND 421
14. INSTALL 48" TYPE II SDMH PER CCAUSD NO. 401 AND 405.2
15. REMOVE EXISTING IMPROVEMENTS
16. CONSTRUCT CONCRETE FLUME PER DETAIL ON SHEET D-2
17. CONSTRUCT SIDEWALK DRAIN PER CCAUSD NO. 236
18. INSTALL 10.0' TYPE "CM2" DROP INLET PER CCAUSD NO. 412.1 AND 421

## STORM DRAIN NOTE

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KEVIN M. BROSS, P.E. 24572 DATE











Westwood
Phone (702) 284-5300
Fax (702) 284-5399
5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
westwoodps.com
Westwood Professional Services, Inc.


| NO. | DESCRIPTION | DATE | BY | APP. DATE | APP |
|---|---|---|---|---|---|
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CITY OF LAS VEGAS, NEVADA

190 OCTANE FT PARTNERS, LLC

BLM 270 PARCEL C-2 & C-3 PHASE 1

GRADING PLAN IV

S23 T19S R59E

DATE: 12/14/2020
DRAFTER: YZ
DESIGNER: MK
CHECKED: MK

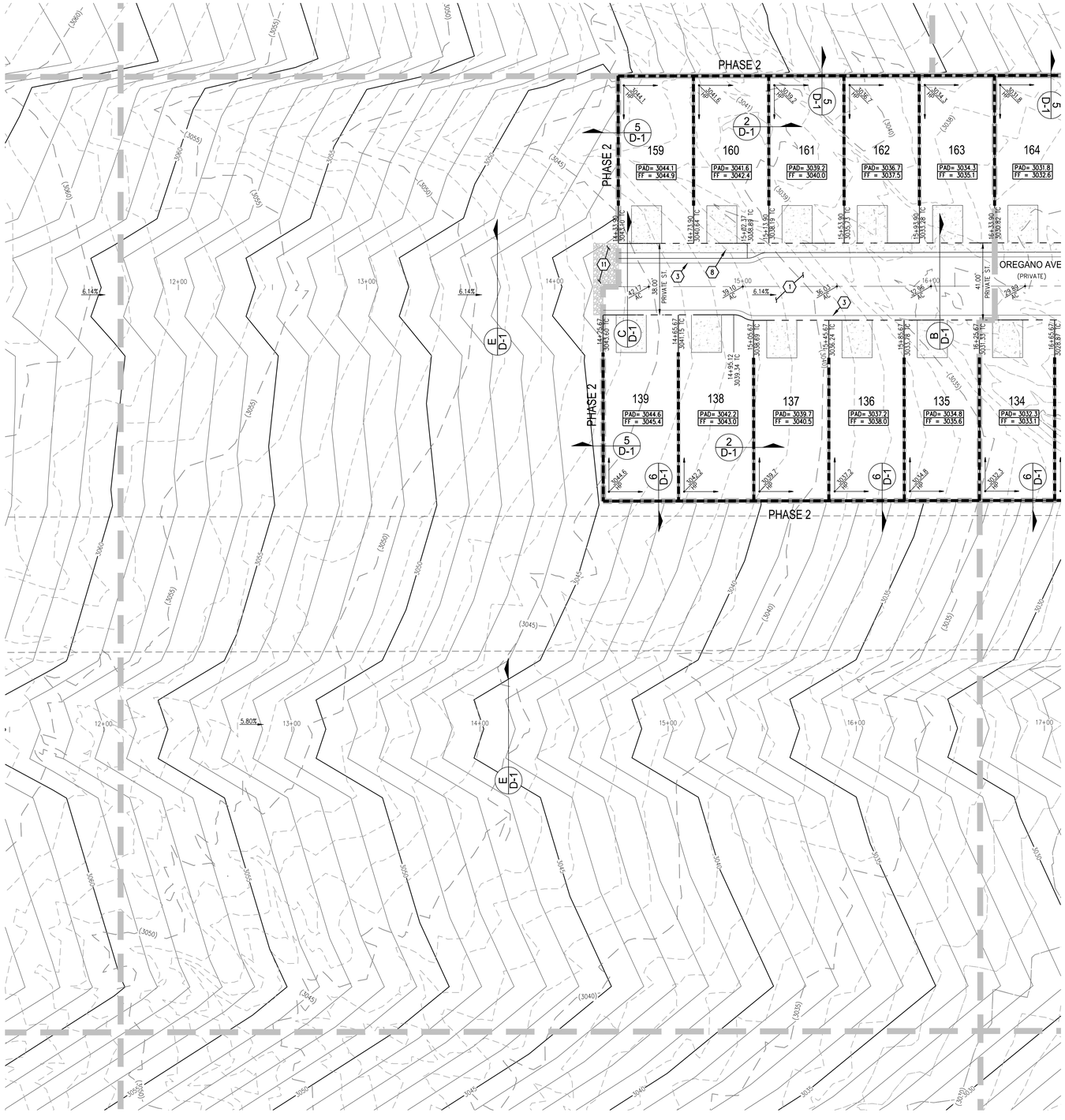
PROJECT NO.
BZR2001

PROFESSIONAL ENGINEER – STATE OF NEVADA
KEVIN M. BROSS
Exp. 12/31/2020
CIVIL
No. 24572

12/14/2020

G-4
SHEET 7 OF 17


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0 30 60
SCALE – 1"=30' FEET

CALL SOUTHWEST GAS AT 702-651-2111 FOR STANDBY WHEN EXCAVATING OVER OR NEAR HIGH PRESSURE GAS LINES

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## SOILS REPORT

SOILS REPORT BY SOUTHWEST GEOTECHNICAL
PROJECT NO. 197111 DATED 01/28/20

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EARTHWORK QUANTITIES (RAW):
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EXPORTED MATERIAL TO BE DISPOSED OF AT AN APPROVED LICENSED DISPOSAL FACILITY OR AT A SITE WITH AN APPROVED AND ACTIVE GRADING PERMIT.

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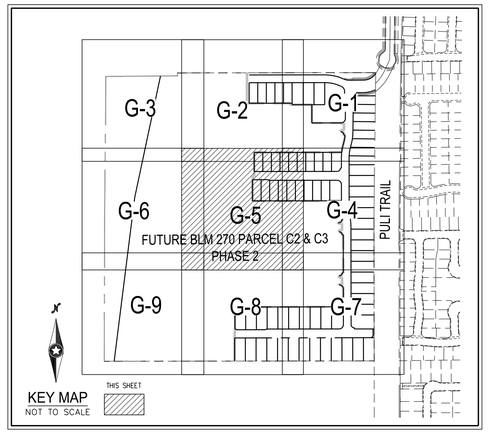
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| 13. | 9' WIDE CONCRETE FLUME | LF | 31 |

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KEVIN M. BROSS, P.E. 24572 DATE


FAST
Call before you UnderGround
1-702-432-5300
FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (F.A.S.T.)

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY.
CALL BEFORE YOU DO OVERHEAD
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Westwood
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Fax (702) 284-5399
5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
westwoodps.com
Westwood Professional Services, Inc.


| NO. | DESCRIPTION | DATE | BY | APP. DATE | APP. |
|---|---|---|---|---|---|
| | | | | | |

CITY OF LAS VEGAS, NEVADA

# 190 OCTANE FT PARTNERS, LLC

# BLM 270 PARCEL C-2 & C-3 PHASE 1

## GRADING PLAN V

S23 T19S R59E

DATE: 12/14/2020
DRAFTER: YZ
DESIGNER: HN
CHECKED: MK

PROJECT NO.
BZR2001




12/14/2020

G-5
SHEET 8 OF 17


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0 30 60
SCALE - 1"=30' FEET

CALL SOUTHWEST GAS AT 702-651-2111 FOR STANDBY WHEN EXCAVATING OVER OR NEAR HIGH PRESSURE GAS LINES

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ADD 3000 TO ALL SPOT GRADES WHERE THE HUNDREDS AND THOUSANDS PLACES ARE OMITTED FOR ACTUAL ELEVATION (I.E. 01.00 REPRESENTS 3001.00)

## SOILS REPORT

SOILS REPORT BY SOUTHWEST GEOTECHNICAL
PROJECT NO. 197111 DATED 01/28/20

## EARTHWORKS

EARTHWORK QUANTITIES (RAW):
CUT= 79,506 CU YDS
FILL= 76,965 CU YDS

EXPORTED MATERIAL TO BE DISPOSED OF AT AN APPROVED LICENSED DISPOSAL FACILITY OR AT A SITE WITH AN APPROVED AND ACTIVE GRADING PERMIT.

## DISCLAIMER NOTE

1) EXISTING UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION.

2) FOR ROADWAY WIDENING AND HALF STREET IMPROVEMENTS THE CONTRACTOR SHALL VERIFY CROSS SLOPES FROM EXISTING PAVEMENT SAWCUT LINE TO PROPOSED EDGE OF PAVEMENT OR PROJECTED LIP OF CURB PRIOR TO SUBGRADE PREPARATION AND CONSTRUCTION OF PROPOSED CURB LINE. IF MINIMUM OR MAXIMUM CROSS SLOPES DO NOT MEET AGENCY STANDARDS THE CONTRACTOR SHALL NOTIFY THE ENGINEER.

## GRADING NOTES

1. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AND REPORT ALL DISCREPANCIES TO THE ENGINEER.
2. ALL IMPROVEMENTS TO BE PROTECTED FROM EROSION BY SWPPP.
3. MAXIMUM/MINIMUM SLOPES AND MINIMUM STREET SECTIONS NOT TO EXCEED THAT SHOWN ON GEOTECH REPORT.
4. SEE DETAIL SHEET FOR STREET SECTIONS AND DETAILS.
5. ALL PUBLIC AND PRIVATE DRAINAGE IMPROVEMENTS TO BE BONDED FOR AND INSPECTED.
6. CONSTRUCTION OF BLOCK WALLS REQUIRES A SEPARATE BUILDING PERMIT AND APPROVAL BY THE CITY OF LAS VEGAS BUILDING DEPARTMENT.
7. CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF EXISTING UTILITY STRUCTURES AND FACILITIES AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION. CONTRACTOR TO PROTECT IN PLACE DURING CONSTRUCTION. ENGINEER/OWNER SHALL BE NOTIFIED OF PRIOR DAMAGE TO EXISTING FACILITIES PRIOR TO CONSTRUCTION. CONTRACTOR WILL BE RESPONSIBLE FOR REPAIR/REPLEPING FACILITIES IF ENGINEER/OWNER IS NOT NOTIFIED OF EXISTING DAMAGE PRIOR TO CONSTRUCTION COMMENCING.
8. NO STRUCTURE, VEGETATION, OR OBJECTS OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF THE ADJACENT CURB IF CURB EXIST) WITHIN THE SIGHT VISIBILITY ZONES.

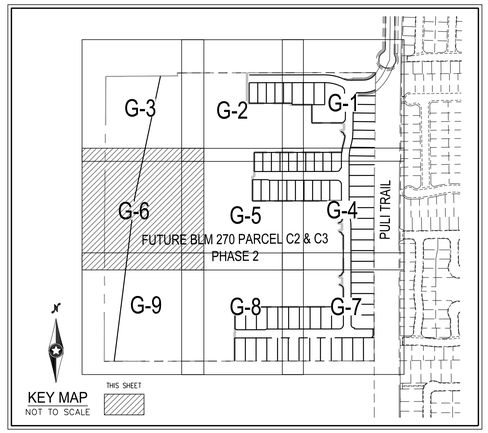
## LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDELINES

(REQUIRED FOR ALL SITES GREATER THAN 1 ACRE (43,560 SQ.FT.))

1. THE OWNER, SITE DEVELOPER, CONTRACTOR, AND/OR THEIR AUTHORIZED AGENTS SHALL EACH DAY REMOVE ALL SEDIMENT, MUD, CONSTRUCTION DEBRIS, OR OTHER POTENTIAL POLLUTANTS THAT MAY HAVE BEEN DISCHARGED TO, OR ACCUMULATED IN, THE PUBLIC RIGHTS OF WAY OF CLARK COUNTY AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS SITE DEVELOPMENT OR CONSTRUCTION PROJECT. SUCH MATERIALS SHALL BE PREVENTED FROM ENTERING THE STORM SEWER SYSTEM.
2. ADDITIONAL CONSTRUCTION SITE DISCHARGE BEST MANAGEMENT PRACTICES MAY BE REQUIRED OF THE OWNER AND HIS OR HER AGENTS DUE TO UNFORESEEN EROSION PROBLEMS OR IF THE SUBMITTED PLAN DOES NOT MEET THE PERFORMANCE STANDARDS SPECIFIED IN CLARK COUNTY TITLE 24.40 AND IN 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, SECTION III.A.5.
4. AT A MINIMUM, THE CONTRACTOR OR HIS AGENT SHALL INSPECT ALL DISTURBED AREAS, AREAS USED FOR STORAGE OF MATERIALS AND EQUIPMENT THAT ARE EXPOSED TO PRECIPITATION, VEHICLE ENTRANCE AND EXIT LOCATIONS, AND ALL BMPS WEEKLY, AND WITHIN 24 HOURS AFTER A RAIN EVENT OF 0.5 INCHES OR MORE. THE CONTRACTOR OR HIS AGENT SHALL UPDATE OR MODIFY THE STORMWATER POLLUTION PREVENTION PLAN AS NECESSARY. SOME EXCEPTIONS TO WEEKLY INSPECTIONS MAY APPLY, SUCH AS SUSPENSION OF LAND DISTURBANCE ACTIVITIES. REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.12.
5. ACCUMULATED SEDIMENT IN BMPS SHALL BE REMOVED WITHIN SEVEN DAYS AFTER A STORMWATER RUNOFF EVENT OR PRIOR TO THE NEXT ANTICIPATED STORM EVENT, WHICHEVER IS EARLIER SEDIMENT MUST BE REMOVED WHEN BMP DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE.

## FLOOD ZONE

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE X (UNSHADED) AS DEPICTED ON FLOOD INSURANCE RATE MAP (FIRM) PANEL 32003C1750E, DATED SEPTEMBER 27, 2002. A ZONE X (UNSHADED) IS DESCRIBED AS AN AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN.




## CONSTRUCTION NOTES

1. CONSTRUCT 2" AC PAVEMENT WITH 4" TYPE II AGGREGATE BASE
2. CONSTRUCT 8' CROSS GUTTER PER CCAUSD NO. 228
3. CONSTRUCT 30" ROLL CURB PER CCAUSD NO. 217.1
4. CONSTRUCT "L" TYPE CURB AND GUTTER PER CCAUSD NO. 216
5. CONSTRUCT "A" TYPE CURB PER CCAUSD NO. 219
6. CONSTRUCT 3' TRANSITION PER CCAUSD NO. 223
7. FIELD VERIFY AND CONNECT TO EXISTING CURB AND GUTTER
8. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD NO. 234 (5" THICK W/ 5" TYPE II AGGREGATE BASE)
9. INSTALL STEEL TUBING FENCE & MAINTENANCE ACCESS GATE PER CCAUSD NO. 425.51 (GATE WIDTH PER PLAN)
10. CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD NO. 235, CASE 1
11. INSTALL RIP RAP W/ 6" TYPE II GRANULAR BEDDING WITH FILTER FABRIC D50=6", T=12"
12. INSTALL 20.0' TYPE "CM2" DROP INLET PER CCAUSD NO. 412.1 AND 421
13. INSTALL 15.0' TYPE "CM2" DROP INLET PER CCAUSD NO. 412.1 AND 421
14. INSTALL 48" TYPE II SDMH PER CCAUSD NO. 401 AND 405.2
15. REMOVE EXISTING IMPROVEMENTS
16. CONSTRUCT CONCRETE FLUME PER DETAIL ON SHEET D-2
17. CONSTRUCT SIDEWALK DRAIN PER CCAUSD NO. 236
18. INSTALL 10.0' TYPE "CM2" DROP INLET PER CCAUSD NO. 412.1 AND 421

## STORM DRAIN NOTE

ALL ONSITE STORM DRAIN FACILITIES ARE PRIVATELY OWNED AND PRIVATELY MAINTAINED BY THE HOA.

## DRAINAGE EASEMENT NOTE

ALL PRIVATE STREETS, DRAINAGE EASEMENTS AND COMMON LOTS ARE PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA

## DRAINAGE IMPROVEMENT QUANTITIES

| | | | |
|---|---|---|---|
| 1. | 48" TYPE III STORM DRAIN MANHOLE | EA | 6 |
| 2. | 15" TYPE "CM2" DROP INLET | EA | 1 |
| 3. | 20.0' TYPE "CM2" DROP INLET | EA | 4 |
| 4. | 18" RCP CLASS III STORM DRAIN | LF | 70 |
| 5. | 24" RCP CLASS III STORM DRAIN | LF | 13 |
| 6. | 42" RCP CLASS III STORM DRAIN | LF | 416 |
| 7. | 68" X 43" CLASS III HERCP STORM DRAIN | LF | 29 |
| 8. | RIPRAP D50=6", THK=12" | SF | 2,975 |
| 9. | 8' WIDE CONCRETE VALLEY GUTTER | SF | 3,847 |
| 10. | SIDEWALK DRAIN | EA | 4 |
| 11. | 38" X 24" CLASS III HERCP STORM DRAIN | LF | 54 |
| 12. | 10' TYPE "CM2" DROP INLET | EA | 1 |
| 13. | 9' WIDE CONCRETE FLUME | LF | 31 |

## FLOOD CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED TECHNICAL DRAINAGE STUDY DS-5377 ON FILE AT CITY OF LAS VEGAS FOR THE SUBJECT PROJECT.

KEVIN M. BROSS, P.E. 24572 DATE

FAST
Call before you UnderGround
1-702-432-5300
FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (F.A.S.T.)

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

Call before you Dig
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.
Call 811
OR
1-800-227-2600

Westwood
Phone (702) 284-5300
Fax (702) 284-5399
5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
westwoodps.com
Westwood Professional Services, Inc.

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CITY OF LAS VEGAS, NEVADA

190 OCTANE FT PARTNERS, LLC

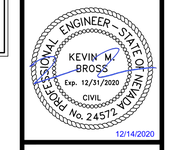
BLM 270 PARCEL C-2 & C-3 PHASE 1

GRADING PLAN VI

S23 T19S R59E

DATE: 12/14/2020
DRAFTER: YZ
DESIGNER: HN
CHECKED: MK

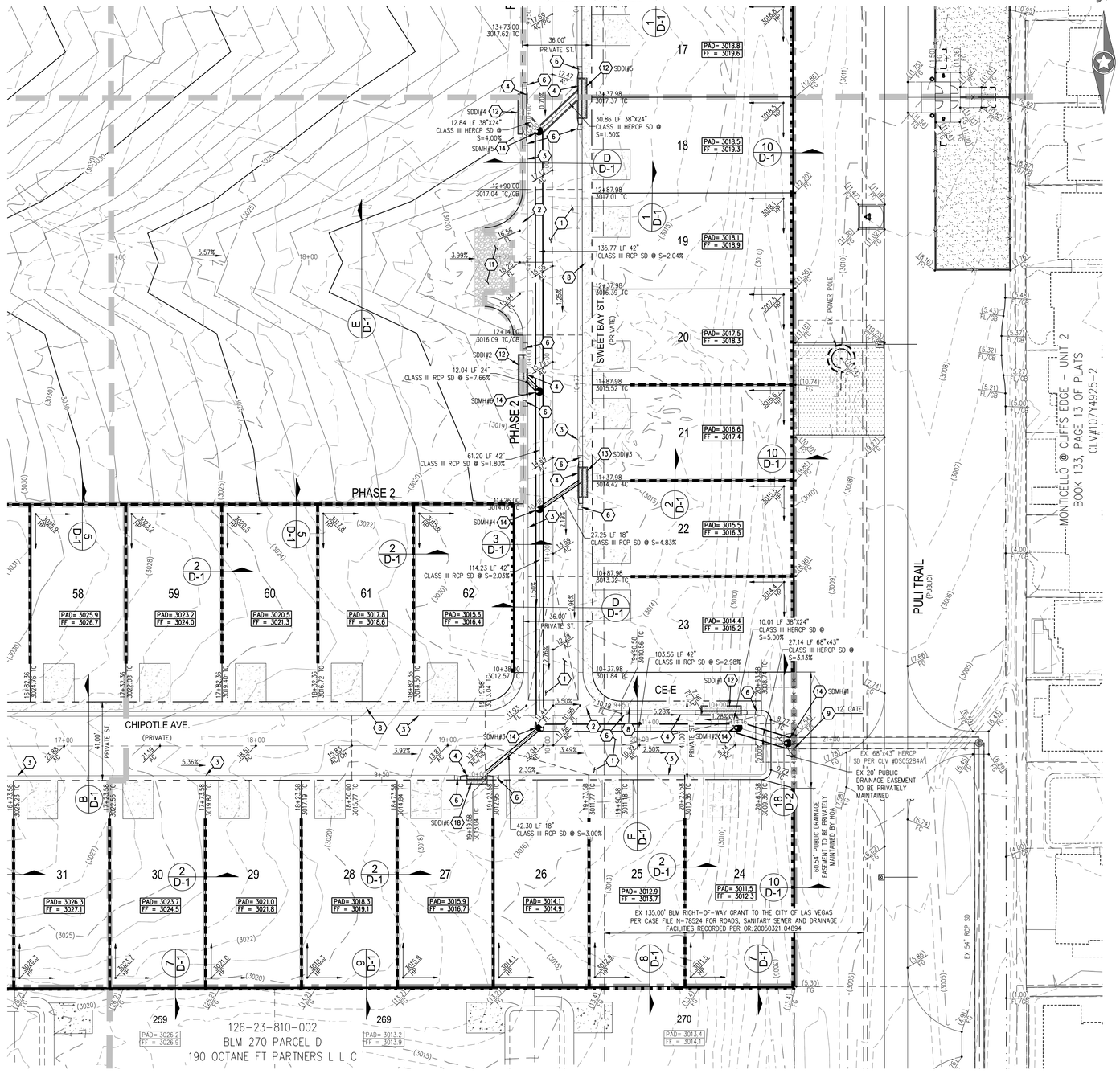
PROJECT NO.
BZR2001

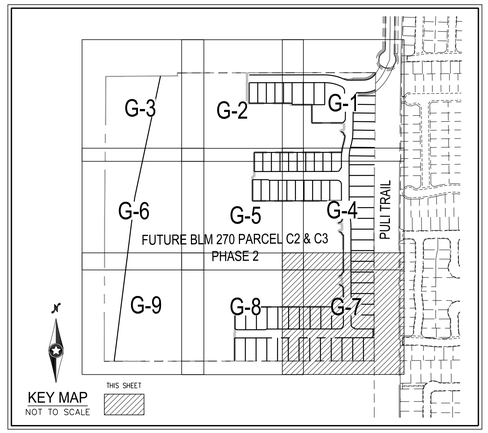



12/14/2020

G-6
SHEET 9 OF 17

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0 30 60
SCALE – 1"=30' FEET

CALL SOUTHWEST GAS AT 702-651-2111 FOR STANDBY WHEN EXCAVATING OVER OR NEAR HIGH PRESSURE GAS LINES

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SOILS REPORT BY SOUTHWEST GEOTECHNICAL
PROJECT NO. 197111 DATED 01/28/20

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KEVIN M. BROSS, P.E. 24572 DATE

FAST
Call before you UnderGround
1-702-432-5300
FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (F.A.S.T.)

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

Call before you Dig
AVOID CUTTING UNDERGROUND UTILITIES LINES. IT'S COSTLY.
Call 811 OR
1-800-227-2600

Westwood
Phone (702) 284-5300
Fax (702) 284-5399
5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
westwoodps.com
Westwood Professional Services, Inc.

| NO. | DESCRIPTION | DATE | BY | APP. DATE | APP. |
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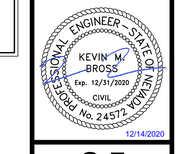
CITY OF LAS VEGAS, NEVADA

# 190 OCTANE FT PARTNERS, LLC
## BLM 270 PARCEL C-2 & C-3 PHASE 1
## GRADING PLAN VII

S23 T19S R59E

DATE: 12/14/2020
DRAFTER: YZ
DESIGNER: HN
CHECKED: MK

PROJECT NO.
BZR2001




G-7
SHEET 10 OF 17

I:\bzr2001 blm 270 c\dwg\mpkv\sheet 1\bzr2001 grd-1.dwg 12/14/2020 12:15 PM Hung Nguyen

MATCHLINE - SEE SHEET G-5

MATCHLINE - SEE SHEET G-9

MATCHLINE - SEE SHEET G-7




0 30 60
SCALE – 1"=30' FEET

CALL SOUTHWEST GAS AT 702-651-2111 FOR STANDBY WHEN EXCAVATING OVER OR NEAR HIGH PRESSURE GAS LINES

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SOILS REPORT BY SOUTHWEST GEOTECHNICAL
PROJECT NO. 197111 DATED 01/28/20

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8. NO STRUCTURE, VEGETATION, OR OBJECTS OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF THE ADJACENT CURB IF CURB EXIST) WITHIN THE SIGHT VISIBILITY ZONES.

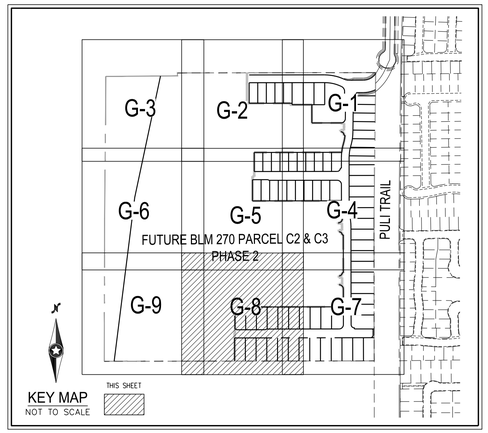
## LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDELINES

(REQUIRED FOR ALL SITES GREATER THAN 1 ACRE (43,560 SQ.FT.))

1. THE OWNER, SITE DEVELOPER, CONTRACTOR, AND/OR THEIR AUTHORIZED AGENTS SHALL EACH DAY REMOVE ALL SEDIMENT, MUD, CONSTRUCTION DEBRIS, OR OTHER POTENTIAL POLLUTANTS THAT MAY HAVE BEEN DISCHARGED TO, OR ACCUMULATED IN, THE PUBLIC RIGHTS OF WAY OF CLARK COUNTY AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS SITE DEVELOPMENT OR CONSTRUCTION PROJECT. SUCH MATERIALS SHALL BE PREVENTED FROM ENTERING THE STORM SEWER SYSTEM.
2. ADDITIONAL CONSTRUCTION SITE DISCHARGE BEST MANAGEMENT PRACTICES MAY BE REQUIRED OF THE OWNER AND HIS OR HER AGENTS DUE TO UNFORESEEN EROSION PROBLEMS OR IF THE SUBMITTED PLAN DOES NOT MEET THE PERFORMANCE STANDARDS SPECIFIED IN CLARK COUNTY TITLE 24.40 AND IN 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, SECTION III.A.5.
4. AT A MINIMUM, THE CONTRACTOR OR HIS AGENT SHALL INSPECT ALL DISTURBED AREAS, AREAS USED FOR STORAGE OF MATERIALS AND EQUIPMENT THAT ARE EXPOSED TO PRECIPITATION, VEHICLE ENTRANCE AND EXIT LOCATIONS, AND ALL BMPS WEEKLY, AND WITHIN 24 HOURS AFTER A RAIN EVENT OF 0.5 INCHES OR MORE. THE CONTRACTOR OR HIS AGENT SHALL UPDATE OR MODIFY THE STORMWATER POLLUTION PREVENTION PLAN AS NECESSARY. SOME EXCEPTIONS TO WEEKLY INSPECTIONS MAY APPLY, SUCH AS SUSPENSION OF LAND DISTURBANCE ACTIVITIES. REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.12.
5. ACCUMULATED SEDIMENT IN BMPS SHALL BE REMOVED WITHIN SEVEN DAYS AFTER A STORMWATER RUNOFF EVENT OR PRIOR TO THE NEXT ANTICIPATED STORM EVENT, WHICHEVER IS EARLIER. SEDIMENT MUST BE REMOVED WHEN BMP DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE.

## FLOOD ZONE

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE X (UNSHADED) AS DEPICTED ON FLOOD INSURANCE RATE MAP (FIRM) PANEL 32003C1750E, DATED SEPTEMBER 27, 2002. A ZONE X (UNSHADED) IS DESCRIBED AS AN AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN.




## CONSTRUCTION NOTES

1. CONSTRUCT 2" AC PAVEMENT WITH 4" TYPE II AGGREGATE BASE
2. CONSTRUCT 8' CROSS GUTTER PER CCAUSD NO. 228
3. CONSTRUCT 30" ROLL CURB PER CCAUSD NO. 217.1
4. CONSTRUCT "L" TYPE CURB AND GUTTER PER CCAUSD NO. 216
5. CONSTRUCT "A" TYPE CURB PER CCAUSD NO. 219
6. CONSTRUCT 3' TRANSITION PER CCAUSD NO. 223
7. FIELD VERIFY AND CONNECT TO EXISTING CURB AND GUTTER
8. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD NO. 234 (5" THICK W/ 5" TYPE II AGGREGATE BASE)
9. INSTALL STEEL TUBING FENCE & MAINTENANCE ACCESS GATE PER CCAUSD NO. 425.51 (GATE WIDTH PER PLAN)
10. CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD NO. 235, CASE 1
11. INSTALL RIP RAP W/ 6" TYPE II GRANULAR BEDDING WITH FILTER FABRIC (D50=6", T=12"
12. INSTALL 20.0' TYPE "CM2" DROP INLET PER CCAUSD NO. 412.1 AND 421
13. INSTALL 15.0' TYPE "CM2" DROP INLET PER CCAUSD NO. 412.1 AND 421
14. INSTALL 48" TYPE II SDMH PER CCAUSD NO. 401 AND 405.2
15. REMOVE EXISTING IMPROVEMENTS
16. CONSTRUCT CONCRETE FLUME PER DETAIL ON SHEET D-2
17. CONSTRUCT SIDEWALK DRAIN PER CCAUSD NO. 236
18. INSTALL 10.0' TYPE "CM2" DROP INLET PER CCAUSD NO. 412.1 AND 421

## STORM DRAIN NOTE

ALL ONSITE STORM DRAIN FACILITIES ARE PRIVATELY OWNED AND PRIVATELY MAINTAINED BY THE HOA.

## DRAINAGE EASEMENT NOTE

ALL PRIVATE STREETS, DRAINAGE EASEMENTS AND COMMON LOTS ARE PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA

## DRAINAGE IMPROVEMENT QUANTITIES

| | | | |
|---|---|---|---|
| 1. | 48" TYPE III STORM DRAIN MANHOLE | EA | 6 |
| 2. | 15' TYPE "CM2" DROP INLET | EA | 1 |
| 3. | 20.0' TYPE "CM2" DROP INLET | EA | 4 |
| 4. | 18" RCP CLASS III STORM DRAIN | LF | 70 |
| 5. | 24" RCP CLASS III STORM DRAIN | LF | 13 |
| 6. | 42" RCP CLASS III STORM DRAIN | LF | 416 |
| 7. | 68" X 43" CLASS III HERCP STORM DRAIN | LF | 29 |
| 8. | RIPRAP D50=6", THK=12" | SF | 2,975 |
| 9. | 8' WIDE CONCRETE VALLEY GUTTER | SF | 3,847 |
| 10. | SIDEWALK DRAIN | EA | 4 |
| 11. | 38" X 24" CLASS III HERCP STORM DRAIN | LF | 54 |
| 12. | 10' TYPE "CM2" DROP INLET | EA | 1 |
| 13. | 9' WIDE CONCRETE FLUME | LF | 31 |

## FLOOD CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED TECHNICAL DRAINAGE STUDY DS-5377 ON FILE AT CITY OF LAS VEGAS FOR THE SUBJECT PROJECT.

KEVIN M. BROSS, P.E. 24572 DATE


FAST
Call before you UnderGround
1-702-432-5300
FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (F.A.S.T.)

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

Call before you Dig
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.
Call 811
OR
1-800-227-2600



Westwood
Phone (702) 284-5300
Fax (702) 284-5399
5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
westwoodps.com
Westwood Professional Services, Inc.


| NO. | DESCRIPTION | DATE | BY | APP. DATE | APP. |
|---|---|---|---|---|---|
| | | | | | |

CITY OF LAS VEGAS, NEVADA

# 190 OCTANE FT PARTNERS, LLC

# BLM 270 PARCEL C-2 & C-3 PHASE 1

## GRADING PLAN VIII

S23 T19S R59E

DATE: 12/14/2020
DRAFTER: YZ
DESIGNER: HN
CHECKED: MK
PROJECT NO. BZR2001

PROFESSIONAL ENGINEER – STATE OF NEVADA – KEVIN M. BROSS – Exp. 12/31/2020 – CIVIL – NO. 24572
12/14/2020

G-8
SHEET 11 OF 17

z:\bzr2001 blm 270 c\dwg\improv\phase 1\bzr2001 grd-1.dwg 12/14/2020 12:15 PM Hung Nguyen




0 30 60
SCALE – 1"=30' FEET

CALL SOUTHWEST GAS AT 702-651-2111 FOR STANDBY WHEN EXCAVATING OVER OR NEAR HIGH PRESSURE GAS LINES

## SURVEY NOTE

OWNER RESPONSIBLE TO PROVIDE SURVEY MONUMENTATION AS SHOWN AND TO REPLACE ALL SURVEY MONUMENTATION DAMAGED, DISTURBED, DESTROYED, OR OBSCURED DURING CONSTRUCTION.

## ELEVATION NOTE

ADD 3000 TO ALL SPOT GRADES WHERE THE HUNDREDS AND THOUSANDS PLACES ARE OMITTED FOR ACTUAL ELEVATION (I.E. 01.00 REPRESENTS 3001.00)

## SOILS REPORT

SOILS REPORT BY SOUTHWEST GEOTECHNICAL
PROJECT NO. 197111 DATED 01/28/20

## EARTHWORKS

EARTHWORK QUANTITIES (RAW):
CUT= 79,506 CU YDS
FILL= 76,965 CU YDS

EXPORTED MATERIAL TO BE DISPOSED OF AT AN APPROVED LICENSED DISPOSAL FACILITY OR AT A SITE WITH AN APPROVED AND ACTIVE GRADING PERMIT.

## DISCLAIMER NOTE

1) EXISTING UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION.

2) FOR ROADWAY WIDENING AND HALF STREET IMPROVEMENTS THE CONTRACTOR SHALL VERIFY CROSS SLOPES FROM EXISTING PAVEMENT SAWCUT LINE TO PROPOSED EDGE OF PAVEMENT OR PROJECTED LIP OF CURB PRIOR TO SUBGRADE PREPARATION AND CONSTRUCTION OF PROPOSED CURB LINE. IF MINIMUM OR MAXIMUM CROSS SLOPES DO NOT MEET AGENCY STANDARDS THE CONTRACTOR SHALL NOTIFY THE ENGINEER.

## GRADING NOTES

1. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AND REPORT ALL DISCREPANCIES TO THE ENGINEER.
2. ALL IMPROVEMENTS TO BE PROTECTED FROM EROSION BY SWPPP.
3. MAXIMUM/MINIMUM SLOPES AND MINIMUM STREET SECTIONS NOT TO EXCEED THAT SHOWN ON GEOTECH REPORT.
4. SEE DETAIL SHEET FOR STREET SECTIONS AND DETAILS.
5. ALL PUBLIC AND PRIVATE DRAINAGE IMPROVEMENTS TO BE BONDED FOR AND INSPECTED.
6. CONSTRUCTION OF BLOCK WALLS REQUIRES A SEPARATE BUILDING PERMIT AND APPROVAL BY THE CITY OF LAS VEGAS BUILDING DEPARTMENT.
7. CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF EXISTING UTILITY STRUCTURES AND FACILITIES AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION. CONTRACTOR TO PROTECT IN PLACE DURING CONSTRUCTION. ENGINEER/OWNER SHALL BE NOTIFIED OF PRIOR DAMAGE TO EXISTING FACILITIES PRIOR TO CONSTRUCTION. CONTRACTOR WILL BE RESPONSIBLE FOR REPAIR/REPLEPING FACILITIES IF ENGINEER/OWNER IS NOT NOTIFIED OF EXISTING DAMAGE PRIOR TO CONSTRUCTION COMMENCING.
8. NO STRUCTURE, VEGETATION, OR OBJECTS OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF THE ADJACENT CURB IF CURB EXIST) WITHIN THE SIGHT VISIBILITY ZONES.

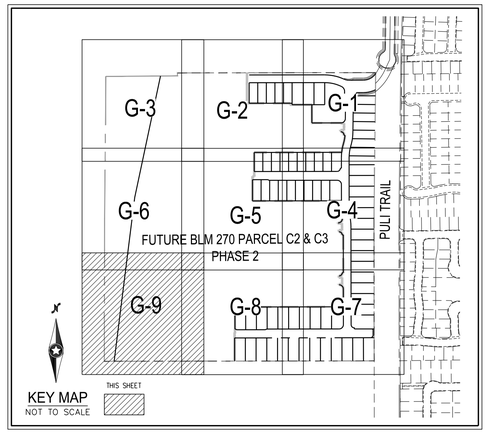
## LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDELINES

(REQUIRED FOR ALL SITES GREATER THAN 1 ACRE (43,560 SQ.FT.))

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3. TEMPORARY OR PERMANENT STABILIZATION PRACTICES WILL BE INSTALLED ON DISTURBED AREAS AS SOON AS PRACTICABLE AND NO LATER THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. SOME EXCEPTIONS MAY APPLY; REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.5.
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 A RAIN EVENT OF 0.5 INCHES OR MORE. THE CONTRACTOR OR HIS AGENT SHALL UPDATE OR MODIFY THE STORMWATER POLLUTION PREVENTION PLAN AS NECESSARY. SOME EXCEPTIONS TO WEEKLY INSPECTIONS MAY APPLY, SUCH AS SUSPENSION OF LAND DISTURBANCE ACTIVITIES. REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.12.
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## FLOOD ZONE

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## CONSTRUCTION NOTES

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3. CONSTRUCT 30" ROLL CURB PER CCAUSD NO. 217.1
4. CONSTRUCT "L" TYPE CURB AND GUTTER PER CCAUSD NO. 216
5. CONSTRUCT "A" TYPE CURB PER CCAUSD NO. 219
6. CONSTRUCT 3' TRANSITION PER CCAUSD NO. 223
7. FIELD VERIFY AND CONNECT TO EXISTING CURB AND GUTTER
8. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD NO. 234 (5" THICK W/ 5" TYPE II AGGREGATE BASE)
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10. CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD NO. 235, CASE 1
11. INSTALL RIP RAP W/ 6" TYPE II GRANULAR BEDDING WITH FILTER FABRIC D50=6", T=12"
12. INSTALL 20.0' TYPE "CM2" DROP INLET PER CCAUSD NO. 412.1 AND 421
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14. INSTALL 48" TYPE II SDMH PER CCAUSD NO. 401 AND 405.2
15. REMOVE EXISTING IMPROVEMENTS
16. CONSTRUCT CONCRETE FLUME PER DETAIL ON SHEET D-2
17. CONSTRUCT SIDEWALK DRAIN PER CCAUSD NO. 236
18. INSTALL 10.0' TYPE "CM2" DROP INLET PER CCAUSD NO. 412.1 AND 421

## STORM DRAIN NOTE

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## DRAINAGE EASEMENT NOTE

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## DRAINAGE IMPROVEMENT QUANTITIES

| | | | |
|---|---|---|---|
| 1. | 48" TYPE III STORM DRAIN MANHOLE | EA | 6 |
| 2. | 15' TYPE "CM2" DROP INLET | EA | 1 |
| 3. | 20.0' TYPE "CM2" DROP INLET | EA | 4 |
| 4. | 18" RCP CLASS III STORM DRAIN | LF | 70 |
| 5. | 24" RCP CLASS III STORM DRAIN | LF | 13 |
| 6. | 42" RCP CLASS III STORM DRAIN | LF | 416 |
| 7. | 68" X 43" CLASS III HERCP STORM DRAIN | LF | 29 |
| 8. | RIPRAP D50=6", THK=12" | SF | 2,975 |
| 9. | 8' WIDE CONCRETE VALLEY GUTTER | SF | 3,847 |
| 10. | SIDEWALK DRAIN | EA | 4 |
| 11. | 38" X 24" CLASS III HERCP STORM DRAIN | LF | 54 |
| 12. | 10' TYPE "CM2" DROP INLET | EA | 1 |
| 13. | 9' WIDE CONCRETE FLUME | LF | 31 |

## FLOOD CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED TECHNICAL DRAINAGE STUDY DS-5377 ON FILE AT CITY OF LAS VEGAS FOR THE SUBJECT PROJECT.

KEVIN M. BROSS, P.E. 24572 DATE

FAST
Call before you UnderGround
1-702-432-5300
FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (F.A.S.T.)

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

Call before you Dig
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.
Call 811
OR
1-800-227-2600

Westwood
Phone (702) 284-5300
Fax (702) 284-5399
5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
westwoodps.com
Westwood Professional Services, Inc.

| NO. | DESCRIPTION | DATE | BY | APP. DATE | APP. |
|---|---|---|---|---|---|

CITY OF LAS VEGAS, NEVADA

# 190 OCTANE FT PARTNERS, LLC

# BLM 270 PARCEL C-2 & C-3 PHASE 1

# GRADING PLAN IX

S23 T19S R59E

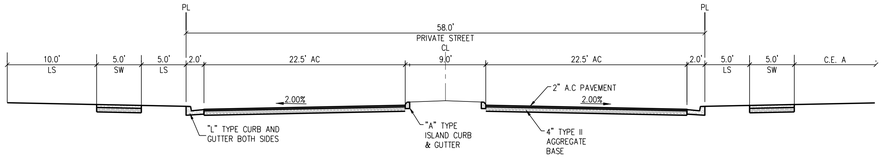
DATE: 12/14/2020
DRAFTER: YZ
DESIGNER: HN
CHECKED: MK

PROJECT NO.
BZR2001

PROFESSIONAL ENGINEER – STATE OF NEVADA – KEVIN M. BROSS – Exp. 12/31/2020 – CIVIL – No. 24572
12/14/2020

G-9
SHEET 12 OF 17

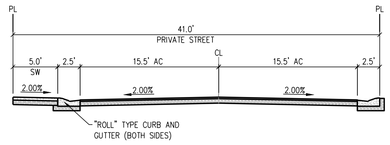
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## A. ENTRANCE SECTION

NOT TO SCALE

INTERIOR STREET

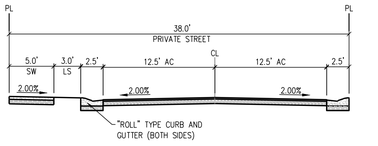



NOTE: PARKING ON BOTH SIDES OF THE STREET

## B. 41' STREET SECTION

NOT TO SCALE

INTERIOR STREET

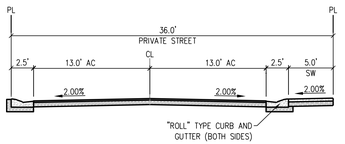



NOTE: NO PARKING ON EITHER SIDE OF THE STREET

## C. 38' STREET SECTION (POPOUT)

NOT TO SCALE

INTERIOR STREET

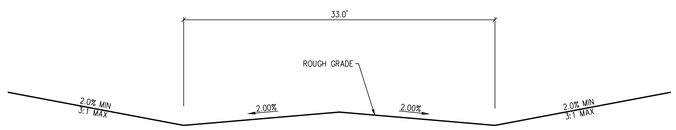



NOTE: PARKING ON SIDEWALK SIDE OF STREET

## D. 36' STREET SECTION

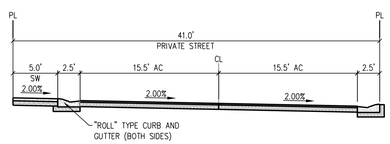
NOT TO SCALE

INTERIOR STREET




## E. ROUGH GRADE SECTION

NOT TO SCALE

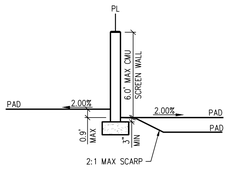



NOTE: PARKING ON BOTH SIDES OF THE STREET

## F. 41' STREET SUPERELEVATION SECTION

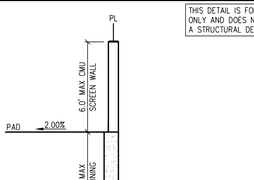
NOT TO SCALE

INTERIOR STREET



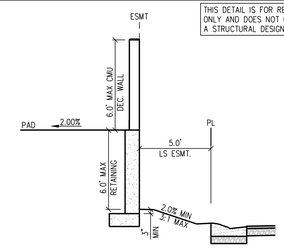

## 1. WALL SECTION

NOT TO SCALE



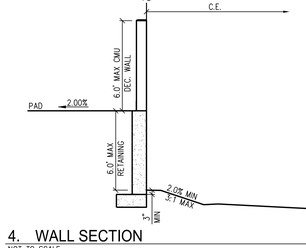

## 2. WALL SECTION

NOT TO SCALE



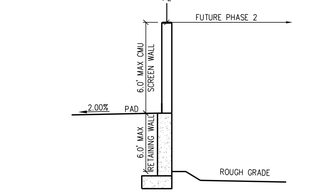

## 3. WALL SECTION

NOT TO SCALE



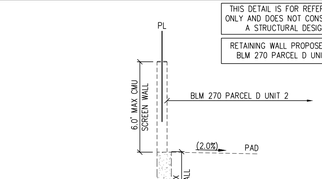

## 4. WALL SECTION

NOT TO SCALE



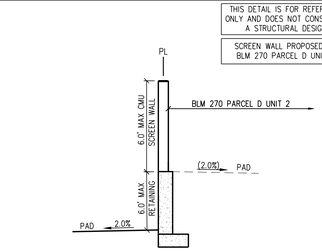

## 6. WALL SECTION

NOT TO SCALE



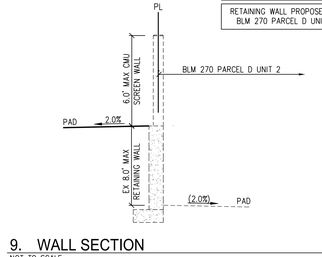

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NOT TO SCALE



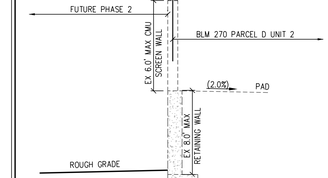

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NOT TO SCALE



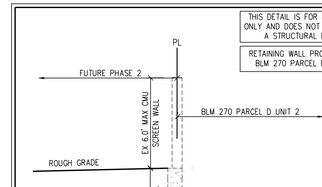

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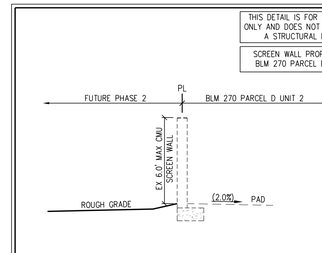

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NOT TO SCALE




## 11. WALL SECTION

NOT TO SCALE



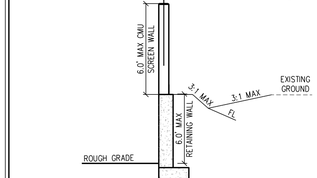

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NOT TO SCALE



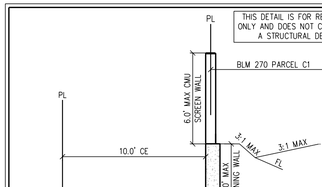

## 12. WALL SECTION

NOT TO SCALE




## 14. WALL SECTION

NOT TO SCALE



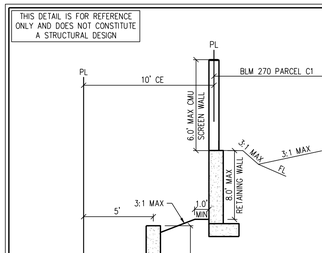

## 15. WALL SECTION

NOT TO SCALE




## 16. WALL SECTION

NOT TO SCALE




## 17. WALL SECTION

NOT TO SCALE

FAST
Call before you
UnderGround
1-702-432-5300
FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (F.A.S.T.)

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

Call before you Dig
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Call 811 OR
1-800-227-2600

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Fax (702) 284-5399
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Suite 216
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westwoodps.com
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CITY OF LAS VEGAS, NEVADA

# 190 OCTANE FT PARTNERS, LLC

# BLM 270 PARCEL C-2 & C-3 PHASE 1

# STREET SECTIONS AND GRADING DETAILS I

S23 T19S R59E

DATE: 12/14/2020

DRAFTER: YZ

DESIGNER: HN

CHECKED: MK

PROJECT NO.
BZR2001



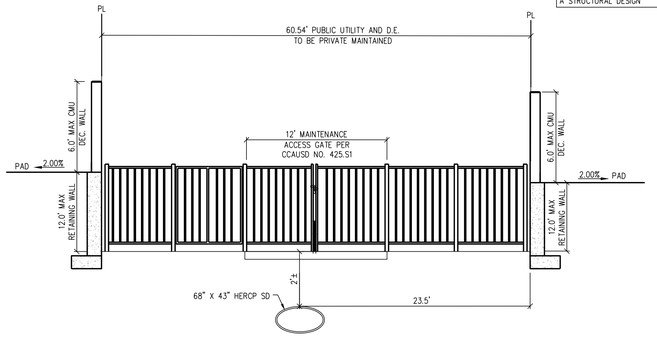

12/14/2020

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SHEET 13 OF 17

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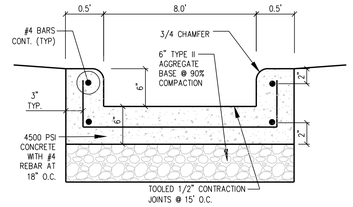
THIS DETAIL IS FOR REFERENCE ONLY AND DOES NOT CONSTITUTE A STRUCTURAL DESIGN




## 18. EASEMENT SECTION

NOT TO SCALE

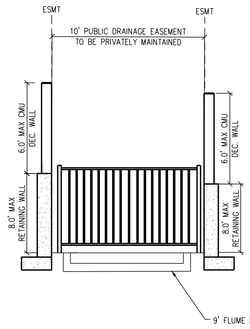
THIS DETAIL IS FOR REFERENCE ONLY AND DOES NOT CONSTITUTE A STRUCTURAL DESIGN




## 9' CONCRETE FLUME DETAIL

NOT TO SCALE

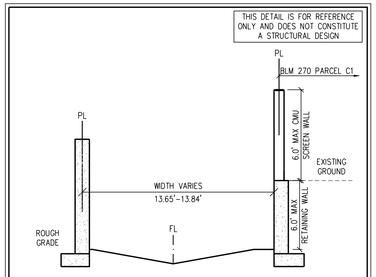
THIS DETAIL IS FOR REFERENCE ONLY AND DOES NOT CONSTITUTE A STRUCTURAL DESIGN




## 19. EASEMENT SECTION

NOT TO SCALE

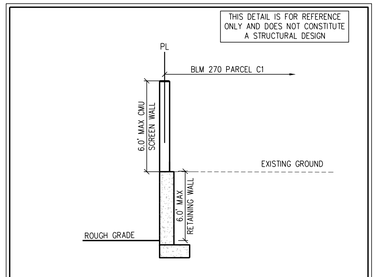
THIS DETAIL IS FOR REFERENCE ONLY AND DOES NOT CONSTITUTE A STRUCTURAL DESIGN




## 20. SWALE SECTION

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THIS DETAIL IS FOR REFERENCE ONLY AND DOES NOT CONSTITUTE A STRUCTURAL DESIGN




## 21. WALL SECTION

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CITY OF LAS VEGAS, NEVADA

190 OCTANE FT PARTNERS, LLC

# BLM 270 PARCEL C-2 & C-3 PHASE 1
## GRADING DETAILS II

S23 T19S R59E

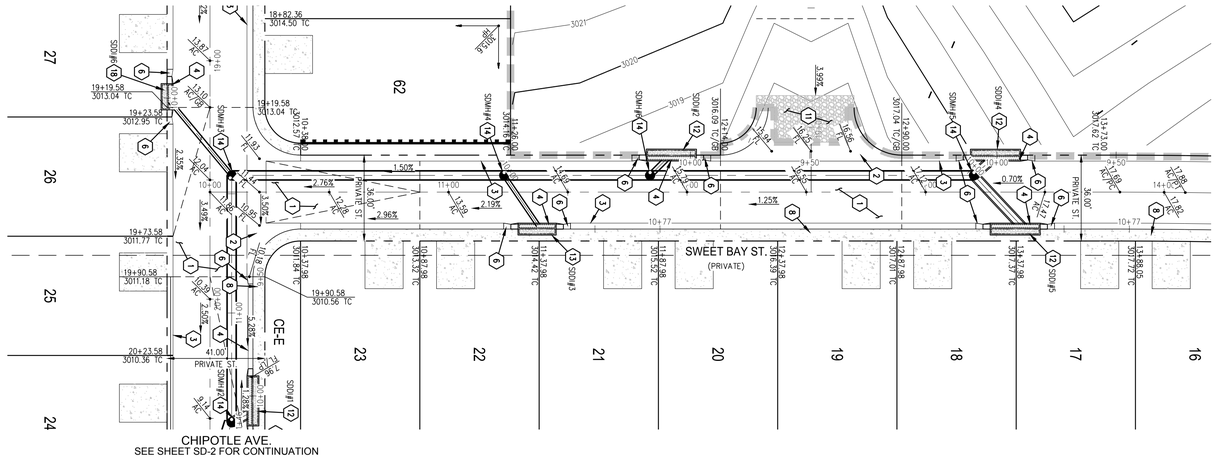
DATE: 12/14/2020
DRAFTER: YZ
DESIGNER: HN
CHECKED: MK

PROJECT NO.
**BZR2001**

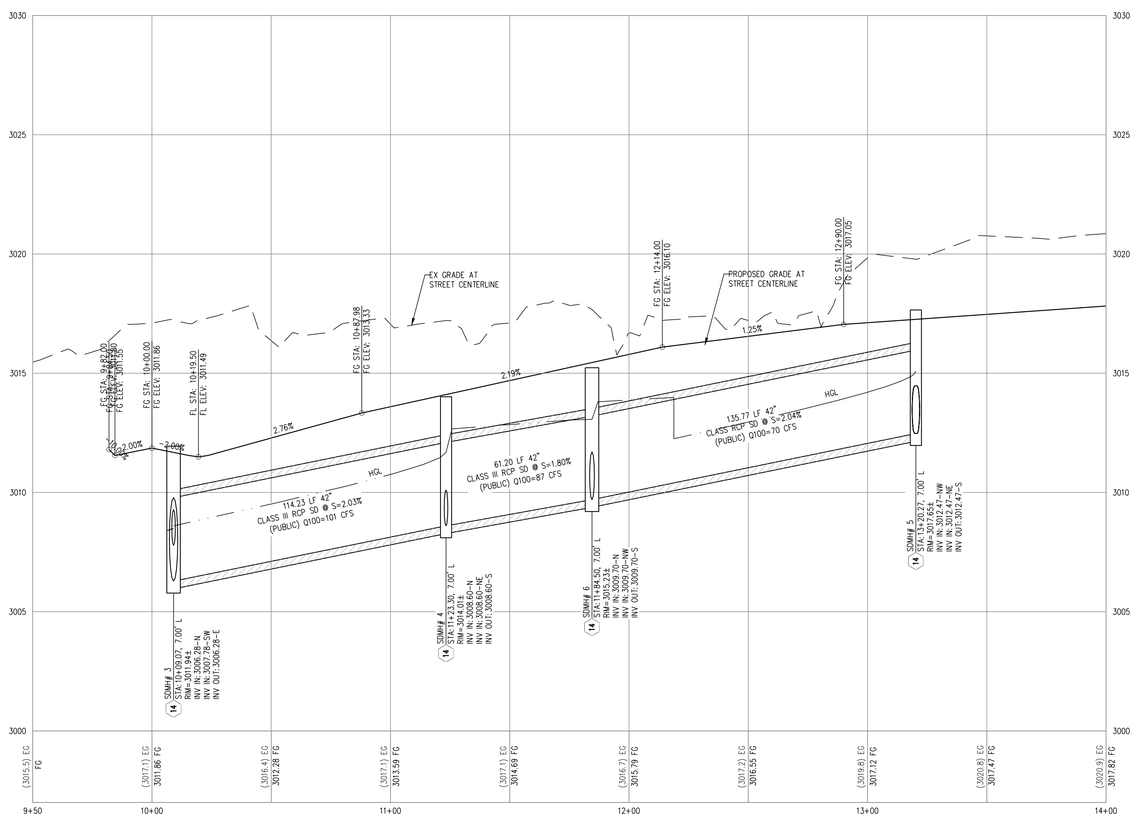
PROFESSIONAL ENGINEER - STATE OF NEVADA
KEVIN M. BROSS
Exp. 12/31/2020
CIVIL
No. 24572
12/14/2020

**D-2**
SHEET 14 OF 17

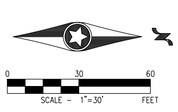
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## SWEET BAY ST. - PLAN VIEW
(PRIVATE STREET)




## SWEET BAY ST. - PROFILE VIEW
HORIZ: 1" = 30'
VERT: 1" = 3'




CALL SOUTHWEST GAS AT 702-651-2111 FOR STANDBY WHEN EXCAVATING OVER OR NEAR HIGH PRESSURE GAS LINES

### SURVEY NOTE
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### ELEVATION NOTE
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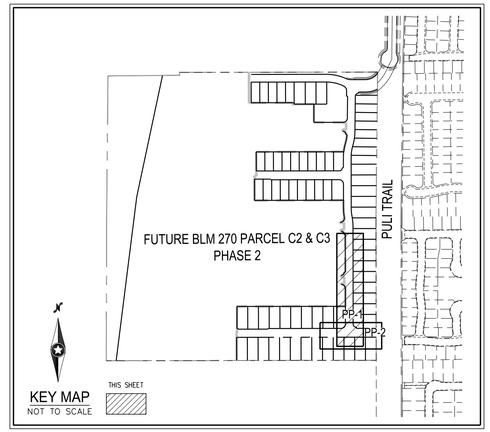
### SIDEWALK RAMP TABLE

| RAMP NUMBER | GRADE (%) "B" TO "A" | "A" (FT) MIN. | "B" (FT) MIN. |
|---|---|---|---|
| 1 | -6 TO -5.01 | 4.5 | 21.5 |
| 2 | -5 TO -4.01 | 4.5 | 15.0 |
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| 4 | -3 TO -2.01 | 4.5 | 9.5 |
| 5 | -2 TO 2 | 8.0 | 8.0 |
| 6 | 2.01 TO 3 | 9.5 | 4.5 |
| 7 | 3.01 TO 4 | 12.0 | 4.5 |
| 8 | 4.01 TO 5 | 15.0 | 4.5 |
| 9 | 5.01 TO 6 | 21.5 | 4.5 |

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2) FOR ROADWAY WIDENING AND HALF STREET IMPROVEMENTS THE CONTRACTOR SHALL VERIFY CROSS SLOPES FROM EXISTING PAVEMENT SAWCUT LINE TO PROPOSED EDGE OF PAVEMENT OR PROJECTED LIP OF CURB PRIOR TO SUBGRADE PREPARATION AND CONSTRUCTION OF PROPOSED CURB LINE. IF MINIMUM OR MAXIMUM CROSS SLOPES DO NOT MEET AGENCY STANDARDS THE CONTRACTOR SHALL NOTIFY THE ENGINEER.

### GRADING NOTES
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3. MAXIMUM/MINIMUM SLOPES AND MINIMUM STREET SECTIONS NOT TO EXCEED THAT SHOWN ON GEOTECH REPORT.
4. SEE DETAIL SHEET FOR STREET SECTIONS AND DETAILS.
5. ALL PUBLIC AND PRIVATE DRAINAGE IMPROVEMENTS TO BE BONDED FOR AND INSPECTED.
6. CONSTRUCTION OF BLOCK WALLS REQUIRES A SEPARATE BUILDING PERMIT AND APPROVAL BY THE CITY OF LAS VEGAS BUILDING DEPARTMENT.
7. CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF EXISTING UTILITY STRUCTURES AND FACILITIES AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION. CONTRACTOR TO PROTECT IN PLACE DURING CONSTRUCTION. ENGINEER/OWNER SHALL BE NOTIFIED OF PRIOR DAMAGE TO EXISTING FACILITIES PRIOR TO CONSTRUCTION. CONTRACTOR WILL BE RESPONSIBLE FOR REPAIR/REPLEPING FACILITIES IF ENGINEER/OWNER IS NOT NOTIFIED OF EXISTING DAMAGE PRIOR TO CONSTRUCTION COMMENCING.
8. NO STRUCTURE, VEGETATION, OR OBJECTS OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF THE ADJACENT CURB IF CURB EXIST) WITHIN THE SIGHT VISIBILITY ZONES.




### CONSTRUCTION NOTES
1. CONSTRUCT 2" AC PAVEMENT WITH 4" TYPE II AGGREGATE BASE
2. CONSTRUCT 8" CROSS GUTTER PER CCAUSD NO. 228
3. CONSTRUCT 30" ROLL CURB PER CCAUSD NO. 217.1
4. CONSTRUCT "L" TYPE CURB AND GUTTER PER CCAUSD NO. 216
5. CONSTRUCT "A" TYPE CURB PER CCAUSD NO. 219
6. CONSTRUCT 3' TRANSITION PER CCAUSD NO. 223
7. FIELD VERIFY AND CONNECT TO EXISTING CURB AND GUTTER
8. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD NO. 234 (5" THICK W/ 5" TYPE II AGGREGATE BASE)
9. INSTALL STEEL TUBING FENCE & MAINTENANCE ACCESS GATE PER CCAUSD NO. 425.51 (GATE WIDTH PER PLAN)
10. CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD NO. 235, CASE 1
11. INSTALL RIP RAP W/ 6" TYPE II GRANULAR BEDDING WITH FILTER FABRIC D50=6", T=12"
12. INSTALL 20.0' TYPE "CM2" DROP INLET PER CCAUSD NO. 412.1 AND 421
13. INSTALL 15.0' TYPE "CM2" DROP INLET PER CCAUSD NO. 412.1 AND 421
14. INSTALL 48" TYPE II SDMH PER CCAUSD NO. 401 AND 405.2
15. REMOVE EXISTING IMPROVEMENTS
16. CONSTRUCT CONCRETE FLUME PER DETAIL ON SHEET D-2
17. CONSTRUCT SIDEWALK DRAIN PER CCAUSD NO. 236
18. INSTALL 10.0' TYPE "CM2" DROP INLET PER CCAUSD NO. 412.1 AND 421

### STORM DRAIN NOTE
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### DRAINAGE EASEMENT NOTE
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CITY OF LAS VEGAS, NEVADA

**190 OCTANE FT PARTNERS, LLC**

**BLM 270 PARCEL C-2 & C-3 PHASE 1**

**STORM DRAIN A**

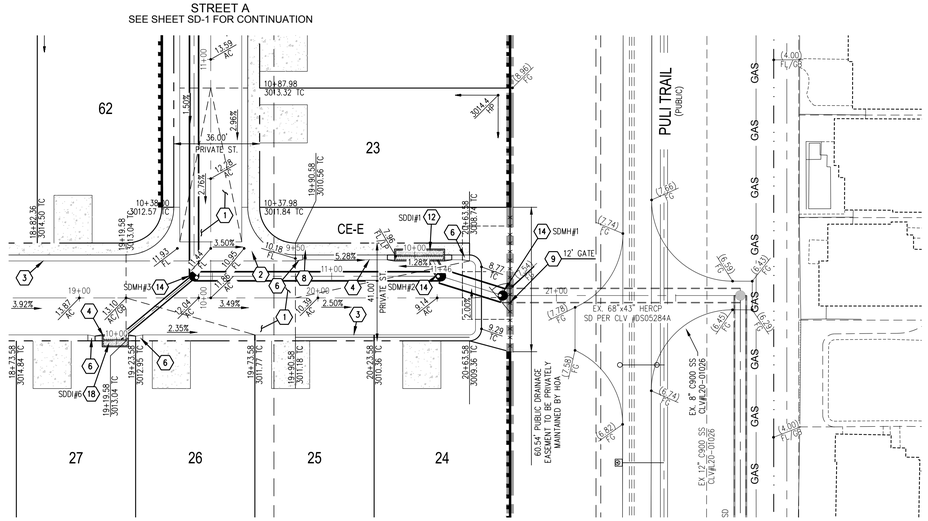
S23 T19S R59E

DATE: 12/14/2020
DRAFTER: YZ
DESIGNER: HN
CHECKED: MK
PROJECT NO. BZR2001

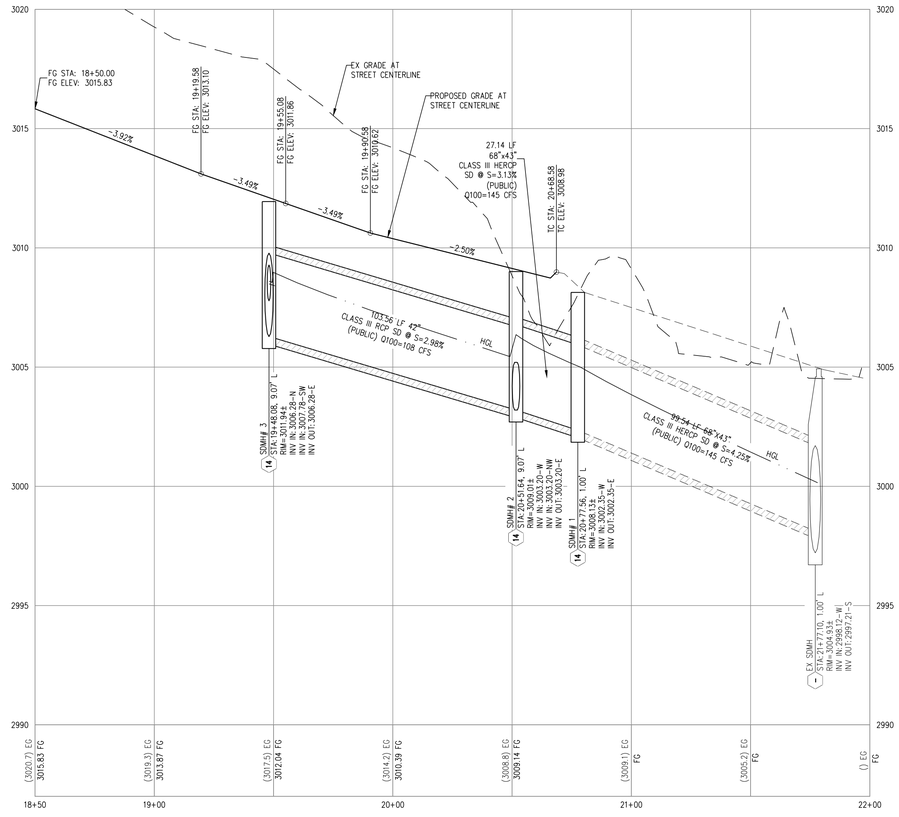



**SD-1**
SHEET 14 OF 17

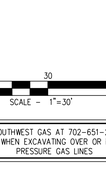
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## CHIPOTLE AVE. - PLAN VIEW
(PRIVATE STREET)




## CHIPOTLE AVE. - PROFILE VIEW
HORIZ: 1" = 30'
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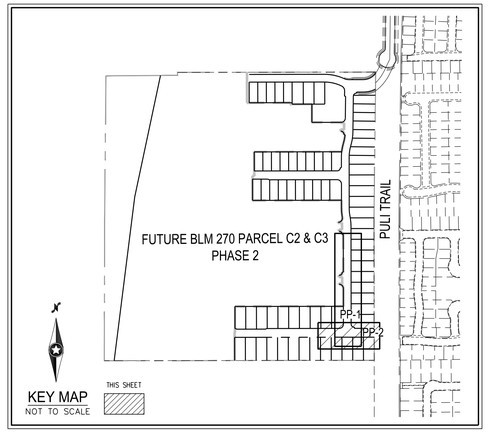
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CITY OF LAS VEGAS, NEVADA

**190 OCTANE FT PARTNERS, LLC**

**BLM 270 PARCEL C-2 & C-3 PHASE 1**

**STORM DRAIN B**

S23 T19S R59E

DATE: 12/14/2020
DRAFTER: YZ
DESIGNER: HN
CHECKED: MK

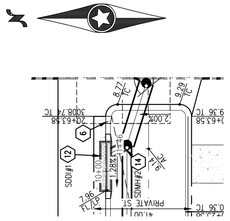
PROJECT NO.
**BZR2001**

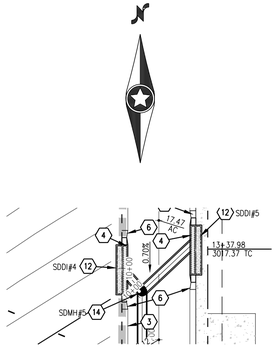
PROFESSIONAL ENGINEER STATE OF NEVADA KEVIN M. BROSS Exp. 12/31/2020 CIVIL No. 24572
12/14/2020

**SD-2**
SHEET 15 OF 17

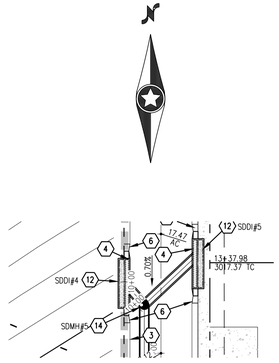
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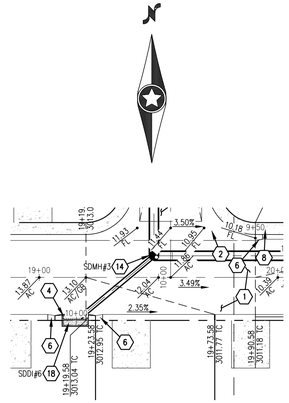

SDI#1
SDMH#1
PRIVATE ST
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3006.74 TC
3006.36 TC
3006.36 TC
3006.53 TC
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3008.62 TC
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3008.70



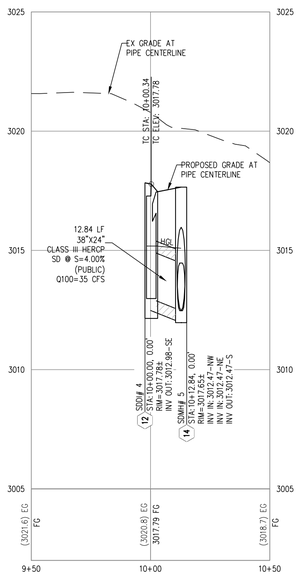

SD LAT #4 - PLAN VIEW



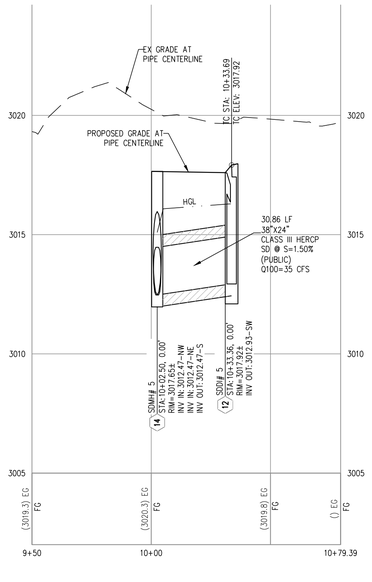

SD LAT #5 - PLAN VIEW



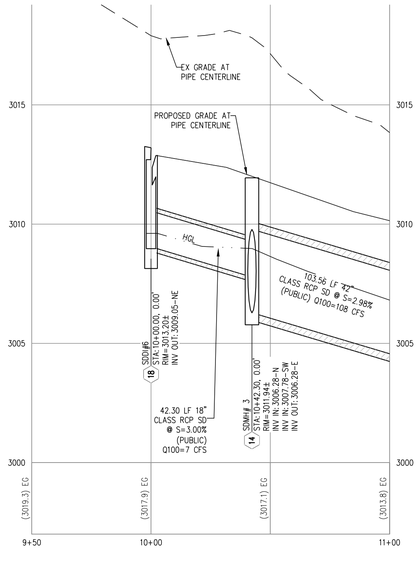

SD LAT #6 - PLAN VIEW




SD LAT #4 - PROFILE VIEW
HORIZ: 1" = 30'
VERT: 1" = 3'




SD LAT #5 - PROFILE VIEW
HORIZ: 1" = 30'
VERT: 1" = 3'




SD LAT #6 - PROFILE VIEW
HORIZ: 1" = 30'
VERT: 1" = 3'

0 30 60
SCALE - 1"=30' FEET

CALL SOUTHWEST GAS AT 702-651-2111 FOR STANDBY WHEN EXCAVATING OVER OR NEAR HIGH PRESSURE GAS LINES

## SURVEY NOTE

OWNER RESPONSIBLE TO PROVIDE SURVEY MONUMENTATION AS SHOWN AND TO REPLACE ALL SURVEY MONUMENTATION DAMAGED, DISTURBED, DESTROYED, OR OBSCURED DURING CONSTRUCTION.

## ELEVATION NOTE

ADD 3000 TO ALL SPOT GRADES WHERE THE HUNDREDS AND THOUSANDS PLACES ARE OMITTED FOR ACTUAL ELEVATION (I.E. 01.00 REPRESENTS 3001.00)

## SIDEWALK RAMP TABLE

| RAMP NUMBER | GRADE (%) "B" TO "A" | "A" (FT) MIN. | "B" (FT) MIN. |
|---|---|---|---|
| 1 | -6 TO -5.01 | 4.5 | 21.5 |
| 2 | -5 TO -4.01 | 4.5 | 15.0 |
| 3 | -4 TO -3.01 | 4.5 | 12.0 |
| 4 | -3 TO -2.01 | 4.5 | 9.5 |
| 5 | -2 TO 2 | 8.0 | 8.0 |
| 6 | 2.01 TO 3 | 9.5 | 4.5 |
| 7 | 3.01 TO 4 | 12.0 | 4.5 |
| 8 | 4.01 TO 5 | 15.0 | 4.5 |
| 9 | 5.01 TO 6 | 21.5 | 4.5 |

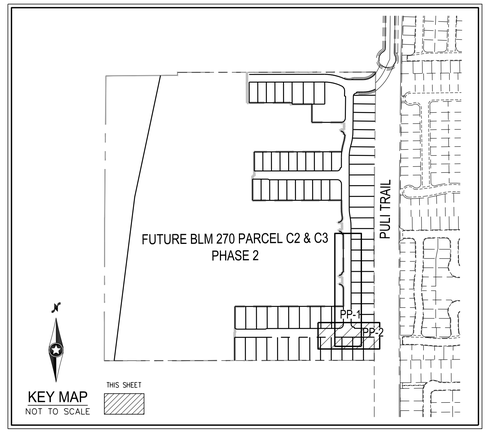
## DISCLAIMER NOTE

1) EXISTING UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION.

2) FOR ROADWAY WIDENING AND HALF STREET IMPROVEMENTS THE CONTRACTOR SHALL VERIFY CROSS SLOPES FROM EXISTING PAVEMENT SAWCUT LINE TO PROPOSED EDGE OF PAVEMENT OR PROJECTED LIP OF CURB PRIOR TO SUBGRADE PREPARATION AND CONSTRUCTION OF PROPOSED CURB LINE. IF MINIMUM OR MAXIMUM CROSS SLOPES DO NOT MEET AGENCY STANDARDS THE CONTRACTOR SHALL NOTIFY THE ENGINEER.

## GRADING NOTES

1. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AND REPORT ALL DISCREPANCIES TO THE ENGINEER.
2. ALL IMPROVEMENTS TO BE PROTECTED FROM EROSION BY SWPPP.
3. MAXIMUM/MINIMUM SLOPES AND MINIMUM STREET SECTIONS NOT TO EXCEED THAT SHOWN ON GEOTECH REPORT.
4. SEE DETAIL SHEET FOR STREET SECTIONS AND DETAILS.
5. ALL PUBLIC AND PRIVATE DRAINAGE IMPROVEMENTS TO BE BONDED FOR AND INSPECTED.
6. CONSTRUCTION OF BLOCK WALLS REQUIRES A SEPARATE BUILDING PERMIT AND APPROVAL BY THE CITY OF LAS VEGAS BUILDING DEPARTMENT.
7. CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF EXISTING UTILITY STRUCTURES AND FACILITIES AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION. CONTRACTOR TO PROTECT IN PLACE DURING CONSTRUCTION. ENGINEER/OWNER SHALL BE NOTIFIED OF PRIOR DAMAGE TO EXISTING FACILITIES PRIOR TO CONSTRUCTION. CONTRACTOR WILL BE RESPONSIBLE FOR REPAIR/REPLEPING FACILITIES IF ENGINEER/OWNER IS NOT NOTIFIED OF EXISTING DAMAGE PRIOR TO CONSTRUCTION COMMENCING.
8. NO STRUCTURE, VEGETATION, OR OBJECTS OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF THE ADJACENT CURB IF CURB EXIST) WITHIN THE SIGHT VISIBILITY ZONES.




## CONSTRUCTION NOTES

1. CONSTRUCT 2" AC PAVEMENT WITH 4" TYPE II AGGREGATE BASE
2. CONSTRUCT 8' CROSS GUTTER PER CCAUSD NO. 228
3. CONSTRUCT 30" ROLL CURB PER CCAUSD NO. 217.1
4. CONSTRUCT "L" TYPE CURB AND GUTTER PER CCAUSD NO. 216
5. CONSTRUCT "A" TYPE CURB PER CCAUSD NO. 219
6. CONSTRUCT 3' TRANSITION PER CCAUSD NO. 223
7. FIELD VERIFY AND CONNECT TO EXISTING CURB AND GUTTER
8. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD NO. 234 (5" THICK W/ 5" TYPE II AGGREGATE BASE)
9. INSTALL STEEL TUBING FENCE & MAINTENANCE ACCESS GATE PER CCAUSD NO. 425.51 (GATE WIDTH PER PLAN)
10. CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD NO. 235, CASE 1
11. INSTALL RIP RAP W/ 6" TYPE II GRANULAR BEDDING WITH FILTER FABRIC D50=6", T=12"
12. INSTALL 20.0' TYPE "CM2" DROP INLET PER CCAUSD NO. 412.1 AND 421
13. INSTALL 15.0' TYPE "CM2" DROP INLET PER CCAUSD NO. 412.1 AND 421
14. INSTALL 48" TYPE II SDMH PER CCAUSD NO. 401 AND 405.2
15. REMOVE EXISTING IMPROVEMENTS
16. CONSTRUCT CONCRETE FLUME PER DETAIL ON SHEET D-2
17. CONSTRUCT SIDEWALK DRAIN PER CCAUSD NO. 236
18. INSTALL 10.0' TYPE "CM2" DROP INLET PER CCAUSD NO. 412.1 AND 421

## STORM DRAIN NOTE

ALL ONSITE STORM DRAIN FACILITIES ARE PRIVATELY OWNED AND PRIVATELY MAINTAINED BY THE HOA.

## DRAINAGE EASEMENT NOTE

ALL PRIVATE STREETS, DRAINAGE EASEMENTS AND COMMON LOTS ARE PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA

FAST
Call before you UnderGround
1-702-432-5300
FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (F.A.S.T.)

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

Call before you Dig
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.
Call 811 OR
1-800-227-2600

Westwood
5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
Phone (702) 284-5300
Fax (702) 284-5399
westwoodps.com
Westwood Professional Services, Inc.

| NO. | DESCRIPTION | DATE | BY | APP. DATE | APP. |
|---|---|---|---|---|---|

CITY OF LAS VEGAS, NEVADA

# 190 OCTANE FT PARTNERS, LLC

# BLM 270 PARCEL C-2 & C-3 PHASE 1

# STORM DRAIN LATERALS 2

S23 T19S R59E

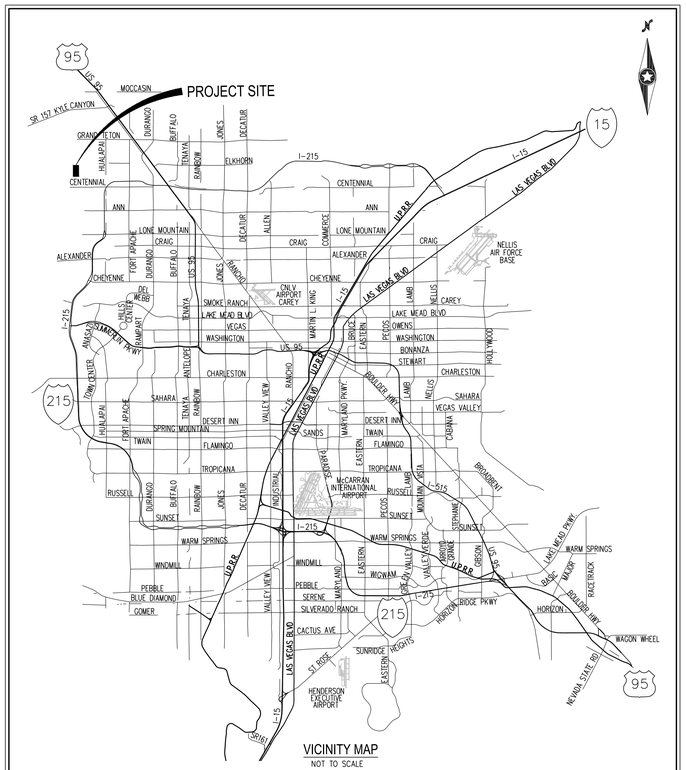
DATE: 12/14/2020
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DESIGNER: HN
CHECKED: MK
PROJECT NO. BZR2001

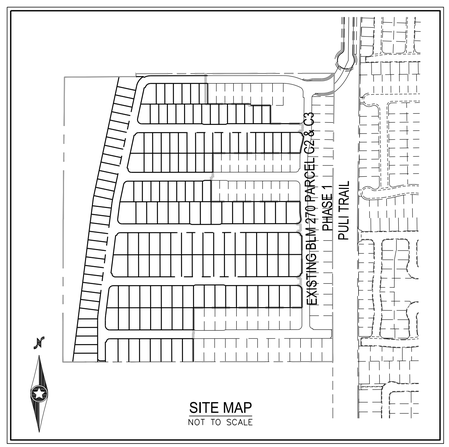



12/14/2020

SD-4
SHEET 17 OF 17

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# 190 OCTANE FT PARTNERS, LLC

## IMPROVEMENT PLANS
## FOR
# BLM 270 PARCEL C-2 & C-3
# PHASE 2

CITY OF LAS VEGAS, NEVADA
RESIDENTIAL SUBDIVISION
APN: 126-23-610-002 & 126-23-710-001

| SHEET INDEX | | |
|---|---|---|
| NO. | SHEET | DESCRIPTION |
| 1 | C-1 | COVER SHEET |
| 2 | C-2 | GENERAL NOTES |
| 3 | C-3 | LEGEND, ABBREVIATIONS, & QUANTITIES |
| 4 | G-1 | GRADING PLAN I |
| 5 | G-2 | GRADING PLAN II |
| 6 | G-3 | GRADING PLAN III |
| 7 | G-4 | GRADING PLAN IV |
| 8 | G-5 | GRADING PLAN V |
| 9 | G-6 | GRADING PLAN VI |
| 10 | G-7 | GRADING PLAN VII |
| 11 | G-8 | GRADING PLAN VIII |
| 12 | G-9 | GRADING PLAN IX |
| 13 | D-1 | STREET SECTIONS AND GRADING DETAILS I |
| 14 | D-2 | GRADING DETAILS |

## APPROVALS

CITY OF LAS VEGAS ENGINEER APPROVAL

LAS VEGAS FIRE AND RESCUE DATE

CITY OF LAS VEGAS PLANNING DEPARTMENT

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 STATUES AND / OR PUBLIC UTILITY COMMISSION RULES AND REGULATIONS.

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT PLANNING AND ENGINEERING SERVICES
PROJECT NO. ###### FIRST APPROVED DATE: _____
LVVWD APPROVED FIRE FLOW 1,500 GPM AT 20 PSI RESIDUAL
MAXIMUM AVAILABLE FIRE SPRINKLER FLOW 20 GPM

SHEETS: ADD FIELD

NV ENERGY DATE

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

SOUTHWEST GAS CORPORATION DATE

COX COMMUNICATIONS LAS VEGAS, INC. DATE

## LEGAL DESCRIPTION

A PORTION OF THE SOUTH HALF (S 1/2) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 23, TOGETHER WITH A PORTION OF THE NORTH HALF (N 1/2) OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 23, TOWNSHIP 19 SOUTH, RANGE 59 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA.

## BENCHMARK

BENCHMARK NUMBER: 6LV9913W4

RIVET AND PLATE ON TOP OF CURB AT THE NORTHEAST CORNER OF FARM ROAD AND MAINWAL BLVD.

ELEVATION = 3054.93 FEET, 931.43 METERS
88 DATUM

PER THE CITY OF LAS VEGAS VERTICAL CONTROL WEBSITE

## BASIS OF BEARINGS

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

## FEMA FLOOD ZONE INFORMATION

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE X (UNSHADED) AS DEPICTED ON FLOOD INSURANCE RATE MAP (FIRM) PANEL 32003C1750E, DATED SEPTEMBER 27, 2002. A ZONE X (UNSHADED) IS DESCRIBED AS AN AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN.

## M.O.U. ITEMS

## DEVIATIONS FROM STANDARDS

NONE

## SWPPP NOTE

NOTE: ALL LAND SURFACE AREA DISTURBANCES OVER 1 ACRE REQUIRE A STORMWATER DISCHARGE PERMIT ISSUED BY THE NEVADA DIVISION OF ENVIRONMENTAL PROTECTION (NDEP). A PHASED CONSTRUCTION UNIT IN A CONTIGUOUS SUBDIVISION IS CONSIDERED UNDER CONSTRUCTION UNTIL ALL STRIPPED SURFACE AREAS HAVE BEEN COVERED BY PAVING, BUILDING CONSTRUCTION OR PLANTING. A STORMWATER DISCHARGE PERMIT APPLICATION AND ASSOCIATED INFORMATION MAY BE DOWNLOADED FROM THE WEB SITE: HTTP://WWW.STATE.NV.US/BWPC/STORMOI.HTM PROJECTS THAT DISTURB MORE THAN ONE ACRE OF LAND MUST SUBMIT TO NDEP A "NOTICE OF INTENT" FOR INCLUSION UNDER STORMWATER PERMIT NO. NVR100000 ALONG WITH THE APPROPRIATE FILLING FEE.

## PROJECT INFORMATION

| | |
|---|---|
| ACREAGE (GROSS): | = 38.61± AC |
| ACREAGE (NET): | = 34.43± AC |
| DENSITY (LOTS/GROSS ACRE): | = 6.48 DU/GROSS AC |
| ZONING: | = P-D |
| TOTAL NO. OF RESIDENTIAL LOTS | = 176 |
| TOTAL NO. OF COMMON ELEMENTS * | = 2 |
| MINIMUM LOT SIZE | = 3,560 SF± |
| MAXIMUM LOT SIZE | = 8,268 SF± |

EARTHWORK SUMMARY (UNADJUSTED)

| | |
|---|---|
| CUT | 79,506 CY. |
| FILL | 76,965 CY. |
| NET | 2,541 CY. (CUT) |

## GEOTECHNICAL ENGINEER

PREPARED BY: SOUTHWEST GEOTECHNICAL
ADDRESS: 5275 ARVILLE ST. SUITE 108, LAS VEGAS, NV. 89118
PHONE: 702-323-6000
PROJECT No. 197111
DATED: 01/28/20

## OWNER

190 OCTANE FT PARTNERS, LLC
11411 SOUTHERN HIGHLANDS PKWY, SUITE 300
LAS VEGAS, NV 89141
PH: (702) 220-6565
FX: (702) 220-6566
CONTACT: CHRIS ARMSTRONG

## DEVELOPER

OLYMPIA GROUP
11411 SOUTHERN HIGHLANDS PKWY, SUITE 300
LAS VEGAS, NV 89141
PH: (702) 220-6565
FX: (702) 220-6566
CONTACT: CHRIS ARMSTRONG

## ENGINEER

WESTWOOD PROFESSIONAL SERVICES
5740 S. ARVILLE STREET, SUITE 216
LAS VEGAS, NV 89118
PH: (702) 284-5300
FX: (702) 284-5399
CONTACT: KEVIN BROSS

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

FAST
Call before you UnderGround
1-702-432-5300
FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (F.A.S.T.)

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AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.
Call 811 OR 1-800-642-2444

Westwood
Phone (702) 284-5300
Fax (702) 284-5399
5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
westwoodps.com
Westwood Professional Services, Inc.

| NO. | DESCRIPTION | DATE | BY | APP. DATE | APP. |
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CITY OF LAS VEGAS, NEVADA

190 OCTANE FT PARTNERS, LLC

BLM 270 PARCEL C-2 & C-3 PHASE 2

COVER SHEET

S23 T19S R59E

DATE: 12/14/2020
DRAFTER: YZ
DESIGNER: HN
CHECKED: MAK

PROJECT NO.
BZR2001

PROFESSIONAL ENGINEER – STATE OF NEVADA
KEVIN M. BROSS
Exp. 12/31/2020
CIVIL
No. 24572

12/14/2020

C-1
SHEET 1 OF 13

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## STORMWATER RUNOFF MANAGEMENT

(REQUIRED FOR ALL SITES GREATER THAN 1 ACRE (43,560 SQ.FT.))

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 CLARK COUNTY AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATION 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 TITLE 24.40 AND THE LAS VEGAS VALLEY CONSTRUCTION SITE BEST MANAGEMENT PRACTICES 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 NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.5.
4. AT A MINIMUM, THE CONTRACTOR OR HIS AGENT SHALL INSPECT ALL DISTURBED AREAS, AREAS USED FOR STORAGE OF MATERIALS OR EQUIPMENT THAT ARE EXPOSED TO PRECIPITATION, VEHICLE ENTRANCE AND EXIT LOCATIONS AND ALL BMPS WEEKLY, AND WITHIN 24 HOURS AFTER ANY ACTUAL RAIN EVENT OF 0.5 INCHES OR MORE. THE CONTRACTOR OR HIS AGENT SHALL IMPLEMENT ANY MODIFY THE STORMWATER POLLUTION PREVENTION PLAN AS NECESSARY. SOME EXCEPTIONS TO WEEKLY INSPECTIONS MAY APPLY, SUCH AS SUSPENSION OF LAND DISTURBANCE ACTIVITIES. REFER TO NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.12.
5. ACCUMULATED SEDIMENT IN BMPS SHALL BE REMOVED WITHIN SEVEN DAYS AFTER A STORMWATER RUNOFF EVENT OR PRIOR TO THE NEXT ANTICIPATED STORM EVENT, WHICHEVER IS EARLIER. SEDIMENT MUST BE REMOVED WHEN BMP DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE.

## LEGAL DESCRIPTION

A PORTION OF THE SOUTH HALF (S 1/2) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 23, TOGETHER WITH A PORTION OF THE NORTH HALF (N 1/2) OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 23, TOWNSHIP 19 SOUTH, RANGE 59 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA.

## BENCHMARK

BENCHMARK NUMBER: 6LV9913W4

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PER THE CITY OF LAS VEGAS VERTICAL CONTROL WEBSITE

## BASIS OF BEARINGS

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## SOUTHERN NEVADA - SOUTHWEST GAS CORPORATION GENERAL NOTES

1. IN THE EVENT OF NATURAL GAS EMERGENCIES CALL 911 AND 1-877-860-6020
2. MINIMUM HORIZONTAL AND VERTICAL CLEARANCES BETWEEN NATURAL GAS FACILITIES AND ANY UNDERGROUND UTILITIES AND/OR STRUCTURES, INCLUDING BUT NOT LIMITED TO WATER, SEWER, STORM DRAIN, COMMUNICATIONS, AND ELECTRICAL SHALL BE AT LEAST 12-INCHES OR GREATER AS DICTATED BY LOCAL CODES AND STANDARDS.
   A) ANY DEVIATION FROM SPECIFIED MINIMUM CLEARANCES MUST BE APPROVED BY ALL AFFECTED UTILITIES AND/OR MUNICIPALITIES
3. FOR VALVE ADJUSTMENT CONTACT 702-528-7881 14 DAYS PRIOR TO CONSTRUCTION.
4. IN THE EVENT OF NATURAL GAS CONFLICT WITH PROPOSED UTILITIES AND STRUCTURES CONTACT 702-365-2099

### SOUTHWEST GAS APPROVAL

SOUTHWEST GAS CORPORATION DATE

## 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.

REVISED 04/15/10

## LAS VEGAS VALLEY WATER DISTRICT (LVVWD) STANDARD NOTES

LVVWD PROJECT # ###### (REVISED 08/01/2017)

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 TWO (2) INCHES AND SMALLER FROM LVVWD CENTRAL STORES. TELEPHONE 258-3152 OR 258-3802, TWO (2) WORKING DAYS PRIOR TO METER PICKUP.
11. ANY INTERRUPTION OF SERVICE MUST BE PERFORMED IN ACCORDANCE WITH UDACS SECTION 3.14.01, AND APPROVED BY THE LVVWD INSPECTION DIVISION PRIOR TO SHUTDOWN. PROPER WRITTEN NOTIFICATION MUST BE GIVEN TO ALL AFFECTED CUSTOMERS.
12. ALL WATER FACILITY CONSTRUCTION MATERIALS USED MUST BE AS LISTED ON THE LVVWD APPROVED PRODUCT'S LIST FOR NEW FACILITIES, LATEST REVISION, OR SPECIFICALLY APPROVED ON THESE PLANS BY SUBMITTING SHOP DRAWINGS.
13. TELEPHONE "CALL BEFORE YOU DIG" AT "811" OR 1-800-227-2600.
14. THE INSTALLATION OF LVVWD MUNICIPAL WATER FACILITIES WITHIN ALL STREETS IS ASSUMED TO BE IN COMPLIANCE WITH THE UNIFORM STANDARDS, INCLUDING THE PLACEMENT OF ASPHALT PAVING STREET SURFACES. ANY REPAIR WORK DONE BY THE LVVWD TO THE MUNICIPAL WATER FACILITIES WILL INCLUDE THE PLACEMENT OF AN APPROPRIATELY SIZED ASPHALT REPAIR PATCH ON THE STREET SURFACE.

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

**15. NO LEAD COMPLIANCE NOTE**
**TO COMPLY WITH THE FEDERAL SAFE DRINKING WATER ACT, ALL WATER WORKS BRASS PRODUCTS PROPOSED TO BE RELOCATED, OR INSTALLED AS NEW MUST BE INSTALLED WITH THE LEAD FREE APPROVED PRODUCT. THE OLD LEADED PRODUCT MAY NOT BE REUSED.**

## GRADING NOTES

1. INDICATED GRADES OTHER THAN T.C., F.G. & GUTTER F.L. ARE ROUGH GRADES.
2. THE ROUGH GRADING PLANS SHALL BE ON THE JOB SITE AT ALL TIMES. THE ROUGH GRADING SHALL BE FINISHED IN CONFORMANCE WITH THE LINES AND GRADES SHOWN ON THE PLANS. THE GRADING QUANTITIES ARE BASED ON THE ELEVATION AND DETAILS SHOWN ON THE PLANS. ANY DEVIATIONS FROM THE PLANS WILL RESULT IN QUANTITY CHANGES.
3. CARE SHALL BE EXERCISED IN GRADING CORNER LOTS.
4. ROUGH PAD ELEVATIONS SHALL BE GRADED TO WITHIN 0.1' OF THE PAD ELEVATIONS SHOWN ON THE PLANS. WHEN GRADING IS COMPLETE PER THE PLANS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE LOTS CAN BE INSPECTED. AT THAT TIME THE ENGINEER SHALL ALSO DECIDE IF ANY ADDITIONAL DITCHES OR BERMS ARE REQUIRED. THE CONTRACTOR IS REQUESTED NOT TO REMOVE ANY OF HIS ROUGH GRADING EQUIPMENT UNTIL HE RECEIVES GRADING APPROVAL FROM THE ENGINEER.
5. SOILS REPORT PREPARED BY SOUTHWEST GEOTECHNICAL, PROJECT NO. 197111, DATED 01/28/20.
6. EARTHWORK QUANTITIES (RAW):
   -CUT = 79,506 CUBIC YARDS.
   -FILL = 76,985 CUBIC YARDS

   A) THE ABOVE QUANTITIES DO NOT REFLECT LOSSES DUE TO SUBSIDENCE OR SHRINKAGE.
   B) THE ABOVE QUANTITIES DO REFLECT USING NATIVE MATERIAL IN LIEU OF TYPE I GRAVEL BASE MATERIAL FOR STREET SECTIONS.
   C) THE ABOVE QUANTITIES DO NOT REFLECT ANY EARTHWORK WHICH MAY BE REQUIRED BY THE ENGINEER TO CONSTRUCT ADDITIONAL PROTECTIVE DITCHES OR BERMS NOT SHOWN ON THESE DRAWINGS.

## CITY OF LAS VEGAS FIRE AND RESCUE GENERAL NOTES

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 §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 §3310, §3312
5. TO IDENTIFY THE FIRE HYDRANT LOCATIONS, THE CONTRACTOR SHALL PLACE A BLUE REFLECTIVE MARKER AT THE CENTER OF THE STREET ADJACENT TO THE FIRE HYDRANTS. IFC §507.5.7.3
6. ALL UNDERGROUND INSPECTIONS, PRESSURE AND FLUSH VERIFICATIONS OF ALL FIRE HYDRANTS AND FIRE LINES, SHALL BE CONDUCTED BEFORE COVERING THE LINES. CENTER LOADING IS ACCEPTABLE FOR THE HYDRO TESTS WITH PRIOR FIRE PREVENTION APPROVAL. IFC §106.3
7. ALL ON-SITE UNDERGROUND WATER MAINS AND MATERIALS SHALL BE U.L. LISTED, A.W.W.A APPROVED AND SHALL BE RATED FOR THE APPROPRIATE WORKING PRESSURE. IFC §507.2.1, NFPA 24
8. PAINTING OF CURBS, FIRE HYDRANTS, PADS, PROTECTION OF FIRE HYDRANTS FROM PHYSICAL DAMAGE, AND ALL OTHER WORK NECESSARY PER PLANS SHALL BE COMPLETED BEFORE APPROVAL BY LAS VEGAS FIRE AND RESCUE, FIRE PREVENTION DIVISION. IFC §507
9. PRIVATE HYDRANTS SHALL BE PAINTED RED. IFC §507.5.7.1
10. PRIOR TO THE FINAL OCCUPANCY, A FIRE FLOW TEST SHALL BE WITNESSED BY LAS VEGAS FIRE AND RESCUE, FIRE PREVENTION DIVISION TO VERIFY AVAILABILITY OF THE REQUIRED FIRE FLOW. IFC §507
11. FIRE HYDRANT SPACING SHALL BE AS FOLLOWS: IFC §C102
    - RESIDENTIAL - 500 FT UNSPRINKLERED; 600 FT SPRINKLERED.
    - COMMERCIAL - 300 FT UNSPRINKLERED; 400 FT SPRINKLERED.
12. WHERE THE WATER MAINS ARE EXTENDED ALONG STREETS OR NEW STREETS ARE INSTALLED WHERE FIRE HYDRANTS ARE NOT NEEDED FOR PROTECTION OF THE STRUCTURES, FIRE HYDRANTS SHALL BE INSTALLED AT A MAXIMUM OF 1000 FT SPACING, TO PROVIDE FOR TRANSPORTATION HAZARDS. WHERE STREETS ARE PROVIDED WITH MEDIAN DIVIDERS OR HAVE FOUR (4) OR MORE TRAFFIC LANES AND HAVE A TRAFFIC COUNT OF MORE THAN 30,000 PER DAY, HYDRANTS ARE REQUIRED ON EACH SIDE OF THE STREET SPACED AT 500 FT ON AN ALTERNATING BASIS. IFC ▲C102.8
13. NO FIRE HYDRANTS SHALL BE LOCATED WITHIN THE RADIUS OF A CUL-DE-SAC OR WITHIN 20 FT OF THE PERIMETER OF THE RADIUS OF THE CUL-DE-SAC.
14. NO FIRE HYDRANTS SHALL BE LOCATED WITHIN 6 FT OF ANY CURB RETURN, DRIVEWAY, POWER POLE, STREETLIGHT OR ANY OTHER OBSTRUCTION. IFC ▲C102.10
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 ▲C102.4
16. THE MAXIMUM DISTANCE FROM A FIRE HYDRANT TO A FIRE DEPARTMENT CONNECTION (FDC) SHALL NOT EXCEED 100 FT, AS MEASURED BY AN APPROVED ROUTE. IFC ▲C102.7
17. THE MAXIMUM DISTANCE FROM A HYDRANT TO THE END OF A DEAD-END STREET SHALL NOT EXCEED 200 FT. IFC ▲C102.6
18. TWO (2) SOURCES OF SUPPLY ARE REQUIRED WHENEVER THERE IS 4 OR MORE FIRE HYDRANTS/SPRINKLER LEAD-INS ARE INSTALLED ON A SINGLE SYSTEM. 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 FIRE 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 ▲C104
19. ALL FIRE APPARATUS ACCESS ROADS SHALL BE PAVED TO PROVIDE ALL-WEATHER DRIVING CAPABILITIES, AND SHALL BE DESIGNED AND MAINTAINED TO SUPPORT THE IMPOSED LOADS OF THE FIRE APPARATUS. IFC ▲503.2.3
20. THE GRADIENT FOR THE FIRE APPARATUS ACCESS ROADS SHALL NOT EXCEED 12% ANGLES OF APPROACH AND ANGLES OF DEPARTURE SHALL NOT EXCEED 6% FOR 25 FT PRIOR TO OR AFTER THE GRADE CHANGE. ADJACENT TO THE STRUCTURES GRADIENT SHALL NOT EXCEED 6%. IFC ▲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 13FT 6 INS. IFC ▲ 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 BE NOT LESS THAN 24 FT. IFC ▲ 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 ▲503.1.1
25. APPROVED SECONDARY FIRE APPARATUS ACCESS SHALL BE PROVIDED FOR 200 OR MORE DWELLING UNITS, ROAD(S) WITH DEAD- ENDS OR A 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 ▲503.3
28. ELECTRICALLY CONTROLLED ACCESS GATES SHALL BE PROVIDED WITH AN APPROVED EMERGENCY VEHICLE DETECTOR/RECEIVER SYSTEM. IFC ▲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 THE PROPOSED LOCATION SHALL BE LOCATED ON THE SAME SIDE OF THE STREET AS THE PROPOSED DEVELOPMENT. CLV REGULATION

## CITY OF LAS VEGAS GRADING NOTES

1. IN THE EVENT THAT ANY UNFORESEEN CONDITIONS NOT COVERED BY THESE NOTES ARE ENCOUNTERED DURING GRADING OPERATIONS, THE OWNER/ENGINEER SHALL BE IMMEDIATELY NOTIFIED FOR DIRECTION.
2. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM ALL NECESSARY CUTS AND FILLS WITHIN THE LIMITS OF THIS PROJECT AND THE RELATED OFF-SITE WORK, SO AS TO GENERATE THE DESIRED SUBGRADE, FINISH GRADES AND SLOPES SHOWN.
3. CONTRACTOR SHALL TAKE FULL RESPONSIBILITY FOR ALL EXCAVATION, ADEQUATE SHORING SHALL BE DESIGNED AND PROVIDED BY THE CONTRACTOR TO PREVENT UNDERMINING OF ANY ADJACENT FEATURES OR FACILITIES AND/OR CAVING OF THE EXCAVATION.
4. THE CONTRACTOR IS WARNED THAT AN EARTHWORK BALANCE WAS NOT NECESSARILY THE INTENT OF THIS PROJECT. ANY ADDITIONAL MATERIAL REQUIRED OR LEFTOVER MATERIAL FOLLOWING EARTHWORK OPERATIONS BECOMES THE RESPONSIBILITY OF THE CONTRACTOR.
5. THE GRADING CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH THE OWNER TO PROVIDE FOR THE REQUIREMENTS OF THE PROJECT STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND ASSOCIATED PERMIT.
6. CONTRACTOR SHALL GRADE TO THE LINES AND ELEVATIONS SHOWN ON THE PLANS WITHIN THE FOLLOWING HORIZONTAL AND VERTICAL TOLERANCES AND DEGREES OF COMPACTION, IN THE AREAS INDICATED:

| | HORIZONTAL | VERTICAL | COMPACTION |
|---|---|---|---|
| A.PAVEMENT AREA SUBGRADE | 0.1'+ | +0.0' TO -0.1' | SEE SOILS REPORT |
| B.ENGINEERED FILL | 0.5'+ | +0.1' TO -0.1' | SEE SOILS REPORT |

COMPACTION TESTING WILL BE PERFORMED BY THE OWNER OR HIS REPRESENTATIVE.

7. ALL CUT AND FILL SLOPES SHALL BE PROTECTED UNTIL EFFECTIVE EROSION CONTROL HAS BEEN ESTABLISHED.
8. THE USE OF POTABLE WATER WITHOUT A SPECIAL PERMIT FOR BUILDING OR CONSTRUCTION PURPOSES INCLUDING CONSOLIDATION OF BACKFILL OR DUST CONTROL IS PROHIBITED. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FOR CONSTRUCTION WATER.
9. THE CONTRACTOR SHALL MAINTAIN THE STREETS, SIDEWALKS AND ALL OTHER PUBLIC RIGHT-OF-WAY IN A CLEAN, SAFE AND USABLE CONDITION. ALL SPILLS OF SOIL, ROCK OR CONSTRUCTION DEBRIS SHALL BE PROMPTLY REMOVED FROM THE PUBLICLY OWNED PROPERTY DURING CONSTRUCTION AND UPON COMPLETION OF THE PROJECT. ALL ADJACENT PROPERTY, PRIVATE OR PUBLIC SHALL BE MAINTAINED IN A CLEAN, SAFE AND USABLE CONDITION.
10. IN THE EVENT THAT ANY TEMPORARY CONSTRUCTION ITEM IS REQUIRED THAT IS NOT SHOWN ON THESE DRAWINGS, THE OWNER AGREES TO PROVIDE AND INSTALL SUCH ITEM AT HIS OWN EXPENSE AND AT THE DIRECTION OF THE CITY ENGINEER. TEMPORARY CONSTRUCTION INCLUDES DITCHES, BERMS, ROAD SIGNS AND BARRICADES, ETC.

REVISED 04/15/10

## UTILITY LOCATION NOTE TO CONTRACTOR

EXISTING UTILITY LOCATIONS SHOWN HEREIN ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATIONS. CALL BEFORE YOU DIG: 1 (800) 227-2600; SOUTHWEST GAS CORPORATION: 702-278-8451 (STANDBY CONTACT NUMBER)

## 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 PROVID

## ABBREVIATIONS

| | | | | | |
|---|---|---|---|---|---|
| AC | ASPHALTIC CONCRETE OR ACRE | FL | FLOWLINE | PVI | POINT OF VERTICAL INTERSECTION |
| AGG | AGGREGATE BASE | FT | FEET OR FOOT | QTY | QUANTITY |
| APN | ASSESSORS PARCEL NUMBER | FUT | FUTURE | R | RADIUS |
| APPROX OR ~ | APPROXIMATE | GRD | GRADE OR GROUND | RCA | REINFORCED CONCRETE ARCH |
| AVE | AVENUE | GB | GRADE BREAK OR GRADE CHANGE | RCB | REINFORCED CONCRETE BOX |
| @ | AT | GV | GATE VALVE | RCP | REINFORCED CONCRETE PIPE |
| BC | BEGIN CURVE OR BACK OF CURB | HDPE | HIGH DENSITY POLYETHYLENE | RD | ROAD |
| BCR | BEGINNING OF CURB RETURN | HOA | HOME OWNERS ASSOCIATION | RDWY ESMT | ROADWAY EASEMENT |
| BHW | BOTTOM OF HEADWALL | HORZ | HORIZONTAL | REQD | REQUIRED |
| BLDG | BUILDING | HP | HIGH POINT | REV | REVISION |
| BLVD | BOULEVARD | HWL | HIGH WATER LEVEL | RG | ROUGH GRADE |
| BM | BENCHMARK | HDWL OR HW | HEADWALL | RT OR R | RIGHT |
| BVC | BEGIN VERTICAL CURVE | HYD | HYDRAULIC OR HYDRANT | RW, ROW | RIGHT OF WAY |
| BWV | BACK WATER VALVE | ID | INSIDE DIAMETER | S | SLOPE |
| CC | CLARK COUNTY | IN | INCH | SCH | SCHEDULE |
| CCAUSD | CLARK COUNTY AREA UNIFORM STANDARD DRAWINGS | INT | INTERSECTION | SD | STORM DRAIN |
| CCPW | CLARK COUNTY PUBLIC WORKS | INV | INVERT ELEVATION | SDDI | STORM DRAIN DROP INLET |
| CCRFCD | CLARK COUNTY REGIONAL FLOOD DISTRICT | IP | IRON PIPE | SDMH | STORM DRAIN MANHOLE |
| CCWRD | CLARK COUNTY WATER RECLAMATION DISTRICT | IRRG | IRRIGATION | SEC | SECTION |
| CE | COMMON ELEMENT | LF | LINEAR FEET | SF | SQUARE FEET |
| CL,C/,LC | CENTERLINE | LMC | LANDSCAPE MAINTENANCE CORPORATION | SHT | SHEET |
| CLR | CLEAR OR CLEARANCE | LP | LOW POINT | SLTC | STREET LIGHT & TRAFFIC CONTROL ESMT |
| CLSM | CONTROLLED LOW STRENGTH MATERIAL | LT OR L | LEFT | SNWA | SOUTHERN NEVADA WATER AUTHORITY |
| CLV | CITY OF LAS VEGAS | LVVWD | LAS VEGAS VALLEY WATER DISTRICT | SPECS | SPECIFICATIONS |
| CML&C | CEMENT MORTAR LINED AND COATED | LWL | LOW WATER LEVEL | ST | STREET |
| CMU | CONCRETE MASONRY UNIT | MAX | MAXIMUM | SSMH | SANITARY SEWER MANHOLE |
| CNLV | CITY OF NORTH LAS VEGAS | MECH | MECHANICAL | STA | STATION |
| COH | CITY OF HENDERSON | MH | MANHOLE | STD | STANDARD |
| CONC | CONCRETE | MIN | MINIMUM | STL | STEEL |
| CT | COURT | MISC | MISCELLANEOUS | STLT | STREET LIGHT |
| CY OR CU YD | CUBIC YARD | MUE | MUNICIPAL UTILITY EASEMENT | SW | SIDEWALK |
| DCWCS | DESIGN AND CONSTRUCTION FOR WASTEWATER COLLECTION SYSTEMS | NDOT | NEVADA DEPARTMENT OF TRANSPORTATION | SWG | SOUTHWEST GAS |
| | | NTS | NOT TO SCALE | SWR OR SS | SANITARY SEWER |
| DE | DRAINAGE EASEMENT | NUE | NONEXCLUSIVE UTILITY EASEMENT | SY | SQUARE YARD |
| DET | DETAIL | NVE | NV ENERGY | TAN | TANGENT |
| DI | DUCTILE IRON OR DRAIN INLET | OC | ON CENTER | TC | TOP OF CURB |
| DIA, ø | DIAMETER | OD | OUTSIDE DIAMETER OR OVERALL DIMENSION | TF | TOP OF FLOOR OR TOP OF FOOTING |
| DIP | DUCTILE IRON PIPE | OFF | OFFSET | TG | TOP OF GRATE |
| DR | DRIVE | ORIG | ORIGINAL | THRU | THROUGH |
| DWG(S) | DRAWING | PAE | PUBLIC OR PEDESTRIAN ACCESS EASEMENT | THW | TOP OF HEADWALL |
| DWY | DRIVEWAY | PB | PULL BOX | TP | TOP OF PIPE |
| EA | EACH | PC | POINT OF CURVE | TW | TOP OF WALL |
| ECR | END CURB RETURN | PCC | POINT OF COMPOUND CURVE | TRW | TOP OF RETAINING WALL |
| EG | EXISTING GROUND | PDE | PUBLIC DRAINAGE EASEMENT | TSW | TOP OF SCREEN WALL |
| ELEV | ELEVATION | ℄ OR PL | PROPERTY LINE | TYP | TYPICAL |
| ESMT | EASEMENT | POB | POINT OF BEGINNING | UDACS | UNIFORM DESIGN AND CONSTRUCTION STANDARDS |
| EP | EDGE OF PAVEMENT | POC | POINT OF CURVATURE | | |
| ERU | EQUIVALENT RESIDENTIAL UNIT | POE | POINT OF ENDING | UE | UTILITY EASEMENT |
| EVC | END VERTICAL CURVE | PRC | POINT OF REVERSE CURVATURE | VC | VERTICAL CURVE |
| EX OR EXIST | EXISTING | PRELIM | PRELIMINARY | VERT | VERTICAL |
| FC | FACE OF CURB | PROP | PROPOSED | VG | VALLEY GUTTER |
| FF | FINISHED FLOOR | PRV | PRESSURE REDUCING VALVE | WI | WROUGHT IRON |
| FG | FINISHED GRADE | PUE | PUBLIC UTILITY EASEMENT | WL | WATER LINE |
| FGH | FINISHED GRADE, HIGH SIDE | PT | POINT OF TANGENT OR POINT | WPZ | WATER PRESSURE ZONE |
| FGL | FINISHED GRADE, LOW SIDE | PVC | POLYVINYL CHLORIDE | WT | WEIGHT |
| FH | FIRE HYDRANT | | | WTR | WATER LINE |

## SPECIAL NOTE

IN THE EVENT THAT ANY TEMPORARY CONSTRUCTION ITEM IS REQUIRED WHICH IS NOT SHOWN ON THESE DRAWINGS, THE OWNER AGREES TO PROVIDE AND INSTALL SUCH ITEM AT HIS OWN EXPENSE AND AT THE DIRECTION OF THE CITY OF LAS VEGAS DEPT. OF PUBLIC WORKS. TEMPORARY CONSTRUCTION ITEMS INCLUDE: PAVEMENT TRANSITIONS, PROTECTIVE DITCHES AND BERMS, ROAD SIGNS AND BARRICADES, ETC.

## NOTICE TO CONTRACTOR

-QUANTITIES SHOWN ARE ESTIMATES ONLY AND ARE INTENDED TO ILLUSTRATE SCOPE OF WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE EXACT QUANTITIES INVOLVED.

-EXISTING UTILITY LOCATIONS SHOWN HEREIN ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATIONS. CALL BEFORE YOU DIG: (800) 227-2600

## LEGEND

| EXISTING | PROPOSED | DESCRIPTION |
|---|---|---|
| (1900) | 1900 | 5' CONTOUR |
| | | 1' CONTOUR |
| | | STRIPING |
| | | SEWER MANHOLE |
| | | CURB AND GUTTER |
| EX 8" PVC SS | 8" PVC SS | SANITARY SEWER PIPE AND FLOW ARROW |
| EX 8" PVC WTR | 8" PVC WTR | WATER PIPE |
| | | WATER GATE VALVE |
| | | FIRE HYDRANT |
| | | WATER BLOW-OFF |
| | | WATER LATERAL W/ METER |
| | | SANITARY SEWER LATERAL |
| | | STREETLIGHT |
| | | EDGE OF PAVEMENT |
| | | TRAFFIC SIGN |
| FG = XXX.X<br>FF = XXX.X | FG= XXX.X<br>FF = XXX.X | PAD ELEVATION<br>FINISHED FLOOR ELEVATION |
| DD.DD<br>DD.DD | DD.DD<br>DD.DD | ELEVATION |
| | | RETAINING WALL |
| | | STORM DRAIN W/ MANHOLE |

| | |
|---|---|
| | EXISTING GAS GATE VALVE |
| @MH | EXISTING UNKNOWN MANHOLE |
| GAS | EXISTING GAS, SIZE PER PLAN |
| | EXISTING POWER POLE |
| | EXISTING TRAFFIC SIGNAL |
| | EXISTING WALL |
| | WATER PIPE FITTING |
| POC | WATER POINT OF CONNECTION |
| POC | SEWER POINT OF CONNECTION |
| | DAYLIGHT LINE |
| | STREET CENTERLINE |
| | RIGHT-OF-WAY |
| | MATCHLINE |
| | BOUNDARY LINE |
| | PHASE LINE |
| | PROPERTY LINE |
| | FLOWLINE |
| | SAWCUT |
| FILL / CUT | CUT/FILL TRANSITION LINE |
| | SIDEWALK |
| | EX STRIPING TO BE OBLITERATED |
| | GRADE BREAK LINE |
| | REFLECTIVE RAISED PAVEMENT MARKERS |
| BWV | BACK WATER VALVE |
| | WROUGHT IRON FENCE |
| | PONY WALL |
| | DECORATIVE PERIMETER WALL |
| | DECORATIVE PERIMETER RETAINING WALL |
| | PROPOSED CURB AND GUTTER WITH RIGHT-OF-WAY AT BACK OF CURB |
| | EXISTING CURB AND GUTTER WITH RIGHT-OF-WAY AT BACK OF CURB |
| | FUTURE CURB AND GUTTER WITH RIGHT-OF-WAY AT BACK OF CURB |

| | |
|---|---|
| | PROPOSED SCARP AREA |
| | DRIVEWAY |
| | PROPOSED RIP RAP |
| | SIGHT VISIBILITY ZONE PER STD DWG NO. 201.2 |
| | HANDICAP RAMP |

## QUANTITIES

| | | | PRIVATE | PUBLIC |
|---|---|---|---|---|
| **DRAINAGE** | | | | |
| 1. | 60" TYPE III STORM DRAIN MANHOLE | EA | – | – |
| 2. | 5.0' TYPE "CM2" DROP INLET | EA | – | – |
| 3. | 10.0' TYPE "CM2" DROP INLET | EA | – | – |
| 4. | 12.5' TYPE "CM2" DROP INLET | EA | – | – |
| 5. | 20.0' TYPE "CM2" DROP INLET | EA | – | – |
| 6. | 18" RCP CLASS IV STORM DRAIN | LF | – | – |
| 7. | 24" RCP CLASS IV STORM DRAIN | LF | – | – |
| 8. | 30" RCP CLASS IV STORM DRAIN | LF | – | – |
| 9. | 36" RCP CLASS IV STORM DRAIN | LF | – | – |
| 10. | RIPRAP D50=8", THK=16" | SF | – | – |
| 11. | 8' WIDE CONCRETE VALLEY GUTTER W/10" TYPE I AGGREGATE BASE | SF | – | – |
| 12. | SIDEWALK UNDER DRAIN | SF | – | – |
| 13. | | | | |
| **SEWER SYSTEM** | | | | |
| 1. | 4" PVC SEWER LATERAL (PRIVATE) | LF | – | – |
| 2. | 8" PVC SEWER PIPE (PUBLIC) | LF | – | – |
| 3. | STANDARD 48" SEWER MANHOLE (PUBLIC) | EA | – | – |
| 4. | 8" SEWER PIPE CAP | EA | – | – |
| 5. | BACK WATER VALVE | EA | – | – |
| 6. | 8" C-900 WATER QUALITY SEWER PIPE (PUBLIC) | EA | – | – |
| 7. | | | | |
| **WATER SYSTEM** | | | | |
| 1. | FIRE HYDRANT ASSEMBLY W/6" GATE VALVE PER UDACS PLATE NO. 40 | EA | – | – |
| 2. | 6" PVC WATER PIPE (CLASS 150) | LF | – | – |
| 3. | 8" PVC WATER PIPE (CLASS 150) | LF | – | – |
| 4. | 8" DIP WATER PIPE (CLASS 53) | LF | – | – |
| 5. | 8" GATE VALVE WITH VALVE BOX PER UDACS PLATE NO. 30 & 39 | EA | – | – |
| 6. | 8" X 6" TEE PER UDACS PLATE NO. 31 | EA | – | – |
| 7. | 8" X 8" TEE PER UDACS PLATE NO. 31 | EA | – | – |
| 8. | 8" 5 DEGREE BEND WITH RESTRAINED JOINTS | EA | – | – |
| 9. | 8" 11.25 DEGREE BEND PER UDACS PLATE NO. 31 | EA | – | – |
| 10. | 8" 22.5 DEGREE BEND PER UDACS PLATE NO. 31 | EA | – | – |
| 11. | 8" 45 DEGREE BEND PER UDACS PLATE NO. 31 | EA | – | – |
| 12. | 8" 90 DEGREE BEND PER UDACS PLATE NO. 31 | EA | – | – |
| 13. | CAP AND 2" BLOW-OFF ASSEMBLY W/CAP PER UDACS PLATE NO. 36 | EA | – | – |
| 14. | 1" COPPER SERVICE W/ 3/4" METER PER UDACS PLATE NO. 2 | EA | – | – |
| 15. | 1" COPPER SERVICE W/ 1" METER PER UDACS PLATE NO. 4 | EA | – | – |
| 16. | 1" COPPER SERVICE W/ 3/4" METER & 1" RPPA PER UDACS PLATE NO. 4 & 8 | EA | – | – |
| | | EA | – | |
| **STREET IMPROVEMENTS** | | | | |
| 1. | 2" A.C. PAVEMENT W/ 4" TYPE II OVER 6" TYPE I AGGREGATE BASE | SY | – | – |
| 2. | STANDARD 18" TYPE "L" ISLAND CURB & GUTTER W/6" TYPE I AGGREGATE BASE | LF | – | – |
| 3. | STANDARD 8" TYPE "A" ISLAND CURB W/6" TYPE I AGGREGATE BASE | LF | – | – |
| 4. | STANDARD 30" TYPE "ROLL" CURB & GUTTER W/6" TYPE I AGGREGATE BASE | LF | – | – |
| 5. | 4' WIDE CONCRETE SIDEWALK W/4" TYPE II AGGREGATE BASE | SF | – | – |
| 6. | | | | – |
| 7. | | | | |
| **TRAFFIC SIGNALS** | | | | |
| 1. | 30" STOP SIGN WITH POST (R1-1) | EA | – | – |
| 2. | 9" STREET NAME SIGN (D-3, BROWN W/ WHITE LETTERS)(6 POLES x 2 PER POLE=12) | EA | – | – |
| 3. | BLUE COLORED REFLECTIVE RAISED PAVEMENT MARKER | EA | – | – |
| 4. | CROSSWALK MARKINGS | LF | – | – |
| 5. | | | | |
| 6. | | | | |
| 7. | | | | |
| 8. | | | | |
| **DRY UTILITIES** | | | | |
| 1. | 100W H.P.S. LUMINAIRE STREET LIGHT W/DECORATIVE POLE | EA | – | – |
| 2. | 1-1/4" PVC STREET LIGHT CONDUIT WITH (2) #4 AND (1) #8 CONDUCTORS | LF | – | – |
| 3. | NO. 3-1/2 PULL BOX W/METAL COVER | EA | – | – |
| 4. | 150 AMP SERVICE PEDESTAL (IRR) | EA | – | – |
| 5. | 200 AMP SERVICE PEDESTAL (STLT) | EA | – | – |
| 6. | | | | |

## APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ###### FIRST APPROVED DATE:
LVVWD APPROVED FIRE FLOW 1,500 GPM AT 20 PSI RESIDUAL
MAXIMUM AVAILABLE FIRE SPRINKLER FLOW ## GPM











Westwood
Phone (702) 284-5300
Fax (702) 284-5399
5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
westwoodps.com
Westwood Professional Services, Inc.


| NO. | DESCRIPTION | DATE | BY | APP. DATE | APP. |
|---|---|---|---|---|---|
| | | | | | |

CITY OF LAS VEGAS, NEVADA

**190 OCTANE FT PARTNERS, LLC**

**BLM 270 PARCEL C-2 & C-3 PHASE 2**

**LEGEND, ABBREVIATIONS, & QUANTITIES**

S23
T19S
R59E

DATE: 12/14/2020
DRAFTER: YZ
DESIGNER: HN
CHECKED: MAK

PROJECT NO.
**BZR2001**




12/14/2020

**C-3**
SHEET 3 OF 13

__-____


J:\bzr2001 blm 270 c\dwg\vmprov\xphase 2\bzr2001 cvr-2.dwg 12/14/2020 12:19 PM Hung Nguyen




SCALE - 1"=30' (0, 30, 60 FEET)

CALL SOUTHWEST GAS AT 702-651-2111 FOR STANDBY WHEN EXCAVATING OVER OR NEAR HIGH PRESSURE GAS LINES

## SURVEY NOTE

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## ELEVATION NOTE

ADD 3000 TO ALL SPOT GRADES WHERE THE HUNDREDS AND THOUSANDS PLACES ARE OMITTED FOR ACTUAL ELEVATION (I.E. 01.00 REPRESENTS 3001.00)

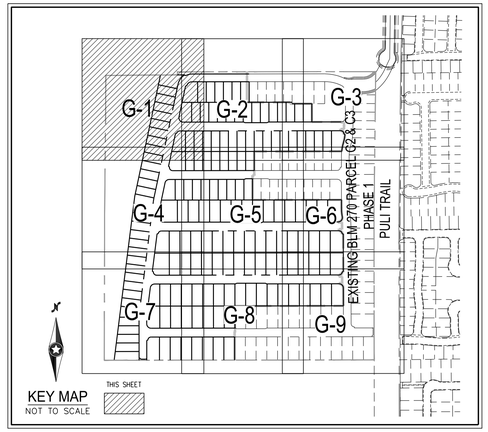
## SOILS REPORT

SOILS REPORT BY SOUTHWEST GEOTECHNICAL
PROJECT NO. 197111 DATED 01/28/20

## EARTHWORKS

EARTHWORK QUANTITIES (RAW):
CUT= 79,506 CU YDS
FILL= 76,965 CU YDS

EXPORTED MATERIAL TO BE DISPOSED OF AT AN APPROVED LICENSED DISPOSAL FACILITY OR AT A SITE WITH AN APPROVED AND ACTIVE GRADING PERMIT.




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## GRADING NOTES

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2. ALL IMPROVEMENTS TO BE PROTECTED FROM EROSION BY SWPPP.
3. MAXIMUM/MINIMUM SLOPES AND MINIMUM STREET SECTIONS NOT TO EXCEED THAT SHOWN ON GEOTECH REPORT.
4. SEE DETAIL SHEET FOR STREET SECTIONS AND DETAILS.
5. ALL PUBLIC AND PRIVATE DRAINAGE IMPROVEMENTS TO BE BONDED FOR AND INSPECTED.
6. CONSTRUCTION OF BLOCK WALLS REQUIRES A SEPARATE BUILDING PERMIT AND APPROVAL BY THE CITY OF LAS VEGAS BUILDING DEPARTMENT.
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8. NO STRUCTURE, VEGETATION, OR OBJECTS OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF THE ADJACENT CURB IF CURB EXIST) WITHIN THE SIGHT VISIBILITY ZONES.

## LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDELINES

(REQUIRED FOR ALL SITES GREATER THAN 1 ACRE (43,560 SQ.FT.))

1. THE OWNER, SITE DEVELOPER, CONTRACTOR, AND/OR THEIR AUTHORIZED AGENTS SHALL EACH DAY REMOVE ALL SEDIMENT, MUD, CONSTRUCTION DEBRIS, OR OTHER POTENTIAL POLLUTANTS THAT MAY HAVE BEEN DISCHARGED TO, OR ACCUMULATED IN, THE PUBLIC RIGHTS OF WAY OF CLARK COUNTY AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS SITE DEVELOPMENT OR CONSTRUCTION PROJECT. SUCH MATERIALS SHALL BE PREVENTED FROM ENTERING THE STORM SEWER SYSTEM.
2. ADDITIONAL CONSTRUCTION SITE DISCHARGE BEST MANAGEMENT PRACTICES MAY BE REQUIRED OF THE OWNER AND HIS OR HER AGENTS DUE TO UNFORESEEN EROSION PROBLEMS OR IF THE SUBMITTED PLAN DOES NOT MEET THE PERFORMANCE STANDARDS SPECIFIED IN CLARK COUNTY TITLE 24.40 AND IN 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, SECTION III.A.5.
4. AT A MINIMUM, THE CONTRACTOR OR HIS AGENT SHALL INSPECT ALL DISTURBED AREAS, AREAS USED FOR STORAGE OF MATERIALS AND EQUIPMENT THAT ARE EXPOSED TO PRECIPITATION, VEHICLE ENTRANCE AND EXIT LOCATIONS, AND ALL BMPS WEEKLY, AND WITHIN 24 HOURS AFTER A RAIN EVENT OF 0.5 INCHES OR MORE. THE CONTRACTOR OR HIS AGENT SHALL UPDATE OR MODIFY THE STORMWATER POLLUTION PREVENTION PLAN AS NECESSARY. SOME EXCEPTIONS TO WEEKLY INSPECTIONS MAY APPLY, SUCH AS SUSPENSION OF LAND DISTURBANCE ACTIVITIES. REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.12.
5. ACCUMULATED SEDIMENT IN BMPS SHALL BE REMOVED WITHIN SEVEN DAYS AFTER A STORMWATER RUNOFF EVENT OR PRIOR TO THE NEXT ANTICIPATED STORM EVENT, WHICHEVER IS EARLIER. SEDIMENT MUST BE REMOVED WHEN BMP DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE.

## FLOOD ZONE

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE X (UNSHADED) AS DEPICTED ON FLOOD INSURANCE RATE MAP (FIRM) PANEL 32003C1750E, DATED SEPTEMBER 27, 2002. A ZONE X (UNSHADED) IS DESCRIBED AS AN AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN.

## CONSTRUCTION NOTES

1. CONSTRUCT 2" AC PAVEMENT WITH 4" TYPE II AGGREGATE BASE
2. CONSTRUCT 8' CROSS GUTTER PER CCAUSD NO. 228
3. CONSTRUCT 30" ROLL CURB PER CCAUSD NO. 217.1
4. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD NO. 234 (5" THICK W/ 5" TYPE II AGGREGATE BASE)
5. FIELD VERIFY AND CONNECT TO EXISTING CURB AND GUTTER
6. CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD NO. 235, CASE 1

## STORM DRAIN NOTE

ALL ONSITE STORM DRAIN FACILITIES ARE PRIVATELY OWNED AND PRIVATELY MAINTAINED BY THE HOA.

## DRAINAGE EASEMENT NOTE

ALL PRIVATE STREETS, DRAINAGE EASEMENTS AND COMMON LOTS ARE PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA

## FLOOD CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED TECHNICAL DRAINAGE STUDY DS-5377 ON FILE AT CITY OF LAS VEGAS FOR THE SUBJECT PROJECT.

KEVIN M. BROSS, P.E. 24572 DATE

FAST
Call before you UnderGround
1-702-432-5300
FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (F.A.S.T.)

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

Call before you Dig
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.
Call 811 OR
1-800-227-2600

Westwood
Phone (702) 284-5300
Fax (702) 284-5399
5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
westwoodps.com
Westwood Professional Services, Inc.

| NO. | DESCRIPTION | DATE | BY | APP. DATE | APP. |
|---|---|---|---|---|---|

CITY OF LAS VEGAS, NEVADA

**190 OCTANE FT PARTNERS, LLC**

**BLM 270 PARCEL C-2 & C-3 PHASE 2**

**GRADING PLAN I**

S23 T19S R59E

DATE: 12/14/2020
DRAFTER: YZ
DESIGNER: HN
CHECKED: MAK

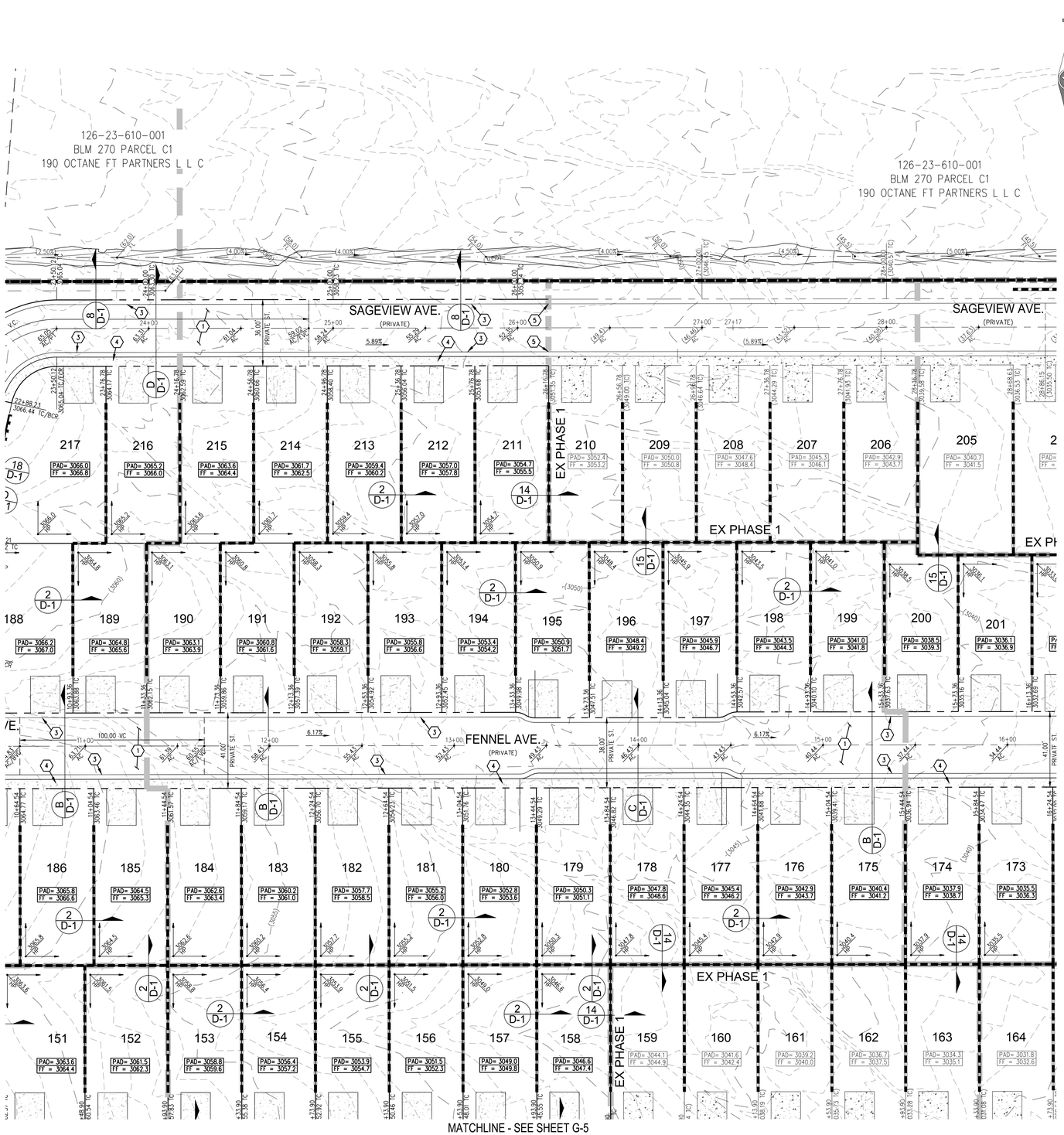
PROJECT NO.
**BZR2001**

PROFESSIONAL ENGINEER - STATE OF NEVADA
KEVIN M. BROSS
Exp. 12/31/2020
CIVIL
No. 24572
12/14/2020

**G-1**
SHEET 4 OF 13

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0 30 60
SCALE - 1"=30' FEET

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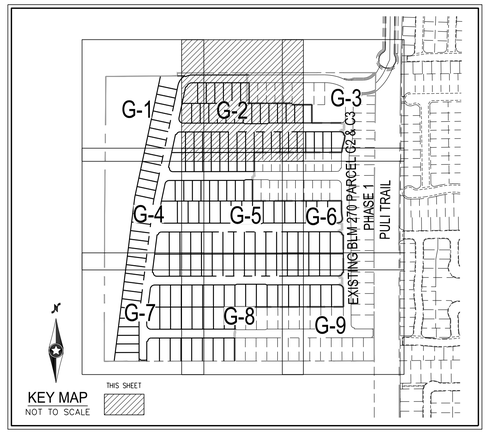
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SOILS REPORT BY SOUTHWEST GEOTECHNICAL
PROJECT NO. 197111 DATED 01/28/20

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3. TEMPORARY OR PERMANENT STABILIZATION PRACTICES WILL BE INSTALLED ON DISTURBED AREAS AS SOON AS PRACTICABLE AND NO LATER THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. SOME EXCEPTIONS MAY APPLY; REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.5.
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 A RAIN EVENT OF 0.5 INCHES OR MORE. THE CONTRACTOR OR HIS AGENT SHALL UPDATE OR MODIFY THE STORMWATER POLLUTION PREVENTION PLAN AS NECESSARY. SOME EXCEPTIONS TO WEEKLY INSPECTIONS MAY APPLY, SUCH AS SUSPENSION OF LAND DISTURBANCE ACTIVITIES. REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.12.
5. ACCUMULATED SEDIMENT IN BMPS SHALL BE REMOVED WITHIN SEVEN DAYS AFTER A STORMWATER RUNOFF EVENT OR PRIOR TO THE NEXT ANTICIPATED STORM EVENT, WHICHEVER IS EARLIER. SEDIMENT MUST BE REMOVED WHEN BMP DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE.

## FLOOD ZONE

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE X (UNSHADED) AS DEPICTED ON FLOOD INSURANCE RATE MAP (FIRM) PANEL 32003C1750E, DATED SEPTEMBER 27, 2002. A ZONE X (UNSHADED) IS DESCRIBED AS AN AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN.

## CONSTRUCTION NOTES

1. CONSTRUCT 2" AC PAVEMENT WITH 4" TYPE II AGGREGATE BASE
2. CONSTRUCT 8" CROSS GUTTER PER CCAUSD NO. 228
3. CONSTRUCT 30" ROLL CURB PER CCAUSD NO. 217.1
4. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD NO. 234 (5" THICK W/ 5" TYPE II AGGREGATE BASE)
5. FIELD VERIFY AND CONNECT TO EXISTING CURB AND GUTTER
6. CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD NO. 235, CASE 1

## STORM DRAIN NOTE

ALL ONSITE STORM DRAIN FACILITIES ARE PRIVATELY OWNED AND PRIVATELY MAINTAINED BY THE HOA.

## DRAINAGE EASEMENT NOTE

ALL PRIVATE STREETS, DRAINAGE EASEMENTS AND COMMON LOTS ARE PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA

## FLOOD CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED TECHNICAL DRAINAGE STUDY DS-5377 ON FILE AT CITY OF LAS VEGAS FOR THE SUBJECT PROJECT.

KEVIN M. BROSS, P.E. 24572 DATE

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| NO. | DESCRIPTION | DATE | BY | APP. DATE | APP |
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CITY OF LAS VEGAS, NEVADA

190 OCTANE FT PARTNERS, LLC

BLM 270 PARCEL C-2 & C-3 PHASE 2

GRADING PLAN II

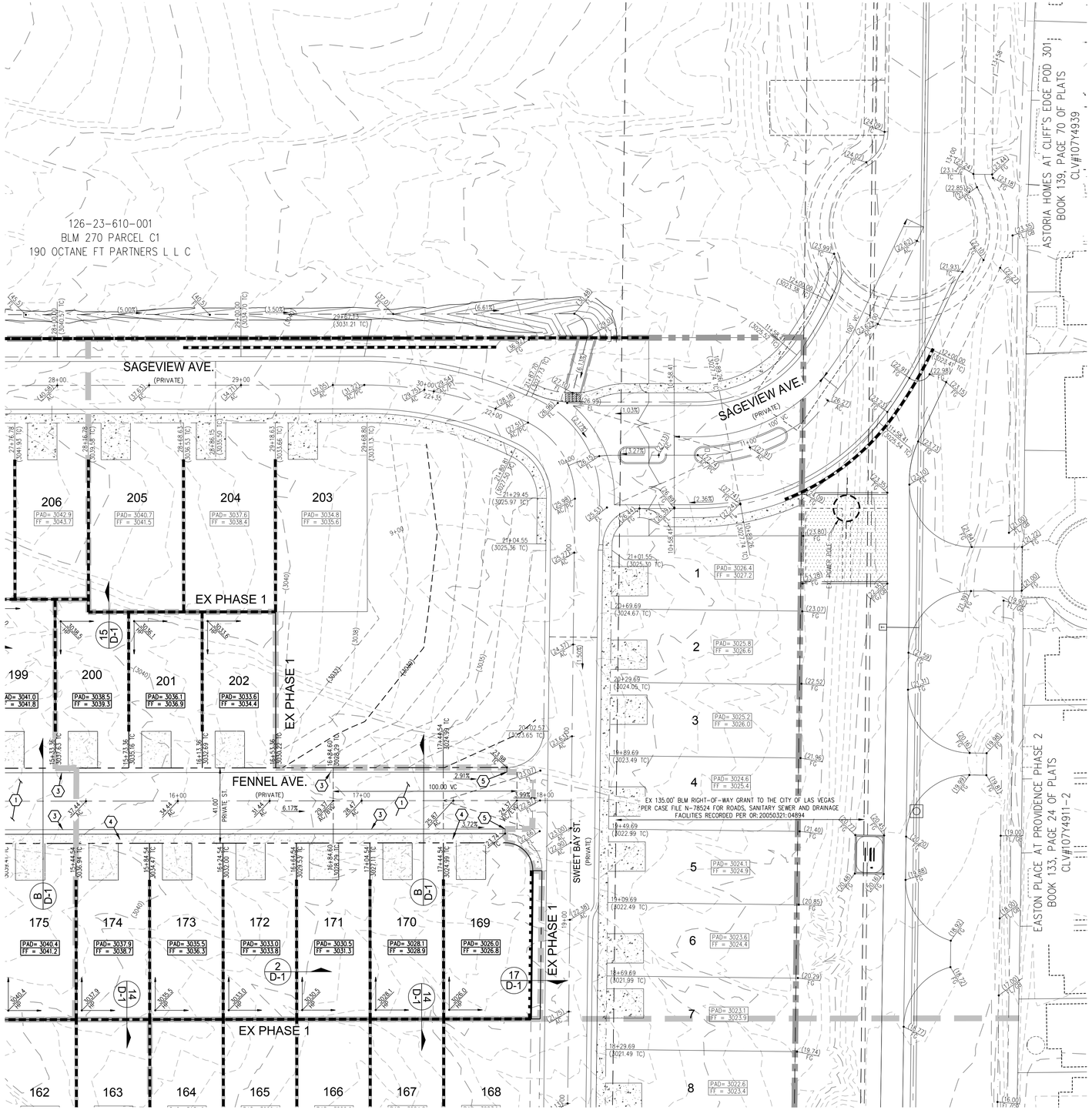
S23 T19S R59E

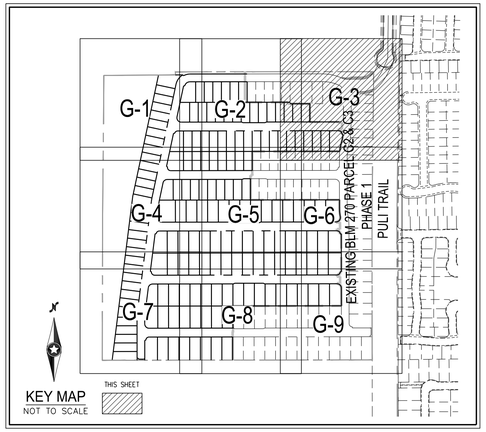
DATE: 12/14/2020
DRAFTER: YZ
DESIGNER: HN
CHECKED: MAK
PROJECT NO.
BZR2001

KEVIN M. BROSS — STATE OF NEVADA — PROFESSIONAL ENGINEER — Exp. 12/31/2020 — CIVIL — No. 24572
12/14/2020

G-2
SHEET 5 OF 13

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SCALE - 1"=30' FEET

CALL SOUTHWEST GAS AT 702-651-2111 FOR STANDBY WHEN EXCAVATING OVER OR NEAR HIGH PRESSURE GAS LINES

## SURVEY NOTE

OWNER RESPONSIBLE TO PROVIDE SURVEY MONUMENTATION AS SHOWN AND TO REPLACE ALL SURVEY MONUMENTATION DAMAGED, DISTURBED, DESTROYED, OR OBSCURED DURING CONSTRUCTION.

## ELEVATION NOTE

ADD 3000 TO ALL SPOT GRADES WHERE THE HUNDREDS AND THOUSANDS PLACES ARE OMITTED FOR ACTUAL ELEVATION (I.E. 01.00 REPRESENTS 3001.00)

## SOILS REPORT

SOILS REPORT BY SOUTHWEST GEOTECHNICAL
PROJECT NO. 197111 DATED 01/28/20

## EARTHWORKS

EARTHWORK QUANTITIES (RAW):
CUT= 79,506 CU YDS
FILL= 76,965 CU YDS

EXPORTED MATERIAL TO BE DISPOSED OF AT AN APPROVED LICENSED DISPOSAL FACILITY OR AT A SITE WITH AN APPROVED AND ACTIVE GRADING PERMIT.

## DISCLAIMER NOTE

1) EXISTING UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION.

2) FOR ROADWAY WIDENING AND HALF STREET IMPROVEMENTS THE CONTRACTOR SHALL VERIFY CROSS SLOPES FROM EXISTING PAVEMENT SAWCUT LINE TO PROPOSED EDGE OF PAVEMENT OR PROJECTED LIP OF CURB PRIOR TO SUBGRADE PREPARATION AND CONSTRUCTION OF PROPOSED CURB LINE. IF MINIMUM OR MAXIMUM CROSS SLOPES DO NOT MEET AGENCY STANDARDS THE CONTRACTOR SHALL NOTIFY THE ENGINEER.

## GRADING NOTES

1. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AND REPORT ALL DISCREPANCIES TO THE ENGINEER.
2. ALL IMPROVEMENTS TO BE PROTECTED FROM EROSION BY SWPPP.
3. MAXIMUM/MINIMUM SLOPES AND MINIMUM STREET SECTIONS NOT TO EXCEED THAT SHOWN ON GEOTECH REPORT.
4. SEE DETAIL SHEET FOR STREET SECTIONS AND DETAILS.
5. ALL PUBLIC AND PRIVATE DRAINAGE IMPROVEMENTS TO BE BONDED FOR AND INSPECTED.
6. CONSTRUCTION OF BLOCK WALLS REQUIRES A SEPARATE BUILDING PERMIT AND APPROVAL BY THE CITY OF LAS VEGAS BUILDING DEPARTMENT.
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8. NO STRUCTURE, VEGETATION, OR OBJECTS OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF THE ADJACENT CURB IF CURB EXIST) WITHIN THE SIGHT VISIBILITY ZONES.

## LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDELINES

(REQUIRED FOR ALL SITES GREATER THAN 1 ACRE (43,560 SQ.FT.))

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3. TEMPORARY OR PERMANENT STABILIZATION PRACTICES WILL BE INSTALLED ON DISTURBED AREAS AS SOON AS PRACTICABLE AND NO LATER THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. SOME EXCEPTIONS MAY APPLY; REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.5.
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 A RAIN EVENT OF 0.5 INCHES OR MORE. THE CONTRACTOR OR HIS AGENT SHALL UPDATE OR MODIFY THE STORMWATER POLLUTION PREVENTION PLAN AS NECESSARY. SOME EXCEPTIONS TO WEEKLY INSPECTIONS MAY APPLY, SUCH AS SUSPENSION OF LAND DISTURBANCE ACTIVITIES. REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.12.
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## CONSTRUCTION NOTES

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5. FIELD VERIFY AND CONNECT TO EXISTING CURB AND GUTTER
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## STORM DRAIN NOTE

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KEVIN M. BROSS, P.E. 24572 DATE

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westwoodps.com
Westwood Professional Services, Inc.


| NO. | DESCRIPTION | DATE | BY | APP. DATE | APP |
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CITY OF LAS VEGAS, NEVADA

**190 OCTANE FT PARTNERS, LLC**

**BLM 270 PARCEL C-2 & C-3 PHASE 2**

**GRADING PLAN III**

S23 T19S R59E

DATE: 12/14/2020
DRAFTER: YZ
DESIGNER: HN
CHECKED: MAK

PROJECT NO.
**BZR2001**

PROFESSIONAL ENGINEER – STATE OF NEVADA – KEVIN M. BROSS – Exp. 12/31/2020 – CIVIL – No. 24572
12/14/2020

**G-3**
SHEET 6 OF 13


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SCALE - 1"=30' FEET

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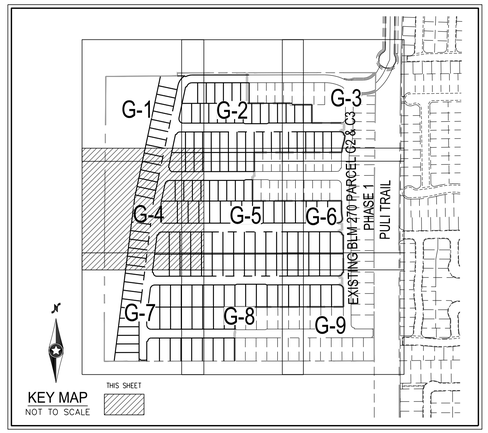
## SOILS REPORT

SOILS REPORT BY SOUTHWEST GEOTECHNICAL
PROJECT NO. 197111 DATED 01/28/20

## EARTHWORKS

EARTHWORK QUANTITIES (RAW):
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## GRADING NOTES

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KEVIN M. BROSS, P.E. 24572 DATE

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CITY OF LAS VEGAS, NEVADA

190 OCTANE FT PARTNERS, LLC

BLM 270 PARCEL C-2 & C-3 PHASE 2

GRADING PLAN IV

S23 T19S R59E

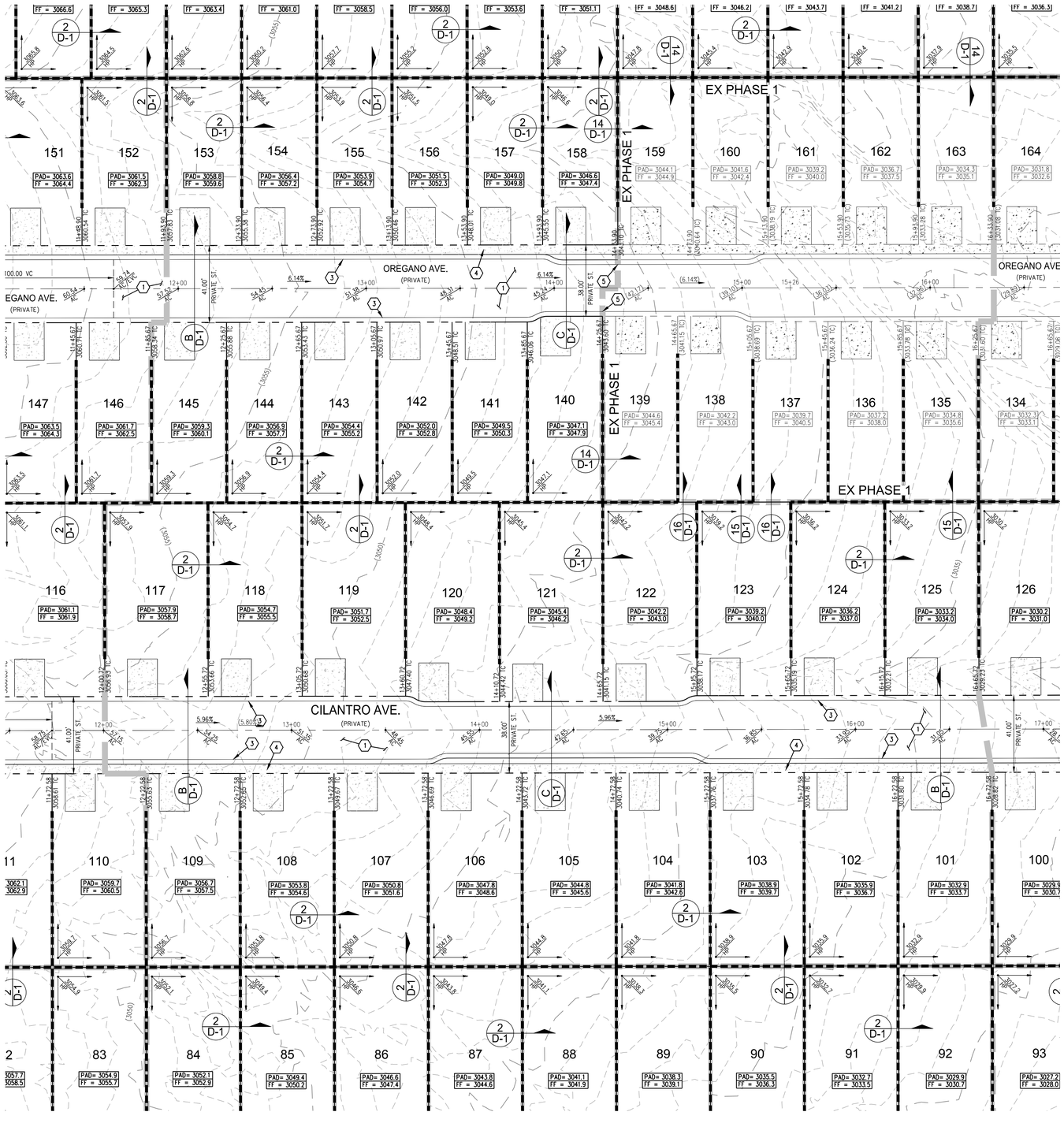
DATE: 12/14/2020
DRAFTER: YZ
DESIGNER: HN
CHECKED: MAK

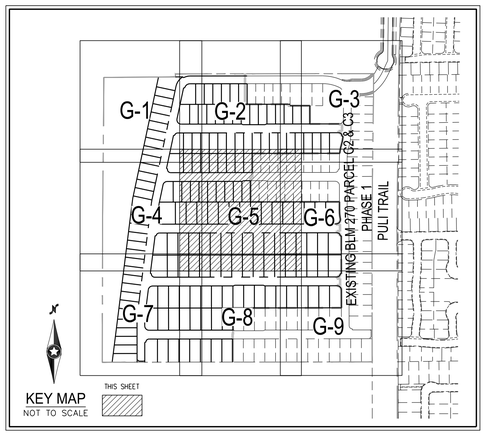
PROJECT NO.
BZR2001

KEVIN M. BROSS — STATE OF NEVADA — PROFESSIONAL ENGINEER — No. 24572 — CIVIL — Exp. 12/31/2020
12/14/2020

G-4
SHEET 7 OF 13

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SCALE – 1"=30' FEET

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SOILS REPORT BY SOUTHWEST GEOTECHNICAL
PROJECT NO. 197111 DATED 01/28/20

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5. ALL PUBLIC AND PRIVATE DRAINAGE IMPROVEMENTS TO BE BONDED FOR AND INSPECTED.
6. CONSTRUCTION OF BLOCK WALLS REQUIRES A SEPARATE BUILDING PERMIT AND APPROVAL BY THE CITY OF LAS VEGAS BUILDING DEPARTMENT.
7. CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF EXISTING UTILITY STRUCTURES AND FACILITIES AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION. CONTRACTOR TO PROTECT IN PLACE DURING CONSTRUCTION. ENGINEER/OWNER SHALL BE NOTIFIED OF PRIOR DAMAGE TO EXISTING FACILITIES PRIOR TO CONSTRUCTION. CONTRACTOR WILL BE RESPONSIBLE FOR REPAIR/REPLEPING FACILITIES IF ENGINEER/OWNER IS NOT NOTIFIED OF EXISTING DAMAGE PRIOR TO CONSTRUCTION COMMENCING.
8. NO STRUCTURE, VEGETATION, OR OBJECTS OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF THE ADJACENT CURB IF CURB EXIST) WITHIN THE SIGHT VISIBILITY ZONES.

## LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDELINES

(REQUIRED FOR ALL SITES GREATER THAN 1 ACRE (43,560 SQ.FT.))

1. THE OWNER, SITE DEVELOPER, CONTRACTOR, AND/OR THEIR AUTHORIZED AGENTS SHALL EACH DAY REMOVE ALL SEDIMENT, MUD, CONSTRUCTION DEBRIS, OR OTHER POTENTIAL POLLUTANTS THAT MAY HAVE BEEN DISCHARGED TO, OR ACCUMULATED IN, THE PUBLIC RIGHTS OF WAY OF CLARK COUNTY AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS SITE DEVELOPMENT OR CONSTRUCTION PROJECT. SUCH MATERIALS SHALL BE PREVENTED FROM ENTERING THE STORM SEWER SYSTEM.
2. ADDITIONAL CONSTRUCTION SITE DISCHARGE BEST MANAGEMENT PRACTICES MAY BE REQUIRED OF THE OWNER AND HIS OR HER AGENTS DUE TO UNFORESEEN EROSION PROBLEMS OR IF THE SUBMITTED PLAN DOES NOT MEET THE PERFORMANCE STANDARDS SPECIFIED IN CLARK COUNTY TITLE 24.40 AND IN 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, SECTION III.A.5.
4. AT A MINIMUM, THE CONTRACTOR OR HIS AGENT SHALL INSPECT ALL DISTURBED AREAS, AREAS USED FOR STORAGE OF MATERIALS AND EQUIPMENT THAT ARE EXPOSED TO PRECIPITATION, VEHICLE ENTRANCE AND EXIT LOCATIONS, AND ALL BMPS WEEKLY, AND WITHIN 24 HOURS AFTER A RAIN EVENT OF 0.5 INCHES OR MORE. THE CONTRACTOR OR HIS AGENT SHALL UPDATE OR MODIFY THE STORMWATER POLLUTION PREVENTION PLAN AS NECESSARY. SOME EXCEPTIONS TO WEEKLY INSPECTIONS MAY APPLY, SUCH AS SUSPENSION OF LAND DISTURBANCE ACTIVITIES. REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.12.
5. ACCUMULATED SEDIMENT IN BMPS SHALL BE REMOVED WITHIN SEVEN DAYS AFTER A STORMWATER RUNOFF EVENT OR PRIOR TO THE NEXT ANTICIPATED STORM EVENT, WHICHEVER IS EARLIER. SEDIMENT MUST BE REMOVED WHEN BMP DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE.

## FLOOD ZONE

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE X (UNSHADED) AS DEPICTED ON FLOOD INSURANCE RATE MAP (FIRM) PANEL 32003C1750E, DATED SEPTEMBER 27, 2002. A ZONE X (UNSHADED) IS DESCRIBED AS AN AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN.

## CONSTRUCTION NOTES

1. CONSTRUCT 2" AC PAVEMENT WITH 4" TYPE II AGGREGATE BASE
2. CONSTRUCT 8" CROSS GUTTER PER CCAUSD NO. 228
3. CONSTRUCT 30" ROLL CURB PER CCAUSD NO. 217.1
4. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD NO. 234 (5" THICK W/ 5" TYPE II AGGREGATE BASE)
5. FIELD VERIFY AND CONNECT TO EXISTING CURB AND GUTTER
6. CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD NO. 235, CASE 1

## STORM DRAIN NOTE

ALL ONSITE STORM DRAIN FACILITIES ARE PRIVATELY OWNED AND PRIVATELY MAINTAINED BY THE HOA.

## DRAINAGE EASEMENT NOTE

ALL PRIVATE STREETS, DRAINAGE EASEMENTS AND COMMON LOTS ARE PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA

## FLOOD CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED TECHNICAL DRAINAGE STUDY DS-5377 ON FILE AT CITY OF LAS VEGAS FOR THE SUBJECT PROJECT.

KEVIN M. BROSS, P.E. 24572 DATE

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

Call before you Dig AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY. Call 811 OR 1-800-227-2600


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Suite 216
Las Vegas, NV 89118
westwoodps.com
Westwood Professional Services, Inc.


| NO. | DESCRIPTION | DATE | BY | APP. DATE | APP. |
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CITY OF LAS VEGAS, NEVADA

# 190 OCTANE FT PARTNERS, LLC

## BLM 270 PARCEL C-2 & C-3 PHASE 2

## GRADING PLAN V

S23 T19S R59E

DATE: 12/14/2020
DRAFTER: YZ
DESIGNER: HN
CHECKED: MAK

PROJECT NO.
BZR2001

KEVIN M. BROSS — PROFESSIONAL ENGINEER — STATE OF NEVADA — No. 24572 — Exp. 12/31/2020 — CIVIL
12/14/2020

G-5
SHEET 8 OF 13

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0 30 60
SCALE – 1"=30' FEET

CALL SOUTHWEST GAS AT 702-651-2111 FOR STANDBY WHEN EXCAVATING OVER OR NEAR HIGH PRESSURE GAS LINES

## SURVEY NOTE

OWNER RESPONSIBLE TO PROVIDE SURVEY MONUMENTATION AS SHOWN AND TO REPLACE ALL SURVEY MONUMENTATION DAMAGED, DISTURBED, DESTROYED, OR OBSCURED DURING CONSTRUCTION.

## ELEVATION NOTE

ADD 3000 TO ALL SPOT GRADES WHERE THE HUNDREDS AND THOUSANDS PLACES ARE OMITTED FOR ACTUAL ELEVATION (I.E. 01.00 REPRESENTS 3001.00)

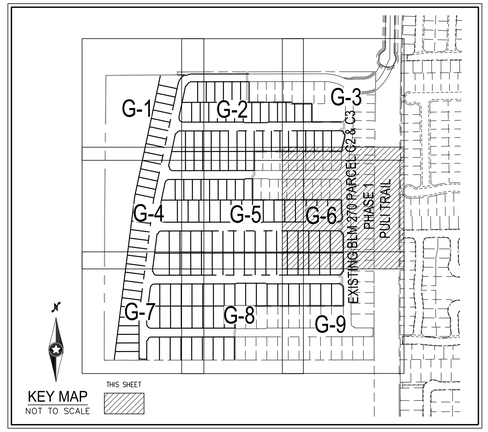
## SOILS REPORT

SOILS REPORT BY SOUTHWEST GEOTECHNICAL
PROJECT NO. 197111 DATED 01/28/20

## EARTHWORKS

EARTHWORK QUANTITIES (RAW):
CUT= 79,506 CU YDS
FILL= 76,965 CU YDS

EXPORTED MATERIAL TO BE DISPOSED OF AT AN APPROVED LICENSED DISPOSAL FACILITY OR AT A SITE WITH AN APPROVED AND ACTIVE GRADING PERMIT.




## CONSTRUCTION NOTES

1. CONSTRUCT 2" AC PAVEMENT WITH 4" TYPE II AGGREGATE BASE
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## DISCLAIMER NOTE

1) EXISTING UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION.

2) FOR ROADWAY WIDENING AND HALF STREET IMPROVEMENTS THE CONTRACTOR SHALL VERIFY CROSS SLOPES FROM EXISTING PAVEMENT SAWCUT LINE TO PROPOSED EDGE OF PAVEMENT OR PROJECTED LIP OF CURB PRIOR TO SUBGRADE PREPARATION AND CONSTRUCTION OF PROPOSED CURB LINE. IF MINIMUM OR MAXIMUM CROSS SLOPES DO NOT MEET AGENCY STANDARDS THE CONTRACTOR SHALL NOTIFY THE ENGINEER.

## GRADING NOTES

1. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AND REPORT ALL DISCREPANCIES TO THE ENGINEER.
2. ALL IMPROVEMENTS TO BE PROTECTED FROM EROSION BY SWPPP.
3. MAXIMUM/MINIMUM SLOPES AND MINIMUM STREET SECTIONS NOT TO EXCEED THAT SHOWN ON GEOTECH REPORT.
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## LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDELINES

(REQUIRED FOR ALL SITES GREATER THAN 1 ACRE (43,560 SQ.FT.))

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3. TEMPORARY OR PERMANENT STABILIZATION PRACTICES WILL BE INSTALLED ON DISTURBED AREAS AS SOON AS PRACTICABLE AND NO LATER THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. SOME EXCEPTIONS MAY APPLY; REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.5.
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 A RAIN EVENT OF 0.5 INCHES OR MORE. THE CONTRACTOR OR HIS AGENT SHALL UPDATE OR MODIFY THE STORMWATER POLLUTION PREVENTION PLAN AS NECESSARY. SOME EXCEPTIONS TO WEEKLY INSPECTIONS MAY APPLY, SUCH AS SUSPENSION OF LAND DISTURBANCE ACTIVITIES. REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.12.
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## STORM DRAIN NOTE

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## DRAINAGE EASEMENT NOTE

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## FLOOD CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED TECHNICAL DRAINAGE STUDY DS-5377 ON FILE AT CITY OF LAS VEGAS FOR THE SUBJECT PROJECT.

KEVIN M. BROSS, P.E. 24572 DATE

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Westwood Professional Services, Inc.

| NO. | DESCRIPTION | DATE | BY | APP. DATE | APP |
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CITY OF LAS VEGAS, NEVADA

# 190 OCTANE FT PARTNERS, LLC

# BLM 270 PARCEL C-2 & C-3 PHASE 2

## GRADING PLAN VI

S23 T19S R59E

DATE: 12/14/2020
DRAFTER: YZ
DESIGNER: HN
CHECKED: MAK

PROJECT NO.
BZR2001

PROFESSIONAL ENGINEER – STATE OF NEVADA – KEVIN M. BROSS – Exp. 12/31/2020 – CIVIL – No. 24572
12/14/2020

G-6
SHEET 9 OF 13

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MATCHLINE - SEE SHEET G-4

MATCHLINE - SEE SHEET G-8




SCALE – 1"=30' (0, 30, 60 FEET)

CALL SOUTHWEST GAS AT 702-651-2111 FOR STANDBY WHEN EXCAVATING OVER OR NEAR HIGH PRESSURE GAS LINES

## SURVEY NOTE

OWNER RESPONSIBLE TO PROVIDE SURVEY MONUMENTATION AS SHOWN AND TO REPLACE ALL SURVEY MONUMENTATION DAMAGED, DISTURBED, DESTROYED, OR OBSCURED DURING CONSTRUCTION.

## ELEVATION NOTE

ADD 3000 TO ALL SPOT GRADES WHERE THE HUNDREDS AND THOUSANDS PLACES ARE OMITTED FOR ACTUAL ELEVATION (I.E. 01.00 REPRESENTS 3001.00)

## SOILS REPORT

SOILS REPORT BY SOUTHWEST GEOTECHNICAL
PROJECT NO. 197111 DATED 01/28/20

## EARTHWORKS

EARTHWORK QUANTITIES (RAW):
CUT= 79,506 CU YDS
FILL= 76,965 CU YDS

EXPORTED MATERIAL TO BE DISPOSED OF AT AN APPROVED LICENSED DISPOSAL FACILITY OR AT A SITE WITH AN APPROVED AND ACTIVE GRADING PERMIT.

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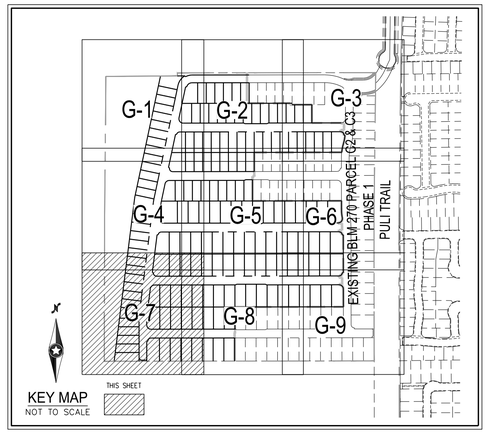
## LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDELINES

(REQUIRED FOR ALL SITES GREATER THAN 1 ACRE (43,560 SQ.FT.))

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## STORM DRAIN NOTE

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## FLOOD CERTIFICATION

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KEVIN M. BROSS, P.E. 24572 DATE


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CITY OF LAS VEGAS, NEVADA

190 OCTANE FT PARTNERS, LLC

BLM 270 PARCEL C-2 & C-3 PHASE 2

GRADING PLAN VII

S23 T19S R59E

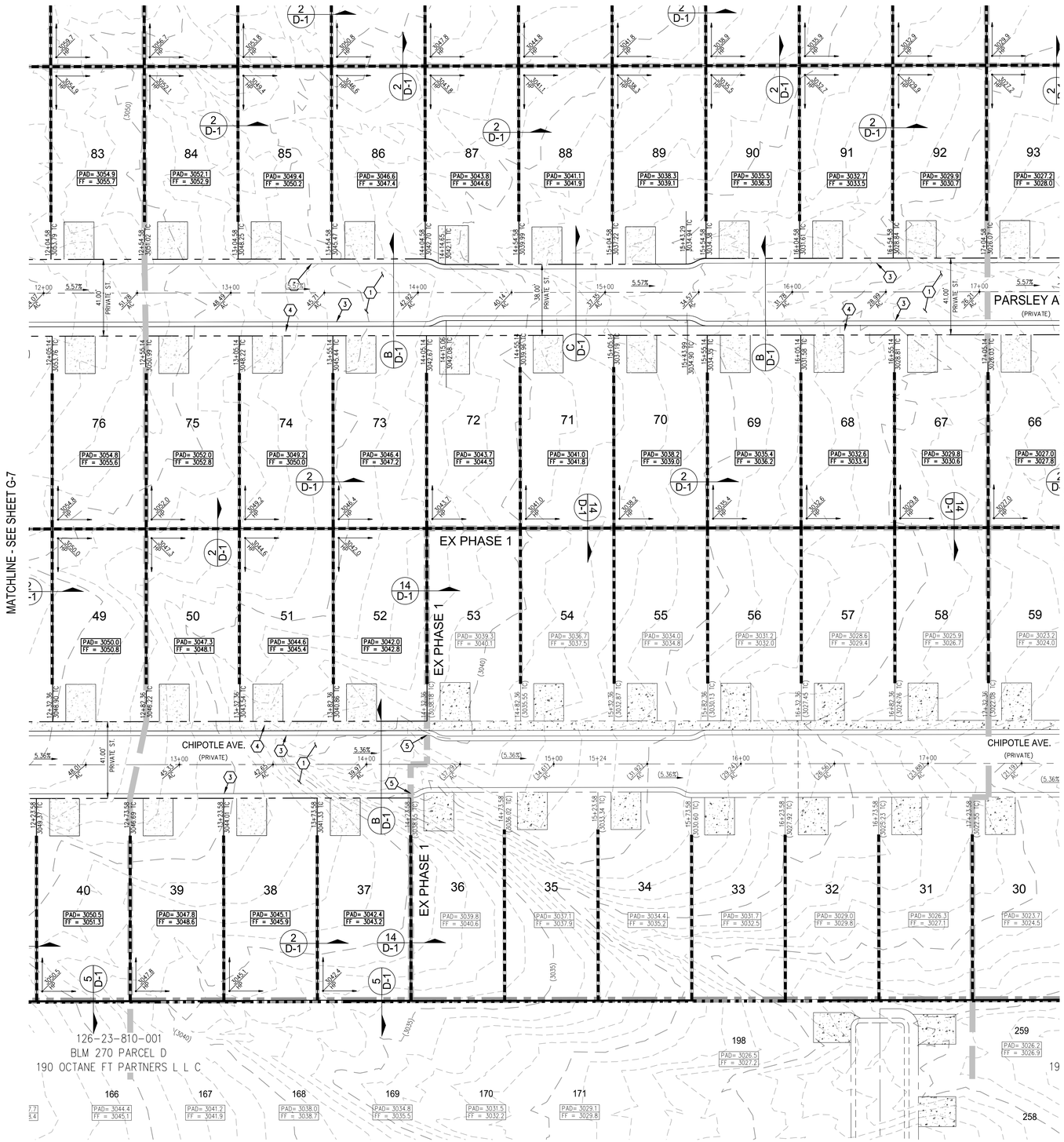
DATE: 12/14/2020
DRAFTER: YZ
DESIGNER: HN
CHECKED: MAK

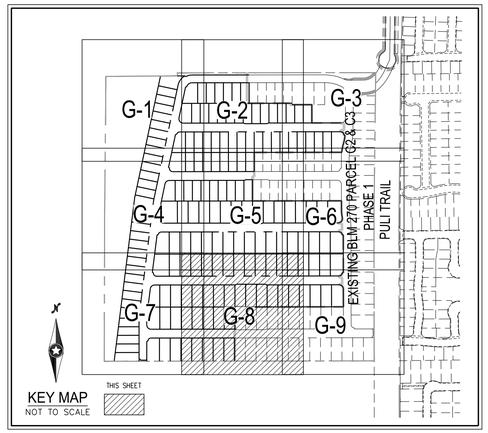
PROJECT NO.
BZR2001

PROFESSIONAL ENGINEER STATE OF NEVADA
KEVIN M. BROSS
Exp. 12/31/2020
CIVIL
No. 24572
12/14/2020

G-7
SHEET 10 OF 13


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SCALE - 1"=30' (0, 30, 60 FEET)

CALL SOUTHWEST GAS AT 702-651-2111 FOR STANDBY WHEN EXCAVATING OVER OR NEAR HIGH PRESSURE GAS LINES

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SOILS REPORT BY SOUTHWEST GEOTECHNICAL
PROJECT NO. 197111 DATED 01/28/20

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2) FOR ROADWAY WIDENING AND HALF STREET IMPROVEMENTS THE CONTRACTOR SHALL VERIFY CROSS SLOPES FROM EXISTING PAVEMENT SAWCUT LINE TO PROPOSED EDGE OF PAVEMENT OR PROJECTED LIP OF CURB PRIOR TO SUBGRADE PREPARATION AND CONSTRUCTION OF PROPOSED CURB LINE. IF MINIMUM OR MAXIMUM CROSS SLOPES DO NOT MEET AGENCY STANDARDS THE CONTRACTOR SHALL NOTIFY THE ENGINEER.

## GRADING NOTES

1. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AND REPORT ALL DISCREPANCIES TO THE ENGINEER.
2. ALL IMPROVEMENTS TO BE PROTECTED FROM EROSION BY SWPPP.
3. MAXIMUM/MINIMUM SLOPES AND MINIMUM STREET SECTIONS NOT TO EXCEED THAT SHOWN ON GEOTECH REPORT.
4. SEE DETAIL SHEET FOR STREET SECTIONS AND DETAILS.
5. ALL PUBLIC AND PRIVATE DRAINAGE IMPROVEMENTS TO BE BONDED FOR AND INSPECTED.
6. CONSTRUCTION OF BLOCK WALLS REQUIRES A SEPARATE BUILDING PERMIT AND APPROVAL BY THE CITY OF LAS VEGAS BUILDING DEPARTMENT.
7. CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF EXISTING UTILITY STRUCTURES AND FACILITIES AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION. CONTRACTOR TO PROTECT IN PLACE DURING CONSTRUCTION. ENGINEER/OWNER SHALL BE NOTIFIED OF PRIOR DAMAGE TO EXISTING FACILITIES PRIOR TO CONSTRUCTION. CONTRACTOR WILL BE RESPONSIBLE FOR REPAIR/REPLEPING FACILITIES IF ENGINEER/OWNER IS NOT NOTIFIED OF EXISTING DAMAGE PRIOR TO CONSTRUCTION COMMENCING.
8. NO STRUCTURE, VEGETATION, OR OBJECTS OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF THE ADJACENT CURB IF CURB EXIST) WITHIN THE SIGHT VISIBILITY ZONES.

## LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDELINES

(REQUIRED FOR ALL SITES GREATER THAN 1 ACRE (43,560 SQ.FT.))

1. THE OWNER, SITE DEVELOPER, CONTRACTOR, AND/OR THEIR AUTHORIZED AGENTS SHALL EACH DAY REMOVE ALL SEDIMENT, MUD, CONSTRUCTION DEBRIS, OR OTHER POTENTIAL POLLUTANTS THAT MAY HAVE BEEN DISCHARGED TO, OR ACCUMULATED IN, THE PUBLIC RIGHTS OF WAY OF CLARK COUNTY AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS SITE DEVELOPMENT OR CONSTRUCTION PROJECT. SUCH MATERIALS SHALL BE PREVENTED FROM ENTERING THE STORM SEWER SYSTEM.
2. ADDITIONAL CONSTRUCTION SITE DISCHARGE BEST MANAGEMENT PRACTICES MAY BE REQUIRED OF THE OWNER AND HIS OR HER AGENTS DUE TO UNFORESEEN EROSION PROBLEMS OR IF THE SUBMITTED PLAN DOES NOT MEET THE PERFORMANCE STANDARDS SPECIFIED IN CLARK COUNTY TITLE 24.40 AND IN 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, SECTION III.A.5.
4. AT A MINIMUM, THE CONTRACTOR OR HIS AGENT SHALL INSPECT ALL DISTURBED AREAS, AREAS USED FOR STORAGE OF MATERIALS AND EQUIPMENT THAT ARE EXPOSED TO PRECIPITATION, VEHICLE ENTRANCE AND EXIT LOCATIONS, AND ALL BMPS WEEKLY, AND WITHIN 24 HOURS AFTER A RAIN EVENT OF 0.5 INCHES OR MORE. THE CONTRACTOR OR HIS AGENT SHALL UPDATE OR MODIFY THE STORMWATER POLLUTION PREVENTION PLAN AS NECESSARY. SOME EXCEPTIONS TO WEEKLY INSPECTIONS MAY APPLY, SUCH AS SUSPENSION OF LAND DISTURBANCE ACTIVITIES; REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.12.
5. ACCUMULATED SEDIMENT IN BMPS SHALL BE REMOVED WITHIN SEVEN DAYS AFTER A STORMWATER RUNOFF EVENT OR PRIOR TO THE NEXT ANTICIPATED STORM EVENT, WHICHEVER IS EARLIER. SEDIMENT MUST BE REMOVED WHEN BMP DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE.

## FLOOD ZONE

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE X (UNSHADED) AS DEPICTED ON FLOOD INSURANCE RATE MAP (FIRM) PANEL 32003C1750E, DATED SEPTEMBER 27, 2002. A ZONE X (UNSHADED) IS DESCRIBED AS AN AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN.

## CONSTRUCTION NOTES

1. CONSTRUCT 2" AC PAVEMENT WITH 4" TYPE II AGGREGATE BASE
2. CONSTRUCT 8" CROSS GUTTER PER CCAUSD NO. 228
3. CONSTRUCT 30" ROLL CURB PER CCAUSD NO. 217.1
4. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD NO. 234 (5" THICK W/ 5" TYPE II AGGREGATE BASE)
5. FIELD VERIFY AND CONNECT TO EXISTING CURB AND GUTTER
6. CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD NO. 235, CASE 1

## STORM DRAIN NOTE

ALL ONSITE STORM DRAIN FACILITIES ARE PRIVATELY OWNED AND PRIVATELY MAINTAINED BY THE HOA.

## DRAINAGE EASEMENT NOTE

ALL PRIVATE STREETS, DRAINAGE EASEMENTS AND COMMON LOTS ARE PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA

## FLOOD CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED TECHNICAL DRAINAGE STUDY DS-5377 ON FILE AT CITY OF LAS VEGAS FOR THE SUBJECT PROJECT.

KEVIN M. BROSS, P.E. 24572 DATE

FAST
Call before you UnderGround
1-702-432-5300
FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (F.A.S.T.)

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

Call before you Dig
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.
Call 811
OR
1-800-227-2600

Westwood
Phone (702) 284-5300
Fax (702) 284-5399
5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
westwoodps.com
Westwood Professional Services, Inc.

| NO. | DESCRIPTION | DATE | BY | APP. DATE | APP |
|---|---|---|---|---|---|

CITY OF LAS VEGAS, NEVADA

**190 OCTANE FT PARTNERS, LLC**

**BLM 270 PARCEL C-2 & C-3 PHASE 2**

**GRADING PLAN VIII**

S23 T19S R59E

DATE: 12/14/2020
DRAFTER: YZ
DESIGNER: HN
CHECKED: MAK

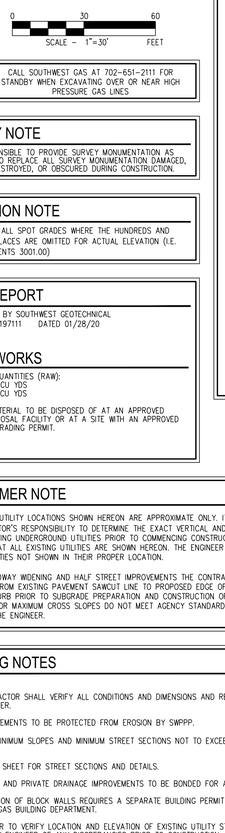
PROJECT NO.
**BZR2001**

PROFESSIONAL ENGINEER — STATE OF NEVADA — KEVIN M. BROSS — Exp. 12/31/2020 — CIVIL — No. 24572
12/14/2020

**G-8**
SHEET 11 OF 13

z:\bzr2001 blm 270 c\dwg\improv\phase 2\bzr2001 grds-2.dwg 12/14/2020 12:21 PM Hung Nguyen




CALL SOUTHWEST GAS AT 702-651-2111 FOR STANDBY WHEN EXCAVATING OVER OR NEAR HIGH PRESSURE GAS LINES

## SURVEY NOTE

OWNER RESPONSIBLE TO PROVIDE SURVEY MONUMENTATION AS SHOWN AND TO REPLACE ALL SURVEY MONUMENTATION DAMAGED, DISTURBED, DESTROYED, OR OBSCURED DURING CONSTRUCTION.

## ELEVATION NOTE

ADD 3000 TO ALL SPOT GRADES WHERE THE HUNDREDS AND THOUSANDS PLACES ARE OMITTED FOR ACTUAL ELEVATION (I.E. 01.00 REPRESENTS 3001.00)

## SOILS REPORT

SOILS REPORT BY SOUTHWEST GEOTECHNICAL
PROJECT NO. 197111 DATED 01/28/20

## EARTHWORKS

EARTHWORK QUANTITIES (RAW):
CUT= 79,506 CU YDS
FILL= 76,965 CU YDS

EXPORTED MATERIAL TO BE DISPOSED OF AT AN APPROVED LICENSED DISPOSAL FACILITY OR AT A SITE WITH AN APPROVED AND ACTIVE GRADING PERMIT.

## DISCLAIMER NOTE

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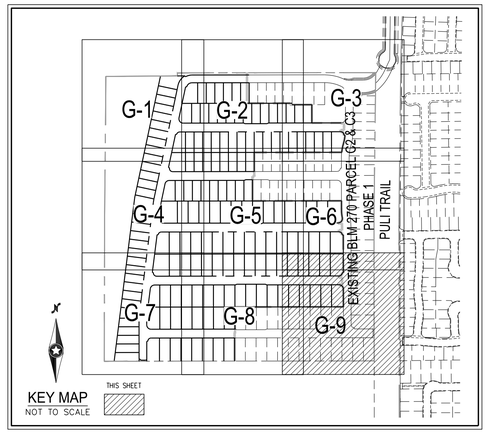
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KEVIN M. BROSS, P.E. 24572 DATE










Westwood
Phone (702) 284-5300
Fax (702) 284-5399
5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
westwoodps.com
Westwood Professional Services, Inc.

| NO. | DESCRIPTION | DATE | BY | APP. DATE | APP |
|---|---|---|---|---|---|

CITY OF LAS VEGAS, NEVADA

# 190 OCTANE FT PARTNERS, LLC

# BLM 270 PARCEL C-2 & C-3 PHASE 2

# GRADING PLAN IX

S23
T19S
R59E

DATE: 12/14/2020
DRAFTER: YZ
DESIGNER: HN
CHECKED: MAK

PROJECT NO.
**BZR2001**

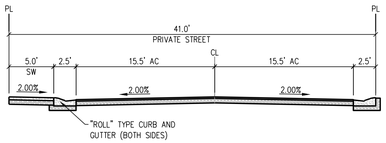



12/14/2020

**G-9**
SHEET 12 OF 13

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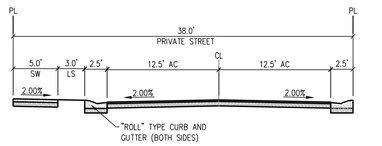



NOTE: PARKING ON BOTH SIDES OF THE STREET

## B. 41' STREET SECTION

NOT TO SCALE

INTERIOR STREET

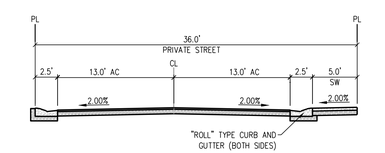



NOTE: NO PARKING ON EITHER SIDE OF THE STREET

## C. 38' STREET SECTION (POPOUT)

NOT TO SCALE

INTERIOR STREET

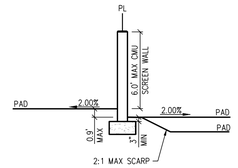



NOTE: PARKING ON SIDEWALK SIDE OF STREET

## D. 36' STREET SECTION

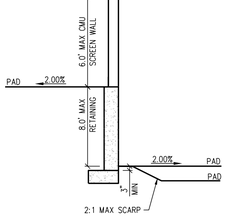
NOT TO SCALE

INTERIOR STREET



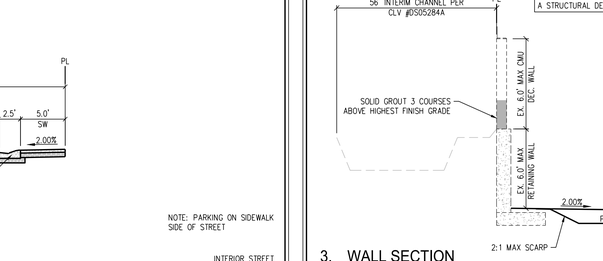

## 1. WALL SECTION

NOT TO SCALE




## 2. WALL SECTION

NOT TO SCALE



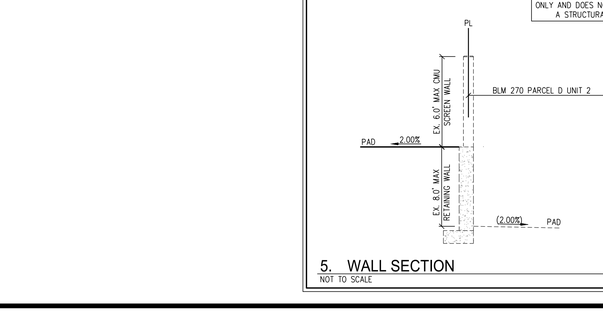

## 3. WALL SECTION

NOT TO SCALE



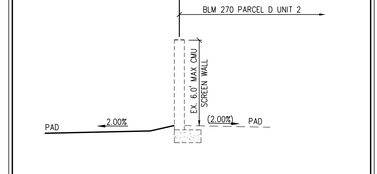

## 4. WALL SECTION

NOT TO SCALE



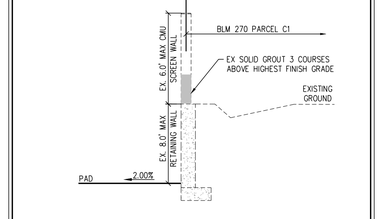

## 5. WALL SECTION

NOT TO SCALE



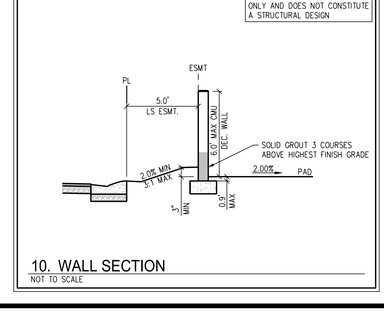

## 6. WALL SECTION

NOT TO SCALE



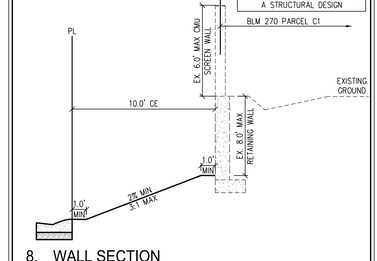

## 7. WALL SECTION

NOT TO SCALE



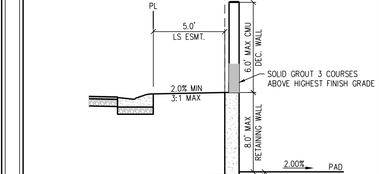

## 8. WALL SECTION

NOT TO SCALE



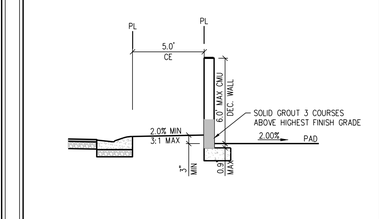

## 9. WALL SECTION

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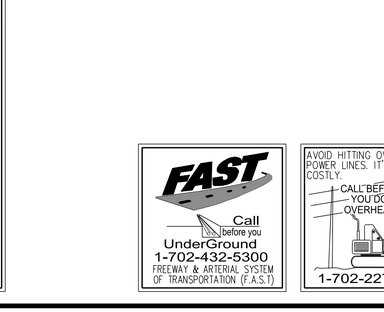

## 10. WALL SECTION

NOT TO SCALE



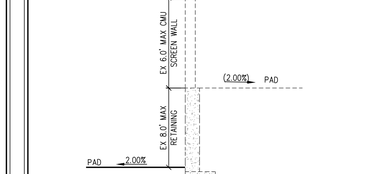

## 11. WALL SECTION

NOT TO SCALE



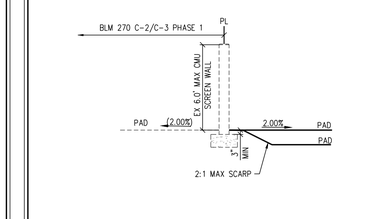

## 12. WALL SECTION

NOT TO SCALE



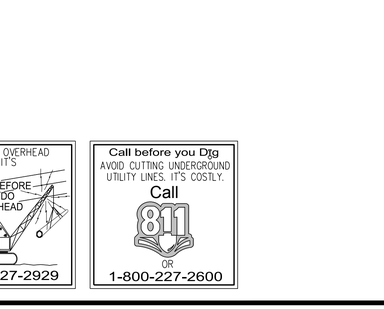

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NOT TO SCALE



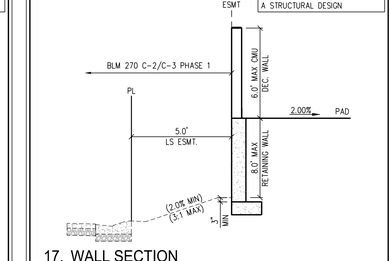

## 14. WALL SECTION

NOT TO SCALE



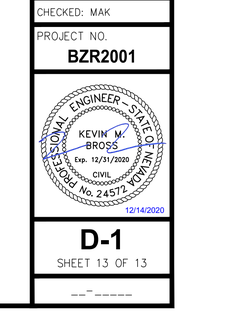

## 15. WALL SECTION

NOT TO SCALE



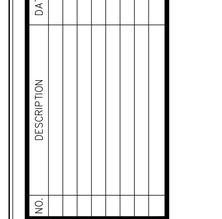

## 16. WALL SECTION

NOT TO SCALE




## 17. WALL SECTION

NOT TO SCALE




## 18. WALL SECTION

NOT TO SCALE










Westwood
Phone (702) 284-5300
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Suite 216
Las Vegas, NV 89118
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Westwood Professional Services, Inc.

| NO. | DESCRIPTION | DATE | BY | APP. DATE | APP |
|---|---|---|---|---|---|
| | | | | | |

CITY OF LAS VEGAS, NEVADA

**190 OCTANE FT PARTNERS, LLC**

**BLM 270 PARCEL C-2 & C-3 PHASE 2**

**STREET SECTIONS AND GRADING DETAILS I**

S23
T19S
R59E

DATE: 12/14/2020

DRAFTER: YZ

DESIGNER: HN

CHECKED: MAK

PROJECT NO.
**BZR2001**




12/14/2020

**D-1**

SHEET 13 OF 13

k:\bzr2001 blm 270 c\dwg\improv\phase 2\bzr2001 d1--2.dwg 12/14/2020 12:21 PM Hung Nguyen