# CITY OF ALBUQUERQUE

*Planning Department*
David Campbell, Director

*Mayor Timothy M. Keller*

February 14, 2019

Ronald Bohannan, 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: 01/30/19**
**Hydrology File: K22D059**

Dear Mr. Bohannan:

PO Box 1293

Albuquerque

NM 87103

www.cabq.gov

Based upon the information provided in your submittal received 01/30/2019, the Grading & Drainage Plan and Drainage Report **are not** approved for Grading Permit, SO-19 Permit, and for action by the DRB on the Site Plan for Building Permit. The following comments need to be addressed for approval of the above referenced project:

1. Please add the word "Conceptual" to the sheets title and add a note stating "Not for Construction".
2. Please correct the spelling of Juan Tabo Blvd on both sheets.
3. Sheet C2. Please add a cross section of both storm water quality ponds along with the water surface elevation of the SWQ volume.
4. Sheet C2. Please add the invert (in) elevation of the sidewalk culvert in SWQP #2.
5. Sheet C2. Please clarify and label the future curbing along Juan Tabo, "Future curbing pending NMDOT approval."
6. Sheet C2. Please add a note to the proposed sidewalk culverts, "May be extended to the existing curb if NMDOT does not approve the right turn entrance."
7. Sheet C2. Please show the temporary curb cut extended to the existing curb and not stopping at the future curb.
8. Sheet C2. Please add a note that the right turn is pending NMDOT approval.

9. Sheet C3 and Drainage Report. Please add an existing watershed exhibit with discharge points. This can be the existing aerial photo with flow lines and existing 2 ft contours.

10. Sheet C3 and Drainage Report. Please add the existing condition runoff calculations.

11. Sheet C3 and Drainage Report. SWQP #2 does not need to be this big unless it is needed. All it needs to handle is 153 (B1) + 294 (B2) for a total of 447 CF. Watershed B2 can be allowed to free discharge if you handle the volume in SWQP #2 and payment-in-lieu will not be needed for watershed B2.

12. Standard review fee of $150 will be required at the time of resubmittal. When resubmitting, please just ask for Site Plan for Building Permit approval. Once the site plan is approved by the DRB, then ask for Building Permit, Grading Permit, and SO-19 Permit approval.

As a reminder prior to Building Permit approval, please add flowline elevations along the curbing at the corners, radius points, and along the existing curbing on the adjacent roadways.

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

Sincerely,

Renée C. Brissette

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

PO Box 1293

Albuquerque

NM 87103

www.cabq.gov

# City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 6/2018)

**Project Title:** Maverik Juan Tabo & Copper Building Permit #: _____ Hydrology File #: _____

DRB#: _____ EPC#: _____ Work Order#: _____

Legal Description: * A 8 REDIVISION OF BLK 8 LA CUESTA SUBD and *B REDIVISION BLK 8 LA CUESTA SUBDIVISION

City Address: 650 and 670 Juan Tabo Blvd. NE 87123

**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 X ADMIN SITE

IS THIS A RESUBMITTAL? _____ Yes X No

**DEPARTMENT** _____ TRANSPORTATION X HYDROLOGY/DRAINAGE

Check all that Apply:

**TYPE OF SUBMITTAL:**

____ ENGINEER/ARCHITECT CERTIFICATION
____ PAD CERTIFICATION
____ CONCEPTUAL G & D PLAN
X GRADING PLAN
X 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
X SITE PLAN FOR BLDG. PERMIT APPROVAL
____ FINAL PLAT APPROVAL

____ SIA/ RELEASE OF FINANCIAL GUARANTEE
____ FOUNDATION PERMIT APPROVAL
X GRADING PERMIT APPROVAL
X SO-19 APPROVAL
____ PAVING PERMIT APPROVAL
____ GRADING/ PAD CERTIFICATION
____ WORK ORDER APPROVAL
____ CLOMR/LOMR
____ FLOODPLAIN DEVELOPMENT PERMIT
____ OTHER (SPECIFY) _____

DATE SUBMITTED: 1/30/2019 By: Richard Stevenson

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COA STAFF: ELECTRONIC SUBMITTAL RECEIVED: _____

FEE PAID: _____

DRAINAGE REPORT

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

Prepared for:

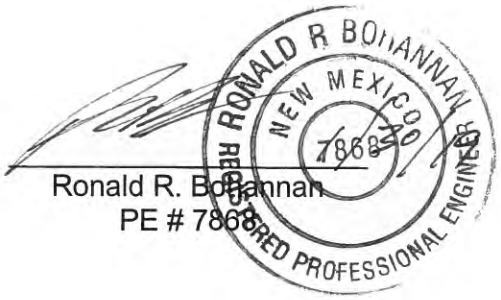
Maverik, Inc.
185 South State Street,
Salt Lake City, Utah 84111

Prepared by:

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

January, 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. Bohannan
PE # 7868

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Job No. 2018046

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## Contents



## Appendices

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## Purpose

The purpose of this report is to outline the Drainage Plan and present a solution for the re-development 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 80$^{th}$ percentile flows from the site. These provisions are included in the proposed drainage solution.

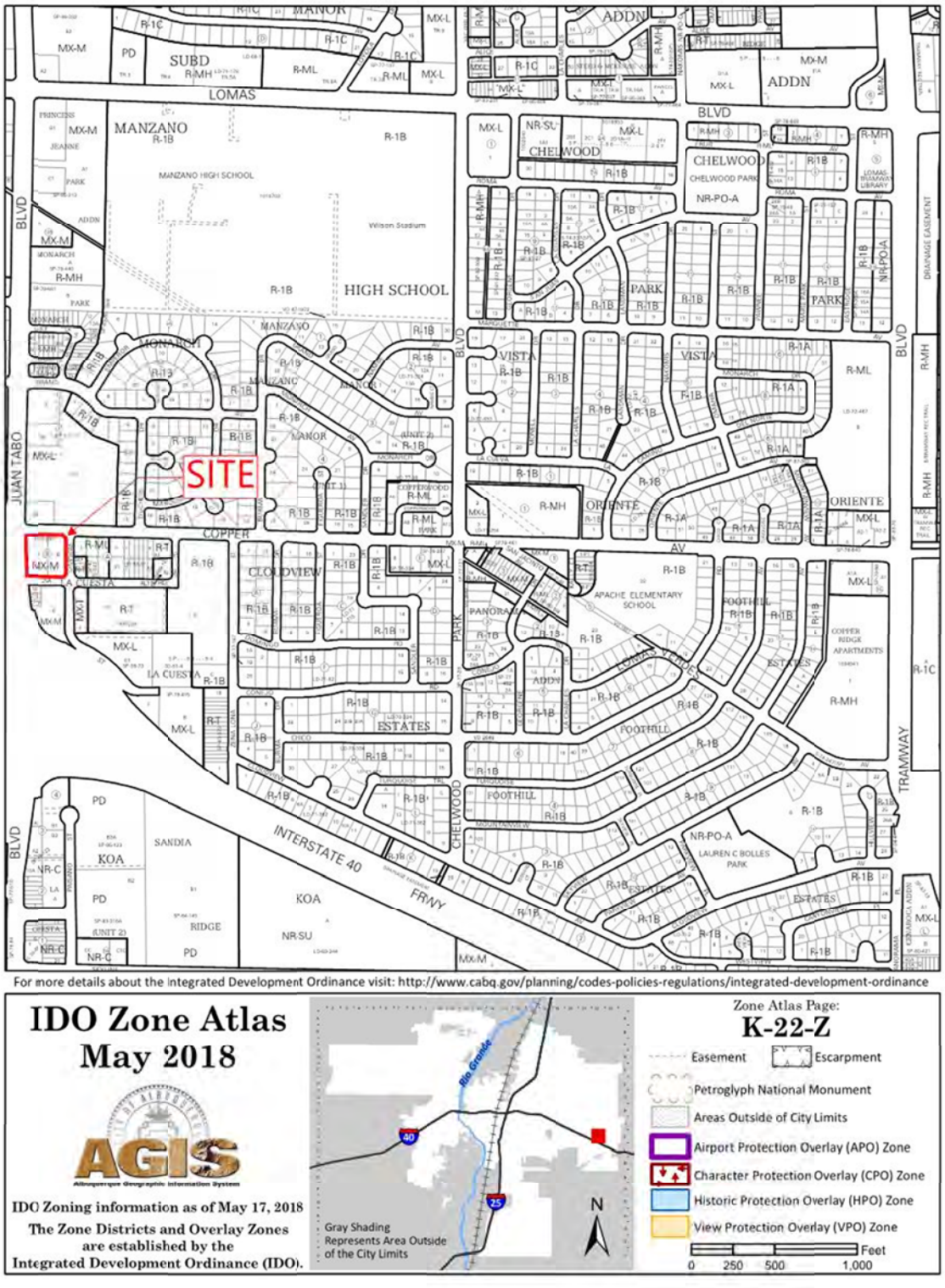
## Location and Background

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 stip 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.




## 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 35001C0359G dated September 26, 2008 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 property frontage along Juan Tabo Blvd. is detailed with a 1.0-foot depth flood level in Zone AO. Public improvements within the right-or-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.

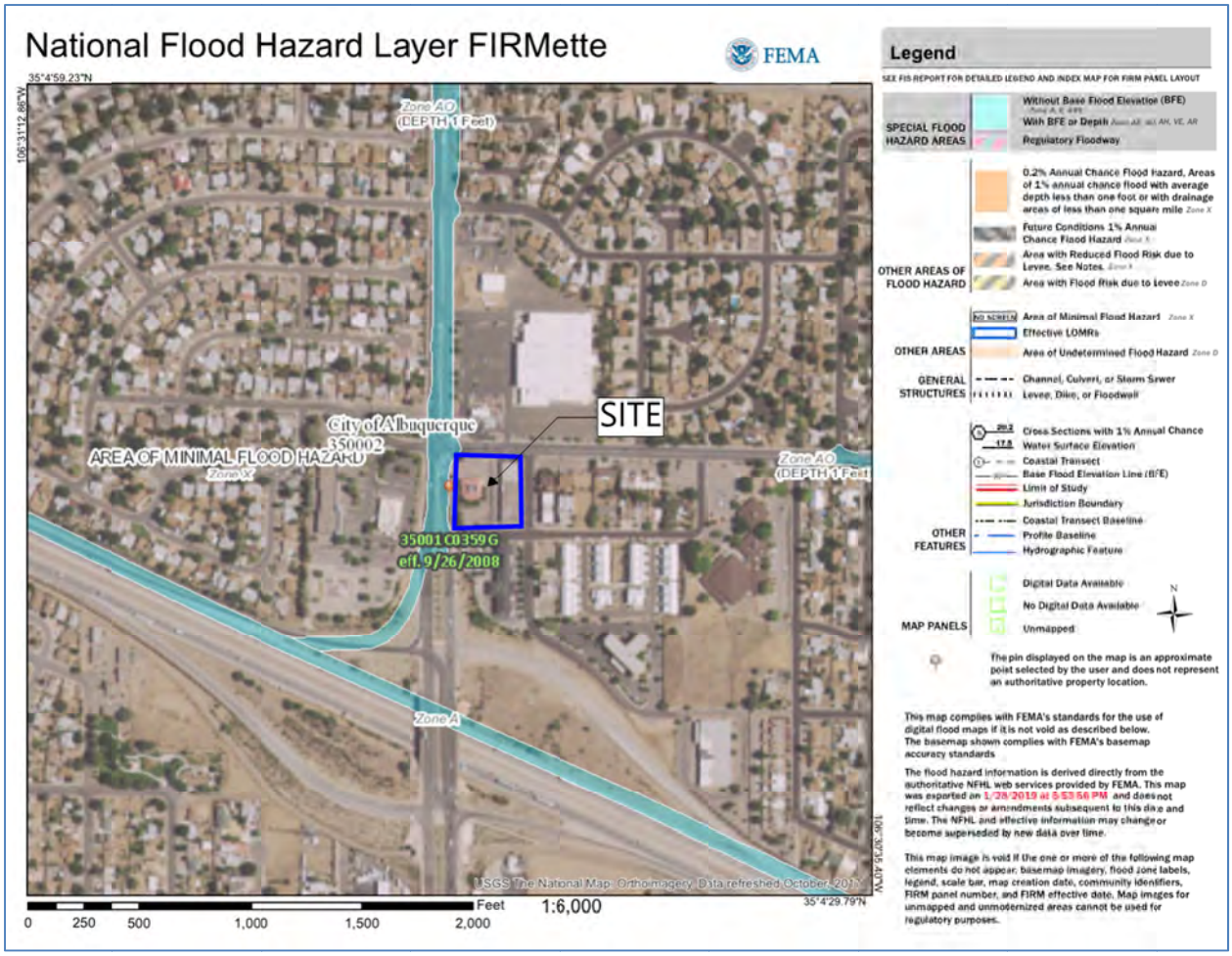



**Exhibit C – FIRM Map**

## 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 $80^{th}$ 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.

## Proposed Conditions

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 a Storm Water Quality Pond (SWQP). The sheet flow is directed to the 3.5-foot curb opening with the curb and gutters and is allowed to pass into the SWQP with a concrete rundown. The stormwater will then discharge to the street at Juan Tabo Blvd. via 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 and backfilling the stormwater quality pond as the invert elevation is outside the recorded FEMA flood zone elevation. The runoff discharged into the street will then sheet flow 310 feet south to the existing stormdrain 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 proposed driveway entrance. A total of 225 cubic feet which cannot be retained in a SWQP is therefore generates a payment in lieu of $1,800.

Basin B3 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.

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 450 gallon capacity. The oil water separator is a precast concrete vault that uses gravitational separation to improve the separation process of the oil water runoff which passes through before entering into the sewer system. This approach also reduces the frequency required for maintenance and cleaning. Included in the appendix is the oil water separator specification sheet. The proposed 450 gallon oil water separator is adequate to capture any major fuel spill/s that may occur during operations at the site.

## 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*45,560*(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 1,376 cubic feet.

Basin B2 requires a SWQV retention of 225 cubic feet but due to the driveway grades and limited landscaping in the south west corner of the site this runoff freely discharges into Juan Tabo Blvd. Therefore a payment in lieu fee of $1,800 is generated and will be payed to the COA at the time of hydrology approval.

Basin B3 is routed through a 1,896 cubic foot SWQV retention pond. The required retention is 117 cubic feet. The additional volume is provided as there is favorable landscaping area that can be utilized for ponding and stormwater management. 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, 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** |
|---|---|
| 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 |

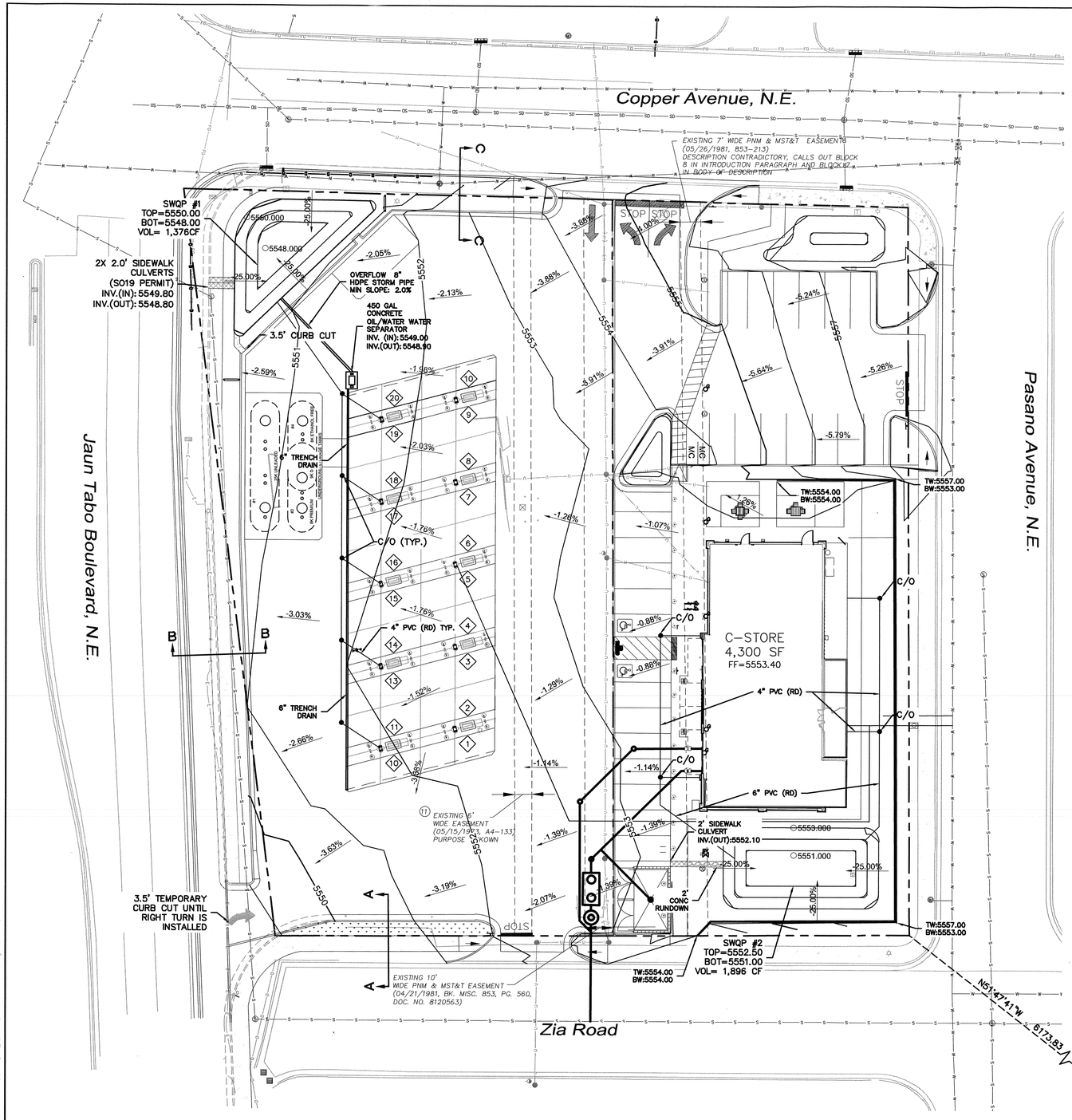
## Summary

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 discharge from Basin B1 and B3 pass through the required SWQV retention ponds before freely discharging into Juan Tabo Blvd. The runoff generated from B2 does not pass through a SWQV pond and therefore generates a payment in lieu fee.

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 450 gallon oil-water separator before discharging into the surface SWQV pond.

# APPENDIX A



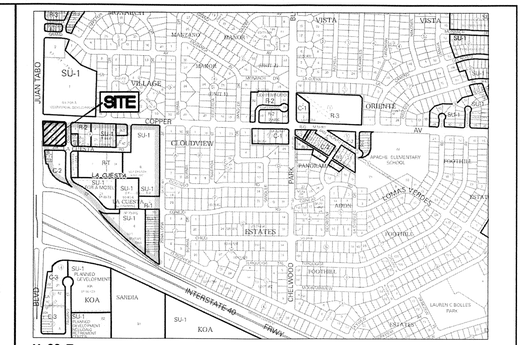

GRAPHIC SCALE

20 10 0 10 20

SCALE: 1"=20'

## LEGEND

- EXISTING CURB & GUTTER
- BOUNDARY LINE
- EASEMENT
- EXISTING SIDEWALK
- W — EXISTING WATER LINE
- SD — EXISTING STORM LINE
- Ⓓ EXISTING STORM MANHOLE
- EXISTING STORM INLET
- S — EXISTING SAS LINE
- Ⓢ EXISTING SAS MANHOLE
- W — EXISTING WATER LINE
- EXISTING WATER VALVE
- U — EXISTING OVERHEAD POWER LINE
- EXISTING POWER POLE
- E — EXISTING ELECTRIC LINE
- EXISTING WALL
- [E] EXISTING ELECTRICAL BOX
- EXISTING TRANSFORMER
- EXISTING LIGHT STANDARD
- [T] EXISTING TELEPHONE PEDESTAL
- SIDEWALK
- RETAINING WALL
- 5010 — CONTOUR MAJOR
- 5011 — CONTOUR MINOR
- x 5048.25 — SPOT ELEVATION (FLOWLINE)
- EXISTING BOUNDARY LINE
- 5010 — EXISTING CONTOUR MAJOR
- EXISTING CONTOUR MINOR
- x 5048.25 — EXISTING SPOT ELEVATION




**PRIVATE DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY NOTICE TO CONTRACTOR (SPECIAL ORDER 19 "80-19")**

1. AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT-OF-WAY.
2. ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED, EXCEPT AS OTHERWISE STATED OR PROVIDED HERON, SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF ALBUQUERQUE INTERIM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 1985.
3. TWO WORKING DAYS PRIOR TO ANY EXCAVATION, THE CONTRACTOR MUST CONTACT NEW MEXICO ONE CALL, DIAL "811" [OR (505) 260-1990] FOR THE LOCATION OF EXISTING UTILITIES.
4. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL CONNECTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL
5. NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
6. BACKFILL COMPACTION SHALL BE ACCORDING TO TRAFFIC/STREET USE.
7. MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY SERVED.
8. WORK ON ARTERIAL STREETS SHALL BE PERFORMED ON A 24-HOUR BASIS.
9. CONTRACTOR MUST CONTACT JASON RODRIGUEZ AT 235-8016 AND CONSTRUCTION COORDINATION AT 924-3416 TO SCHEDULE AN INSPECTION.

**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.

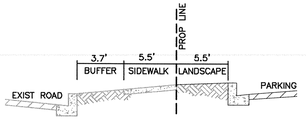
*A.G.R.S. MONUMENT "2_L22"*
*STANDARD C.O.A. BRASS DISC*
*(FOUND IN PLACE)*
*NEW MEXICO STATE PLANE COORDINATES*
*(CENTRAL ZONE-N.A.D. 1983)*
*N=1,480,207.321 US SURVEY FEET*
*E=1,566,235.48 US SURVEY FEET*
*PUBLISHED EL=5222.09 US SURVEY FT (NAVD 1988)*
*GROUND TO GRID FACTOR=0.999639275*
*DELTA ALPHA ANGLE=-0°08'32.78"*

**CAUTION:**

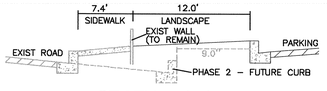
ALL EXISTING UTILITIES SHOWN WERE OBTAINED FROM RESEARCH, AS-BUILTS, SURVEYS OR INFORMATION PROVIDED BY OTHERS. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO CONDUCT ALL NECESSARY FIELD INVESTIGATIONS PRIOR TO AND INCLUDING ANY EXCAVATION, TO DETERMINE THE ACTUAL LOCATION OF UTILITIES AND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

**NOTES:**

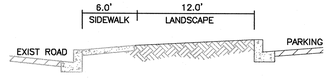
1. ALL EXISTING EASEMENTS WILL BE VACATED BY DOCUMENT.
2. A DRAINAGE COVENANT FOR THE SWQV PONDS AND OIL/WATER SEPARATOR WILL BE SUBMITTED TO THE COA PRIOR TO CERTIFICATE OF OCCUPANCY.
3. REFER TO DRAINAGE PLAN SHEET C3 FOR BMP MAINTENANCE NOTES AND PROPERTY OWNER RESPONSIBILITIES.
4. ALL OFFSITE PAVING, 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 NMDOT AND COA.




SECTION A-A




SECTION B-B




SECTION C-C

MAVERIK

ENGINEER'S SEAL

RONALD R. BOHANNAN NEW MEXICO 7868 REGISTERED PROFESSIONAL ENGINEER 1-29-19

RONALD R. BOHANNAN P.E. #7868

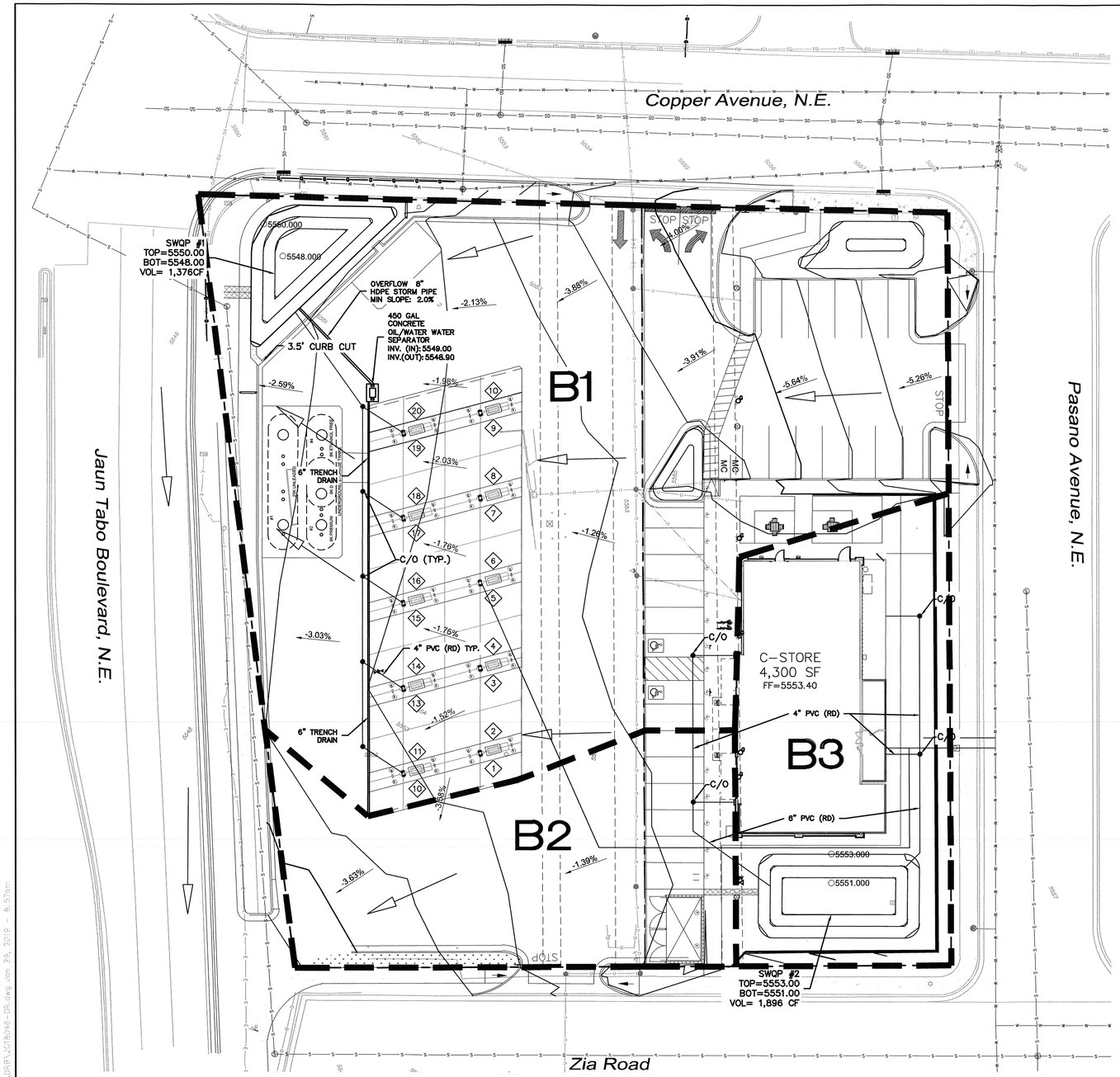
MAVERIK
650 JUAN TABO BLVD. NE

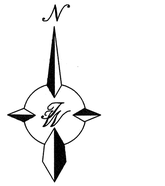
GRADING PLAN

DRAWN BY: prn
DATE: 1-29-19
DRAWING: 2018046-GR
SHEET #: C2
JOB #: 2018046

TIERRA WEST, LLC
5571 MIDWAY PARK PL NE
ALBUQUERQUE, NEW MEXICO 87109
(505) 858-3100
www.tierrawestllc.com

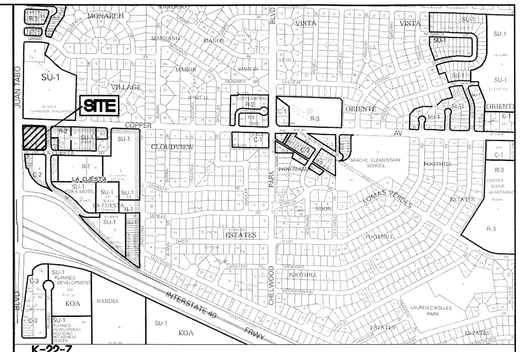
Z:\2018\2018046 Maverik Juan Tabo & Copper\dwg\DRB\2018046-GR.dwg Jan 29, 2019 - 9:08am




## 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





FIRM MAP 35001C0359G DATED SEPTEMBER 26, 2008

### 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. 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 |

| 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 | 1.567 | 0.121 | 3.12 | 1,032 | 1,376 |
| 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 | 1.690 | 0.034 | 0.85 | 294 | - |
| 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 | 153 | 1,896 |
| Total | 61,754 | 1.418 | 0.00222 | | 0.000 | | 0.217 | | 0.000 | | 1.200 | | 0.284 | 6.936 | | 0.177 | 4.600 | 1,480 | 3,272 |

**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 = ΣArea in "Treatment D"
Retainage depth = 0.28" 0.0233 foot
Retention Volume = **=0.0233 x area** CF

**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

ENGINEER'S SEAL
RONALD R BOHANNAN
NEW MEXICO
7868
REGISTERED PROFESSIONAL ENGINEER

RONALD R. BOHANNAN
P.E. #7868

MAVERIK
650 JUAN TABO BLVD. NE
DRAINAGE PLAN

DRAWN BY: pm
DATE: 1-29-19
DRAWING: 2018046-DR
SHEET #: C3
JOB #: 2018046

TIERRA WEST, LLC
5571 MIDWAY PARK PL NE
ALBUQUERQUE, NEW MEXICO 87109
(505) 858-3100
www.tierrawestllc.com

Z:\2018\2018046 Maverik Juan Tabo & Copper\dwg\DRER\2018046-DR.dwg, Jan 29, 2019 - 6:57pm

## DPM Weighted E Method

**Precipitation Zone 4**
**Juan Tabo and Copper**

**TWLLC** **Date** 1/3/2019

**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) | 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 | 1.567 | 0.121 | 3.12 | 790 | 1,376 |
| 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 | 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 | 1.075 | 0.022 | 0.62 | 117 | 1,896 |
| **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** | **3,272** |

**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*43,560*(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 |

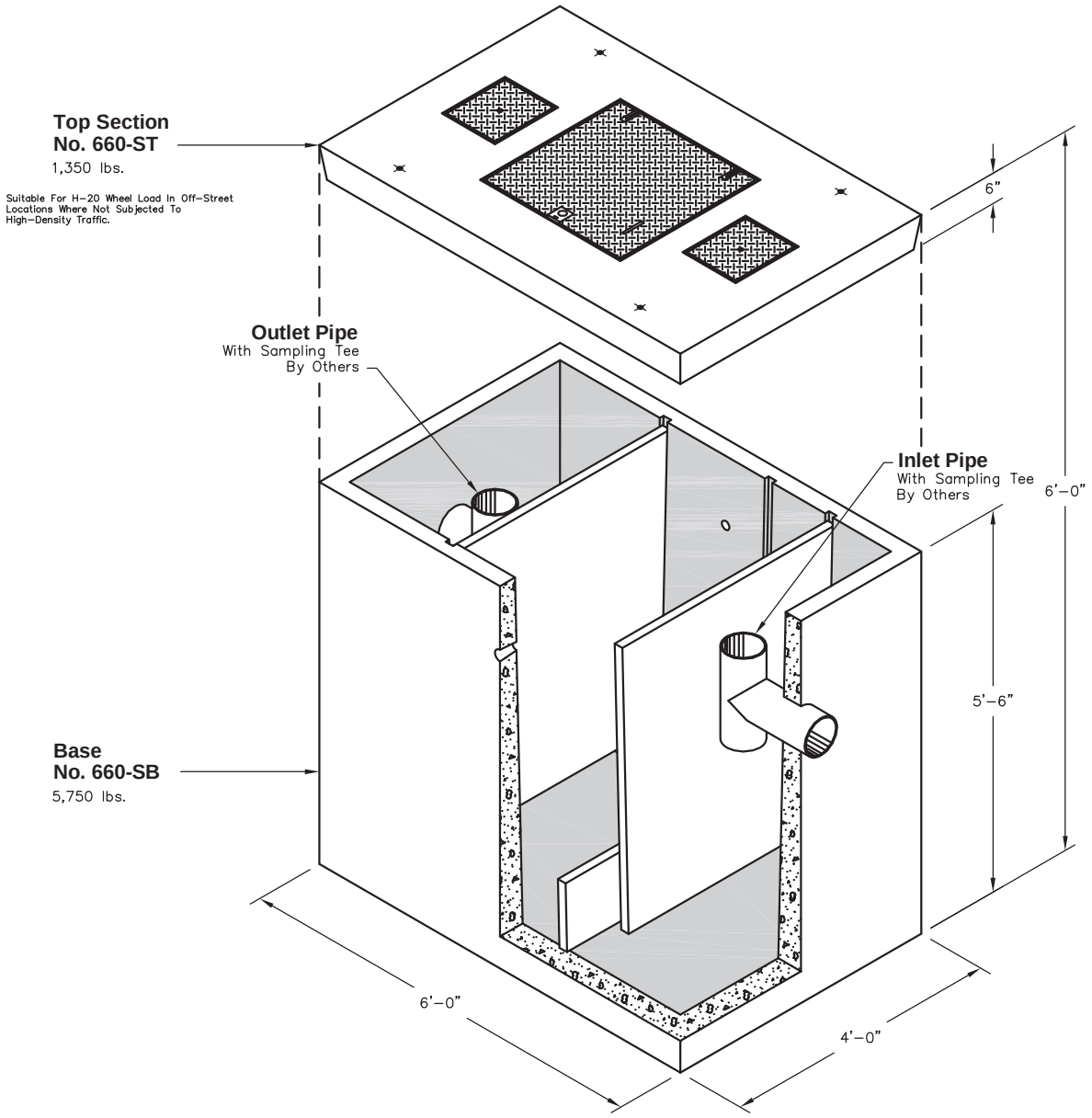
| Peak Discharge (cfs/acre) | | |
|---|---|---|
| Zone 4 | 100-Year | 10-Year |
| Qa | 2.2 | 0.87 |
| Qb | 2.92 | 1.45 |
| Qc | 3.73 | 2.26 |
| Qd | 5.25 | 3.57 |

Pipe Capacity

| Pipe | D | Slope | Area | R | Q Provided | Velocity |
|---|---|---|---|---|---|---|
| | (in) | (%) | (ft^2) | | (cfs) | (ft/s) |
| PVC | 4 | 1.00 | 0.09 | 0.083 | 0.23 | 2.58 |
| PVC | 6 | 1.00 | 0.20 | 0.125 | 0.66 | 3.39 |
| HDPE | 8 | 1.50 | 0.35 | 0.167 | 1.48 | 4.25 |
| HDPE | 24 | 1.40 | 3.14 | 0.500 | 26.84 | 8.54 |

# 660-SA OIL WATER SEPARATOR

450 Gallon Capacity




Non Skid Covers Available

**FOR DETAILS, SEE REVERSE>>**

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



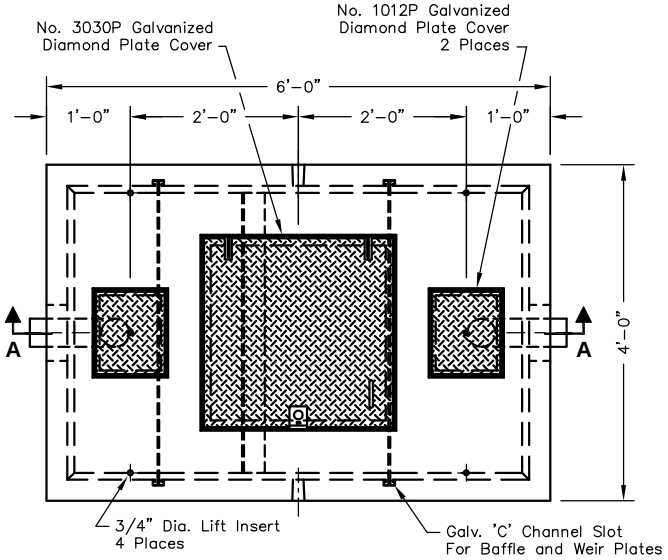


**Mailing Address**
PO Box 588
Auburn, WA 98071

**Phone:** 800-892-1538
**Fax:** 253-735-4201
**Email:** opauburn@oldcastle.com

opauburn.com

# 660-SA




**PLAN VIEW**

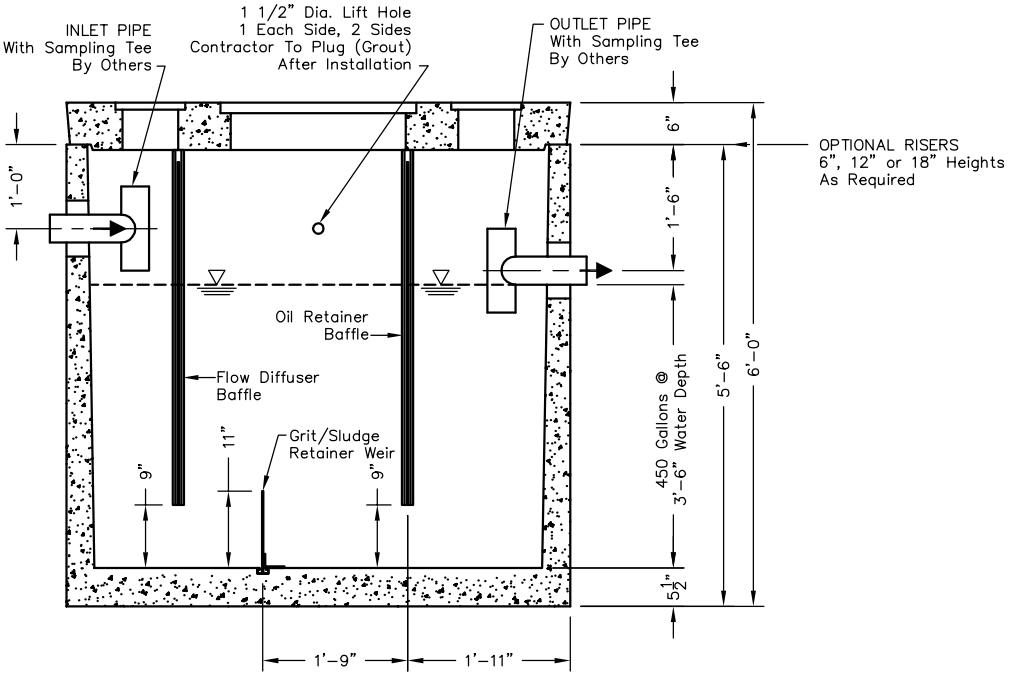
STRUCTURAL NOTES:

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:




**SECTION AA**

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 for Retention Pond**

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.

# 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

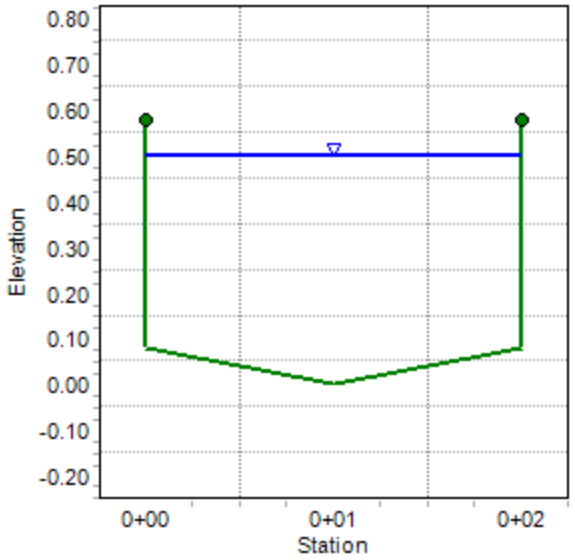
## Project Description

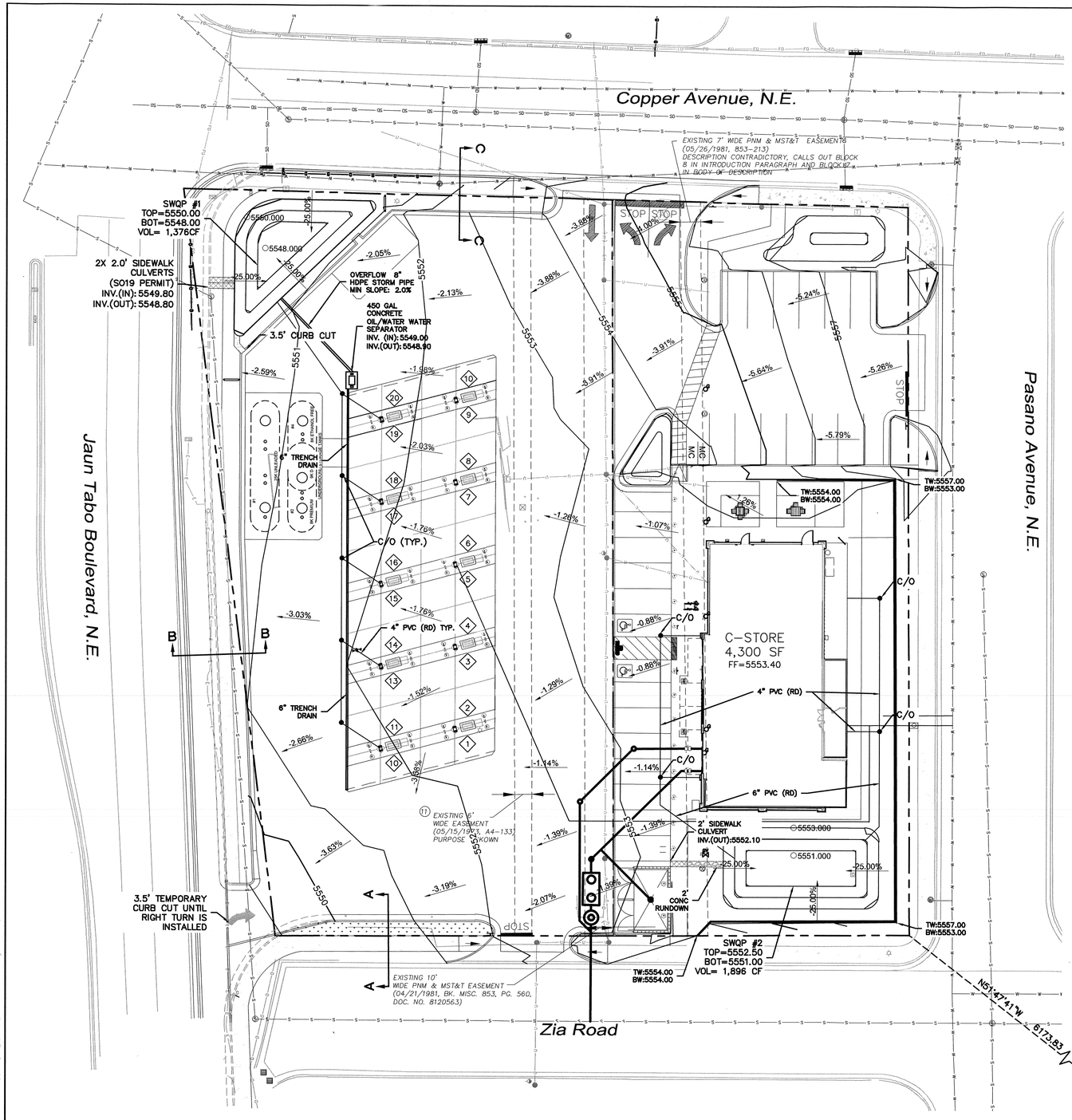
| | |
|---|---|
| Friction Method | Manning Formula |
| Solve For | Discharge |

## Input Data

| | | |
|---|---|---|
| Channel Slope | 0.02000 | ft/ft |
| Normal Depth | 0.50 | ft |
| Discharge | 6.97 | ft³/s |

## Cross Section Image





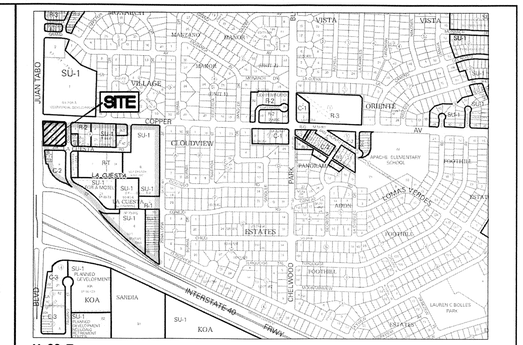

GRAPHIC SCALE

20 10 0 10 20

SCALE: 1"=20'

## LEGEND

- EXISTING CURB & GUTTER
- BOUNDARY LINE
- EASEMENT
- EXISTING SIDEWALK
- W — EXISTING WATER LINE
- SD — EXISTING STORM LINE
- Ⓓ EXISTING STORM MANHOLE
- EXISTING STORM INLET
- S — EXISTING SAS LINE
- Ⓢ EXISTING SAS MANHOLE
- W — EXISTING WATER LINE
- EXISTING WATER VALVE
- U — EXISTING OVERHEAD POWER LINE
- EXISTING POWER POLE
- E — EXISTING ELECTRIC LINE
- EXISTING WALL
- [E] EXISTING ELECTRICAL BOX
- EXISTING TRANSFORMER
- EXISTING LIGHT STANDARD
- [T] EXISTING TELEPHONE PEDESTAL
- SIDEWALK
- RETAINING WALL
- 5010 — CONTOUR MAJOR
- 5011 — CONTOUR MINOR
- x 5048.25 — SPOT ELEVATION (FLOWLINE)
- EXISTING BOUNDARY LINE
- 5010 — EXISTING CONTOUR MAJOR
- EXISTING CONTOUR MINOR
- x 5048.25 — EXISTING SPOT ELEVATION




**PRIVATE DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY NOTICE TO CONTRACTOR (SPECIAL ORDER 19 "80-19")**

1. AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT-OF-WAY.
2. ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED, EXCEPT AS OTHERWISE STATED OR PROVIDED HERON, SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF ALBUQUERQUE INTERIM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 1985.
3. TWO WORKING DAYS PRIOR TO ANY EXCAVATION, THE CONTRACTOR MUST CONTACT NEW MEXICO ONE CALL, DIAL "811" [OR (505) 260-1990] FOR THE LOCATION OF EXISTING UTILITIES.
4. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL CONNECTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL
5. NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
6. BACKFILL COMPACTION SHALL BE ACCORDING TO TRAFFIC/STREET USE.
7. MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY SERVED.
8. WORK ON ARTERIAL STREETS SHALL BE PERFORMED ON A 24-HOUR BASIS.
9. CONTRACTOR MUST CONTACT JASON RODRIGUEZ AT 235-8016 AND CONSTRUCTION COORDINATION AT 924-3416 TO SCHEDULE AN INSPECTION.

**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.

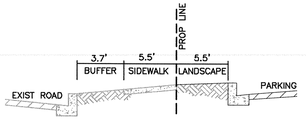
*A.G.R.S. MONUMENT "2_L22"*
*STANDARD C.O.A. BRASS DISC*
*(FOUND IN PLACE)*
*NEW MEXICO STATE PLANE COORDINATES*
*(CENTRAL ZONE-N.A.D. 1983)*
*N=1,480,207.321 US SURVEY FEET*
*E=1,566,235.48 US SURVEY FEET*
*PUBLISHED EL=5222.09 US SURVEY FT (NAVD 1988)*
*GROUND TO GRID FACTOR=0.999639275*
*DELTA ALPHA ANGLE=-0°08'32.78"*

**CAUTION:**

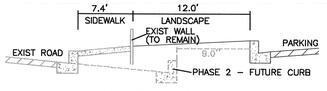
ALL EXISTING UTILITIES SHOWN WERE OBTAINED FROM RESEARCH, AS-BUILTS, SURVEYS OR INFORMATION PROVIDED BY OTHERS. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO CONDUCT ALL NECESSARY FIELD INVESTIGATIONS PRIOR TO AND INCLUDING ANY EXCAVATION, TO DETERMINE THE ACTUAL LOCATION OF UTILITIES AND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

**NOTES:**

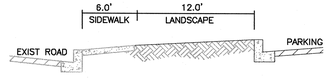
1. ALL EXISTING EASEMENTS WILL BE VACATED BY DOCUMENT.
2. A DRAINAGE COVENANT FOR THE SWQV PONDS AND OIL/WATER SEPARATOR WILL BE SUBMITTED TO THE COA PRIOR TO CERTIFICATE OF OCCUPANCY.
3. REFER TO DRAINAGE PLAN SHEET C3 FOR BMP MAINTENANCE NOTES AND PROPERTY OWNER RESPONSIBILITIES.
4. ALL OFFSITE PAVING, 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 NMDOT AND COA.




SECTION A-A




SECTION B-B




SECTION C-C

MAVERIK

ENGINEER'S SEAL

RONALD R. BOHANNAN NEW MEXICO 7868 REGISTERED PROFESSIONAL ENGINEER 1-29-19

RONALD R. BOHANNAN P.E. #7868

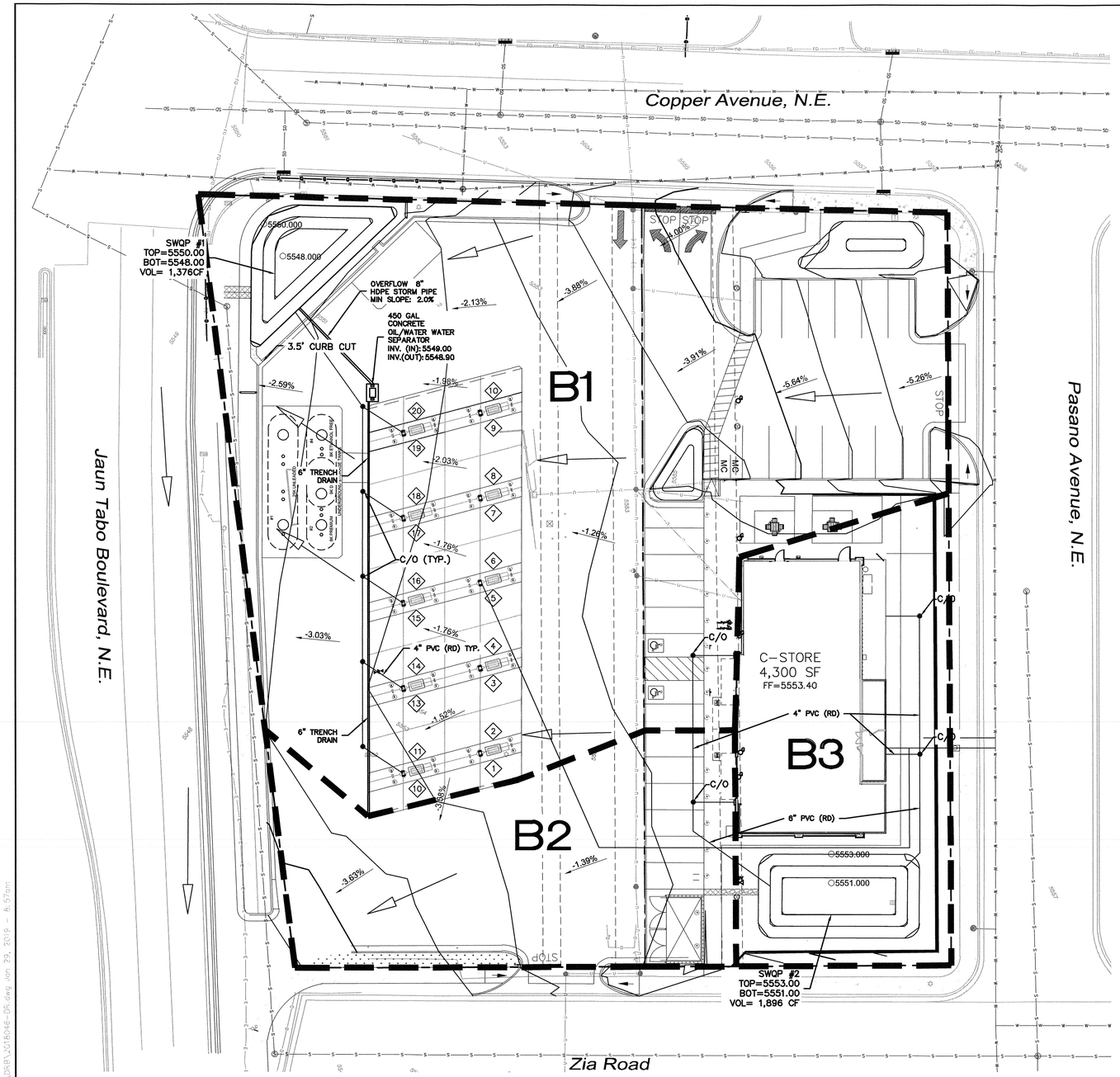
MAVERIK
650 JUAN TABO BLVD. NE

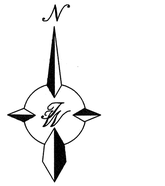
GRADING PLAN

DRAWN BY: prn
DATE: 1-29-19
DRAWING: 2018046-GR
SHEET #: C2
JOB #: 2018046

TIERRA WEST, LLC
5571 MIDWAY PARK PL NE
ALBUQUERQUE, NEW MEXICO 87109
(505) 858-3100
www.tierrawestllc.com

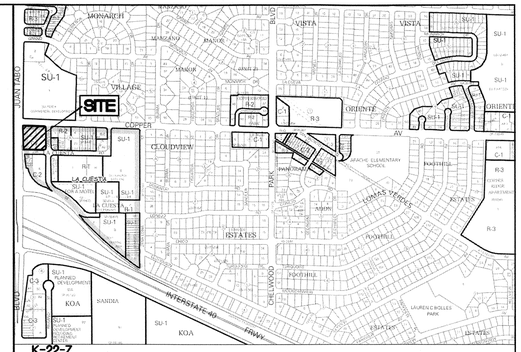
Z:\2018\2018046 Maverik Juan Tabo & Copper\dwg\DRB\2018046-GR.dwg Jan 29, 2019 - 9:08am




## 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





FIRM MAP 35001C0359G DATED SEPTEMBER 26, 2008

### 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. 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 |

| 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 | 1.567 | 0.121 | 3.12 | 1,032 | 1,376 |
| 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 | 1.690 | 0.034 | 0.85 | 294 | - |
| 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 | 153 | 1,896 |
| Total | 61,754 | 1.418 | 0.00222 | | 0.000 | | 0.217 | | 0.000 | | 1.200 | | 0.284 | 6.936 | | 0.177 | 4.600 | 1,480 | 3,272 |

**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 = ΣArea in "Treatment D"
Retainage depth = 0.28" 0.0233 foot
Retention Volume = **=0.0233 x area** CF

**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

ENGINEER'S SEAL
RONALD R BOHANNAN
NEW MEXICO
7868
REGISTERED PROFESSIONAL ENGINEER

RONALD R. BOHANNAN
P.E. #7868

MAVERIK
650 JUAN TABO BLVD. NE
DRAINAGE PLAN

DRAWN BY: pm
DATE: 1-29-19
DRAWING: 2018046-DR
SHEET #: C3
JOB #: 2018046

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