DS #: 5068

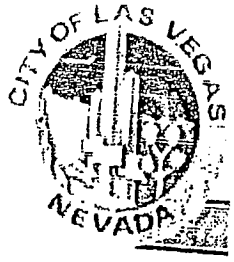
APN: 139-34-110-012

PROJECT: Symphony Park Residential - A.K.A. Aspen Heights

SUBMITTAL: 2nd

SCANNED BY/DATE:

CHECKED BY/DATE:



CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM				DATE: January 9, 2019
TO: **Land Development Services** Department of Building & Safety				FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	Drainage Study for: **Symphony Park Residential – A.K.A. Aspen Heights**			**COPIES TO:** Kimley Horn and Associates Inc.
Cross Streets:	NEC Symphony Park Avenue & City Parkway			Breckenridge Group Las Vegas Nevada LLC
File Number:	F:\Depot\DSMemos\DS5068B.doc			Bart Anderson, P.E., DevCo
Parcel Number:	139-34-110-012			
Zoning Action:	SDR-73538			
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	11/15/2018	11/28/2018 & 12/5/2018	Not Approved	$400.00	501052: $400
2nd Submittal	12/27/2019	1/9/2019	See Comments Below	$400.00	502012: $400
			TOTAL FEES (LDDRS):	**$800.00**	----

REMARKS:

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

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

1. **Second Request**: Provide a copy of the zoning/planning conditions associated with this site (**SDR-73538**) 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 re vised and resubmitted.
2. **Second Request: Sheet C3.1**: There are three identical TC elevations (39.75TC/FG) in *Symphony Park Avenue* near the intersection with *City Parkway*. Review and revise accordingly.
3. **Second Request: Sheet C3.2**: There is a storm drain across the subject site and daylights to the east edge of the project in the existing condition. Identify and provide a note what to do about this storm drain, review and address in the next submittal.
4. The proposed 15'-public drainage easement (privately maintained) must be dedicated and recorded prior to the final approval of the improvement plans.
5. The proposed 36"-RCP within the drainage easement is an onsite facility, privately owned and to be privately maintained by the property owner. Label as such on the grading plans.

6. The response to the last comment was that a sand/oil separator will be used to treat the parking lot runoff. However, the facility was nowhere to be found in the improvement plans. Clearly identify the sand/oil separator on the pertinent grading plans with construction note.

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

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

END OF REMARKS
WSP/AYS

T/R/S: T20S/R61E/34
AREA M-34

TECHNICAL DRAINAGE STUDY

Addendum No. 1 (DS5068A) for

Symphony Park Residential

A Portion of APN: 139-34-110-012

SEC of Symphony Park Avenue & City Parkway

City of Las Vegas, Nevada

Prepared for:

Breckenridge Group Las Vegas Nevada, LLC
1301 S. Capital of Texas Highway,
Ste. B-201,
Austin, TX 78746
(512) 910-3561

Date Prepared:

December 2018

Kimley»Horn

December 20, 2018
KH Project No: 192008001

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

RE: ***Technical Drainage Study Addendum No. 1 for Symphony Park Residential (A Portion of APN: 139-34-110-012) (DS5068A)***

Dear Mr. Sung,

We have included one (1) set of the revised information and plans as well as one 1 (one) CD containing the identical information included in this Addendum.

Please contact me at (480) 207-2676 or brice.hammersland@kimley-horn.com should you have any questions or concerns.

Sincerely,



Brice Hammersland, P.E.

HYDROLOGIC CRITERIA AND DRAINAGE MANUAL

DRAINAGE STUDY INFORMATION FORM

Name of Development: Symphony Park Residential Date: 12-20-18

Location of Development: a) Descriptive (Cross Streets) North/South: West Carson Avenue

East/West: S City Parkway

b) Section: 34 Township: 20 Range: 61

c) APN : 139-34-110-012

Name of Owner: Breckenridge Group Las Vegas Nevada, LLC

Telephone No.: 512-910-3561 Fax No.: E-Mail Address: pbrennan@ahpliving.com

Address: 1301 S. Capital of Texas Highway, Ste. B-201, Austin, Texas 78746

Contact Person-Name: Brice Hammersland, P.E. **Telephone No.:** 480-207-2676

* **E-Mail Address:** brice.hammersland@kimley-horn.com **Fax No.:** None

Firm: Kimley-Horn and Associates, Inc.

Address: 6671 Las Vegas Boulevard South, Suite 320, Las Vegas, NV 89119

Type of Land Development/Land Disturbance Process:

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

1. Total Owned Land Area: At Site: 3.7 ac Being Developed/Disturbed: 3.7 ac
2. Is a portion or all of the subject property located in a designated FEMA Flood Hazard Area? ☐ **Yes**** ☑ **No**
3. Is the property bordered or crossed by an existing or proposed Clark County Regional Flood Control District Master Planned Facility? ☐ **Yes**** ☑ **No**
4. Proposed type of development (Residential, Commercial, Etc.): Commercial
5. Approximate upstream land area which drains to the subject site: Approx 5 ac
6. Has the site drainage been evaluated in the past? ☑ **YES** ☐ **NO** If yes, please identify documentation: 61 Acres @ Grand Central Parkway, Union Park Update, Symphony Park at Union Park
7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: Maintaining existing drainage patterns, site drains from the southwest to the northeast
8. Briefly describe your proposed schedule for the subject project: As soon as possible



Engineer's Seal

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

***New Required Field**

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

DS5068A

Local Entity File No.

Revision	Date
TDS	December 5, 2018

REFERENCE: KH Project # 192008001

STANDARD FORM 1

Updated 05/01/2008

This report is intended to serve as Addendum #1 to the Technical Drainage Study for Symphony Park Residential project (DS5068A). The revisions in this addendum are intended to supersede the data contained in the Technical Drainage Study dated November 15, 2018.

The comments in a letter from the City of Las Vegas Land Development Services dated December 5, 2018 (included as **Attachment A**) and comment responses are included below. The responses are provided in italics.

1) Provide a copy of the zoning/planning conditions associated with this site (SDR-73538) 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 re vised and resubmitted.

   *The zoning/planning conditions have been included and can be found in **Attachment B**.*

2) Coordinate the ongoing construction of the adjacent 15'x3' RCB with Mr. Randy McConnell (702-229-2186), Engineering Project Manager of the project regarding any new storm drains connection and boundary concerns prior to the final approval of the subject drainage study.

   Coordination between Kimley-Horn and Mr. Randy McConnell on new storm drain connections to the 15'x3' RCB per the subject project is ongoing along with the coordination with City's design engineer.

3) Existing Conditions Map: Page 6 of the Study in the last paragraph under Subsection "Off-Site Drainage", it states that runoff from "EOFF4" combines with onsite basin at "CP2". However, "CP1" is shown in the Existing Condition Map and also in the Flow Summary Table. "CP2" is also listed in Table 1 in the Study. Review and correct the confusion in the next submittal.

   *The correct call out is CP1. The paragraph in the report has been revised along with the Table 1. See **Attachment C** for the revised information.*

4) Proposed Conditions Map: Page 8 of the Study mentioned about subbasin "OFF2U", however, the basin was not found anywhere in the Proposed Conditions Map or in any tables. Address and resolve in the next submittal.

   *Subbasin OFF2U mentioned in the report was determined in the Park Study. The basin location has been identified in the Proposed Conditions Map which can be found in **Attachment D**.*

5) Appendix B is missing, provide in next submittal.

   *See Appendix B in **Attachment E**.*

6) The depth velocity calculations for Hydraulic Section S 100-year shown on the table of the Proposed Conditions Map should be the same as the 10-year.

   *Revised the table on the Proposed Conditions Map to reflect the change. Refer to **Attachment D** for the Proposed Conditions Map.*

7) There are calculations for 2 Type II grate inlets, but only one is shown on the proposed storm drain plan. Discuss the discrepancy or show the second inlet on the plans.

The second inlet was added to the plans. The drop inlets on the East Frontage street will tie into the 15'x3' box culvert with 18-inch storm drain pipes. This matches what was proposed in the ultimate conditions which was done in the Technical Drainage Study for Union Park and Addenda; Prepared by Kimley-Horn and Associates. Dated January 8, 2008. We have included the exhibits pertaining to the storm drain improvements as well as the updated WSPG models from the study in ***Attachment F****.*

8) Sheets C3.1 to C3.4: It is not clear how the two courtyard areas drain. Even the blowup details didn't clearly show the drainage patterns. The blowup details noted that "storm drain for future connection of courtyard drain (by others)" are unacceptable. The courtyard blowup details or the general grading plan shall clearly show the grading, flowlines and identify any storm drains and the associated facilities such as grate inlets, manholes etc. Address and resolve in the next submittal.

Sheets have been revised to show more detailed grading in the courtyard areas along with flowlines and drainage structures. Refer to the revised plans in ***Attachment G****.*

9) Address whether there are emergency overflow paths provided in the courtyards in the next submittal.

The runoff from the courtyards are being captured by trench drains which are connected to the storm drain system that outfalls to the 15'x3' box culvert. In the event the inlets are blocked or cannot handle the runoff the flow will outfall at the emergency overflow locations shown on the plans. Refer to the revised plans in ***Attachment G****.*

10) Show and identify the location of all roof drains and down spouts and how they are to be connected to the existing storm drain systems in the perimeter streets or just daylight through sidewalk underdrains. Address and revise the plans and all pertinent details accordingly in the next submittal.

The location of the roof drains are shown on the revised plans along with connection points to the storm drain system. Refer to the revised plans in ***Attachment G****.*

11) Sheet C3.1: There are three identical TC elevations (39.75TC/FG) in Symphony Park Avenue near the intersection with City Parkway. Review and revise accordingly.

Elevation callouts have been revised on sheet C3.1. Refer to the revised plans in ***Attachment G****.*

12) Sheet C3.2: There is a storm drain across the subject site and daylights to the east edge of the project in the existing condition. Identify and provide a note what to do about this storm drain, review and address in the next submittal. Relocate the proposed 36"-RCP to within the City Parkway right-of-way. The City is not maintaining any storm drains in private property.

Coordination and approval of the storm drain relocation was done with the City in May of 2018. The storm drain will have a drainage easement since the storm drain will be outside

*of the right-of-way. Please refer to the email chain in **Attachment F**. Storm drain has been identified and a note is provided on the plans stating the existing storm drain will be removed with the construction of the relocated storm drain and the connection to the RCB plugged. Refer to the revised plans in **Attachment G**. In the email chain in **Attachment F** it was mentioned the proposed 36" RCP will be within the landscaping area below some trees and if the trees are deep rooted, they may damage the storm drain in the future. The comment was to address how the storm drain will be protected and will not cause maintenance headache for the City in the future. In response to the comment the landscape area above the storm drain pipe will have a tree barrier protection implemented at the location of each tree to protect the pipe.*

13) Sheet C3.6: Identify the property line in Sections A, D, E and F. Section E and Section F: Identify the existing 15'x3' box culvert. Section F: It appears that a retaining wall is required.

*Property lines have been identified in Section A, D, E, and F. The existing 15'x3' box culvert has been identified in Sections E and F. Refer to the revised plans in **Attachment G**.*

14) Discuss the BMP method that will be used. The drainage method for the parking garage needs to be shown on the grading plans and the storm drain plan, and the BMPs that will be used to treat the flow from the parking garage needs to be shown on plans.

*A sand and oil separator will be used to treat the parking lot runoff. Refer to the revised plans for the location of the separator in **Attachment G**.*

List of Attachments

Attachment A	Comment Letter
Attachment B	Zoning and Planning Conditions
Attachment C	Existing Conditions
Attachment D	Proposed Conditions
Attachment E	TDS Appendix B
Attachment F	Reference Material
Attachment G	Plans

Attachment A Comment Letter

- City of Las Vegas Land Development Services Comment Letter

CITY OF LAS VEGAS **INTER-OFFICE MEMORANDUM**				**DATE:** **December 5, 2018**
TO: **Land Development Services** Department of Building & Safety				**FROM:** Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	Drainage Study for:			**COPIES TO:**
Symphony Park Residential – A.K.A. Aspen Heights				Kimley Horn and Associates Inc.
Cross Streets:	NEC Symphony Park Avenue & City Parkway			Breckenridge Group Las Vegas Nevada LLC
File Number:	F:\Depot\DSMemos\DS5068A.doc			Bart Anderson, P.E., DevCo
Parcel Number:	139-34-110-012			
Zoning Action:	SDR-73538			
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	11/15/2018	11/28/2018 & 12/5/2018	See Comments Below	$400.00	501052: $400
			TOTAL FEES (LDDRS):	**$400.00**	**----**

REMARKS:

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

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

1. Provide a copy of the zoning/planning conditions associated with this site (**SDR-73538**) 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 re vised and resubmitted.
2. Coordinate the ongoing construction of the adjacent 15'x3' RCB with *Mr. Randy McConnell* (702-229-2186), *Engineering Project Manager* of the project regarding any new storm drains connection and boundary concerns prior to the final approval of the subject drainage study.
3. ***Existing Conditions Map***: Page 6 of the Study in the last paragraph under *Subsection "Off-Site Drainage"*, it states that runoff from "EOFF4" combines with onsite basin at "CP2". However, "CP1" is shown in the *Existing Condition Map* and also in the *Flow Summary Table*. "CP2" is also listed in **Table 1** in the Study. Review and correct the confusion in the next submittal.
4. ***Proposed Conditions Map***: Page 8 of the Study mentioned about subbasin "OFF2U", however, the basin was not found anywhere in the *Proposed Conditions Map* or in any tables. Address and resolve in the next submittal.

5. **Appendix B** is missing, provide in next submittal.

6. The depth velocity calculations for *Hydraulic Section S* 100-year shown on the table of the *Proposed Conditions Map* should be the same as the 10-year.

7. There are calculations for 2 Type II grate inlets, but only one is shown on the proposed storm drain plan. Discuss the discrepancy or show the second inlet on the plans.

8. **Sheets C3.1 to C3.4**: It is not clear how the two courtyard areas drain. Even the blowup details didn't clearly show the drainage patterns. The blowup details noted that "storm drain for future connection of courtyard drain (by others)" are unacceptable.

   The courtyard blowup details or the general grading plan shall clearly show the grading, flowlines and identify any storm drains and the associated facilities such as grate inlets, manholes etc. Address and resolve in the next submittal.

9. Address whether there are emergency overflow paths provided in the courtyards in the next submittal.

10. Show and identify the location of all roof drains and down sprouts and how they are to be connected to the existing storm drain systems in the perimeter streets or just daylight through sidewalk underdrains. Address and revise the plans and all pertinent details accordingly in the next submittal.

11. **Sheet C3.1**: There are three identical TC elevations (39.75TC/FG) in *Symphony Park Avenue* near the intersection with *City Parkway*. Review and revise accordingly.

    Identify all existing storm drain systems in the perimeter streets and label with *City of Las Vegas* recorded drawing numbers on the plan.

12. **Sheet C3.2**: There is a storm drain across the subject site and daylights to the east edge of the project in the existing condition. Identify and provide a note what to do about this storm drain, review and address in the next submittal.

    Relocate the proposed 36"-RCP to within the *City Parkway* right-of-way. The **City** is not maintaining any storm drains in private property.

13. **Sheet C3.6**: Identify the property line in Sections A, D, E and F.

    Section E and Section F: Identify the existing 15'x3' box culvert.

    Section F: It appears that a retaining wall is required.

14. Discuss the BMP method that will be used. The drainage method for the parking garage needs to be shown on the grading plans and the storm drain plan, and the BMPs that will be used to treat the flow from the parking garage needs to be shown on plans.

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

END OF REMARKS
WSP/AYS

T/R/S: T20S/R61E/34
AREA M-34

Attachment B Zoning and Planning Conditions

SYMPHONY PARK℠

July 19, 2018

Patrick Brennan
Development Manager
Aspen Heights Partners
1301 S. Capital of Texas Highway Ste B-201
Austin, TX 78746
(By email)

RE: Proposed Development on Blocks N + O1 – Block Plan Submittal

Dear Mr. Brennan,

The Symphony Park Design Review Committee (SP-DRC) has received and reviewed the block plan submittal for Blocks N + O1 also referred as Aspen Heights. Based on submittal dated May 10, 2018 and received by the SP-DRC on May 14, 2018 and the revised submittal dated May 16, 2018 and received May 21, 2018, we are providing the following comments for your information and response:

General Comments

1) The committee recommends that the applicant review the revised Symphony Park Design Standards (SPDS) adopted on August 4, 2010 and provide written justification for any variance it is proposing in the block plan submittal.

2) Because this is the first step in a series of steps for design approval, the SP-DRC recommends that the applicant and committee convene via GTM to discuss the project and comments herein so that the applicant can have a chance to ask questions and get clarification from the committee before continuing to spend time on design refinement.

3) The proposed site plan does not accommodate a public street aligned with West Bridger Avenue but considering that blocks F + G across the street haven't either, the committee takes no exception to eliminating this mid-block street however the committee and city have discussed the need for a mid-block signalized pedestrian crossing now that the block is so long. Please coordinate this with the city and ensure that pedestrian connectivity is maintained as per the original SPDS.

4) The proposed site plan does not accommodate an open space corridor, aligned with West Bridger Avenue as illustrated per Section 1.4 – Open Space Network in the Symphony Park Design Standards but the committee takes no exception to eliminating this pedestrian street

5) The proposed site plan does not accommodate the occupied tower locations per the Section 1.10: Occupied Tower Locations and Views in the Symphony Park Design Standards (SPDS) but the committee takes no exception to this proposed change.

6) The proposed site plan should provide a written description for how storm water management and drainage will function on the site per Section 1.8- Storm Water Management and Drainage in the Symphony Park Design Standards.

7) The committee would like to see what type of public art in public spaces the applicant is planning per Section 1.12 – Art in Symphony Park

8) The committee would like to know where air conditioning or other mechanical units will be located and whether they will be screened from views from ground level and future mid-to high rise buildings nearby

9) The committee would like to see building sections to understand how the top level of the building relative to air conditioning/ mechanical units and the parking structure relative to concealing cars and pole lights from neighboring parcels or areas.

10) The committee would like to understand how the applicant intends to cool the building on its southern and western elevations.

11) Will all residents use the service dock for move-in/ move-out? How will that be enforced?

12) What type of signage will the building and/or ground level spaces have? (i.e. restaurant, leasing office, etc.). The committee would like to see this information as part of this submittal.

13) Curb cuts for driveways, street parking, on-site drainage, and utility connection locations need to be coordinated with other projects including City Public Works projects.

14) The SP-DRC committee appreciates the block plan submittal for its content and completeness, however we have the following comments for the applicant's information, reference and action:

Page 5 – Landscape Plan - Overall

1) The committee would like to see more design details for the City Park Plaza to understand function, relationship to the City Parkway streetscape, etc.

Page 11 - West Elevation

1) **The proposed west elevation does not fit the goal for an architectural character of providing a "skin with a higher-degree of texture when compared to other districts" - Neighborhood Architectural Character, Section 1.11**

2) It appears that the design for the recessed portion of the building elevation is different than the portions adjacent to City Parkway. The committee would like to see the same detailed elevation for this section of the building

3) The committee would like to see the side elevations for the residential building and leasing/ management office that flank the public courtyard

4) It appears that the design doesn't emphasize the building corners per the SPDS. We'd like to understand the applicant's reason for this.

5) The committee strongly recommends that the ground level establish a stronger use of brick and/or other high quality modular material to provide a nicer pedestrian scale and the building texture that seems to be missing at the street

6) Will the breezeways have fencing and/or gates? If so, please render and provide material/ color for them. The committee recommends that the small building wall niches be increased in length to avoid the appearance of a monolithic wall plane from the street.

7) The committee recommends restraint when using color on buildings and it strongly recommends that the applicant eliminate the use of colored glass and corrugate metal for balconies and use other materials that are in the design standards.

8) The committee doesn't understand the need for the colored glass at the top of the building, near the parapet and strongly recommends that it be removed from the elevation.

9) The elevation shows Level 1 is at 1'-6 3/4". The vertical distance below that vertical datum of Level 1 to City Parkway and the Service Drive adjacent to the RR tracks is similar in height. The master grading of Symphony Park was to slope West Carson Avenue and Symphony Park Avenue from City Parkway towards the tracks. This would create a situation where the Service Drive would be lower than City Parkway. Hopefully the residential units and parking structure adjacent to the tracks incorporate accessing this lower elevation. Please clarify.

10) Will kitchen/ bathroom exhaust be on walls or on the roof? If on walls, we need to see this illustrated and noted.

Page 12 – South Elevation

1) Similar comments as Page 11- West Elevation

2) Since this elevation will engage with the future pocket park, the committee is concerned with the long blank wall at the restaurant. Recognizing the restaurant will have a back-of-house, is there a way that this wall segment could be more interesting such as incorporating a public art mural, green wall, etc.?

3) Will trash from the restaurant be hauled to the common trash/ service dock at the parking structure or will it have its own as part of the tenant space?

Page 13 – East Elevation

1) Similar comments as Page 11- West Elevation

2) The Traffic Engineering department at the city of Las Vegas is requiring a guardrail between the RR and Fire Lane Service Drive. Design standards do not exist for this guardrail.

3) Drive Lane Service Drive should not encroach upon the 38-foot drainage easement. There should not be a need for the road to curve east to west.

Page 14 – North Elevation

1) Similar comments as Page 11- West Elevation

Page 15 – Materials and Finishes

1) The committee doesn't support the use of color glass or corrugated metal as proposed.

2) The committee is concerned with the subtle color changes in the basic tones of the façade materials. We believe the buildings will appear to be too monochromatic.

3) Do you intend to use a different type of glass, color, transparency for the ground level (i.e. retail, leasing office, etc.

4) What type of storefront/ window system do you plan to use for the restaurant, leasing office, etc.?

5) What type of window systems for the residential units will you use?

6) What type of material/ color/ finish for the metal canopies are you proposing?

Page 16 - Site Plan

1) Please coordinate the mid-block pedestrian crossing on City Parkway between W. Carson Avenue and Symphony Park Avenue with the City and the develop of Block F + G. This is an important pedestrian connection that was eliminated when W. Bridger Drive wasn't incorporated in your site plan.

2) The proposed site plan appears to have a nice public courtyard on City Parkway and the committee will be looking closely in subsequent submittals at how the public plaza will be shaded and cooled since its oriented to the hottest sun exposure especially in summertime

3) The committee needs to understand the impact of outdoor dining area on the streetscape in the area. Also, the committee needs to see corral fencing if that's planned. (Page 133 of Design Standards)

4) A grease trap is shown in the on-street parking on City Parkway near Symphony Park Avenue. Two concerns with this location. First, grease traps have an odor and prevailing winds are to the northeast therefore the grease trap odors are directed towards the residential units. Second, the city was going to have the on-street parking pockets dedicated to the City of Las Vegas when constructed. If this is still the case, the grease trap would be placed within City of Las Vegas right-of-way; grease traps are no allowed in City right-of-way

5) Adjacent to the restaurant on Symphony Park Avenue, the following label is stated "Restaurant Service Path". What is this referring too?

6) How will you sign and enforce the reserved on-street parking for early morning restaurant service?

7) There are three (3) electrical transformers place within the streetscape on Symphony Park Avenue and West Carson Avenue near the Service Drive. The typical transformer pad size is approximately 8'x8' and are above grade. They will create challenges for pedestrians and may be problematic for turning radii for cars/ trucks getting in/ out of the service drive

8) There is a water meter and backflow preventer located on West Carson near City Parkway in the streetscape. The water meter is in a below grade vault accessible with a metal lid whereas the backflow preventer is a large above grade facility. How will the backflow preventer be screened so it doesn't adversely impact the visual or pedestrian quality of the street? Also, a project of this magnitude maybe required to have two (2) water feeders.

9) The preliminary grading plan does not match proposed grades by City Public Works design; please coordinate with Public Works design.

10) The channel in the access road on the eastside of the property appears to be less than design. Columns can be placed within the channel. Also, please provide the dimension of the road from the property line.

11) The building is encroaching into the drainage easement.

12) If possible, please show the street improvements, driveways, and street parking on F/G

Page 18 – Landscape/ Streetscape Plan

1) Handicap ramps at West Bridger Avenue entrance are diagonally placed instead of linear with the pedestrian flow like the other intersections. Suggest keeping with the projects design and place the handicap ramps with the pedestrian flow. Remember, the handicap ramp in Symphony Park have a 10-foot wide ramp as oppose to the normal 5-foot wide ramp.

2) All streetscaping must be compatible with proposed streetscaping for Blocks F + G. Please review those plans and adjust your tree/ plant palette accordingly.

3) The committee has concerns with the lack for plant diversity for the shrubs, grasses or ground covers. Please provide greater plant diversity for visual quality, resiliency, etc.

4) The committee has concerns with the long-term viability of the private gardens (i.e. plant resiliency and quality of care) due to the narrowness of the planters and would like the applicant to consider installing permanent and resilient plantings.

5) Please provide cross sections to illustrate the streetscape from face of building to back of curb including dimensions, materials, grade relationships and key details. The committee is concerned with the lack of a "step out zone" especially in the planting areas that are flush with the paving/ curb.

Page 19 – Level 1 Floor Plan

1) Please show the demising of units on your floor plan.

Page 20 – Level 2 Floor Plan

1) Same comment as Page 19.

Page 21 – Level 3 Floor Plan

1) Same comment as Page 19.

Page 22 – Level 4 Floor Plan

1) Same comment as Page 19.

Page 23 – Level 5 Floor Plan

1) Same comment as Page 19.

2) Please show light poles on parking structure and identify type, height, etc.

Page 24 – Level 5 Floor Plan

1) LEED Checklist does not indicate that the project took credit for "LEED for Neighborhood Development Location". Symphony Park is a LEED-ND project, first in Nevada.

Please send your responses to the above comments via email for the SPDRC's review. Also, send two to three potential meeting times before the end of July to discuss via video conference.

Sincerely,

Scott Carter

Symphony Park Design Review Committee
Scott Carter, Chairman

cc: David Wilson, Atkins Global
Mark Sorenson, City of Las Vegas Public Works
Mike Howe, City of Las Vegas Planning Department
Jim MacRae, Design Workshop, Inc.
Tracy Reich, City of Las Vegas EUD

Attachment C Existing Conditions

- Existing Conditions report write up revisions

EXISTING HYDROLOGIC CONDITION

OFF-SITE DRAINAGE

Offsite drainage subbasins were used to analyze the surrounding offsite areas to determine drainage patterns and peak runoff rates. **EOFF1** is approximately 0.12 acres and generates **<1/1 cfs**, **EOFF1** is the southern drive entrance to the project site. Runoff flow from **EOFF1** runs to the east end of the parking lot the flow is captured by the existing swale and conveyed northeast into the existing inverted crown channel.

EOFF2 is one of two offsite basins representing City Parkway heading northbound. **EOFF2** is approximately 0.17 acres and generate about **<1/1 cfs**. Runoff flow from **EOFF2** flows north along an existing L-Curb until it is captured by an existing Type DM2 drop inlet.

EOFF3 is the other offsite basin representing City Parkway. **EOFF3** is approximately 0.20 acres and generates about **<1/1 cfs**. Runoff flow from **EOFF3** flows north along an existing L-Curb until it is captured by an existing Type DM2 drop inlet.

EOFF4 is approximately 0.12 acres and generates **<1/1 cfs**. **EOFF4** is the northern drive entrance to the project site. Runoff flow from **EOFF4** runs to the east end of the parking lot. The flow is then captured by the existing channel and is conveyed to the northeast. In the existing conditions HEC-1 model this location is known as **CP1** and combines offsite basin **EOFF4** with runoff flow from onsite basins **EON1** and **EON2.** Reference material can be found in **Appendix E** and an *Existing Condition Basin Map* is included in **Appendix F**.

ON-SITE DRAINAGE

Onsite drainage can be generalized into two (2) basins **EON1** and **EON2**. **EON1** is approximately 1.82 acres and generates **4/7 cfs**. **EON1** covers the southern portion of the project site and drains to the east end of the parking lot where it is captured by an existing swale conveying flow northeast to the existing inverted crown channel.

EON2 is approximately 1.76 acres and generates **4/7 cfs**. **EON2** covers the northern portion of the project site and drains to the east end of the parking lot where the flow is captured by an existing swale conveying flow northeast to an existing inverted crown channel.

Table 1 located below summarizes the results of the Existing Condition HEC-1 model located in **Appendix B**.

Table 1: Existing Condition HEC-1 Summary

BASIN ID/ COMB. PT.	BASIN AREA (ac)	10-YR FLOW (cfs)	100-YR FLOW (cfs)
EON1	1.82	4	7
EON2	1.76	4	7

BASIN ID/ COMB. PT.	BASIN AREA (ac)	10-YR FLOW (cfs)	100-YR FLOW (cfs)
EOFF1	0.12	<1	1
EOFF2	0.17	<1	1
EOFF3	0.20	<1	1
EOFF4	0.12	<1	1
CP1 EON1 + EON2 + EOFF4	-	7	13

PROPOSED HYDROLOGIC CONDITION

OFF-SITE DRAINAGE

The offsite drainage patterns discussed earlier in the report remain the same. Refer to the Park Study in **Appendix E** for the offsite drainage patterns and existing storm drain pipe. The offsite improvements per the City of Las Vegas Promenade Place & Carson Avenue Offsite Improvements project (CLV Hansen #60311) will install a 15'x3' box culvert, storm drain connections, and drop inlets along the east side of the site. These offsite improvements are assumed to be existing by the time this project begins construction.

The proposed offsite sub basins slightly increased in size. Due to the onsite proposed landscape and sidewalk areas adjacent to each street. **PR05** is approximately 0.40 acres and generates **1/1 cfs**, **PR05** is the Symphony Park Ave on the south side of the site. Runoff from **PR05** flows to the east of the site and is captured by a proposed drop inlet #1 located near the southeast corner of the site. The flow is captured by the drop inlet and then conveyed to the northeast via the existing 15'x3' box culvert.

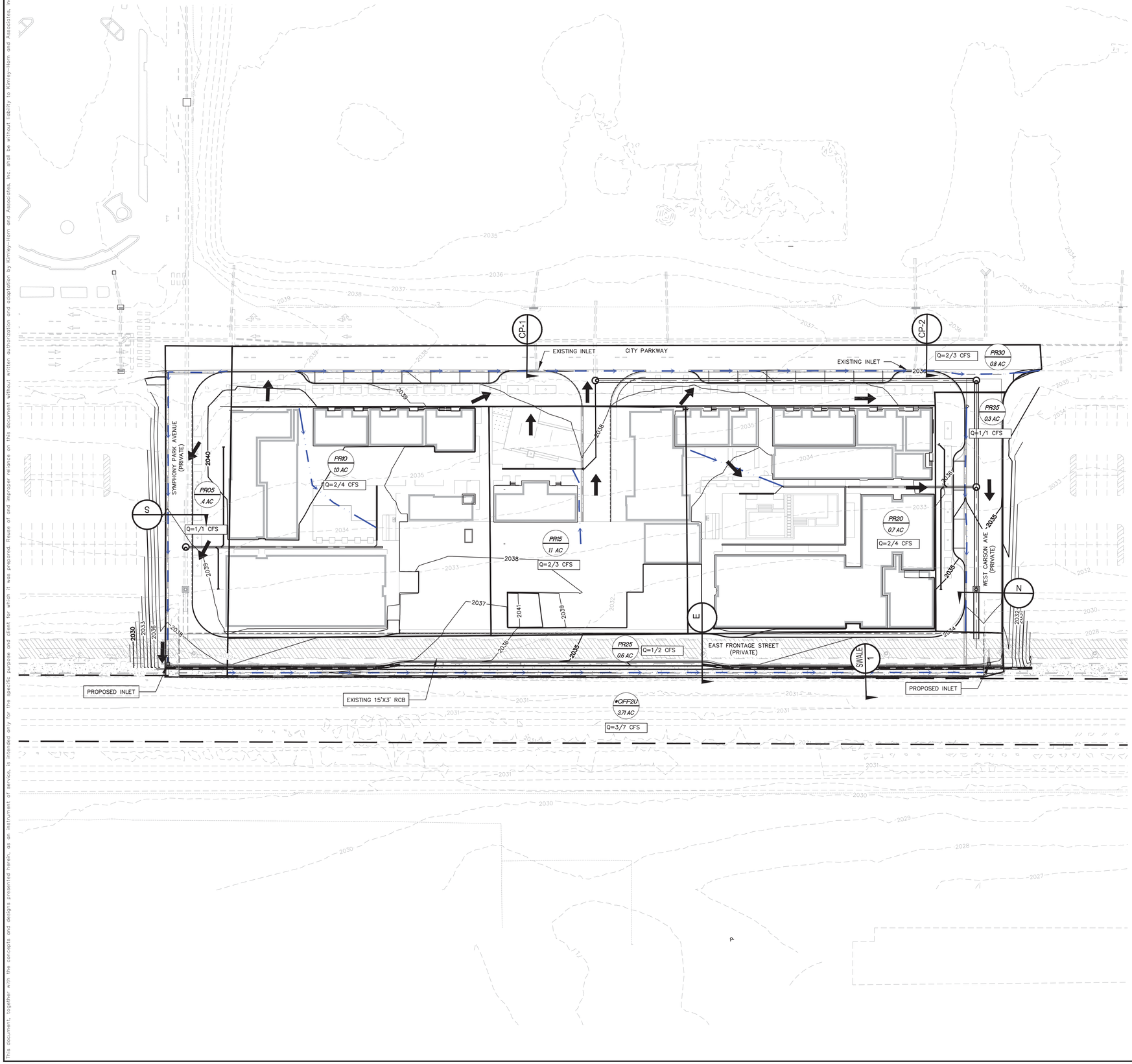
PR30 is one offsite basin that represents City Parkway. **PR30** is approximately 0.80 acres and generates about **2/3 cfs.** Runoff from the basin flows north along the existing curb and gutter until it is captured by two existing drop inlets as mentioned in the existing conditions basins **EOFF2** and **EOFF3**.

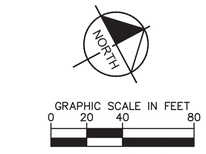
PR35 is approximately 0.30 acres and generates **1/1 cfs**. **PR35** represents the portion of West Carson Ave adjacent to the project site. Runoff from the basin flows to the east. The flow is captured by a proposed drop inlet #2 located near the northeast corner of the site and is conveyed to the northeast via the existing 15'x3' box culvert.

PR25 is a basin located along the east side of the site. **PR25** is approximately 0.60 acres and generates **1/2 cfs**. The basin represents the portion of East Frontage Street adjacent to the site. The runoff from the basin is directed to the northeast and is captured by a proposed drop inlet #2. The flow is then conveyed to the northeast via the existing 15'x3' box culvert.

Attachment D Proposed Conditions

- Proposed Conditions Map
- Proposed WSPG Models





LEGEND

- XX / XX-X — BASIN ID; BASIN AREA (ACRES)
- *ULTIMATE BASIN BOUNDARY
- BASIN BOUNDARY
- FLOWPATH
- FLOW ARROW
- xx/xxx — 10YR/100YR CFS; SURFACE FLOW ARROW
- (xx CFS) [xx CFS] — 100YR REFERENCED STORM DRAIN FLOW; 100YR DESIGN STORM DRAIN FLOW
- XX / X — SECTION ID

FLOW SUMMARY TABLE

SYMPHONY PARK RESIDENTIAL			
BASIN ID	BASIN AREA	10-YR FLOW	100-YR FLOW
	(ac)	(cfs)	(cfs)
PR05	0.40	1	1
PR10	1.00	2	4
PR15	1.10	2	3
PR20	0.70	2	4
PR25	0.60	1	2
PR30	0.80	2	3
PR35	0.30	1	1
*OFF2U	3.71	3	7

*DRAINAGE AREA AND FLOWS FROM THE TECHNICAL DRAINAGE STUDY FOR: UNION PARK, JANUARY 2008 (DS4486)

STREET SECTIONS

SECTION	Q_{10} (cfs)	FLOW DEPTH (ft)	V_{10} (fps)	D*V	Q_{100} (cfs)	FLOW DEPTH (ft)	V_{100} (fps)	D*V
N	1	0.24	1.66	0.40	1	0.24	1.66	0.40
E	1	0.19	1.75	0.33	2	0.24	2.08	0.50
S	1	0.32	1.78	0.57	1	0.32	1.78	0.57
CP-1	1	0.23	1.21	0.28	1	0.23	1.21	0.28
CP-2	2	0.31	1.60	0.50	3	0.35	1.76	0.62

No.	REVISIONS	DATE	BY

Kimley»Horn
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6671 Las Vegas Boulevard South, Suite 320,
Las Vegas, Nevada 89119-4102 702-862-3600
WWW.KIMLEY-HORN.COM

KHA PROJECT 192008001
DATE DECEMBER 2018
SCALE AS SHOWN
DESIGNED BY ACH
DRAWN BY ACH
CHECKED BY BAH

PROPOSED CONDITIONS MAP

SYMPHONY PARK RESIDENTIAL
CIVIL IMPROVEMENT PLANS
PREPARED FOR
ASPEN HEIGHTS PARTNERS
CITY OF LAS VEGAS NEVADA

SHEET NUMBER
PR-1

This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

```
1 T1 SYMPHONY PARK RESIDENTIAL TDS                                                    0
2 T2 KHA 192008001 - DECEMBER 2018
3 T3 LAT01
4 SO   1000.0002029.070  1                         2029.888
5 R    1007.0002029.110  1      .013                            .000    .000 1
6 SH   1007.0002029.110  1                              .000
7 CD   1  4   1    .000   1.500     .000  .000  .000   .00

8 Q             3.000   .0
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Proposed 18-inch Lateral at Northeast side of site. Connecting to the existing 15'x3' RCB

FILE: LAT01.WSW W S P G W - CIVILDESIGN Version 14.06 PAGE 1
Program Package Serial Number: 1911
WATER SURFACE PROFILE LISTING Date:12-19-2018 Time: 4:24:27
SYMPHONY PARK RESIDENTIAL TDS
KHA 192008001 - DECEMBER 2018
LAT01

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	2029.070	.818	2029.888	3.00	3.04	.14	2030.03	.00	.66	1.49	1.500	.000	.00	1 .0
5.235	.0057					.0026	.01	.82	.66	.64	.013	.00	.00	PIPE
1005.235	2029.100	.787	2029.887	3.00	3.19	.16	2030.05	.00	.66	1.50	1.500	.000	.00	1 .0
1.765	.0057					.0028	.01	.79	.71	.64	.013	.00	.00	PIPE
1007.000	2029.110	.777	2029.887	3.00	3.25	.16	2030.05	.00	.66	1.50	1.500	.000	.00	1 .0

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1 T1 SYMPHONY PARK RESIDENTIAL TDS                                                    0
2 T2 KHA 192008001 - DECEMBER 2018
3 T3 LAT02
4 SO   1000.0002030.150  1                          2030.921
5 R    1007.0002030.170  1      .013                              .000    .000 1
6 SH   1007.0002030.170  1                                .000
7 CD   1  4   1    .000   1.500     .000  .000  .000   .00

8 Q             1.000   .0
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Proposed 18-inch Lateral at Southeast side of site. Connecting to the existing 15'x3' RCB

FILE: LAT02.WSW W S P G W - CIVILDESIGN Version 14.06 PAGE 1
Program Package Serial Number: 1911
WATER SURFACE PROFILE LISTING Date:12-19-2018 Time: 4:25:12
SYMPHONY PARK RESIDENTIAL TDS
KHA 192008001 - DECEMBER 2018
LAT02

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	2030.150	.771	2030.921	1.00	1.09	.02	2030.94	.00	.37	1.50	1.500	.000	.00	1 .0
7.000	.0029					.0003	.00	.77	.25	.43	.013	.00	.00	PIPE
1007.000	2030.170	.752	2030.922	1.00	1.13	.02	2030.94	.00	.37	1.50	1.500	.000	.00	1 .0

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 1 T1 SYMPHONY PARK RESIDENTIAL TDS                                                                    0
 2 T2 KHA 192008001 - DECEMBER 2018
 3 T3 LINE-2-PHASE-I - REFERENCE UNION PARK TDS AND VIEW AT SYMPHONY PARK TDS

 4 SO   1000.0002028.670  5                          2030.901
 5 R    1039.8802028.830  5      .013                                .000    .000 1
 6 R    1047.0002028.853  5      .013                                .000    .000 0
 7 JX   1076.3802028.950  7  3   .013    4.00          2028.950         90.0
 8 R    1255.6202029.690  7      .013                                .000    .000 1
 9 JX   1258.1202029.690  7  2   .013   10.00          2030.41          90.0
10 R    1260.6202029.890  7      .013                                .000    .000 0
11 R    1310.9502030.030  7      .013                                .000    .000 1
12 JX   1313.4502030.030  7  1  3.013    6.000    1.0002029.9902029.990 90.0 90.0    .000
13 TS   1315.9502030.230  2      .013                                .000    .000 0
14 R    1519.7002030.750  2      .013                                .000    .000 0
15 R    1521.7002030.750  2      .013                                .000 -90.000 1
16 TS   1523.7002030.950  1      .013                                .000
17 SH   1617.1602031.190  1                            .000
18 CD   1  4   1    .000   2.000     .000  .000  .000   .00
19 CD   2  4   1    .000   2.500     .000  .000  .000   .00
20 CD   3  4   1    .000   1.500     .000  .000  .000   .00
21 CD   5  3   0    .000   3.000    4.000  .000  .000   .00
22 CD   6  4   1    .000   4.000     .000  .000  .000   .00
23 CD   7  4   1    .000   3.000     .000  .000  .000   .00
24 Q            10.000   .0
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FILE: P1UP-LINE2.WSW                    W S P G W - CIVILDESIGN Version 14.06                                    PAGE    1
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                                          WATER SURFACE PROFILE LISTING                  Date:12-19-2018  Time: 4:41: 8
                          SYMPHONY PARK RESIDENTIAL TDS
                            KHA 192008001 - DECEMBER 2018
                              LINE-2-PHASE-I - REFERENCE UNION PARK TDS AND VIEW AT SYMPHONY PARK TD
```

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	2028.670	2.231	2030.901	31.00	3.47	.19	2031.09	.00	1.23	4.00	3.000	4.000	.00	0 .0
27.519	.0040					.0009	.02	2.23	.41	1.27	.013	.00	.00	BOX
1027.519	2028.780	2.127	2030.907	31.00	3.64	.21	2031.11	.00	1.23	4.00	3.000	4.000	.00	0 .0
12.361	.0040					.0010	.01	2.13	.44	1.27	.013	.00	.00	BOX
1039.880	2028.830	2.081	2030.911	31.00	3.72	.22	2031.13	.00	1.23	4.00	3.000	4.000	.00	0 .0
7.120	.0032					.0010	.01	2.08	.46	1.37	.013	.00	.00	BOX
1047.000	2028.853	2.061	2030.915	31.00	3.76	.22	2031.13	.00	1.23	4.00	3.000	4.000	.00	0 .0
JUNCT STR	.0033					.0024	.07	2.06	.46		.013	.00	.00	BOX
				WARNING - Junction Analysis - Change in Channel Type										
1076.380	2028.950	1.796	2030.746	27.00	6.11	.58	2031.33	.00	1.68	2.94	3.000	.000	.00	1 .0
46.309	.0041					.0039	.18	1.80	.88	1.73	.013	.00	.00	PIPE
1122.689	2029.141	1.727	2030.868	27.00	6.41	.64	2031.51	.00	1.68	2.97	3.000	.000	.00	1 .0
132.931	.0041					.0041	.55	1.73	.95	1.73	.013	.00	.00	PIPE
1255.620	2029.690	1.727	2031.417	27.00	6.41	.64	2032.05	.00	1.68	2.97	3.000	.000	.00	1 .0
JUNCT STR	.0000					.0024	.01	1.73	.95		.013	.00	.00	PIPE
1258.120	2029.690	2.485	2032.175	17.00	2.72	.11	2032.29	.00	1.32	2.26	3.000	.000	.00	1 .0
1.411	.0800					.0007	.00	2.49	.29	.61	.013	.00	.00	PIPE

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                              Program Package Serial Number: 1911
                                        WATER SURFACE PROFILE LISTING                    Date:12-19-2018  Time: 4:41: 8
                            SYMPHONY PARK RESIDENTIAL TDS
                              KHA 192008001 - DECEMBER 2018
                                LINE-2-PHASE-I - REFERENCE UNION PARK TDS AND VIEW AT SYMPHONY PARK TD
 ********************************************************************************************************************************** ********
           | Invert  |  Depth |  Water  |    Q    |  Vel     Vel  |  Energy | Super |Critical|Flow Top|Height/|Base Wt|       |No Wth
  Station  |  Elev   |  (FT)  |  Elev   |  (CFS)  | (FPS)    Head |  Grd.El.|  Elev | Depth  | Width  |Dia.-FT|or I.D.|  ZL   |Prs/Pip
       -|-      -|-      -|-       -|-       -|-     -|-      -|-       -|-      -|-       -|-       -|-      -|-      -|-    -|
  L/Elem  |Ch Slope |        |         |         |          SF Ave    |    HF   |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall |  ZR   |Type Ch
 *********|*********|********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|*****  |*******
          |         |        |         |         |       |       |         |       |        |        |       |       |       |       |
  1259.531  2029.803    2.362  2032.165     17.00    2.85     .13  2032.29     .00    1.32     2.46    3.000     .000    .00   1    .0
         -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     -|-     |-
     1.089    .0800                                          .0007      .00     2.36     .32     .61    .013      .00    .00  PIPE
          |         |        |         |         |       |       |         |       |        |        |       |       |       |       |
  1260.620  2029.890    2.265  2032.155     17.00    2.97     .14  2032.29     .00    1.32     2.58    3.000     .000    .00   1    .0
         -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     -|-     |-
    44.371    .0028                                          .0008      .04     2.26     .35    1.47    .013      .00    .00  PIPE
          |         |        |         |         |       |       |         |       |        |        |       |       |       |       |
  1304.991  2030.013    2.164  2032.177     17.00    3.11     .15  2032.33     .00    1.32     2.69    3.000     .000    .00   1    .0
         -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     -|-     |-
     5.959    .0028                                          .0009      .01     2.16     .39    1.47    .013      .00    .00  PIPE
          |         |        |         |         |       |       |         |       |        |        |       |       |       |       |
  1310.950  2030.030    2.150  2032.180     17.00    3.14     .15  2032.33     .00    1.32     2.70    3.000     .000    .00   1    .0
         -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     -|-     |-
 JUNCT STR   .0000                                          .0006      .00    2.15     .39             .013      .00    .00  PIPE
          |         |        |         |         |       |       |         |       |        |        |       |       |       |       |
  1313.450  2030.030    2.351  2032.381     10.00    1.68     .04  2032.43     .00    1.00     2.47    3.000     .000    .00   1    .0
         -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     -|-     |-
 TRANS STR   .0800                                          .0004      .00    2.35     .19             .013      .00    .00  PIPE
          |         |        |         |         |       |       |         |       |        |        |       |       |       |       |
  1315.950  2030.230    2.125  2032.355     10.00    2.25     .08  2032.43     .00    1.06     1.78    2.500     .000    .00   1    .0
         -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     -|-     |-
    51.908    .0026                                          .0006      .03     2.13     .25    1.22    .013      .00    .00  PIPE
          |         |        |         |         |       |       |         |       |        |        |       |       |       |       |
  1367.858  2030.362    2.016  2032.378     10.00    2.36     .09  2032.46     .00    1.06     1.98    2.500     .000    .00   1    .0
         -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     -|-     |-
    46.028    .0026                                          .0006      .03     2.02     .28    1.22    .013      .00    .00  PIPE
          |         |        |         |         |       |       |         |       |        |        |       |       |       |       |
  1413.885  2030.480    1.919  2032.399     10.00    2.47     .09  2032.49     .00    1.06     2.11    2.500     .000    .00   1    .0
         -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     -|-     |-
    42.223    .0026                                          .0007      .03     1.92     .31    1.22    .013      .00    .00  PIPE
          |         |        |         |         |       |       |         |       |        |        |       |       |       |       |
  1456.108  2030.588    1.832  2032.420     10.00    2.59     .10  2032.52     .00    1.06     2.21    2.500     .000    .00   1    .0
         -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     -|-     |-
    39.522    .0026                                          .0008      .03     1.83     .35    1.22    .013      .00    .00  PIPE
 FILE: P1UP-LINE2.WSW                    W S P G W - CIVILDESIGN Version 14.06                                          PAGE    3
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Program Package Serial Number: 1911

WATER SURFACE PROFILE LISTING Date:12-19-2018 Time: 4:41: 8

SYMPHONY PARK RESIDENTIAL TDS

KHA 192008001 - DECEMBER 2018

LINE-2-PHASE-I - REFERENCE UNION PARK TDS AND VIEW AT SYMPHONY PARK TD

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
1495.631	2030.688	1.752	2032.441	10.00	2.72	.11	2032.56	.00	1.06	2.29	2.500	.000	.00	1 .0
24.069	.0026					.0009	.02	1.75	.38	1.22	.013	.00	.00	PIPE
1519.700	2030.750	1.705	2032.455	10.00	2.80	.12	2032.58	.00	1.06	2.33	2.500	.000	.00	1 .0
2.000	.0000					.0009	.00	1.71	.40	.00	.013	.00	.00	PIPE
1521.700	2030.750	1.708	2032.458	10.00	2.80	.12	2032.58	.00	1.06	2.33	2.500	.000	.00	1 .0
TRANS STR	.1000					.0019	.00	1.71	.40		.013	.00	.00	PIPE
1523.700	2030.950	1.395	2032.344	10.00	4.28	.28	2032.63	.00	1.13	1.84	2.000	.000	.00	1 .0
TRANS STR	.1000					.0084	.02	1.39	.67		.013	.00	.00	PIPE
1617.160	2031.190	1.395	2032.584	10.00	4.28	.28	2032.87	.00	1.13	1.84	2.000	.000	.00	1 .0

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 1 T1 SYMPHONY PARK RESIDENTIAL TDS                                                                    0
 2 T2 KHA 192008001 - DECEMBER 2018
 3 T3 LINE-4-PHASE-II - REFERENCE UNION PARK TDS AND VIEW AT SYMPHONY PARK TDS

 4 SO   0659.7722027.570  1                          2030.279
 5 JX   0659.7722027.570  1      .013                                    .0   .0    .000
 6 R    0711.7722027.770  5      .013                                 .000    .000 1
 7 JX   0800.4002027.990  5  2   .013    4.000         2027.99         -90.0   .0    .000
 8 R    0892.3002028.220  5      .013                                 .000 -90.000 0
 9 JX   0892.3002028.220  5      .013                                 .000    .0    .000
10 R    1220.7902029.040  5      .013                                 .000  90.000 1
11 JX   1220.7902029.040  5  6   .013    3.000         2031.38         -90.0   .0    .000
12 R    1255.7902029.150  5      .013                                 .000    .000 1
13 JX   1258.2902029.250  5  4  4.013    4.000    3.0002029.3202029.320   .0 90.0    .000
14 R    1260.7902029.350  5      .013                                 .000    .000 0
15 R    1316.8602029.470  5      .013                                 .000    .000 0
16 R    1320.8602029.670  5      .013                                 .000    .000 0
17 R    1532.7402030.210  3      .013                                 .000    .000 1
18 JX   1534.7402030.310  3  4  2.013    1.000    2.0002030.4102030.410 90.0-90.0    .000
19 R    1536.7402030.410  3      .013                                 .000    .000 0
20 R    1590.5402030.560  4      .013                                 .000    .000 1
21 R    1593.0402030.660  4      .013                                 .000  90.050 0
22 R    1595.5402030.760  4      .013                                 .000    .000 0
23 R    1647.5802030.900  4      .013                                 .000    .000 1
24 SH   1647.5802030.900  4                        2032.390
25 CD   1  3   0    .000   3.000    4.000  .000  .000   .00
26 CD   2  4   1    .000   1.500     .000  .000  .000   .00
27 CD   3  4   1    .000   2.500     .000  .000  .000   .00
28 CD   4  4   1    .000   2.000     .000  .000  .000   .00
29 CD   5  4   1    .000   3.000     .000  .000  .000   .00
30 CD   6  4   1    .000   1.000     .000  .000  .000   .00
31 Q            11.000   .0
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FILE: P2UP-LINE4.WSW                    W S P G W - CIVILDESIGN Version 14.06                                    PAGE    1
                                Program Package Serial Number: 1911
                                          WATER SURFACE PROFILE LISTING                  Date:12-19-2018  Time: 4:42: 5
                          SYMPHONY PARK RESIDENTIAL TDS
                            KHA 192008001 - DECEMBER 2018
                              LINE-4-PHASE-II - REFERENCE UNION PARK TDS AND VIEW AT SYMPHONY PARK T
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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
JUNCT STR	.0000					.0004	.00	2.71	.28		.013	.00	.00	BOX
		WARNING - Flow depth near top of box conduit												
659.772	2027.570	2.709	2030.279	28.00	4.17	.27	2030.55	.00	1.71	1.78	3.000	.000	.00	1 .0
52.000	.0038					.0016	.08	2.71	.38	1.81	.013	.00	.00	PIPE
711.772	2027.770	2.569	2030.339	28.00	4.35	.29	2030.63	.00	1.71	2.11	3.000	.000	.00	1 .0
JUNCT STR	.0025					.0014	.12	2.57	.44		.013	.00	.00	PIPE
800.400	2027.990	2.636	2030.626	24.00	3.65	.21	2030.83	.00	1.58	1.96	3.000	.000	.00	1 .0
91.900	.0025					.0012	.11	2.64	.35	1.88	.013	.00	.00	PIPE
JUNCT STR	.0000					.0013	.00	2.50	.40		.013	.00	.00	PIPE
892.300	2028.220	2.498	2030.718	24.00	3.82	.23	2030.94	.00	1.58	2.24	3.000	.000	.00	1 .0
87.186	.0025					.0013	.12	2.50	.40	1.89	.013	.00	.00	PIPE
979.486	2028.438	2.373	2030.811	24.00	4.00	.25	2031.06	.00	1.58	2.44	3.000	.000	.00	1 .0
83.345	.0025					.0015	.12	2.37	.45	1.89	.013	.00	.00	PIPE
1062.830	2028.646	2.262	2030.908	24.00	4.20	.27	2031.18	.00	1.58	2.58	3.000	.000	.00	1 .0
84.448	.0025					.0016	.14	2.26	.50	1.89	.013	.00	.00	PIPE

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FILE: P2UP-LINE4.WSW                    W S P G W - CIVILDESIGN Version 14.06                                    PAGE    2
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Program Package Serial Number: 1911
WATER SURFACE PROFILE LISTING Date:12-19-2018 Time: 4:42: 5
SYMPHONY PARK RESIDENTIAL TDS
KHA 192008001 - DECEMBER 2018
LINE-4-PHASE-II - REFERENCE UNION PARK TDS AND VIEW AT SYMPHONY PARK T

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
1147.279	2028.856	2.161	2031.018	24.00	4.40	.30	2031.32	.00	1.58	2.69	3.000	.000	.00	1 .0
73.511	.0025					.0018	.13	2.16	.55	1.89	.013	.00	.00	PIPE
1220.790	2029.040	2.086	2031.126	24.00	4.57	.32	2031.45	.00	1.58	2.76	3.000	.000	.00	1 .0
JUNCT STR	.0000					.0015	.00	2.09	.58		.013	.00	.00	PIPE
1220.790	2029.040	2.273	2031.313	21.00	3.66	.21	2031.52	.00	1.47	2.57	3.000	.000	.00	1 .0
35.000	.0031					.0012	.04	2.27	.43	1.61	.013	.00	.00	PIPE
1255.790	2029.150	2.189	2031.339	21.00	3.80	.22	2031.56	.00	1.47	2.66	3.000	.000	.00	1 .0
JUNCT STR	.0400					.0009	.00	2.19	.47		.013	.00	.00	PIPE
1258.290	2029.250	2.316	2031.566	14.00	2.39	.09	2031.65	.00	1.19	2.52	3.000	.000	.00	1 .0
2.451	.0400					.0005	.00	2.32	.28	.66	.013	.00	.00	PIPE
1260.741	2029.348	2.210	2031.558	14.00	2.51	.10	2031.66	.00	1.19	2.64	3.000	.000	.00	1 .0
.049	.0400					.0006	.00	2.21	.30	.66	.013	.00	.00	PIPE
1260.790	2029.350	2.208	2031.558	14.00	2.51	.10	2031.66	.00	1.19	2.64	3.000	.000	.00	1 .0
55.795	.0021					.0006	.03	2.21	.30	1.42	.013	.00	.00	PIPE
1316.585	2029.469	2.112	2031.581	14.00	2.63	.11	2031.69	.00	1.19	2.74	3.000	.000	.00	1 .0
.275	.0021					.0006	.00	2.11	.33	1.42	.013	.00	.00	PIPE
1316.860	2029.470	2.112	2031.582	14.00	2.63	.11	2031.69	.00	1.19	2.74	3.000	.000	.00	1 .0
1.589	.0500					.0007	.00	2.11	.33	.62	.013	.00	.00	PIPE

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                              Program Package Serial Number: 1911
                                          WATER SURFACE PROFILE LISTING                  Date:12-19-2018  Time: 4:42: 5
                            SYMPHONY PARK RESIDENTIAL TDS
                              KHA 192008001 - DECEMBER 2018
                                LINE-4-PHASE-II - REFERENCE UNION PARK TDS AND VIEW AT SYMPHONY PARK T
 ********************************************************************************************************************************** ********
          | Invert  |  Depth |  Water  |    Q    |  Vel     Vel  |  Energy | Super |Critical|Flow Top|Height/|Base Wt|       |No Wth
 Station  |  Elev   |  (FT)  |  Elev   |  (CFS)  | (FPS)    Head |  Grd.El.|  Elev | Depth  | Width  |Dia.-FT|or I.D.|  ZL   |Prs/Pip
 ---------|---------|--------|---------|---------|---------|-------|---------|-------|--------|--------|-------|-------|-------|-
 L/Elem   |Ch Slope |        |         |         |         SF Ave  |    HF   |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR   |Type Ch
 *********|*********|********|*********|*********|*********|*******|*********|*******|********|********|*******|*******|*******|*******
          |         |        |         |         |         |       |         |       |        |        |       |       |       |
 1318.449  2029.549    2.023  2031.572    14.00    2.76      .12  2031.69     .00    1.19     2.81    3.000     .000   .00   1    .0
         -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
    1.444    .0500                                          .0007      .00    2.02     .36     .62     .013      .00   .00  PIPE
          |         |        |         |         |         |       |         |       |        |        |       |       |       |
 1319.893  2029.622    1.940  2031.561    14.00    2.90      .13  2031.69     .00    1.19     2.87    3.000     .000   .00   1    .0
         -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
     .967    .0500                                          .0008      .00    1.94     .39     .62     .013      .00   .00  PIPE
          |         |        |         |         |         |       |         |       |        |        |       |       |       |
 1320.860  2029.670    1.884  2031.554    14.00    3.53      .19  2031.75     .00    1.26     2.16    2.500     .000   .00   1    .0
         -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
    59.740    .0025                                          .0015      .09    1.88     .46    1.51     .013      .00   .00  PIPE
          |         |        |         |         |         |       |         |       |        |        |       |       |       |
 1380.600  2029.822    1.800  2031.622    14.00    3.70      .21  2031.83     .00    1.26     2.25    2.500     .000   .00   1    .0
         -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
    61.473    .0025                                          .0016      .10    1.80     .50    1.51     .013      .00   .00  PIPE
          |         |        |         |         |         |       |         |       |        |        |       |       |       |
 1442.073  2029.979    1.723  2031.701    14.00    3.88      .23  2031.94     .00    1.26     2.31    2.500     .000   .00   1    .0
         -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
    68.215    .0025                                          .0018      .13    1.72     .55    1.51     .013      .00   .00  PIPE
          |         |        |         |         |         |       |         |       |        |        |       |       |       |
 1510.288  2030.153    1.651  2031.803    14.00    4.07      .26  2032.06     .00    1.26     2.37    2.500     .000   .00   1    .0
         -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
    22.452    .0025                                          .0020      .04    1.65     .60    1.51     .013      .00   .00  PIPE
          |         |        |         |         |         |       |         |       |        |        |       |       |       |
 1532.740  2030.210    1.631  2031.841    14.00    4.13      .26  2032.11     .00    1.26     2.38    2.500     .000   .00   1    .0
         -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
 JUNCT STR   .0500                                          .0015      .00    1.63     .61             .013      .00   .00  PIPE
          |         |        |         |         |         |       |         |       |        |        |       |       |       |
 1534.740  2030.310    1.752  2032.062    11.00    2.99      .14  2032.20     .00    1.11     2.29    2.500     .000   .00   1    .0
         -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
    1.224    .0500                                          .0011      .00    1.75     .42     .58     .013      .00   .00  PIPE
          |         |        |         |         |         |       |         |       |        |        |       |       |       |
 1535.964  2030.371    1.679  2032.050    11.00    3.14      .15  2032.20     .00    1.11     2.35    2.500     .000   .00   1    .0
         -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
     .776    .0500                                          .0012      .00    1.68     .45     .58     .013      .00   .00  PIPE
 FILE: P2UP-LINE4.WSW                    W S P G W - CIVILDESIGN Version 14.06                                        PAGE    4
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Program Package Serial Number: 1911
WATER SURFACE PROFILE LISTING Date:12-19-2018 Time: 4:42: 5
SYMPHONY PARK RESIDENTIAL TDS
KHA 192008001 - DECEMBER 2018
LINE-4-PHASE-II - REFERENCE UNION PARK TDS AND VIEW AT SYMPHONY PARK T

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
1536.740	2030.410	1.630	2032.040	11.00	4.01	.25	2032.29	.00	1.19	1.55	2.000	.000	.00	1 .0
53.800	.0028					.0024	.13	1.63	.53	1.51	.013	.00	.00	PIPE
1590.540	2030.560	1.603	2032.163	11.00	4.08	.26	2032.42	.00	1.19	1.60	2.000	.000	.00	1 .0
1.348	.0400					.0026	.00	1.60	.55	.67	.013	.00	.00	PIPE
1591.888	2030.614	1.527	2032.141	11.00	4.28	.28	2032.42	.00	1.19	1.70	2.000	.000	.00	1 .0
1.089	.0400					.0029	.00	1.53	.61	.67	.013	.00	.00	PIPE
1592.977	2030.658	1.458	2032.115	11.00	4.48	.31	2032.43	.00	1.19	1.78	2.000	.000	.00	1 .0
.063	.0400					.0031	.00	1.46	.67	.67	.013	.00	.00	PIPE
1593.040	2030.660	1.454	2032.114	11.00	4.50	.31	2032.43	.00	1.19	1.78	2.000	.000	.00	1 .0
.856	.0400					.0032	.00	1.45	.68	.67	.013	.00	.00	PIPE
1593.896	2030.694	1.391	2032.085	11.00	4.72	.35	2032.43	.00	1.19	1.84	2.000	.000	.00	1 .0
.651	.0400					.0036	.00	1.39	.74	.67	.013	.00	.00	PIPE
1594.547	2030.720	1.333	2032.053	11.00	4.95	.38	2032.43	.00	1.19	1.89	2.000	.000	.00	1 .0
.033	.0400					.0041	.00	1.33	.80	.67	.013	.00	.00	PIPE
1594.580	2030.722	1.278	2032.000	11.00	5.19	.42	2032.42	.00	1.19	1.92	2.000	.000	.00	1 .0
HYDRAULIC JUMP														
1594.580	2030.722	1.057	2031.779	11.00	6.53	.66	2032.44	.00	1.19	2.00	2.000	.000	.00	1 .0
.517	.0400					.0074	.00	1.06	1.25	.67	.013	.00	.00	PIPE

Program Package Serial Number: 1911

WATER SURFACE PROFILE LISTING Date:12-19-2018 Time: 4:42: 5

SYMPHONY PARK RESIDENTIAL TDS

KHA 192008001 - DECEMBER 2018

LINE-4-PHASE-II - REFERENCE UNION PARK TDS AND VIEW AT SYMPHONY PARK T

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
1595.097	2030.742	1.099	2031.841	11.00	6.22	.60	2032.44	.00	1.19	1.99	2.000	.000	.00	1 .0
.333	.0400					.0065	.00	1.10	1.16	.67	.013	.00	.00	PIPE
1595.430	2030.756	1.142	2031.898	11.00	5.93	.55	2032.44	.00	1.19	1.98	2.000	.000	.00	1 .0
.110	.0400					.0057	.00	1.14	1.08	.67	.013	.00	.00	PIPE
1595.540	2030.760	1.189	2031.949	11.00	5.65	.50	2032.44	.00	1.19	1.96	2.000	.000	.00	1 .0
1.478	.0027					.0051	.01	1.19	1.00	1.54	.013	.00	.00	PIPE
1597.018	2030.764	1.238	2032.002	11.00	5.39	.45	2032.45	.00	1.19	1.94	2.000	.000	.00	1 .0
5.928	.0027					.0045	.03	1.24	.93	1.54	.013	.00	.00	PIPE
1602.947	2030.780	1.289	2032.069	11.00	5.14	.41	2032.48	.00	1.19	1.91	2.000	.000	.00	1 .0
13.684	.0027					.0040	.05	1.29	.86	1.54	.013	.00	.00	PIPE
1616.631	2030.817	1.345	2032.161	11.00	4.90	.37	2032.53	.00	1.19	1.88	2.000	.000	.00	1 .0
29.195	.0027					.0036	.10	1.34	.79	1.54	.013	.00	.00	PIPE
1645.825	2030.895	1.404	2032.299	11.00	4.67	.34	2032.64	.00	1.19	1.83	2.000	.000	.00	1 .0
1.755	.0027					.0033	.01	1.40	.73	1.54	.013	.00	.00	PIPE
1647.580	2030.900	1.406	2032.306	11.00	4.66	.34	2032.64	.00	1.19	1.83	2.000	.000	.00	1 .0

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 1 T1 SYMPHONY PARK RESIDENTIAL TDS                                                                    0
 2 T2 KHA 192008001 (ADDENDUM NO.1)
 3 T3 SOUTHEAST BOX CULVERT (PHASE-I/II) - REFERENCE UNION PARK TDS

 4 SO   1000.0002025.870 15                          2027.020
 5 TS   1057.8402025.960  1      .013                                  .000
 6 JX   1059.5102025.970  1 21   .013   11.000         2026.110        90.0    .000
 7 JX   1872.0402027.260  1 18   .013   15.000         2027.420        90.0    .000
 8 JX   2056.9402027.550  1 23   .013    3.000         2029.070       .000 -90.000 0
 9 JX   2067.8102027.570  1 22   .013   28.000         2027.570        90.0    .000
10 JX   2753.0302028.670  1 22   .013   31.000         2028.670        90.0    .000
11 JX   2768.1202028.690  1 23   .013    1.000         2030.150       .000 -90.000 0
12 JX   3472.9202029.830  1 20   .013   35.000         2030.020        90.0    .000
13 R    3692.8502030.160  1      .013                                 .000 -18.000 0
14 R    3742.8502030.240  1      .013                                 .000  34.000 0
15 TS   3742.8902030.240  5      .013                                 .000
16 SH   3742.8902030.240  5                            .000
17 CD   1  3   0    .000   3.000   15.000  .000  .000   .00
18 CD   2  4   1    .000   3.000     .000  .000  .000   .00
19 CD   3  4   1    .000   2.500     .000  .000  .000   .00
20 CD   4  4   1    .000   3.000     .000  .000  .000   .00
21 CD   5  3   0    .000   4.000   12.000  .000  .000   .00
22 CD   7  4   1    .000   3.000     .000  .000  .000   .00
23 CD   9  4   1    .000   3.000     .000  .000  .000   .00
24 CD  11  4   1    .000   3.000     .000  .000  .000   .00
25 CD  13  4   1    .000   3.000     .000  .000  .000   .00
26 CD  15  3   0    .000   3.000   55.000  .000  .000   .00
27 CD  16  4   1    .000   2.500     .000  .000  .000   .00
28 CD  18  4   1    .000   2.500     .000  .000  .000   .00
29 CD  20  4   1    .000   2.500     .000  .000  .000   .00
30 CD  21  4   1    .000   2.000     .000  .000  .000   .00
31 CD  22  3   0    .000   3.000    4.000  .000  .000   .00
32 CD  23  4   1    .000   1.500     .000  .000  .000   .00
33 Q           122.000   .0
```

FILE: UNION_BOX_ONSITE.WSW W S P G W - CIVILDESIGN Version 14.06 PAGE 1

Program Package Serial Number: 1911

WATER SURFACE PROFILE LISTING Date:12-19-2018 Time: 3:33:43

SYMPHONY PARK RESIDENTIAL TDS

KHA 192008001 (ADDENDUM NO.1)

SOUTHEAST BOX CULVERT (PHASE-I/II) - REFERENCE UNION PARK TDS

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	2025.870	.428	2026.298	246.00	10.44	1.69	2027.99	.00	.85	55.00	3.000	55.000	.00	0 .0
TRANS STR	.0016					.0145	.84	.43	2.81		.013	.00	.00	BOX
1057.840	2025.960	2.029	2027.989	246.00	8.08	1.01	2029.00	.00	2.03	15.00	3.000	15.000	.00	0 .0
JUNCT STR	.0060					.0013	.00	2.03	1.00		.013	.00	.00	BOX
1059.510	2025.970	2.489	2028.459	235.00	6.29	.62	2029.07	.00	1.97	15.00	3.000	15.000	.00	0 .0
JUNCT STR	.0016					.0013	1.07	2.49	.70		.013	.00	.00	BOX
1872.040	2027.260	2.376	2029.636	220.00	6.17	.59	2030.23	.00	1.88	15.00	3.000	15.000	.00	0 .0
JUNCT STR	.0016					.0013	.25	2.38	.71		.013	.00	.00	BOX
2056.940	2027.550	2.337	2029.888	217.00	6.19	.59	2030.48	.00	1.87	15.00	3.000	15.000	.00	0 .0
JUNCT STR	.0018					.0007	.01	2.34	.71		.013	.00	.00	BOX
2067.810	2027.570	2.709	2030.279	189.00	4.65	.34	2030.61	.00	1.70	15.00	3.000	15.000	.00	0 .0
JUNCT STR	.0016					.0007	.45	2.71	.50		.013	.00	.00	BOX

---------- WARNING - Flow depth near top of box conduit ----------

2753.030	2028.670	2.231	2030.901	158.00	4.72	.35	2031.25	.00	1.51	15.00	3.000	15.000	.00	0 .0
JUNCT STR	.0013					.0008	.01	2.23	.56		.013	.00	.00	BOX
2768.120	2028.690	2.231	2030.921	157.00	4.69	.34	2031.26	.00	1.50	15.00	3.000	15.000	.00	0 .0
JUNCT STR	.0016					.0008	.58	2.23	.55		.013	.00	.00	BOX

Program Package Serial Number: 1911

WATER SURFACE PROFILE LISTING Date:12-19-2018 Time: 3:33:43

SYMPHONY PARK RESIDENTIAL TDS
KHA 192008001 (ADDENDUM NO.1)
SOUTHEAST BOX CULVERT (PHASE-I/II) - REFERENCE UNION PARK TDS

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/ Dia.-FT or "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
3472.920	2029.830	1.882	2031.712	122.00	4.32	.29	2032.00	.00	1.27	15.00	3.000	15.000	.00	0 .0
96.610	.0015					.0008	.08	1.88	.56	1.55	.013	.00	.00	BOX
3569.530	2029.975	1.794	2031.769	122.00	4.53	.32	2032.09	.00	1.27	15.00	3.000	15.000	.00	0 .0
110.940	.0015					.0010	.11	1.79	.60	1.55	.013	.00	.00	BOX
3680.470	2030.141	1.711	2031.852	122.00	4.75	.35	2032.20	.00	1.27	15.00	3.000	15.000	.00	0 .0
12.380	.0015					.0011	.01	1.71	.64	1.55	.013	.00	.00	BOX
3692.850	2030.160	1.703	2031.863	122.00	4.78	.35	2032.22	.00	1.27	15.00	3.000	15.000	.00	0 .0
48.436	.0016					.0011	.05	1.70	.64	1.52	.013	.00	.00	BOX
3741.286	2030.238	1.665	2031.903	122.00	4.88	.37	2032.27	.00	1.27	15.00	3.000	15.000	.00	0 .0
HYDRAULIC JUMP														
3741.286	2030.238	.944	2031.181	122.00	8.62	1.15	2032.33	.00	1.27	15.00	3.000	15.000	.00	0 .0
1.564	.0016					.0073	.01	.94	1.56	1.52	.013	.00	.00	BOX
3742.850	2030.240	.939	2031.179	122.00	8.66	1.17	2032.34	.00	1.27	15.00	3.000	15.000	.00	0 .0
HYDRAULIC DROP														
3742.850	2030.240	1.665	2031.905	122.00	4.88	.37	2032.28	.00	1.27	15.00	3.000	15.000	.00	0 .0
TRANS STR	.0000					.0012	.00	1.67	.67		.013	.00	.00	BOX
3742.890	2030.240	1.488	2031.728	122.00	6.83	.72	2032.45	.00	1.48	12.00	4.000	12.000	.00	0 .0

```
1 T1 SYMPHONY PARK RESIDENTIAL TDS                                                    0
2 T2 KHA 192008001 - DECEMBER 2018
3 T3 SD LATERAL 35-B REFERENCE UNION PARK TDS
4 SO   1088.2602027.990  1                          2030.626
5 R    1196.2602030.000  1      .013                              .000    .000 0
6 SH   1196.2602030.000  1                               .000

7 CD   1  4   0    .000   1.500     .000  .000  .000   .00

8 Q             4.000   .0
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FILE: SPRNLAT02.WSW W S P G W - CIVILDESIGN Version 14.06 PAGE 1

Program Package Serial Number: 1911

WATER SURFACE PROFILE LISTING Date:12-20-2018 Time:12:50:31

SYMPHONY PARK RESIDENTIAL TDS
KHA 192008001 - DECEMBER 2018
SD LATERAL 35-B REFERENCE UNION PARK TDS

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
1088.260	2027.990	2.636	2030.626	4.00	2.26	.08	2030.71	.00	.77	.00	1.500	.000	.00	0 .0
66.195	.0186					.0014	.09	2.64	.00	.54	.013	.00	.00	PIPE
1154.455	2029.222	1.500	2030.722	4.00	2.26	.08	2030.80	.00	.77	.00	1.500	.000	.00	0 .0
7.536	.0186					.0013	.01	1.50	.00	.54	.013	.00	.00	PIPE
1161.991	2029.362	1.361	2030.723	4.00	2.37	.09	2030.81	.00	.77	.87	1.500	.000	.00	0 .0
4.165	.0186					.0013	.01	1.36	.30	.54	.013	.00	.00	PIPE
1166.156	2029.440	1.280	2030.720	4.00	2.49	.10	2030.82	.00	.77	1.06	1.500	.000	.00	0 .0
3.314	.0186					.0014	.00	1.28	.36	.54	.013	.00	.00	PIPE
1169.471	2029.501	1.214	2030.715	4.00	2.61	.11	2030.82	.00	.77	1.18	1.500	.000	.00	0 .0
2.799	.0186					.0016	.00	1.21	.40	.54	.013	.00	.00	PIPE
1172.270	2029.553	1.155	2030.709	4.00	2.74	.12	2030.83	.00	.77	1.26	1.500	.000	.00	0 .0
2.421	.0186					.0017	.00	1.16	.45	.54	.013	.00	.00	PIPE
1174.690	2029.599	1.103	2030.701	4.00	2.87	.13	2030.83	.00	.77	1.32	1.500	.000	.00	0 .0
2.116	.0186					.0019	.00	1.10	.49	.54	.013	.00	.00	PIPE
1176.806	2029.638	1.055	2030.693	4.00	3.01	.14	2030.83	.00	.77	1.37	1.500	.000	.00	0 .0
1.849	.0186					.0022	.00	1.05	.54	.54	.013	.00	.00	PIPE
1178.656	2029.672	1.010	2030.682	4.00	3.16	.16	2030.84	.00	.77	1.41	1.500	.000	.00	0 .0
1.084	.0186					.0024	.00	1.01	.59	.54	.013	.00	.00	PIPE

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                              Program Package Serial Number: 1911
                                          WATER SURFACE PROFILE LISTING                 Date:12-20-2018  Time:12:50:31
                           SYMPHONY PARK RESIDENTIAL TDS
                             KHA 192008001 - DECEMBER 2018
                              SD LATERAL 35-B REFERENCE UNION PARK TDS
**************************************************************************************************************************** ********
          | Invert  |  Depth |  Water  |    Q    |  Vel     Vel  |  Energy | Super |Critical|Flow Top|Height/|Base Wt|       |No Wth
 Station  |  Elev   |  (FT)  |  Elev   |  (CFS)  | (FPS)    Head |  Grd.El.|  Elev | Depth  | Width  |Dia.-FT|or I.D.|  ZL   |Prs/Pip
-|-       -|-       -|-       -|-       -|-     -|-       -|-       -|-      -|-       -|-       -|-      -|-      -|-      -|-
 L/Elem  |Ch Slope |        |         |         |          SF Ave|    HF   |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR   |Type Ch
*********|*********|********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|*****  |*******
         |         |        |         |         |       |       |         |       |        |        |       |       |       |
 1179.739  2029.693     .969  2030.661      4.00    3.31     .17  2030.83     .00     .77     1.43     1.500     .000   .00   0    .0
        -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     -|-
HYDRAULIC JUMP
         |         |        |         |         |       |       |         |       |        |        |       |       |       |
 1179.739  2029.693     .571  2030.264      4.00    6.47     .65  2030.91     .00     .77     1.46     1.500     .000   .00   0    .0
        -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     -|-
    2.056    .0186                                          .0143      .03      .57    1.75      .54     .013      .00   .00  PIPE
         |         |        |         |         |       |       |         |       |        |        |       |       |       |
 1181.795  2029.731     .592  2030.323      4.00    6.17     .59  2030.91     .00     .77     1.47     1.500     .000   .00   0    .0
        -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     -|-
    5.342    .0186                                          .0126      .07      .59    1.63      .54     .013      .00   .00  PIPE
         |         |        |         |         |       |       |         |       |        |        |       |       |       |
 1187.137  2029.830     .614  2030.444      4.00    5.88     .54  2030.98     .00     .77     1.47     1.500     .000   .00   0    .0
        -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     -|-
    3.492    .0186                                          .0110      .04      .61    1.53      .54     .013      .00   .00  PIPE
         |         |        |         |         |       |       |         |       |        |        |       |       |       |
 1190.629  2029.895     .636  2030.531      4.00    5.61     .49  2031.02     .00     .77     1.48     1.500     .000   .00   0    .0
        -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     -|-
    2.344    .0186                                          .0097      .02      .64    1.42      .54     .013      .00   .00  PIPE
         |         |        |         |         |       |       |         |       |        |        |       |       |       |
 1192.973  2029.939     .660  2030.598      4.00    5.35     .44  2031.04     .00     .77     1.49     1.500     .000   .00   0    .0
        -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     -|-
    1.571    .0186                                          .0085      .01      .66    1.33      .54     .013      .00   .00  PIPE
         |         |        |         |         |       |       |         |       |        |        |       |       |       |
 1194.544  2029.968     .684  2030.652      4.00    5.10     .40  2031.06     .00     .77     1.49     1.500     .000   .00   0    .0
        -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     -|-
     .997    .0186                                          .0075      .01      .68    1.24      .54     .013      .00   .00  PIPE
         |         |        |         |         |       |       |         |       |        |        |       |       |       |
 1195.541  2029.987     .710  2030.696      4.00    4.86     .37  2031.06     .00     .77     1.50     1.500     .000   .00   0    .0
        -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     -|-
     .545    .0186                                          .0066      .00      .71    1.16      .54     .013      .00   .00  PIPE
         |         |        |         |         |       |       |         |       |        |        |       |       |       |
 1196.086  2029.997     .736  2030.733      4.00    4.63     .33  2031.07     .00     .77     1.50     1.500     .000   .00   0    .0
        -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     -|-
     .174    .0186                                          .0058      .00      .74    1.08      .54     .013      .00   .00  PIPE
FILE: SPRNLAT02.WSW                      W S P G W - CIVILDESIGN Version 14.06                                        PAGE    3
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                              Program Package Serial Number: 1911
                                                WATER SURFACE PROFILE LISTING                    Date:12-20-2018  Time:12:50:31
                          SYMPHONY PARK RESIDENTIAL TDS
                            KHA 192008001 - DECEMBER 2018
                              SD LATERAL 35-B REFERENCE UNION PARK TDS
 ********************************************************************************************************************** ********
          | Invert  |  Depth |  Water  |    Q    |  Vel     Vel  |  Energy | Super |Critical|Flow Top|Height/|Base Wt|       |No Wth
 Station  |  Elev   |  (FT)  |  Elev   |  (CFS)  | (FPS)    Head |  Grd.El.|  Elev | Depth  | Width  |Dia.-FT|or I.D.|  ZL   |Prs/Pip
        -|-       -|-      -|-       -|-       -|-     -|-      -|-       -|-      -|-       -|-     -|-     -|-    -|-
 L/Elem  |Ch Slope |        |         |         |         SF Ave |    HF   |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR   |Type Ch
 ********|*********|********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|*****  |*******
         |         |        |         |         |                 |         |       |        |        |       |       |       |
 1196.260  2030.000     .765  2030.766      4.00    4.41     .30  2031.07     .00     .77     1.50    1.500     .000   .00   0    .0
        -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
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1 T1 SYMPHONY PARK RESIDENTIAL TDS                                                    0
2 T2 KHA 192008001 - DECEMBER 2018
3 T3 SD LATERAL 36-A - REFERENCE UNION PARK TDS

4 SO   1508.7602028.950  1                          2030.746
5 R    1627.7602030.200  1      .013                                .000    .000 0
6 SH   1627.7602030.200  1                               .000

7 CD   1  4   0    .000   1.500     .000  .000  .000   .00

8 Q             4.000   .0
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FILE: SPRSLAT01.WSW W S P G W - CIVILDESIGN Version 14.06 PAGE 1

Program Package Serial Number: 1911

WATER SURFACE PROFILE LISTING Date:12-20-2018 Time:12:52:16

SYMPHONY PARK RESIDENTIAL TDS

KHA 192008001 - DECEMBER 2018

SD LATERAL 36-A - REFERENCE UNION PARK TDS

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
1508.760	2028.950	1.796	2030.746	4.00	2.26	.08	2030.83	.00	.77	.00	1.500	.000	.00	0 .0
32.694	.0105					.0014	.05	1.80	.00	.63	.013	.00	.00	PIPE
1541.454	2029.293	1.500	2030.793	4.00	2.26	.08	2030.87	.00	.77	.00	1.500	.000	.00	0 .0
14.206	.0105					.0013	.02	1.50	.00	.63	.013	.00	.00	PIPE
1555.660	2029.443	1.361	2030.803	4.00	2.37	.09	2030.89	.00	.77	.87	1.500	.000	.00	0 .0
7.839	.0105					.0013	.01	1.36	.30	.63	.013	.00	.00	PIPE
1563.499	2029.525	1.280	2030.805	4.00	2.49	.10	2030.90	.00	.77	1.06	1.500	.000	.00	0 .0
6.272	.0105					.0014	.01	1.28	.36	.63	.013	.00	.00	PIPE
1569.772	2029.591	1.214	2030.804	4.00	2.61	.11	2030.91	.00	.77	1.18	1.500	.000	.00	0 .0
5.336	.0105					.0016	.01	1.21	.40	.63	.013	.00	.00	PIPE
1575.108	2029.647	1.155	2030.802	4.00	2.74	.12	2030.92	.00	.77	1.26	1.500	.000	.00	0 .0
4.659	.0105					.0017	.01	1.16	.45	.63	.013	.00	.00	PIPE
1579.767	2029.696	1.103	2030.798	4.00	2.87	.13	2030.93	.00	.77	1.32	1.500	.000	.00	0 .0
4.119	.0105					.0019	.01	1.10	.49	.63	.013	.00	.00	PIPE
1583.885	2029.739	1.055	2030.794	4.00	3.01	.14	2030.93	.00	.77	1.37	1.500	.000	.00	0 .0
3.648	.0105					.0022	.01	1.05	.54	.63	.013	.00	.00	PIPE
1587.533	2029.777	1.010	2030.787	4.00	3.16	.16	2030.94	.00	.77	1.41	1.500	.000	.00	0 .0
3.210	.0105					.0024	.01	1.01	.59	.63	.013	.00	.00	PIPE

Program Package Serial Number: 1911

WATER SURFACE PROFILE LISTING Date:12-20-2018 Time:12:52:16

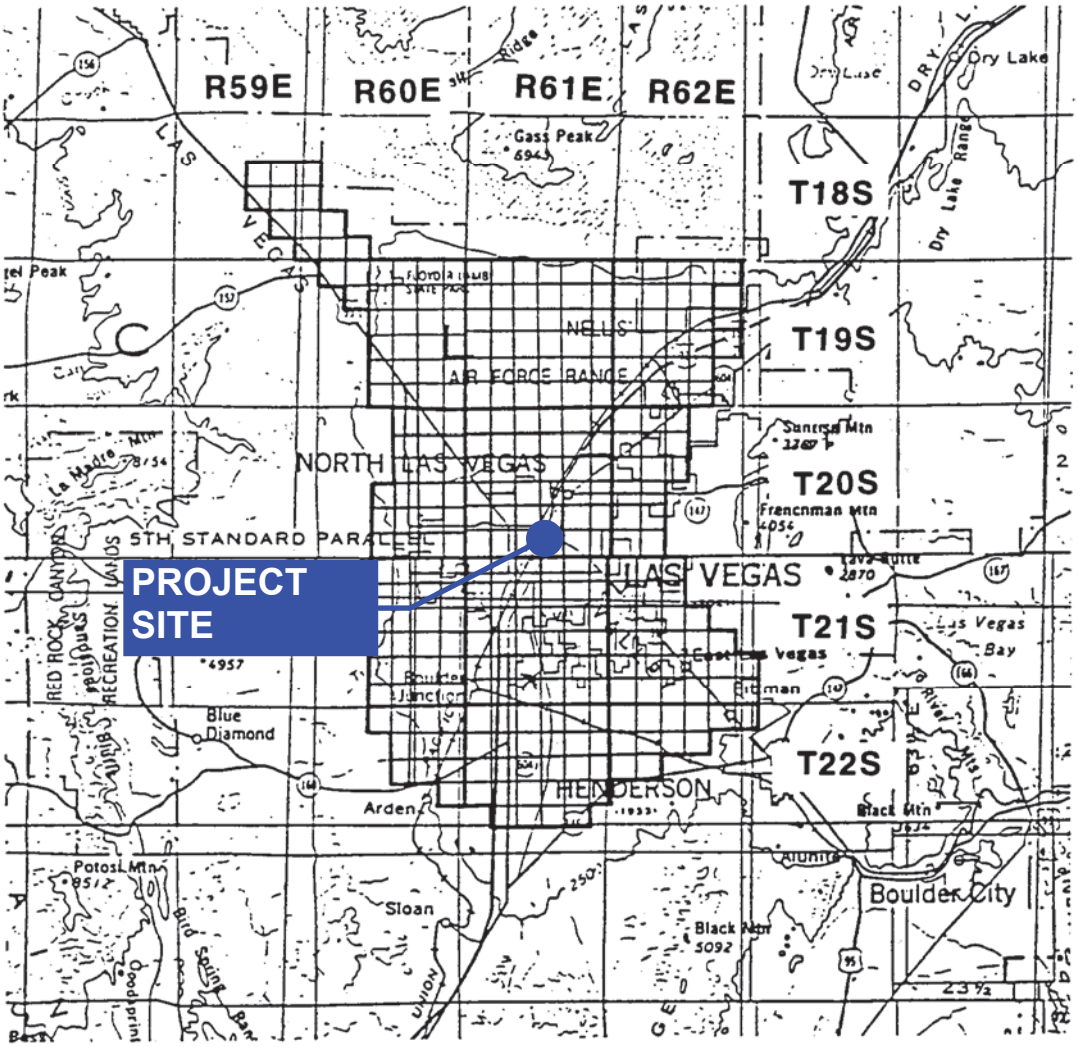
SYMPHONY PARK RESIDENTIAL TDS
KHA 192008001 - DECEMBER 2018
SD LATERAL 36-A - REFERENCE UNION PARK TDS

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
1590.744	2029.811	.969	2030.780	4.00	3.31	.17	2030.95	.00	.77	1.43	1.500	.000	.00	0 .0
2.816	.0105					.0027	.01	.97	.64	.63	.013	.00	.00	PIPE
1593.559	2029.841	.930	2030.770	4.00	3.48	.19	2030.96	.00	.77	1.46	1.500	.000	.00	0 .0
1.612	.0105					.0031	.00	.93	.69	.63	.013	.00	.00	PIPE
1595.171	2029.858	.893	2030.751	4.00	3.65	.21	2030.96	.00	.77	1.47	1.500	.000	.00	0 .0
HYDRAULIC JUMP														
1595.171	2029.858	.636	2030.494	4.00	5.61	.49	2030.98	.00	.77	1.48	1.500	.000	.00	0 .0
18.748	.0105					.0097	.18	.64	1.42	.63	.013	.00	.00	PIPE
1613.919	2030.055	.660	2030.714	4.00	5.35	.44	2031.16	.00	.77	1.49	1.500	.000	.00	0 .0
8.009	.0105					.0085	.07	.66	1.33	.63	.013	.00	.00	PIPE
1621.928	2030.139	.684	2030.823	4.00	5.10	.40	2031.23	.00	.77	1.49	1.500	.000	.00	0 .0
3.683	.0105					.0075	.03	.68	1.24	.63	.013	.00	.00	PIPE
1625.611	2030.177	.710	2030.887	4.00	4.86	.37	2031.25	.00	.77	1.50	1.500	.000	.00	0 .0
1.674	.0105					.0066	.01	.71	1.16	.63	.013	.00	.00	PIPE
1627.285	2030.195	.736	2030.931	4.00	4.63	.33	2031.26	.00	.77	1.50	1.500	.000	.00	0 .0
.475	.0105					.0058	.00	.74	1.08	.63	.013	.00	.00	PIPE
1627.760	2030.200	.765	2030.965	4.00	4.41	.30	2031.27	.00	.77	1.50	1.500	.000	.00	0 .0

Attachment E TDS Appendix B

APPENDIX B – HYDROLOGIC PARAMETERS & HEC-1 ANALYSIS

McCARRAN AIRPORT RAINFALL AREA



TOWNSHIP	RANGE	SECTIONS	TOWNSHIP	RANGE	SECTIONS
18 South	59 East	13-15,22-26,36	20 South	62 East	4-9,16-20,29-32
18 South	60 East	30-32	21 South	60 East	1-4,9-16,21-28,33-36
19 South	60 East	1-6,8-16,21-28,33-36	21 South	61 East	ALL SECTIONS
19 South	61 East	ALL SECTIONS	21 South	62 East	4-9,15-23, 25-36
19 South	62 East	2-11,14-23,27-34	22 South	60 East	1-4,10-15,24
20 South	60 East	1-3,10-15,21-28,33-36	22 South	61 East	1-24,26-29
20 South	61 East	ALL SECTIONS	22 South	62 East	1-10,17-18

Notes:
1. Refer to Table 505 and Figure 516 Depth-Duration- Frequency values in the McCarran Airport Rainfall Area.
2. Refer to Table 506 and Figure 517 for Time-Intensity-Frequency values on the McCarran Airport Rainfall Area.

Revision	Date

WRC ENGINEERING

REFERENCE:
USACE, Los Angeles District, 1988

FIGURE 513

SIX-HOUR STORM DISTRIBUTIONS

Storm Time (In Minutes)	Percent of Total Storm Depth SDN3	SDN4	SDN5	Storm Time (In Minutes)	Percent of Total Storm Depth SDN3	SDN4	SDN5
0	0.0	0.0	0.0	185	32.2	37.6	43.0
5	2.0	2.0	2.0	190	35.2	41.5	47.7
10	5.7	5.8	5.9	195	40.9	46.2	51.4
15	7.0	7.5	8.0	200	49.9	53.0	56.1
20	8.7	9.9	11.0	205	59.0	61.0	63.0
25	10.8	12.6	14.4	210	71.0	71.0	71.0
30	12.4	13.7	15.0	215	74.4	73.2	72.0
35	13.0	14.5	16.0	220	78.1	75.6	73.1
40	13.0	14.9	16.8	225	81.2	78.2	75.2
45	13.0	15.1	17.1	230	81.9	79.9	77.9
50	13.0	15.5	18.0	235	83.5	81.3	79.0
55	13.0	15.6	18.2	240	85.1	82.3	79.5
60	13.0	15.9	18.7	245	85.6	83.0	80.4
65	13.3	16.2	19.0	250	86.0	83.5	81.0
70	14.0	16.9	19.7	255	86.8	84.4	82.0
75	14.2	17.2	20.2	260	87.6	85.1	82.6
80	14.8	17.9	21.0	265	88.8	86.4	84.0
85	15.8	18.9	22.0	270	91.0	88.5	85.9
90	17.2	20.1	23.0	275	92.6	90.8	88.9
95	18.1	21.1	24.1	280	93.7	92.4	91.0
100	19.0	22.0	25.0	285	95.0	94.4	93.8
105	19.7	22.8	25.9	290	97.0	96.8	96.6
110	19.9	23.2	26.5	295	97.6	97.3	97.0
115	20.0	24.0	28.0	300	98.2	97.8	97.4
120	20.1	24.6	29.0	305	98.5	98.2	97.9
125	20.4	25.2	30.0	310	98.7	98.4	98.1
130	21.4	26.0	30.5	315	98.9	98.6	98.3
135	22.9	26.9	30.9	320	99.0	98.8	98.5
140	24.1	27.6	31.0	325	99.3	99.1	98.9
145	24.9	28.3	31.7	330	99.3	99.2	99.0
150	25.1	28.6	32.1	335	99.4	99.3	99.2
155	25.6	29.2	32.7	340	99.5	99.4	99.3
160	27.0	30.2	33.3	345	99.8	99.7	99.6
165	27.8	31.2	34.6	350	99.8	99.8	99.7
170	28.1	32.1	36.1	355	99.9	99.9	99.9
175	28.3	33.2	38.1	360	100.0	100.0	100.0
180	29.5	35.2	40.8				

Notes:
1. For drainage areas less than 8 square miles in size, use SDN 3.
2. For drainage areas greater than or equal to 8 square miles and less than 12 square miles in size, use SDN 4.
3. For drainage areas greater than or equal to 12 square miles, use SDN 5.
4. A graphical representation of these values is presented on **Figure 515**.

Revision	Date

REFERENCE:

TABLE 503

DEPTH-DURATION-FREQUENCY VALUES FOR McCARRAN AIRPORT RAINFALL AREA

(IN INCHES)

	RECURRENCE INTERVAL					
TIME	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
5 min.	0.15	0.27	0.35	0.46	0.54	0.63
10 min.	0.25	0.44	0.57	0.74	0.89	1.02
15 min.	0.33	0.57	0.74	0.97	1.15	1.32
30 min.	0.44	0.78	1.01	1.31	1.55	1.79
1 hour	0.52	0.89	1.15	1.50	1.78	2.06
2 hour	0.59	1.01	1.30	1.70	2.01	2.30
3 hour	0.64	1.08	1.39	1.82	2.15	2.48
6 hour	0.72	1.22	1.58	2.05	2.41	2.77
24 hour (TR-55)	1.20	1.60	1.80	2.40	2.70	2.96

NOTE: 1. Refer to Figure 513 for a description and drawing of the area included in the McCarran Airport Rainfall Area.

2. The 24 hour values presented above are for use with TR-55 only.

3. Table 501 adjustments not required.

Revision	Date

RUNOFF CURVE NUMBERS
(URBAN AREAS[1])

Cover description		Curve numbers for hydrologic soil group—			
Cover type and hydrologic condition	Average percent impervious area[2]	A	B	C	D
Fully developed urban areas (vegetation established)					
Open space (lawns, parks, golf courses, cemeteries, etc.)[3]:					
Poor condition (grass cover < 50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover > 75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved: curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved: open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only)[4]		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)		96	96	96	96
Urban districts:					
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					

See Table 602A

Developing urban areas					
Newly graded areas (pervious areas only, no vegetation)[5]		77	86	91	94

1 Average runoff condition, and $I_a = 0.2S$.

2 The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system. Impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using Figure 603.

3 CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.

4 Composite CN's for natural desert landscaping should be computed using Figure 603 based on the impervious area percentage (CN #98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.

5 Composite CN's to use for the design of temporary measures during grading and construction should be computed using Figure 603 based on the degree of development impervious area percentage) and the CN's for the newly graded pervious areas.

Revision	Date

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Las Vegas Valley Area, Nevada, Part of Clark County



October 12, 2018

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.



Map Scale: 1:1,210 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 15 30 60 90

Feet
0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Las Vegas Valley Area, Nevada, Part of Clark County
Survey Area Data: Version 13, Sep 14, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 26, 2013—Feb 25, 2014

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND	MAP INFORMATION
	imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
390	Spring clay loam	2.7	100.0%
Totals for Area of Interest		**2.7**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Las Vegas Valley Area, Nevada, Part of Clark County

390—Spring clay loam

Map Unit Setting

National map unit symbol: hrc0
Elevation: 1,600 to 2,000 feet
Mean annual precipitation: 4 to 6 inches
Mean annual air temperature: 66 to 68 degrees F
Frost-free period: 240 to 260 days
Farmland classification: Not prime farmland

Map Unit Composition

Spring and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Spring

Setting

Landform: Alluvial flats
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Lacustrine deposits derived from gypsum

Typical profile

H1 - 0 to 11 inches: clay loam
H2 - 11 to 43 inches: gypsiferous material
H3 - 43 to 60 inches: silty clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Gypsum, maximum in profile: 30 percent
Salinity, maximum in profile: Strongly saline (16.0 to 32.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 30.0
Available water storage in profile: Low (about 5.0 inches)

Interpretive groups

Land capability classification (irrigated): 6s
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C
Ecological site: SALINE BOTTOM (R030XY024NV)
Hydric soil rating: No

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL - STANDARD FORM 4

Development: SYMPHONY PARK RESIDENTIAL
Calculated by: AL/MS
Checked by: MS
Date: 11/14/2018

TIME OF CONCENTRATION - EXISTING CONDITION

SUB-BASIN DATA					INITIAL / OVERLAND TIME: t(i)				TRAVEL TIME t(t)				CONCENTRATION TIME t(c)			
DESIG:	AREA Acre	AREA Sq. Mi.	EX/DEV EX = 1 DEV = 2	CN	K	LENGTH Ft.	SLOPE %	t(i) Min	LENGTH Ft.	SLOPE %	VEL. FPS	t(t) Min	T_L Ft.	FINAL t(c)	t(c) URBANIZED = (L/180)+10 Min	t(lag) $=(0.6*T_L)/60$ Hr
EXISTING CONDITION:																
EON1	1.82	0.0028	2	98	0.9036	92	3.70	2.19	204	1.96	4.28	0.00	296	5.00	11.6	0.0500
EON2	1.76	0.0028	2	98	0.9036	187	2.89	3.39	280	0.14	1.16	1.00	467	5.00	12.6	0.0500
EOFF1	0.12	0.0002	2	98	0.9036	29	0.69	2.15	194	3.40	5.64	2.00	223	5.00	11.2	0.0500
EOFF2	0.17	0.0003	2	98	0.9036	31	1.29	1.81	252	0.91	2.92	3.00	283	5.00	11.6	0.0500
EOFF3	0.20	0.0003	2	98	0.9036	32	0.63	2.34	294	0.41	1.95	4.00	326	6.34	11.8	0.0634
EOFF4	0.12	0.0002	2	98	0.9036	26	0.77	1.97	201	3.63	5.83	5.00	227	6.97	11.3	0.0697

Equations Used. . .

t(i) = 1.8 x (1.1 - K) x L $^{1/2}$ / S $^{1/3}$

t(t) = L / (60 x V)

t(c) = t(i) + t(t)

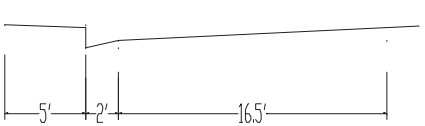
K = 0.0132 x CN - 0.39

For Developed Conditions:

Flow depth at top of curb - Velocity = 30.6 X (Slope)$^{1/2}$

n = 0.016

R = (A/P) ~ 0.187 ft.

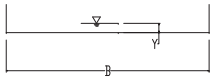


For Existing Conditions:

Wide Rectangular - Velocity = 29.4 X (Slope)$^{1/2}$

n = 0.040

R = (A/P) ~ y



```
1*****************************************                                  *****************************************
 *                                       *                                  *                                       *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *                                  *    U.S. ARMY CORPS OF ENGINEERS       *
 *               JUN   1998              *                                  *    HYDROLOGIC ENGINEERING CENTER      *
 *            VERSION 4.1                *                                  *          609 SECOND STREET            *
 *                                       *                                  *       DAVIS, CALIFORNIA 95616         *
 *  RUN DATE   15OCT18  TIME  08:17:59   *                                  *           (916) 756-1104              *
 *                                       *                                  *                                       *
 *****************************************                                  *****************************************


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


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

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


1                                                HEC-1 INPUT                                                          PAGE  1

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

                          *DIAGRAM
 *** FREE ***
               1          ID
               2          ID   ***********************************************
               3          ID   *          HYDROLOGIC ANALYSIS                *
               4          ID   *                FOR                          *
               5          ID   *         SYMPHONY PARK RESIDENTIAL           *
               6          ID   *            EXISTING CONDITION               *
               7          ID   *                                             *
               8          ID   ***********************************************
               9          ID
              10          ID   ****************************
              11          ID   *       10 & 100 YEAR       *
              12          ID   *        STORM EVENT        *
              13          ID   ****************************
              14          ID
                          *DIAGRAM
              15          IT       5       0       0     300
              16          IO       5       0       0
              17          IN       5       0       0
              18          JR    PREC    0.57    1.00

              19          KK    EON1
              20          KM    ONSITE BASIN 1
              21          BA   .0028
              22          PB    2.77
              23          PC    .000    .020    .057    .070    .087    .108    .124    .130    .130    .130
              24          PC    .130    .130    .130    .133    .140    .142    .148    .158    .172    .181
              25          PC    .190    .197    .199    .200    .201    .204    .214    .229    .241    .249
              26          PC    .251    .256    .270    .278    .281    .283    .295    .322    .352    .409
              27          PC    .499    .590    .710    .744    .781    .812    .819    .835    .851    .856
              28          PC    .860    .868    .876    .888    .910    .926    .937    .950    .970    .976
              29          PC    .982    .985    .987    .989    .990    .993    .993    .994    .995    .998
              30          PC    .998    .999   1.00
              31          LS       0      98
              32          UD   .0500
                          *

              33          KK   REON1
              34          KM    ROUTE EON1 TO CP1
              35          RD     351    0.10   0.013       0    TRAP       0       3
                          *

              36          KK    EON2
              37          KM    ONSITE BASIN 2
              38          BA   .0028
              39          LS       0      98
              40          UD   .0500
                          *
1                                                HEC-1 INPUT                                                          PAGE  2

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


              41          KK   EOFF4
              42          KM    OFFSITE BASIN ON CARSON AVENUE
              43          BA   .0002
              44          LS       0      98
              45          UD  0.0697
                          *

              46          KK     CP1
              47          KM    COMBINE EON1 & EON2 & EOFF4
```

```
             48           HC       3
                          *
             49           KK   EOFF1
             50           KM    OFFSITE BASIN ON PARK AVENUE
             51           BA   .0002
             52           LS       0      98
             53           UD   .0500
                          *

             54           KK   EOFF2
             55           KM    OFFSITE BASIN ON CITY PARKWAY
             56           BA   .0003
             57           LS       0      98
             58           UD   .0500
                          *

             59           KK   EOFF3
             60           KM    OFFSITE BASIN ON CITY PARKWAY
             61           BA   .0003
             62           LS       0      98
             63           UD   .0634
                          *
             64           ZZ
1
                 SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

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

    19        EON1
                V
                V
    33       REON1
                .
                .
    36           .        EON2
                 .           .
                 .           .
    41           .           .       EOFF4
                 .           .          .
                 .           .          .
    46         CP1.......................
                 .
                 .
    49           .       EOFF1
                 .           .
                 .           .
    54           .           .       EOFF2
                 .           .          .
                 .           .          .
    59           .           .          .       EOFF3

 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************                                  ****************************************
 *                                      *                                  *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                  *    U.S. ARMY CORPS OF ENGINEERS      *
 *               JUN   1998             *                                  *    HYDROLOGIC ENGINEERING CENTER     *
 *            VERSION 4.1               *                                  *          609 SECOND STREET           *
 *                                      *                                  *       DAVIS, CALIFORNIA 95616        *
 *  RUN DATE   15OCT18  TIME  08:17:59  *                                  *           (916) 756-1104             *
 *                                      *                                  *                                      *
 ****************************************                                  ****************************************


                           ********************************************
                           *          HYDROLOGIC ANALYSIS             *
                           *                FOR                       *
                           *         SYMPHONY PARK RESIDENTIAL         *
                           *            EXISTING CONDITION             *
                           *                                           *
                           ********************************************

                           ****************************
                           *       10 & 100 YEAR      *
                           *        STORM EVENT       *
                           ****************************


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

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

                    COMPUTATION INTERVAL     .08 HOURS
                         TOTAL TIME BASE   24.92 HOURS
```

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

      JP           MULTI-PLAN OPTION
                        NPLAN          1  NUMBER OF PLANS

      JR           MULTI-RATIO OPTION
                       RATIOS OF PRECIPITATION
                       .57      1.00
 1

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


                                                                        RATIOS APPLIED TO PRECIPITATION
  OPERATION       STATION     AREA    PLAN            RATIO 1  RATIO 2
                                                          .57     1.00

  HYDROGRAPH AT
 +                   EON1       .00     1   FLOW           4.       7.
                                            TIME         3.50     3.50

  ROUTED TO
 +                  REON1       .00     1   FLOW           4.       6.
                                            TIME         3.50     3.50

  HYDROGRAPH AT
 +                   EON2       .00     1   FLOW           4.       7.
                                            TIME         3.50     3.50

  HYDROGRAPH AT
 +                  EOFF4       .00     1   FLOW           0.       0.
                                            TIME         3.50     3.50

    3 COMBINED AT
 +                    CP1       .01     1   FLOW           7.      13.
                                            TIME         3.50     3.50

  HYDROGRAPH AT
 +                  EOFF1       .00     1   FLOW           0.       0.
                                            TIME         3.50     3.50

  HYDROGRAPH AT
 +                  EOFF2       .00     1   FLOW           0.       1.
                                            TIME         3.50     3.50

  HYDROGRAPH AT
 +                  EOFF3       .00     1   FLOW           0.       1.
                                            TIME         3.50     3.50
 1
                                        SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
                                            (FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)
                                                                                  INTERPOLATED TO
                                                                               COMPUTATION INTERVAL
             ISTAQ    ELEMENT      DT       PEAK    TIME TO     VOLUME      DT       PEAK    TIME TO     VOLUME
                                                        PEAK                                    PEAK

                                   (MIN)     (CFS)      (MIN)     (IN)     (MIN)     (CFS)     (MIN)       (IN)

            FOR PLAN = 1  RATIO=  .00
               REON1  MANE          .49      3.59    210.53      1.36      5.00      3.56    210.00        1.36


  CONTINUITY SUMMARY (AC-FT) - INFLOW= .2028E+00 EXCESS= .0000E+00 OUTFLOW= .2028E+00 BASIN STORAGE= .3472E-04 PERCENT ERROR=    .0


            FOR PLAN = 1  RATIO=  .00
               REON1  MANE          .42      6.44    210.23      2.54      5.00      6.40    210.00        2.54


  CONTINUITY SUMMARY (AC-FT) - INFLOW= .3792E+00 EXCESS= .0000E+00 OUTFLOW= .3792E+00 BASIN STORAGE= .3364E-04 PERCENT ERROR=    .0




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

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL - STANDARD FORM 4

Development: SYMPHONY PARK RESIDENTIAL
Calculated by: ACH
Checked by: BAH
Date: 11/14/2018

TIME OF CONCENTRATION - PROPOSED CONDITION

SUB-BASIN DATA					INITIAL / OVERLAND TIME: t(i)				TRAVEL TIME t(t)				CONCENTRATION TIME t(c)			
SUBBASIN ID	AREA Acre	AREA Sq. Mi.	EX/DEV EX = 1 DEV = 2	CN	K	LENGTH Ft.	SLOPE %	t(i) Min	LENGTH Ft.	SLOPE %	VEL. FPS	t(t) Min	T_L Ft.	FINAL t(c)	t(c) URBANIZED = (L/180)+10 Min	t(lag) $=(0.6*T_L)/60$ Hr
DEVELOPED CONDITIONS:																
PR05	0.40	0.0006	2	98	0.9036	300	1.40	5.47	5	0.50	2.16	0.04	305	5.51	11.7	0.0551
PR10	1.02	0.0016	2	98	0.9036	116	0.50	4.80	0	0.50	2.16	0.00	116	5.00	10.6	0.0500
PR15	0.77	0.0012	2	98	0.9036	98	0.60	4.15	0	0.60	2.37	0.00	98	5.00	10.5	0.0500
PR20	0.96	0.0015	2	98	0.9036	70	0.20	5.06	0	0.20	1.37	0.00	70	5.06	10.4	0.0506
PR25	0.60	0.0009	2	98	0.9036	300	0.20	10.47	351	0.50	2.16	2.70	651	13.17	13.6	0.1317
PR30	0.80	0.0013	2	98	0.9036	300	3.50	4.03	343	0.50	2.16	2.64	643	6.67	13.6	0.0667
PR35	0.30	0.0005	2	98	0.9036	193	1.20	4.62	193	1.20	3.35	0.96	386	5.58	12.1	0.0558

Equations Used. . .

$t(i) = 1.8 \times (1.1 - K) \times L^{1/2} / S^{1/3}$

$t(t) = L / (60 \times V)$

$t(c) = t(i) + t(t)$

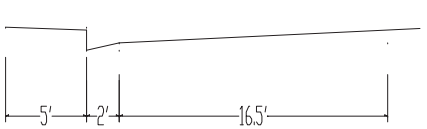
$K = 0.0132 \times CN - 0.39$

For Developed Conditions:

Flow depth at top of curb - Velocity = 30.6 X (Slope)$^{1/2}$

n = 0.016

R = (A/P) ~ 0.187 ft.

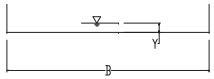


For Existing Conditions:

Wide Rectangular - Velocity = 29.4 X (Slope)$^{1/2}$

n = 0.040

R = (A/P) ~ y



```
1*****************************************                                                    ***************************************
 *                                       *                                                   *                                     *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *                                                   *    U.S. ARMY CORPS OF ENGINEERS     *
 *               JUN   1998              *                                                   *    HYDROLOGIC ENGINEERING CENTER    *
 *            VERSION 4.1                *                                                   *         609 SECOND STREET           *
 *                                       *                                                   *       DAVIS, CALIFORNIA 95616       *
 *  RUN DATE   12NOV18  TIME  08:43:44   *                                                   *           (916) 756-1104            *
 *                                       *                                                   *                                     *
 *****************************************                                                   ***************************************


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


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

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


1                                                  HEC-1 INPUT                                                                PAGE  1

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

                          *DIAGRAM
 *** FREE ***
               1          ID
               2          ID   ***********************************************
               3          ID   *          HYDROLOGIC ANALYSIS                *
               4          ID   *                FOR                          *
               5          ID   *         SYMPHONY PARK RESIDENTIAL           *
               6          ID   *            EXISTING CONDITION               *
               7          ID   *                                             *
               8          ID   ***********************************************
               9          ID
              10          ID   ****************************
              11          ID   *       10 & 100 YEAR       *
              12          ID   *        STORM EVENT        *
              13          ID   ****************************
              14          ID
                          *DIAGRAM
              15          IT       5       0       0     300
              16          IO       5       0       0
              17          IN       5       0       0
              18          JR    PREC    0.57    1.00

              19          KK    PR05
              20          KM    SOUTHERN PRIVATE STREET
              21          BA   .0006
              22          PB    2.77
              23          PC    .000    .020    .057    .070    .087    .108    .124    .130    .130    .130
              24          PC    .130    .130    .130    .133    .140    .142    .148    .158    .172    .181
              25          PC    .190    .197    .199    .200    .201    .204    .214    .229    .241    .249
              26          PC    .251    .256    .270    .278    .281    .283    .295    .322    .352    .409
              27          PC    .499    .590    .710    .744    .781    .812    .819    .835    .851    .856
              28          PC    .860    .868    .876    .888    .910    .926    .937    .950    .970    .976
              29          PC    .982    .985    .987    .989    .990    .993    .993    .994    .995    .998
              30          PC    .998    .999   1.00
              31          LS       0      98
              32          UD   .0551
                          *

              33          KK    PR10
              34          KM    ONSITE BASIN
              35          BA   .0016
              36          LS       0      98
              37          UD   .0500
                          *

              38          KK    PR15
              39          KM    ONSITE BASIN
              40          BA   .0012
              41          LS       0      98
              42          UD   .0500
                          *
1                                                  HEC-1 INPUT                                                                PAGE  2

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


              43          KK    PR20
              44          KM    ONSITE BASIN
              45          BA   .0016
              46          LS       0      98
              47          UD   .0506
                          *
```

```
102             48           KK    PR25
103             49           KM    EAST PRIVATE STREET
104             50           BA   .0009
105             51           LS       0      98
106             52           UD   .1317
107                          *
108
109             53           KK    PR30
110             54           KM    WEST PRIVATE STREET
111             55           BA   .0013
112             56           LS       0      98
113             57           UD   .0667
114                          *
115
116             58           KK    PR35
117             59           KM    NORTHERN PRIVATE STREET
118             60           BA   .0005
119             61           LS       0      98
120             62           UD   .0558
121             63           ZZ
122 1
123                 SCHEMATIC DIAGRAM OF STREAM NETWORK
124  INPUT
125   LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW
126
127    NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW
128
129     19        PR05
130                  .
131                  .
132     33           .        PR10
133                  .           .
134                  .           .
135     38           .           .        PR15
136                  .           .           .
137                  .           .           .
138     43           .           .           .        PR20
139                  .           .           .           .
140                  .           .           .           .
141     48           .           .           .           .        PR25
142                  .           .           .           .           .
143                  .           .           .           .           .
144     53           .           .           .           .           .        PR30
145                  .           .           .           .           .           .
146                  .           .           .           .           .           .
147     58           .           .           .           .           .           .        PR35
148
149  (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
150 1****************************************                                                  ****************************************
151  *                                      *                                                  *                                      *
152  *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                                  *    U.S. ARMY CORPS OF ENGINEERS      *
153  *               JUN   1998             *                                                  *    HYDROLOGIC ENGINEERING CENTER     *
154  *            VERSION 4.1               *                                                  *          609 SECOND STREET           *
155  *                                      *                                                  *       DAVIS, CALIFORNIA 95616        *
156  *  RUN DATE   12NOV18  TIME  08:43:44  *                                                  *           (916) 756-1104             *
157  *                                      *                                                  *                                      *
158  ****************************************                                                  ****************************************
159
160
161
162
163
164
165                            *********************************************
166                            *          HYDROLOGIC ANALYSIS              *
167                            *                FOR                        *
168                            *         SYMPHONY PARK RESIDENTIAL         *
169                            *            EXISTING CONDITION             *
170                            *                                           *
171                            *********************************************
172
173                            ****************************
174                            *       10 & 100 YEAR      *
175                            *        STORM EVENT       *
176                            ****************************
177
178
179    16 IO          OUTPUT CONTROL VARIABLES
180                         IPRNT           5  PRINT CONTROL
181                         IPLOT           0  PLOT CONTROL
182                         QSCAL          0.  HYDROGRAPH PLOT SCALE
183
184        IT          HYDROGRAPH TIME DATA
185                          NMIN           5  MINUTES IN COMPUTATION INTERVAL
186                         IDATE      1    0  STARTING DATE
187                         ITIME         0000  STARTING TIME
188                           NQ          300  NUMBER OF HYDROGRAPH ORDINATES
189                        NDDATE      2    0  ENDING DATE
190                        NDTIME         0055  ENDING TIME
191                        ICENT           19  CENTURY MARK
192
193                      COMPUTATION INTERVAL     .08 HOURS
194                           TOTAL TIME BASE   24.92 HOURS
195
196              ENGLISH UNITS
197                   DRAINAGE AREA         SQUARE MILES
198                   PRECIPITATION DEPTH   INCHES
199                   LENGTH, ELEVATION     FEET
200                   FLOW                  CUBIC FEET PER SECOND
201                   STORAGE VOLUME        ACRE-FEET
202                   SURFACE AREA          ACRES
```

```
                TEMPERATURE           DEGREES FAHRENHEIT

      JP          MULTI-PLAN OPTION
                        NPLAN           1  NUMBER OF PLANS

      JR          MULTI-RATIO OPTION
                      RATIOS OF PRECIPITATION
                      .57      1.00
1

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


                                                                          RATIOS APPLIED TO PRECIPITATION
 OPERATION       STATION     AREA    PLAN            RATIO 1  RATIO 2
                                                         .57     1.00

 HYDROGRAPH AT
+                   PR05       .00     1   FLOW           1.       1.
                                           TIME         3.50     3.50

 HYDROGRAPH AT
+                   PR10       .00     1   FLOW           2.       4.
                                           TIME         3.50     3.50

 HYDROGRAPH AT
+                   PR15       .00     1   FLOW           2.       3.
                                           TIME         3.50     3.50

 HYDROGRAPH AT
+                   PR20       .00     1   FLOW           2.       4.
                                           TIME         3.50     3.50

 HYDROGRAPH AT
+                   PR25       .00     1   FLOW           1.       2.
                                           TIME         3.58     3.58

 HYDROGRAPH AT
+                   PR30       .00     1   FLOW           2.       3.
                                           TIME         3.50     3.50

 HYDROGRAPH AT
+                   PR35       .00     1   FLOW           1.       1.
                                           TIME         3.50     3.50


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

Attachment F Reference Material

- Excerpts from Technical Drainage Study for Union Park and Addenda; Prepared by Kimley-Horn and Associates. Dated January 8, 2008 (DS4486)
- Email chain for proposed storm drain relocation

DS4486

Technical Drainage Study Update No. 3

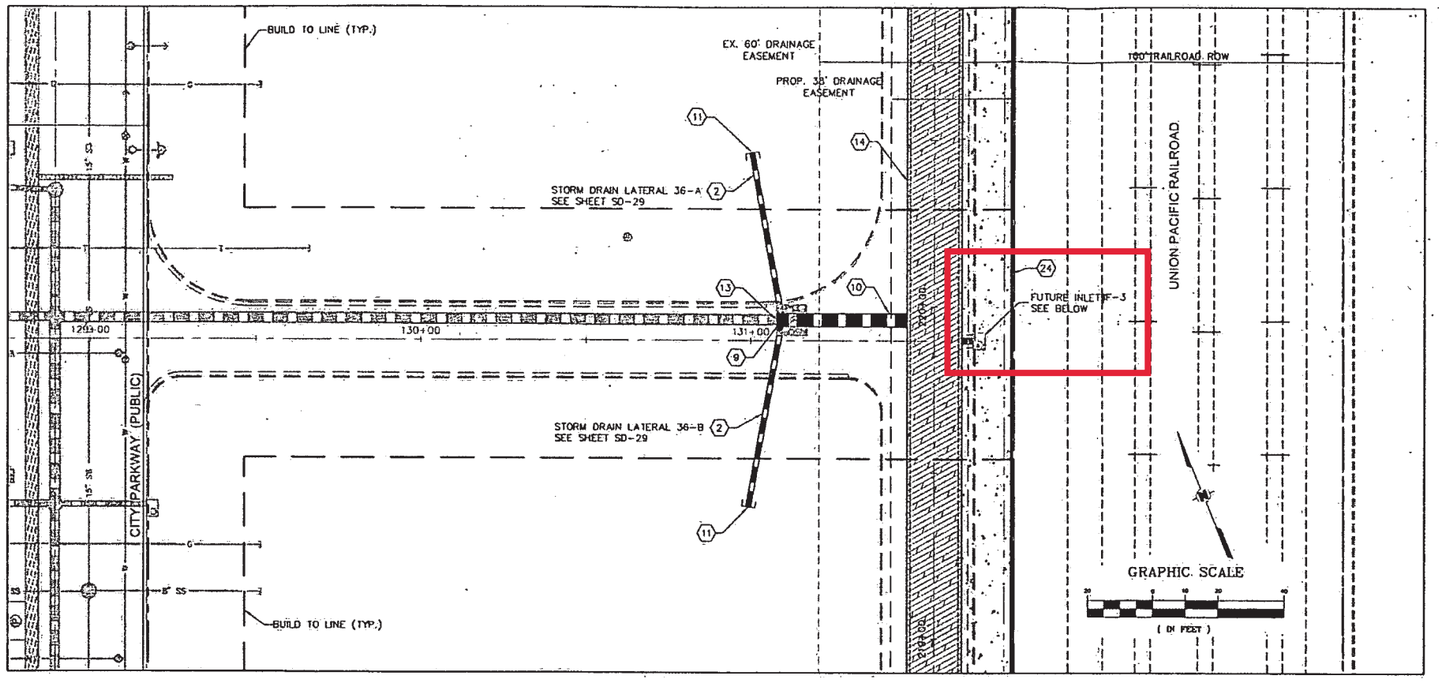
Received
10/27/08
Flood Control

Union Park

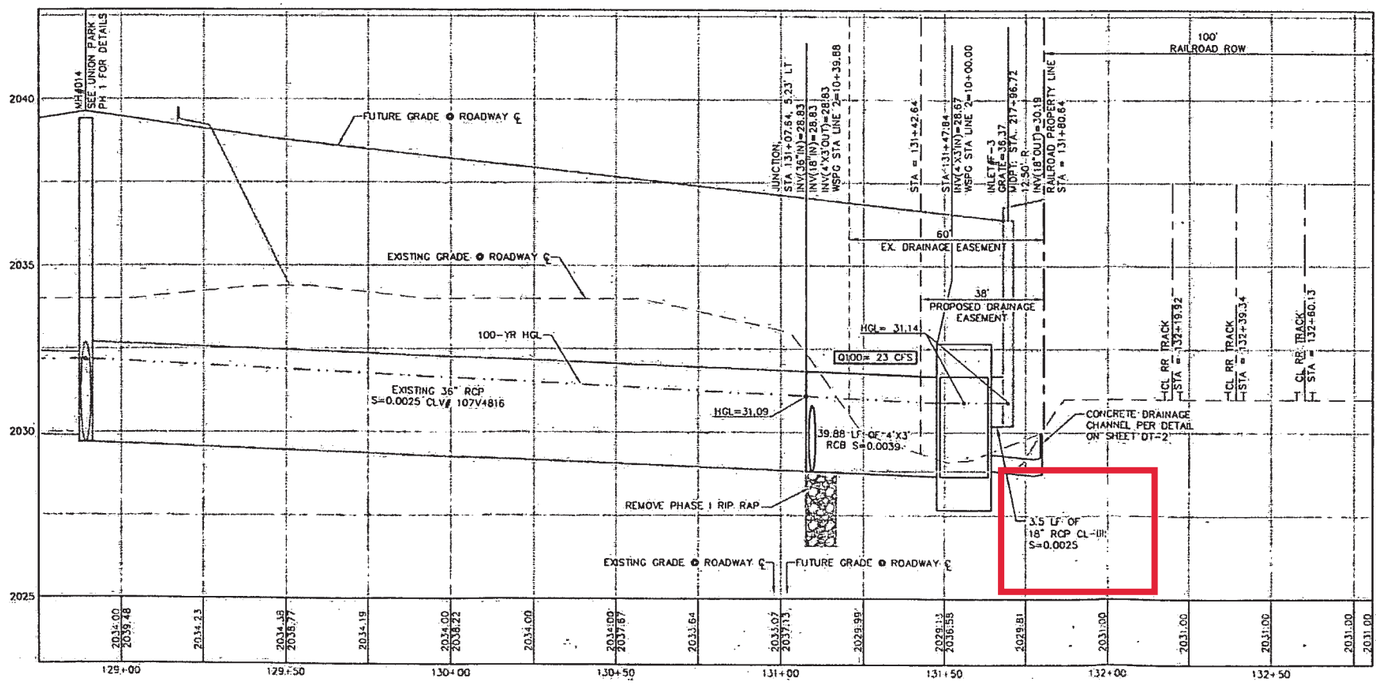
Prepared for: City Parkway IV, Inc. &
City Parkway V, Inc.

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092587000

Kimley-Horn
and Associates, Inc.

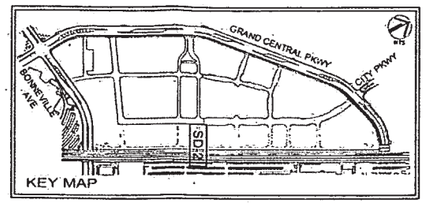


PLAN VIEW - DISCOVERY 2 DRIVE



PROFILE VIEW - DISCOVERY 2 DRIVE

SCALE: (H) 1" = 20'
(V) 1" = 2'



BASIS OF BEARING

NORTH 03°50'03" WEST, BEING THE BEARING OF A PORTION OF THE CENTERLINE OF GRAND CENTRAL PARKWAY, AS SHOWN IN BOOK 43, PAGE 61 OF PLATS ON FILE AT THE CLARK COUNTY, NEVADA RECORDER'S OFFICE.

BENCHMARK

CITY OF LAS VEGAS VERTICAL CONTROL POINT "0LV01 33E6", BEING A RIVET AND PLATE IN TOP OF CURB AT NW CORNER OF BONNEVILLE AVENUE & GRAND CENTRAL PARKWAY.

ELEVATION: 2036.09 (FEET)
620.6014 (METERS)
CITY OF LAS VEGAS VERTICAL CONTROL v.2002 BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).

STORM DRAIN NOTES

(2) INSTALL 18" RCP STORM DRAIN LATERAL (CLASS III), SEE LATERAL PROFILE ON SHEET NOTED PER PLAN.

(9) CONNECT 18" STORM DRAIN LATERALS TO 4'X3' RCB, PER DETAIL ON SHEET ST-5 AND CLARK COUNTY STD. SPECS.

(10) INSTALL 4'X3' REINFORCED CONCRETE BOX CULVERT PER SHEETS ST-1 - ST-5.

(11) CAP AND MARK END OF DRAIN, SEE DETAIL ON SHEET DT-2.

(13) REMOVE PHASE I RIP RAP; CONNECT EX. 36" RCP TO PROP. 4'X3' RCB PER DETAIL ON SHEET ST-5 AND CLARK COUNTY STD. SPECS.

(14) INSTALL 15'X3' PRE CAST REINFORCED CONCRETE BOX CULVERT. (SEE ST SHEETS)

(24) INSTALL CONCRETE DRAINAGE CHANNEL. SEE SHEET DT-2 FOR DETAIL.

GENERAL NOTES

1. PROTECT ALL EXISTING UNDERGROUND UTILITIES IN PLACE DURING EXCAVATION BACKFILL.
2. ALL SD PLAN-VIEW DIMENSIONS ARE SHOWN FROM ℄ OF PIPE TO ℄ OF PIPE(OR OUTSIDE DIAMETER OF SDMH TO OUTSIDE DIAMETER OF ADJACENT SSMH).
3. SEE SHEETS ST-1 THROUGH ST-5 FOR BOX CULVERT DETAILS.

Avoid cutting underground utility lines. It's costly.
Call before you Dig
1-800-227-2600

SAFETY ALERT
Call Before You Overhead
1-702-227-2929

Call before you UnderGround
1-702-455-7511
CLARK COUNTY TRAFFIC SIGNS AND SIGNALS
1-702-229-6611
LAS VEGAS AREA CONTROLLED TRAFFIC SIGNALS

H# 24669

REV	DATE	BY	REVISION

DRAWN BY: KHA | DESIGNED BY: PAB | CHECKED BY: DOW
SCALE (V): 1"=20' | SCALE (H): 1"=2' | DATE: January 2008

Kimley-Horn and Associates, Inc.
Engineering, Planning, and Environmental Consultants
7250 East Flamingo Road Suite 210
Las Vegas, Nevada 89119
TEL No. (702) 734-5565
FAX No. (702) 735-4958

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CITY OF LAS VEGAS NEVADA

DEPARTMENT OF PUBLIC WORKS

PROJECT: UNION PARK" PHASE 2

SHEET: DISCOVERY 2 DRIVE STORM DRAIN PLAN & PROFILE

PROFESSIONAL ENGINEER - STATE OF NEVADA
DAVID D. WILSON
Exp. 6/30/08
CIVIL
No. 8441

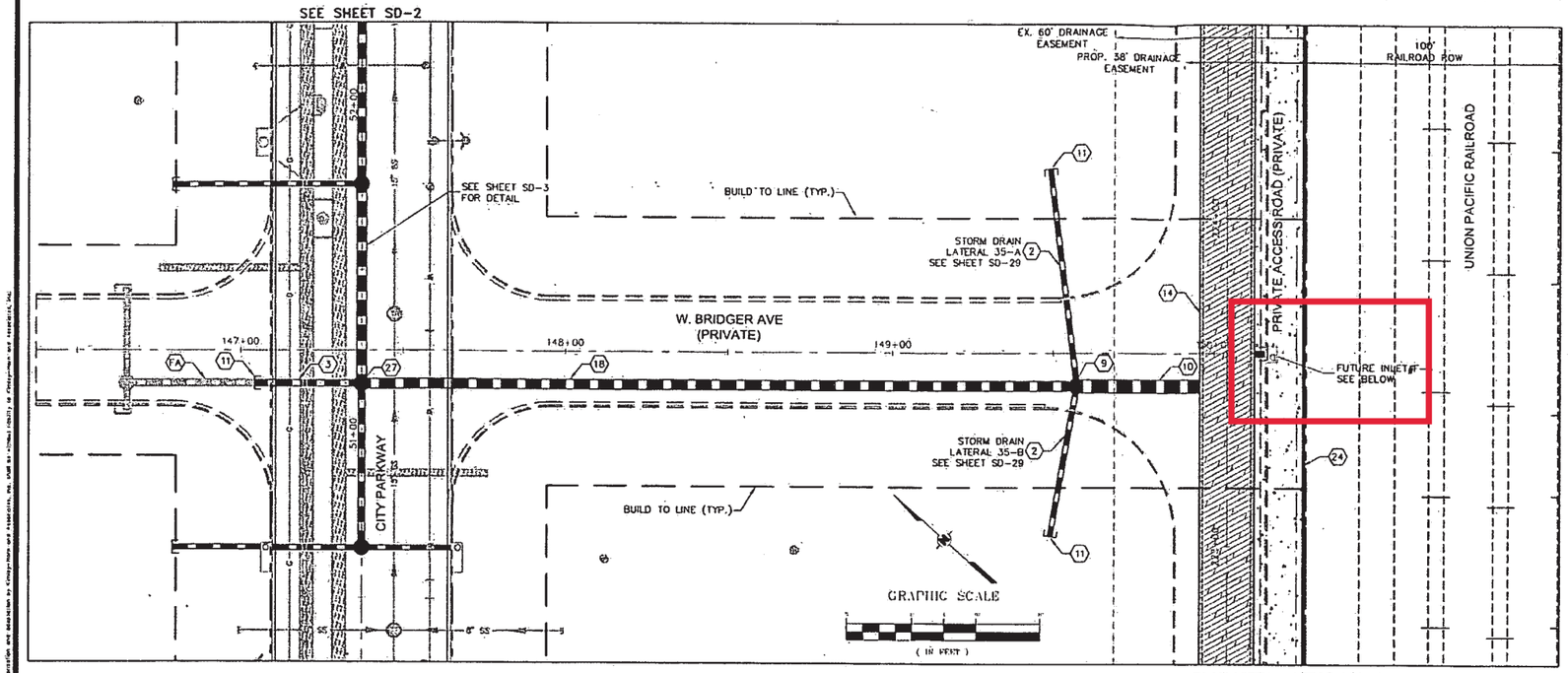
REVIEW ONLY

SHEET NO. SD-2
SHEET 18 OF 172
DRAWING NO. 107V4816

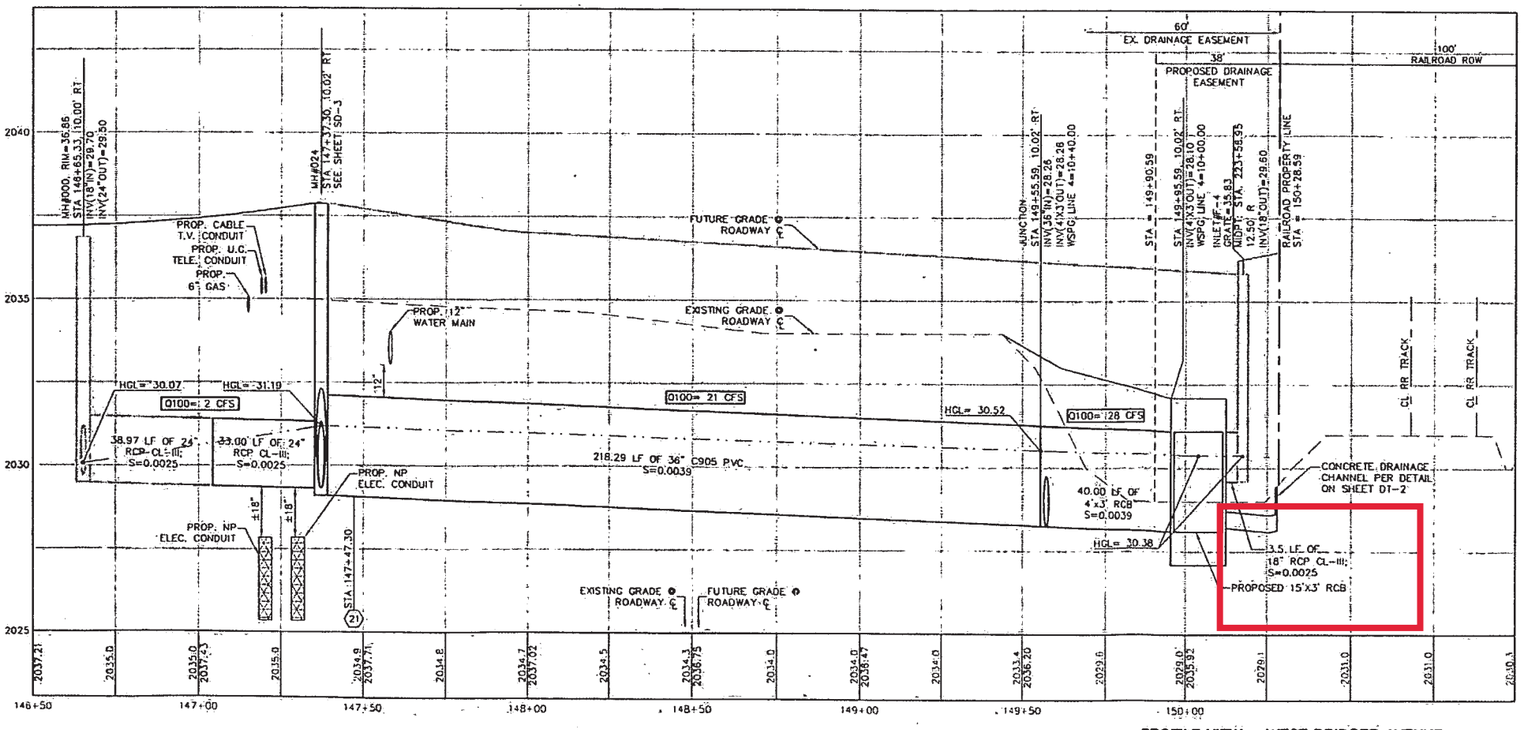
BID# 08.173032

092587004 - UNION PARK PHASE 2

Date: January 07, 2008 - 11:28am / User: fernando.cast
File: S:\Civil\092587004\Drawings\Sheets\SD\092587004-SD-Discovery.dwg
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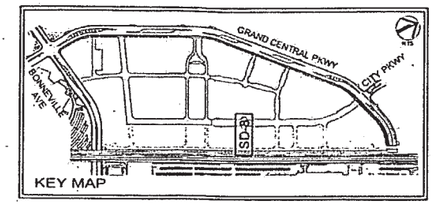


PLAN VIEW - WEST BRIDGER AVENUE



PROFILE VIEW - WEST BRIDGER AVENUE

SCALE: (H) 1" = 20'
(V) 1" = 2'



BASIS OF BEARING

NORTH 03°50'03" WEST, BEING THE BEARING OF A PORTION OF THE CENTERLINE OF GRAND CENTRAL PARKWAY, AS SHOWN IN BOOK 43, PAGE 61 OF PLATS ON FILE AT THE CLARK COUNTY, NEVADA RECORDER'S OFFICE.

BENCHMARK

CITY OF LAS VEGAS VERTICAL CONTROL POINT "OLV01 33E6", BEING A RIVET AND PLATE IN TOP OF CURB AT NW CORNER OF BONNEVILLE AVENUE & GRAND CENTRAL PARKWAY.

ELEVATION: 2036.09 (FEET)
620.6014 (METERS)
CITY OF LAS VEGAS VERTICAL CONTROL v.2002 BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).

STORM DRAIN NOTES

(2) INSTALL 18" RCP STORM DRAIN LATERAL (CLASS III). SEE LATERAL PROFILE ON SHEET NOTED PER PLAN.

(3) INSTALL 24" RCP STORM DRAIN PIPE (CLASS III).

(9) CONNECT 18" STORM DRAIN LATERALS TO 4'X3' RCB. PER DETAIL ON SHEET ST-5 AND CLARK COUNTY STD. SPECS.

(10) INSTALL 4'X3' REINFORCED CONCRETE BOX CULVERT PER SHEETS ST-1 - ST-5.

(11) CAP AND MARK END OF DRAIN. SEE DETAIL ON SHEET DT-2.

(14) INSTALL 15'X3' PRE CAST REINFORCED CONCRETE BOX CULVERT. (SEE ST SHEETS)

(18) INSTALL 36" TYPE C905 PVC PER AWWA STANDARDS.

(21) SANITARY SEWER CROSSING LOCATION: ELEVATION IS OUTSIDE THE PROFILE.

(24) INSTALL CONCRETE DRAINAGE CHANNEL. SEE SHEET DT-2 FOR DETAIL.

(27) INSTALL 60" TYPE III MANHOLE PER CCAUSD No. 406.

GENERAL NOTES

1. PROTECT ALL EXISTING UNDERGROUND UTILITIES IN PLACE DURING EXCAVATION BACKFILL.
2. ALL SD PLAN-VIEW DIMENSIONS ARE SHOWN FROM ℄ OF PIPE TO ℄ OF PIPE(OR OUTSIDE DIAMETER OF SDMH TO OUTSIDE DIAMETER OF ADJACENT SSMH).
3. SEE SHEETS ST-1 THROUGH ST-5 FOR BOX CULVERT DETAILS.

Avoid cutting underground utility lines. It's costly. Call before you Dig 1-800-227-2600

SAFETY ALERT Call Before You Overhead 1-702-227-2929

Call before you UnderGround 1-702-455-7511 CLARK COUNTY BURIED UTILITIES AND 1-702-229-6611 LAS VEGAS AREA CONFIDENTIAL UTILITIES

H# 24669

DRAWN BY:	KHA	DESIGNED BY:	PAB	CHECKED BY:	DDW
SCALE (H):	1"=20'	SCALE (V):	1"=2'	DATE:	January 2008

Kimley-Horn and Associates, Inc.
Engineering, Planning, and Environmental Consultants
2035 East Flamingo Road Suite 310
Las Vegas, Nevada 89119
TEL No. (702) 734-5866
FAX No. (702) 735-4949

REV	DATE	REVISION
		BY

092587004 - UNION PARK PHASE 2

DEPARTMENT OF PUBLIC WORKS

PROJECT: UNION PARK PHASE 2

SHEET: WEST BRIDGER AVE STORM DRAIN PLAN & PROFILE

PROFESSIONAL ENGINEER-STATE OF NEVADA DAVID D. WILSON Exp. 6/30/08 CIVIL No. 8441

REVIEW ONLY

SHEET NO. SD-8
SHEET 45 OF 122
DWG NO. 107V4816

BID# 08T30332

Date: January 07, 2008 - 11:37am / User: fernandom
I:\LVDOT\Projects\092587004\SD\587004-SD-Cover.dwg
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Hammersland, Brice

Subject: FW: Symphony Park Bridger SD Relocation (DS 5068)

From: Albert Sung <YSung@LasVegasNevada.GOV>
Sent: Wednesday, December 12, 2018 9:59 AM
To: Ackeret, Thomas <thomas.ackeret@kimley-horn.com>
Cc: Oh-Sang Kwon <okwon@LasVegasNevada.GOV>
Subject: RE: Symphony Park Bridger SD Relocation (DS 5068)

Hi Thomas,

It appears that the proposed relocation of the 36”-RCP will be within the landscaping area and below some trees. If the trees are deep rooted, they may damage the storm drain in the future and need frequent maintenance. Please address how the storm drain will be protected and will not cause maintenance headache for the City in the future. Also, are there other utilities lines adjacent to the storm drain?

If the above concerns are addressed, the proposed relocation with a dedicated public drainage easement will be acceptable.

Albert Y. Sung
Project Engineer
Public Works Dept. / Flood Control
(702) 229-6541
333 N. Rancho Dr. 7th Floor
Las Vegas, NV 89106

lasvegasnevada.gov

Your opinion is important! Click here to take a short survey.

From: Ackeret, Thomas <thomas.ackeret@kimley-horn.com>
Sent: Tuesday, December 11, 2018 11:04 AM
To: Albert Sung <YSung@LasVegasNevada.GOV>
Cc: Hammersland, Brice <Brice.Hammersland@kimley-horn.com>
Subject: FW: Symphony Park Bridger SD Relocation (DS 5068)

Albert-

Following up on the voicemail I left you. We are in the process of addressing the TDS comments received last week but wanted to clarify Comment 12. The portion of that comment we are looking to clarify states, “Relocate the proposed 36”-RCP to within the City Parkway right-of-way. The City is not maintaining any storm drain in private property.”

To clarify, we had coordinated this design with the City back in May and had received the below email acceptance of the concept. If we add a “Public Drainage Easement to be Privately Maintained” along the proposed routing, will that allow us to maintain the design as-is? Additionally, the roadways within Symphony Park were master planned with all of the utilities needed to support the future developments, as-such there does not appear to be a clear route within City Parkway (with the required separations) to locate this new pipe.

We are working with EUD (Economic and Urban Development) to get the TDS resubmitted back to the City before the end of the year.

Should you have any questions, or need anything additional, please do not hesitate to reach out.

Thanks-

Thomas Ackeret, P.E. (NV, TX), PTOE, P.Eng
Kimley-Horn | 6671 Las Vegas Boulevard South, Suite 320 Las Vegas, NV 89119
Direct: 702-862-3608 | Mobile: 702-978-9103 | Main: 702-862-3600
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From: Peter Jackson <pjackson@LasVegasNevada.GOV>
Sent: Wednesday, May 16, 2018 7:52 AM
To: Ortiz, Tony <Tony.Ortiz@kimley-horn.com>; Randy McConnell <rmcconnell@LasVegasNevada.GOV>
Cc: Oh-Sang Kwon <okwon@LasVegasNevada.GOV>; Albert Sung <YSung@LasVegasNevada.GOV>; Ackeret, Thomas <thomas.ackeret@kimley-horn.com>
Subject: RE: Symphony Park Bridger SD Relocation

Flood Control takes no exception to the concept of relocating the storm drain from Bridger to Carson.

Detailed hydraulics & hydrology will be required for the storm drain system with the drainage study for your proposed development.
The existing storm drain shall be removed with the construction of the relocated storm drain and the connection to the RCB plugged.
The final size of the storm drain will be determined with the drainage study analysis.
The storm drain pipe “n-value” needs to be 0.013 per the Manual requirements.
Drainage easement is required for the storm drain outside of right-of-way. Easement width is 20-foot.
Pipe material is RCP or water quality (C905).
Manholes outside of the right-of-way/roadways need to be accessible for cleaning and maintenance.

Flood Control concurs with the concept of adding a new storm drain stub at Carson at this time for the ease of the proposed storm drain relocation.
Once the RCB is complete, it will be more costly for the developer to add a new stub connection to the RCB.
The costs associated with adding the stub to the plans and constructing the new stub is a developer cost and needs to be coordinated to allow this change to the plans.

Coordinate your proposed changes with the Project Manager, Randy McConnell.
Thanks,

Peter Jackson, CFM
Senior Engineering Associate
City of Las Vegas | Dept. of Public Works
City Engineering Division, Flood Control Section
Development Service Center (DSC) 7th Floor
333 North Rancho Drive | Las Vegas, Nevada 89106

Work: 702-229-5266 Link: www.lasvegasnevada.gov
pjackson@lasvegasnevada.gov

"Building Community to Make Life Better"

Your opinion is important! Click here to take a short survey.

From: Ortiz, Tony [mailto:Tony.Ortiz@kimley-horn.com]
Sent: Tuesday, May 15, 2018 9:50 AM
To: Oh-Sang Kwon
Cc: Albert Sung; Ackeret, Thomas; Randy McConnell; Peter Jackson
Subject: Symphony Park Bridger SD Relocation

Oh-Sang,

Per our meeting last Thursday regarding the relocation of the 36" SD line from Bridger to the future Carson Ave. alignment, we ran some calcs to confirm that the pipe will still contain the 21 CFS shown on the original plan. I am attaching a printout of the Flow Master sheet showing that the pipe will work at the flatter slope. I have also attached the original design sheet and the concept plan for reference. Please let me know if you require any additional information to allow us to relocate the connection to the box.

Thank you,
Tony Ortiz, P.E.
Kimley-Horn | 6671 Las Vegas Boulevard South, #320, Las Vegas, NV 89119
Mobile: 702 812 7409 | Direct: 702 862 3696
tony.ortiz@kimley-horn.com
Connect with us: Twitter| LinkedIn | Facebook | YouTube

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Attachment G Plans

CIVIL IMPROVEMENT PLANS

FOR

SYMPHONY PARK RESIDENTIAL

PORTION OF APN: 139-34-110-012
LAS VEGAS, NEVADA

This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

PROJECT CONTACTS

CIVIL ENGINEER
KIMLEY-HORN AND ASSOCIATES, INC.
6671 LAS VEGAS BOULEVARD SOUTH, SUITE 320
LAS VEGAS, NEVADA 89119

CONTACT: THOMAS ACKERET, P.E.
(702) 862-3608

LAND SURVEYOR
HERITAGE SURVEYING
1895 VILLAGE CENTER CIRCLE
LAS VEGAS, NV 89134

CONTACT: DENNIS LAYTON, R/PLS, WRS, CFEDS
(702) 474-6277

ARCHITECT
CALLISONRTKL INC.
1717 PACIFIC AVE.
DALLAS, TX 75201

CONTACT: CRISTI LANDRUM
(214) 465-7692

PROJECT INFORMATION

CURRENT ZONING: PLANNED DEVELOPMENT DISTRICT (PD)
ACREAGE: ±3.7 ACRES

FLOOD ZONE NOTE

THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) INDICATES THAT THE SITE IS LOCATED IN ZONE "X" OF THE FLOOD INSURANCE RATE MAP (FIRM) No. 32003C2170F AS SHOWN ON THE FIRM INDEX REVISED NOVEMBER 16, 2011. ZONE "X" IS DEFINED BY FEMA AS "AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN."

BENCHMARK

CITY OF LAS VEGAS VERTICAL CONTROL
BENCHMARK NO. "BLV013ZNE6"

MONUMENT DESCRIPTION IN RIVET & PLATE IN TOP OF CURB AT THE SOUTHWEST CORNER OF SYMPHONY PARK AVENUE AND GRAND CENTRAL PARKWAY.

ELEVATION = 619.999 METERS
2034.12 FEET

CITY OF LAS VEGAS VERTICAL CONTROL DATUM BASED UPON NORTH AMERICAN VERTICAL DATUM OF 2008 (NAVD '88)

BASIS OF BEARING

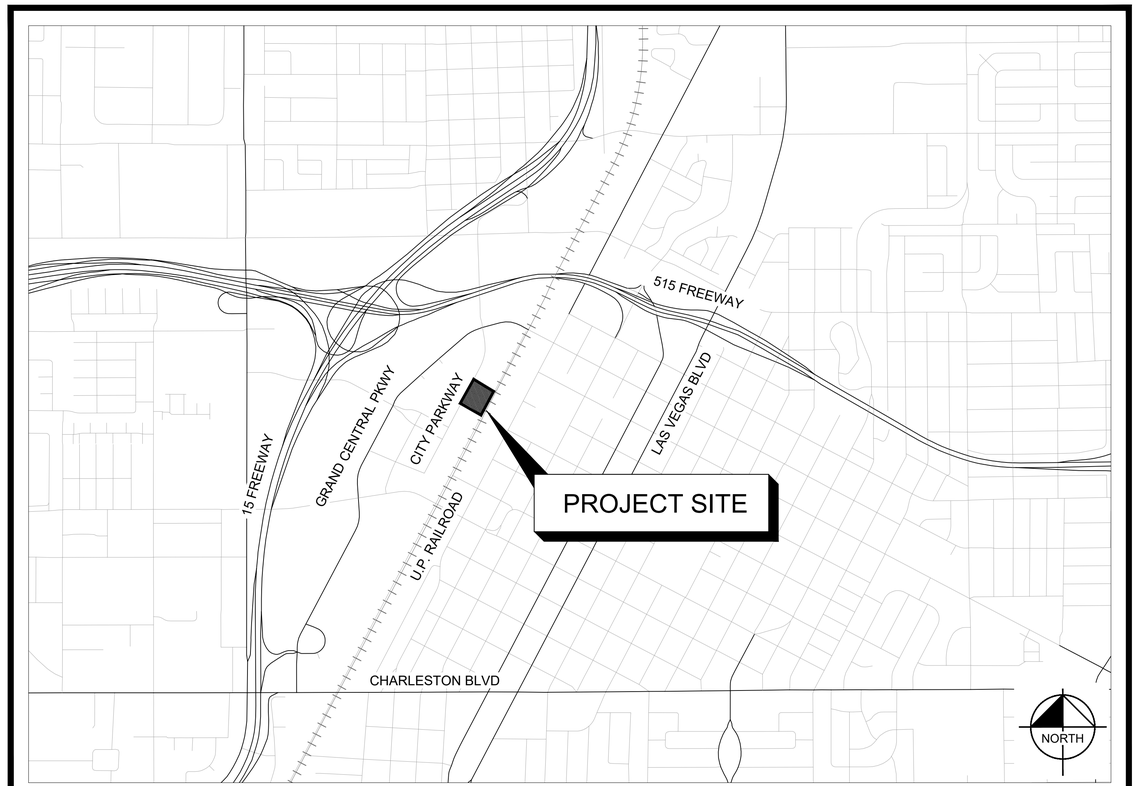
SOUTH 27°55'16" WEST, BEING THE EAST LINE OF LOT 5 OF THAT COMMERCIAL SUBDIVISION KNOWN AS "PARKWAY CENTER" ON FILE IN THE OFFICE OF THE COUNTY RECORDER, CLARK COUNTY, NEVADA IN BOOK 53 OF PLATS, AT PAGE 61.

UTILITY NOTE

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SHEET INDEX

SHEET NO.	SHEET TITLE	REV NO. 1	2	3	4
C0.1	COVER SHEET				
C0.2	GENERAL NOTES				
C3.1	ONSITE GRADING PLAN 1				
C3.2	ONSITE GRADING PLAN 2				
C3.3	ENLARGED GRADING DETAILS SHEET 1				
C3.4	ENLARGED GRADING DETAILS SHEET 2				
C3.5	ENLARGED GRADING DETAILS SHEET 3				
C3.6	GRADING SECTIONS SHEET 1				
C3.7	GRADING SECTIONS SHEET 2				
C3.8	GRADING & STORM DRAIN DETAIL SHEET 1				
C3.9	GRADING & STORM DRAIN DETAIL SHEET 2				
C3.10	ONSITE STORM DRAIN PLAN 1				
C3.11	ONSITE STORM DRAIN PLAN 2				
C3.12	STORM DRAIN PLAN & PROFILE 1				
C3.13	STORM DRAIN PLAN & PROFILE 2				
C3.14	STORM DRAIN PLAN & PROFILE 3				
C3.15	STORM DRAIN PLAN & PROFILE 4				
C5.0	CITY PARKWAY PLAN & PROFILE – STA 47+00 – 51+50				
C5.1	CITY PARKWAY PLAN & PROFILE – STA 51+50 – 55+00				
C5.2	SYMPHONY PARK AVE PLAN & PROFILE				
C5.3	WEST CARSON AVE PLAN & PROFILE				
C5.4	EAST FRONTAGE STREET PLAN & PROFILE – STA 0+00 – 4+50				
C5.5	EAST FRONTAGE STREET PLAN & PROFILE – STA 4+50 – 8+50				



PROJECT VICINITY MAP
NTS

ALLEN PAVELKA, PE, PE#009029 DATE

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

CLV FIRE AND RESCUE DATE

CITY OF LAS VEGAS PLANNING DEPARTMENT DATE

THIS PLAN MEETS THE APPLICABLE STANDARDS OF THE PLANNING DEPARTMENT

CENTRAL TELEPHONE COMPANY, D/B/A CENTURYLINK DATE

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

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT No. _____ FIRST APPROVED DATE: _____
SHEETS:

NV ENERGY – DISTRIBUTION 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

Call before you Dig
Avoid cutting underground utility lines. It's costly.
Call before you UnderGround 1-702-432-5300
Call 811 OR 1-800-227-2600
Call Before You Overhead 1-702-227-2929
Avoid overhead power line contact. It's costly.

No.	REVISIONS	DATE	BY

Kimley»Horn
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PHONE: 702-862-3600
WWW.KIMLEY-HORN.COM

PROFESSIONAL ENGINEER-STATE OF NEVADA
THOMAS ACKERET
Exp. 12/31/18
CIVIL
No. 18592

KHA PROJECT	192008000
DATE	12/20/2018
SCALE	AS SHOWN
DESIGNED BY	TEA
DRAWN BY	JPH
CHECKED BY	TEA

COVER SHEET

SYMPHONY PARK RESIDENTIAL
CIVIL IMPROVEMENT PLANS
PREPARED FOR
ASPEN HEIGHTS PARTNERS
CITY OF LAS VEGAS NEVADA

SHEET NUMBER
C0.1

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CITY OF LAS VEGAS GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE 'UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA NEVADA', LATEST ISSUE; THE 'UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION, CLARK COUNTY AREA NEVADA', LATEST REVISED EDITION; THE 'SUMMERLIN IMPROVEMENT STANDARDS' FOR WORK IN THE SUMMERLIN AREA; AND OTHER APPLICABLE APPROVED STANDARDS ISSUED BY THE CONTROLLING AGENCY; THE UNIFORM BUILDING CODE; AND ALL LOCAL CITY CODES AND ORDINANCES APPLICABLE, EXCEPT AS NOTED ON THIS SHEET AS 'DEVIATIONS FROM STANDARDS'.
2. THE EXISTENCE AND LOCATION OF ANY OVERHEAD OR UNDERGROUND UTILITY LINES, PIPES, OR STRUCTURES SHOWN ON THESE PLANS ARE OBTAINED BY A RESEARCH OF THE AVAILABLE RECORDS. EXISTING UTILITIES AS SHOWN FROM CLV PLANS LIBRARY ARE APPROXIMATE AND FOR RECORD PURPOSES. EXISTING UTILITIES ARE LOCATED ON PLANS ONLY FOR THE CONVENIENCE OF THE CONTRACTOR. EXISTING UTILITY SERVICE LATERALS MAY NOT BE SHOWN ON THE PLANS. THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, LOCATE ALL UNDERGROUND AND OVERHEAD INTERFERENCES WHICH MAY AFFECT HIS OPERATION DURING CONSTRUCTION AND SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID DAMAGE TO SAME. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING NEAR OVERHEAD UTILITIES SO AS TO SAFELY PROTECT ALL PERSONNEL AND EQUIPMENT, AND SHALL BE RESPONSIBLE FOR ALL COST AND LIABILITY IN CONNECTION THEREWITH.
3. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING UTILITY LINES, STRUCTURES AND STREET IMPROVEMENTS WHICH ARE TO REMAIN IN PLACE, FROM DAMAGE, AND ALL SUCH IMPROVEMENTS OR STRUCTURES DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED OR REPLACED SATISFACTORY TO THE CITY ENGINEER AND OWNING UTILITY COMPANY AT THE EXPENSE OF THE CONTRACTOR.
4. ALL CONSTRUCTION SHALL BE AS SHOWN ON THESE PLANS, ANY REVISIONS SHALL HAVE THE PRIOR WRITTEN APPROVAL OF THE CITY ENGINEER.
5. TYPE V CEMENT SHALL BE USED IN ALL OFF-SITE CONCRETE WORK. CONCRETE TO BE 3000 P.S.I. MINIMUM @ 28 DAYS. MIX DESIGNS TO BE APPROVED BY THE CITY, PRIOR TO THE USE ON THE PROJECT.
6. PERMITS ARE REQUIRED FOR ANY WORK IN THE PUBLIC RIGHT-OF-WAY. THE CONTRACTOR SHALL SECURE ALL PERMITS AND INSPECTIONS REQUIRED FOR THIS CONSTRUCTION.
7. EXPANSION JOINTS REQUIRED, MAXIMUM EVERY 300'IN EXTRUDED-TYPE CURB.
8. AC PAVEMENT TO BE ONE-HALF INCH (½') ABOVE LIP OF ALL GUTTERS AFTER COMPACTION, EXCEPT AT SIDEWALK RAMPS AND CROSS GUTTERS.
9. CURB AND GUTTER FOUND TO BE UNACCEPTABLE TO THE CITY OF LAS VEGAS SHALL BE REMOVED AND REPLACED PER STANDARD DRAWING 216.
10. SIDEWALK RAMPS SHALL BE CONSTRUCTED IN EACH QUADRANT OF AN INTERSECTION PER STANDARD DRAWING 235. EXACT LOCATION OF RAMPS MAY BE ADJUSTED IN THE FIELD BY A CITY INSPECTOR.
11. CONTRACTOR SHALL PROVIDE ALL NECESSARY HORIZONTAL AND VERTICAL TRANSITIONS BETWEEN NEW CONSTRUCTION AND EXISTING SURFACES TO PROVIDE FOR PROPER DRAINAGE AND FOR INGRESS AND EGRESS TO NEW CONSTRUCTION. THE EXTENT OF THE TRANSITIONS TO BE AS SHOWN ON PLANS.
12. ALL GRADING WORK SHALL CONFORM TO THE SOILS REPORT AS PREPARED BY NOVA GEOTECHNICAL & INSPECTION SERVICES (PROJECT #G-18-038, DATED: MAY 15, 2018), APPROVED BY THE CITY ENGINEER, AND AS SHOWN ON THESE PLANS.
13. EXACT LOCATION OF ALL SAWCUT LINES MAY BE ADJUSTED OR DETERMINED IN THE FIELD BY A CITY OF LAS VEGAS ENGINEER IF LOCATION ON PLANS IS NOT CLEARLY SHOWN, OR EXISTING PAVEMENT CONDITION REQUIRES RELOCATIONS.
14. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PROTECT EXISTING PERMANENT SURVEY MONUMENTS. ANY MONUMENTS DISTURBED SHALL BE REPLACED AND ADJUSTED PER AVAILABLE RECORDS IN ACCORDANCE WITH N.R.S. STATUTE NO. 625.380 & CITY OF LAS VEGAS TITLE 18, APPENDIX D.
15. UTILITY COMPANY METER BOXES, MANHOLE LIDS, VALVE COVERS, ETC., SHALL BE LOCATED OUT OF DRIVEWAYS, DRIVEWAY APRONS, FLOWLINES, AND CROSS GUTTERS UNLESS WRITTEN APPROVAL IS GRANTED BY THE UTILITY COMPANY AND THE CITY ENGINEER.

WALL NOTES:

16. ALL WALLS, NEW OR EXISTING, ARE ONLY SHOWN ON CIVIL PLANS FOR THE PURPOSE OF REVIEWING GRADING RELATIONSHIPS; FLOOD CONTROL AND SIGHT DISTANCE AT INTERSECTIONS. NEW WALLS REQUIRE A SEPARATE PERMIT AND INSPECTION BY THE BUILDING DEPARTMENT.
17. ASPHALT MIX DESIGN MUST BE SUBMITTED AND APPROVED BY THE CITY ENGINEER PRIOR TO THE PLACEMENT OF ASPHALT WITHIN CITY RIGHT OF WAY.
18. CONTRACTOR SHALL ADJUST ALL NEW AND EXISTING INLETS, VALVE BOXES, MANHOLE RIMS, AND SEWER CLEAN OUTS, ETC. TO FINISH GRADE AS APPLICABLE WHETHER OR NOT THEY ARE SHOWN ON THE PLANS.
19. MATERIALS, HANDLING AND PLACEMENT OF PORTLAND CEMENT CONCRETE SHALL BE IN ACCORDANCE WITH APPLICABLE SECTIONS OF NDOT OR THE CLARK COUNTY AREA SPECIFICATIONS (AS APPLICABLE) AND THE PLANS AND DETAILS SHOWN HEREON.
20. WHEN INSTALLING UNDERGROUND FACILITIES THAT REQUIRE UNDERGROUND LOCATING DEVICES SUCH AS MARKER BALLS, LOCATING RIBBON, ETC, THE CONTRACTOR SHALL PROVIDE WRITTEN DOCUMENTATION TO OFFSITE INSPECTION AND TESTING CERTIFYING THAT ALL DEVICES HAVE BEEN PLACED AND VERIFIED TO BE IN GOOD WORKING CONDITION PRIOR TO THE CONSTRUCTION OF ANY ROAD BASE.
21. AFTER HAUNCHING AND PRIOR TO BACKFILL OPERATIONS WHICH WOULD COVER SANITARY SEWER AND STORM DRAIN FACILITIES, CONTRACTOR IS REQUIRED TO SCHEDULE CLV OPEN-TRENCH UTILITY SURVEY INSPECTION FOR DETERMINATION OF FINAL LOCATION COORDINATES. FACILITIES TO BE LOCATED BY CLV SHALL INCLUDE AT A MINIMUM THE HORIZONTAL AND VERTICAL (INVERT) LOCATION OF PUBLIC SEWER MANHOLES, STORM DRAIN MANHOLES AND TRANSITION STRUCTURES, STORM DRAIN LATERALS TO THE SEWER MAIN AND WHERE THE SEWER SERVICE LATERALS EXIT THE PUBLIC RIGHT-OF-WAY, SEWER AND STORM DRAIN MAIN ALIGNMENT, INCLUDING DEFLECTION POINTS.
22. CCTV VIDEO INSPECTION IS REQUIRED FOR ALL SEWER AND STORM DRAINS. THE CCTV VIDEO INSPECTIONS NEED TO BE PERFORMED PER THE DESIGN AND CONSTRUCTION STANDARDS FOR WASTEWATER COLLECTION SYSTEMS LATEST ADDITION.
23. A SEPARATE BORING PERMIT IS REQUIRED FOR ALL BORING ACTIVITIES.

REVISED 02/03/15

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

1. ALL STREET LIGHTING INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE STREET LIGHTING PLANS, THE 'UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA', LATEST REVISION, AND THE 'UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA', LATEST REVISION, AND ANY ADOPTED SPECIAL AREA STANDARDS.
2. NO DEVIATION OF STREET LIGHT, PULL BOX, CONDUITS (ETC.) LOCATIONS SHALL BE PERMITTED WITHOUT WRITTEN APPROVAL OF TRAFFIC ENGINEERING AND THE CITY ENGINEER.
3. ALL EXISTING STREET LIGHTING SHALL REMAIN OPERATIONAL DURING CONSTRUCTION.
4. ALL STREET LIGHTING CONDUITS STUB SHALL HAVE AT LEAST ONE GREEN #8 THW WIRE INSTALLED, AS TRACER WIRE. WHEN 'EMPTY' CONDUIT IS COMPLETELY INSTALLED FROM PB TO PB, IT SHALL HAVE MINIMUM OF 2 #4 AND 1 #8 THW WIRE WITH THE ENDS TAPED OR "SAFE OFF" PRIOR TO FINAL INSPECTION.
5. ANY STRUCTURE SUCH AS BLOCK WALLS, CHAIN LINK FENCES, RETAINING WALLS, ETC., SHALL LEAVE A MINIMUM CLEARANCE IN ACCORDANCE WITH THE USD NO. 320A.
6. AS-BUILT DRAWINGS SHALL BE SUPPLIED TO THE TEFO PRIOR TO ANY PRE-FINAL INSPECTION. THE AS-BUILT DRAWING NEEDS TO BE STAMPED AS-BUILT AND SIGNED BY THE PREPARER.
7. SERVICE POINT SHALL BE COORDINATED WITH NV ENERGY COMPANY, AND WHEREVER POSSIBLE, BE LOCATED NEAR THE CENTER OF THE CIRCUIT. SERVICE POINTS SHALL BE SHOWN ON THE CIVIL PLANS.
8. IT SHALL BE ASSUMED THAT IN THE ABSENCE OF AN EXISTING, WORKABLE CIRCUIT TO ATTACH TO, ALL INSTALLATIONS SHALL REQUIRE A NEW SERVICE FOR OPERATION OF THE CIRCUIT.
9. WHEREVER THERE IS AN OVERHEAD UTILITY THAT MAY CONFLICT WITH THE INSTALLATION OF STREET LIGHTING CIRCUITS AND/OR POLES, THESE CONFLICTS MUST BE RESOLVED BETWEEN THE DEVELOPER AND THE UTILITIES INVOLVED, AT NO EXPENSE TO THE CITY OF LAS VEGAS, BEFORE STREETLIGHT BASES ARE INSTALLED.
10. THE CONTRACTOR SHALL FURNISH COMPLETE SERVICE TO TRANSFORMERS AND CONTROL SYSTEMS IF REQUIRED ON PLANS.
11. THE DEVELOPER/OWNER WILL BE REQUIRED TO SUPPLY POWER TO ALL NEW PUBLIC STREET LIGHTS INSTALLED UNDER THIS DESIGN PRIOR TO BOND RELEASE OR PROJECT COMPLETION. THE DEVELOPER/OWNER WILL BE RESPONSIBLE FOR ALL ITEMS ASSOCIATED WITH THE INSTALLATION, CONSTRUCTION, ENERGIZING, MAINTENANCE AND OPERATIONAL COST OF SAID STREET LIGHTS PRIOR TO PROJECT COMPLETION. REFER TO THE PLAN FOR ANY NEW SERVICE REQUIREMENTS. THE TRANSFER OF OWNERSHIP FROM THE DEVELOPER/OWNER TO THE CITY OF LAS VEGAS FOR ALL NEW PUBLIC STREET LIGHT/S AND/OR SERVICE/S INSTALLED UNDER THIS PLAN DESIGN WILL BE IN CONJUNCTION WITH THIS PROJECT COMPLETION. COORDINATE ALL MAINTENANCE AND OPERATIONAL TRANSFERS WITH THE CITY OF LAS VEGAS TRAFFIC ENGINEERING DEPARTMENT (TEFO) AT (702) 229-6331.

REVISED 04/15/10

CITY OF LAS VEGAS TRAFFIC NOTES

1. ALL CONSTRUCTION SIGNING, BARRICADING, AND TRAFFIC DELINEATION SHALL CONFORM TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", LATEST EDITION.
2. THE STREET SIGN CONTRACTOR SHALL OBTAIN STREET NAMES AND BLOCK NUMBERING FROM THE PLANNING DEPARTMENT PRIOR TO CONSTRUCTION.
3. BEFORE ANY WORK IS STARTED IN THE RIGHT-OF-WAY, THE CONTRACTOR SHALL INSTALL ALL ADVANCE WARNING SIGNS FOR THE CONSTRUCTION ZONE. THE CONTRACTOR SHALL INSTALL TEMPORARY STOP SIGNS AT ALL NEW STREET ENCROACHMENTS INTO EXISTING CITY STREETS WHERE WARRANTED IMMEDIATELY AFTER FIRST GRADING WORK IS ACCOMPLISHED, AND SHALL MAINTAIN SAID SIGNS UNTIL PERMANENT SIGNS ARE INSTALLED.
4. WHEN A DESIGNATED "SAFE ROUTE TO SCHOOL" IS ENCROACHED UPON BY A CONSTRUCTION WORK ZONE AND PUBLIC WORKS STAFF IDENTIFIES A NEED FOR STUDENTS TO BE ASSISTED IN THE SAFE CROSSING THROUGH THAT WORK ZONE, THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE A QUALIFIED "CROSSING GUARD". THE GUARD SHALL BE PRESENT FOR THE FULL DURATION OF TIME THAT CHILDREN ARE LIKELY TO BE PRESENT.
5. IF THE IMPROVEMENTS NECESSITATE THE OBLITERATION, TEMPORARY OBSTRUCTION, TEMPORARY REMOVAL OR RELOCATION OF ANY EXISTING TRAFFIC PAVEMENT MARKING, SUCH PAVEMENT MARKING SHALL BE RESTORED OR REPLACED WITH LIKE MATERIALS TO THE SATISFACTION OF THE CITY TRAFFIC ENGINEER.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ALL PERMANENT SIGNS SHOWN ON THE PLANS. ALL NEW TRAFFIC SIGNS SHALL BE FABRICATED WITH DIAMOND GRADE VIP CLASS 6 REFLECTIVE SHEETING OR APPROVED EQUAL. ALL NEW TRAFFIC SIGNS, EXCEPT STREETNAME AND SCHOOL SPEED LIMIT SIGNS, SHALL HAVE 3M SERIES 1160 OR APPROVED EQUIVALENT ANTI-GRAFFITI PROTECTIVE OVERLAY FILM; SCHOOL ZONE SIGNS SHALL HAVE 3M SERIES 1150 ANTI-GRAFFITI PROTECTIVE OVERLAY FILM. STREET NAME SIGNS SHALL CONFORM IN THEIR ENTIRETY TO CURRENT CITY STANDARDS. ALL OTHER SIGNS SHALL BE STANDARD SIZE UNLESS OTHERWISE SPECIFIED ON THE PLANS. ALL SIGN POSTS SHALL BE INSTALLED IN ACCORDANCE WITH THE CURRENT CITY STANDARDS.
7. WHEN A PROPOSED STREET LIGHT STANDARD IS LOCATED WITHIN FIVE (5') FEET OF ANY PROPOSED SIGN SHOWN ON THE PLANS TO BE MOUNTED ON A SIGNPOST, THE SIGN SHALL BE MOUNTED ON THE STREET LIGHT STANDARD AND THE SIGNPOST SHALL BE ELIMINATED.
8. ALL PERMANENT TRAFFIC CONTROL DEVICES CALLED FOR HEREON SHALL BE IN PLACE AND IN FINAL POSITION PRIOR TO ALLOWING ANY PUBLIC TRAFFIC ONTO THE PORTIONS OF THE ROAD(S) BEING IMPROVED HERE UNDER, REGARDLESS OF THE STATUS OF COMPLETION OF PAVING OR OTHER OFF-SITE IMPROVEMENTS CALLED FOR BY THESE PLANS.
9. STREET SIGNS AND STOPS SIGNS SHALL BE INSTALLED PER CITY STANDARD SPECIFICATIONS FOR PLACEMENT OF STREET NAME SIGNS.
10. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY TRAFFIC CONTROL DEVICES AND FLAGGERS TO INSURE THE SAFETY OF THE PUBLIC IN OR AROUND THE WORK AREA. THE CONTRACTOR SHALL HAVE A CERTIFIED ATSSA TRAFFIC CONTROL TECHNICIAN OR IMSA WORK ZONE SAFETY SPECIALIST SET UP, MAINTAIN AND/OR REMOVE ALL TRAFFIC CONTROL DEVICES IN THE CITY OF LAS VEGAS RIGHT OF WAY.
11. WORK IN PUBLIC STREETS, ONCE BEGUN, SHALL BE EXPEDITED TO COMPLETION SO AS TO PROVIDE MINIMUM INCONVENIENCE TO ADJACENT PROPERTY OWNERS AND TO THE TRAVELING PUBLIC.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING CITIZENS AREA TRANSIT (C.A.T.) IF THE CONSTRUCTION INTERRUPTS OR RELOCATES A BUS STOP OR HAS AN ADVERSE EFFECT ON BUS SERVICE ON THAT STREET TO ARRANGE FOR TEMPORARY RELOCATION OF STOP.
13. GUARDS SHALL BE OBTAINED BY CONTACTING THE METROPOLITAN POLICE DEPARTMENT SPECIAL EVENTS UNIT (PHONE # 828-3442) WHO WILL PROVIDE OFFICERS PROPERLY TRAINED IN TRAFFIC CONTROL. FEES FOR THE USE OF THESE OFFICERS SHALL BE SET BY METRO AND WILL BE PAID BY THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR ALL ARRANGEMENTS WITH METRO.
14. ANY WORK WITHIN 300' OF A SIGNALIZED INTERSECTION WILL BE NIGHT WORK, UNLESS OTHERWISE DIRECTED BY THE CITY OF LAS VEGAS TRAFFIC ENGINEER.
15. THE CONTRACTOR SHALL CONTACT THE TRAFFIC ENGINEERING DIVISION (TRANSPORTATION SECTION) THROUGH THE PROJECT'S OFFSITE INSPECTOR PRIOR TO INITIATING PAVING TO RECEIVE DIRECTION FOR ANY PERMANENT OR TEMPORARY MODIFICATIONS TO THE APPROVED DRAWINGS REGARDING FINAL PAVEMENT TRANSITIONS, MARKINGS AND SIGNING THAT ARE REQUIRED TO MATCH ADJACENT ROADWAY SEGMENTS. THE CONTRACTOR SHALL PROVIDE A DRAWING FOR APPROVAL BY THE TRAFFIC ENGINEERING DIVISION DEPICTING ANY ADJUSTMENTS TO THE FINAL PAVEMENT MARKINGS AND SIGNAGE, WHICH MAY INCLUDE OMITTING, ADDING OR MODIFYING PAVEMENT MARKINGS AND TRAFFIC CONTROL SIGNS SUCH THAT ADEQUATE TRANSITIONS AND LANE TERMINATIONS BETWEEN ADJACENT ROADWAY SEGMENTS ARE CONSTRUCTED.

REVISED 04/15/10

LAS VEGAS FIRE & RESCUE - GENERAL NOTES

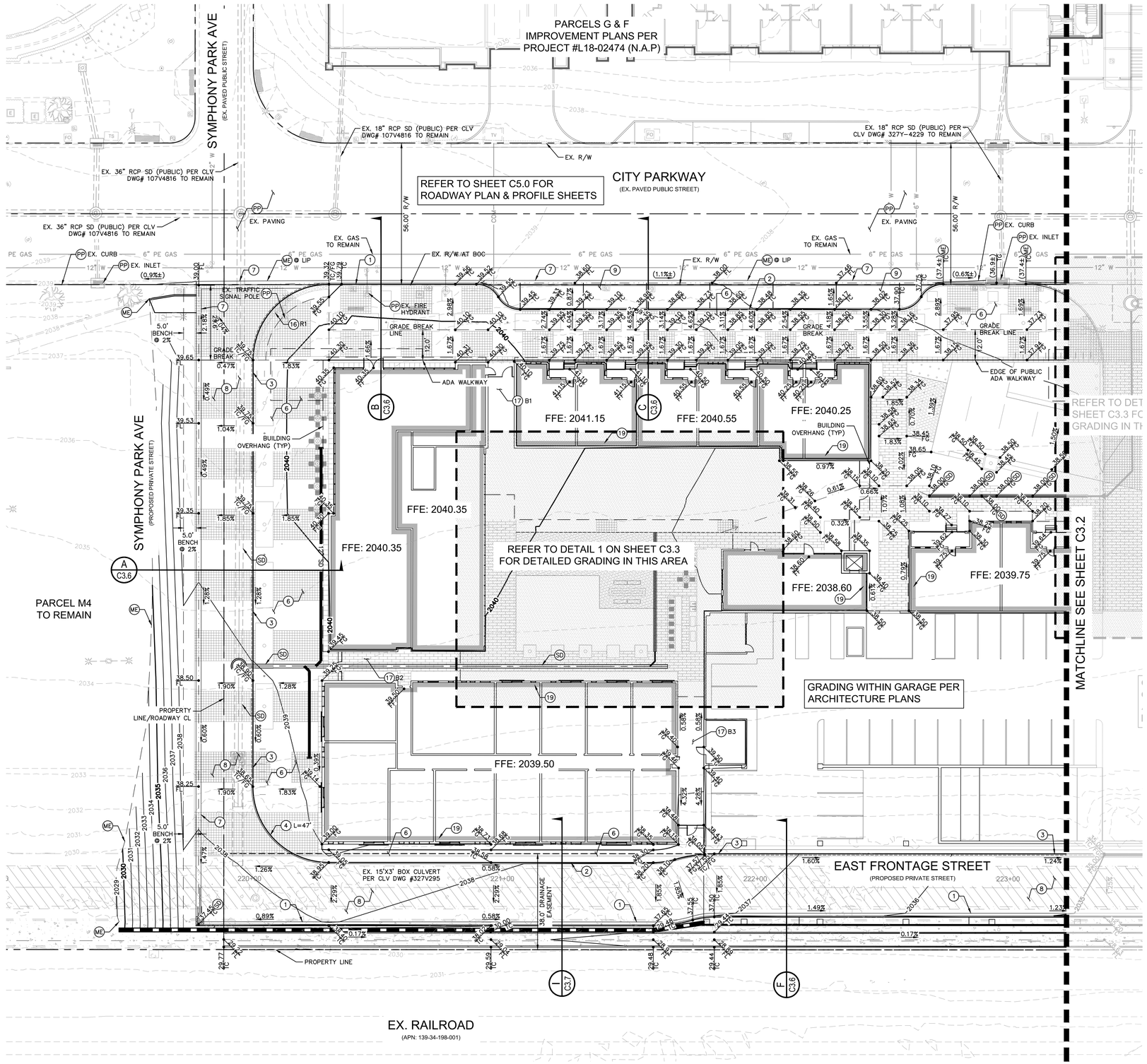
1. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE LAS VEGAS FIRE AND RESCUE ADOPTED FIRE ORDINANCE #6325 FOR HYDRANT SPECIFICATIONS AND HYDRANT INSTALLATION SPECIFICATIONS.
2. AUTHORIZED FIRE HYDRANTS ARE AS FOLLOWS:

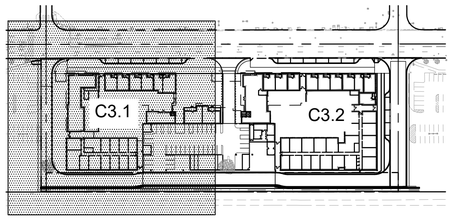
   MUELLER COMPANY – A-423
   CLOW VALVE Co. – F-2546LVD
   AMERICAN FLOW CONTROL – B-84-B5
3. A PERMIT IS REQUIRED FROM LAS VEGAS FIRE AND RESCUE FOR THE INSTALLATION OF ON-SITE WATER LINES AND FIRE HYDRANTS. THE PERMIT AND CONTRACTORS MATERIAL TEST CERTIFICATE FOR UNDERGROUND PIPING FORM SHALL BE OBTAINED FROM THE FIRE PROTECTION ENGINEER BEFORE COMMENCEMENT OF WORK.
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.
5. TO IDENTIFY THE FIRE HYDRANT LOCATIONS, THE CONTRACTOR SHALL PLACE A BLUE REFLECTIVE MARKER AT THE CENTER LINE OF STREET ADJACENT TO THE FIRE HYDRANTS.
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 WILL PRIOR FIRE PREVENTION APPROVAL.
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.
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.
9. PRIVATE FIRE HYDRANTS SHALL BE PAINTED RED.
10. PRIOR TO THE FINAL OCCUPANCY, A FLOW TEST MUST BE WITNESSED BY LAS VEGAS FIRE AND RESCUE, FIRE PREVENTION DIVISION.
11. FIRE HYDRANTS SPACING SHALL BE AS FOLLOWS:
    RESIDENTIAL – 500 FEET UNSPRINKLERED; 600 FEET SPRINKLERED.
    COMMERCIAL – 300 FEET UNSPRINKLERED; 400 FEET SPRINKLERED.
12. WHERE NEW 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 MAXIMUM 1,000 FOOT SPACING, TO PROVIDE FOR TRANSPORTATION HAZARDS. WHERE STREETS ARE PROVIDED WITH MEDIAN DIVIDERS OR HAVE FOUR 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 FEET ON AN ALTERNATING BASIS.
13. NO FIRE HYDRANTS SHALL BE LOCATED WITHIN THE REQUIRED RADIUS OF A CUL-DE-SAC OR WITHIN 20 FEET OF THE PERIMETER OF THE RADIUS OF THE CUL-DE-SAC.
14. NO FIRE HYDRANTS SHALL BE LOCATED WITHIN 6 FEET OF ANY CURB RETURN, DRIVEWAY, POWER POLE, STREETLIGHT OR ANY OTHER OBSTRUCTION.
15. THE MAXIMUM DISTANCE FROM A FIRE HYDRANT TO A ONE-TWO FAMILY DWELLING SHALL NOT EXCEED 300 FEET, AS MEASURED BY AN APPROVED ROUTE.
16. THE MAXIMUM DISTANCE FROM A FIRE HYDRANT TO A FIRE DEPARTMENT CONNECTION (FDC) SHALL NOT EXCEED 100 FEET, AS MEASURED BY AN APPROVED ROUTE.
17. THE MAXIMUM DISTANCE FROM A FIRE HYDRANT TO THE END OF A DEAD-END STREET SHALL NOT EXCEED 200 FEET.
18. TWO (2) SOURCES OF SUPPLY ARE REQUIRED WHENEVER THERE ARE 4 OR MORE FIRE HYDRANTS/SPRINKLER LEAD-INS ARE INSTALLED ON A SINGLE SYSTEM. SECTIONAL CONTROL VALVES SHALL BE INSTALLED SO THAT NO MORE THAN 2 FIRE HYDRANTS CAN BE OUT OF SERVICE DUE TO A BREAK IN A WATER MAIN.
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.
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 FEET PRIOR TO OR AFTER THE GRADE CHANGE. ADJACENT TO THE STRUCTURES GRADIENT SHALL NOT EXCEED 6%.
21. THE TURNING RADIUS OF THE FIRE APPARATUS ACCESS ROADS SHALL BE NO LESS THAN 52 FEET OUTSIDE AND 28 FEET INSIDE TURNING RADIUS.
22. VERTICAL CLEARANCE OF ALL FIRE APPARATUS ACCESS ROADS SHALL BE NOT LESS THAN 13 FEET 6 INCHES.
23. FIRE DEPARTMENT ACCESS SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF NOT LESS THAN 40 FEET FLOW LINE TO FLOW LINE WITH PARALLEL PARKING PERMITTED ON BOTH SIDES. NOT LESS THAT 32 FEET WIDE, FLOW LINE TO FLOW LINE, WHERE PARKING IS PERMITTED ONLY ON ONE SIDE OF THE FIRE APPARATUS ACCESS ROAD. NOT LESS THAT 24 FEET WIDE, FLOW LINE TO FLOW LINE, WHERE NO PARKING IS PERMITTED ON EITHER SIDE. FIRE LANES THROUGH PARKING LOTS SHALL NOT BE LESS THAN 24 FEET.
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 FEET FROM A FIRE DEPARTMENT VEHICLE ACCESS. THIS DISTANCE COULD BE INCREASED TO 250 FEET IF THE BUILDING IS SPRINKLERED.
25. APPROVED SECONDARY FIRE APPARATUS ACCESS SHALL BE PROVIDED FOR 100 OR MORE DWELLING UNITS, ROAD(S) WITH DEAD-ENDS OR WITH A SINGLE POINT OF ACCESS IN EXCESS OF 600 FEET. COMMERCIAL AND INDUSTRIAL DEVELOPMENTS WHERE BUILDINGS EXCEED 2 STORIES OR 30 FEET IN HEIGHT, OR EXCEEDING 62,000 SQUARE FEET IN AREA.
26. ALL DEAD-END FIRE APPARATUS ACCESS ROADS AND/OR FIRE LANES, PUBLIC OR PRIVATE, IN EXCESS OF 150 FEET IN LENGTH SHALL BE PROVIDED WITH AN APPROVED TURN AROUND AREA HAVING A MINIMUM DIAMETER OF 81 FEET.
27. ALL FIRE APPARATUS ACCESS ROADS SHALL BE MARKED BY PLACING APPROVED SIGNS AT THE START OF EACH DESIGNATED FIRE LANE, ONE SIGN AT THE END OF THE FIRE LANE AND WITH SIGNS AT INTERVALS 100 FEET 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 FEET OR LESS THAN 6 FEET FROM ROADWAY LEVEL. THE CURB ALONG OR ON THE PAVEMENT OR CEMENT (IF NO CURB IS NOT PROVIDED) SHALL BE PAINTED WITH A RED WEATHER RESISTANT PAINT IN ADDITION TO THE SIGNS.
28. ELECTRICALLY CONTROLLED ACCESS GATES SHALL BE PROVIDED WITH AN APPROVED EMERGENCY VEHICLE DETECTOR/RECEIVER SYSTEM. SAID SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE IFC SECTION 503.6 AND IFC APPENDIX M.

EFFECTIVE JULY 15, 2016

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





KEY MAP

NTS

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6. ADD 2000 FEET TO ALL SPOT ELEVATIONS UNLESS OTHERWISE NOTED.

GEOTECHNICAL REPORT

ALL GRADING SHALL CONFORM TO THE GEOTECHNICAL REPORT:

ENGINEER: NOVA GEOTECHNICAL & INSPECTION SERVICES
DATED: MAY 15, 2018
PROJECT No: G-18-038

CONSTRUCTION NOTES

1. INSTALL MODIFIED TYPE 'L' CONCRETE CURB AND GUTTER PER DETAIL 1 ON SHEET C3.8
2. INSTALL MODIFIED TYPE 'A' CONCRETE CURB PER DETAIL PER DETAIL 2 ON SHEET C3.8
3. INSTALL 0" FACE CURB PER DETAIL 3 ON SHEET C3.8.
4. INSTALL TRANSITION FROM TYPE 'A' CURB TO 0" FACE CURB. LENGTH STATED ON PLAN.
6. INSTALL CONCRETE SIDEWALK PER CCAUSD No. 234.
7. INSTALL 2' VALLEY GUTTER PER DETAIL 4 ON SHEET C3.8.
8. INSTALL 3" ASPHALT PAVING OVER 11" TYPE 2 AGGREGATE BASE PER GEOTECHNICAL RECOMMENDATIONS.
9. INSTALL ASPHALT PAVING SECTION (MATCH EXISTING).
16. SEE SHEETS C3.3–C3.4 FOR ADA RAMP DETAIL.
17. SEE SHEETS C3.4–C3.5 FOR BREEZEWAY GRADING DETAILS.
19. EXPOSED BUILDING FOUNDATION STEM WALL. SEE STRUCTURAL & ARCHITECTURAL PLANS FOR DETAILS.
20. UNDERGROUND PUBLIC DRAINAGE EASEMENT PER DOC# _____
ME. MATCH EXISTING.
PP. PROTECT IN PLACE.
SD. REFER TO STORM DRAIN PLANS FOR DETAIL (C3.10–C3.11)

ESTIMATED CUT/FILL QUANTITIES

CUT FILL ANALYSIS

CUT VOLUME:	68 CY
FILL VOLUME:	33658 CY
NET VOLUME:	33590 CY (IMPORT)*

*BASED ON A SURFACE TO SURFACE, UNADJUSTED ANALYSIS

FLOOD ZONE NOTE

THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) INDICATES THAT THE SITE IS LOCATED IN ZONE "X" OF THE FLOOD INSURANCE RATE MAP (FIRM) No. 32003C2170F AS SHOWN ON THE FIRM INDEX REVISED NOVEMBER 16, 2011. ZONE "X" IS DEFINED BY FEMA AS "AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN."

BENCHMARK

CITY OF LAS VEGAS VERTICAL CONTROL
BENCHMARK NO. "BLV0133NE6"

MONUMENT DESCRIPTION IN RIVET & PLATE IN TOP OF CURB AT THE SOUTHWEST CORNER OF SYMPHONY PARK AVENUE AND GRAND CENTRAL PARKWAY.

ELEVATION = 619.999 METERS
2034.12 FEET

CITY OF LAS VEGAS VERTICAL CONTROL DATUM BASED UPON NORTH AMERICAN VERTICAL DATUM OF 2008 (NAVD '88)

BASIS OF BEARING

SOUTH 27°55'16" WEST, BEING THE EAST LINE OF LOT 5 OF THAT COMMERCIAL SUBDIVISION KNOWN AS "PARKWAY CENTER" ON FILE IN THE OFFICE OF THE COUNTY RECORDER, CLARK COUNTY, NEVADA IN BOOK 53 OF PLATS, AT PAGE 61.

GRAPHIC SCALE IN FEET
0 10 20 40
SCALE: 1" = 20'

NORTH

AVOID HITTING UNDERGROUND AND STREET SIGNAL SYSTEMS AND SMART TRAFFIC SYSTEM CONDUITS IT'S COSTLY
CALL BEFORE YOU DO UNDERGROUND
Call before you UnderGround
1-702-432-5300
FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION (FAST)

Call before you Dig
Avoid cutting underground utility lines. It's costly.
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Avoid overhead power line contact. It's costly.
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1-702-227-2929

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No.	REVISIONS	DATE	BY

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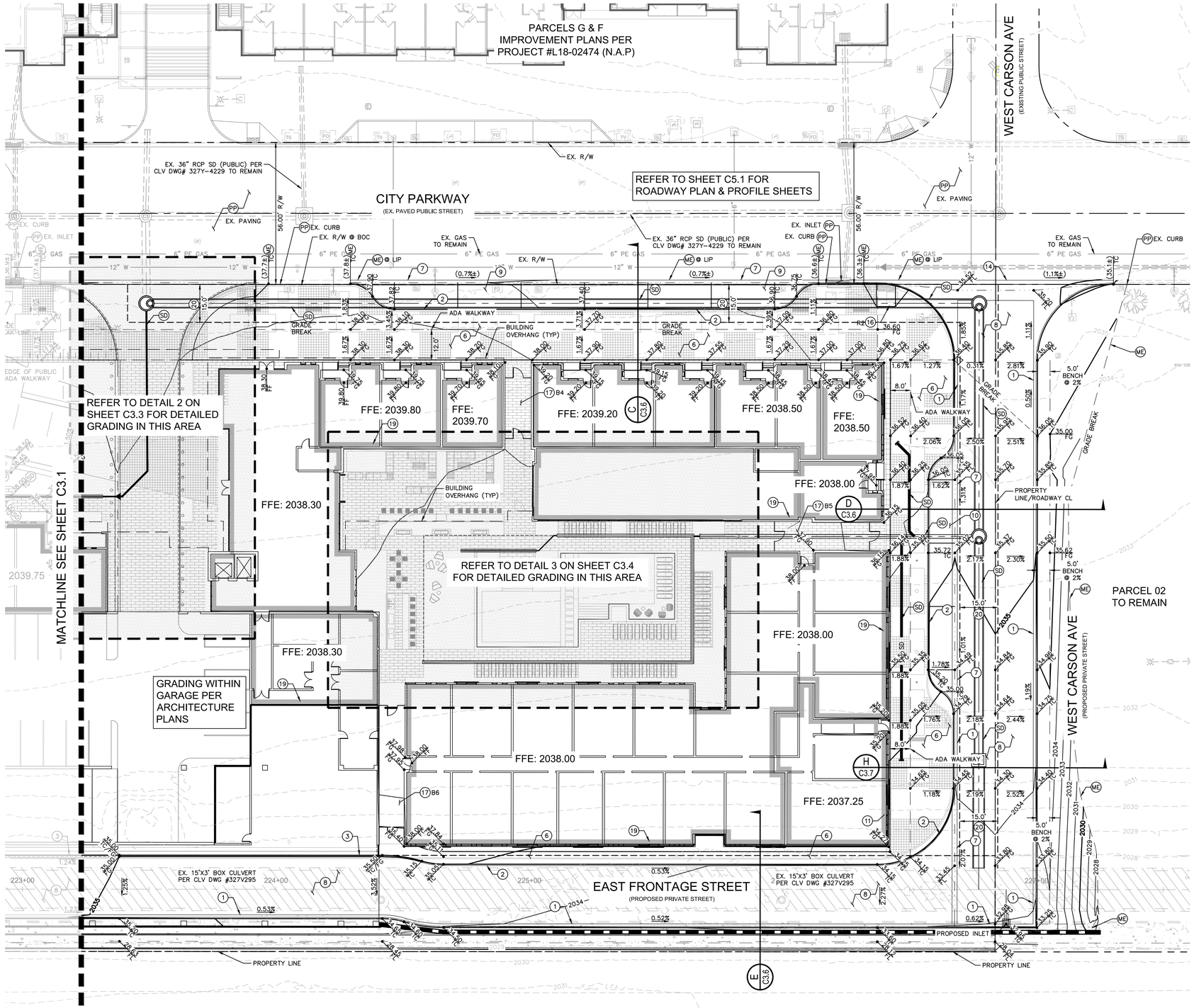
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THOMAS ACKERET
Exp. 12/31/18
CIVIL
No. 18597

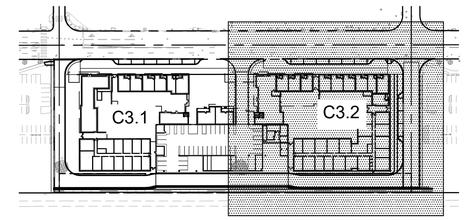
KHA PROJECT	192008000
DATE	12/20/2018
SCALE	AS SHOWN
DESIGNED BY	TEA
DRAWN BY	JPH
CHECKED BY	TEA

ONSITE GRADING PLAN 1

SYMPHONY PARK RESIDENTIAL
CIVIL IMPROVEMENT PLANS
PREPARED FOR
ASPEN HEIGHTS PARTNERS
CITY OF LAS VEGAS NEVADA

SHEET NUMBER
C3.1





KEY MAP

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ENGINEER: NOVA GEOTECHNICAL & INSPECTION SERVICES
DATED: MAY 15, 2018
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9. INSTALL ASPHALT PAVING SECTION (MATCH EXISTING).
10. INSTALL 2" ASPHALT PAVING OVER 7" TYPE 2 AGGREGATE BASE PER GEOTECHNICAL RECOMMENDATIONS.
11. INSTALL HANDRAIL PER ARCHITECTURAL PLANS.
14. INSTALL COMMERCIAL DRIVEWAY PER CCAUSD No. 225 & PER CCAUSD No. 228.
16. SEE SHEETS C3.3–C3.4 FOR ADA RAMP DETAIL.
17. SEE SHEETS C3.4–C3.5 FOR BREEZEWAY GRADING DETAILS.
19. EXPOSED BUILDING FOUNDATION STEM WALL. SEE STRUCTURAL & ARCHITECTURAL PLANS FOR DETAILS.
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SD. REFER TO STORM DRAIN PLANS FOR DETAIL (C3.10–C3.11)

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BENCHMARK

CITY OF LAS VEGAS VERTICAL CONTROL
BENCHMARK NO. "8LV0133NE6"

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PHONE: 702-498-3600
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PROFESSIONAL ENGINEER – STATE OF NEVADA
THOMAS ACKERET
No. 18592
Exp. 12/31/18
CIVIL

KHA PROJECT 192008000
DATE 12/20/2018
SCALE AS SHOWN
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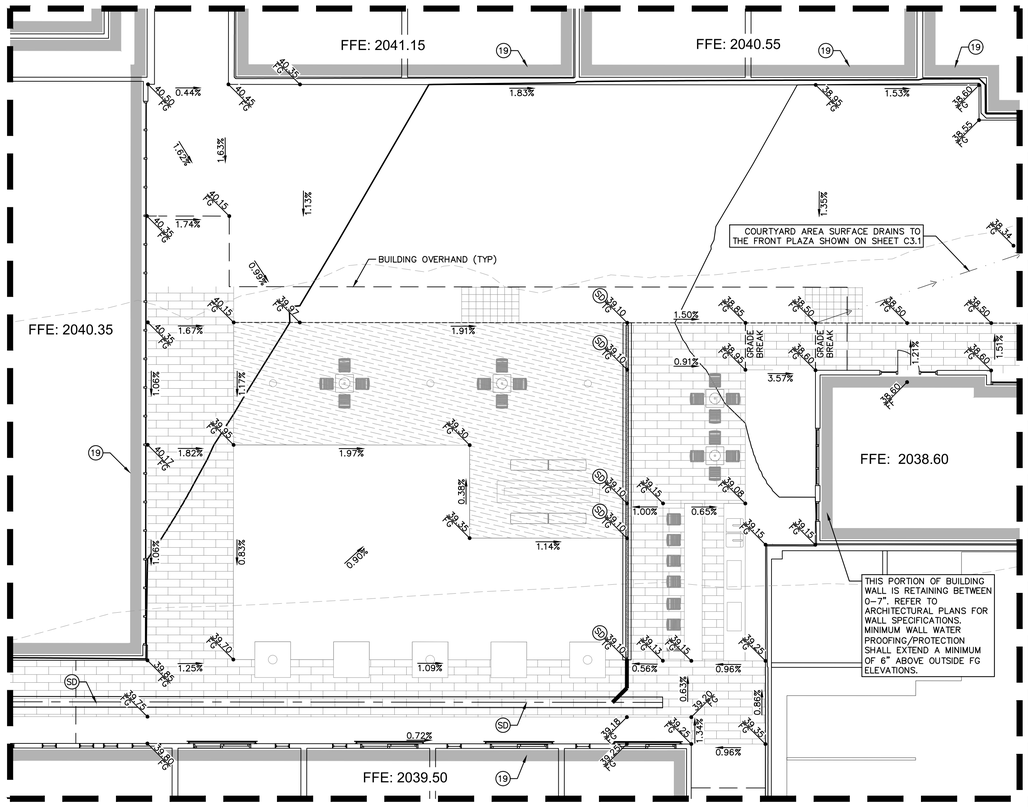
ONSITE GRADING PLAN 2

SYMPHONY PARK RESIDENTIAL
CIVIL IMPROVEMENT PLANS
PREPARED FOR
ASPEN HEIGHTS PARTNERS
CITY OF LAS VEGAS NEVADA

SHEET NUMBER
C3.2

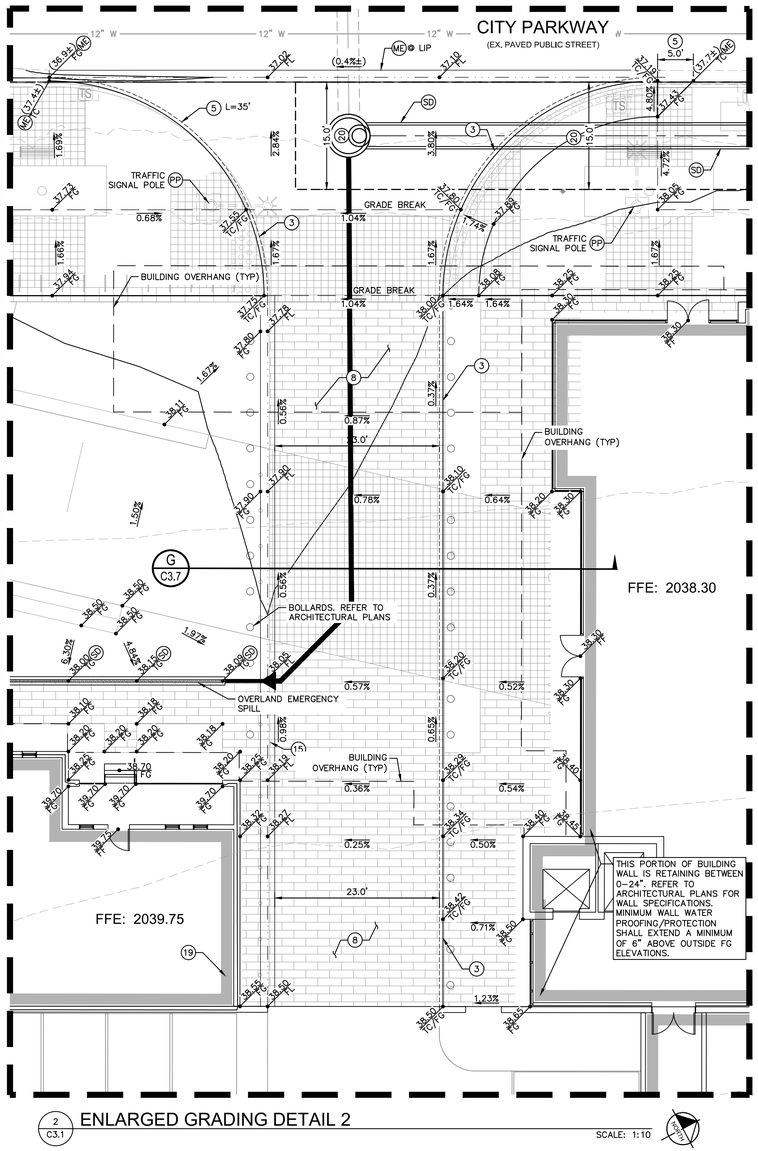
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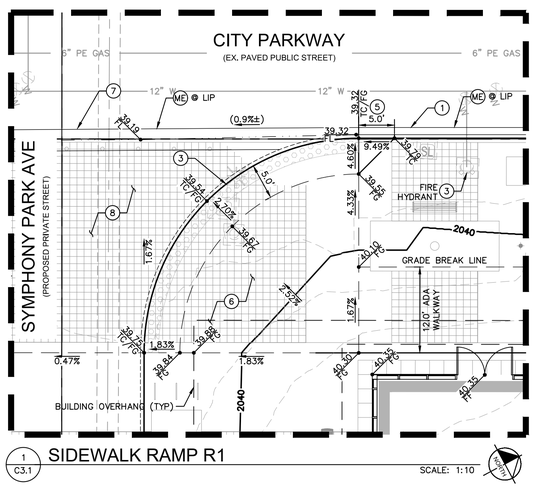
1 C3.1 ENLARGED GRADING DETAIL 1 (COURTYARD AREA)

SCALE: 1:10



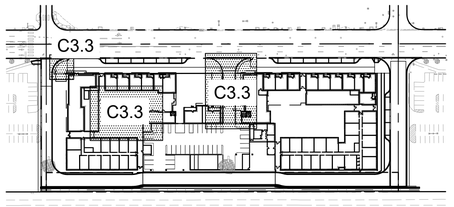
2 C3.1 ENLARGED GRADING DETAIL 2

SCALE: 1:10



1 C3.1 SIDEWALK RAMP R1

SCALE: 1:10



KEY MAP

NTS

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PROJECT No: G-18-038

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15. INSTALL 2' ADA ACCESSIBLE VALLEY GUTTER PER DETAIL 6 ON SHEET C3.8
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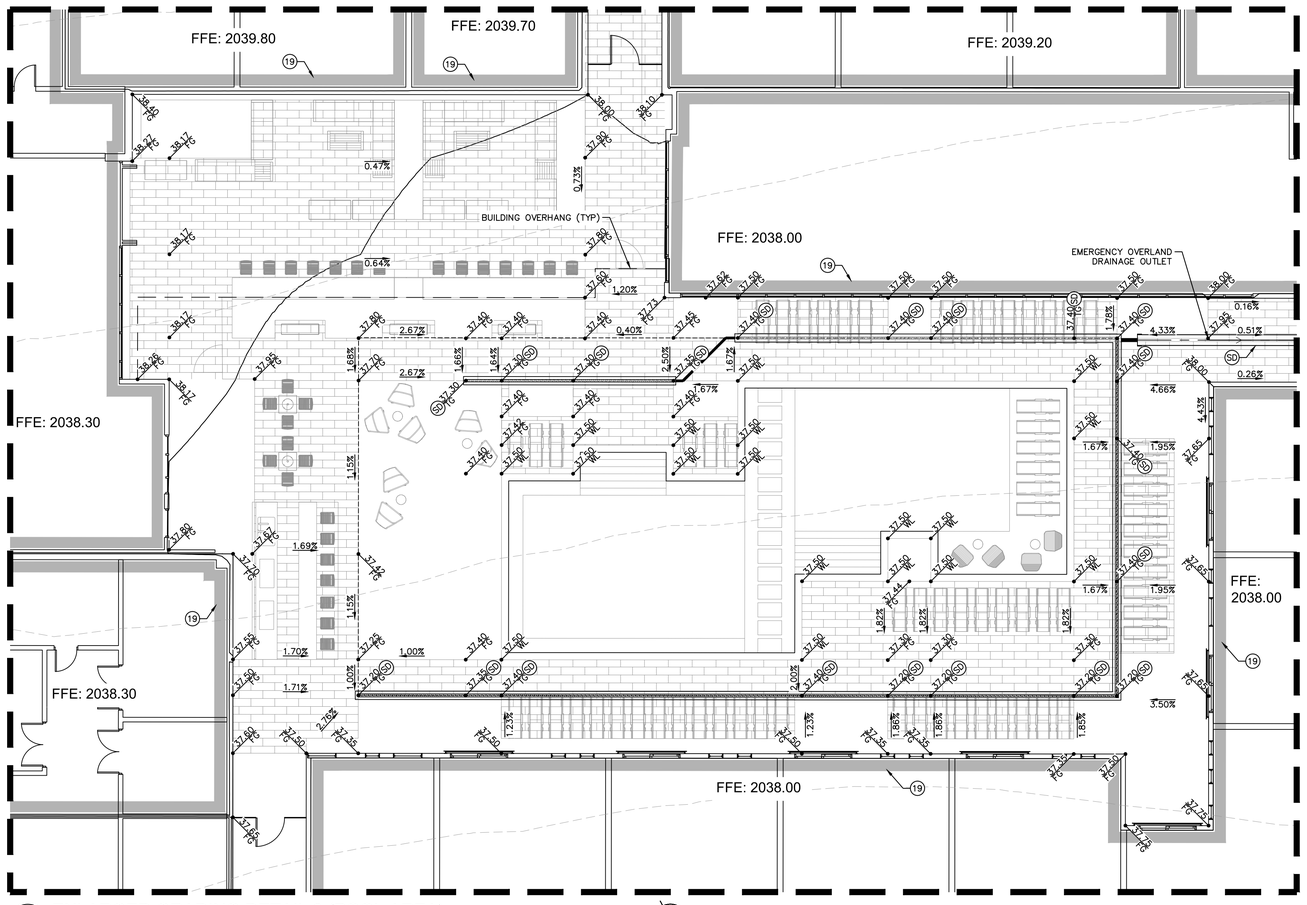
PROFESSIONAL ENGINEER - STATE OF NEVADA
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CIVIL

KHA PROJECT	192008000
DATE	12/20/2018
SCALE	AS SHOWN
DESIGNED BY	TEA
DRAWN BY	JPH
CHECKED BY	TEA

ENLARGED GRADING DETAILS SHEET 1

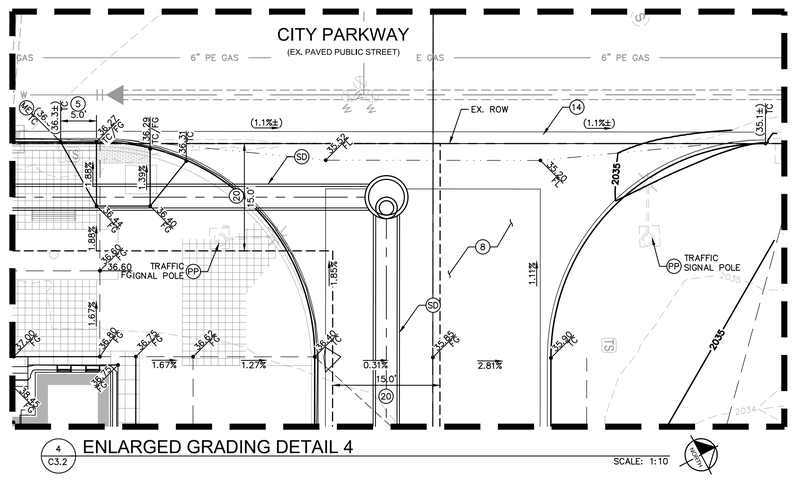
SYMPHONY PARK RESIDENTIAL
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ASPEN HEIGHTS PARTNERS
CITY OF LAS VEGAS NEVADA

SHEET NUMBER
C3.3



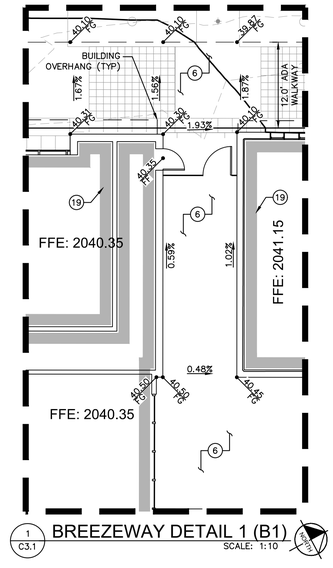
3 C3.2 ENLARGED GRADING DETAIL 3 (POOL AREA)

SCALE: 1:10



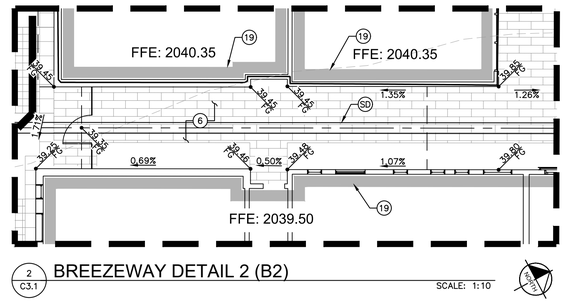
4 C3.2 ENLARGED GRADING DETAIL 4

SCALE: 1:10



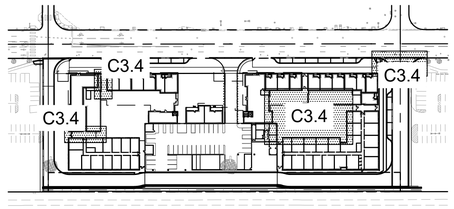
1 C3.1 BREEZEWAY DETAIL 1 (B1)

SCALE: 1:10



2 C3.1 BREEZEWAY DETAIL 2 (B2)

SCALE: 1:10



KEY MAP

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ALL GRADING SHALL CONFORM TO THE GEOTECHNICAL REPORT:

ENGINEER: NOVA GEOTECHNICAL & INSPECTION SERVICES
DATED: MAY 15, 2018
PROJECT No: G-18-038

CONSTRUCTION NOTES

(5) INSTALL TRANSITION FROM MODIFIED TYPE 'L' CURB TO "0" FACE CURB. LENGTH STATED ON PLAN.
(6) INSTALL CONCRETE SIDEWALK PER CCAUSD No. 234.
(8) INSTALL 3" ASPHALT PAVING OVER 11" TYPE 2 AGGREGATE BASE PER GEOTECHNICAL RECOMMENDATIONS.
(14) INSTALL COMMERCIAL DRIVEWAY PER CCAUSD No. 225 & PER CCAUSD No. 228.
(19) EXPOSED BUILDING FOUNDATION STEM WALL. SEE STRUCTURAL & ARCHITECTURAL PLANS FOR DETAILS.
(20) UNDERGROUND PUBLIC DRAINAGE EASEMENT PER DOC# _____
(MC) MATCH EXISTING.
(PP) PROTECT IN PLACE.
(SD) REFER TO STORM DRAIN PLANS FOR DETAIL (C3.10-C3.11)

FLOOD ZONE NOTE

THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) INDICATES THAT THE SITE IS LOCATED IN ZONE "X" OF THE FLOOD INSURANCE RATE MAP (FIRM) No. 32003C2170F AS SHOWN ON THE FIRM INDEX REVISED NOVEMBER 16, 2011. ZONE "X" IS DEFINED BY FEMA AS "AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN."

BENCHMARK

CITY OF LAS VEGAS VERTICAL CONTROL
BENCHMARK NO. "BLV013.3NE6"

MONUMENT DESCRIPTION IN RIVET & PLATE IN TOP OF CURB AT THE SOUTHWEST CORNER OF SYMPHONY PARK AVENUE AND GRAND CENTRAL PARKWAY.

ELEVATION = 619.999 METERS
2034.12 FEET

CITY OF LAS VEGAS VERTICAL CONTROL DATUM BASED UPON NORTH AMERICAN VERTICAL DATUM OF 2008 (NAVD '88)

BASIS OF BEARING

SOUTH 27°55'16" WEST, BEING THE EAST LINE OF LOT 5 OF THAT COMMERCIAL SUBDIVISION KNOWN AS "PARKWAY CENTER" ON FILE IN THE OFFICE OF THE COUNTY RECORDER, CLARK COUNTY, NEVADA IN BOOK 53 OF PLATS, AT PAGE 61.

AVOID HITTING UNDERGROUND TRAFFIC SIGNAL SYSTEMS AND STREET LIGHT SYSTEM CONDUITS. IT'S COSTLY.
CALL BEFORE YOU DO UNDERGROUND
Call before you UnderGround 1-702-432-5300 FREEWAY AND ARTERIAL SYSTEMS OF TRANSPORTATION (FAST)

Call before you Dig
Avoid cutting underground utility lines. It's costly.
CALL 811 OR 1-800-227-2600

Avoid overhead power line contact. It's costly.
Call Before You Overhead 1-702-227-2929

No.	REVISIONS	DATE	BY

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PROFESSIONAL ENGINEER — STATE OF NEVADA
THOMAS ACKERET
Exp. 12/31/18
CIVIL
No. 18592

KHA PROJECT 192008000
DATE 12/20/2018
SCALE AS SHOWN
DESIGNED BY TEA
DRAWN BY JPH
CHECKED BY TEA

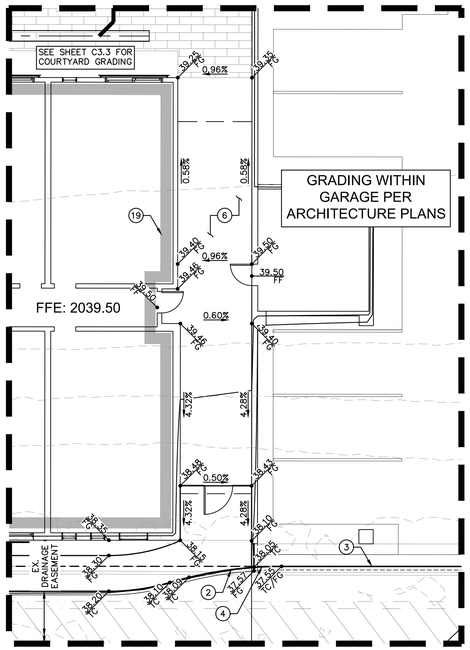
ENLARGED GRADING DETAILS SHEET 2

SYMPHONY PARK RESIDENTIAL
CIVIL IMPROVEMENT PLANS
PREPARED FOR
ASPEN HEIGHTS PARTNERS
CITY OF LAS VEGAS NEVADA

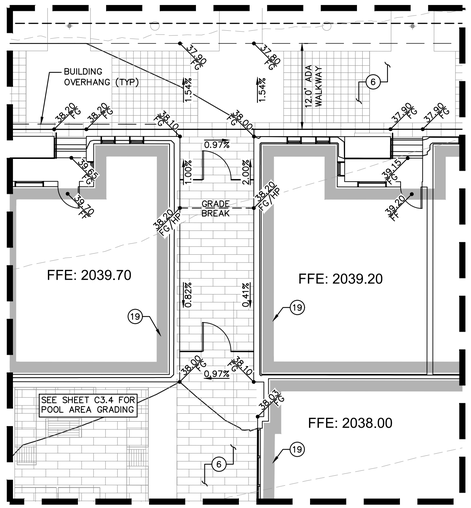
SHEET NUMBER
C3.4

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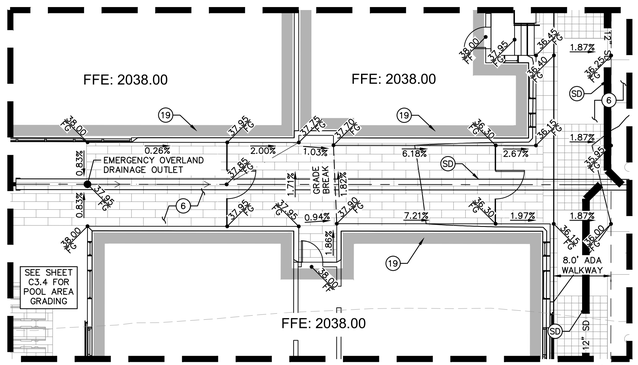
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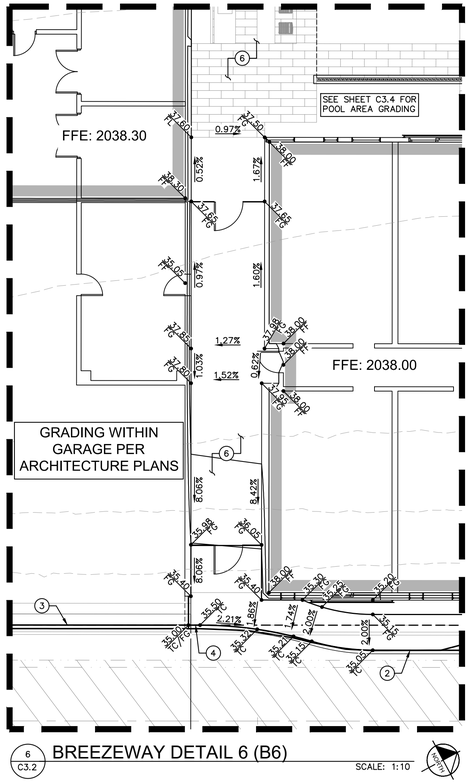
3 C3.1 BREEZEWAY DETAIL 3 (B3) SCALE: 1:10



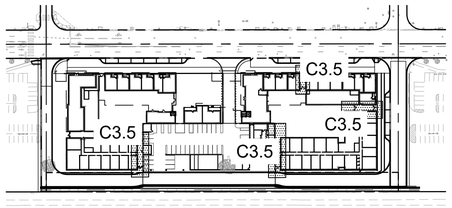
4 C3.2 BREEZEWAY DETAIL 4 (B4) SCALE: 1:10



5 C3.2 BREEZEWAY DETAIL 5 (B5) SCALE: 1:10



6 C3.2 BREEZEWAY DETAIL 6 (B6) SCALE: 1:10



KEY MAP

NTS

GENERAL NOTES

1. CONTRACTOR TO VERIFY EXISTING IMPROVEMENTS SHOWN ON THE PLAN.
2. CONTRACTOR TO PROTECT IN PLACE, DURING DEMOLITION AND CONSTRUCTION, ALL EXISTING IMPROVEMENTS THAT ARE TO REMAIN AS NOTED ON THE PLAN.
3. ANY EXISTING STRUCTURE, IMPROVEMENT, OR APPURTENANCE TO REMAIN THAT IS DAMAGED DURING DEMOLITION OR CONSTRUCTION SHALL BE IMMEDIATELY REPAIRED OR REPLACED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.
4. CONTRACTOR SHALL VERIFY AND LOCATE ALL EXISTING UNDERGROUND UTILITIES BEFORE CONSTRUCTION AND PROTECT IN PLACE UNLESS NOTED ON THE PLANS.
5. ALL DIMENSIONS ARE MEASURED FROM BACK OF CURB UNLESS OTHERWISE NOTED ON PLANS.
6. ADD 2000 FEET TO ALL SPOT ELEVATIONS UNLESS OTHERWISE NOTED.

GEOTECHNICAL REPORT

ALL GRADING SHALL CONFORM TO THE GEOTECHNICAL REPORT:

ENGINEER: NOVA GEOTECHNICAL & INSPECTION SERVICES
DATED: MAY 15, 2018
PROJECT No: G-18-038

CONSTRUCTION NOTES

(2) INSTALL MODIFIED TYPE 'A' CONCRETE CURB PER DETAIL PER DETAIL 2 ON SHEET C3.8
(3) INSTALL 0" FACE CURB PER DETAIL 3 ON SHEET C3.8.
(6) INSTALL CONCRETE SIDEWALK PER CCAUSD No. 234.
(19) EXPOSED BUILDING FOUNDATION STEM WALL. SEE STRUCTURAL & ARCHITECTURAL PLANS FOR DETAILS.
(SD) REFER TO STORM DRAIN PLANS FOR DETAIL (C3.10-C3.11)

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THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) INDICATES THAT THE SITE IS LOCATED IN ZONE "X" OF THE FLOOD INSURANCE RATE MAP (FIRM) No. 32003C2170F AS SHOWN ON THE FIRM INDEX REVISED NOVEMBER 16, 2011. ZONE "X" IS DEFINED BY FEMA AS "AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN."

BENCHMARK

CITY OF LAS VEGAS VERTICAL CONTROL
BENCHMARK NO. "BLV01.33NE6"

MONUMENT DESCRIPTION IN RIVET & PLATE IN TOP OF CURB AT THE SOUTHWEST CORNER OF SYMPHONY PARK AVENUE AND GRAND CENTRAL PARKWAY.

ELEVATION = 619.999 METERS
2034.12 FEET

CITY OF LAS VEGAS VERTICAL CONTROL DATUM BASED UPON NORTH AMERICAN VERTICAL DATUM OF 2008 (NAVD '88)

BASIS OF BEARING

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Call before you Dig Avoid cutting underground utility lines. It's costly. CALL 811 OR 1-800-227-2600
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No.	REVISIONS	DATE	BY

Kimley»Horn
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PHONE: 702-862-3600
WWW.KIMLEY-HORN.COM

PROFESSIONAL ENGINEER - STATE OF NEVADA
THOMAS ACKERET
Exp. 12/31/18
CIVIL
No. 18592

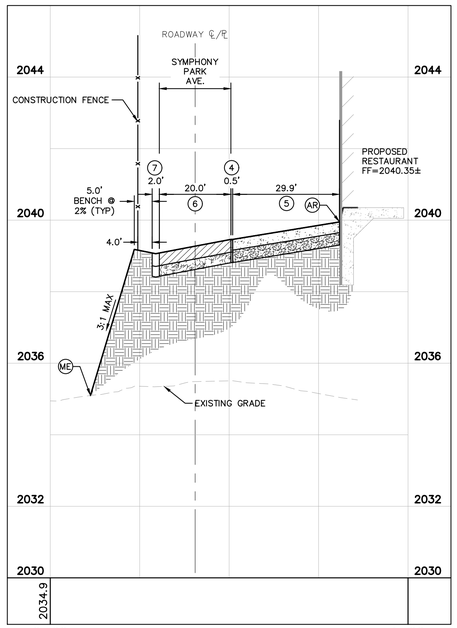
KHA PROJECT	192008000
DATE	12/20/2018
SCALE	AS SHOWN
DESIGNED BY	TEA
DRAWN BY	JPH
CHECKED BY	TEA

ENLARGED GRADING DETAILS SHEET 3

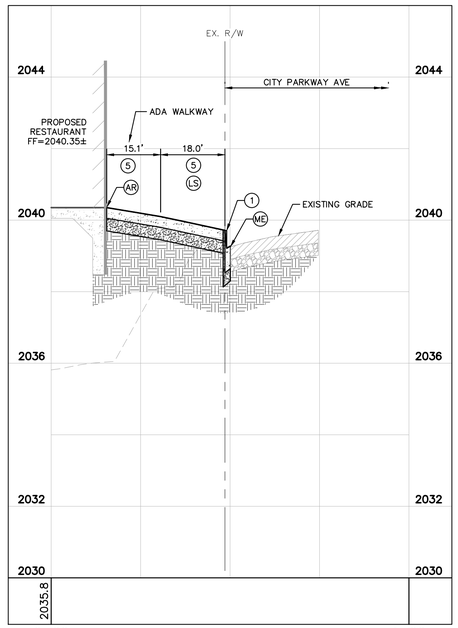
SYMPHONY PARK RESIDENTIAL
CIVIL IMPROVEMENT PLANS
PREPARED FOR
ASPEN HEIGHTS PARTNERS
CITY OF LAS VEGAS NEVADA

SHEET NUMBER
C3.5

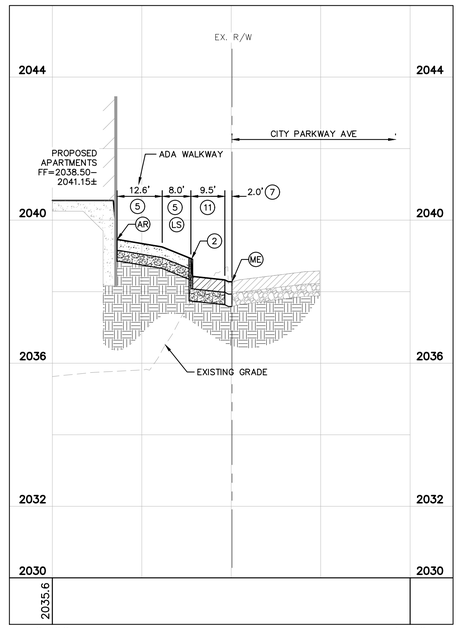
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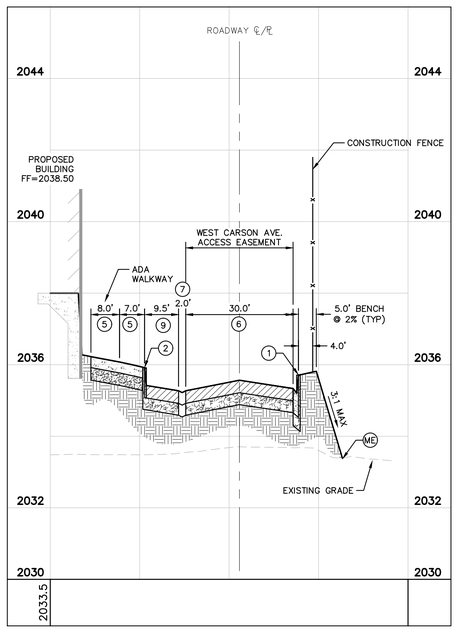
SECTION A



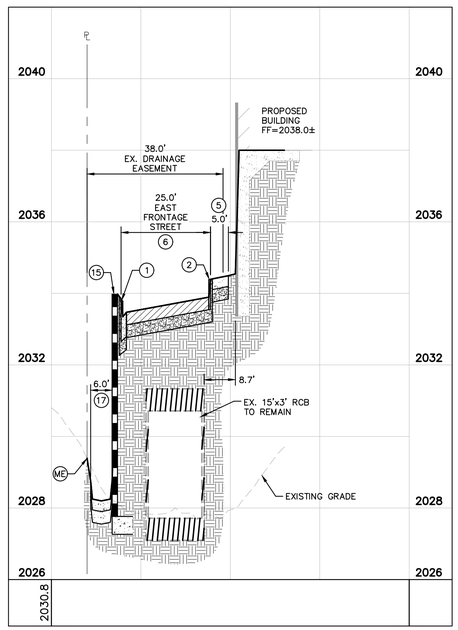
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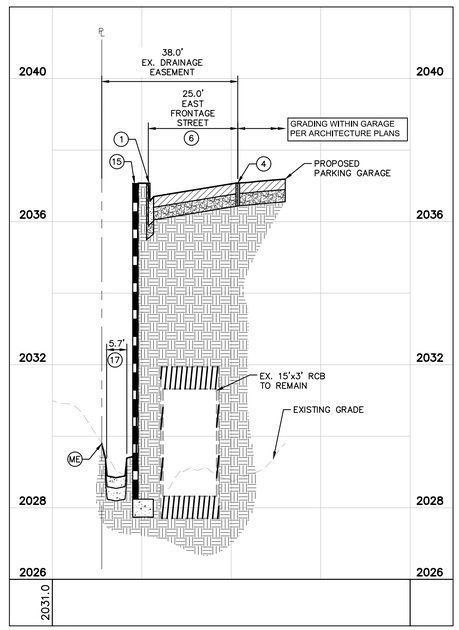
SECTION C



SECTION D



SECTION E



SECTION F

GENERAL NOTES

1. CONTRACTOR TO VERIFY EXISTING IMPROVEMENTS SHOWN ON THE PLAN.
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CONSTRUCTION NOTES

(1) INSTALL MODIFIED TYPE 'L' CONCRETE CURB AND GUTTER PER DETAIL 1 ON SHEET C3.8
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(5) INSTALL CONCRETE SIDEWALK PER CCAUSD No. 234.
(6) INSTALL 3" ASPHALT PAVING OVER 11" TYPE 2 AGGREGATE BASE PER GEOTECHNICAL RECOMMENDATIONS.
(7) INSTALL 2' VALLEY GUTTER PER DETAIL 4 ON SHEET C3.8.
(9) INSTALL 2" ASPHALT PAVING OVER 7" TYPE 2 AGGREGATE BASE PER GEOTECHNICAL RECOMMENDATIONS.
(11) INSTALL ASPHALT PAVING SECTION (MATCH EXISTING).
(12) INSTALL 2' ADA COMPLIANT VALLEY GUTTER PER DETAIL 6 ON SHEET C3.8
(15) INSTALL RETAINING WALL BY-OTHERS.
(17) INSTALL 5" X 0.5" CONCRETE U-CHANNEL.
(AR) REFER TO ARCHITECTURAL PLANS FOR DETAILS.
(LS) REFER TO LANDSCAPE PLANS FOR DETAILS.
(ME) MATCH EXISTING

BENCHMARK

CITY OF LAS VEGAS VERTICAL CONTROL
BENCHMARK NO. "BLV0133NE6"

MONUMENT DESCRIPTION IN RIVET & PLATE IN TOP OF CURB AT THE SOUTHWEST CORNER OF SYMPHONY PARK AVENUE AND GRAND CENTRAL PARKWAY.

ELEVATION = 619.999 METERS
2034.12 FEET

CITY OF LAS VEGAS VERTICAL CONTROL DATUM BASED UPON NORTH AMERICAN VERTICAL DATUM OF 2008 (NAVD '88)

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GRAPHIC SCALE IN FEET
0 10 20 40
HORIZONTAL
0 1 2 4
VERTICAL

AVOID HITTING UNDERGROUND GAS, ELECTRIC, TELEPHONE AND STREET LIGHT SYSTEM CONDUITS IT'S COSTLY
CALL BEFORE YOU DO UNDERGROUND
Call before you UnderGround
1-702-432-5300
FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION (FAST)
Call before you Dig
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No.	REVISIONS	DATE	BY

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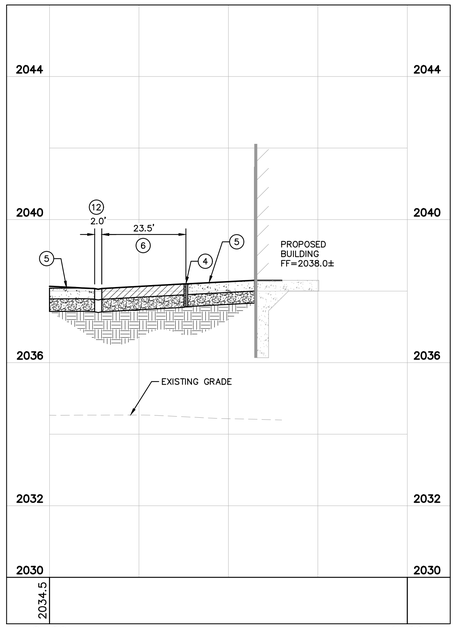
PROFESSIONAL ENGINEER - STATE OF NEVADA
THOMAS ACKERET
Exp. 12/31/18
CIVIL
No. 18592

KHA PROJECT	192008000
DATE	12/20/2018
SCALE	AS SHOWN
DESIGNED BY	TEA
DRAWN BY	JPH
CHECKED BY	TEA

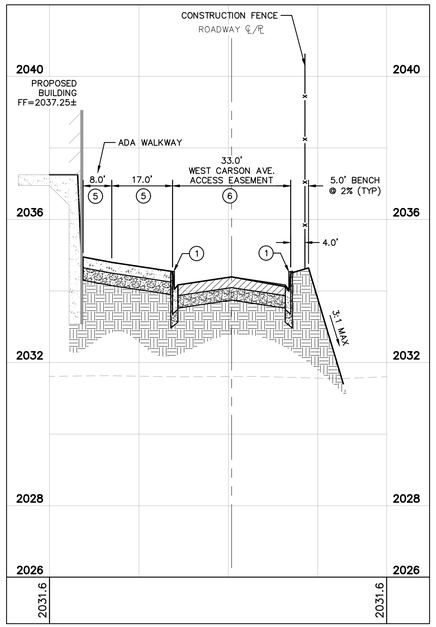
GRADING SECTIONS SHEET 1

SYMPHONY PARK RESIDENTIAL
CIVIL IMPROVEMENT PLANS
PREPARED FOR
ASPEN HEIGHTS PARTNERS
CITY OF LAS VEGAS NEVADA

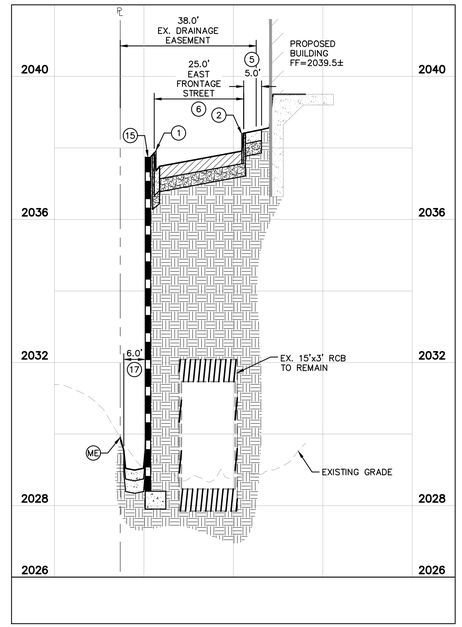
SHEET NUMBER
C3.6



SECTION G



SECTION H



SECTION I

GENERAL NOTES

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(2) INSTALL MODIFIED TYPE 'A' CONCRETE CURB PER DETAIL PER DETAIL 2 ON SHEET C3.8
(4) INSTALL 0" FACE CURB PER DETAIL 3 ON SHEET C3.8.
(5) INSTALL CONCRETE SIDEWALK PER CCAUSD No. 234.
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(12) INSTALL 2' ADA COMPLIANT VALLEY GUTTER PER DETAIL 6 ON SHEET C3.8
(15) INSTALL RETAINING WALL BY-OTHERS.
(17) INSTALL 5' X 0.5' CONCRETE U-CHANNEL.
(ME) MATCH EXISTING

BENCHMARK

CITY OF LAS VEGAS VERTICAL CONTROL
BENCHMARK NO. "8LV0133NE6"

MONUMENT DESCRIPTION IN RIVET & PLATE IN TOP OF CURB AT THE SOUTHWEST CORNER OF SYMPHONY PARK AVENUE AND GRAND CENTRAL PARKWAY.

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GRAPHIC SCALE IN FEET
0 10 20 40
HORIZONTAL
0 1 2 4
VERTICAL

AVOID HITTING UNDERGROUND UTILITY LINES. IT'S COSTLY AND SINCE LIGHT SYSTEM OUTAGES IT'S COSTLY

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FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION (FAST)

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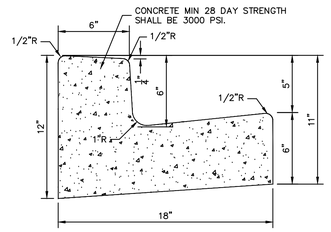
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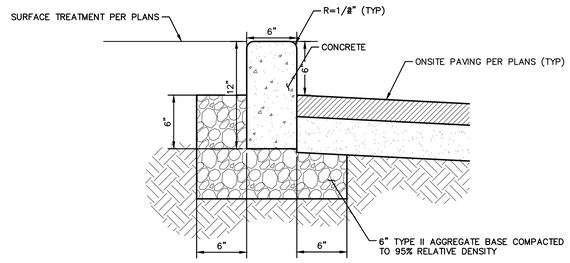
GRADING SECTIONS SHEET 2

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CITY OF LAS VEGAS NEVADA

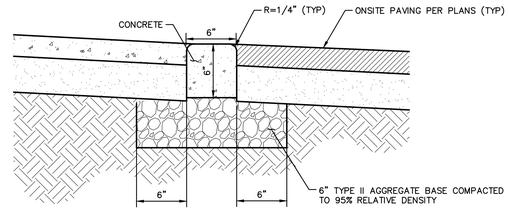
SHEET NUMBER
C3.7



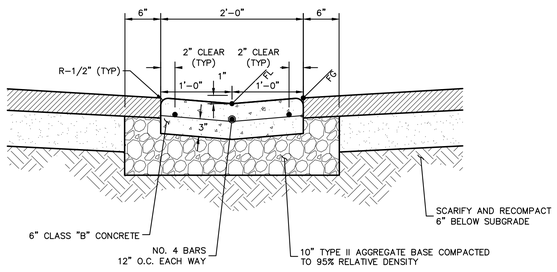
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MODIFIED "L" CURB & GUTTER
NTS



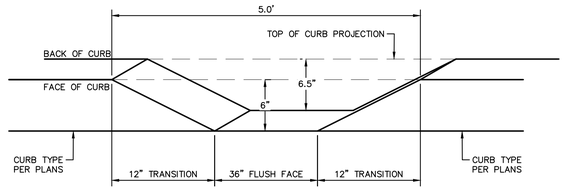
2 — DETAIL 2
MODIFIED 'TYPE A' CURB DETAIL
NTS



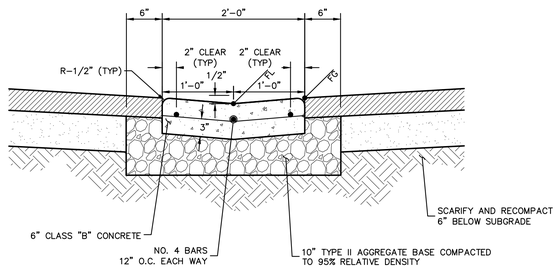
3 — DETAIL 3
FLUSH CURB DETAIL
NTS



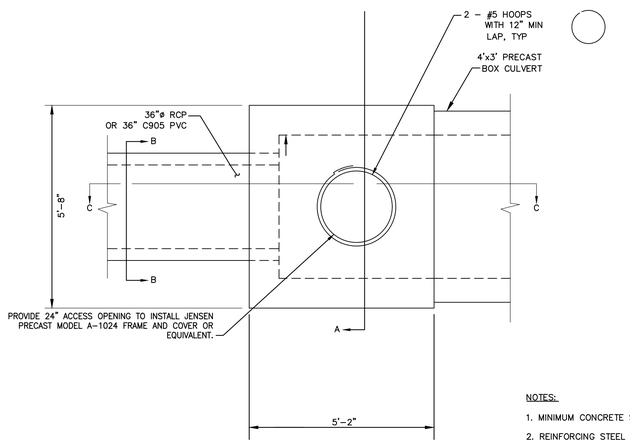
4 — DETAIL 4
ONSITE 2' VALLEY GUTTER DETAIL
NTS



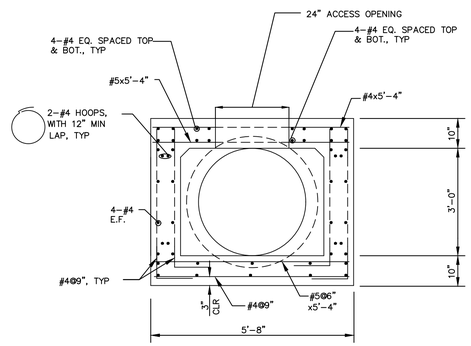
5 — DETAIL 5
3' CURB CUT DETAIL
NTS



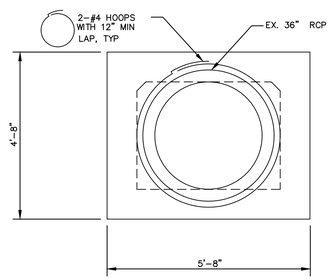
6 — DETAIL 6
2' ADA COMPLIANT VALLEY GUTTER DETAIL
NTS



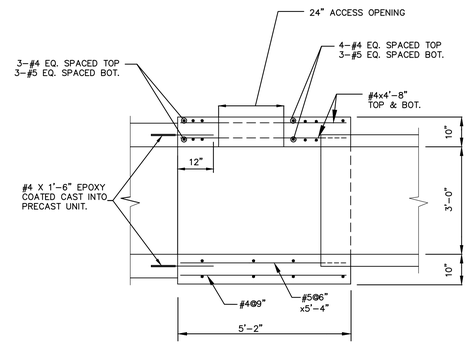
PLAN VIEW
NOT TO SCALE



SECTION A-A
NOT TO SCALE



SECTION B-B
NOT TO SCALE



SECTION C-C
NOT TO SCALE

NOTES:

1. MINIMUM CONCRETE STRENGTH TO BE f'c=4500psi AT 28 DAYS.
2. REINFORCING STEEL SHALL BE ASTM 615, GRADE 60.
3. ALL BENDS AND HOOKS SHALL MEET THE REQUIREMENTS OF AASHTO ARTICLE 8.23. ALL BEND DIMENSIONS FOR REINFORCING STEEL SHALL BE OUT-TO-OUT OF BARS. ALL PLACEMENT DIMENSIONS FOR REINFORCING STEEL SHALL BE CENTER-TO-CENTER OF BARS, UNLESS NOTED OTHERWISE.
4. CUT REINFORCING STEEL TO CLEAR OPENING.
5. ALL REINFORCING STEEL SHALL HAVE 2" CLEAR COVER, UNLESS NOTED OTHERWISE.

7 — DETAIL 7
CAST-IN PLACE JUNCTION STRUCTURE
NTS

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No.	REVISIONS	DATE	BY

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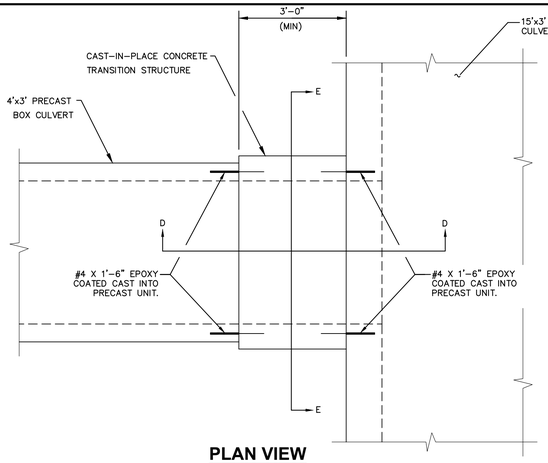
PROFESSIONAL ENGINEER - STATE OF NEVADA
THOMAS ACKERET
Exp. 12/31/18
CIVIL
No. 18597

KHA PROJECT 192008000
DATE 12/20/2018
SCALE AS SHOWN
DESIGNED BY TEA
DRAWN BY JPH
CHECKED BY TEA

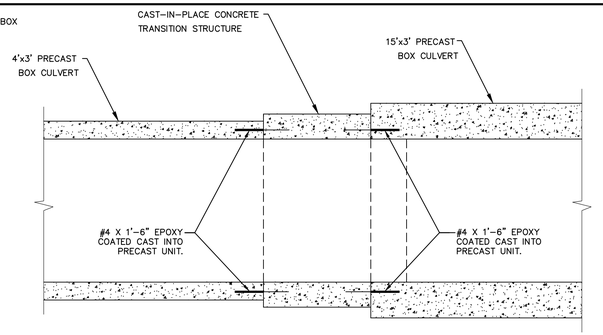
GRADING & STORM DRAIN DETAIL SHEET 1

SYMPHONY PARK RESIDENTIAL
CIVIL IMPROVEMENT PLANS
PREPARED FOR
ASPEN HEIGHTS PARTNERS
CITY OF LAS VEGAS NEVADA

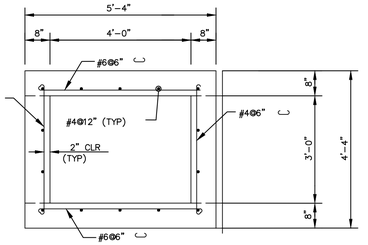
SHEET NUMBER
C3.8



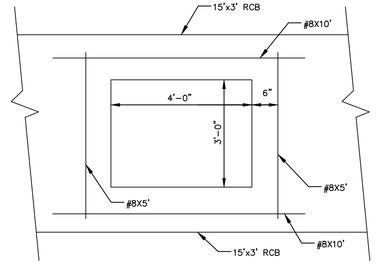
PLAN VIEW
NOT TO SCALE



SECTION D-D
NOT TO SCALE

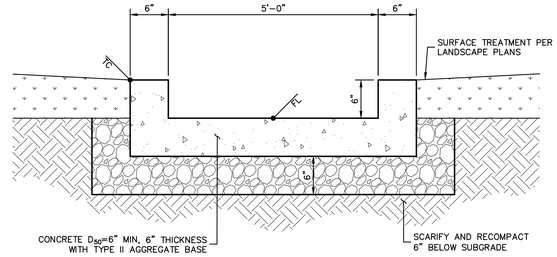


SECTION E-E
NOT TO SCALE



15'X3' RCB OPENING DETAIL
NOT TO SCALE

8 — DETAIL8
15'x3' PRECAST CULVERT-TO-4'x3' PRECAST CULVERT CONNECTION NTS



9 — DETAIL 9
5' WIDE RECTANGULAR CONCRETE DRAINAGE SWALE (U-CHANNEL) NTS

BILL OF MATERIALS (RCP HDPE CMP)

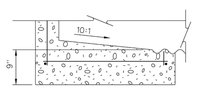
PIPE SIZE (INCH)	SINGLE (ONE GRATE) ✱ CONCRETE (CY) BASE QUAN. (H MIN.)	ADD RATE (CY/FT)	✱ REINF. (LB.) BASE QUAN. (H MIN.)	ADD RATE (LB/FT)	STR STEEL (LB)	DOUBLE (TWO GRATES) ✱ CONCRETE (CY) BASE QUAN. (H MIN.)	ADD RATE (CY/FT)	✱ REINF. (LB.) BASE QUAN. (H MIN.)	ADD RATE (LB/FT)	STR STEEL (LB)	TRIPLE (THREE GRATES) ✱ CONCRETE (CY) BASE QUAN. (H MIN.)	ADD RATE (CY/FT)	✱ REINF. (LB.) BASE QUAN. (H MIN.)	ADD RATE (LB/FT)	STR STEEL (LB)
≤15	0.71	0.19	36	10	211	1.06	0.26	50	13	397	1.41	0.33	70	17	583
18	0.89	0.20	40	10	306	1.31	0.28	56	13	574	1.72	0.35	77	18	842
24	1.08	0.22	58	12	349	1.56	0.30	80	15	652	2.04	0.37	105	20	956
30	1.28	0.24	63	12	390	1.83	0.31	86	16	729	2.38	0.39	113	20	1068
36	1.50	0.26	67	13	524	2.11	0.33	92	16	980	2.72	0.41	120	21	1435
42	1.71	0.28	90	15	575	2.39	0.35	120	18	1073	3.07	0.43	154	22	1571
48	1.94	0.30	95	15	707	2.68	0.37	127	18	1329	3.42	0.44	163	23	1951

✱The Concrete And Reinforcing Quantities Are Based On The H Min. Shown. Increase The Concrete And Reinforcing Base Quantity By The Corresponding Add Rate (Per Foot Of Increased H) If The H Specified Is Larger Than H Min.

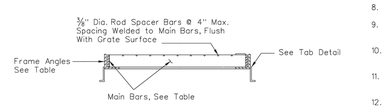
TABLE OF DIMENSIONS (RCP HDPE CMP)

PIPE SIZE (INCH)	A	H Min. (FT)	MAIN BARS (INCH)	FRAME ANGLES (INCH)	FRAME BARS (INCH)	L (FT) SINGLE GRATE	DOUBLE GRATE	TRIPLE GRATE
≤ 15	2'	2.50	3½ X ⅜	4 X 3 X ⅜	4 X ⅜	2'	4'	6'
18	2' 6"	3.00	4½ X ⅜	5 X 3 X ⅜	5 X ⅜	2'	4'	6'
24	3'	3.50	4½ X ⅜	5 X 3 X ¾	5 X ¾	2'	4'	6'
30	3' 6"	4.00	4½ X ⅜	5 X 3 X ¾	5 X ¾	2'	4'	6'
36	4'	4.50	5½ X ⅜	6 X 3½ X ⅜	6 X ⅜	2'	4'	6'
42	4' 6"	5.00	5½ X ⅜	6 X 3½ X ⅜	6 X ⅜	2'	4'	6'
48	5'	5.50	5½ X ⅞	6 X 3½ X ⅜	6 X ⅜	2'	4'	6'

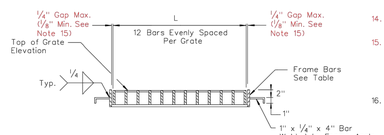
R-43



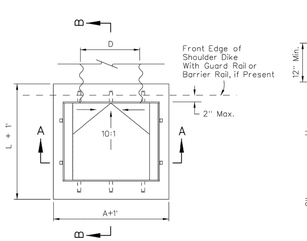
SECTION B-B



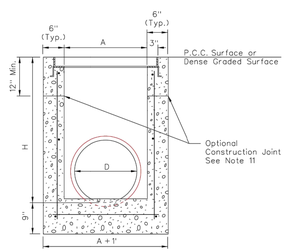
SECTION D-D



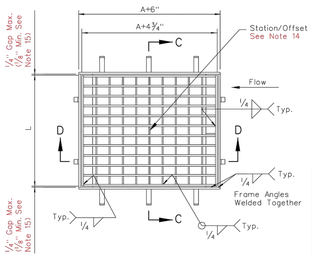
SECTION C-C



PLAN



SECTION A-A



GRATE AND FRAME

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

DROP INLET
TYPE 2

R-4.2.1	(609)	Signed Original On File
ADOPTED 11/70	REVISED 10/15	CHIEF HYDRAULICS ENGR.

10 — DETAIL 10
DROP INLET TYPE 2 DETAIL NTS

NOTES:

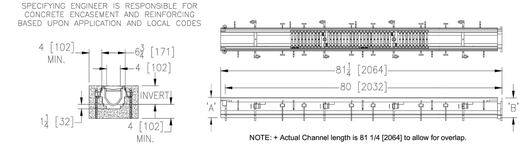
1. All concrete shall be class A or AA.
2. Reinforcing steel shall be No.4 bars with maximum spacing at 18 inch centers, wired tightly at all intersections and embedded 2 inches clear of all concrete surfaces.
3. Exposed edges of concrete shall be chamfered 1 inch.
4. Dimensions may be varied to fit local conditions if ordered by the engineer.
5. Commercial prefabricated gratings approved by the bridge division may be used in lieu of the field-welded grating shown.
6. Extreme low cover situations to be reviewed by hydraulics engineer.
7. Slope catch basin floors 10:1 from all directions toward outlet pipe. If basin is used as a junction, shape flow line(s) to outlet pipe and provide a 10:1 slope to flow line(s).
8. See sheet R-2.9.1 for details if connecting HDPE pipe.
9. A single Type 2 drop inlet shall be constructed unless a double or triple is specified.
10. Single grate configuration shown for clarity. Outside dimensions of each grate shall measure 2 feet by A+4¾".
11. Run rebar continuous thru construction joint. Joint must be a minimum of 3 inches from horizontal bars.
12. Weld one tab on ℄ of grate and remaining two tabs 6 inches from edge of frame. Six tabs per inlet, three tabs on each side
13. Weld tabs 6 inches from edge of frame. Four tabs per grate, two on each side.
14. For multiple grate installations, the station/offset is to the center of the concrete drop inlet structure.
15. Grate is to fit in the frame and be easily removed. If the gap between the grate and frame is greater than ¼" on each side of the grate, the grate and frame shall be removed and reconstructed to the tolerances specified or, with approval of the engineer, a filler strip up to ¼" in thickness may be welded flush to the top of the frame to reduce the gap to a maximum of ¼"
16. Additional pipe penetrations may be placed in any wall. Pipe penetrations are to be to the center of the structure wall unless specified otherwise.

Z886-HD
6-3/4 [171] WIDE REVEAL TRENCH DRAIN SYSTEM WITH HEAVY-DUTY FRAME ASSEMBLY

SPECIFICATION SHEET
TAG _____

Dimensional Data (inches and [mm]) are Subject to Manufacturing Tolerances and Change Without Notice

SPECIFYING ENGINEER IS RESPONSIBLE FOR CONCRETE ENCASEMENT AND REINFORCING BASED UPON APPLICATION AND LOCAL CODES



NOTE: + Actual Channel length is 81 1/4 [2064] to allow for overlap.

ENGINEERING SPECIFICATION: Zurn Z886-HD
Channels are 80" [2032 mm] long, 6-3/4" [171 mm] wide reveal and have a 4" [102 mm] throat. Modular channel sections are made of 0% water absorbent High Density Polyethylene (HDPE). Channels have a positive mechanical connection between channel sections that will not separate during the installation and mechanically lock into the concrete surround every 10" [254 mm]. Channels weigh less than 2.31 lbs.[1.05kg] per linear foot, have a smooth, 1-1/2" [38 mm] radiused self cleaning bottom with a Manning's coefficient of .009 and .75% or neutral 0% built in slope. Channels have rebar clips standard to secure trench in its final location. Channels provided with standard DGC grates that lock down to frame. Zurn 5.375" [137 mm] wide reveal Ductile Iron Slotted Grate conforming to ASTM specification A536-84, Grade 80-55-06. Ductile Iron grate is rated class C per the DIN EN1433 top load classifications. Supplied in 20" [508 mm] nominal lengths with 1/2" [13 mm] wide slots, and 3/4" [19 mm] bearing depth. Grate has an open area of 28.1 sq. in per ft. [59,463 sq. mm per meter]. The .105" [2.67 mm] thick Heavy-Duty Carbon Steel Frame Assembly conforms to ASTM specification A36 with 10 - 4" [102 mm] long concrete anchors per 80" [2032 mm]. Grate lockdown bars are to be integral to the frame. Frame supplied with powder coated finish. All welds must be performed by a certified welder per ASTM standard AWS D1.1. Frames produced in the U.S.A.

PREFIX OPTIONS (Check/specify appropriate options)
____ Z Six-foot, Eight-inch High Density Polyethylene (HDPE)*

SUFFIX OPTIONS (Check/specify appropriate options)

Outlet Adapters Add/Each
____ -E1 Closed End Cap
____ -E2 2 [51] No-Hub End Outlet
____ -E3 3 [76] No-Hub End Outlet
____ -E4 4 [102] No-Hub End Outlet
____ -E6 6 [152] No-Hub End Outlet
____ -U2 2 [51] No-Hub Bottom Outlet
____ -U3 3 [76] No-Hub Bottom Outlet
____ -U4 4 [102] No-Hub Bottom Outlet
____ -U6 6 [152] No-Hub Bottom Outlet

Frame Options
____ -CBF Black Acid Resistant Coated Top Frame
____ -LD Light Duty Grates on Heavy Duty Frame
____ -SW Sidewall Extension - 9 [229] High
____ -SW2 Sidewall Extension - 18 [457] High

Grate Options (Load Classifications are per DIN EN1433)
____ -BDC Black Acid Resistant Epoxy Coated Ductile Grate - Class C
____ -BDE Black Acid Resistant Epoxy Coated Ductile Grate - Class E
____ -BG Galvanized Ductile Iron Bar Grate - Class C
____ -DBG Ductile Iron Cast Bar Grate - Class C
____ -DC Ductile Iron Solid Cover - Class C
____ -DGC Ductile Iron Slotted Grate - Class C *
____ -DGE Ductile Iron Slotted Grate - Class E
____ -GDC Galvanized Ductile Iron Slotted Grate - Class C
____ -GDE Galvanized Ductile Iron Slotted Grate - Class E
____ -GHPDE Galvanized Heel-Proof Ductile Grate - Class E
____ -HPDE Heel-Proof Ductile Slotted Grate - Class E
____ -RPGC Reinforced Slotted Galvanized Grate - Class C
____ -RFSC Reinforced Slotted Stainless Steel Grate - Class C
____ -RPGC Reinforced Perforated Galvanized Grate - Class C
____ -RPGRC Reinforced Perforated Galvanized Reverse Punch Grate - Class C
____ -RPSC Reinforced Perforated Stainless Steel Grate - Class C
____ -RPSRC Reinforced Perforated Stainless Steel Reverse Punch Grate - Class C

Miscellaneous Options
____ -JC Joint Connector
____ -VP Vandal-Proof Lockdown

Trench No.	'A' Shallow Inv.	'B' Deep Inv.	Flow (cfs)	(gpm)	(lps)
8601	3.50 [89]	4.10 [104]	0.21	93	6
8602	4.10 [104]	4.70 [119]	0.27	122	8
8603	4.70 [119]	5.30 [135]	0.34	152	10
8603N	5.30 [135]	5.30 [135]	-	-	-
8604	5.30 [135]	5.90 [150]	0.41	183	12
8605	5.90 [150]	6.50 [165]	0.48	214	13
8606	6.50 [165]	7.10 [180]	0.55	245	15
8606N	7.10 [180]	7.10 [180]	-	-	-
8607	7.10 [180]	7.70 [196]	0.62	276	17
8608	7.70 [196]	8.30 [211]	0.69	308	19
8609	8.30 [211]	8.90 [229]	0.76	339	21
8610	8.90 [226]	9.50 [241]	0.83	371	23
8611	9.50 [241]	10.10 [257]	0.90	403	25
8612	10.10 [257]	10.70 [272]	0.97	435	27
8612N	10.70 [272]	10.70 [272]	-	-	-
8613	10.70 [272]	11.30 [287]	1.04	467	29
8614	11.30 [287]	11.90 [302]	1.11	498	31
8615	11.90 [302]	12.50 [318]	1.18	530	33

Decorative Grate Options (Load Classifications are per DIN EN1433)
____ -SBG Stainless Steel Bar Grate - Class E

MADE in the U.S.A.
____ -BDC-USA Black Acid Resistant Epoxy Coated Ductile Grate - Class E
____ -DGC-USA Ductile Iron Slotted Grate - Class C
____ -DGE-USA Ductile Iron Slotted Grate - Class E
____ -GDC-USA Galvanized Ductile Slotted Grate - Class C
____ -GDE-USA Galvanized Ductile Slotted Grate - Class E
____ -GHPDE-USA Galvanized Heel-Proof Ductile Grate - Class E
____ -HPDE-USA Heel-Proof Ductile Slotted Grate - Class E
____ -PPC Plastic Perforated Grate - Class C

Miscellaneous Options
____ -DB Bottom Dome Strainer

* Regularly furnished unless otherwise specified.

Zurn Industries, LLC | Specification Drainage Operation
1801 Pittsburgh Avenue, Erie, PA U.S.A. 16502 · Ph. 855-663-9876, Fax 814-454-7929
In Canada | **Zurn Industries Limited**
3544 Nashua Drive, Mississauga, Ontario L4V 1L2 · Ph. 905-405-8272, Fax 905-405-1292
www.zurn.com

Rev. F
Date: 1/26/2017
C.N. No. 136162
Prod. | Dwg. No. Z886-HD

11 — DETAIL 11
TRENCH DRAIN DETAIL NTS

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No.	REVISIONS	DATE	BY

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PROFESSIONAL ENGINEER — STATE OF NEVADA
THOMAS ACKERET
No. 18592
Exp. 12/31/18
CIVIL

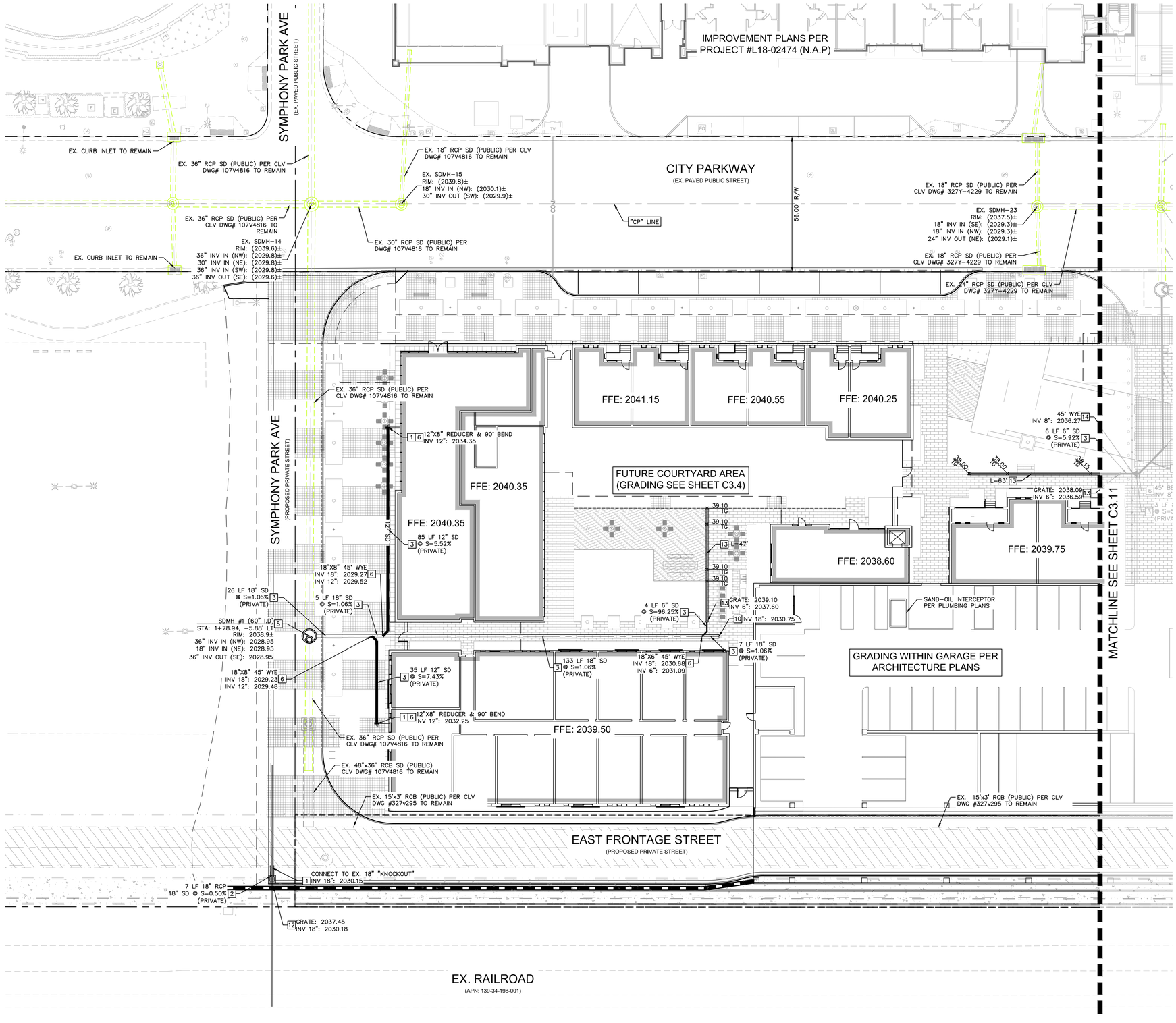
KHA PROJECT 192008000	DATE 12/20/2018
SCALE AS SHOWN	DESIGNED BY TEA
DRAWN BY JPH	CHECKED BY TEA

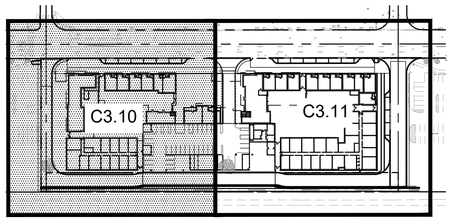
GRADING & STORM DRAIN DETAIL SHEET 2

SYMPHONY PARK RESIDENTIAL
CIVIL IMPROVEMENT PLANS
PREPARED FOR
ASPEN HEIGHTS PARTNERS
CITY OF LAS VEGAS NEVADA

SHEET NUMBER
C3.9

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KEY MAP

NTS

GENERAL NOTES

1. CONTRACTOR TO VERIFY EXISTING IMPROVEMENTS SHOWN ON THE PLAN.
2. CONTRACTOR TO PROTECT IN PLACE, DURING DEMOLITION AND CONSTRUCTION, ALL EXISTING IMPROVEMENTS THAT ARE TO REMAIN AS NOTED ON THE PLAN.
3. ANY EXISTING STRUCTURE, IMPROVEMENT, OR APPURTENANCE TO REMAIN THAT IS DAMAGED DURING DEMOLITION OR CONSTRUCTION SHALL BE IMMEDIATELY REPAIRED OR REPLACED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.
4. CONTRACTOR SHALL VERIFY AND LOCATE ALL EXISTING UNDERGROUND UTILITIES BEFORE CONSTRUCTION AND PROTECT IN PLACE UNLESS NOTED ON THE PLANS.
5. ALL DIMENSIONS ARE MEASURED FROM BACK OF CURB UNLESS OTHERWISE NOTED ON PLANS.
6. ADD 2000 FEET TO ALL SPOT ELEVATIONS UNLESS OTHERWISE NOTED.

STORM DRAIN NOTES

1. STORM DRAIN POINT OF CONNECTION. REFER TO MEP PLANS FOR CONTINUATION
2. INSTALL RCP STORM DRAIN PIPE WITH EXCAVATION, BACKFILL AND TYPE 2 BEDDING PER CCAUSD No. 503. CLASS, SIZE, LENGTH AND SLOPE AS NOTED ON PLAN.
3. INSTALL HDPE STORM DRAIN PIPE WITH EXCAVATION, BACKFILL AND TYPE 2 BEDDING PER CCAUSD No. 503.1. SIZE, LENGTH AND SLOPE AS NOTED ON PLAN.
5. INSTALL TYPE III STORM DRAIN MANHOLE PER CCAUSD No. 406.1, COLLAR PER CCAUSD No. 408.1, COVER PER CCAUSD No. 409.1 AND 410.
6. INSTALL HDPE FITTING, SIZE PER PIPE. TYPE AS NOTED ON PLAN.
10. CAP STORM DRAIN PIPE.
12. INSTALL NDOT TYPE 2 STORM DRAIN DROP INLET PER DETAIL 10 ON SHEET C3.9
13. INSTALL TRENCH DRAIN PER DETAIL 11 ON SHEET C3.9
14. INSTALL 8"X6" REDUCER

FLOOD ZONE NOTE

THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) INDICATES THAT THE SITE IS LOCATED IN ZONE "X" OF THE FLOOD INSURANCE RATE MAP (FIRM) No. 32003C2170F AS SHOWN ON THE FIRM INDEX REVISED NOVEMBER 16, 2011. ZONE "X" IS DEFINED BY FEMA AS "AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN."

BENCHMARK

CITY OF LAS VEGAS VERTICAL CONTROL
BENCHMARK NO. "BLV013NE6"

MONUMENT DESCRIPTION IN RIVET & PLATE IN TOP OF CURB AT THE SOUTHWEST CORNER OF SYMPHONY PARK AVENUE AND GRAND CENTRAL PARKWAY.

ELEVATION = 619.999 METERS
2034.12 FEET

CITY OF LAS VEGAS VERTICAL CONTROL DATUM BASED UPON NORTH AMERICAN VERTICAL DATUM OF 2008 (NAVD '88)

BASIS OF BEARING

SOUTH 27°55'16" WEST, BEING THE EAST LINE OF LOT 5 OF THAT COMMERCIAL SUBDIVISION KNOWN AS "PARKWAY CENTER" ON FILE IN THE OFFICE OF THE COUNTY RECORDER, CLARK COUNTY, NEVADA IN BOOK 53 OF PLATS, AT PAGE 61.

GRAPHIC SCALE IN FEET
0 10 20 40

NORTH

AVOID HITTING UNDERGROUND TRAFFIC SIGNAL SYSTEMS AND STREET LIGHT SYSTEM CONDUITS IT'S COSTLY
CALL BEFORE YOU DO UNDERGROUND
Call before you UnderGround 1-702-432-5300
FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION (FAST)

Call before you Dig
Avoid cutting underground utility lines. It's costly.
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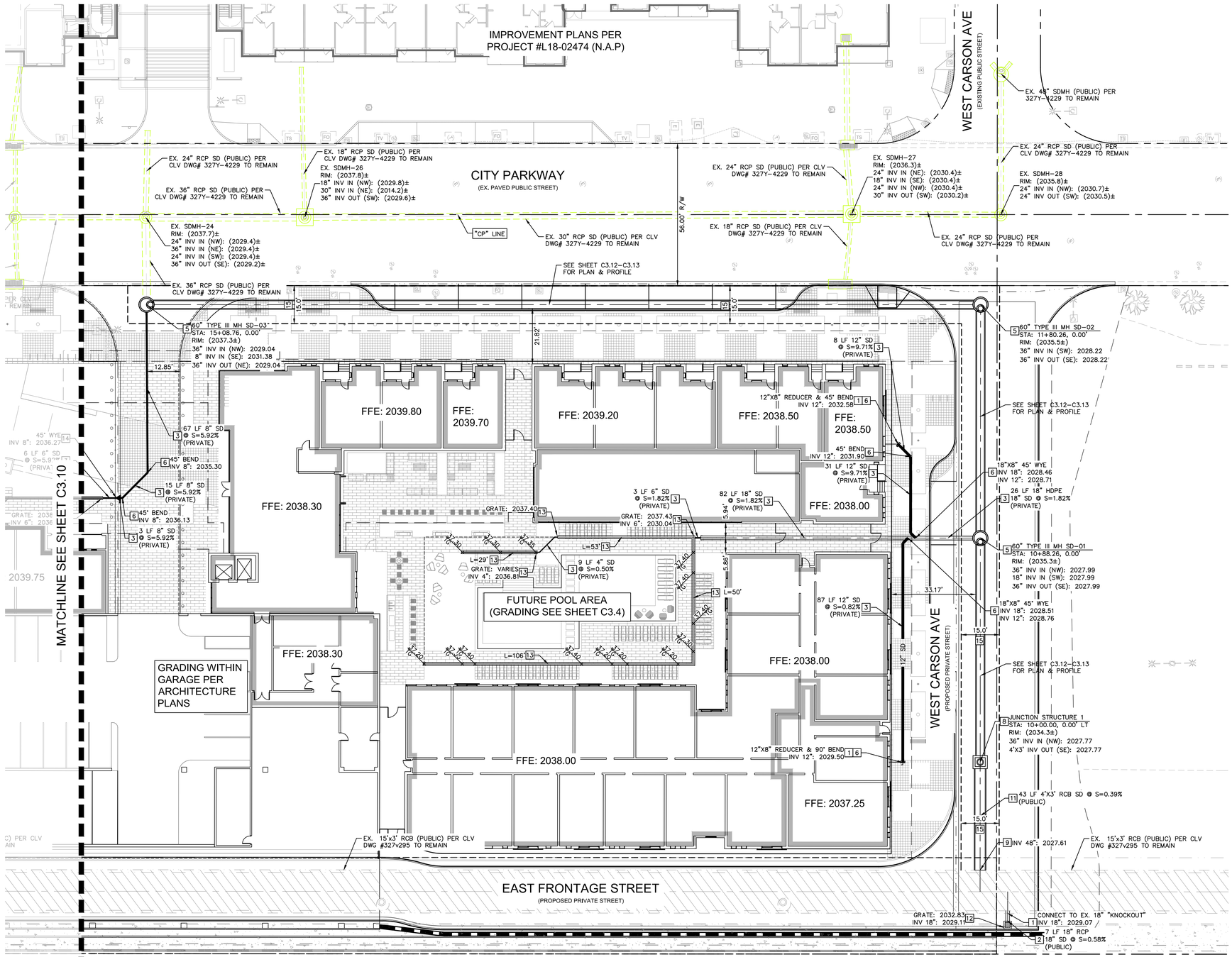
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THOMAS ACKERET
Exp. 12/31/18
CIVIL
No. 18592

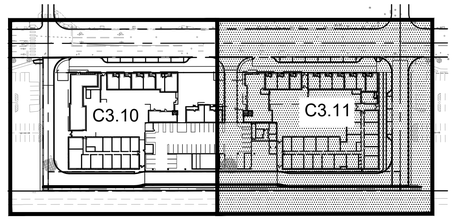
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192008000	12/20/2018	AS SHOWN	TEA	JPH	TEA

ONSITE STORM DRAIN PLAN 1

SYMPHONY PARK RESIDENTIAL
CIVIL IMPROVEMENT PLANS
PREPARED FOR
ASPEN HEIGHTS PARTNERS
CITY OF LAS VEGAS NEVADA

SHEET NUMBER
C3.10





KEY MAP

NTS

GENERAL NOTES

1. CONTRACTOR TO VERIFY EXISTING IMPROVEMENTS SHOWN ON THE PLAN.
2. CONTRACTOR TO PROTECT IN PLACE, DURING DEMOLITION AND CONSTRUCTION, ALL EXISTING IMPROVEMENTS THAT ARE TO REMAIN AS NOTED ON THE PLAN.
3. ANY EXISTING STRUCTURE, IMPROVEMENT, OR APPURTENANCE TO REMAIN THAT IS DAMAGED DURING DEMOLITION OR CONSTRUCTION SHALL BE IMMEDIATELY REPAIRED OR REPLACED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.
4. CONTRACTOR SHALL VERIFY AND LOCATE ALL EXISTING UNDERGROUND UTILITIES BEFORE CONSTRUCTION AND PROTECT IN PLACE UNLESS NOTED ON THE PLANS.
5. ALL DIMENSIONS ARE MEASURED FROM BACK OF CURB UNLESS OTHERWISE NOTED ON PLANS.
6. ADD 2000 FEET TO ALL SPOT ELEVATIONS UNLESS OTHERWISE NOTED.

STORM DRAIN NOTES

1	STORM DRAIN POINT OF CONNECTION. REFER TO MEP PLANS FOR CONTINUATION
2	INSTALL RCP STORM DRAIN PIPE WITH EXCAVATION, BACKFILL AND TYPE 2 BEDDING PER CCAUSD No. 503. CLASS, SIZE, LENGTH AND SLOPE AS NOTED ON PLAN.
3	INSTALL HDPE STORM DRAIN PIPE WITH EXCAVATION, BACKFILL AND TYPE 2 BEDDING PER CCAUSD No. 503.1. SIZE, LENGTH AND SLOPE AS NOTED ON PLAN.
5	INSTALL TYPE III STORM DRAIN MANHOLE PER CCAUSD No. 406.1, COLLAR PER CCAUSD No. 408.1, COVER PER CCAUSD No. 409.1 AND 410.
6	INSTALL HDPE FITTING, SIZE PER PIPE. TYPE AS NOTED ON PLAN.
8	INSTALL JUNCTION STRUCTURE PER DETAIL 7 ON SHEET C3.8
9	CONNECT TO KNOCKOUT IN EXISTING BOX CULVERT PER DETAIL 8 ON SHEET C3.9. INVERT AS NOTED ON PLAN.
11	INSTALL 4'X3' RCB CULVERT WITH EXCAVATION, BACKFILL AND TYPE 2 BEDDING PER CCAUSD No. 503. SIZE, LENGTH AND SLOPE AS NOTED ON PLAN.
12	INSTALL NDOT TYPE 2 STORM DRAIN DROP INLET PER DETAIL 10 ON SHEET C3.9
13	INSTALL TRENCH DRAIN PER DETAIL 11 ON SHEET C3.9
14	INSTALL 8"x6" REDUCER
15	UNDERGROUND PUBLIC DRAINAGE EASEMENT PER DOC# _____

FLOOD ZONE NOTE

THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) INDICATES THAT THE SITE IS LOCATED IN ZONE "X" OF THE FLOOD INSURANCE RATE MAP (FIRM) No. 32003C2170F AS SHOWN ON THE FIRM INDEX REVISED NOVEMBER 16, 2011. ZONE "X" IS DEFINED BY FEMA AS "AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN."

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CITY OF LAS VEGAS VERTICAL CONTROL
BENCHMARK NO. "8LV0133NE6"

MONUMENT DESCRIPTION IN RIVET & PLATE IN TOP OF CURB AT THE SOUTHWEST CORNER OF SYMPHONY PARK AVENUE AND GRAND CENTRAL PARKWAY.

ELEVATION = 619.999 METERS
2034.12 FEET

CITY OF LAS VEGAS VERTICAL CONTROL DATUM BASED UPON NORTH AMERICAN VERTICAL DATUM OF 2008 (NAVD '88)

BASIS OF BEARING

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GRAPHIC SCALE IN FEET
0 10 20 40

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PROFESSIONAL ENGINEER-STATE OF NEVADA
THOMAS ACKERET
Exp. 12/31/18
CIVIL
No. 18592

KHA PROJECT 192008000
DATE 12/20/2018
SCALE AS SHOWN
DESIGNED BY TEA
DRAWN BY JPH
CHECKED BY TEA

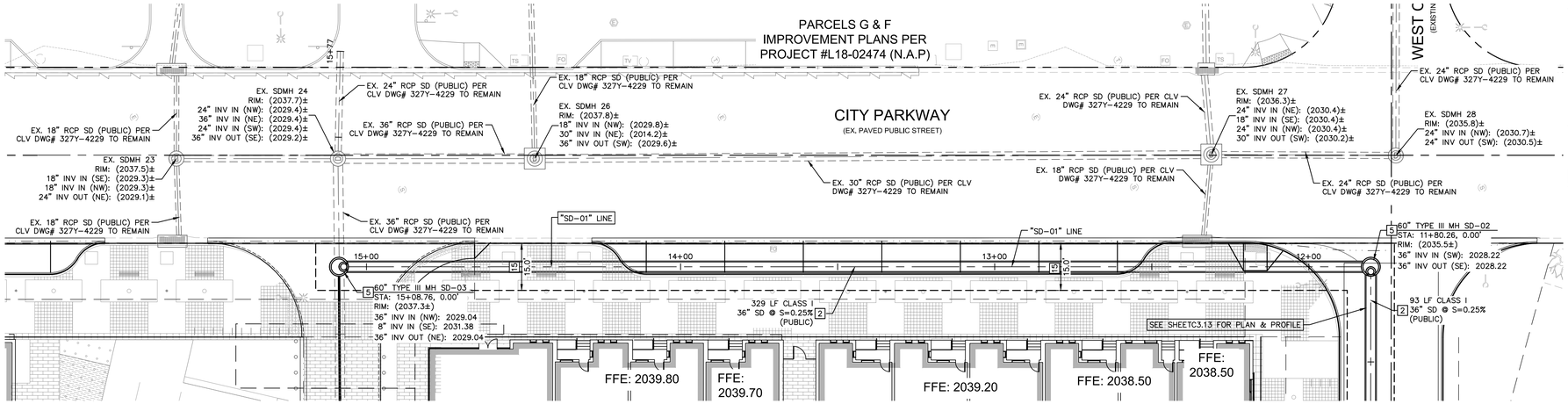
ONSITE STORM DRAIN PLAN 2

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CIVIL IMPROVEMENT PLANS
PREPARED FOR
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CITY OF LAS VEGAS NEVADA

SHEET NUMBER
C3.11

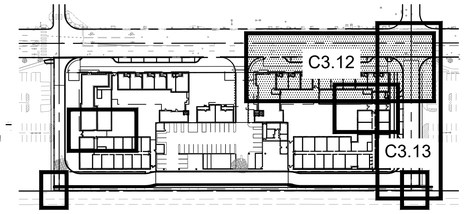
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"SD-01" LINE PLAN VIEW

1" = 20'



KEY MAP NTS

GENERAL NOTES

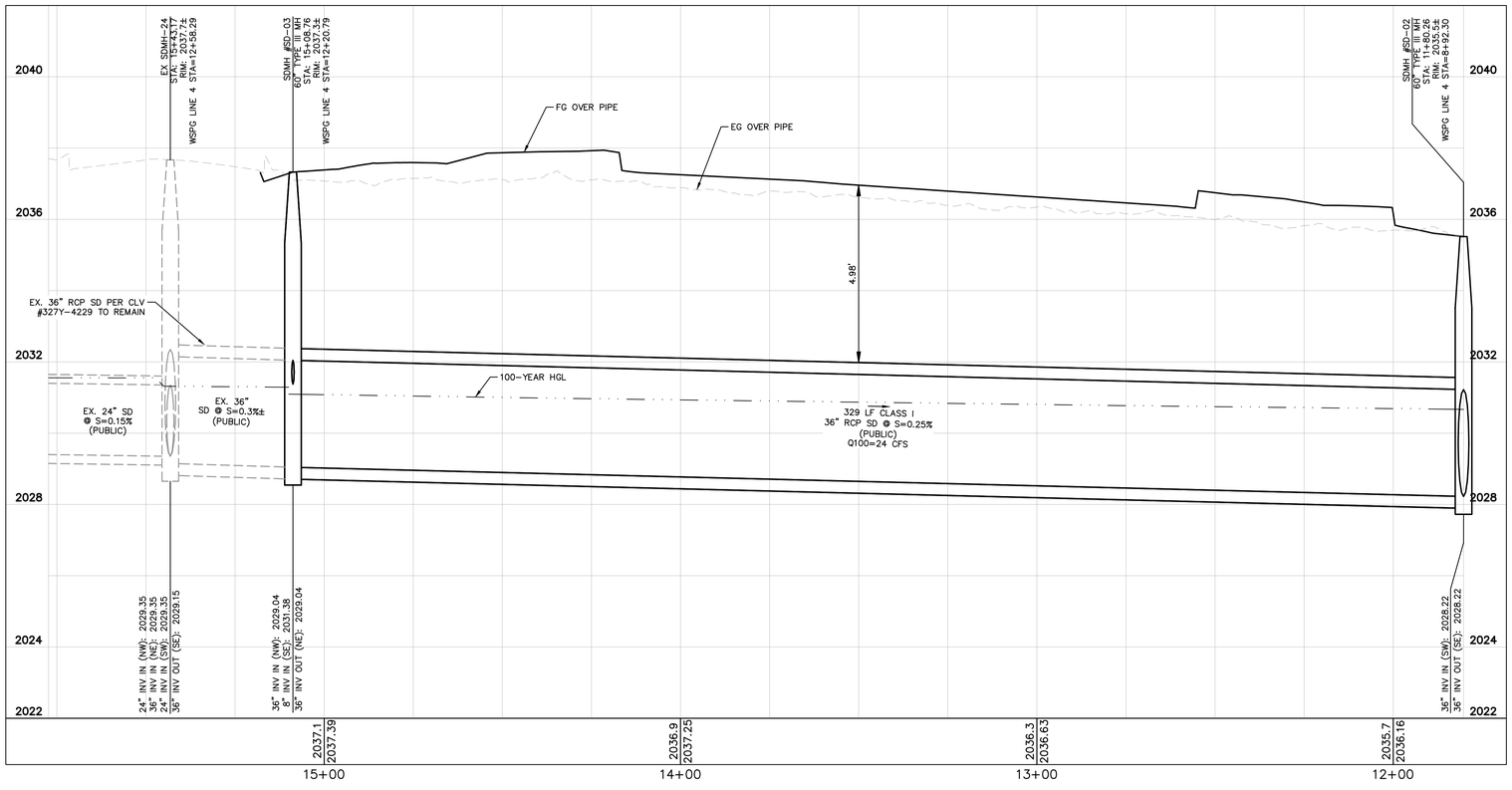
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15 UNDERGROUND PUBLIC DRAINAGE EASEMENT PER DOC# _____



"SD-01" LINE PROFILE VIEW

HORIZONTAL SCALE= 1" = 20'
VERTICAL SCALE= 1" = 2'

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BENCHMARK NO. "BLV0133NE6"

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0 1 2 4
VERTICAL

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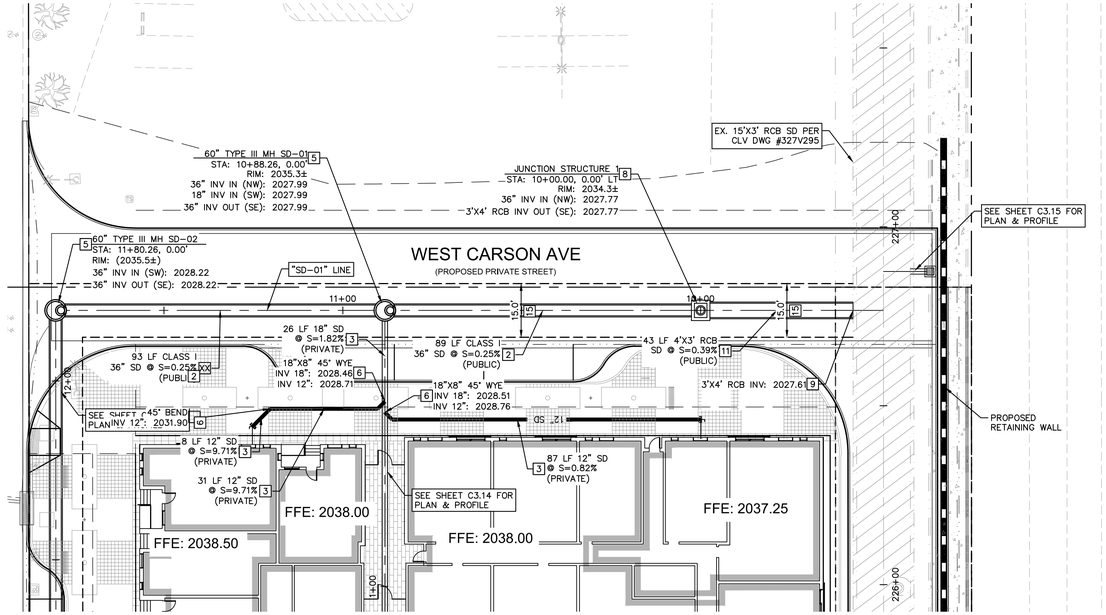
PROFESSIONAL ENGINEER-STATE OF NEVADA
THOMAS ACKERET
No. 18592
Exp. 12/31/18
CIVIL

KHA PROJECT	192008000		
DATE	12/20/2018		
SCALE	AS SHOWN		
DESIGNED BY	TEA	DRAWN BY	JPH
CHECKED BY	TEA		

STORM DRAIN PLAN & PROFILE 1

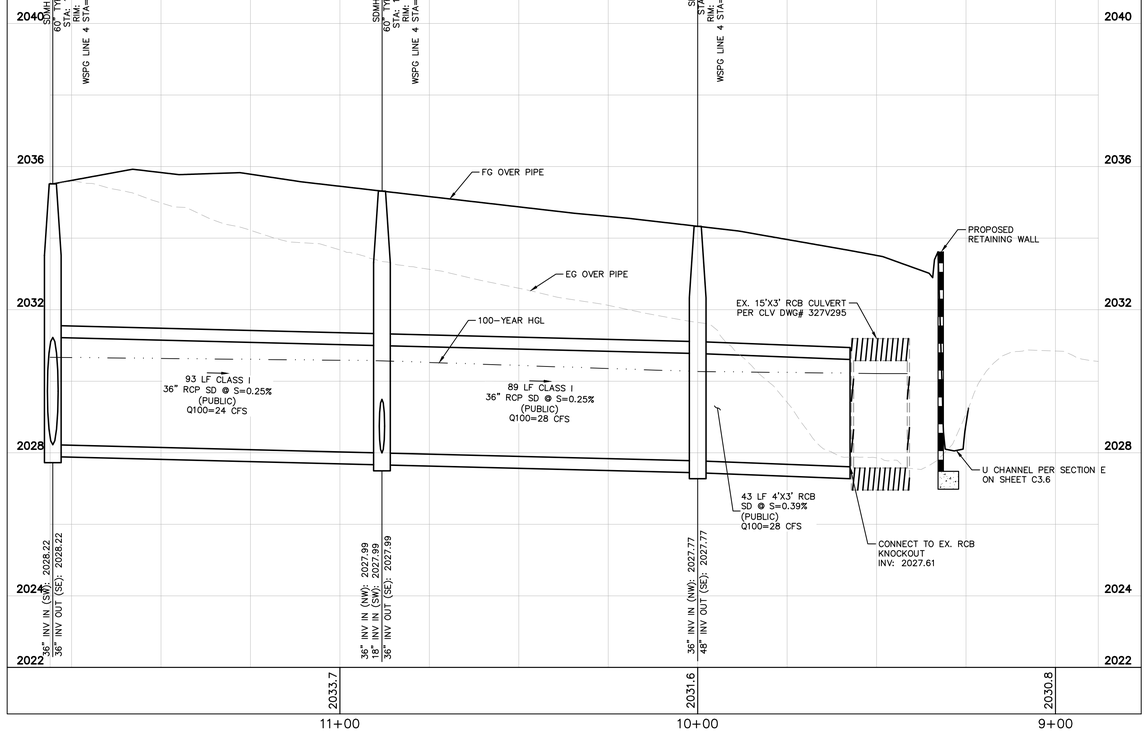
SYMPHONY PARK RESIDENTIAL
CIVIL IMPROVEMENT PLANS
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ASPEN HEIGHTS PARTNERS
CITY OF LAS VEGAS NEVADA

SHEET NUMBER
C3.12



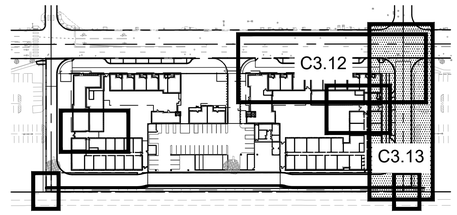
"SD-01" LINE PLAN VIEW

SCALE: 1" = 20'



"SD-01" LINE PROFILE VIEW

HORIZONTAL SCALE: 1" = 20'
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KEY MAP

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CITY OF LAS VEGAS VERTICAL CONTROL
BENCHMARK NO. "8LV0133NE6"

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0 1 2 4
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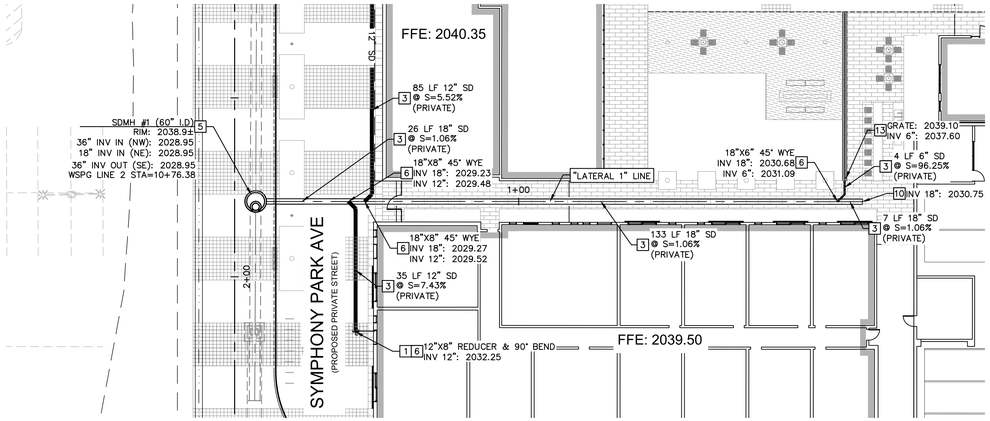
STORM DRAIN PLAN & PROFILE 2

SYMPHONY PARK RESIDENTIAL
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PREPARED FOR
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CITY OF LAS VEGAS NEVADA

SHEET NUMBER
C3.13

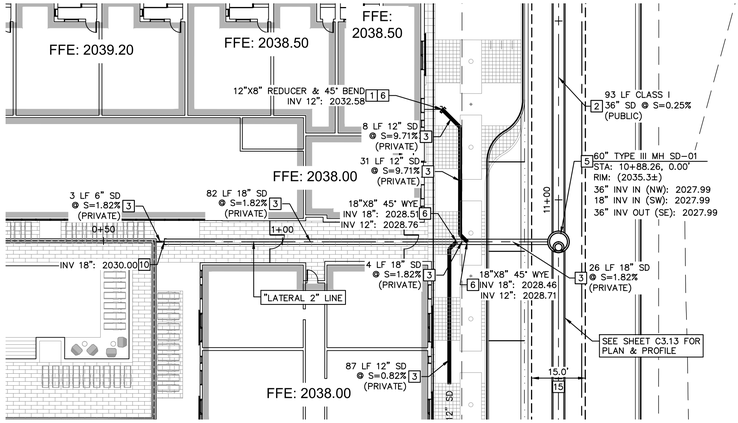
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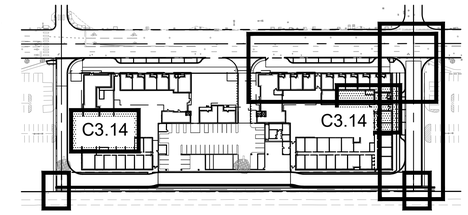
"LATERAL 1" PLAN VIEW

SCALE: 1:20



"LATERAL 2" PLAN VIEW

SCALE: 1:20



KEY MAP

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10. CAP STORM DRAIN PIPE.
13. INSTALL TRENCH DRAIN PER DETAIL 11 ON SHEET C3.9
15. UNDERGROUND PUBLIC DRAINAGE EASEMENT PER DOC# _____

"LATERAL 1" PROFILE VIEW

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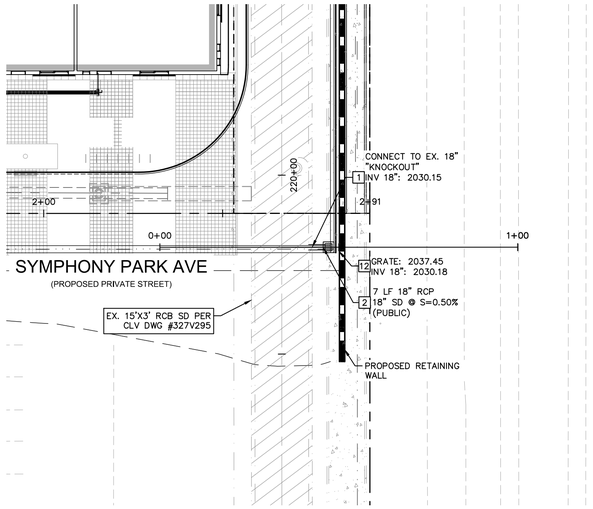
KHA PROJECT	192080600
DATE	12/20/2018
SCALE	AS SHOWN
DESIGNED BY	TEA
DRAWN BY	JPH
CHECKED BY	TEA

STORM DRAIN PLAN & PROFILE 3

SYMPHONY PARK RESIDENTIAL
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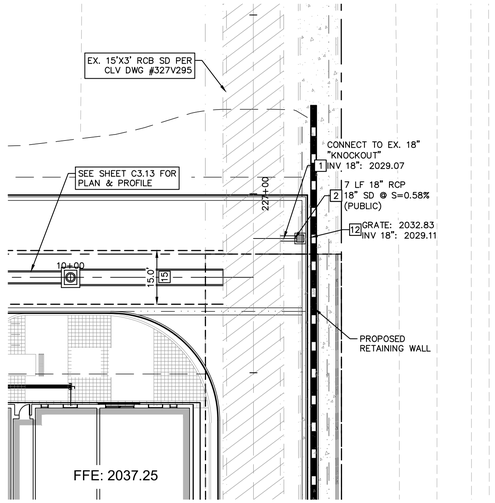
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C3.14

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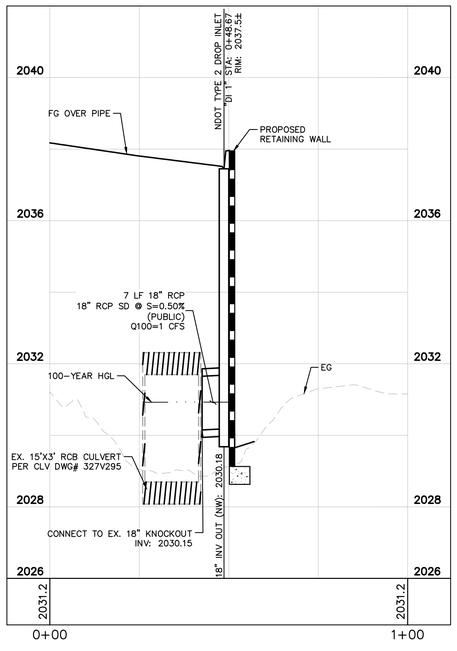
"DI 1" LINE PLAN VIEW

SCALE: 1" = 20'



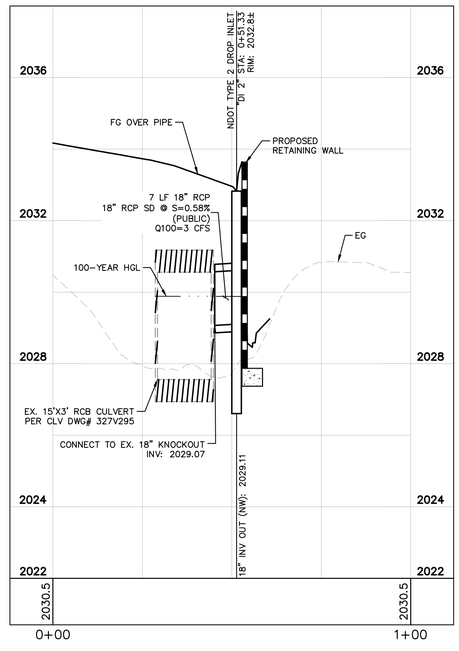
"DI 2" LINE PLAN VIEW

SCALE: 1" = 20'



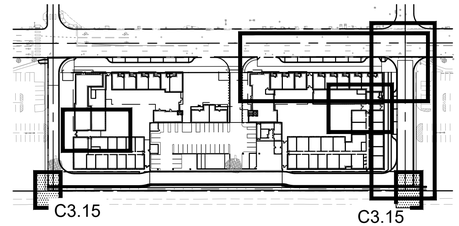
"DI 1" LINE PROFILE VIEW

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'



"DI 2" LINE PROFILE VIEW

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'



KEY MAP

NTS

GENERAL NOTES

1. CONTRACTOR TO VERIFY EXISTING IMPROVEMENTS SHOWN ON THE PLAN.
2. CONTRACTOR TO PROTECT IN PLACE, DURING DEMOLITION AND CONSTRUCTION, ALL EXISTING IMPROVEMENTS THAT ARE TO REMAIN AS NOTED ON THE PLAN.
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6. ADD 2000 FEET TO ALL SPOT ELEVATIONS UNLESS OTHERWISE NOTED.

STORM DRAIN NOTES

1 STORM DRAIN POINT OF CONNECTION. REFER TO MEP PLANS FOR CONTINUATION

2 INSTALL RCP STORM DRAIN PIPE WITH EXCAVATION, BACKFILL AND TYPE 2 BEDDING PER CCAUSD No. 503. CLASS, SIZE, LENGTH AND SLOPE AS NOTED ON PLAN.

12 INSTALL NDOT TYPE 2 STORM DRAIN DROP INLET PER DETAIL 10 ON SHEET C3.9

15 UNDERGROUND PUBLIC DRAINAGE EASEMENT PER DOC# _____

FLOOD ZONE NOTE

THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) INDICATES THAT THE SITE IS LOCATED IN ZONE "X" OF THE FLOOD INSURANCE RATE MAP (FIRM) No. 32003C2170F AS SHOWN ON THE FIRM INDEX REVISED NOVEMBER 16, 2011. ZONE "X" IS DEFINED BY FEMA AS "AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN."

BENCHMARK

CITY OF LAS VEGAS VERTICAL CONTROL
BENCHMARK NO. "BLV01.33NE6"

MONUMENT DESCRIPTION IN RIVET & PLATE IN TOP OF CURB AT THE SOUTHWEST CORNER OF SYMPHONY PARK AVENUE AND GRAND CENTRAL PARKWAY.

ELEVATION = 619.999 METERS
2034.12 FEET

CITY OF LAS VEGAS VERTICAL CONTROL DATUM BASED UPON NORTH AMERICAN VERTICAL DATUM OF 2008 (NAVD '88)

BASIS OF BEARING

SOUTH 27°55'16" WEST, BEING THE EAST LINE OF LOT 5 OF THAT COMMERCIAL SUBDIVISION KNOWN AS "PARKWAY CENTER" ON FILE IN THE OFFICE OF THE COUNTY RECORDER, CLARK COUNTY, NEVADA IN BOOK 53 OF PLATS, AT PAGE 61.

GRAPHIC SCALE IN FEET
0 10 20 40
HORIZONTAL
0 1 2 4
VERTICAL

NORTH



No.	REVISIONS	DATE	BY

Kimley»Horn
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6671 LAS VEGAS BOULEVARD S., SUITE 320, LAS VEGAS, NV 89119
PHONE: 702-562-2500
WWW.KIMLEY-HORN.COM

PROFESSIONAL ENGINEER — STATE OF NEVADA
THOMAS ACKERET
Exp. 12/31/18
CIVIL
No. 18592

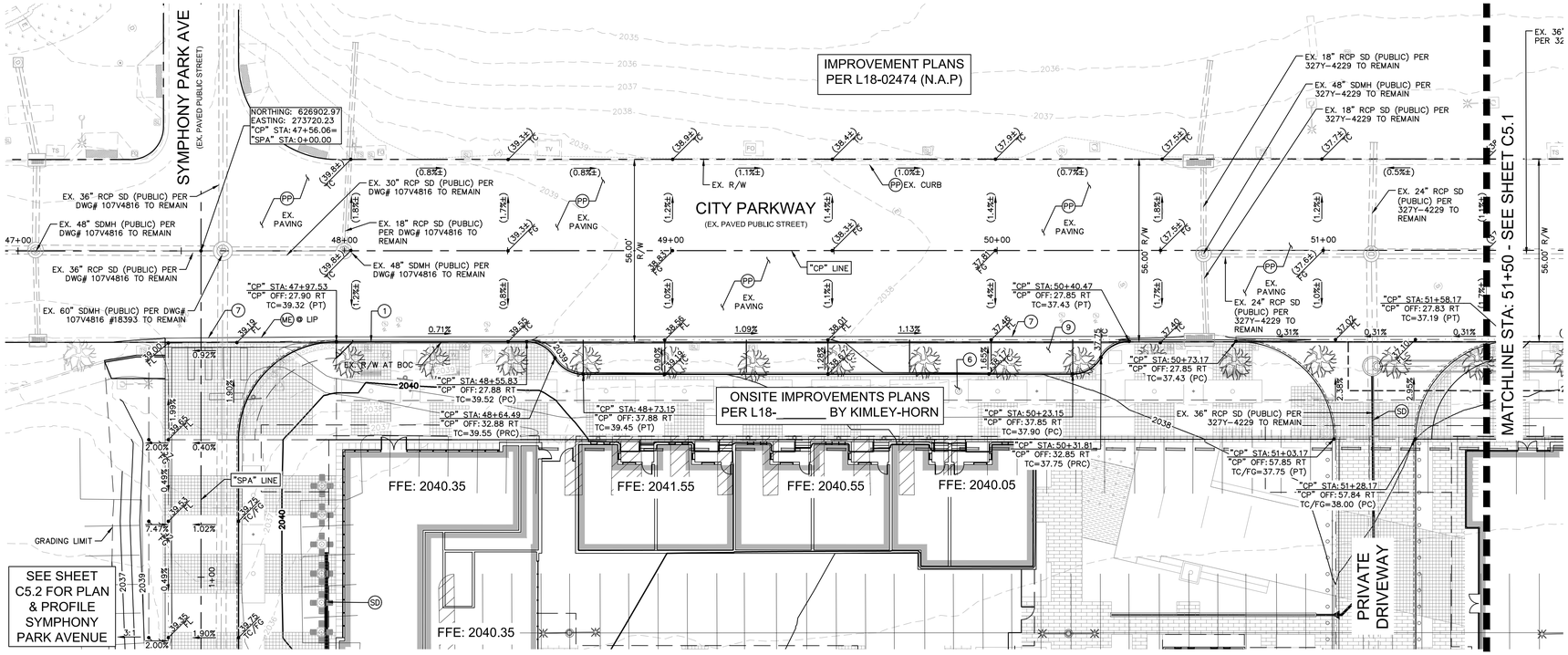
KHA PROJECT	192008000
DATE	12/20/2018
SCALE	AS SHOWN
DESIGNED BY	TEA
DRAWN BY	JPH
CHECKED BY	TEA

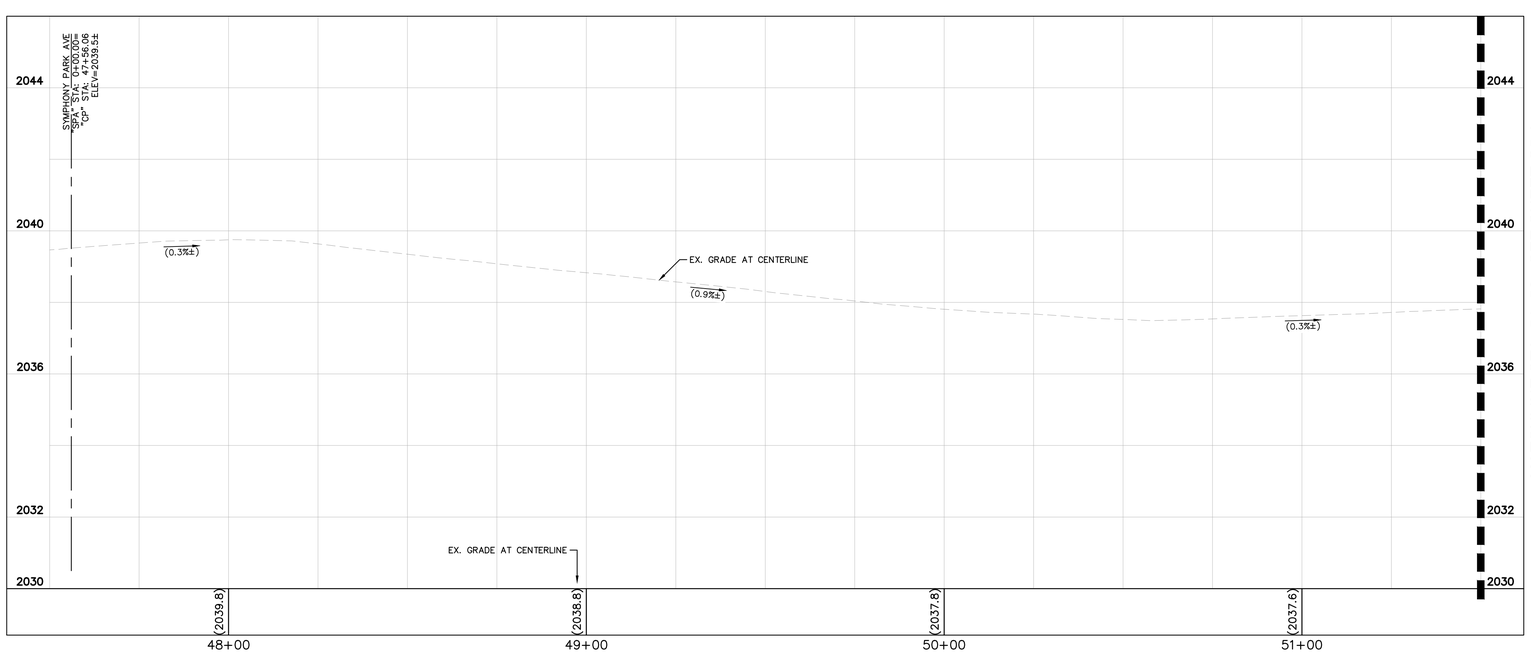
STORM DRAIN PLAN & PROFILE 4

SYMPHONY PARK RESIDENTIAL
CIVIL IMPROVEMENT PLANS
PREPARED FOR
ASPEN HEIGHTS PARTNERS
CITY OF LAS VEGAS NEVADA

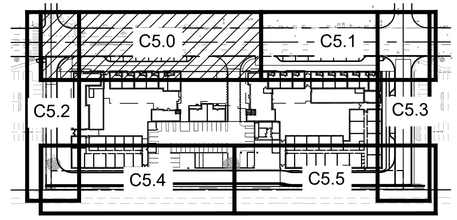
SHEET NUMBER
C3.15

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CITY PARKWAY PROFILE



KEY MAP

NTS

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GEOTECHNICAL REPORT

ALL GRADING SHALL CONFORM TO THE GEOTECHNICAL REPORT:

ENGINEER: NOVA GEOTECHNICAL & INSPECTION SERVICES
DATED: MAY 15, 2018
PROJECT No: G-18-038

CONSTRUCTION NOTES

1. INSTALL MODIFIED TYPE 'L' CONCRETE CURB AND GUTTER PER DETAIL 1 ON SHEET C3.8
6. INSTALL CONCRETE SIDEWALK PER CCAUSD No. 234.
7. INSTALL 2' VALLEY GUTTER PER DETAIL 4 ON SHEET C3.8.
9. INSTALL ASPHALT PAVING SECTION (MATCH EXISTING).
ME. MATCH EXISTING.
PP. PROTECT IN PLACE.

FLOOD ZONE NOTE

THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) INDICATES THAT THE SITE IS LOCATED IN ZONE "X" OF THE FLOOD INSURANCE RATE MAP (FIRM) No. 32003C2170F AS SHOWN ON THE FIRM INDEX REVISED NOVEMBER 16, 2011. ZONE "X" IS DEFINED BY FEMA AS "AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN."

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BENCHMARK NO. "8LV0133NE6"

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GRAPHIC SCALE IN FEET
0 10 20 40
HORIZONTAL
0 1 2 4
VERTICAL

NORTH



No.	REVISIONS	DATE	BY

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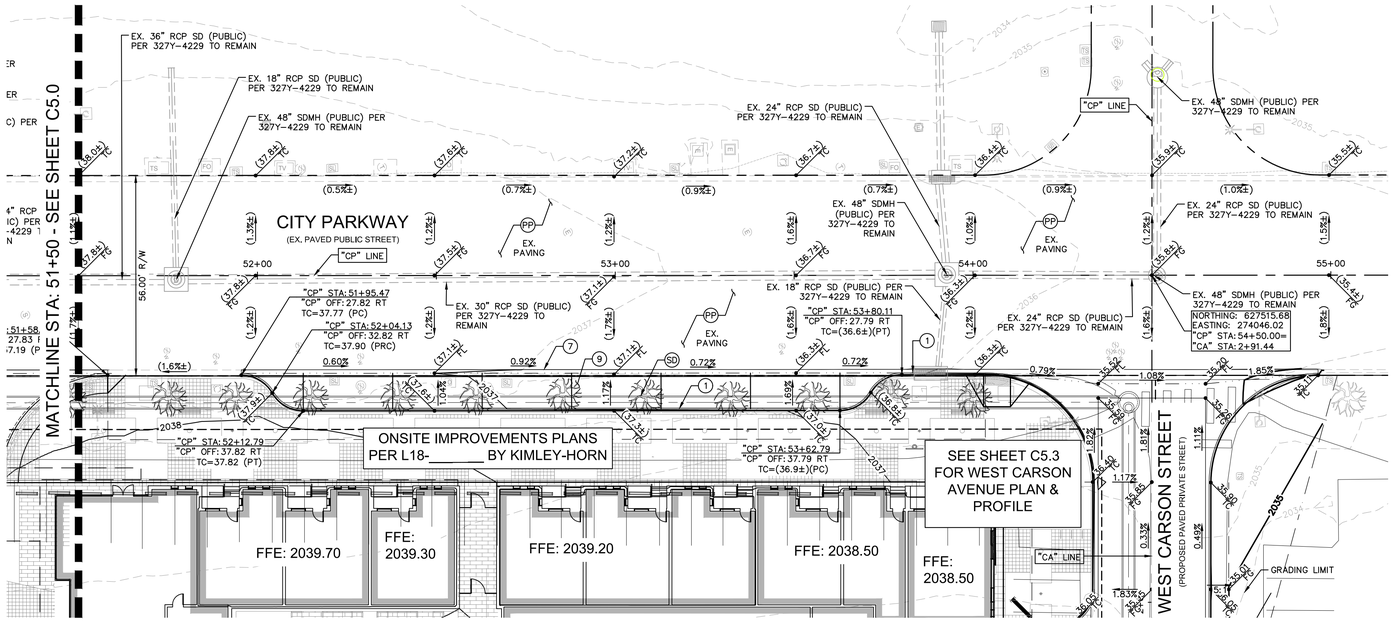
PROFESSIONAL ENGINEER — STATE OF NEVADA
THOMAS ACKERET
No. 18592
Exp. 12/31/19
CIVIL

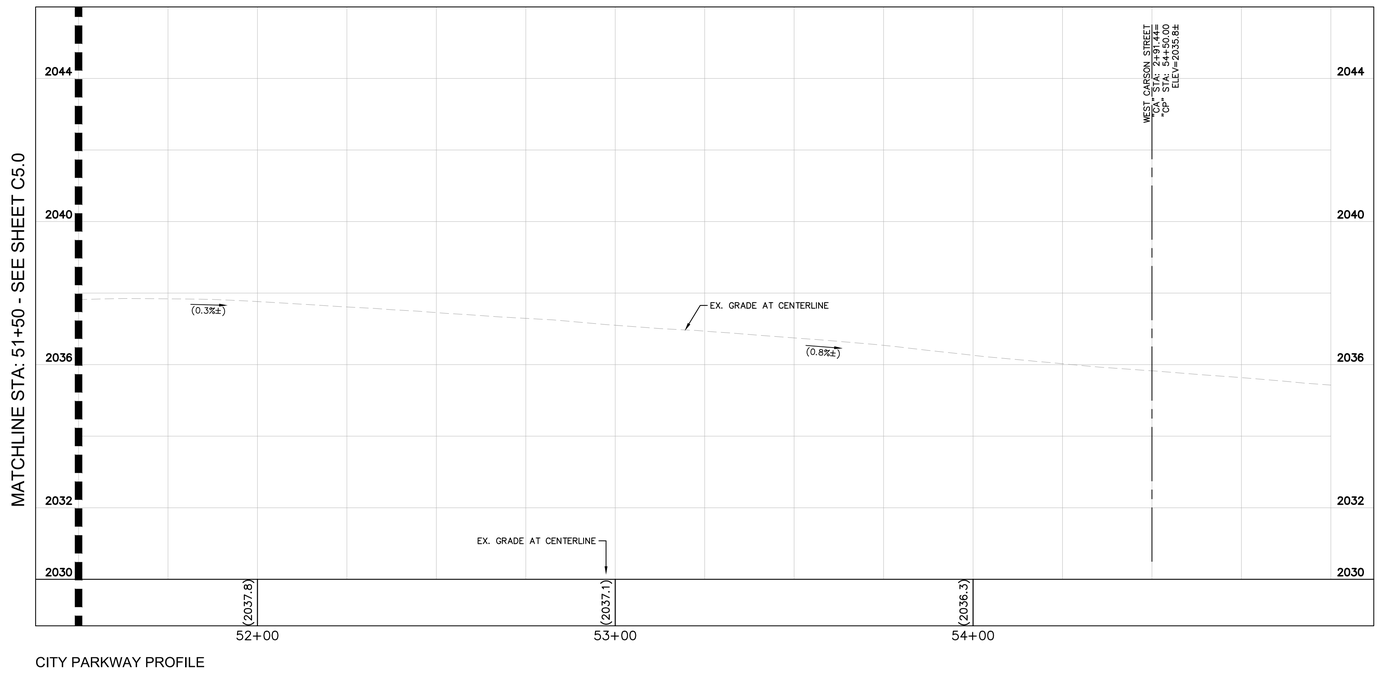
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DATE 12/20/2018		
SCALE	AS SHOWN	
DESIGNED BY	TEA	JPH
DRAWN BY	JPH	TEA
CHECKED BY	TEA	

CITY PARKWAY PLAN & PROFILE - STA 47+00 - 51+50

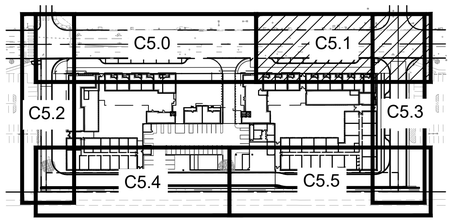
SYMPHONY PARK RESIDENTIAL
CIVIL IMPROVEMENT PLANS
PREPARED FOR
ASPEN HEIGHTS PARTNERS
CITY OF LAS VEGAS NEVADA

SHEET NUMBER
C5.0





CITY PARKWAY PROFILE



KEY MAP

NTS

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ENGINEER: NOVA GEOTECHNICAL & INSPECTION SERVICES
DATED: MAY 15, 2018
PROJECT No: G-18-038

CONSTRUCTION NOTES

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7. INSTALL 2' VALLEY GUTTER PER DETAIL 4 ON SHEET C3.8.
9. INSTALL ASPHALT PAVING SECTION (MATCH EXISTING).
PP. PROTECT IN PLACE.

FLOOD ZONE NOTE

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BENCHMARK NO. "8LV0133NE6"

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GRAPHIC SCALE IN FEET
0 10 20 40
HORIZONTAL
0 1 2 4
VERTICAL

NORTH

AVOID HITTING UNDERGROUND TRAFFIC SIGNAL SYSTEMS AND STREET LIGHT SYSTEM CONDUITS. IT'S COSTLY.
CALL BEFORE YOU DO UNDERGROUND
Call before you UnderGround 1-702-432-5300
FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION (FAST)

Call before you Dig
Avoid cutting underground utility lines. It's costly.
CALL 811 OR 1-800-227-2600

Avoid overhead power line contact. It's costly.
Call Before You Overhead 1-702-227-2929

No.	REVISIONS	DATE	BY

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PHONE: 702-498-8500
WWW.KIMLEY-HORN.COM

PROFESSIONAL ENGINEER - STATE OF NEVADA
THOMAS ACKERET
No. 18592
Exp. 12/31/18
CIVIL

KHA PROJECT 192008000
DATE: 12/20/2018
SCALE: AS SHOWN
DESIGNED BY: TEA
DRAWN BY: JPH
CHECKED BY: TEA

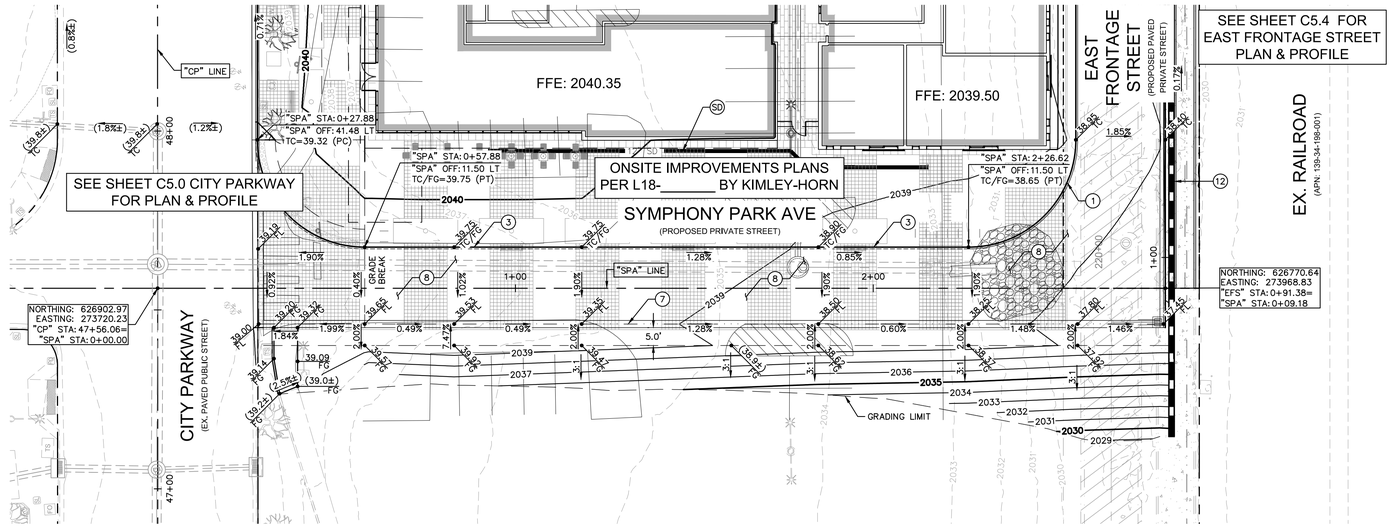
CITY PARKWAY PLAN & PROFILE - STA 51+50 - 55+00

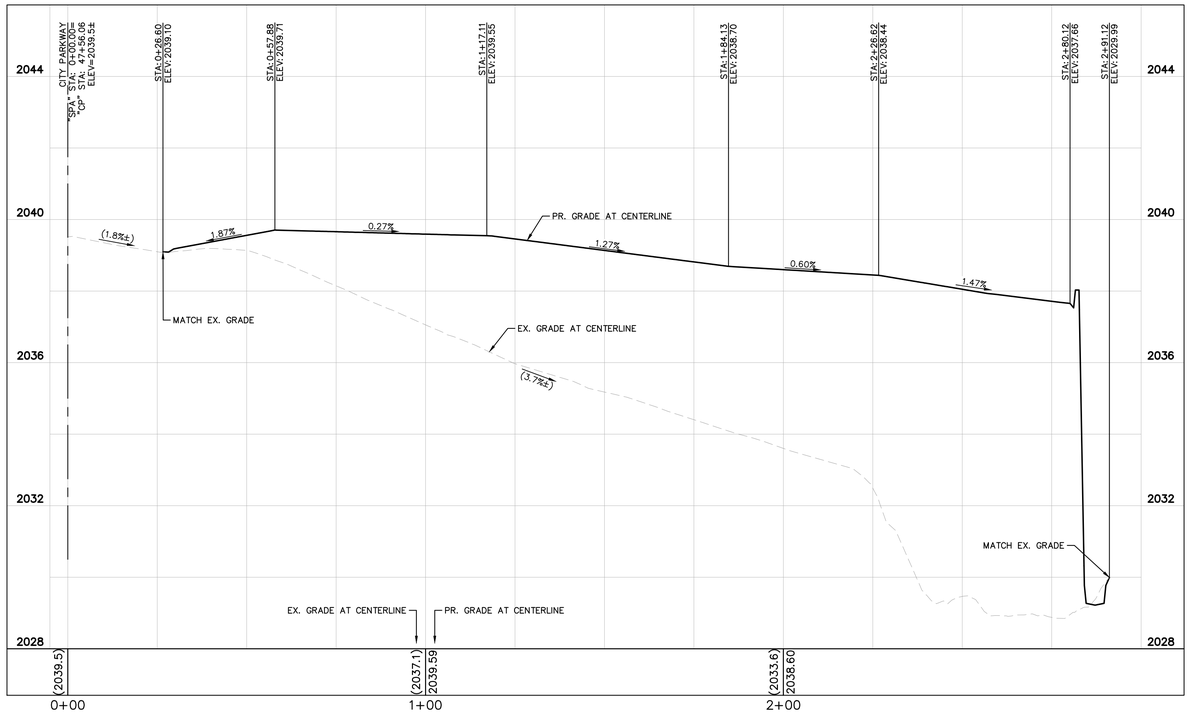
SYMPHONY PARK RESIDENTIAL
CIVIL IMPROVEMENT PLANS
PREPARED FOR
ASPEN HEIGHTS PARTNERS
CITY OF LAS VEGAS NEVADA

SHEET NUMBER
C5.1

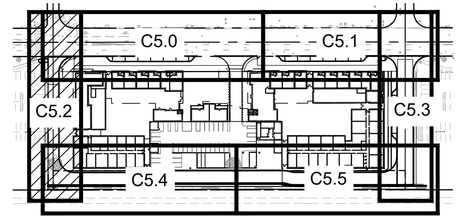
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SYMPHONY PARK PROFILE



KEY MAP

NTS

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GEOTECHNICAL REPORT

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ENGINEER: NOVA GEOTECHNICAL & INSPECTION SERVICES
DATED: MAY 15, 2018
PROJECT No: G-18-038

CONSTRUCTION NOTES

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(3) INSTALL 0" FACE CURB PER DETAIL 3 ON SHEET C3.8.
(7) INSTALL 2' VALLEY GUTTER PER DETAIL 4 ON SHEET C3.8.
(8) INSTALL 3" ASPHALT PAVING OVER 11" TYPE 2 AGGREGATE BASE PER GEOTECHNICAL RECOMMENDATIONS.
(12) INSTALL RETAINING WALL BY OTHERS.

FLOOD ZONE NOTE

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CITY OF LAS VEGAS VERTICAL CONTROL
BENCHMARK NO. "8LV0133NE6"

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GRAPHIC SCALE IN FEET
0 10 20 40
HORIZONTAL
0 1 2 4
VERTICAL

NORTH

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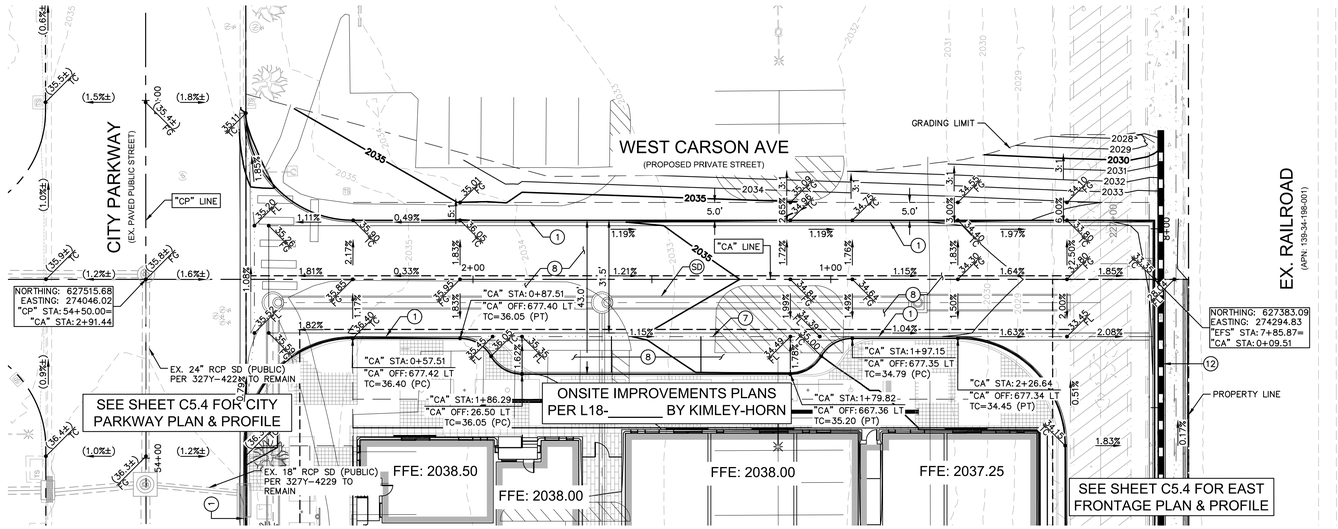
PROFESSIONAL ENGINEER - STATE OF NEVADA
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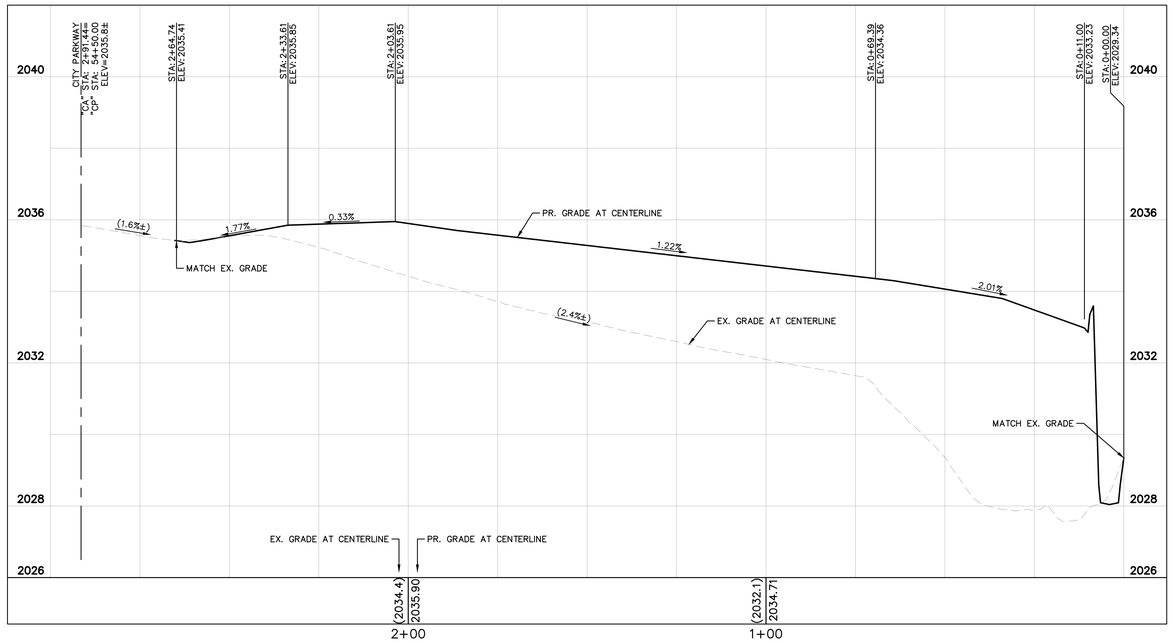
KHA PROJECT 192008000	DATE 12/20/2018	SCALE AS SHOWN	DESIGNED BY TEA	DRAWN BY JPH	CHECKED BY TEA

SYMPHONY PARK AVE PLAN & PROFILE

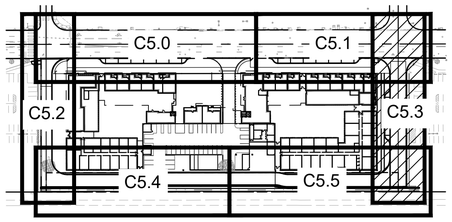
SYMPHONY PARK RESIDENTIAL
CIVIL IMPROVEMENT PLANS
PREPARED FOR
ASPEN HEIGHTS PARTNERS
CITY OF LAS VEGAS NEVADA

SHEET NUMBER
C5.2





WEST CARSON AVENUE



KEY MAP

NTS

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DATED: MAY 15, 2018
PROJECT No: G-18-038

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12. INSTALL RETAINING WALL BY OTHERS.
SD. REFER TO STORM DRAIN PLANS FOR DETAIL (C3.10-C3.11)

FLOOD ZONE NOTE

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BENCHMARK NO. "8LV0133NE6"

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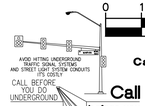
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0 10 20 40
HORIZONTAL
0 1 2 4
VERTICAL

NORTH



Call before you Dig
Avoid cutting underground utility lines. It's costly.
CALL 811 OR 1-800-227-2600

Avoid overhead power line contact. It's costly.
Call Before You Overhead
1-702-227-2929

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PHONE: 702-853-3500
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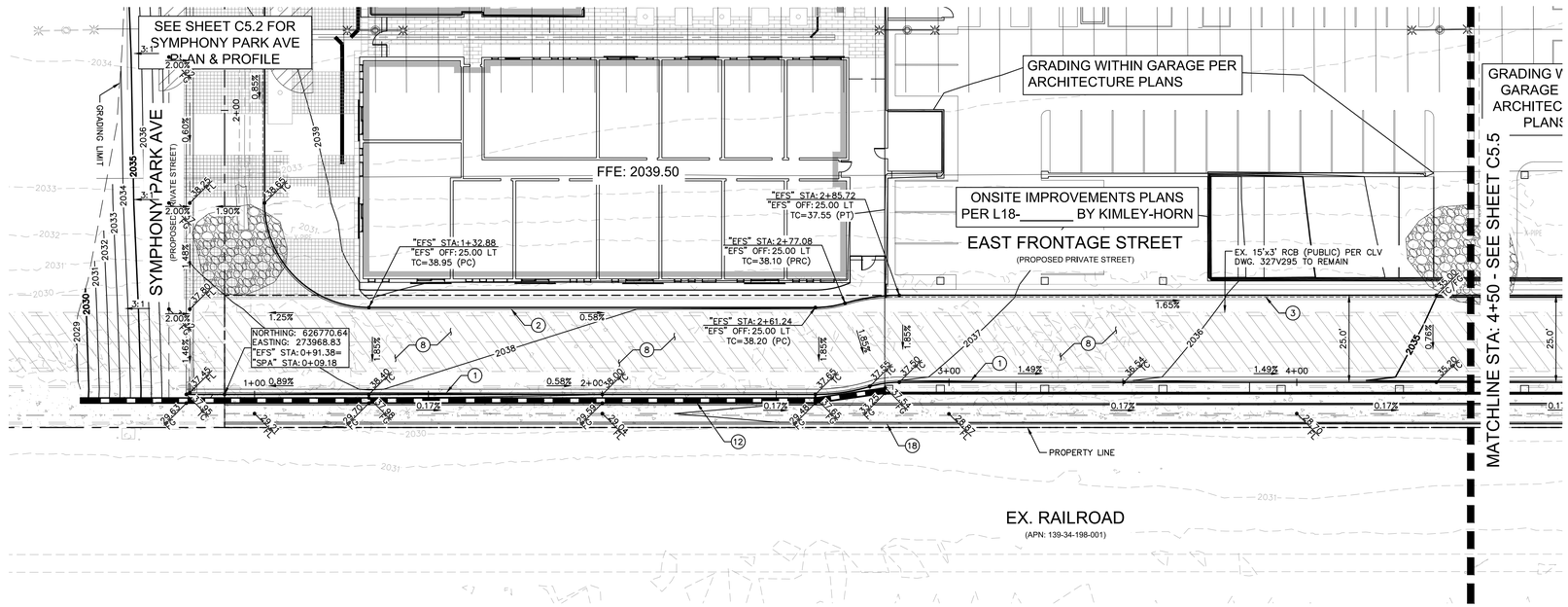
PROFESSIONAL ENGINEER-STATE OF NEVADA
THOMAS ACKERET
No. 18592
Exp. 12/31/18
CIVIL

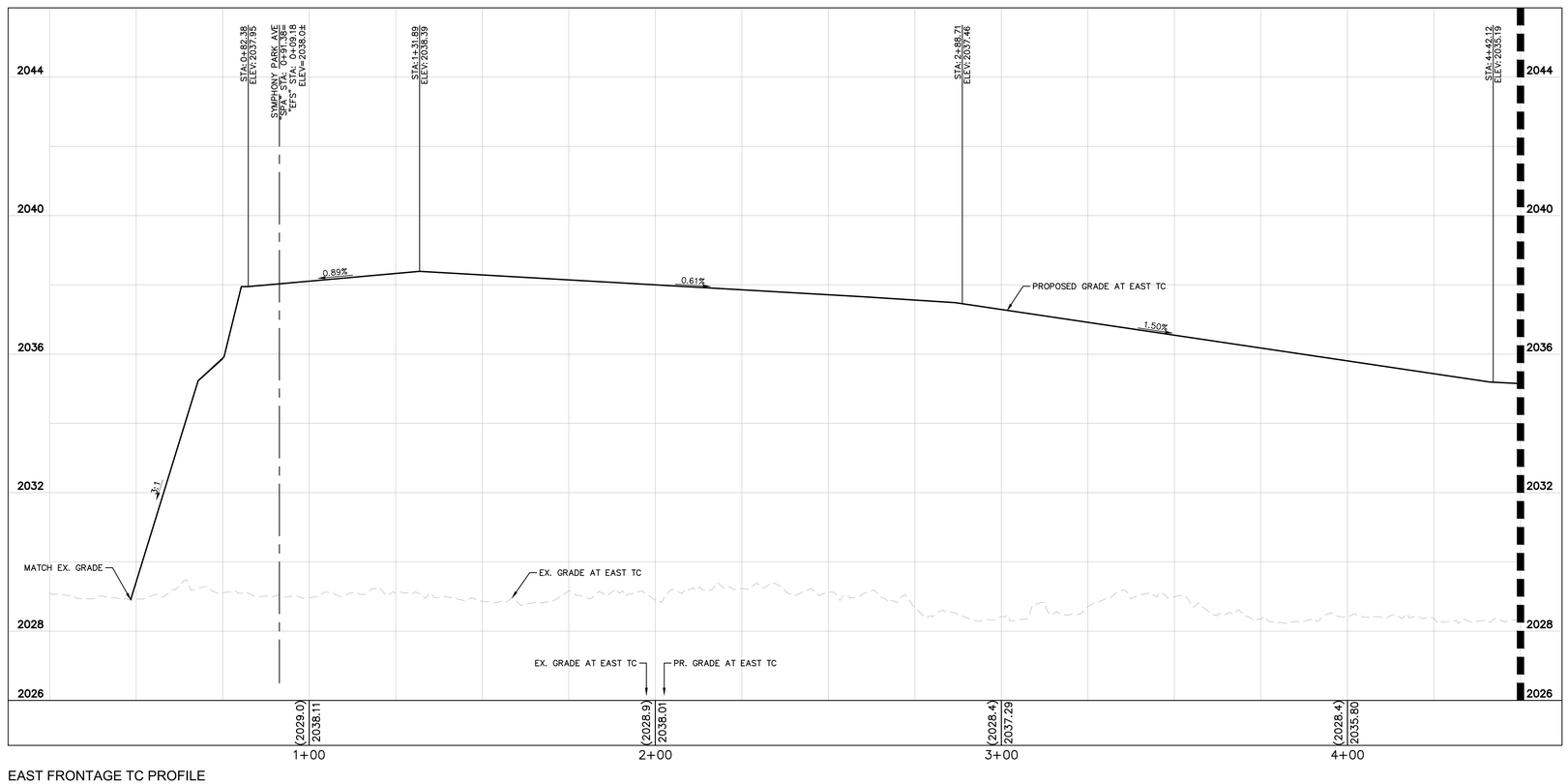
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DATE	12/20/2018
SCALE	AS SHOWN
DESIGNED BY	TEA
DRAWN BY	JPH
CHECKED BY	TEA

WEST CARSON AVE PLAN & PROFILE

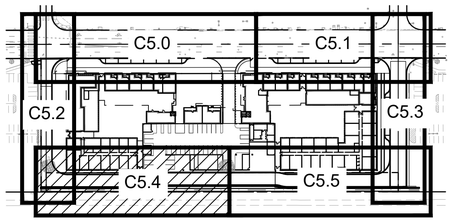
SYMPHONY PARK RESIDENTIAL
CIVIL IMPROVEMENT PLANS
PREPARED FOR
ASPEN HEIGHTS PARTNERS
CITY OF LAS VEGAS NEVADA

SHEET NUMBER
C5.3





EAST FRONTAGE TC PROFILE



KEY MAP

NTS

GENERAL NOTES

1. CONTRACTOR TO VERIFY EXISTING IMPROVEMENTS SHOWN ON THE PLAN.
2. CONTRACTOR TO PROTECT IN PLACE, DURING DEMOLITION AND CONSTRUCTION, ALL EXISTING IMPROVEMENTS THAT ARE TO REMAIN AS NOTED ON THE PLAN.
3. ANY EXISTING STRUCTURE, IMPROVEMENT, OR APPURTENANCE TO REMAIN THAT IS DAMAGED DURING DEMOLITION OR CONSTRUCTION SHALL BE IMMEDIATELY REPAIRED OR REPLACED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.
4. CONTRACTOR SHALL VERIFY AND LOCATE ALL EXISTING UNDERGROUND UTILITIES BEFORE CONSTRUCTION AND PROTECT IN PLACE UNLESS NOTED ON THE PLANS.
5. ALL DIMENSIONS ARE MEASURED FROM BACK OF CURB UNLESS OTHERWISE NOTED ON PLANS.
6. ADD 2000 FEET TO ALL SPOT ELEVATIONS UNLESS OTHERWISE NOTED.

GEOTECHNICAL REPORT

ALL GRADING SHALL CONFORM TO THE GEOTECHNICAL REPORT:

ENGINEER: NOVA GEOTECHNICAL & INSPECTION SERVICES
DATED: MAY 15, 2018
PROJECT No: G-18-038

CONSTRUCTION NOTES

(1) INSTALL MODIFIED TYPE 'L' CONCRETE CURB AND GUTTER PER DETAIL 1 ON SHEET C3.8
(2) INSTALL MODIFIED TYPE 'A' CONCRETE CURB PER DETAIL PER DETAIL 2 ON SHEET C3.8
(3) INSTALL 0" FACE CURB PER DETAIL 3 ON SHEET C3.8.
(8) INSTALL 3" ASPHALT PAVING OVER 11" TYPE 2 AGGREGATE BASE PER GEOTECHNICAL RECOMMENDATIONS.
(12) INSTALL RETAINING WALL BY OTHERS.
(18) INSTALL 5' X 0.5' CONCRETE U-CHANNEL PER DETAIL 9 ON SHEET C3.9.

FLOOD ZONE NOTE

THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) INDICATES THAT THE SITE IS LOCATED IN ZONE "X" OF THE FLOOD INSURANCE RATE MAP (FIRM) No. 32003C2170F AS SHOWN ON THE FIRM INDEX REVISED NOVEMBER 16, 2011. ZONE "X" IS DEFINED BY FEMA AS "AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN."

BENCHMARK

CITY OF LAS VEGAS VERTICAL CONTROL
BENCHMARK NO. "BLV0133NE6"

MONUMENT DESCRIPTION IN RIVET & PLATE IN TOP OF CURB AT THE SOUTHWEST CORNER OF SYMPHONY PARK AVENUE AND GRAND CENTRAL PARKWAY.

ELEVATION = 619.999 METERS
2034.12 FEET

CITY OF LAS VEGAS VERTICAL CONTROL DATUM BASED UPON NORTH AMERICAN VERTICAL DATUM OF 2008 (NAVD '88)

BASIS OF BEARING

SOUTH 27°55'16" WEST, BEING THE EAST LINE OF LOT 5 OF THAT COMMERCIAL SUBDIVISION KNOWN AS "PARKWAY CENTER" ON FILE IN THE OFFICE OF THE COUNTY RECORDER, CLARK COUNTY, NEVADA IN BOOK 53 OF PLATS, AT PAGE 61.

GRAPHIC SCALE IN FEET
0 10 20 40
HORIZONTAL
0 1 2 4
VERTICAL

NORTH

AVOID HITTING UNDERGROUND TRAFFIC SIGNAL SYSTEMS AND STREET LIGHT SYSTEM CONDUITS IT'S COSTLY
CALL BEFORE YOU DO UNDERGROUND
Call before you UnderGround 1-702-432-5300
FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION (FAST)

Call before you Dig
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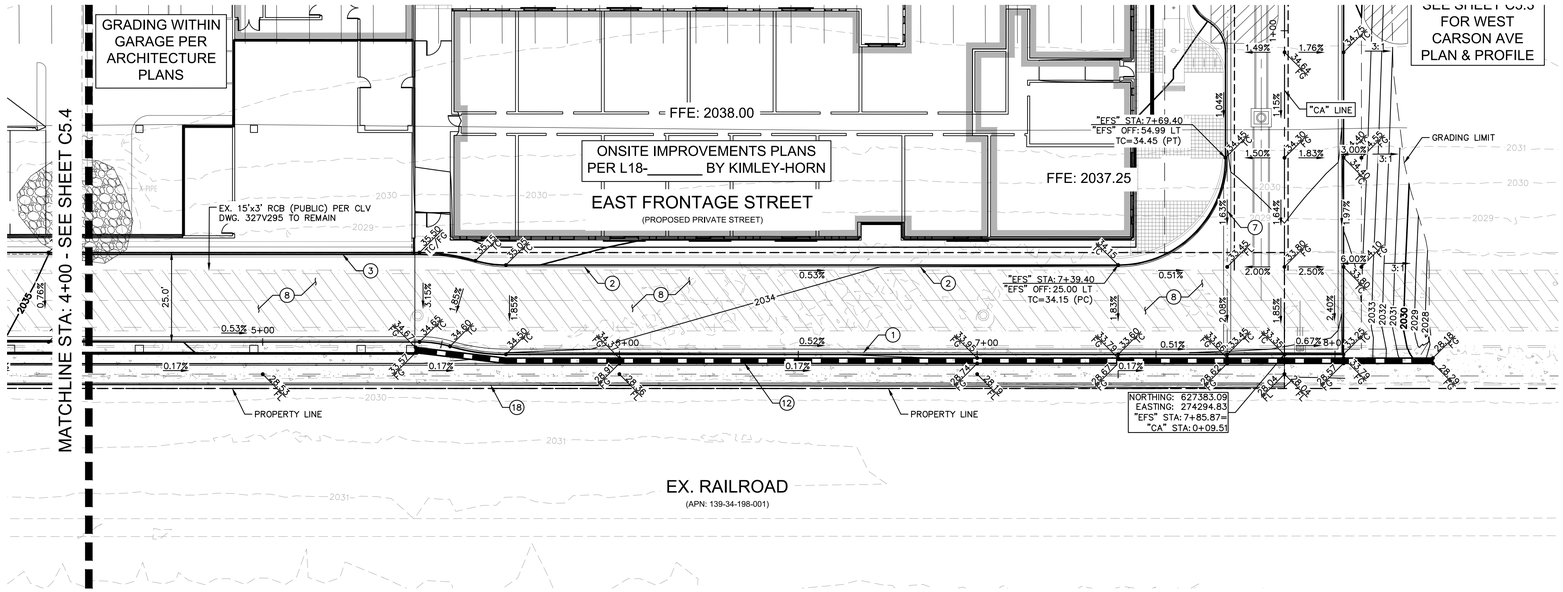
PROFESSIONAL ENGINEER - STATE OF NEVADA
THOMAS ACKERET
No. 18592
Exp. 12/31/18
CIVIL

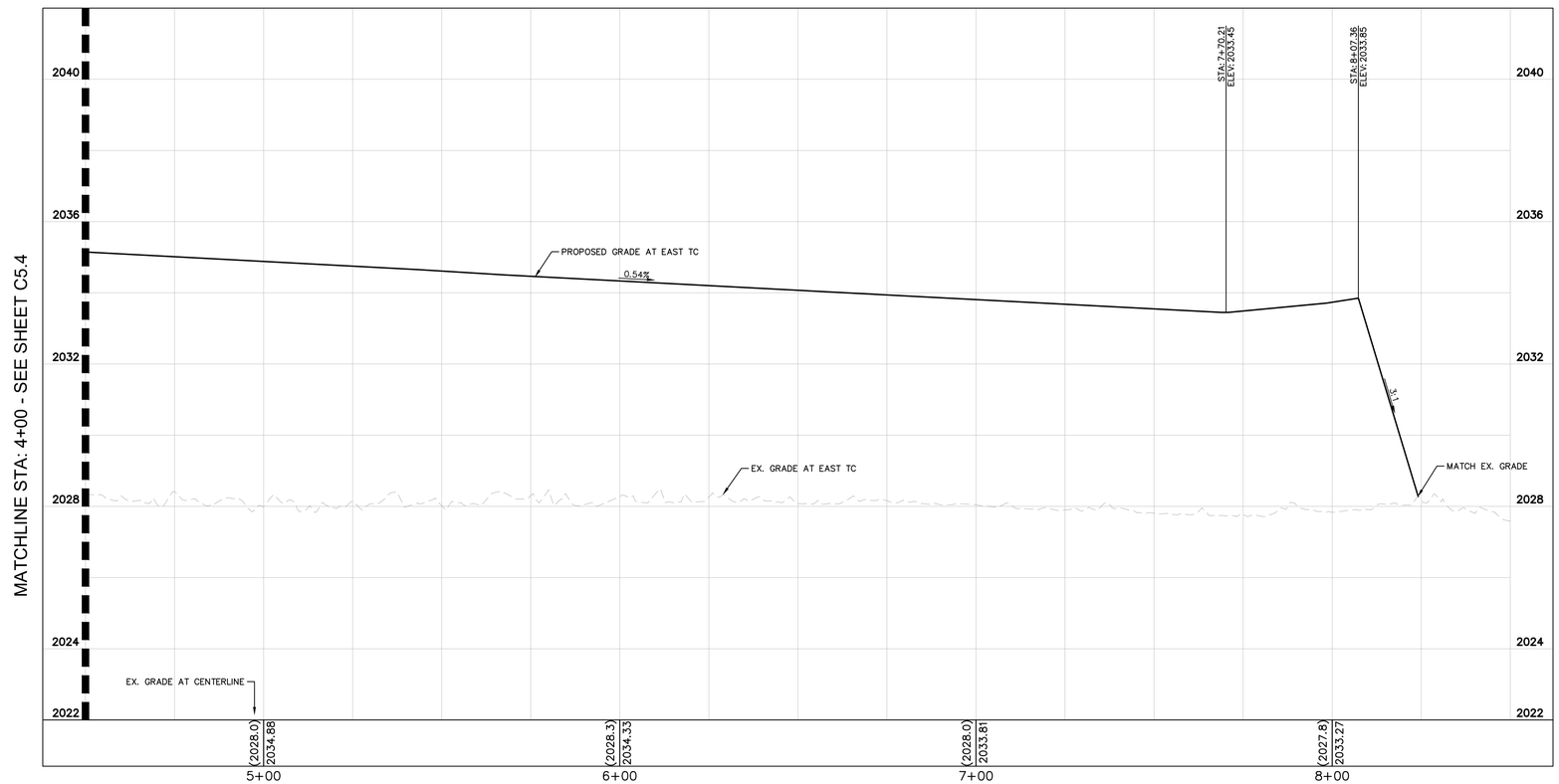
KHA PROJECT	192008000
DATE	12/20/2018
SCALE	AS SHOWN
DESIGNED BY	TEA
DRAWN BY	JPH
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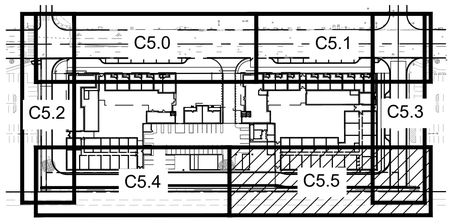
EAST FRONTAGE STREET PLAN & PROFILE - STA 0+00 - 4+50

SYMPHONY PARK RESIDENTIAL
CIVIL IMPROVEMENT PLANS
PREPARED FOR
ASPEN HEIGHTS PARTNERS
CITY OF LAS VEGAS NEVADA

SHEET NUMBER
C5.4







KEY MAP

NTS

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DATED: MAY 15, 2018
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3. INSTALL 0" FACE CURB PER DETAIL 3 ON SHEET C3.8.
7. INSTALL 2' VALLEY GUTTER PER DETAIL 4 ON SHEET C3.8.
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HORIZONTAL
0 1 2 4
VERTICAL

NORTH

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			BY
			DATE
			REVISIONS
			No.

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PROFESSIONAL ENGINEER - STATE OF NEVADA
THOMAS ACKERET
Exp. 12/31/18
CIVIL
No. 18592

KHA PROJECT 192008000			
DATE 12/20/2018	SCALE	AS SHOWN	
	DESIGNED BY	TEA	JPH
	DRAWN BY	JPH	TEA
	CHECKED BY	TEA	

EAST FRONTAGE STREET PLAN & PROFILE - STA 4+50 - 8+50

SYMPHONY PARK RESIDENTIAL
CIVIL IMPROVEMENT PLANS
PREPARED FOR
ASPEN HEIGHTS PARTNERS
CITY OF LAS VEGAS NEVADA

SHEET NUMBER
C5.5

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