

CITY OF ALBUQUERQUE

Planning Department
Brennon Williams, Director



Mayor Timothy M. Keller

September 18, 2019

Ron Bohannon, P.E.
Tierra West, LLC
5571 Midway Park Place, NE
Albuquerque, NM 87109

RE: **Jiffy Lube Expansion**
8305-8313 Menaul NE
Grading Plan Stamp Date: 9/16/19
Drainage Report Stamp Date: 9/4/19
Hydrology File: H15D086

Dear Mr. Bohannon,

PO Box 1293

Based on the submittal received on 9/16/19, this project is approved for Plat and Building Permit.

Albuquerque

Prior to Certificate of Occupancy (For Information):

NM 87103

www.cabq.gov

1. Engineer's Certification, per the DPM Chapter 22.7: *Engineer's Certification Checklist For Subdivision* is required.
2. City acceptance and close-out of the public Work Order will be required, unless a financial guarantee has been posted.
3. A Bernalillo County Recorded [Drainage Covenant \(No Public Easement\)](#) is required for the stormwater ponds. The original notarized form, exhibit A (legible on 8.5x11 paper), and recording fee (\$25, payable to Bernalillo County) must be turned into DRC (4th, Plaza del Sol) for routing. Please contact Charlotte LaBadie (clabadie@cabq.gov, 924-3996) regarding the routing and recording process for covenants. The routing and recording process for covenants can take a month or longer; Hydrology recommends beginning this process as soon as possible as to not delay approval for certificate of occupancy.

If you have any questions, please contact me at 924-3695 or dpeterson@cabq.gov.

Sincerely,

Dana Peterson, P.E.
Senior Engineer, Planning Dept.
Development Review Services



City of Albuquerque

Planning Department
Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 6/2018)

Project Title: JIFFY LUBE **Building Permit #:** _____ **Hydrology File #:** _____
DRB#: 2019-002686 **EPC#:** _____ **Work Order#:** _____
Legal Description: 1 8 / 002 008 EXC SW POR OUT TO R/W SOMBRA DEL MONTE
City Address: 8305 MENAUL NE ALBUQUERQUE NM 87110

Applicant: TIERRA WEST, LLC **Contact:** RICHARD STEVENSON
Address: 5571 Midway Park Place NE ALBUQUERQUE NM 87109
Phone#: 505-858-3100 **Fax#:** 505-858-1118 **E-mail:** rstevenson@tierrawestllc.com

Other Contact: _____ **Contact:** _____
Address: _____
Phone#: _____ **Fax#:** _____ **E-mail:** _____

TYPE OF DEVELOPMENT: _____ PLAT (# of lots) _____ RESIDENCE _____ DRB SITE ☒ ADMIN SITE

IS THIS A RESUBMITTAL? ☒ Yes _____ No

DEPARTMENT _____ TRANSPORTATION ☒ HYDROLOGY/DRAINAGE

Check all that Apply:

TYPE OF SUBMITTAL:

- ☐ ENGINEER/ARCHITECT CERTIFICATION
- ☐ PAD CERTIFICATION
- ☐ CONCEPTUAL G & D PLAN
- ☒ GRADING PLAN
- ☒ DRAINAGE REPORT
- ☐ DRAINAGE MASTER PLAN
- ☐ FLOODPLAIN DEVELOPMENT PERMIT APPLIC
- ☐ ELEVATION CERTIFICATE
- ☐ CLOMR/LOMR
- ☐ TRAFFIC CIRCULATION LAYOUT (TCL)
- ☐ TRAFFIC IMPACT STUDY (TIS)
- ☐ STREET LIGHT LAYOUT
- ☐ OTHER (SPECIFY) _____
- ☐ PRE-DESIGN MEETING?

TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

- ☒ BUILDING PERMIT APPROVAL
- ☐ CERTIFICATE OF OCCUPANCY
- ☐ PRELIMINARY PLAT APPROVAL
- ☐ SITE PLAN FOR SUB'D APPROVAL
- ☒ SITE PLAN FOR BLDG. PERMIT APPROVAL
- ☐ FINAL PLAT APPROVAL
- ☐ SIA/ RELEASE OF FINANCIAL GUARANTEE
- ☐ FOUNDATION PERMIT APPROVAL
- ☐ GRADING PERMIT APPROVAL
- ☐ SO-19 APPROVAL
- ☐ PAVING PERMIT APPROVAL
- ☐ GRADING/ PAD CERTIFICATION
- ☐ WORK ORDER APPROVAL
- ☐ CLOMR/LOMR
- ☐ FLOODPLAIN DEVELOPMENT PERMIT
- ☐ OTHER (SPECIFY) _____

DATE SUBMITTED: 9/16/2019 **By:** RICHARD STEVENSON

COA STAFF:

ELECTRONIC SUBMITTAL RECEIVED: _____

FEE PAID: _____

DRAINAGE REPORT REV 1

**Vehicle Repair Shop
8305-8313 Menaul Blvd. NE
Albuquerque, NM 87110**

Prepared for:



Lubricar, Inc. dba Jiffy Lube
3520 Calle Cuervo NW
Albuquerque, NM 87114

Prepared by:

Tierra West, LLC
5571 Midway Park Place NE
Albuquerque, New Mexico 87109

September 2019

I certify that this report was prepared under my supervision, and I am a registered Professional Engineer in the State of New Mexico in good standing.



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Purpose

The purpose of this report is to outline the Drainage Plan and present a solution for the redevelopment of the commercial strip mall buildings at 8305-8313 Menaul Blvd. NE. The redevelopment will consist of a single-story 4,120 square foot vehicle repair shop that shall be operated by Jiffy Lube and complement their existing vehicle repair shop to the east, adjacent to the site, located at 2301 Wyoming Blvd. NE.

This report outlines the historic and developed stormwater calculations, and describes the on-site drainage improvements needed to safely convey the developed flows. The improvements were designed to be in compliance with the Albuquerque Development Process Manual and the City of Albuquerque Flood Hazard and Drainage Control Ordinance (2018) and includes the management of the 90th Percentile Storm Event onsite ('first flush'). The existing site is wholly impervious and is under a free discharge condition.

The entitlements for this project follow the *Site Plan - Administrative* procedures listed in the Integrated Development Ordinance.

Location and Background

The ±0.68 acre site is located on the southwest corner of Menaul Blvd. and Wisconsin St. in the northeast region of Albuquerque. The address of the parcel is 8305-8313 Menaul Blvd. NE, Albuquerque, NM 87110 and located within Zone Atlas Page H-19-Z. The proposed redevelopment will occur across the entire property, with the four lots being consolidated into one single lot through a platting action submitted to the City in July, 2019. The legal description of the parcel shall be Lot 4-A, Block 8, Sombra Del Monte, Section 7, Township 10 North, Range 4 East, N.M.P.M. Albuquerque, Bernalillo County, New Mexico.

The existing property is in a developed state with an 11,500 square foot single story multi-tenant retail building, asphalt and concrete pavement, and associated utilities. The site is earmarked for demolition and shall be cleared in preparation for the new development.

The site is bordered to the south by Menaul Blvd. (102' public ROW), Wisconsin St. (60' public ROW) to the west and a 16 foot public alleyway to the north. To the east is the existing Jiffy Lube service center. Historically no offsite stormwater enters the site. There are no files on City record for the current drainage of the site and a pre-submittal review of the site was completed with the City.



For more details about the Integrated Development Ordinance visit: <http://www.cabq.gov/planning/codes-policies-regulations/integrated-development-ordinance>

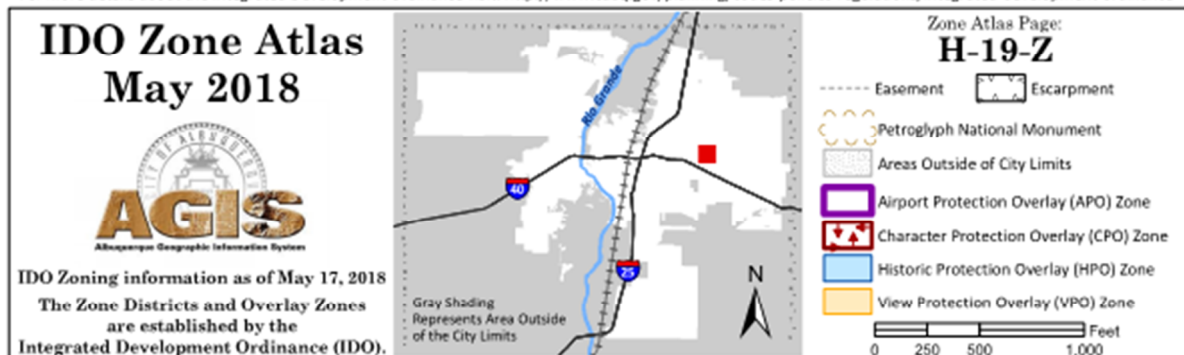


Exhibit A – Vicinity Map

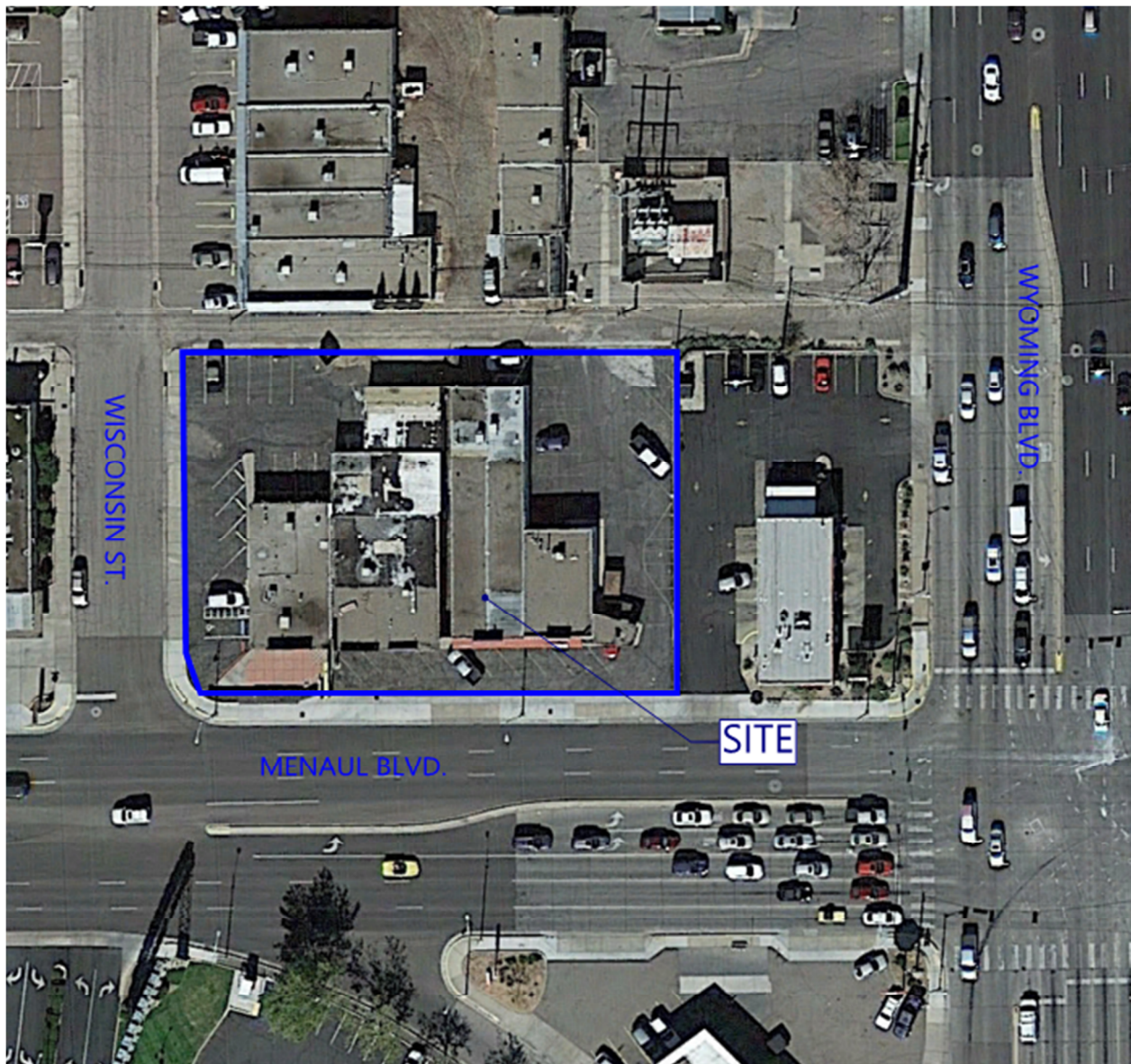


Exhibit B – Site Aerial Image

Flood Plain

The floodplain information is published for the site by the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for Bernalillo County, New Mexico and Incorporated Areas. The subject site is detailed on Community Panel Number . 35001C0356H, dated August 16, 2012 and is shown below.

The subject site is located within Flood Zone X, which is which is defined as, "Areas determined to be outside the 0.2% annual chance floodplain". The site does not lie within a Flood Hazard Area as shown on the FEMA map requiring no further flood-proofing or other flood mitigation.

National Flood Hazard Layer FIRMette

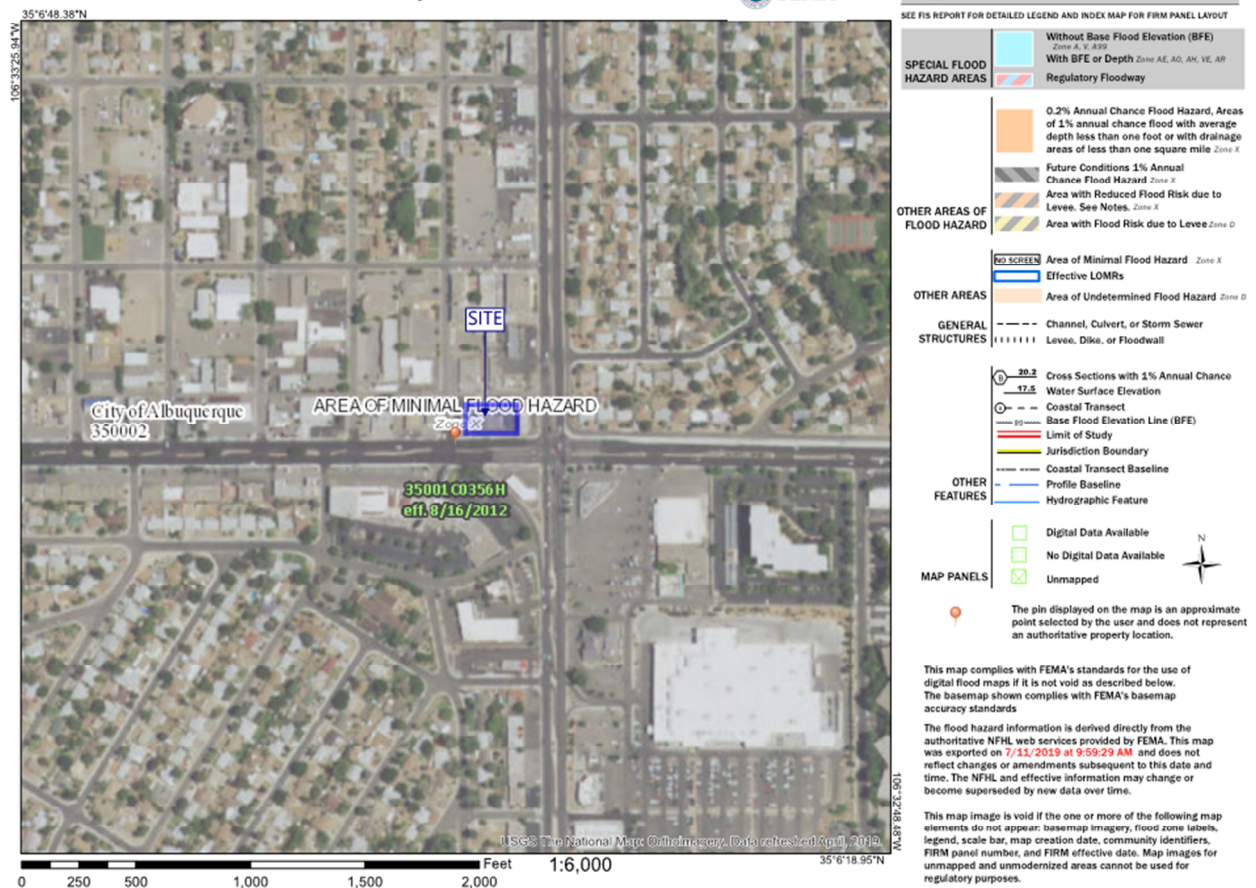


Exhibit C – FIRM Map

Calculations

The site is located within Precipitation Zone 3, east of San Mateo Blvd. and west of Eubank Blvd. as specified in Chapter 22, Section A.1 of the City of Albuquerque Development Process Manual Volume I – Design Criteria, 2006 Revision (DPM). The principal design storm is the 100-year, 6 hour event. As stated in the DPM in Chapter 22 Section A.2, the 100-year, 6 hour event is 2.60 inches.

The appropriate land treatments A through D, as defined in the DPM Chapter 22 Section A.3, were applied to the various pervious and impervious areas for the proposed re-developed site.

Excess precipitation is the depth of runoff remaining after the initial volume of rainfall retained on the surface and infiltration has been subtracted from the design storm hydrograph. The DPM defines the excess precipitation for the 100-year, 6 hour event in Chapter 22 Table A-8 for Zone 3 with the corresponding land treatments.

A weighted excess precipitation rate is used to calculate the volume runoff as defined in the DPM Chapter 22 (a-5, a-6). The calculation requires the sum of excess precipitation multiplied by the corresponding treatment areas divided by the total area, multiplied by the weighted excess precipitation of the watershed area.

To determine the peak discharge for the re-development the corresponding treatment areas are multiplied by the peak rate for each treatment and sum to compute the total flow. The peak rates for the treatment areas are defined in the DPM Chapter 22 Table A-9 for the 100-year event.

As this site is a re-development the storm water quality volume is calculated based on the 0.48 inch storm. To calculate the required storm water quality volume to be captured and retained onsite, the impervious areas are multiplied by 0.26 inches for the 80th percentile storm based on methodology used in the EPA Report *Estimating Predevelopment Hydrology in the Middle Rio Grande Watershed*, EPA Publication No. 832-R-14-007.

Existing (Historic) Developed Conditions

The site is divided into four drainage basins as shown in Exhibit D. All onsite basins are 100% impervious and freely discharge to the surrounding streets. One basin covers the southern area along the frontage with Menaul Blvd. which sheet flows directly into Menaul Blvd., with the second and third basins covering the sheet runoff discharged directly to the street drop inlet in Wisconsin St. Basin four covers the adjacent Jiffy Lube store. For the redevelopment of the site, stormwater runoff from the existing Jiffy Lube store parcel will enter into the new development as the dividing wall (and water-block) between the parcels will be removed and allow offsite drainage to enter the site. No other flows enter the site or the existing Jiffy Lube store.

Currently the onsite stormwater runoff drains from southeast to northwest across the site before flowing into Wisconsin St. (Basins B2 and B3). At the intersection of Wisconsin St. and the alley there are four type c inlets at each quadrant of the intersection. Approximately 17% of the site runoff from the area parallel to Menaul Blvd. (Basin B1) flows directly into Menaul Blvd and sheet flows along the curb to the type c inlet in Menaul, approximately 4,000 feet to the west of the site.

Runoff from the property to the east, the existing Jiffy Lube, is 80% impervious with 20% of the property landscaped. The property freely discharges stormwater to Menaul Blvd. (Basin B4) and to the rear alley (Basin B5) and does not currently enter the site being redeveloped.

For a 100 Year-6 Hour storm event the site stormwater runoff volume is 0.134 ac-ft with a peak discharge of 3.41 cfs. The runoff generated for the same event for the existing Jiffy Lube property is 0.063 ac-ft with a peak discharge of 1.63 cfs.

The runoff and volume calculations for the existing condition, based on the drainage criteria detailed in the DPM are included in appendix A.

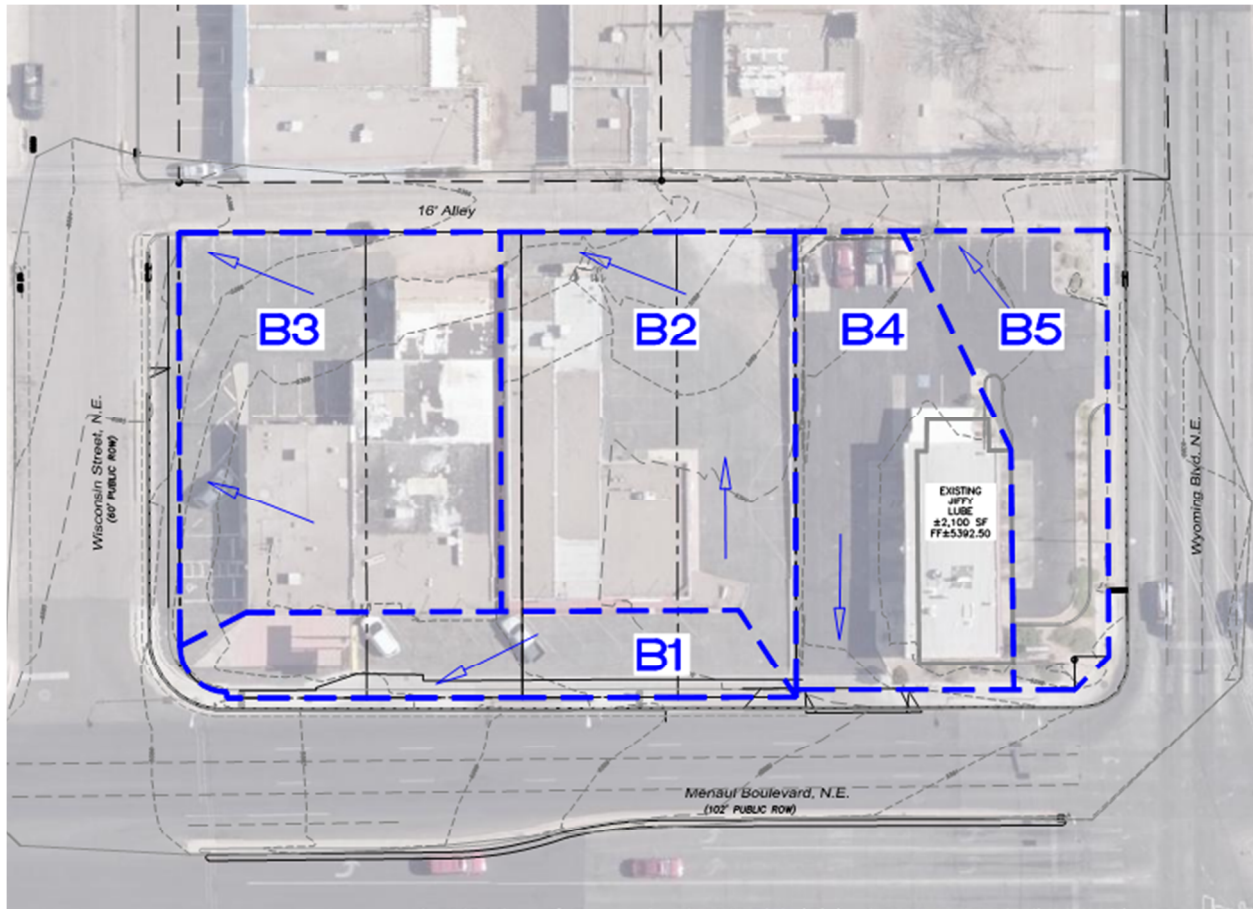


Exhibit D – Existing (Historic) Drainage Basin Map

Proposed Conditions

The developed site, including the adjacent Jiffy Lube property, is divided into five basins.

Basin B1 covers the new repair shop building and head-in parking adjacent to the alleyway.

Basin B2, B3 and B4 covers the associated drive isles, onsite parking and landscaping areas.

Basin B5 is the same as historic, covering the existing parking lot and drive isles.

The 100-year, 6 hour event was used to compare the stormwater runoff between the historic and proposed site. As to be expected with the addition of landscaping areas, the total runoff is less than the historic volume by 0.016 ac-ft and the site discharge is reduced by 0.34 cfs.

Difference between historic and proposed Event			
100-Year, 6-Hr Event			
Unit	Historic	Developed	Difference
Volume (ac-ft)	0.197	0.180	-8.0% (0.016 ac-ft)
Flow (cfs)	5.04	4.70	-6.3% (0.34 cfs)

There are four BMP stormwater quality volume (SWQV) surface ponds proposed to capture all of the required SWQV ('first flush') for the site and the existing Jiffy Lube store where possible. Sheet flow from the basin areas is directed to these SWQV pond areas. The curb cuts were sized to pass the design flow and sized for both the weir and normal depth equations.

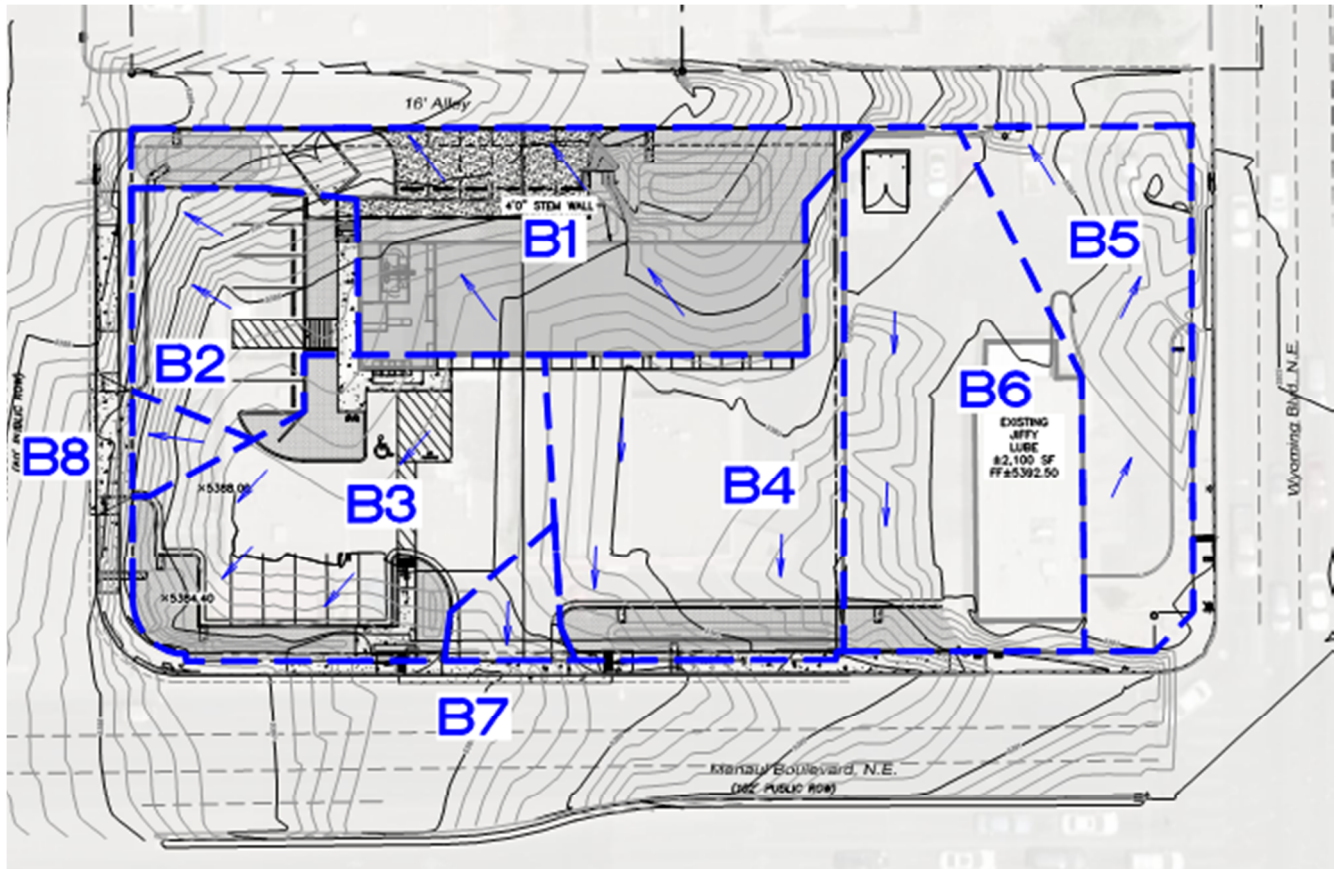


Exhibit E – Drainage Basin Map

Stormwater Quality Volume Management

As this site is a re-development site, the water quality volume is calculated based on the 0.48 inch storm. To calculate the Stormwater Quality Volume the impervious area is multiplied by 0.26 inches. The formula used is $SWQV = 0.26 * I * 43,560 * (1/12)$ where 'I' is the impervious area in acres. The drainage basins covering the adjacent property are not included in the required water quality volume calculation as there is no new development.

The total impervious area is 0.85 acres and requires a total water quality volume of 809 cubic feet for the impervious basin areas. SWQV Pond 1 has a retention volume of 313 cubic feet, SWQV Pond 2 a capacity of 945 cubic feet, SWQV Pond 3 a capacity of 100 cubic feet and SWQV Pond 4 a capacity of 240 cubic feet for a combined total retention of 1,598 cubic feet.

Pond No.	Volume (cf)
SWQV Pond #1	313
SWQV Pond #2	945
SWQV Pond #3	245
SWQV Pond #4	154
Total Provided	1,657
Total Required	537

Roof drains from the new repair shop shall convey roof runoff and discharge flows directly to SWQV pond 2. Stormwater runoff generated from the balance of the site and the hardscape areas shall be directed to the SWQV ponds with curb cuts and concrete rundowns before being discharged to the public right-of-way.

Additional flows from SWQV pond 1 and 2 shall sheet flow into the alley way, which then discharges to the inlets are the intersection with Wisconsin St.

Two 2-foot sidewalk culvert is proposed to discharge the event storm into Menaul Blvd and Wisconsin St. and will be built by City work order. The 2-foot culverts have the capacity to pass the design storm event flow. The water quality volume and weir calculations are detailed on the hydrology table in the appendix.

At the driveway entrances (Basins B7 & B8) the runoff is allowed to freely discharge without passing through SWQV ponds. The runoff from these areas are insignificant and included in the drainage tables. No payment in lieu is required.

Summary

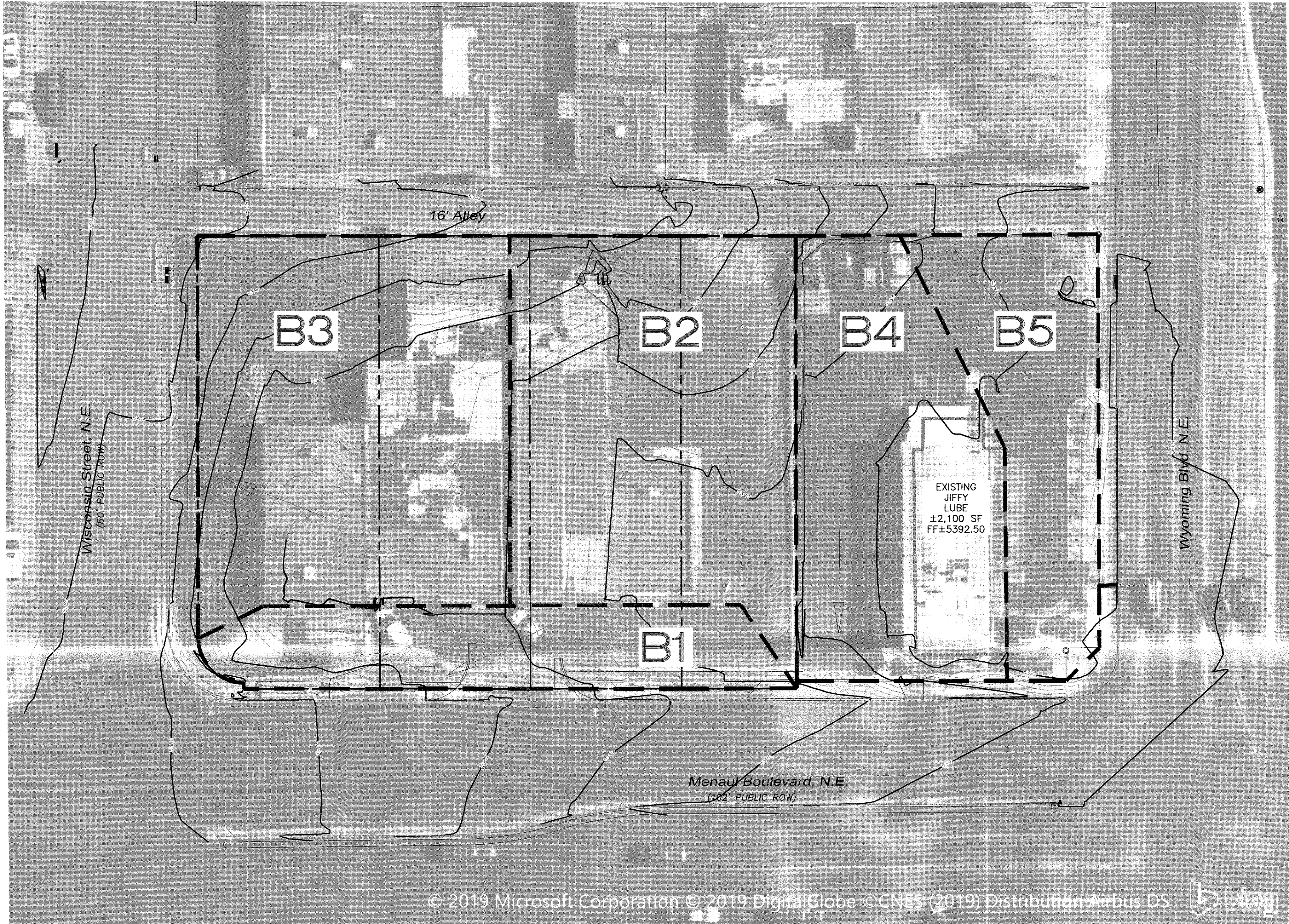
This report outlines the difference in the historic and developed drainage for the proposed redevelopment of the existing commercial strip mall buildings at 8305-8313 Menaul Blvd. NE. in a 4,120 square foot vehicle repair shop.

The total discharge for the 100-year, 6 hour event is less than the existing runoff due to the increase in landscape areas. To enable cross lot access between the site and the existing Jiffy Lube to the east, the existing water-block will be removed and offsite flows from this parcel will

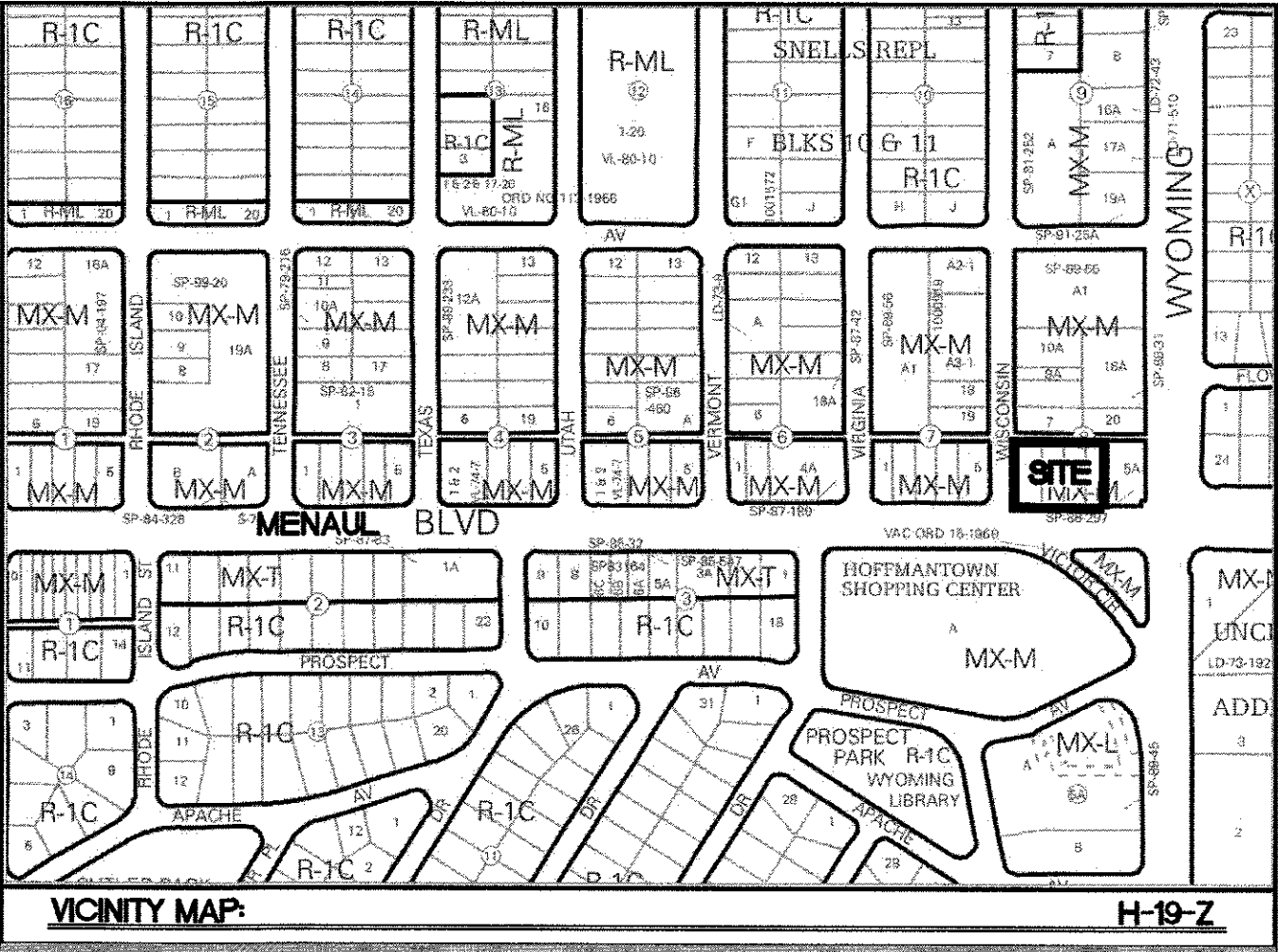
enter into the new development. The additional flows were considered in the design calculations and sizing of SWQV ponds.

There is adequate onsite SWQV provided in the landscape areas and the discharge from the site into Menaul Blvd. and Wisconsin St. shall pass through two sidewalk culverts built under a City Work Order .

APPENDIX A



- LEGEND**
- CURB & GUTTER
 - BOUNDARY LINE
 - EASEMENT
 - CENTERLINE
 - BUILDING
 - SIDEWALK
 - RETAINING WALL
 - EXISTING STREET LIGHTS
 - STRIPING
 - EXISTING CURB & GUTTER
 - EXISTING BOUNDARY LINE
 - EXISTING SIDEWALK
 - CONCRETE PAVERS
 - DRAINAGE BASIN BOUNDARY
 - FLOW DIRECTION



AREA OF MINIMAL FLOOD HAZARD

35001C0356H
eff. 8/16/2012

FLOOD MAP NO. 35001C0356H, DATED 08/16/2012

LEGAL DESCRIPTION:

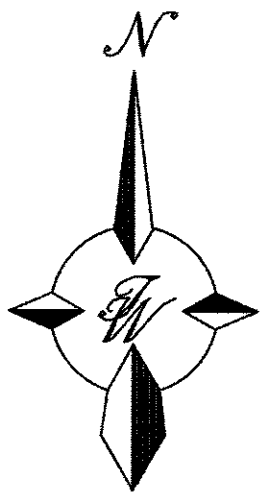
LOT 4-A, BLOCK 8, SOMBRA DEL MONTE.

HISTORIC DRAINAGE

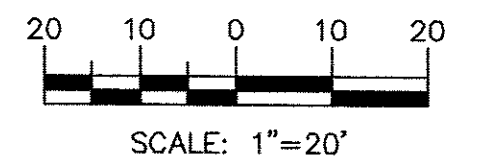
THE SUBJECT SITE IS LOCATED WITHIN FLOOD ZONE X DEFINED AS "AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN". THE SITE DOES NOT LIE WITHIN A FLOOD HAZARD AREA AS SHOWN ON THE FEMA MAP REQUIRING NO FURTHER FLOOD-PROOFING OR OTHER FLOOD MITIGATION.

THE EXISTING PROPERTY IS IN A DEVELOPED STATE WITH AN 11,500 SQUARE FOOT SINGLE STORY MULTI-TENANT RETAIL BUILDING, ASPHALT AND CONCRETE PAVEMENT, AND ASSOCIATED UTILITIES. THE SITE IS EARMARKED FOR DEMOLITION AND SHALL BE RAZORED IN PREPARATION FOR THE NEW DEVELOPMENT. THE SITE IS DIVIDED INTO FOUR DRAINAGE BASINS. ALL ONSITE BASINS ARE 100% IMPERVIOUS AND FREELY DISCHARGE TO THE SURROUNDING STREETS. ONE BASIN COVERS THE SOUTHERN AREA ALONG THE FRONTAGE WITH MENAUL BLVD. WHICH SHEET FLOWS DIRECTLY INTO MENAUL BLVD. WITH THE SECOND AND THIRD BASINS COVERING THE SHEET RUNOFF DISCHARGED DIRECTLY TO THE STREET DROP INLET IN WISCONSIN ST. BASIN FOUR COVERS THE ADJACENT JIFFY LUBE STORE FOR THE REDEVELOPMENT OF THE SITE. STORMWATER RUNOFF FROM THE JIFFY LUBE STORE WILL ENTER INTO THE NEW DEVELOPMENT AS THE DIVIDING WALL (AND WATER BLOCK) BETWEEN THE PARCELS WILL BE REMOVED AND ALLOW OFFSITE DRAINAGE TO ENTER THE SITE.

CURRENTLY THE ONSITE STORMWATER RUNOFF DRAINS FROM SOUTHEAST TO NORTHWEST ACROSS THE SITE BEFORE FLOWING INTO WISCONSIN ST. (BASINS B3 AND B3). APPROXIMATELY 17% OF THE SITE RUNOFF FROM THE AREA PARALLEL TO MENAUL BLVD. (BASIN B1) FLOWS DIRECTLY INTO MENAUL BLVD. RUNOFF FROM THE PROPERTY TO THE EAST, THE EXISTING JIFFY LUBE IS 80% IMPERVIOUS WITH 20% OF THE PROPERTY LANDSCAPED. THE PROPERTY FREELY DISCHARGES STORMWATER TO MENAUL BLVD. (BASIN B4) AND TO THE REAR ALLEY (BASIN B5) AND DOES NOT ENTER THE SITE BEING REDEVELOPED. FOR A 100 YEAR-6 HOUR STORM EVENT THE SITE STORMWATER RUNOFF VOLUME 0.134 AC-FT IS WITH A PEAK DISCHARGE OF 3.41 CFS. THE RUNOFF GENERATED FOR THE SAME EVENT FOR THE EXISTING JIFFY LUBE PROPERTY IS 0.063 AC-FT WITH A PEAK DISCHARGE OF 1.63 CFS.



GRAPHIC SCALE



Existing Conditions - Free Discharge

Basin Descriptions												100-Year, 6-Hr			10-Year, 6-Hr		
Basin ID	Area (sf)	Area (acres)	Area (sq miles)	Treatment A		Treatment B		Treatment C		Treatment D		Weighted E (in)	Volume (ac-ft)	Flow cfs	Weighted E (in)	Volume (ac-ft)	Flow cfs
				%	(acres)	%	(acres)	%	(acres)	%	(acres)						
1	5,032.22	0.116	0.00018	0%	0.000	0%	0.000	0%	0.000	100%	0.116	2.360	0.023	0.58	1.500	0.014	0.39
2	11,812.13	0.271	0.00042	0%	0.000	0%	0.000	0%	0.000	100%	0.271	2.360	0.053	1.36	1.500	0.034	0.92
3	12,757.13	0.293	0.00046	0%	0.000	0%	0.000	0%	0.000	100%	0.293	2.360	0.058	1.47	1.500	0.037	0.99
Offsite - Existing Jiffy Lube Property																	
4	9,020.64	0.207	0.00032	0%	0.000	5%	0.010	0%	0.000	95%	0.197	2.288	0.039	1.01	1.443	0.025	0.68
5	5,740.76	0.132	0.00021	0%	0.000	15%	0.020	0%	0.000	85%	0.112	2.144	0.024	0.61	1.329	0.015	0.40
Total	44,362.88	1.018	0.00159		0.00		0.03		0.00		0.99		0.197	5.04		0.124	3.39

Excess Precipitation, E (in.)			
Zone 3	100-Year	10-Year	
Ea	0.66	0.19	
Ec	0.92	0.36	
Ed	1.29	0.62	
Ed	2.36	1.50	

Peak Discharge (cfs/acre)			
Zone 3	100-Year	10-Year	
Qa	1.87	0.58	
Qb	2.6	1.19	
Qc	3.45	2.00	
Qd	5.02	3.39	

ENGINEER'S SEAL

RONALD R. BOHANNAN
P.E. #7868

**JIFFY LUBE
MENAUL AND WYOMING**

**HISTORIC DRAINAGE
PLAN**

TERRA WEST, LLC
5571 MIDWAY PARK PLACE NE
ALBUQUERQUE, NM 87109
(505) 858-3100
www.tierrowestllc.com

DRAWN BY
RS

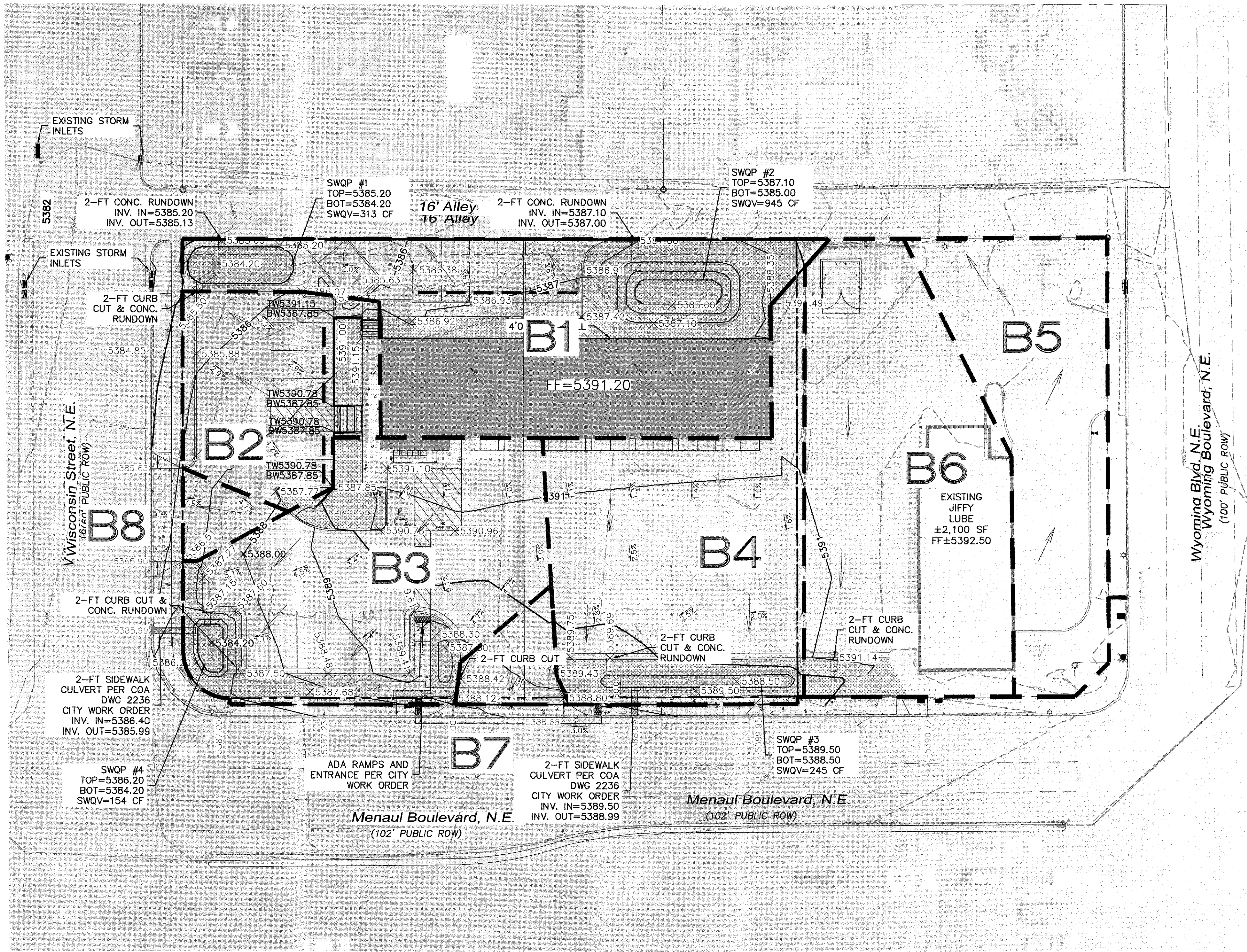
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2018016_HISTORIC_DRAINAGE

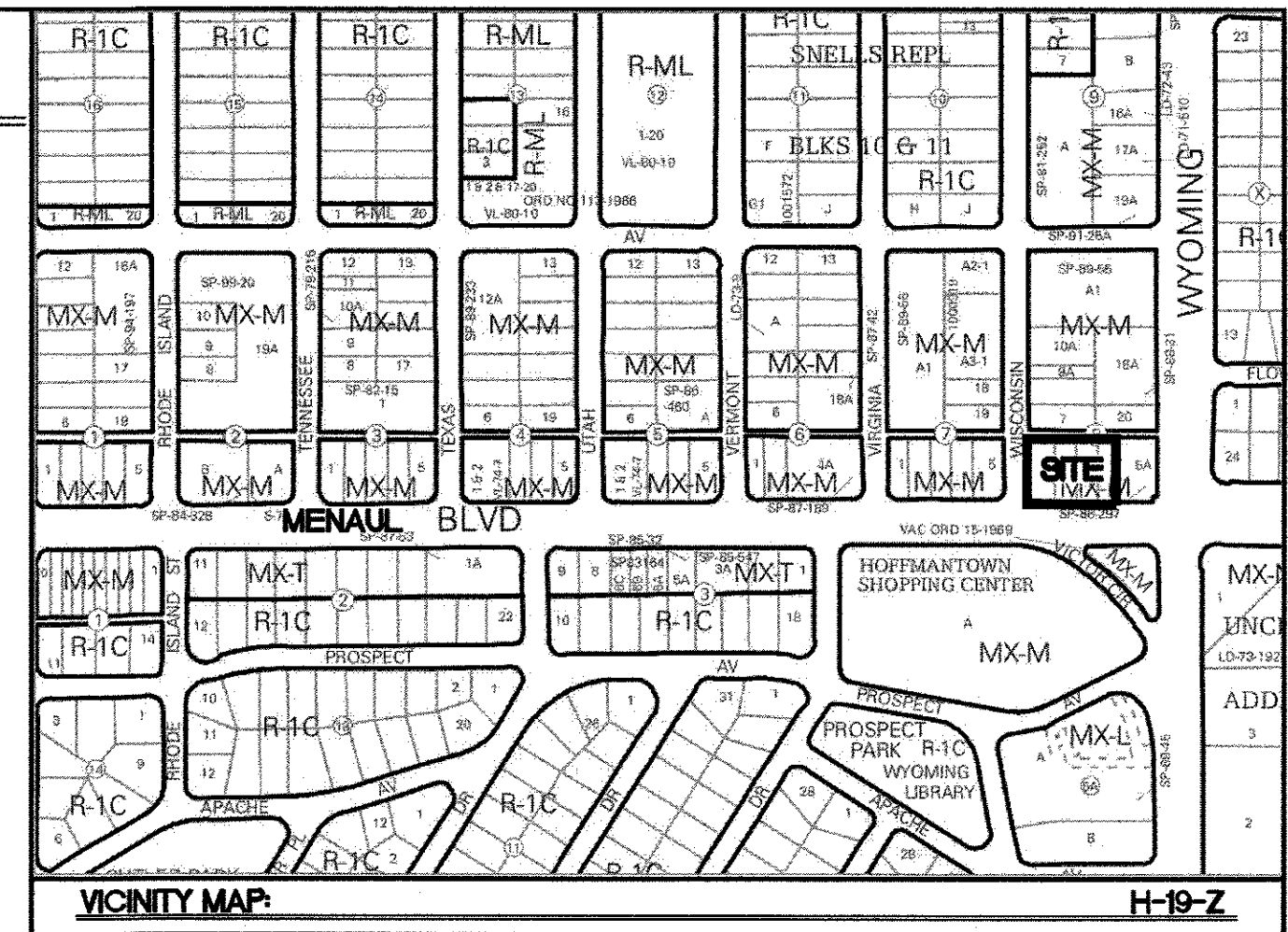
SHEET #
D1

JOB #
2018016

\\NAS01\ZDrive\2018\2018016 Jiffy Lube Menaul & Wyoming Drainage\2018016_Developed_Drainage.dwg Sep 04, 2019 - 9:18am



- LEGEND**
- CURB & GUTTER
 - BOUNDARY LINE
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 - DRAINAGE BASIN BOUNDARY
 - FLOW DIRECTION



AREA OF MINIMAL FLOOD HAZARD

35001C0356H
08/16/2012

FLOOD MAP NO. 35001C0356H, DATED 08/16/2012

LEGAL DESCRIPTION:

LOT 4-A, BLOCK 8, SOMBRA DEL MONTE,

DEVELOPED DRAINAGE

THE DEVELOPED SITE, INCLUDING THE ADJACENT JIFFY LUBE PROPERTY, IS DIVIDED INTO EIGHT BASINS. BASIN B1 COVERS THE NEW REPAIR SHOP BUILDING AND HEAD-IN PARKING ADJACENT TO THE ALLEYWAY. BASIN B2, B3 AND B4 COVERS THE ASSOCIATED DRIVE ISLES, ONSITE PARKING AND LANDSCAPING AREAS. BASIN B5/B6 ARE THE SAME AS HISTORIC, COVERING THE ADJACENT PARKING LOT AND DRIVE ISLES FOR THE EXISTING JIFFY LUBE.

THE 100-YEAR, 6 HOUR EVENT WAS USED TO COMPARE THE STORMWATER RUNOFF BETWEEN THE HISTORIC AND PROPOSED SITE. AS EXPECTED WITH THE ADDITIONAL LANDSCAPING AREAS REQUIRED, THE TOTAL RUNOFF IS LESS THAN THE HISTORIC VOLUME BY 0.016 AC-FT AND THE SITE DISCHARGE IS REDUCED BY 0.34 CFS.

AS THIS SITE IS A RE-DEVELOPMENT, THE WATER QUALITY VOLUME IS CALCULATED BASED ON THE 0.48 INCH STORM. TO CALCULATE THE STORMWATER QUALITY VOLUME THE IMPERVIOUS AREA IS MULTIPLIED BY 0.26 INCHES. THE FORMULA USED IS $SWQV = 0.26 \times 43,560 \times (1/12)$ WHERE '1' IS THE IMPERVIOUS AREA IN ACRES. THE TOTAL IMPERVIOUS AREA IS 0.85 ACRES AND REQUIRES A TOTAL WATER QUALITY VOLUME OF 537 CUBIC FEET FOR THE IMPERVIOUS BASIN AREAS (BASINS B5/B6 ARE NOT APPLICABLE). SWQV POND 1 HAS A RETENTION VOLUME OF 313 CUBIC FEET, SWQV POND 2 A CAPACITY OF 945 CUBIC FEET, SWQV POND 3 A CAPACITY OF 245 CUBIC FEET AND SWQV POND 4 A CAPACITY OF 154 CUBIC FEET FOR A COMBINED TOTAL RETENTION OF 1,657 CUBIC FEET.

ROOF DRAINS FROM THE NEW REPAIR SHOP SHALL CONVEY ROOF RUNOFF AND DISCHARGE FLOWS DIRECTLY TO SWQV POND 2. STORMWATER RUNOFF GENERATED FROM THE BALANCE OF THE SITE AND THE HARDSCAPE AREAS SHALL BE DIRECTED TO THE SWQV PONDS WITH CURB CUTS AND CONCRETE RUNDOWNS BEFORE BEING DISCHARGED TO THE PUBLIC RIGHT-OF-WAY. ADDITIONAL FLOWS FROM SWQV POND 1 AND 2 SHALL SHEET FLOW INTO THE ALLEY WAY, WHICH THEN DISCHARGES TO THE INLETS ARE THE INTERSECTION WITH WISCONSIN ST. TWO 2-FOOT SIDEWALK CULVERTS SHALL BE BUILT UNDER THE CITY WORK ORDER TO DISCHARGE THE EVENT STORM INTO MENAUL BLVD. AND WISCONSIN ST. THE 2-FOOT CULVERTS HAVE THE CAPACITY TO PASS THE DESIGN STORM EVENT FLOW.

Proposed Conditions - Free Discharge

Basin Descriptions											100-Year, 6-Hr			10-Year, 6-Hr			SWQV		
Basin ID	Area (sf)	Area (acres)	Area (sq miles)	Treatment A		Treatment B		Treatment C		Treatment D		Weighted E (in)	Volume (ac-ft)	Flow cfs	Weighted E (in)	Volume (ac-ft)	Flow cfs	Required (cf)	Provided (cf)
				%	(acres)	%	(acres)	%	(acres)	%	(acres)								
1	9,397.52	0.216	0.00034	0%	0.000	33%	0.071	0%	0.000	67%	0.145	1.885	0.034	0.91	1.124	0.020	0.57	136	945
2	3,974.46	0.091	0.00014	0%	0.000	7%	0.006	0%	0.000	93%	0.085	2.259	0.017	0.44	1.420	0.011	0.30	80	313
3	7,710.38	0.177	0.00028	0%	0.000	15%	0.027	0%	0.000	85%	0.150	2.144	0.032	0.82	1.329	0.020	0.54	142	154
4	7,520.18	0.173	0.00027	0%	0.000	9%	0.016	0%	0.000	91%	0.157	2.230	0.032	0.83	1.397	0.020	0.55	148	245
5	5,740.76	0.132	0.00021	0%	0.000	15%	0.020	0%	0.000	85%	0.112	2.144	0.024	0.61	1.329	0.015	0.40	0	0
6	8,637.34	0.198	0.00031	0%	0.000	15%	0.030	0%	0.000	85%	0.169	2.144	0.035	0.92	1.329	0.022	0.61	0	0
7	835.84	0.019	0.00003	0%	0.000	0%	0.000	0%	0.000	100%	0.019	2.360	0.004	0.10	1.500	0.002	0.07	18	0
8	546.40	0.013	0.00002	0%	0.000	0%	0.000	0%	0.000	100%	0.013	2.360	0.002	0.06	1.500	0.002	0.04	12	0
Total	44,362.88	1.018	0.00159	0.000	0.000	0.169	0.000	0.000	0.000	0.849	0.849	0.180	4.703	4.703	0.111	3.080	3.080	537	1,657

Equations:

Weighted E = $E_a \times A_a + E_b \times A_b + E_c \times A_c + E_d \times A_d / (\text{Total Area})$

Volume = Weighted E * Total Area

Flow = $Q_a \times A_a + Q_b \times A_b + Q_c \times A_c + Q_d \times A_d$

$SWQV = 0.26 \times 43,560 \times (1/12)$ where '1' is the impervious area in acres.

*Redeveloped site

Excess Precipitation, E (in.)

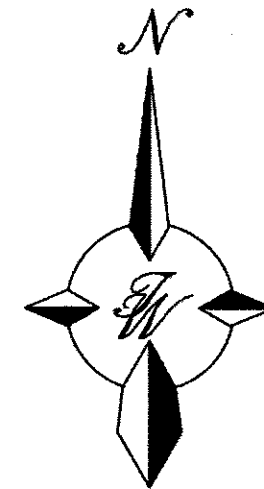
Zone	3	100-Year	10-Year
Ea	0.66	0.19	
Eb	0.92	0.36	
Ec	1.29	0.62	
Ed	2.36	1.50	

Peak Discharge (cfs/acre)

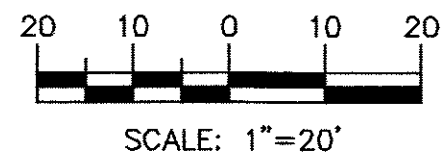
Zone	3	100-Year	10-Year
Qa	1.87	0.58	
Qb	2.6	1.19	
Qc	3.45	2.00	
Qd	5.02	3.39	

SWQV Pond Volume Calculations

Pond No.	Area at middepth Sq. Ft.	Total Depth Ft.	Volume CFT.
1	313	1	313
2	472.5	2	945
3	245	1	245
4	77	2	154
Total Volume			1,657



GRAPHIC SCALE



SCALE: 1"=20'

	ENGINEER'S SEAL	JIFFY LUBE	DRAWN BY
		MENAU AND WYOMING	RS
		DEVELOPED DRAINAGE PLAN	DATE
			9/3/2019
			2018016_DEVELOPED_DRAINAGE
		TIERRA WEST, LLC	SHEET #
		5571 MIDWAY PARK PLACE NE	D2
		ALBUQUERQUE, NM 87109	JOB #
		(505) 858-3100	2018016
		www.tierrawestllc.com	

DPM Weighted E Method

Precipitation Zone 3
Lots 8301-8305 Menaul Blvd. NE, Albuquerque NM 87110
TWLLC Date 9/4/2019

Existing Conditions - Free Discharge

Basin Descriptions										100-Year, 6-Hr				10-Year, 6-Hr			
Basin ID	Area (sf)	Area (acres)	Area (sq miles)	Treatment A %	Treatment A (acres)	Treatment B %	Treatment B (acres)	Treatment C %	Treatment C (acres)	Treatment D %	Treatment D (acres)	Weighted E (in)	Volume (ac-ft)	Flow cfs	Weighted E (in)	Volume (ac-ft)	Flow cfs
1	5,032.22	0.116	0.00018	0%	0.000	0%	0.000	0%	0.000	100%	0.116	2.360	0.023	0.58	1.500	0.014	0.39
2	11,812.13	0.271	0.00042	0%	0.000	0%	0.000	0%	0.000	100%	0.271	2.360	0.053	1.36	1.500	0.084	0.92
3	12,757.13	0.293	0.00046	0%	0.000	0%	0.000	0%	0.000	100%	0.293	2.360	0.058	1.47	1.500	0.037	0.99
Offsite - Existing Jiffy Lube Property																	
4	9,020.64	0.207	0.00032	0%	0.000	5%	0.010	0%	0.000	95%	0.197	2.288	0.039	1.01	1.443	0.025	0.68
5	5,740.76	0.132	0.00021	0%	0.000	15%	0.020	0%	0.000	85%	0.112	2.144	0.024	0.61	1.329	0.015	0.40
Total	44,362.88	1.018	0.00159		0.00		0.03		0.00		0.99		0.197	5.04		0.124	3.39

Proposed Conditions - Free Discharge

Basin Descriptions										100-Year, 6-Hr				10-Year, 6-Hr				SWQV	
Basin ID	Area (sf)	Area (acres)	Area (sq miles)	Treatment A %	Treatment A (acres)	Treatment B %	Treatment B (acres)	Treatment C %	Treatment C (acres)	Treatment D %	Treatment D (acres)	Weighted E (in)	Volume (ac-ft)	Flow cfs	Weighted E (in)	Volume (ac-ft)	Flow cfs	Vol Required	Provided (cf)
1	9,397.52	0.216	0.00034	0%	0.000	33%	0.071	0%	0.000	67%	0.145	1.885	0.034	0.91	1.124	0.020	0.57	136	945
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3	7,710.38	0.177	0.00028	0%	0.000	15%	0.027	0%	0.000	85%	0.150	2.144	0.032	0.82	1.329	0.020	0.54	142	154
4	7,520.18	0.173	0.00027	0%	0.000	9%	0.016	0%	0.000	91%	0.157	2.230	0.032	0.83	1.397	0.020	0.55	148	245
5	5,740.76	0.132	0.00021	0%	0.000	15%	0.020	0%	0.000	85%	0.112	2.144	0.024	0.61	1.329	0.015	0.40	0	0
6	8,637.34	0.198	0.00031	0%	0.000	15%	0.030	0%	0.000	85%	0.169	2.144	0.035	0.92	1.329	0.022	0.61	0	0
7	835.84	0.019	0.00003	0%	0.000	0%	0.000	0%	0.000	100%	0.019	2.360	0.004	0.10	1.500	0.002	0.07	18	0
8	546.40	0.013	0.00002	0%	0.000	0%	0.000	0%	0.000	100%	0.013	2.360	0.002	0.06	1.500	0.002	0.04	12	0
Total	44,362.88	1.018	0.00159		0.000		0.169		0.000		0.849		0.180	4.703		0.111	3.080	537	1,657

Equations:

Weighted E = Ea*Aa + Eb*Ab + Ec*Ac + Ed*Ad / (Total Area)

Volume = Weighted E * Total Area

Flow = Qa*Aa + Qb*Ab + Qc*Ac + Qd*Ad

SWQV* = 0.261*43,560*(1/12) where '1' is the impervious area in acres.

*Redeveloped site

Excess Precipitation, E (in.)			
Zone 3	100-Year	10-Year	
Ea	0.66	0.19	
Eb	0.92	0.36	
Ec	1.29	0.62	
Ed	2.36	1.50	

Peak Discharge (cfs/acre)			
Zone 3	100-Year	10-Year	
Qa	1.87	0.58	
Qb	2.6	1.19	
Qc	3.45	2.00	
Qd	5.02	3.39	

SWQV Pond Volume Calculations				
Pond No.	Area at middepth Sq. Ft.	Total Depth Ft.	Volume CFT.	
1	313	1	313	
2	472.5	2	945	
3	245	1	245	
4	77	2	154	
Total Volume			1,657	

Curb Opening Capacity

Weir Equation:

$$Q = CLH^{3/2}$$

Q= Flow

C = 2.7 (Per 6-15(A) of proposed DPM)

L= Length of weir

H = Height of Weir

2.0' Curb Opening for SWQV Pond #2 & #3

$$Q=2.7 * 2.0' * 0.5' ^{(3/2)}$$

Q = 1.91 cfs

1.91 cfs > 0.82 cfs (Basin B3) and 1.91 cfs > .83 cfs (Basin B4)

Opening has adequate capacity.

Worksheet for 2' Concrete Sidewalk Culvert at 2% Slope

Project Description

Friction Method Manning Formula
Solve For Discharge

Input Data

Channel Slope 0.02000 ft/ft
Normal Depth 0.50 ft
Section Definitions

Station (ft)	Elevation (ft)
0+00	0.58
0+00	0.08
0+01	0.00
0+02	0.08
0+02	0.58

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00, 0.58)	(0+02, 0.58)	0.013

Options

Current Roughness weighted Method Pavlovskii's Method
Open Channel Weighting Method Pavlovskii's Method
Closed Channel Weighting Method Pavlovskii's Method

Results

Discharge 6.97 ft³/s
Elevation Range 0.00 to 0.58 ft
Flow Area 0.92 ft²
Wetted Perimeter 2.84 ft
Hydraulic Radius 0.32 ft
Top Width 2.00 ft
Normal Depth 0.50 ft
Critical Depth 0.76 ft

Worksheet for 2' Concrete Sidewalk Culvert at 2% Slope

Results

Critical Slope	0.00550	ft/ft
Velocity	7.61	ft/s
Velocity Head	0.90	ft
Specific Energy	1.40	ft
Froude Number	1.98	
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.50	ft
Critical Depth	0.76	ft
Channel Slope	0.02000	ft/ft
Critical Slope	0.00550	ft/ft

Cross Section for 2% Slope

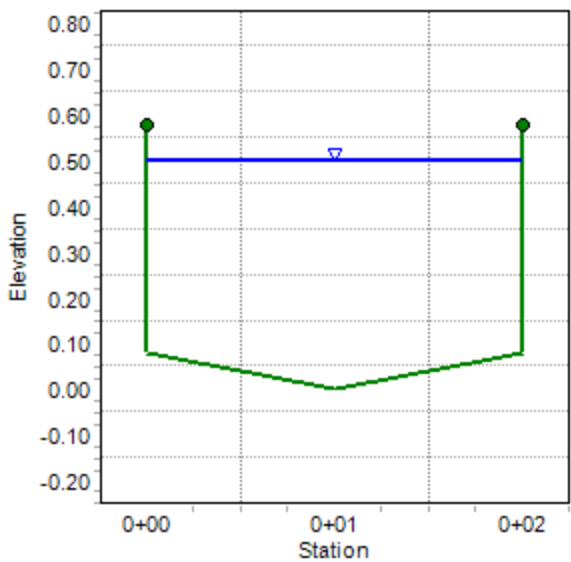
Project Description

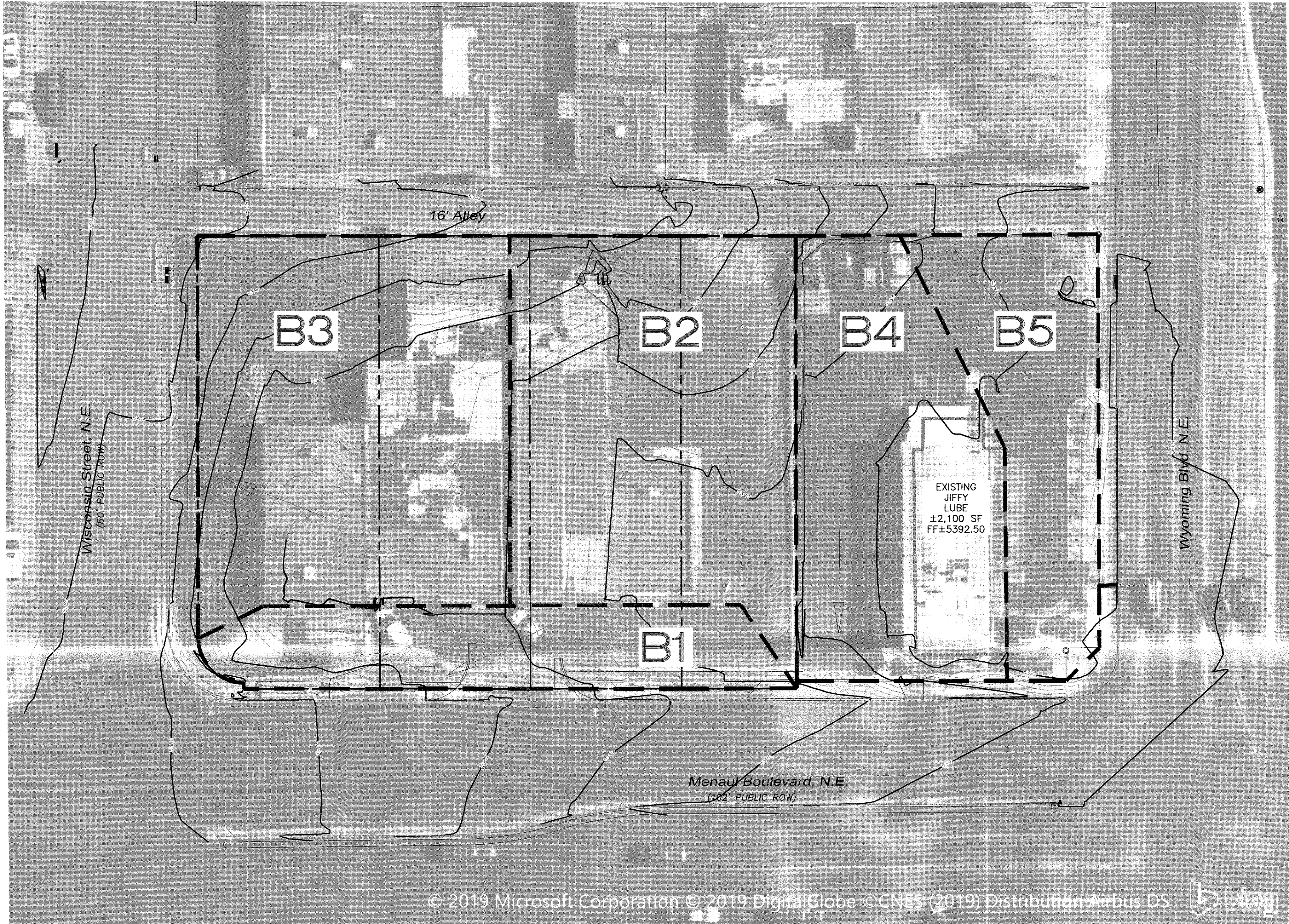
Friction Method	Manning Formula
Solve For	Discharge

Input Data

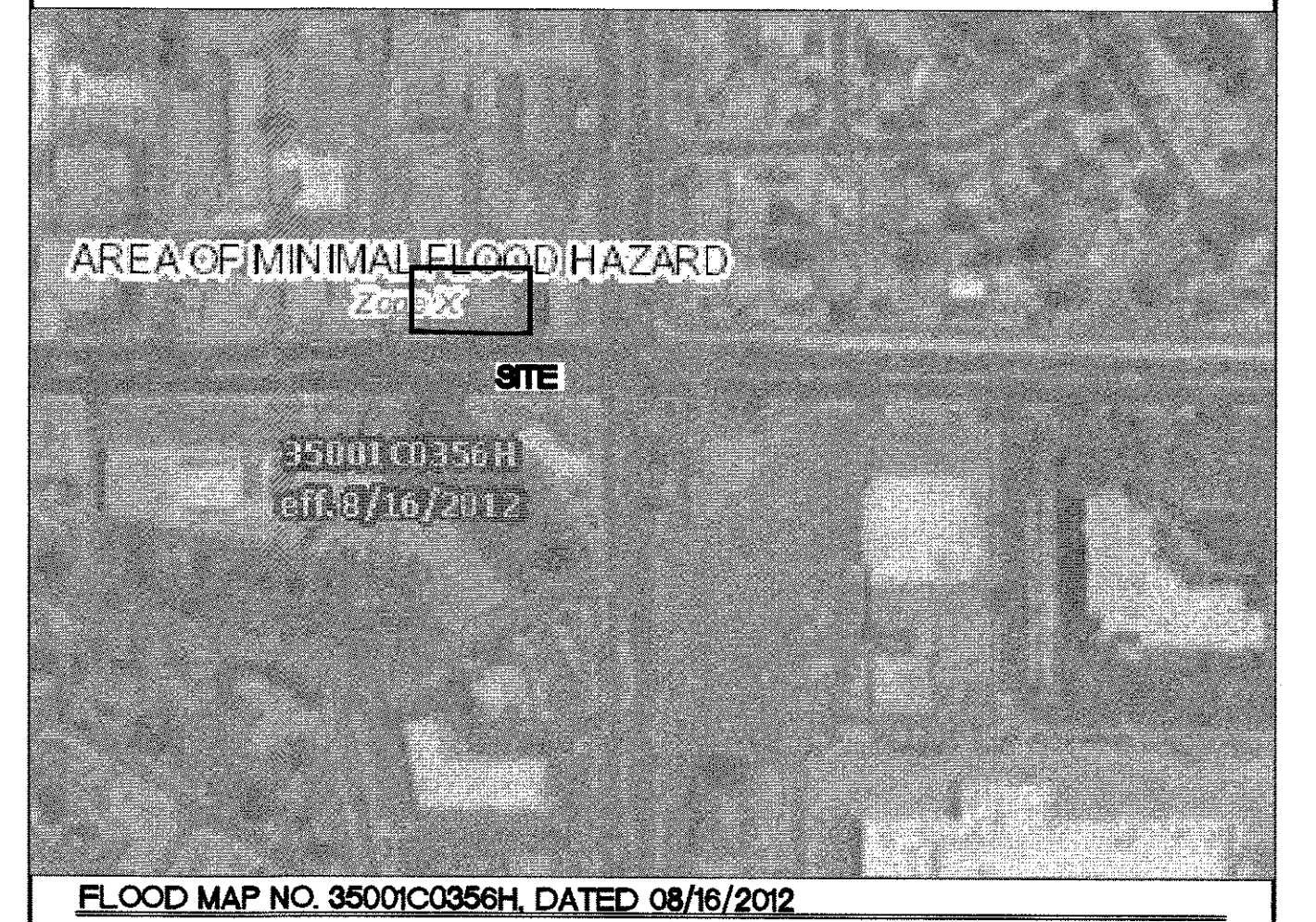
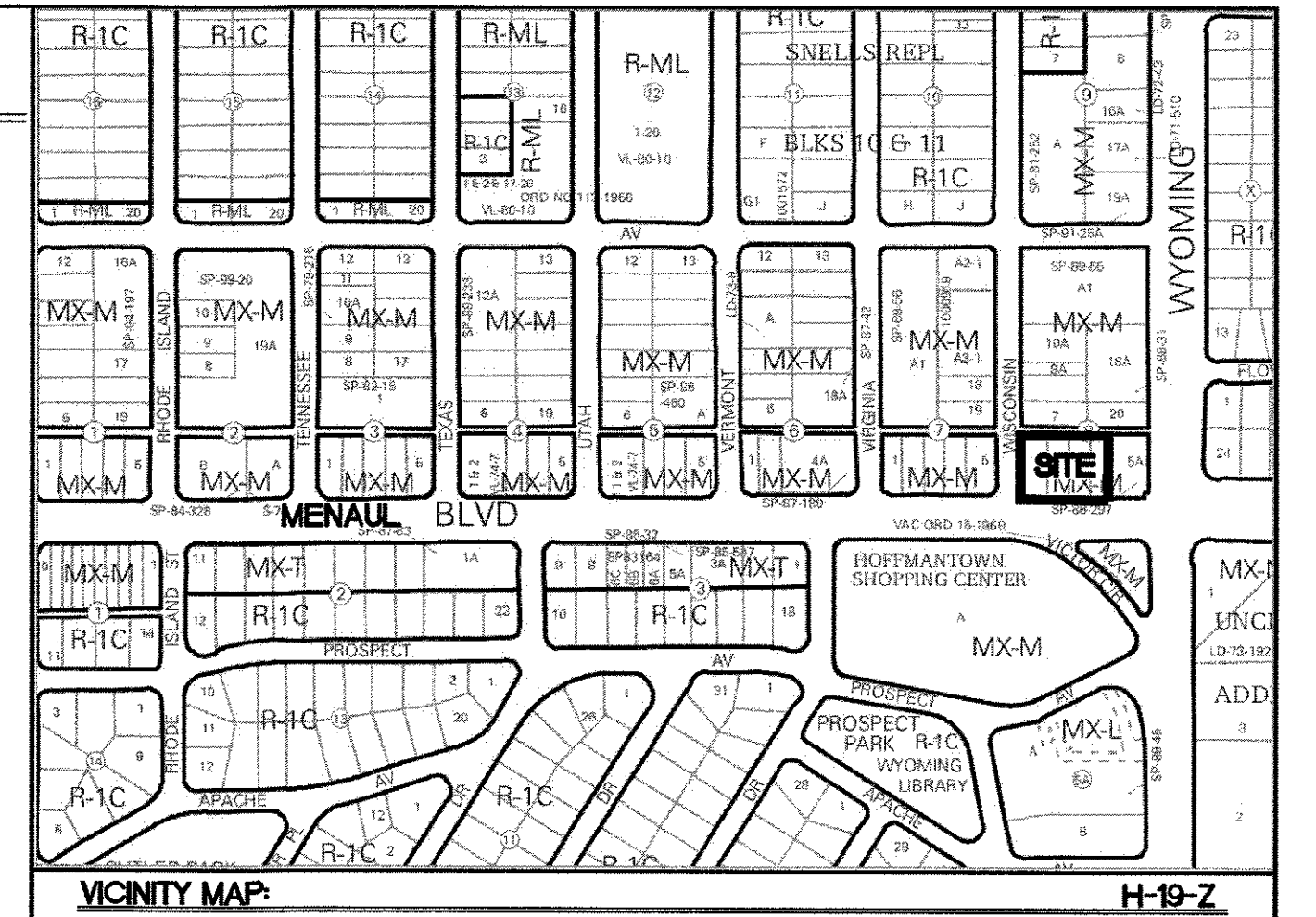
Channel Slope	0.02000	ft/ft
Normal Depth	0.50	ft
Discharge	6.97	ft ³ /s

Cross Section Image





- LEGEND**
- CURB & GUTTER
 - BOUNDARY LINE
 - EASEMENT
 - CENTERLINE
 - BUILDING
 - SIDEWALK
 - RETAINING WALL
 - EXISTING STREET LIGHTS
 - STRIPING
 - EXISTING CURB & GUTTER
 - EXISTING BOUNDARY LINE
 - EXISTING SIDEWALK
 - CONCRETE PAVERS
 - DRAINAGE BASIN BOUNDARY
 - FLOW DIRECTION



LEGAL DESCRIPTION:

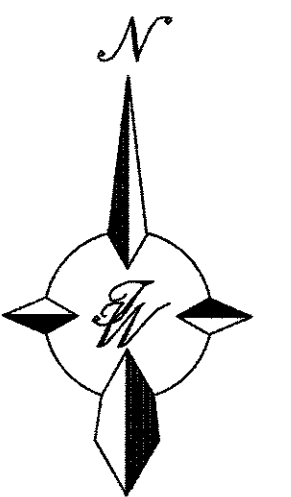
LOT 4-A, BLOCK 8, SOMBRA DEL MONTE,

HISTORIC DRAINAGE

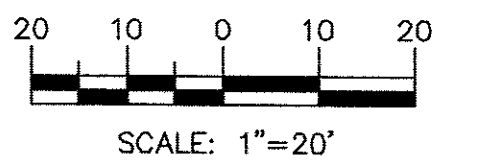
THE SUBJECT SITE IS LOCATED WITHIN FLOOD ZONE X DEFINED AS "AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN". THE SITE DOES NOT LIE WITHIN A FLOOD HAZARD AREA AS SHOWN ON THE FEMA MAP REQUIRING NO FURTHER FLOOD-PROOFING OR OTHER FLOOD MITIGATION.

THE EXISTING PROPERTY IS IN A DEVELOPED STATE WITH AN 11,500 SQUARE FOOT SINGLE STORY MULTI-TENANT RETAIL BUILDING, ASPHALT AND CONCRETE PAVEMENT, AND ASSOCIATED UTILITIES. THE SITE IS EARMARKED FOR DEMOLITION AND SHALL BE RAZORED IN PREPARATION FOR THE NEW DEVELOPMENT. THE SITE IS DIVIDED INTO FOUR DRAINAGE BASINS. ALL ONSITE BASINS ARE 100% IMPERVIOUS AND FREELY DISCHARGE TO THE SURROUNDING STREETS. ONE BASIN COVERS THE SOUTHERN AREA ALONG THE FRONTAGE WITH MENAUL BLVD. WHICH SHEET FLOWS DIRECTLY INTO MENAUL BLVD. WITH THE SECOND AND THIRD BASINS COVERING THE SHEET RUNOFF DISCHARGED DIRECTLY TO THE STREET DROP INLET IN WISCONSIN ST. BASIN FOUR COVERS THE ADJACENT JIFFY LUBE STORE FOR THE REDEVELOPMENT OF THE SITE. STORMWATER RUNOFF FROM THE JIFFY LUBE STORE WILL ENTER INTO THE NEW DEVELOPMENT AS THE DIVIDING WALL (AND WATER BLOCK) BETWEEN THE PARCELS WILL BE REMOVED AND ALLOW OFFSITE DRAINAGE TO ENTER THE SITE.

CURRENTLY THE ONSITE STORMWATER RUNOFF DRAINS FROM SOUTHEAST TO NORTHWEST ACROSS THE SITE BEFORE FLOWING INTO WISCONSIN ST. (BASINS B3 AND B3). APPROXIMATELY 17% OF THE SITE RUNOFF FROM THE AREA PARALLEL TO MENAUL BLVD. (BASIN B1) FLOWS DIRECTLY INTO MENAUL BLVD. RUNOFF FROM THE PROPERTY TO THE EAST, THE EXISTING JIFFY LUBE IS 80% IMPERVIOUS WITH 20% OF THE PROPERTY LANDSCAPED. THE PROPERTY FREELY DISCHARGES STORMWATER TO MENAUL BLVD. (BASIN B4) AND TO THE REAR ALLEY (BASIN B5) AND DOES NOT ENTER THE SITE BEING REDEVELOPED. FOR A 100 YEAR-6 HOUR STORM EVENT THE SITE STORMWATER RUNOFF VOLUME 0.134 AC-FT IS WITH A PEAK DISCHARGE OF 3.41 CFS. THE RUNOFF GENERATED FOR THE SAME EVENT FOR THE EXISTING JIFFY LUBE PROPERTY IS 0.063 AC-FT WITH A PEAK DISCHARGE OF 1.63 CFS.



GRAPHIC SCALE



Existing Conditions - Free Discharge

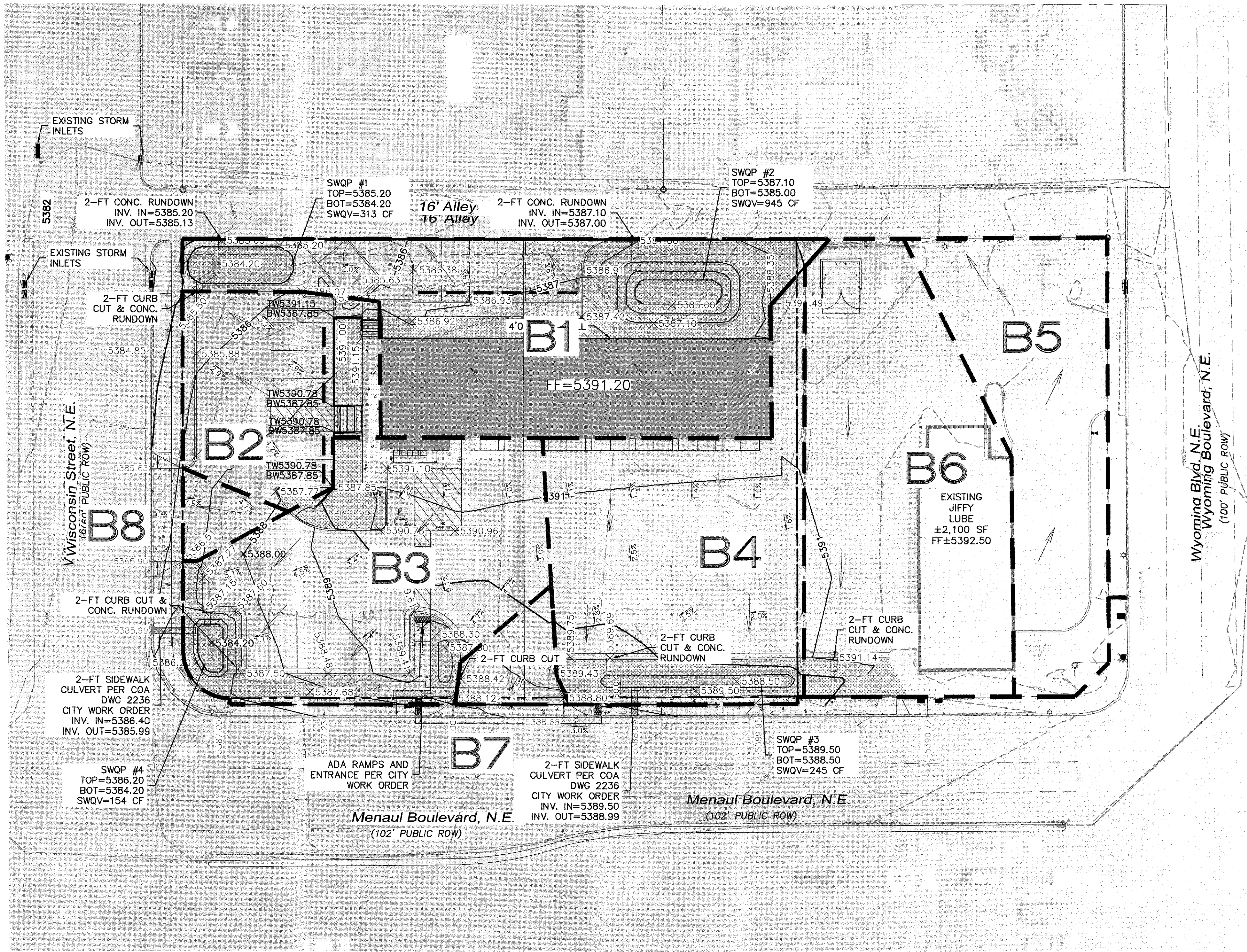
Basin Descriptions								100-Year, 6-Hr			10-Year, 6-Hr				
Basin ID	Area (sf)	Area (acres)	Area (sq miles)	Treatment A	Treatment B	Treatment C	Treatment D	Weighted E (in)	Volume (ac-ft)	Flow cfs	Weighted E (in)	Volume (ac-ft)	Flow cfs		
				%	(acres)	%	(acres)							%	(acres)
1	5,032.22	0.116	0.00018	0%	0.000	0%	0.000	100%	0.116	2.360	0.023	0.58	1.500	0.014	0.39
2	11,812.13	0.271	0.00042	0%	0.000	0%	0.000	100%	0.271	2.360	0.053	1.36	1.500	0.034	0.92
3	12,757.13	0.293	0.00046	0%	0.000	0%	0.000	100%	0.293	2.360	0.058	1.47	1.500	0.037	0.99
Offsite - Existing Jiffy Lube Property															
4	9,020.64	0.207	0.00032	0%	0.000	5%	0.010	95%	0.197	2.288	0.039	1.01	1.443	0.025	0.68
5	5,740.76	0.132	0.00021	0%	0.000	15%	0.020	85%	0.112	2.144	0.024	0.61	1.329	0.015	0.40
Total	44,362.88	1.018	0.00159	0.00	0.00	0.03	0.00	0.99	0.99	5.04	0.197	5.04	0.124	3.39	

Excess Precipitation, E (in.)			
Zone 3	100-Year	10-Year	
Ea	0.66	0.19	
Ec	0.92	0.36	
Ed	1.29	0.62	
Ed	2.36	1.50	

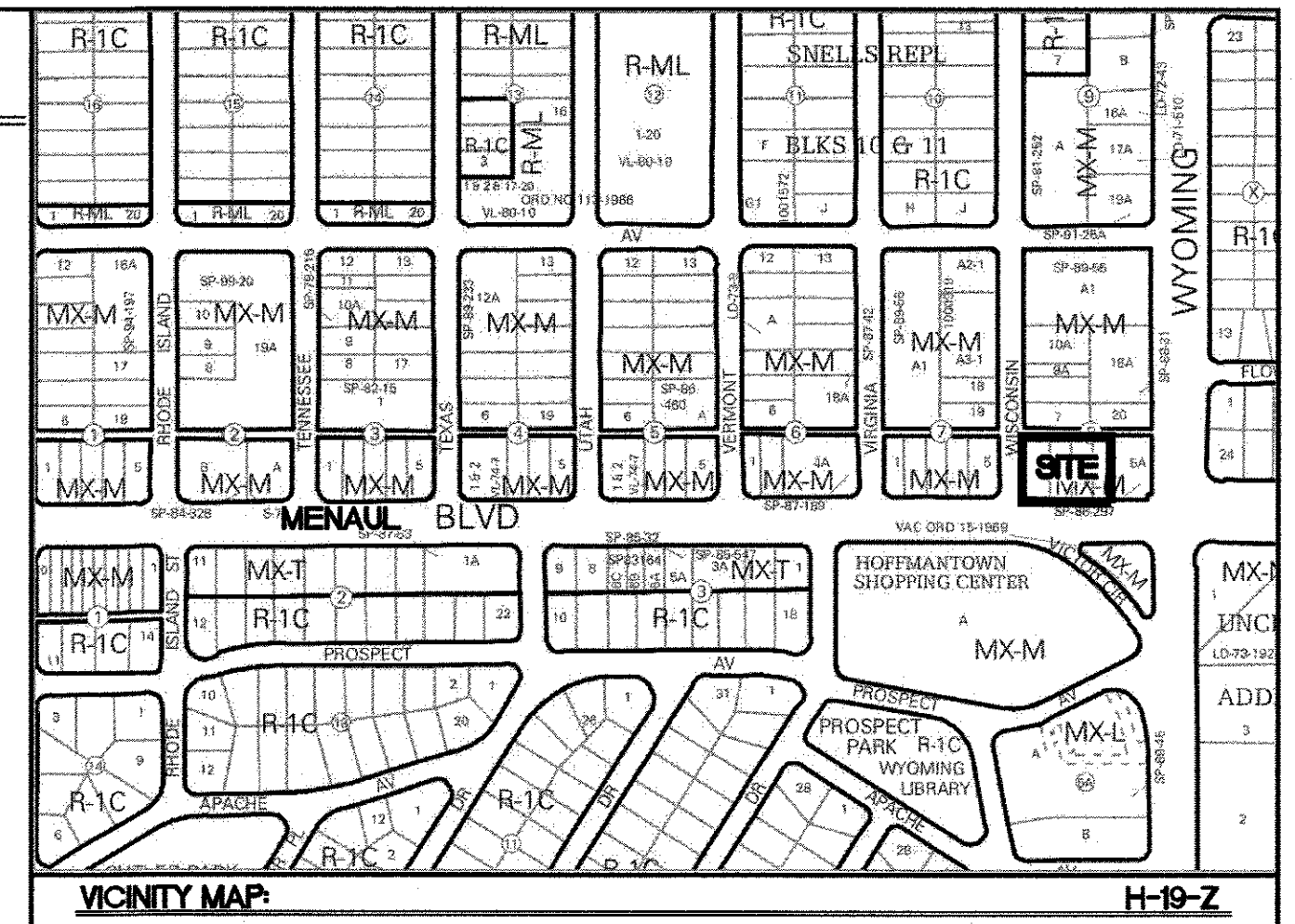
Peak Discharge (cfs/acre)			
Zone 3	100-Year	10-Year	
Qa	1.87	0.58	
Qb	2.6	1.19	
Qc	3.45	2.00	
Qd	5.02	3.39	

ENGINEER'S SEAL	JIFFY LUBE MENAUL AND WYOMING	DRAWN BY RS
	HISTORIC DRAINAGE PLAN	DATE 7/23/2019
		2018016_HISTORIC_DRAINAGE
	TERRA WEST, LLC 5571 MIDWAY PARK PLACE NE ALBUQUERQUE, NM 87109 (505) 858-3100 www.tierrowestllc.com	SHEET # D1
RONALD R. BOHANNAN P.E. #7868		JOB # 2018016

\\NAS01\ZDrive\2018\2018016 Jiffy Lube Menaul & Wyoming Drainage\2018016_Developed_Drainage.dwg Sep 04, 2019 - 9:18am



- LEGEND**
- CURB & GUTTER
 - BOUNDARY LINE
 - EASEMENT
 - CENTERLINE
 - BUILDING
 - SIDEWALK
 - RETAINING WALL
 - EXISTING STREET LIGHTS
 - STRIPING
 - EXISTING CURB & GUTTER
 - EXISTING BOUNDARY LINE
 - EXISTING SIDEWALK
 - CONCRETE PAVERS
 - DRAINAGE BASIN BOUNDARY
 - FLOW DIRECTION



AREA OF MINIMAL FLOOD HAZARD

35001C0356H
08/16/2012

FLOOD MAP NO. 35001C0356H, DATED 08/16/2012

LEGAL DESCRIPTION:
LOT 4-A, BLOCK 8, SOMBRA DEL MONTE,

DEVELOPED DRAINAGE

THE DEVELOPED SITE, INCLUDING THE ADJACENT JIFFY LUBE PROPERTY, IS DIVIDED INTO EIGHT BASINS. BASIN B1 COVERS THE NEW REPAIR SHOP BUILDING AND HEAD-IN PARKING ADJACENT TO THE ALLEYWAY. BASIN B2, B3 AND B4 COVERS THE ASSOCIATED DRIVE ISLES, ONSITE PARKING AND LANDSCAPING AREAS. BASIN B5/B6 ARE THE SAME AS HISTORIC, COVERING THE ADJACENT PARKING LOT AND DRIVE ISLES FOR THE EXISTING JIFFY LUBE.

THE 100-YEAR, 6 HOUR EVENT WAS USED TO COMPARE THE STORMWATER RUNOFF BETWEEN THE HISTORIC AND PROPOSED SITE. AS EXPECTED WITH THE ADDITIONAL LANDSCAPING AREAS REQUIRED, THE TOTAL RUNOFF IS LESS THAN THE HISTORIC VOLUME BY 0.016 AC-FT AND THE SITE DISCHARGE IS REDUCED BY 0.34 CFS.

AS THIS SITE IS A RE-DEVELOPMENT, THE WATER QUALITY VOLUME IS CALCULATED BASED ON THE 0.48 INCH STORM. TO CALCULATE THE STORMWATER QUALITY VOLUME THE IMPERVIOUS AREA IS MULTIPLIED BY 0.26 INCHES. THE FORMULA USED IS $SWQV = 0.26 \times 43,560 \times (1/12)$ WHERE '1' IS THE IMPERVIOUS AREA IN ACRES. THE TOTAL IMPERVIOUS AREA IS 0.85 ACRES AND REQUIRES A TOTAL WATER QUALITY VOLUME OF 537 CUBIC FEET FOR THE IMPERVIOUS BASIN AREAS (BASINS B5/B6 ARE NOT APPLICABLE). SWQV POND 1 HAS A RETENTION VOLUME OF 313 CUBIC FEET, SWQV POND 2 A CAPACITY OF 945 CUBIC FEET, SWQV POND 3 A CAPACITY OF 245 CUBIC FEET AND SWQV POND 4 A CAPACITY OF 154 CUBIC FEET FOR A COMBINED TOTAL RETENTION OF 1,657 CUBIC FEET.

ROOF DRAINS FROM THE NEW REPAIR SHOP SHALL CONVEY ROOF RUNOFF AND DISCHARGE FLOWS DIRECTLY TO SWQV POND 2. STORMWATER RUNOFF GENERATED FROM THE BALANCE OF THE SITE AND THE HARDSCAPE AREAS SHALL BE DIRECTED TO THE SWQV PONDS WITH CURB CUTS AND CONCRETE RUNDOWNS BEFORE BEING DISCHARGED TO THE PUBLIC RIGHT-OF-WAY. ADDITIONAL FLOWS FROM SWQV POND 1 AND 2 SHALL SHEET FLOW INTO THE ALLEY WAY, WHICH THEN DISCHARGES TO THE INLETS ARE THE INTERSECTION WITH WISCONSIN ST. TWO 2-FOOT SIDEWALK CULVERTS SHALL BE BUILT UNDER THE CITY WORK ORDER TO DISCHARGE THE EVENT STORM INTO MENAUL BLVD. AND WISCONSIN ST. THE 2-FOOT CULVERTS HAVE THE CAPACITY TO PASS THE DESIGN STORM EVENT FLOW.

Proposed Conditions - Free Discharge

Basin Descriptions											100-Year, 6-Hr			10-Year, 6-Hr			SWQV		
Basin ID	Area (sf)	Area (acres)	Area (sq miles)	Treatment A		Treatment B		Treatment C		Treatment D		Weighted E (in)	Volume (ac-ft)	Flow cfs	Weighted E (in)	Volume (ac-ft)	Flow cfs	Required (cf)	Provided (cf)
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3	7,710.38	0.177	0.00028	0%	0.000	15%	0.027	0%	0.000	85%	0.150	2.144	0.032	0.82	1.329	0.020	0.54	142	154
4	7,520.18	0.173	0.00027	0%	0.000	9%	0.016	0%	0.000	91%	0.157	2.230	0.032	0.83	1.397	0.020	0.55	148	245
5	5,740.76	0.132	0.00021	0%	0.000	15%	0.020	0%	0.000	85%	0.112	2.144	0.024	0.61	1.329	0.015	0.40	0	0
6	8,637.34	0.198	0.00031	0%	0.000	15%	0.030	0%	0.000	85%	0.169	2.144	0.035	0.92	1.329	0.022	0.61	0	0
7	835.84	0.019	0.00003	0%	0.000	0%	0.000	0%	0.000	100%	0.019	2.360	0.004	0.10	1.500	0.002	0.07	18	0
8	546.40	0.013	0.00002	0%	0.000	0%	0.000	0%	0.000	100%	0.013	2.360	0.002	0.06	1.500	0.002	0.04	12	0
Total	44,362.88	1.018	0.00159	0%	0.000	0.169	0.000	0.000	0.000	0.849	0.849	0.180	4.703	4.703	0.111	3.080	3.080	537	1,657

Equations:

Weighted E = $E_a \times A_a + E_b \times A_b + E_c \times A_c + E_d \times A_d / (\text{Total Area})$

Volume = Weighted E * Total Area

Flow = $Q_a \times A_a + Q_b \times A_b + Q_c \times A_c + Q_d \times A_d$

$SWQV = 0.26 \times 43,560 \times (1/12)$ where '1' is the impervious area in acres.

*Redeveloped site

Excess Precipitation, E (in.)

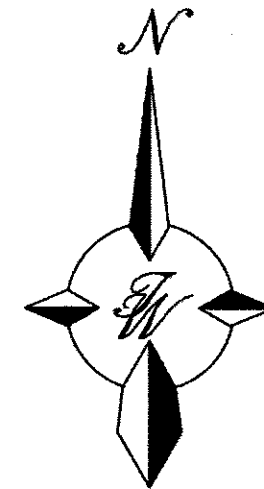
Zone	3	100-Year	10-Year
Ea	0.66	0.19	
Eb	0.92	0.36	
Ec	1.29	0.62	
Ed	2.36	1.50	

Peak Discharge (cfs/acre)

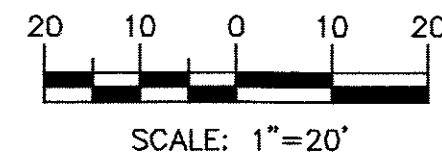
Zone	3	100-Year	10-Year
Qa	1.87	0.58	
Qb	2.6	1.19	
Qc	3.45	2.00	
Qd	5.02	3.39	

SWQV Pond Volume Calculations

Pond No.	Area at middepth Sq. Ft.	Total Depth Ft.	Volume CFT.
1	313	1	313
2	472.5	2	945
3	245	1	245
4	77	2	154
Total Volume			1,657



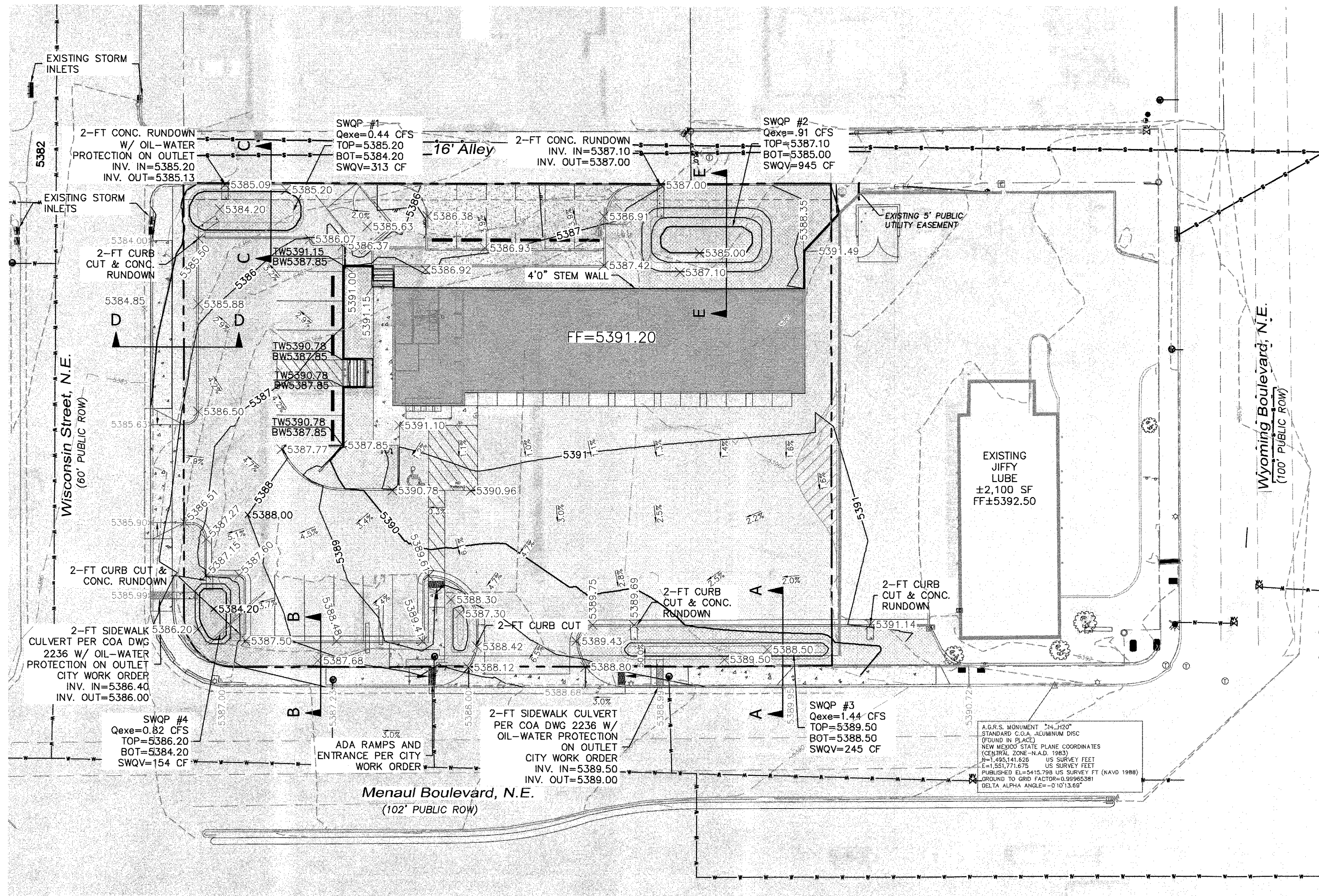
GRAPHIC SCALE



SCALE: 1"=20'

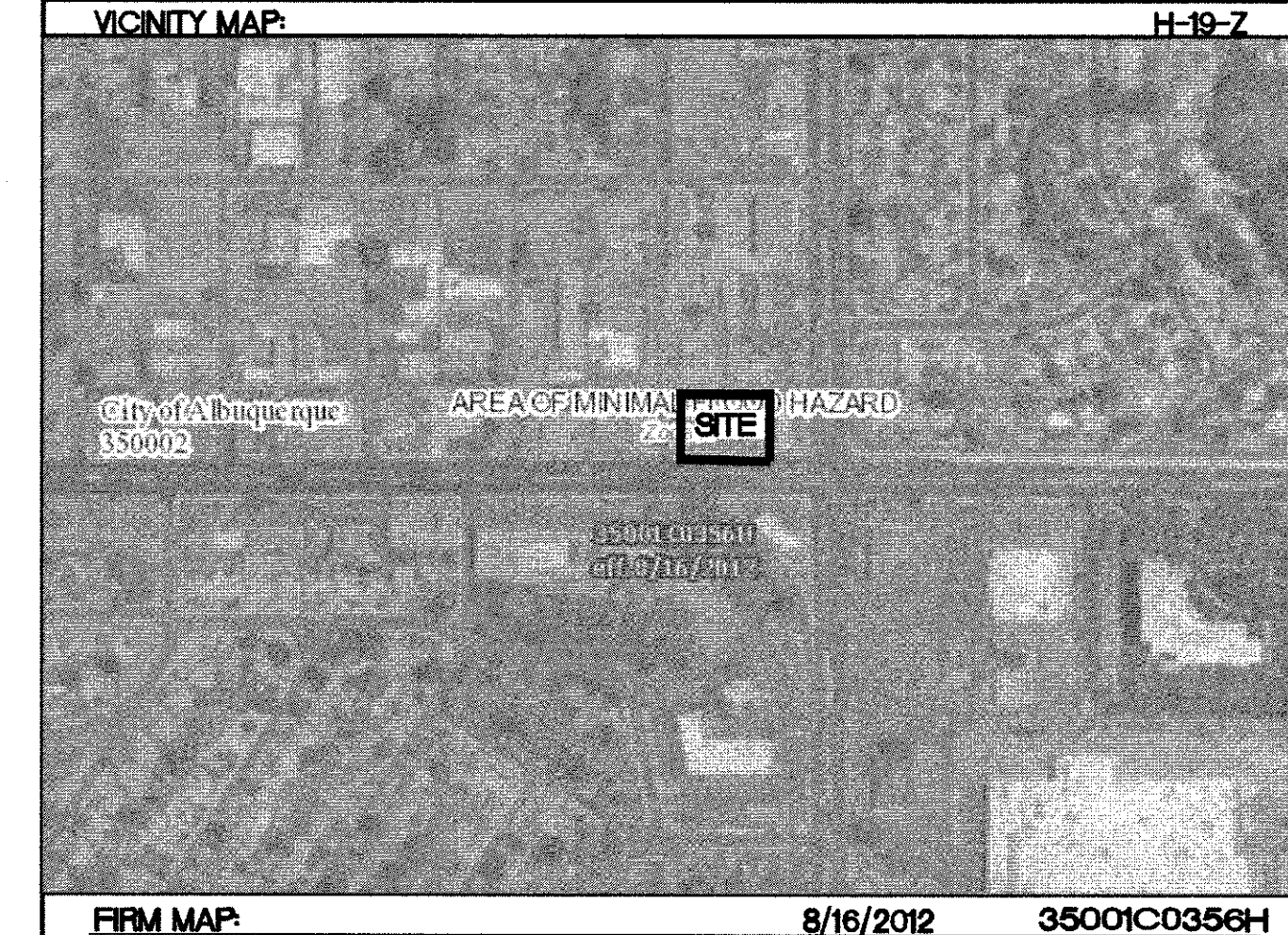
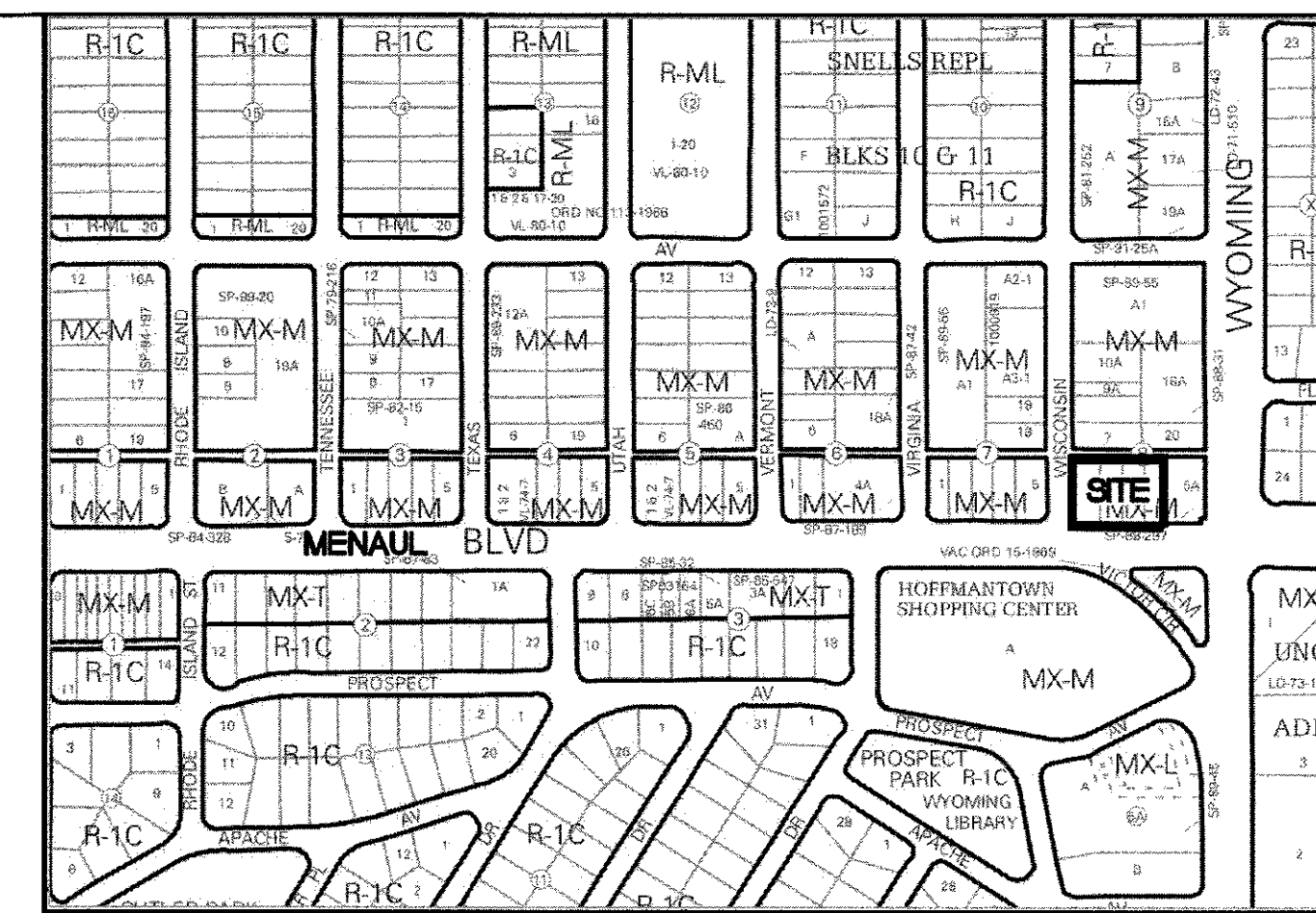
	ENGINEER'S SEAL	JIFFY LUBE	DRAWN BY RS
		MENAU AND WYOMING	DATE 9/3/2019
		DEVELOPED DRAINAGE PLAN	2018016_DEVELOPED_DRAINAGE
		TIERRA WEST, LLC 5571 MIDWAY PARK PLACE NE ALBUQUERQUE, NM 87109 (505) 858-3100 www.tierrawestllc.com	SHEET # D2
RONALD R. BOHANNAN P.E. #7868			JOB # 2018016

Z:\2018\2018016_Jiffy Lube Menaul & Wyoming\Drawings\Site Plan - Administrative\2018016_GS.dwg Sep 16, 2018 - 10:22am

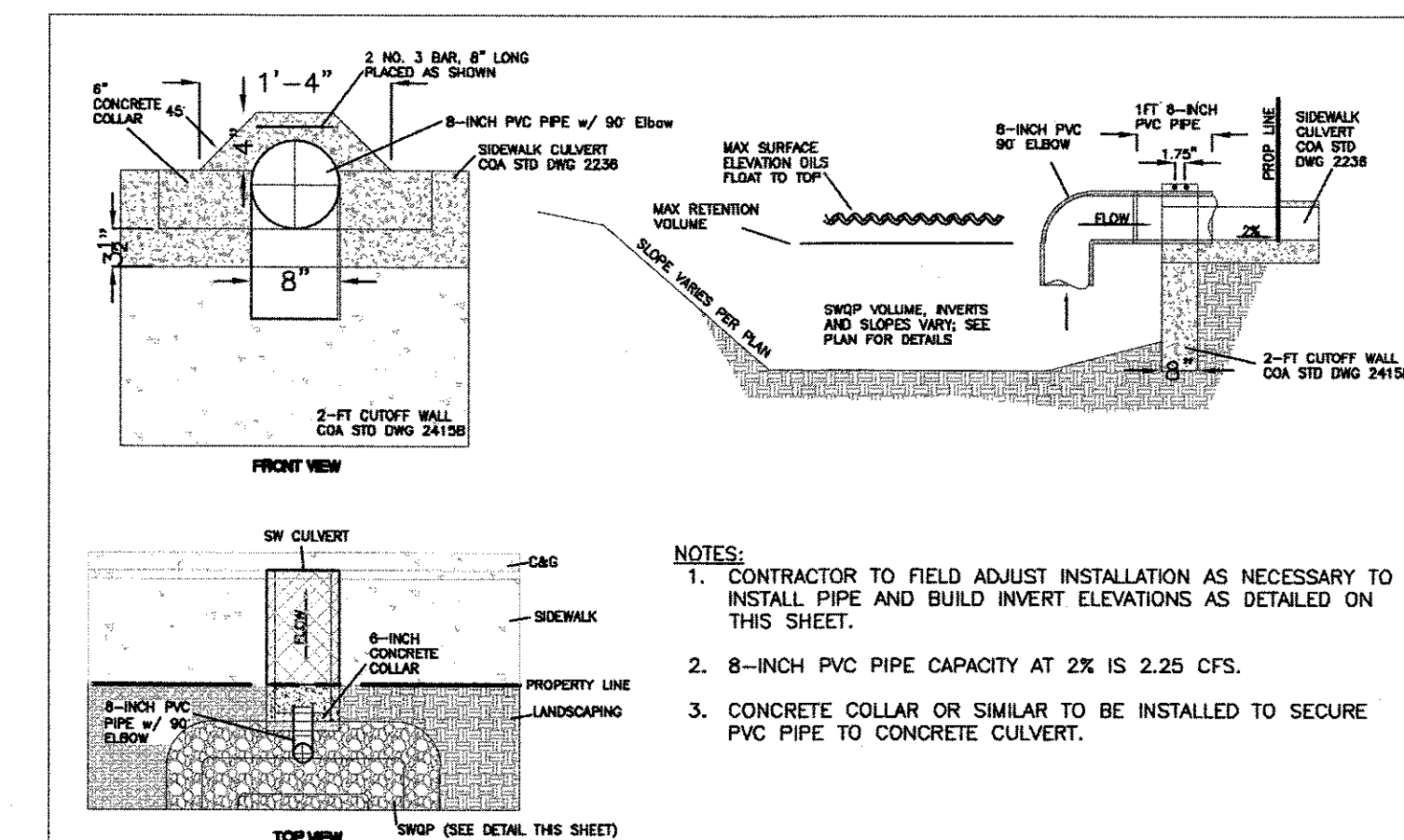


LEGEND

	CURB & GUTTER
	BOUNDARY LINE
	EASEMENT
	CENTERLINE
	RIGHT-OF-WAY
	BUILDING
	SIDEWALK
	SCREEN WALL
	RETAINING WALL
	CONTOUR MAJOR
	CONTOUR MINOR
	SPOT ELEVATION
	FLOW ARROW
	EXISTING CURB & GUTTER
	EXISTING BOUNDARY LINE
	EXISTING CONTOUR MAJOR
	EXISTING CONTOUR MINOR
	EXISTING SPOT ELEVATION

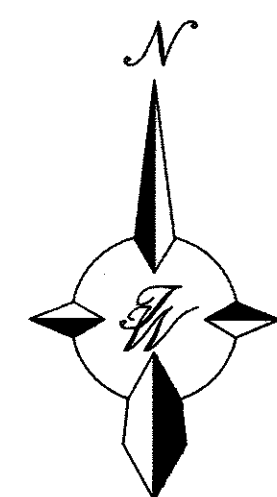


LEGAL DESCRIPTION:
LOT 4-A, BLOCK 8, SOMBRA DEL MONTE,

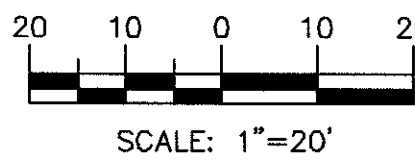


OIL-WATER SEPARATOR ATTACHMENT TO SIDEWALK CULVERT
NTS

- NOTES:
1. CONTRACTOR TO FIELD ADJUST INSTALLATION AS NECESSARY TO INSTALL PIPE AND BUILD INVERT ELEVATIONS AS DETAILED ON THIS SHEET.
 2. 8-INCH PVC PIPE CAPACITY AT 2% IS 2.25 CFS.
 3. CONCRETE COLLAR OR SIMILAR TO BE INSTALLED TO SECURE PVC PIPE TO CONCRETE CULVERT.



GRAPHIC SCALE



EROSION CONTROL NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR OBTAINING A TOPSOIL DISTURBANCE PERMIT PRIOR TO BEGINNING WORK.
2. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING RUN-OFF ON SITE DURING CONSTRUCTION.
3. CONTRACTOR IS RESPONSIBLE FOR CLEANING ALL SEDIMENT THAT GETS INTO EXISTING RIGHT-OF-WAY.
4. REPAIR OF DAMAGED FACILITIES AND CLEANUP OF SEDIMENT ACCUMULATIONS ON ADJACENT PROPERTIES AND IN PUBLIC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.
5. ALL EXPOSED EARTH SURFACES MUST BE PROTECTED FROM WIND AND WATER EROSION PRIOR TO FINAL (CITY) ACCEPTANCE OF ANY PROJECT.

CAUTION:

ALL EXISTING UTILITIES SHOWN WERE OBTAINED FROM RESEARCH, AS-BUILTS, SURVEYS OR INFORMATION PROVIDED BY OTHERS. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO CONDUCT ALL NECESSARY FIELD INVESTIGATIONS PRIOR TO AND INCLUDING ANY EXCAVATION, TO DETERMINE THE ACTUAL LOCATION OF UTILITIES AND OTHER IMPROVEMENTS, PRIOR TO STARTING THE WORK. ANY CHANGES FROM THIS PLAN SHALL BE COORDINATED WITH AND APPROVED BY THE ENGINEER.

ENGINEER'S SEAL	JIFFY LUBE 8305 MENAUL BLVD. NE GRADING & DRAINAGE PLAN	DRAWN BY BF
		DATE 9/16/2019
RONALD R. BOHANNAN P.E. #7888	5571 MIDWAY PARK PLACE NE ALBUQUERQUE, NM 87109 (505) 858-3100 www.tierrawestllc.com	2018016_GR
		SHEET # C2
		JOB # 2018016

Current DRC
Project Number:

FIGURE 12

INFRASTRUCTURE LIST

(Rev. 2-16-18)

EXHIBIT "A"

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

Date Submitted: _____
Date Site Plan Approved: _____
Date Preliminary Plat Approved: _____
Date Preliminary Plat Expires: _____
DRB Project No.: PR-2019-002686
DRB Application No.: SI-2019-00144

**LOT 4-A, BLOCK 8 SOMBRA DEL MONTE
PROPOSED NAME OF PLAT AND/OR SITE DEVELOPMENT PLAN**

**LOTS 1 & 2, BLOCK 8, SOMBRA DEL MONTE, AND LOT 3 & WESTERN 38' OF LOT 4 SOMBRA DEL MONTE
EXISTING LEGAL DESCRIPTION PRIOR TO PLATTING ACTION**

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 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.

Financially Guaranteed DRC #	Constructed Under DRC #	Size	Type of Improvement	Location	From	To	Construction Certification		
							Private Inspector	P.E.	City Cnst Engineer
		2'-0	Sidewalk Culvert per COA DWG 2236	Menaul Blvd.	165-ft east of Menaul/Wisconsin curb return		/	/	/
		2'-0	Sidewalk Culvert per COA DWG 2236	Wisconsin St.	26-ft north of Menaul/Wisconsin curb return		/	/	/
		30'-0'	Driveway Entrance with ADA ramps	Menaul Blvd.	100-ft to 130-ft east of Menaul/Wiscon.		/	/	/
		30'-0'	Driveway Entrance with ADA ramps	Wisconsin St.	50-ft to 80-ft north of Menaul/Wiscon.		/	/	/
		3/4 -inch	Remove existing 3/4" water meter & service line	Menaul Blvd.	85-ft east of Menaul/Wisconsin curb return		/	/	/
		COA STD	Resurfacing of rear 16-ft COA alley per COA spec.	Along property frontage	Alley/Wiscon. intersection 198-ft east		/	/	/
		COA STD	SW, C&G replacement of existing driveway pads on Menaul Blvd.		60-ft to 80-ft east of Menaul/Wiscon.		/	/	/
		COA STD	SW, C&G replacement of existing driveway pads on Menaul Blvd.		165-ft to 241-ft east of Menaul/Wiscon.		/	/	/
		COA STD	SW, C&G replacement of existing driveway pads on Wisconsin St.		35-ft to 65-ft north of Menaul/Wiscon.		/	/	/

The items listed below are on the CCIP and approved for Impact Fee credits. Signatures from the Impact Fee Administrator and the City User Department is required prior to DRB approval of this listing. The items listed below are subject to the standard SIA requirements.

Financially Guaranteed DRC #	Constructed Under DRC #	Size	Type of Improvement	Location	From	To	Construction Certification		
							Private		City Cnst Engineer
							Inspector	P.E.	
<input type="text"/>	<input type="text"/>	COA STD	SW, C&G replacement of existing driveway pads on Wisconsin St.		95-ft to 125-ft north of Menaul/Wiscon.		/	/	/
<input type="text"/>	<input type="text"/>	-	Engineer's Certification for Grading & Drainage is required for release of Financial Guarantee				/	/	/
<input type="text"/>	<input type="text"/>						/	/	/
<input type="text"/>	<input type="text"/>						/	/	/
<input type="text"/>	<input type="text"/>						/	/	/
Approval of Creditable Items:							Approval of Creditable Items:		
Impact Fee Administrator Signature Date							City User Dept. Signature Date		

NOTES

If the site is located in a floodplain, then the financial guarantee will not be released until the LOMR is approved by FEMA.
Street lights per City requirements.

- 1 _____

- 2 _____

- 3 _____

AGENT / OWNER	DEVELOPMENT REVIEW BOARD MEMBER APPROVALS	
Richard Stevenson NAME (print)	DRB CHAIR - date	PARKS & RECREATION - date
Tierra West LLC FIRM	TRANSPORTATION DEVELOPMENT - date	AMAFCA - date
SIGNATURE - date	UTILITY DEVELOPMENT - date	CODE ENFORCEMENT - date
	CITY ENGINEER - date	_____ - date

DESIGN REVIEW COMMITTEE REVISIONS				
REVISION	DATE	DRC CHAIR	USER DEPARTMENT	AGENT /OWNER