

CITY OF ALBUQUERQUE

Planning Department
David Campbell, Director



Mayor Timothy M. Keller

April 23, 2019

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

**RE: Maverik Juan Tabo & Cooper
650 Juan Tabo Blvd NE
Grading and Drainage Plan & Drainage Report
Engineer's Stamp Date: 04/16/19
Hydrology File: K22D059**

Dear Mr. Bohannon:

Based upon the information provided in your submittal received 03/29/2019, the Grading & Drainage Plan and Drainage Report is approved for Building Permit, Grading Permit, Work Order, and for action by the DRB on Site Plan for Building Permit.

PO Box 1293

Please attach a copy of this approved plan in the construction sets for Building Permit processing along with a copy of this letter. Prior to approval in support of Permanent Release of Occupancy by Hydrology, Engineer Certification per the DPM checklist will be required.

Albuquerque

As a reminder, if the project total area of disturbance (including the staging area and any work within the adjacent Right-of-Way) is 1 acre or more, then an Erosion and Sediment Control (ESC) Plan and Owner's certified Notice of Intent (NOI) is required to be submitted to the Stormwater Quality Engineer (Curtis Cherne, PE, ccherne@cabq.gov, 924-3420) 14 days prior to any earth disturbance.

NM 87103

www.cabq.gov

Also as a reminder, please provide Drainage Covenant for the stormwater quality ponds per Chapter 17 of the DPM prior to Permanent Release of Occupancy. Please submit this on the 4th floor of Plaza de Sol. A \$25 fee will be required.

If you have any questions, please contact me at 924-3995 or rbrissette@cabq.gov.

Sincerely,

Renée C. Brissette, P.E. CFM
Senior Engineer, Hydrology
Planning Department

DRAINAGE REPORT REV1



**Maverik Fuel Center at
650 and 670 Juan Tabo Blvd. NE
Albuquerque, NM 87123**

Prepared for:

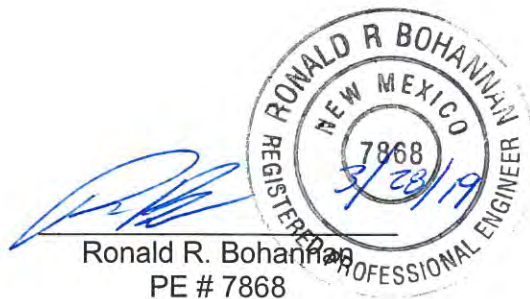
Maverik, Inc.
185 South State Street,
Salt Lake City, Utah 84111

Prepared by:

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

March, 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.



Ronald R. Bohannon
PE # 7868

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Drainage Basin Maps & Hydrology Tables/Calculations.....	APPENDIX A
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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 abandoned restaurant and existing strip mall to a Maverik Gas Station and Convenience Store at 650 Juan Tabo Blvd. NE. The site will consist of a single-story 4,300 square foot c-store with twenty gasoline refueling stations for passenger vehicles users. No truck refueling is proposed.

This report outlines the developed flows associated in redeveloping the ± 1.41 acre site and describes the on-site surface improvements needed to safely convey the developed flows. As the site is a gas station with fueling activities, the design is required to demonstrate control of oil from vehicle refueling areas and will address the 80th percentile flows from the site. These provisions are included in the proposed drainage solution.

Location and Background

The site is located on the southeast corner of Juan Tabo Blvd. and Copper Ave and is bordered to the east by Paisano St and to the south by Zia Rd. The address of east parcel is 650 Juan Tabo Blvd. NE, Albuquerque, NM 87123 and the west parcel has an address of 670 Juan Tabo Blvd. The east parcel is legally described as * A 8 REDIVISION OF BLK 8 LA CUESTA SUBD (EXC POR OUT TO R/W) CONT 32,443 SQ FT M/L and the west parcel is *B REDIVISION BLK 8 LA CUESTA SUBDIVISION.

The proposed redevelopment will occur across both lots on a total acreage of ± 1.41 acres. Both parcels are in their developed state with a 4,750 sq-ft single story abandoned restaurant (previously Carrows Restaurant) and supporting parking lot, and a 11,200 sq-ft single story strip mall with a diverse occupancy use.

As the site is bordered by the surrounding streets no offsite flows enters the site.

The western parcel has an approved Grading and Drainage Plan on file, ref#: K22D001 dated November 1978. The report and grading plan detail a retention pond on the western boundary of the site however sometime in the past this was removed as there is no evidence of onsite ponding and the site freely discharges into Juan Tabo Blvd. There is no grading or drainage report on file for the eastern parcel. The eastern parcel freely discharges into Copper Ave. and Zia Rd. through the driveway access points. These flows street flow in the adjacent roadways and is directed to the curb inlets on Copper Ave. and Zia Rd. which are connected to the storm drain in Juan Tabo Blvd.

IDO Zone Atlas

May 2018



IDO Zoning information as of May 17, 2018
The Zone Districts and Overlay Zones
are established by the
Integrated Development Ordinance (IDO).



2

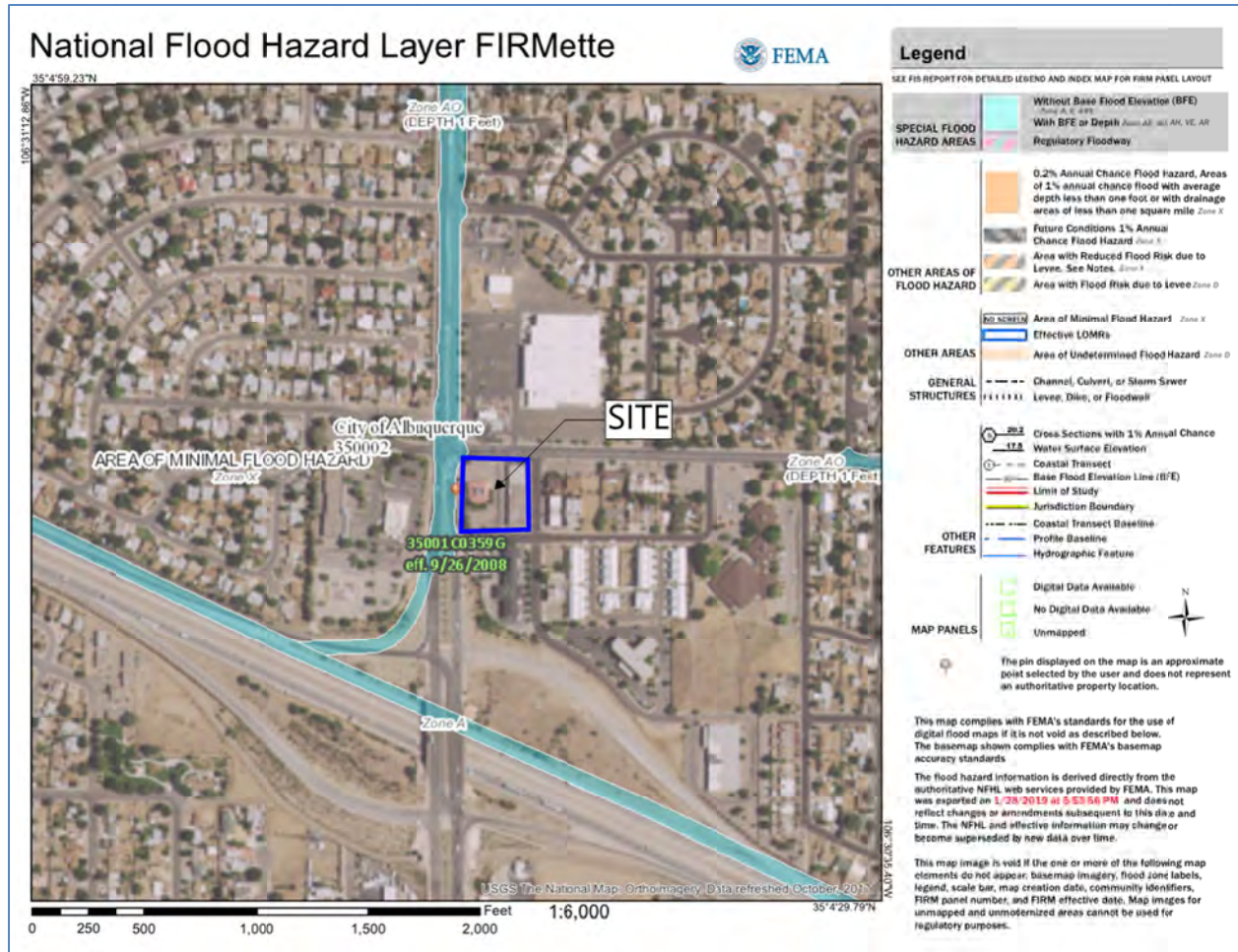


Exhibit B – Site Aerial Image

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 35001C0359G dated September 26, 2008 and is shown below.

The subject site is located within Flood Zone X, which is defined as, “Areas determined to be outside the 0.2% annual chance floodplain”. The property frontage along Juan Tabo Blvd. is detailed with a 1.0-foot depth flood level in Zone AO. Public improvements within the right-of-way, if proposed, will need to ensure the roadway maintains its designed capacity along this frontage. 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.

**Exhibit C – FIRM Map**

Calculations

The site is located within Precipitation Zone 4, west of Eubank, north of I-40 and east of the East boundary of Range 4 East 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. No detention basins or retention basins are proposed and therefore longer duration design storms are not considered in the calculations. As stated in the DPM in Chapter 22 Section A.2, the 100-year, 6 hour event is 2.90 inches.

The appropriate land treatments A through D, as defined in the DPM Chapter 22 Section A.3, will be 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 2 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.

Existing Developed Conditions

The site is divided into two drainage basins for each tract. One basin covers the eastern tract, and the second covers the western tract. Both lots are in the developed condition with minimal landscaping in place. The runoff from the western lot discharges into Juan Tabo Blvd. through curb openings in the parking lot at the north side of the tract, and to Zia Rd. through the driveway entrance at the south side of the tract. There is no onsite storage of stormwater.

Similarly, for the eastern lot, water freely discharges into the surrounding streets through the driveway entrances at Copper Ave. and Zia Rd. The stormwater is collected by grate inlets and enters into the stormdrain along both roadways and eventually discharges into the North Diversion Channel at I-40.

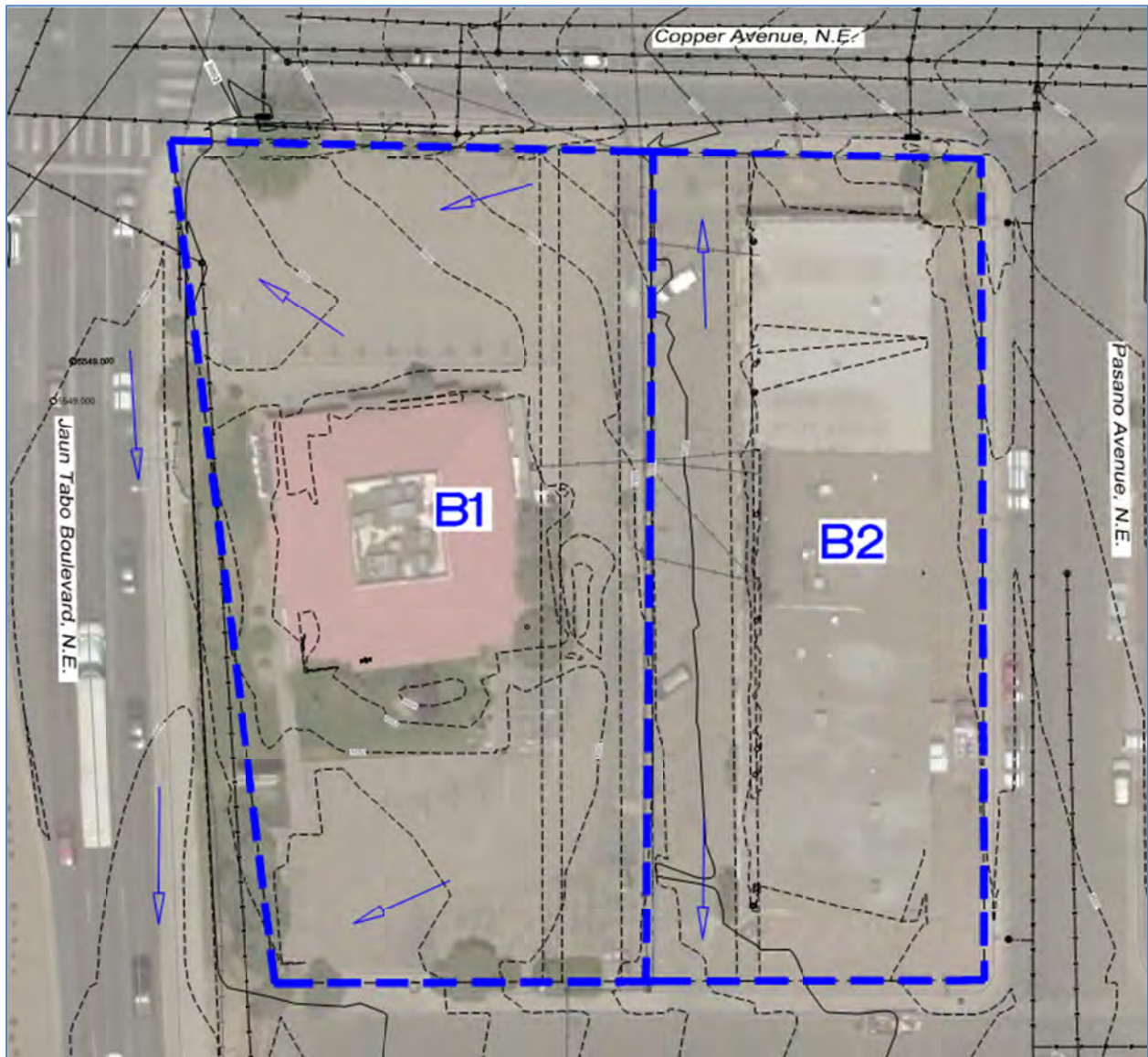


Exhibit D – Historic Conditions

Proposed Conditions

The grading plan is arranged to detail a two phase development. The first phase outlines the grading for the site with no vehicle access off Juan Tabo Blvd. The second phase, and ultimate build out, details the grading for a right-in entrance off Juan Tabo Blvd, and the addition of a north bound right-turn lane onto Copper Ave. The entrance and turn lane details are being finalized through the NM DOT District Three Office and the ultimate condition cannot be built until approval is granted by NM DOT, and the COA Transportation.

The developed site is divided into three basins. Basin B1 covers the majority of the site and directs sheet flow to the north west corner of the site into the Storm Water Quality Pond (SWQP) # 1. The sheet flow is directed to the 3.5-foot curb opening with the curb and gutter and is allowed to pass into the SWQP with a concrete rundown. The stormwater will then discharge to the street at Juan Tabo Blvd. along a 5 foot concrete rundown and through two 2.0-foot COA standard sidewalk culverts under a SO19 permit. Both the sidewalk culvert and the curb opening were designed to pass the 100-year 6 hour event flow. The location of the culverts is at the same location and similar elevation as the existing curb opening and point of discharge for the historic drainage pattern. Therefore the site is not at risk of the flood zone entering the SWQP as the invert elevation is above the recorded FEMA flood zone elevation. The runoff discharged into the street shall then sheet flow 310 feet south to the low point and location of the existing stormdrain curb inlets on Juan Tabo Blvd.

Basin B2 covers the remaining parking lot and driveway entrance on the southern portion of the site. The runoff does not pass through a SWQP, instead it sheet flows directly into Juan Tabo Blvd. through the curb opening under a SO19 permit, and in the ultimate condition through the right-in driveway entrance.

Basin B3 covers is the c-store and landscape area which includes the second SWQP. Runoff from the roof drains via roof drains into the SWQP before being discharged through a private onsite sidewalk culvert into Basin B2. The SWQP #2 has been sized to handle the required retention of B2 and B3.

Per DPM Chapter 22.9.E, Table 1 all fueling stations must demonstrate control of oil from vehicle fueling areas. A trench drain is proposed on the west side of the fueling apron to capture all runoff generated from fuel spills or cleaning and maintenance, and flows north to the concrete oil water separator that has a 800 gallon capacity. The oil water separator is a precast concrete vault that uses gravitational separation to improve the separation process of the oil



Stormwater Quality Volume Management

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

The total impervious area is 1.2 acres and requires a total water quality volume of 1,133 cubic feet for the impervious basin areas. The required SWQV retention for Basin B1 is 790 cubic feet, which is met by routing all runoff through SWQP #1 which has a storage capacity of 1,032 cubic feet.

Basin B2 requires retention of 225 cubic feet and B3 requires retention of 117 cubic feet, a total of 342 cubic feet. The SWQV #2 retention pond provides a capacity of 527 cubic feet.

The water quality volume calculations are detailed on the hydrology table in the appendix.

Post Construction Maintenance Responsibility

As part of the City of Albuquerque's endeavor to uphold best management practices (BMPs) and ensure compliance with the City's Drainage Ordinance, Stormwater Quality Ordinance and the EPA MS4 Permit NMR04A000, a drainage and landscape maintenance plan is proposed for this site. The stormwater features proposed were designed for easy maintenance that comprises of periodic tasks and inspections to ensure the features operate and perform to the design criteria to which it was designed. The maintenance of the BMPs shall be the responsibility of the owner of the property. The maintenance plan detailed below and listed on the grading and drainage plan shall be recorded in the Bernalillo County Records Room.

The maintenance comprise of the following:

Responsible Party: Property Operator.

Access to surface and sub-surface stormwater quality elements: All access to the stormwater quality elements shall be accessible from Copper Ave. and from the paved areas within the site. There is no restricted access to the location of both the surface and sub-surface elements.

REGULAR MAINTENANCE	FREQUENCY
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LITTER MANAGEMENT	
Pick up all litter at site and in Landscape areas and remove from site	Daily
INLETS AND OUTLETS	
Visual inspection for function. Remove silt from slab aprons and debris in pavement areas. Remove all fallen vegetation around inlet and outlet structures.	Monthly
HARD SURFACES	
Sweep all paving regularly. Maintain pavement in autumn after leaf fall. Coordinate with Landscape Contractor if additional maintenance is required.	As required

OCCASIONAL TASKS	FREQUENCY
INSPECTION AND INLETS, OUTLETS AND CONTROL CHAMBERS	
Inspect surface structures removing obstructions and silt as necessary. Check there is no physical damage. For below ground control chambers, remove cover and inspect ensuring water is flowing freely and that the exit route for water is unobstructed. Remove debris and silt.	Yearly
POND VEGETATION	
Ensure Pond vegetation is maintained by Landscape Contractor. All weeds and all cuttings removed from site.	As required
SILT MANAGEMENT	
Inspect swales and water quality pond for silt accumulation. Excavate silt, stack and dry within 2-feet of the water quality feature, but outside the design profile where water flows, spread, rake and overseed. Protect surface from siltation and manage main area of basin for design function or appearance.	Yearly

REMEDIAL WORK	FREQUENCY
Inspect storm all water quality structures regularly to check for damage or failure. Undertake remedial work as required.	Yearly

Summary

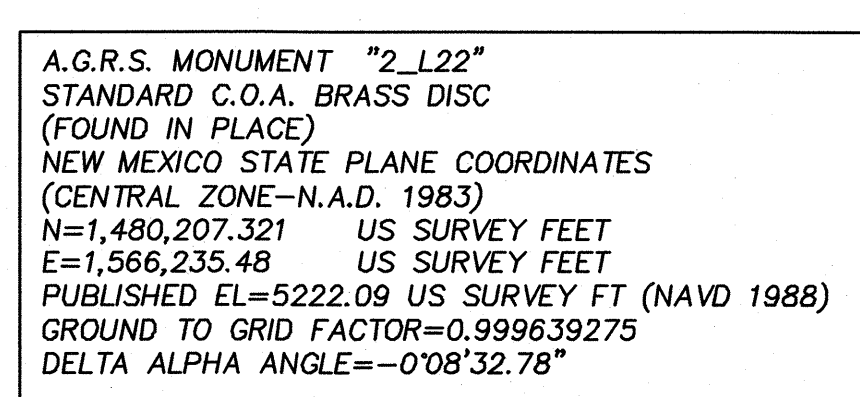
This report outlines the Drainage Plan and presents the on-site BMP SWQV ponding and drainage improvements needed to safely convey the developed flows for the re-development of the site to a Maverik Gas Station and Convenience Store. The grading plan is detailed in two phases: the first phase does not provide an entrance off Juan Tabo Blvd, with the second phase detailing the right-in access. The approval of this access is pending NM DOT and COA Transportation approval.

Sheet flow runoff is collected using onsite curb and gutters, and roof drains, and directed into stormwater quality ponds. A total of 1,133 cubic feet of retention is required and 1,559 cubic feet is provided. After passing through the SWQV ponds the runoff enters into Juan Tabo Blvd. and

drains to the existing street curb inlets south of the site. With the addition of the SWQV ponds the total historic runoff is not being increased.


Per the DPM the design is required to control the oil wash-off from vehicle refueling areas which is achieved by routing the flows in the fueling areas through a 800 gallon oil-water separator before discharging into the surface SWQV pond.

APPENDIX A

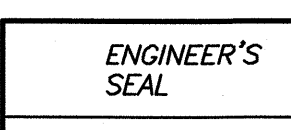



NOTES:

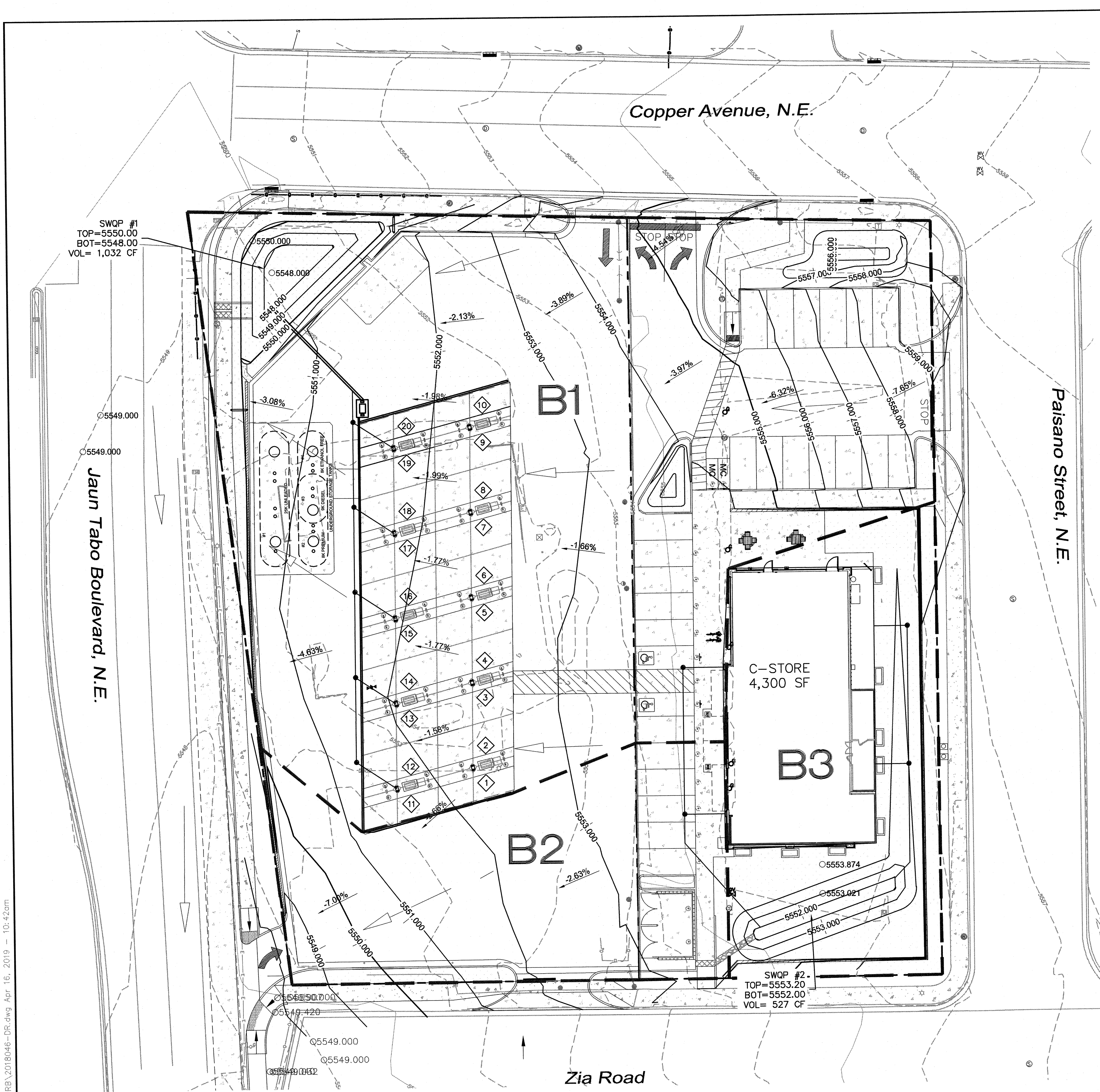
1. ALL EXISTING EASEMENTS WILL BE VACATED BY DOCUMENT.
2. A DRAINAGE COVENANT FOR THE SWQV PONDS AND OIL/WATER SEPARATOR WILL BE SUBMITTED TO THE COA PRIOR TO CERTIFICATE OF OCCUPANCY.
3. REFER TO DRAINAGE PLAN SHEET C4 FOR BMP MAINTENANCE NOTES AND PROPERTY OWNER RESPONSIBILITIES.
4. ALL OFFSITE PAVING, CURB AND SIDEWALK MODIFICATIONS AND IMPROVEMENTS SHOWN ON THIS PLAN WILL BE DETAILED ON A DRB APPROVED INFRASTRUCTURE LIST WITH CONSTRUCTION DRAWINGS DETAILED ON A PUBLIC IMPROVEMENT WORK ORDER PLAN SET APPROVED BY NM DOT AND A.
5. A RIGHT TURN INTO THE SITE FROM JUAN TABO IS PROPOSED AT THE SOUTH WEST CORNER OF THE PARCEL. IF THIS IS APPROVED BY THE NM DOT THE GRADING WILL BE MODIFIED PER GRADING PLAN C3 (GRADING PLAN – PHASE 3).





<div>ENGINEER'S SEAL</div> <div></div> <div>RONALD R. BOHANNAN P.E. #7868</div>	<div>MAVERIK</div> <div>650 JUAN TABO BLVD. NE</div> <div>GRADING PLAN</div>	<div>DRAWN BY</div> <div>pm</div>
		<div>DATE</div> <div>4-16-19</div>
		<div>DRAWING</div> <div>2018046-GR</div>
		<div></div> <div>TERRA WEST, LLC</div> <div>5571 MIDWAY PARK PL NE</div> <div>ALBUQUERQUE, NEW MEXICO 87109</div> <div>(505) 858-3100</div> <div>www.terrawestllc.com</div>
		<div>JOB #</div> <div>2018046</div>

Z:\2018\2018046-Maverik-Juan Tabo & Copper.dwg\DRP\2018046-DR.dwg Apr 16, 2019 - 10:42am



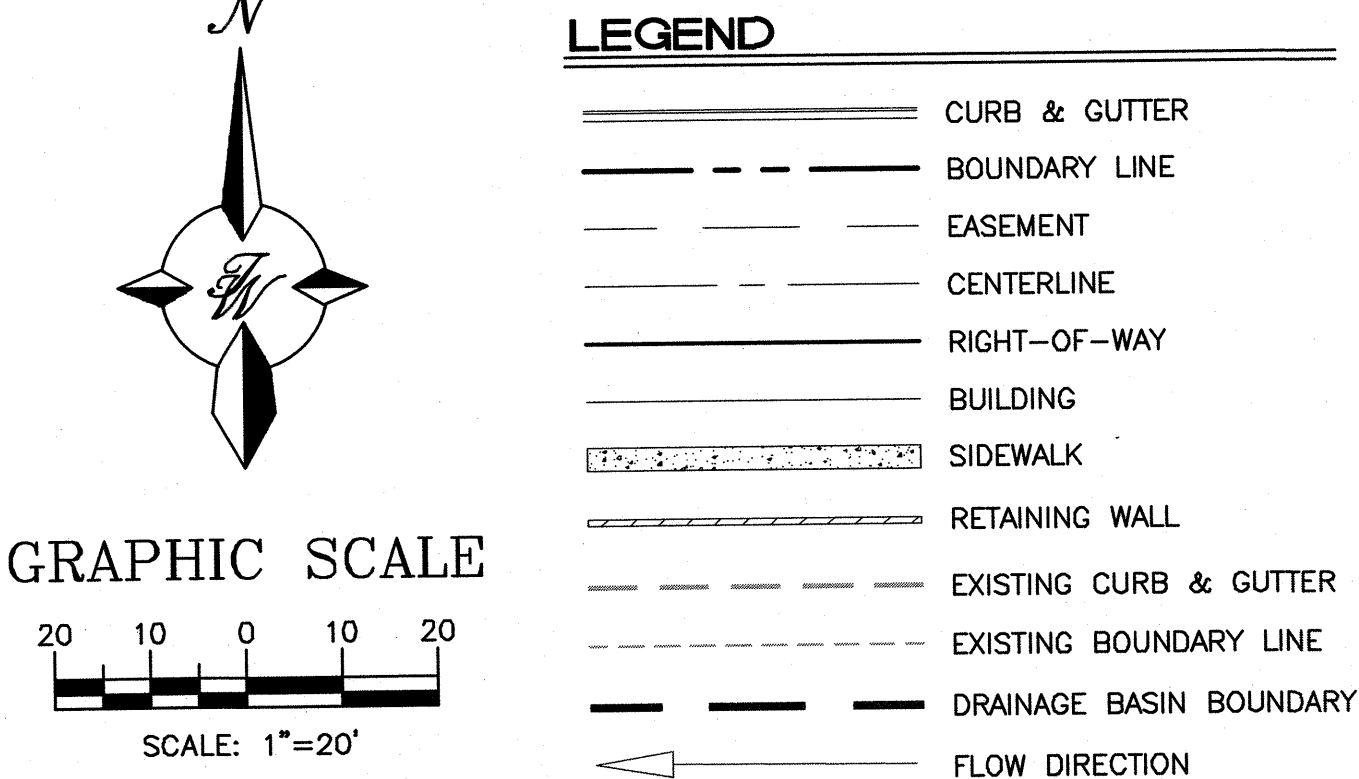
Basin Descriptions								100-Year, 6-Hr			10-Year, 6-Hr			SWQV		
Basin ID	Area (sf)	Area (acres)	Area (sq miles)	Treatment A (%)	Treatment B (%)	Treatment C (%)	Treatment D (%)	Weighted E (in)	Volume (ac-ft)	Flow (cfs)	Weighted E (in)	Volume (ac-ft)	Flow (cfs)	Required (cf)	Provided (cf)	
1	40,521	0.930	0.00145	0%	0.000	10%	0.093	0%	0.000	90%	0.837	2.484	0.193	4.67	790	1,032 (#1)
2	10,390	0.239	0.00037	0%	0.000	0%	0.000	100%	0.239	2.640	0.052	1.25	1.690	0.034	0.85	225
3	10,843	0.249	0.00039	0%	0.000	50%	0.124	0%	0.000	50%	0.124	1.860	0.039	1.02	117	527 (#2)
Total	61,754	1.418	0.00222	0.000	0.000	0.217	0.000	1.200	0.284	6.936	0.177	4.600	1.133	1,559		

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
WQV_{required} = 0.26*A*43560*(1/12)

Excess Precipitation, E (in.)			
Zone 4	100-Year	10-Year	
Ea	0.8	0.28	
Eb	1.08	0.46	
Ec	1.46	0.73	
Ed	2.64	1.69	

Peak Discharge (cfs/acre)			
Zone 4	100-Year	10-Year	
Qa	2.2	0.87	
Qb	2.92	1.45	
Qc	3.73	2.26	
Qd	5.25	3.57	

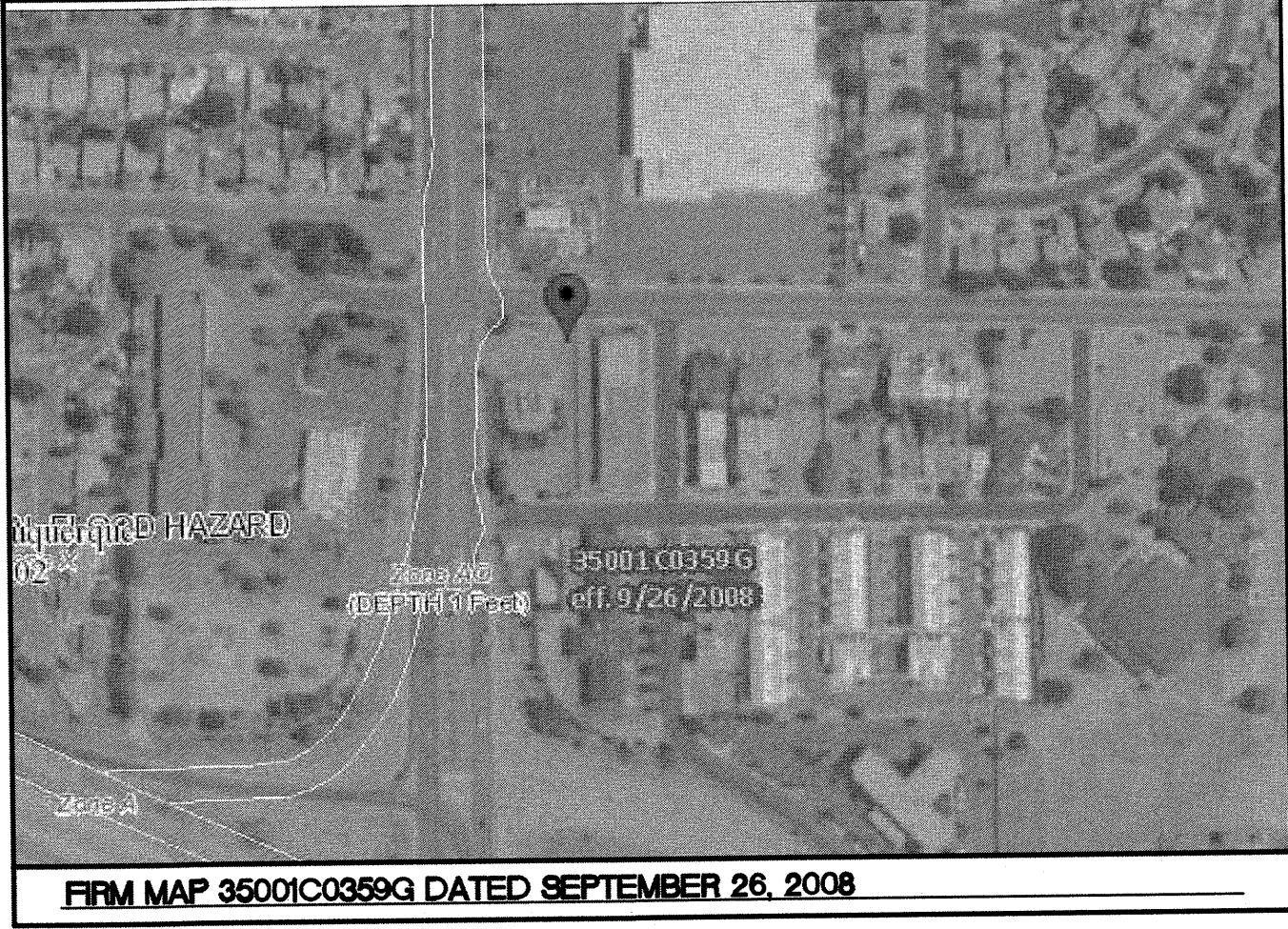
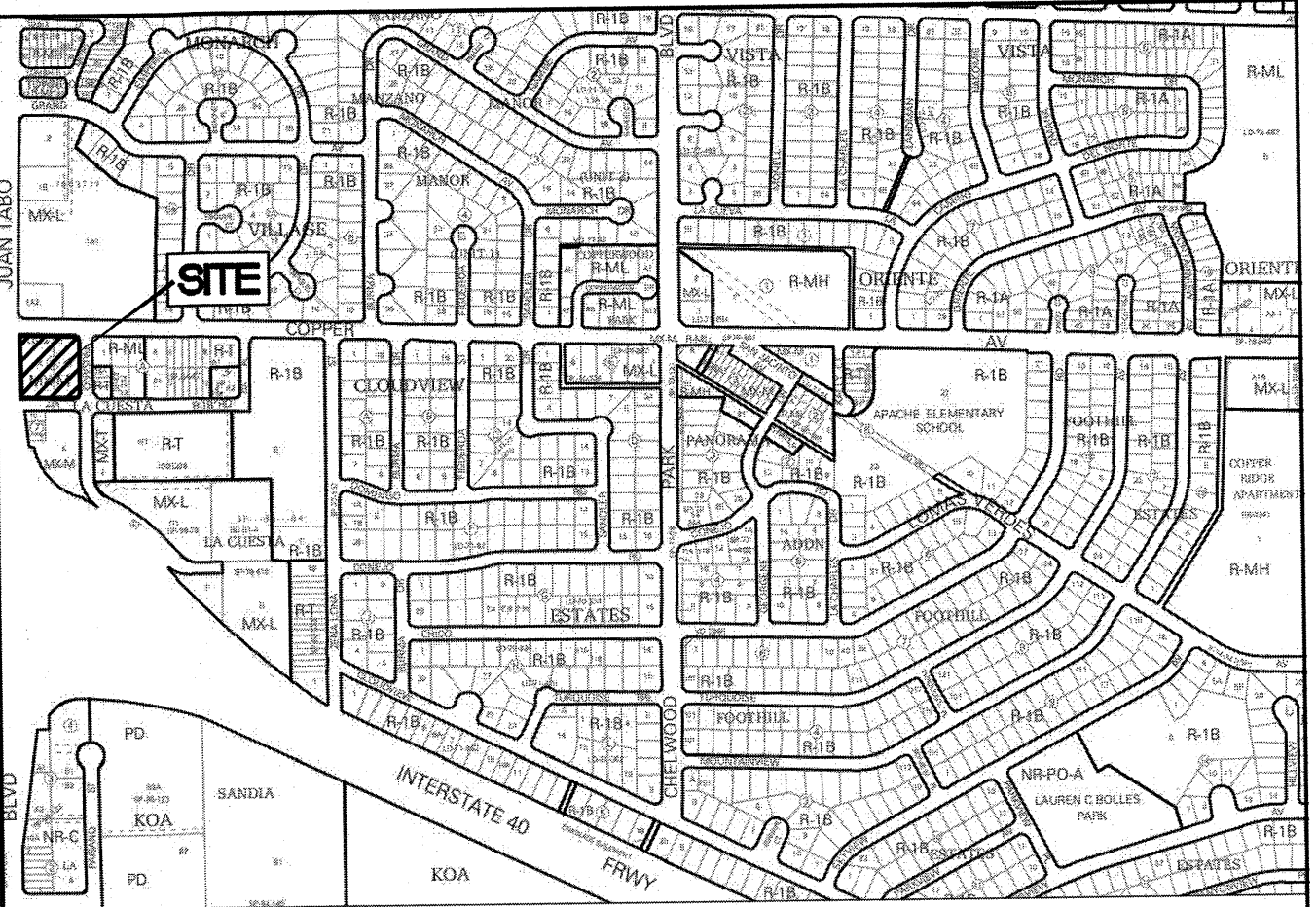
Water Quality Volume - "First Flush Pond" - Redevelopment Site
Total Impervious Area = 0.0233 foot
Retention depth = 0.28"
Retention Volume = 0.0233 x area CF



MAINTENANCE OF BMPS
RESPONSIBLE PARTY: PROPERTY OPERATOR
MAINTENANCE REQUIREMENTS AND FREQUENCY: REFER TABLE THIS PAGE.
ACCESS TO BMPS: ACCESS SHALL BE PROVIDED VIA SITE ACCESS DRIVES TO SURFACE SWQV POND. ALL REMOVAL AND DISPOSAL OF LANDSCAPING AND SEDIMENT SHALL BE COMPLETED BY CERTIFIED LANDSCAPE CONTRACTOR IN ACCORDANCE WITH THE LANDSCAPE MAINTENANCE SPECIFICATION. NO DEBRIS SHALL REMAIN ONSITE AFTER TRIMMING.
SEDIMENTATION MONITORING SHALL BE COMPLETED BY THE PROPERTY OWNER YEARLY. IF SILT ACCUMULATION EXCEEDS 2 INCHES ON THE SWQV POND GAUGE THEN THE POND BOTTOM SHALL BE EXCAVATED AND STACKED WITHIN 2-FEET OF THE SWQV POND BERM.
VISUAL INSPECT FOLLOWING STORM EVENTS SHALL BE COMPLETED AS REQUIRED TO ENSURE THE INFILTRATION OF THE SWQV IS ACHIEVED AT ACCEPTABLE RATES. THE SWQV, AT THE MAXIMUM 24" DEPTH, SHOULD INFILTRATE WITHIN 24 HOURS.

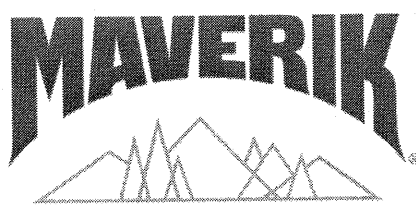
VECTOR CONTROL NOTES:
ALLOWING CONDITIONS SUCH AS THE ACCUMULATION OF STANDING WATER THAT CAN CONTRIBUTE TO THE BREEDING OF MOSQUITOES IS A VIOLATION OF THE CITY OF ALBUQUERQUE'S INSECT AND RODENT CONTROL ORDINANCE. MAINTENANCE OF THE OIL WATER SEPARATOR AND SWQV PONDS ARE THE RESPONSIBILITY OF THE PROPERTY OPERATOR. IN ORDER TO PREVENT MOSQUITO BREEDING, VEGETATION SHOULD REGULARLY BE CLEARED FROM THE BASIN AND EDGES OF PONDS. THE SITE SHOULD BE MAINTAINED THROUGHOUT THE YEAR IN THIS MANNER. REMOVAL OF VEGETATION CREATES A LESS DESIRABLE SITE FOR MOSQUITO BREEDING. THIS WILL ALSO AID IN THE REDUCTION OF RODENT HARBORAGE. WHEN STANDING WATER DOES EXIST IT SHOULD BE TREATED WITH PUBLICLY AVAILABLE MOSQUITO PRODUCES (E.G. MOSQUITO DUNKS) AT THE TREATMENT RATE DESIGNATED BY THE PRODUCT LABEL. SHOULD A SITE MAINTAIN PERMANENT STANDING WATER, MOSQUITO FISH (GAMBUSIA) CAN BE OBTAINED FROM THE CITY OF ALBUQUERQUE'S ENVIRONMENTAL HEALTH DEPARTMENT FREE OF CHARGE.

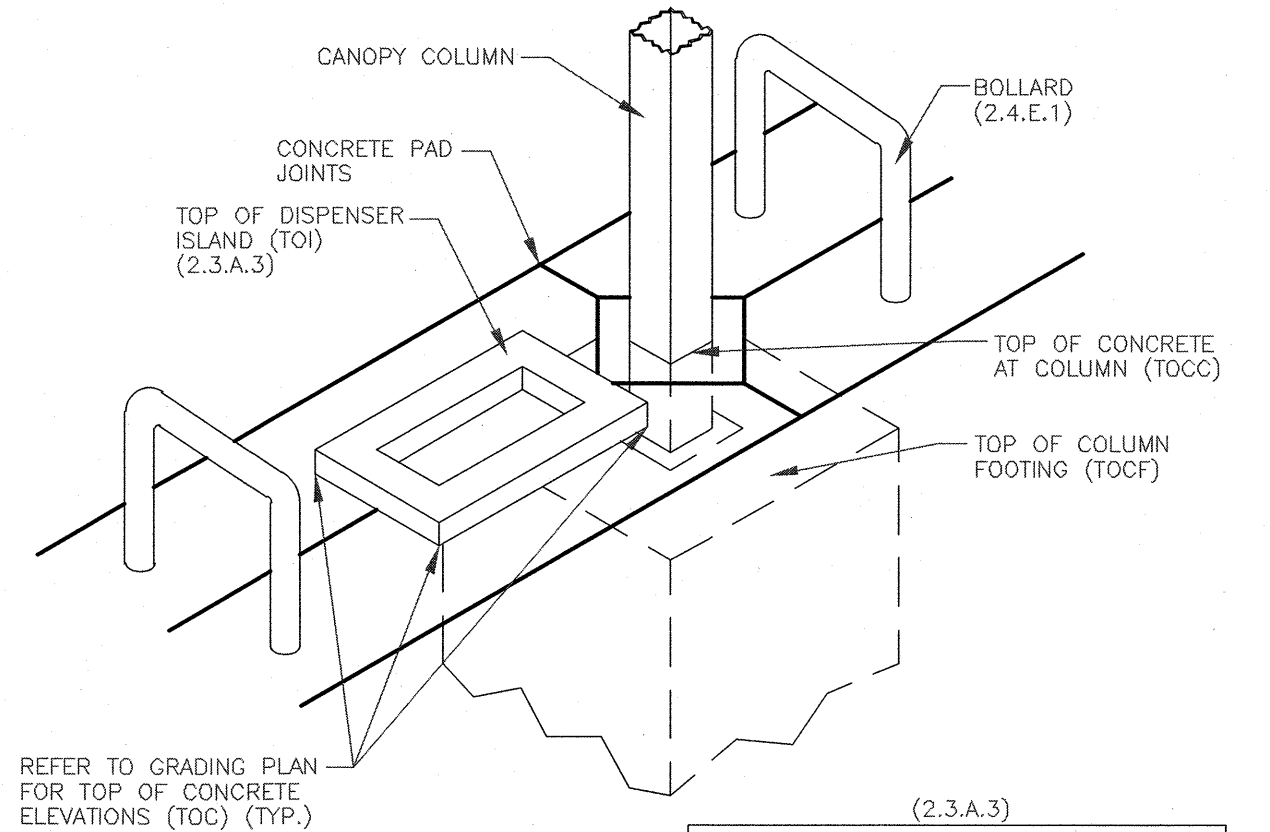
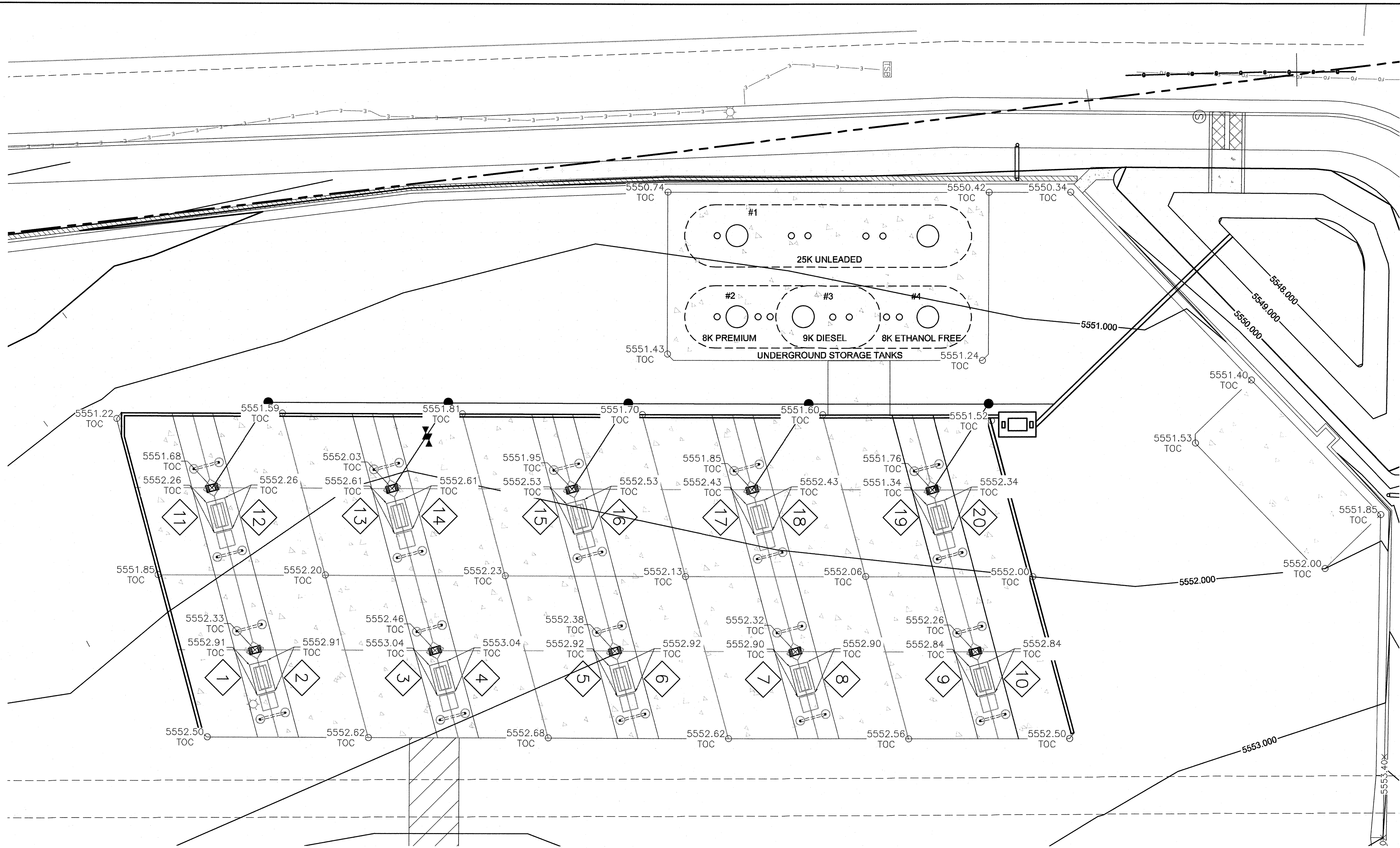
REGULAR MAINTENANCE	FREQUENCY
LITTER MANAGEMENT	
Pick up all litter at site and in Landscape areas and remove from site	Daily
INLETS AND OUTLETS	
Visual inspection for function. Remove silt from slab aprons and debris in pavement areas. Remove all fallen vegetation around inlet and outlet structures.	Monthly
HARD SURFACES	
Sweep all paving regularly. Maintain pavement in autumn after leaf fall. Coordinate with Landscape Contractor if additional maintenance is required.	As required
OCCASIONAL TASKS	FREQUENCY
INSPECTION AND INLETS, OUTLETS AND CONTROL CHAMBERS	
Inspect surface structures removing obstructions and silt as necessary. Check there is no physical damage. For below ground control chambers, remove cover and inspect ensuring water is flowing freely and that the exit route for water is unobstructed.	Yearly
Remove debris and silt.	
POND VEGETATION	
Ensure Pond vegetation is maintained by Landscape Contractor. All weeds and all cuttings removed from site.	As required
SILT MANAGEMENT	
Inspect swales and water quality pond for silt accumulation. Excavate silt, stack and dry within 2-feet of the water quality feature, but outside the design profile where water flows, spread, rake and overseed. Protect surface from siltation and manage main area of basin for design function or appearance.	Yearly
REMEDIAL WORK	FREQUENCY
Inspect storm all water quality structures regularly to check for damage or failure. Undertake remedial work as required.	Yearly



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.

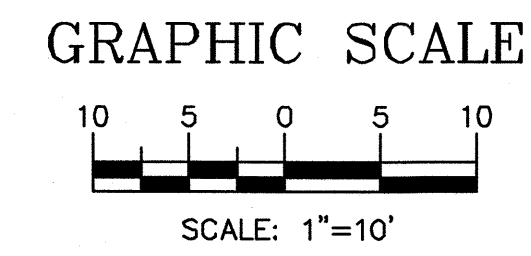
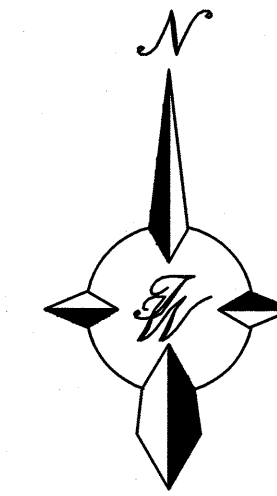
	MAVERIK 650 JUAN TABO BLVD. NE DRAINAGE PLAN	DRAWN BY pm
		DATE 4-16-19
	 5571 MIDWAY PARK PL NE ALBUQUERQUE, NEW MEXICO 87109 (505) 858-3100 www.tierrawestllc.com	DRAWING 2018046-DR
		SHEET # C3 JOB # 2018046





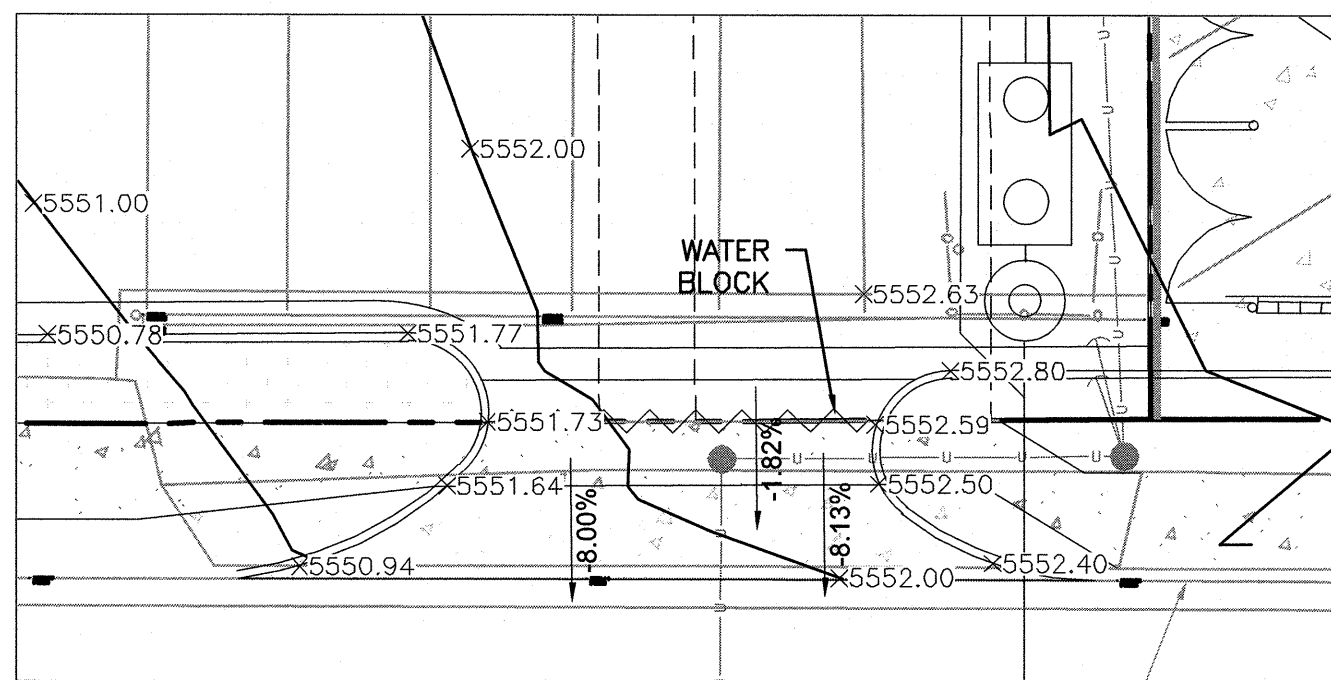
NOTE: TOP OF CONCRETE TO TOP OF SPOT & SPREAD FOOTING SEPARATION IS 36".

NOTE:
6" RAISED VERTICAL CONCRETE ISLAND WITH TOOLED EDGES AND CORNERS TO BE POURED FIRST 5'-0" x 3'-0" CONCRETE ISLAND (NO METAL FORM - VERIFY SIZE WITH DISPENSER MANUF.)
AFTER THE 5'-0" x 3'-0" FUEL ISLAND HAS BEEN POURED, SLOPE CONCRETE AWAY FROM ISLAND IN ALL (4) DIRECTIONS.
ALL DISPENSERS TO BE EQUIPPED WITH AN EXTINGUISHER.

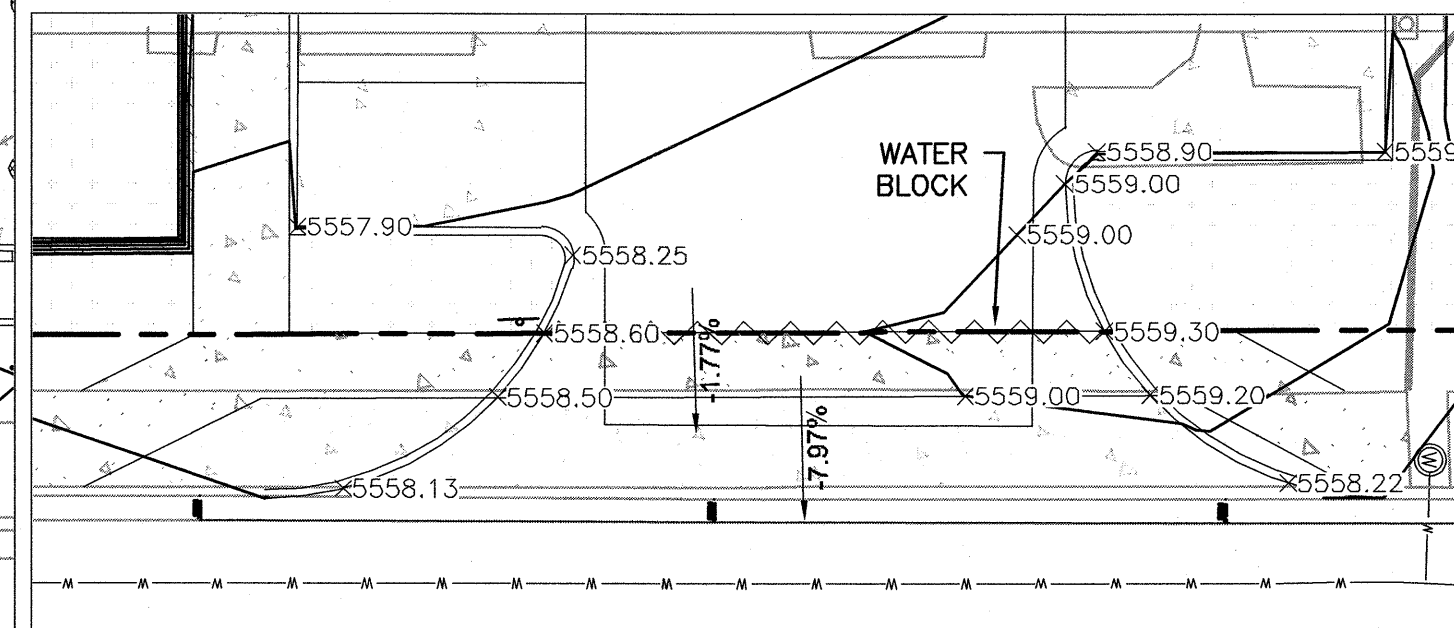


Fuel Dispenser Elevations

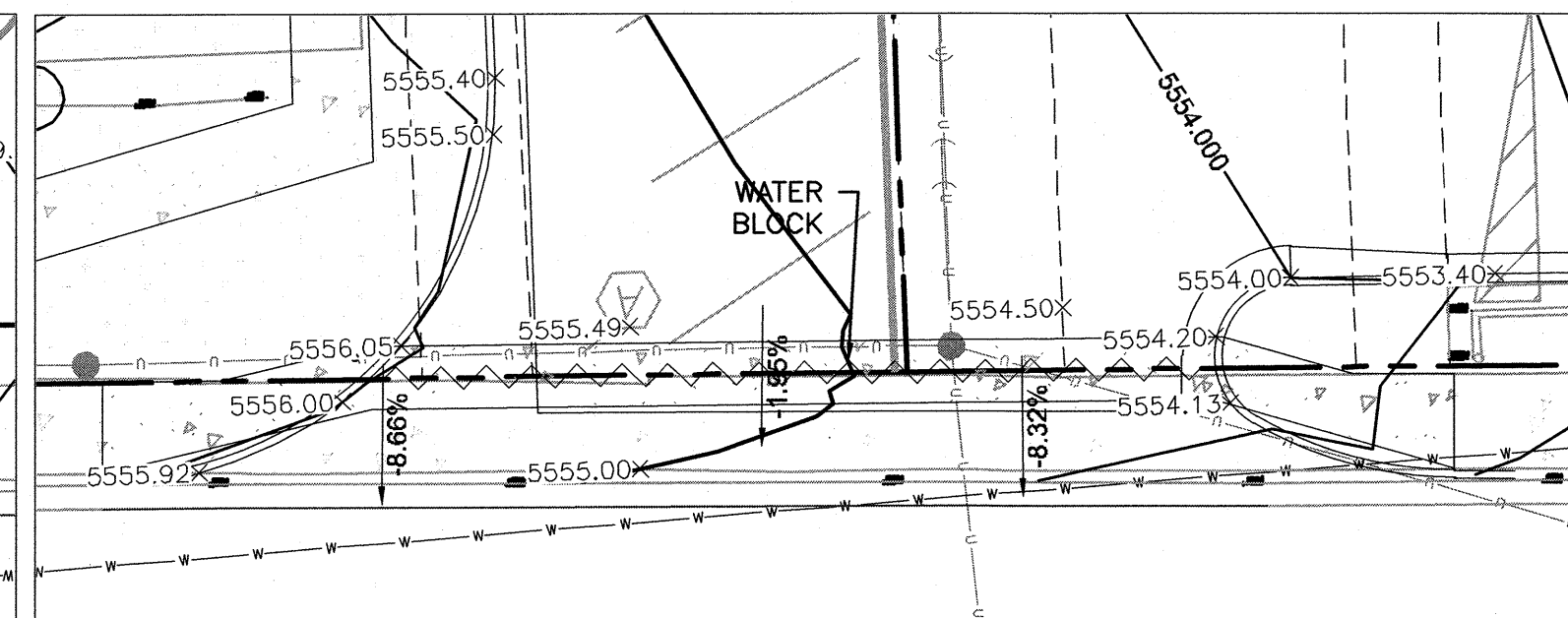
FUEL DISPENSER	TOP OF ISLAND	T.O.C. @ COLUMN	TOP OF COL. FTP
1-2	5552.91	5552.33	5552.33
3-4	5553.04	5552.46	5552.46
5-6	5552.96	5552.38	5552.38
7-8	5552.90	5552.32	5552.32
9-10	5552.84	5552.26	5552.26
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17-18	5552.43	5551.85	5551.85
19-20	5552.34	5551.76	5551.76



ZIA ROAD (ENTRANCE)
SC: NTS



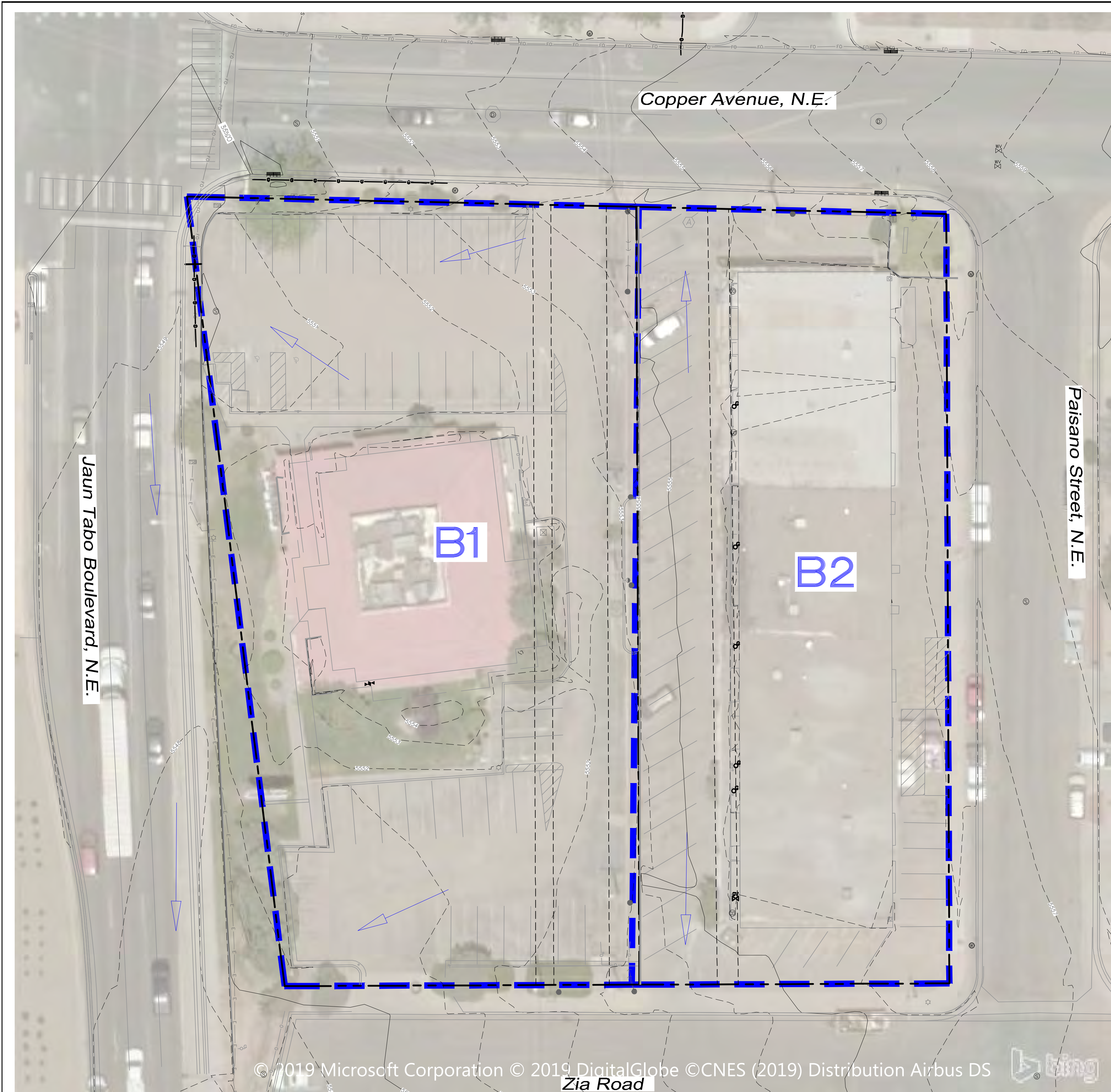
PAISANO AVE (ENTRANCE)
SC: NTS



COPPER AVE (ENTRANCE)
SC: NTS



ENGINEER'S SEAL RONALD R. BOHANNAN P.E. #7868	MAVERIK 650 JUAN TABO BLVD. NE GRADING DETAILS	DRAWN BY pm
		DATE 4-16-19
	TIERRA WEST, LLC 5571 MIDWAY PARK PL. NE ALBUQUERQUE, NEW MEXICO 87109 (505) 858-3100 www.tierrawestllc.com	DRAWING 2018046-GR-DETAILS
		SHEET # C4 JOB # 2018046



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	34,832	0.800	0.00125	0%	0.000	0%	0.000	10%	0.080	90%	0.720	2.522	0.168	3.89	1.412	0.094	2.60
2	26,922	0.618	0.00097	0%	0.000	0%	0.000	0%	0.000	100%	0.618	2.640	0.136	3.10	1.500	0.077	2.10
Total	61,754	1.418	0.00222	0.000		0.000		0.080		1.338			0.304	6.99		0.171	4.69

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

WQV_{required} = 0.26*A*43560*(1/12)

Excess Precipitation, E (in.)

Zone 4	100-Year	10-Year
Ea	0.8	0.28
Eb	1.08	0.46
Ec	1.46	0.73
Ed	2.64	1.69

Peak Discharge (cfs/acre)

Zone 4	100-Year	10-Year
Qa	2.2	0.87
Qb	2.92	1.45
Qc	3.73	2.26
Qd	5.25	3.57

Water Quality Volume - "First Flush Pond" - Redevelopment Site

Total Impervious Area =

Retainage depth = 0.28"

Retention Volume =

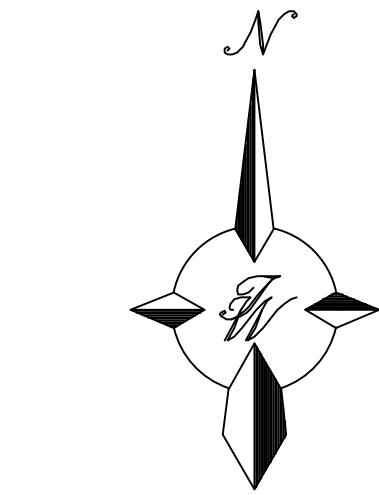
ΣArea in "Treatment D"

0.0233 foot

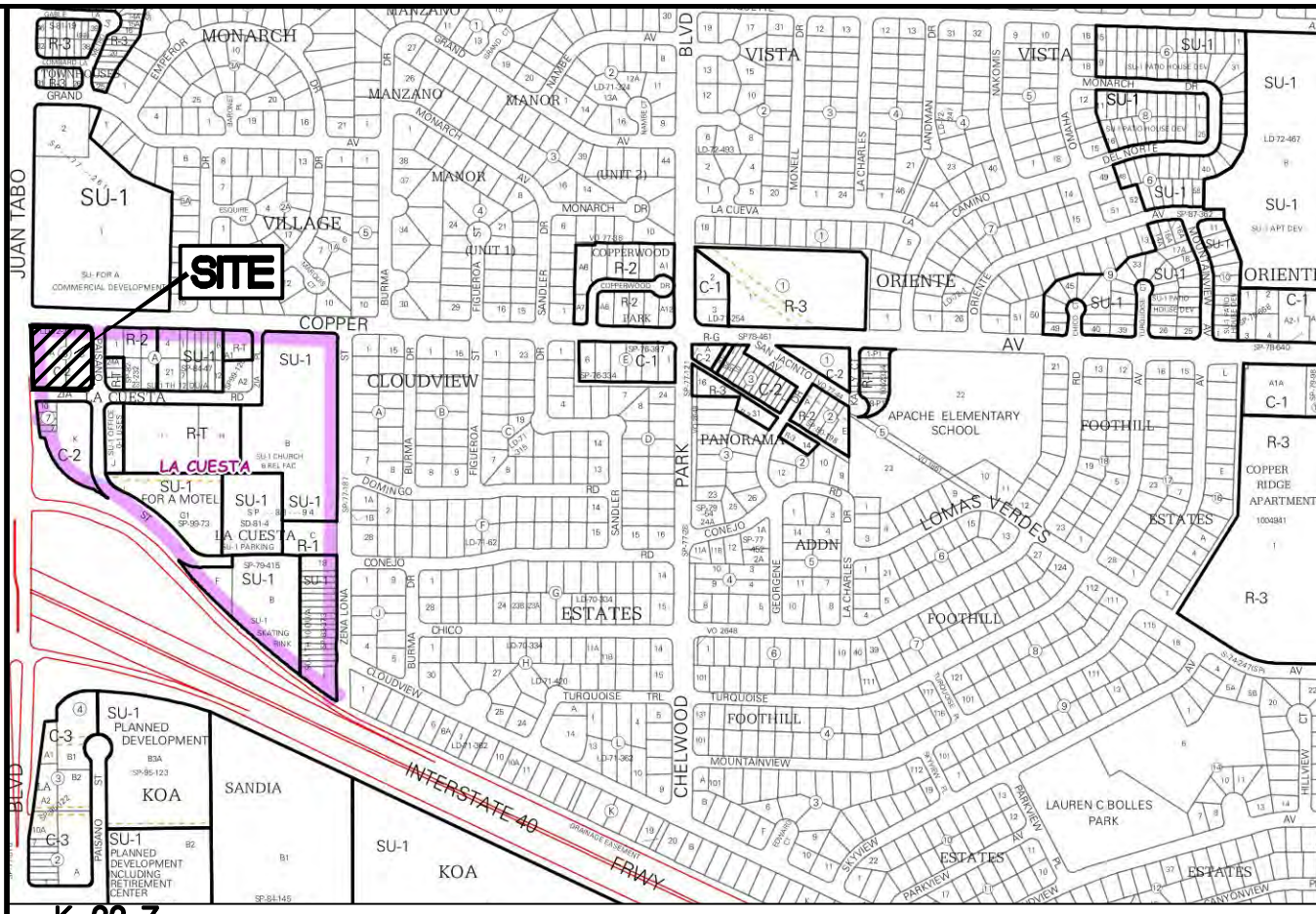
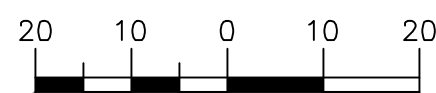
=0.0233 x area CF

LEGEND

- CURB & GUTTER
- BOUNDARY LINE
- EASEMENT
- CENTERLINE
- RIGHT-OF-WAY
- BUILDING
- SIDEWALK
- RETAINING WALL
- EXISTING CURB & GUTTER
- EXISTING BOUNDARY LINE
- DRAINAGE BASIN BOUNDARY
- FLOW DIRECTION



GRAPHIC SCALE



EXISTING DEVELOPED CONDITIONS

THE SITE IS DIVIDED INTO TWO DRAINAGE BASINS FOR EACH TRACT. ONE BASIN COVERS THE EASTERN TRACT, AND THE SECOND COVERS THE WESTERN TRACT. BOTH LOTS ARE IN THE DEVELOPED CONDITION WITH MINIMAL LANDSCAPING IN PLACE. THE RUNOFF FROM THE WESTERN LOT DISCHARGES INTO JUAN TABO BLVD. THROUGH CURB OPENINGS IN THE PARKING LOT AT THE NORTH SIDE OF THE TRACT, AND TO ZIA RD. THROUGH THE DRIVEWAY ENTRANCE AT THE SOUTH SIDE OF THE TRACT. THERE IS NO ONSITE STORAGE OF STORMWATER. SIMILARLY, FOR THE EASTERN LOT, WATER FREELY DISCHARGES INTO THE SURROUNDING STREETS THROUGH THE DRIVEWAY ENTRANCES AT COPPER AVE. AND ZIA RD. THE STORMWATER IS COLLECTED BY GRATE INLETS AND ENTERS INTO THE STORMDRAIN ALONG BOTH ROADWAYS AND EVENTUALLY DISCHARGES INTO THE NORTH DIVERSION CHANNEL AT I-40.

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	MAVERIK	DRAWN BY
	650 JUAN TABO BLVD. NE	pm
	HISTORIC DRAINAGE PLAN	DATE 3-28-19
RONALD R. BOHANNAN P.E. #7868	TIERRA WEST, LLC 5571 MIDWAY PARK PL NE ALBUQUERQUE, NEW MEXICO 87109 (505) 858-3100 www.tierrawestllc.com	DRAWING 2018046-HISTORIC
		SHEET #
		JOB # 2018046

DPM Weighted E Method

Precipitation Zone 4
Juan Tabo and Copper
Maverik - 650 & 670 Juan Tabo Blvd.
TW/LLC

3/6/2019

Date

Existing Conditions - Free Discharge

Basin Descriptions				100-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)
				%	(acres)	%	(acres)	%	(acres)	%	(acres)			
1	34,832	0.800	0.00125	0%	0.000	0%	0.000	10%	0.080	90%	0.720	2.522	0.168	3.89
2	26,922	0.618	0.00097	0%	0.000	0%	0.000	0%	0.000	100%	0.618	2.640	0.136	3.10
Total	61,754	1.418	0.00222	0.000	0.000	0.000	0.000	0.080	1.338	0.304	6.99	0.304	0.171	4.69

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	40,521	0.930	0.00145	0%	0.000	10%	0.093	0%	0.000	90%	0.837	2.484	0.193	4.67	3.12	0.121	3.12	790	1,032
2	10,390	0.239	0.00037	0%	0.000	0%	0.000	0%	0.000	100%	0.239	2.640	0.052	1.25	0.85	0.034	0.85	225	-
3	10,843	0.249	0.00039	0%	0.000	50%	0.124	0%	0.000	50%	0.124	1.860	0.039	1.02	0.62	0.022	0.62	117	527
Total	61,754	1.418	0.00222	0.000	0.000	0.217	0.000	0.000	0.000	1.200	0.000	6.936	0.284	6.936	0.177	0.600	1.133	1,559	

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

WQV_{required} = 0.26*A^{0.43560}*(1/12)

Excess Precipitation, E (in.)			
Zone 4	100-Year	10-Year	
Ea	0.8	0.28	
Eb	1.08	0.46	
Ec	1.46	0.73	
Ed	2.64	1.69	

Peak Discharge (cfs/acre)			
Zone 4	100-Year	10-Year	
Qa	2.2	0.87	
Qb	2.92	1.45	
Qc	3.73	2.26	
Qd	5.25	3.57	

Pipe Number	D (in)	Slope (%)	Area (ft^2)	R	Q Provided (cfs)	Q Required (cfs)	Velocity (ft/s)
1	12	1.80	0.79	0.250	4.79	4.67	5.94

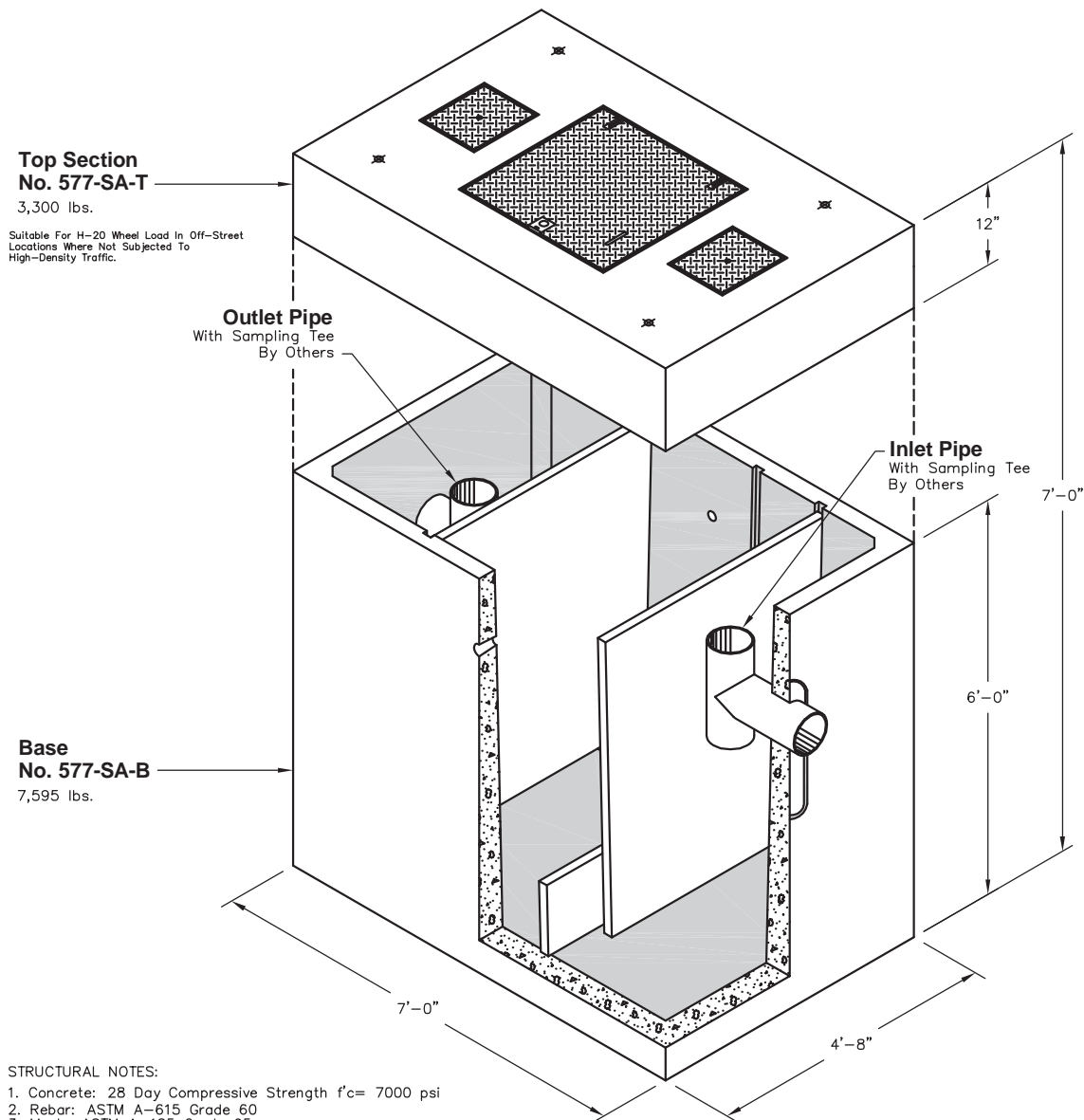
Manning's Equation:

$Q = 1.49/n \cdot A \cdot R^{2/3} \cdot S^{1/2}$

- A = Area
- R = D/4
- S = Slope
- n = 0.013

577-SA OIL WATER SEPARATOR

800 Gallon Capacity



STRUCTURAL NOTES:

1. Concrete: 28 Day Compressive Strength $f'_c = 7000$ psi
2. Rebar: ASTM A-615 Grade 60
3. Mesh: ASTM A-185 Grade 65
4. Design: ACI-318-05 Building Code
ASTM C-890 "Minimum Structural Design
Loading For Underground Precast Concrete
Water and Wastewater Structures"
5. Loads: HS-20 Truck Wheel w/ 30% Impact Per AASHTO

GENERAL NOTES:

1. All Baffles and Weirs To Be Steel
2. Contractor to:
Supply and Install All Piping & Sampling Tees
Grout In All Pipes
Fill With Clean Water Prior To "Start-Up" Of System
Verify All Blockout Sizes and Locations

FOR CUSTOM APPLICATIONS THE FOLLOWING INFORMATION IS NEEDED:

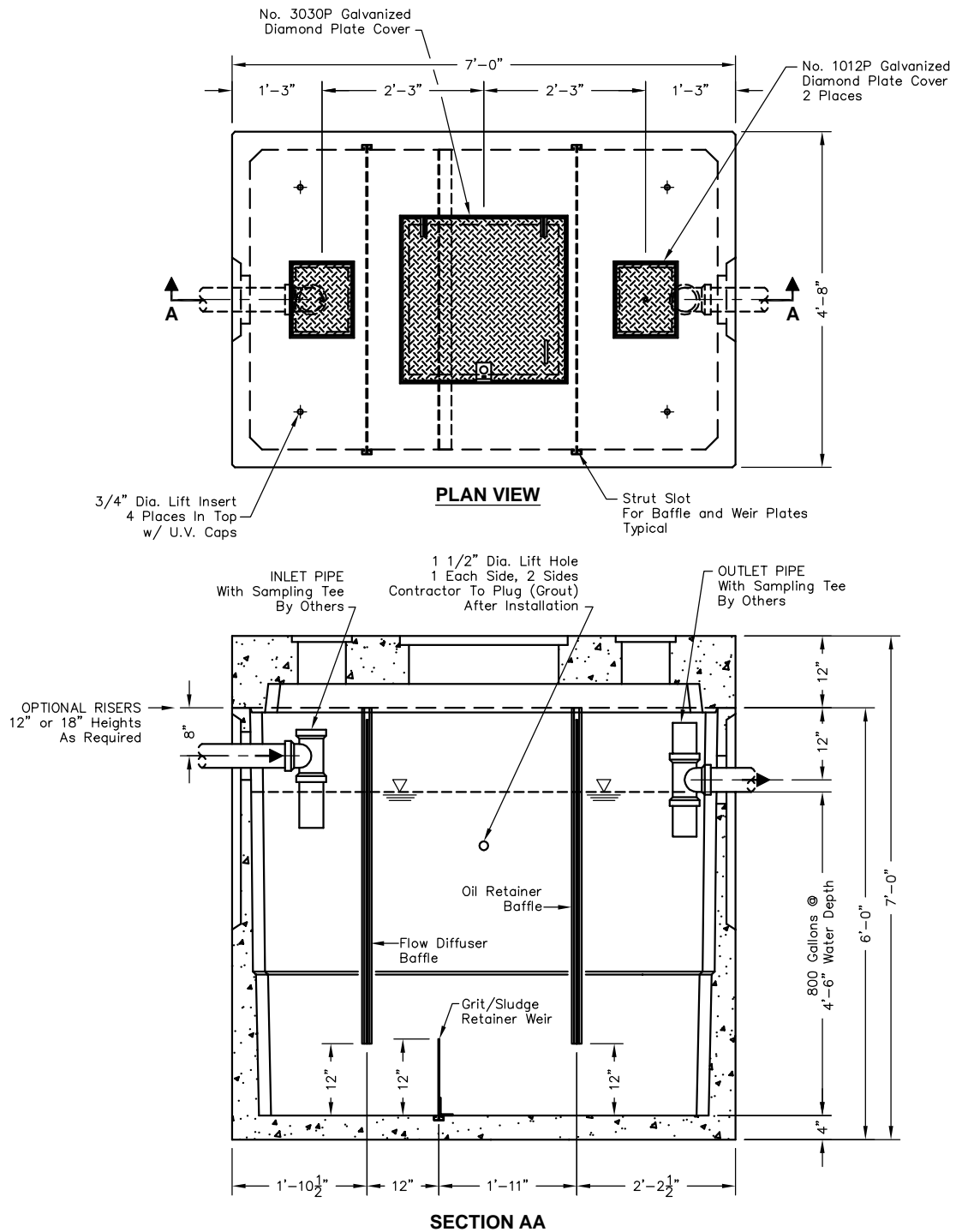
- Top Of Separator Elevation:
Inlet Pipe Size:
Inlet Pipe Elevation:
Outlet Pipe Size:
Outlet Pipe Elevation:

Non Skid Covers Available

FOR DETAILS, SEE REVERSE>>

Items Shown Are Subject To Change Without Notice
Issue Date: April 2016

577-SA



SCALE: 1/2"=1'-0"

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

5.0' Curb Opening for SWQV Pond #1

$$Q=2.7 * 5.0' * 0.5' ^{(3/2)}$$

Q = 4.77 cfs

4.77 cfs > 4.67 cfs (Basin B1 discharge 100yr-6hr)

Opening has adequate capacity.

2.0' Curb Opening

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

Q = 1.91 cfs

1.91 cfs > 1.02 cfs (Basin B3 discharge 100yr-6hr)

Therefore opening has capacity.

3.0' Curb Opening

$$Q=2.7 * 3.0' * 0.5' ^{(3/2)}$$

Q = 1.91 cfs

2.86 cfs > 2.27 cfs (Basin B2+B3 discharge 100yr-6hr)

Therefore opening has capacity.

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

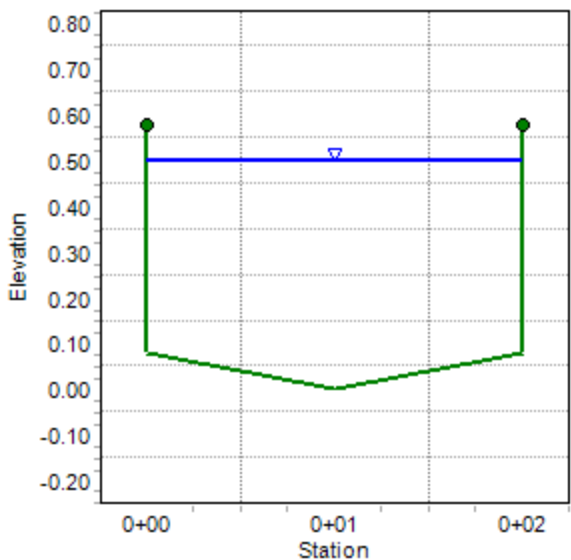
Project Description

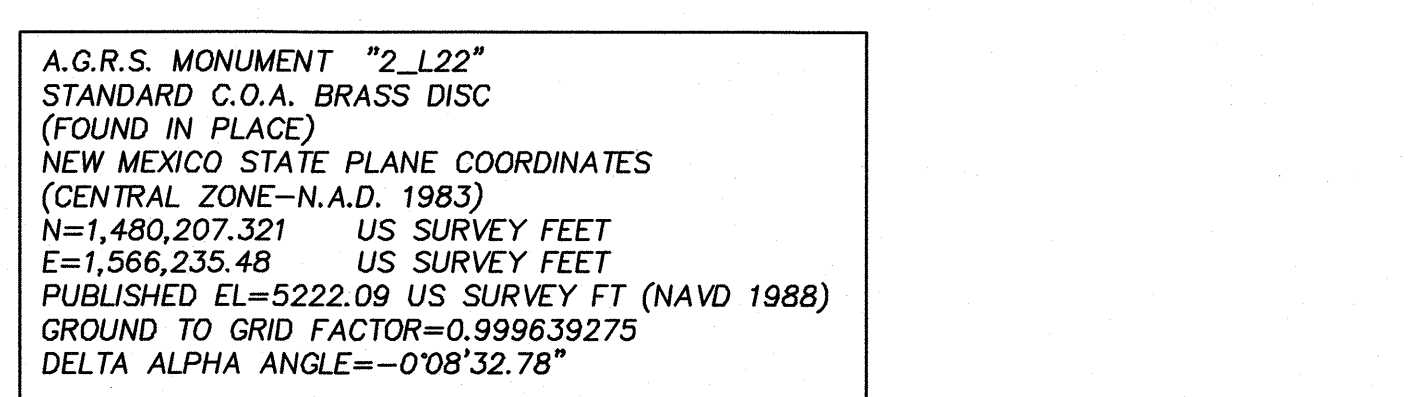
Friction Method	Manning Formula
Solve For	Discharge

Input Data

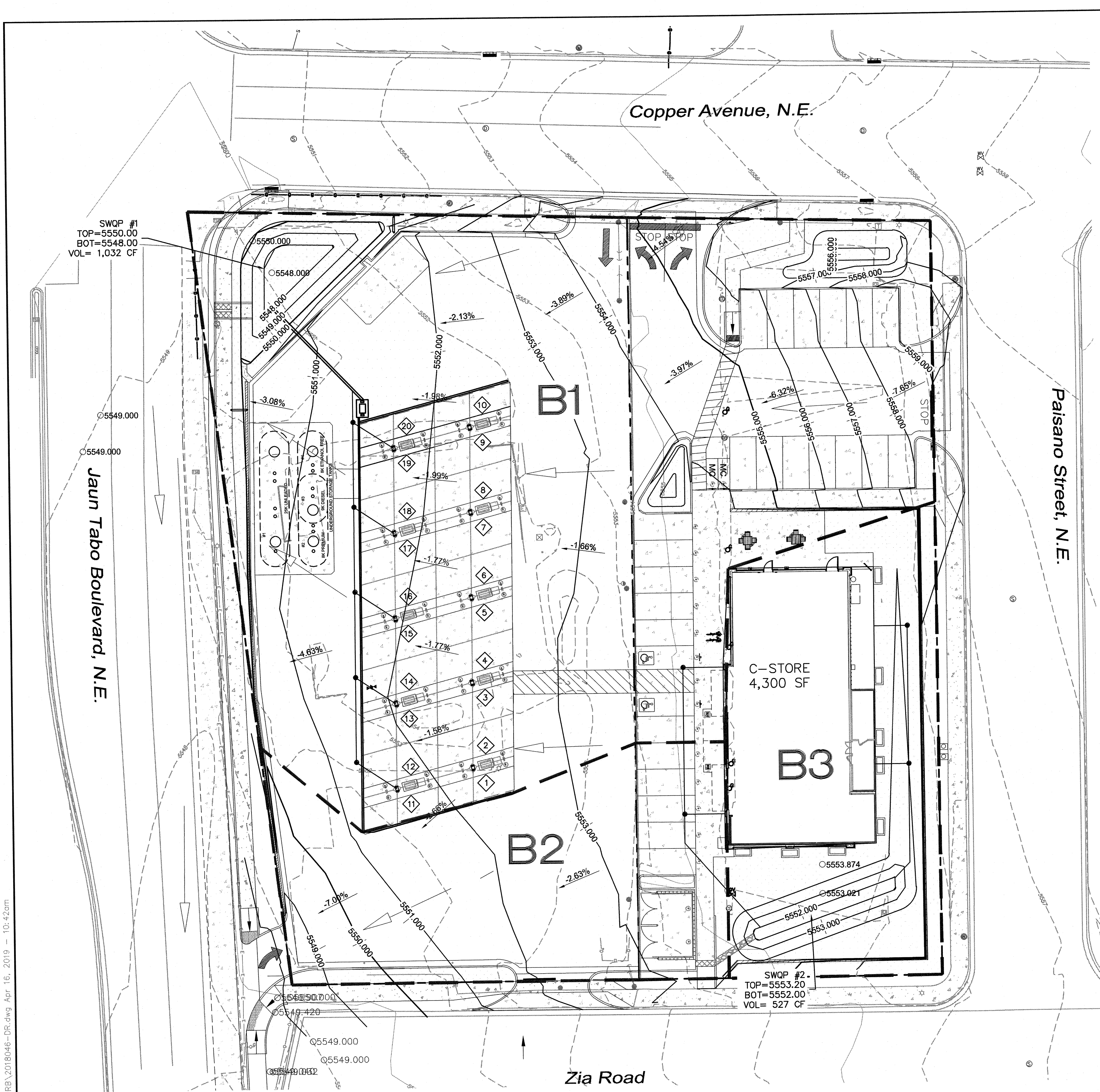
Channel Slope	0.02000	ft/ft
Normal Depth	0.50	ft
Discharge	6.97	ft ³ /s

Cross Section Image





Z:\2018\2018046-Maverik-Juan Tabo & Copper.dwg\DRP\2018046-DR.dwg Apr 16, 2019 - 10:42am



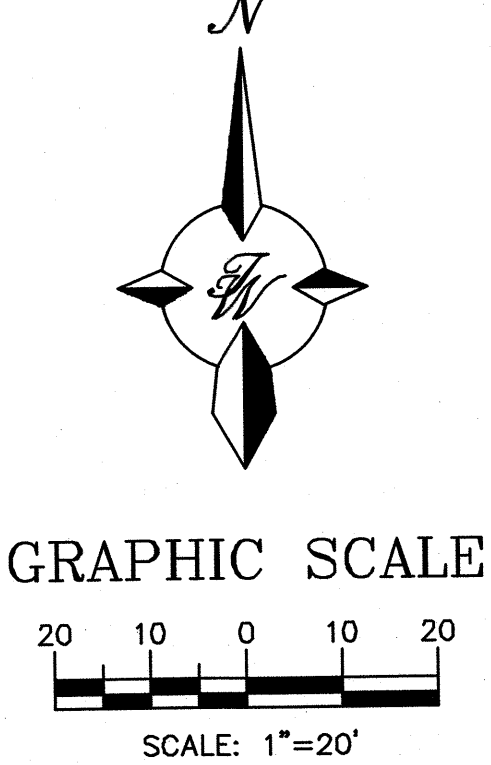
Basin Descriptions								100-Year, 6-Hr			10-Year, 6-Hr			SWQV					
Basin ID	Area (sf)	Area (acres)	Area (sq miles)	Treatment A		Treatment B		Treatment C		Treatment D		Weighted E (in)	Volume (ac-ft)	Flow (cfs)	Weighted E (in)	Volume (ac-ft)	Flow (cfs)	Required (cf)	Provided (cf)
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3	10,843	0.249	0.00039	0%	0.000	50%	0.124	0%	0.000	50%	0.124	1.860	0.039	1.02	1.075	0.022	0.62	117	527 (#2)
Total	61,754	1.418	0.00222		0.000		0.217		0.000		1.200		0.284	6.936		0.177	4.600	1,133	1,559

Equations:
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Excess Precipitation, E (in.)			
Zone 4	100-Year	10-Year	
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Ed	2.64	1.69	

Peak Discharge (cfs/acre)			
Zone 4	100-Year	10-Year	
Qa	2.2	0.87	
Qb	2.92	1.45	
Qc	3.73	2.26	
Qd	5.25	3.57	

Water Quality Volume - "First Flush Pond" - Redevelopment Site
Total Impervious Area = 0.0233 foot
Retention depth = 0.28"
Retention Volume = 0.0233 x area CF

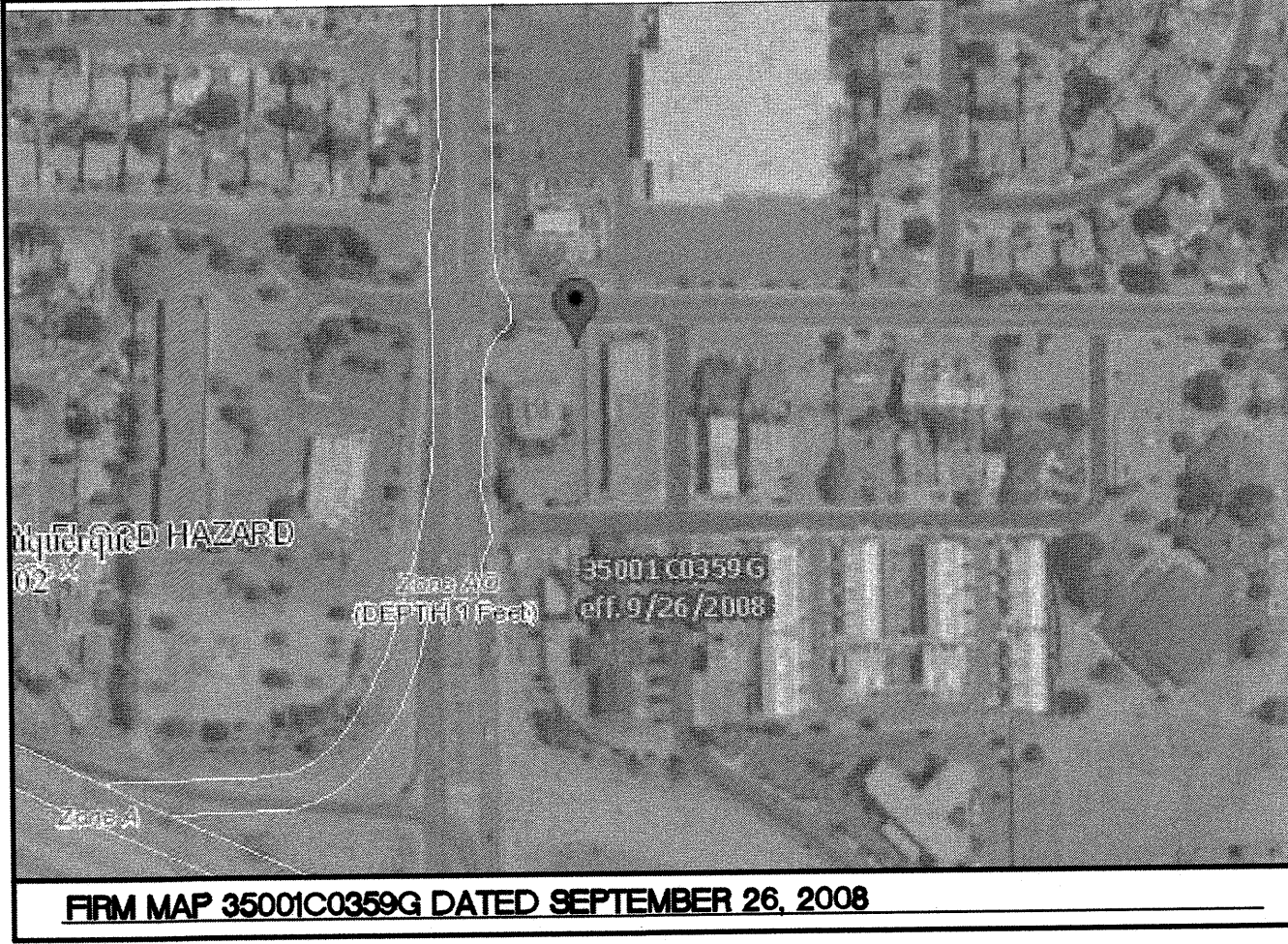
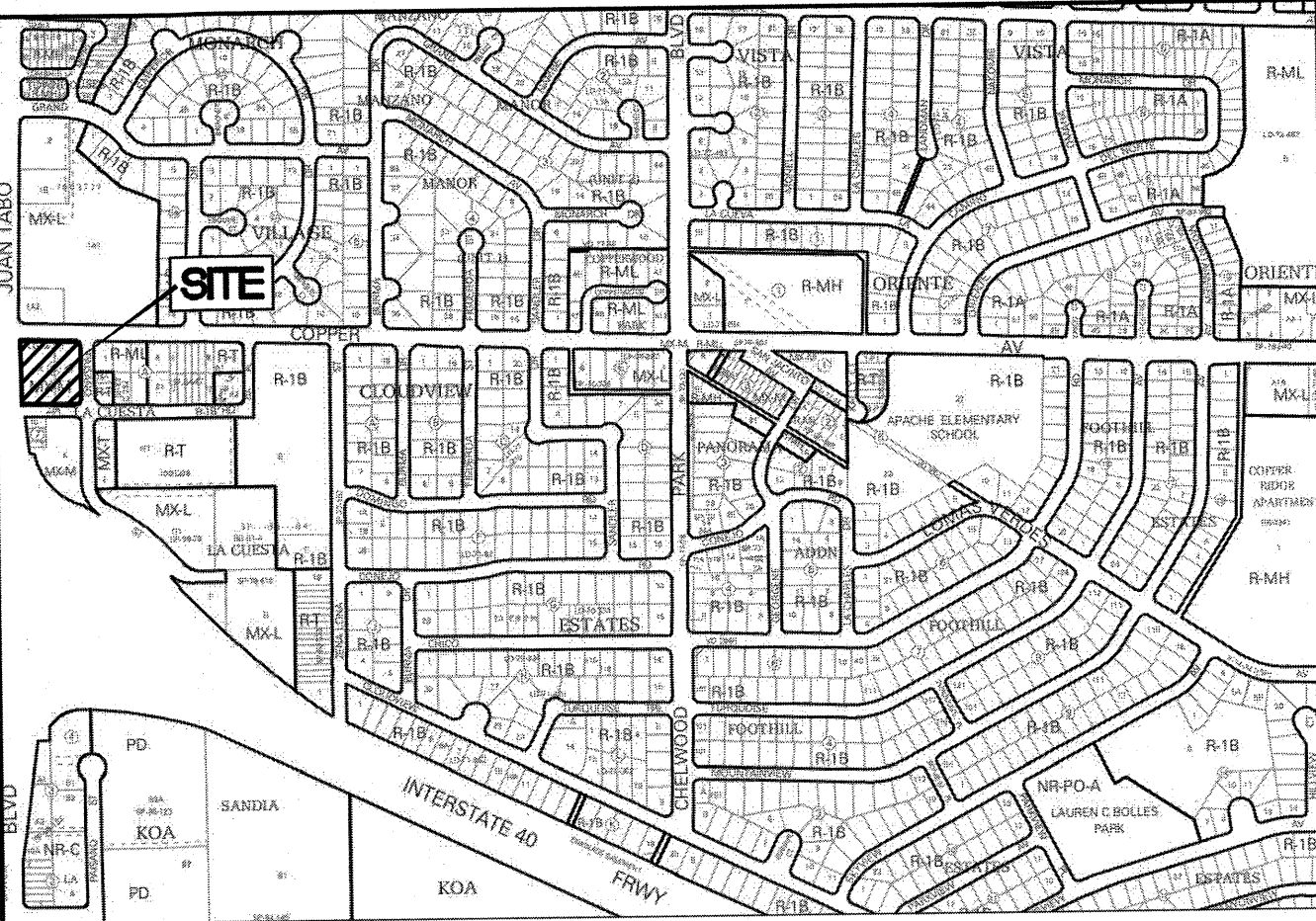


LEGEND	
	CURB & GUTTER
	BOUNDARY LINE
	EASEMENT
	CENTERLINE
	RIGHT-OF-WAY
	BUILDING
	SIDEWALK
	RETAINING WALL
	EXISTING CURB & GUTTER
	EXISTING BOUNDARY LINE
	DRAINAGE BASIN BOUNDARY
	FLOW DIRECTION

MAINTENANCE OF BMPS
RESPONSIBLE PARTY: PROPERTY OPERATOR
MAINTENANCE REQUIREMENTS AND FREQUENCY: REFER TABLE THIS PAGE.
ACCESS TO BMPS: ACCESS SHALL BE PROVIDED VIA SITE ACCESS DRIVES TO SURFACE SWQV POND. ALL REMOVAL AND DISPOSAL OF LANDSCAPING AND SEDIMENT SHALL BE COMPLETED BY CERTIFIED LANDSCAPE CONTRACTOR IN ACCORDANCE WITH THE LANDSCAPE MAINTENANCE SPECIFICATION. NO DEBRIS SHALL REMAIN ONSITE AFTER TRIMMING.
SEDIMENTATION MONITORING SHALL BE COMPLETED BY THE PROPERTY OWNER YEARLY. IF SILT ACCUMULATION EXCEEDS 2 INCHES ON THE SWQV POND GAUGE THEN THE POND BOTTOM SHALL BE EXCAVATED AND STACKED WITHIN 2-FEET OF THE SWQV POND BERM.
VISUAL INSPECT FOLLOWING STORM EVENTS SHALL BE COMPLETED AS REQUIRED TO ENSURE THE INFILTRATION OF THE SWQV IS ACHIEVED AT ACCEPTABLE RATES. THE SWQV, AT THE MAXIMUM 24" DEPTH, SHOULD INFILTRATE WITHIN 24 HOURS.

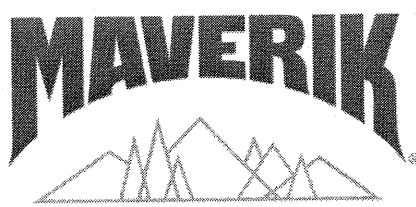
VECTOR CONTROL NOTES:
ALLOWING CONDITIONS SUCH AS THE ACCUMULATION OF STANDING WATER THAT CAN CONTRIBUTE TO THE BREEDING OF MOSQUITOES IS A VIOLATION OF THE CITY OF ALBUQUERQUE'S INSECT AND RODENT CONTROL ORDINANCE. MAINTENANCE OF THE OIL WATER SEPARATOR AND SWQV PONDS ARE THE RESPONSIBILITY OF THE PROPERTY OPERATOR. IN ORDER TO PREVENT MOSQUITO BREEDING, VEGETATION SHOULD REGULARLY BE CLEARED FROM THE BASIN AND EDGES OF PONDS. THE SITE SHOULD BE MAINTAINED THROUGHOUT THE YEAR IN THIS MANNER. REMOVAL OF VEGETATION CREATES A LESS DESIRABLE SITE FOR MOSQUITO BREEDING. THIS WILL ALSO AID IN THE REDUCTION OF RODENT HARBORAGE. WHEN STANDING WATER DOES EXIST IT SHOULD BE TREATED WITH PUBLICLY AVAILABLE MOSQUITO PRODUCES (E.G. MOSQUITO DUNKS) AT THE TREATMENT RATE DESIGNATED BY THE PRODUCT LABEL. SHOULD A SITE MAINTAIN PERMANENT STANDING WATER, MOSQUITO FISH (GAMBUSIA) CAN BE OBTAINED FROM THE CITY OF ALBUQUERQUE'S ENVIRONMENTAL HEALTH DEPARTMENT FREE OF CHARGE.

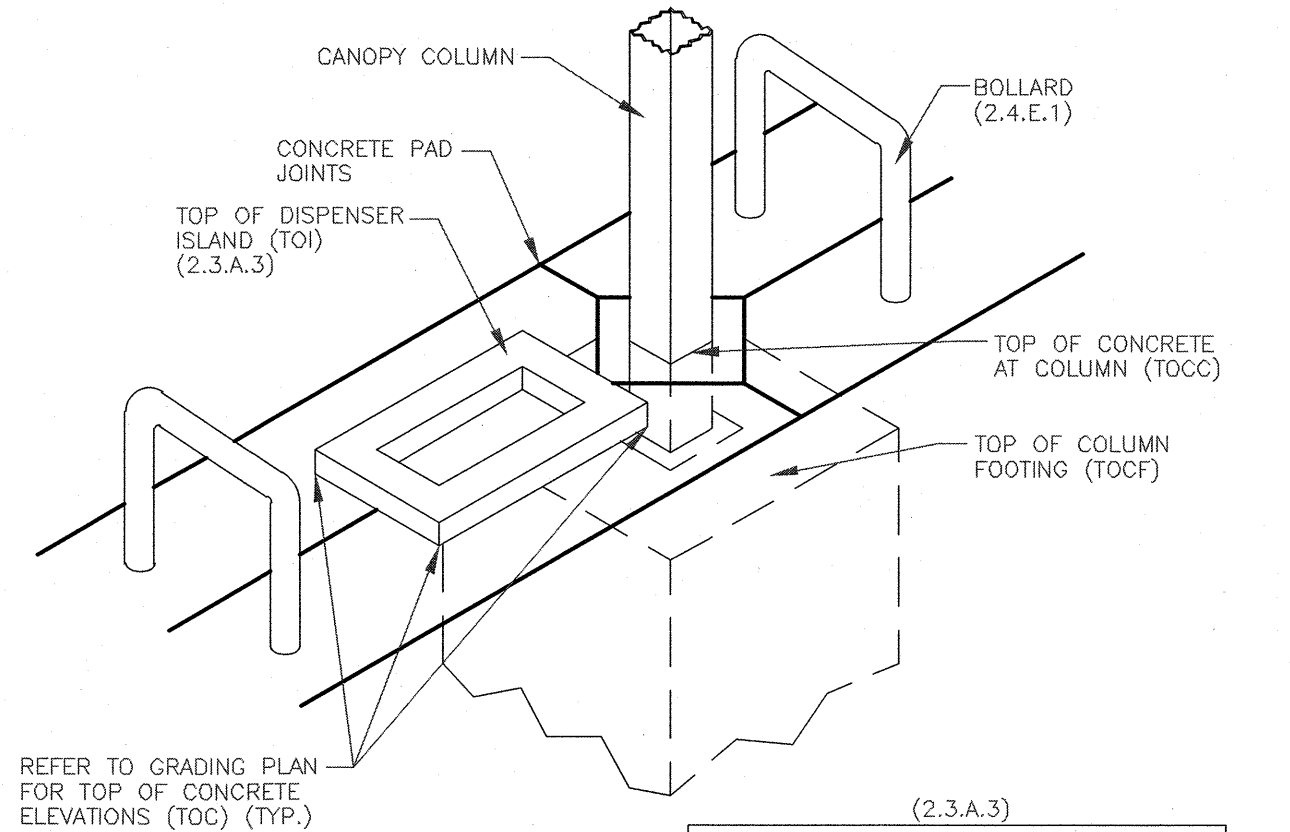
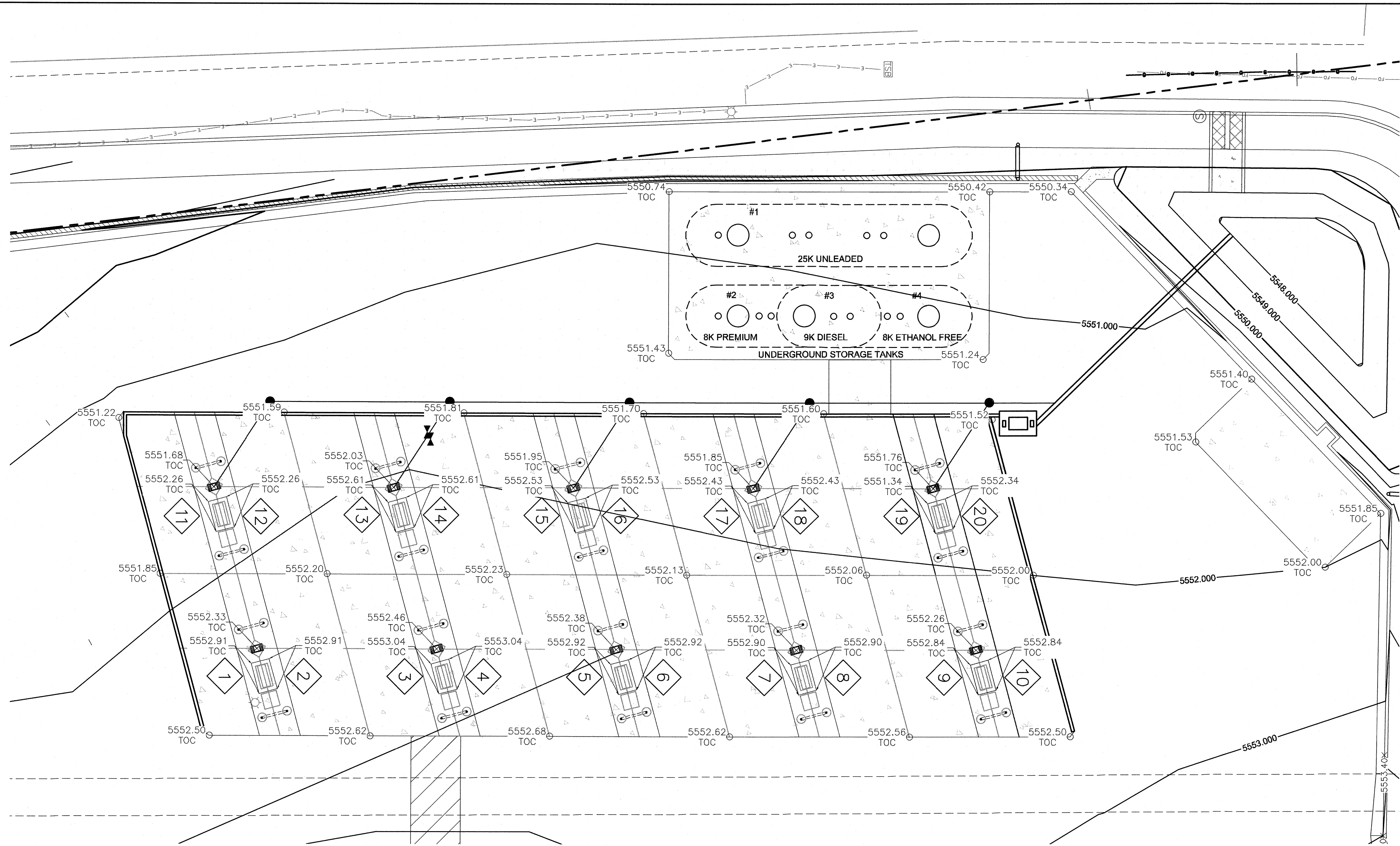
REGULAR MAINTENANCE	FREQUENCY
LITTER MANAGEMENT	
Pick up all litter at site and in Landscape areas and remove from site	Daily
INLETS AND OUTLETS	
Visual inspection for function. Remove silt from slab aprons and debris in pavement areas. Remove all fallen vegetation around inlet and outlet structures.	Monthly
HARD SURFACES	
Sweep all paving regularly. Maintain pavement in autumn after leaf fall. Coordinate with Landscape Contractor if additional maintenance is required.	As required
OCCASIONAL TASKS	FREQUENCY
INSPECTION AND INLETS, OUTLETS AND CONTROL CHAMBERS	
Inspect surface structures removing obstructions and silt as necessary. Check there is no physical damage. For below ground control chambers, remove cover and inspect ensuring water is flowing freely and that the exit route for water is unobstructed.	Yearly
Remove debris and silt.	
POND VEGETATION	
Ensure Pond vegetation is maintained by Landscape Contractor. All weeds and all cuttings removed from site.	As required
SILT MANAGEMENT	
Inspect swales and water quality pond for silt accumulation. Excavate silt, stack and dry within 2-feet of the water quality feature, but outside the design profile where water flows, spread, rake and overseed. Protect surface from siltation and manage main area of basin for design function or appearance.	Yearly
REMEDIAL WORK	FREQUENCY
Inspect storm all water quality structures regularly to check for damage or failure. Undertake remedial work as required.	Yearly



CAUTION:
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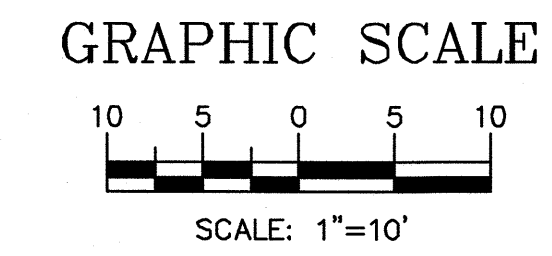
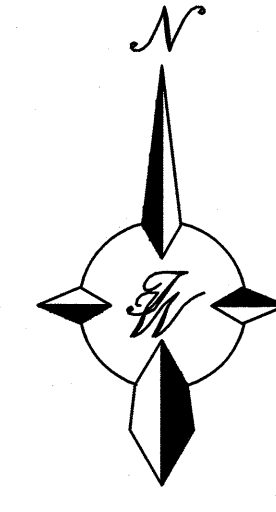
	MAVERIK 650 JUAN TABO BLVD. NE	DRAWN BY pm
	DRAINAGE PLAN	DATE 4-16-19
	 5571 MIDWAY PARK PL NE ALBUQUERQUE, NEW MEXICO 87109 (505) 858-3100 www.terrawestllc.com	DRAWING 2018046-DR
		SHEET # C3
		JOB # 2018046





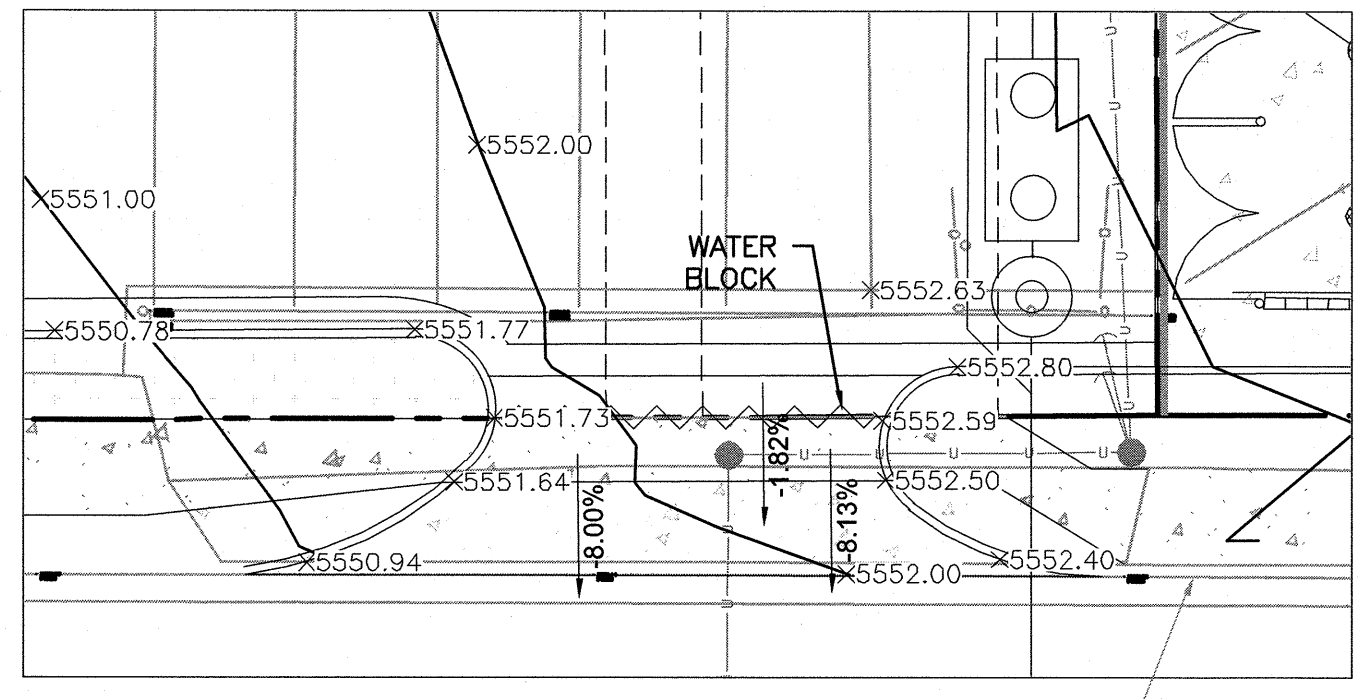
NOTE: TOP OF CONCRETE TO TOP OF SPOT & SPREAD FOOTING SEPARATION IS 36".

NOTE:
6" RAISED VERTICAL CONCRETE ISLAND WITH TOOLED EDGES AND CORNERS TO BE POURED FIRST 5'-0" x 3'-0" CONCRETE ISLAND (NO METAL FORM - VERIFY SIZE WITH DISPENSER MANUF.)
AFTER THE 5'-0" x 3'-0" FUEL ISLAND HAS BEEN POURED, SLOPE CONCRETE AWAY FROM ISLAND IN ALL (4) DIRECTIONS.
ALL DISPENSERS TO BE EQUIPPED WITH AN EXTINGUISHER.

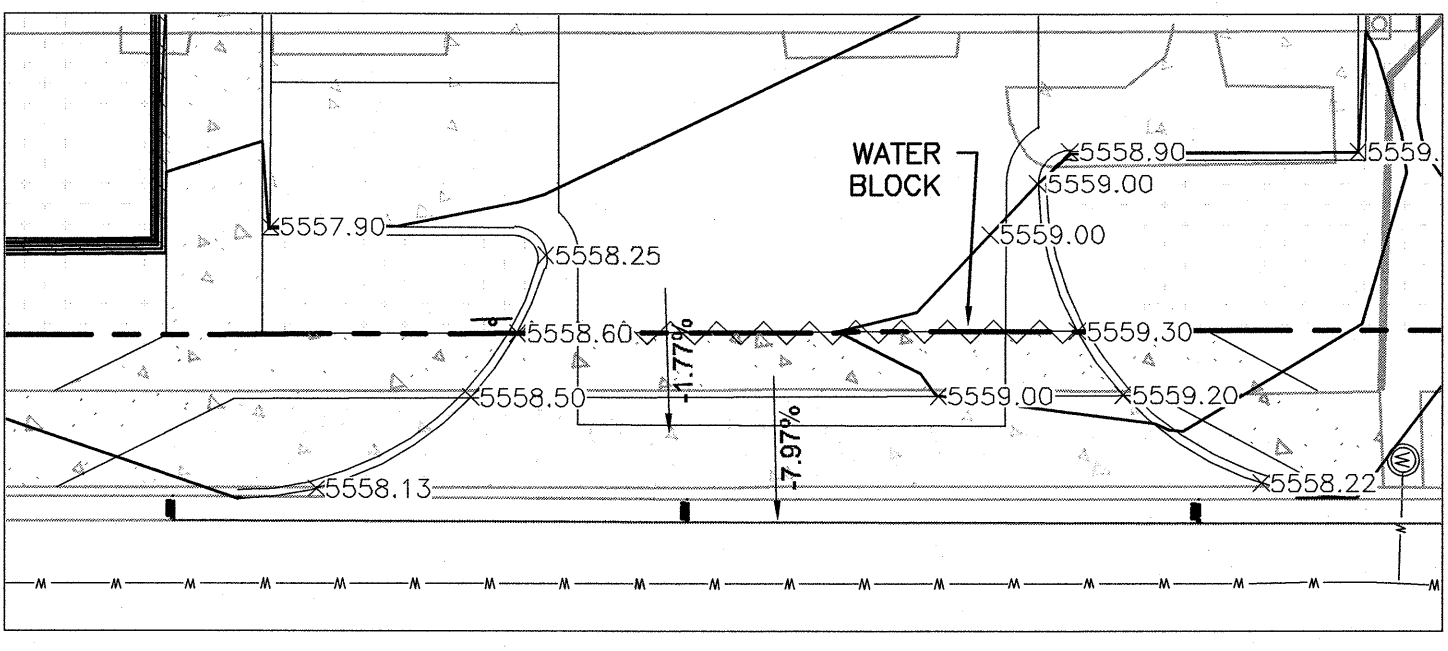


Fuel Dispenser Elevations

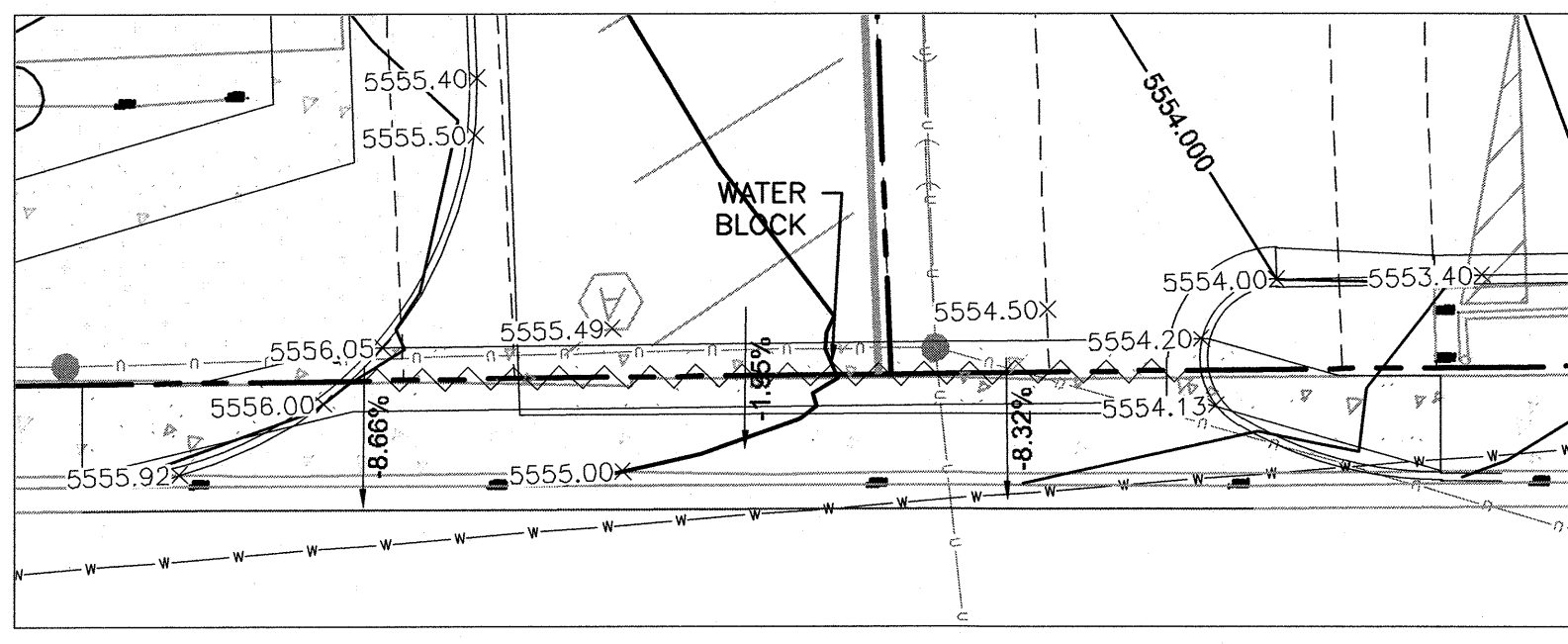
FUEL DISPENSER	TOP OF ISLAND	T.O.C. @ COLUMN	TOP OF COL. FTP
1-2	5552.91	5552.33	5552.33
3-4	5553.04	5552.46	5552.46
5-6	5552.96	5552.38	5552.38
7-8	5552.90	5552.32	5552.32
9-10	5552.84	5552.26	5552.26
11-12	5552.26	5551.68	5551.68
13-14	5552.61	5552.03	5552.03
15-16	5552.53	5551.95	5551.95
17-18	5552.43	5551.85	5551.85
19-20	5552.34	5551.76	5551.76



ZIA ROAD (ENTRANCE)
SC: NTS



PAISANO AVE (ENTRANCE)
SC: NTS



COPPER AVE (ENTRANCE)
SC: NTS



ENGINEER'S SEAL RONALD R. BOHANNAN P.E. #7868	MAVERIK 650 JUAN TABO BLVD. NE GRADING DETAILS	DRAWN BY pm DATE 4-16-19 DRAWING 2018046-GR-DETAILS
	 TIERRA WEST, LLC 5571 MIDWAY PARK PL. NE ALBUQUERQUE, NEW MEXICO 87109 (505) 858-3100 www.tierrawestllc.com	SHEET # C4
		JOB # 2018046

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