CITY OF ALBUQUER

Planning Department
Alan Varela, Director

Mayor Timothy M. Keller

October 11, 2022

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

RE: Golf course + Westside Commercial Subdivision
10850 Golf Course R. NW
Grading and Drainage Plan
Engineer's Stamp Date: 9/14/22
Hydrology File: A12D008B2

Dear Mr. Bohannan:

PO Box 1293

Albuquerque

NM 87103

www.cabq.gov

Based upon the information provided in your submittal received on 9/21/2022, the Grading & Drainage Plan is **not** approved for action by the DRB on Preliminary Plat. The following comments need to be addressed for approval of the above-referenced project:

1. A more detailed Drainage Report and Grading Plan are required prior to Hydrology approval for action by the DRB. An Infrastructure List and Preliminary Plat must also be reviewed by Hydrology and approved for action by the DRB. Design calculations for all of the storm drainage infrastructure must be included in this G&D application for subdivision approval. Common storm drain inlets, pipes, manholes, junctions, and pond outlets structures must be identified on the Grading Plan and Drainage Basin Map.
2. The application form shows this application to be for "Site Plan for Subdivision", this type of DRB hearing hasn't existed since the IDO replaced the old zoning ordinance. It appears that the application then, is for Preliminary Plat. This application is only being considered for subdivision purposes at this time, not for building permits(s), so buildings shouldn't be shown. This review assumes that the G&D Plan labeled as "Interim" will be the responsibility of the subdivision developer. The term interim can be dropped from the title as this will be the only G&D plan for the subdivision.
3. Ponds 1, 2, 3, and 4 appear to be included as part of the subdivision infrastructure and, as such, should include permanent pond stabilization, and all developed stormwater runoff should be directed into a non-erosive inlet structure constructed with the infrastructure. The pond outfall structures will also be part of the infrastructure, and detailed hydraulic design calculations will be required with this submittal. Hydraulic capacity calculations and construction details of inlet and outlet structures for Ponds 1, 2, 3, and 4 are missing. Alternatively, these ponds may be deferred to the site development of each lot at the time of Building Permit, so this subdivision would only construct storm sewer stub-outs to each lot and a temporary 100-yr retention pond on each lot that would serve both the purpose of temporary stormwater control and Erosion and Sediment Control. A specific

design for each pond should be provided now as part of a master drainage plan for this subdivision, whether the final construction of the ponds is a subdivision or building permit requirement.

4. Stormwater Quality Volume (SWQV) must be provided in the form of retention, not detention. If combining the SWQ volume calculations with the simplified hydrology for small watersheds, DPM Section 6-2(A) (7), method of calculation detention volumes, then the two volumes should be conservatively added together. AHYMO 24-hr pond routing may be used instead of the simplified method to reduce the total required volume, provided that none of the detention volume is used to satisfy the SWQV requirement. Peak flow limitations are due to the limited capacity of the storm drain through the Wintergreen Apartments, not the limited capacity of Blacks Arroyo, so instead of reducing the peak flow rates from this subdivision, it may be possible to find another way to pass the peak flow rates through the Apartment site without providing detention.
5. Drainage easements, including beneficiary and maintenance responsibilities, must be shown on the Preliminary Plat and on the Grading Plan. Provide similar documentation for the offsite downstream drainage easement.
6. The SWQV calculations are missing for basins D1, D2, D3, and D4. There has been no attempt to provide the SWQV for D5, but SWQV must be provided for all impervious areas. The SWQV for the undeveloped lots may be deferred to the site development of each lot at the time of the Building Permit; however, cross-lot drainage issues need to be resolved with this subdivision.
7. The drainage basin boundaries need to match the grading. Presently the basin boundaries are on the lot lines, thus indicating that there will be no cross-lot drainage and that each lot drains to its own pond and then into the common storm drain system. However, the grades show the west portion of basin D1 drains into D2 and not into Pond 1. The west perimeter slopes drain to offsite, and the south side of each lot has some slope draining across the lot line. Identify how cross-lot drainage will be prevented or identify cross-lot drainage easements with beneficiary and maintenance.
8. If this project increases the peak flow rate in the '*Drainage Report for Wintergreen Apartments*' into the Blacks Arroyo, an Albuquerque Metropolitan Arroyo and Flood Control Authority (AMAFCA) facility, approval by AMAFCA will be needed prior to Hydrology approval. Please contact Jared Romero P.E, CFM (jromero@amafca.org or 505-884-2215).
9. Please provide the Benchmark information (location, description, and elevation) for the survey contour information provided.
10. Provide sections through all external boundaries showing proposed retaining walls, garden walls, property/ROW lines, and existing and proposed grades. In accordance with DPM Ch.22, section 5 part B, grading and wall construction near the property line may not endanger adjacent property or constrain its use.
11. Please provide the legal description of the property.
12. As a reminder, if the project's 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 (Doug Hughes, PE, jhughes@cabq.gov, 924-3420) 14 days prior to any earth disturbance.

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PRIOR TO RELEASE OF THE FINANCIAL GUARANTEES ASSOCIATED WITH THE IIA

13. Engineer's Certification, per the DPM Part 6-14 (G): *Engineer's Certification Checklist For Subdivision is required*.
14. Please provide the Drainage Covenant with Exhibit A for the SWQ ponds per Article 6-15(C) of the DPM prior to the release of the IIA and Financial Guarantees. Please submit the original copies along with the **$ 25.00** recording fee check made payable to Bernalillo County to Carrie Compton (cacompton@cabq.gov) on the 4th floor of Plaza de Sol.

If you have any questions, please contact me at 924-3420 or jhughes@cabq.gov .

Sincerely,

James D. Hughes

James D. Hughes, P.E., CPESC
Principal Engineer, Planning Dept.
Development and Review Services

PO Box 1293

Albuquerque

NM 87103

www.cabq.gov

C: file

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

Project Title: Golf Course & Westside Blvd. **Building Permit #**_____ **Hydrology File #**_____
DRB#_____ **EPC#**_____
Legal Description: TR D-1 PLAT OF TRS D-1, E-1 AMAFCA BLACK ARROYO CHANNEL ROW PARADISE HEIGHTS UNIT 1 City Address OR Parcel 10120665048211303
10850 Golf Course Rd NW Albuquerque, NM 87114

Applicant/Agent: Tierra West, LLC **Contact:** Luis Noriega
Address: 5571 Midway Park Place NE **Phone:** 505-858-3100
Email: lnoriega@tierrawestllc.com

Applicant/Owner: _____ **Contact:** _____
Address: _____ **Phone:** _____
Email: _____

TYPE OF DEVELOPMENT: ___PLAT (#of lots) __RESIDENCE __DRB SITE X__ ADMIN SITE: ____
RE-SUBMITTAL: _____YES __X__ NO

DEPARTMENT: _____TRANSPORTATION __X__ HYDROLOGY/DRAINAGE
Check all that apply:

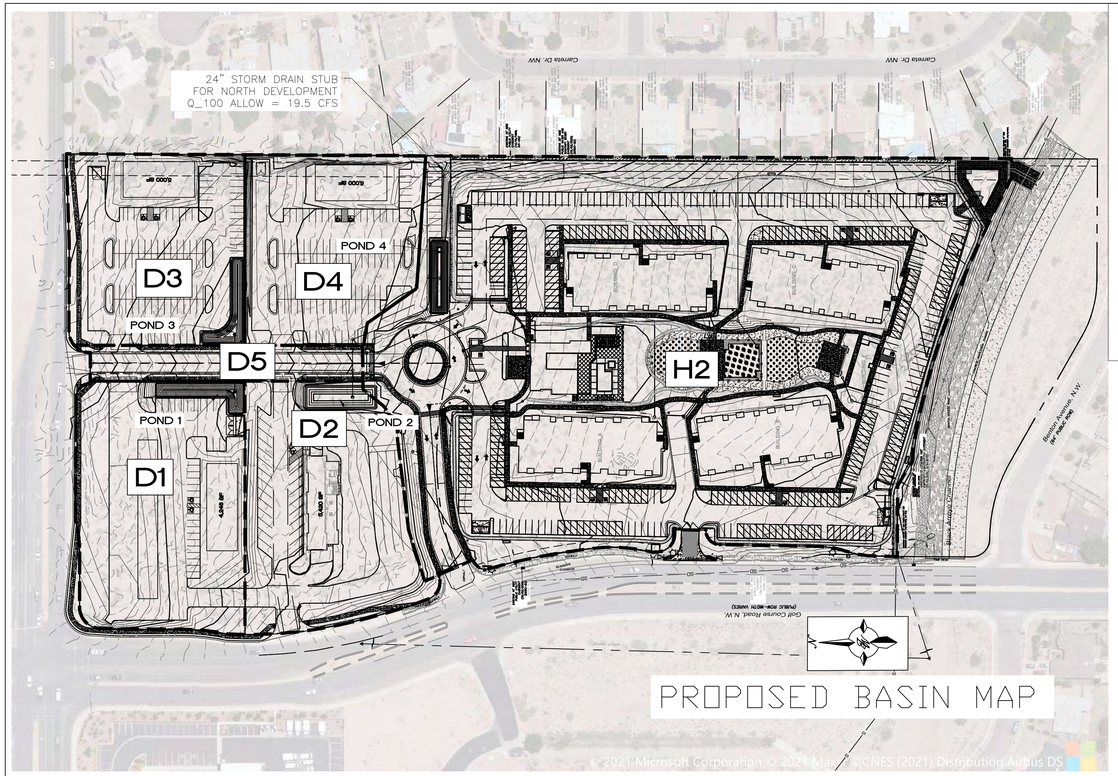
TYPE OF SUBMITTAL:

___ENGINEER/ARCHITECT CERTIFICATION
___PAD CERTIFICATION
X CONCEPTUAL G&D PLAN
___GRADING PLAN
___DRAINAGE REPORT
___DRAINAGE MASTER PLAN
___FLOOD PLAN DEVELOPMENT PERMIT APP.
___ELEVATION CERTIFICATE
___CLOMR/LOMR
___TRAFFIC CIRCULATION LAYOUT (TCL) ADMINISTRATIVE
___TRAFFIC CIRCULATION LAYOUT FOR DRB APPROVAL
___TRAFFIC IMPACT STUDY (TIS)
___STREET LIGHT LAYOUT
___OTHER (SPECIFY)
___PRE-DESIGN MEETING?

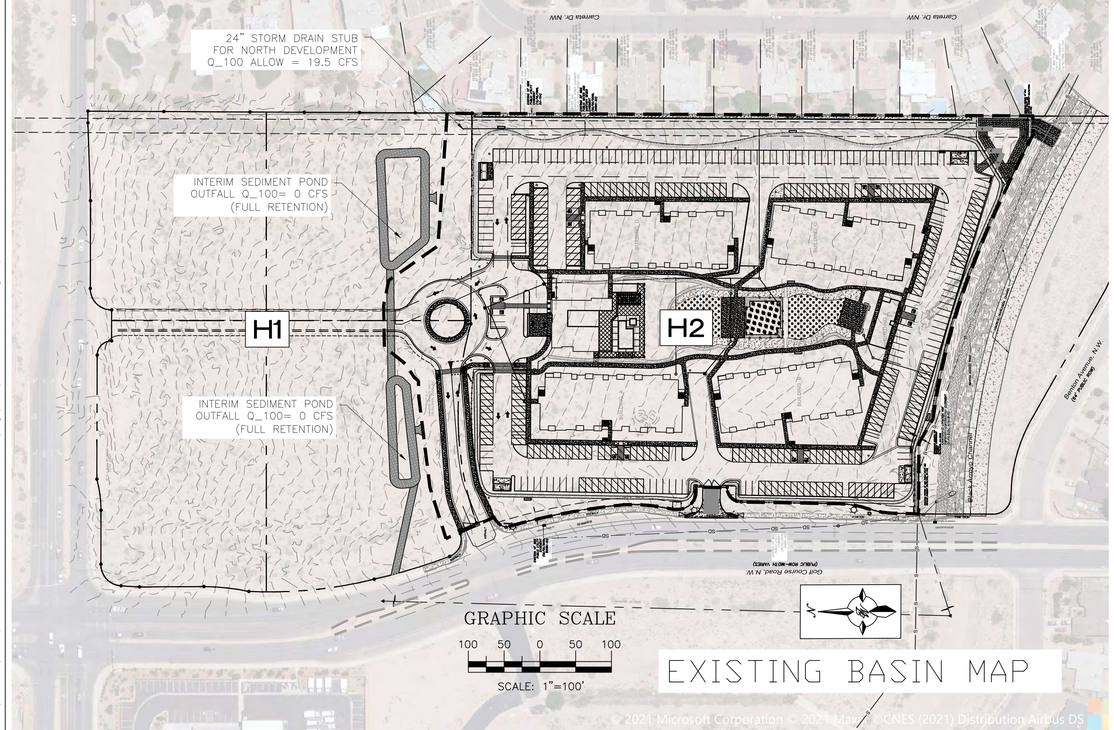
TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

___BUILDING PERMIT APPROVAL
___CERTIFICATE OF OCCUPANCY
___CONCEPTUAL TCL DRB APPROVAL
___PRELIMINARY PLAT APPROVAL
X SITE PLAN FOR SUB'D APPROVAL
___SITE PLAN FOR BLDG PERMIT APPROVAL
___FINAL PLAT APPROVAL
___SIA/RELEASE OF FINANCIAL GUARANTEE
___FOUNDATION PERMIT APPROVAL
___GRADING PERMIT APPROVAL
___SO-19 APPROVAL
___PAVING PERMIT APPROVAL
___GRADING PAD CERTIFICATION
___WORK ORDER APPROVAL
___CLOMR/LOMR
___FLOOD PLAN DEVELOPMENT PERMIT
___OTHER (SPECIFY)_____

DATE SUBMITTED: 9-14-22/ Luis Noriega



PROPOSED BASIN MAP



EXISTING BASIN MAP

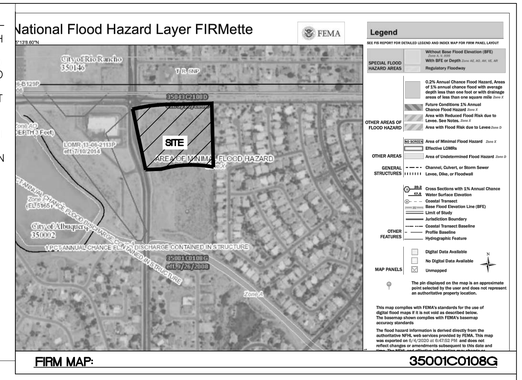
EXISTING CONDITIONS

THE PROPOSED COMMERCIAL PROJECT SITE IS LOCATED IN THE SOUTHEAST CORNER OF GOLF COURSE RD. AND WESTSIDE BLVD. THE SITE IS LOCATED WITHIN AN AREA WITH MINIMAL FLOOD RISK (ZONE X). THE SITE IS ALSO LOCATED NORTH OF THE WINTERGREEN APARTMENTS (HYDROLOGY FILE: A12D008D)

BASIN H1 IS CURRENTLY UNDEVELOPED, IS PARTLY GRADED AND IS CURRENTLY USED FOR SEDIMENT PONDING. DRAINAGE FROM BASIN H1 SHEET FLOWS SOUTH TOWARDS THE EXISTING RETENTION PONDS AND IS CONTAINED ONSITE. BASIN H2 AT THIS TIME IS UNDER CONSTRUCTION FOR NEW APARTMENTS. AS DESCRIBED IN THE APPROVED DRAINAGE REPORT (A12D008D) RUNOFF FROM BASIN H2 DRAINS SOUTH INTO AN STORM WATER QUALITY POND. THE POND OUTFALLS INTO THE AMAFCA BLACK ARROYO CHANNEL. A 24" DRAINAGE PIPE IS BEING EXTENDED TO THE SOUTHEAST CORNER OF THE PROJECT SITE AND STUBBED OUT. BASED ON THE WINTERGREEN DRAINAGE REPORT (A12D008D) THE 24" DRAINAGE PIPE HAS ADDITIONAL CAPACITY FOR 19.5 CFS. THEREFORE DEVELOPED BASIN H1 WILL REQUIRE FLOW CONTROL STRUCTURES TO ACHIEVE THE ALLOWABLE FLOW RATE.

PROPOSED CONDITIONS

THE PROJECT AREA IS INTENDED FOR COMMERCIAL USES. EACH DEVELOPMENT SITE IS TO DRAIN TO A POND OR SIMILAR STRUCTURE WHICH WILL BE UTILIZED TO RETAIN THE REQUIRED STORM WATER QUALITY VOLUME PER CURRENT CITY CODES AND REGULATIONS. ADDITIONALLY DUE TO CAPACITY CONSTRAINTS DOWNSTREAM EACH COMMERCIAL SITE IS ALLOWED TO DRAIN AT ROUGHLY 2.7 CFS PER ACRE. THE REDUCTION IN FLOW IS TO BE ACHIEVED VIA A FLOW CONTROL STRUCTURE SUCH AS A DETENTION POND. STORM WATER WILL THEN BE ROUTED TO AN INTERNAL DRAINAGE PIPE SYSTEM UNDER THE SHARED ACCESS DRIVE AND DRAINAGE EASEMENTS. THE PROPOSED STORM DRAIN PIPE SYSTEM IS TO CONNECT TO THE 24" STUB ON THE SOUTHEAST CORNER OF THE COMMERCIAL DEVELOPMENT.



DPM Weighted E Method CH 6

Precipitation Zone 1

Golf Course and Westside (Comercial)

TWLLC **Date** 9/12/2022

Equations:

Weighted E = Ea*Aa + Eb*Ab + Ec*Ac + Ed

Volume = Weighted E * Total Area

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

Existing Conditions

Basin ID	Tract	Area (sf)	Area (acres)	Area (sq miles)	Basin Descriptions: Treatment A %	Treatment A (acres)	Treatment B %	Treatment B (acres)	Treatment C %	Treatment C (acres)	Treatment D %	Treatment D (acres)	100-Year, 6-Hr: Weighted E (in)	Volume (ac-ft)	Flow cfs
H1	D-1	303,908	6.98	0.01090	80%	5.581	0%	0.000	20%	1.395	0%	0.000	0.630	0.366	12.60
H2	E-1	418,804	9.61	0.01502	0%	0.000	7%	0.673	18%	1.731	75%	7.211	1.902	1.524	36.13
Total		**722,712**	**16.59**	**0.02592**		**5.581**		**0.673**		**0.000**		**7.211**		**1.890**	**48.73**

Proposed Conditions

Basin ID	Tract	Area (sf)	Area (acres)	Area (sq miles)	Basin Descriptions: Treatment A %	Treatment A (acres)	Treatment B %	Treatment B (acres)	Treatment C %	Treatment C (acres)	Treatment D %	Treatment D (acres)	100-Year, 6-Hr: Weighted E (in)	Volume (ac-ft)	Flow cfs
D1	D-1	81,216	1.86	0.00291	0%	0.000	5%	0.093	10%	0.186	85%	1.585	2.036	0.316	7.27
D2	E-1	76,112	1.75	0.00273	0%	0.000	5%	0.087	10%	0.175	85%	1.485	2.036	0.296	6.81
D3	E-1	65,880	1.51	0.00236	0%	0.000	5%	0.076	10%	0.151	85%	1.286	2.036	0.257	5.89
D4	E-1	61,450	1.41	0.00220	0%	0.000	5%	0.071	10%	0.141	85%	1.199	2.036	0.239	5.50
D5	E-1	19,250	0.44	0.00069	0%	0.000	5%	0.022	5%	0.022	90%	0.398	2.100	0.077	1.75
H2	E-1	418,804	9.61	0.01502	0%	0.000	7%	0.673	18%	1.731	75%	7.211	1.902	1.524	36.13
Total		**722,712**	**16.59**	**0.02592**		**0.000**		**1.022**		**2.406**		**13.163**		**2.710**	**63.345**

Excess Precipitation, E (in.)		
Zone 1	100-Year	10-Year
Ea	0.55	0.11
Eb	0.73	0.26
Ec	0.95	0.43
Ed	2.24	1.43

Peak Discharge (cfs/acre)		
Zone 1	100-Year	10-Year
Qa	1.54	0.3
Qb	2.16	0.81
Qc	2.87	1.46
Qd	4.12	2.57

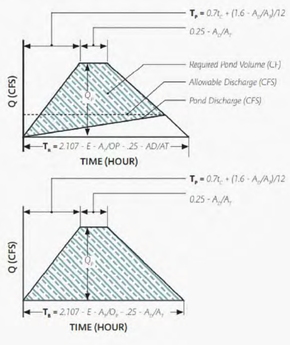
Stormwater Quality Volume

Total Impervious Area =	ΣArea in "Treatment D"	
Retainage depth = 0.42" Per DPM Pg. 272	0.035	foot
Retention Volume =	**=0.035 x area**	CF

DPM HYDROGRAPH FOR SMALL WATERSHED CALCULATIONS

Pond	E	A_T (AC)	A_D (AC)	Q_P (CFS)	T_C (HR)	T_B (HR)	T_P (HR)	0.25(AD/AT) (Hr)	T_B (MIN)	T_P (MIN)	0.25(AD/AT) (min)	Allowable Q (CFS)	Total Volume (CF)	Required Pond Volume (CF)
1	2.036	1.86	1.585	7.27	0.2	0.885	0.202	0.21303763	53.07	12.139247	12.78225806	**5.04**	14362.4	**6335.6**
2	2.036	1.75	1.485	6.81	0.2	0.890	0.203	0.21214286	53.41	12.157143	12.72857143	**4.74**	13513.0	**5911.9**
3	2.036	1.51	1.286	5.89	0.2	0.887	0.202	0.21291391	53.21	12.141722	12.77483444	**4.09**	11659.8	**5126.0**
4	2.036	1.41	1.199	5.5	0.2	0.887	0.202	0.21258865	53.23	12.148227	12.75531915	**3.82**	10887.6	**4784.4**
TOTAL		6.53	5.555	25.47								**17.7**	50423	**22158**

FIGURE 6.2.5 **Time to Peak in 10-years**



Pond 1 Volume Calculation		
Area at Mid Depth	1,463	Sq. Ft.
Depth of Pond	4.6	Ft.
Volume	6,730	Cubic Ft.

Pond 2 Volume Calculation		
Area at Mid Depth	1,835	Sq. Ft.
Depth of Pond	3.5	Ft.
Volume	6,423	Cubic Ft.

Pond 3 Volume Calculation		
Area at Mid Depth	1,408	Sq. Ft.
Depth of Pond	4.8	Ft.
Volume	6,688	Cubic Ft.

Pond 4 Volume Calculation		
Area at Mid Depth	1,298	Sq. Ft.
Depth of Pond	4.6	Ft.
Volume	5,971	Cubic Ft.

SWQV Pond Volume Calculation			
BASIN ID	AREA D (AC)	AREA D (SF)	SWQV (CF)
D1	1.585	69033.6	2416.176
D2	1.485	64695.2	2264.332
D3	1.286	55998	1959.93
D4	1.199	52232.5	1828.1375
D5	0.398	17325	606.375
TOTAL REQUIRED			9,075
TOTAL PROVIDED			**25,811**

ENGINEER'S SEAL

RONALD R. BOHANNAN NEW MEXICO 7868 PROFESSIONAL ENGINEER

09/14/2022

RONALD R. BOHANNAN P.E. #7868

GOLF COURSE + WESTSIDE
ALBUQUERQUE, NM

CONCEPT GRADING AND DRAINAGE BASIN MAP.

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

DRAWN BY RG

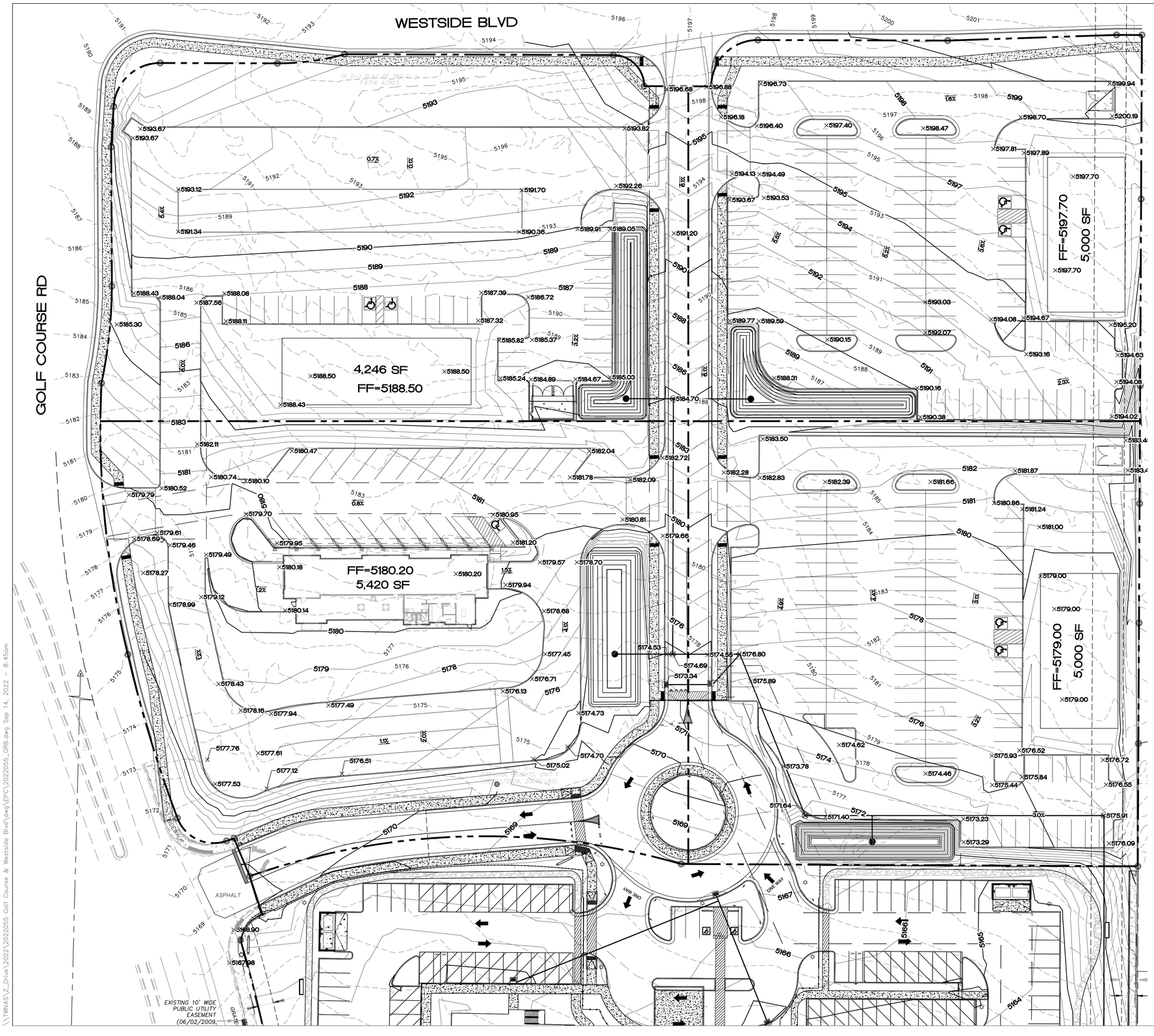
DATE 08/31/2022

2022055_BASINS

SHEET # **C2.1**

JOB # 2022025

\\TWNAS\Z_Drive\2022\2022055 Golf Course & Westside Blvd\dwg\EPC\2022055_BASINS.dwg Sep 14, 2022 - 8:48am



LEGEND

- CURB & GUTTER
- BOUNDARY LINE
- EASEMENT
- CENTERLINE
- RIGHT–OF–WAY
- BUILDING
- SIDEWALK
- SCREEN WALL
- RETAINING WALL
- 5010 CONTOUR MAJOR
- 5011 CONTOUR MINOR
- x 5048.25 SPOT ELEVATION
- FLOW ARROW
- EXISTING CURB & GUTTER
- EXISTING BOUNDARY LINE
- 5010 EXISTING CONTOUR MAJOR
- 5011 EXISTING CONTOUR MINOR
- x 5048.25 EXISTING SPOT ELEVATION
- STORM DRAIN (18"–24")

NOTICE TO CONTRACTORS

1. BUILD SIDEWALK CULVERT PER COA STD DWG 2236.
2. CONTACT STORM DRAIN MAINTENANCE AT (505) 857-8033 TO SCHEDULE A MEETING PRIOR TO FORMING.
3. AN EXCAVATION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT-OF-WAY.
4. ALL WORK ON THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS, RULES AND REGULATIONS CONCERNING CONSTRUCTION SAFETY AND HEALTH.
5. 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.
6. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE LOCATIONS OF ALL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
7. BACKFILL COMPACTION SHALL BE ACCORDING TO TRAFFIC/STREET USE.
8. MAINTENANCE OF THE FACILITY SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY BEING SERVED.
9. WORK ON ARTERIAL STREETS MAY BE REQUIRED ON A 24-HOUR BASIS.
10. CONTRACTOR MUST CONTACT STORM DRAIN MAINTENANCE AT (505) 857-8033 TO SCHEDULE A CONSTRUCTION INSPECTION. FOR EXCAVATING AND BARRICADING INSPECTIONS, CONTACT CONSTRUCTION COORDINATION AT (505) 924-3416.

CAUTION
ALL EXISTING UTILITIES/TOPOGRAPHY 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.

NOTICE
TOPOGRAPHY WAS OBTAINED FROM PUBLIC COUNTY RECORDS, ENGINEER ON RECORD DOES NOT GUARANTEE THE ACCURACY OF THE INFORMATION SHOWN.

N

GRAPHIC SCALE
30 15 0 15 30
SCALE: 1"=30'

ENGINEER'S SEAL	GOLF COURSE + WESTSIDE ALBUQUERQUE, NM	DRAWN BY RG
RONALD R. BOHANNAN NEW MEXICO 7868 PROFESSIONAL ENGINEER 09/14/2022	**GRADING & DRAINAGE PLAN (CONCEPTUAL)**	*DATE* 08/31/2022
		2022055_GRB
		SHEET # **C2.2**
RONALD R. BOHANNAN P.E. #7868	*TIERRA WEST, LLC* 5571 MIDWAY PARK PLACE NE ALBUQUERQUE, NM 87109 (505) 858–3100 www.tierrawestllc.com	JOB # 2022025

\\TWNAS\Z_Drive\2022\2022055 Golf Course & Westside Blvd\dwg\EPC\2022055_GRB.dwg Sep 14, 2022 - 8:45am

WESTSIDE BLVD

GOLF COURSE RD

TR D-1 PLAT OF TRS D-1 & D-2
7.6716 ACRES

4 FT DIA STORM DRAIN (2208)
MANHOLE PER COA STD DWGS
RIM ELEV: 5184.70
INV WEST: 5178.22
INV EAST: 5178.22
INV SOUTH: 5177.22

PROPOSED POND 1
TOP AREA: 3,053 SF
BOTTOM AREA: 134 SF
TOP ELEV: 5185.00
BOTTOM ELEV: 5180.00

18" RCP PIPE

24" STANDPIPE
INLET INV: 5184.6
SEE DETAIL C2.4

PROPOSED POND 3
TOP AREA: 2,856 SF
BOTTOM AREA: 128 SF
TOP ELEV: 5187.00
BOTTOM ELEV: 5182.00

18" RCP PIPE

24" STANDPIPE
INLET INV: 5186.75
SEE DETAIL SHEET C2.4

ALL SIDE SLOPES SHALL BE STABILIZED WITH NATIVE SEED GRASS WITH AGGREGATE MULCH OR EQUAL (MUST SATISFY THE "FINAL STABILIZATION CRITERIA CGP 2.2.14.b.")

PROPOSED POND 2
TOP AREA: 3,343 SF
BOTTOM AREA: 714 SF
TOP ELEV: 5174.00
BOTTOM ELEV: 5170.00

18" RCP PIPE

24" RCP PIPE

4 FT DIA STORM DRAIN (2208)
MANHOLE PER COA STD DWGS
RIM ELEV: 5176.80
INV NORTH: 5169.69
INV WEST: 5169.79
INV EAST: 5169.59
INV SOUTH: 5169.89

4 FT DIA STORM DRAIN (2208)
MANHOLE PER COA STD DWGS
RIM ELEV: 5176.80
INV WEST: 5168.73
INV SOUTHWEST: 5168.83
INV SOUTH: 5168.63

18" RCP PIPE

24" RCP PIPE

4 FT DIA STORM DRAIN (2208)
MANHOLE PER COA STD DWGS
RIM ELEV: 5175.91
INV WEST: 5162.10
INV SOUTH: 5162.00

24" STANDPIPE
INLET INV: 5173.50
SEE DETAIL SHEET C2.4

PROPOSED ROCK SWALE SEE DETAIL SHEET C2.4

STANDARD TYPE C INLET
STD DWG 2205
RIM ELEV: 5173.34
INVERT ELEV: 5169.84

4 FT DIA STORM DRAIN (2208)
MANHOLE PER COA STD DWGS
RIM ELEV: 5171.64
INV NORTH: 5166.31
INV EAST: 5166.21

STANDARD TYPE C INLET
STD DWG 2205
RIM ELEV: 5173.34
INVERT ELEV: 5169.54

24" RCP PIPE

18" RCP PIPE

PROPOSED POND 4
TOP AREA: 2,455 SF
BOTTOM AREA: 337 SF
TOP ELEV: 5170.00
BOTTOM ELEV: 5165.00

24" STANDPIPE
INLET ELEV: 5169.60
SEE DETAIL SHEET C2.4

PROPOSED ROCK SWALE SEE DETAIL SHEET C2.4

ALL SIDE SLOPES SHALL BE STABILIZED WITH NATIVE SEED GRASS WITH AGGREGATE MULCH OR EQUAL (MUST SATISFY THE "FINAL STABILIZATION CRITERIA CGP 2.2.14.b.")

CONNECT TO 24" HDPE STUB INV. 5161.26 CONTRACTOR TO VERIFY INVERT.

ALL SIDE SLOPES SHALL BE STABILIZED WITH NATIVE SEED GRASS WITH AGGREGATE MULCH OR EQUAL (MUST SATISFY THE "FINAL STABILIZATION CRITERIA CGP 2.2.14.b.")

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EXISTING 10' WIDE PUBLIC UTILITY EASEMENT

GRATE

ONE WAY

LEGEND

- CURB & GUTTER
- BOUNDARY LINE
- EASEMENT
- CENTERLINE
- RIGHT-OF-WAY
- BUILDING
- SIDEWALK
- SCREEN WALL
- RETAINING WALL
- 5010 CONTOUR MAJOR
- 5011 CONTOUR MINOR
- x 5048.25 SPOT ELEVATION
- FLOW ARROW
- EXISTING CURB & GUTTER
- EXISTING BOUNDARY LINE
- 5010 EXISTING CONTOUR MAJOR
- 5011 EXISTING CONTOUR MINOR
- x 5048.25 EXISTING SPOT ELEVATION
- STORM DRAIN (18"-24")

NOTICE TO CONTRACTORS

1. BUILD SIDEWALK CULVERT PER COA STD DWG 2236.
2. CONTACT STORM DRAIN MAINTENANCE AT (505) 857-8033 TO SCHEDULE A MEETING PRIOR TO FORMING.
3. AN EXCAVATION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT-OF-WAY.
4. ALL WORK ON THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS, RULES AND REGULATIONS CONCERNING CONSTRUCTION SAFETY AND HEALTH.
5. 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.
6. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE LOCATIONS OF ALL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
7. BACKFILL COMPACTION SHALL BE ACCORDING TO TRAFFIC/STREET USE.
8. MAINTENANCE OF THE FACILITY SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY BEING SERVED.
9. WORK ON ARTERIAL STREETS MAY BE REQUIRED ON A 24-HOUR BASIS.
10. CONTRACTOR MUST CONTACT STORM DRAIN MAINTENANCE AT (505) 857-8033 TO SCHEDULE A CONSTRUCTION INSPECTION. FOR EXCAVATING AND BARRICADING INSPECTIONS, CONTACT CONSTRUCTION COORDINATION AT (505) 924-3416.

CAUTION
ALL EXISTING UTILITIES/TOPOGRAPHY 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.

NOTICE
TOPOGRAPHY WAS OBTAINED FROM PUBLIC COUNTY RECORDS, ENGINEER ON RECORD DOES NOT GUARANTEE THE ACCURACY OF THE INFORMATION SHOWN.

N

GRAPHIC SCALE
30 15 0 15 30
SCALE: 1"=30'

ENGINEER'S SEAL
RONALD R. BOHANNAN NEW MEXICO 7868 PROFESSIONAL ENGINEER
09/14/2022
RONALD R. BOHANNAN P.E. #7868

GOLF COURSE + WESTSIDE
ALBUQUERQUE, NM

INTERIM GRADING & DRAINAGE PLAN

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

DRAWN BY: RG
DATE: 08/31/2022
2022055_GRB
SHEET # C2.3
JOB # 2022025

Pond 1 Discharge-Orifice Calculations

POND 1 VOLUME CALCULATIONS

ELEVATION (ft)	AREA (sf)	VOLUME (cf)	CUMULATIVE VOLUME (cf)
80	134	0	0
81	652	393	393
82	1204	928	1321
83	1790	1497	2818
84	2408	2099	4917
84.6	2792	1560	6477
85	3053	1169	7646

POND 1 STORAGE FUNCTION

ACTUAL ELEV.	H (FT)	VOLUME (CF)	Q (CFS)	VOLUME (AC-FT)
80	0.00	0	0.00	0.0000
81	0.00	393	0.00	0.0090
82	0.00	1321	0.00	0.0303
83	0.00	2818	0.00	0.0647
84	0.00	4917	0.00	0.1129
84.6	0.00	6477	0.00	0.1487
85	0.40	7646	9.56	0.1755

Pond 1 Orifice Equation

Q =	CA(2gh)^(1/2)
C =	0.6
DIA (Ft)	2
A (SF) =	3.14
H (Ft) =	Head
Q (CFS)=	Flow

Pond 2 Discharge-Orifice Calculations

POND 2 VOLUME CALCULATIONS

ELEVATION (ft)	AREA (sf)	VOLUME (cf)	CUMULATIVE VOLUME (cf)
70	714	0	0
71	1265	989.5	990
72	1888	1576.5	2566
73	2584	2236	4802
73.5	2956	1385	6187
74	3343	1574.75	7762

POND 2 STORAGE FUNCTION

ACTUAL ELEV.	H (FT)	VOLUME (CF)	Q (CFS)	VOLUME (AC-FT)
70	0.00	0	0.00	0.0000
71	0.00	990	0.00	0.0227
72	0.00	2566	0.00	0.0589
73	0.00	4802	0.00	0.1102
73.5	0.00	6187	0.00	0.1420
74	0.50	7762	10.69	0.1782

Pond 2 Orifice Equation

Q =	CA(2gh)^(1/2)
C =	0.6
DIA (Ft)	2
A (SF) =	3.14
H (Ft) =	Head
Q (CFS)=	Flow

Pond 3 Discharge-Weir Calculations

POND 3 VOLUME CALCULATIONS

ELEVATION (ft)	AREA (sf)	VOLUME (cf)	CUMULATIVE VOLUME (cf)
82	128	0	0
83	379	253.5	254
84	952	665.5	919
85	1560	1256	2175
86	2195	1877.5	4053
86.75	2688	1831.125	5884
87	2856	693	6577

POND 3 STORAGE FUNCTION

ACTUAL ELEV.	H (FT)	VOLUME (CF)	Q (CFS)	VOLUME (AC-FT)
82	0.00	0	0.00	0.0000
83	0.00	254	0.00	0.0058
84	0.00	919	0.00	0.0211
85	0.00	2175	0.00	0.0499
86	0.00	4053	0.00	0.0930
86.75	0.00	5884	#REF!	0.1351
87	0.25	6577	7.56	0.1510

Pond 3 Orifice Equation

Q =	CA(2gh)^(1/2)
C =	0.6
DIA (Ft)	2
A (SF) =	3.14
H (Ft) =	Head
Q (CFS)=	Flow

Pond 4 Discharge-Weir Calculations

POND 4 VOLUME CALCULATIONS

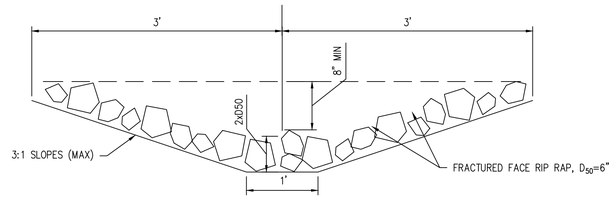
ELEVATION (ft)	AREA (sf)	VOLUME (cf)	CUMULATIVE VOLUME (cf)
65	337	0	0
66	698	517.5	518
67	1091	894.5	1412
68	1516	1303.5	2716
69	1973	1744.5	4460
69.6	2259	1269.6	5730
70	2455	942.8	6672

POND 4 STORAGE FUNCTION

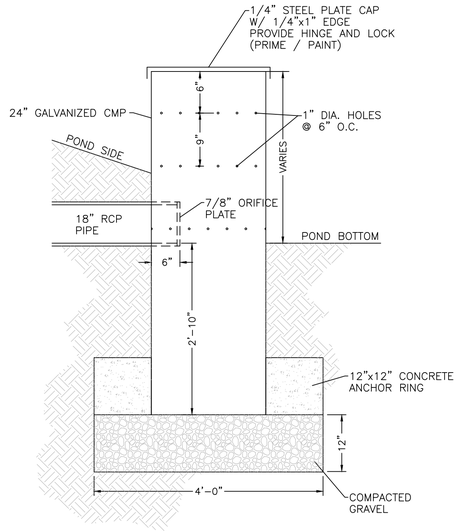
ACTUAL ELEV.	H (FT)	VOLUME (CF)	Q (CFS)	VOLUME (AC-FT)
65	0.00	0	0.00	0.0000
66	0.00	518	0.00	0.0119
67	0.00	1412	0.00	0.0324
68	0.00	2716	0.00	0.0623
69	0.00	4460	0.00	0.1024
69.6	0.00	5730	0.00	0.1315
70	0.40	6672	9.56	0.1532

Pond 4 Orifice Equation

Q =	CA(2gh)^(1/2)
C =	0.6
DIA (Ft)	2
A (SF) =	3.14
H (Ft) =	Head
Q (CFS)=	Flow



ROCK SWALE
NTS



STAND PIPE DETAIL
NTS

ENGINEER'S SEAL

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