

May 10, 2018

Ms. Kym Dicome, DRB Chair
City of Albuquerque
Planning Department
600 2nd Street NW
Albuquerque, NM 87103

Re: Del Webb at Mirehaven Phase 3&4 (Tract N-2-B-1, Tract N-2-B-2, Tract N-2-C-1
Watershed Subdivision) – Preliminary Plat, Design Variance and Sidewalk
Deferral/Waiver Request

Dear Ms. Dicome:

Enclosed for Development Review Board (DRB) preliminary plat review and comment are copies of the following information:

- Application for Development Review
- Ten (10) copies of each of the Preliminary Plat and Grading Plan
- Six (6) copies of the Infrastructure List
- Six (6) copies of Sidewalk Deferral and Waiver
- Ten (10) copies of Subdivision Design Variance
- Three (3) copies of Perimeter Wall Exhibit
- Letter from the Office of Neighborhood Coordination
- DR/WS and TIS forms
- Traffic Distribution Layout
- Submittal Fees

This preliminary plat is being presented to the Development Review Board for the purpose of obtaining City review and approval. It represents the third and fourth phases of the private, age restricted residential development Del Webb at Mirehaven. Del Webb Phase 3 encompasses 40.69 acres subdivided into 144 lots of varying sizes and 18 Private Open Space Parcels. Del Webb Phase 4 encompasses 21.14 acres subdivided into 78 lots of varying sizes and 8 Private Open Space Parcels. Roadway right-of-way and pavement widths are indicated on the preliminary plat.

We are requesting to phase this subdivision in three phases. Phase 3A encompasses 87 lots, Phase 3B encompasses 57 lots and Phase 4 will encompass 78 lots.

Ms. Kym Dicome, DRB Chair
City of Albuquerque
May 10, 2018
Page 2

We request that this item be scheduled for the next appropriate DRB hearing. Please feel free to contact me at 823-1000 with questions or comments.

Sincerely,

A handwritten signature in black ink that reads "Yolanda Padilla Moyer". The signature is written in a cursive style with a large initial "Y".

Yolanda Padilla Moyer, P.E.
Senior Project Manager
Community Development and Planning

YPM/cc
Enclosures

cc: Kevin Patton, Pulte Group w/enclosures



Supplemental Form (SF)

<p>SUBDIVISION</p> <p>___ Major subdivision action</p> <p>___ Minor subdivision action</p> <p>___ Vacation</p> <p>___ Variance (Non-Zoning)</p> <p>SITE DEVELOPMENT PLAN</p> <p>___ for Subdivision</p> <p>___ for Building Permit</p> <p>___ Administrative Amendment (AA)</p> <p>___ Administrative Approval (DRT, URT, etc.)</p> <p>___ IP Master Development Plan</p> <p>___ Cert. of Appropriateness (LUCC)</p> <p>STORM DRAINAGE (Form D)</p> <p>___ Storm Drainage Cost Allocation Plan</p>	<p>S Z ZONING & PLANNING</p> <p>___ Annexation</p> <p>V ___ Zone Map Amendment (Establish or Change Zoning, includes Zoning within Sector Development Plans)</p> <p>P ___ Adoption of Rank 2 or 3 Plan or similar</p> <p>___ Text Amendment to Adopted Rank 1, 2 or 3 Plan(s), Zoning Code, or Subd. Regulations</p> <p>D ___ Street Name Change (Local & Collector)</p> <p>L A APPEAL / PROTEST of...</p> <p>___ Decision by: DRB, EPC, LUCC, Planning Director, ZEO, ZHE, Board of Appeals, other</p>
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PRINT OR TYPE IN BLACK INK ONLY. The applicant or agent must submit the completed application in person to the Planning Department Development Services Center, 600 2nd Street NW, Albuquerque, NM 87102. Fees must be paid at the time of application. Refer to supplemental forms for submittal requirements.

PDF copy of the completed application along with all the plans and documents being submitted must be emailed to (PLNDRS@cabq.gov) prior to processing this application. **(Zipped files and files over 9 Megabytes will not get delivered via email, Therefore, PDF files must be provided on a CD)**

APPLICATION INFORMATION:

Professional/Agent (if any): _____ PHONE: _____

ADDRESS: _____ FAX: _____

CITY: _____ STATE _____ ZIP _____ E-MAIL: _____

APPLICANT: _____ PHONE: _____

ADDRESS: _____ FAX: _____

CITY: _____ STATE _____ ZIP _____ E-MAIL: _____

Proprietary interest in site: _____ List all owners: _____

DESCRIPTION OF REQUEST: _____

Is the applicant seeking incentives pursuant to the Family Housing Development Program? ___ Yes. ___ No.

SITE INFORMATION: ACCURACY OF THE EXISTING LEGAL DESCRIPTION IS CRUCIAL! ATTACH A SEPARATE SHEET IF NECESSARY.

Lot or Tract No. _____ Block: _____ Unit: _____

Subdiv/Addn/TBKA: _____

Existing Zoning: _____ Proposed zoning: _____ MRGCD Map No _____

Zone Atlas page(s): _____ UPC Code: _____

CASE HISTORY:

List any current or prior case number that may be relevant to your application (Proj., App., DRB-, AX_,Z_, V_, S_, etc.): _____

CASE INFORMATION:

Within city limits? ___ Yes Within 1000FT of a landfill? _____

No. of existing lots: _____ No. of proposed lots: _____ Total site area (acres): _____

LOCATION OF PROPERTY BY STREETS: On or Near: _____

Between: _____ and _____

Check if project was previously reviewed by: Sketch Plat/Plan or Pre-application Review Team(PRT) . Review Date: _____

SIGNATURE _____ DATE _____

(Print Name) _____ Applicant: Agent:

FOR OFFICIAL USE ONLY

<input type="checkbox"/> INTERNAL ROUTING	Application case numbers	Action	S.F.	Fees
<input type="checkbox"/> All checklists are complete	_____ - _____	_____	_____	\$ _____
<input type="checkbox"/> All fees have been collected	_____ - _____	_____	_____	\$ _____
<input type="checkbox"/> All case #s are assigned	_____ - _____	_____	_____	\$ _____
<input type="checkbox"/> AGIS copy has been sent	_____ - _____	_____	_____	\$ _____
<input type="checkbox"/> Case history #s are listed	_____ - _____	_____	_____	\$ _____
<input type="checkbox"/> Site is within 1000ft of a landfill	_____ - _____	_____	_____	\$ _____
<input type="checkbox"/> F.H.D.P. density bonus				Total
<input type="checkbox"/> F.H.D.P. fee rebate				\$ _____
	Hearing date _____			

Project # _____

Staff signature & Date _____

FORM S(2): SUBDIVISION - D.R.B. PUBLIC HEARING

A **Bulk Land Variance** requires application on FORM-V in addition to application for subdivision on FORM-S.

MAJOR SUBDIVISION PRELIMINARY PLAT APPROVAL (DRB13)

- ___ 5 Acres or more: Certificate of No Effect or Approval
 - ___ Proposed Preliminary Plat including the Grading Plan (folded to fit into an 8.5" by 14" pocket) **10 copies**
 - ___ Proposed Infrastructure List (Figure 18)
 - ___ Signed Preliminary Pre-Development Facilities Fee Agreement for **Residential** development only
 - ___ Design elevations & cross sections of perimeter walls **3 copies** (11" x 17" maximum)
 - ___ Zone Atlas map with the entire property(ies) clearly outlined
 - ___ Site sketch with measurements showing structures, parking, building setbacks, adjacent rights-of-way and street improvements (to include sidewalk, curb & gutter with distance to property line noted) if there is any existing land use (folded to fit into an 8.5" by 14" pocket) **6 copies**
 - ___ Letter briefly describing, explaining, and justifying the request
 - ___ Property owner's and City Surveyor's signature on the proposed plat
 - ___ FORM DRWS Drainage Report, Water & Sewer availability statement filing information
 - ___ Office of Neighborhood Coordination inquiry response, notifying letter, certified mail receipts
 - ___ Sign Posting Agreement
 - ___ **Signed** Pre-Annexation Agreement if Annexation required.
 - ___ TIS/AQIA Traffic Impact Study / Air Quality Impact Assessment form
 - ___ Fee (see schedule)
 - ___ List any original and/or related file numbers on the cover application
 - ___ Grading and Drainage Plan/Drainage Report Submittal to Hydrology
- (Grading and Drainage Plan/Drainage Report must be submitted to Hydrology prior to DRB application submittal. Grading and Drainage plans may have to be approved prior to DRB approval.)**

Preliminary plat approval expires after one year.

DRB Public hearings are approximately 30 DAYS after the filing deadline. Your attendance is required.

MAJOR SUBDIVISION AMENDMENT TO PRELIMINARY PLAT (DRB11) (with significant changes)

PLEASE NOTE: There are no clear distinctions between significant and minor changes with regard to subdivision amendments. Significant changes are those deemed by the DRB to require public notice and public hearing.

- ___ Proposed Amended Preliminary Plat, and/or Infrastructure List, and/or Grading Plan (folded to fit into an 8.5" by 14" pocket) **10 copies**
- ___ Original Preliminary Plat, and/or Infrastructure List, and/or Grading Plan (folded to fit into an 8.5" by 14" pocket)
- ___ Zone Atlas map with the entire property(ies) clearly outlined
- ___ Letter briefly describing, explaining, and justifying the request
- ___ Property owner's and City Surveyor's signature on the proposed amended plat, if applicable
- ___ Office of Neighborhood Coordination inquiry response, notifying letter, certified mail receipts
- ___ Sign Posting Agreement
- ___ List any original and/or related file numbers are listed on the cover application
- ___ Proposed Infrastructure List (Figure 18)

Amended preliminary plat approval expires after one year.

DRB Public hearings are approximately 30 DAYS after the filing deadline. Your attendance is required.

MAJOR SUBDIVISION IMPROVEMENTS AGREEMENT EXTENSION (DRB09)

(Temporary sidewalk deferral extension use FORM-V)

- ___ Zone Atlas map with the entire property(ies) clearly outlined
- ___ Letter briefly describing, explaining, and justifying the request
- ___ Plat or plan reduced to 8.5" x 11"
- ___ Official D.R.B. Notice of the original approval
- ___ Approved Infrastructure List. If not applicable, please initial. _____
- ___ Previous SIA extension notice, if one has been issued. If not applicable, please initial. _____
- ___ Office of Neighborhood Coordination inquiry response, notifying letter, certified mail receipts
- ___ Sign Posting Agreement
- ___ List any original and/or related file numbers on the cover application
- ___ Fee (see schedule)

DRB Public hearings are approximately 30 DAYS after the filing deadline. Your attendance is required.

I, the applicant, acknowledge that any information required but not submitted with this application will likely result in deferral of actions.

Applicant name (print)

Applicant signature / date



Form revised **January 2018**

- Checklists complete Application case numbers
- Fees collected _____ - _____
- Case #s assigned _____ - _____
- Related #s listed _____ - _____

Planner signature / date

Project #

FORM V: SUBDIVISION VARIANCES & VACATIONS

- BULK LAND VARIANCE (DRB04)** **(PUBLIC HEARING CASE)**
 - Application for Minor Plat on FORM S-3, including those submittal requirements. **10 copies**
 - Letter briefly describing and explaining: the request, compliance with the Development Process Manual, and all improvements to be waived.
 - Notice on the proposed Plat that there are conditions to subsequent subdivision (refer to DPM)
 - Office of Neighborhood Coordination inquiry response, notifying letter, certified mail receipts
 - Sign Posting Agreement
 - Fee (see schedule)
 - List any original and/or related file numbers on the cover application
- DRB Public hearings are approximately 30 DAYS after the filing deadline. Your attendance is required.**

- VACATION OF PUBLIC EASEMENT (DRB27)**
 - List number of easements to be vacated _____
 - VACATION OF PUBLIC RIGHT-OF-WAY (DRB28)**
 - The complete document which created the public easement (folded to fit into an 8.5" by 14" pocket) **10 copies.**
(Not required for City owned public right-of-way.)
 - Drawing showing the easement or right-of-way to be vacated, etc. (not to exceed 8.5" by 11") **10 copies**
 - Zone Atlas map with the entire property(ies) clearly outlined
 - Letter briefly describing, explaining, and justifying the request
 - Office of Neighborhood Coordination inquiry response, notifying letter, certified mail receipts
 - Sign Posting Agreement
 - Fee (see schedule)
 - List any original and/or related file numbers on the cover application
- Unless the vacation is shown on a DRB approved plat recorded by the County Clerk within one year, it will expire.
DRB Public hearings are approximately 30 DAYS after the filing deadline. Your attendance is required.

- SIDEWALK VARIANCE (DRB20)**
 - SIDEWALK WAIVER (DRB21)**
 - Scale drawing showing the proposed variance or waiver (not to exceed 8.5" by 14") **6 copies**
 - Zone Atlas map with the entire property(ies) clearly outlined
 - Letter briefly describing, explaining, and justifying the variance or waiver
 - List any original and/or related file numbers on the cover application
- DRB meetings are approximately 8 DAYS after the Tuesday noon filing deadline. Your attendance is required.**

- SUBDIVISION DESIGN VARIANCE FROM MINIMUM DPM STANDARDS (DRB25)**
 - Scale drawing showing the location of the proposed variance or waiver (not to exceed 8.5" by 14") **10 copies**
 - Zone Atlas map with the entire property(ies) clearly outlined
 - Letter briefly describing, explaining, and justifying the variance
 - Office of Neighborhood Coordination inquiry response, notifying letter, certified mail receipts
 - Sign Posting Agreement
 - Fee (see schedule)
 - List any original and/or related file numbers on the cover application
- DRB meetings are approximately 30 DAYS after the filing deadline. Your attendance is required.**

- TEMPORARY DEFERRAL OF SIDEWALK CONSTRUCTION (DRB19)**
 - EXTENSION OF THE SIA FOR TEMPORARY DEFERRAL OF SIDEWALK CONSTRUCTION (DRB07)**
 - Drawing showing the sidewalks subject to the proposed deferral or extension (not to exceed 8.5" by 14") **6 copies**
 - Zone Atlas map with the entire property(ies) clearly outlined
 - Letter briefly describing, explaining, and justifying the deferral or extension
 - List any original and/or related file numbers on the cover application
- DRB meetings are approximately 8 DAYS after the Tuesday noon filing deadline. Your attendance is required.**

- VACATION OF PRIVATE EASEMENT (DRB26)**
 - List number of easements to be vacated _____
 - VACATION OF RECORDED PLAT (DRB29)**
 - The complete document which created the private easement/recorded plat (not to exceed 8.5" by 14") **6 copies**
 - Scale drawing showing the easement to be vacated (8.5" by 11") **6 copies**
 - Zone Atlas map with the entire property(ies) clearly outlined
 - Letter/documents briefly describing, explaining, and justifying the vacation **6 copies**
 - Letter of authorization from the grantors and the beneficiaries (private easement only)
 - Fee (see schedule)
 - List any original and/or related file numbers on the cover application
- Unless the vacation is shown on a DRB approved plat recorded by the County Clerk within one year, it will expire.
DRB meetings are approximately 8 DAYS after the Tuesday noon filing deadline. Your attendance is required.

I, the applicant, acknowledge that any information required but not submitted with this application will likely result in deferral of actions.

Applicant name (print)

Applicant signature / date

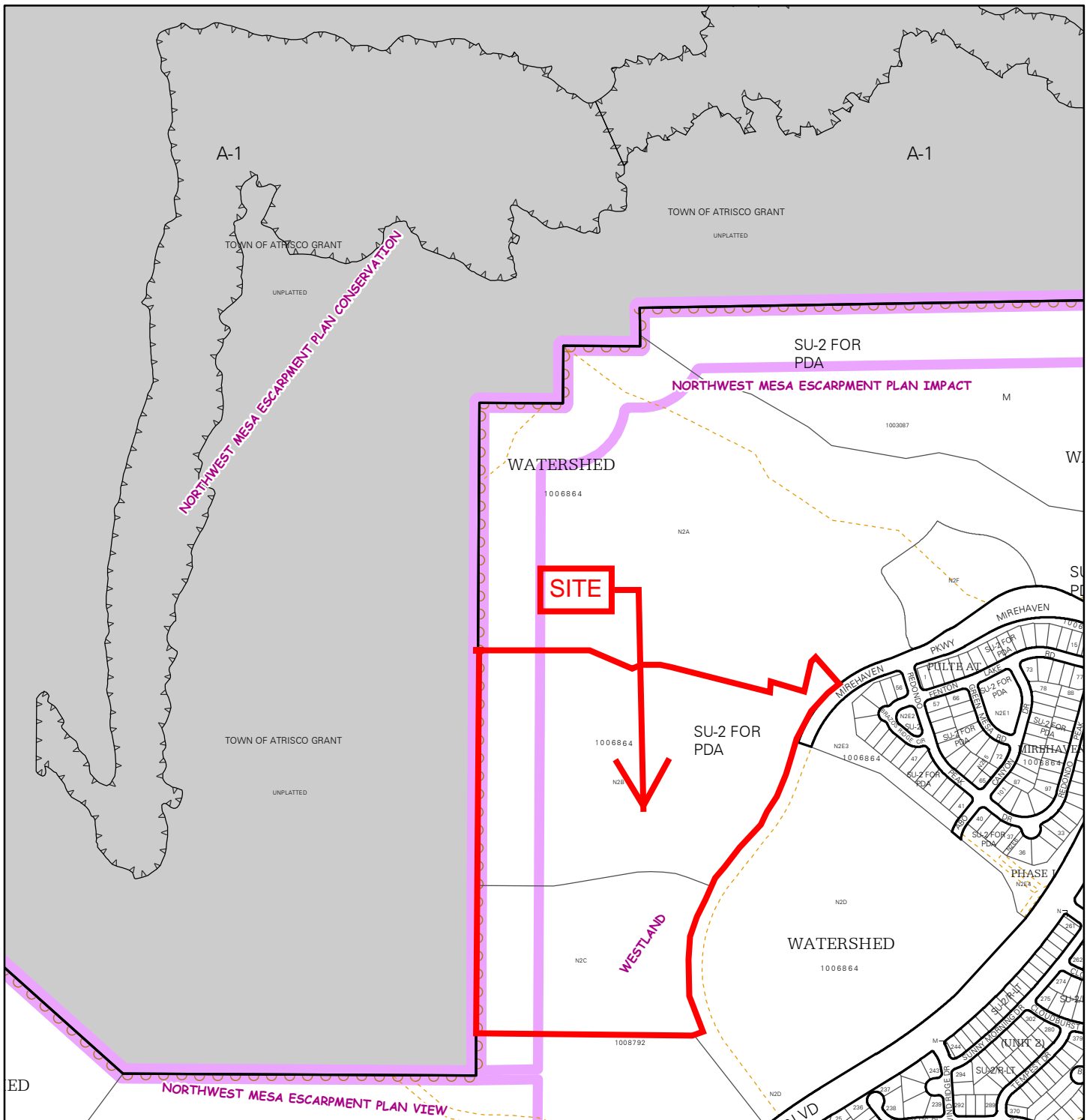


Form revised **January 2018**

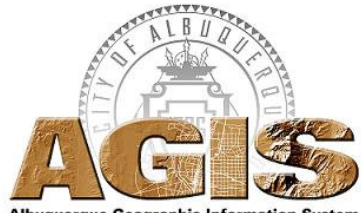
- Checklists complete Application case numbers
- Fees collected _____
- Case #s assigned _____
- Related #s listed _____

Planner signature / date

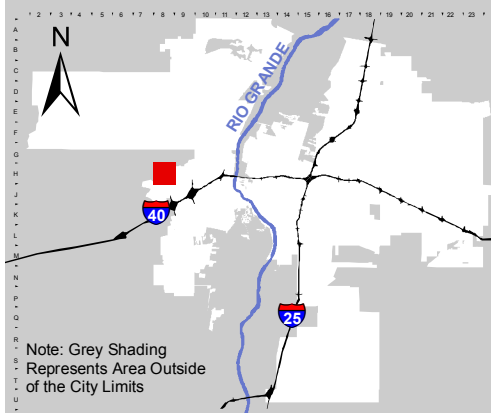
Project #:



For more current information and details visit: <http://www.cabq.gov/gis>



Map amended through: 9/2/2014

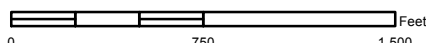


Note: Grey Shading Represents Area Outside of the City Limits

Zone Atlas Page:
H-08-Z

Selected Symbols

SECTOR PLANS	Escarpment
Design Overlay Zones	2 Mile Airport Zone
City Historic Zones	Airport Noise Contours
H-1 Buffer Zone	Wall Overlay Zone
Petroglyph Mon.	



FORM DRWS: DRAINAGE REPORT / WATER & SANITARY SEWER AVAILABILITY
THIS FORM IS REQUIRED WITH THE DEVELOPMENT REVIEW BOARD APPLICATION
FOR MAJOR SUBDIVISIONS AND SITE DEVELOPMENT PLANS.

PROJECT NAME: DEL WEBB @MIREHAVEN PHASE 3&4

AGIS MAP # H-8

LEGAL DESCRIPTIONS: TRACT N-2-B-1, TRACT N-2-B-2 AND TRACT N-2-C-1

___ DRAINAGE REPORT

A drainage report, as per the Drainage Ordinance, was submitted to the City of Albuquerque Public Works Department, Hydrology Division (2nd Floor Plaza del Sol) on _____ (date).

Applicant/Agent

Date

Hydrology Division Representative

Date

___ WATER AND SEWER AVAILABILITY STATEMENT

A Water and Sewer Availability Statement for this project was requested from the City of Albuquerque Utilities Development Division (2nd floor, Plaza del Sol) on _____ (date).

Applicant/Agent

Date

Utilities Division Representative

Date

PROJECT # _____

April 23, 2018

Chair

Trudy E. Jones
City of Albuquerque
Councilor, District 8

Vice Chair

Debbie O'Malley
County of Bernalillo
Commissioner, District 1

Pat Davis
City of Albuquerque
Councilor, District 6

Timothy M. Keller
City of Albuquerque
Mayor

Klarissa J. Peña
City of Albuquerque
Councilor, District 3

Steven Michael Quezada
County of Bernalillo
Commissioner, District 2

Lonnie Talbert
County of Bernalillo
Commissioner, District 4

Ex-Officio Member
Pablo R. Rael
Village of Los Ranchos
Board Trustee

Executive Director
Mark S. Sanchez

Website
www.abcwua.org

Abraham Mena Ortiz
Bohannon Huston Inc.
7500 Jefferson St. NE
Albuquerque, New Mexico 87109

**RE: Water and Sanitary Sewer Availability Statement #180202
Del Webb Phases 3 & 4
Tierra Pintada Blvd. NW**

Dear Mr. Mena Ortiz:

Project Description: The subject site is located on Mirehaven Pkwy northwest of Tierra Pintada Blvd. within the City of Albuquerque. The proposed development consists of approximately 61.8 acres and the property is currently zoned SU-2 for residential use. Per the submitted grading plan, the property lies primarily within Pressure Zone 4W, with some proposed lots within Pressure Zone 3WR in the College trunk. The request for availability indicates plans to subdivide the existing properties to accommodate a 220 single family unit development.

Existing Conditions: Water infrastructure in the area consists of the following:

- 4W infrastructure
 - Eight inch PVC distribution main stub (project #26-6503.83-15) along Cebolla Creek Wy.
 - Eight inch PVC distribution main stub (project #26-6503.83-15) along Willow Canyon Trl.
 - Eight inch PVC distribution main stub (project #26-6503.87-16) along Echo Canyon Ave.
- 3WR infrastructure
 - Ten inch PVC distribution main stub (project #26-6503.83-15) along Willow Canyon Trl. in the 3WR College Trunk.
 - Ten inch PVC distribution main stub (project #26-6503.87-16) along Echo Canyon Ave. in the 3WR College Trunk.

Sanitary sewer infrastructure in the area consists of the following:

- Eight inch PVC collector line (project #26-6503.83-15) along Cebolla Creek Wy.
- Eight inch PVC collector line (project #26-6503.83-15) along Willow Canyon Trl.
- Eight inch PVC collector line (project #26-6503.87-16) along Echo Canyon Ave.

Water Service: New metered water service to the property can be provided contingent upon a developer funded project to extend both 4W and 3WR pressure zone infrastructure internal to the site. The 4W waterline shall connect to the existing 4W waterline stubs located along Cebolla Creek Way, Willow Canyon Trail and Echo Canyon La. The 3WR waterline shall connect to the existing 3WR waterline stubs located along Willow Canyon Trail and Echo Canyon La. These connection

requirements provide for looped waterlines which provide for redundancy, capacity and aid in water quality.

Pressure zone 4W shall only provide service to lots with finished floor elevations between 5,370' and 5,485' (NAVD 27/29). Pressure zone 3WR shall only provide service to lots with finished floor elevations between 5,255' and 5,370' (NAVD 27/29).

Based on the submitted grading plan, much of the site is within Pressure Zone 4W while several lots in the northeast portion of the development are within Pressure Zone 3WR. Lots that are proposed within Pressure Zone 3WR are along proposed Willow Canyon Trl., Crystal Creek Ln., and Sugar Creek Ln. These lots within Pressure Zone 3WR shall be served from proposed 3WR waterlines which shall connect to the existing 3WR waterline stubs located at the northern terminus of Willow Canyon Trail and Echo Canyon La. Service to the lots along Sugar Creek La. and Crystal Creek La. that are within Pressure Zone 3WR can be provided by extending dead end waterlines from Willow Canyon Trail.

Service is also contingent upon compliance with the Fire Marshal's instantaneous fire flow requirements. Water service will not be sold without adequate fire protection. Water service will only be sold in conjunction with sanitary sewer service.

Sanitary Sewer Service can be provided contingent upon a developer funded project to extend the gravity sanitary sewer system internal to the site and discharging to the infrastructure previously mentioned.

Fire Protection: A standard fire hydrant flow has been applied to the existing infrastructure and can currently be met. An analysis point along the proposed corridor Willow Canyon Trl. was utilized for analysis. All new required hydrants as well as their exact locations must be determined through the City of Albuquerque Fire Marshal's Office and verified through the Utility Development Office prior to sale of service.

Cross Connection Prevention: Any residential premises having existing private wells and who desire to connect to the public water system shall have two options as follows: 1) Customers shall permanently abandon the use of private wells by plugging the wells as accepted by the Water Authority prior to connecting to the public water system; or 2) Customers who choose to maintain their private wells shall completely sever the private well from the premises' potable plumbing system and shall install a reduced pressure principle backflow prevention assembly approved by the Water Authority at the terminal end of the water service from the public water system (e.g., service connection).

Easements: Exclusive public water and sanitary sewer easements are required for all public lines that are to be constructed outside of any dedicated rights-of-way. A minimum width easement of 20 feet is required for a single utility and 25 feet for water and sewer both within the same easement. Easements for standard sized water meters need to be five feet by five feet and include the length of the water service if located on private property. For larger meters that require a meter vault, a 35 feet by 35 feet easement is required. Actual easement widths may vary depending on the depth of the lines to be installed. Side yard easements are not acceptable for either water or sanitary sewer. Acceptable easements must be documented prior to approval of service.

Pro Rata: Pro Rata is not owed and the property can utilize the services available upon completion of the requirements of this statement to connect to water and sanitary sewer.

Design and Construction of all required improvements will be at the developer / property owner's expense. Improvements must be coordinated through the City of Albuquerque via the Work Order process. Designs must be performed by a licensed, New Mexico registered, professional engineer. Construction must be performed by a licensed and bonded public utility contractor.

Costs and Fees: In addition to installation and construction costs, any new metered water services will be subject to both water and sanitary sewer Utility Expansion Charges (UEC) payable at the time of service application. All charges and rates collected will be based on the ordinances and policies in effect at the time service is actually requested and authorized.

Water Use: All new development shall be required to meet the standard water usage of 180 gallons per household per day which is equivalent to 75 gallons per capita per day.

Closure: This availability statement provides a commitment from the Water Authority to provide services to the development, as long as identified conditions are met. It will remain in effect for a period of one year from the date of issue and applies only to the development identified herein. Its validity is, in part, contingent upon the continuing accuracy of the information supplied by the developer. Changes in the proposed development may require reevaluation of availability and should be brought to the attention of the Utility Development Section of the Water Authority as soon as possible.

Please feel free to contact Mr. Kristopher Cadena in our Utility Development Section at (505) 289-3301 or email at kcadena@abcwua.org if you have questions regarding the information presented herein or need additional information.

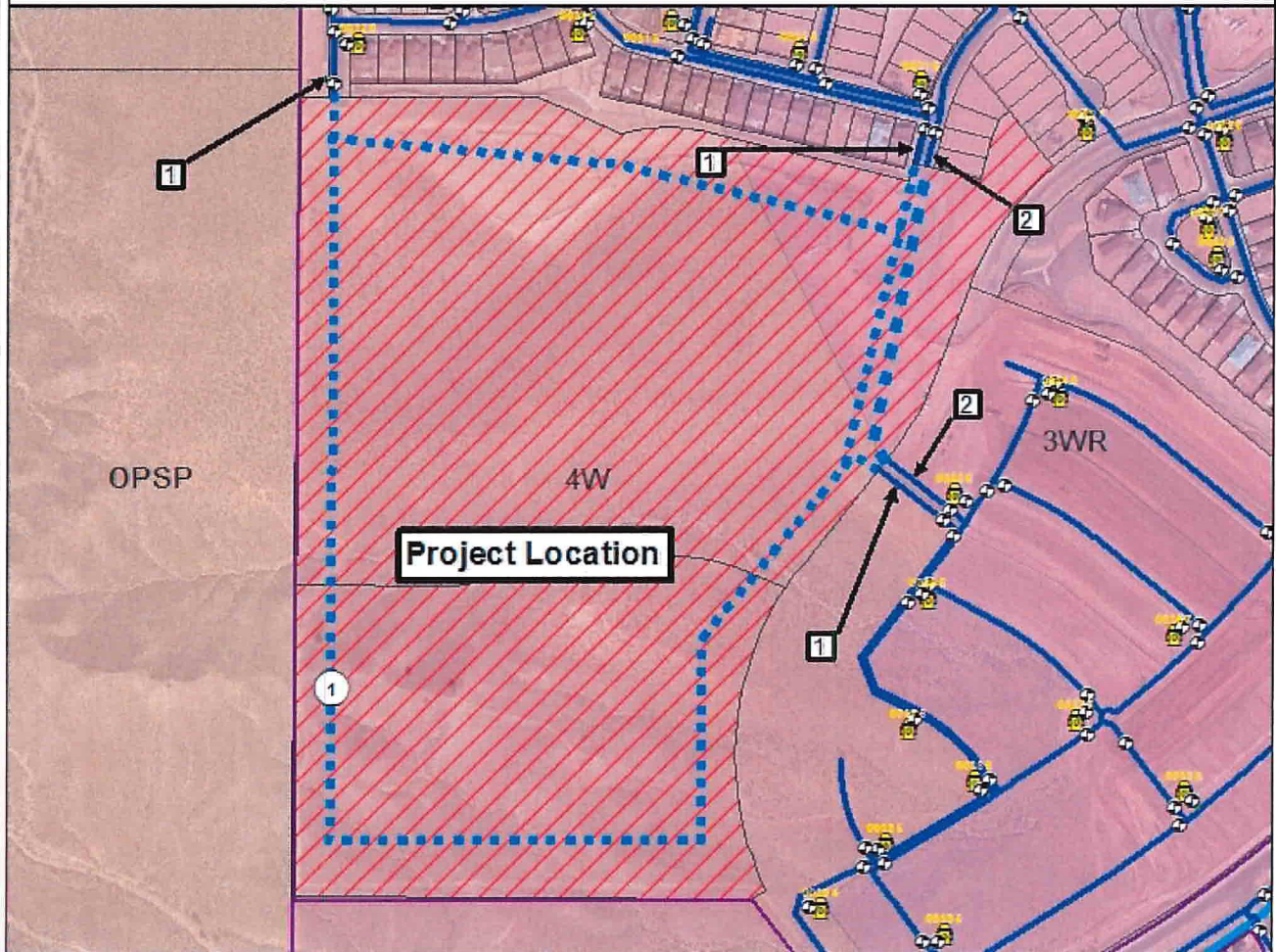
Sincerely,



Mark S. Sanchez
Executive Director



Enclosures: Infrastructure Maps (2)
f/ Availability Statement 180202

180202



Legend

**Pipe
SUBTYPE**

-  Distribution Main
-  Hydrant Leg
-  In Zone Transmission
-  Hydrant
-  Valve

0 800 1,600 Feet



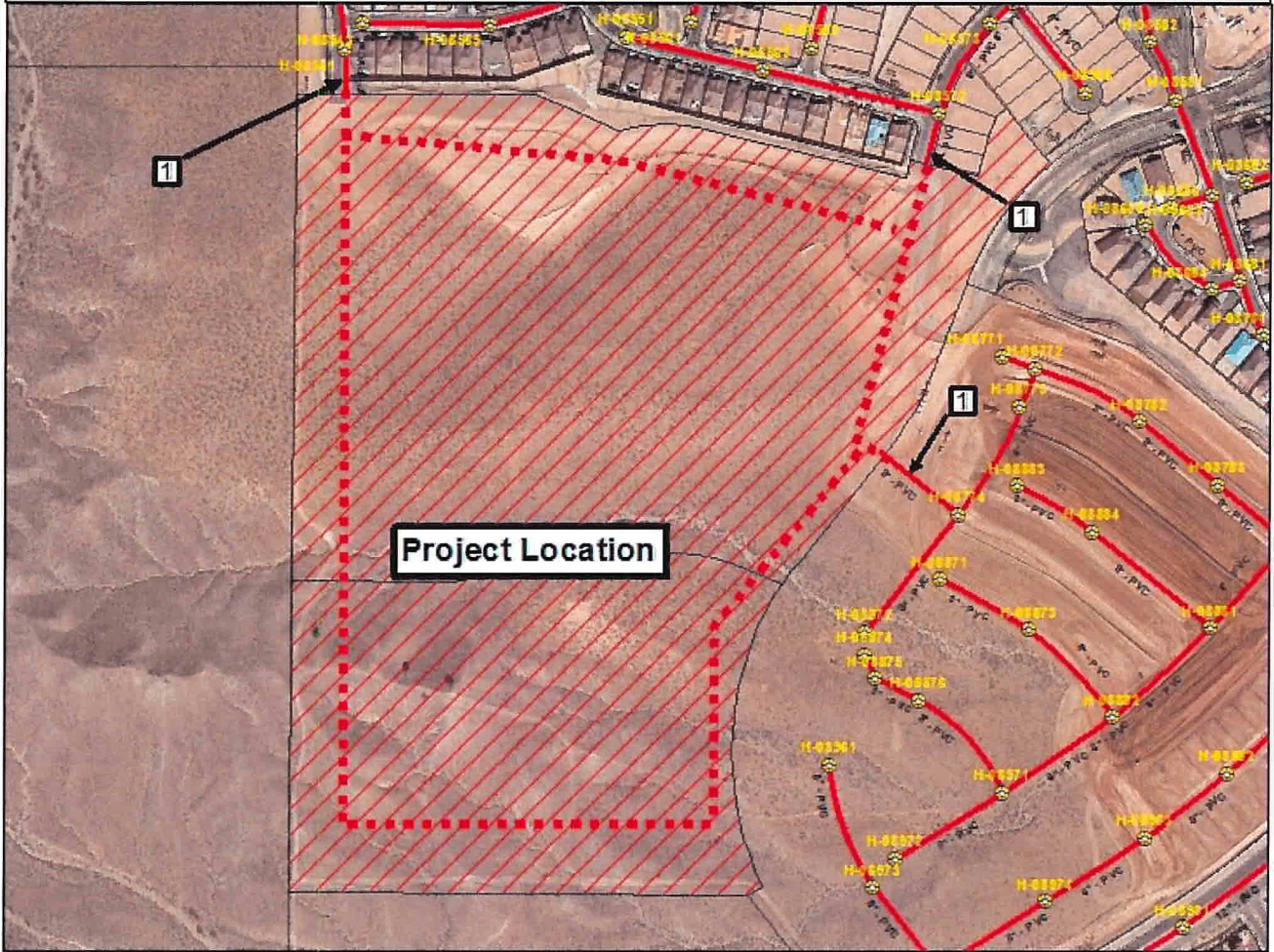
 -- General Map Keyed Notes

- 1. -- 8" Distribution Main (4W Pressure Zone)
- 2. -- 10" Distribution Main (3WR Pressure Zone)

 -- Fire Flow Analysis Points

- 1. -- Analysis Point

180202



Legend

Sewer Pipe

— <all other values>

SUBTYPE

- COLLECTOR
- - - FORCE MAIN
- INTERCEPTOR
- VACUUM LINE
- ⊗ Sewer Manhole



□ --- General Map Keyed Notes

1. --- 8" Collector Line



CITY OF ALBUQUERQUE

TRAFFIC IMPACT STUDY (TIS) FORM

APPLICANT: Pulte Group, Inc. DATE OF REQUEST: 4/23/13 ZONE ATLAS PAGE(S): H-08 1/2 H-09

CURRENT:

ZONING SU-2/SU-1 for PDA
PARCEL SIZE (AC/SQ. FT.) 284.4 acres

LEGAL DESCRIPTION:

LOT OR TRACT # N-2nd M BLOCK # _____
SUBDIVISION NAME Watershed Subdivision

REQUESTED CITY ACTION(S):

ANNEXATION []
ZONE CHANGE []: From _____ To _____
SECTOR, AREA, FAC, COMP PLAN []
AMENDMENT (Map/Text) []

SITE DEVELOPMENT PLAN:

SUBDIVISION* AMENDMENT []
BUILDING PERMIT [] ACCESS PERMIT []
BUILDING PURPOSES [] OTHER []

*includes platting actions

PROPOSED DEVELOPMENT:

NO CONSTRUCTION/DEVELOPMENT []
NEW CONSTRUCTION
EXPANSION OF EXISTING DEVELOPMENT []

GENERAL DESCRIPTION OF ACTION:

OF UNITS: 950 (565 units for senior adult housing & 385 units for traditional single family)
BUILDING SIZE: _____ (sq. ft.)

Note: changes made to development proposals / assumptions, from the information provided above, will result in a new TIS determination.

APPLICANT OR REPRESENTATIVE _____

DATE 4/23/13

(To be signed upon completion of processing by the Traffic Engineer)

Planning Department, Development & Building Services Division, Transportation Development Section -
2ND Floor West, 600 2ND St. NW, Plaza del Sol Building, City, 87102, phone 924-3994

TRAFFIC IMPACT STUDY (TIS) REQUIRED: YES [] NO BORDERLINE []

THRESHOLDS MET? YES [] NO [] MITIGATING REASONS FOR NOT REQUIRING TIS: PREVIOUSLY STUDIED:

Notes: WATERSHED AND INSPIRATION SUBDIVISION TIS (10-4-07) AND ATTACHED TRIP GENERATION COMPARISON (2013) FOR WATERSHED.

If a TIS is required: a scoping meeting (as outlined in the development process manual) must be held to define the level of analysis needed and the parameters of the study. **Any subsequent changes to the development proposal identified above may require an update or new TIS.**

TRAFFIC ENGINEER _____

DATE 4-23-13

Required TIS **must be completed prior to applying to the EPC and/or the DRB.** Arrangements must be made prior to submittal if a variance to this procedure is requested and noted on this form, otherwise the application may not be accepted or deferred if the arrangements are not complied with.

TIS -SUBMITTED / / _____ DATE _____
-FINALIZED / / TRAFFIC ENGINEER

Original Watershed Proposal							
Single Family Detached Housing	210	620 DU	5,627	111	333	342	201
Townhouse	230	474 DU	2,490	30	149	144	71
Total Original		1,094 DU	8,118	141	482	486	272
Current Estrella Proposal							
Single Family Detached Housing	210	385 DU	3,630	70	209	223	131
Senior Adult Housing – Detached*	251	565 DU	2,208	44	82	100	64
Total Proposed		950 DU	5,838	114	291	323	195
Difference		-144	-2,280	-27	-191	-163	-77
* - 24 Hour Two-Way Volume based on Del Webb trip generation of 3.0 per DU. 9 th Edition Trip Generation Manual has 3.68 per DU or 1,999 trips per day, for a daily difference of -785 trips.							

Figure 12

INFRASTRUCTURE LIST

EXHIBIT "A"
 TO SUBDIVISION IMPROVEMENTS AGREEMENT
 DEVELOPMENT REVIEW BOARD (D.R.B.) REQUIRED INFRASTRUCTURE LIST

**DEL WEBB AT MIREHAVEN PHASE 3 & 4
 (TRACT M AND TRACT N-2-A-1, WATERSHED)**

Following is a summary of PUBLIC/PRIVATE Infrastructure required to be constructed or financially guaranteed for the above development. This Listing is not necessarily a complete listing. During the SIA process and/or in the review of the construction drawings, if the DRC Chair determines that appurtenant items and/or unforeseen items have not been included in the infrastructure listing, the DRC Chair may include those items in the listing and related financial guarantee. Likewise, if the DRC Chair determines that appurtenant or non-essential items can be deleted from the listing, those items may be deleted as well as the related portions of the financial guarantees. All such revisions require approval by the DRC Chair, the User Department and agent/owner. If such approvals are obtained, these revisions to the listing will be incorporated administratively. In addition, any unforeseen items which arise during construction which which are necessary to complete the project and which normally are the Subdivider's responsibility will be required as a condition of project acceptance and close out by the City.

SIA Sequence #	COA DRC Project #	Size	Type of Improvement	Location	From	To	Private Inspector	City Inspector	City Cnst Engineer
<u>PUBLIC WATERLINE IMPROVEMENTS-PHASE 3A</u>									
		8" DIA (4WR)	WATERLINE W/ NEC. VALVES FH'S, MJ'S & RJ'S	WILLOW CANYON TRAIL	PHASE 3A/4 BOUNDARY	NORTH BOUNDARY	/	/	/
		8" DIA (3WR)	WATERLINE W/ NEC. VALVES FH'S, MJ'S & RJ'S	WILLOW CANYON TRAIL	ECHO CANYON LANE	NORTH BOUNDARY	/	/	/
		6" DIA (4WR)	WATERLINE W/ NEC. VALVES FH'S, MJ'S & RJ'S	ROCK CREEK TRAIL	WOOD CREEK LANE	SUGAR CREEK LANE	/	/	/
		6" DIA (4WR)	WATERLINE W/ NEC. VALVES FH'S, MJ'S & RJ'S	SUGAR CREEK LANE	PHASE 3A/ 3B BOUNDARY	WILLOW CANYON TRAIL	/	/	/
		4" DIA (3WR)	WATERLINE W/ NEC. VALVES FH'S, MJ'S & RJ'S	SUGAR CREEK LANE	LOT 44	WILLOW CANYON TRAIL	/	/	/
		6" DIA (4WR)	WATERLINE W/ NEC. VALVES FH'S, MJ'S & RJ'S	CRYSTAL CREEK LANE	ROCK CREEK TRAIL	WILLOW CANYON TRAIL	/	/	/
		8" DIA (4WR)	WATERLINE W/ NEC. VALVES FH'S, MJ'S & RJ'S	ECHO CANYON LANE	WILLOW CANYON TRAIL	MIREHAVEN PARKWAY	/	/	/
		8" DIA (3WR)	WATERLINE W/ NEC. VALVES FH'S, MJ'S & RJ'S	ECHO CANYON LANE	WILLOW CANYON TRAIL	MIREHAVEN PARKWAY	/	/	/
		6" DIA (4WR)	WATERLINE W/ NEC. VALVES FH'S, MJ'S & RJ'S	WOOD CREEK LANE	PHASE 3A/ 3B BOUNDARY	WILLOW CANYON TRAIL	/	/	/
							/	/	/

SIA Sequence #	COA DRC Project #	Size	Type of Improvement	Location	From	To	Private Inspector	City Inspector	City Cnst Engineer
<u>PUBLIC SANITARY SEWER IMPROVEMENTS -PHASE 3A</u>									
		8" DIA	SANITARY SEWER W/ NEC. MH'S & SERVICES	WILLOW CANYON TRAIL	PHASE 3A/ 4 BOUNDARY	NORTH BOUNDARY	/	/	/
		8" DIA	SANITARY SEWER W/ NEC. MH'S & SERVICES	ROCK CREEK TRAIL	LOT 83	SUGAR CREEK LANE	/	/	/
		8" DIA	SANITARY SEWER W/ NEC. MH'S & SERVICES	SUGAR CREEK LANE	PHASE 3A/ 3B BOUNDARY	WILLOW CANYON TRAIL	/	/	/
		8" DIA	SANITARY SEWER W/ NEC. MH'S & SERVICES	CRYSTAL CREEK LANE	LOT 57	WILLOW CANYON TRAIL	/	/	/
		8" DIA	SANITARY SEWER W/ NEC. MH'S & SERVICES	WOOD CREEK LANE	PHASE 3A/ 3B BOUNDARY	WILLOW CANYON TRAIL	/	/	/

SIA Sequence #	COA DRC Project #

Size	Type of Improvement	Location	From	To
PUBLIC STORM DRAIN IMPROVEMENTS-PHASE 3A				
18-42" DIA	RCP W/ NEC. MH'S, LATERALS & INLETS	WILLOW CANYON TRAIL	PHASE 3A/ 4 BOUNDARY	LOT 21
18-30" DIA	RCP W/ NEC. MH'S, LATERALS & INLETS	SUGAR CREEK LANE	LOT 35	WILLOW CANYON TRAIL
	POND	LINEAR PARK		
NOTE:	A GRADING AND DRAINAGE CERTIFICAITON OF THE APPROVED GRADING PLAN IS REQUIRED PRIOR TO THE RELEASE OF FINANCIAL GUARANTY			

Private Inspector	City Inspector	City Cnst Engineer
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SIA Sequence #	COA DRC Project #

Size	Type of Improvement	Location	From	To
PRIVATE ROADWAY IMPROVEMENTS - ON-SITE PHASE 3A				
32' F-F	RESIDENTIAL PAVING W/ PCC CURB & GUTTER & PCC 4' WIDE SIDEWALK ON BOTH SIDES	WILLOW CANYON TRAIL	PHASE 3A/ 4 BOUNDARY	NORTH BOUNDARY
28' F-F	RESIDENTIAL PAVING W/ PCC CURB & GUTTER & PCC 4' WIDE SIDEWALK ON BOTH SIDES	ROCK CREEK TRAIL	WOOD CREEK LANE	SUGAR CREEK LANE
28' F-F	RESIDENTIAL PAVING W/ PCC CURB & GUTTER & PCC 4' WIDE SIDEWALK ON BOTH SIDES	SUGAR CREEK LANE	PHASE 3A/ 3B BOUNDARY	WILLOW CANYON TRAIL
28' F-F	RESIDENTIAL PAVING W/ PCC CURB & GUTTER & PCC 4' WIDE SIDEWALK ON BOTH SIDES	CRYSTAL CREEK LANE	ROCK CREEK TRAIL	WILLOW CANYON TRAIL
28' F-F	RESIDENTIAL PAVING W/ PCC CURB & GUTTER & PCC 4' WIDE SIDEWALK ON BOTH SIDES	WOOD CREEK LANE	PHASE 3A/ 3B BOUNDARY	WILLOW CANYON TRAIL
36' F-F 6' MEDIAN 15' INGRESS 15' EGRESS	RESIDENTIAL PAVING W/ PCC CURB & GUTTER & PCC 6' WIDE SIDEWALK†* ON S SIDE ONLY	ECHO CANYON LANE	WILLOW CANYON TRAIL	MIREHAVEN PARKWAY
NOTE:	STREET LIGHTS AS REQUIRED PER THE COA DPM			
	*ALL SIDEWALKS TO BE DEFERRED ALONG FRONTAGE OF LOTS			
	†SIDEWALK TO BE WAIVED ON: 1) NORTHSIDE OF ECHO CANYON LANE			
	**PROVIDE / INSTALL THE NECESSARY ROADWAY SIGNAGE ASSOCIATED W/ THE DEVELOPMENT AS APPROVED BY THE CITY DRC			

Private Inspector	City Inspector	City Cnst Engineer
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SIA Sequence #	COA DRC Project #

Size	Type of Improvement	Location	From	To
PUBLIC WATERLINE IMPROVEMENTS-PHASE 3B				
6" DIA (4WR)	WATERLINE W/ NEC. VALVES FH'S, MJ'S & RJ'S	PEBBLE CREEK TRAIL	WOOD CREEK LANE	SUGAR CREEK LANE
8" DIA (4WR)	WATERLINE W/ NEC. VALVES FH'S, MJ'S & RJ'S	CEBOLLA CREEK WAY	PHASE 3B/ 4 BOUNDARY	NORTH BOUNDARY
6" DIA (4WR)	WATERLINE W/ NEC. VALVES FH'S, MJ'S & RJ'S	SUGAR CREEK LANE	CEBOLLA CREEK WAY	PHASE 3A/ 3B BOUNDARY
6" DIA (4WR)	WATERLINE W/ NEC. VALVES FH'S, MJ'S & RJ'S	WOOD CREEK LANE	CEBOLLA CREEK WAY	PHASE 3A/ 3B BOUNDARY

Private Inspector	City Inspector	City Cnst Engineer
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SIA Sequence #	COA DRC Project #

Size	Type of Improvement	Location	From	To
PUBLIC SANITARY SEWER IMPROVEMENTS -PHASE 3B				
8" DIA	SANITARY SEWER W/ NEC. MH'S & SERVICES	PEBBLE CREEK TRAIL	LOT 123	WOODCREEK LANE
8" DIA	SANITARY SEWER W/ NEC. MH'S & SERVICES	CEBOLLA CREEK WAY	LOT 99	NORTH BOUNDARY
8" DIA	SANITARY SEWER W/ NEC. MH'S & SERVICES	SUGAR CREEK LANE	LOT 144	PHASE 3A/ 3B BOUNDARY
8" DIA	SANITARY SEWER W/ NEC. MH'S & SERVICES	WOOD CREEK LANE	LOT 98	PHASE 3A/ 3B BOUNDARY

Private Inspector	City Inspector	City Cnst Engineer
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SIA Sequence #	COA DRC Project #

Size	Type of Improvement	Location	From	To
PUBLIC STORM DRAIN IMPROVEMENTS-PHASE 3B				
	INLET	SUGAR CREEK LANE	ON PHASE 3A/3B BOUNDARY	
NOTE: A GRADING AND DRAINAGE CERTIFICATION OF THE APPROVED GRADING PLAN IS REQUIRED PRIOR TO THE RELEASE OF FINANCIAL GUARANTY				

Private Inspector	City Inspector	City Cnst Engineer
/	/	/
/	/	/
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SIA Sequence #	COA DRC Project #

Size	Type of Improvement	Location	From	To
PRIVATE ROADWAY IMPROVEMENTS - OFFSITE PHASE 3B				
28' F-F	RESIDENTIAL PAVING W/ PCC CURB & GUTTER & PCC 4' WIDE SIDEWALK†* ON BOTH SIDES	PEBBLE CREEK TRAIL	WOOD CREEK LANE	SUGAR CREEK LANE
28' F-F	RESIDENTIAL PAVING W/ PCC CURB & GUTTER & PCC 4' WIDE SIDEWALK ON BOTH SIDES	CEBOLLA CREEK WAY	PHASE 3B/ 4 BOUNDARY	NORTH BOUNDARY
28' F-F	RESIDENTIAL PAVING W/ PCC CURB & GUTTER & PCC 4' WIDE SIDEWALK ON BOTH SIDES	SUGAR CREEK LANE	CEBOLLA CREEK WAY	PHASE 3A/ 3B BOUNDARY
28' F-F	RESIDENTIAL PAVING W/ PCC CURB & GUTTER & PCC 4' WIDE SIDEWALK ON BOTH SIDES	WOOD CREEK LANE	CEBOLLA CREEK WAY	PHASE 3A/ 3B BOUNDARY
NOTE:	STREET LIGHTS AS REQUIRED PER THE COA DPM			
*ALL SIDEWALKS TO BE DEFERRED ALONG FRONTAGE OF LOTS				
**PROVIDE / INSTALL THE NECESSARY ROADWAY SIGNAGE ASSOCIATED W/ THE DEVELOPMENT AS APPROVED BY THE CITY DRC				

Private Inspector	City Inspector	City Cnst Engineer
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SIA Sequence #	COA DRC Project #

Size	Type of Improvement	Location	From	To
PUBLIC WATERLINE IMPROVEMENTS-PHASE 4				
8" DIA (4WR)	WATERLINE W/ NEC. VALVES FH'S, MJ'S & RJ'S	WILLOW CANYON TRAIL	COUGAR CREEK LANE	PHASE 3A/ 4 BOUNDARY
6" DIA (4WR)	WATERLINE W/ NEC. VALVES FH'S, MJ'S & RJ'S	BUFFALO BROOK WAY	COUGAR CREEK LANE	LOST CREEK WAY
6" DIA (4WR)	WATERLINE W/ NEC. VALVES FH'S, MJ'S & RJ'S	GNEISS TRAIL	COUGAR CREEK LANE	LOST CREEK WAY
8" DIA (4WR)	WATERLINE W/ NEC. VALVES FH'S, MJ'S & RJ'S	CEBOLLA CREEK WAY	COUGAR CREEK LANE	PHASE 3B/ 4 BOUNDARY
6" DIA (4WR)	WATERLINE W/ NEC. VALVES FH'S, MJ'S & RJ'S	LOST CREEK WAY	CEBOLLA CREEK WAY	WILLOW CANYON TRAIL
8" DIA (4WR)	WATERLINE W/ NEC. VALVES FH'S, MJ'S & RJ'S	COUGAR CREEK LANE	CEBOLLA CREEK WAY	WILLOW CANYON TRAIL

Private Inspector	City Inspector	City Cnst Engineer
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SIA Sequence #	COA DRC Project #	Size	Type of Improvement	Location	From	To	Private Inspector	City Inspector	City Cnst Engineer
PUBLIC SANITARY SEWER IMPROVEMENTS -PHASE 4									
		8" DIA	SANITARY SEWER W/ NEC. MH'S & SERVICES	WILLOW CANYON TRAIL	COUGAR CREEK LANE	PHASE 3A/ 4 BOUNDARY	/	/	/
		8" DIA	SANITARY SEWER W/ NEC. MH'S & SERVICES	BUFFALO BROOK WAY	LOT 67	COUGAR CREEK LANE	/	/	/
		8" DIA	SANITARY SEWER W/ NEC. MH'S & SERVICES	BUFFALO BROOK WAY	LOT 68	LOST CREEK WAY	/	/	/
		8" DIA	SANITARY SEWER W/ NEC. MH'S & SERVICES	GNEISS TRAIL	LOT 52	COUGAR CREEK LANE	/	/	/
		8" DIA	SANITARY SEWER W/ NEC. MH'S & SERVICES	GNEISS TRAIL	LOT 53	LOST CREEK WAY	/	/	/
		8" DIA	SANITARY SEWER W/ NEC. MH'S & SERVICES	CEBOLLA CREEK WAY	LOT 42	COUGAR CREEK LANE	/	/	/
		8" DIA	SANITARY SEWER W/ NEC. MH'S & SERVICES	LOST CREEK WAY	LOT 41	WILLOW CANYON TRAIL	/	/	/
		8" DIA	SANITARY SEWER W/ NEC. MH'S & SERVICES	COUGAR CREEK LANE	CEBOLLA CREEK WAY	WILLOW CANYON TRAIL	/	/	/

SIA Sequence #	COA DRC Project #	Size	Type of Improvement	Location	From	To	Private Inspector	City Inspector	City Cnst Engineer
PUBLIC STORM DRAIN IMPROVMENTS-PHASE 4									
		24" DIA	RCP W/ NEC. MH'S, LATERALS & INLETS	STORM DRAIN EASEMENT BETWEEN LOTS 16 & 17	WILLOW CANYON TRAIL	MIREHAVEN PARKWAY	/	/	/
			SWALE	LINEAR PARK	CEBOLLA CREEK WAY	WILLOW CANYON TRAIL	/	/	/
		NOTE:	A GRADING AND DRAINAGE CERTIFICAION OF THE APPROVED GRADING PLAN IS REQUIRED PRIOR TO THE RELEASE OF FINANCIAL GUARANTY						

SIA Sequence #	COA DRC Project #	Size	Type of Improvement	Location	From	To	Private Inspector	City Inspector	City Cnst Engineer
PRIVATE ROADWAY IMPROVEMENTS - PHASE 4									
		28' F-F	RESIDENTIAL PAVING W/ PCC CURB & GUTTER & PCC 5' WIDE SIDEWALK ON BOTH SIDES	WILLOW CANYON TRAIL	COUGAR CREEK LANE	PHASE 3A/ 4 BOUNDARY	/	/	/
		28' F-F	RESIDENTIAL PAVING W/ PCC CURB & GUTTER & PCC 4' WIDE SIDEWALK ON BOTH SIDES	BUFFALO BROOK WAY	COUGAR CREEK LANE	LOST CREEK WAY	/	/	/
		28' F-F	RESIDENTIAL PAVING W/ PCC CURB & GUTTER & PCC 4' WIDE SIDEWALK ON BOTH SIDES	GNEISS TRAIL	COUGAR CREEK LANE	LOST CREEK WAY	/	/	/
		28' F-F	RESIDENTIAL PAVING W/ PCC CURB & GUTTER & PCC 4' WIDE SIDEWALK ON BOTH SIDES	CEBOLLA CREEK WAY	COUGAR CREEK LANE	PHASE 3B/ 4 BOUNDARY	/	/	/

SIA Sequence #	COA DRC Project #

Size	Type of Improvement	Location	From	To
PRIVATE ROADWAY IMPROVEMENTS - PHASE 4 (CONTINUED)				
28' F-F	RESIDENTIAL PAVING W/ PCC CURB & GUTTER & PCC 4' WIDE SIDEWALK ON BOTH SIDES	LOST CREEK WAY	CEBOLLA CREEK WAY	WILLOW CANYON TARIL
28' F-F	RESIDENTIAL PAVING W/ PCC CURB & GUTTER & PCC 4' WIDE SIDEWALK ON BOTH SIDES	COUGAR CREEK LANE	CEBOLLA CREEK WAY	WILLOW CANYON TARIL
8'	TRAIL	WEST OF LOT 1	CEBOLLA CREEK WAY	SOUTH BOUNDARY
8'	TRAIL	LINEAR PARK	CEBOLLA CREEK WAY	WILLOW CANYON TRAIL
NOTE:	STREET LIGHTS AS REQUIRED PER THE COA DPM			
*ALL SIDEWALKS TO BE DEFERRED ALONG FRONTAGE OF LOTS				
**PROVIDE / INSTALL THE NECESSARY ROADWAY SIGNAGE ASSOCIATED W/ THE DEVELOPMENT AS APPROVED BY THE CITY DRC				

Private Inspector	City Inspector	City Cnst Engineer
/	/	/
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AGENT/OWNER

DEVELOPMENT REVIEW BOARD MEMBER APPROVALS

YOLANDA PADILLA MOYER, P.E..
PREPARED BY: PRINT NAME

DRB CHAIR _____ DATE _____

PARKS & RECREATION _____ DATE _____

BOHANNAN HUSTON INC.
FIRM:

TRANSPORTATION DEVELOPMENT _____ DATE _____

AMAFCA _____ DATE _____

SIGNATURE _____

ABCWUA _____ DATE _____

CITY ENGINEER _____ DATE _____

MAXIMUM TIME ALLOW TO CONSTRUCT IMPROVEMENTS WITHOUT A DRB EXTENSION

_____ DATE _____

_____ DATE _____

DESIGN REVIEW COMMITTEE REVISIONS

REVISION	DATE	DRC CHAIR	USER DEPARTMENT	AGENT/OWNER

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

voice: 505.823.1000
facsimile: 505.798.7988
toll free: 800.877.5332

May 7, 2018

Jody Willoughby
7850 Jefferson St NE, Suite 130
Albuquerque, NM 87109

Re: Del Webb at Mirehaven Phases 3 & 4 (bulk plat of Tract N-2-B-1, Tract N-2-B-2, Tract N-2-C-1) – Preliminary Plat, Design Variance and Sidewalk Deferral/Waiver Request; DRB # 1006864

Dear Ms. Willoughby:

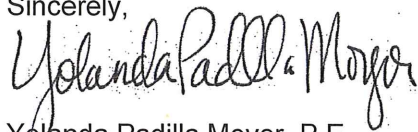
The City of Albuquerque's Office of Neighborhood Coordination has informed us that you are a representative of a Neighborhood and/or Homeowner's Association associated with the above mentioned project site.

This letter is to advise you that Bohannon Huston, Inc., agent for Pulte Homes, is seeking approval for a Preliminary Plat, Design Variance and Sidewalk Referral/Waiver Request for Del Webb at Mirehaven Phases 3 & 4. The site is located west of Tierra Pintada Blvd and north of the Mirehaven Arroyo. Phase 3 encompasses 40.69 acres and Phase 4 encompasses 21.15 acres which are subdivided into 144 lots and 78 lots respectively of varying sizes and Private Open Space Parcels.

The public hearing is on June 6, 2018 at 9:00 am at Plaza del Sol, Hearing Room, 600 2nd St NW, Albuquerque. Affected Neighborhood Associations and Homeowner Associations may request a Facilitated Meeting regarding this project by contacting the Alternative Dispute Resolution (ADR) Program by email at striplett@cabq.gov, by phone at (505) 768-4712 or (505) 768-4660. A facilitated meeting request must be received by ADR by: May 21, 2018.

Please feel free to contact me if you have any questions regarding this matter or need information as to the date and time of the public hearing.

Sincerely,



Yolanda Padilla Moyer, P.E.
Senior Project Manager
Community Development & Planning

Enclosure
AMO/YPM

Engineering ▲
Spatial Data ▲
Advanced Technologies ▲

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

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facsimile: 505.798.7988
toll free: 800.877.5332

May 7, 2018

Brandy Hetherington
7850 Jefferson St NE, Suite 130
Albuquerque, NM 87109

Re: Del Webb at Mirehaven Phases 3 & 4 (bulk plat of Tract N-2-B-1, Tract N-2-B-2, Tract N-2-C-1) – Preliminary Plat, Design Variance and Sidewalk Deferral/Waiver Request; DRB # 1006864

Dear Ms. Hetherington:

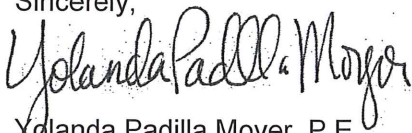
The City of Albuquerque's Office of Neighborhood Coordination has informed us that you are a representative of a Neighborhood and/or Homeowner's Association associated with the above mentioned project site.

This letter is to advise you that Bohannon Huston, Inc., agent for Pulte Homes, is seeking approval for a Preliminary Plat, Design Variance and Sidewalk Referral/Waiver Request for Del Webb at Mirehaven Phases 3 & 4. The site is located west of Tierra Pintada Blvd and north of the Mirehaven Arroyo. Phase 3 encompasses 40.69 acres and Phase 4 encompasses 21.15 acres which are subdivided into 144 lots and 78 lots respectively of varying sizes and Private Open Space Parcels.

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Please feel free to contact me if you have any questions regarding this matter or need information as to the date and time of the public hearing.

Sincerely,



Yolanda Padilla Moyer, P.E.
Senior Project Manager
Community Development & Planning

Enclosure
AMO/YPM

Engineering ▲
Spatial Data ▲
Advanced Technologies ▲

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

voice: 505.823.1000
facsimile: 505.798.7988
toll free: 800.877.5332

May 7, 2018

Les Lipschutz
9300 Iron Creek Lane NW
Albuquerque, NM 87120

Re: Del Webb at Mirehaven Phases 3 & 4 (bulk plat of Tract N-2-B-1, Tract N-2-B-2, Tract N-2-C-1) – Preliminary Plat, Design Variance and Sidewalk Deferral/Waiver Request; DRB # 1006864

Dear Mr. Lipschutz:


The City of Albuquerque's Office of Neighborhood Coordination has informed us that you are a representative of a Neighborhood and/or Homeowner's Association associated with the above mentioned project site.

This letter is to advise you that Bohannan Huston, Inc., agent for Pulte Homes, is seeking approval for a Preliminary Plat, Design Variance and Sidewalk Referral/Waiver Request for Del Webb at Mirehaven Phases 3 & 4. The site is located west of Tierra Pintada Blvd and north of the Mirehaven Arroyo. Phase 3 encompasses 40.69 acres and Phase 4 encompasses 21.15 acres which are subdivided into 144 lots and 78 lots respectively of varying sizes and Private Open Space Parcels.

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Please feel free to contact me if you have any questions regarding this matter or need information as to the date and time of the public hearing.

Sincerely,



Yolanda Padilla Moyer, P.E.
Senior Project Manager
Community Development & Planning

Enclosure
AMO/YPM

Engineering ▲
Spatial Data ▲
Advanced Technologies ▲

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

voice: 505.823.1000
facsimile: 505.798.7988
toll free: 800.877.5332

May 7, 2018

Rorik Rivenburgh
9204 Bear Lake Way NW
Albuquerque, NM 87120

Re: Del Webb at Mirehaven Phases 3 & 4 (bulk plat of Tract N-2-B-1, Tract N-2-B-2, Tract N-2-C-1) – Preliminary Plat, Design Variance and Sidewalk Deferral/Waiver Request; DRB # 1006864

Dear Mr. Rivenburgh:

The City of Albuquerque's Office of Neighborhood Coordination has informed us that you are a representative of a Neighborhood and/or Homeowner's Association associated with the above mentioned project site.

This letter is to advise you that Bohannon Huston, Inc., agent for Pulte Homes, is seeking approval for a Preliminary Plat, Design Variance and Sidewalk Referral/Waiver Request for Del Webb at Mirehaven Phases 3 & 4. The site is located west of Tierra Pintada Blvd and north of the Mirehaven Arroyo. Phase 3 encompasses 40.69 acres and Phase 4 encompasses 21.15 acres which are subdivided into 144 lots and 78 lots respectively of varying sizes and Private Open Space Parcels.

The public hearing is on June 6, 2018 at 9:00 am at Plaza del Sol, Hearing Room, 600 2nd St NW, Albuquerque. Affected Neighborhood Associations and Homeowner Associations may request a Facilitated Meeting regarding this project by contacting the Alternative Dispute Resolution (ADR) Program by email at striplett@cabq.gov, by phone at (505) 768-4712 or (505) 768-4660. A facilitated meeting request must be received by ADR by: May 21, 2018.

Please feel free to contact me if you have any questions regarding this matter or need information as to the date and time of the public hearing.

Sincerely,



Yolanda Padilla Moyer, P.E.
Senior Project Manager
Community Development & Planning

Enclosure
AMO/YPM

Engineering ▲
Spatial Data ▲
Advanced Technologies ▲

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

voice: 505.823.1000
facsimile: 505.798.7988
toll free: 800.877.5332

May 7, 2018

Angela Manzanedo
9100 Del Webb Lane, NW
Albuquerque, NM 87120

Re: Del Webb at Mirehaven Phases 3 & 4 (bulk plat of Tract N-2-B-1, Tract N-2-B-2, Tract N-2-C-1) – Preliminary Plat, Design Variance and Sidewalk Deferral/Waiver Request; DRB # 1006864

Dear Ms. Manzanedo:

The City of Albuquerque's Office of Neighborhood Coordination has informed us that you are a representative of a Neighborhood and/or Homeowner's Association associated with the above mentioned project site.

This letter is to advise you that Bohannon Huston, Inc., agent for Pulte Homes, is seeking approval for a Preliminary Plat, Design Variance and Sidewalk Referral/Waiver Request for Del Webb at Mirehaven Phases 3 & 4. The site is located west of Tierra Pintada Blvd and north of the Mirehaven Arroyo. Phase 3 encompasses 40.69 acres and Phase 4 encompasses 21.15 acres which are subdivided into 144 lots and 78 lots respectively of varying sizes and Private Open Space Parcels.

The public hearing is on June 6, 2018 at 9:00 am at Plaza del Sol, Hearing Room, 600 2nd St NW, Albuquerque. Affected Neighborhood Associations and Homeowner Associations may request a Facilitated Meeting regarding this project by contacting the Alternative Dispute Resolution (ADR) Program by email at striplett@cabq.gov, by phone at (505) 768-4712 or (505) 768-4660. A facilitated meeting request must be received by ADR by: May 21, 2018.

Please feel free to contact me if you have any questions regarding this matter or need information as to the date and time of the public hearing.

Sincerely,



Yolanda Padilla Moyer, P.E.
Senior Project Manager
Community Development & Planning

Enclosure
AMO/YPM

Engineering ▲
Spatial Data ▲
Advanced Technologies ▲

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

voice: 505.823.1000
facsimile: 505.798.7988
toll free: 800.877.5332

May 7, 2018

Julie Karl
9100 Del Webb Lane NW
Albuquerque, NM 87120

Re: Del Webb at Mirehaven Phases 3 & 4 (bulk plat of Tract N-2-B-1, Tract N-2-B-2, Tract N-2-C-1) – Preliminary Plat, Design Variance and Sidewalk Deferral/Waiver Request; DRB # 1006864

Dear Ms. Karl:

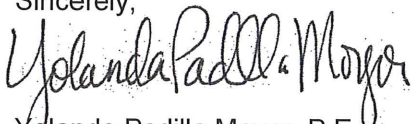
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Yolanda Padilla Moyer, P.E.
Senior Project Manager
Community Development & Planning

Enclosure
AMO/YPM

Engineering ▲

Spatial Data ▲

Advanced Technologies ▲

7017 3380 0000 0809 3526

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<input type="checkbox"/> Adult Signature Required	\$
<input type="checkbox"/> Adult Signature Restricted Delivery	\$



Postage	\$
Total Postage and Fees	\$

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 Sir Jody Willoughby
 7850 Jefferson St NE, Suite 130
 City Albuquerque, NM 87109

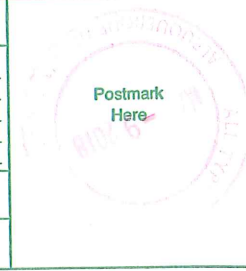
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<input type="checkbox"/> Adult Signature Restricted Delivery	\$



Postage	\$
Total Postage and Fees	\$

Sent To
 Sir Julie Karl
 9100 Del Webb Lane NW
 City Albuquerque, NM 87120

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Total Postage and Fees	\$

Ser. Rorik Rivenburgh
 Sir 9204 Bear Lake Way NW
 City Albuquerque, NM 87120

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<input type="checkbox"/> Adult Signature Restricted Delivery	\$



Postage	\$
Total Postage and Fees	\$

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 7850 Jefferson St NE, Suite 130
 City Albuquerque, NM 87109

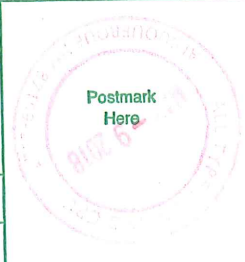
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Extra Services & Fees (check box, add fee as appropriate)	
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<input type="checkbox"/> Adult Signature Restricted Delivery	\$



Postage	\$
Total Postage and Fees	\$

Sent To
 Sir Les Lipschutz
 9300 Iron Creek Lane NW
 City Albuquerque, NM 87120

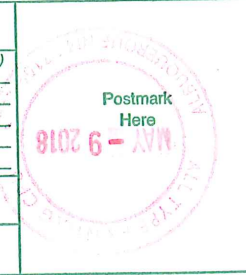
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<input type="checkbox"/> Return Receipt (electronic)	\$
<input type="checkbox"/> Certified Mail Restricted Delivery	\$
<input type="checkbox"/> Adult Signature Required	\$
<input type="checkbox"/> Adult Signature Restricted Delivery	\$



Postage	\$
Total Postage and Fees	\$

Sent To
 Sir Angela Manzanedo
 9100 Del Webb Lane, NW
 City Albuquerque, NM 87120

May 10, 2018

Ms. Kym Dicome, DRB Chair
City of Albuquerque
Planning Department
600 2nd Street NW
Albuquerque, NM 87103

Re: Del Webb at Mirehaven Phase 3&4 (Bulk Plat of Tract N-2-B-1, Tract N-2-B-2 and Tract N-2-C-1 at Mirehaven) DRB# 1006864—**Design Variance and Sidewalk Deferral/Waiver Request**

Dear Ms. Dicome:

We are requesting the following deferral, wavier and variances to the City Standard Design:

Design Variances:

Standard Centerline Radius for a Local Access Street

- The DPM indicates that “local residential streets with 90 or near 90 degree turns may be designed with a minimum centerline radius of 75’ with the approval of the Traffic Engineer.”
- There are two locations where there is a 75’ centerline radius, where the road is 90 or near 90 degrees. Both are located on Cougar Creek Lane at the intersection with Cebolla Creek Way and Willow Canyon Trail. Given that the two locations will have no public thoroughfare the vehicular speeds will be low allowing for a tighter turning radius.

Sidewalk Design Variance and Deferred / Waived Sidewalk - Please refer to the enclosed exhibit for sidewalk deferral and waiver.

- Deferred Sidewalk – we are requesting to defer sidewalk along the frontage of homes and request that they be constructed with and as each home is constructed.
- Waived Sidewalk – We are requesting to waive sidewalk on the north side of Echo Canyon Lane per the EPC approved Site Plan to allow for only one pedestrian gate.



Courtyard I
7500 Jefferson St. NE
Albuquerque, NM
87109-4335

www.bhinc.com

voice: 505.823.1000
facsimile: 505.798.7988
toll free: 800.877.5332

We request that this request be heard at with the Preliminary Plat application. Please feel free to contact me at 823-1000 with questions or comments.

Sincerely,

A handwritten signature in black ink that reads "Yolanda Padilla Moyer".

Yolanda Padilla Moyer, P.E.
Senior Project Manager
Community Development and Planning

YPM
Enclosures

cc: Kevin Patton, Pulte Group

Engineering ▲

Spatial Data ▲

Advanced Technologies ▲

DEL WEBB @ MIREHAVEN PHASE 3 / PHASE 4

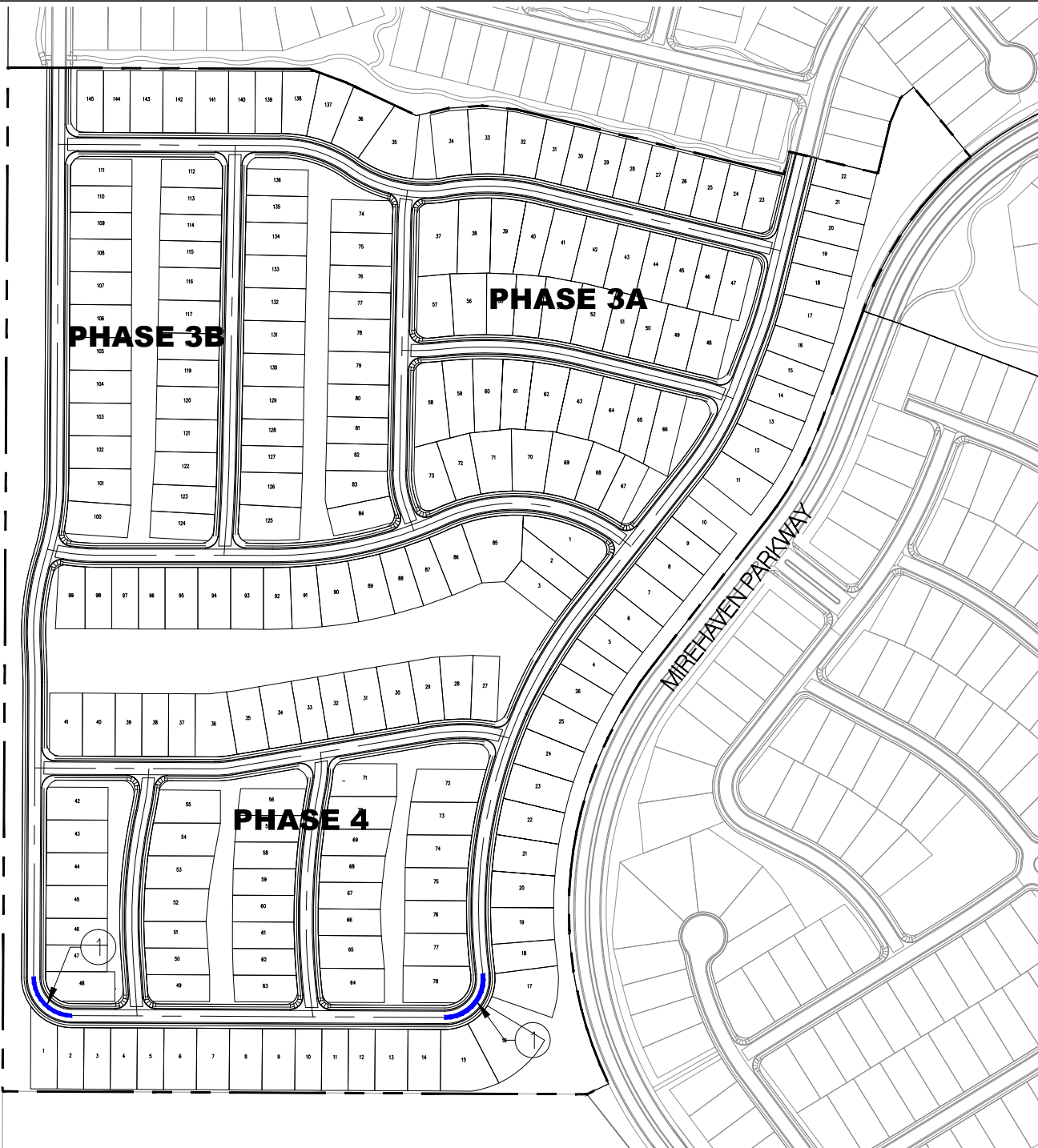
VARIANCE EXHIBIT

May, 2018

① STANDARD CENTERLINE RADIUS
FOR A LOCAL ACCESS STREET



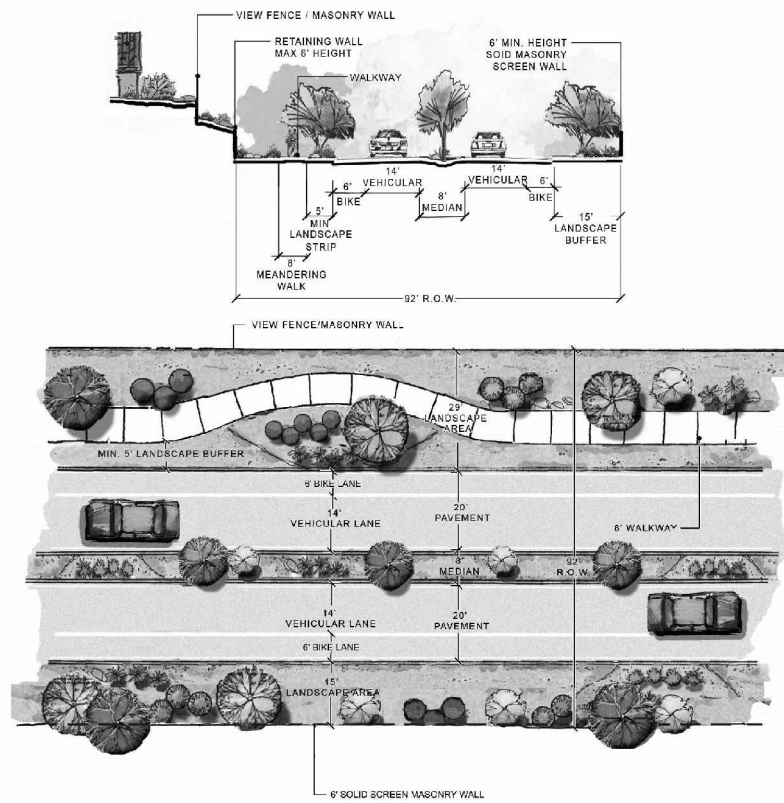
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DEL WEBB @ MIREHAVEN PHASE 3 / PHASE 4

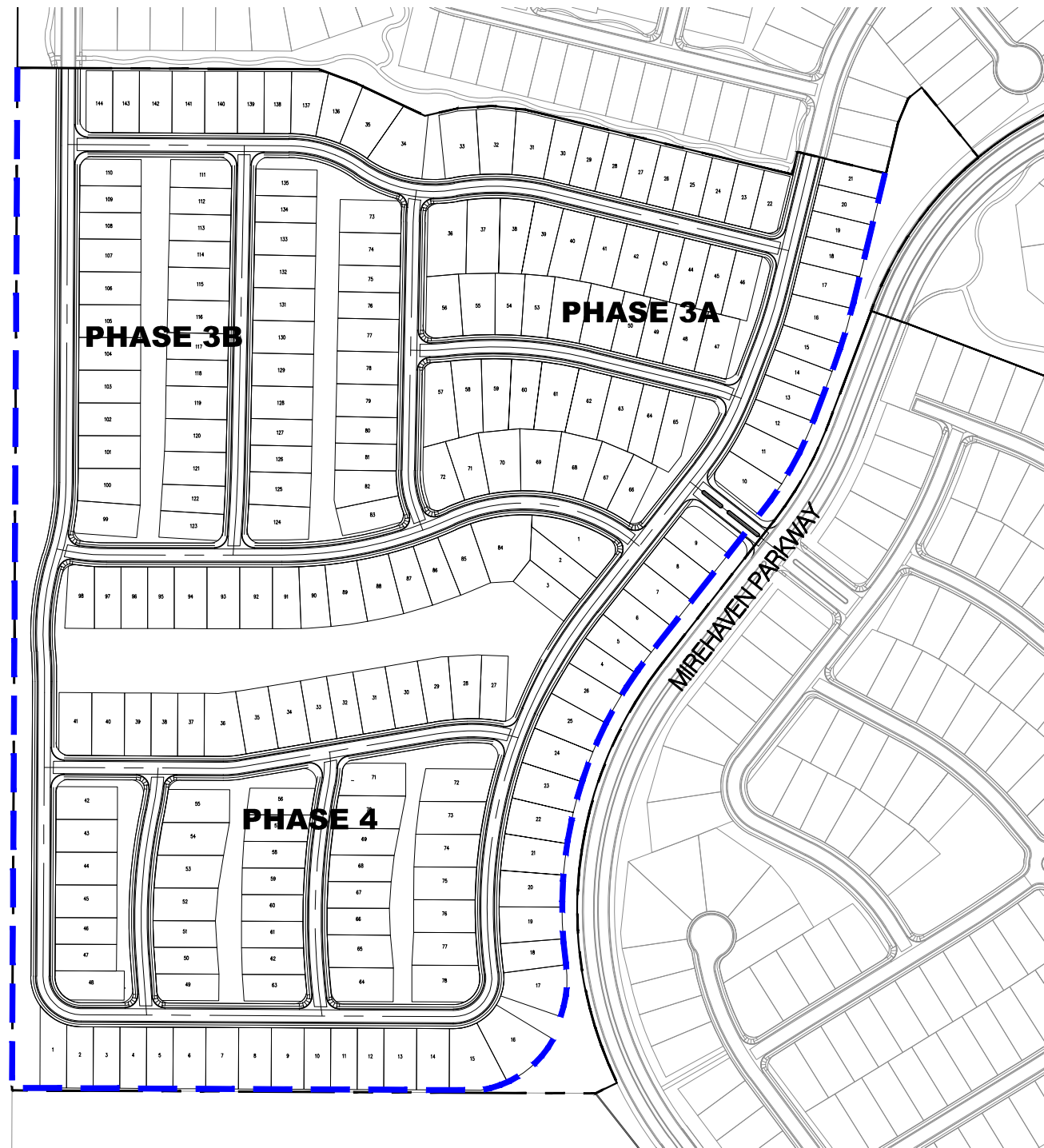
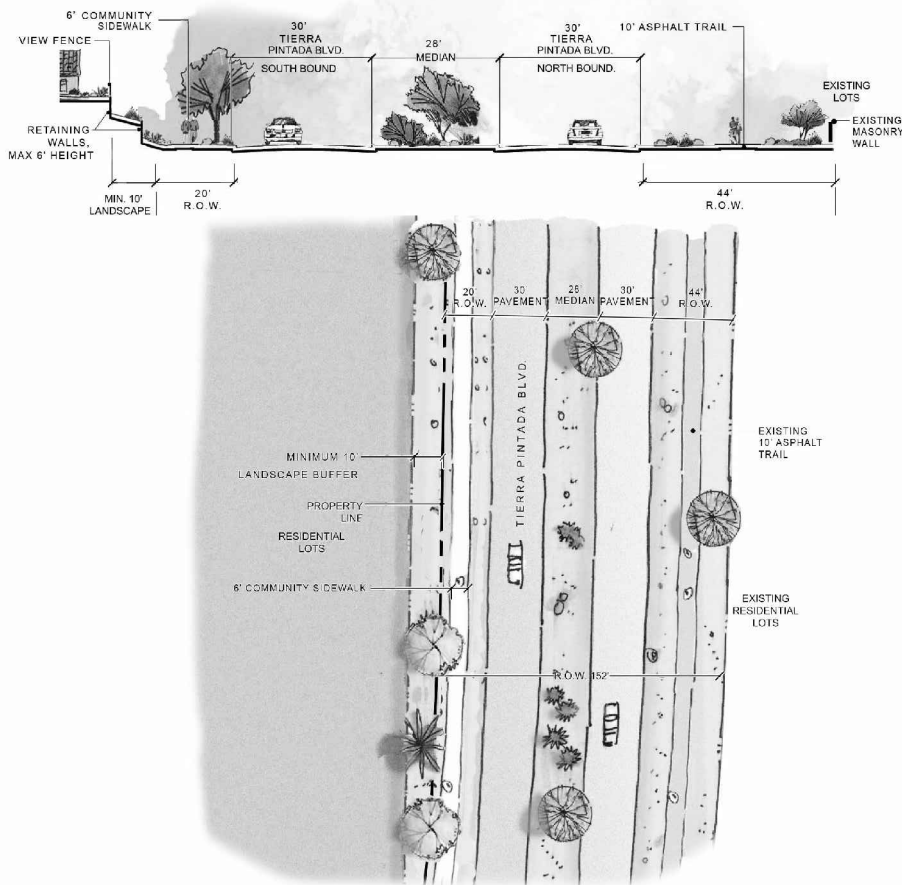
WALL EXHIBIT

April, 2018



L. The roadway section for Tierra Pintada includes a landscaped median, an existing 10-foot wide trail on the east side and an existing 6-foot wide sidewalk on the west side. Landscaped parkways and buffers shall be provided on both sides of the roadway.

M. TIERRA PINTADA BOULEVARD - Illustrative Section and Plan Views



--- PROPOSED PERIMETER WALL LOCATION







N.T.S

DEL WEBB @ MIREHAVEN PHASE 3 / PHASE 4

SIDEWALK WAIVER EXHIBIT

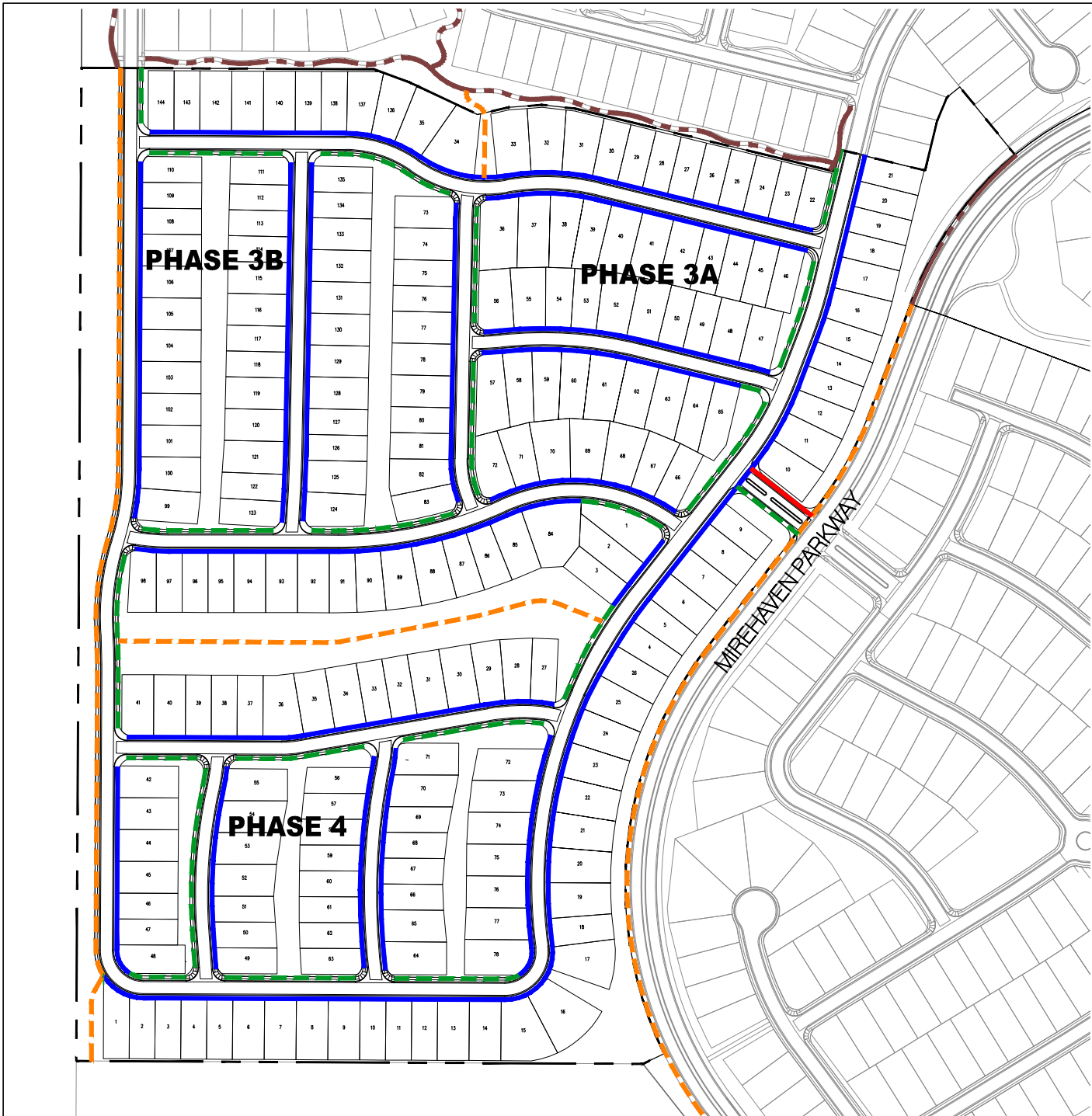
May, 2018

DEFERRED Sidewalks are to be built on a lot-by-lot basis as home construction is completed. The deferral is requested to reduce damage to sidewalks due to building construction activities.

-  TO BE BUILT – SIDEWALK
-  TO BE BUILT – TRAIL
-  WAIVED
-  EXISTING SIDEWALK / TRAIL



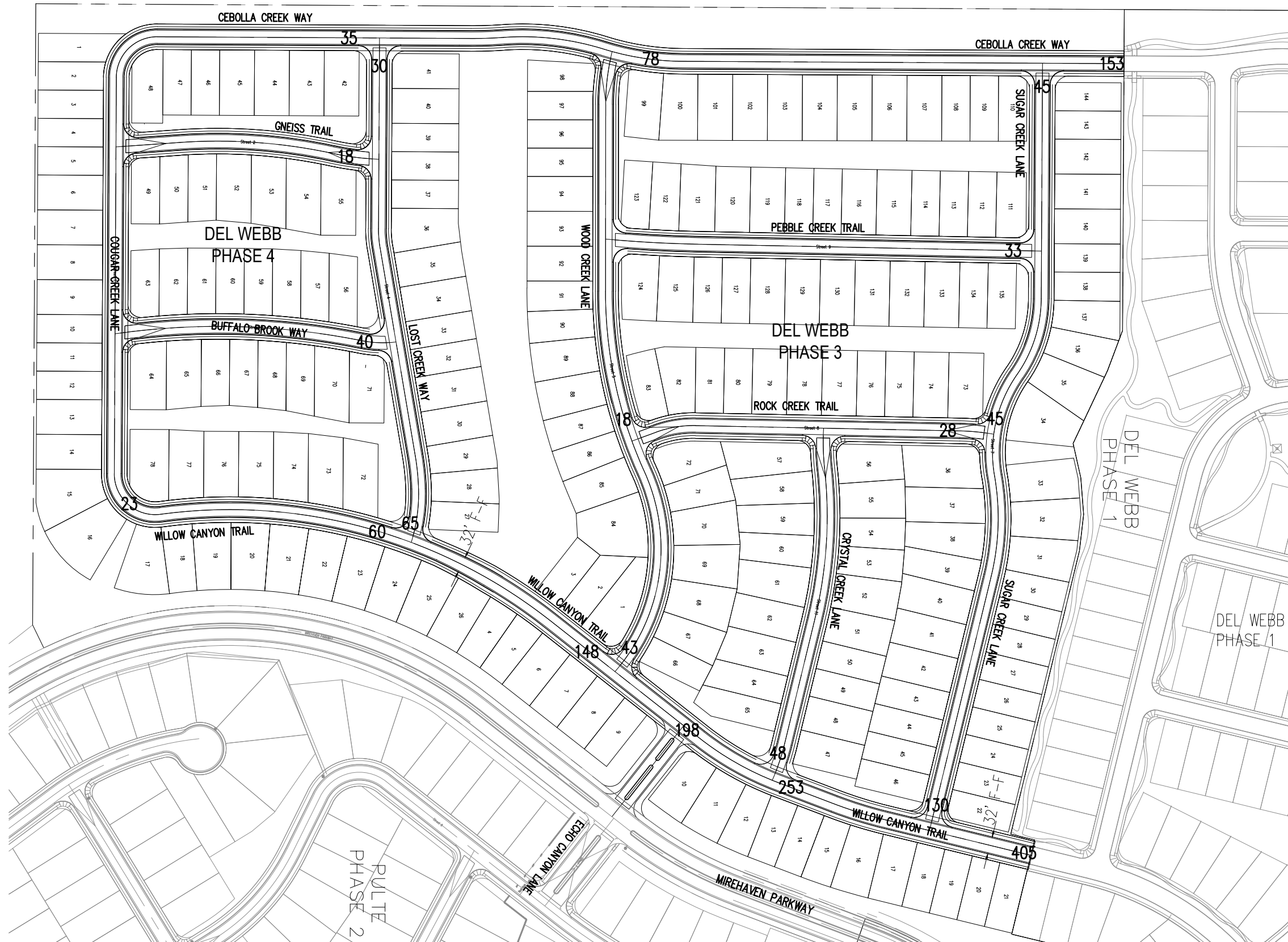
SCALE: 1" = 300'



DEL WEBB @ MIREHAVEN PHASES 3&4

TRAFFIC DISTRIBUTION LAYOUT

May, 2018

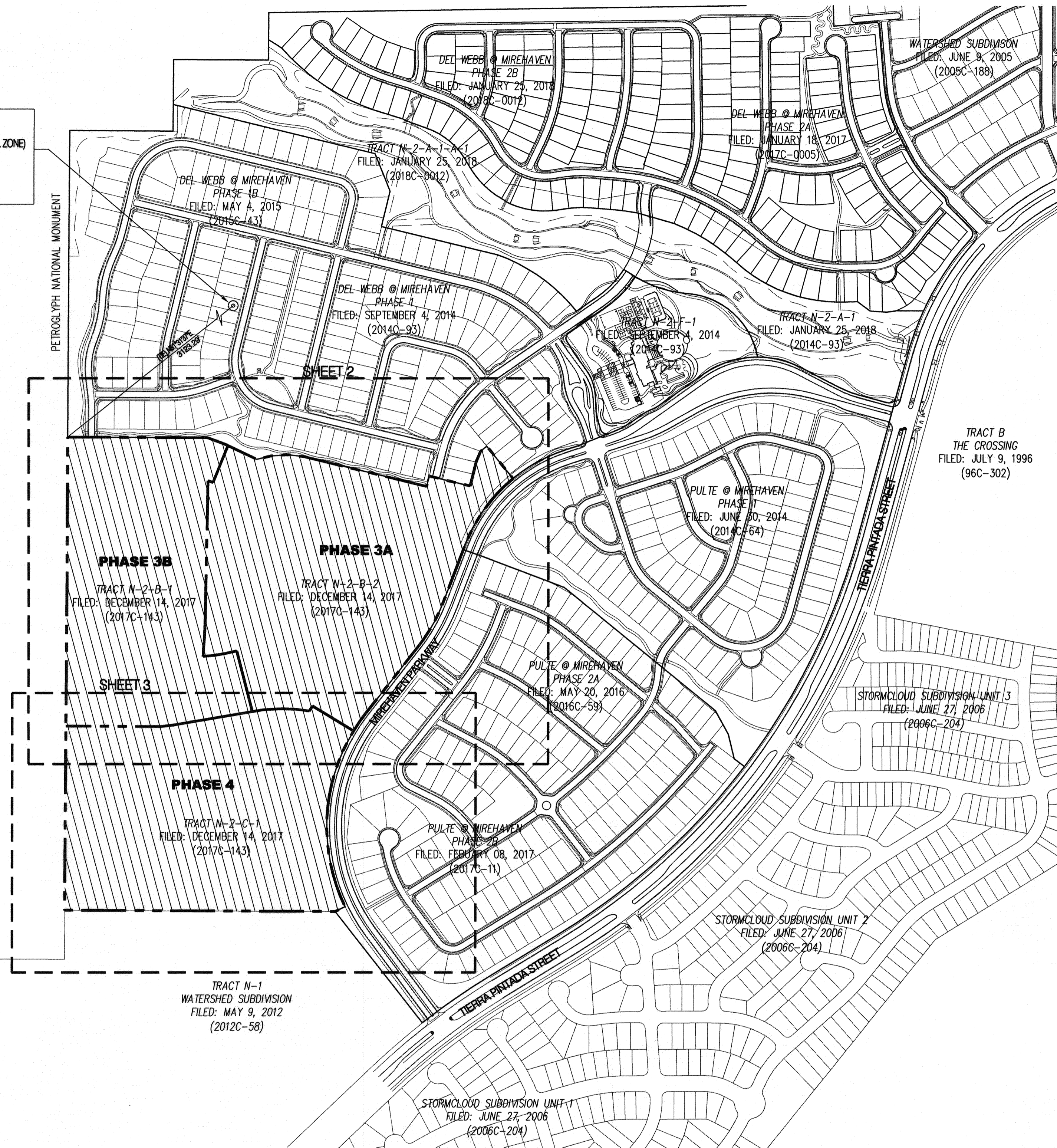


200 100 0 200



SCALE: 1"=200'

ACS BRASS TABLE "BH 41"
 GEOGRAPHIC POSITION (NAD 1983)
 NM STATE PLANE COORDINATES (CENTRAL ZONE)
 N=1,496,608.828 U.S. SURVEY FEET
 E=1,491,701.376 U.S. SURVEY FEET
 GROUND TO GRID FACTOR = 0.99967088
 DELTA ALPHA = -0°17'03.70"

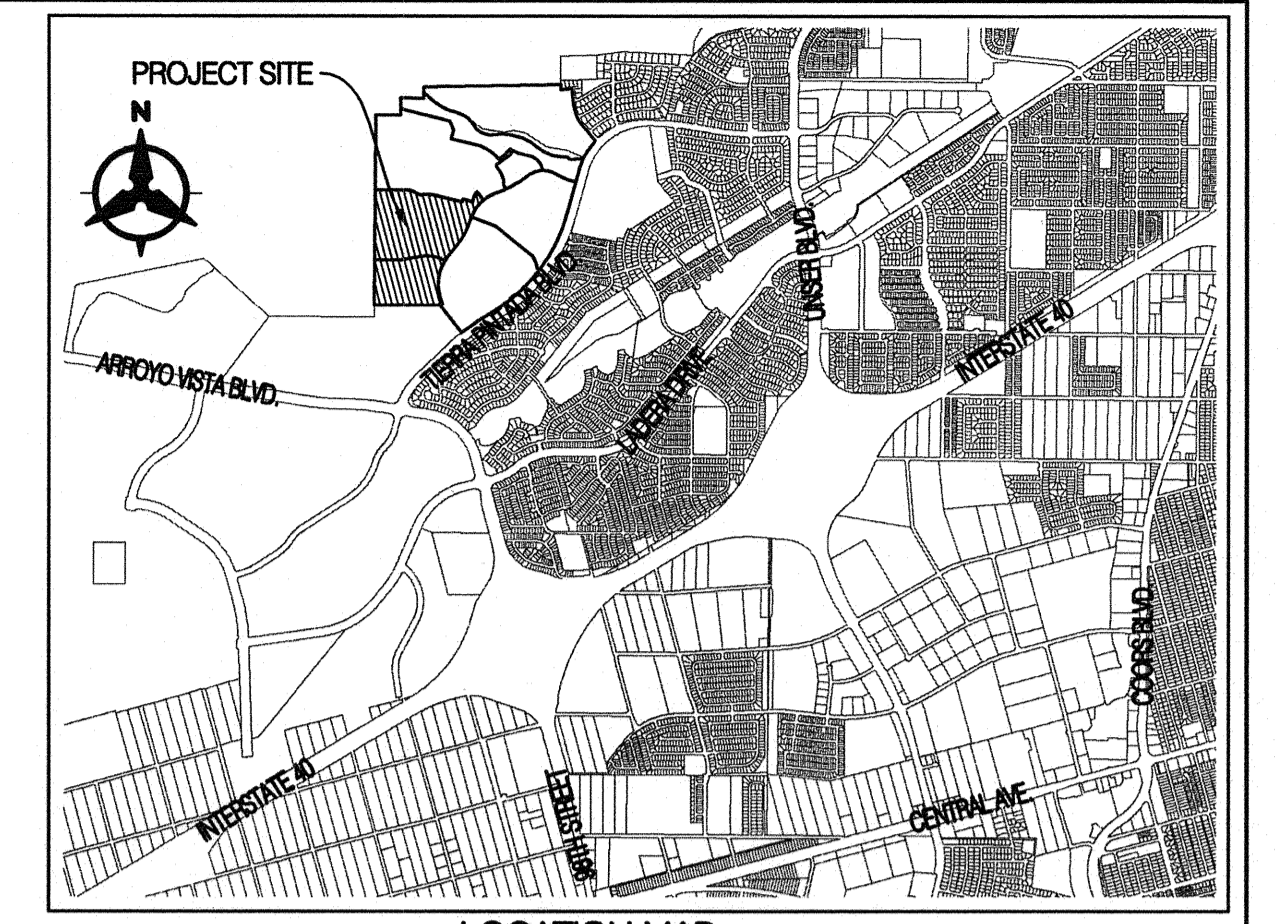
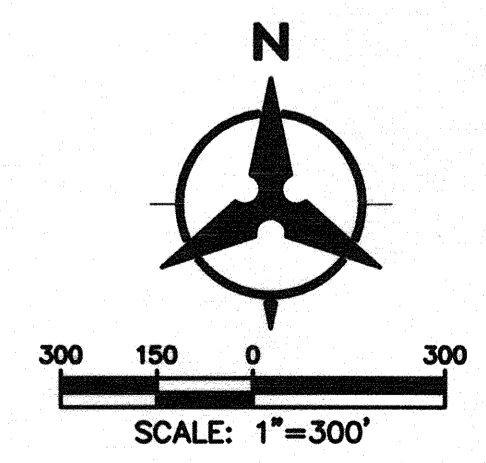


PRELIMINARY PLAT
 DEL WEBB @ MIREHAVEN PHASE 3 AND PHASE 4
 (REPLAT OF TRACT N-2-B-1, N-2-B-2 AND TRACT N-2-C-1)
 ALBUQUERQUE, NEW MEXICO

APRIL, 2018

PLAT IS LOCATED WITHIN TOWN OF ATRISCO GRANT, PROJECTED SECTIONS 8, TOWNSHIP 10 NORTH, RANGE 2 EAST, NEW MEXICO PRINCIPAL MERIDIAN, CITY OF ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO.

LEGEND	
	SUBDIVISION BOUNDARY LINE
	TRACT LINE
	ADJOINING PROPERTY LINE
	EXISTING EASEMENT
	PROJECT SITE



LOCATION MAP
 SCALE: 1"=3000'
 Zone Atlas Index Number: H-8

- SURVEY NOTES:
- UNLESS OTHERWISE NOTED, ALL BOUNDARY CORNERS SHOWN THUS (●) SHALL BE MARKED BY A #5 REBAR STAMPED "PLOTNER, PS 14271".
 - ALL STREET CENTERLINE MONUMENTATION SHALL BE INSTALLED AT ALL CENTERLINE PC'S, PT'S, ANGLE POINTS AND STREET INTERSECTIONS AND SHOWN THUS (▲) WILL BE MARKED BY A FOUR (4") ALUMINUM CAP STAMPED "CITY OF ALBUQUERQUE CENTERLINE MONUMENTATION MARKED. DO NOT DISTURB, P.L.S. 14271".
 - THE SUBDIVISION BOUNDARY WILL BE TIED TO THE NEW MEXICO STATE PLANE COORDINATE SYSTEM AS SHOWN.
 - BASIS OF BEARINGS WILL BE NEW MEXICO STATE PLANE GRID BEARINGS.
 - DISTANCES SHALL BE GROUND DISTANCES.
 - MANHOLES WILL BE OFFSET AT ALL POINTS OF CURVATURE POINTS OF TANGENCY, STREET INTERSECTIONS AND ALL OTHER ANGLE POINTS TO ALLOW THE USE OF CENTERLINE MONUMENTATION.

APPROVED FOR MONUMENTATION AND STREET NAMES
Joseph N. Riancho P.S. 05/09/18
 CITY SURVEYOR DATE

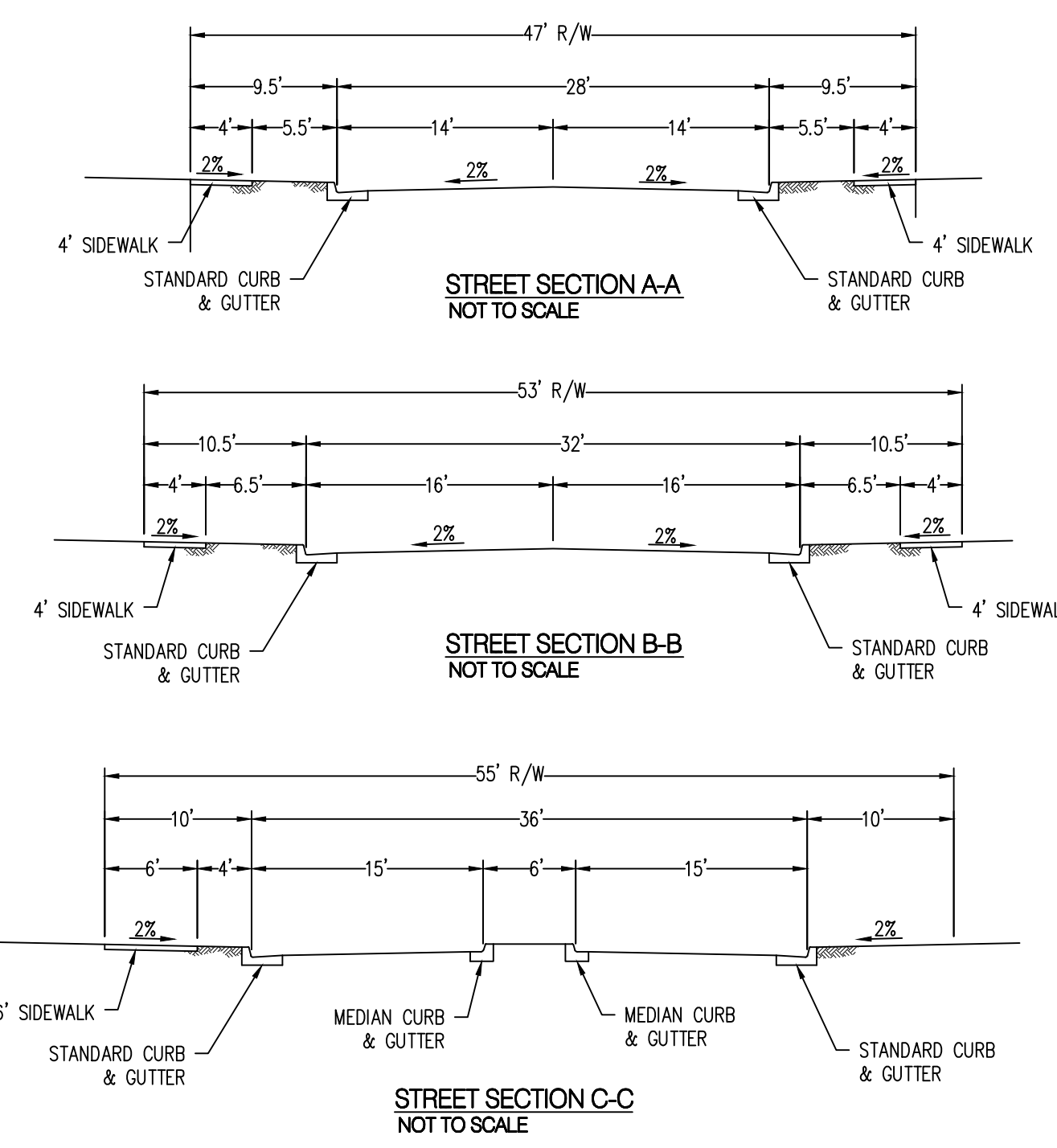
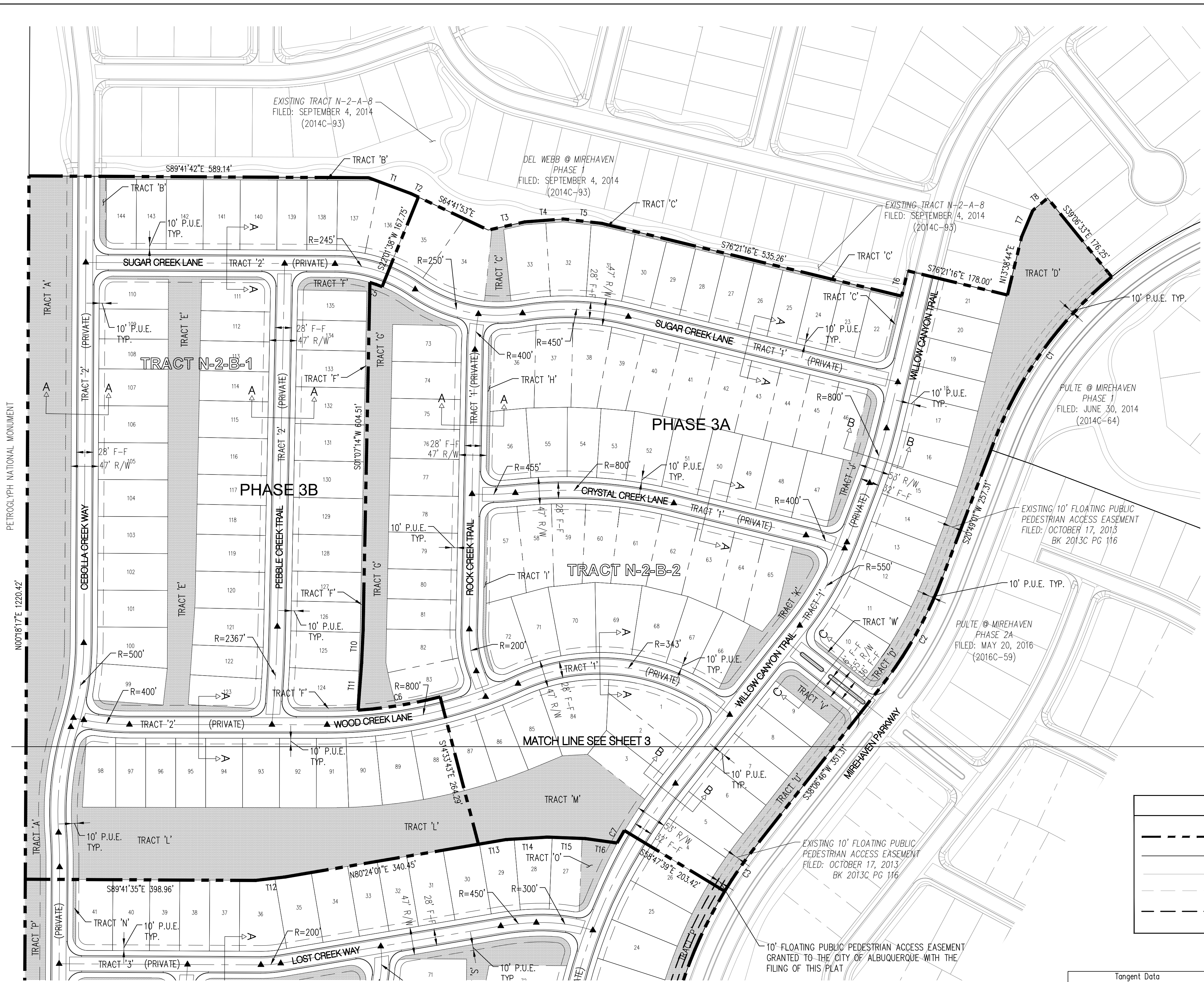
OWNER:
 WESTERN ALBUQUERQUE LAND HOLDINGS LLC, A DELAWARE LIMITED LIABILITY COMPANY
 BY: GARRETT DEVELOPMENT CORPORATION, AGENT
 BY: *Paul E. Swartzell, LP*
 VP

DATE: May 10, 2018

PULTE HOMES OF NEW MEXICO, INC
 BY: *[Signature]*

DATE: May 8, 2018

Tue, 8-May-2018 - 1:02:pm, Plotted by: AROMERO
 P:\20180338\CDP\Plans\General\20180338_Prelat01.dwg



- LEGAL DESCRIPTION:**
 A REPLAT OF:
 TRACT N-2-B-1, N-2-B-2, N-2-C-1
 WATERSHED SUBDIVISION
 FILED: DECEMBER 14, 2017 (2017C-0143)
- EXISTING ZONING:** SEE APPROVED SITE DEVELOPMENT PLAN FOR SUBDIVISION
PROPOSED ZONING: SEE APPROVED SITE DEVELOPMENT PLAN FOR SUBDIVISION
PROPOSED RESIDENTIAL DEVELOPMENT: SINGLE FAMILY DETACHED RESIDENTIAL
- TOTAL ACREAGE:**
 EXISTING TRACT N-2-B-1 = 17.6216 ACRES
 EXISTING TRACT N-2-B-2 = 23.0746 ACRES
 EXISTING TRACT N-2-C-1 = 21.1472 ACRES
- ACREAGE:**
 PHASE 3B
 TRACT 'A' = 1.8660 Acres
 TRACT 'B' = 0.0839 Acres
 TRACT 'E' = 0.9529 Acres
 TRACT 'F' = 0.116 Acres
 TRACT 'L' = 1.8566 Acres
 TRACT 'I' = 4.2281 Acres (SEE NOTE 4)
 PHASE 3A
 TRACT 'C' = 0.1926 Acres
 TRACT 'D' = 1.2139 Acres
 TRACT 'G' = 0.8345 Acres
 TRACT 'H' = 0.0267 Acres
 TRACT 'J' = 0.0310 Acres
 TRACT 'K' = 0.1171 Acres
 TRACT 'M' = 0.2091 Acres
 TRACT 'N' = 0.7749 Acres
 TRACT 'U' = 0.2605 Acres
 TRACT 'V' = 0.0994 Acres
 TRACT 'W' = 0.0126 Acres
 TRACT '2' = 3.3709 Acres (SEE NOTE 4)
 PHASE 4
 TRACT 'N' = 0.0124 Acres
 TRACT 'O' = 0.1003 Acres
 TRACT 'P' = 1.7457 Acres
 TRACT 'Q' = 0.3412 Acres
 TRACT 'R' = 0.5943 Acres
 TRACT 'S' = 0.6548 Acres
 TRACT 'T' = 0.0955 Acres
 TRACT '3' = 4.3312 Acres (SEE NOTE 4)
- NUMBER OF LOTS:** DEL WEBB PHASE 3A = 87
 DEL WEBB PHASE 3B = 57
 DEL WEBB PHASE 4 = 78
TOTAL 222
- PROPOSED DENSITY:** 3.67 D.U./ACRE
- MINIMUM LOT DIMENSIONS:** 52'x115', 64'x115'
MINIMUM LOT AREA: 5980 S.F. 7360 S.F.
- TRACTS 1, 2, & 3 TO BE OWNED BY THE DEL WEBB H.O.A. AND CONTAINS THE FOLLOWING BLANKET EASEMENTS:**
- PUBLIC SUBSURFACE SANITARY SEWER, PUBLIC SUBSURFACE WATERLINE EASEMENT GRANTED TO ABCWJA FOR OWNERSHIP, OPERATIONS AND MAINTENANCE OF THE PUBLIC WATER AND SANITARY SEWER INFRASTRUCTURE.
 - A PUBLIC SUBSURFACE DRAINAGE EASEMENT GRANTED TO THE CITY OF ALBUQUERQUE FOR OWNERSHIP, OPERATIONS AND MAINTENANCE OF ALL DRAINAGE INFRASTRUCTURE.
 - A PRIVATE PEDESTRIAN AND VEHICULAR ACCESS EASEMENT AND PRIVATE SURFACE DRAINAGE EASEMENT GRANTED TO THE DEL WEBB H.O.A. FOR THE OWNERSHIP, OPERATIONS AND MAINTENANCE OF THE SIDEWALK AND ROADWAY INFRASTRUCTURE TO SERVE THE RESIDENCE IN DEL WEBB.
- LOT SETBACKS:** SEE APPROVED SITE DEVELOPMENT PLAN FOR SUBDIVISION.
- PROPOSED SOLAR ACCESS PROVISIONS,** SEE PARAGRAPH 14-14-4-(2B) OF THIS ARTICLE.
- THE H.O.A. SHALL MAINTAIN ALL TRAILS LOCATED WITHIN H.O.A. TRACTS AND ITS CONNECTIONS TO ANY PUBLIC OWNED AND MAINTAINED SIDEWALK / TRAIL.**
- TRACT 'A' THROUGH TRACT 'W' AND TRACTS 1, 2, & 3 TO BE OWNED AND MAINTAINED BY THE HOME OWNERS ASSOCIATION.**

LEGEND

- SUBDIVISION BOUNDARY LINE
- TRACT LINE
- ADJOINING PROPERTY LINE
- EXISTING EASEMENT
- PROPOSED EASEMENT

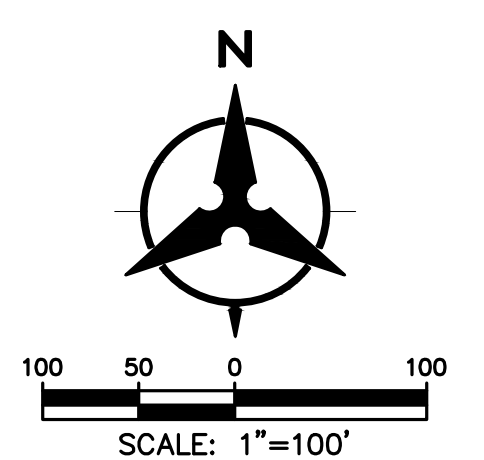
Tangent Data

ID	BEARING	DISTANCE
T1	S69°28'52"E	78.76'
T2	S64°41'53"E	13.85'
T3	N77°25'21"E	64.68'
T4	N85°37'22"E	67.32'
T5	S83°32'17"E	67.17'
T6	N13°38'44"E	45.07'
T7	N22°57'21"E	49.83'
T8	N50°16'30"E	33.41'
T9	S64°12'51"W	46.91'
T10	S02°39'25"W	56.63'
T11	S04°10'06"W	81.48'
T12	N83°18'14"E	51.79'
T13	N80°24'01"E	49.38'
T14	N86°42'59"E	71.57'
T15	S87°47'56"E	65.57'
T16	S82°01'48"E	55.25'

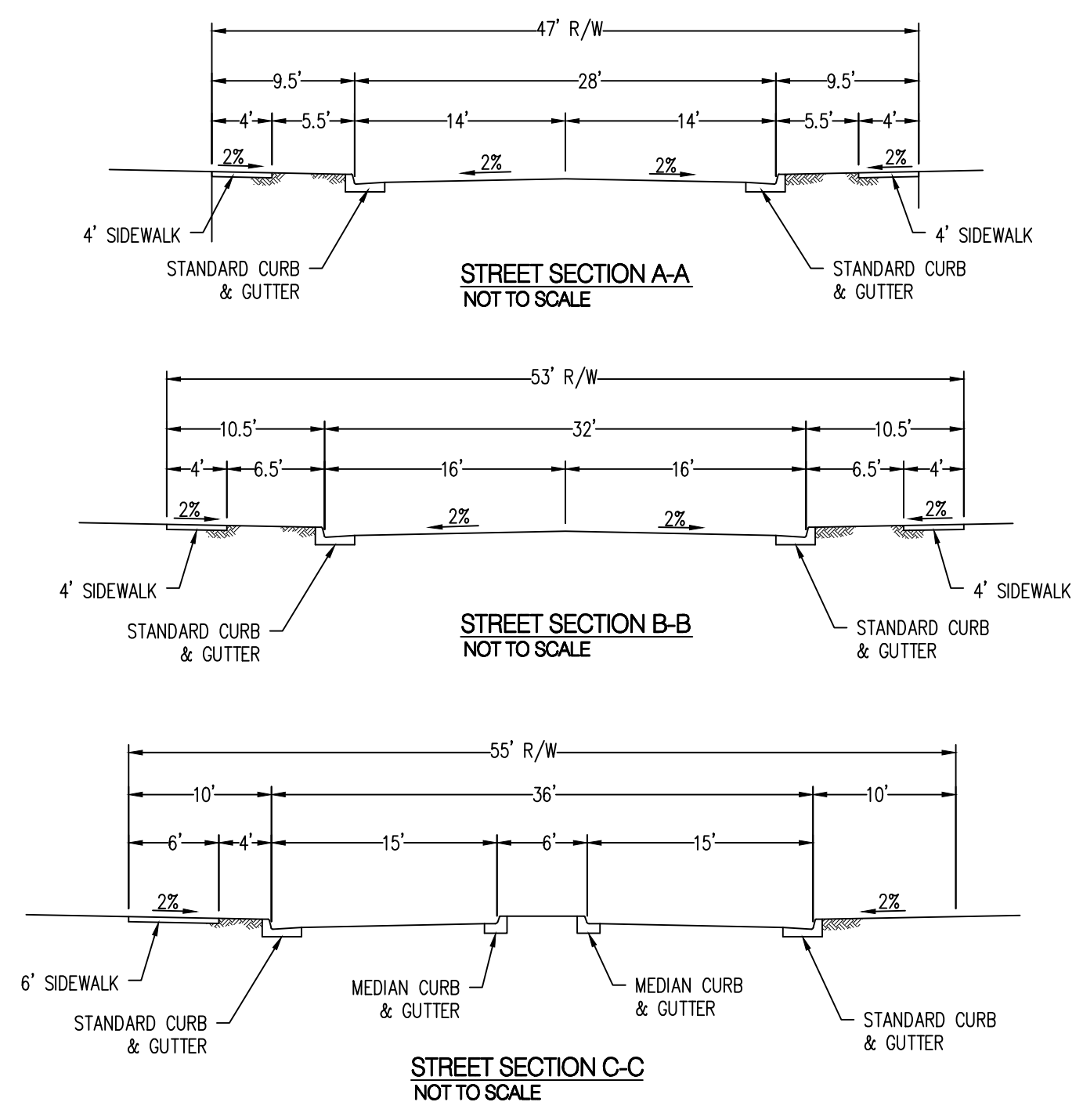
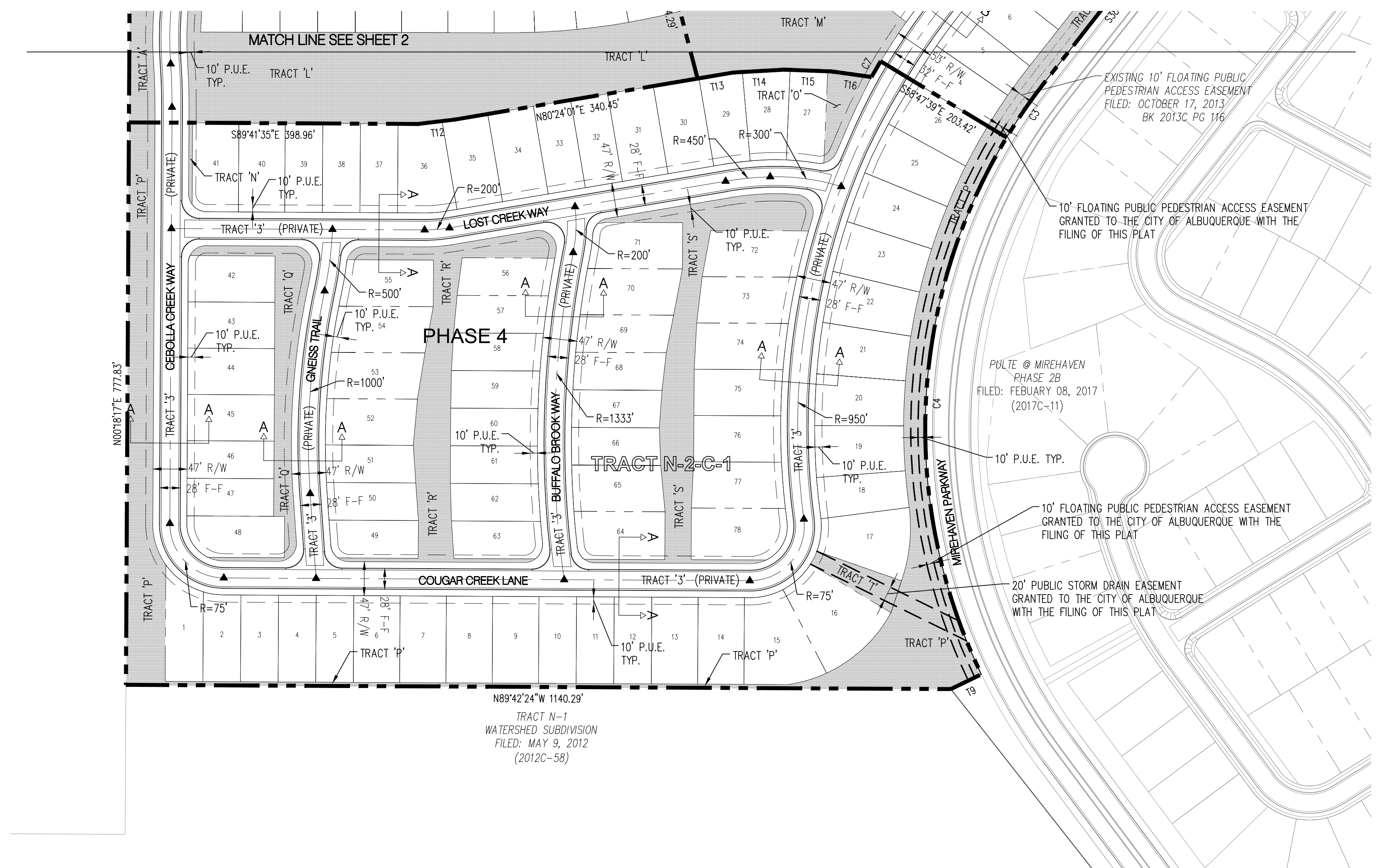
Curve Data

ID	DELTA	TANGENT	ARC	RADIUS	CHORD	CHORD BRG	DEG OF CRV
C1	29°40'00" LT	179.96'	351.83'	679.50'	347.92'	S35°39'01"W	08°25'55"
C2	171°7'45" RT	109.58'	217.50'	720.50'	216.67'	S29°27'53"W	07°57'08"
C3	06°57'29" LT	47.39'	94.66'	779.50'	94.60'	S34°38'02"W	07°21'01"
C4	56°56'25" LT	422.71'	774.66'	779.50'	743.18'	S02°41'05"W	07°21'01"
C5	05°48'15" LT	11.23'	22.44'	221.50'	22.43'	N70°52'29"W	25°52'02"
C6	10°38'42" LT	72.34'	144.27'	776.50'	144.06'	N80°45'38"E	07°22'43"
C7	01°28'31" RT	12.57'	25.14'	976.50'	25.14'	N30°28'06"E	05°52'03"

PRELIMINARY PLAT
DEL WEBB @ MIREHAVEN PHASE 3 AND PHASE 4
 (REPLAT OF TRACT N-2-B-1, N-2-B-2 AND TRACT N-2-C-1)
 ALBUQUERQUE, NEW MEXICO
 APRIL, 2018



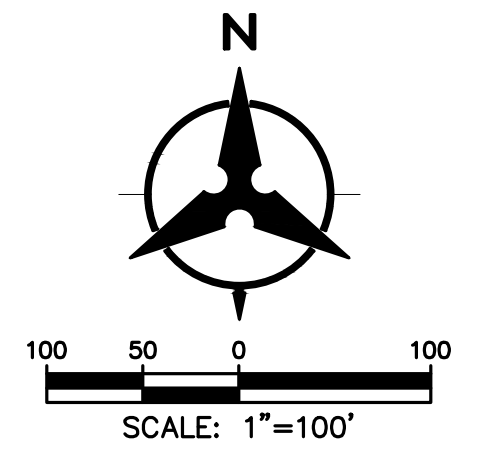
Thu, 10-May-2018 - 5:55:pm, Plotted by: AROMERO
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PRELIMINARY PLAT
 DEL WEBB @ MIREHAVEN PHASE 3 AND PHASE 4
 (REPLAT OF TRACT N-2-B-1, N-2-B-2 AND TRACT N-2-C-1)
 ALBUQUERQUE, NEW MEXICO

APRIL, 2018

LEGEND	
	SUBDIVISION BOUNDARY LINE
	TRACT LINE
	ADJOINING PROPERTY LINE
	EXISTING EASEMENT
	PROPOSED EASEMENT



SHEET 3 of 3

Thu, 10-May-2018 - 5:56:pm, Plotted by: AROMERO
 P:\20180338\CDP\Plans\General\20180338_Prelplat02.dwg



City of Albuquerque
P.O. Box 1293 Albuquerque, NM 87103
Planning Department
Suzanne Lubar, Director

Richard J. Berry, Mayor
Robert J. Perry, CAO

DATE:

SUBJECT:

Case Number(s):

Agent:

Applicant:

Legal Description:

Zoning:

Acreage:

Zone Atlas Page(s):

CERTIFICATE OF NO EFFECT: **Yes** **No**

CERTIFICATE OF APPROVAL: **Yes** **No**

SUPPORTING DOCUMENTATION:

SITE VISIT:

RECOMMENDATIONS:

SUBMITTED BY:

SUBMITTED TO:

FORM DRWS: DRAINAGE REPORT / WATER & SANITARY SEWER AVAILABILITY
THIS FORM IS REQUIRED WITH THE DEVELOPMENT REVIEW BOARD APPLICATION
FOR MAJOR SUBDIVISIONS AND SITE DEVELOPMENT PLANS.

PROJECT NAME: DEL WEBB @MIREHAVEN PHASE 3&4

AGIS MAP # H-8

LEGAL DESCRIPTIONS: TRACT N-2-B-1, TRACT N-2-B-2 AND TRACT N-2-C-1

___ DRAINAGE REPORT

A drainage report, as per the Drainage Ordinance, was submitted to the City of Albuquerque Public Works Department, Hydrology Division (2nd Floor Plaza del Sol) on _____ (date).

Applicant/Agent

Date

Hydrology Division Representative

Date

___ WATER AND SEWER AVAILABILITY STATEMENT

A Water and Sewer Availability Statement for this project was requested from the City of Albuquerque Utilities Development Division (2nd floor, Plaza del Sol) on _____ (date).

Applicant/Agent

Date

Utilities Division Representative

Date

PROJECT # _____

CITY OF ALBUQUERQUE

TRAFFIC IMPACT STUDY (TIS) FORM

APPLICANT: Pulte Homes of New Mexico, Inc. DATE OF REQUEST: 8 / 17 / 15 ZONE ATLAS PAGE(S): H-08-Z and H-09-Z

CURRENT:

ZONING SU-2 for PDA
PARCEL SIZE (AC/SQ. FT.) 47.1 acres

LEGAL DESCRIPTION:

LOT OR TRACT # M BLOCK # _____
SUBDIVISION NAME Watershed

REQUESTED CITY ACTION(S):

ANNEXATION []
ZONE CHANGE [] From _____ To _____
SECTOR, AREA, FAC. COMP PLAN []
AMENDMENT (Map/Text) []

SITE DEVELOPMENT PLAN
SUBDIVISION* [X] AMENDMENT []
BUILDING PERMIT [] ACCESS PERMIT []
BUILDING PURPOSES [] OTHER []

*includes platting actions

PROPOSED DEVELOPMENT:

NO CONSTRUCTION/DEVELOPMENT []
NEW CONSTRUCTION [X]
EXPANSION OF EXISTING DEVELOPMENT []

GENERAL DESCRIPTION OF ACTION:

OF UNITS: maximum of 195 active adult dwelling units
BUILDING SIZE: _____ (sq. ft.)

Note: changes made to development proposals / assumptions, from the information provided above, will result in a new TIS determination.

APPLICANT OR REPRESENTATIVE *maohta* DATE 8-18-15

(To be signed upon completion of processing by the Traffic Engineer)

Planning Department, Development & Building Services Division, Transportation Development Section -
2ND Floor West, 600 2nd St. NW, Plaza del Sol Building, City, 87102, phone 924-3994

TRAFFIC IMPACT STUDY (TIS) REQUIRED: YES [] NO [X] BORDERLINE []

THRESHOLDS MET? YES [] NO [X] MITIGATING REASONS FOR NOT REQUIRING TIS: PREVIOUSLY STUDIED []
Notes:

- Maximum of 195 senior housing units.
- 2007 watershed study, 2013 Access Study approved.
- Revisit need for TIS with further development.

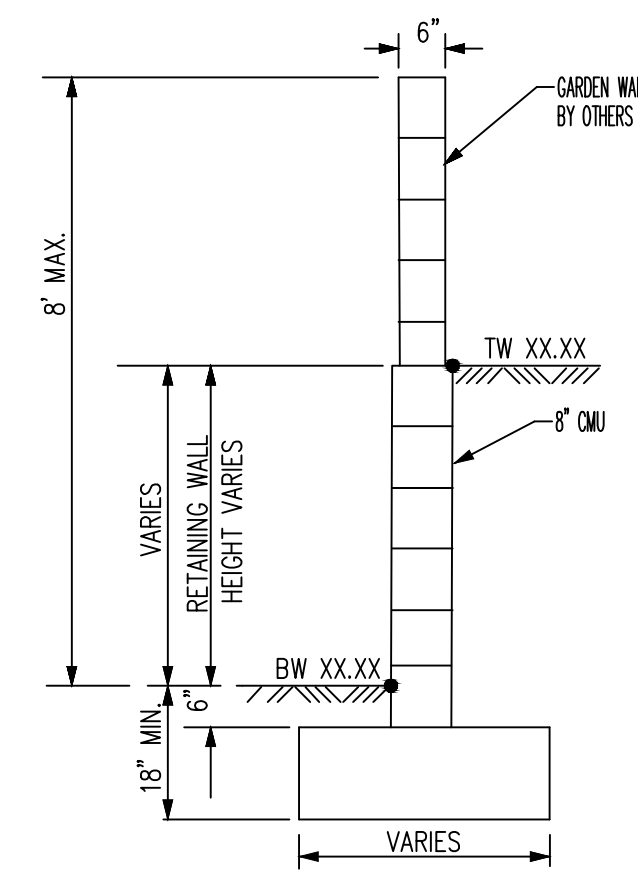
If a TIS is required, a scoping meeting (as outlined in the development process manual) must be held to define the level of analysis needed and the parameters of the study. **Any subsequent changes to the development proposal identified above may require an update or new TIS.**

[Signature]
TRAFFIC ENGINEER

08-18-2015
DATE

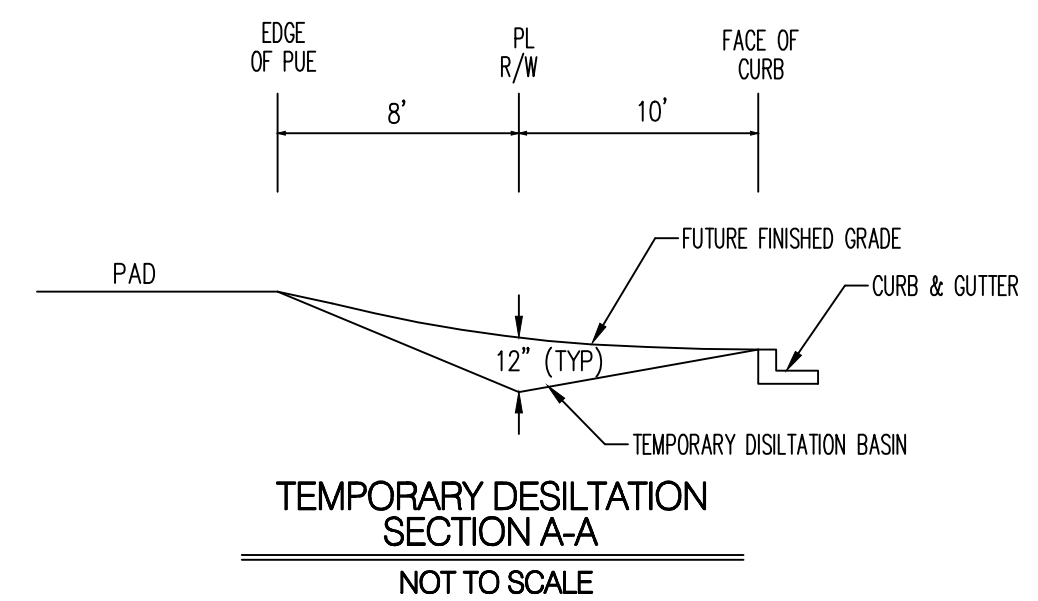
Required TIS **must be completed prior to applying to the EPC and/or the DRB.** Arrangements must be made prior to submittal if a variance to this procedure is requested and noted on this form, otherwise the application may not be accepted or deferred if the arrangements are not complied with.

TIS -SUBMITTED / / TRAFFIC ENGINEER _____ DATE _____
-FINALIZED / /

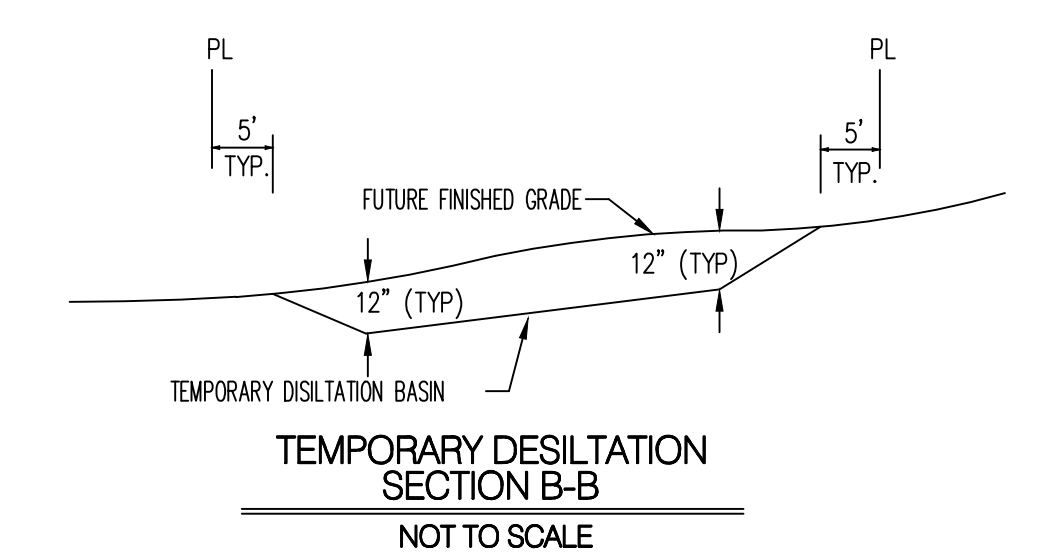


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BW=FINISHED GRADE ELEVATION AT BOTTOM OF RETAINING WALL
TYPICAL RETAINING WALL NOMENCLATURE
NOT TO SCALE

(RETAINING HEIGHT IS TAKEN TO BE DIFFERENCE IN FINISHED GRADES ON LEFT AND RIGHT SIDE OF WALL.)
HEIGHT IS IN ACCORDANCE WITH CITY COMPREHENSIVE ZONING CODE, SECTION 14-16-3-19, GENERAL HEIGHT AND DESIGN REGULATIONS FOR WALLS, FENCES, AND RETAINING WALLS.



TEMPORARY DESILTATION SECTION A-A
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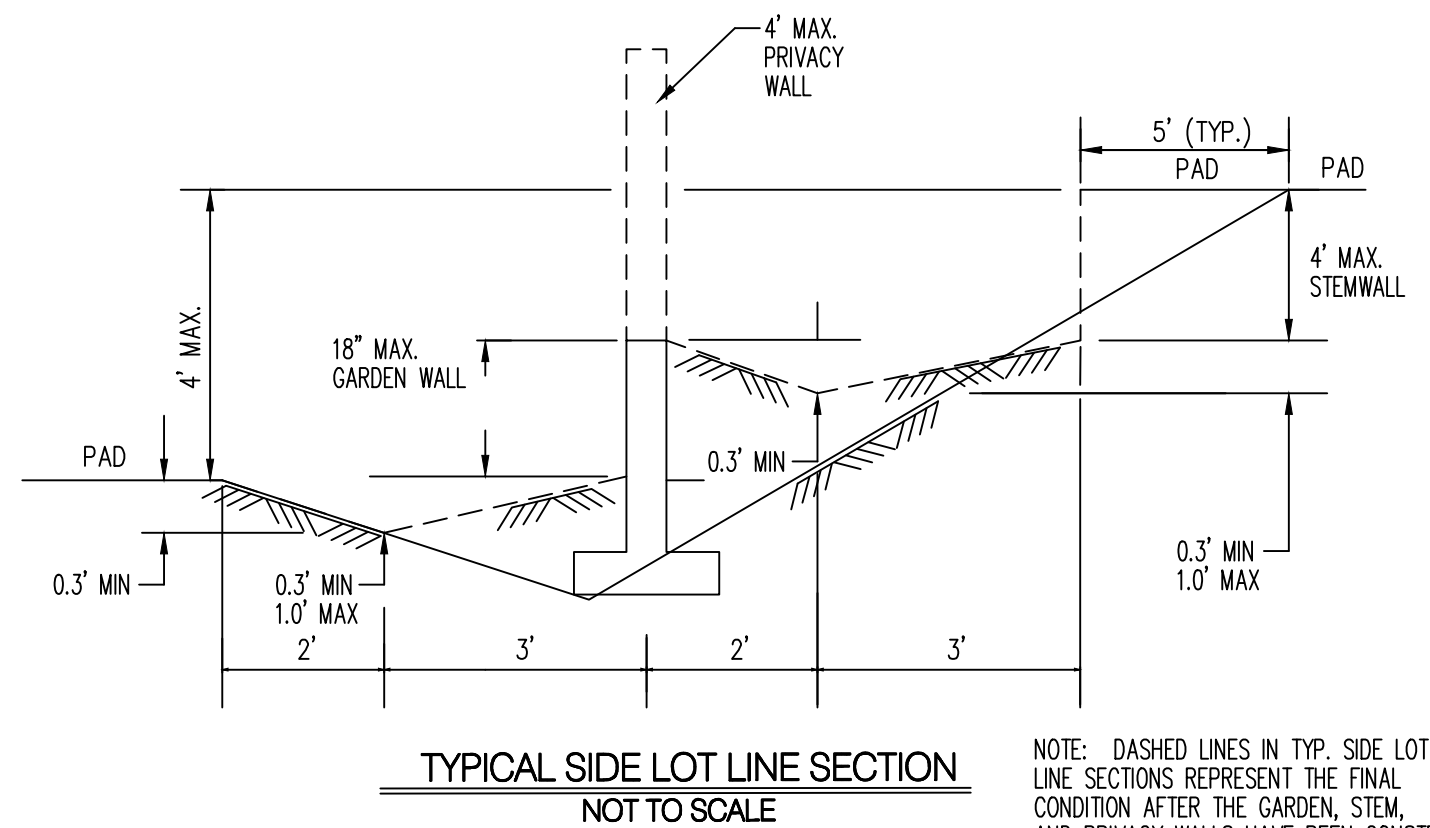
TEMPORARY DESILTATION SECTION B-B
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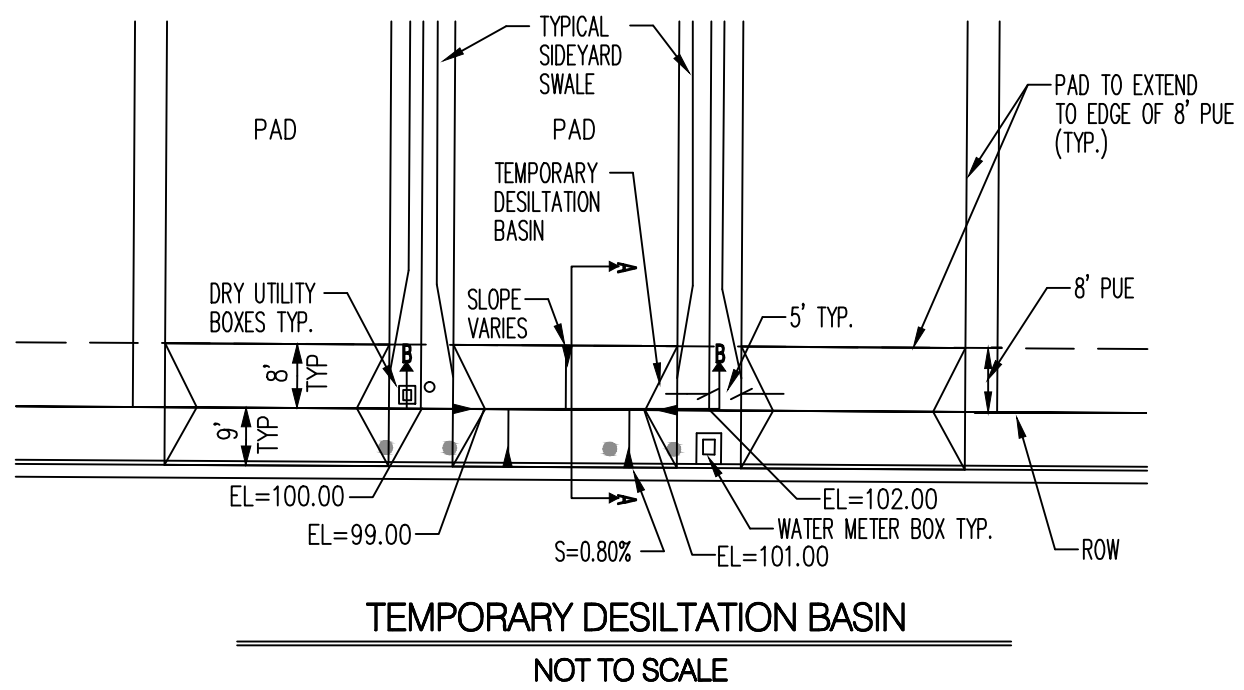
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8. THE CONTRACTOR IS TO ENSURE THAT NO SOIL ERODES FROM THE SITE ONTO ADJACENT PROPERTY OR PUBLIC RIGHT-OF-WAY. THIS SHOULD BE ACHIEVED BY CONSTRUCTING TEMPORARY BERMS AT THE PROPERTY LINES WETTING THE SOIL TO PROTECT IT FROM WIND EROSION.
9. A DISPOSAL SITE FOR ALL EXCESS EXCAVATION AND UNSUITABLE MATERIAL SHALL BE OBTAINED BY THE CONTRACTOR IN COMPLIANCE WITH APPLICABLE ENVIRONMENTAL REGULATIONS AND APPROVED BY THE OBSERVER. ALL COSTS INCURRED IN OBTAINING A DISPOSAL SITE AND HAUL THERE TO SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT, AND NO SEPARATE MEASUREMENT OR PAYMENT SHALL BE MADE.
10. PAVING AND ROADWAY GRADES SHALL BE +/- 0.1' FROM PLAN ELEVATIONS. PAD ELEVATION SHALL BE +/- 0.05' FROM BUILDING PLAN ELEVATIONS.
11. ALL SPOT ELEVATIONS ARE TO FLOWLINE UNLESS OTHERWISE NOTED. VALLEY GUTTER ELEVATIONS ARE SHOWN AT FLOWLINE ELEVATION.



TYPICAL SIDE LOT LINE SECTION
NOT TO SCALE

NOTE: DASHED LINES IN TYP. SIDE LOT LINE SECTIONS REPRESENT THE FINAL CONDITION AFTER THE GARDEN, STEM, AND PRIVACY WALLS HAVE BEEN CONSTRUCTED. THE INTERM CONDITION, WHICH IS TO BE CONSTRUCTED BY THE GRADING CONTRACTOR AND CERTIFIED BY THE ENGINEER, IS REPRESENTED BY THE SOLID LINES. RETAINING WALLS WILL BE CONSTRUCTED PRIOR TO GRADING CERTIFICATION.

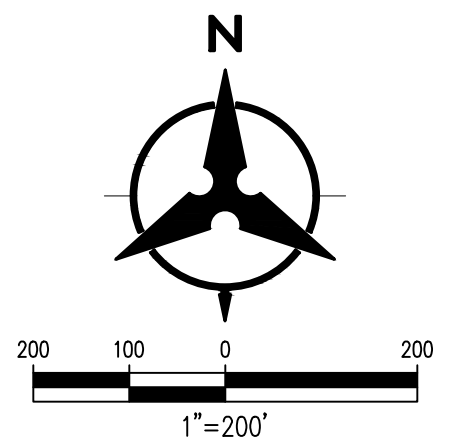


TEMPORARY DESILTATION BASIN
NOT TO SCALE

** BOTTOM OF BASIN IS 1' BELOW PROPERTY LINE ELEVATION SEE GRADING PLANS FOR EXACT ELEVATIONS

LEGEND

- PROPOSED SPOT ELEVATION: ● 5235.25
- EXISTING SPOT ELEVATION: ● EX 5235.25
- PROPOSED CONTOUR: ——— 5225
- EXISTING STORM DRAIN LINE: - - - - -
- PROPOSED STORM DRAIN INLET: □
- PROPOSED STORM DRAIN LINE: ———
- PROPOSED STORM DRAIN MANHOLE: ○
- PROPOSED WATER BLOCK: ———
- RETAINING WALL: ———
- PAD: □ 10 P=5300.00
- TURNED BLOCK: TB
- STREET SLOPE: XX

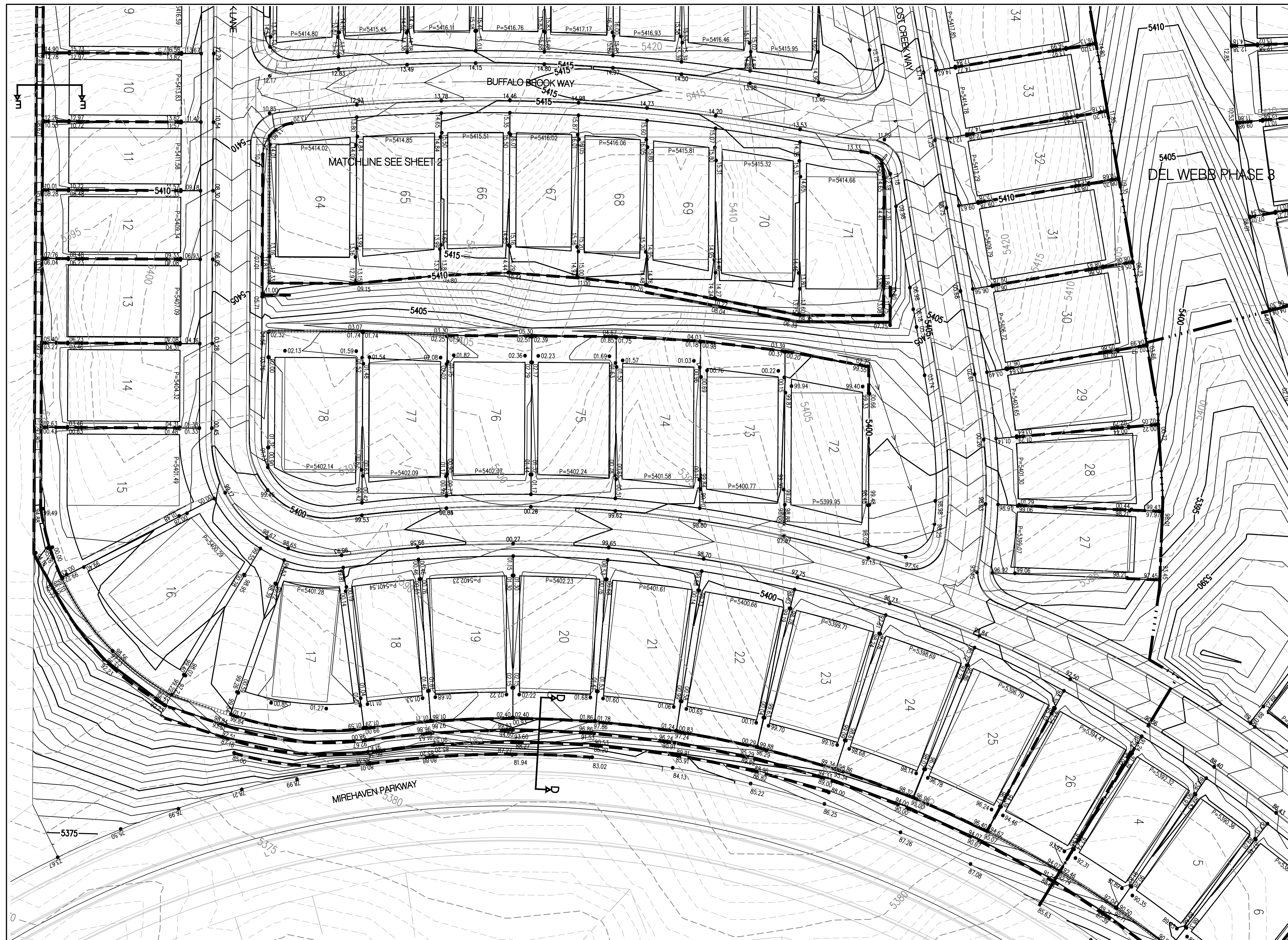


Bohannon & Huston
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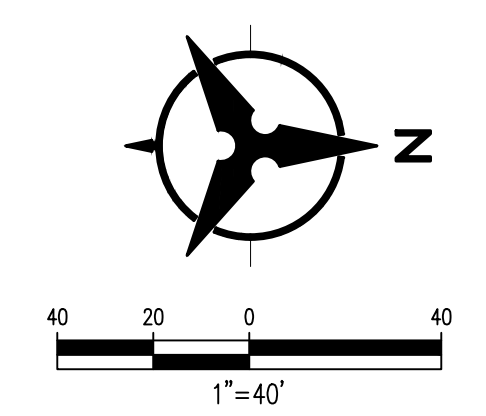
CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT

DEL WEBB @ MIREHAVEN PHASE 4
OVERALL GRADING PLAN

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	MO./DAY/YR.	MO./DAY/YR.
LAST DESIGN UPDATE			
CITY PROJECT NO.	ZONE MAP NO.	SHEET	OF
	H-8/9	1	3



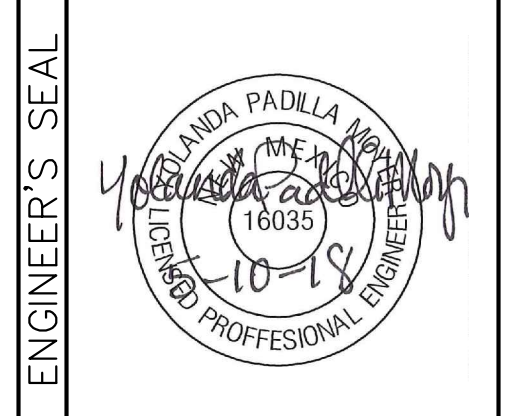
- LEGEND**
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 - PAD 10
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 - STREET SLOPE XX



AS-BUILT INFORMATION	
CONTRACTOR	DATE
WORKED BY	DATE
INSPECTOR'S	DATE
ACCEPTANCE BY	DATE
VERIFICATION BY	DATE
DRAWN BY	DATE
CHECKED BY	DATE
RECORDED BY	DATE
NO.	DATE

BENCH MARKS	

SURVEY INFORMATION	
FIELD NOTES	DATE
NO.	BY



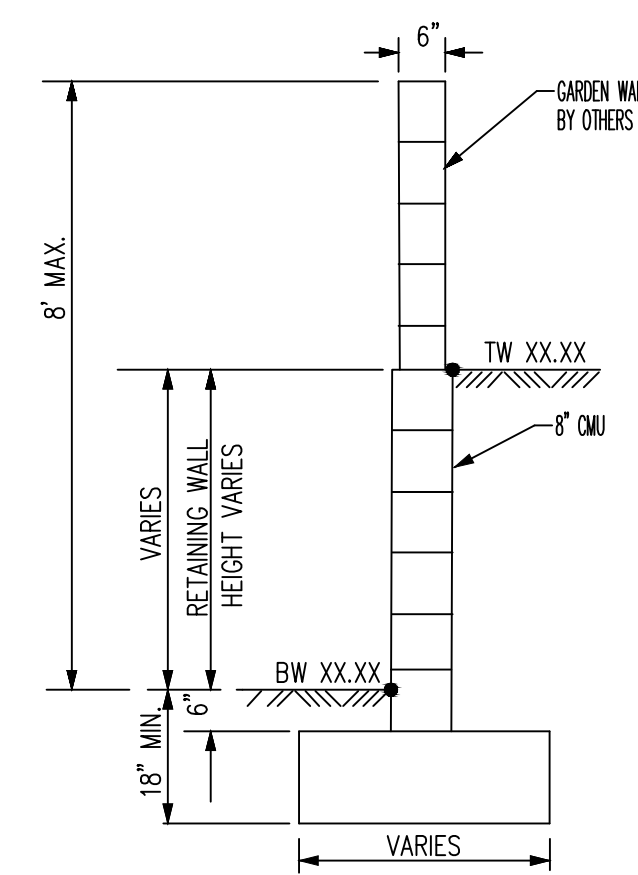
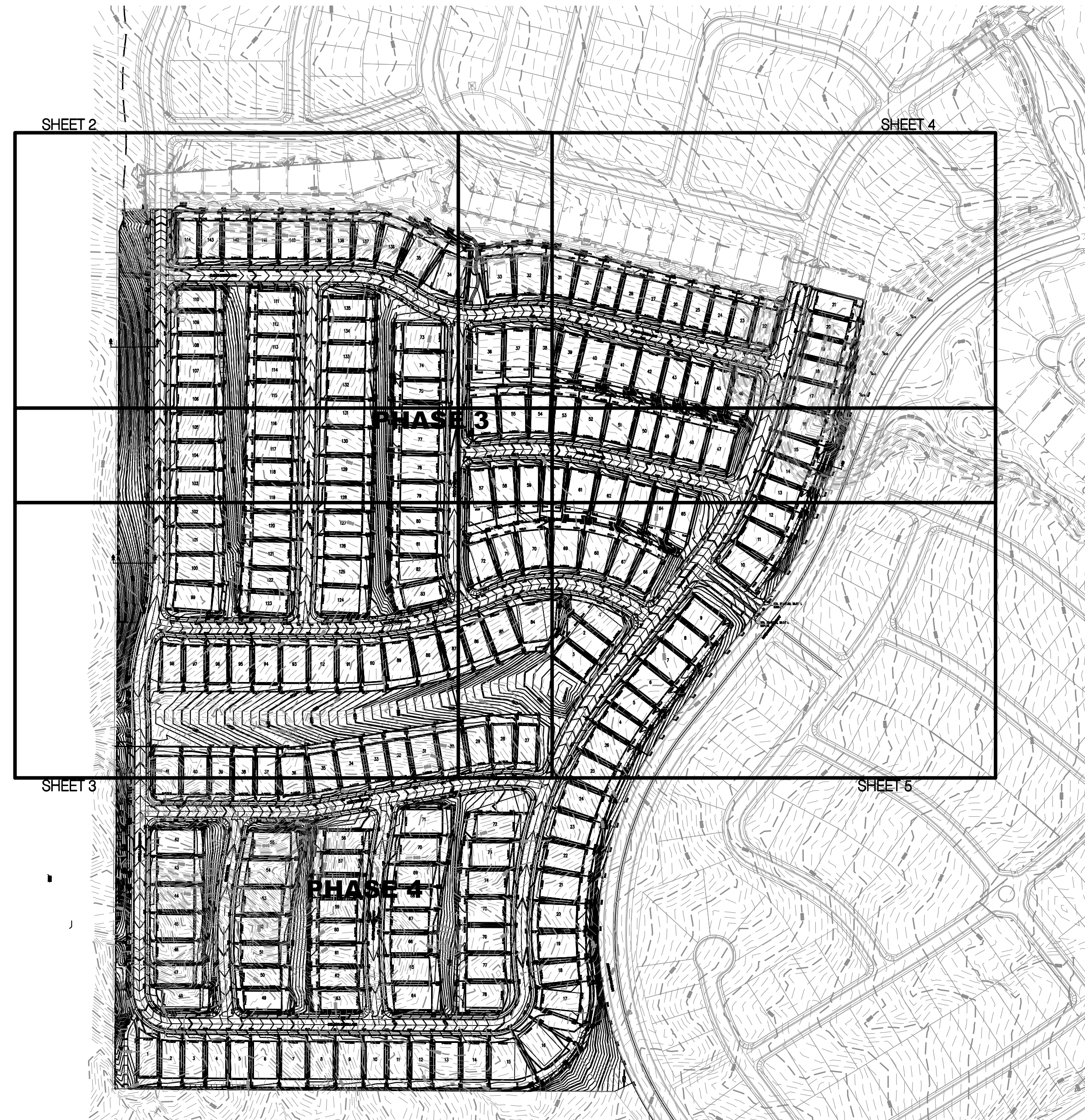
ENGINEER'S SEAL	
REVISIONS	BY
DESIGN	
NO. DATE	DATE
DESIGNED BY YPM	DATE 04/18
DRAWN BY AR	DATE 04/18
CHECKED BY YPM	DATE 04/18

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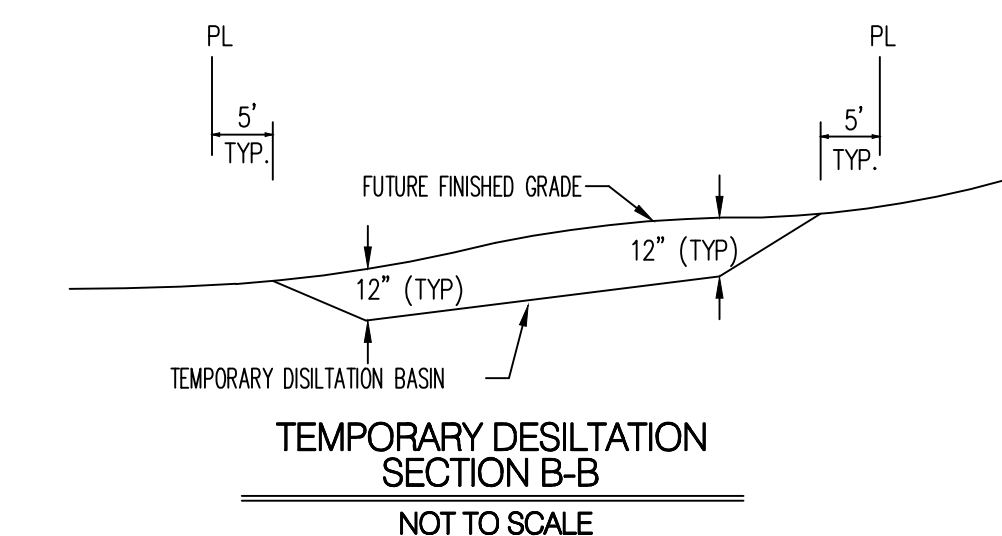
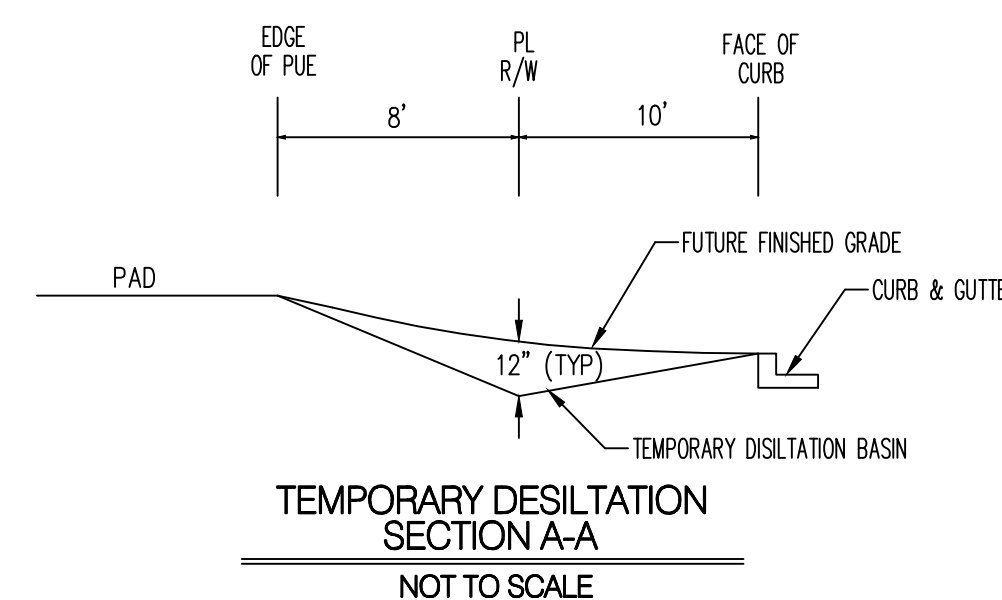
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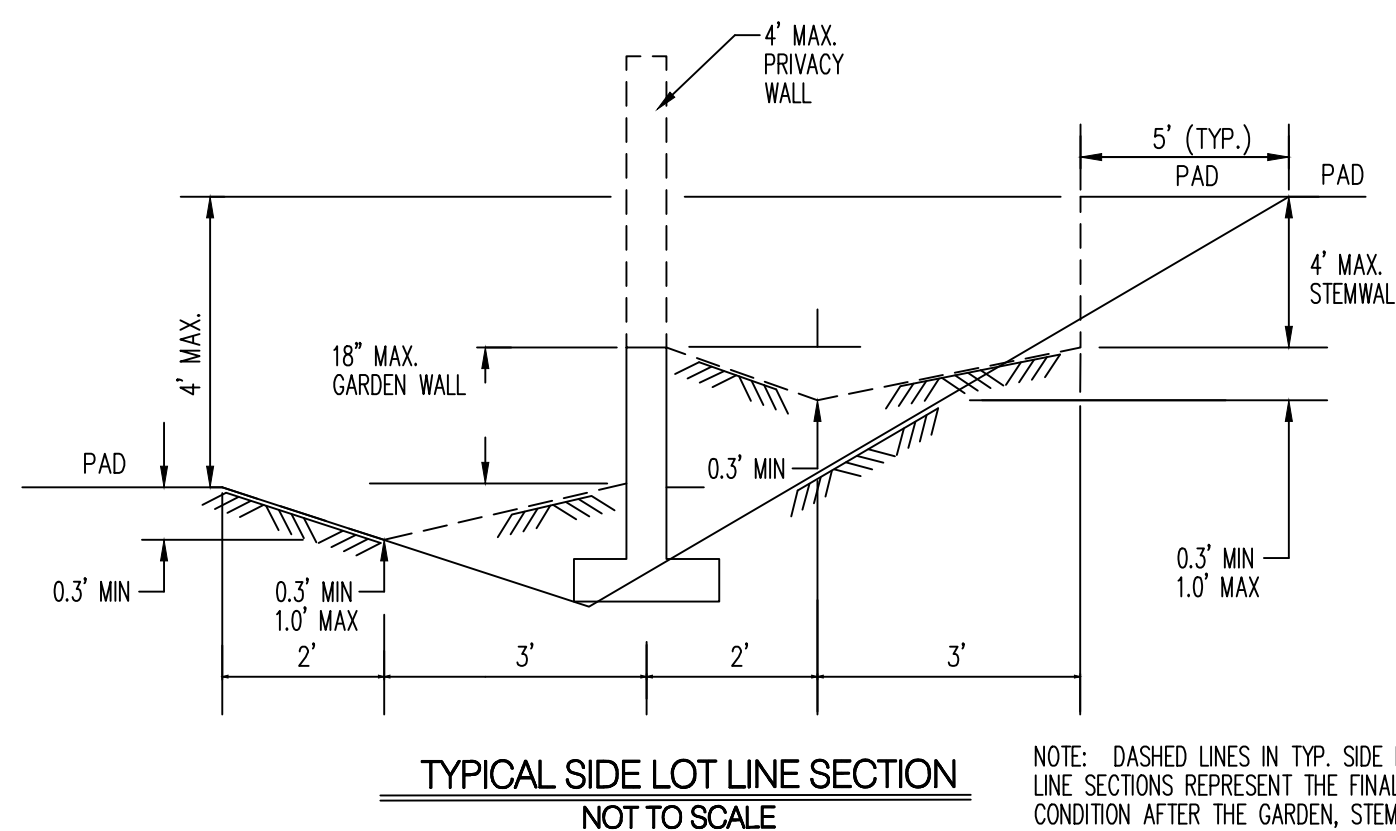


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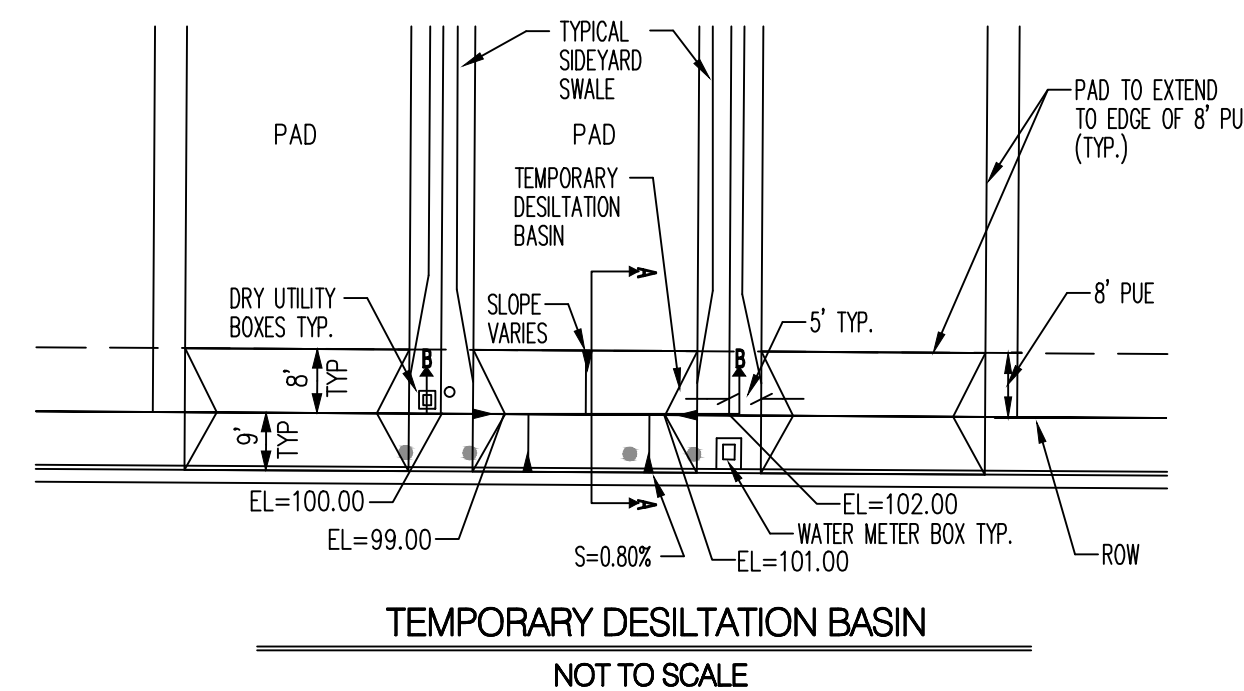
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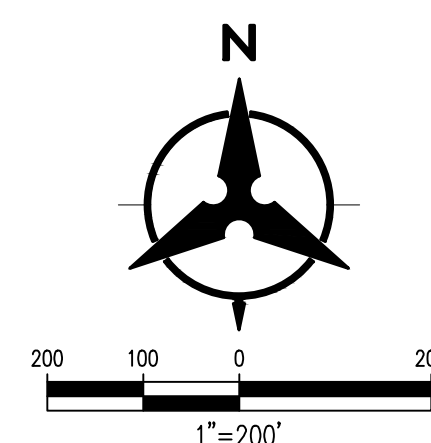
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** BOTTOM OF BASIN IS 1' BELOW PROPERTY LINE ELEVATION SEE GRADING PLANS FOR EXACT ELEVATIONS

LEGEND

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- EXISTING SPOT ELEVATION: ● EX 5235.25
- PROPOSED CONTOUR: --- 5225
- EXISTING STORM DRAIN LINE: - - - - -
- PROPOSED STORM DRAIN INLET: □
- PROPOSED STORM DRAIN LINE: = = = = =
- PROPOSED STORM DRAIN MANHOLE: ○
- PROPOSED WATER BLOCK: ~ ~ ~ ~ ~
- RETAINING WALL: [Symbol]
- PAD: [Symbol]
- TURNED BLOCK: TB
- STREET SLOPE: XX

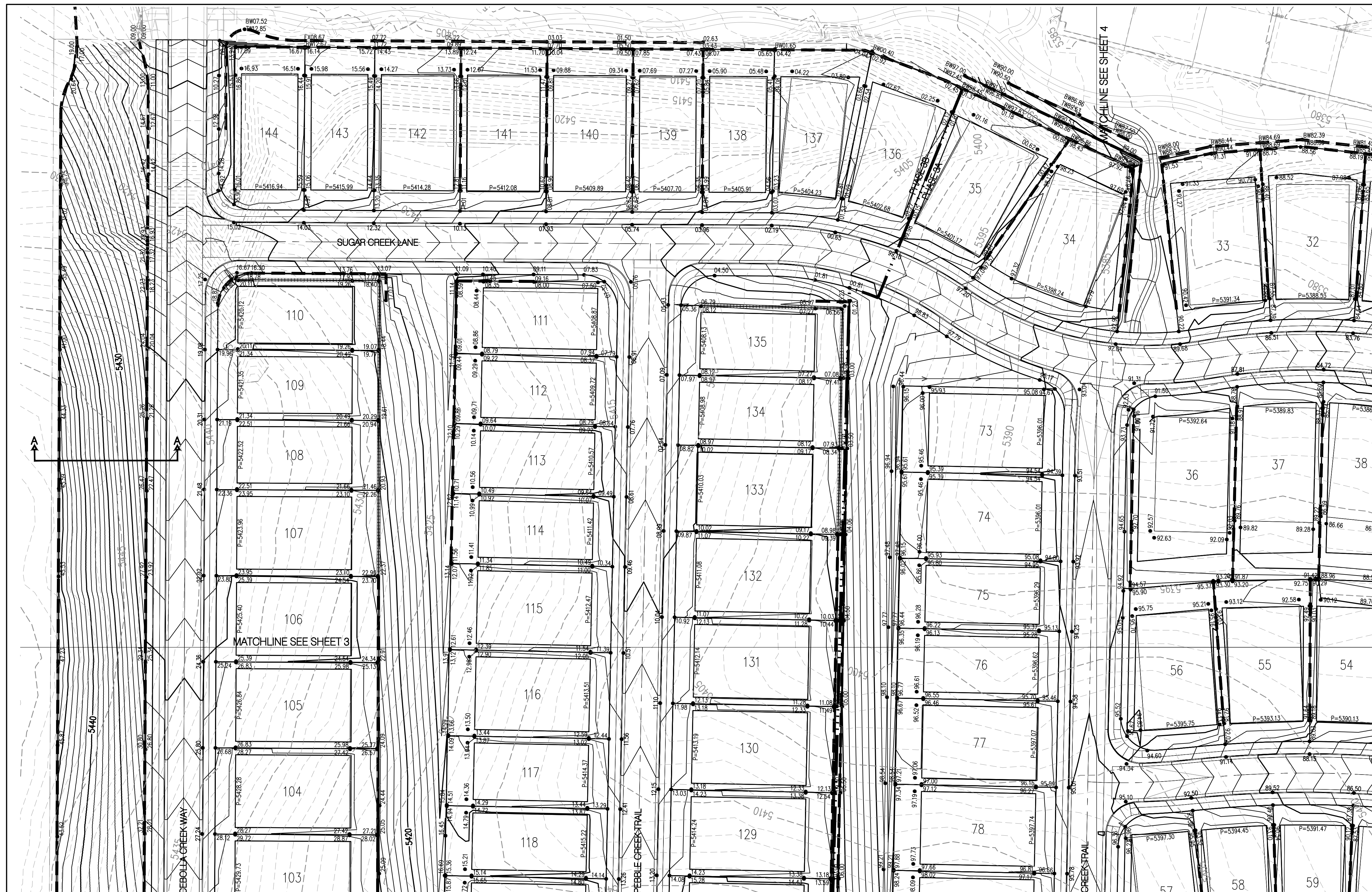


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CITY OF ALBUQUERQUE
 DEPARTMENT OF MUNICIPAL DEVELOPMENT

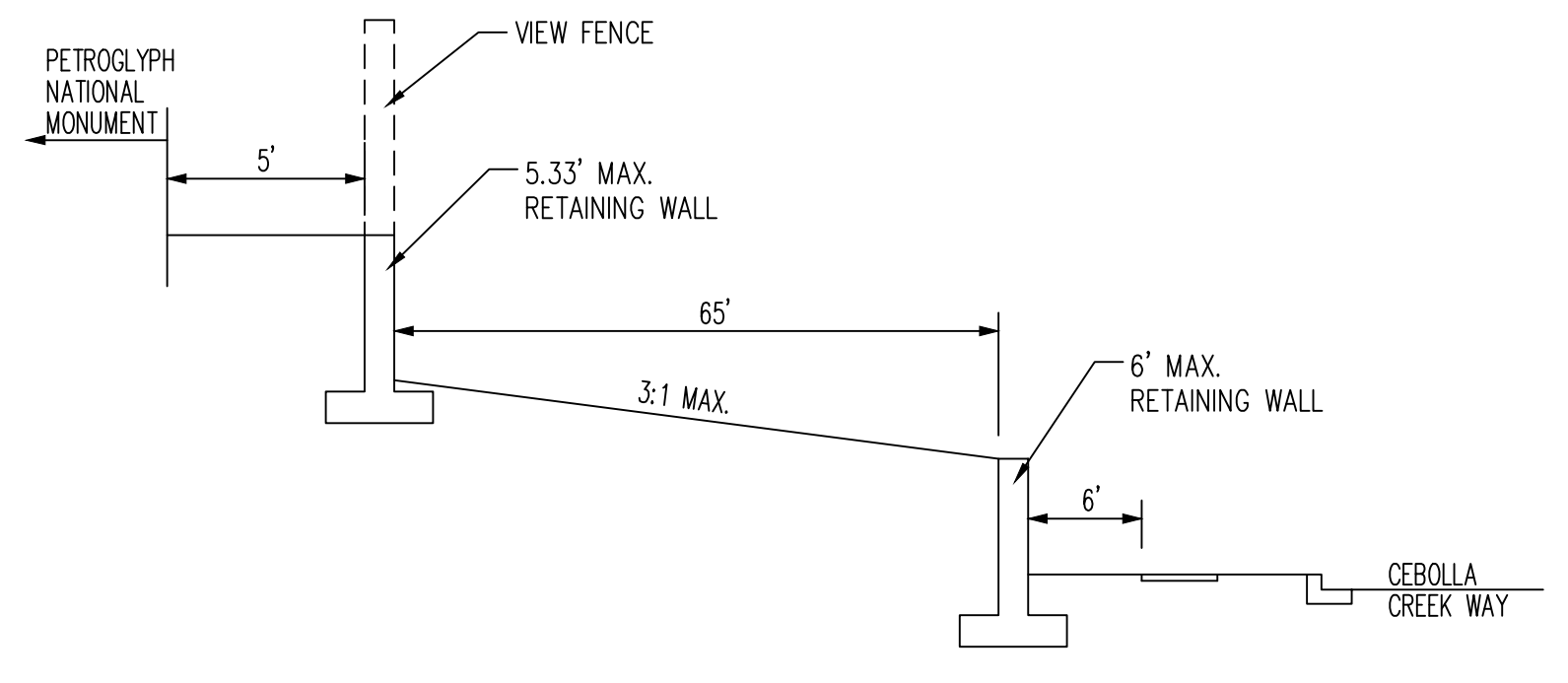
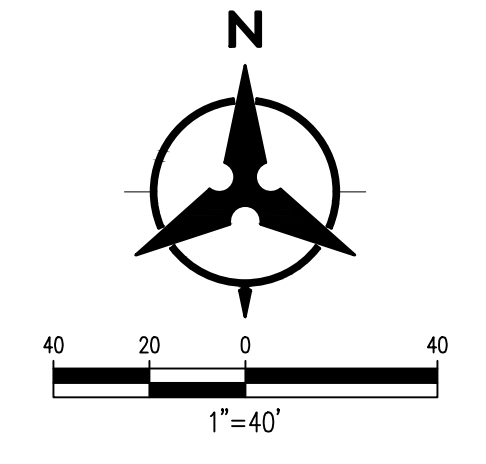
DEL WEBB @ MIREHAVEN PHASE 3
 OVERALL GRADING PLAN

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LAST DESIGN UPDATE			
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	H-8/9	1	5



LEGEND

PROPOSED SPOT ELEVATION	● 5235.25
EXISTING SPOT ELEVATION	● EX 5235.25
PROPOSED CONTOUR	- - - 5425
EXISTING STORM DRAIN LINE	==
PROPOSED STORM DRAIN INLET	□
PROPOSED STORM DRAIN LINE	▬▬▬▬
PROPOSED STORM DRAIN MANHOLE	○
PROPOSED WATER BLOCK	~
RETAINING WALL	▬▬▬▬
PAD	10 P=5300.00
TURNED BLOCK	TB
STREET SLOPE	XX



TYPICAL CROSS SECTION A-A
NOT TO SCALE

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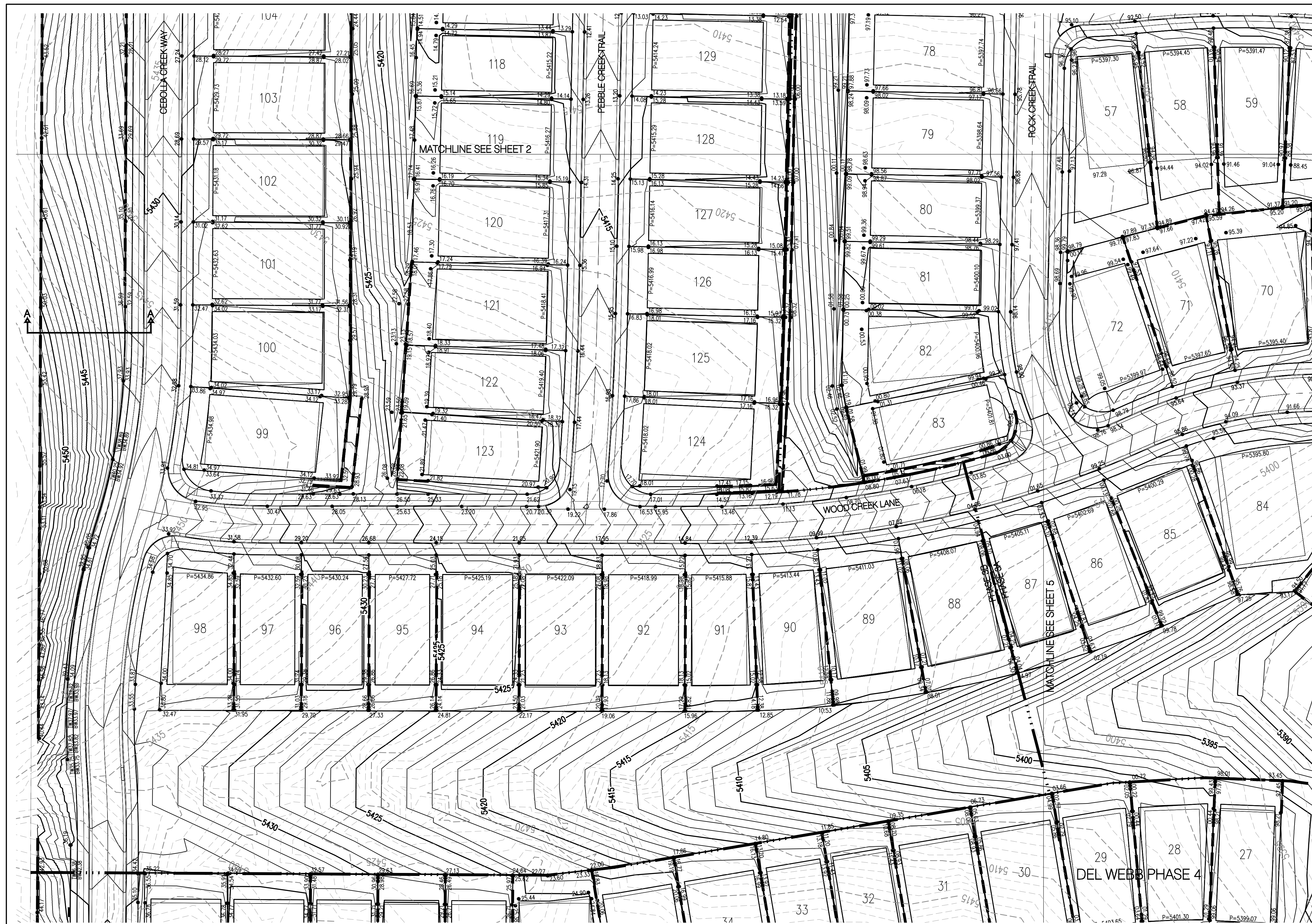
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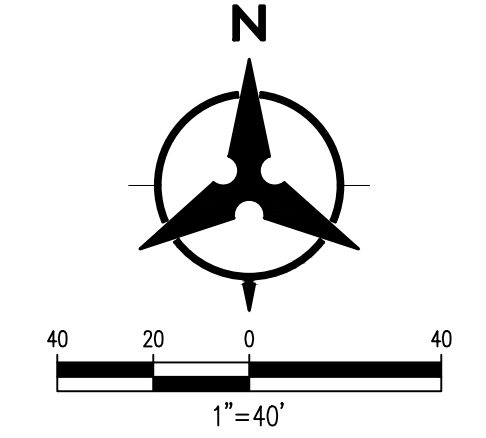
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DEL WEBB @ MIREHAVEN PHASE 3
GRADING PLAN

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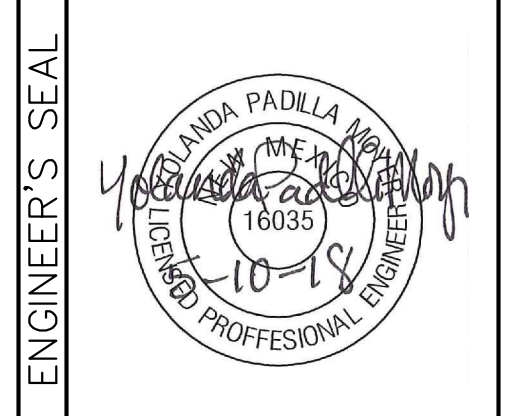
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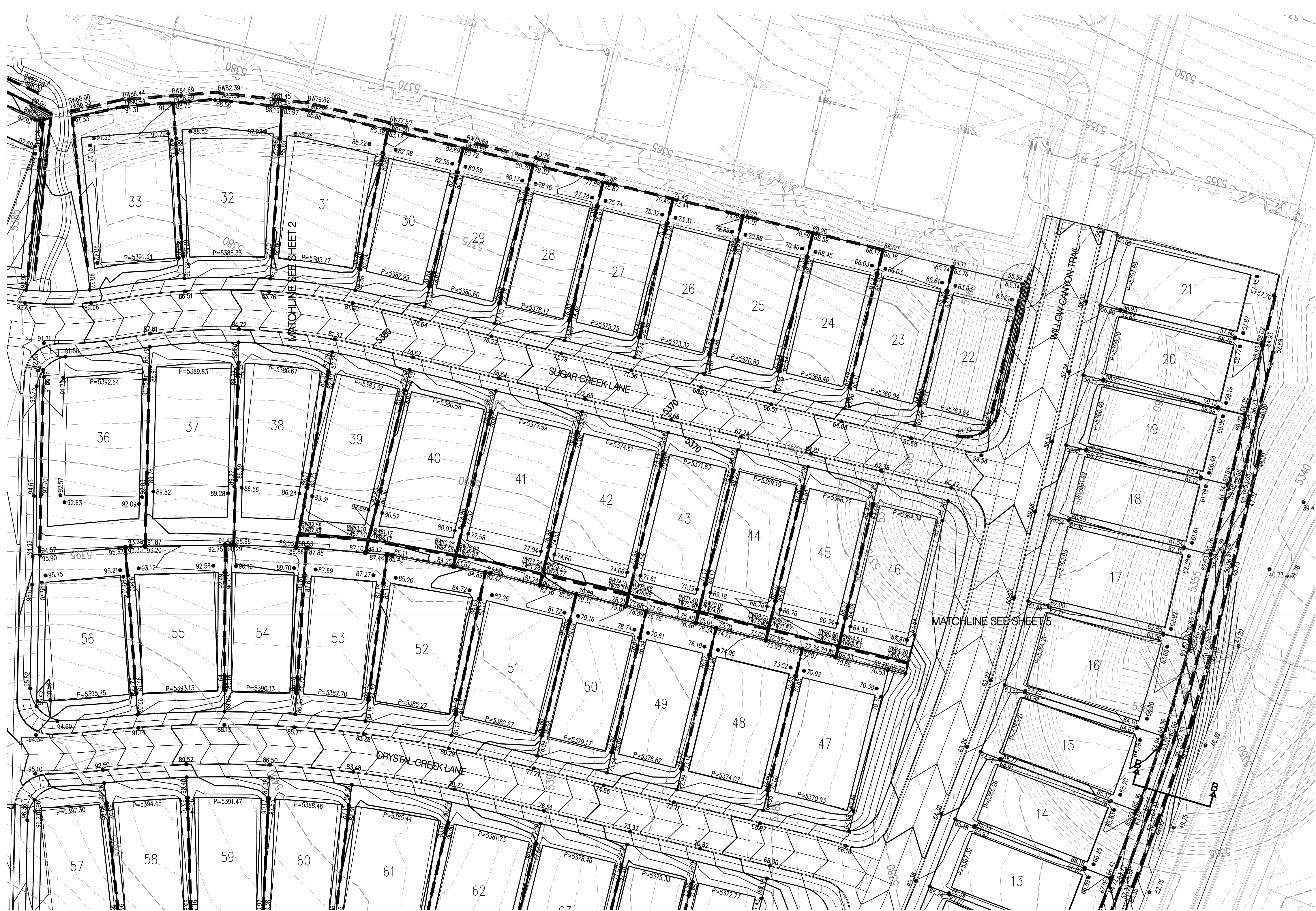
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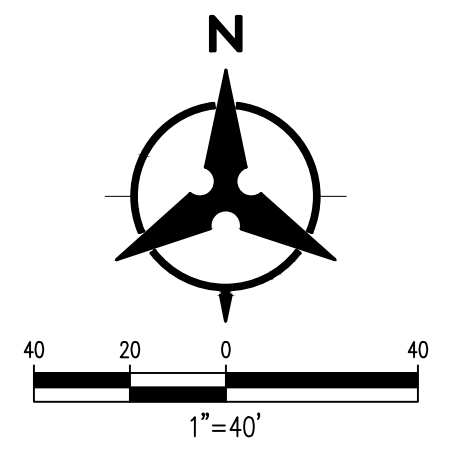
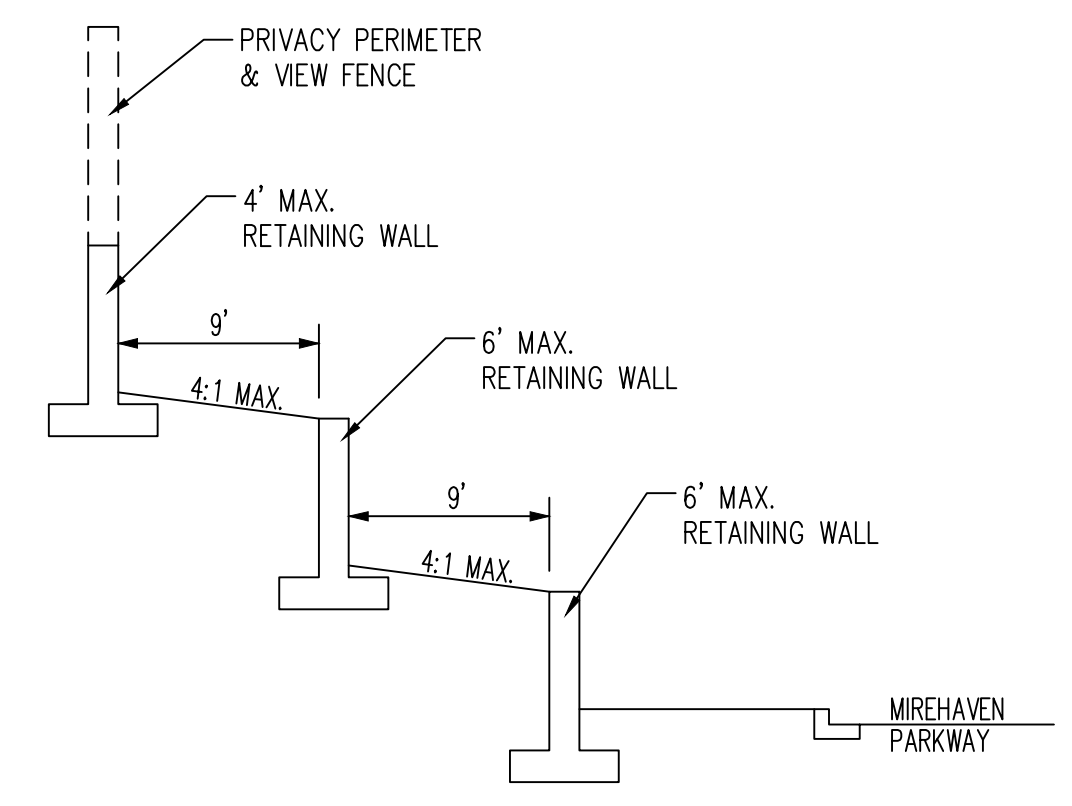
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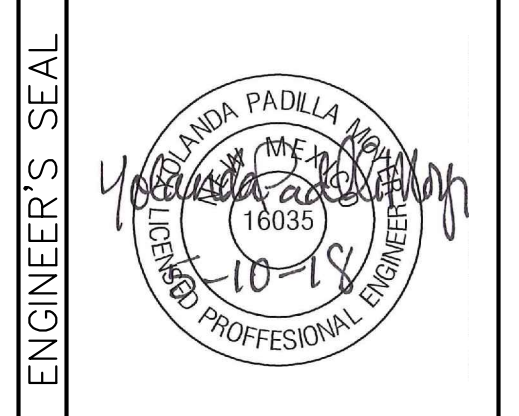
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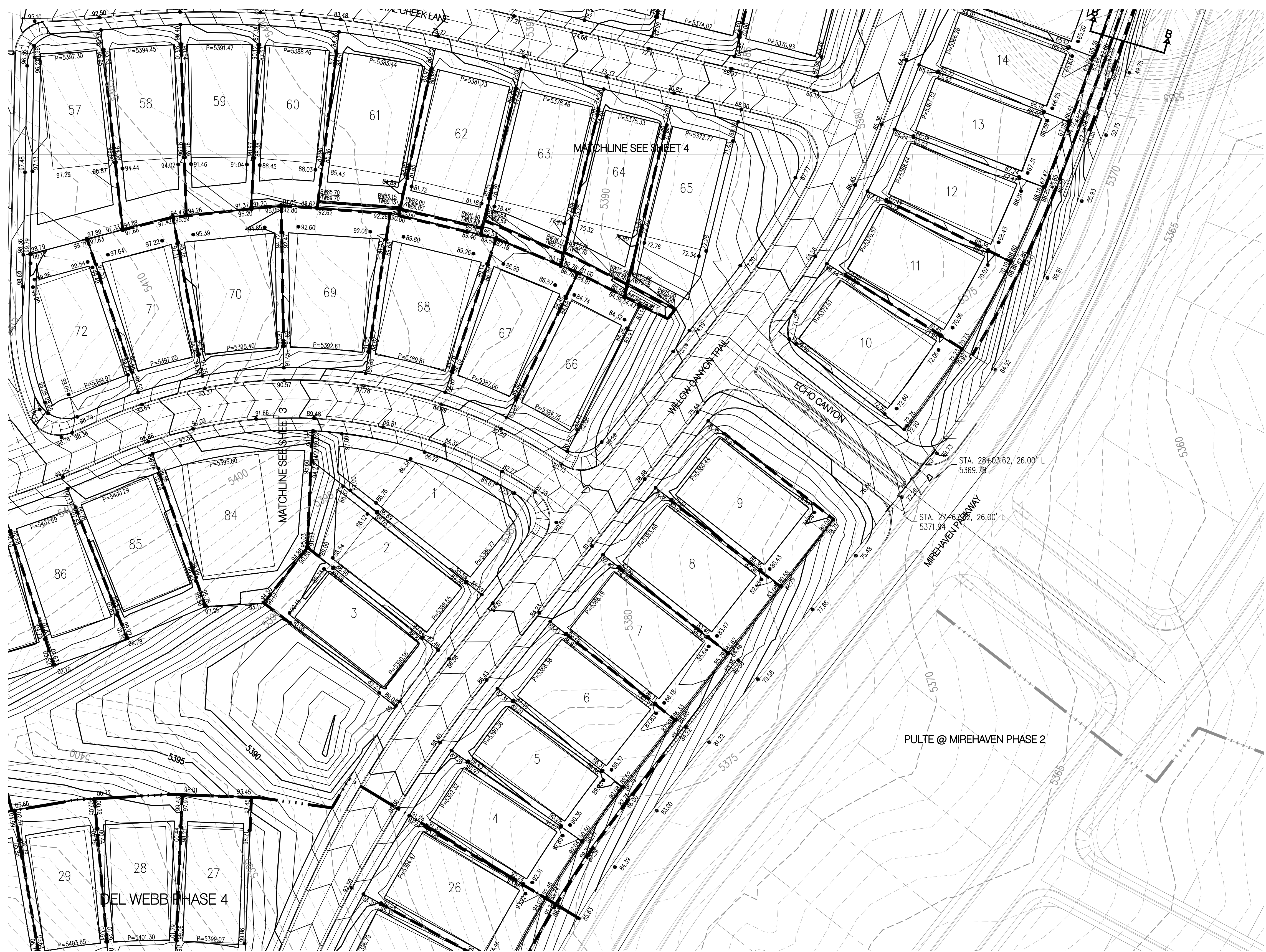
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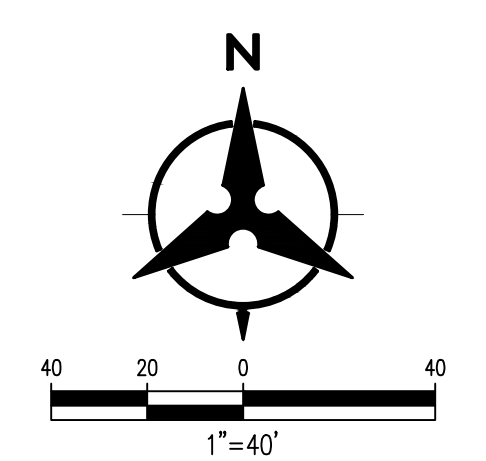
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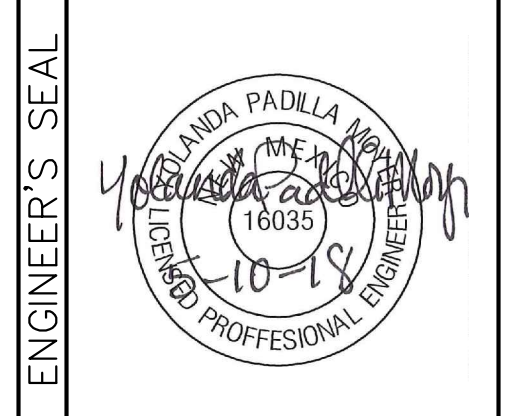
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DRAINAGE REPORT FOR DEL WEBB PHASES 3&4 SUBDIVISION

MAY 2018

Prepared for:

PULTE DEVELOPMENT OF NEW MEXICO, INC
7601 JEFFERSON ST NE, SUITE 320
ALBUQUERQUE, NM 87109

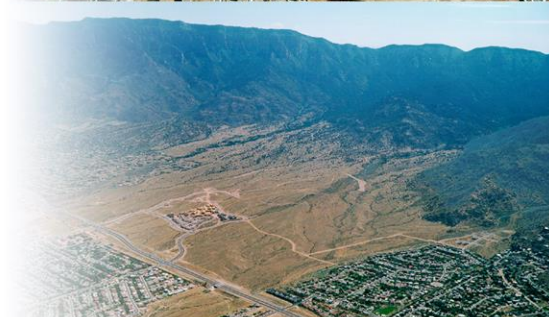
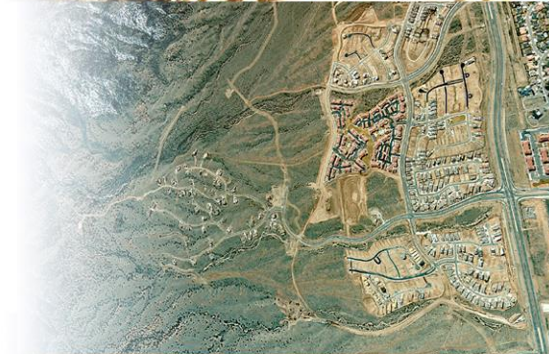
Prepared by:

Bohannon  **Huston**

Engineering

Spatial Data

Advanced Technologies



**DRAINAGE REPORT
FOR
DEL WEBB @ MIREHAVEN PHASES 3&4
ALBUQUERQUE, NM**

MAY 10, 2018

Prepared for:

**PULTE DEVELOPMENT OF NEW MEXICO, INC
7601 JEFFERSON ST NE, SUITE 320
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Prepared by:

**BOHANNAN HUSTON, INC.
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PREPARED BY:

UNDER THE SUPERVISION OF:

Abraham Mena Ortiz, E.I. Date

Yolanda Padilla Moyer, PE Date

TABLE OF CONTENTS

I. INTRODUCTION 1

II. PURPOSE OF REPORT..... 1

III. METHODOLOGY AND REFERENCES..... 1

IV. SITE LOCATION AND CHARACTERISTICS 2

V. EXISTING CONDITIONS..... 3

VI. DEVELOPED CONDITIONS..... 4

A. ALLOWABLE 4

B. ULTIMATE CONDITIONS..... 4

 1. Del webb @ Mirehaven Phase 3 4

 2. Del webb @ Mirehaven Phase 4 6

 3. First Flush Requirements..... 7

VII. GRADING PLAN 8

VIII. CALCULATIONS 8

IX. CONCLUSION..... 8

APPENDICES

- APPENDIX A: BASIN ANALYSIS AND SUMMARY OF LAND TREATMENTS**
- APPENDIX B: INLET/STREET HYDRAULICS**
- APPENDIX C: STORM DRAIN PIPE ANALYSIS**
- APPENDIX D: DETENTION POND ANALYSIS**
- APPENDIX E: FIRST FLUSH REQUIREMENTS**

EXHIBITS

- EXHIBIT A: SUBDIVISION LOCATION MAP AND SUMMARY PLAT**
- EXHIBIT B: ORIGINAL DEVELOPED CONDITIONS BASIN MAP FROM DMP**
- EXHIBIT C: EXISTING BASIN MAP**
- EXHIBIT D: ULTIMATE BASIN MAP**
- EXHIBIT E: STORM DRAIN NETWORK**
- EXHIBIT F: GRADING PLAN**

I. INTRODUCTION

The Mirehaven is a master planned community of approximately 285 acres, encompassing the project area as well as other subdivisions and bulk tracts within the Watershed Subdivision area. The master plan area is located on West Albuquerque, bounded by the Petroglyph National Monument to the north and west, Tierra Pintada Blvd. to the east and APS school site to the south.

Del Webb @ Mirehaven Phase 3 (40.69 acres) and Phase 4 (21.14 acres) are single-family residential developments of 144 lots and 78 lots respectively and 20 open space parcels, and within zoning SU-2. The site is located on Tract N-2-B-1, Tract N-2-B-2 and Tract N-2-C-1 of the Watershed Subdivision. The site currently drains from west to east to Mirehaven Parkway, discharging finally to Mirehaven Arroyo and the AMAFCA Ladera Dam System, and will continue to do so in the ultimate condition.

II. PURPOSE OF REPORT

The purpose of this report is to provide site-specific drainage analysis for existing and ultimate conditions for the subdivision development referred to as Del Webb @ Mirehaven Phase 3 and Phase 4. This plan is prepared and submitted to support design and grading of the subdivision and internal streets for preliminary and final plat approvals.

III. METHODOLOGY AND REFERENCES

All analysis was completed for the existing and fully developed conditions. The runoff volumes were computed for the 100 yr – 6 hr storm in accordance with the City of Albuquerque Development Manual (DPM), Volume II – Design Criteria, Section 22.2, Hydrology, The City of Albuquerque, January 2002. Since the development has been divided into Phase 3 and Phase 4 and each site is less than 40 acres in size, the Rational Method is used in this report for the hydrology analysis. The storm drain network was analyzed assuming laminar flow and applying classical non-compressible fluid mechanics approach.

This report is consistent with previously approved drainage reports for this development. The following City of Albuquerque approved documents will be referenced throughout this report:

Final Amendment No. 2 Drainage Management Plan for Del Webb @ Mirehaven Phases 1 and 2, prepared by Bohannon Huston Inc., February 2014. This report establishes site specific drainage improvements guidelines for the subdivision Del Webb @ Mirehaven Phases 1 and 2, and provides the allowable discharge from the future development of Phase 3 and Phase 4.

Drainage Management Plan for Pulte @ Mirehaven Phase 2, prepared by Bohannon Huston Inc., January 2015. This report establishes site specific drainage improvements guidelines for the subdivision Pulte @ Mirehaven Phase 2, and provides the allowable discharge from the future development of Del Webb @ Mirehaven Phase 4 into Mirehaven Parkway.

Drainage Master Plan for the Mirehaven Master Planned Community, prepared by Bohannon Huston Inc., November 2013. This report provides the overall Drainage Master Plan for Tract N-2 and M of the Watershed Subdivision now referred to as the Mirehaven Master Planned Community (formerly Watershed @ Estrella). This report also provides master drainage analysis to support the future backbone drainage infrastructure in order to obtain approvals for the future preliminary/final plats and grading plans by the city of Albuquerque.

IV. SITE LOCATION AND CHARACTERISTICS

The site is located west of Mirehaven Parkway, north of the APS School Site, east of the Petroglyph National Monument and south of Del Webb @ Mirehaven Phase 1 (see 'Exhibit A – Subdivision Location Map and Summary Plat').

The site consists primarily of native grasses and bushes, with few trees within the site. Slopes range from 1% to 25%, with the majority of the project sloping at 3% to 15%.

The development will be phased into three units: 3A, 3B and 4, but the entire site will be graded with the construction of the first phase to balance the earthwork. Phase 3A will be located on Tract N-2-B-2, west of Mirehaven Parkway and south of Del Webb Phase 1. Phase 3B will encompass Tract N-2-B-1 and will be located between Phase 3A and the Petroglyph National Monument, south of Del Webb Phase 1. Lastly, Phase 4 will be located on Tract N-2-C-1, south of the linear open space at the south boundary of Phase 3A and Phase 3B, north of the APS School Site, east of the Petroglyph National Monument and west of Mirehaven Parkway.

Considering that the site will be graded with the construction of the first phase, the flow paths for the interim and the ultimate conditions will not differ. Hence, the hydrology and hydraulics analysis will be performed for the existing and ultimate conditions.

V. EXISTING CONDITIONS

The existing basin and drainage patterns are shown graphically on the Existing Drainage Conditions Map in 'Exhibit C – Existing Conditions Basin Map'. The site currently drains primarily from west to east. There are offsite flows draining to the site. For additional information please refer to *Drainage Master Plan for the Mirehaven Master Planned Community* and 'Appendix B – Original Developed Conditions Basin Map from DMP'.

The site runoff naturally flows east to Mirehaven Parkway, where a berm diverts it north to Del Webb Phase 1. Two temporary desiltation ponds located on the boundary of Del Webb Phase 1 at Willow Canyon Trail and Cebolla Creek Way convey the site runoff. In addition, a small portion of the site drains south to APS School Site. The land treatment percentage has been computed based on the terrain slopes, see 'Appendix A- Basin Analysis and Summary of Land Treatments '.

The site has been divided into 7 basins: Basin EX-1 (A = 2.29 acres, $Q_{100} = 4.08$ cfs), Basin EX-2 (A = 30.54 acres, $Q_{100} = 47.42$ cfs), Basin EX-3 (A = 25.76 acres, $Q_{100} = 48.13$ cfs), Basin EX-4 (A = 4.62 acres, $Q_{100} = 8.89$ cfs), Basin EX-5 (A = 8.32 acres, $Q_{100} = 17.60$ cfs), Basin EX-6 (A = 3.19 acres, $Q_{100} = 5.30$ cfs) and Basin EX-7 (A = 0.42 acres, $Q_{100} = 0.88$ cfs). Basins EX-5 and EX-7 drain south to the APS School Site. See 'Exhibit C – Existing Basin Map'.

VI. DEVELOPED CONDITIONS

A. ALLOWABLE

Per the Final Amendment No. 2 Drainage Management Plan for Del Webb @ Mirehaven Phases 1 and 2 the site is allowed to discharge, in ultimate conditions, $Q_{Allowable} = 135.9$ cfs to the existing 42" SD pipe on Willow Canyon Trail Del Webb @ Mirehaven Phase 1. Phase 3A is allowed to discharge $Q_{Allowable} = 15$ cfs to Willow Canyon Trail and Phase 3B is allowed to discharge $Q_{Allowable} = 9$ cfs to Cebolla Creek Way.

The site is also allowed to discharge $Q_{Allowable} = 33.2$ cfs to Mirehaven Parkway per the Drainage Master Plan for the Mirehaven Master Planned Community.

Per the Drainage Management Plan for Pulte @ Mirehaven Phase 2 the southern portion of Del Webb Phase 4 is allowed to discharge $Q_{Allowable} = 26.2$ cfs to the future 24" SD on Mirehaven Parkway (see 'Exhibit B - Original Developed Conditions Basin Map from DMP').

B. ULTIMATE CONDITIONS

1. DEL WEBB @ MIREHAVEN PHASE 3

The development of Del Webb @ Mirehaven Phase 3 must accommodate offsite historic flows. Basin Offsite 1 ($A = 12.80$ acres, $Q_{100} = 19.82$ cfs), Basin Offsite 2 ($A = 3.50$ acres, $Q_{100} = 5.9$ cfs) and Basin Offsite 3 ($A = 7.60$ acres, $Q_{100} = 16.3$ cfs) drain to the western boundary. Per the drainage master plan Basin Offsite 2 drains south to the linear open space but due to the building height limitations, the high point has been pushed south and hence this basin will drain north instead down Cebolla Creek Way to Del Webb Phase 1. Basin Offsite 1 does not drain to the portion of Cebolla Creek Way on Del Webb Phase 3, but to Del Webb Phase 1, where a group of inlets capture it. Basin Offsite 2 combines with Basin 3-L ($A = 1.47$ acres, $Q_{100} = 4.0$ cfs) and Basin 3-B ($A = 1.19$ acres, $Q_{100} = 3.9$ cfs) on Cebolla Creek Way, $Q_{100} = 13.8$ cfs. A fraction of this flow, $Q_{100} = 3$ cfs, is diverted to Sugar Creek Lane and 10.8 cfs surface drain to Del Webb Phase 1. The group of inlets on Cebolla Creek Way downstream to the boundary of Phase 1 and Phase 3 have been designed to

accommodate 9.6 cfs from Del Webb Phase 3. The proposed runoff will increase 1.2 cfs, which is negligible and will not impact downstream infrastructure.

Offsite Basin 3 combines with Basin 3-N ($A = 0.34$ acres, $Q_{100} = 0.9$ cfs) and Basin 3-M ($A = 0.41$ acres, $Q_{100} = 1.7$ cfs) on Cebolla Creek Way and with Basin 3-K ($A = 2.61$ acres, $Q_{100} = 7.9$ cfs) on the open space between Del Webb Phase 3 and Phase 4, $Q_{100} = 26.8$ cfs. This linear open space area includes a trail system and a detention pond that also works as a desiltation pond to fulfill first flush storage requirements for a portion of the development. See 'Section 3 – First Flush Requirements' below for more information. Basin 3-J ($A = 2.21$ acres, $Q_{100} = 7.2$ cfs), which encompasses the back of the lots on Wood Creek Lane also discharges to the open space area. This pond receives $Q_{in} = 52.20$ cfs, and discharges $Q_{out} = 44.20$ cfs through a 30" storm drain pipe on Willow Canyon Trail, ultimately discharging to Mirehaven Arroyo. The required storage volume is $V_S = 7,555$ CF.

Basin 3-C ($A = 2.64$ acres, $Q_{100} = 8.6$ cfs), back of lots on Cebolla Creek Way, and Basin 3-D ($A = 3.10$ acres, $Q_{100} = 10.1$ cfs), lots on Pebble Creek Trail, combine on Sugar Creek Lane with Basin 3-A ($A = 7.59$ acres, $Q_{100} = 24.7$ cfs), that encompasses the lots on Sugar Creek Lane, $Q_{100} = 26.11$ cfs. The first group of inlets (IN1, IN2, IN3) capture 14.5 cfs from the upstream combined flow and Basin 3-E ($A = 2.49$ acres, $Q_{100} = 8.1$ cfs), back of lots on Pebble Creek Trail, with a residual of 23.33 cfs. IN 4, located upstream to the intersection of Sugar Creek Lane and Rock Creek Lane, captures $Q_{100} = 4.7$ cfs, with a residual flow of $Q_{100} = 18.63$ cfs. The runoff from Basin 3-F ($A = 2.51$ acres, $Q_{100} = 8.2$ cfs), composed by the lots on Rock Creek Trail, combines with the residual flow from the aforementioned inlets and Basin 3-A at the intersection of this street and Sugar Creek Lane, for a total flow of $Q_{100} = 26.83$ cfs. Three group of inlets (IN5-IN6, IN7-IN8 and IN9-IN10) located on the eastern half of Sugar Creek Lane capture $Q_{100} = 26.2$ cfs leaving a residual flow of $Q_{100} = 17$ cfs that discharges to Willow Canyon Trail.

Basin 3-I ($A = 5.47$ acres, $Q_{100} = 17.8$ cfs), composed by the lots on Willow Canyon Trail, accepts $Q_{100} = 24.1$ cfs from phase 4. The first group of inlets (IN11-IN12) intercepts $Q_{100} = 8.2$ cfs and discharge it to the pond in the open space area. At the intersection of Willow Canyon Trail and Wood Creek Lane, Basin 3-H ($A = 2.87$ acres, $Q_{100} = 9.3$ cfs) runoff, combines with the residual flow on Willow Canyon Trail resulting of $Q_{100} = 30.87$ cfs. At the intersection with Crystal Creek Lane a group of inlets (IN13-IN14) on Willow Canyon

Trail captures $Q_{100} = 11.6$ cfs, with a residual flow of $Q_{100} = 22.51$ cfs. This flow combines with Basin 3-G ($A = 4.00$ acres, $Q_{100} = 13.0$ cfs), for a total $Q_{100} = 36.32$ cfs. Three group of inlets (IN15-IN16, IN17-IN18 and IN19-IN20) downstream to the aforementioned intersection capture $Q_{100} = 10.3$ cfs, $Q_{100} = 9.8$ cfs and $Q_{100} = 7.6$ cfs respectively, continuing $Q_{100} = 11.86$ cfs downstream. At the intersection of Sugar Creek Lane and Willow Canyon Trail the residual flow from IN19-IN20 and Sugar Creek Lane combines for a total $Q_{100} = 28.86$ cfs. Finally, three inlets (IN21, IN22, IN23) capture $Q_{100} = 13$ cfs, and the remaining flow of $Q_{100} = 15.86$ cfs continues downstream to an existing group of inlets on Willow Canyon Lane at Del Webb 1.

The total flow on the 42" storm drain pipe on Willow Canyon Trail at the boundary of phase 1 and phase 3 is $Q_{100} = 140.8$ cfs. Although Final Amendment No. 2 Drainage Management Plan for Del Webb @ Mirehaven Phases 1 and 2 specifies an allowable discharge from the site of $Q_{100} = 135.9$ cfs, we are proposing an increase of flow of $Q_{100} = 4.9$ cfs. 'Appendix C –Storm Drain Pipe Analysis 'shows the pipe is able to accommodate this increase in flow keeping the pipe under laminar flow.

Basin 3-O ($A = 1.37$ acres, $Q_{100} = 3.7$ cfs), the buffer between the back of the lots on Willow Canyon Trail and Mirehaven Parkway discharges to Mirehaven Parkway. This runoff, which is less than the $Q_{Allowable} = 33.2$ cfs by the DMP, is intercepted by a group of inlets at the intersection of Mirehaven Parkway and Del Webb Lane.

2. DEL WEBB @ MIREHAVEN PHASE 4

Basin 4-B ($A = 0.59$ acres, $Q_{100} = 2.3$ cfs) and Basin 4-J ($A = 0.37$ acres, $Q_{100} = 1.0$ cfs) combine with basin Offsite 3 on the low point on Willow Canyon Trail and flow through the linear open space to the detention pond, as mentioned in the previous section.

Basin 4-A ($A = 2.19$ acres, $Q_{100} = 7.0$ cfs), which encompasses the back of the lots on Lost Creek Way discharges to Basin 3-J. Basin 4-C ($A = 4.75$ acres, $Q_{100} = 15.3$ cfs), which is composed by the lots on Gneiss Trail and Buffalo Brook Way from Lost Creek Way to the high points on these streets, combines with Basin 4-D ($A = 2.75$ acres, $Q_{100} = 8.8$ cfs), that encompasses the lots on Willow Canyon Trail from the high point to the boundary with Del

Webb Phase 3. Inlets IN11 and IN12 on Willow Canyon Trail convey 8.2 cfs and discharge it to the detention pond.

Basin 4-I (A = 0.38 acres, $Q_{100} = 1.0$ cfs) discharge to Basin 4-E (A = 4.56 acres, $Q_{100} = 14.7$ cfs), which is the lots on Gneiss Trail and Buffalo Brook Way from Cougar Creek Lane to the high points on these streets. The combined flow from these basins and Basin 4-F (A = 2.14 acres, $Q_{100} = 6.9$ cfs), $Q_{100} = 21.6$ cfs is captured by a double type 'A' inlet in sump condition on the intersection of Cougar Creek Lane and Willow Canyon Trail. A 24" SD pipe discharges this flow to the storm drain pipe on Mirehaven Parkway.

Basin 4-H (A = 3.06 acres, $Q_{100} = 9.8$ cfs), which is composed by the back of the lots on Cougar Creek Lane, discharge south to the APS School Site. The allowable discharge per the existing basins map to the APS Site is $Q_{allowable} = 17.60$ cfs. We are proposing to discharge $Q_{allowable} = 9.8$ cfs, which is less than historic as indicated above. Lastly, Basin 4-G (A = 0.41 acres, $Q_{100} = 1.1$ cfs), the buffer between the back of lots on Willow Canyon Trail and Mirehaven Parkway, discharge to Mirehaven Parkway, where it is conveyed downstream by a group of inlets at the intersection of Tierra Pintada Blvd and Mirehaven Parkway.

3. FIRST FLUSH REQUIREMENTS

This project is required to meet the first flush requirements of the new City Drainage Ordinance. The first flush requirement will be met via detention volume and a cash in-lieu payment. The detention pond on the open space will convey flows from basins 3-M, 3-J, 3-K, 4-A, 4-B, 4-C and 4-D. The required storage is calculated as 0.34 in. (0.44 in. - 0.1 in. initial abstraction) times the subdivision acreage times the percent impervious area, and is equal to 6863.50 cf. The remainder of the site will meet the city ordinance requirement via cash in-lieu. The payment is computed as the storage volume times \$6 per cubic foot of storage, and is equal \$103,739.12 for Phase 3 and \$28,920.81 for Phase 4. See 'Appendix E – First Flush Requirements' for more information.

VII. GRADING PLAN

The grading plan for Del Webb Phase 3 Phase 4 is included in 'Exhibit G – Grading Plan' of this report.

VIII. CALCULATIONS

All the calculations to support the narrative are included in the appendices and were computed in accordance to the COA DPM, Chapter 22, Section 2. Microsoft Excel spreadsheets, manning equations and stream were used to analyze the site drainage, storm drain and roadway infrastructure. The design storm used in this analysis is the 100 year – 6hr storm event. The land treatment percentage D was computed using equation from COA DPM table A-5, Chapter 22, Section 2, as a function of the area and number of units. The remaining land treatment percentages was evenly divided between categories B and C. The runoff coefficient, C, was obtain from COA DPM table A-11, chapter 22, section 2. The average rainfall intensity, i, was taken from COA DPM table A-10, chapter 22, section 2. Once these parameters were known the runoff flows for each sub-basin were computed, as shown in APPENDIX A.

IX. CONCLUSION

This drainage report is in compliance with the previously approved drainage master plans and drainage reports, and no adverse effects are anticipated to the existing infrastructure. The proposed storm drain infrastructure and drainage management schemes allow for the safe management of storm runoff and preservation of the natural terrain in permanent conditions. The implementation of these concepts would result in the safe passage of the 100 year-6hr storm event. With the information presented in this report we are requesting this drainage report to be approved.

APPENDICES

**APPENDIX A: BASIN ANALYSIS AND SUMMARY
OF LAND TREATMENTS**

APPENDIX B: INLET/STREET HYDRAULICS

APPENDIX C: STORM DRAIN PIPE ANALYSIS

APPENDIX D: DETENTION POND ANALYSIS

APPENDIX E: FIRST FLUSH REQUIREMENTS

**APPENDIX A:
BASIN ANALYSIS AND SUMMARY OF LAND
TREATMENTS**

EXISTING BASIN SUMMARY

BASIN		AREA	% LAND TREATMENT				DISCHARGE (CFS)	VOLUME (AC-FT)
I.D.	(AC)		A	B	C	D	100YR	
EX-1	2.29		38.00%	57.00%	5.00%	0.00%	4.08	0.11
EX-2	30.54		64.50%	33.50%	2.00%	0.00%	47.42	1.34
EX-3	25.76		40.00%	42.50%	17.50%	0.00%	48.13	1.36
EX-4	4.62		29.00%	57.00%	14.00%	0.00%	8.89	0.25
EX-5	8.32		24.00%	43.50%	32.50%	0.00%	17.60	0.50
EX-6	3.19		53.00%	42.50%	4.50%	0.00%	5.30	0.15
EX-7	0.42		15.00%	66.00%	19.00%	0.00%	0.88	0.02
TOTAL	75.15						132.29	3.74

DEVELOPED BASIN SUMMARY								
BASIN	AREA		% LAND TREATMENT				DISCHARGE (CFS)	VOLUME (AC-FT)
I.D.	(AC)		A	B	C	D	100YR	
3-A	7.59		0.00%	29.00%	29.00%	42.00%	24.7	0.83
3-B	1.31		0.00%	0.00%	34.00%	66.00%	5.1	0.18
3-C	2.64		0.00%	29.00%	29.00%	42.00%	8.6	0.29
3-D	3.10		0.00%	29.00%	29.00%	42.00%	10.1	0.34
3-E	2.49		0.00%	29.00%	29.00%	42.00%	8.1	0.27
3-F	2.51		0.00%	29.00%	29.00%	42.00%	8.2	0.27
3-G	4.00		0.00%	29.00%	29.00%	42.00%	13.0	0.44
3-H	2.87		0.00%	29.00%	29.00%	42.00%	9.3	0.31
3-I	5.47		0.00%	29.00%	29.00%	42.00%	17.8	0.60
3-J	2.21		0.00%	29.00%	29.00%	42.00%	7.2	0.24
3-K	2.61		0.00%	0.00%	90.00%	10.00%	7.9	0.24
3-L	1.59		0.00%	20.00%	80.00%	0.00%	4.3	0.12
3-M	0.41		0.00%	0.00%	10.00%	90.00%	1.7	0.06
3-N	0.21		0.00%	20.00%	80.00%	0.00%	0.6	0.02
3-O	1.37		0.00%	20.00%	80.00%	0.00%	3.7	0.11
OFFSITE 1	3.50		50.00%	48.00%	2.00%	0.00%	5.8	0.16
OFFSITE 2	7.60		19.00%	50.00%	31.00%	0.00%	16.3	0.46
TOTAL	51.49						152.3	4.9

DEVELOPED BASIN SUMMARY								
BASIN	AREA		% LAND TREATMENT				DISCHARGE (CFS)	VOLUME (AC-FT)
I.D.	(AC)		A	B	C	D	100YR	
4-A	2.19		0.00%	30.00%	30.00%	40.00%	7.0	0.23
4-B	0.59		0.00%	0.00%	34.00%	66.00%	2.3	0.08
4-C	4.75		0.00%	30.00%	30.00%	40.00%	15.3	0.51
4-D	2.75		0.00%	30.00%	30.00%	40.00%	8.8	0.29
4-E	4.56		0.00%	30.00%	30.00%	40.00%	14.7	0.49
4-F	2.14		0.00%	30.00%	30.00%	40.00%	6.9	0.23
4-G	0.41		0.00%	20.00%	80.00%	0.00%	1.1	0.03
4-H	3.06		0.00%	30.00%	30.00%	40.00%	9.8	0.33
4-I	0.38		0.00%	20.00%	80.00%	0.00%	1.0	0.03
4-J	0.37		0.00%	20.00%	80.00%	0.00%	1.0	0.03
OFFSITE 2	7.60		19.00%	50.00%	31.00%	0.00%	16.3	0.46
TOTAL	28.80						84.2	2.7

**APPENDIX B:
INLET/STREET HYDRAULICS**

MANNING'S N = 0.017 SLOPE = 0.005

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	4.0	23.5	0.3	7.0	47.0	0.9
2.0	9.5	0.7	5.0	37.5	0.0			
3.0	9.6	0.0	6.0	37.6	0.7			

WSEL	DEPTH	FLOW	FLOW	WETTED	FLOW	TOPWID	TOTAL
FT.	INC	AREA	RATE	PER	VEL	PLUS	ENERGY
	SQ.FT.	(CFS)	(FT)	(FPS)	OBSTRUCTIONS	(FT)	
0.010	0.010	0.005	0.001	1.017	0.179	0.999	0.010
0.020	0.020	0.020	0.006	2.034	0.284	1.999	0.021
0.030	0.030	0.045	0.017	3.051	0.372	2.998	0.032
0.040	0.040	0.080	0.036	4.067	0.450	3.998	0.043
0.050	0.050	0.125	0.065	5.084	0.522	4.997	0.054
0.060	0.060	0.180	0.106	6.101	0.590	5.997	0.065
0.070	0.070	0.245	0.160	7.118	0.654	6.996	0.077
0.080	0.080	0.320	0.229	8.135	0.715	7.996	0.088
0.090	0.090	0.405	0.313	9.152	0.773	8.995	0.099
0.100	0.100	0.500	0.414	10.169	0.829	9.995	0.111
0.110	0.110	0.605	0.534	11.185	0.884	10.994	0.122
0.120	0.120	0.720	0.674	12.202	0.936	11.994	0.134
0.130	0.130	0.845	0.834	13.219	0.988	12.993	0.145
0.140	0.140	0.979	1.017	14.236	1.038	13.992	0.157
0.150	0.150	1.124	1.222	15.253	1.087	14.992	0.168
0.160	0.160	1.279	1.451	16.270	1.134	15.991	0.180
0.170	0.170	1.444	1.706	17.287	1.181	16.991	0.192
0.180	0.180	1.619	1.987	18.303	1.227	17.990	0.203
0.190	0.190	1.804	2.295	19.320	1.272	18.990	0.215
0.200	0.200	1.999	2.631	20.337	1.316	19.989	0.227
0.210	0.210	2.204	2.997	21.354	1.360	20.989	0.239
0.220	0.220	2.419	3.393	22.371	1.403	21.988	0.251
0.230	0.230	2.644	3.820	23.388	1.445	22.988	0.262
0.240	0.240	2.878	4.279	24.405	1.487	23.987	0.274
0.250	0.250	3.123	4.771	25.421	1.528	24.986	0.286
0.260	0.260	3.378	5.297	26.438	1.568	25.986	0.298
0.270	0.270	3.643	5.858	27.455	1.608	26.985	0.310
0.280	0.280	3.918	6.454	28.472	1.647	27.985	0.322
0.290	0.290	4.198	7.238	28.492	1.724	27.988	0.336
0.300	0.300	4.478	8.056	28.512	1.799	27.991	0.350
0.310	0.310	4.758	8.908	28.533	1.872	27.994	0.365
0.320	0.320	5.038	9.794	28.553	1.944	27.997	0.379
0.330	0.330	5.318	10.713	28.573	2.015	28.000	0.393
0.340	0.340	5.598	11.665	28.593	2.084	28.003	0.408
0.350	0.350	5.878	12.647	28.614	2.152	28.006	0.422
0.360	0.360	6.158	13.661	28.634	2.219	28.009	0.437
0.370	0.370	6.438	14.706	28.654	2.284	28.012	0.451
0.380	0.380	6.718	15.780	28.674	2.349	28.015	0.466
0.390	0.390	6.998	16.884	28.695	2.413	28.018	0.481
0.400	0.400	7.278	18.018	28.715	2.476	28.021	0.495

0.410	0.410	7.558	19.180	28.735	2.537	28.024	0.510
0.420	0.420	7.839	20.370	28.755	2.599	28.027	0.525
0.430	0.430	8.119	21.588	28.775	2.659	28.030	0.540
0.440	0.440	8.399	22.834	28.796	2.719	28.033	0.555
0.450	0.450	8.680	24.107	28.816	2.777	28.036	0.570
0.460	0.460	8.960	25.407	28.836	2.836	28.039	0.585
0.470	0.470	9.240	26.733	28.856	2.893	28.042	0.600
0.480	0.480	9.521	28.086	28.877	2.950	28.045	0.615
0.490	0.490	9.801	29.465	28.897	3.006	28.048	0.631

IN 1 (PHASE 4)

WSEL	DEPTH	FLOW	FLOW	WETTED	FLOW	TOPWID	TOTAL
	INC	AREA	PER	VEL	PLUS	ENERGY	
FT.	SQ.FT.	(CFS)	(FT)	(FPS)	OBSTRUCTIONS	(FT)	

0.500	0.500	10.082	30.869	28.917	3.062	28.052	0.646
0.510	0.510	10.362	32.299	28.937	3.117	28.055	0.661
0.520	0.520	10.643	33.754	28.957	3.171	28.058	0.676
0.530	0.530	10.924	35.233	28.978	3.225	28.061	0.692
0.540	0.540	11.204	36.738	28.998	3.279	28.064	0.707
0.550	0.550	11.485	38.266	29.018	3.332	28.067	0.723
0.560	0.560	11.766	39.819	29.038	3.384	28.070	0.738
0.570	0.570	12.046	41.396	29.059	3.436	28.073	0.754
0.580	0.580	12.327	42.996	29.079	3.488	28.076	0.769
0.590	0.590	12.608	44.620	29.099	3.539	28.079	0.785
0.600	0.600	12.889	46.267	29.119	3.590	28.082	0.800
0.610	0.610	13.169	47.937	29.140	3.640	28.085	0.816
0.620	0.620	13.450	49.631	29.160	3.690	28.088	0.832
0.630	0.630	13.731	51.346	29.180	3.739	28.091	0.847
0.640	0.640	14.012	53.084	29.200	3.788	28.094	0.863
0.650	0.650	14.293	54.845	29.220	3.837	28.097	0.879
0.660	0.660	14.574	56.628	29.241	3.886	28.100	0.895
0.670	0.670	14.860	57.201	30.236	3.849	29.095	0.900
0.680	0.680	15.156	57.850	31.231	3.817	30.089	0.907
0.690	0.690	15.462	58.572	32.225	3.788	31.084	0.913
0.700	0.700	15.778	59.363	33.220	3.763	32.079	0.920
0.710	0.710	16.103	60.224	34.215	3.740	33.074	0.928
0.720	0.720	16.439	61.151	35.210	3.720	34.068	0.935
0.730	0.730	16.785	62.144	36.205	3.702	35.063	0.943
0.740	0.740	17.140	63.201	37.200	3.687	36.058	0.951
0.750	0.750	17.506	64.321	38.195	3.674	37.053	0.960
0.760	0.760	17.881	65.505	39.190	3.663	38.047	0.969
0.770	0.770	18.267	66.750	40.185	3.654	39.042	0.978
0.780	0.780	18.662	68.056	41.180	3.647	40.037	0.987
0.790	0.790	19.068	69.424	42.175	3.641	41.032	0.996
0.800	0.800	19.483	70.853	43.170	3.637	42.026	1.006
0.810	0.810	19.908	72.341	44.165	3.634	43.021	1.015
0.820	0.820	20.343	73.891	45.160	3.632	44.016	1.025
0.830	0.830	20.788	75.500	46.155	3.632	45.011	1.035
0.840	0.840	21.243	77.169	47.150	3.633	46.005	1.045

MANNING'S N = 0.017 SLOPE = 0.010

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	4.0	23.5	0.3	7.0	47.0	0.9
2.0	9.5	0.7	5.0	37.5	0.0			
3.0	9.6	0.0	6.0	37.6	0.7			

WSEL	DEPTH	FLOW	FLOW	WETTED	FLOW	TOPWID	TOTAL
FT.	INC	AREA	RATE	PER	VEL	PLUS	ENERGY
	SQ.FT.	(CFS)	(FT)	(FPS)	OBSTRUCTIONS	(FT)	
0.010	0.010	0.005	0.001	1.017	0.253	0.999	0.011
0.020	0.020	0.020	0.008	2.034	0.401	1.999	0.023
0.030	0.030	0.045	0.024	3.051	0.526	2.998	0.034
0.040	0.040	0.080	0.051	4.067	0.637	3.998	0.046
0.050	0.050	0.125	0.092	5.084	0.739	4.997	0.058
0.060	0.060	0.180	0.150	6.101	0.834	5.997	0.071
0.070	0.070	0.245	0.226	7.118	0.925	6.996	0.083
0.080	0.080	0.320	0.323	8.135	1.011	7.996	0.096
0.090	0.090	0.405	0.443	9.152	1.093	8.995	0.109
0.100	0.100	0.500	0.586	10.169	1.173	9.995	0.121
0.110	0.110	0.605	0.756	11.185	1.250	10.994	0.134
0.120	0.120	0.720	0.953	12.202	1.324	11.994	0.147
0.130	0.130	0.845	1.180	13.219	1.397	12.993	0.160
0.140	0.140	0.979	1.438	14.236	1.468	13.992	0.174
0.150	0.150	1.124	1.728	15.253	1.537	14.992	0.187
0.160	0.160	1.279	2.052	16.270	1.604	15.991	0.200
0.170	0.170	1.444	2.413	17.287	1.671	16.991	0.213
0.180	0.180	1.619	2.810	18.303	1.735	17.990	0.227
0.190	0.190	1.804	3.246	19.320	1.799	18.990	0.240
0.200	0.200	1.999	3.721	20.337	1.862	19.989	0.254
0.210	0.210	2.204	4.238	21.354	1.923	20.989	0.268
0.220	0.220	2.419	4.798	22.371	1.984	21.988	0.281
0.230	0.230	2.644	5.402	23.388	2.043	22.988	0.295
0.240	0.240	2.878	6.051	24.405	2.102	23.987	0.309
0.250	0.250	3.123	6.747	25.421	2.160	24.986	0.323
0.260	0.260	3.378	7.491	26.438	2.218	25.986	0.336
0.270	0.270	3.643	8.284	27.455	2.274	26.985	0.350
0.280	0.280	3.918	9.128	28.472	2.330	27.985	0.364
0.290	0.290	4.198	10.236	28.492	2.438	27.988	0.382
0.300	0.300	4.478	11.393	28.512	2.544	27.991	0.401
0.310	0.310	4.758	12.598	28.533	2.648	27.994	0.419
0.320	0.320	5.038	13.851	28.553	2.750	27.997	0.438
0.330	0.330	5.318	15.151	28.573	2.849	28.000	0.456
0.340	0.340	5.598	16.496	28.593	2.947	28.003	0.475
0.350	0.350	5.878	17.886	28.614	3.043	28.006	0.494
0.360	0.360	6.158	19.320	28.634	3.138	28.009	0.513
0.370	0.370	6.438	20.797	28.654	3.230	28.012	0.532
0.380	0.380	6.718	22.317	28.674	3.322	28.015	0.552
0.390	0.390	6.998	23.878	28.695	3.412	28.018	0.571
0.400	0.400	7.278	25.481	28.715	3.501	28.021	0.591

0.410	0.410	7.558	27.124	28.735	3.589	28.024	0.610
0.420	0.420	7.839	28.807	28.755	3.675	28.027	0.630
0.430	0.430	8.119	30.530	28.775	3.760	28.030	0.650
0.440	0.440	8.399	32.292	28.796	3.845	28.033	0.670
0.450	0.450	8.680	34.092	28.816	3.928	28.036	0.690
0.460	0.460	8.960	35.931	28.836	4.010	28.039	0.710
0.470	0.470	9.240	37.806	28.856	4.091	28.042	0.730
0.480	0.480	9.521	39.719	28.877	4.172	28.045	0.751
0.490	0.490	9.801	41.669	28.897	4.251	28.048	0.771
WSEL	DEPTH	FLOW	FLOW	WETTED	FLOW	TOPWID	TOTAL
FT.	INC	AREA	RATE	PER	VEL	PLUS	ENERGY
	SQ.FT.	(CFS)	(FT)	(FPS)	OBSTRUCTIONS	(FT)	
0.500	0.500	10.082	43.655	28.917	4.330	28.052	0.792
0.510	0.510	10.362	45.677	28.937	4.408	28.055	0.812
0.520	0.520	10.643	47.735	28.957	4.485	28.058	0.833
0.530	0.530	10.924	49.827	28.978	4.561	28.061	0.854
0.540	0.540	11.204	51.955	28.998	4.637	28.064	0.874
0.550	0.550	11.485	54.117	29.018	4.712	28.067	0.895
0.560	0.560	11.766	56.313	29.038	4.786	28.070	0.916
0.570	0.570	12.046	58.543	29.059	4.860	28.073	0.937
0.580	0.580	12.327	60.806	29.079	4.933	28.076	0.958
0.590	0.590	12.608	63.102	29.099	5.005	28.079	0.980
0.600	0.600	12.889	65.432	29.119	5.077	28.082	1.001
0.610	0.610	13.169	67.794	29.140	5.148	28.085	1.022
0.620	0.620	13.450	70.188	29.160	5.218	28.088	1.044
0.630	0.630	13.731	72.615	29.180	5.288	28.091	1.065
0.640	0.640	14.012	75.073	29.200	5.358	28.094	1.086
0.650	0.650	14.293	77.562	29.220	5.427	28.097	1.108
0.660	0.660	14.574	80.083	29.241	5.495	28.100	1.130
0.670	0.670	14.860	80.895	30.236	5.444	29.095	1.131
0.680	0.680	15.156	81.812	31.231	5.398	30.089	1.133
0.690	0.690	15.462	82.833	32.225	5.357	31.084	1.136
0.700	0.700	15.778	83.952	33.220	5.321	32.079	1.140
0.710	0.710	16.103	85.169	34.215	5.289	33.074	1.145
0.720	0.720	16.439	86.480	35.210	5.261	34.068	1.150
0.730	0.730	16.785	87.884	36.205	5.236	35.063	1.156
0.740	0.740	17.140	89.379	37.200	5.215	36.058	1.163
0.750	0.750	17.506	90.964	38.195	5.196	37.053	1.170
0.760	0.760	17.881	92.638	39.190	5.181	38.047	1.177
0.770	0.770	18.267	94.399	40.185	5.168	39.042	1.185
0.780	0.780	18.662	96.246	41.180	5.157	40.037	1.194
0.790	0.790	19.068	98.181	42.175	5.149	41.032	1.202
0.800	0.800	19.483	100.201	43.170	5.143	42.026	1.211
0.810	0.810	19.908	102.306	44.165	5.139	43.021	1.221
0.820	0.820	20.343	104.497	45.160	5.137	44.016	1.230
0.830	0.830	20.788	106.773	46.155	5.136	45.011	1.240
0.840	0.840	21.243	109.134	47.150	5.137	46.005	1.251

MANNING'S N = 0.017 SLOPE = 0.015

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	4.0	23.5	0.3	7.0	47.0	0.9
2.0	9.5	0.7	5.0	37.5	0.0			
3.0	9.6	0.0	6.0	37.6	0.7			

WSEL	DEPTH	FLOW	FLOW	WETTED	FLOW	TOPWID	TOTAL
FT.	INC	AREA	RATE	PER	VEL	PLUS	ENERGY
	SQ.FT.	(CFS)	(FT)	(FPS)	OBSTRUCTIONS	(FT)	
0.010	0.010	0.005	0.002	1.017	0.309	0.999	0.011
0.020	0.020	0.020	0.010	2.034	0.491	1.999	0.024
0.030	0.030	0.045	0.029	3.051	0.644	2.998	0.036
0.040	0.040	0.080	0.062	4.067	0.780	3.998	0.049
0.050	0.050	0.125	0.113	5.084	0.905	4.997	0.063
0.060	0.060	0.180	0.184	6.101	1.022	5.997	0.076
0.070	0.070	0.245	0.277	7.118	1.132	6.996	0.090
0.080	0.080	0.320	0.396	8.135	1.238	7.996	0.104
0.090	0.090	0.405	0.542	9.152	1.339	8.995	0.118
0.100	0.100	0.500	0.718	10.169	1.436	9.995	0.132
0.110	0.110	0.605	0.926	11.185	1.531	10.994	0.146
0.120	0.120	0.720	1.167	12.202	1.622	11.994	0.161
0.130	0.130	0.845	1.445	13.219	1.711	12.993	0.176
0.140	0.140	0.979	1.761	14.236	1.798	13.992	0.190
0.150	0.150	1.124	2.116	15.253	1.882	14.992	0.205
0.160	0.160	1.279	2.514	16.270	1.965	15.991	0.220
0.170	0.170	1.444	2.955	17.287	2.046	16.991	0.235
0.180	0.180	1.619	3.441	18.303	2.125	17.990	0.250
0.190	0.190	1.804	3.975	19.320	2.203	18.990	0.266
0.200	0.200	1.999	4.558	20.337	2.280	19.989	0.281
0.210	0.210	2.204	5.191	21.354	2.355	20.989	0.296
0.220	0.220	2.419	5.877	22.371	2.430	21.988	0.312
0.230	0.230	2.644	6.616	23.388	2.503	22.988	0.327
0.240	0.240	2.878	7.411	24.405	2.575	23.987	0.343
0.250	0.250	3.123	8.264	25.421	2.646	24.986	0.359
0.260	0.260	3.378	9.175	26.438	2.716	25.986	0.375
0.270	0.270	3.643	10.146	27.455	2.785	26.985	0.391
0.280	0.280	3.918	11.179	28.472	2.853	27.985	0.407
0.290	0.290	4.198	12.536	28.492	2.986	27.988	0.429
0.300	0.300	4.478	13.953	28.512	3.116	27.991	0.451
0.310	0.310	4.758	15.430	28.533	3.243	27.994	0.474
0.320	0.320	5.038	16.965	28.553	3.368	27.997	0.496
0.330	0.330	5.318	18.556	28.573	3.490	28.000	0.519
0.340	0.340	5.598	20.204	28.593	3.609	28.003	0.543
0.350	0.350	5.878	21.906	28.614	3.727	28.006	0.566
0.360	0.360	6.158	23.662	28.634	3.843	28.009	0.590
0.370	0.370	6.438	25.471	28.654	3.957	28.012	0.613
0.380	0.380	6.718	27.332	28.674	4.069	28.015	0.637
0.390	0.390	6.998	29.244	28.695	4.179	28.018	0.662
0.400	0.400	7.278	31.207	28.715	4.288	28.021	0.686

0.410	0.410	7.558	33.220	28.735	4.395	28.024	0.710
0.420	0.420	7.839	35.282	28.755	4.501	28.027	0.735
0.430	0.430	8.119	37.392	28.775	4.605	28.030	0.760
0.440	0.440	8.399	39.549	28.796	4.709	28.033	0.785
0.450	0.450	8.680	41.754	28.816	4.811	28.036	0.810
0.460	0.460	8.960	44.006	28.836	4.911	28.039	0.835
0.470	0.470	9.240	46.303	28.856	5.011	28.042	0.861
0.480	0.480	9.521	48.646	28.877	5.109	28.045	0.886
0.490	0.490	9.801	51.034	28.897	5.207	28.048	0.912
WSEL	DEPTH	FLOW	FLOW	WETTED	FLOW	TOPWID	TOTAL
FT.	INC	AREA	RATE	PER	VEL	PLUS	ENERGY
	SQ.FT.	(CFS)	(FT)	(FPS)	OBSTRUCTIONS	(FT)	
0.500	0.500	10.082	53.467	28.917	5.303	28.052	0.937
0.510	0.510	10.362	55.943	28.937	5.399	28.055	0.963
0.520	0.520	10.643	58.463	28.957	5.493	28.058	0.989
0.530	0.530	10.924	61.026	28.978	5.587	28.061	1.015
0.540	0.540	11.204	63.631	28.998	5.679	28.064	1.042
0.550	0.550	11.485	66.279	29.018	5.771	28.067	1.068
0.560	0.560	11.766	68.969	29.038	5.862	28.070	1.094
0.570	0.570	12.046	71.700	29.059	5.952	28.073	1.121
0.580	0.580	12.327	74.472	29.079	6.041	28.076	1.148
0.590	0.590	12.608	77.284	29.099	6.130	28.079	1.174
0.600	0.600	12.889	80.137	29.119	6.218	28.082	1.201
0.610	0.610	13.169	83.030	29.140	6.305	28.085	1.228
0.620	0.620	13.450	85.963	29.160	6.391	28.088	1.255
0.630	0.630	13.731	88.934	29.180	6.477	28.091	1.282
0.640	0.640	14.012	91.945	29.200	6.562	28.094	1.310
0.650	0.650	14.293	94.994	29.220	6.646	28.097	1.337
0.660	0.660	14.574	98.082	29.241	6.730	28.100	1.364
0.670	0.670	14.860	99.076	30.236	6.667	29.095	1.361
0.680	0.680	15.156	100.199	31.231	6.611	30.089	1.360
0.690	0.690	15.462	101.449	32.225	6.561	31.084	1.360
0.700	0.700	15.778	102.820	33.220	6.517	32.079	1.361
0.710	0.710	16.103	104.310	34.215	6.478	33.074	1.363
0.720	0.720	16.439	105.916	35.210	6.443	34.068	1.366
0.730	0.730	16.785	107.636	36.205	6.413	35.063	1.370
0.740	0.740	17.140	109.467	37.200	6.387	36.058	1.374
0.750	0.750	17.506	111.408	38.195	6.364	37.053	1.380
0.760	0.760	17.881	113.457	39.190	6.345	38.047	1.386
0.770	0.770	18.267	115.614	40.185	6.329	39.042	1.393
0.780	0.780	18.662	117.877	41.180	6.316	40.037	1.401
0.790	0.790	19.068	120.246	42.175	6.306	41.032	1.409
0.800	0.800	19.483	122.720	43.170	6.299	42.026	1.417
0.810	0.810	19.908	125.299	44.165	6.294	43.021	1.426
0.820	0.820	20.343	127.982	45.160	6.291	44.016	1.436
0.830	0.830	20.788	130.770	46.155	6.291	45.011	1.445
0.840	0.840	21.243	133.661	47.150	6.292	46.005	1.456

MANNING'S N = 0.017 SLOPE = 0.020

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	4.0	23.5	0.3	7.0	47.0	0.9
2.0	9.5	0.7	5.0	37.5	0.0			
3.0	9.6	0.0	6.0	37.6	0.7			

WSEL	DEPTH	FLOW	FLOW	WETTED	FLOW	TOPWID	TOTAL
FT.	INC	AREA	RATE	PER	VEL	PLUS	ENERGY
	SQ.FT.	(CFS)	(FT)	(FPS)	OBSTRUCTIONS	(FT)	
0.010	0.010	0.005	0.002	1.017	0.357	0.999	0.012
0.020	0.020	0.020	0.011	2.034	0.567	1.999	0.025
0.030	0.030	0.045	0.033	3.051	0.743	2.998	0.039
0.040	0.040	0.080	0.072	4.067	0.900	3.998	0.053
0.050	0.050	0.125	0.131	5.084	1.045	4.997	0.067
0.060	0.060	0.180	0.212	6.101	1.180	5.997	0.082
0.070	0.070	0.245	0.320	7.118	1.308	6.996	0.097
0.080	0.080	0.320	0.457	8.135	1.429	7.996	0.112
0.090	0.090	0.405	0.626	9.152	1.546	8.995	0.127
0.100	0.100	0.500	0.829	10.169	1.659	9.995	0.143
0.110	0.110	0.605	1.069	11.185	1.767	10.994	0.159
0.120	0.120	0.720	1.348	12.202	1.873	11.994	0.175
0.130	0.130	0.845	1.668	13.219	1.976	12.993	0.191
0.140	0.140	0.979	2.033	14.236	2.076	13.992	0.207
0.150	0.150	1.124	2.444	15.253	2.173	14.992	0.223
0.160	0.160	1.279	2.903	16.270	2.269	15.991	0.240
0.170	0.170	1.444	3.412	17.287	2.362	16.991	0.257
0.180	0.180	1.619	3.974	18.303	2.454	17.990	0.274
0.190	0.190	1.804	4.590	19.320	2.544	18.990	0.291
0.200	0.200	1.999	5.263	20.337	2.633	19.989	0.308
0.210	0.210	2.204	5.994	21.354	2.720	20.989	0.325
0.220	0.220	2.419	6.786	22.371	2.806	21.988	0.342
0.230	0.230	2.644	7.640	23.388	2.890	22.988	0.360
0.240	0.240	2.878	8.558	24.405	2.973	23.987	0.377
0.250	0.250	3.123	9.542	25.421	3.055	24.986	0.395
0.260	0.260	3.378	10.594	26.438	3.136	25.986	0.413
0.270	0.270	3.643	11.716	27.455	3.216	26.985	0.431
0.280	0.280	3.918	12.909	28.472	3.295	27.985	0.449
0.290	0.290	4.198	14.475	28.492	3.448	27.988	0.475
0.300	0.300	4.478	16.112	28.512	3.598	27.991	0.501
0.310	0.310	4.758	17.817	28.533	3.745	27.994	0.528
0.320	0.320	5.038	19.589	28.553	3.889	27.997	0.555
0.330	0.330	5.318	21.427	28.573	4.029	28.000	0.583
0.340	0.340	5.598	23.329	28.593	4.168	28.003	0.610
0.350	0.350	5.878	25.295	28.614	4.304	28.006	0.638
0.360	0.360	6.158	27.323	28.634	4.437	28.009	0.666
0.370	0.370	6.438	29.411	28.654	4.569	28.012	0.695
0.380	0.380	6.718	31.560	28.674	4.698	28.015	0.723
0.390	0.390	6.998	33.769	28.695	4.825	28.018	0.752
0.400	0.400	7.278	36.035	28.715	4.951	28.021	0.781

0.410	0.410	7.558	38.359	28.735	5.075	28.024	0.811
0.420	0.420	7.839	40.740	28.755	5.197	28.027	0.840
0.430	0.430	8.119	43.176	28.775	5.318	28.030	0.870
0.440	0.440	8.399	45.668	28.796	5.437	28.033	0.900
0.450	0.450	8.680	48.214	28.816	5.555	28.036	0.930
0.460	0.460	8.960	50.813	28.836	5.671	28.039	0.960
0.470	0.470	9.240	53.466	28.856	5.786	28.042	0.991
0.480	0.480	9.521	56.172	28.877	5.900	28.045	1.021
0.490	0.490	9.801	58.929	28.897	6.012	28.048	1.052
WSEL	DEPTH	FLOW	FLOW	WETTED	FLOW	TOPWID	TOTAL
FT.	INC	AREA	RATE	PER	VEL	PLUS	ENERGY
	SQ.FT.	(CFS)	(FT)	(FPS)	OBSTRUCTIONS	(FT)	
0.500	0.500	10.082	61.738	28.917	6.124	28.052	1.083
0.510	0.510	10.362	64.597	28.937	6.234	28.055	1.114
0.520	0.520	10.643	67.507	28.957	6.343	28.058	1.146
0.530	0.530	10.924	70.466	28.978	6.451	28.061	1.177
0.540	0.540	11.204	73.475	28.998	6.558	28.064	1.209
0.550	0.550	11.485	76.533	29.018	6.664	28.067	1.241
0.560	0.560	11.766	79.638	29.038	6.769	28.070	1.273
0.570	0.570	12.046	82.792	29.059	6.873	28.073	1.305
0.580	0.580	12.327	85.992	29.079	6.976	28.076	1.337
0.590	0.590	12.608	89.240	29.099	7.078	28.079	1.369
0.600	0.600	12.889	92.535	29.119	7.180	28.082	1.402
0.610	0.610	13.169	95.875	29.140	7.280	28.085	1.434
0.620	0.620	13.450	99.261	29.160	7.380	28.088	1.467
0.630	0.630	13.731	102.693	29.180	7.479	28.091	1.500
0.640	0.640	14.012	106.169	29.200	7.577	28.094	1.533
0.650	0.650	14.293	109.690	29.220	7.674	28.097	1.566
0.660	0.660	14.574	113.255	29.241	7.771	28.100	1.599
0.670	0.670	14.860	114.403	30.236	7.699	29.095	1.592
0.680	0.680	15.156	115.700	31.231	7.634	30.089	1.586
0.690	0.690	15.462	117.143	32.225	7.576	31.084	1.583
0.700	0.700	15.778	118.727	33.220	7.525	32.079	1.581
0.710	0.710	16.103	120.447	34.215	7.480	33.074	1.580
0.720	0.720	16.439	122.302	35.210	7.440	34.068	1.581
0.730	0.730	16.785	124.287	36.205	7.405	35.063	1.583
0.740	0.740	17.140	126.402	37.200	7.375	36.058	1.586
0.750	0.750	17.506	128.643	38.195	7.349	37.053	1.590
0.760	0.760	17.881	131.009	39.190	7.327	38.047	1.595
0.770	0.770	18.267	133.500	40.185	7.308	39.042	1.601
0.780	0.780	18.662	136.113	41.180	7.294	40.037	1.607
0.790	0.790	19.068	138.848	42.175	7.282	41.032	1.615
0.800	0.800	19.483	141.705	43.170	7.273	42.026	1.623
0.810	0.810	19.908	144.683	44.165	7.268	43.021	1.632
0.820	0.820	20.343	147.781	45.160	7.264	44.016	1.641
0.830	0.830	20.788	151.000	46.155	7.264	45.011	1.651
0.840	0.840	21.243	154.339	47.150	7.265	46.005	1.661

MANNING'S N = 0.017 SLOPE = 0.025

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	4.0	23.5	0.3	7.0	47.0	0.9
2.0	9.5	0.7	5.0	37.5	0.0			
3.0	9.6	0.0	6.0	37.6	0.7			

WSEL	DEPTH	FLOW	FLOW	WETTED	FLOW	TOPWID	TOTAL
FT.	INC	AREA	RATE	PER	VEL	PLUS	ENERGY
	SQ.FT.	(CFS)	(FT)	(FPS)	OBSTRUCTIONS	(FT)	
0.010	0.010	0.005	0.002	1.017	0.400	0.999	0.012
0.020	0.020	0.020	0.013	2.034	0.634	1.999	0.026
0.030	0.030	0.045	0.037	3.051	0.831	2.998	0.041
0.040	0.040	0.080	0.080	4.067	1.007	3.998	0.056
0.050	0.050	0.125	0.146	5.084	1.168	4.997	0.071
0.060	0.060	0.180	0.237	6.101	1.319	5.997	0.087
0.070	0.070	0.245	0.358	7.118	1.462	6.996	0.103
0.080	0.080	0.320	0.511	8.135	1.598	7.996	0.120
0.090	0.090	0.405	0.700	9.152	1.729	8.995	0.136
0.100	0.100	0.500	0.927	10.169	1.854	9.995	0.153
0.110	0.110	0.605	1.195	11.185	1.976	10.994	0.171
0.120	0.120	0.720	1.507	12.202	2.094	11.994	0.188
0.130	0.130	0.845	1.865	13.219	2.209	12.993	0.206
0.140	0.140	0.979	2.273	14.236	2.321	13.992	0.224
0.150	0.150	1.124	2.732	15.253	2.430	14.992	0.242
0.160	0.160	1.279	3.245	16.270	2.537	15.991	0.260
0.170	0.170	1.444	3.815	17.287	2.641	16.991	0.279
0.180	0.180	1.619	4.443	18.303	2.744	17.990	0.297
0.190	0.190	1.804	5.132	19.320	2.845	18.990	0.316
0.200	0.200	1.999	5.884	20.337	2.944	19.989	0.335
0.210	0.210	2.204	6.702	21.354	3.041	20.989	0.354
0.220	0.220	2.419	7.587	22.371	3.137	21.988	0.373
0.230	0.230	2.644	8.541	23.388	3.231	22.988	0.392
0.240	0.240	2.878	9.568	24.405	3.324	23.987	0.412
0.250	0.250	3.123	10.668	25.421	3.416	24.986	0.431
0.260	0.260	3.378	11.845	26.438	3.506	25.986	0.451
0.270	0.270	3.643	13.099	27.455	3.596	26.985	0.471
0.280	0.280	3.918	14.433	28.472	3.684	27.985	0.491
0.290	0.290	4.198	16.184	28.492	3.855	27.988	0.521
0.300	0.300	4.478	18.013	28.512	4.023	27.991	0.552
0.310	0.310	4.758	19.920	28.533	4.187	27.994	0.583
0.320	0.320	5.038	21.901	28.553	4.348	27.997	0.614
0.330	0.330	5.318	23.956	28.573	4.505	28.000	0.646
0.340	0.340	5.598	26.083	28.593	4.660	28.003	0.678
0.350	0.350	5.878	28.280	28.614	4.812	28.006	0.710
0.360	0.360	6.158	30.548	28.634	4.961	28.009	0.743
0.370	0.370	6.438	32.883	28.654	5.108	28.012	0.776
0.380	0.380	6.718	35.286	28.674	5.253	28.015	0.809
0.390	0.390	6.998	37.754	28.695	5.395	28.018	0.843
0.400	0.400	7.278	40.288	28.715	5.535	28.021	0.877

0.410	0.410	7.558	42.887	28.735	5.674	28.024	0.911
0.420	0.420	7.839	45.548	28.755	5.811	28.027	0.945
0.430	0.430	8.119	48.272	28.775	5.946	28.030	0.980
0.440	0.440	8.399	51.058	28.796	6.079	28.033	1.015
0.450	0.450	8.680	53.904	28.816	6.210	28.036	1.050
0.460	0.460	8.960	56.811	28.836	6.340	28.039	1.085
0.470	0.470	9.240	59.777	28.856	6.469	28.042	1.121
0.480	0.480	9.521	62.802	28.877	6.596	28.045	1.157
0.490	0.490	9.801	65.885	28.897	6.722	28.048	1.193
WSEL	DEPTH	FLOW	FLOW	WETTED	FLOW	TOPWID	TOTAL
FT.	INC	AREA	RATE	PER	VEL	PLUS	ENERGY
	SQ.FT.	(CFS)	(FT)	(FPS)	OBSTRUCTIONS	(FT)	
0.500	0.500	10.082	69.025	28.917	6.846	28.052	1.229
0.510	0.510	10.362	72.222	28.937	6.970	28.055	1.266
0.520	0.520	10.643	75.475	28.957	7.092	28.058	1.302
0.530	0.530	10.924	78.784	28.978	7.212	28.061	1.339
0.540	0.540	11.204	82.148	28.998	7.332	28.064	1.376
0.550	0.550	11.485	85.566	29.018	7.450	28.067	1.413
0.560	0.560	11.766	89.038	29.038	7.568	28.070	1.451
0.570	0.570	12.046	92.564	29.059	7.684	28.073	1.488
0.580	0.580	12.327	96.143	29.079	7.799	28.076	1.526
0.590	0.590	12.608	99.774	29.099	7.914	28.079	1.564
0.600	0.600	12.889	103.457	29.119	8.027	28.082	1.602
0.610	0.610	13.169	107.191	29.140	8.139	28.085	1.640
0.620	0.620	13.450	110.977	29.160	8.251	28.088	1.679
0.630	0.630	13.731	114.814	29.180	8.362	28.091	1.717
0.640	0.640	14.012	118.700	29.200	8.471	28.094	1.756
0.650	0.650	14.293	122.637	29.220	8.580	28.097	1.795
0.660	0.660	14.574	126.623	29.241	8.688	28.100	1.834
0.670	0.670	14.860	127.906	30.236	8.607	29.095	1.822
0.680	0.680	15.156	129.357	31.231	8.535	30.089	1.813
0.690	0.690	15.462	130.970	32.225	8.471	31.084	1.806
0.700	0.700	15.778	132.741	33.220	8.413	32.079	1.801
0.710	0.710	16.103	134.664	34.215	8.363	33.074	1.798
0.720	0.720	16.439	136.738	35.210	8.318	34.068	1.796
0.730	0.730	16.785	138.957	36.205	8.279	35.063	1.796
0.740	0.740	17.140	141.321	37.200	8.245	36.058	1.797
0.750	0.750	17.506	143.827	38.195	8.216	37.053	1.800
0.760	0.760	17.881	146.473	39.190	8.191	38.047	1.804
0.770	0.770	18.267	149.257	40.185	8.171	39.042	1.808
0.780	0.780	18.662	152.179	41.180	8.154	40.037	1.814
0.790	0.790	19.068	155.237	42.175	8.141	41.032	1.821
0.800	0.800	19.483	158.431	43.170	8.132	42.026	1.829
0.810	0.810	19.908	161.760	44.165	8.125	43.021	1.837
0.820	0.820	20.343	165.224	45.160	8.122	44.016	1.846
0.830	0.830	20.788	168.823	46.155	8.121	45.011	1.856
0.840	0.840	21.243	172.556	47.150	8.123	46.005	1.866

MANNING'S N = 0.017 SLOPE = 0.030

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	4.0	23.5	0.3	7.0	47.0	0.9
2.0	9.5	0.7	5.0	37.5	0.0			
3.0	9.6	0.0	6.0	37.6	0.7			

WSEL	DEPTH	FLOW	FLOW	WETTED	FLOW	TOPWID	TOTAL
FT.	INC	AREA	RATE	PER	VEL	PLUS	ENERGY
	SQ.FT.	(CFS)	(FT)	(FPS)	OBSTRUCTIONS	(FT)	
0.010	0.010	0.005	0.002	1.017	0.438	0.999	0.013
0.020	0.020	0.020	0.014	2.034	0.695	1.999	0.028
0.030	0.030	0.045	0.041	3.051	0.910	2.998	0.043
0.040	0.040	0.080	0.088	4.067	1.103	3.998	0.059
0.050	0.050	0.125	0.160	5.084	1.280	4.997	0.075
0.060	0.060	0.180	0.260	6.101	1.445	5.997	0.092
0.070	0.070	0.245	0.392	7.118	1.601	6.996	0.110
0.080	0.080	0.320	0.560	8.135	1.751	7.996	0.128
0.090	0.090	0.405	0.766	9.152	1.894	8.995	0.146
0.100	0.100	0.500	1.015	10.169	2.031	9.995	0.164
0.110	0.110	0.605	1.309	11.185	2.165	10.994	0.183
0.120	0.120	0.720	1.651	12.202	2.294	11.994	0.202
0.130	0.130	0.845	2.043	13.219	2.420	12.993	0.221
0.140	0.140	0.979	2.490	14.236	2.542	13.992	0.241
0.150	0.150	1.124	2.993	15.253	2.662	14.992	0.260
0.160	0.160	1.279	3.555	16.270	2.779	15.991	0.280
0.170	0.170	1.444	4.179	17.287	2.893	16.991	0.300
0.180	0.180	1.619	4.867	18.303	3.006	17.990	0.321
0.190	0.190	1.804	5.622	19.320	3.116	18.990	0.341
0.200	0.200	1.999	6.446	20.337	3.225	19.989	0.362
0.210	0.210	2.204	7.341	21.354	3.331	20.989	0.383
0.220	0.220	2.419	8.311	22.371	3.436	21.988	0.404
0.230	0.230	2.644	9.357	23.388	3.539	22.988	0.425
0.240	0.240	2.878	10.481	24.405	3.641	23.987	0.446
0.250	0.250	3.123	11.687	25.421	3.742	24.986	0.468
0.260	0.260	3.378	12.975	26.438	3.841	25.986	0.489
0.270	0.270	3.643	14.349	27.455	3.939	26.985	0.511
0.280	0.280	3.918	15.810	28.472	4.035	27.985	0.533
0.290	0.290	4.198	17.729	28.492	4.223	27.988	0.567
0.300	0.300	4.478	19.733	28.512	4.407	27.991	0.602
0.310	0.310	4.758	21.821	28.533	4.587	27.994	0.637
0.320	0.320	5.038	23.991	28.553	4.763	27.997	0.673
0.330	0.330	5.318	26.242	28.573	4.935	28.000	0.709
0.340	0.340	5.598	28.572	28.593	5.104	28.003	0.745
0.350	0.350	5.878	30.980	28.614	5.271	28.006	0.782
0.360	0.360	6.158	33.463	28.634	5.434	28.009	0.819
0.370	0.370	6.438	36.022	28.654	5.595	28.012	0.857
0.380	0.380	6.718	38.654	28.674	5.754	28.015	0.895
0.390	0.390	6.998	41.358	28.695	5.910	28.018	0.933
0.400	0.400	7.278	44.134	28.715	6.064	28.021	0.972

0.410	0.410	7.558	46.980	28.735	6.216	28.024	1.011
0.420	0.420	7.839	49.896	28.755	6.365	28.027	1.050
0.430	0.430	8.119	52.880	28.775	6.513	28.030	1.090
0.440	0.440	8.399	55.931	28.796	6.659	28.033	1.130
0.450	0.450	8.680	59.049	28.816	6.803	28.036	1.170
0.460	0.460	8.960	62.233	28.836	6.946	28.039	1.210
0.470	0.470	9.240	65.483	28.856	7.087	28.042	1.251
0.480	0.480	9.521	68.796	28.877	7.226	28.045	1.292
0.490	0.490	9.801	72.173	28.897	7.364	28.048	1.333
WSEL	DEPTH	FLOW	FLOW	WETTED	FLOW	TOPWID	TOTAL
FT.	INC	AREA	RATE	PER	VEL	PLUS	ENERGY
	SQ.FT.	(CFS)	(FT)	(FPS)	OBSTRUCTIONS	(FT)	
0.500	0.500	10.082	75.613	28.917	7.500	28.052	1.375
0.510	0.510	10.362	79.115	28.937	7.635	28.055	1.417
0.520	0.520	10.643	82.679	28.957	7.768	28.058	1.459
0.530	0.530	10.924	86.303	28.978	7.901	28.061	1.501
0.540	0.540	11.204	89.988	28.998	8.032	28.064	1.543
0.550	0.550	11.485	93.733	29.018	8.161	28.067	1.586
0.560	0.560	11.766	97.536	29.038	8.290	28.070	1.629
0.570	0.570	12.046	101.399	29.059	8.417	28.073	1.672
0.580	0.580	12.327	105.319	29.079	8.544	28.076	1.715
0.590	0.590	12.608	109.297	29.099	8.669	28.079	1.759
0.600	0.600	12.889	113.331	29.119	8.793	28.082	1.803
0.610	0.610	13.169	117.422	29.140	8.916	28.085	1.847
0.620	0.620	13.450	121.569	29.160	9.038	28.088	1.891
0.630	0.630	13.731	125.772	29.180	9.160	28.091	1.935
0.640	0.640	14.012	130.030	29.200	9.280	28.094	1.979
0.650	0.650	14.293	134.342	29.220	9.399	28.097	2.024
0.660	0.660	14.574	138.709	29.241	9.518	28.100	2.069
0.670	0.670	14.860	140.114	30.236	9.429	29.095	2.053
0.680	0.680	15.156	141.703	31.231	9.350	30.089	2.040
0.690	0.690	15.462	143.470	32.225	9.279	31.084	2.029
0.700	0.700	15.778	145.410	33.220	9.216	32.079	2.021
0.710	0.710	16.103	147.517	34.215	9.161	33.074	2.015
0.720	0.720	16.439	149.789	35.210	9.112	34.068	2.011
0.730	0.730	16.785	152.220	36.205	9.069	35.063	2.009
0.740	0.740	17.140	154.810	37.200	9.032	36.058	2.009
0.750	0.750	17.506	157.555	38.195	9.000	37.053	2.010
0.760	0.760	17.881	160.453	39.190	8.973	38.047	2.012
0.770	0.770	18.267	163.503	40.185	8.951	39.042	2.016
0.780	0.780	18.662	166.704	41.180	8.933	40.037	2.021
0.790	0.790	19.068	170.054	42.175	8.918	41.032	2.027
0.800	0.800	19.483	173.553	43.170	8.908	42.026	2.034
0.810	0.810	19.908	177.199	44.165	8.901	43.021	2.042
0.820	0.820	20.343	180.994	45.160	8.897	44.016	2.051
0.830	0.830	20.788	184.936	46.155	8.896	45.011	2.061
0.840	0.840	21.243	189.026	47.150	8.898	46.005	2.072

MANNING'S N = 0.017 SLOPE = 0.035

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	4.0	23.5	0.3	7.0	47.0	0.9
2.0	9.5	0.7	5.0	37.5	0.0			
3.0	9.6	0.0	6.0	37.6	0.7			

WSEL FT.	DEPTH INC	FLOW AREA SQ.FT.	FLOW RATE (CFS)	FLOW PER (FT)	WETTED VEL (FPS)	FLOW PLUS OBSTRUCTIONS	TOPWID ENERGY (FT)	TOTAL
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0.010	0.010	0.005	0.002	1.017	0.473	0.999	0.013
0.020	0.020	0.020	0.015	2.034	0.750	1.999	0.029
0.030	0.030	0.045	0.044	3.051	0.983	2.998	0.045
0.040	0.040	0.080	0.095	4.067	1.191	3.998	0.062
0.050	0.050	0.125	0.173	5.084	1.382	4.997	0.080
0.060	0.060	0.180	0.281	6.101	1.561	5.997	0.098
0.070	0.070	0.245	0.424	7.118	1.730	6.996	0.117
0.080	0.080	0.320	0.605	8.135	1.891	7.996	0.136
0.090	0.090	0.405	0.828	9.152	2.045	8.995	0.155
0.100	0.100	0.500	1.096	10.169	2.194	9.995	0.175
0.110	0.110	0.605	1.414	11.185	2.338	10.994	0.195
0.120	0.120	0.720	1.783	12.202	2.478	11.994	0.215
0.130	0.130	0.845	2.207	13.219	2.613	12.993	0.236
0.140	0.140	0.979	2.689	14.236	2.746	13.992	0.257
0.150	0.150	1.124	3.233	15.253	2.875	14.992	0.279
0.160	0.160	1.279	3.840	16.270	3.001	15.991	0.300
0.170	0.170	1.444	4.514	17.287	3.125	16.991	0.322
0.180	0.180	1.619	5.257	18.303	3.247	17.990	0.344
0.190	0.190	1.804	6.072	19.320	3.366	18.990	0.366
0.200	0.200	1.999	6.962	20.337	3.483	19.989	0.389
0.210	0.210	2.204	7.929	21.354	3.598	20.989	0.411
0.220	0.220	2.419	8.977	22.371	3.711	21.988	0.434
0.230	0.230	2.644	10.106	23.388	3.823	22.988	0.457
0.240	0.240	2.878	11.321	24.405	3.933	23.987	0.481
0.250	0.250	3.123	12.623	25.421	4.042	24.986	0.504
0.260	0.260	3.378	14.015	26.438	4.149	25.986	0.528
0.270	0.270	3.643	15.499	27.455	4.254	26.985	0.552
0.280	0.280	3.918	17.077	28.472	4.359	27.985	0.576
0.290	0.290	4.198	19.149	28.492	4.562	27.988	0.614
0.300	0.300	4.478	21.314	28.512	4.760	27.991	0.652
0.310	0.310	4.758	23.569	28.533	4.954	27.994	0.692
0.320	0.320	5.038	25.914	28.553	5.144	27.997	0.732
0.330	0.330	5.318	28.345	28.573	5.331	28.000	0.772
0.340	0.340	5.598	30.862	28.593	5.513	28.003	0.813
0.350	0.350	5.878	33.462	28.614	5.693	28.006	0.854
0.360	0.360	6.158	36.144	28.634	5.870	28.009	0.896
0.370	0.370	6.438	38.908	28.654	6.044	28.012	0.938
0.380	0.380	6.718	41.751	28.674	6.215	28.015	0.981
0.390	0.390	6.998	44.672	28.695	6.383	28.018	1.024
0.400	0.400	7.278	47.670	28.715	6.550	28.021	1.067

INTERSECTION PEBBLE CREEK
LANE AND SUGAR CREEK LANE
IN1
IN3, IN4

IN2

0.410	0.410	7.558	50.744	28.735	6.714	28.024	1.111
0.420	0.420	7.839	53.893	28.755	6.875	28.027	1.155
0.430	0.430	8.119	57.116	28.775	7.035	28.030	1.200
0.440	0.440	8.399	60.413	28.796	7.193	28.033	1.245
0.450	0.450	8.680	63.781	28.816	7.348	28.036	1.290
0.460	0.460	8.960	67.220	28.836	7.502	28.039	1.335
0.470	0.470	9.240	70.729	28.856	7.654	28.042	1.381
0.480	0.480	9.521	74.308	28.877	7.805	28.045	1.427
0.490	0.490	9.801	77.956	28.897	7.954	28.048	1.474
WSEL	DEPTH	FLOW	FLOW	WETTED	FLOW	TOPWID	TOTAL
FT.	INC	AREA	RATE	PER	VEL	PLUS	ENERGY
	SQ.FT.	(CFS)	(FT)	(FPS)	OBSTRUCTIONS	(FT)	
0.500	0.500	10.082	81.672	28.917	8.101	28.052	1.521
0.510	0.510	10.362	85.454	28.937	8.247	28.055	1.568
0.520	0.520	10.643	89.303	28.957	8.391	28.058	1.615
0.530	0.530	10.924	93.218	28.978	8.534	28.061	1.663
0.540	0.540	11.204	97.198	28.998	8.675	28.064	1.711
0.550	0.550	11.485	101.243	29.018	8.815	28.067	1.759
0.560	0.560	11.766	105.351	29.038	8.954	28.070	1.807
0.570	0.570	12.046	109.523	29.059	9.092	28.073	1.856
0.580	0.580	12.327	113.757	29.079	9.228	28.076	1.905
0.590	0.590	12.608	118.054	29.099	9.364	28.079	1.954
0.600	0.600	12.889	122.412	29.119	9.498	28.082	2.003
0.610	0.610	13.169	126.831	29.140	9.631	28.085	2.053
0.620	0.620	13.450	131.310	29.160	9.763	28.088	2.102
0.630	0.630	13.731	135.849	29.180	9.894	28.091	2.152
0.640	0.640	14.012	140.448	29.200	10.023	28.094	2.203
0.650	0.650	14.293	145.106	29.220	10.152	28.097	2.253
0.660	0.660	14.574	149.822	29.241	10.280	28.100	2.304
0.670	0.670	14.860	151.340	30.236	10.184	29.095	2.283
0.680	0.680	15.156	153.057	31.231	10.099	30.089	2.266
0.690	0.690	15.462	154.966	32.225	10.023	31.084	2.252
0.700	0.700	15.778	157.061	33.220	9.955	32.079	2.241
0.710	0.710	16.103	159.337	34.215	9.895	33.074	2.233
0.720	0.720	16.439	161.790	35.210	9.842	34.068	2.227
0.730	0.730	16.785	164.417	36.205	9.796	35.063	2.222
0.740	0.740	17.140	167.214	37.200	9.756	36.058	2.220
0.750	0.750	17.506	170.179	38.195	9.721	37.053	2.220
0.760	0.760	17.881	173.309	39.190	9.692	38.047	2.221
0.770	0.770	18.267	176.604	40.185	9.668	39.042	2.224
0.780	0.780	18.662	180.061	41.180	9.648	40.037	2.228
0.790	0.790	19.068	183.679	42.175	9.633	41.032	2.233
0.800	0.800	19.483	187.458	43.170	9.622	42.026	2.240
0.810	0.810	19.908	191.397	44.165	9.614	43.021	2.248
0.820	0.820	20.343	195.496	45.160	9.610	44.016	2.256
0.830	0.830	20.788	199.754	46.155	9.609	45.011	2.266
0.840	0.840	21.243	204.171	47.150	9.611	46.005	2.277

MANNING'S N = 0.017 SLOPE = 0.040

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	4.0	23.5	0.3	7.0	47.0	0.9
2.0	9.5	0.7	5.0	37.5	0.0			
3.0	9.6	0.0	6.0	37.6	0.7			

WSEL	DEPTH	FLOW	FLOW	WETTED	FLOW	TOPWID	TOTAL
FT.	INC	AREA	RATE	PER	VEL	PLUS	ENERGY
	SQ.FT.	(CFS)	(FT)	(FPS)	OBSTRUCTIONS	(FT)	
0.010	0.010	0.005	0.003	1.017	0.505	0.999	0.014
0.020	0.020	0.020	0.016	2.034	0.802	1.999	0.030
0.030	0.030	0.045	0.047	3.051	1.051	2.998	0.047
0.040	0.040	0.080	0.102	4.067	1.273	3.998	0.065
0.050	0.050	0.125	0.185	5.084	1.478	4.997	0.084
0.060	0.060	0.180	0.300	6.101	1.669	5.997	0.103
0.070	0.070	0.245	0.453	7.118	1.849	6.996	0.123
0.080	0.080	0.320	0.646	8.135	2.021	7.996	0.144
0.090	0.090	0.405	0.885	9.152	2.186	8.995	0.164
0.100	0.100	0.500	1.172	10.169	2.346	9.995	0.186
0.110	0.110	0.605	1.511	11.185	2.499	10.994	0.207
0.120	0.120	0.720	1.906	12.202	2.649	11.994	0.229
0.130	0.130	0.845	2.360	13.219	2.794	12.993	0.251
0.140	0.140	0.979	2.875	14.236	2.935	13.992	0.274
0.150	0.150	1.124	3.456	15.253	3.074	14.992	0.297
0.160	0.160	1.279	4.105	16.270	3.209	15.991	0.320
0.170	0.170	1.444	4.825	17.287	3.341	16.991	0.344
0.180	0.180	1.619	5.620	18.303	3.471	17.990	0.367
0.190	0.190	1.804	6.491	19.320	3.598	18.990	0.391
0.200	0.200	1.999	7.443	20.337	3.723	19.989	0.416
0.210	0.210	2.204	8.477	21.354	3.846	20.989	0.440
0.220	0.220	2.419	9.596	22.371	3.968	21.988	0.465
0.230	0.230	2.644	10.804	23.388	4.087	22.988	0.490
0.240	0.240	2.878	12.103	24.405	4.205	23.987	0.515
0.250	0.250	3.123	13.495	25.421	4.321	24.986	0.540
0.260	0.260	3.378	14.982	26.438	4.435	25.986	0.566
0.270	0.270	3.643	16.569	27.455	4.548	26.985	0.592
0.280	0.280	3.918	18.256	28.472	4.660	27.985	0.618
0.290	0.290	4.198	20.471	28.492	4.877	27.988	0.660
0.300	0.300	4.478	22.785	28.512	5.089	27.991	0.703
0.310	0.310	4.758	25.197	28.533	5.296	27.994	0.746
0.320	0.320	5.038	27.703	28.553	5.499	27.997	0.790
0.330	0.330	5.318	30.302	28.573	5.699	28.000	0.835
0.340	0.340	5.598	32.992	28.593	5.894	28.003	0.880
0.350	0.350	5.878	35.772	28.614	6.086	28.006	0.926
0.360	0.360	6.158	38.640	28.634	6.275	28.009	0.972
0.370	0.370	6.438	41.594	28.654	6.461	28.012	1.019
0.380	0.380	6.718	44.633	28.674	6.644	28.015	1.067
0.390	0.390	6.998	47.756	28.695	6.824	28.018	1.114
0.400	0.400	7.278	50.961	28.715	7.002	28.021	1.163

0.410	0.410	7.558	54.248	28.735	7.177	28.024	1.211
0.420	0.420	7.839	57.614	28.755	7.350	28.027	1.260
0.430	0.430	8.119	61.060	28.775	7.521	28.030	1.310
0.440	0.440	8.399	64.584	28.796	7.689	28.033	1.360
0.450	0.450	8.680	68.184	28.816	7.856	28.036	1.410
0.460	0.460	8.960	71.861	28.836	8.020	28.039	1.460
0.470	0.470	9.240	75.613	28.856	8.183	28.042	1.511
0.480	0.480	9.521	79.439	28.877	8.344	28.045	1.563
0.490	0.490	9.801	83.338	28.897	8.503	28.048	1.614
WSEL	DEPTH	FLOW	FLOW	WETTED	FLOW	TOPWID	TOTAL
INC	AREA	RATE	PER	VEL	PLUS	ENERGY	
FT.	SQ.FT.	(CFS)	(FT)	(FPS)	OBSTRUCTIONS	(FT)	
0.500	0.500	10.082	87.311	28.917	8.660	28.052	1.667
0.510	0.510	10.362	91.354	28.937	8.816	28.055	1.719
0.520	0.520	10.643	95.469	28.957	8.970	28.058	1.772
0.530	0.530	10.924	99.655	28.978	9.123	28.061	1.825
0.540	0.540	11.204	103.910	28.998	9.274	28.064	1.878
0.550	0.550	11.485	108.233	29.018	9.424	28.067	1.931
0.560	0.560	11.766	112.625	29.038	9.572	28.070	1.985
0.570	0.570	12.046	117.085	29.059	9.720	28.073	2.039
0.580	0.580	12.327	121.612	29.079	9.866	28.076	2.094
0.590	0.590	12.608	126.205	29.099	10.010	28.079	2.149
0.600	0.600	12.889	130.864	29.119	10.153	28.082	2.204
0.610	0.610	13.169	135.588	29.140	10.296	28.085	2.259
0.620	0.620	13.450	140.376	29.160	10.437	28.088	2.314
0.630	0.630	13.731	145.229	29.180	10.577	28.091	2.370
0.640	0.640	14.012	150.146	29.200	10.715	28.094	2.426
0.650	0.650	14.293	155.125	29.220	10.853	28.097	2.482
0.660	0.660	14.574	160.167	29.241	10.990	28.100	2.539
0.670	0.670	14.860	161.790	30.236	10.888	29.095	2.514
0.680	0.680	15.156	163.625	31.231	10.796	30.089	2.493
0.690	0.690	15.462	165.665	32.225	10.715	31.084	2.476
0.700	0.700	15.778	167.905	33.220	10.642	32.079	2.462
0.710	0.710	16.103	170.338	34.215	10.578	33.074	2.450
0.720	0.720	16.439	172.961	35.210	10.521	34.068	2.442
0.730	0.730	16.785	175.769	36.205	10.472	35.063	2.436
0.740	0.740	17.140	178.759	37.200	10.429	36.058	2.432
0.750	0.750	17.506	181.928	38.195	10.392	37.053	2.430
0.760	0.760	17.881	185.275	39.190	10.361	38.047	2.430
0.770	0.770	18.267	188.797	40.185	10.336	39.042	2.432
0.780	0.780	18.662	192.493	41.180	10.315	40.037	2.435
0.790	0.790	19.068	196.361	42.175	10.298	41.032	2.440
0.800	0.800	19.483	200.401	43.170	10.286	42.026	2.446
0.810	0.810	19.908	204.612	44.165	10.278	43.021	2.453
0.820	0.820	20.343	208.994	45.160	10.273	44.016	2.462
0.830	0.830	20.788	213.546	46.155	10.272	45.011	2.471
0.840	0.840	21.243	218.268	47.150	10.275	46.005	2.482

MANNING'S N = 0.017 SLOPE = 0.045

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	4.0	23.5	0.3	7.0	47.0	0.9
2.0	9.5	0.7	5.0	37.5	0.0			
3.0	9.6	0.0	6.0	37.6	0.7			

WSEL FT.	DEPTH INC SQ.FT.	FLOW AREA (CFS)	FLOW RATE (FT)	WETTED VEL (FPS)	FLOW PLUS OBSTRUCTIONS	TOPWID ENERGY (FT)	TOTAL
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0.010	0.010	0.005	0.003	1.017	0.536	0.999	0.014
0.020	0.020	0.020	0.017	2.034	0.851	1.999	0.031
0.030	0.030	0.045	0.050	3.051	1.115	2.998	0.049
0.040	0.040	0.080	0.108	4.067	1.351	3.998	0.068
0.050	0.050	0.125	0.196	5.084	1.567	4.997	0.088
0.060	0.060	0.180	0.318	6.101	1.770	5.997	0.109
0.070	0.070	0.245	0.480	7.118	1.961	6.996	0.130
0.080	0.080	0.320	0.686	8.135	2.144	7.996	0.151
0.090	0.090	0.405	0.939	9.152	2.319	8.995	0.174
0.100	0.100	0.500	1.243	10.169	2.488	9.995	0.196
0.110	0.110	0.605	1.603	11.185	2.651	10.994	0.219
0.120	0.120	0.720	2.022	12.202	2.809	11.994	0.243
0.130	0.130	0.845	2.503	13.219	2.963	12.993	0.267
0.140	0.140	0.979	3.050	14.236	3.113	13.992	0.291
0.150	0.150	1.124	3.666	15.253	3.260	14.992	0.315
0.160	0.160	1.279	4.354	16.270	3.403	15.991	0.340
0.170	0.170	1.444	5.118	17.287	3.544	16.991	0.365
0.180	0.180	1.619	5.961	18.303	3.681	17.990	0.391
0.190	0.190	1.804	6.885	19.320	3.816	18.990	0.417
0.200	0.200	1.999	7.894	20.337	3.949	19.989	0.443
0.210	0.210	2.204	8.991	21.354	4.080	20.989	0.469
0.220	0.220	2.419	10.179	22.371	4.208	21.988	0.495
0.230	0.230	2.644	11.460	23.388	4.335	22.988	0.522
0.240	0.240	2.878	12.837	24.405	4.460	23.987	0.549
0.250	0.250	3.123	14.313	25.421	4.583	24.986	0.577
0.260	0.260	3.378	15.891	26.438	4.704	25.986	0.604
0.270	0.270	3.643	17.574	27.455	4.824	26.985	0.632
0.280	0.280	3.918	19.363	28.472	4.942	27.985	0.660
0.290	0.290	4.198	21.713	28.492	5.173	27.988	0.706
0.300	0.300	4.478	24.168	28.512	5.397	27.991	0.753
0.310	0.310	4.758	26.725	28.533	5.617	27.994	0.801
0.320	0.320	5.038	29.383	28.553	5.833	27.997	0.849
0.330	0.330	5.318	32.140	28.573	6.044	28.000	0.898
0.340	0.340	5.598	34.994	28.593	6.252	28.003	0.948
0.350	0.350	5.878	37.942	28.614	6.455	28.006	0.998
0.360	0.360	6.158	40.984	28.634	6.656	28.009	1.049
0.370	0.370	6.438	44.117	28.654	6.853	28.012	1.100
0.380	0.380	6.718	47.341	28.674	7.047	28.015	1.152
0.390	0.390	6.998	50.653	28.695	7.238	28.018	1.205
0.400	0.400	7.278	54.053	28.715	7.427	28.021	1.258

INTERSECTION ROCK CREEK TRAIL AND SUGAR CREEK LANE
IN9, IN10

IN7, IN8

IN5, IN6

0.410	0.410	7.558	57.539	28.735	7.612	28.024	1.311
0.420	0.420	7.839	61.109	28.755	7.796	28.027	1.365
0.430	0.430	8.119	64.764	28.775	7.977	28.030	1.420
0.440	0.440	8.399	68.501	28.796	8.156	28.033	1.475
0.450	0.450	8.680	72.320	28.816	8.332	28.036	1.530
0.460	0.460	8.960	76.220	28.836	8.507	28.039	1.586
0.470	0.470	9.240	80.200	28.856	8.679	28.042	1.642
0.480	0.480	9.521	84.258	28.877	8.850	28.045	1.698
0.490	0.490	9.801	88.394	28.897	9.019	28.048	1.755
WSEL	DEPTH	FLOW	FLOW	WETTED	FLOW	TOPWID	TOTAL
FT.	INC	AREA	RATE	PER	VEL	PLUS	ENERGY
	SQ.FT.	(CFS)	(FT)	(FPS)	OBSTRUCTIONS	(FT)	
0.500	0.500	10.082	92.607	28.917	9.185	28.052	1.812
0.510	0.510	10.362	96.896	28.937	9.351	28.055	1.870
0.520	0.520	10.643	101.261	28.957	9.514	28.058	1.928
0.530	0.530	10.924	105.700	28.978	9.676	28.061	1.986
0.540	0.540	11.204	110.213	28.998	9.837	28.064	2.045
0.550	0.550	11.485	114.799	29.018	9.996	28.067	2.104
0.560	0.560	11.766	119.457	29.038	10.153	28.070	2.163
0.570	0.570	12.046	124.187	29.059	10.309	28.073	2.223
0.580	0.580	12.327	128.989	29.079	10.464	28.076	2.283
0.590	0.590	12.608	133.860	29.099	10.617	28.079	2.343
0.600	0.600	12.889	138.802	29.119	10.769	28.082	2.404
0.610	0.610	13.169	143.812	29.140	10.920	28.085	2.465
0.620	0.620	13.450	148.892	29.160	11.070	28.088	2.526
0.630	0.630	13.731	154.039	29.180	11.218	28.091	2.587
0.640	0.640	14.012	159.253	29.200	11.365	28.094	2.649
0.650	0.650	14.293	164.535	29.220	11.512	28.097	2.711
0.660	0.660	14.574	169.883	29.241	11.657	28.100	2.773
0.670	0.670	14.860	171.604	30.236	11.548	29.095	2.744
0.680	0.680	15.156	173.550	31.231	11.451	30.089	2.720
0.690	0.690	15.462	175.715	32.225	11.364	31.084	2.699
0.700	0.700	15.778	178.090	33.220	11.288	32.079	2.682
0.710	0.710	16.103	180.671	34.215	11.219	33.074	2.668
0.720	0.720	16.439	183.453	35.210	11.160	34.068	2.657
0.730	0.730	16.785	186.431	36.205	11.107	35.063	2.649
0.740	0.740	17.140	189.603	37.200	11.062	36.058	2.643
0.750	0.750	17.506	192.964	38.195	11.023	37.053	2.640
0.760	0.760	17.881	196.514	39.190	10.990	38.047	2.639
0.770	0.770	18.267	200.250	40.185	10.962	39.042	2.639
0.780	0.780	18.662	204.169	41.180	10.940	40.037	2.642
0.790	0.790	19.068	208.272	42.175	10.923	41.032	2.646
0.800	0.800	19.483	212.558	43.170	10.910	42.026	2.651
0.810	0.810	19.908	217.024	44.165	10.901	43.021	2.658
0.820	0.820	20.343	221.672	45.160	10.897	44.016	2.667
0.830	0.830	20.788	226.500	46.155	10.895	45.011	2.676
0.840	0.840	21.243	231.508	47.150	10.898	46.005	2.687

MANNING'S N = 0.017 SLOPE = 0.050

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	4.0	23.5	0.3	7.0	47.0	0.9
2.0	9.5	0.7	5.0	37.5	0.0			
3.0	9.6	0.0	6.0	37.6	0.7			

WSEL	DEPTH	FLOW	FLOW	WETTED	FLOW	TOPWID	TOTAL
FT.	INC	AREA	RATE	PER	VEL	PLUS	ENERGY
	SQ.FT.	(CFS)	(FT)	(FPS)	OBSTRUCTIONS	(FT)	

0.010	0.010	0.005	0.003	1.017	0.565	0.999	0.015
0.020	0.020	0.020	0.018	2.034	0.897	1.999	0.033
0.030	0.030	0.045	0.053	3.051	1.175	2.998	0.051
0.040	0.040	0.080	0.114	4.067	1.424	3.998	0.072
0.050	0.050	0.125	0.206	5.084	1.652	4.997	0.092
0.060	0.060	0.180	0.336	6.101	1.866	5.997	0.114
0.070	0.070	0.245	0.506	7.118	2.067	6.996	0.136
0.080	0.080	0.320	0.723	8.135	2.260	7.996	0.159
0.090	0.090	0.405	0.990	9.152	2.445	8.995	0.183
0.100	0.100	0.500	1.311	10.169	2.622	9.995	0.207
0.110	0.110	0.605	1.690	11.185	2.794	10.994	0.231
0.120	0.120	0.720	2.131	12.202	2.961	11.994	0.256
0.130	0.130	0.845	2.638	13.219	3.124	12.993	0.282
0.140	0.140	0.979	3.215	14.236	3.282	13.992	0.308
0.150	0.150	1.124	3.864	15.253	3.436	14.992	0.334
0.160	0.160	1.279	4.589	16.270	3.587	15.991	0.360
0.170	0.170	1.444	5.395	17.287	3.735	16.991	0.387
0.180	0.180	1.619	6.283	18.303	3.880	17.990	0.414
0.190	0.190	1.804	7.257	19.320	4.023	18.990	0.442
0.200	0.200	1.999	8.321	20.337	4.163	19.989	0.470
0.210	0.210	2.204	9.477	21.354	4.300	20.989	0.498
0.220	0.220	2.419	10.729	22.371	4.436	21.988	0.526
0.230	0.230	2.644	12.079	23.388	4.569	22.988	0.555
0.240	0.240	2.878	13.531	24.405	4.701	23.987	0.584
0.250	0.250	3.123	15.087	25.421	4.831	24.986	0.613
0.260	0.260	3.378	16.751	26.438	4.959	25.986	0.642
0.270	0.270	3.643	18.524	27.455	5.085	26.985	0.672
0.280	0.280	3.918	20.411	28.472	5.210	27.985	0.702
0.290	0.290	4.198	22.887	28.492	5.452	27.988	0.752
0.300	0.300	4.478	25.475	28.512	5.689	27.991	0.803
0.310	0.310	4.758	28.171	28.533	5.921	27.994	0.855
0.320	0.320	5.038	30.973	28.553	6.148	27.997	0.908
0.330	0.330	5.318	33.879	28.573	6.371	28.000	0.961
0.340	0.340	5.598	36.887	28.593	6.590	28.003	1.015
0.350	0.350	5.878	39.995	28.614	6.805	28.006	1.070
0.360	0.360	6.158	43.201	28.634	7.016	28.009	1.126
0.370	0.370	6.438	46.504	28.654	7.224	28.012	1.182
0.380	0.380	6.718	49.901	28.674	7.428	28.015	1.238
0.390	0.390	6.998	53.393	28.695	7.630	28.018	1.295
0.400	0.400	7.278	56.976	28.715	7.828	28.021	1.353

INTERSECTION LOST CREEK
WAY AND WILLOW CANYON
TRAIL

0.410	0.410	7.558	60.651	28.735	8.024	28.024	1.411
0.420	0.420	7.839	64.415	28.755	8.218	28.027	1.470
0.430	0.430	8.119	68.267	28.775	8.408	28.030	1.530
0.440	0.440	8.399	72.207	28.796	8.597	28.033	1.590
0.450	0.450	8.680	76.232	28.816	8.783	28.036	1.650
0.460	0.460	8.960	80.343	28.836	8.967	28.039	1.711
0.470	0.470	9.240	84.538	28.856	9.149	28.042	1.772
0.480	0.480	9.521	88.815	28.877	9.328	28.045	1.834
0.490	0.490	9.801	93.175	28.897	9.506	28.048	1.896
WSEL	DEPTH	FLOW	FLOW	WETTED	FLOW	TOPWID	TOTAL
FT.	INC	AREA	RATE	PER	VEL	PLUS	ENERGY
	SQ.FT.	(CFS)	(FT)	(FPS)	OBSTRUCTIONS	(FT)	
0.500	0.500	10.082	97.616	28.917	9.682	28.052	1.958
0.510	0.510	10.362	102.137	28.937	9.857	28.055	2.021
0.520	0.520	10.643	106.738	28.957	10.029	28.058	2.084
0.530	0.530	10.924	111.417	28.978	10.200	28.061	2.148
0.540	0.540	11.204	116.174	28.998	10.369	28.064	2.212
0.550	0.550	11.485	121.009	29.018	10.536	28.067	2.277
0.560	0.560	11.766	125.919	29.038	10.702	28.070	2.342
0.570	0.570	12.046	130.905	29.059	10.867	28.073	2.407
0.580	0.580	12.327	135.966	29.079	11.030	28.076	2.472
0.590	0.590	12.608	141.101	29.099	11.192	28.079	2.538
0.600	0.600	12.889	146.310	29.119	11.352	28.082	2.604
0.610	0.610	13.169	151.592	29.140	11.511	28.085	2.671
0.620	0.620	13.450	156.946	29.160	11.669	28.088	2.738
0.630	0.630	13.731	162.371	29.180	11.825	28.091	2.805
0.640	0.640	14.012	167.868	29.200	11.980	28.094	2.872
0.650	0.650	14.293	173.435	29.220	12.134	28.097	2.940
0.660	0.660	14.574	179.072	29.241	12.287	28.100	3.008
0.670	0.670	14.860	180.886	30.236	12.173	29.095	2.975
0.680	0.680	15.156	182.938	31.231	12.070	30.089	2.946
0.690	0.690	15.462	185.220	32.225	11.979	31.084	2.922
0.700	0.700	15.778	187.723	33.220	11.898	32.079	2.902
0.710	0.710	16.103	190.444	34.215	11.826	33.074	2.885
0.720	0.720	16.439	193.376	35.210	11.763	34.068	2.872
0.730	0.730	16.785	196.516	36.205	11.708	35.063	2.862
0.740	0.740	17.140	199.859	37.200	11.660	36.058	2.855
0.750	0.750	17.506	203.402	38.195	11.619	37.053	2.850
0.760	0.760	17.881	207.144	39.190	11.584	38.047	2.847
0.770	0.770	18.267	211.082	40.185	11.555	39.042	2.847
0.780	0.780	18.662	215.214	41.180	11.532	40.037	2.849
0.790	0.790	19.068	219.538	42.175	11.514	41.032	2.852
0.800	0.800	19.483	224.055	43.170	11.500	42.026	2.857
0.810	0.810	19.908	228.763	44.165	11.491	43.021	2.864
0.820	0.820	20.343	233.662	45.160	11.486	44.016	2.872
0.830	0.830	20.788	238.752	46.155	11.485	45.011	2.882
0.840	0.840	21.243	244.031	47.150	11.487	46.005	2.893

53' ROW - 32' F-F

MANNING'S N = 0.017 SLOPE = 0.020

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	4.0	26.5	0.3	7.0	53.0	0.9
2.0	10.5	0.7	5.0	42.4	0.0			
3.0	10.6	0.0	6.0	42.5	0.7			

WSEL	DEPTH	FLOW	FLOW	WETTED	FLOW	TOPWID	TOTAL
FT.	INC	AREA	RATE	PER	VEL	PLUS	ENERGY
	SQ.FT.	(CFS)	(FT)	(FPS)	OBSTRUCTIONS	(FT)	

0.010	0.010	0.005	0.002	1.014	0.357	0.997	0.012
0.020	0.020	0.020	0.011	2.028	0.567	1.994	0.025
0.030	0.030	0.045	0.033	3.043	0.743	2.990	0.039
0.040	0.040	0.080	0.072	4.057	0.900	3.987	0.053
0.050	0.050	0.125	0.130	5.071	1.045	4.984	0.067
0.060	0.060	0.179	0.212	6.085	1.180	5.981	0.082
0.070	0.070	0.244	0.319	7.099	1.308	6.977	0.097
0.080	0.080	0.319	0.456	8.113	1.429	7.974	0.112
0.090	0.090	0.404	0.624	9.128	1.546	8.971	0.127
0.100	0.100	0.498	0.827	10.142	1.659	9.968	0.143
0.110	0.110	0.603	1.066	11.156	1.767	10.965	0.159
0.120	0.120	0.718	1.344	12.170	1.873	11.961	0.175
0.130	0.130	0.842	1.664	13.184	1.976	12.958	0.191
0.140	0.140	0.977	2.028	14.199	2.076	13.955	0.207
0.150	0.150	1.121	2.437	15.213	2.173	14.952	0.223
0.160	0.160	1.276	2.895	16.227	2.269	15.948	0.240
0.170	0.170	1.440	3.403	17.241	2.362	16.945	0.257
0.180	0.180	1.615	3.963	18.255	2.454	17.942	0.274
0.190	0.190	1.799	4.578	19.269	2.544	18.939	0.291
0.200	0.200	1.994	5.249	20.284	2.633	19.936	0.308
0.210	0.210	2.198	5.978	21.298	2.720	20.932	0.325
0.220	0.220	2.412	6.767	22.312	2.805	21.929	0.342
0.230	0.230	2.636	7.619	23.326	2.890	22.926	0.360
0.240	0.240	2.871	8.535	24.340	2.973	23.923	0.377
0.250	0.250	3.115	9.516	25.354	3.055	24.920	0.395
0.260	0.260	3.369	10.565	26.369	3.136	25.916	0.413
0.270	0.270	3.633	11.684	27.383	3.216	26.913	0.431
0.280	0.280	3.907	12.874	28.397	3.295	27.910	0.449
0.290	0.290	4.191	14.137	29.411	3.373	28.907	0.467
0.300	0.300	4.486	15.474	30.425	3.450	29.903	0.485
0.310	0.310	4.790	16.888	31.440	3.526	30.900	0.503
0.320	0.320	5.104	18.381	32.454	3.602	31.897	0.522
0.330	0.330	5.423	20.326	32.474	3.749	31.900	0.549
0.340	0.340	5.742	22.349	32.494	3.893	31.903	0.576
0.350	0.350	6.061	24.447	32.514	4.034	31.906	0.603
0.360	0.360	6.380	26.618	32.535	4.172	31.909	0.631
0.370	0.370	6.699	28.862	32.555	4.309	31.912	0.659
0.380	0.380	7.018	31.177	32.575	4.443	31.915	0.687
0.390	0.390	7.337	33.562	32.595	4.574	31.918	0.715
0.400	0.400	7.656	36.016	32.616	4.704	31.921	0.744

IN19, IN20

IN16, IN17, IN18

INTERSECTION CRYSTAL
CREEK LANE AND WILLOW
CANYON TRAIL
IN15

0.410	0.410	7.975	38.537	32.636	4.832	31.924	0.773
0.420	0.420	8.295	41.126	32.656	4.958	31.927	0.802
0.430	0.430	8.614	43.780	32.676	5.082	31.930	0.832
0.440	0.440	8.933	46.499	32.696	5.205	31.933	0.861
0.450	0.450	9.253	49.282	32.717	5.326	31.936	0.891
0.460	0.460	9.572	52.128	32.737	5.446	31.939	0.921
0.470	0.470	9.891	55.036	32.757	5.564	31.942	0.952
0.480	0.480	10.211	58.006	32.777	5.681	31.945	0.982
0.490	0.490	10.530	61.037	32.798	5.796	31.948	1.013
WSEL	DEPTH	FLOW	FLOW	WETTED	FLOW	TOPWID	TOTAL
FT.	INC	AREA	RATE	PER	VEL	PLUS	ENERGY
	SQ.FT.	(CFS)	(FT)	(FPS)	OBSTRUCTIONS	(FT)	
0.500	0.500	10.850	64.129	32.818	5.911	31.952	1.043
0.510	0.510	11.169	67.280	32.838	6.024	31.955	1.074
0.520	0.520	11.489	70.489	32.858	6.135	31.958	1.106
0.530	0.530	11.809	73.757	32.879	6.246	31.961	1.137
0.540	0.540	12.128	77.083	32.899	6.356	31.964	1.168
0.550	0.550	12.448	80.466	32.919	6.464	31.967	1.200
0.560	0.560	12.768	83.905	32.939	6.572	31.970	1.232
0.570	0.570	13.087	87.400	32.959	6.678	31.973	1.264
0.580	0.580	13.407	90.950	32.980	6.784	31.976	1.296
0.590	0.590	13.727	94.556	33.000	6.888	31.979	1.328
0.600	0.600	14.047	98.216	33.020	6.992	31.982	1.360
0.610	0.610	14.366	101.930	33.040	7.095	31.985	1.393
0.620	0.620	14.686	105.697	33.061	7.197	31.988	1.426
0.630	0.630	15.006	109.517	33.081	7.298	31.991	1.458
0.640	0.640	15.326	113.390	33.101	7.399	31.994	1.491
0.650	0.650	15.646	117.315	33.121	7.498	31.997	1.524
0.660	0.660	15.966	121.291	33.142	7.597	32.000	1.558
0.670	0.670	16.291	122.972	34.142	7.548	33.000	1.556
0.680	0.680	16.626	124.790	35.142	7.506	34.000	1.556
0.690	0.690	16.971	126.742	36.142	7.468	35.000	1.558
0.700	0.700	17.326	128.826	37.142	7.435	36.000	1.560
0.710	0.710	17.691	131.039	38.143	7.407	37.000	1.563
0.720	0.720	18.066	133.379	39.143	7.383	38.000	1.568
0.730	0.730	18.451	135.846	40.143	7.363	39.000	1.573
0.740	0.740	18.846	138.437	41.143	7.346	40.000	1.579
0.750	0.750	19.251	141.152	42.143	7.332	41.000	1.586
0.760	0.760	19.666	143.991	43.144	7.322	42.000	1.594
0.770	0.770	20.091	146.952	44.144	7.314	43.000	1.602
0.780	0.780	20.526	150.035	45.144	7.310	44.000	1.611
0.790	0.790	20.971	153.240	46.144	7.307	45.000	1.621
0.800	0.800	21.426	156.567	47.144	7.307	46.000	1.631
0.810	0.810	21.891	160.016	48.145	7.310	47.000	1.641
0.820	0.820	22.366	163.587	49.145	7.314	48.000	1.652
0.830	0.830	22.851	167.279	50.145	7.320	49.000	1.664
0.840	0.840	23.346	171.095	51.145	7.329	50.000	1.675
0.850	0.850	23.851	175.033	52.145	7.339	51.000	1.688
0.860	0.860	24.366	179.094	53.146	7.350	52.000	1.700

53' ROW - 32' F-F

MANNING'S N = 0.017 SLOPE = 0.025

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	4.0	26.5	0.3	7.0	53.0	0.9
2.0	10.5	0.7	5.0	42.4	0.0			
3.0	10.6	0.0	6.0	42.5	0.7			

WSEL	DEPTH	FLOW	FLOW	WETTED	FLOW	TOPWID	TOTAL
FT.	INC	AREA	RATE	PER	VEL	PLUS	ENERGY
	SQ.FT.	(CFS)	(FT)	(FPS)	OBSTRUCTIONS	(FT)	

0.010	0.010	0.005	0.002	1.014	0.399	0.997	0.012
0.020	0.020	0.020	0.013	2.028	0.634	1.994	0.026
0.030	0.030	0.045	0.037	3.043	0.831	2.990	0.041
0.040	0.040	0.080	0.080	4.057	1.007	3.987	0.056
0.050	0.050	0.125	0.146	5.071	1.168	4.984	0.071
0.060	0.060	0.179	0.237	6.085	1.319	5.981	0.087
0.070	0.070	0.244	0.357	7.099	1.462	6.977	0.103
0.080	0.080	0.319	0.510	8.113	1.598	7.974	0.120
0.090	0.090	0.404	0.698	9.128	1.729	8.971	0.136
0.100	0.100	0.498	0.924	10.142	1.854	9.968	0.153
0.110	0.110	0.603	1.192	11.156	1.976	10.965	0.171
0.120	0.120	0.718	1.503	12.170	2.094	11.961	0.188
0.130	0.130	0.842	1.860	13.184	2.209	12.958	0.206
0.140	0.140	0.977	2.267	14.199	2.321	13.955	0.224
0.150	0.150	1.121	2.725	15.213	2.430	14.952	0.242
0.160	0.160	1.276	3.236	16.227	2.537	15.948	0.260
0.170	0.170	1.440	3.804	17.241	2.641	16.945	0.279
0.180	0.180	1.615	4.431	18.255	2.744	17.942	0.297
0.190	0.190	1.799	5.118	19.269	2.845	18.939	0.316
0.200	0.200	1.994	5.868	20.284	2.943	19.936	0.335
0.210	0.210	2.198	6.683	21.298	3.041	20.932	0.354
0.220	0.220	2.412	7.566	22.312	3.137	21.929	0.373
0.230	0.230	2.636	8.518	23.326	3.231	22.926	0.392
0.240	0.240	2.871	9.542	24.340	3.324	23.923	0.412
0.250	0.250	3.115	10.639	25.354	3.416	24.920	0.431
0.260	0.260	3.369	11.812	26.369	3.506	25.916	0.451
0.270	0.270	3.633	13.063	27.383	3.595	26.913	0.471
0.280	0.280	3.907	14.394	28.397	3.684	27.910	0.491
0.290	0.290	4.191	15.805	29.411	3.771	28.907	0.511
0.300	0.300	4.486	17.301	30.425	3.857	29.903	0.531
0.310	0.310	4.790	18.882	31.440	3.942	30.900	0.552
0.320	0.320	5.104	20.550	32.454	4.027	31.897	0.572
0.330	0.330	5.423	22.726	32.474	4.191	31.900	0.603
0.340	0.340	5.742	24.987	32.494	4.352	31.903	0.635
0.350	0.350	6.061	27.332	32.514	4.510	31.906	0.666
0.360	0.360	6.380	29.760	32.535	4.665	31.909	0.698
0.370	0.370	6.699	32.269	32.555	4.817	31.912	0.731
0.380	0.380	7.018	34.857	32.575	4.967	31.915	0.764
0.390	0.390	7.337	37.524	32.595	5.114	31.918	0.797
0.400	0.400	7.656	40.267	32.616	5.259	31.921	0.830

IN22, IN23

INTERSECTION SUGAR CREEK
LANE AND WILLOW CANYON TRAIL
IN21

0.410	0.410	7.975	43.086	32.636	5.402	31.924	0.864
0.420	0.420	8.295	45.980	32.656	5.543	31.927	0.898
0.430	0.430	8.614	48.947	32.676	5.682	31.930	0.932
0.440	0.440	8.933	51.987	32.696	5.819	31.933	0.967
0.450	0.450	9.253	55.098	32.717	5.955	31.936	1.002
0.460	0.460	9.572	58.281	32.737	6.089	31.939	1.037
0.470	0.470	9.891	61.532	32.757	6.221	31.942	1.072
0.480	0.480	10.211	64.853	32.777	6.351	31.945	1.107
0.490	0.490	10.530	68.242	32.798	6.480	31.948	1.143
WSEL	DEPTH	FLOW	FLOW	WETTED	FLOW	TOPWID	TOTAL
FT.	INC	AREA	RATE	PER	VEL	PLUS	ENERGY
	SQ.FT.	(CFS)	(FT)	(FPS)	OBSTRUCTIONS	(FT)	
0.500	0.500	10.850	71.698	32.818	6.608	31.952	1.179
0.510	0.510	11.169	75.221	32.838	6.735	31.955	1.215
0.520	0.520	11.489	78.809	32.858	6.860	31.958	1.252
0.530	0.530	11.809	82.463	32.879	6.983	31.961	1.289
0.540	0.540	12.128	86.181	32.899	7.106	31.964	1.325
0.550	0.550	12.448	89.963	32.919	7.227	31.967	1.362
0.560	0.560	12.768	93.808	32.939	7.347	31.970	1.400
0.570	0.570	13.087	97.716	32.959	7.467	31.973	1.437
0.580	0.580	13.407	101.686	32.980	7.585	31.976	1.475
0.590	0.590	13.727	105.717	33.000	7.702	31.979	1.513
0.600	0.600	14.047	109.809	33.020	7.817	31.982	1.551
0.610	0.610	14.366	113.961	33.040	7.932	31.985	1.589
0.620	0.620	14.686	118.173	33.061	8.046	31.988	1.627
0.630	0.630	15.006	122.444	33.081	8.160	31.991	1.666
0.640	0.640	15.326	126.774	33.101	8.272	31.994	1.704
0.650	0.650	15.646	131.162	33.121	8.383	31.997	1.743
0.660	0.660	15.966	135.608	33.142	8.494	32.000	1.782
0.670	0.670	16.291	137.487	34.142	8.439	33.000	1.778
0.680	0.680	16.626	139.520	35.142	8.392	34.000	1.775
0.690	0.690	16.971	141.702	36.142	8.350	35.000	1.774
0.700	0.700	17.326	144.032	37.142	8.313	36.000	1.775
0.710	0.710	17.691	146.506	38.143	8.281	37.000	1.777
0.720	0.720	18.066	149.122	39.143	8.254	38.000	1.780
0.730	0.730	18.451	151.880	40.143	8.232	39.000	1.784
0.740	0.740	18.846	154.777	41.143	8.213	40.000	1.789
0.750	0.750	19.251	157.813	42.143	8.198	41.000	1.795
0.760	0.760	19.666	160.987	43.144	8.186	42.000	1.802
0.770	0.770	20.091	164.297	44.144	8.178	43.000	1.810
0.780	0.780	20.526	167.744	45.144	8.172	44.000	1.819
0.790	0.790	20.971	171.328	46.144	8.170	45.000	1.828
0.800	0.800	21.426	175.047	47.144	8.170	46.000	1.838
0.810	0.810	21.891	178.903	48.145	8.172	47.000	1.849
0.820	0.820	22.366	182.895	49.145	8.177	48.000	1.860
0.830	0.830	22.851	187.024	50.145	8.185	49.000	1.872
0.840	0.840	23.346	191.290	51.145	8.194	50.000	1.884
0.850	0.850	23.851	195.692	52.145	8.205	51.000	1.897
0.860	0.860	24.366	200.233	53.146	8.218	52.000	1.910

53' ROW - 32' F-F

MANNING'S N = 0.017 SLOPE = 0.035

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	4.0	26.5	0.3	7.0	53.0	0.9
2.0	10.5	0.7	5.0	42.4	0.0			
3.0	10.6	0.0	6.0	42.5	0.7			

WSEL FT.	DEPTH INC SQ.FT.	FLOW AREA (CFS)	FLOW RATE (FT)	WETTED PER (FPS)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS (FT)	TOTAL ENERGY (FT)
0.010	0.010	0.005	0.002	1.014	0.473	0.997	0.013
0.020	0.020	0.020	0.015	2.028	0.750	1.994	0.029
0.030	0.030	0.045	0.044	3.043	0.983	2.990	0.045
0.040	0.040	0.080	0.095	4.057	1.191	3.987	0.062
0.050	0.050	0.125	0.172	5.071	1.382	4.984	0.080
0.060	0.060	0.179	0.280	6.085	1.561	5.981	0.098
0.070	0.070	0.244	0.422	7.099	1.730	6.977	0.117
0.080	0.080	0.319	0.603	8.113	1.891	7.974	0.136
0.090	0.090	0.404	0.826	9.128	2.045	8.971	0.155
0.100	0.100	0.498	1.093	10.142	2.194	9.968	0.175
0.110	0.110	0.603	1.410	11.156	2.338	10.965	0.195
0.120	0.120	0.718	1.778	12.170	2.478	11.961	0.215
0.130	0.130	0.842	2.201	13.184	2.613	12.958	0.236
0.140	0.140	0.977	2.682	14.199	2.746	13.955	0.257
0.150	0.150	1.121	3.224	15.213	2.875	14.952	0.279
0.160	0.160	1.276	3.829	16.227	3.001	15.948	0.300
0.170	0.170	1.440	4.501	17.241	3.125	16.945	0.322
0.180	0.180	1.615	5.242	18.255	3.247	17.942	0.344
0.190	0.190	1.799	6.056	19.269	3.366	18.939	0.366
0.200	0.200	1.994	6.943	20.284	3.483	19.936	0.389
0.210	0.210	2.198	7.908	21.298	3.598	20.932	0.411
0.220	0.220	2.412	8.952	22.312	3.711	21.929	0.434
0.230	0.230	2.636	10.079	23.326	3.823	22.926	0.457
0.240	0.240	2.871	11.290	24.340	3.933	23.923	0.481
0.250	0.250	3.115	12.589	25.354	4.041	24.920	0.504
0.260	0.260	3.369	13.977	26.369	4.148	25.916	0.528
0.270	0.270	3.633	15.457	27.383	4.254	26.913	0.551
0.280	0.280	3.907	17.031	28.397	4.359	27.910	0.575
0.290	0.290	4.191	18.701	29.411	4.462	28.907	0.600
0.300	0.300	4.486	20.471	30.425	4.564	29.903	0.624
0.310	0.310	4.790	22.341	31.440	4.665	30.900	0.648
0.320	0.320	5.104	24.315	32.454	4.764	31.897	0.673
0.330	0.330	5.423	26.889	32.474	4.959	31.900	0.712
0.340	0.340	5.742	29.565	32.494	5.149	31.903	0.752
0.350	0.350	6.061	32.340	32.514	5.336	31.906	0.793
0.360	0.360	6.380	35.213	32.535	5.520	31.909	0.834
0.370	0.370	6.699	38.181	32.555	5.700	31.912	0.875
0.380	0.380	7.018	41.244	32.575	5.877	31.915	0.917
0.390	0.390	7.337	44.399	32.595	6.051	31.918	0.960
0.400	0.400	7.656	47.645	32.616	6.223	31.921	1.002

IN11, IN12

0.410	0.410	7.975	50.980	32.636	6.392	31.924	1.046
0.420	0.420	8.295	54.404	32.656	6.559	31.927	1.089
0.430	0.430	8.614	57.915	32.676	6.723	31.930	1.133
0.440	0.440	8.933	61.512	32.696	6.886	31.933	1.177
0.450	0.450	9.253	65.193	32.717	7.046	31.936	1.222
0.460	0.460	9.572	68.958	32.737	7.204	31.939	1.267
0.470	0.470	9.891	72.806	32.757	7.360	31.942	1.313
0.480	0.480	10.211	76.735	32.777	7.515	31.945	1.358
0.490	0.490	10.530	80.745	32.798	7.668	31.948	1.405
WSEL	DEPTH	FLOW	FLOW	WETTED	FLOW	TOPWID	TOTAL
FT.	INC	AREA	RATE	PER	VEL	PLUS	ENERGY
	SQ.FT.	(CFS)	(FT)	(FPS)	OBSTRUCTIONS	(FT)	
0.500	0.500	10.850	84.834	32.818	7.819	31.952	1.451
0.510	0.510	11.169	89.003	32.838	7.968	31.955	1.498
0.520	0.520	11.489	93.249	32.858	8.116	31.958	1.545
0.530	0.530	11.809	97.572	32.879	8.263	31.961	1.592
0.540	0.540	12.128	101.971	32.899	8.408	31.964	1.640
0.550	0.550	12.448	106.446	32.919	8.551	31.967	1.687
0.560	0.560	12.768	110.996	32.939	8.694	31.970	1.736
0.570	0.570	13.087	115.619	32.959	8.835	31.973	1.784
0.580	0.580	13.407	120.316	32.980	8.974	31.976	1.833
0.590	0.590	13.727	125.086	33.000	9.113	31.979	1.882
0.600	0.600	14.047	129.927	33.020	9.250	31.982	1.931
0.610	0.610	14.366	134.840	33.040	9.386	31.985	1.980
0.620	0.620	14.686	139.824	33.061	9.521	31.988	2.030
0.630	0.630	15.006	144.878	33.081	9.655	31.991	2.080
0.640	0.640	15.326	150.001	33.101	9.787	31.994	2.130
0.650	0.650	15.646	155.193	33.121	9.919	31.997	2.180
0.660	0.660	15.966	160.454	33.142	10.050	32.000	2.231
0.670	0.670	16.291	162.677	34.142	9.986	33.000	2.221
0.680	0.680	16.626	165.082	35.142	9.929	34.000	2.213
0.690	0.690	16.971	167.664	36.142	9.879	35.000	2.208
0.700	0.700	17.326	170.421	37.142	9.836	36.000	2.205
0.710	0.710	17.691	173.348	38.143	9.799	37.000	2.203
0.720	0.720	18.066	176.444	39.143	9.767	38.000	2.204
0.730	0.730	18.451	179.707	40.143	9.740	39.000	2.205
0.740	0.740	18.846	183.135	41.143	9.717	40.000	2.209
0.750	0.750	19.251	186.727	42.143	9.700	41.000	2.213
0.760	0.760	19.666	190.482	43.144	9.686	42.000	2.219
0.770	0.770	20.091	194.399	44.144	9.676	43.000	2.226
0.780	0.780	20.526	198.478	45.144	9.670	44.000	2.234
0.790	0.790	20.971	202.718	46.144	9.667	45.000	2.243
0.800	0.800	21.426	207.119	47.144	9.667	46.000	2.253
0.810	0.810	21.891	211.681	48.145	9.670	47.000	2.264
0.820	0.820	22.366	216.405	49.145	9.676	48.000	2.276
0.830	0.830	22.851	221.290	50.145	9.684	49.000	2.289
0.840	0.840	23.346	226.337	51.145	9.695	50.000	2.302
0.850	0.850	23.851	231.546	52.145	9.708	51.000	2.316
0.860	0.860	24.366	236.919	53.146	9.723	52.000	2.331

53' ROW - 32' F-F

MANNING'S N = 0.017 SLOPE = 0.045

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	4.0	26.5	0.3	7.0	53.0	0.9
2.0	10.5	0.7	5.0	42.4	0.0			
3.0	10.6	0.0	6.0	42.5	0.7			

WSEL FT.	DEPTH INC SQ.FT.	FLOW AREA (CFS)	FLOW RATE (FT)	WETTED VEL (FPS)	FLOW PLUS OBSTRUCTIONS	TOPWID ENERGY (FT)	TOTAL
0.010	0.010	0.005	0.003	1.014	0.536	0.997	0.014
0.020	0.020	0.020	0.017	2.028	0.851	1.994	0.031
0.030	0.030	0.045	0.050	3.043	1.115	2.990	0.049
0.040	0.040	0.080	0.108	4.057	1.351	3.987	0.068
0.050	0.050	0.125	0.195	5.071	1.567	4.984	0.088
0.060	0.060	0.179	0.318	6.085	1.770	5.981	0.109
0.070	0.070	0.244	0.479	7.099	1.961	6.977	0.130
0.080	0.080	0.319	0.684	8.113	2.144	7.974	0.151
0.090	0.090	0.404	0.936	9.128	2.319	8.971	0.174
0.100	0.100	0.498	1.240	10.142	2.488	9.968	0.196
0.110	0.110	0.603	1.599	11.156	2.651	10.965	0.219
0.120	0.120	0.718	2.016	12.170	2.809	11.961	0.243
0.130	0.130	0.842	2.496	13.184	2.963	12.958	0.267
0.140	0.140	0.977	3.041	14.199	3.113	13.955	0.291
0.150	0.150	1.121	3.656	15.213	3.260	14.952	0.315
0.160	0.160	1.276	4.342	16.227	3.403	15.948	0.340
0.170	0.170	1.440	5.104	17.241	3.544	16.945	0.365
0.180	0.180	1.615	5.944	18.255	3.681	17.942	0.391
0.190	0.190	1.799	6.866	19.269	3.816	18.939	0.417
0.200	0.200	1.994	7.873	20.284	3.949	19.936	0.443
0.210	0.210	2.198	8.967	21.298	4.080	20.932	0.469
0.220	0.220	2.412	10.151	22.312	4.208	21.929	0.495
0.230	0.230	2.636	11.429	23.326	4.335	22.926	0.522
0.240	0.240	2.871	12.802	24.340	4.460	23.923	0.549
0.250	0.250	3.115	14.274	25.354	4.583	24.920	0.577
0.260	0.260	3.369	15.848	26.369	4.704	25.916	0.604
0.270	0.270	3.633	17.526	27.383	4.824	26.913	0.632
0.280	0.280	3.907	19.311	28.397	4.942	27.910	0.660
0.290	0.290	4.191	21.205	29.411	5.059	28.907	0.688
0.300	0.300	4.486	23.212	30.425	5.175	29.903	0.717
0.310	0.310	4.790	25.333	31.440	5.289	30.900	0.745
0.320	0.320	5.104	27.571	32.454	5.402	31.897	0.774
0.330	0.330	5.423	30.490	32.474	5.623	31.900	0.822
0.340	0.340	5.742	33.524	32.494	5.839	31.903	0.870
0.350	0.350	6.061	36.670	32.514	6.051	31.906	0.919
0.360	0.360	6.380	39.927	32.535	6.259	31.909	0.969
0.370	0.370	6.699	43.293	32.555	6.463	31.912	1.020
0.380	0.380	7.018	46.766	32.575	6.664	31.915	1.071
0.390	0.390	7.337	50.343	32.595	6.862	31.918	1.122
0.400	0.400	7.656	54.024	32.616	7.056	31.921	1.174

INTERSECTION WOOD CREEK LANE
AND WILLOW CANYON TRAIL

IN13, IN14

0.410	0.410	7.975	57.806	32.636	7.248	31.924	1.227
0.420	0.420	8.295	61.688	32.656	7.437	31.927	1.280
0.430	0.430	8.614	65.670	32.676	7.624	31.930	1.334
0.440	0.440	8.933	69.748	32.696	7.808	31.933	1.388
0.450	0.450	9.253	73.922	32.717	7.989	31.936	1.443
0.460	0.460	9.572	78.192	32.737	8.169	31.939	1.498
0.470	0.470	9.891	82.554	32.757	8.346	31.942	1.553
0.480	0.480	10.211	87.010	32.777	8.521	31.945	1.609
0.490	0.490	10.530	91.556	32.798	8.694	31.948	1.666
WSEL	DEPTH	FLOW	FLOW	WETTED	FLOW	TOPWID	TOTAL
FT.	INC	AREA	RATE	PER	VEL	PLUS	ENERGY
	SQ.FT.	(CFS)	(FT)	(FPS)	OBSTRUCTIONS	(FT)	
0.500	0.500	10.850	96.193	32.818	8.866	31.952	1.723
0.510	0.510	11.169	100.919	32.838	9.035	31.955	1.780
0.520	0.520	11.489	105.734	32.858	9.203	31.958	1.837
0.530	0.530	11.809	110.636	32.879	9.369	31.961	1.895
0.540	0.540	12.128	115.624	32.899	9.534	31.964	1.954
0.550	0.550	12.448	120.698	32.919	9.696	31.967	2.012
0.560	0.560	12.768	125.857	32.939	9.858	31.970	2.071
0.570	0.570	13.087	131.100	32.959	10.017	31.973	2.131
0.580	0.580	13.407	136.426	32.980	10.176	31.976	2.191
0.590	0.590	13.727	141.834	33.000	10.333	31.979	2.251
0.600	0.600	14.047	147.324	33.020	10.488	31.982	2.311
0.610	0.610	14.366	152.894	33.040	10.643	31.985	2.372
0.620	0.620	14.686	158.545	33.061	10.796	31.988	2.433
0.630	0.630	15.006	164.276	33.081	10.947	31.991	2.494
0.640	0.640	15.326	170.085	33.101	11.098	31.994	2.556
0.650	0.650	15.646	175.972	33.121	11.247	31.997	2.618
0.660	0.660	15.966	181.937	33.142	11.395	32.000	2.680
0.670	0.670	16.291	184.459	34.142	11.323	33.000	2.664
0.680	0.680	16.626	187.186	35.142	11.259	34.000	2.652
0.690	0.690	16.971	190.113	36.142	11.202	35.000	2.642
0.700	0.700	17.326	193.239	37.142	11.153	36.000	2.635
0.710	0.710	17.691	196.558	38.143	11.111	37.000	2.630
0.720	0.720	18.066	200.069	39.143	11.074	38.000	2.628
0.730	0.730	18.451	203.768	40.143	11.044	39.000	2.627
0.740	0.740	18.846	207.655	41.143	11.019	40.000	2.628
0.750	0.750	19.251	211.728	42.143	10.998	41.000	2.631
0.760	0.760	19.666	215.986	43.144	10.983	42.000	2.636
0.770	0.770	20.091	220.428	44.144	10.971	43.000	2.642
0.780	0.780	20.526	225.053	45.144	10.964	44.000	2.650
0.790	0.790	20.971	229.860	46.144	10.961	45.000	2.659
0.800	0.800	21.426	234.851	47.144	10.961	46.000	2.669
0.810	0.810	21.891	240.024	48.145	10.964	47.000	2.680
0.820	0.820	22.366	245.380	49.145	10.971	48.000	2.692
0.830	0.830	22.851	250.919	50.145	10.981	49.000	2.705
0.840	0.840	23.346	256.642	51.145	10.993	50.000	2.720
0.850	0.850	23.851	262.549	52.145	11.008	51.000	2.735
0.860	0.860	24.366	268.641	53.146	11.025	52.000	2.751

INLET TABLE

Inlet #	Inlet Type	Actual Flow	Avail Head ft	Capacity CFS
IN1	1-SGL COA TYPE A	4.70	0.34	11.00
IN2	1-SGL COA TYPE C	5.10	0.33	11.00
IN3	1-SGL COA TYPE C	4.70	0.30	11.00
IN4	1-SGL COA TYPE A	4.70	0.32	11.00
IN5	1-SGL COA TYPE C	4.40	0.31	11.00
IN6	1-SGL COA TYPE A	4.40	0.31	11.00
IN7	1-SGL COA TYPE C	4.40	0.31	11.00
IN8	1-SGL COA TYPE C	4.40	0.31	11.00
IN9	1-SGL COA TYPE C	4.30	0.30	11.00
IN10	1-SGL COA TYPE C	4.30	0.30	11.00
IN11	1-SGL COA TYPE A	4.10	0.32	11.00
IN12	1-SGL COA TYPE A	4.10	0.32	11.00
IN13	1-SGL COA TYPE A	5.80	0.33	11.00
IN14	1-SGL COA TYPE A	5.80	0.33	11.00
IN15	1-SGL COA TYPE A	5.50	0.40	11.00
IN16	1-SGL COA TYPE C	4.80	0.38	11.00
IN17	1-SGL COA TYPE C	4.90	0.37	11.00
IN18	1-SGL COA TYPE C	4.90	0.37	11.00
IN19	1-SGL COA TYPE C	3.80	0.33	11.00
IN20	1-SGL COA TYPE C	3.80	0.33	11.00
IN21	1-SGL COA TYPE C	4.60	0.37	11.00
IN22	1-SGL COA TYPE C	4.20	0.35	11.00
IN23	1-SGL COA TYPE C	4.20	0.35	11.00

IN 1 - Sugar Creek Lane @ Lot 137

$$EGL \rightarrow \frac{28.34 - 25.91}{0.77 - 0.73} = \frac{28.34 - 28.27}{0.77 - x} \rightarrow 2.43(0.77 - x) = 0.0028$$
$$x = 0.76' < 0.87' \text{ ok!}$$

$$D \rightarrow \frac{28.34 - 25.91}{0.33 - 0.32} = \frac{28.34 - 28.27}{0.33 - x} \rightarrow 2.43(0.33 - x) = 7 \cdot 10^{-4}$$
$$S = 3.5\% \quad x = 0.33' \text{ ok!}$$

Inlet Capacity = 4.7 cfs \rightarrow Type 'A' single

IN 2 - Sugar Creek Lane @ Lot 36

$$EGL \rightarrow \frac{33.46 - 30.86}{0.85 - 0.81} = \frac{33.46 - 32.4}{0.85 - x} \rightarrow 2.6(0.85 - x) = 0.04$$
$$x = 0.83' < 0.87' \text{ ok!}$$

$$D \rightarrow \frac{33.46 - 30.86}{0.35 - 0.34} = \frac{33.46 - 32.4}{0.35 - x} \rightarrow 2.6(0.35 - x) = 0.01$$
$$S = 3.5\% \quad x = 0.34' \text{ ok!}$$

Inlet Capacity = 5.1 cfs \rightarrow Type 'C' single

IN 3 & 4 - Sugar Creek Lane @ Lot 35

$$EGL \rightarrow \frac{28.34 - 25.91}{0.77 - 0.73} = \frac{28.34 - 28.03}{0.77 - x} \rightarrow 2.43(0.77 - x) = 0.04$$
$$x = 0.76' < 0.87' \text{ ok!}$$

$$D \rightarrow \frac{28.34 - 25.91}{0.33 - 0.32} = \frac{28.34 - 28.03}{0.33 - x} \rightarrow 2.43(0.33 - x) = 0.003$$
$$S = 3.5\% \quad x = 0.33'$$

Inlet Capacity = 4.7 cfs - IN3 - Type 'C' single

IN4 - Type 'A' single

IN 5 & 6 - Sugar Creek Lane @ Lot 33 and 38

$$EGL \rightarrow \frac{32.14 - 29.38}{0.90 - 0.80} = \frac{32.14 - 29.75}{0.90 - x} \rightarrow 2.76(0.9 - x) = 0.23$$
$$x = 0.81' < 0.87' \text{ ok!}$$

$$D \rightarrow \frac{32.14 - 29.38}{0.33 - 0.32} = \frac{32.14 - 29.75}{0.33 - x} \rightarrow 2.76(0.33 - x) = 0.02$$
$$S = 4.5\% \quad x = 0.32'$$

Inlet Capacity = 4.4 cfs - Type 'A' single

IN 7 & 8 - Sugar Creek Lane @ Lot 27 & 43

$$\text{EGL} \rightarrow \frac{29.38 - 26.72}{0.85 - 0.80} = \frac{29.38 - 29.31}{0.85 - x} \rightarrow 2.66(0.85 - x) = 0.0035$$

$x = 0.85' < 0.87' \text{ OK!}$

$$D \rightarrow \frac{29.38 - 26.72}{0.32 - 0.31} = \frac{29.38 - 29.31}{0.32 - x} \rightarrow 2.66(0.32 - x) = 0.007$$

$x = 0.32'$

S = 4.5%

Inlet Capacity = 4.4 cfs - Type 'C' Single

IN 9 & 10 - Sugar Creek Lane @ Lot 23 and 47

$$\text{EGL} \rightarrow \frac{26.72 - 24.17}{0.80 - 0.75} = \frac{26.72 - 26.60}{0.80 - x} \rightarrow 2.55(0.80 - x) = 0.006$$

$x = 0.80' < 0.87' \text{ OK!}$

$$D \rightarrow \frac{26.72 - 24.17}{0.31 - 0.30} = \frac{26.72 - 26.60}{0.31 - x} \rightarrow 2.55(0.31 - x) = 0.001$$

$x = 0.31'$

S = 4.5%

Inlet Capacity = 4.3 cfs - Type 'C' single

IN 11 & 12 - Willow Canyon Trail @ Lot 26

$$\text{EGL} \rightarrow \frac{24.31 - 22.34}{0.67 - 0.65} = \frac{24.31 - 24.1}{0.67 - x} \rightarrow 1.97(0.67 - x) = 0.004$$

$x = 0.67' < 0.87'$

$$D \rightarrow \frac{24.31 - 22.34}{0.32 - 0.31} = \frac{24.31 - 24.1}{0.32 - x} \rightarrow 1.97(0.32 - x) = 0.002$$

$x = 0.32'$

S = 3.5%

Inlet Capacity = 4.1 cfs - Type 'A' single

IN 13 & 14 - Willow Canyon Trail between lots 10 - 11

$$\text{EGL} \rightarrow \frac{33.52 - 30.49}{0.87 - 0.82} = \frac{33.52 - 32.49}{0.87 - x} \rightarrow 3.03(0.87 - x) = 0.05$$

$x = 0.85' < 0.87' \text{ OK!}$

$$D \rightarrow \frac{33.52 - 30.49}{0.34 - 0.33} = \frac{33.52 - 32.49}{0.34 - x} \rightarrow 3.03(0.34 - x) = 0.01$$

$x = 0.33'$

S = 4.5%

Inlet Capacity = 5.8 cfs - Type 'A' Single

IN 15 - Willow Canyon Trail @ Lot 14

$$\text{EGL} \rightarrow \frac{38.54 - 36.02}{0.77 - 0.74} = \frac{38.54 - 36.32}{0.77 - x} \rightarrow 2.52(0.77 - x) = 0.07$$
$$x = 0.74' < 0.87' \text{ ok!}$$

$$\text{D} \rightarrow \frac{38.54 - 36.02}{0.41 - 0.40} = \frac{38.54 - 36.32}{0.41 - x} \rightarrow 2.52(0.41 - x) = 0.02$$
$$s = 2.0\% \quad x = 0.40'$$

Inlet Capacity = 5.5 cfs - Type 'A' single

IN 16 - Willow Canyon Trail @ Lot 15

$$\text{EGL} \rightarrow \frac{31.18 - 28.86}{0.69 - 0.66} = \frac{31.18 - 30.82}{0.69 - x} \rightarrow 2.32(0.69 - x) = 0.01$$
$$x = 0.68' < 0.87'$$

$$\text{D} \rightarrow \frac{31.18 - 28.86}{0.38 - 0.37} = \frac{31.18 - 30.82}{0.38 - x} \rightarrow 2.32(0.38 - x) = 0.003$$
$$s = 2.0\% \quad x = 0.38'$$

Inlet Capacity = 4.8 cfs - Type 'C' single

IN 17 & 18 - Willow Canyon Trail @ Lot 17

$$\text{EGL} \rightarrow \frac{31.18 - 28.86}{0.69 - 0.66} = \frac{31.18 - 29.26}{0.69 - x} \rightarrow 2.32(0.69 - x) = 0.06$$
$$x = 0.66' < 0.87'$$

$$\text{D} \rightarrow \frac{31.18 - 28.86}{0.38 - 0.37} = \frac{31.18 - 29.26}{0.38 - x} \rightarrow 2.32(0.38 - x) = 0.02$$
$$s = 2.0\% \quad x = 0.37'$$

Inlet Capacity = 4.9 cfs - Type 'C' single

IN 19 & 20 - Willow Canyon Trail @ Lot 18

$$\text{EGL} \rightarrow \frac{20.33 - 18.38}{0.55 - 0.52} = \frac{20.33 - 19.46}{0.55 - x} \rightarrow 1.95(0.55 - x) = 0.02$$
$$x = 0.54' < 0.87'$$

$$\text{D} \rightarrow \frac{20.33 - 18.38}{0.33 - 0.32} = \frac{20.33 - 19.46}{0.33 - x} \rightarrow 1.95(0.33 - x) = 0.009$$
$$s = 2.0\% \quad x = 0.33'$$

Inlet Capacity = 3.8 cfs - Type 'C' single

IN 21 - Willow Canyon trail @ Lot 20

$$\text{EGL} \rightarrow \frac{29.76 - 27.33}{0.70 - 0.67} = \frac{29.76 - 28.86}{0.70 - x} \rightarrow 2.43(0.70 - x) = 0.027$$
$$x = 0.69' < 0.87'$$

$$D \rightarrow \frac{29.76 - 27.33}{0.36 - 0.35} = \frac{29.76 - 28.86}{0.36 - x} \rightarrow 2.43(0.36 - x) = 0.009$$
$$S = 2.5\% \quad x = 0.36'$$

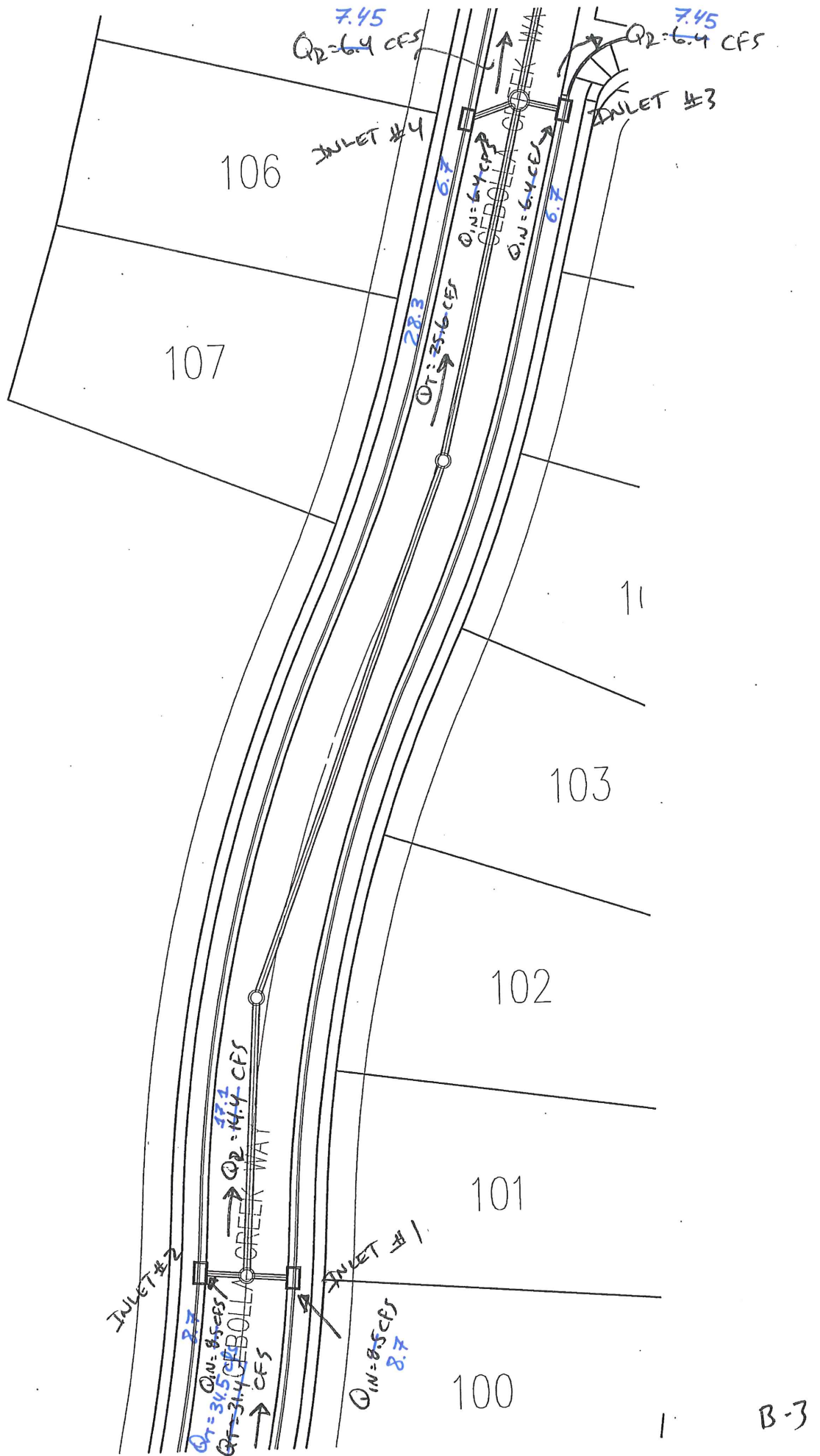
Inlet Capacity = 4.6 cfs - Type 'C' single

IN 22 & 23 - Willow Canyon Trail @ Lot 20

$$\text{EGL} \rightarrow \frac{24.99 - 22.72}{0.63 - 0.60} = \frac{24.99 - 24.26}{0.63 - x} \rightarrow 2.27(0.63 - x) = 0.02$$
$$x = 0.62' < 0.87'$$

$$D \rightarrow \frac{24.99 - 22.72}{0.34 - 0.33} = \frac{24.99 - 24.26}{0.34 - x} \rightarrow 2.27(0.34 - x) = 0.007$$
$$S = 2.5\% \quad x = 0.33'$$

Inlet Capacity = 4.2 cfs



APPENDIX C:
STORM DRAIN PIPE ANALYSIS

PHASE 3

STORM DRAIN PIPE TABLE					
PIPE #	Size in.	Slope	Capacity¹ cfs	ACTUAL FLOW cfs	PIPE LENGTH ft
ONSITE					
SDP1	18	1.00%	10.50	5.10	
SDP2	18	1.00%	10.50	9.90	
SDP3	18	2.00%	14.86	14.10	
SDP4	24	2.00%	31.99	18.50	
SDP5	24	2.00%	31.99	27.30	
SDP6	30	1.00%	41.02	35.90	
SDP7	30	2.00%	58.01	44.30	
SDP8	18	1.00%	10.50	8.20	
SDP9	30	2.00%	58.01	44.20	
SDP10	30	2.00%	58.01	44.20	
SDP11	30	2.00%	58.01	55.80	
SDP12	30	2.00%	58.01	55.80	
SDP13	36	1.00%	66.70	66.10	
SDP14	36	2.00%	94.33	74.80	
SDP15	42	2.00%	142.28	127.80	
SDP16	42	2.00%	142.28	140.80	

1- Capacity Based on Manning's Eq w/ N= 0.013

PHASE 4

STORM DRAIN PIPE TABLE					
PIPE #	Size in.	Slope	Capacity¹ cfs	ACTUAL FLOW cfs	PIPE LENGTH ft
ONSITE					
SDP1	24	2.00%	31.99	21.60	

1- Capacity Based on Manning's Eq w/ N= 0.013

**APPENDIX D:
DETENTION POND ANALYSIS**

Detention Pond Volume Calculations

NOTE: Blue shaded cells require user input, all other cells should not be edited.

ASSUMPTIONS:

1. Area less than 40 acres (simplified hydrograph method).
2. 100-year, 6-hour storm event

Del Webb @ Mirehaven Phase 3&4

Peak Flow per Acre - DPM Section 22.2 Table A-9

Zone	A	B	C	D
1	1.29	2.03	2.87	4.37
2	1.56	2.28	3.14	4.7
3	1.87	2.6	3.45	5.02
4	2.2	2.92	3.73	5.25

Basin Name : KAFB EUL - 2

Choose Zone (1 - 4) 1

Basin Area = (acres) 12.37

Exist Conditions				Proposed Conditions			
Treatment	Percentage	Area	Q (cfs)	Treatment	Percentage	Area	Q (cfs)
A	0.0%	0.00	0.00	A	0.0%	0.00	0.00
B	50.0%	6.19	12.56	B	0.0%	0.00	0.00
C	50.0%	6.19	17.75	C	10.0%	1.24	3.55
D	0.0%	0.00	0.00	D	90.0%	11.13	48.65
Q Peak - exist.=			30.31	Peak Q Developed=			52.20

Use my calculated exist cond. flow as the peak controlled discharge (1 = yes, or N) ??

n

If No, what is the maximum allowable discharge ?

44.2

Excess Precipitation - DPM Section 22.2 Table A-8

Zone	A	B	C	D
1	0.44	0.67	0.99	1.97
2	0.53	0.78	1.13	2.12
3	0.66	0.92	1.29	2.36
4	0.8	1.08	1.46	2.64

Determine Developed E (avg excess precipitation for the developed basin)

$$\%A \times E = 0.00$$

$$\%B \times E = 0.00$$

$$\%C \times E = 0.10$$

$$\%D \times E = 1.77$$

$$\text{Avg E(in)} = 1.87$$

Determine Tb (hours)

$$T_b = 0.710$$

Determine Tc (Note: Tc is assumed to be 0.2 hours, this should be checked using DPM 22.2.B.2)

$$T_c = 0.2$$

Determine Tp and Duration of Peak (hours)

$$T_p = 0.198333$$

$$\text{Peak Duration} = 0.225$$

Compute the required retention volume using the simple hydrograph, Figure A-3 in DPM Section 22.2

$$\text{Time to Control Q (hrs)} = 0.168$$

$$\text{Time to end of Control Q (hrs)} = 0.467223$$

$$\text{Duration of Control Q (hrs)} = 0.299$$

$$\text{Required Detention Volume (CF)} = 7551.1$$

**APPENDIX E:
FIRST FLUSH REQUIREMENTS**

First Flush

$$V_s = A_D \cdot 0.34'' \text{ CF}$$

$$\text{Cash in-Lieu} = V_s \cdot \$6/\text{CF}$$

• Basins draining to the pond:

$$3\text{-J} \rightarrow A = 2.21 \text{ Ac} \cdot 42\% \text{ D} = 0.9297 \text{ Ac}$$

$$3\text{-M} \rightarrow A = 0.41 \text{ Ac} \cdot 90\% \text{ D} = 0.3662 \text{ Ac}$$

$$4\text{-A} \rightarrow A = 2.19 \text{ Ac} \cdot 40\% \text{ D} = 0.8765 \text{ Ac}$$

$$4\text{-B} \rightarrow A = 0.59 \text{ Ac} \cdot 66\% \text{ D} = 0.3895 \text{ Ac}$$

$$4\text{-C} \rightarrow A = 4.75 \text{ Ac} \cdot 40\% \text{ D} = 1.8993 \text{ Ac}$$

$$4\text{-D} \rightarrow A = 2.75 \text{ Ac} \cdot 40\% \text{ D} = 1.0995 \text{ Ac}$$

$$+ \underline{\hspace{10em}} \\ 5.5610 \text{ Ac}$$

$$\boxed{V_s = 5.5610 \text{ Ac} \cdot 43560 \text{ sqft/Ac} \cdot 0.34''/12 = \underline{6863.47 \text{ CF}}}$$

• Cash in-Lieu:

$$3\text{-A} \rightarrow A = 7.59 \text{ Ac} \cdot 42\% \text{ D} = 3.1893 \text{ Ac}$$

$$3\text{-B} \rightarrow A = 1.31 \text{ Ac} \cdot 66\% \text{ D} = 0.8651 \text{ Ac}$$

$$3\text{-C} \rightarrow A = 2.64 \text{ Ac} \cdot 42\% \text{ D} = 1.1096 \text{ Ac}$$

$$3\text{-D} \rightarrow A = 3.10 \text{ Ac} \cdot 42\% \text{ D} = 1.3002 \text{ Ac}$$

$$3\text{-E} \rightarrow A = 2.49 \text{ Ac} \cdot 42\% \text{ D} = 1.0457 \text{ Ac}$$

$$3\text{-F} \rightarrow A = 2.51 \text{ Ac} \cdot 42\% \text{ D} = 1.0541 \text{ Ac}$$

$$3\text{-G} \rightarrow A = 4.00 \text{ Ac} \cdot 42\% \text{ D} = 1.6783 \text{ Ac}$$

$$3\text{-H} \rightarrow A = 2.87 \text{ Ac} \cdot 42\% \text{ D} = 1.2066 \text{ Ac}$$

$$3\text{-I} \rightarrow A = 5.47 \text{ Ac} \cdot 42\% \text{ D} = 2.2982 \text{ Ac}$$

$$3\text{-K} \rightarrow A = 2.61 \text{ Ac} \cdot 10\% \text{ D} = 0.2613 \text{ Ac}$$

$$4\text{-E} \rightarrow A = 4.56 \text{ Ac} \cdot 40\% \text{ D} = 1.8258 \text{ Ac}$$

$$4\text{-F} \rightarrow A = 2.14 \text{ Ac} \cdot 40\% \text{ D} = 0.8573 \text{ Ac}$$

$$4-H \rightarrow A = 3.06 \text{ Ac} \cdot 40\% D \Rightarrow 1.2222 \text{ Ac}$$

$$A_{T(\text{PHASE3})} = 14.0089 \text{ Ac}$$

$$V_{S(\text{PHASE3})} = 14.0089 \text{ Ac} \cdot 43560 \text{ sq ft/Ac} \cdot 0.34"/12 = 17289.85 \text{ CF}$$

$$\text{Cash in-Lieu (PHASE 3)} = 17289.85 \text{ CF} \cdot \$6/\text{CF} = \$103,739.12$$

$$A_{T(\text{PHASE4})} = 3.9054 \text{ Ac}$$

$$V_{S(\text{PHASE4})} = 3.9054 \text{ Ac} \cdot 43560 \text{ sq ft/Ac} \cdot 0.34"/12 = 4,820.13 \text{ CF}$$

$$\text{Cash in-Lieu (PHASE 4)} = 4,820.13 \text{ CF} \cdot \$6/\text{CF} = \$28,920.81$$

EXHIBITS

EXHIBIT A: SUBDIVISION LOCATION MAP AND SUMMARY PLAT

EXHIBIT B: DEVELOPED CONDITIONS BASIN MAP FROM DMP

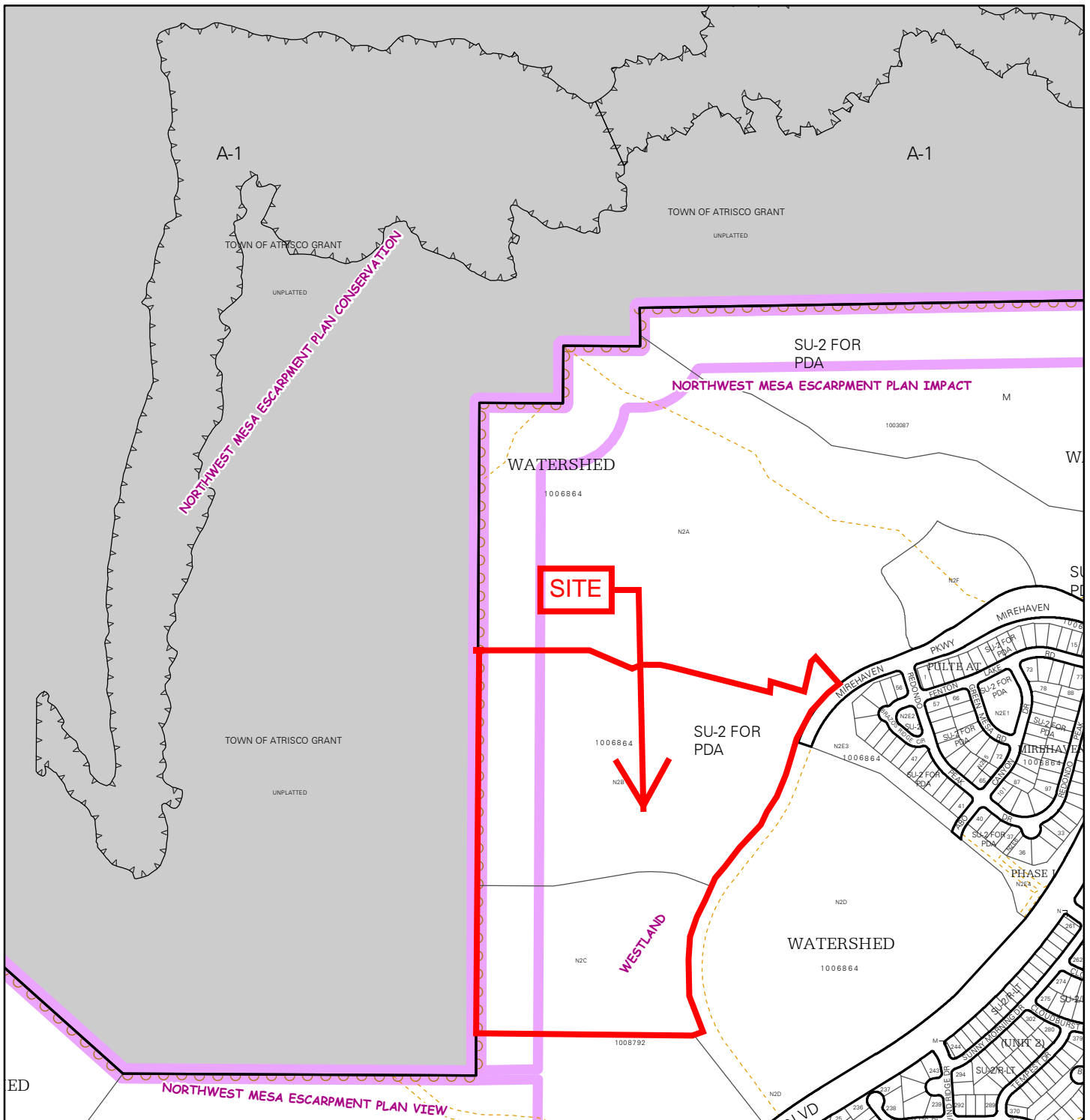
EXHIBIT C: EXISTING CONDITIONS BASIN MAP

EXHIBIT D: ULTIMATE CONDITIONS BASIN MAP

EXHIBIT E: STORM DRAIN NETWORK

EXHIBIT F: GRADING PLAN

**EXHIBIT A:
SUBDIVISION LOCATION MAP AND SUMMARY
PLAT**



For more current information and details visit: <http://www.cabq.gov/gis>

Map amended through: 9/2/2014

Note: Grey Shading Represents Area Outside of the City Limits

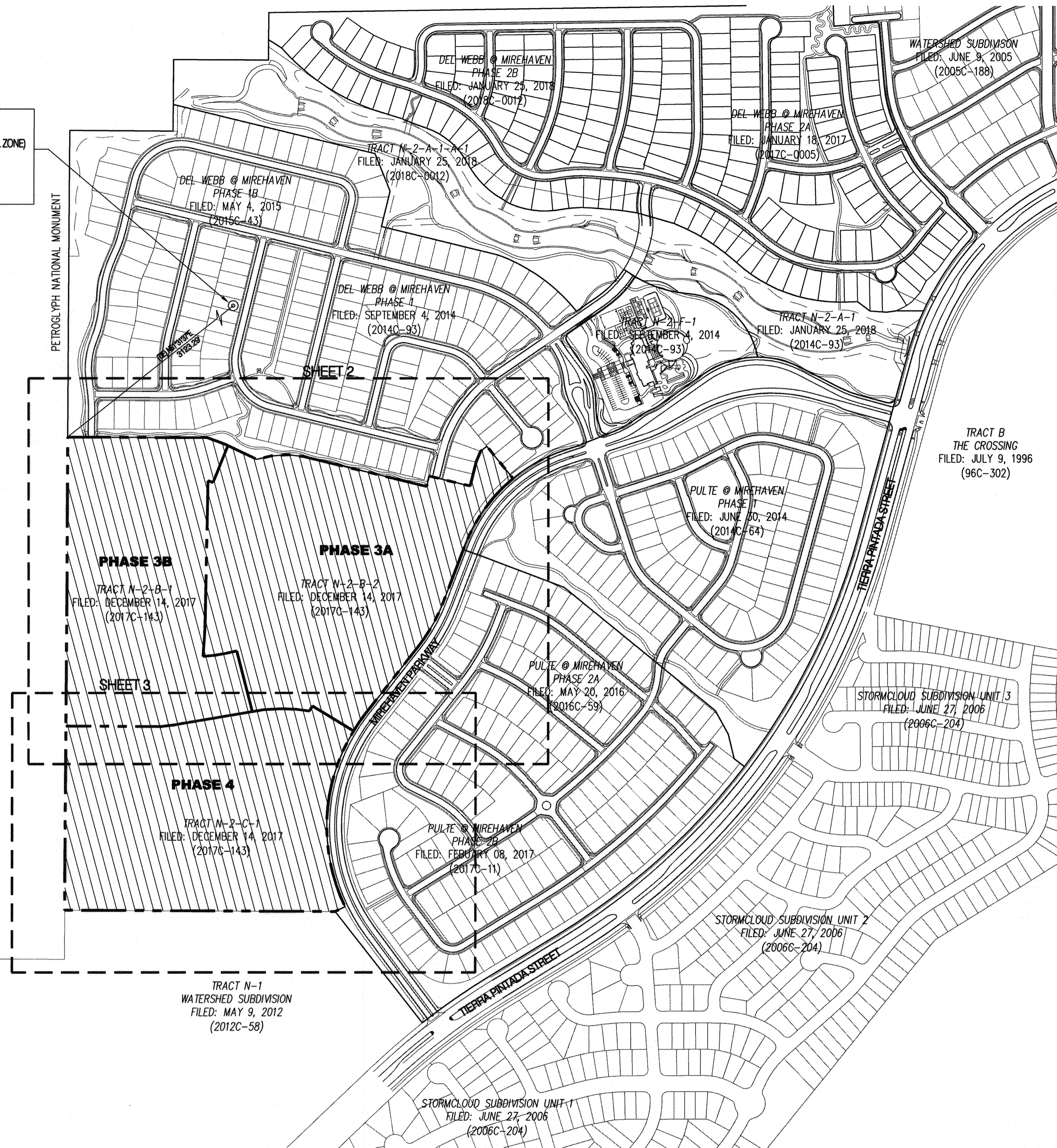
Zone Atlas Page:
H-08-Z

Selected Symbols

SECTOR PLANS	Escarpment
Design Overlay Zones	2 Mile Airport Zone
City Historic Zones	Airport Noise Contours
H-1 Buffer Zone	Wall Overlay Zone
Petroglyph Mon.	

0 750 1,500 Feet

ACS BRASS TABLE "BH 41"
 GEOGRAPHIC POSITION (NAD 1983)
 NM STATE PLANE COORDINATES (CENTRAL ZONE)
 N=1,496,608.828 U.S. SURVEY FEET
 E=1,491,701.376 U.S. SURVEY FEET
 GROUND TO GRID FACTOR = 0.99967088
 DELTA ALPHA = -0°17'09.70"

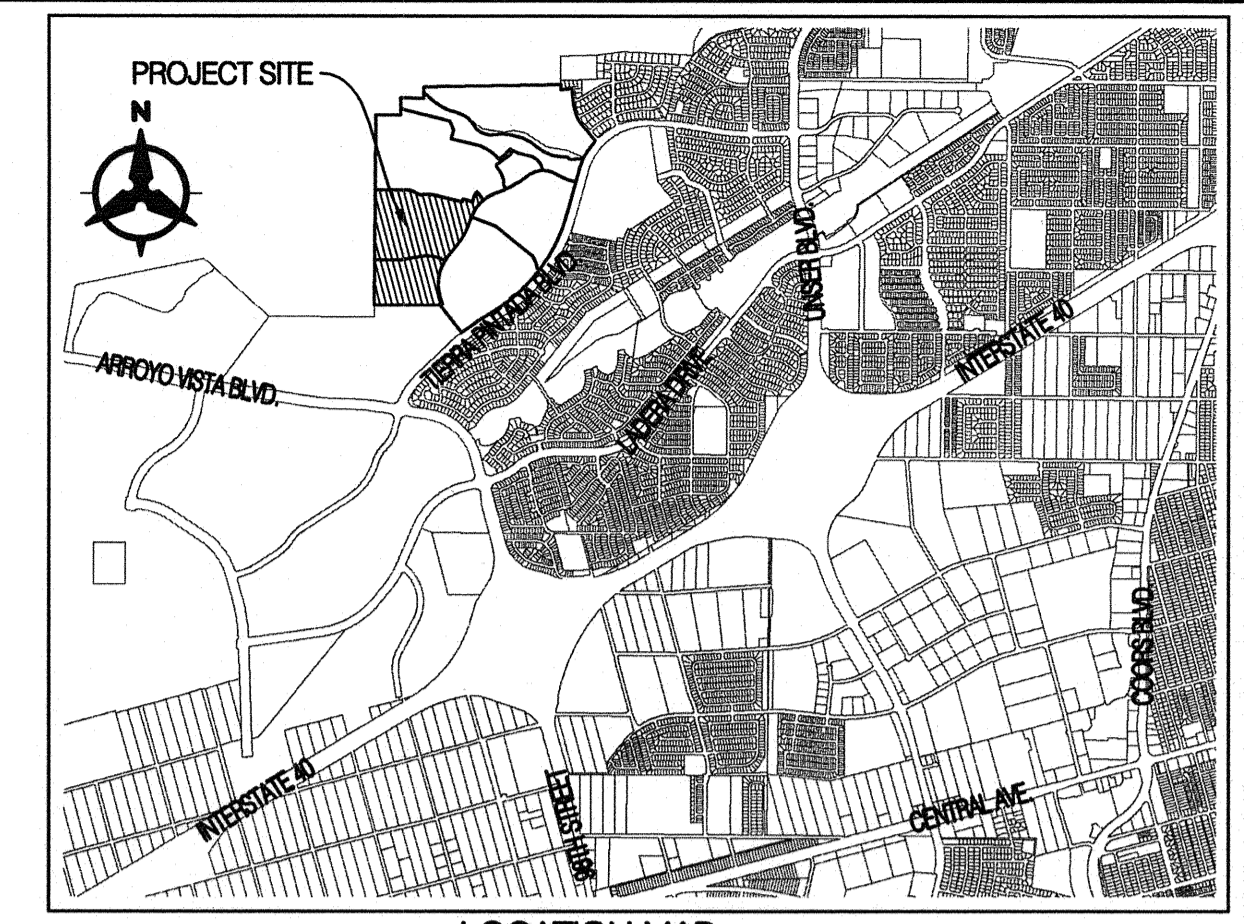
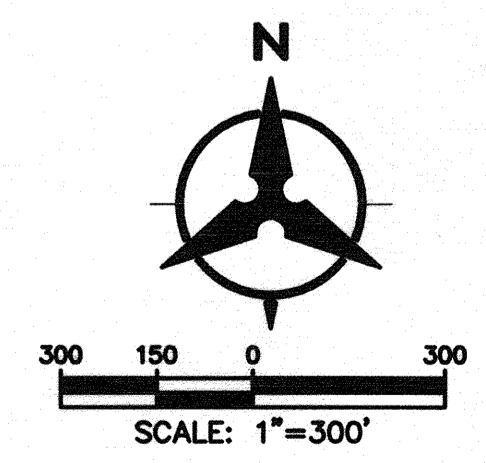


PRELIMINARY PLAT
 DEL WEBB @ MIREHAVEN PHASE 3 AND PHASE 4
 (REPLAT OF TRACT N-2-B-1, N-2-B-2 AND TRACT N-2-C-1)
 ALBUQUERQUE, NEW MEXICO

APRIL, 2018

PLAT IS LOCATED WITHIN TOWN OF ATRISCO GRANT, PROJECTED SECTIONS 8, TOWNSHIP 10 NORTH, RANGE 2 EAST, NEW MEXICO PRINCIPAL MERIDIAN, CITY OF ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO.

LEGEND	
	SUBDIVISION BOUNDARY LINE
	TRACT LINE
	ADJOINING PROPERTY LINE
	EXISTING EASEMENT
	PROJECT SITE



SURVEY NOTES:

- UNLESS OTHERWISE NOTED, ALL BOUNDARY CORNERS SHOWN THUS (●) SHALL BE MARKED BY A #5 REBAR STAMPED "PLOTNER, PS 14271".
- ALL STREET CENTERLINE MONUMENTATION SHALL BE INSTALLED AT ALL CENTERLINE PC'S, PT'S, ANGLE POINTS AND STREET INTERSECTIONS AND SHOWN THUS (▲) WILL BE MARKED BY A FOUR (4") ALUMINUM CAP STAMPED "CITY OF ALBUQUERQUE CENTERLINE MONUMENTATION MARKED. DO NOT DISTURB, P.L.S. 14271".
- THE SUBDIVISION BOUNDARY WILL BE TIED TO THE NEW MEXICO STATE PLANE COORDINATE SYSTEM AS SHOWN.
- BASIS OF BEARINGS WILL BE NEW MEXICO STATE PLANE GRID BEARINGS.
- DISTANCES SHALL BE GROUND DISTANCES.
- MANHOLES WILL BE OFFSET AT ALL POINTS OF CURVATURE POINTS OF TANGENCY, STREET INTERSECTIONS AND ALL OTHER ANGLE POINTS TO ALLOW THE USE OF CENTERLINE MONUMENTATION.

APPROVED FOR MONUMENTATION AND STREET NAMES

James M. Rimbauer, P.S. 05/09/18
 CITY SURVEYOR DATE

OWNER:

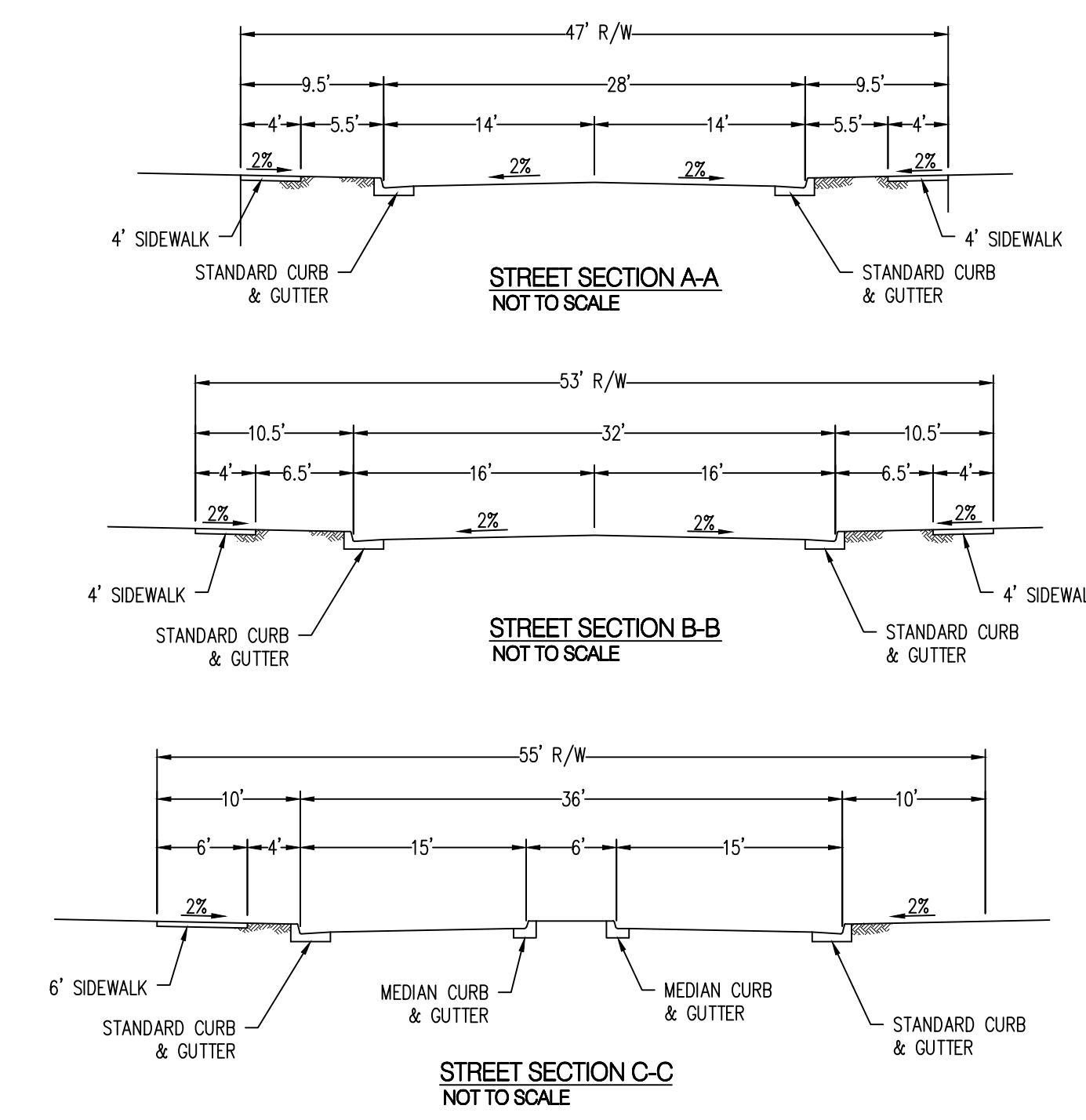
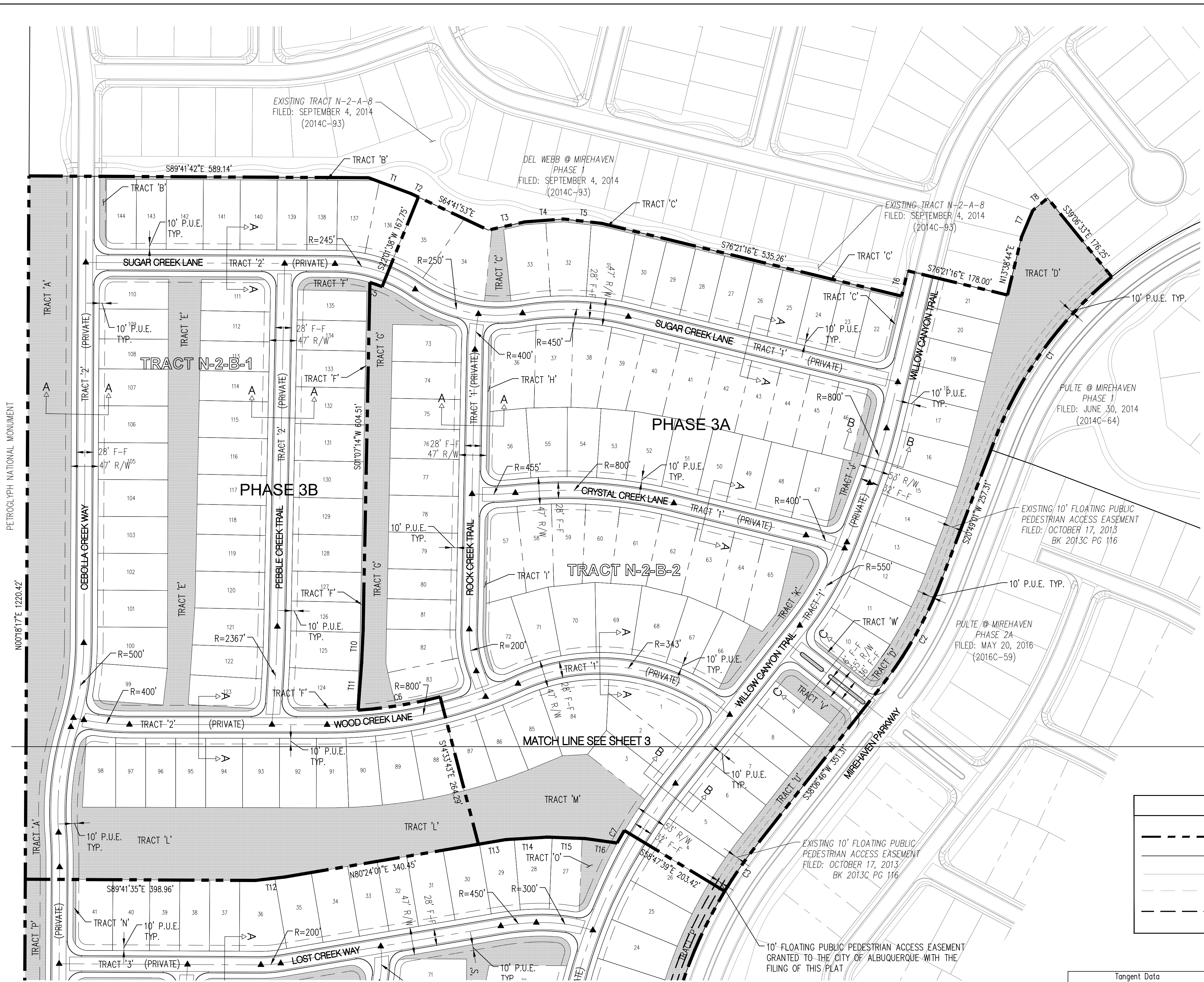
WESTERN ALBUQUERQUE LAND HOLDINGS LLC, A DELAWARE LIMITED LIABILITY COMPANY
 BY: GARRETT DEVELOPMENT CORPORATION, AGENT
 BY: *Paul E. Swartzell, LP*
 VP

DATE: May 10, 2018

PULTE HOMES OF NEW MEXICO, INC

BY: *[Signature]*

DATE: May 8, 2018



- LEGAL DESCRIPTION:**
 A REPLAT OF:
 TRACT N-2-B-1, N-2-B-2, N-2-C-1
 WATERSHED SUBDIVISION
 FILED: DECEMBER 14, 2017 (2017C-0143)
- EXISTING ZONING:** SEE APPROVED SITE DEVELOPMENT PLAN FOR SUBDIVISION
PROPOSED ZONING: SEE APPROVED SITE DEVELOPMENT PLAN FOR SUBDIVISION
PROPOSED RESIDENTIAL DEVELOPMENT: SINGLE FAMILY DETACHED RESIDENTIAL
- TOTAL ACREAGE:**
 EXISTING TRACT N-2-B-1 = 17.6216 ACRES
 EXISTING TRACT N-2-B-2 = 23.0746 ACRES
 EXISTING TRACT N-2-C-1 = 21.1472 ACRES
- ACREAGE:**
 PHASE 3B
 TRACT 'A' = 1.8660 Acres
 TRACT 'B' = 0.0839 Acres
 TRACT 'E' = 0.9529 Acres
 TRACT 'F' = 0.116 Acres
 TRACT 'L' = 1.8566 Acres
 TRACT 'Y' = 4.2281 Acres (SEE NOTE 4)
 PHASE 3A
 TRACT 'C' = 0.1926 Acres
 TRACT 'D' = 1.2139 Acres
 TRACT 'G' = 0.8345 Acres
 TRACT 'H' = 0.0267 Acres
 TRACT 'I' = 0.0310 Acres
 TRACT 'J' = 0.1171 Acres
 TRACT 'K' = 0.2091 Acres
 TRACT 'M' = 0.7749 Acres
 TRACT 'U' = 0.2605 Acres
 TRACT 'V' = 0.0994 Acres
 TRACT 'W' = 0.0126 Acres
 TRACT '2' = 3.3709 Acres (SEE NOTE 4)
 PHASE 4
 TRACT 'N' = 0.0124 Acres
 TRACT 'O' = 0.1003 Acres
 TRACT 'P' = 1.7457 Acres
 TRACT 'Q' = 0.3412 Acres
 TRACT 'R' = 0.5943 Acres
 TRACT 'S' = 0.6548 Acres
 TRACT 'T' = 0.0955 Acres
 TRACT '3' = 4.3312 Acres (SEE NOTE 4)
- NUMBER OF LOTS:** DEL WEBB PHASE 3A = 87
 DEL WEBB PHASE 3B = 57
 DEL WEBB PHASE 4 = 78
TOTAL 222
- PROPOSED DENSITY:** 3.67 D.U./ACRE
- MINIMUM LOT DIMENSIONS:** 52'x115', 64'x115'
MINIMUM LOT AREA: 5980 S.F. 7360 S.F.
- TRACTS 1, 2, & 3 TO BE OWNED BY THE DEL WEBB H.O.A. AND CONTAINS THE FOLLOWING BLANKET EASEMENTS:**
- PUBLIC SUBSURFACE SANITARY SEWER, PUBLIC SUBSURFACE WATERLINE EASEMENT GRANTED TO ABCWJA FOR OWNERSHIP, OPERATIONS AND MAINTENANCE OF THE PUBLIC WATER AND SANITARY SEWER INFRASTRUCTURE.
 - A PUBLIC SUBSURFACE DRAINAGE EASEMENT GRANTED TO THE CITY OF ALBUQUERQUE FOR OWNERSHIP, OPERATIONS AND MAINTENANCE OF ALL DRAINAGE INFRASTRUCTURE.
 - A PRIVATE PEDESTRIAN AND VEHICULAR ACCESS EASEMENT AND PRIVATE SURFACE DRAINAGE EASEMENT GRANTED TO THE DEL WEBB H.O.A. FOR THE OWNERSHIP, OPERATIONS AND MAINTENANCE OF THE SIDEWALK AND ROADWAY INFRASTRUCTURE TO SERVE THE RESIDENCE IN DEL WEBB.
- LOT SETBACKS:** SEE APPROVED SITE DEVELOPMENT PLAN FOR SUBDIVISION.
- PROPOSED SOLAR ACCESS PROVISIONS,** SEE PARAGRAPH 14-14-4-(2B) OF THIS ARTICLE.
- THE H.O.A. SHALL MAINTAIN ALL TRAILS LOCATED WITHIN H.O.A. TRACTS AND ITS CONNECTIONS TO ANY PUBLIC OWNED AND MAINTAINED SIDEWALK / TRAIL.**
- TRACT 'A' THROUGH TRACT 'W' AND TRACTS 1, 2, & 3 TO BE OWNED AND MAINTAINED BY THE HOME OWNERS ASSOCIATION.**

LEGEND

- SUBDIVISION BOUNDARY LINE
- TRACT LINE
- ADJOINING PROPERTY LINE
- EXISTING EASEMENT
- PROPOSED EASEMENT

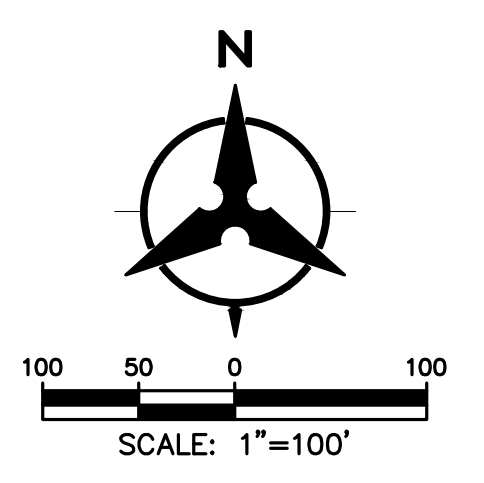
Tangent Data

ID	BEARING	DISTANCE
T1	S69°28'52"E	78.76'
T2	S64°41'53"E	13.85'
T3	N77°25'21"E	64.68'
T4	N85°37'22"E	67.32'
T5	S83°32'17"E	67.17'
T6	N13°38'44"E	45.07'
T7	N22°57'21"E	49.83'
T8	N50°16'30"E	33.41'
T9	S64°12'51"W	46.91'
T10	S02°39'25"W	56.63'
T11	S04°10'06"W	81.48'
T12	N83°18'14"E	51.79'
T13	N80°24'01"E	49.38'
T14	N86°42'59"E	71.57'
T15	S87°47'56"E	65.57'
T16	S82°01'48"E	55.25'

Curve Data

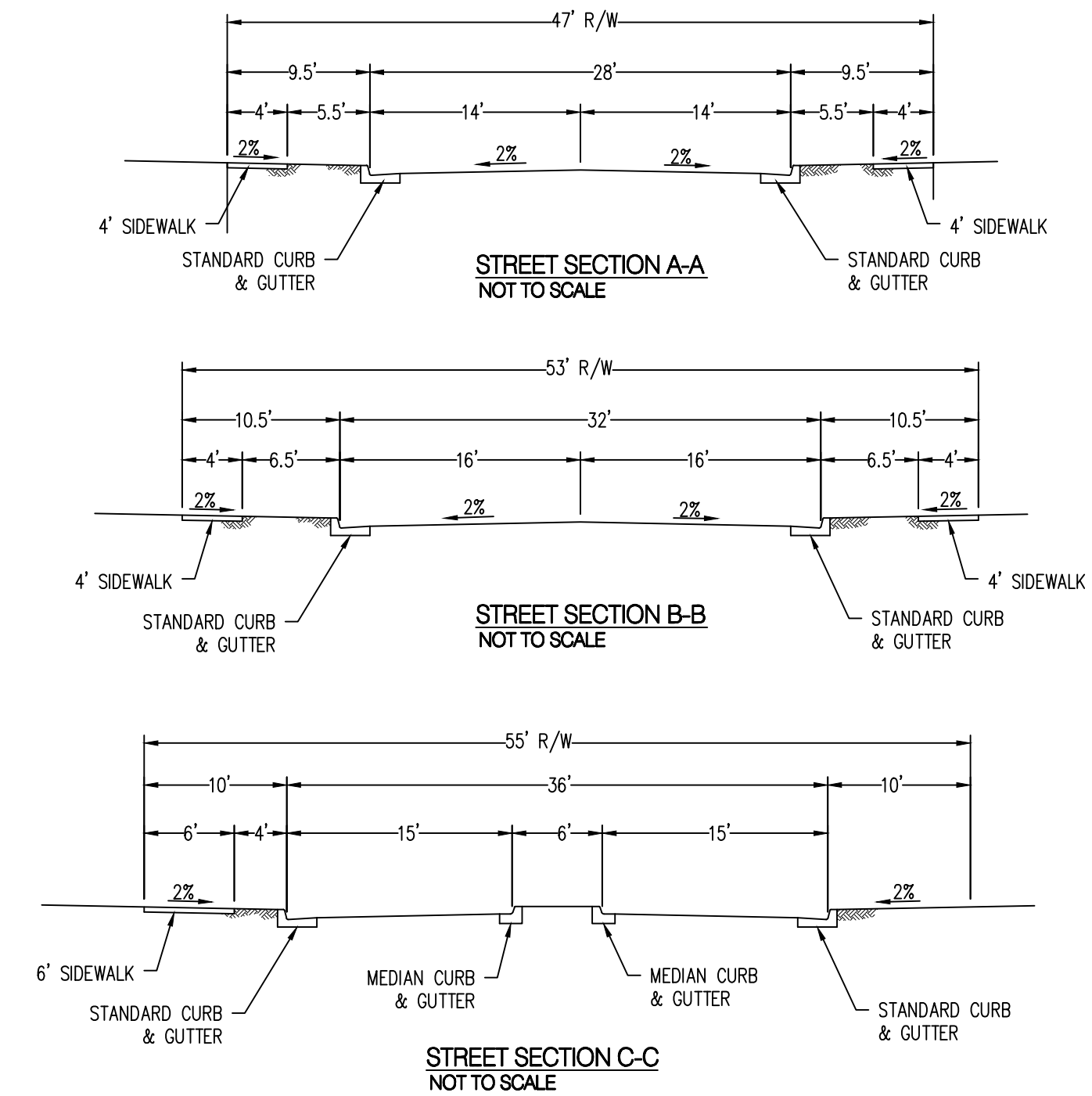
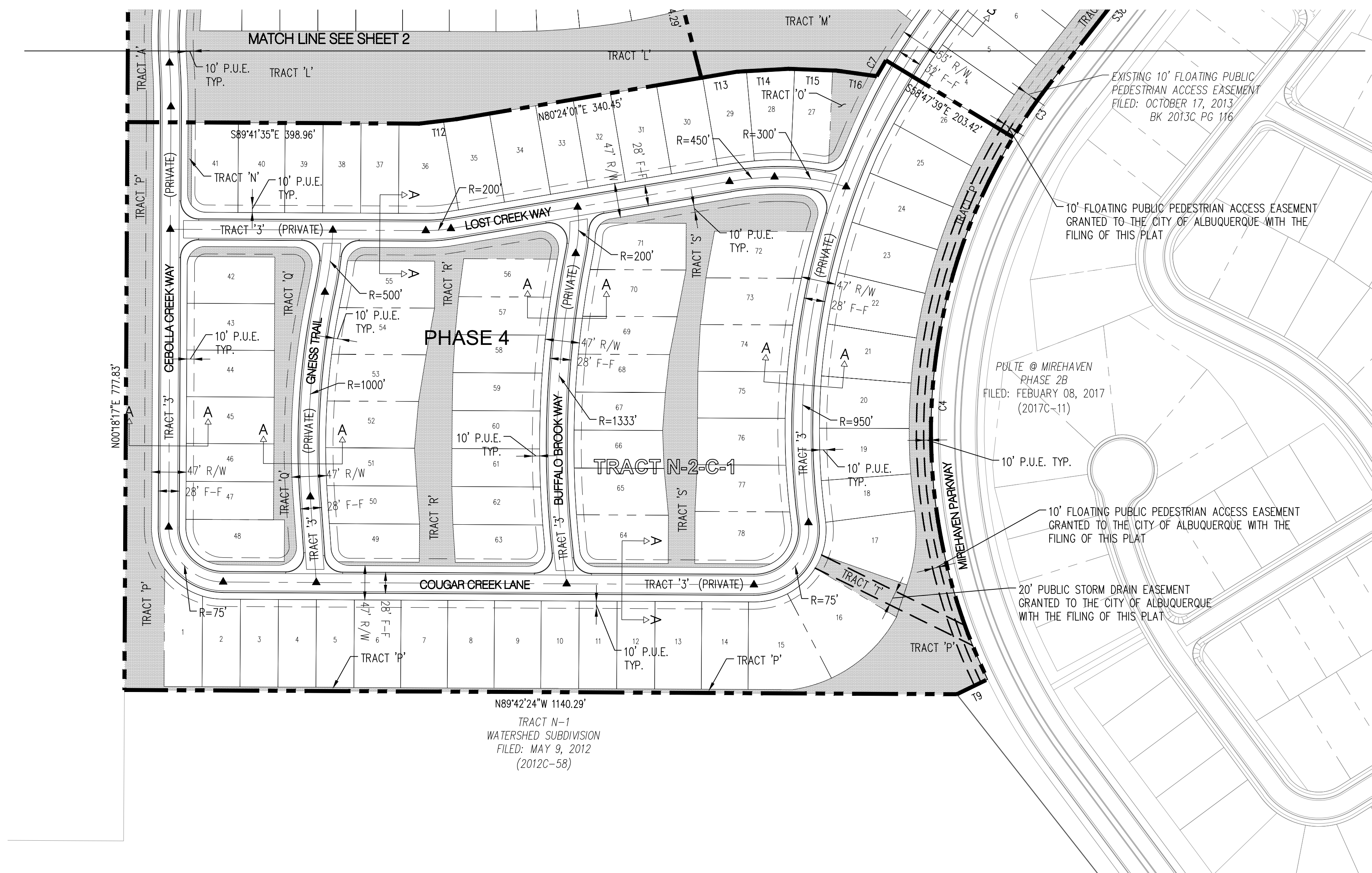
ID	DELTA	TANGENT	ARC	RADIUS	CHORD	CHORD BRG	DEG OF CRV
C1	29°40'00" LT	179.96'	351.83'	679.50'	347.92'	S35°39'01"W	08°25'55"
C2	171°7'45" RT	109.58'	217.50'	720.50'	216.67'	S29°27'53"W	07°57'08"
C3	06°57'29" LT	47.39'	94.66'	779.50'	94.60'	S34°38'02"W	07°21'01"
C4	56°56'25" LT	422.71'	774.66'	779.50'	743.18'	S02°41'05"W	07°21'01"
C5	05°48'15" LT	11.23'	22.44'	221.50'	22.43'	N70°52'29"W	25°52'02"
C6	10°38'42" LT	72.34'	144.27'	776.50'	144.06'	N80°45'38"E	07°22'43"
C7	01°28'31" RT	12.57'	25.14'	976.50'	25.14'	N30°28'06"E	05°52'03"

PRELIMINARY PLAT
DEL WEBB @ MIREHAVEN PHASE 3 AND PHASE 4
 (REPLAT OF TRACT N-2-B-1, N-2-B-2 AND TRACT N-2-C-1)
 ALBUQUERQUE, NEW MEXICO
 APRIL, 2018



SHEET 2 of 3

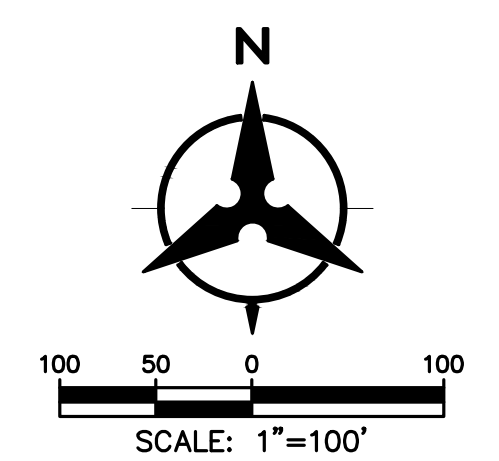
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PRELIMINARY PLAT
 DEL WEBB @ MIREHAVEN PHASE 3 AND PHASE 4
 (REPLAT OF TRACT N-2-B-1, N-2-B-2 AND TRACT N-2-C-1)
 ALBUQUERQUE, NEW MEXICO

APRIL, 2018

LEGEND	
	SUBDIVISION BOUNDARY LINE
	TRACT LINE
	ADJOINING PROPERTY LINE
	EXISTING EASEMENT
	PROPOSED EASEMENT



SHEET 3 of 3

**EXHIBIT B:
ORIGINAL DEVELOPED CONDITIONS BASIN MAP
FROM DMP**

DRAINAGE MASTER PLAN FOR
THE MIREHAVEN MASTER
PLANNED COMMUNITY
OVERALL BASIN MAP
11/2013

BASIN I.D.	AREA (AC)	Q (CFS) 100YR
Offsite Basin 1	12.8	19.8
Offsite Basin 2	3.5	5.8
Offsite Basin 3	7.6	16.3
Offsite Basin 4A	9.8	17.3
Offsite Basin 4B	1.1	1.9
12.18B	42.0	65.0
Basin A-1	12.4	40.3
Basin A-2	7.2	23.4
Basin A-3	4.4	14.3
Basin A-4	7.0	22.8
Basin A-5	5.1	16.6
Basin B-1	5.0	16.3
Basin B-2	4.6	15.0
Basin B-3	1.4	5.6
Basin B-4	13.6	44.2
Basin B-5	4.0	13.0
Basin B-6	1.3	3.4
Basin B-7	16.2	62.7
Basin B-8	9.5	30.9
Basin B-9	3.8	12.4
Basin B-10	12.5	40.7
Basin B-11	5.9	21.4
Basin C-1	38.6	128.8
Basin C-2	2.7	7.1
Basin C-3	0.4	1.7
Basin C-4	2.5	6.6
Basin C-5	6.5	21.1
Basin C-6	1.4	4.6
Basin C-7	8.4	27.3
Basin C-8	9.2	29.9
Basin D-1	3.0	10.9
Basin D-2	2.2	8.0
Basin E	11.6	37.7
Basin F	21.5	69.9
Basin G	26.0	84.6
Basin 1	1.4	4.4
Basin 2	15.8	44.7
Basin 3	16.2	49.0
Basin 4	2.5	8.6
Basin 5	1.4	3.7

OUTFALL I.D.	SIZE (IN)	Q (CFS) 100YR
A	48	137.3
B	60	277.6
C	66	236.2
D	24	10.9
E	30	37.7
F	42	87.2
G	42	86.6

LEGEND

- BASIN BOUNDARY
- SUB BASIN BOUNDARY
- FUTURE / PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- DIVERSION CHANNEL

* BASIN FLOWS ARE FROM THE "WEST I-40 DMP". THE EXISTING, UNDEVELOPED PORTIONS OF BASIN 12.18 HAS BEEN SPLIT INTO TWO BASINS, 12.18A AND 12.18B. BASIN 12.18B WILL BE INTERCEPTED BY A DIVERSION SWALE THAT WILL BE LOCATED IN BASIN 1.

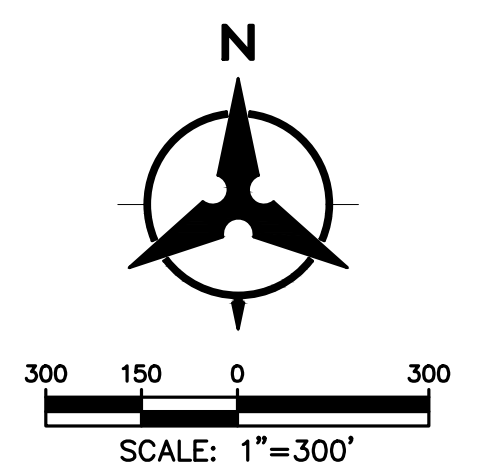
ANALYSIS POINT	Allowable (CFS)
1	1373****
2	1495*****
3	375***
4	216**

** PER "DRAINAGE ANALYSIS REPORT FOR ARROYO VISTA BLVD & TIERRA PINTADA BLVD", APRIL 4, 2012

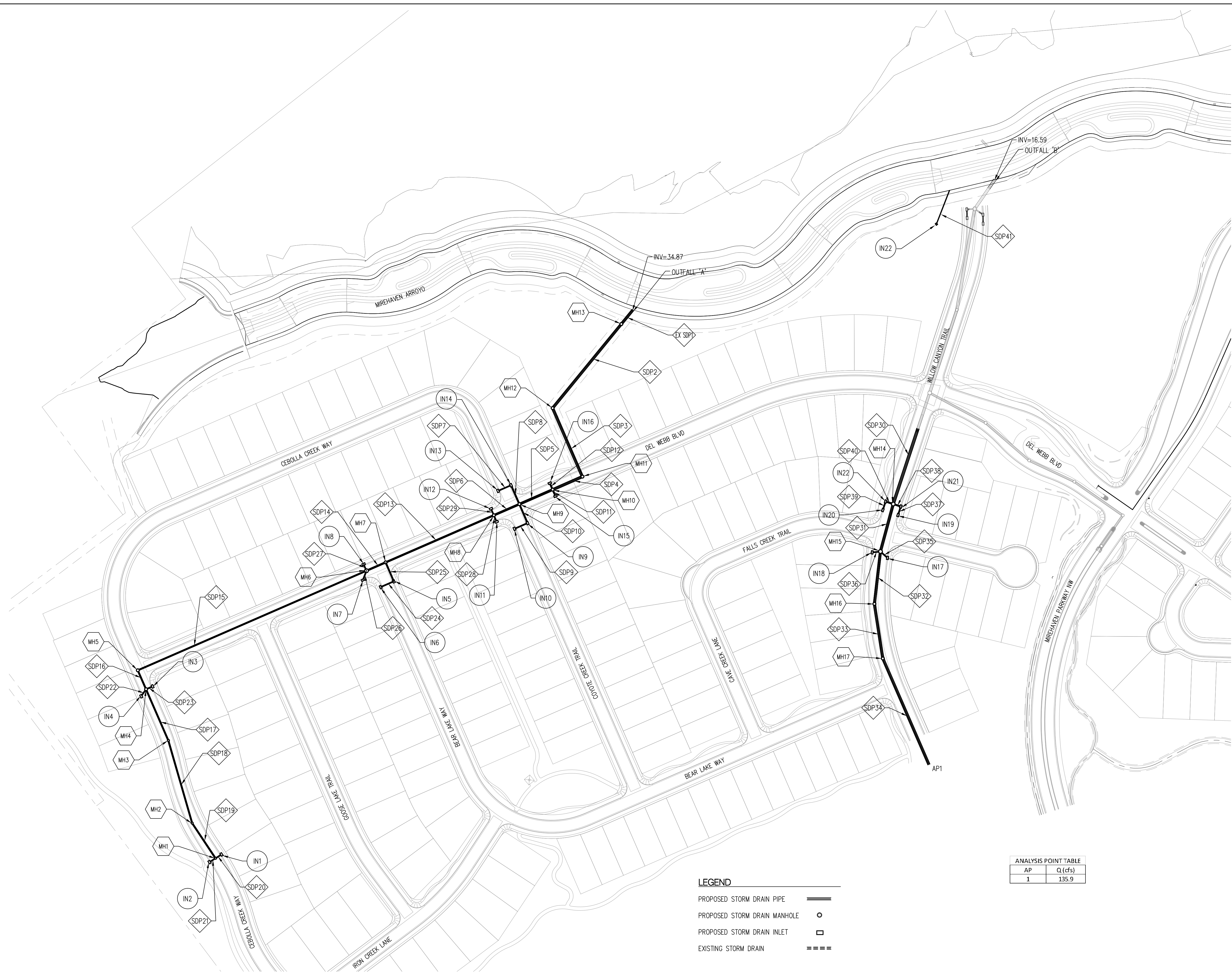
*** PER "DRAINAGE REPORT FOR STORMCLOUD SUBDIVISION", MAY 27, 2005

****UPSTREAM FLOWS ARE FROM "WEST I-40 DMP UPDATE 2011", DECEMBER 2011

***** PER TECHNICAL MEMORANDUM "PRELIMINARY HYDRAULIC ANALYSIS FOR MIREHAVEN ARROYO CROSSING", JANUARY 10, 2012.



DEL WEBB @ MIREHAVEN PHASE 1 & 2 STORM DRAIN NETWORK 1/2014



SUMMARY OF INLET FLOWS

ID	STREET SLOPE	STREET FLOW DEPTH (ft)	STREET FLOW UPSTREAM OF INLET (cfs)	FLOW CAPTURED BY INLET (cfs)	STREET FLOW BYPASSING INLET (cfs)
IN1	3.40%	0.43	15.70	8.50	7.20
IN2	3.40%	0.43	15.70	8.50	7.20
IN3	0.88%	0.49	12.80	6.40	6.40
IN4	0.88%	0.49	12.80	6.40	6.40
IN5	4.00%	0.38	11.40	6.80	4.60
IN6	4.00%	0.38	11.40	6.80	4.60
IN7	1.54%	0.46	13.40	6.90	6.50
IN8	1.54%	0.46	13.40	6.90	6.50
IN9	1.50%	0.40	8.40	5.10	3.20
IN10	1.50%	0.40	8.40	5.10	3.20
IN11	3.70%	0.41	13.30	7.40	5.90
IN12	3.70%	0.41	13.30	7.40	5.90
IN13	1.50%	0.50	17.00	8.10	8.90
IN14	1.50%	0.50	17.00	8.10	8.90
IN15	SUMP	0.55	18.80	18.80	N/A
IN16	SUMP	0.55	18.80	18.80	N/A
IN17	0.62%	0.61	20.00	8.80	11.20
IN18	0.62%	0.61	20.00	8.80	11.20
IN19	0.62%	0.64	22.90	9.30	13.60
IN20	0.62%	0.64	22.9	9.3	13.6
IN21	0.62%	0.53	13.6	6.7	6.9
IN22	0.62%	0.53	13.6	6.7	6.9
IN23	POND	N/A	10.00	10.00	N/A

SUMMARY OF MANHOLES FLOWS

ID	STORM DRAIN FLOWRATE (cfs)
MH1	17.00
MH2	17.00
MH3	17.00
MH4	29.80
MH5	29.80
MH6	43.60
MH7	57.20
MH8	72.00
MH9	98.40
MH10	136.00
MH11	136.00
MH12	136.00
MH13	136.00
MH14	185.50
MH15	153.50
MH16	135.90
MH17	135.90

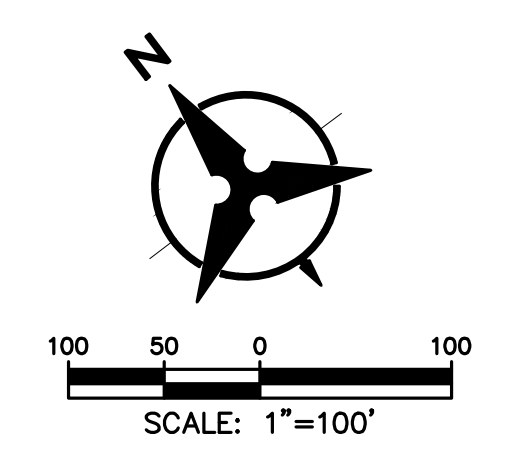
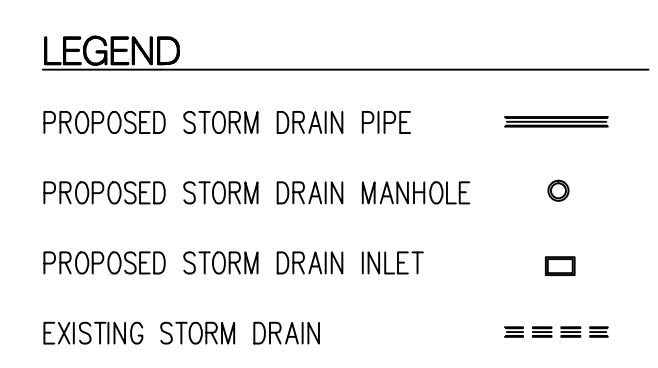
*WITH BEEHIVE GRATE

SUMMARY OF PIPE FLOWS

ID	SIZE	SLOPE (%)	Q (cfs) ALLOWABLE	Q (cfs) ACTUAL
EX SDP1	48"	1.5	175.9	136.0
SDP2	48"	1.0	143.6	136.0
SDP3	48"	1.0	143.6	136.0
SDP4	48"	1.0	143.6	136.0
SDP5	42"	1.0	100.9	98.4
SDP6	36"	2.2	99.6	72.0
SDP7	18"	2.7	17.2	8.1
SDP8	24"	4.2	47.3	16.2
SDP9	18"	1.2	11.4	5.1
SDP10	24"	5.5	53.0	5.1
SDP11	24"	10.4	72.9	18.8
SDP12	24"	10.4	72.9	18.8
SDP13	30"	3.3	74.3	57.2
SDP14	30"	2.2	60.2	43.6
SDP15	24"	2.0	32.0	29.8
SDP16	24"	0.7	18.5	29.8
SDP17	24"	0.8	20.2	17.0
SDP18	24"	2.1	32.8	17.0
SDP19	24"	3.2	40.6	17.0
SDP20	18"	19.4	19.9	8.5
SDP21	18"	20.2	47.3	8.5
SDP22	18"	16.9	43.2	6.4
SDP23	18"	20.2	47.2	6.4
SDP24	18"	2.2	15.7	6.8
SDP25	24"	5.6	53.6	13.6
SDP26	18"	11.4	35.5	6.9
SDP27	18"	14.6	40.2	6.9
SDP28	18"	14.7	40.2	7.4
SDP29	18"	14.7	40.2	7.4
SDP30	54"	3.5	367.9	185.5
SDP31	48"	1.6	180.8	153.5
SDP32	48"	2.0	201.0	135.9
SDP33	48"	4.2	292.8	135.9
SDP34	48"	3.1	251.4	135.9
SDP35	18"	11.5	35.6	8.8
SDP36	18"	13.2	38.1	8.8
SDP37	18"	0.9	10.1	9.3
SDP38	24"	18.7	97.7	16.0
SDP39	18"	0.9	10.1	9.3
SDP40	24"	18.7	97.1	16.0
SDP41	18"	4.1	21.3	10.0

ANALYSIS POINT TABLE

AP	Q (cfs)
1	135.9



PULTE PHASE 2 @ MIREHAVEN

PROPOSED
STORM DRAIN NETWORK





JANUARY 2016

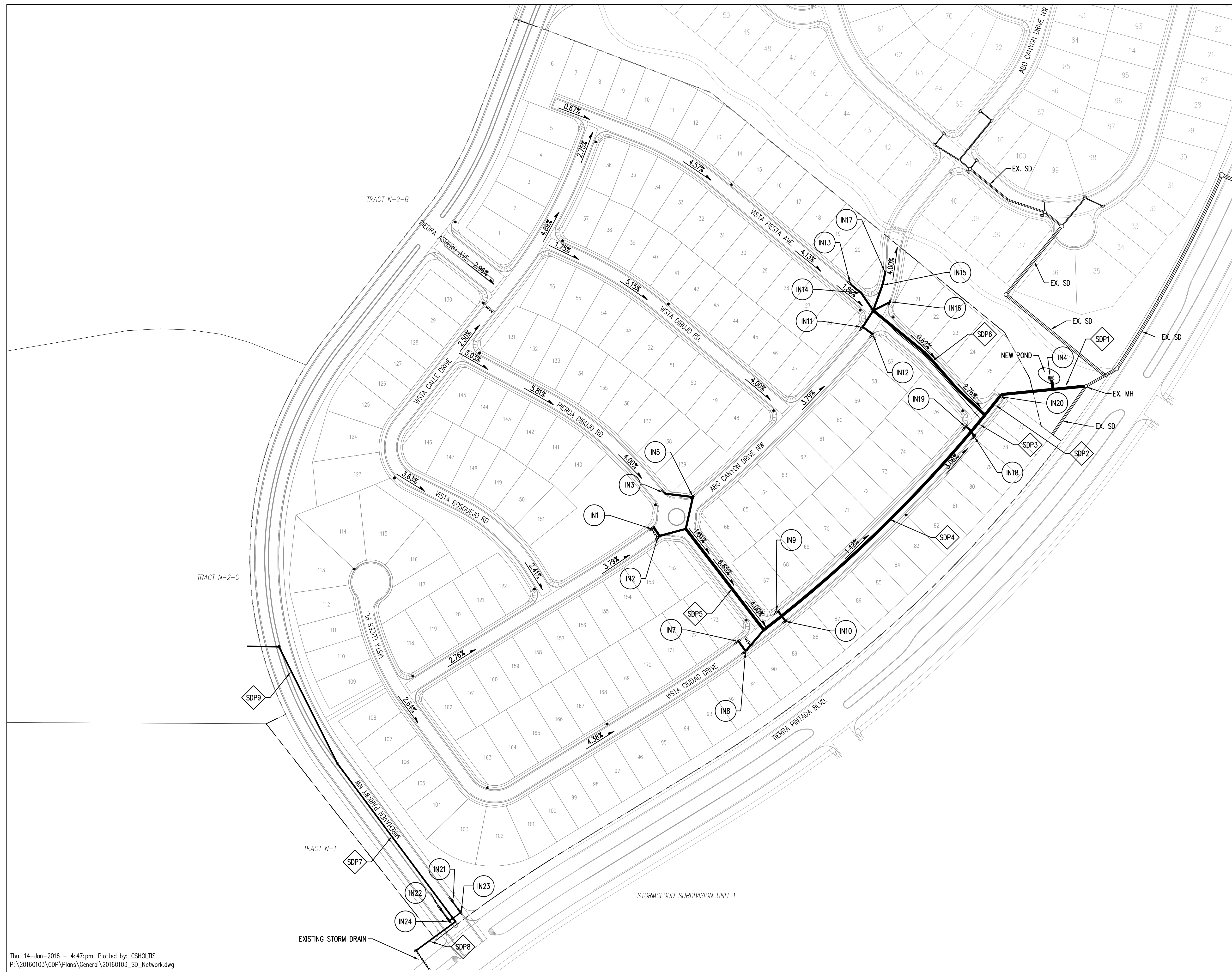
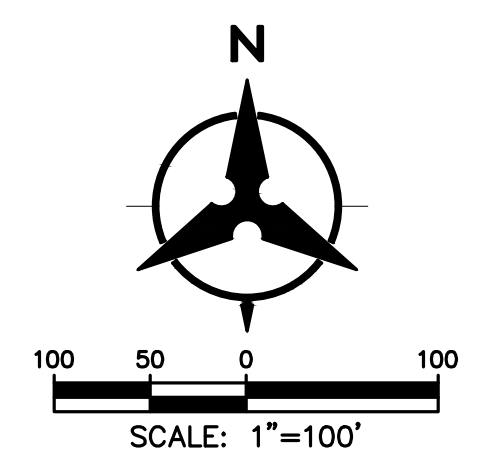
STORM DRAIN PIPE SUMMARY				
SDP	SIZE (IN)	SLOPE (%)	FLOW (CFS)	MAX CAPACITY (CFS)
1	36"	4.0%	128.9	133.4
2	36"	3.0%	96.0	115.5
3	36"	1.4%	55.5	78.9
4	36"	1.4%	47.5	78.9
5	24"	4.0%	26.5	45.2
6	36"	0.6%	40.5	51.7
7	30"	1.0%	26.2	40.9
8	30"	1.0%	41.0	66.0
9	24"	5.0%	26.2	50.0

STORM INLET SUMMARY						
INLET	STREET	UPSTREAM HALF ST	UPSTREAM DEPTH (FT)	FLOW CAPTURED BY INLET (CFS)	BYPASS FLOW (CFS)	
1		3.8%	11.6	0.39	7.0	4.6
2		3.8%	11.6	0.39	7.0	4.6
3		3.8%	11.6	0.37	5.5	6.1
4	N/A SUMP	20.0	1.25	20.0	0.0	
5		3.8%	10.7	0.48	7.0	3.7
6		NOT USED				
7		4.4%	12.3	0.39	7.0	5.3
8		4.4%	12.3	0.39	7.0	5.3
9		1.4%	6.5	0.38	3.5	3.0
10		1.4%	6.5	0.38	3.5	3.0
11		3.8%	13.8	0.40	6.5	7.3
12		3.8%	13.8	0.40	6.5	7.3
13		1.9%	19.1	0.49	8.0	11.1
14		1.9%	11.1	0.41	6.0	5.1
15		2.8%	12.4	0.39	6.0	6.4
16		2.8%	3.7	0.28	3.5	0.2
17		2.8%	6.4	0.32	4.0	2.4
18		3.1%	8.2	0.41	4.0	4.2
19		3.1%	8.2	0.41	4.0	4.2
20	N/A SUMP	8.3	N/A SUMP	11.6	0.0	
21		2.0%	5.8	0.35	3.5	2.3
22		1.5%	12.1	0.46	4.5	7.6
23		2.0%	2.3	0.25	2.3	0.0
24		1.5%	7.6	0.41	4.5	3.1

NOTE: ALL INLETS SINGLE GRATE TYPE 'A' OR 'C', EXCEPT INLET 4 IS A SINGLE GRATE TYPE 'D'

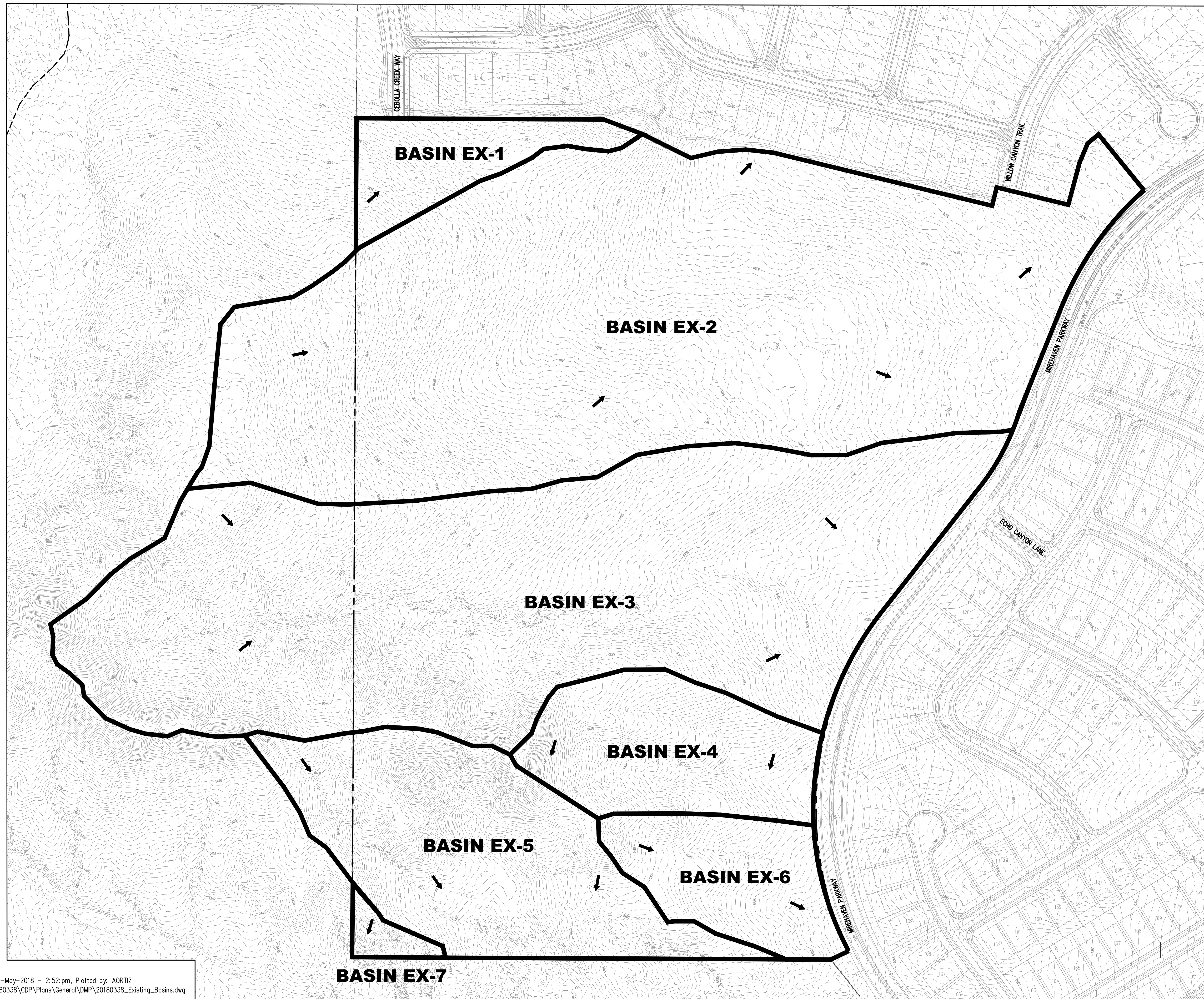
LEGEND

- PROPOSED STORM DRAIN PIPE 
- PROPOSED STORM DRAIN MANHOLE 
- PROPOSED STORM DRAIN INLET 
- EXISTING STORM DRAIN 



**EXHIBIT C:
EXISTING CONDITIONS BASIN MAP**

DEL WEBB @ MIREHAVEN
 PHASES 3&4
 EXISTING BASINS MAP
 APRIL 2018



EXISTING BASIN SUMMARY							
BASIN I.D.	AREA (AC)	% LAND TREATMENT				DISCHARGE (CFS) 100YR	VOLUME (AC-FT)
		A	B	C	D		
EX-1	2.29	38.00%	57.00%	5.00%	0.00%	4.08	0.11
EX-2	30.54	64.50%	33.50%	2.00%	0.00%	47.42	1.34
EX-3	25.76	40.00%	42.50%	17.50%	0.00%	48.13	1.36
EX-4	4.62	29.00%	57.00%	14.00%	0.00%	8.89	0.25
EX-5	8.32	24.00%	43.50%	32.50%	0.00%	17.60	0.50
EX-6	3.19	53.00%	42.50%	4.50%	0.00%	5.30	0.15
EX-7	0.42	15.00%	66.00%	19.00%	0.00%	0.88	0.02
TOTAL	75.15					132.29	3.74

LEGEND	
BASIN BOUNDARY	
FLOW ARROW	
PROPOSED STORM DRAIN	
EXISTING STORM DRAIN	
PROPOSED STREET SLOPE OR FLOW PATH	
PROPOSED STORM DRAIN MANHOLE	
PROPOSED STORM DRAIN INLET	

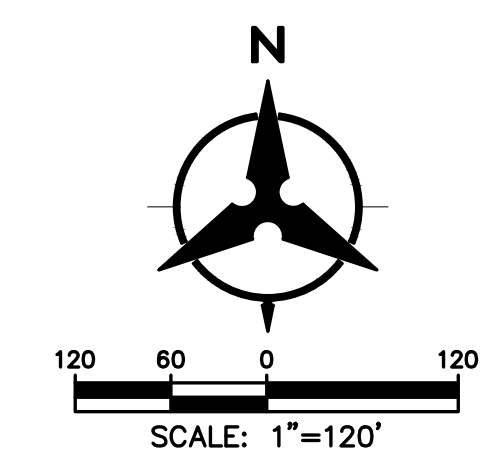
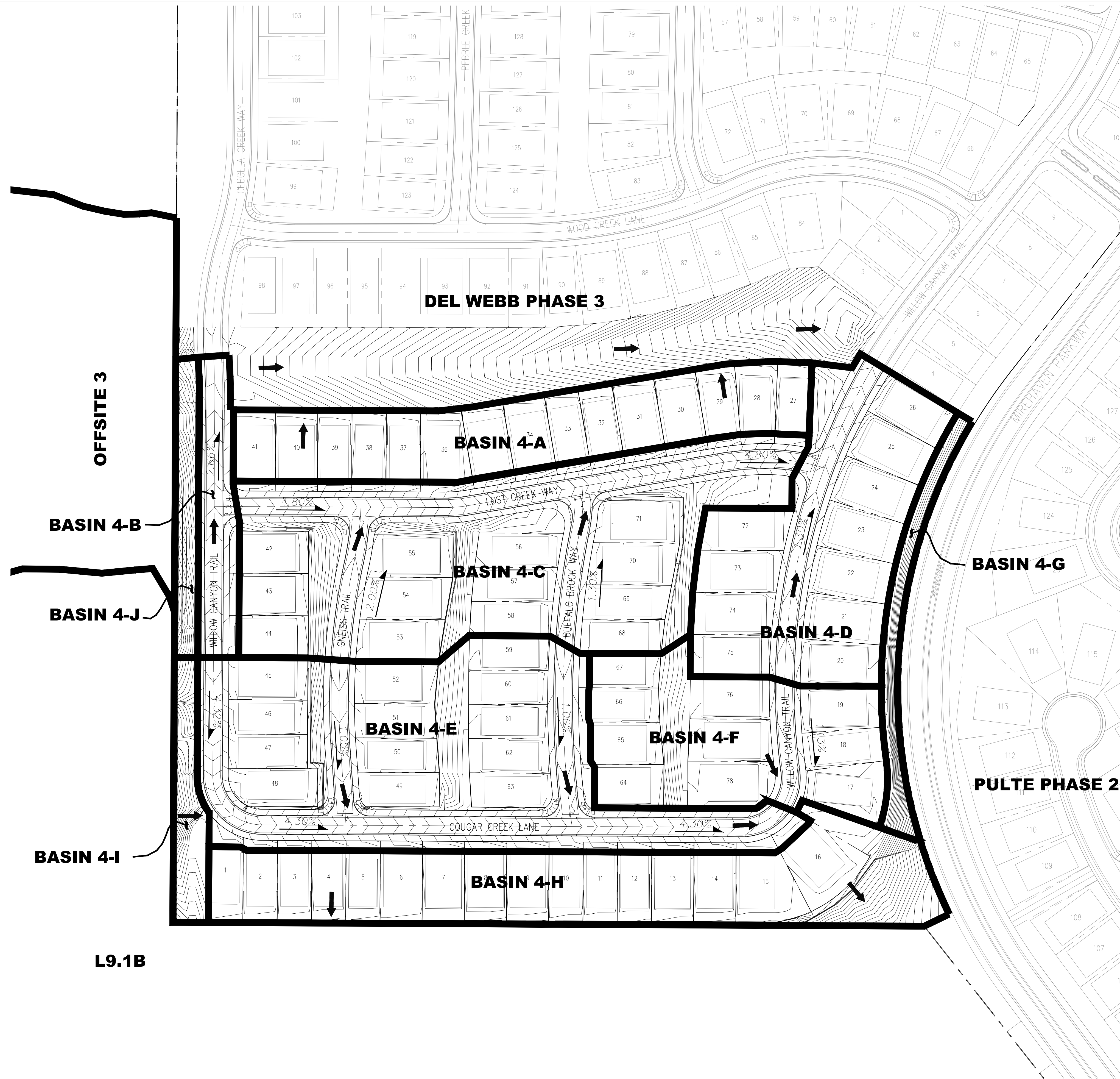


EXHIBIT D:
ULTIMATE CONDITIONS BASIN MAP

DEL WEBB @ MIREHAVEN PHASE 4
PROPOSED BASINS MAP

MAY 2018

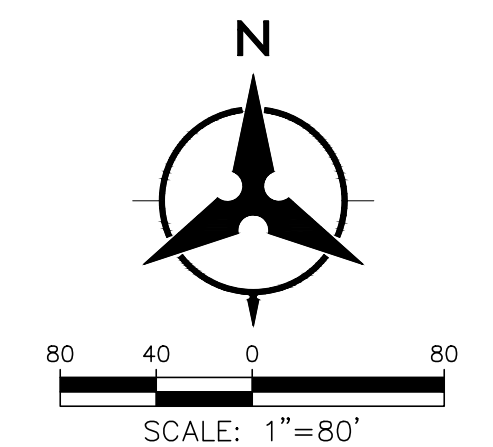


DEVELOPED BASIN SUMMARY							
BASIN I.D.	AREA (AC)	% LAND TREATMENT				DISCHARGE (CFS) 100YR	VOLUME (AC-FT)
		A	B	C	D		
4-A	2.19	0.00%	30.00%	30.00%	40.00%	7.0	0.23
4-B	0.59	0.00%	0.00%	34.00%	66.00%	2.3	0.08
4-C	4.75	0.00%	30.00%	30.00%	40.00%	15.3	0.51
4-D	2.75	0.00%	30.00%	30.00%	40.00%	8.8	0.29
4-E	4.56	0.00%	30.00%	30.00%	40.00%	14.7	0.49
4-F	2.14	0.00%	30.00%	30.00%	40.00%	6.9	0.23
4-G	0.41	0.00%	20.00%	80.00%	0.00%	1.1	0.03
4-H	3.06	0.00%	30.00%	30.00%	40.00%	9.8	0.33
4-I	0.38	0.00%	20.00%	80.00%	0.00%	1.0	0.03
4-J	0.37	0.00%	20.00%	80.00%	0.00%	1.0	0.03
OFFSITE 3	7.60	19.00%	50.00%	31.00%	0.00%	16.3	0.46
TOTAL	28.80					84.2	2.7

NOTE: ALL BLOCKS DRAIN TOWARD THE FRONT/STREET UNLESS OTHERWISE NOTED BY FLOW ARROW/DIRECTION ABOVE.

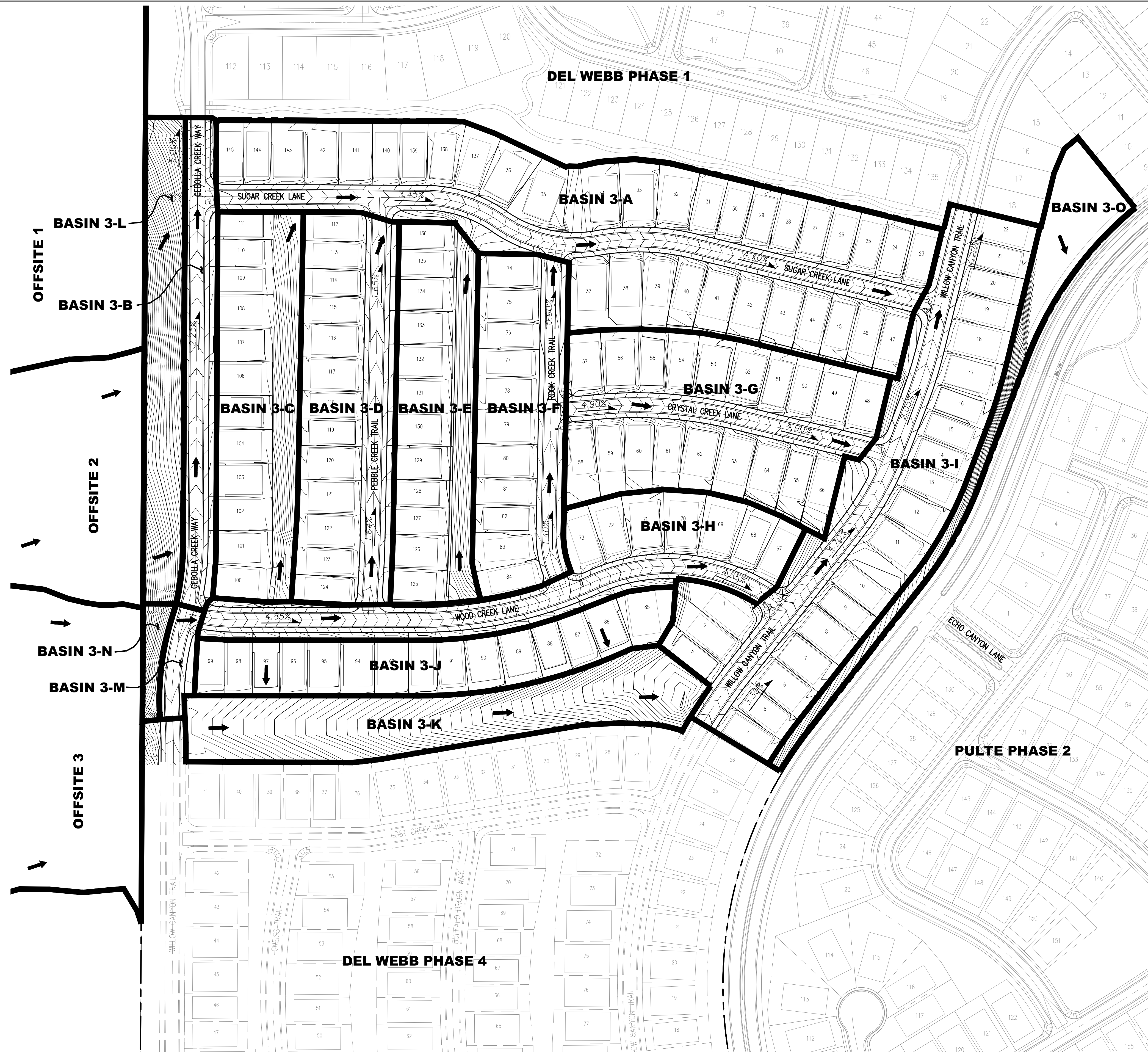
LEGEND

- BASIN BOUNDARY
- FLOW ARROW
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- PROPOSED STREET SLOPE OR FLOW PATH
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED STORM DRAIN INLET



DEL WEBB @ MIREHAVEN PHASE 3 PROPOSED BASINS MAP

MAY 2018



DEVELOPED BASIN SUMMARY							
BASIN	AREA (AC)	% LAND TREATMENT				DISCHARGE (CFS) 100YR	VOLUME (AC-FT)
		A	B	C	D		
3-A	7.59	0.00%	29.00%	29.00%	42.00%	24.7	0.83
3-B	1.31	0.00%	0.00%	34.00%	66.00%	5.1	0.18
3-C	2.64	0.00%	29.00%	29.00%	42.00%	8.6	0.29
3-D	3.10	0.00%	29.00%	29.00%	42.00%	10.1	0.34
3-E	2.49	0.00%	29.00%	29.00%	42.00%	8.1	0.27
3-F	2.51	0.00%	29.00%	29.00%	42.00%	8.2	0.27
3-G	4.00	0.00%	29.00%	29.00%	42.00%	13.0	0.44
3-H	2.87	0.00%	29.00%	29.00%	42.00%	9.3	0.31
3-I	5.47	0.00%	29.00%	29.00%	42.00%	17.8	0.60
3-J	2.21	0.00%	29.00%	29.00%	42.00%	7.2	0.24
3-K	2.61	0.00%	0.00%	90.00%	10.00%	7.9	0.24
3-L	1.59	0.00%	20.00%	80.00%	0.00%	4.3	0.12
3-M	0.41	0.00%	0.00%	10.00%	90.00%	1.7	0.06
3-N	0.21	0.00%	20.00%	80.00%	0.00%	0.6	0.02
3-O	1.37	0.00%	20.00%	80.00%	0.00%	3.7	0.11
OFFSITE 1	12.80	64.00%	35.00%	1.00%	0.00%	19.8	0.56
OFFSITE 2	3.50	19.00%	50.00%	31.00%	0.00%	7.5	0.21
OFFSITE 3	7.60	19.00%	50.00%	31.00%	0.00%	16.3	0.46
TOTAL	56.69					173.8	5.5

NOTE: ALL BLOCKS DRAIN TOWARD THE FRONT/STREET UNLESS OTHERWISE NOTED BY FLOW ARROW/DIRECTION ABOVE.

LEGEND

- BASIN BOUNDARY
- FLOW ARROW
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- PROPOSED STREET SLOPE OR FLOW PATH
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED STORM DRAIN INLET

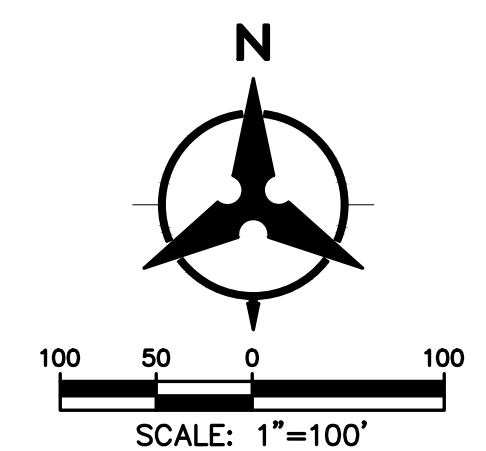


EXHIBIT E:
STORM DRAIN NETWORK

DEL WEBB @ MIREHAVEN PHASE 3 STORM DRAIN NETWORK

APRIL 2018




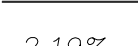



INLET TABLE				
Inlet #	Inlet Type	Actual Flow	Avail Head ft	Capacity CFS
IN1	1-SGL COA TYPE A	4.70	0.34	11.00
IN2	1-SGL COA TYPE C	5.10	0.33	11.00
IN3	1-SGL COA TYPE C	4.70	0.30	11.00
IN4	1-SGL COA TYPE A	4.70	0.32	11.00
IN5	1-SGL COA TYPE C	4.40	0.31	11.00
IN6	1-SGL COA TYPE A	4.40	0.31	11.00
IN7	1-SGL COA TYPE C	4.40	0.31	11.00
IN8	1-SGL COA TYPE C	4.40	0.31	11.00
IN9	1-SGL COA TYPE C	4.30	0.30	11.00
IN10	1-SGL COA TYPE C	4.30	0.30	11.00
IN11	1-SGL COA TYPE A	4.10	0.32	11.00
IN12	1-SGL COA TYPE A	4.10	0.32	11.00
IN13	1-SGL COA TYPE A	5.80	0.33	11.00
IN14	1-SGL COA TYPE A	5.80	0.33	11.00
IN15	1-SGL COA TYPE A	5.50	0.40	11.00
IN16	1-SGL COA TYPE C	4.80	0.38	11.00
IN17	1-SGL COA TYPE C	4.90	0.37	11.00
IN18	1-SGL COA TYPE C	4.90	0.37	11.00
IN19	1-SGL COA TYPE C	3.80	0.33	11.00
IN20	1-SGL COA TYPE C	3.80	0.33	11.00
IN21	1-SGL COA TYPE C	4.60	0.37	11.00
IN22	1-SGL COA TYPE C	4.20	0.35	11.00
IN23	1-SGL COA TYPE C	4.20	0.35	11.00

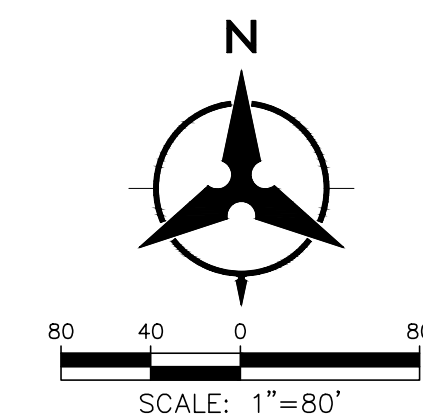
STORM DRAIN PIPE TABLE					
PIPE #	Size in.	Slope	Capacity cfs	ACTUAL FLOW cfs	PIPE LENGTH ft
ONSITE					
SDP1	18	1.00%	10.50	5.10	
SDP2	18	1.00%	10.50	9.90	
SDP3	18	2.00%	14.86	14.10	
SDP4	24	2.00%	31.99	18.50	
SDP5	24	2.00%	31.99	27.30	
SDP6	30	1.00%	41.02	35.90	
SDP7	30	2.00%	58.01	44.30	
SDP8	18	1.00%	10.50	8.20	
SDP9	30	2.00%	58.01	44.20	
SDP10	30	2.00%	58.01	44.20	
SDP11	30	2.00%	58.01	55.80	
SDP12	30	2.00%	58.01	55.80	
SDP13	36	1.00%	66.70	66.10	
SDP14	36	2.00%	94.33	74.80	
SDP15	42	2.00%	142.28	127.80	
SDP16	42	2.00%	142.28	140.80	

1- Capacity Based on Manning's Eq w/ N= 0.013

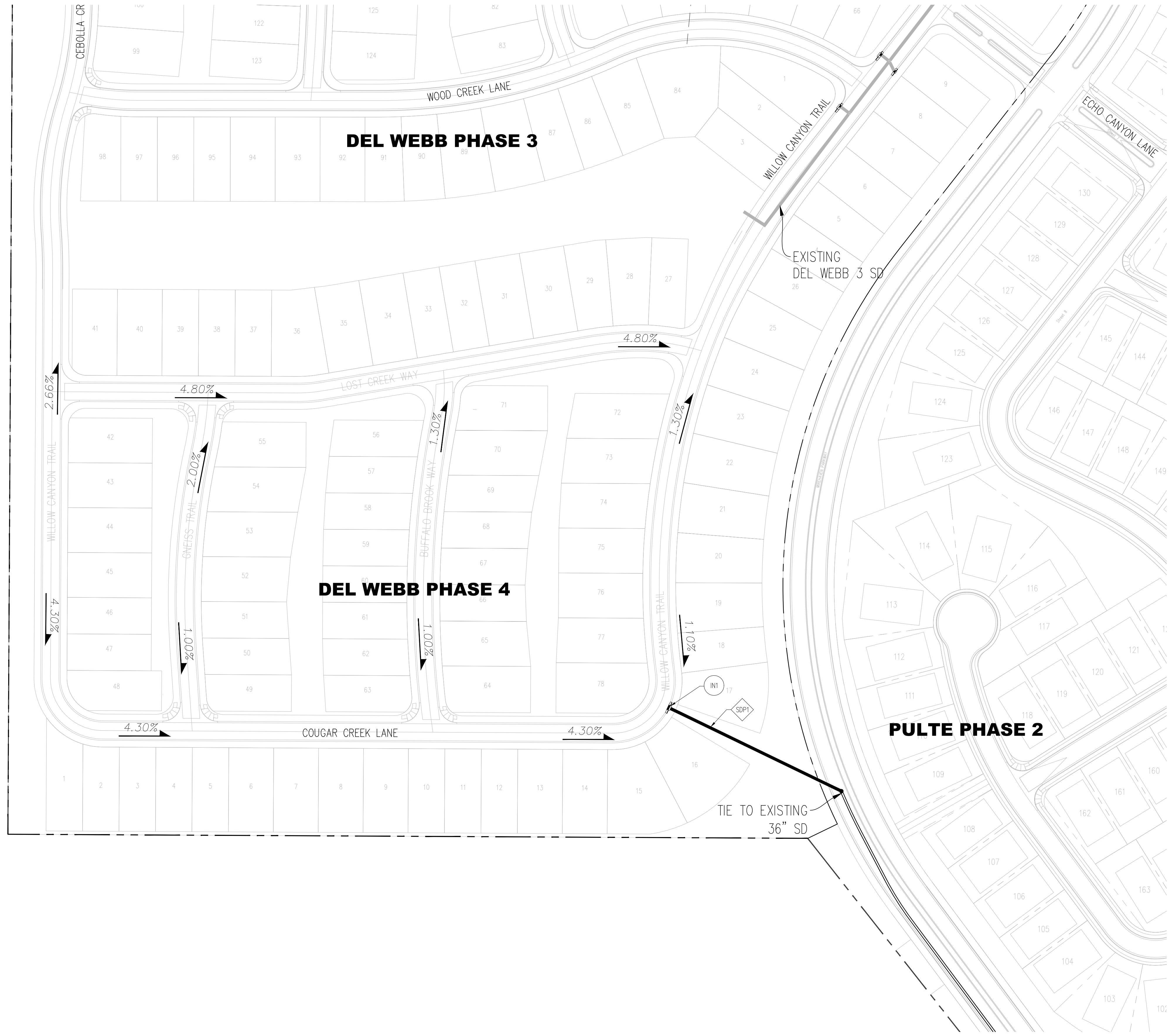
NOTE: ALL BLOCKS DRAIN TOWARD THE FRONT/STREET UNLESS OTHERWISE NOTED BY FLOW ARROW/DIRECTION ABOVE.

LEGEND

- BASIN BOUNDARY 
- FLOW ARROW 
- PROPOSED STORM DRAIN 
- EXISTING STORM DRAIN 
- PROPOSED STREET SLOPE OR FLOW PATH 
- PROPOSED STORM DRAIN MANHOLE 
- PROPOSED STORM DRAIN INLET 



DEL WEBB @ MIREHAVEN PHASE 4
 STORM DRAIN NETWORK
 APRIL 2018



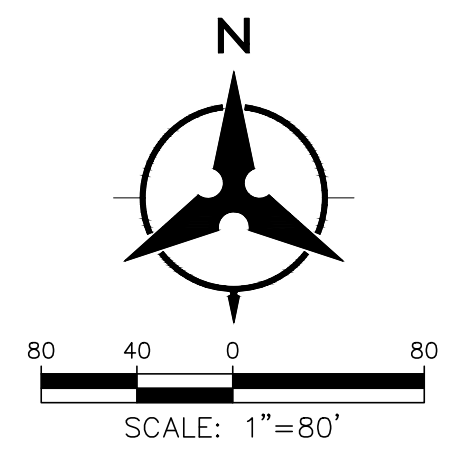
INLET TABLE				
Inlet #	Inlet Type	Actual Flow	Avail Head ft	Capacity CFS
IN1	1-DBL COA TYPE A	21.60	0.57	45.00

STORM DRAIN PIPE TABLE					
PIPE #	Size in.	Slope	Capacity ¹ cfs	ACTUAL FLOW cfs	PIPE LENGTH ft
ONSITE					
SDP1	24	2.00%	31.99	21.60	

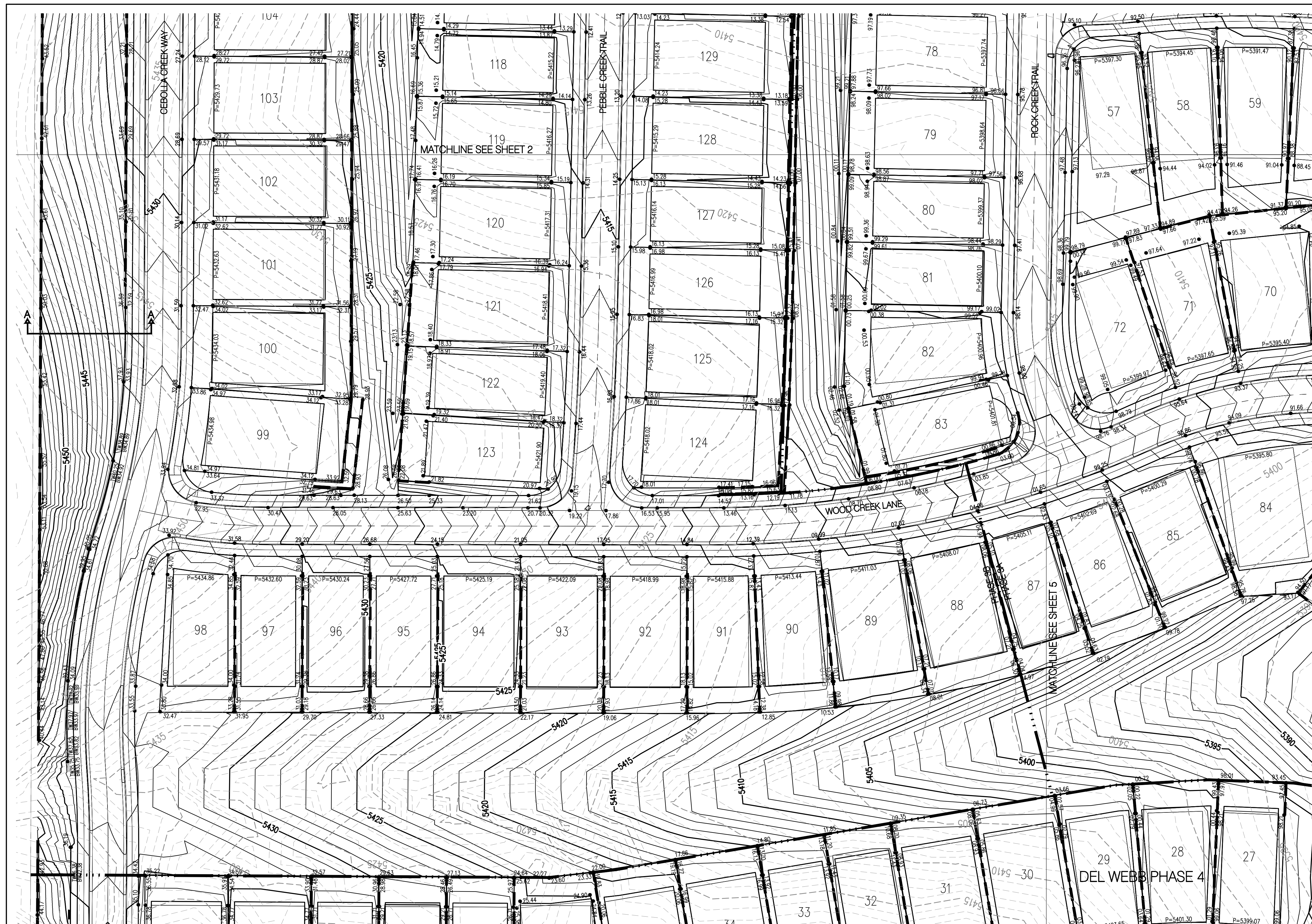
¹- Capacity Based on Manning's Eq w/ N= 0.013
 * Pipe under pressure flow

NOTE: ALL BLOCKS DRAIN TOWARD THE FRONT/STREET UNLESS OTHERWISE NOTED BY FLOW ARROW/DIRECTION ABOVE.

- LEGEND
- BASIN BOUNDARY
 - FLOW ARROW
 - PROPOSED STORM DRAIN
 - EXISTING STORM DRAIN
 - PROPOSED STREET SLOPE OR FLOW PATH
 - PROPOSED STORM DRAIN MANHOLE
 - PROPOSED STORM DRAIN INLET

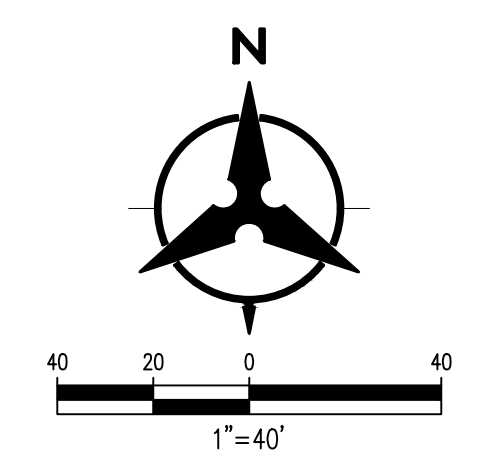


**EXHIBIT F:
GRADING PLAN**



LEGEND

PROPOSED SPOT ELEVATION	● 5235.25
EXISTING SPOT ELEVATION	● EX 5235.25
PROPOSED CONTOUR	— 5025 —
EXISTING STORM DRAIN LINE	--- ---
PROPOSED STORM DRAIN INLET	□
PROPOSED STORM DRAIN LINE	▬▬▬▬▬▬
PROPOSED STORM DRAIN MANHOLE	○
PROPOSED WATER BLOCK	⋈
RETAINING WALL	▬▬▬▬▬▬
PAD	10 P=5300.00
TURNED BLOCK	TB
STREET SLOPE	XX



ENGINEER'S SEAL		SURVEY INFORMATION		BENCH MARKS		AS-BUILT INFORMATION	
		NO.	BY	NO.	DATE	NO.	DATE
		NO.	BY	NO.	DATE	NO.	DATE
REVISIONS		REMARKS		CONTRACTOR		DATE	
DESIGN		DESIGN		INSPECTOR'S		DATE	
DATE		DATE		ACCEPTANCE BY		DATE	
BY		BY		DRAWINGS BY		DATE	
DATE		DATE		MICRO-FILM INFORMATION		DATE	
BY		BY		RECORDED BY		DATE	
DATE		DATE		NO.		DATE	

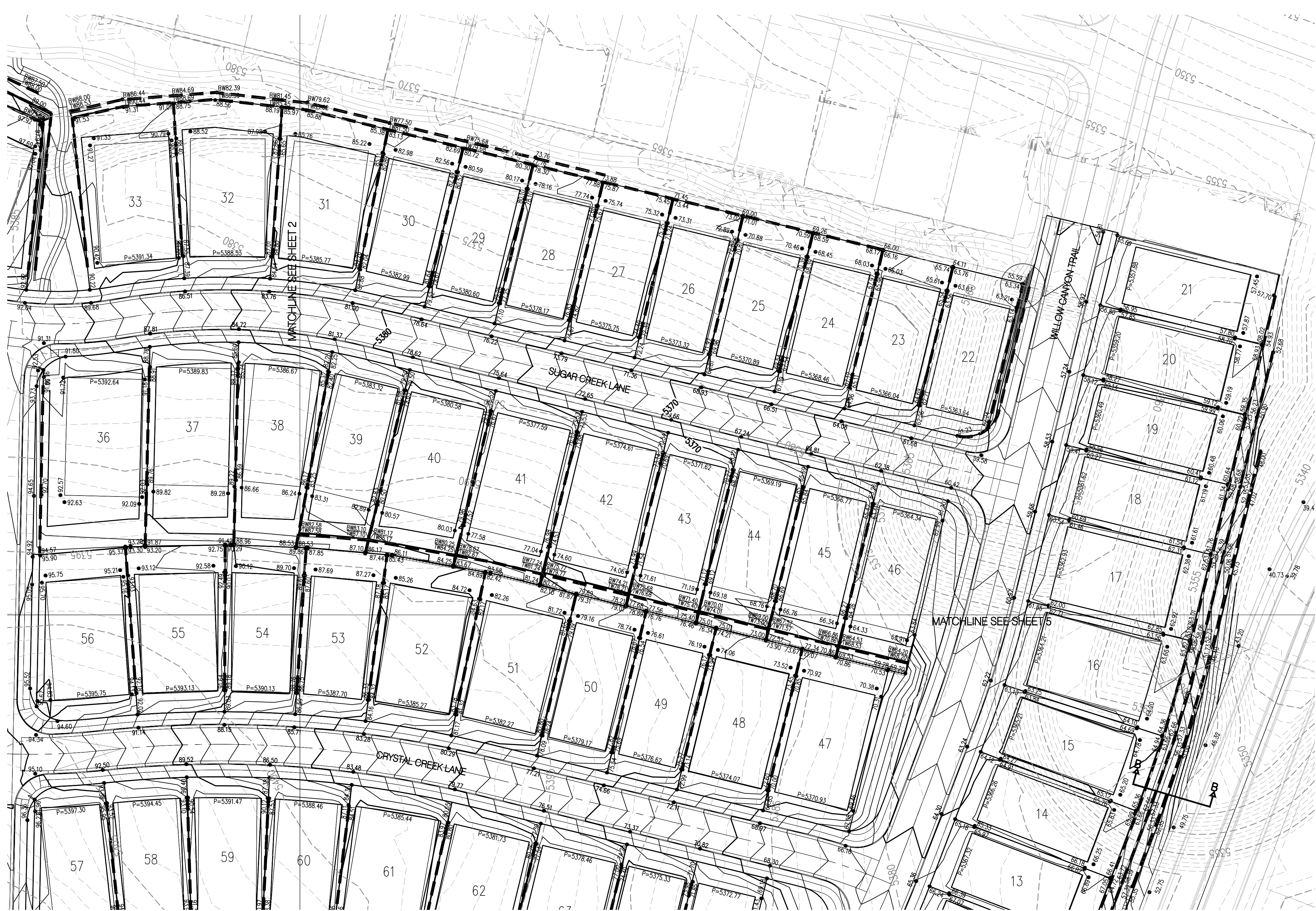
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CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT
DEL WEBB @ MIREHAVEN PHASE 3
GRADING PLAN

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	MO./DAY/YR.	MO./DAY/YR.
LAST DESIGN UPDATE			

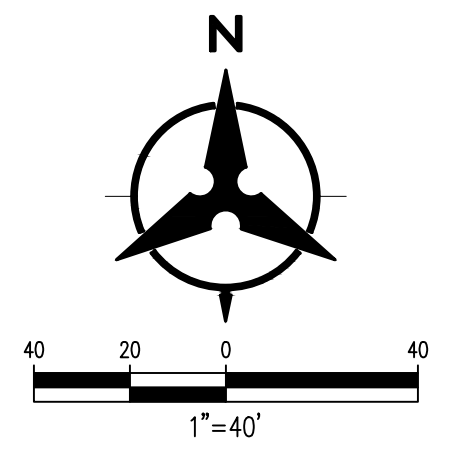
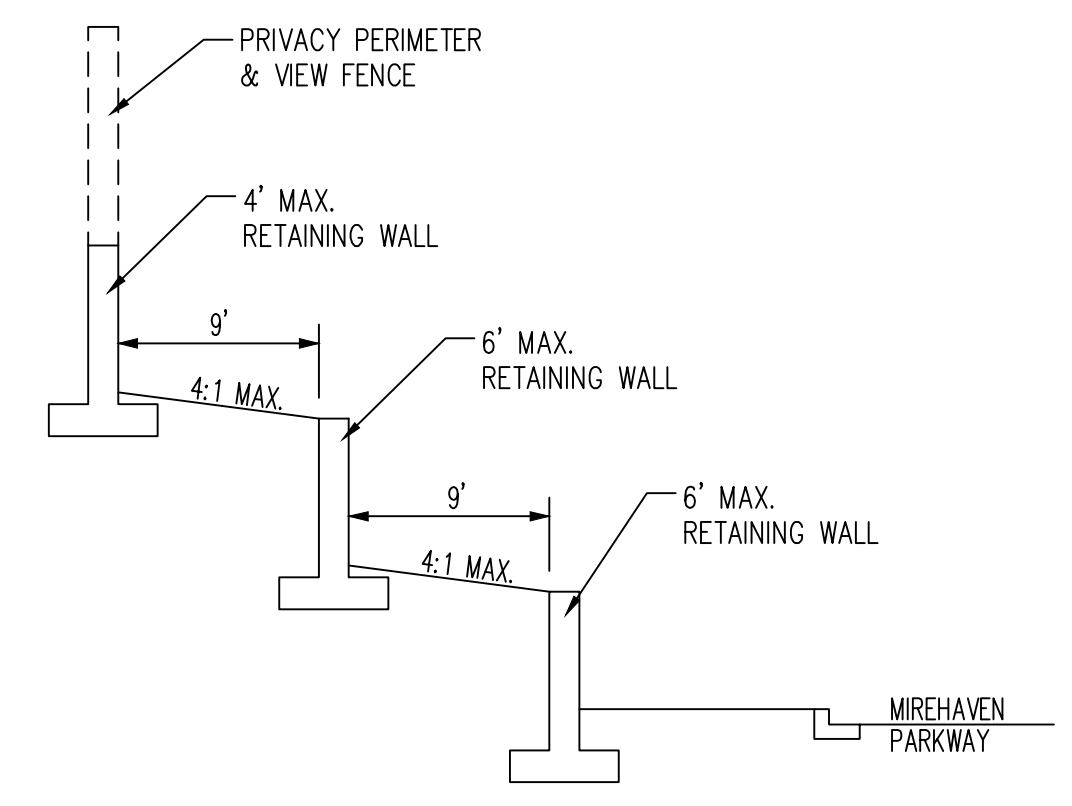
CITY PROJECT NO. _____ ZONE MAP NO. **H-8/9** SHEET **3** OF **5**

DESIGNED BY: YPM DATE: 04/18
DRAWN BY: AR DATE: 04/18
CHECKED BY: YPM DATE: 04/18



LEGEND

- PROPOSED SPOT ELEVATION ● 5235.25
- EXISTING SPOT ELEVATION ● EX 5235.25
- PROPOSED CONTOUR - - - - - 5225
- EXISTING STORM DRAIN LINE - - - - -
- PROPOSED STORM DRAIN INLET □
- PROPOSED STORM DRAIN LINE |||
- PROPOSED STORM DRAIN MANHOLE ○
- PROPOSED WATER BLOCK [Wavy line symbol]
- RETAINING WALL [T-shaped symbol]
- PAD [10' x 5000.00' symbol]
- TURNED BLOCK [TB symbol]
- STREET SLOPE [XX symbol]



AS-BUILT INFORMATION

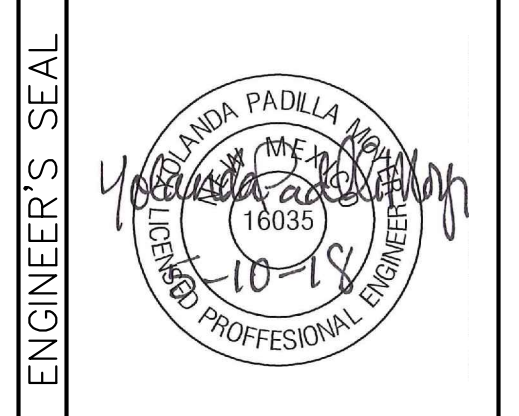
CONTRACTOR	DATE
WORKED BY	DATE
INSPECTOR'S ACCEPTANCE BY	DATE
VERIFICATION BY	DATE
DRAWN BY	DATE
RECORDED BY	DATE

BENCH MARKS

NO.	DATE
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SURVEY INFORMATION

NO.	DATE
-----	------



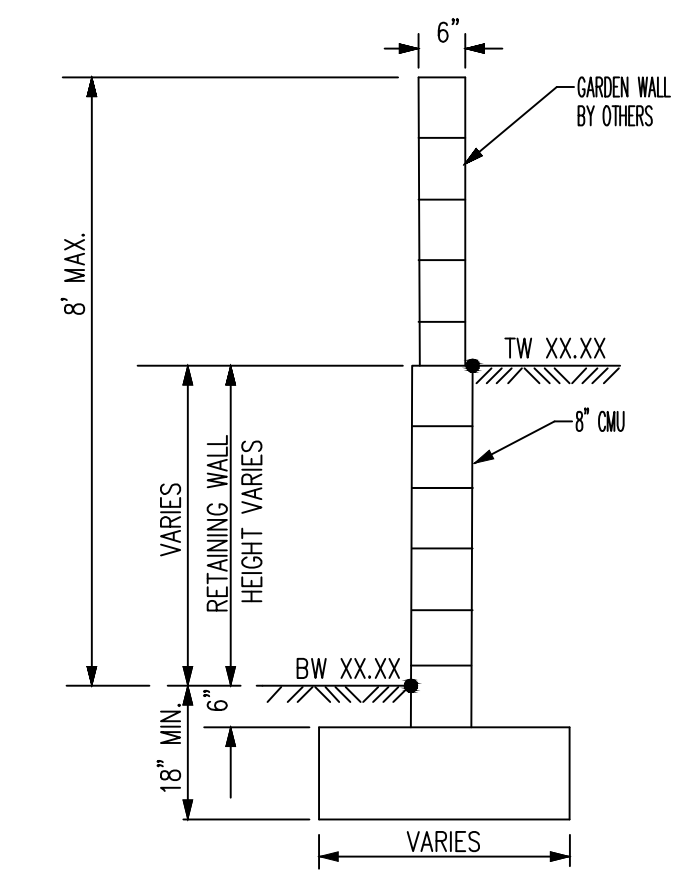
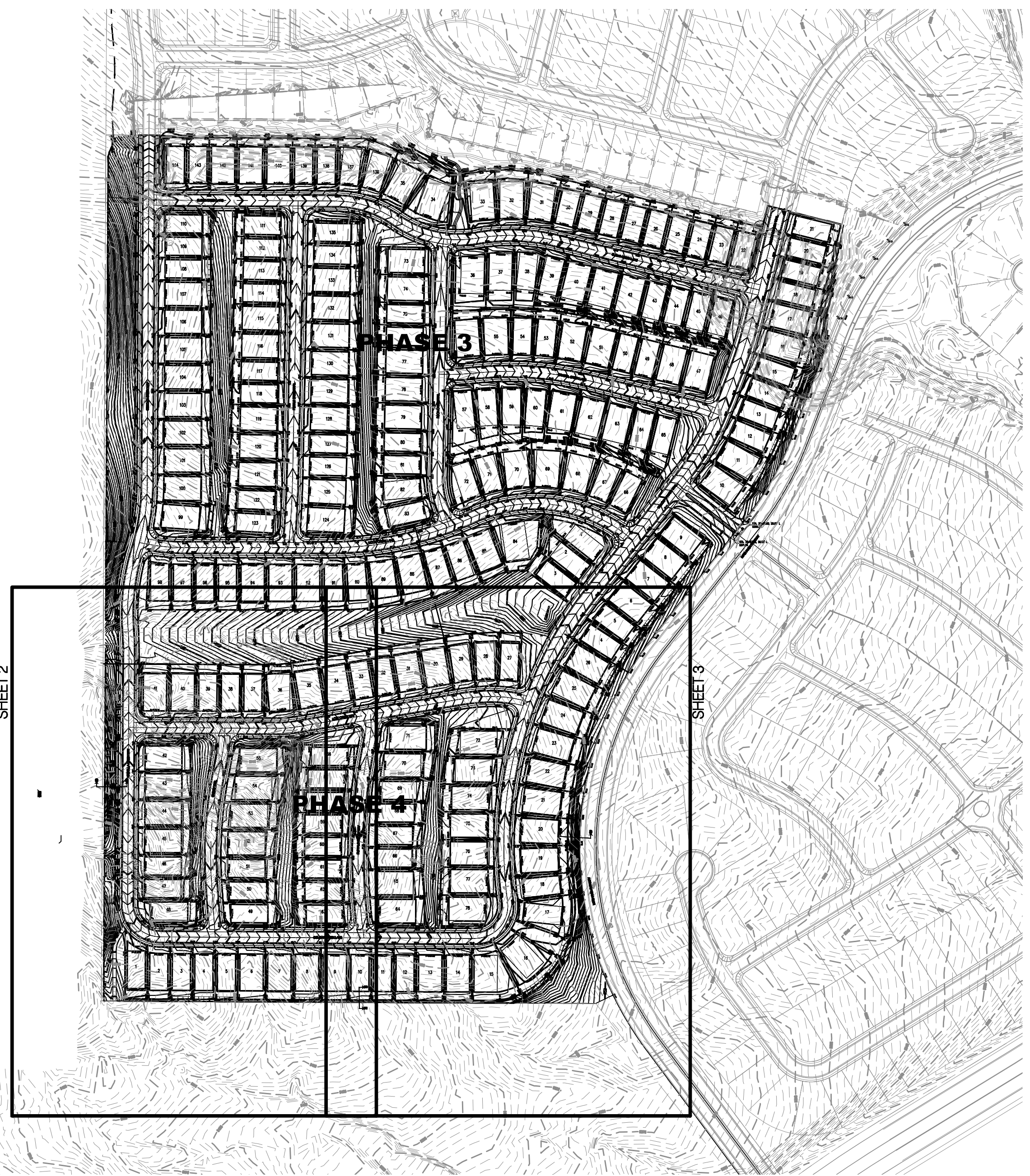
REMARKS	BY
REVISIONS	DATE
DESIGN	DATE
NO.	DATE
DESIGNED BY YPM	DATE 04/18
DRAWN BY AR	DATE 04/18
CHECKED BY YPM	DATE 04/18

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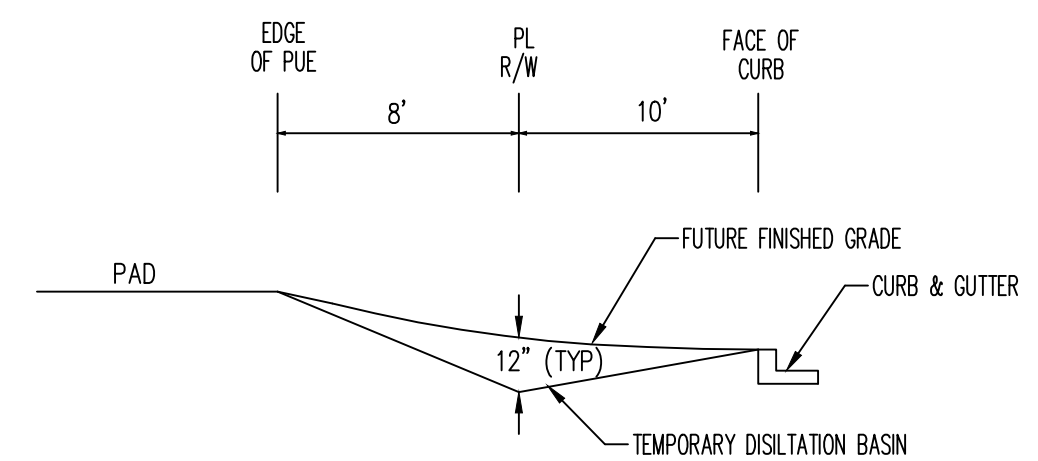
CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT
DEL WEBB @ MIREHAVEN PHASE 3
GRADING PLAN

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	MO./DAY/YR.	MO./DAY/YR.

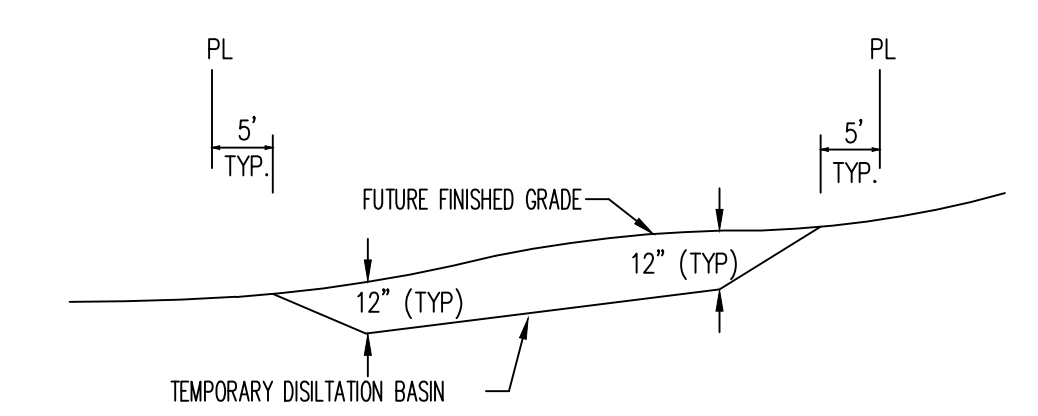
CITY PROJECT NO.	ZONE MAP NO.	SHEET	OF
	H-8/9	4	5



TYPICAL RETAINING WALL NOMENCLATURE
 NOT TO SCALE
 (RETAINING HEIGHT IS TAKEN TO BE DIFFERENCE IN FINISHED GRADES ON LEFT AND RIGHT SIDE OF WALL.)
 HEIGHT IS IN ACCORDANCE WITH CITY COMPREHENSIVE ZONING CODE, SECTION 14-16-3-19, GENERAL HEIGHT AND DESIGN REGULATIONS FOR WALLS, FENCES, AND RETAINING WALLS.



TEMPORARY DESILTATION SECTION A-A
 NOT TO SCALE



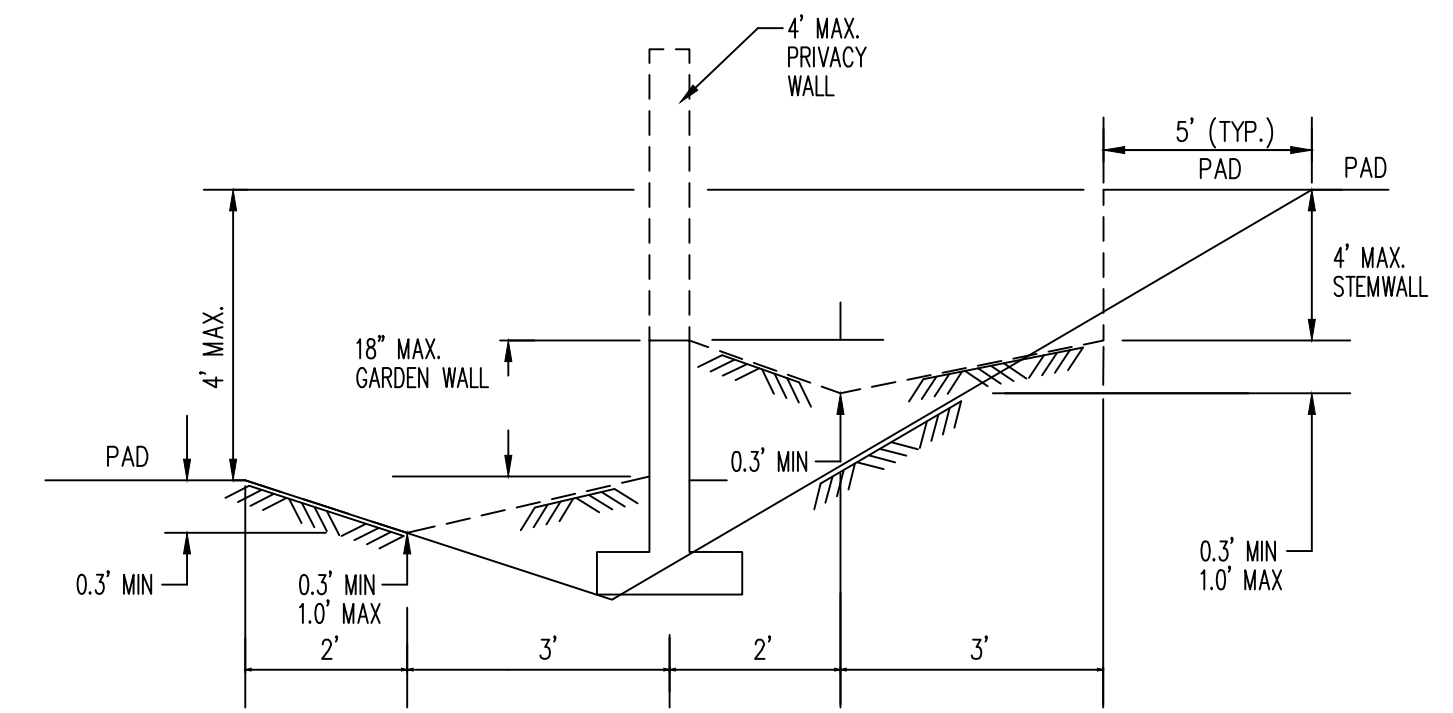
TEMPORARY DESILTATION SECTION B-B
 NOT TO SCALE

GENERAL NOTES

1. ALL WORK DETAILED ON THESE PLANS AND PERFORMED UNDER THIS CONTRACT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND THE PROJECT GEOTECHNICAL REPORT. WHERE APPLICABLE, CITY OF ALBUQUERQUE PUBLIC WORKS STANDARDS SHALL APPLY.
2. THE CONTRACTOR SHALL ABIDE BY ALL LOCAL, STATE, AND FEDERAL LAWS, RULES AND REGULATIONS WHICH APPLY TO THE CONSTRUCTION OF THESE IMPROVEMENTS, INCLUDING EPA REQUIREMENTS WITH RESPECT TO STORM WATER DISCHARGE.
3. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL FIELD VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL POTENTIAL OBSTRUCTIONS INCLUDING ALL UNDERGROUND UTILITIES. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION OBSERVER OR ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
4. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, THE CONTRACTOR SHALL CONTACT LINE LOCATING SERVICE FOR LOCATION OF EXISTING UTILITIES.
5. ALL ELECTRICAL, TELEPHONE, CABLE TV, GAS AND OTHER UTILITY LINES, CABLES, AND APPURTENANCES ENCOUNTERED DURING CONSTRUCTION THAT REQUIRE RELOCATION, SHALL BE COORDINATED WITH THAT UTILITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF ALL NECESSARY UTILITY ADJUSTMENTS. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR DELAYS OR INCONVENIENCES CAUSED BY UTILITY COMPANY WORK CREWS. THE CONTRACTOR MAY BE REQUIRED TO RESCHEDULE HIS ACTIVITIES TO ALLOW UTILITY CREWS TO PERFORM THEIR REQUIRED WORK.
6. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING ALL EXISTING UTILITY LINES WITHIN THE CONSTRUCTION AREA. ANY DAMAGE TO EXISTING FACILITIES CAUSED BY CONSTRUCTION ACTIVITY SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE AND APPROVED BY THE CONSTRUCTION OBSERVER.
7. CONSTRUCTION ACTIVITY SHALL BE LIMITED TO THE PROPERTY AND/OR PROJECT LIMITS. ANY DAMAGE TO ADJACENT PROPERTIES RESULTING FROM THE CONSTRUCTION PROCESS SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE.
8. OVERNIGHT PARKING OF CONSTRUCTION EQUIPMENT SHALL NOT OBSTRUCT DRIVEWAYS OR DESIGNATED TRAFFIC LANES. THE CONTRACTOR SHALL NOT STORE ANY EQUIPMENT OR MATERIAL WITHIN THE PUBLIC RIGHT-OF-WAY.
9. THE CONTRACTOR SHALL OBTAIN ALL THE NECESSARY PERMITS FOR THE PROJECT PRIOR TO COMMENCING CONSTRUCTION (I.E., BARRICADING, TOPSOIL DISTURBANCE, EXCAVATION PERMITS, EPA STORM WATER PERMITS, ETC.).
10. ALL PROPERTY CORNERS DESTROYED DURING CONSTRUCTION SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE. ALL PROPERTY CORNERS MUST BE RESET BY A REGISTERED LAND SURVEYOR.
11. THE CONTRACTOR SHALL PREPARE A CONSTRUCTION TRAFFIC CONTROL AND SIGNING PLAN AND OBTAIN APPROVAL OF SUCH PLAN FROM THE CITY OF ALBUQUERQUE, TRAFFIC ENGINEERING DEPARTMENT, PRIOR TO BEGINNING ANY CONSTRUCTION WORK ON OR ADJACENT TO EXISTING STREETS.
12. ALL BARRICADES AND CONSTRUCTION SIGNING SHALL CONFORM TO APPLICABLE SECTIONS OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD), US DEPARTMENT OF TRANSPORTATION, LATEST EDITION.
13. THE CONTRACTOR SHALL MAINTAIN ALL CONSTRUCTION BARRICADES AND SIGNING AT ALL TIMES. THE CONTRACTOR SHALL VERIFY THE PROPER LOCATION OF ALL BARRICADES AT THE END AND BEGINNING OF EACH DAY.
14. THE CONTRACTOR SHALL TAKE ALL STEPS NECESSARY TO CONFORM WITH EPA REQUIREMENTS, INCLUDING COMPLIANCE WITH NPDES PHASE 2 REQUIREMENTS.

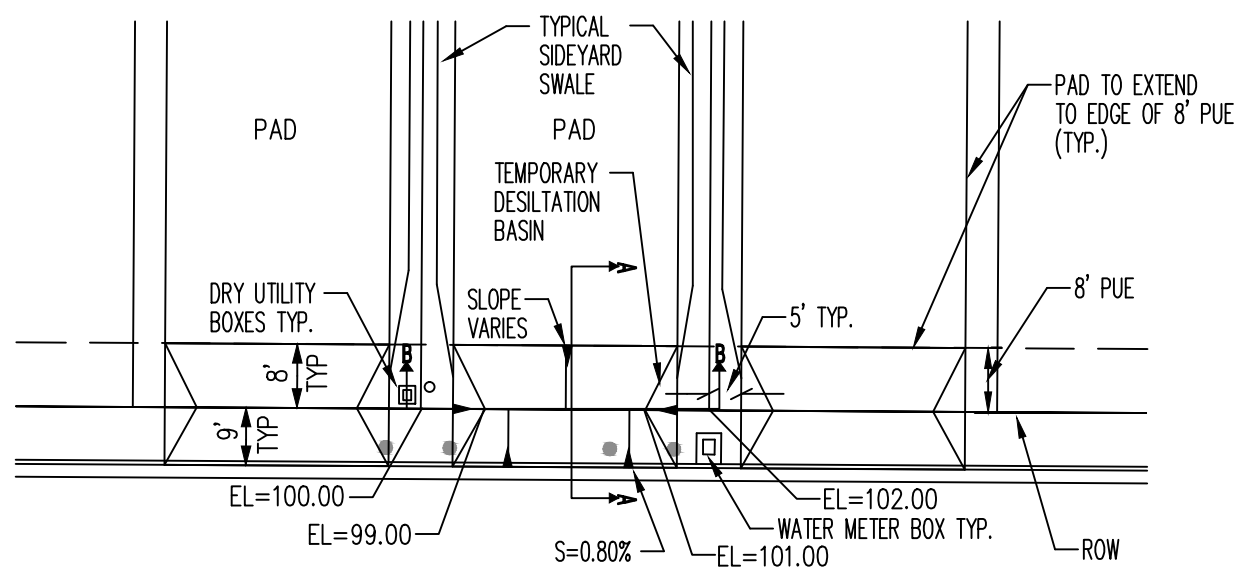
GRADING NOTES

1. EXCEPT AS PROVIDED HEREIN, GRADING SHALL BE PERFORMED AT THE ELEVATIONS AND IN ACCORDANCE WITH THE DETAILS SHOWN ON THIS PLAN.
2. CONTRACTOR SHALL OBTAIN AND ABIDE BY A TOPSOIL DISTURBANCE PERMIT FROM THE CITY OF ALBUQUERQUE ENVIRONMENTAL HEALTH DIVISION, PRIOR TO CONSTRUCTION. THE COST FOR REQUIRED CONSTRUCTION DUST AND EROSION CONTROL MEASURES SHALL BE INCIDENTAL TO THE PROJECT COST. THE CONTRACTOR SHALL CONFORM TO ALL CITY, COUNTY, STATE, AND FEDERAL DUST CONTROL MEASURES AND REQUIREMENTS AND WILL BE RESPONSIBLE FOR PREPARING AND OBTAINING ALL NECESSARY APPLICATIONS AND APPROVALS.
3. ALL WORK RELATIVE TO FOUNDATION CONSTRUCTION, SITE PREPARATION, AND PAVEMENT INSTALLATION, AS SHOWN ON THIS PLAN, SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE SOILS REPORT PREPARED BY XBEVINYARD DATED JULY 22, 2013. ALL OTHER WORK, UNLESS OTHERWISE STATED OR PROVIDED FOR HEREON, SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS (FIRST PRIORITY), AND/OR THE CITY OF ALBUQUERQUE (COA) STANDARD SPECIFICATIONS FOR PUBLIC WORKS (SECOND PRIORITY).
4. TWO WORKING DAYS PRIOR TO EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATING SERVICE (765-1264) FOR LOCATION OF EXISTING UTILITIES.
5. PRIOR TO GRADING, ALL VEGETATION DEBRIS, AND NEAR SURFACE ORGANICALLY CONTAMINATED SOIL SHALL BE STRIPPED FROM ALL AREAS TO BE GRADED. VEGETATION AND DEBRIS SHALL BE DISPOSED OF OFF-SITE OR STOCK-PILED FOR USE IN PLANTERS AND NON-STRUCTURAL FILLS.
6. EARTH SLOPES SHALL NOT EXCEED 4 HORIZONTAL TO 1 VERTICAL UNLESS SHOWN OTHERWISE.
7. IT IS THE INTENT OF THESE PLANS THAT THIS CONTRACTOR SHALL NOT PERFORM ANY WORK OUTSIDE OF THE PROPERTY BOUNDARIES EXCEPT AS REQUIRED BY THIS PLAN.
8. THE CONTRACTOR IS TO ENSURE THAT NO SOIL ERODES FROM THE SITE ONTO ADJACENT PROPERTY OR PUBLIC RIGHT-OF-WAY. THIS SHOULD BE ACHIEVED BY CONSTRUCTING TEMPORARY BERMS AT THE PROPERTY LINES WETTING THE SOIL TO PROTECT IT FROM WIND EROSION.
9. A DISPOSAL SITE FOR ALL EXCESS EXCAVATION AND UNSUITABLE MATERIAL SHALL BE OBTAINED BY THE CONTRACTOR IN COMPLIANCE WITH APPLICABLE ENVIRONMENTAL REGULATIONS AND APPROVED BY THE OBSERVER. ALL COSTS INCURRED IN OBTAINING A DISPOSAL SITE AND HAUL THERETO SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT, AND NO SEPARATE MEASUREMENT OR PAYMENT SHALL BE MADE.
10. PAVING AND ROADWAY GRADES SHALL BE +/- 0.1' FROM PLAN ELEVATIONS. PAD ELEVATION SHALL BE +/- 0.05' FROM BUILDING PLAN ELEVATIONS.
11. ALL SPOT ELEVATIONS ARE TO FLOWLINE UNLESS OTHERWISE NOTED. VALLEY GUTTER ELEVATIONS ARE SHOWN AT FLOWLINE ELEVATION.



TYPICAL SIDE LOT LINE SECTION
 NOT TO SCALE

NOTE: DASHED LINES IN TYP. SIDE LOT LINE SECTIONS REPRESENT THE FINAL CONDITION AFTER THE GARDEN, STEM, AND PRIVACY WALLS HAVE BEEN CONSTRUCTED. THE INTERIM CONDITION, WHICH IS TO BE CONSTRUCTED BY THE GRADING CONTRACTOR AND CERTIFIED BY THE ENGINEER, IS REPRESENTED BY THE SOLID LINES. RETAINING WALLS WILL BE CONSTRUCTED PRIOR TO GRADING CERTIFICATION.

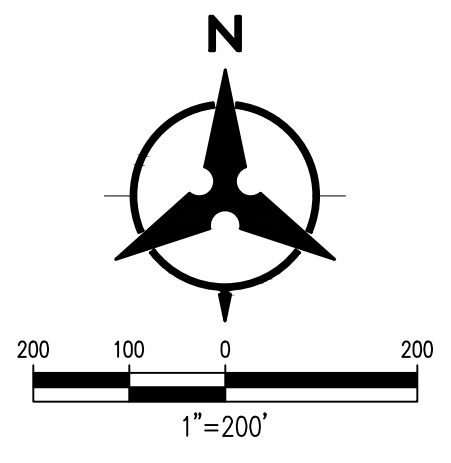


TEMPORARY DESILTATION BASIN
 NOT TO SCALE

** BOTTOM OF BASIN IS 1' BELOW PROPERTY LINE ELEVATION SEE GRADING PLANS FOR EXACT ELEVATIONS

LEGEND

- PROPOSED SPOT ELEVATION ● 5235.25
- EXISTING SPOT ELEVATION ● EX 5235.25
- PROPOSED CONTOUR — 5225
- EXISTING STORM DRAIN LINE - - - - -
- PROPOSED STORM DRAIN INLET □
- PROPOSED STORM DRAIN LINE = = = = =
- PROPOSED STORM DRAIN MANHOLE ○
- PROPOSED WATER BLOCK [Symbol]
- RETAINING WALL [Symbol]
- PAD [Symbol]
- TURNED BLOCK [Symbol]
- STREET SLOPE [Symbol]



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CITY OF ALBUQUERQUE
 DEPARTMENT OF MUNICIPAL DEVELOPMENT

DEL WEBB @ MIREHAVEN PHASE 4
 OVERALL GRADING PLAN

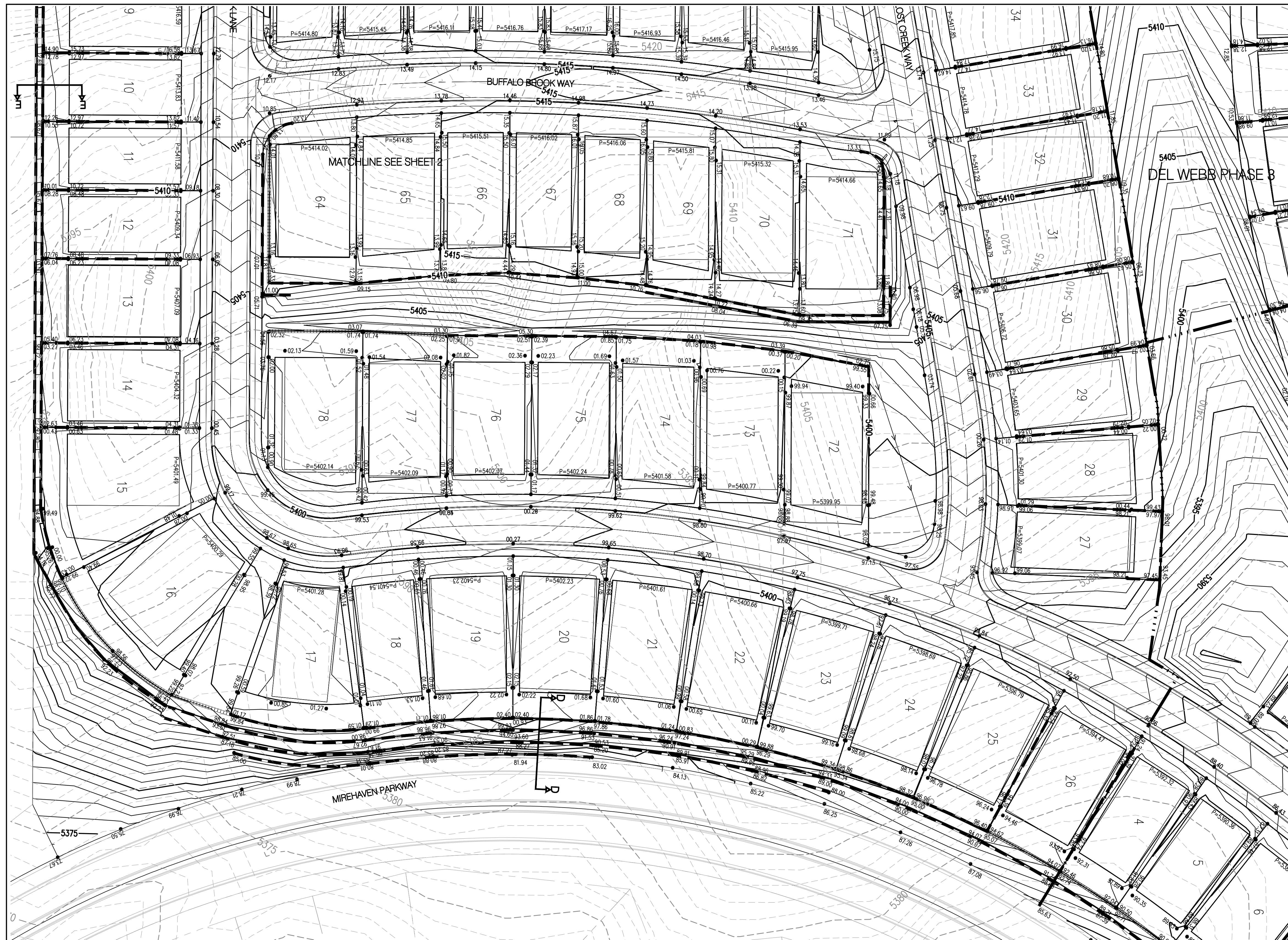
DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	MO./DAY/YR.	MO./DAY/YR.
LAST DESIGN UPDATE			
CITY PROJECT NO.	ZONE MAP NO.	SHEET	OF
	H-8/9	1	3

AS-BUILT INFORMATION	
CONTRACTOR	DATE
WORKED BY	DATE
INSPECTOR'S ACCEPTANCE BY	DATE
VERIFICATION BY	DATE
DRAWINGS BY	DATE
MICRO-FILM INFORMATION	
RECORDED BY	DATE
NO.	DATE

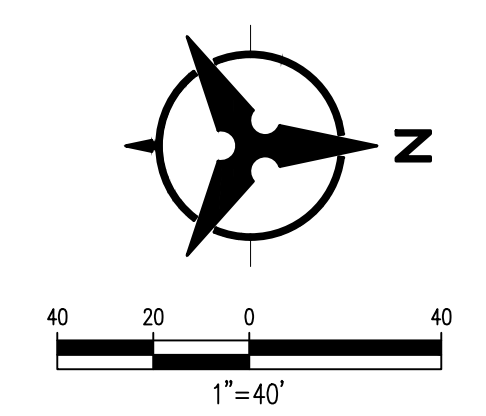
SURVEY INFORMATION	
FIELD NOTES	DATE
NO.	DATE

REVISIONS	BY	DATE
DESIGN	YPM	04/18
	AR	04/18
	YPM	04/18





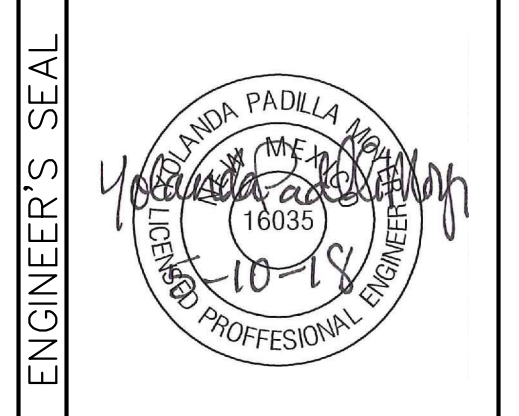
- LEGEND**
- PROPOSED SPOT ELEVATION ● 5235.25
 - EXISTING SPOT ELEVATION ● EX 5235.25
 - PROPOSED CONTOUR --- 5025 ---
 - EXISTING STORM DRAIN LINE - - - - -
 - PROPOSED STORM DRAIN INLET □
 - PROPOSED STORM DRAIN LINE |||
 - PROPOSED STORM DRAIN MANHOLE ○
 - PROPOSED WATER BLOCK ~~~~~
 - RETAINING WALL [Symbol]
 - PAD [Symbol]
 - TURNED BLOCK [Symbol]
 - STREET SLOPE XX



AS-BUILT INFORMATION	
CONTRACTOR	DATE
WORKED BY	DATE
INSPECTOR'S	DATE
ACCEPTANCE BY	DATE
VERIFICATION BY	DATE
DRAWN BY	DATE
CHECKED BY	DATE
RECORDED BY	DATE
NO.	DATE

BENCH MARKS	

SURVEY INFORMATION	
FIELD NOTES	DATE
NO.	BY



ENGINEER'S SEAL	
REVISIONS	BY
DESIGN	
NO. DATE	DATE
DESIGNED BY YPM	DATE 04/18
DRAWN BY AR	DATE 04/18
CHECKED BY YPM	DATE 04/18

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CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT
DEL WEBB @ MIREHAVEN PHASE 4
GRADING PLAN

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	MO./DAY/YR.	MO./DAY/YR.

CITY PROJECT NO.	ZONE MAP NO.	SHEET	OF
	H-8/9	3	3